

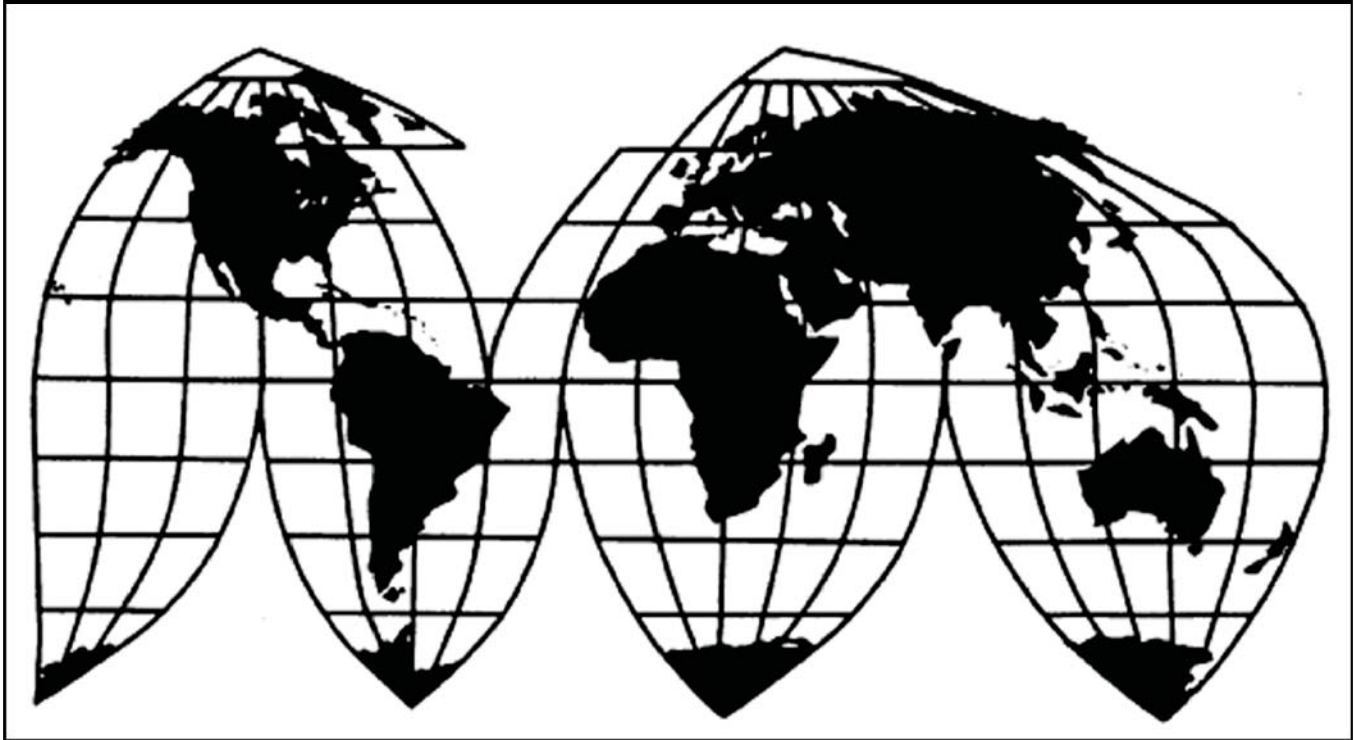
*In the Matter of*  
**Certain Bulk Welding Wire Containers and  
Components Thereof and Welding Wire**

Investigation No. 337-TA-686

Publication 4287

November 2011

**U.S. International Trade Commission**



Washington, DC 20436

# **U.S. International Trade Commission**

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# **U.S. International Trade Commission**

Washington, DC 20436  
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*In the Matter of*

## **Certain Bulk Welding Wire Containers and Components Thereof and Welding Wire**

Investigation No. 337-TA-686





**UNITED STATES INTERNATIONAL TRADE COMMISSION**  
**Washington, D.C. 20436**

**In the Matter of**

**CERTAIN BULK WELDING WIRE  
CONTAINERS AND COMPONENTS  
THEREOF AND WELDING WIRE**

**Investigation No. 337-TA-686**

**NOTICE OF COMMISSION DETERMINATION TO REVIEW-IN-PART A FINAL  
INITIAL DETERMINATION AND TO AFFIRM THE FINDING OF NO VIOLATION  
OF SECTION 337; TERMINATION OF THE INVESTIGATION**

**AGENCY:** U.S. International Trade Commission.

**ACTION:** Notice.

**SUMMARY:** Notice is hereby given that the U.S. International Trade Commission has determined to review a portion of the final initial determination (“ID”) issued by the presiding administrative law judge (“ALJ”) on July 29, 2010 finding no violation of section 337 in the above-captioned investigation, but to affirm his finding of no violation.

**FOR FURTHER INFORMATION CONTACT:** Jia Chen, Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 708-4737. Copies of non-confidential documents filed in connection with this investigation are or will be available for inspection during official business hours (8:45 a.m. to 5:15 p.m.) in the Office of the Secretary, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 205-2000. General information concerning the Commission may also be obtained by accessing its Internet server at <http://www.usitc.gov>. The public record for this investigation may be viewed on the Commission’s electronic docket (EDIS) at <http://edis.usitc.gov>. Hearing-impaired persons are advised that information on this matter can be obtained by contacting the Commission’s TDD terminal on (202) 205-1810.

**SUPPLEMENTARY INFORMATION:** The Commission instituted this investigation on September 8, 2009, based on a complaint filed by the Lincoln Electric Company of Cleveland, Ohio and Lincoln Global, Inc. of City of Industry, California (collectively, “Lincoln”). *74 Fed. Reg.* 46223 (Sept. 8, 2009). The complaint alleged violations of Section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain bulk welding wire containers, components thereof, and welding wire by reason of infringement of certain claims of United States Patent Nos. 6,260,781; 6,648,141; 6,708,864 (“the ‘864 patent”); 6,913,145; 7,309,038; 7,398,881; and 7,410,111. *Id.* The amended complaint named the following respondents: Atlantic China Welding Consumables, Inc. of Sichuan, China (“Atlantic”); The ESAB Group, Inc. of Florence, South Carolina

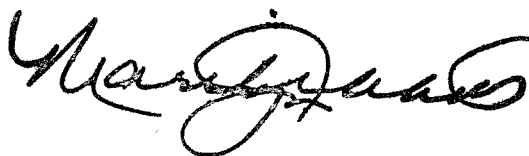
("ESAB"); Hyundai Welding Co., Ltd. of Seoul, Korea ("Hyundai"); Kiswel Co., Ltd. of Seoul, Korea ("Kiswel"); and Sidergas SpA of Ambrogio (Verona), Italy ("Sidergas"). 74 Fed. Reg. 61706 (Nov. 25, 2009). Respondents Hundai, Kiswel, and Atlantic were subsequently terminated from the investigation, leaving ESAB and Sidergas as the only respondents remaining. In addition, all but the '864 patent were terminated from this investigation.

On July 29, 2010, the ALJ issued a final ID finding no violation of Section 337 by respondents ESAB or Sidergas. The ALJ concluded that none of the accused ESAB and Sidergas products infringe asserted claims 3, 4, 6, 12, or 13 of the '864 patent. The ALJ further concluded that claim 3 of the '864 patent is invalid under 35 U.S.C. § 102(b) and that claims 4, 6, 12, and 13 of the '864 patent are valid and enforceable. The ALJ did find that complainant satisfied both the technical and the economic prong of the domestic industry requirement with respect to the '864 patent. On August 11, 2010, Lincoln filed a petition for review. On the same day, respondents ESAB and Sidergas filed a consolidated petition for review. The IA did not file a petition for review.

Having examined the record of this investigation, including the ALJ's final ID and the submissions of the parties, the Commission has determined to affirm the ALJ's determination that there is no violation of Section 337. Specifically, the Commission has determined to affirm the ALJ's determination that there is no literal infringement of the asserted claims. The Commission has also determined to affirm the ALJ's determination that there is no infringement of the asserted claims under the doctrine of equivalents based on (1) the ALJ's finding that substantial differences exist between the accused products and the asserted claims, and (2) the ALJ's application of *Johnson & Johnston Assoc. Inc. v. R.E. Services Co.*, 285 F.3d 1036 (Fed. Cir. 2002) (*en banc*). The Commission has determined to review the following four issues and to take no position on them: (1) the claim construction of the terms "substantially lying in a single plane" recited in independent claim 3 and "substantially in one plane" recited in independent claims 6 and 12; (2) the priority date of the asserted claims; (3) invalidity of claim 3 under 35 U.S.C. § 102(b); and (4) validity of claims 4, 6, 12, and 13 under 35 U.S.C. § 102(b). No other issues are being reviewed.

The authority for the Commission's determination is contained in section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337), and in sections 210.42-46 and 210.50 of the Commission's Rules of Practice and Procedure (19 C.F.R. §§ 210.42-46 and 210.50).

By order of the Commission.



Marilyn R. Abbott  
Secretary to the Commission

Issued: September 24, 2010


**CERTAIN BULK WELDING WIRE CONTAINERS AND  
COMPONENTS THEREOF AND WELDING WIRE**

**337-TA-686**

**CERTIFICATE OF SERVICE**

I, Marilyn R. Abbott, hereby certify that the attached **NOTICE OF COMMISSION DETERMINATION TO REVIEW-IN-PART A FINAL INITIAL DETERMINATION AND TO AFFIRM THE FINDING OF NO VIOLATION OF SECTION 337; TERMINATION OF THE INVESTIGATION** has been served by hand upon the Commission Investigative Attorney, Benjamin Levi, Esq., and the following parties as indicated, on

September 27, 2010

  
Marilyn R. Abbott, Secretary *JV6*  
U.S. International Trade Commission  
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Washington, DC 20436

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PUBLIC VERSION

UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C.

In the Matter of

CERTAIN BULK WELDING WIRE  
CONTAINERS AND COMPONENTS  
THEREOF AND WELDING WIRE

Inv. Nos. 337-TA-686

INITIAL DETERMINATION ON VIOLATION OF SECTION 337 AND  
RECOMMENDED DETERMINATION ON REMEDY AND BOND

Administrative Law Judge Robert K. Rogers, Jr.

(July 29, 2010)

**Appearances:**

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For the Commission Investigative Staff:

Lynn I. Levine, Esq., Director; Thomas S. Fusco, Esq., Supervisory Attorney; Benjamin Levi,

**PUBLIC VERSION**

Esq., Investigative Attorney; of the Office of Unfair Import Investigations, U.S. International Trade Commission, of Washington, DC

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**PUBLIC VERSION**

Pursuant to the Notice of Investigation and Rule 210.42 of the Rules of Practice and Procedure of the United States International Trade Commission, this is the Administrative Law Judge's Final Initial Determination in the matter of Certain Bulk Welding Wire Containers & Components Thereof & Welding Wire, Investigation No. 337-TA-686.

The Administrative Law Judge hereby determines that a violation of Section 337 of the Tariff Act of 1930, as amended, has not been found in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain bulk welding wire containers and components thereof and welding wire, in connection with U.S. Patent No. 6,708,864. Furthermore, the Administrative Law Judge hereby determines that a domestic industry in the United States exists that practices U.S. Patent No. 6,708,864.

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The following abbreviations may be used in this Initial Determination:

<b>CDX</b>	Complainants' demonstrative exhibit
<b>CIB</b>	Complainants' initial post-hearing brief
<b>CPX</b>	Complainants' physical exhibit
<b>CRB</b>	Complainants' reply post-hearing brief
<b>CX</b>	Complainants' exhibit
<b>Dep.</b>	Deposition
<b>JSRCC</b>	Joint Statement Regarding Claim Construction
<b>JX</b>	Joint Exhibit
<b>RDX</b>	Respondents' demonstrative exhibit
<b>EIB</b>	ESAB's initial post-hearing brief
<b>SGIB</b>	Sidergas' initial post-hearing brief
<b>RPX</b>	Respondents' physical exhibit
<b>ERB</b>	ESAB's reply post-hearing brief
<b>SGRB</b>	Sidergas' reply post-hearing brief
<b>RRX</b>	Respondents' rebuttal exhibit
<b>RX</b>	Respondents' exhibit
<b>SIB</b>	Staff's initial post-hearing brief
<b>SRB</b>	Staff's reply post-hearing brief
<b>Tr.</b>	Transcript
<b>CPHB</b>	Complainants' pre-hearing brief
<b>EPHB</b>	ESAB's pre-hearing brief
<b>SGPHB</b>	Sidergas' pre-hearing brief
<b>SPHB</b>	Staff's pre-hearing brief

## PUBLIC VERSION

### I. BACKGROUND

#### A. Procedural History

On September 2, 2009, the Commission issued a Notice of Investigation in this matter to determine:

[W]hether there is a violation of subsection (a)(1)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain bulk welding wire containers or components thereof or welding wire that infringe one or more of claim 1 of U.S. Patent No. 6,260,781; claims 1, 4, 8, and 9 of U.S. Patent No. 6,648,141; claims 3, 4, 6, 12, and 13 of U.S. Patent No. 6,708,864; claim 4 of U.S. Patent No. 6,913,145; claims 1-7, 12, 13, 16, 19-24, 31, 33-36, 43, and 46 of U.S. Patent No. 7,309,038; claim 1 of U.S. Patent No. 7,398,881; and claim 11 of U.S. Patent No. 7,410,111, and whether an industry in the United States exists as required by subsection (a)(2) of section 337.

(See Notice of Investigation.) The investigation was instituted upon publication of the Notice of Investigation in the *Federal Register* on September 8, 2009. See 74 Fed. Reg. 46223-46224 (2009). 19 CFR § 210.10(b).

The complainants are The Lincoln Electric Company of Cleveland, Ohio and Lincoln Global, Inc. of City of Industry, California. The respondents were Atlantic China Welding Consumables, Inc. of Sichuan, China; ESAB AB of Göteborg, Sweden; Hyundai Welding Co., Ltd. of Seoul, Korea; Kisol Co., Ltd. of Seoul, Korea; and Sidergas SpA of Verona, Italy. The Commission Investigative Staff of the Office of Unfair Import Investigations is also a party in this investigation.

On October 30, 2009, I issued an initial determination granting a motion to amend the Complaint and Notice of Investigation filed by complainants The Lincoln Electric Company and Lincoln Global, Inc. (collectively "Lincoln"). The amendment removed ESAB AB as a

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respondent and added The ESAB Group, Inc. of Florence, South Carolina as a respondent. On November 19, 2009, the Commission issued a notice of decision not to review the initial determination.

On November 12, 2009, I issued an initial determination granting Lincoln's motion to terminate the investigation in part. Specifically, the investigation was terminated with respect to U.S. Patent Nos. 6,648,141; 6,913,145; 7,398,881; and 7,410,111. On December 7, 2009, the Commission issued a notice of decision not to review the initial determination.

On December 1, 2009, I issued an initial determination granting a joint motion to terminate the investigation as to respondent Hyundai Welding Co., Ltd. on the basis of a settlement agreement. On December 16, 2009, the Commission issued a notice of decision not to review the initial determination.

On December 15, 2009, I issued an initial determination granting Lincoln's motion to terminate the investigation in part. Specifically, the investigation was terminated with respect to U.S. Patent No. 6,260,781. On January 11, 2010, the Commission issued a notice of decision not to review the initial determination.

On January 4, 2010, I issued an initial determination granting a joint motion to terminate the investigation as to respondent Kiswel Ltd. on the basis of a settlement agreement. On January 21, 2010, the Commission issued a notice of decision not to review the initial determination.

On January 11, 2010, I issued an initial determination granting Lincoln's motion to terminate the investigation as to respondent Atlantic China Welding Consumables, Inc. on the basis of a withdrawal of all allegations against respondent Atlantic China Welding Consumables, Inc. On January 27, 2010, the Commission issued a notice of decision not to review the initial



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determination.

On January 12, 2010, I issued an initial determination granting Lincoln's motion to terminate the investigation in part. Specifically, the investigation was terminated with respect to U.S. Patent No. 7,309,038. On January 27, 2010, the Commission issued a notice of decision not to review the initial determination.

I denied all summary determination motions filed by the parties.

An evidentiary hearing was conducted before me from April 5, 2010 through April 8, 2010. Lincoln, The ESAB Group, Inc. ("ESAB"), Sidergas SpA ("Sidergas"),<sup>1</sup> and the Commission Investigative Staff ("Staff") participated in the hearing. In support of its case-in-chief and rebuttal case, Lincoln called the following witnesses:

- George D. Blankenship (President, Lincoln Electric North America, Inc. & President/CEO, Lincoln Global, Inc.);
- James T. Land (Manager of International Engineering, The Lincoln Electric Company, Inc.);
- Dennis K. Hartman (Project Engineer, The Lincoln Electric Company, Inc.);
- Dr. Edward M. Caulfield (expert witness); and
- Dr. Lee Swanger (expert witness).

In support of their case-in-chief and rebuttal case, Respondents called the following witnesses:

- Richard G. McBride (Engineering Manager, The ESAB Group, Inc.);
- Dr. Stuart Brown (expert witness);
- Carlo Gelmetti (Marketing & Sales Manager, Sidergas, SpA);

---

<sup>1</sup> ESAB and Sidergas will be referred to collectively as "Respondents."

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- Dr. Peter Savoy (expert witness); and
- Robert Gilmour (former employee at Praxair Inc.).

In addition, various deposition transcripts were received into evidence in lieu of direct witness statements or live testimony.

After the hearing, post-hearing briefs and reply briefs were filed on April 30, 2010 and May 7, 2010, respectively.

### **B. The Private Parties**

#### **1. Lincoln**

The Lincoln Electric Company is an Ohio corporation headquartered in Cleveland, Ohio. (CX-410C; CX-376C at Q. 9.) Lincoln Global, Inc. is a Delaware corporation headquartered in City of Industry, California. (CX-410C; CX-376C at Q. 9.) Lincoln Global, Inc. was formed to own the intellectual property portfolio developed by Lincoln Electric. (CX-367C at Q. 8.) Both companies are subsidiaries of Lincoln Electric Holdings, Inc. (CX-376C at Q. 3.)

#### **2. Respondents**

ESAB is a Delaware corporation based in Florence, South Carolina. (RX-95C at Q. 7.) Sidergas is an Italian corporation with its principal place of business at Viale Rimembranza 17, 37010 S. Ambrogio, Verona, Italy. (CX-395C at 15.)

### **C. Overview Of The Patent At Issue**

The sole patent remaining in this investigation is U.S. Patent No. 6,708,864 (“the ‘864 patent”). It is entitled “‘S’ Shaped Cast In Wire,” and the named inventors are Otto Ferguson, III and Dennis K. Hartman. The ‘864 patent was filed on March 26, 2002, and it claims priority to a provisional application filed on June 15, 2001. The ‘864 patent issued on March 23, 2004. The Abstract of the ‘864 patent provides the following:

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A weld wire for storage on a spool of weld wire. The weld wire has a substantially linear cast in the form of an undulating curve that generally lies in a single plane. The undulating curve is a succession of generally semi-circular sections having a generally fixed radius of curvature. The linear cast is formed on the weld wire prior to the weld wire being wound on the spool of weld wire. The linear cast is at least partially retained on the weld wire after the weld wire is unwound from the spool and during the feeding of the weld wire through a welding machine.

(JX-1.)

### **D. Products At Issue**

Lincoln identifies the following ESAB products as the products accused of infringing the '864 patent: OK AristoRod™ 12.50 weld wire with 0.035 inch, 0.045 inch and 0.052 inch diameters; MIG-3 and MIG-6 weld wire with 0.035 inch, 0.045 inch and 0.052 inch diameters; and Arc-Plus 6 weld wire with 0.035 inch, 0.045 inch and 0.052 inch diameters. (CIB at 20.)

Lincoln identifies the following Sidergas products as the products accused of infringing the '864 patent: ProStar® by Praxair PAC 330, 990 and 1200, and similar packaging, including Sidergas' S-3 and S-6 weld wire with 0.035 inch and 0.045 inch diameters. (CIB at 21.) Lincoln states that the relevant Lincoln products are the Exact-Trak weld wire products as well as the Accu-Pak and Accu-Trak bulk wire products. (CIB at 19.)

## **II. JURISDICTION**

### **A. Subject Matter Jurisdiction**

The complaint alleges that ESAB and Sidergas have violated Subsection 337(a)(1)(B) by the importation and sale of products that infringe the asserted patents. I find that ESAB imports into the United States, sells for importation, or sells within the United States after importation products that Lincoln has accused of infringement in this investigation. (RX-95C at Q. 7-15.) I find that Sidergas imports into the United States, sells for importation, or sells within the United States after importation products that Lincoln has accused of infringement in this investigation.

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(CX-395C at 14, 16-19.) Thus, I find that the Commission has subject matter jurisdiction over this investigation under Section 337 of the Tariff Act of 1930. *See Amgen, Inc. v. United States Int'l Trade Comm'n*, 902 F.2d 1532, 1536 (Fed. Cir. 1990).

### **B. Personal Jurisdiction**

ESAB and Sidergas both responded to the complaint and notice of investigation, participated in the investigation, made an appearance at the hearing, and submitted post-hearing briefs. Thus, I find that ESAB and Sidergas submitted to the personal jurisdiction of the Commission. *See Certain Miniature Hacksaws*, Inv. No. 337-TA-237, Initial Determination, 1986 WL 379287 (October 15, 1986).

### **C. In Rem Jurisdiction**

The Commission has *in rem* jurisdiction over the products at issue by virtue of the finding that accused products have been imported into the United States. *See Sealed Air Corp. v. United States Int'l Trade Comm'n*, 645 F.2d 976, 985 (C.C.P.A. 1981).

## **III. CLAIM CONSTRUCTION**

### **A. Applicable Law**

“An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996) (citation omitted). Claim construction “is a matter of law exclusively for the court.” *Id.* at 970-71. “The construction of claims is simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims.” *Embrex, Inc. v. Serv. Eng'g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000). “[O]nly those [claim]

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terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.” *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Claim construction focuses on the intrinsic evidence, which consists of the claims themselves, the specification, and the prosecution history. *See generally Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (*en banc*). The Federal Circuit in *Phillips* explained that in construing terms, courts must analyze each of these components to determine the “ordinary and customary meaning of a claim term,” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Id.* at 1313.

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’” *Id.* at 1312 (citations omitted). “Quite apart from the written description and the prosecution history, the claims themselves provide substantial guidance as to the meaning of particular claim terms.” *Id.* at 1314. For example, “the context in which a term is used in the asserted claim can be highly instructive,” and “[o]ther claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.” *Id.*

“[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” *Id.* (citation omitted). “The longstanding difficulty is the contrasting nature of the axioms that (a) a claim must be read in view of the specification and (b) a court may not read a limitation into a claim from the specification.” *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1117 (Fed. Cir. 2004). The Federal Circuit has explained that there are certain instances when the specification may limit the meaning of the claim language:

[O]ur cases recognize that the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise

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possess. In such cases, the inventor's lexicography governs. In other cases, the specification may reveal an intentional disclaimer, or disavowal, of claim scope by the inventor. In that instance as well, the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive.

*Phillips*, 415 F.3d at 1316.

In addition to the claims and the specification, the prosecution history should be examined if in evidence. "The prosecution history...consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent. Like the specification, the prosecution history provides evidence of how the PTO and the inventor understood the patent." *Id.* at 1317 (citation omitted). "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*

If the intrinsic evidence does not establish the meaning of a claim, then extrinsic evidence may be considered. Extrinsic evidence consists of all evidence external to the patent and the prosecution history, including dictionaries, inventor testimony, expert testimony and learned treatises. *Id.* at 1317. Extrinsic evidence is generally viewed "as less reliable than the patent and its prosecution history in determining how to read claim terms[.]" *Id.* at 1318. "The court may receive extrinsic evidence to educate itself about the invention and the relevant technology, but the court may not use extrinsic evidence to arrive at a claim construction that is clearly at odds with the construction mandated by the intrinsic evidence." *Elkay Mfg. Co. v. Ebco Mfg. Co.*, 192 F.3d 973, 977 (Fed. Cir. 1999).

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### B. The '864 Patent

#### 1. "On a Spool"

The term "on a spool" appears in asserted claims 3, 6 and 12.

**Lincoln's Position:** Lincoln's primary position is that the term "on a spool" is not an affirmative limitation. (Citing CX-377C at Q. 73-74.) Because of this, Lincoln submits that the construction of this term is unnecessary. (CIB at 40.)

Lincoln argues that a person of ordinary skill in the art would readily recognize that the '864 patent and each of the asserted claims of the '864 patent are directed to a "weld wire" having certain physical properties. Lincoln asserts that the claims are not directed to a combination of a weld wire and some weld wire delivery system. Lincoln says that each of the asserted claims clearly claim "[a] weld wire...". (Citing JX-1 at claims 3, 6, and 12.) (CIB at 40-41.)

Lincoln notes that the '864 patent expressly states that "[t]he present invention pertains to an improved weld wire and a process for making the improved weld wire for use in various types of welding machines." (Citing JX-1 at 2:25-27.) Lincoln continues that the '864 patent describes the problem with prior wire is the wire shape, which has an effect on the consistency of bead placement and that a "wire" with no shape memory (*i.e.*, "killed" wire) results in inconsistent positioning of the weld wire as it exits the welding gun. (*Id.* at 1:15-57.) Lincoln asserts that to solve this problem, the '864 patent states that "the use of shape memory *weld wire* in accordance with the present invention" results in a consistent weld bead. (*Id.* at 2:54-59, 7:59-8:19 (emphasis added by Lincoln).) Lincoln states that nowhere does the '864 patent indicate that the weld wire must be placed on or be taken off of a "spool" (as defined by Respondents) to achieve any of the stated benefits. (CIB at 41.)

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Lincoln argues that the importance of imparting shape memory in a “weld wire” was echoed during prosecution of the ‘864 patent and notes, for example, that during prosecution applicants pointed out to the Examiner that “the shape memory imparted on the weld wire of the present invention is used to improve the quality of the weld bead and facilitate formation of the weld bead.” (Citing JX-2 at LEITC000975.) Lincoln alleges that nowhere did applicant state that the invention was a weld wire coupled to some structural “spool” device, or that the spool was a necessary feature of the claimed invention. Lincoln concludes that to read the language “on a spool” or “on a spool of weld wire” into the claim as an affirmative limitation ignores the entirety and importance of the intrinsic record in contradiction to well settled law. (Citing *Phillips*, 415 F.3d at 1313.) (CIB at 41-42.)

Lincoln says that since the issuance of Order No. 36 and the pretrial briefing, the Federal Circuit has explicitly held that the *Catalina* analysis applies to language in the preamble and body of the claims and therefore such claim language can be interpreted to be intended use, and Lincoln maintains its position that on the spool and spool of weld wire are statements of intended use of the term weld wire. (Citing *Marrin*, 2010 WL 1007727; CIB at Section III.A.1.) (CIB at 42.)

Lincoln indicates this language was already construed in Order No. 36. Specifically, in response to Sidergas’ motion no. 32, Lincoln says that Order No. 36 addressed the import of the “on a spool” language of the asserted claims and agreed that “weld wire that is not stored on a spool may infringe claim 3,” so long as “it has the required shape memory, and that the shape memory would be at least partially imparted on the wire prior to winding on a spool.” (Citing Order No. 36 at 11.) Lincoln asserts that, with respect to claims 6 and 12, Order No. 36 also determined that no physical spool is required, but rather that “the shape memory must be



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imparted at least partially prior to the wire being wound on a spool, and that the shape memory must be at least partially retained when the wire is unwound from the spool.” (*Id.* at 12.) (CIB at 42.)

Lincoln argues that in reading Order No. 36, the language “on a spool” must be read as it appears in the claim, which is “spool of weld wire.” Lincoln asserts that Respondents’ and Staff’s constructions omit the critical claim language “of weld wire” which clarifies the claim language “on a spool.” (Citing JX-1 at claims 3, 6 and 12.) (CIB at 42-43.)

Lincoln continues to the extent that consideration of the term “spool” is necessary, or that this term must be construed, the actual language found in the asserted claims is “on a spool of weld wire” and it is this language that must be considered. (Citing JX-1 at claims 3, 6, and 12; CX-424C at Q.14, 23.) Lincoln asserts that “[b]ecause a person of ordinary skill in the art would readily understand this language, it requires no construction or interpretation to understand that the referenced ‘spool of weld wire’ is not a separate object, but the weld wire itself.” *Id.* Lincoln avers that the term “spool” has been used in the industry of the bulk weld wire products to describe the coil or stack of wire found in a box or drum container. (Citing Tr. at 662:6-25; RX-202C.000117.) Lincoln concludes that it is commonly understood in the welding industry that loops of wire, whether in a box, in a drum on a reel is referred to as a “spool of wire.” (Citing CX-421 at 1:20-25; RX-149 at 3:35.) (CIB at 43.)

Lincoln adds that the patentee’s use of this language makes clear to one of ordinary skill in the art that the claims are not limited to an actual “spool.” (Citing JX-1 at claims 3, 6 and 12; CX-377C at Q. 159, 185, 232; CX-424C at Q. 14, 23.) Lincoln says the 864 patent’s specification explains that the weld wire can be stored in various manners. (Citing JX-1 at 2:33-39.) Lincoln says that Fig. 11 shows one exemplary embodiment of an actual spool that contains

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the spool of weld wire. (Citing JX-1 at 6:50-55, 8:50-55.) (CIB at 44.)

Lincoln reiterates to the extent a definition of “on a spool” is needed to understand the context of the language of the claims, the actual language of the claims must be considered, which is “on a spool of weld wire.” Lincoln concludes this language requires no definition as a person of ordinary skill in the art would understand the plain and ordinary meaning of such a phrase within the context of the ‘864 patent. (CIB at 44.)

In its reply brief, Lincoln argues Respondents and Staff herald Order No. 36 as being dispositive of the issues in this case because Order No. 36 stated that it could not “ignore the claim language found in the body of each of the asserted independent claims that mentions a spool.” (Citing SGIB at 15; EIB at 26-27; SIB at 12-17.) Lincoln says Respondents then conclude that because “spool” is a limitation it must be defined as they propose. (*Id.*) (CRB at 7.)

Lincoln argues that Respondents’ discussions overlook the language from Order No. 36 that states Lincoln must demonstrate that “if the accused weld wire was wound on a spool, the shape memory of the wire would meet the requirements set forth in claim 3.” (Citing Order No. 36 at 11 (Lincoln notes similar language for claims 6 and 12 is found at page 12).) Lincoln argues that with this construction, the term “spool” need not be defined. (Citing CIB at 43.) (CRB at 7.)

Lincoln states that Staff asserts that the “only reasonable” way to reconcile the language of Order No. 36 is “to interpret the Order as requiring a spool inasmuch as the wire must ‘wound on’ and ‘unwound from’ a spool,” but “strangely” not requiring “storage” on a “spool.” (Citing SIB at 12-14.) Lincoln argues that Staff bases its interpretation on the use of the words “if” and “when” at various points within Order No. 36. (*Id.*) (CRB at 7-8.)

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Lincoln argues that its position that the claim language “spool” is not a limitation but a statement of intended use is well-supported by the recent Federal Circuit decision in *Marrin v. Griffin*, No. 2009-1031, 2010 WL 1007727 (Fed. Cir. Mar. 22, 2010). Lincoln says the Federal Circuit held the use recited in the preamble – that the scratch-off label was “for permitting a user to write thereon without the use of a marking implement” – was not a claim limitation, nor did the fact that the term in a preamble was a part of the claim change the result. As the court put it, “[t]he mere fact that a structural term in the preamble is part of the claim does not mean that the preamble’s statement of purpose or other description is also part of the claim.” *Id.* at 3. (CRB at 8.)

Lincoln states that Respondents propose that “on a spool” means “on a cylindrical piece of material around which wire is wound.” (Citing RX-113 at 4.) Lincoln argues that Respondents’ proposed definition is contrary to the intrinsic evidence (*see* CIB at 43-44), and it fails to recognize the terminology understood by one of ordinary skill in the art when referring to weld wire when stored via containers. Lincoln asserts that to confirm the construction of terms, as understood by one of ordinary skill in the art, it is entirely appropriate for a Court to consider the teachings of prior art references in the field, quoting:

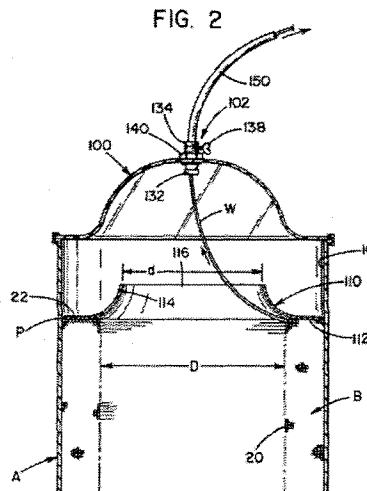
[A] court in its discretion may admit and rely on prior art proffered by one of the parties, whether or not cited in the specification or the file history. This prior art can often help to demonstrate how a disputed term is used by those skilled in the art. Such art may make it unnecessary to rely on expert testimony and may save much trial time.

*Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996). (CRB at 9.)

Lincoln argues that both U.S. Patent Nos. 5,277,314 (RX-149) and 6,260,781 (CX-421) are replete with instances which inform a person of ordinary skill in the art as to the meaning of “spool of weld wire.” Lincoln says that the ‘314 patent continuously refers to item “B” in its

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drawings (a portion of Fig. 2 is reproduced below) as a “wire spool” or “spool”. (Citing RX-149 at 6:34-67.)



(CRB at 9-10.)

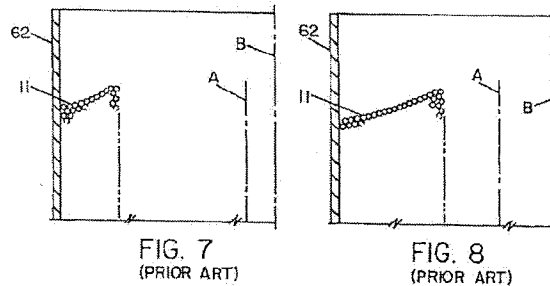
Lincoln argues that the Abstract expressly states that the ‘314 patent is directed to a “retainer ring for a container of low twist welding wire which container includes a cylindrical outer wall, a lower partition and an upper opening through which welding wire is drawn from a *hollow, cylindrical spool of welding wire formed of a multitude of convolutions of wire ...*”

(Citing RX-149 at Abstract (emphasis added by Lincoln).) Lincoln avers that “at no point does the ‘314 patent define the wire as something upon which the wire is wound.” (CRB at 10.)

Lincoln asserts that the ‘781 patent refers to the single length of wire stacked in a container as a “spool.” Lincoln cites for example, in the Background section it states: “[s]mall diameter welding wire is typically packed in a large container in a *single spool* which has a natural ‘cast.’ This means that in the free state, the wire tends to seek a generally straight line condition.” (Citing CX-421 at 1:18-21 (emphasis added by Lincoln).) Lincoln adds that in describing prior art Figures 7 and 8 (reproduced below), the ‘781 patent states that “[d]epending on the diameter used relative to the storage container, the wire has a higher density along the

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edge portion of the storage container versus the inside diameter of the *spool itself adjacent the spool cavity.*” (Citing CX-421 at 2:62-66 (emphasis added by Lincoln).)



(CRB at 10-11.)

Lincoln says that when drafting the application that led to the ‘864 patent, rather than using only the term “reel,” applicants stated that the invention was weld wire which can be placed in/on a “reel, spool, container, or the like.” (Citing JX-1 at 2:39-46.) Lincoln alleges that with this understanding of storage or packaging, applicant consistently referred to the wire being wound and unwound from a “spool of weld wire,” rather than a “reel.” (Citing JX-1 at Abstract, 7:51-64.) Lincoln continues, “armed with the knowledge of the industry and understanding that the ‘weld wire’ of the invention in the ‘864 patent was not to be limited to that wound on a ‘reel,’ but included wire in ‘containers,’ the applicants stated that their weld wire was wound on and unwound from a ‘spool of weld wire.’” (Citing JX-1 at Abstract, 7:51-64, claims 3, 6 and 12.)

(CRB at 11-12.)

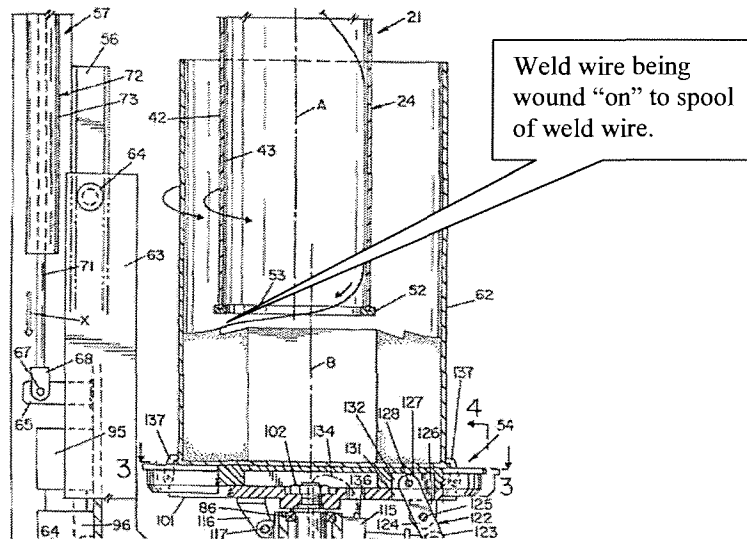
Lincoln argues that Sidergas used the term “spool” to describe its accused bulk weld wire products in its business documents. (Citing Tr. at 662:6-25; RX-202C.000117.) Lincoln contends that the Sidergas business documents describing the accused weld wire containers as “spools” speak accurately, and the claim phrase “spool of weld wire” means “spool of weld wire.” (CRB at 12.)

Lincoln says Respondents argue that during prosecution Lincoln “equated the term ‘spool

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of weld wire' with the single word 'reel.'" Lincoln asserts that this sole statement relied upon by Respondents does not provide the "clear disclaimer" required, as a matter of law, to now limit the claims to a single disclosed exemplary embodiment. (Citing *Voda v. Cordis Corp.*, 536 F.3d 1311, 1321 (Fed. Cir. 2008).) (CRB at 12-13.)

Lincoln argues that, contrary to Staff's assertions the claim language "wound on" and "unwound from" is consistent with the proper definition of "spool of weld wire." Lincoln refers to the figures of the '314 and '781 patents, which it says shows the weld wire is wound "on" to the top of the spool of weld wire during winding, and during payout is "unwound" from the top of the spool of weld wire. (Citing RX-149; CX-421.) Fig. 2A of CX-421 is reproduced below with an annotation "balloon" added by Lincoln.



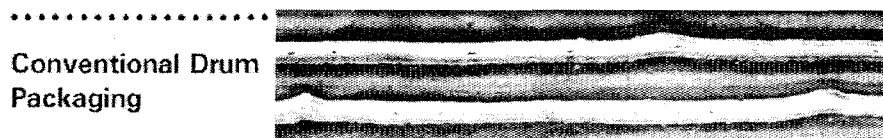
(CRB at 14-15.)

Lincoln contends that Respondents argue that their proposed definition of "on a spool" should be adopted because the only purpose of the '864 patent was to "overcome weld consistency from wire stored on a reel or spool." (Citing SGIB at 18.) Lincoln says this is not correct, and only represents one of the many causes for inconsistency in wire shape. Lincoln alleges that the '864 patent makes clear that the issue was broader than that described by

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Respondents. Lincoln avers that the Background of the '864 patent states “[o]ne of the lingering problems in the field of welding is the consistent formation and placement of a quality weld bead.” (Citing JX-1 at 1:16-17.) Lincoln adds that the '864 patent states that the “present invention pertains to an improved weld wire and a process for making the improved weld wire for use in various types of welding machines.” (Citing JX-1 at 2:25-27.) Lincoln argues that the Background of the '864 patent directly contradicts Respondents’ assertions when it states that problems have been detected regarding reshaping of wire wound on and unwound from “reel[s], spool[s], container[s], or the like.” (*Id.* at 1:35-50.) Lincoln continues that the '864 patent explains that the inconsistent weld bead and wire shape comes from the weld wire modifying its shape as it passes through the welding gun or as it is fed from its package to the weld. (*Id.* at 1:52-2:18.) Lincoln reasons that Respondents’ “oversimplification” of the problems being addressed by the '864 patent is inaccurate, and the evidence fails to support this position. (Citing SGIB at 19 EIB at 19.) (CRB at 15-16.)

Lincoln argues that Respondents’ assertions that no consistency problems existed with respect to container products is directly contraverted by evidence offered by ESAB. Lincoln cites RX-68, in which ESAB is alleged to have demonstrated that “drum” wire products produced inconsistent welds. The relevant figure is produced below.



(RX-68.003.) (CRB at 16.)

**ESAB’s Position:** ESAB refers to Order No. 36 as rejecting Lincoln’s position that the relevant terminology comprised mere statements of intended use. ESAB says the Order held that the words “wound on a spool” “describe[] the necessary characteristics and properties that must

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be present [in an infringing product].” (EIB at 17, n.4.)

ESAB argues that construing the claims requires consideration of the disclosure in the specification, and recites that the background and summary of the invention sections describe the welding wire article “wound onto a reel, spool, container, or the like.” (Citing JX-1 at 1:38-39.) ESAB represents that the description of the drawings and the detailed discussion of the various embodiments of the alleged invention utilize the term “spool” to describe the development 27 times, while the word “container” nowhere appears in these sections of the specification (nor does “drum” or “box”). (Citing Tr. at 483:19-23.) ESAB asserts that all of the claims specifically provide that the wire is wound “on a spool.” (EIB at 17, n.5.)

ESAB argues it is well-settled that when the specification expressly discloses multiple potential embodiments, but the claims recite only one of those embodiments, the claims must be interpreted as limited to the expressly claimed embodiments (and to the exclusion of the disclosed alternatives). (Citing *Milcor Steel Co. v. George A. Fuller Co.*, 316 U.S. 143, 145-46 (1942); *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1106 (Fed. Cir. 1996).) (EIB at 18.)

ESAB argues that analyzing the intrinsic record includes a review of the relevant file history. ESAB contends that Order No. 36 referenced arguments by Lincoln to the Examiner stressing alleged differences between the claimed subject matter and the prior art and including the argument that the claims required the weld wire to have “. . . a shape memory imparted on the weld wire at least partially prior to the weld wire being wound on a reel and at least partially retained in the weld wire after being unwound from the reel.” (Citing Order No. 36 at 16 (quoting from JX-2 at LEITC00975).) (EIB at 18.)

ESAB concludes that every aspect of the intrinsic record – the claims, the specification, and the file history – demonstrates that the asserted claims specifically require that the weld wire



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be wound “on a spool” as explicitly recited. (EIB at 18.)

ESAB asserts that the provisional application from which the ’864 patent attempts to claim priority describes the invention exclusively in terms of wire wound on a reel or spool. (Citing JX-3.002-007.) ESAB adds that Lincoln’s sales of bulk wire products in drums pre-dated the alleged invention, and the same problem associated with wire wound on spools was *not* experienced with wire packaged into drums using the same prior-art techniques employed by Respondents. (Citing JX-26C at 30:7-31:13; Tr. at 336:21-337:14.) (EIB at 19.)

ESAB concludes that, part of the ruling in this matter should clarify the prior ruling in Order No. 36 to provide that the asserted claims are limited to welding wire products that are wound on spools as distinguished from alternative forms of packaging as known at the time of the ’864 patent. (EIB at 19-20.)

In its reply brief, ESAB argues that despite the clear record in this proceeding, Lincoln attempts to revive its previously rejected “intended use” argument in its Post-Trial Brief. ESAB states that Lincoln bases this latest attempt on the Federal Circuit’s recent decision in *Marrin v. Griffin*, 599 F.3d 1290 (Fed. Cir. 2010). ESAB contends that, while Lincoln’s Post-Trial Brief mentions this decision several times (at 27, 42, 47, 81, and 142), it fails to provide any detailed analysis of the actual decision. (ERB at 2.)

ESAB argues that a review of the *Marrin* decision reveals that it did not disturb any of the relevant precedents that guided the analysis in Order No. 36 in which the relevant terms were found to be material limitations of the claims. (ERB at 2.)

ESAB says that Order No. 36 relied on the Federal Circuit’s holding in *Catalina Marketing Int’l Inc. v. Coolsavings.com Inc.*, 289 F.3d 801, 818 (Fed. Cir. 2002), as support for the proposition that recitations in the body of the claim (as distinguished from generalized

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statements found only in the preamble of a claim) must be given effect as claim limitations as a general rule. ESAB asserts that the actual holding under the facts in the *Catalina* case exemplified the basic distinction between statements found only in the preamble and recitations found both in the preamble as well as in the body of the claim. ESAB concludes “as a result, and as acknowledged in Order No. 36, the Federal Circuit held in *Catalina* that language found only in the preamble of claim 1 was not a limitation while similar language found in both the preamble as well as in the body of a different claim was a limitation with respect to that claim.” (Citing Order No. 36 at 13; *Catalina*, 289 F.3d at 810-11.) (ERB at 2-3.)

ESAB argues that nothing in the Federal Circuit’s recent decision in *Marrin* disturbs its prior holding in the *Catalina* case. ESAB represents that in the *Marrin* case the disputed language appeared only in the preamble of the claim and not in the body. (Citing *Marrin*, 599 F.3d at 1292-94.) ESAB adds that under the facts in the *Marrin* case, the patentee (who was arguing for the limitation) had actually amended the claim to *remove* corresponding language from the body of the claim during prosecution. (*Id.*) (ERB at 3.)

ESAB asserts that the actual facts in the *Marrin* case (and the related holding) are entirely consistent with the Federal Circuit’s prior ruling in *Catalina* as expressly applied in Order No. 36. (Citing Order No. 36 at 13.) (ERB at 3.)

ESAB continues in contrast to *Marrin* (and consistent with *Catalina*), in this case the language “wound on said spool” appears in the body of each asserted claim of the ’864 patent. (Citing JX-1 at claims 3, 4, 6, 12, and 13.) ESAB adds claims 6, 12, and 13 each also recite that the wire “is unwound from said spool” in the body of those claims, and Lincoln emphasized this language during the prosecution of the ’864 patent. (Citing Order No. 36 at 16 (quoting from JX-2 at LEITC00975).) (ERB at 4.)

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ESAB contends that, Lincoln has failed to cite any case in which a court found language in a claim body to constitute a statement of intended use and not a claim limitation. ESAB argues that not a single cited case supports its position. (ERB at 4.)

ESAB adds that Lincoln attempts to renew its related argument that the recitation “on a spool of weld wire” refers to the wire itself and not to an actual spool structure. (Citing CIB at 43.) ESAB represents that “this belatedly disclosed, proposed claim construction” was stricken at the hearing. (Citing Tr. at 10:18-11:5, 47:9-14.) ESAB asserts, too, that in each of Figures 7 and 11 of the '864 patent, the references to the “spool” clearly refer to a physical spool, *not* the weld wire. (Citing JX-1 at 7:19, 8:52, Figs. 7, 11.) ESAB concludes that Lincoln’s construction of the word “spool” is in direct contradiction to relevant usage of the term in the patent’s specification and drawings. (ERB at n.2.)

**Sidergas’ Position:** Sidergas echoes ESAB’s argument that “on a spool” is an affirmative limitation, not merely a statement of intended use as advanced by Lincoln. (Citing Order 36 at 11, 12, 13; *Catalina Mktg. Int’l, Inc. v. Coolsavings.com Inc.*, 289 F.3d 801, 810-811 (Fed. Cir. 2002).) Sidergas argues that the proper construction of “on a spool” in the '864 patent is “on a cylindrical piece of material around which wire is wound.” (Citing RX-113.) Sidergas claims that this construction is supported by the intrinsic record, stating that each of the independent asserted claims recites the “on a spool” limitation. After reciting claims 3, 6 and 12 verbatim, Sidergas reasons that the plain language of the claims requires weld wire to be wound or unwound “on a spool” or from a spool. (SGIB at 15-16.)

Sidergas argues that the requirement that the weld wire be “on a spool” is also supported by the specification. Sidergas asserts that, according the specification, the '864 patent is expressly directed to “improved weld wire in accordance with the present invention involv[ing].

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. . . weld wire wound onto a reel, spool, container, or the like . . . .” (Citing JX-1 at 2:33-39.)

Sidergas states that having disclosed in the specification a “reel, spool, container, or the like,” the patentee proceeded to claim in the claim body only “on a spool,” as shown in the above referenced claims. (Citing *Milcor Steel Co. v. George A. Fuller Co.*, 316 U.S. 143, 145–46 (1942); *Markman*, 52 F.3d at 980; *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1106 (Fed. Cir. 1996).) Sidergas continues that Figure 11 of the ’864 patent (as shown below), illustrates a spool:

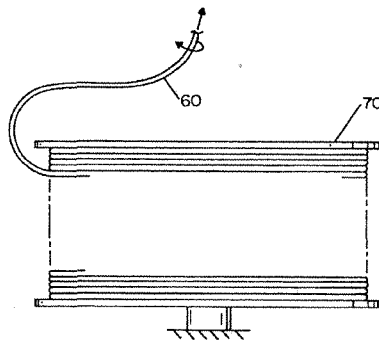


FIG. II

Sidergas reasons that, “on a spool” means “on a cylindrical piece of material around which wire is wound.” (Citing *Phillips*, 415 F.3d at 1314.) (SGIB at 17.)

Sidergas contends that the prosecution history of the patent supports Respondents’ construction. Sidergas alleges that in response to the first office action, Lincoln added new claims 26-36, and new claim 26 recited:

26. (New) A weld wire for storage on a spool of weld wire, said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool and at least partially retained on said weld wire after said weld wire is unwound from said spool, said shape memory imparted substantially in one plane along a longitudinal length of said weld wire, said shape memory generally in the form of a waveform.

(Citing JX-2 at LEITC000972.) Sidergas states that Lincoln described this new claim in its remarks to the amendment as follows:

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Applicant has added new claims 26-36. Independent claims 26 requires the weld wire to have a shape memory imparted on the weld wire at least partially prior to the weld wire being wound on a reel and at least partially retained in the weld wire after being unwound from the reel. None of the references teach or suggest such a limitation.

(Citing JX-2 at LEITC000975.) Sidergas says that claim 26 was eventually cancelled. (Citing JX-2 at LEITC000994.) Sidergas adds that claim 27, which was dependent on claim 26, was rewritten in independent form to include the limitations of claim 26 and issued as claim 6. (*Id.*) Sidergas asserts that Lincoln equated the term “spool of weld wire” with the single word “reel.” Sidergas argues that a reel, like a spool, is a cylindrical piece of material around which material may be wrapped. Sidergas concludes that the file history confirms Respondents’ construction of “on a spool” in the ’864 patent: “on a cylindrical piece of material around which wire is wound.” (Citing RX-113.) (SGIB at 18.)

Sidergas argues that the purpose of the invention of the ’864 patent was to overcome issues of weld consistency from wire stored on a spool or reel. (Citing JX-26C at 37:16-38:25.) Sidergas continues because the weld wire stored on a spool had loops of varying diameter as the wire approached the core of the spool, the weld wire exhibited an inconsistent shape as it was unwound from the spool. (*Id.*) Sidergas contends that these same issues did not exist with weld wire stored in drums like those found with Respondents’ accused products and Lincoln’s own products that pre-date the alleged invention of the ’864 patent. (Citing JX-26C at 30:7-31:13.) Sidergas concludes that the “on a spool” limitation of the claim should be construed to require a physical core around which the weld wire is wound. (SGIB at 18-19.)

In its reply brief, Sidergas agrees with ESAB that Lincoln should not be allowed to “insert a new claim term, “on a spool of weld wire,” to replace the actual claim term at issue, “on a spool.” (Citing RX-113.) Sidergas contends that Lincoln did not submit this construction in

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accordance with the procedural schedule in this Investigation. In addition, Sidergas argues that Lincoln's construction overlooks the plain language of the claims, which require the weld wire to be "wound," then "unwound from said spool." (Citing JX-1 at claims 3, 6, and 12.) Sidergas says that "spool" must be given meaning in the claims; otherwise, the words "wound on" and "unwound from" would be rendered superfluous and nonsensical. (Citing *Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1557 (Fed. Cir. 1995).) (SGRB at 7.)

Sidergas says that Lincoln argues that the '864 patent relates to the use of weld wire with shape memory and does not require the use of a physical spool. (Citing CIB at 41-42.) Sidergas asserts that the issue of non-uniformity in weld bead placement was associated with Lincoln's weld wire products wound on a reel or spool. (Citing JX-26C at 37:16-40:12.) Sidergas contends that this non-uniformity in the shape of the wire resulted because wire wound near the core of the spool or reel had a shape with a smaller diameter as compared to wire wound on the outside of spool which had a shape with a larger diameter. (Citing JX-26C at 38:17-25.) Sidergas reasons that the use of a spool was an integral aspect of the invention leading to the '864 patent and is expressly claimed as such and mentioned at least twenty-seven times in the specification. (Citing JX-1.) (SGRB at 8.)

**Staff's Position:** Staff argues that Order No. 36 correctly rejected Lincoln's argument that the "wound on a spool" and "unwound from a spool" limitations are mere statements of intended use, to be construed as the examiner did during prosecution. Staff asserts that Lincoln's argument remains legally erroneous for all the reasons articulated by the Staff in its December 30, 2009, response to Sidergas' motion for summary determination of non-infringement and in its January 7, 2010, reply brief. Staff refers to its briefs on the motions resulting in Order No. 36 and incorporates them by reference. (SIB at 15, n. 10.)

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Staff argues that Lincoln’s proposal is incorrect also because it overlooks the recitations in the body of the claims (*i.e.*, “said weld wire being wound *on* said spool” and “said weld wire is unwound *from* said spool”), which by their plain meaning refer to the spool as a separate object. Staff says, contrary to Lincoln’s argument, if the “spool” was not a separate object, the patentee would simply have claimed the wire being “wound” and “unwound” without reference to “on” or “from” the spool. Staff concludes that Lincoln would, therefore, render superfluous the words “wound on” and “unwound from,” contrary to controlling precedent. (Citing *Agilent Techs., Inc. v. Affymetrix, Inc.*, 567 F.3d 1366, 1377-78 (Fed. Cir. 2009).) (SIB at 17.)

In its reply brief Staff asserts that Lincoln relies upon “the Federal Circuit’s recent issuance of a panel’s 2-1 decision in *Marrin v. Griffin*, which held that a recitation in a claim’s *preamble* was not limiting, Lincoln incorrectly asserts that that decision holds that the Judge may disregard limitations in the *body* of a claim.” (Citing CIB at 27-29, 42, 47, 81.) (SRB at 2.)

Staff asserts that in *Marrin v. Griffin*, 599 F.3d 1290 (Fed. Cir. 2010), the issue was whether “the trial court improperly failed to treat the ‘for permitting’ language in the preamble as a claim limitation” of the asserted ‘448 patent. *Marrin*, 599 F.3d at 1292. Staff quotes:

On cross-motions for summary judgment, the district court ruled that the ‘448 patent was invalid as anticipated, and therefore was not infringed by *Marrin*. In reaching this conclusion, the district court noted that the Griffins’ “only basis for arguing against anticipation is that the preamble language is an additional limitation.” Based on its finding that the “preamble language is not limiting,” the district court concluded that “a person of ordinary skill in the art at the time of the invention would find that the limitations of the body of the claims of the ‘448 patent are anticipated by one or more of” eight [prior art] patents . . . .

(Citing *Marrin*, 599 F.3d at 1293 (Citations omitted).) Staff says the patentees, the Griffins, unsuccessfully argued to the trial court that the asserted claims of their ‘448 patent are not invalid because the prior art did not disclose the “for permitting” language in the preamble. Staff states because the trial court determined that the preamble language was not limiting, the court

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granted the accused infringer, Mr. Marrin's, motion for summary judgment of invalidity because the prior art disclosed each and every limitation of the body of the claims. (SRB at 2-3.)

Staff elaborates, on the Griffins' appeal of the grant of summary judgment of invalidity, the panel's majority decision affirmed the lower court because that court correctly determined that "the preamble's statement of purpose does not limit the scope of the claims." (Citing *Marrin*, 599 F.3d at 1294.) Staff says the dissent would have held that the preamble was limiting because the patent applicant chose to use both the preamble and the body of the claims to define the invention, and because the preamble breathed life, vitality, and meaning into the claimed invention. (Citing *Marrin*, 599 F.3d at 1296-97, 1299 (Newman, J., dissenting).) Staff argues that the majority disagreed with the dissent because "the mere fact that a structural term in the preamble is part of the claim does not mean that the preamble's statement of purpose . . . is also part of the claim." (Citing *Marrin*, 599 F.3d at 1295.) (SRB at 3.)

Staff contends that the Federal Circuit was not asked to decide whether — and did not decide that — the language that appeared in the body of the claims of the '448 patent was non-limiting. Staff says to the contrary, it explicitly found that each and every limitation that appeared in the body of the claims was disclosed in the prior art, and the panel majority therefore affirmed the summary judgment of invalidity. (Citing *Marrin*, 599 F.3d at 1295.) Staff asserts that Lincoln's representation that the Federal Circuit in *Marrin* "was asked to determine whether language in the . . . body of a claim was a statement of intended use" is false. (Citing CIB at 27.) Staff states, for at least this reason, *Marrin* has no applicability to the construction of the wound on, and unwound from, a spool limitations that appear in the body of the claims of the '864 patent — limitations that Order 36 already determined "must be given meaning" and are "more than mere statements of intended use." (Citing Order No. 36 at 13, 14.) (SRB at 3-4.)



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Staff argues that the *Marrin* decision has no bearing on the construction of the wound on, and unwound from, a spool limitations because that decision is distinguishable on the facts. Staff says there, the patentees “expressly attested” during prosecution that the language at issue was not a claim limitation and, consistent therewith, moved that language into the preamble before the patent issued. (Citing *Marrin*, 599 F.3d at 1294.) Staff contends that the majority determined that the patentees clearly and unmistakably disavowed a claim limitation during prosecution and, therefore, they concluded that the patentees could not now, in litigation, assert that that language was a limitation. (*Id.*) Staff concludes that the majority’s decision was consistent with the principle that a patentee’s clear disavowal will limit the scope of the claims. (Citing *Bradford Co. v. ConTeyor N. Am., Inc.*, \_\_\_ F.3d \_\_\_, 2010 U.S. App. LEXIS 8869, at \*16-17 (Fed. Cir. 2010).) Staff contrasts the foregoing with the present case, saying Lincoln made no “express attestation” or any other such statement during prosecution clearly disavowing or disclaiming the wound on, and unwound from, a spool limitations. Staff asserts that Lincoln’s position during prosecution actually supports the conclusion that the language in the body of the claims is limiting. (Citing Order No. 36 at 16 (citing JX-2 at LEITC000975).) (SRB at 4.)

Staff argues that Lincoln cites to no evidence that supports Lincoln’s assertion that Lincoln “proposed” to treat the wound on and unwound from a spool limitations as statements of intended use. Staff states that the pages of the file history to which Lincoln cites (JX-2 at LEITC000945-946) are excerpts from an examiner’s office action setting forth the views of the examiner, not a “proposal” by Lincoln to limit the scope of the claims. Staff adds that the examiner’s views are not determinative here. (Citing Order No. 36 at 15, n. 4.) Staff contends that Lincoln’s opening brief at Section I.D.2 “misleadingly fails to quote a salient excerpt from the prosecution history that supports the conclusion that the language in the body of the claims is

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limiting.” (Citing JX-2 at LEITC000975; Order No. 36 at 16.) (SRB at 6.)

**Construction to be applied:** “on a cylindrical piece of material”

The term “on a spool” appears in asserted claims 3, 6 and 12 of the ‘864 patent. In each claim, the phrase “on a spool” appears in the introductory portion of the claim and is situated within a larger phrase, to wit: “for storage on a spool of weld wire.”

Lincoln argues, repeatedly, that the term “on a spool” is a statement of intended use contained in a preamble, not an affirmative limitation, and construction of the term is unnecessary. To support its argument, Lincoln relies on *Marrin v. Griffin*, 599 F.3d 1290 (Fed. Cir. 2010).

I find that the term “on a spool” as it is used in the introductory phrases to asserted claims 3, 6 and 12, is a claim limitation. Assuming *arguendo* that the introductory phrases are, in fact, preambles to their respective claims,<sup>2</sup> whether to treat a claim preamble as a limitation is a determination made after a review of the entire patent. *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002). In *Catalina*, the Federal Circuit stated:

In general, a preamble limits the invention if it recites essential structure or steps, or if it is “necessary to give life, meaning, and vitality” to the claim. Conversely, a preamble is not limiting “where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.”

*Id.* (citations omitted). The court went on to explain that “a preamble generally is not limiting when the claim body describes a structurally complete invention such that deletion of the preamble phrase does not affect the structure or steps of the claimed invention.” *Id.* at 809.

The invention at issue in *Catalina* was a system for distributing coupons to consumers

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<sup>2</sup> The construction and wording of the introductory phrase does not clearly support a finding that it is, in fact, a “preamble.”

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through kiosks. The court had to determine whether the phrase “located at predesignated sites such as consumer stores” was a limitation when it appeared in the preamble. *Id.* at 807-808. The court found that the phrase was not a claim limitation. The court examined the specification and found that the location of the kiosks was not an essential feature of the invention. *Id.* at 810. The applicants did not rely on the preamble to distinguish the invention from the prior art during prosecution. *Id.* Importantly, the court found that the claim was complete without the preamble:

Moreover, deletion of the disputed phrase from the preamble of Claim 1 does not affect the structural definition or operation of the terminal itself. The claim body defines a structurally complete invention. The location of the terminals in stores merely gives an intended use for the claimed terminals.

*Id.*

*Marrin* did not change or expand the ruling in *Catalina*. In *Marrin* the issue was whether or not language in the preamble of a claim amounted to a limitation or a statement of intended use. In that case, the district court granted summary judgment, finding that language in the preamble of the claim at issue was only a statement of intended use and not a claim limitation. The language in question was, “[a] scratch-off label for permitting a user to write thereon without the use of a marking implement, comprising” The district court ruled that the “for permitting” language in the preamble was not a claim limitation based on its findings that (1) the preamble language inserted in the amendment only added a statement of a purpose or an intended use for the invention, and (2) the patentee did not demonstrate clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art. *Marrin*, 599 F.3d at 1292, 1294.

In *Marrin*, the Federal Circuit noted that clear reliance on a preamble during prosecution can distinguish a claimed invention from the prior art and render the preamble a claim limitation, (citation omitted) but found there was no such reliance. The prosecution history established that

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the patentees did not consider the writing use for their claimed invention as being patentably significant. The Federal Circuit pointed to an amendment of the claims that added the “for permitting” language, and found the preamble language only added an intended use, namely, that the scratch-off layer may be used for writing. The Federal Circuit quoted the patentees’ submittal to the patent examiner, in which they explained to the examiner that “writing means’ is not an element of Applicant’s claims, and does not appear in the new claims.” *Marrin*, 599 F.3d at 1294.

Staff’s argument is convincing, when it says that the majority’s decision in *Marrin* was consistent with the principle that a patentee’s clear disavowal will limit the scope of the claims. In the present case, I find no “express attestation” by Lincoln during prosecution clearly disavowing or disclaiming the wound on, and unwound from, a spool limitations.

I find no citation to evidence that supports Lincoln’s assertion that Lincoln “proposed” to treat the wound on and unwound from a spool limitations as statements of intended use. The file history in question (JX-2 at LEITC000945-946) is excerpted from an examiner’s office action setting forth the views of the examiner, not a “proposal” by Lincoln to limit the scope of the claims, and the examiner’s views are not determinative here.<sup>3</sup>

In *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989), the claim preamble was “[a]n optical waveguide comprising.” 868 F.2d at 1256. The court found that the preamble served as a limitation because the specification was clear that the invention was limited to fibers working as waveguides. As the court explained: “[t]he invention is restricted to those fibers that work as waveguides as defined in the specification, which is not

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<sup>3</sup> Although the Respondents argue that Lincoln expressly avowed that the use of the term was a limitation when it responded to a proposed office action, I find that the language quoted is too broad to find specifically that Lincoln referred to the preamble language. Instead, it appears to refer to the language of the entire claim, which includes restrictions related to the shape memory being imparted, at least in part, prior to the weld wire being wound on a spool and retaining that shape memory upon being unwound from a spool. (JX-2 at LEITC000975.)

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true with respect to fibers constructed with the limitations of paragraphs (a) and (b) only.” *Id.* at 1257.

I find that the situation before me is closer to *Corning Glass* than *Catalina* or *Marrin*. In claim 3, read in context, the term refers to a spool on which weld wire, having an imparted shape memory, is stored. The term set forth in the preamble provides the context for the entire invention. In addition, the limitation in the body in each of claims 3, 6 and 12, “wound on said spool” relies upon and derives antecedent basis from the preamble in the respective claims. That is the precise case in which the preamble may act as a necessary component of the claimed invention. *Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed.Cir.2003).

Based upon the foregoing, I conclude that the phrase “on a spool” must be read in context as part of the phrase “for storage on a spool of weld wire,” and that, when the larger phrase is read in the context of asserted claims 3, 6 and 12, it is a claim limitation and not a mere statement of intended use.<sup>4</sup>

The purpose of the invention in the ‘864 patent is to produce a weld wire for storage on a spool of weld wire. The weld wire has a linear cast that is at least partially formed on the weld wire prior to its being wound on the spool of weld wire. That linear cast is at least partially retained on the weld wire after the weld wire is unwound from the spool and during the feeding of the weld wire through a welding machine. (JX-1 at Abstract.) The ‘864 patent describes the state of the art at the time of its invention:

It is common industry practice to feed a “killed” weld wire to a welder during the welding process. A “killed” weld wire is a weld wire that has had its shape

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<sup>4</sup> This finding is based on emphasis placed on the purpose of the invention in the ‘864 patent, the focus and detail of arguments at trial on the figures depicted in the ‘864 patent and a greater understanding obtained regarding the use and meaning of the term “on a spool” attained during the investigation after issuance of Order No. 36. To the extent that this finding contradicts all or any part of my Order No. 36, this finding shall control. *See, e.g., Pressure Prods. Med. Supplies, Inc. v. Greatbatch, Ltd.*, 599 F.3d 1308, 1315-1316 (Fed. Cir. 2010); *Jack Guttman, Inc. v. Kopykake Enterprises, Inc.*, 302 F.3d 1352, 1361 (Fed. Cir. 2002).

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memory removed prior to the weld wire being wound onto a reel, spool, container or the like. *When the weld wire is wound on the reel, spool, container or the like, the weld wire adopts a new shape as it is being wound. When the weld wire is unwound from the reel, spool, container or the like, the weld wire adopts a new shape during the unwinding process. As a result the shape of the unwound wire will vary along the longitudinal length of the unwound weld wire.* Once the unwound weld wire is cut into various sections, the unwound wire retains its adopted shape obtained when being unwound from the reel, spool, container or the like ... *Since the weld wire has no memory, the weld wire constantly modifies its shape as it passes through the weld gun, thus resulting in inconsistent positioning of the weld wire as it exits the welding tip of the welding gun ... This inconsistent positioning of the weld wire results in inconsistent placement of the weld bead onto a workplace.* (sic)

(JX-1 at 1:35-57) (Emphases added.)

The '864 patent provides for an improved weld wire. The improved weld wire “involves the use of weld wire that has a shape memory imparted onto to the weld wire prior to and/or at the time the weld wire is wound onto a reel, spool, container or the like, and which memory is fully or partially retained by the weld wire as the weld wire is unwound from said reel, spool, container or the like.” (JX-1 at 2:34-39.)

The '864 patent describes its primary object as to provide an improved weld wire which obtains better placement consistency of the weld bead onto a workpiece. Another object of the invention is to provide a weld wire which has a desired shape memory imparted on the weld wire after the weld wire has been formed and prior to the time the weld wire is wound onto a reel, spool, container or the like. (JX-1 at 5:38-40, 5:66-6:3.) Figure 7 of the '864 patent (shown below) illustrates a “killed” prior art weld wire being unwound from a spool. (JX-1 at 6:36-37, Fig. 7.)

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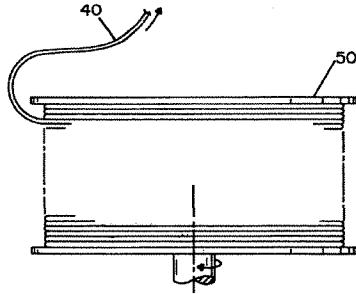


FIG. 7  
(PRIOR ART)

Figure 11 of the '864 patent (shown below) illustrates the shape memory weld wire as it is being unwound from a spool. (JX-1 at 6:51-52, Fig. 11.)

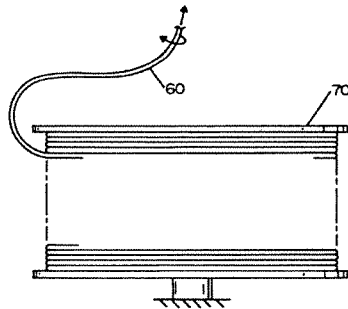


FIG. II

The specification of the '864 patent expressly recites that it is directed to “improved weld wire in accordance with the present invention involv[ing] . . . weld wire wound **onto** a reel, **spool**, container, or the like . . .” (JX-1 at 2:33-39) (Emphases added.) Having disclosed in the specification a “reel, spool, container, or the like,” the patentee proceeded to limit its claim in asserted claims 3, 6 and 12 to “on a spool.” It is well-settled that when the specification expressly discloses multiple potential embodiments, but the claims recite only one of those embodiments, the claims must be interpreted as limited to the expressly claimed embodiments (and to the exclusion of the disclosed alternatives). *Milcor Steel Co. v. George A. Fuller Co.*, 316 U.S. 143, 145-46 (1942); *Maxwell v. J. Baker, Inc.*, 86 F.3d 1098, 1106 (Fed. Cir. 1996).

The provisional application from which the '864 patent claims priority also describes the

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invention exclusively in terms of wire wound on a reel or spool. (JX-3.002-007.)

Order No. 36, which is much-cited by all parties here, referenced arguments by Lincoln to the Examiner stressing alleged differences between the claimed subject matter and the prior art and including the argument that the claims required the weld wire to have “. . . a shape memory imparted on the weld wire at least partially prior to the weld wire being wound *on a reel* and at least partially retained in the weld wire after being unwound *from the reel*.” (Order No. 36 at 16 (quoting from JX-2 at LEITC00975)) (Emphasis added.)<sup>5</sup>

Combining the Background of the Invention with the Description of the Invention, the drawings, and the Description of the Preferred Embodiments cited, *supra*, it is readily apparent that providing an improved weld wire having a shape memory that survives the act of winding and unwinding weld wire on a physical cylinder, is the means of achieving the purpose of the invention of the ‘864 patent to obtain better placement consistency of a weld bead onto a workpiece. (See JX-1 at 8:39-46.)

Based upon the foregoing, I find that the term “on a spool” as used in asserted claims 3, 6 and 12, is clearly to be construed as “on a cylindrical piece of material.” I find that examination of the extrinsic evidence (such as expert testimony) offered by the parties is unnecessary because the intrinsic evidence is sufficient to understand the meaning of “on a spool.” *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996) (“In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence.”)

### 2. “Imparted Shape Memory”

The term “imparted shape memory” appears in asserted claim 3, while the phrase “shape

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<sup>5</sup> Lincoln argues that the recitation “on a spool of weld wire” refers to the wire itself and not to an actual spool structure. This proposed construction was stricken at the hearing as untimely. (Tr. at 10:18-11:5, 47:9-14.)



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memory that is at least partially imparted onto said weld wire...” appears in claims 6 and 12.

For purposes of my analysis, the same construction applies equally to claims 3, 6, and 12.

**Lincoln’s Position:** Lincoln asserts that its construction of this term is entirely consistent with the usage of this term within the entirety of the intrinsic evidence of the ‘864 patent, including the specification of the patent and its prosecution history, as would have been understood by a person of ordinary skill at the time the ‘864 patent application was filed. (Citing CX-377C at Q. 67-71.) Lincoln states that a weld wire has “imparted shape memory” if - it has a residual stress such that weld wire reverts to substantially consistent memory shape when the weld wire is untensioned. (Citing RX-113.) (CIB at 35-36.)

Lincoln asserts that the ‘864 patent states “[a]s shown in Fig. 8A, cut weld wire section 62 reverts back into a uniform waveform. (Citing JX-1 at 8:59-62.) Lincoln says the residual stress in weld wire (60) causes the cut weld wire section (62) to revert into the imparted memory shape.” (*Id.*) Lincoln quotes the ‘864 patent: “The use of a weld wire with shape memory in accordance with the present invention overcomes this inconsistency problem since similar cut weld wire sections will have substantially the same shape from one cut section to the next.” (*Id.* at 3:9-13.) (CIB at 36.)

Lincoln argues that “imparted shape memory” is a residual stress in the weld wire that causes the wire to revert to a substantially consistent memory shape when the weld wire is untensioned. (Citing JX-1 at 3:9-13.) Lincoln continues that the ‘864 patent makes it clear that an imparted shape memory stems from a residual stress placed in the wire to cause the wire to want to take a specified shape, and that the shape needs to be consistent to overcome the problems associated with the prior art “killed” weld wire (Citing JX-1 at 3:9-13, 8:59-62.) Lincoln states that absent this consistency, the benefits of the invention of the ‘864 patent would

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not be achieved because consistent wire placement and wire contact could not be achieved.

(Citing CX-377C at Q. 69.) Lincoln elaborates that an inconsistent wire shape will provide inconsistent wire placement during welding. (Citing CX-377C at Q. 11-14; CX-378C at Q. 22.) Lincoln concludes that the constructions proposed by Respondents and the Staff fail to capture or properly define the terms “imparted shape memory” or “shape memory” as would be understood by one of ordinary skill in the art. (CIB at 36-37.)

Lincoln recognizes that Staff’s construction is similar to the construction proposed by Lincoln and Dr. Caulfield; but argues that it fails to consider the ‘864 patent’s teaching that the wire have a consistent shape and is unclear such that it can not be understood. (Citing CX-377C at Q. 71.) Lincoln says that Staff’s definition states that the “imparted shape memory” requires the wire to “return[] fully or partially to its original shape after having been deformed,” without instructing as to the type of deformation – plastic or elastic. Lincoln explains that plastic deformation alters the residual stresses within a material, thus resulting in a change in the material’s shape, while elastic does not result in the introduction of residual stresses. (Citing RX-96C at Q. 20.) (CIB at 37.)

Lincoln argues that because of “this ambiguity in Staff’s construction, coupled with the fact that the guidance of the ‘864 patent specification is ignored by the Staff’s definition,” this definition should not be adopted. (Citing CX-377C at Q. 71; *CIAS, Inc. v. Alliance Gaming Corp.*, 504 F.3d 1356, 1359 (Fed. Cir. 2007).) (CIB at 37.)

Lincoln argues that Respondents’ proposed definition is “a specified shape or cast that is applied to the wire by plastic deformation so that the shape is retained by the wire. A wire with imparted shape memory would not include wire that is ‘killed’ (*i.e.*, straightened) prior to spooling.” (Citing RX-113.) Lincoln contends that this definition should not be adopted

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because it is not consistent with the intrinsic evidence, is fatally and internally inconsistent and is an attempt to define an attribute of an apparatus claim (a weld wire) via a step that may or may not occur during manufacture. (Citing CX-377C at Q. 71.) (CIB at 37-38.)

Lincoln argues that without including the requirement for consistency in their definition, Respondents have ignored the fundamental teachings of the '864 patent and what the '864 patent informs is meant by "imparted shape memory." (Citing CX-377C at Q. 67-69, 71; CX-378C at Q. 49-50.) Lincoln adds that Respondents' definition further contradicts the teachings of the '864 patent by equating "killed" wire with "straight" wire. Lincoln asserts that the '864 patent makes clear just because a wire has been "killed" it is not necessarily "straight." Lincoln cites for example Figures 4, 4A, 5 and 5A of the '864 patent, and says regarding these Figures, the '864 patent states that the "plane in which the waveform lies for the weld wire is typically in multiple planes and has no consistency from one cycle to the next." (Citing JX-1 at 7:20-22.) Lincoln asserts that it is evident that the wire is not straight, and concludes a definition with such a contradiction can not survive. (CIB at 38.)

Lincoln argues that Respondents' proposed definition provides no guidance as to where in the manufacturing process the wire can or can not be "killed," and alleges that in almost all weld wire manufacturing processes the wire can be "killed" at some point in its manufacture. (Citing CX-379C at Q. 49.) Lincoln adds that shape memory can be, and often is, imparted after the "killing" of the wire. Lincoln reasons that any definition, used to define a weld wire, which arbitrarily places a limitation as to its method of manufacture, is improper. Lincoln asserts that Respondents' proposed definition would exclude all wire that is purportedly straightened or killed at any point during its manufacture. (CIB at 39.)

In its reply brief, Lincoln contends that rather than defining the physical property of

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“imparted shape memory,” Respondents argue what it is not – “[a] wire with imparted shape memory would not include wire that is ‘killed’ (i.e., straightened) prior to spooling.” (Citing SGIB at 21-22; EIB at 24-25.) Lincoln argues that Respondents ignore how the ‘864 patent defines the invention – which is by comparing it with the prior art weld wire shown in Figs. 4-6. (CRB at 5.)

Lincoln asserts that Respondents provide no definition or clarity as to what is intended by the language “prior to spooling.” Lincoln says it is unclear if Respondents intend “prior to spooling” to mean something different from “prior to winding.” Lincoln argues that Respondents’ proposed definition represents an attempt to change the asserted claims from those directed to a weld wire to a process of making weld wire. (CRB at 5-6.)

Lincoln argues that the intrinsic record of the ‘864 patent makes it clear that the “shape memory” of a wire is a physical characteristic of the wire, not a function of the wire’s manufacturing process. (Citing JX-1 at 3:9-13, 8:59-62.) Lincoln says any attempt to define the physical property of the weld wire by how it is made, rather than by what it is, should be rejected. Lincoln contends that neither Respondent has tried to rectify their “inconsistent positions” regarding infringement and validity in this Investigation, with respect to this claim limitation. Lincoln says for purposes of infringement each Respondent asserts that their respective wires are made with a different “method” and thus do not infringe; but with respect to validity, Respondents show only that the alleged prior art has a shape of some kind. (Citing EIB at 35-39; SGIB at 53-66.) Lincoln asserts that Respondents’ “product-by-process” arguments are of no import, as the asserted claims are not “product-by-process” claims. (Citing Order No. 36 at 11-12; JX-1 at claims 3, 4, 6, 12 and 13.) (CRB at 6, n. 8.)

Lincoln concludes that a weld wire has “imparted shape memory” if it has “residual stress

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such that [the] weld wire reverts to a substantially consistent memory shape when untensioned.”

(CRB at 6.)

**ESAB’s Position:** ESAB argues that the specification of the ’864 patent, and the prosecution history confirm Respondents’ position that the “imparted shape memory” described in the patent and claimed by the ’864 patent is the result of “plastic deformation,” as distinguished from “elastic deformation.” (Citing JX-1 at 3:28-33; JX-2 at LEITC000982-83; RX-96C at Q. 19-21.) (EIB at 24-25.)

ESAB submits that the proper construction of the term “imparted shape memory” as used in the claims is “a specified shape or cast that is applied to the wire by plastic deformation so that the shape is retained by the wire.” ESAB states that the claimed “imparted shape memory” is repeatedly contrasted from the acknowledged prior art practice of using “killed” (*i.e.*, straightened) wire in the winding process. (Citing Order No. 36 at 8-10; RX-96C at Q. 22.) ESAB concludes that the proposed construction additionally recognizes that “a wire with imparted shape memory would not include wire that is ‘killed’ (*i.e.*, straightened) prior to spooling.” (EIB at 25.)

In its reply brief, ESAB reiterates that Respondents’ proposed construction takes into account both that which was intended to be covered by the claims, as well as that which the specification makes clear is *not* properly encompassed by the permissible scope of the claims. ESAB says the specification repeatedly emphasizes the benefits of using weld wire with shape memory compared to using the prior art “killed” weld wire. (Citing JX-1 at 1:36-39, 2:43-45.) (ERB at 10-11.)

Addressing Lincoln’s argument, ESAB says Lincoln criticizes the proposed additional clarifying language as potentially encompassing wire that has been “killed” at an earlier stage of

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the manufacturing process. ESAB continues Lincoln's concern is unwarranted, "since the added clarifying language is clearly applicable only to wire that has been straightened prior to winding as opposed to wire that may have been straightened but then has a curvilinear shape applied just prior to winding." ESAB asserts that the distinction is "clear from the record." (ERB at n. 6.)

**Sidergas' Position:** Sidergas argues that the proper construction of "imparted shape memory" is "a specified shape or cast that is applied to the wire by plastic deformation so that the shape is retained by the wire. A wire with imparted shape memory would not include wire that is 'killed' (i.e., straightened) prior to spooling." (Citing RX-113.) (SGIB at 21.)

Sidergas states that the patentee repeatedly distinguished over the prior art in the patent's specification and file history, when it recited a wire with "imparted shape memory," as claimed in the '864 patent, would not include weld wire that is "killed" (i.e., "straightened") prior to the process of winding the wire into its packaging. Sidergas continues that the patent specifically notes the problems associated with using "killed wire" quoting:

The use of weld wire with a shape memory is a deviation from common industry practice that teaches that weld wire that is fed into a welding machine should have little or no shape memory. The common practice in the industry was to 'kill' the wire or otherwise remove the shape memory of the wire prior to winding the weld wire onto a reel, spool, container, or the like.

(Citing JX-1 at 2:39-46, 3:64-4:1, 7:1-12, 40-41; Order No. 36 at 8-10.) Sidergas reasons that, because the patentee distinguished over wire that is "killed" prior to being spooled, the construction of "imparted shape memory" cannot include such wire. (Citing *Ekchian*, 104 F.3d at 1304.) (SGIB at 21.)

Sidergas argues that the "imparted shape memory" of the '864 patent is the result of "plastic deformation," as distinguished from "elastic deformation." Sidergas explains that deformation refers to the alteration of shape or form of an object as a result of some force applied

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to the object. Sidergas says “elastic deformation” refers to deformation that is temporary, i.e., once the force is no longer applied, the object returns to its original shape. Sidergas asserts that “plastic deformation,” on the other hand, is deformation that is not reversible. Sidergas offers that, in plastic deformation, once the yield strength of the wire is exceeded, the deformation becomes permanent. Sidergas concludes that the ’864 patent deals with “imparted shape memory” as a result of plastic deformation. (SGIB at 21-22.)

Sidergas states that the ’864 patent’s specification repeatedly discusses imparting shape memory that is retained by the wire. Sidergas quotes, “[o]nce the shape memory is imparted onto the weld wire, the weld wire is wound onto a spool of weld wire. The shape memory that is imparted onto the weld wire is fully or substantially retained in the weld wire as the weld wire is wound onto the spool and subsequently unwound from the spool . . . .” (Citing JX-1 at 8:39-46, 51-62.) (SGIB at 22.)

Sidergas contends that the applicants attempted to distinguish over the prior art that allegedly taught elastic deformation. Sidergas asserts that in a response to an Office Action, the applicants argued that the “deformation that the weld wire receives [JP 58-035068] is only the deformation within its elastic limit.” (Citing JX-2 at LEITC000976.) Sidergas continues that regarding another reference, the applicants stated that wire in the Asano prior art “is a ‘killed’ wire that can be bent and formed to retain its new shape until bent and formed again.” (Citing JX-2 at LEITC000975.) Sidergas avers that the Examiner rejected these arguments, noting that the “applicant argues that Asano does not teach a wire with a shape memory. This argument is unpersuasive since Asano teaches that the wire is bent beyond its elastic limit so that it is plastically deformed and given a shape that is retained. This teaching by Asano reads upon the limitation of ‘shape memory’ in its broadest sense.” (Citing JX-2 at LEITC000982-83.)

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Sidergas concludes, therefore, the claimed “imparted shape memory,” as understood by one of ordinary skill in the art, refers to “a specified shape or cast that is applied to the wire by plastic deformation so that the shape is retained by the wire.” (SGIB at 22-23.)

In its reply brief, Sidergas says that Lincoln argues that a weld wire has “imparted shape memory” if it has “a residual stress such that weld wire reverts to substantially consistent memory shape when the weld wire is untensioned.” (CIB at 35; RX-113.) Sidergas says that despite the differences in Lincoln’s and Respondents’ proposed constructions, both seemingly overlap because both require some sort of shape to be retained by the weld wire. Sidergas contends that where Lincoln goes astray in its proposed construction is that it fails to account for statements the patent applicants made to distinguish the claimed “imparted shape memory” from the prior art in the specification and file history of the ’864 patent. (SGRB at 4.)

Sidergas argues that Lincoln ignores repeated statements in the ’864 patent’s specification that tout the benefits of the claimed “imparted shape memory” weld wire over the prior art “killed” (i.e., straightened) wire. (Citing JX-1 at 2:33-43, 2:59-3:20; Order No. 36 at 10.) Sidergas reasons, thus, “imparted shape memory” cannot include “killed” wire because the patent distinguishes over “killed” wire. (Citing *Ekchian v. Home Depot, Inc.*, 104 F.3d 1299, 1304 (Fed. Cir. 1997).) (SGRB at 4-5.)

Sidergas points to Lincoln’s argument that Respondents’ construction is internally inconsistent because the definition includes wire that could be straight by definition but then is, at the same time, excluded. (Citing CIB at 38.) Sidergas contends that Respondents have consistently argued that the term “imparted shape memory” refers to a specific shape or cast that is applied to the wire by plastic deformation so that the shape is retained by the wire. Sidergas continues that the next prong of Respondents’ construction further narrows the construction to



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exclude wire that is “killed” (i.e., straightened). Sidergas argues that this is internally consistent because it comports with the ’864’s patent specification, which states that “[t]he common practice in the industry was to ‘kill’ the wire or otherwise remove the shape memory of the wire prior to winding the weld wire onto a reel, spool, container, or the like.” (Citing JX-1 at 2:43-46) Sidergas adds, “killed” wire, as admitted by Lincoln’s own expert, is wire that is substantially straight. (Citing Tr. at 783:7-13.) Sidergas says Lincoln’s own experts admitted that the “shape memory” of the ’864 patent must be imparted prior to the capstan. (Citing Tr. at 395:23-396:6, 805:24-806:6.) Sidergas argues that the “admission” by Lincoln’s experts that the claimed “shape memory” must be imparted before the capstan defeats Lincoln’s argument that Respondents’ construction provides no guidance about where the wire can be “killed.” (Citing CIB at 39.) (SGRB at 5-6.)

**Staff’s Position:** Staff indicated it will no longer pursue its proposed definition of “imparted shape memory.” Instead, Staff says it supports Respondents’ proposed definition for all the reasons articulated in their Pre-Hearing Briefs. (Citing EPHB at 15-16; SGPHB at 17-19.) (SIB at 21.)

**Construction to be applied:** The plain and ordinary meaning of the term, which is “a specified shape or cast that is applied to the wire by plastic deformation so that the wire has a residual stress such that the wire reverts to substantially consistent memory shape when the wire is untensioned.”

Inasmuch as, the plain and ordinary meaning of a term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, I must define a person having ordinary skill in the art at the time of the invention (“PHOSITA”). The parties differ somewhat on the qualifications they consider important in a PHOSITA. Lincoln’s expert,

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Dr. Caulfield defines a person having ordinary skill in the art as having, "... post high-school education such as a bachelor's or graduate level education in mechanical engineering or similar discipline, such as process engineering, and about two to four years of design experience in the area of the mechanical design arts, such as arts related to welding equipment and packaging." (CX-377C at Q. 50.) Dr. Caulfield testified credibly that he based his definition on his understanding that a minimal education level is required to understand the properties of weld wire and the state of weld wire and weld wire packaging technology when the application for the '864 patent was filed. (*Id.* at Q. 51.) He said he also understood that a minimal experience level is necessary so that the person would be able to understand the varied uses of weld wire, the various problems associated with the automated use of weld wire, the operations of machinery that manipulates and packages weld wire, and the problems associated with weld wire and the packaging of weld wire. (*Id.*)

Sidergas' expert Mr. Savoy, testified that a PHOSITA is "... a person with a Bachelor's degree in mechanical, civil industrial, or manufacturing engineering, or a related discipline, or a person with two to four years of industry experience in the manufacturing of welding wire and a certification as a manufacturing engineer from The Society of Manufacturing Engineering." (RX 204C at Q. 65.) Mr. Savoy's opinion was not accompanied by any support showing his reasoning or the basis for his opinion. In addition, Dr. Caulfield specifically disagreed with Mr. Savoy's opinion, stating that a PHOSITA would need both the relevant experience and the formal education. Dr. Caulfield testified that a PHOSITA would have to have at least some skill, based on experience, to understand how weld wire performs when killed or when having a shape memory. He also averred that in order to understand shape memory and the mechanical and material properties of weld wire, academic knowledge is generally required, because such

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knowledge is not generally within the experience of persons focused on the operations of a weld wire manufacturing machine. (CX 377C at Q. 55.)

I find that Dr. Caulfield's opinion is well-supported by his reasoning, and I concur that a PHOSITA requires both academic knowledge and relevant experience. Hence, I find that a PHOSITA in this case is one who has at least a bachelor's level education in mechanical engineering or similar discipline, and two to four years of design experience in the area of the mechanical design arts, such as arts related to welding equipment and packaging.

The parties are not far apart on the construction of this term. Lincoln indicates that Staff's proposed construction is similar to the construction proposed by Lincoln. While Lincoln vociferously opposes the Respondents' proposed construction, Staff indicates in its opening brief that it will no longer pursue its proposed definition and now supports Respondents' proposed definition "for all the reasons articulated in their Pre-Hearing Briefs."

Perusing the proposed constructions, one sees that Lincoln has proposed a construction that a weld wire has "imparted shape memory" if it has a residual stress such that weld wire reverts to substantially consistent memory shape when the weld wire is untensioned. Respondents agree between themselves that the proper construction of the term as used in the claims is "a specified shape or cast that is applied to the wire by plastic deformation so that the shape is retained by the wire." The parties' positions on this point are quite close.

Lincoln's argument states that the '864 patent makes it clear that an imparted shape memory stems from a residual stress placed in the wire to cause the wire to want to take a specified shape, and that the shape needs to be consistent to overcome the problems associated with the prior art "killed" weld wire. (JX-1 at 3:9-13, 8:59-62.). In fact, Lincoln criticizes Staff's position, saying that Staff's definition does not instruct regarding the type of deformation

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– plastic or elastic – that is involved in imparting the shape memory. Lincoln explains that plastic deformation alters the residual stresses within a material, thus resulting in a change in the material’s shape, while elastic does not result in the introduction of residual stresses. (RX-96C at Q. 20.)

Respondents are in apparent agreement with Lincoln when they argue that the prosecution history confirms that the “imparted shape memory” described in the patent and claimed by the ’864 patent is the result of “plastic deformation,” as distinguished from “elastic deformation.” (JX-2 at LEITC000982-83 (PTO Examiner stating that: “The applicant argues that Asano does not teach a wire with a shape memory. This argument is unpersuasive since Asano teaches that the wire is bent beyond its elastic limit so that it is plastically deformed and given a shape that is retained. This teaching by Asano reads upon the limitation of ‘shape memory’ in its broadest sense.”).)

ESAB’s expert, Dr. Brown, testified credibly that it would be apparent to a mechanical engineer of reasonable skill in the field that the shape memory described in the patent involves “what is commonly referred to as ‘plastic deformation,’ as distinguished from ‘elastic deformation.’” He then describes the difference, saying:

Deformation is simply the change in shape of an object as the result of a force applied to the object. In our case, it is simply bending the wire. If only a small amount of force is applied – the wire is only displaced slightly – it will return to its original shape when released. This is elastic deformation. However, at some point in time – when you exceed the so-called yield strength – the force becomes too great, and the object is permanently deformed. This is plastic deformation.

(RX 96C at Q. 19-20.)

Based upon the foregoing, I find that the construction of the term “imparted shape memory” shall be construed to have the plain and ordinary meaning of the term, which is “a specified shape or cast that is applied to the wire by plastic deformation so that the wire has a

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residual stress such that the wire reverts to substantially consistent memory shape when the wire is untensioned.”

The Respondents, however, wish to add to the construction that “a wire with imparted shape memory would not include wire that is ‘killed’ (*i.e.*, straightened) prior to spooling.”

Lincoln admits that the ‘864 patent “makes it clear that an imparted shape memory stems from a residual stress placed in the wire to cause the wire to want to take a specified shape, and that the shape needs to be consistent to overcome the problems associated with the prior art ‘killed’ weld wire.” (JX-1 at 3:9-13, 8:59-62.) Lincoln argues that, absent this consistency, the benefits of the invention of the ‘864 patent would not be achieved because consistent wire placement and wire contact could not be achieved, and an inconsistent wire shape will provide inconsistent wire placement during welding. Thus, Lincoln’s argument recognizes that “killed” wire and wire having an “imparted shape memory” are inherently different.

Sidergas argues convincingly that the ‘864 patent contains repeated statements that tout the benefits of the claimed “imparted shape memory” weld wire over the prior art “killed” wire. (JX-1 at 2:33-43, 2:59-3:20; Order No. 36 at 10.) Sidergas reasons, thus, “imparted shape memory” cannot include “killed” wire because the patent distinguishes over “killed” wire. *Ekchian v. Home Depot, Inc.*, 104 F.3d 1299, 1304 (Fed. Cir. 1997).

Certainly the intrinsic record is replete with references that make crystal clear that the invention of the ‘864 patent does not include “killed” wire. Probably the clearest and most dramatic of the references, however, is found in two excerpts from the Description of the Preferred Embodiments. The first, discussing the prior art, states *inter alia*:

Common industry practice has taught that weld wire unwound from a spool should be “killed.” In other words, the memory of the weld wire should be removed prior to the weld wire being wound onto a spool of weld wire. As such, when weld wire 40 is unwound from spool 50, as illustrated in Figure 7, and

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subsequently cut and fed into a welding machine and through a welding gun during the welding operation, the weld wire has no retained shape memory characteristics. Consequently, as the weld wire is wound onto the spool, the weld wire adopts another shape during the winding process. Furthermore, as the weld wire is unwound from the spool, the weld wire adopts another shape.

(JX 1 at 7:1-12.) In short, the prior art “killed” weld wire has no retained shape memory characteristics and adopts another shape when wound onto the spool and adopts still another shape when unwound from the spool.

By contrast, when referring to the weld wire of the invention, the patent states in relevant part:

Referring now to FIG. 8, the improved weld wire 60 having an imparted desired shape memory is illustrated. Weld wire 60 deviates from common industry practice by maintaining or creating shape memory in the weld wire as the weld wire is wound onto a spool of weld wire or prior to the weld wire being wound onto the spool of weld wire. As such, the weld wire has a desired shape memory when the weld wire is unwound from the spool of weld wire and fed through a welding gun. Surprisingly, it has been found that the use of a weld wire having a shape memory results in the placement of a weld bead during the welding operation which is more consistent and of a higher quality than weld beads formed by a “killed” weld wire having little or no shape memory. The use of shape memory weld wire also has been found to create a more robust weld bead during the welding process. In addition, the use of the shape memory weld wire reduces and/or eliminates the inconsistencies in the weld wire section shapes that previously were caused by inconsistencies in sections of weld wires cut by operators. In the past, weld wire without shape memory could be cut at various locations by the operator to help improve the shape of the weld wire thereby improving weld bead placement. However, the shape of the cut weld wire was not consistent from operator to operator and from section to section of the weld wire. As a result, the skill of the operator in forming the particular cut section of a weld wire affected the consistency of weld bead placement during the welding operation. *The use of a shape memory weld wire of the present invention overcomes this inconsistency problem since similar cut weld wire sections have the same or similar shape, thereby eliminating the need for an operator to further modify the shape of the weld wire.* As such, when the weld wire is fed through the contact tip of the welding gun, the weld wire will be similarly positioned relative to the welding tip, thus resulting in a more consistent weld bead placement during the welding operation.

JX 1, 7:51-8:19. (Emphasis added.) The two passages set forth, *supra*, clearly contrast the

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present invention from prior art and disavow the use of “killed” wire in connection with the invention of the ‘864 patent.

It is undisputed that the ‘864 patent makes clear that the use of weld wire having an “imparted shape memory” *is* the invention, and repeatedly contrasts the weld wire of the invention with the prior art “killed” weld wire, which has no shape memory. The evidence shows, too, that the two terms are mutually exclusive. That mutual exclusivity, however, is the very reason why the construction of the term “imparted shape memory” does not require the language of disavowal proposed by Respondents. To say that a wire with imparted shape memory would not include wire that is “killed” is redundant.<sup>6</sup>

Based on the foregoing, I find that the proper construction of the term “imparted shape memory” is the plain and ordinary meaning of the term, which is “a specified shape or cast that is applied to the wire by plastic deformation so that the wire has a residual stress such that the wire reverts to substantially consistent memory shape when the wire is untensioned.”

### **3. “Prior to Said Weld Wire Being Wound on Said Spool”**

The term “prior to said weld wire being wound on said spool” appears in asserted claims 3, 6 and 12.

**Lincoln’s Position:** Lincoln reiterates its position that claims 3, 6 and 12 are directed to a “weld wire” having certain specified physical characteristics, and as such the term “on a spool” is not an affirmative limitation, in that Lincoln must demonstrate the presence of a spool for the accused products to infringe. (Citing CIB at Section III.A.3.b; Order No. 36.) Because of this, Lincoln submits that the construction of “prior to said weld wire being wound on said spool” is equally unnecessary. Lincoln says that Staff asserts that this claim language is a limitation but

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<sup>6</sup> While Respondents also argue that “killed” wire is wire that is “straightened prior to spooling,” I take no position at this point except to find that “killed” wire has no shape memory – whether it is curved or straight.

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requires no construction, while Respondents stated that “prior to said weld wire being wound on said spool” is an affirmative limitation which means “before the process of winding the wire on the spool.” (Citing RX-113.) (CIB at 46-47.)

Lincoln contends that, during prosecution of the ‘864 patent, applicants pointed out to the Examiner that “the shape memory imparted on the weld wire of the present invention is used to improve the quality of the weld bead and facilitate formation of the weld bead.” (Citing JX-2 at LEITC000975.) Lincoln avers that nowhere did applicant state that the invention was a weld wire coupled to a structural “spool” device, or that the spool was a necessary feature of the claimed invention. Lincoln reiterates that the claim language that the shape memory is imparted at least partially “prior to said weld wire being wound on said spool” is a statement of intended use and not an affirmative limitation. (CIB at 47.)

Lincoln argues that the Federal Circuit’s recent decision in *Marrin* supports its claim construction position that language within the body of a claim can be found to be statements of “intended use” and not affirmative claim limitations. In light of the guidance provided by this case, Lincoln again asserts that this claim language is merely a statement of intended use, as determined by the Examiner during prosecution of the ‘864 patent. (Citing CIB at Section I.D.2.) (CIB at 47-48.)

Lincoln argues that I already addressed the language of the asserted claims of the ‘864 patent. Lincoln cites Order No. 36 at 11 to state that “weld wire that is not stored on a spool may infringe claim 3,” so long as “it has the required shape memory, and that the shape memory would be *at least partially imparted on the wire prior to winding on a spool.*” (Emphasis added.) Lincoln contends that, with respect to claims 6 and 12, the Order determined that to infringe, no physical spool is required, but rather that “the shape memory must be imparted *at*



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*least partially prior to the wire being wound on a spool*, and that the shape memory must be at least partially retained when the wire is unwound from the spool.” (Citing Order No. 36 at 12) (Emphasis added.) Lincoln acknowledges that Order No. 36 did not specifically address or attempt to construe the language “prior to said weld wire being wound on said spool;” but asserts that, in the discussion and decision of Order No. 36, the Order addressed the claim language and provided the meaning to be ascribed to this claim language. (Citing Order No. 36 at 11-12.) (CIB at 48, n.13.)

Lincoln adds that Respondents are attempting to “define” their “definition” of “prior to said weld wire being wound on said spool” to mean that either (1) the all of the imparted shape memory is placed in the weld wire prior to the weld wire reaching the capstan of the packaging equipment, or (2) that for a weld wire to infringe, the “process” employed to make the wire must be identical to that disclosed in the ‘864 patent. (Citing EPHB at 23-26; SGPHB at 28-35.) (CIB at 48-49.)

Lincoln argues first, an accused infringer can not be heard to argue that they do not infringe apparatus claims for failure to follow an exemplary method of manufacture stated in the patent. (Citing *Vanguard Prods. Corp. v. Parker Hannifin Corp.*, 234 F.3d 1370, 1372 (Fed. Cir. 2001).) Lincoln contends that such a result would render all apparatus claims “method” claims. Lincoln continues, second, Respondents argue that “Lincoln attempts to apply this limitation to the process used in coiling wire into the accused drum products then, likewise, the shape must be imparted to the product prior to the process of forming the wire into loops for placement into the drum.” (Citing EPHB at 20.) Lincoln says not only is this a position not proffered by Respondents in their proposed construction for this claim language, and therefore improper argument, (Citing RX-113.) it represents an attempt to (1) read the word “partially” completely

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out of the claims, and (2) impose an undefined and amorphous temporal limitation prior to which all of the shape memory must be imparted. (CIB at 49.)

Lincoln reiterates that the claim language “prior to said weld wire being wound on said spool” means that the “required shape memory must be imparted at least partially prior to the wire being wound on a spool of weld wire,” while the presence of a spool is not needed for infringement. (Citing Order No. 36 at 11-12.) Therefore, to the extent the proposed definitions by Staff and Respondents contradict this meaning they should be rejected. (CIB at 49-50.)

In its reply brief, Lincoln says that Staff does not offer a construction of “prior to said weld wire being wound on said spool;” but states that Order No. 36 confirms and is consistent with Staff’s position. (Citing SIB at 22.) Lincoln refers to its initial post-trial brief to address Staff’s position. (Citing CIB at 46-59.) (CRB at 17.)

Lincoln argues that Respondents seek to establish “where” in the method of manufacture of weld wire the “process of winding” begins. (Citing EIB at 20-21; SGIB at 23-25.) Lincoln reiterates its argument that Respondents improperly attempt to define the claimed weld wire by its method of manufacture. (CRB at 17.)

Lincoln cites ESAB’s assertion that “[a]s Lincoln’s employee and experts concede, the process of winding the wire onto the spool begins at the capstan of the winding machine.” (Citing EIB at 23.) Lincoln notes that Respondents also assert that the “plain language” of the asserted claims support their position by relying on the claim language “shape memory imparted on said weld wire at least partially prior to said weld wire being wound.” (Citing EIB at 24; SGIB at 23-25.) Lincoln responds that none of Respondents’ citations support the conclusion that the claim language requires that the “winding” process begin prior to the capstan on a winding machine. Lincoln asserts that the term “capstan” does not appear anywhere in the ‘864

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patent, and there is no disclosure in the '864 patent to suggest that the process of "winding" weld wire occurs at any other place than immediately prior to the wire being wound onto the spool of weld wire. (CRB at 18.)

Lincoln adds that Respondents can point to no documents that support their argument that weld wire should be considered "wound" prior to the capstan of a winding machine. Lincoln denies that its witnesses made such admissions. Lincoln continues that there was no testimony from any of the witnesses that the winding process "begins at the capstan of the winding machine." Lincoln avers that reference to that allegation came instead from counsel for ESAB reading deposition testimony into the record in an attempt to impeach Dr. Caulfield. Lincoln argues that such "testimony" does not constitute evidence. Lincoln concludes that ESAB's own documents characterize the entire "drumming machine" as a winding machine which processes the wire from start to finish. (Citing RX-95C at Q. 27; RX-45C.013; CIB at 91-92.) (CRB at 18.)

Lincoln contends that, assuming *arguendo* that Respondents' argument had merit, there is nothing in the intrinsic record that suggests the imparted shape memory must be imparted at least partially prior to the beginning of a winding process, as opposed to the actual winding of the wire into its package. Lincoln argues that the only reasonable reading of the claim language "prior to [the] weld wire being wound" is that it refers to the actual winding of the wire into its package. (Citing JX-1 at claim 3.) (CRB at 19.)

**ESAB's Position:** ESAB argues that, as part of Order No. 36, I properly concluded that the asserted claims require imparting the claimed shape memory at least partially "prior to said weld wire being wound on said spool," and rejected Lincoln's related arguments that the limitations were mere statements of intended use. (Citing Order No. 36 at 11-12.) ESAB

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argues that this ruling is supported by Federal Circuit precedent related to the proper construction and application of product-by-process claims. (Citing *Amgen, Inc. v. F. Hoffman-LaRoche Ltd.*, 580 F.3d 1340, 1370 (Fed. Cir. 2009).) (EIB at 20.)

ESAB cites the testimony of Lincoln's expert Dr. Caulfield, stating Dr. Caulfield testified that the asserted claims require imparting a curvilinear shape to the wire prior to winding as distinguished from the prior-art technique of winding a "killed" (*i.e.*, substantially straight) wire product. (Citing Tr. at 385:21-386:8; 387:17-388:14; 394:18-24, 395:12-396:6.) (EIB at 20-21.)

In its reply brief, ESAB argues that Lincoln's reliance on *Vanguard Prods. Corp. v. Parker Hannifin Corp.*, 234 F.3d 1370 (Fed. Cir. 2001) is incorrect. ESAB argues that *Vanguard* is distinguishable on its facts, because unlike the claims of the '864 patent that all incorporate relevant process limitations, the patent at issue in the *Vanguard* case did not include any similar claim language requiring any manufacturing step or relevant process order as present in this case. (Citing CIB at 49.) (ERB at n. 3.)

ESAB argues that Lincoln has offered no competing construction, based on its position that the phrase was only a statement of intended use. ESAB concludes that the terms are clear on their face and should be construed as proposed by Respondents to require that the requisite shape memory must be imparted to the wire at least partially "before the process of winding the wire on a spool" consistent with the prior ruling in Order No. 36 and as distinguished from wire that is "killed" or straightened prior to winding. (ERB at 6.)

ESAB says that, in its Post-Trial Brief (at 48-49), Lincoln mischaracterizes Respondents' position as requiring that *all* of the shape memory must be applied prior to winding. ESAB contends that the foregoing has never been Respondents' position; rather, what *has* been Respondents' position, consistent with the testimony of Lincoln's *own experts* (Drs. Caulfield

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and Swanger) is that material aspects of the claimed “shape memory” (*i.e.*, a curvilinear shape) *must* be imparted to the wire prior to the capstan. ESAB argues, otherwise, all of the so-called “shape memory” is imparted *during* the winding process, which would directly encompass the prior art. (ERB at 6.)

ESAB concludes that the term must be construed and applied in a manner that gives the requirement meaningful effect as a matter of law. (Citing *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950-51 (Fed. Cir. 2006).) (ERB at 6.)

**Sidergas’ Position:** Sidergas states that Respondents’ construction of “prior to said weld wire being wound on said spool” is “before the process of winding the wire on the spool.” (Citing RX-113 at 4.) Sidergas contends that this means that the desired shape memory must be imparted onto the wire at least partially “prior to” the wire being wound on the spool. Sidergas asserts that Lincoln’s employees and experts concede the process of winding the wire onto the spool begins at the capstan of the winding machine. (Citing Tr. at 195:21-25; 256:12-19; 392:10-16; 395:12-22; 397:16-398:24.) (SGIB at 23.)

Sidergas asserts that Lincoln has offered no competing construction, based on its position that the phrase was only a statement of intended use. (Citing RX-113.) Sidergas argues that since these terms are clear on their face, the terms should be construed as proposed by Respondents to require that the requisite shape memory be imparted to the wire at least partially “before the process of winding the wire on a spool” “consistent with the prior ruling in Order No. 36.” (Citing *Cent. Admixture Pharmacy Servs., Inc. v. Advanced Cardiac Solutions, P.C.*, 482 F.3d 1347, 1356 (Fed. Cir. 2007).) (SGIB at n. 5.)

Sidergas contends that the plain language of the claims supports Respondents’ construction. (Citing JX-1 at claim 3.) (SGIB at 23.)

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Sidergas argues that the '864 patent's specification aligns with the claim language, and the Abstract unequivocally states that the "linear cast is formed on the weld wire prior to the weld wire being wound on the spool of weld wire." (Citing JX-1 at Abstract; 3:21-24.) (SGIB at 23.)

Sidergas adds that the specification states that, in the prior art, "[w]hen the weld wire is wound on the reel, spool, container, or the like, the weld wire adopts a new shape *as it is being wound*. . . . Since the weld wire has no memory, the weld wire constantly modifies its shape as it passes through the weld gun . . . ." (Citing JX-1 at 1:39-57) (Emphasis added.) Sidergas says the use of a weld wire with a predefined shape memory was a deviation from the common industry practice that teaches that weld wire that is fed into a welding machine should have little or no shape memory. (Citing JX-1 at 3: 21-24.) Sidergas concludes that the "shape memory" of the alleged invention of the '864 patent must be imparted onto the wire at least partially prior to the process of winding the wire on a spool. (SGIB at 24.)

Sidergas argues that requiring the "shape memory" to be imparted onto the wire at least partially "prior to" the wire being wound on the spool comports with the intended goal of the '864 patent. Sidergas asserts that there are material differences between wire that is wound on spools and wire placed in drums. (Citing JX-26C at 37:16-38:25; Tr. at 316:23-317:15, 797:3-798:2.) Sidergas says that "killed" wire that is wound around a spool has a varied loop diameter because wire at the beginning of the winding process has substantially the same diameter as the core, and this loop diameter changes as more wire is wound onto the spool, thereby affecting the shape of the wire. (Citing JX-1 at 2:35-45.) Sidergas posits that the '864 patent attempts to overcome this problem by imparting shape memory to the wire before the winding process. (Citing JX-1, at 3:21-28, 7:4-12, Abstract.) Sidergas asserts that Dr. Caulfield admitted that the

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asserted claims of the '864 patent require imparting curvilinear shape to the wire before winding as distinguished from the prior art technique of winding a “killed” (i.e., substantially straight) wire product. (Citing Tr. at 385:21-386:8, 387:17-388:14, 394:18-24, 395:12-396:6.) (SGIB at 24-25.)

Sidergas says that Order No. 36 adopted this construction, holding that the claimed shape memory must be imparted to the wire “prior to said weld wire being wound on said spool.” (Citing Order No. 36 at 11-12.) Sidergas argues that, in so doing, the Order rejected Lincoln’s argument that the limitations were mere statements of intended use. Sidergas argues that Order No. 36’s holding is in accord with Federal Circuit precedent. (Citing *Amgen Inc. v. F. Hoffman-LA Roche Ltd.*, 580 F.3d 1340, 1370 (Fed. Cir. 2009).) (SGIB at 25.)

In its reply brief Sidergas says Lincoln’s argument relies on the recent Federal Circuit decision in *Marrin*, claiming that it supports its “claim construction position that language within the body of a claim can be found to be statements of ‘intended use’ and not affirmative claim limitations.” (Citing CIB at 47.) Sidergas refers to its initial Post-Hearing Brief at section II.A, to support its contention that Lincoln misreads *Marrin*. (SGRB at 8.)

Sidergas argues that Lincoln equivocates on its position regarding this term. Sidergas says, on the one hand, Lincoln argues that it is a statement of intended use, (Citing CIB at 46) while on the other hand Lincoln seems to provide at least two different constructions including:

- “Because of the Court’s treatment of this claim language, no further construction of this term is necessary as a person of ordinary skill in the art would readily understand its plain and ordinary meaning.” (Citing CIB at 48); and
- “The claim language ‘prior to said weld wire being wound on said spool’ means that the ‘required shape memory must be imparted at least partially prior to the wire being wound on a spool of weld wire’, while the presence of a spool is not needed for infringement.” (Citing CIB at 49)

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Sidergas argues that neither of these constructions should be accepted because Lincoln argued that the term was only a statement of intended use and did not provide any other construction as required by the procedural schedule. (Citing RX-113 at 4; CX-377C at Q. 85-86; CIB at 46.) (SGRB at 9.)

Sidergas continues that Lincoln's position now is entirely inconsistent with the position it took during the prosecution of the patent. Sidergas asserts that, in responding to an Office Action, Lincoln stated:

Applicant has added new claims 26-36. Independent claims [sic] 26 requires the weld wire to have a shape memory imparted on the weld wire at least partially prior to the weld wire being wound on a reel and at least partially retained in the weld wire after being unwound from the reel. *None of the references teach or suggest such a limitation.*

(Citing JX-2 at LEITC000975) (Emphasis added.) Sidergas reasons that the applicants expressly acknowledge that “prior to the weld wire being wound on a spool” is a limitation that is not found in the prior art. Citing *Hearing Components, Inc. v. Shure Inc.*, 600 F.3d 1357 (Fed. Cir. 2010), Sidergas argues that Lincoln should not be allowed to reverse course and argue a position that is now wholly contrary to one it argued during prosecution. Sidergas also cites *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1578 (Fed. Cir. 1995), to say “[a] patentee may not proffer an interpretation for the purposes of litigation that would alter the indisputable public record consisting of the claims, the specification and the prosecution history, and treat the claims as a ‘nose of wax.’” (SGRB at 10.)

**Staff's Position:** Staff agrees with the statement in Order No. 36 that the claimed phrase “prior to said weld wire being wound on said spool” is not a mere statement of intended use and argues that Lincoln's continued advancement of its intended use argument should be rejected. (Citing CPHB at 45-46.) (SIB at 22.)



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Staff says that Order No. 36 also stated, consistent with the Staff's position, that the "claim further makes clear that the required shape memory must be imparted at least partially prior to the wire being wound on a spool." (Citing Order No. 36 at 11.) Staff argues that this observation supports the Staff's view that the phrase "prior to said weld wire being wound on said spool" is clear and unambiguous such that it need not be construed. (SIB at 22.)

**Construction to be applied:** The term is given its plain and ordinary meaning, which is "at a point in time before the weld wire is physically wound on said spool."

Lincoln continues its basic approach, arguing that the claim language that the shape memory is imparted at least partially "prior to said weld wire being wound on said spool" is a statement of intended use and not an affirmative limitation. I have already rejected Lincoln's intended use argument in connection with the language "on a spool" appearing in the "preambles" of asserted claims 3, 6 and 12. In addition, I have already found that the specific language at issue here is more than a mere statement of intended use. In Order No. 36, I noted, "while Lincoln addresses the examiner's statements during prosecution, it ignores its own statement made during prosecution regarding the disputed spool language." In responding to an Office Action, Lincoln stated:

Applicant has added new claims 26-36. Independent claims [*sic*] 26 requires the weld wire to have a shape memory imparted on the weld wire at least partially prior to the weld wire being wound on a reel and at least partially retained in the weld wire after being unwound from the reel. ***None of the references teach or suggest such a limitation.***

(JX 2 at LEITC000975) (Emphasis added.) This statement expressly acknowledges that reference to "having a shape memory imparted on the weld wire at least partially prior to the weld wire being wound on a reel" is "a limitation" that is not taught by the prior art. Lincoln's position during prosecution is wholly contrary to the position it now asserts, and I find that this

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inconsistency undercuts its argument that the language in the body of the claim is merely a statement of intended use.

In addition, I now note that following the foregoing assertion by the patentees, the patent examiner issued a Final Office Action on October 21, 2003. (JX 2 at LEITC000977.) In response to that Final Office Action, on October 30, 2003, patentees filed an “Amendment After Final” in which (then) claims 27, 28 and 30 were each changed to add the language that previously had been included in claim 26, including *inter alia* the phrase “... said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool ...”<sup>7</sup> (See JX 2 at LEITC000998, LEITC000999, LEITC000994, LEITC000995.) In response to the Amendment After Final, the examiner issued the Notice of Allowability which resulted in the ‘864 patent. (JX 2 at LEITC001004-1005.) Based upon the foregoing, I find that the language at issue here is a claim limitation and not a mere statement of intended use.<sup>8</sup>

Respondents argue that the term should be construed to mean that the shape memory is imparted prior to “the process” of winding the weld wire on the spool, and they contend that such a construction requires a finding that “the process” begins “prior to the capstan.” (See ERB at 6; SGIB 23.) They argue that that the claims describe a “product by process,” which includes a capstan prior to actually winding the weld wire on the spool. Respondents cite *Amgen, Inc. v. F. Hoffman-LaRoche Ltd.*, 580 F.3d 1340, 1370 (Fed. Cir. 2009) to say that in determining

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<sup>7</sup> While Lincoln referred to a “reel” in its statement to the patent examiner, the amendments to the claims substituted the word “spool” without otherwise changing the wording of the amendments from the language cited by Lincoln in its response to the Office Action.

<sup>8</sup> This finding is based on emphasis placed on the purpose of the invention in the ‘864 patent, the focus and detail of arguments at trial on the figures depicted in the ‘864 patent and the prosecution history set forth herein that was emphasized during the investigation after issuance of Order 36. To the extent that this finding contradicts all or any part of my Order No. 36, this finding shall control. See, e.g., *Pressure Prods. Med. Supplies, Inc. v. Greatbatch, Ltd.*, 599 F.3d 1308, 1315-1316 (Fed. Cir. 2010); *Jack Guttman, Inc. v. Kopykake Enterprises, Inc.*, 302 F.3d 1352, 1361 (Fed. Cir. 2002).

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infringement of a product-by-process claim, the focus is on the process of making the product as much as it is on the product itself and argues that a product-by-process claim is not infringed by a product made by a process other than the one recited in the claim. (EIB at 20; SGIB at 25.)

Although Sidergas asserts that extrinsic evidence – the testimony of Lincoln’s employees and experts – concedes the process of winding the wire onto the spool begins at the capstan of the winding machine, the testimony is largely devoted to the actual process used by Lincoln and ESAB to produce weld wire – not a method necessarily described by the ‘864 patent. (See Tr. at 195:21-25, 256:12-19, 392:10-16, 395:12-22, 397:16-398:24.) None of the cited extrinsic evidence can replace the clear language of the ‘864 patent.

Lincoln argues that the patent requires the imparting of the shape memory *immediately* prior to the weld wire being wound on the spool.<sup>9</sup> The Respondents argue that the term should be construed to require the imparting of shape memory at some point prior to the “capstan.” All that the patent teaches, and all that is required, is that the weld wire has “...said shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool ...” There is no requirement that the shape memory be imparted immediately prior to the wire being wound on the spool or that it be wound at some earlier point in time such as, for example prior to encountering the capstan. None of the language of the ‘864 patent cited, *supra*, by the parties mentions (or even hints at) a requirement that the shape memory be imparted to the weld wire at any specific point, except that it must be imparted *prior to* the weld wire being wound on the spool.

After a thorough review of the entire record and a detailed reading of the ‘864 patent and its history, I find that the phrase “prior to said weld wire being wound on said spool” shall be

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<sup>9</sup> While the parties argue whether or not the ‘864 patent teaches a product by process or just a product, it is not necessary to decide that issue here. The issue is relevant and material to deciding whether or not the ProStar brochure is invalidating prior art. See section IV.C.4, *infra*.

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given its plain and ordinary meaning, which is “at a point in time before the weld wire is physically wound on said spool.”

#### 4. “Substantially Lying in a Single Plane” & “Substantially in One Plane”

The phrases “substantially lying in a single plane” and “substantially in one plane” are found in asserted claims 3, 6, and 12.

**Lincoln’s Position:** Lincoln contends that these two phrases each mean “essentially lying in one geometric plane.” (CIB at 50, 65.)

Lincoln argues that Staff and Respondents seek to impart numerical limitations from the specification when defining these claim terms. (Citing RX-113.) Lincoln states that because the claim language is clear to a person of ordinary skill in the art, no definition is necessary. (Citing CX-377C at Q. 113.) To the extent that the plain and ordinary meaning is to be enumerated, Lincoln asserts that one of ordinary skill in the art would understand the language to mean “essentially lying in one geometric plane.” (Citing CX-377C at Q. 113; CX-422C at Q. 64.) (CIB at 51.)

Lincoln argues that its expert Dr. Caulfield agrees that the plain and ordinary meaning of the claim language is “essentially lying in one geometric plane.” (Citing CX-377C at Q. 113.) Lincoln asserts that Respondents mischaracterize Dr. Caulfield’s testimony, as Dr. Caulfield merely noted that the patent’s use of “6 inches” is merely intended to highlight and exemplary embodiment. (Citing CX-377C at Q. 113.) (CIB at 52.)

Lincoln argues that Staff’s and Respondents’ constructions seek to improperly add language regarding the wire being placed on a surface. According to Lincoln, the addition of this language adds confusion to the claim language being construed. (CIB at 52.)

In its reply, Lincoln reiterates that the terms “substantially lying in a single plane” and

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“substantially in one plane” require no interpretation because the plain and ordinary meaning of the phrases are well known to those of ordinary skill in the art. To the extent that a construction is needed, Lincoln reiterates that the proper construction is “essentially lying in one geometric plane.” (CRB at 19-20.)

Lincoln asserts that the specification provides some guidance as to what “substantially” means, depending on the context of the use of the term waveform. For example, Lincoln claims that it could hardly be suggested that a waveform which is merely approximately 10 to 20 inches in length and has a rise off a flat surface of 6 inches would be considered “substantially” lying in a flat plane. Further, Lincoln argues that the specification provides no clear disclaimer to limit the claim language. (CRB at 20.)

**ESAB’s Position:** ESAB contends that these phrases mean “when the wire is placed on a flat surface, the displacement of the wire from the surface is less than approximately 6 inches.” (EIB at 24.)

ESAB asserts that in their pre-trial briefs, Lincoln and Staff adopted constructions that are virtually identical to ESAB’s construction. (Citing CPHB at 48; SPHB at 23.) ESAB states that Lincoln’s experts concurred that this was the proper construction. (Citing CX-377C at Q. 113-114; Tr. at 379:10-23, 791:19-25.) ESAB claims that the parties are thus in agreement as to the proper construction. (EIB at 24.)

In its reply, ESAB reiterates that prior to trial, all of the parties were in substantial agreement regarding the construction of these terms. ESAB notes that Lincoln’s opening post-hearing brief now advocates a construction that lacks the numerical limitation included in Respondents’ construction. ESAB argues that the phrases should be construed consistent with the manner proposed by the parties prior to the hearing and actually advocated and applied by

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Lincoln's experts at the hearing. (ERB at 9-10.)

**Sidergas' Position:** Sidergas takes no position on the meaning of this claim language.

**Staff's Position:** Staff contends that these two phrases each "allow for deviations relative to the geometric plane of less than 6 inches." (Citing CX-377C at Q. 114.) (SIB at 22.)

**Construction to be applied:** "the weld wire, when laid upon a flat surface, rises above the flat surface less than about 6 inches"

Claim 3 requires "shape memory substantially lying in a single plane" and claims 6 and 12 each require "shape memory imparted substantially in one plane along a longitudinal length of said weld wire."<sup>10</sup> From the claim language alone, it is not possible to understand the scope of these phrases. The term "substantially" is a term of degree, as it does not provide precise guidance regarding the amount of deviation that is acceptable to remain "substantially" in a single plane. *Deering Precision Instruments, L.L.C. v. Vector Distribution Sys., Inc.*, 347 F.3d 1314, 1322-1323 (Fed. Cir. 2003) (noting that some dictionary definitions of "substantially" are: "significantly," "considerably," "largely," and "essentially"). Thus, it is appropriate and necessary to look to the specification to help define the limits of the term. As the Federal Circuit explained:

When a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree. The trial court must decide, that is, whether one of ordinary skill in the art would understand what is claimed when the claim is read in light of the specification.

*Seattle Box Co. v. Indus. Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984)

(addressing the claim language "substantially equal to").

The specification only discusses this claim language in the following two passages:

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<sup>10</sup> Claim 6 actually requires "shape memory imparted substantially in one plane alone a longitudinal length of said weld wire," but I find that "alone" is an obvious typographical error that should be read to mean "along." See *Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1353 (Fed. Cir. 2009).

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In one embodiment, the shape memory of the weld wire is imparted substantially in one plane along the longitudinal length of the weld wire. In one aspect of this embodiment, the cut weld wire, when laid upon a flat ground surface, rises above the flat ground surface less than about 6 inches, generally less than about 5 inches, typically less than about 4 inches, more typically less than about 3 inches, even more typically less than about 2 inches, and still even more typically less than about 1.5 inches. As can be appreciated, the less the weld wire deviates from the single plane, the better the consistency of weld bead placement typically obtained.

(JX-1 at 3:52-63.)

As shown in FIG. 8B, when the weld wire section 62 is laid upon a flat ground surface G, the imparted shape memory on the wire is substantially in one plane. As such, the weld wire section 62 substantially does not rise above the flat ground surface. Typically, the cut weld wire section 62 does not deviate from the flat ground surface by more than about 5 inches, more typically less than about 3 inches, still more typically less than about 2 inches, and even more typically less than about 1.5 inches. Deviations that are too large can result in inferior weld bead placement consistency.

(JX-1 at 8:62-9:5.) A review of the prosecution history does not provide any further guidance regarding the meaning of the claim language at issue. (JX-2.)

Based on the guidance provided in the specification regarding the meaning of these phrases, I find that “substantially lying in a single plane” and “imparted substantially in one plane” require that the weld wire, when laid upon a flat surface, rises above the flat surface less than about 6 inches.

Lincoln argues that the phrases do not need any construction, because they have a plain and ordinary meaning. To the extent that the plain and ordinary meaning is to be enumerated, Lincoln asserts that one of ordinary skill in the art would understand the language to mean “essentially lying in one geometric plane.”

I find that, contrary to Lincoln’s assertion, it is necessary to construe these phrases. From the briefing, it is clear that the parties dispute the meaning of this claim language. Lincoln’s proposed construction constitutes nothing more than the exchange of one term of degree

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(substantially) for a synonymous term of degree (essentially). The proposed construction provides no insight into the meaning of the claim language, and fails to provide any guidance regarding the scope of the claims. Lincoln's construction provides no definite bounds on the claim and fails to ensure that the claim provides public notice regarding what level of deviation from a single plane is actually covered by the claim language. *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 232 (1942) ("The inventor must 'inform the public during the life of the patent of the limits of the monopoly asserted, so that it may be known which features may be safely used or manufactured without a license and which may not.'") (citation omitted).

Lincoln argues that including the numeric requirement of less than about 6 inches would improperly import a limitation from the specification into the claims. The construction to be applied does not improperly add a limitation to the claim. Instead, it clarifies existing claim language by using the specification to provide meaning to an otherwise indefinite term. *See Seattle Box Co.*, 731 F.2d at 826. Here, the only standard offered in the intrinsic record for measuring the scope of "substantially" comes in the form of the numerical limit found in the construction. (*See* JX-1 at 3:52-63, 8:62-9:5.)

### 5. "Waveform"

The term "waveform" is found in asserted claims 3, 4, 6, and 12.

**Lincoln's Position:** Lincoln contends that the term "waveform" requires no construction as such language is well understood by those of ordinary skill in the art. However, to the extent the phrase is to be construed, Lincoln contends that the proper construction is "a curve that represents the propagation of a wave." (CIB at 53.)

Lincoln argues that, contrary to Staff's assertion, the term "waveform" should be construed consistently across all asserted claims. (Citing *Phometrics, Inc. v. Northern Telecom*



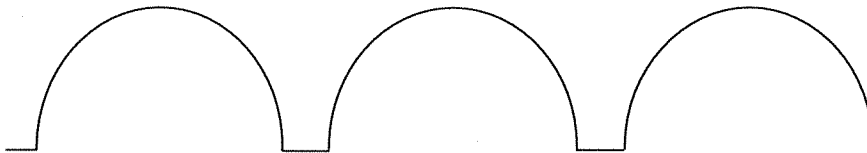
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*Inc.*, 133 F.3d 1459, 1465 (Fed. Cir. 1998); *CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1159 (Fed. Cir. 1997); *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579 (Fed. Cir. 1995).) (CIB at 53-54.)

Lincoln asserts that Respondents waived their right to construe “radius of curvature.” (Citing RX-113.) Lincoln states that Respondents’ proposal to separately define it is an acknowledgment that defining the term “waveform” has little or nothing to do with the definition of “radius of curvature.” (CIB at 54.)

Lincoln argues that “waveform” has a plain and ordinary meaning in the art, and thus no definition is required. (Citing CX-377C at Q. 118; CX-422C at Q. 64.) To the extent a definition is necessary, Lincoln argues that the ordinary meaning of “waveform” is “a curve that represents the propagation of a wave.” (Citing CX-377C at Q. 119; CX-422C at Q. 64; RX-25C at ¶ 50; CX-15; CX-16.) (CIB at 54.)

Lincoln argues that Respondents’ reliance on the shape of the waveform found in an embodiment depicted in Figures 8 and 8A is improper, as Lincoln claims that Respondents seek to import limitations from the specification into the claims. Lincoln argues that Staff’s proposed construction is too broad, as it would read in waveform shapes that are clearly not intended to be covered by the ‘864 patent claims. Lincoln includes the following shape as an example of something that would meet Staff’s construction, but should not be encompassed by the ’864 patent:



(CIB at 55.)

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Lincoln argues that Staff's use of the phrase "repeats periodically in time" is inappropriate because the '864 patent is not directed to electrical waveforms, but a physical structure that does not change over a period of time. Lincoln claims that Staff's construction also seeks to import limitations from the specification by including the requirement that the waveform have a semi-circular shape. (Citing JX-1 at 9:5-7.) Lincoln points to claim 5, which is dependent on claim 3. Claim 5 specifically requires each that half-cycle of the waveform have a substantially semi-circular shape. (Citing JX-1 at 10:41-42.) Under the doctrine of claim differentiation, Lincoln asserts that it would be improper to add a semi-circular limitation to claim 3. (Citing *Comark Comm'ns Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998); *Tandon Corp. v. United States Int'l Trade Comm'n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987).) Lincoln argues that Staff and Respondents fail to point to any clear disclaimer in the intrinsic evidence that would require limiting all claims to a waveform with a semi-circular shape. (Citing *Voda v. Cordis Corp.*, 536 F.3d 1311, 1321 (Fed. Cir. 2008).) (CIB at 55-56.)

Lincoln argues that Respondents' proposed construction is incorrect for all of the reasons discussed with respect to Staff's proposed construction. In addition, Lincoln claims that Respondents' construction is internally inconsistent because it requires the curve both to be a "sinusoidal" curve and also have a substantially semi-circular shape. (Citing RX-113.) Lincoln claims that a sinusoidal curve has a specific geometry, which is universally understood not to be semi-circular. (Citing Tr. at 622:23-623:4.)

In its reply brief, Lincoln reiterates its view that "waveform" should be construed consistently across all asserted claims. Lincoln states that it disagrees with Staff's position that "waveform" in claim 12 should be construed differently than "waveform" in claims 3 and 6 because of the appearance of the "radius of curvature" language in claims 3 and 6. Although

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Lincoln agrees with Respondents that the terms should be construed consistently, Lincoln does not agree with Respondents' proposed construction. (CRB at 20-22.)

Lincoln states that Staff argues the use of the article "a" dictates that only a "single" radius of curvature is contemplated and claimed. Lincoln asserts that this position is contrary to the law that the word "a" in the claims generally means "one or more" in open-ended claims. (Citing *KCJ Corp. v. Kinetics Concepts, Inc.*, 223 F.3d 1351, 1356 (Fed. Cir. 2000).) Lincoln notes that the '864 patent specifically states and contemplates that even its exemplary embodiments have half-cycles with more than one radii of curvature. (Citing JX-1 at Abstract; Tr. at 735:2-15.) (CRB at 22.)

Lincoln next addresses Staff's argument that that Lincoln's definition invites a curve of "almost any shape." Lincoln argues that Staff is wrong in its criticism. According to Lincoln, the claims describe a "waveform" having certain physical properties; thus, the claims obviously precludes from infringement all shapes that are not "waveforms" having those physical properties. Moreover, Lincoln claims that Staff's position ignores the express teachings of the '864 patent, which states that "[i]n still another embodiment, the desired shape memory imparted onto the weld wire is a waveform; however, as can be appreciated, other shapes for the shape memory can be imparted onto the weld wire." (Citing JX-1 at 4:10-14.) (CRB at 23.)

Lincoln argues that Staff incorrectly dismisses Lincoln's claim differentiation argument because it does not comport with Staff's understand of claim 3. (Citing SIB at 20-21.) Lincoln argues that the plain language of claims 3 and 5 rebut Staff's assertion that claim differentiation is not applicable. (CRB at 23-24.)

Lincoln addresses ESAB's argument that the '864 patent disclaims other shapes, particularly the shape shown in Figure 4. (Citing EIB at 23.) Lincoln argues that there is

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nothing in the intrinsic record that demonstrates any clear disclaimer of other types of waveforms. Lincoln notes that Figure 4 is described as a “waveform” and is distinguished based on characteristics other than the waveform shape. (Citing JX-1 at 7:17-26.) Lincoln asserts that the witness testimony that ESAB offers to support its argument is of little relevance to the claim construction process and cannot overcome the express language of the ‘864 patent. (CRB at 24-25.)

Lincoln states that ESAB’s proposed interpretation of “waveform” should be contrasted with ESAB’s application of alleged prior art to this claim language. Lincoln notes that Dr. Brown opined that at least the ProStar brochure (RX-18) invalidated the asserted claims, even after admitting that RX-18 only disclosed a “sinusoidal” waveform. (Citing RX-96C at Q. 54.) Further, Lincoln states that ESAB argues that its unidentified and purported prior art weld wire, which is alleged to have the same shape as ESAB’s current products, invalidates the asserted claims. (Citing EIB at 35-40.) Lincoln asserts that ESAB cannot have it both ways, and its attempt to do so underscores the infirmities of its proposed claim construction. (CRB at 25.)

**ESAB’s Position:** ESAB contends that the term “waveform” means “a sinusoidal (undulating) curve having alternating half-cycles, each half-cycle having a substantially semi-circular shape.” (EIB at 22.)

ESAB asserts that the ‘864 patent describes the shape of the wire as a “succession of generally semi-circular sections having a generally fixed radius of curvature.” (Citing JX-1 at Abstract, 4:59-64, 9:5-8.) ESAB states that the specification uses the term “radius” only when referring to wire having a generally semi-circular waveform shape of the type described in the patent, which is logical because these are the only shapes having substantially the same value for the radii of curvature along its length. (Citing JX-1 at 7:22-25, 9:10-13.) ESAB claims that the

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parties' experts confirmed that a non-semi-circular waveform would have varying radii of curvature, while a semi-circular waveform would have substantially the same radius of curvature. (Citing Tr. at 411:10-23, 623:2-8, 736:2-5, 785:17-786:16.) (EIB at 21-22.)

ESAB argues that Lincoln's proposed construction is incorrect because it would encompass prior art "waveforms" that Lincoln disclaimed from the scope of the patent. (Citing JX-1 at 7:18-20; Tr. at 789:22-790:4.) ESAB notes that other Lincoln witnesses testified in a manner consistent with ESAB's proposed construction. (Citing RX-1C at 171:3-14; Tr. at 265:4-267:23.) (EIB at 22-23.)

Finally, ESAB states that the phrase "waveform...having a maximum amplitude for each half cycle" appears in each asserted claim, and this element should be construed consistently across all asserted claims. (Citing *NTP, Inc. v. Research in Motion Ltd.*, 418 F.3d 1282, 1293 (Fed. Cir. 2005).) (EIB at 24.)

In its reply brief, ESAB its arguments raised in its opening brief. (ERB at 7-8.)

**Sidergas' Position:** Sidergas contends that the term "waveform" means "a sinusoidal (undulating) curve having alternating half-cycles, each half-cycle having a substantially semi-circular shape." (Citing RX-113 at 5.) (SGIB at 19.)

Sidergas asserts that the '864 patent describes the shape of the wire as a "succession of generally semi-circular sections having a generally fixed radius of curvature." (Citing JX-1 at Abstract, 4:59-64, 9:5-8.) Sidergas states that the specification uses the term "radius" only when referring to wire having a generally semi-circular waveform shape of the type described in the patent, which is logical because these are the only shapes having substantially the same value for the radii of curvature along its length. (Citing JX-1 at 7:22-25, 9:10-13.) Sidergas claims that the parties' experts confirmed that a non-semi-circular waveform would have varying radii of

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curvature, while a semi-circular waveform would have substantially the same radius of curvature. (Citing Tr. at 411:18-23, 623:2-8, 736:2-5, 786:1-11.) (SGIB at 19-20.)

Sidergas states that while it believes that its proposed construction is most accurate, it does not object to Staff's proposed construction "a shape which repeats periodically in time, the shape being substantially a semi-circle." (Citing RX-113 at 5.) Sidergas argues that Lincoln's proposed construction is incorrect because it would encompass prior art "waveforms" that Lincoln disclaimed from the scope of the patent. (Citing JX-1 at 7:18-20; Tr. at 789:22-790:4.) (SGIB at 20.)

In its reply brief, Sidergas argues that Lincoln's proposed construction would read out the limitation requiring "a radius of curvature of a least about 15 [or 5] inches." Sidergas states that a waveform having a shape other than a semi-circle will have varying radii of curvature, thus meaning that the limitation requiring "a radius of curvature of a least about 15 [or 5] inches" will always be met. (Citing CX-377C at Q. 129; RX-208C at Q. 44; JX-1.) (SGRB at 10.)

**Staff's Position:** Staff contends that "waveform" means "a shape which repeats periodically in time." Staff contends that the "waveform" in claims 3, 4, and 6 should be construed to mean "a shape which repeats periodically in time, the shape being substantially a semi-circle," due to the additional language of claims 3, 4, and 6. (SIB at 17-18.)

Staff notes that the patentee specified that the half cycles of the waveforms of claims 3, 4, and 6 have a radius of curvature. Staff further asserts that the words of claims 3, 4, and 6 define an invention to have a waveform with half cycles that have a single radius of curvature for the entire half cycle of the waveform, not merely at a point along the half cycle. (SIB at 18.)

Staff claims that Lincoln's proposed definition ignores the context of the claim language in claims 3, 4, and 6. According to Staff, Lincoln seeks to re-write the claims to allow the

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waveform to be a curve of almost any shape whatsoever that can have varying radii of curvature. (SIB at 18-20.)

Staff notes that Lincoln points to claim 5 and argues that Staff's construction is incorrect due to claim differentiation. Staff asserts that claim differentiation is not a rigid rule and cannot be used to justify an incorrect claim construction. (Citing *ICU Med., Inc. v. Alaris Med. Sys., Inc.*, 558 F.3d 1368, 1376 (Fed. Cir. 2009).) (SIB at 20.)

Staff asserts that Lincoln is wrong to suggest that Staff's construction is incorrect because it limits the claims to the preferred embodiments. Staff asserts that this is a situation where the claims at issue are narrower than a disclosed embodiment, meaning that not every embodiment will be read into the claim. (Citing *Resonate Inc. v. Alteon Websystems, Inc.*, 338 F.3d 1369, 1364-1365 (Fed. Cir. 2003).) According to Staff, Lincoln overlooks this critical fact. (SIB at 21.)

In its reply brief, Staff reiterates its arguments regarding its proposed construction and Lincoln's proposed construction. Staff states that Lincoln's proposed construction is removed from the context of the claims and the patent itself, and is thus incorrect. (Citing *Kyocera Wireless Corp. v. Int'l Trade Comm'n*, 545 F.3d 1340, 1347 (Fed. Cir. 2008); *Hockerson-Halberstadt, Inc. v. Converse, Inc.*, 183 F.3d 1369, 1374 (Fed. Cir. 1999).) (SRB at 7-8.)

Staff asserts that Lincoln improperly relies almost exclusively on extrinsic evidence to support its construction. (Citing CIB at 54.) Staff states that Lincoln ignores the intrinsic record that indicates that the wire has "a fixed radius of curvature in the range of 15-40 inches..." (Citing JX-2 at LEITC 000946-947.) Staff argues that it is self-evident that a curve with a fixed radius of curvature is a semi-circle. (SRB at 8.)

Staff addresses Lincoln's argument that Staff's construction could be construed to

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encompass a number of different waveform shapes that clearly aren't contemplated by the '864 patent. (Citing CIB at 55.) Staff asserts that Lincoln's argument is untethered to, and contradicted by, the specification and prosecution history of the '864 patent. (Citing JX-2 at LEITC 000947.) Staff states that if Lincoln seeks to construe the term untethered to the intrinsic record, Lincoln's proposed construction could also be represented by a number of bizarre "waveform" shapes clearly not encompassed by the '864 patent, including the shape depicted in Lincoln's own initial post-hearing brief. (SRB at 8-10.)

**Construction to be applied:** "a recurring undulating curve."

Claims 3, 6, and 12 all include the term "waveform." Claim 3 requires that "said shape memory is generally a waveform having a maximum amplitude for each half cycle, said half cycle having a radius of curvature of at least about 15 inches." Claim 6 requires that "said shape memory generally in the form of a waveform, said waveform having a maximum amplitude for each half cycle, said half cycle having a radius of curvature of at least about 5 inches." Claim 12 requires that "said shape memory generally in the form of a waveform, said waveform having a maximum amplitude for each half cycle, said maximum amplitude of each half cycle having a deviation of less than about 6 inches within one cycle of said weld wire."

The parties' dispute centers on whether or not the claims require a waveform with a substantially semi-circular shape. Lincoln argues that none of the asserted claims require the waveform to have a substantially semi-circular shape. Respondents argue that all of the asserted claims require the waveform to have a substantially semi-circular shape. Staff takes the middle ground, arguing that the presence of the "radius of curvature" language of claims 3 and 6 dictates the substantially semi-circular shape, while the waveform of claim 12 does not require a substantially semi-circular shape because it lacks the "radius of curvature" limitation. I concur



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with Lincoln and find that nothing in the intrinsic record demonstrates that the asserted claims require a waveform with a substantially semi-circular shape.

I first turn to the language of the claims. Nothing in the asserted claims includes an explicit requirement that the waveform be in a substantially semi-circular shape. Staff argues that the presence of the “radius of curvature” language in claims 3 and 6 necessitates a substantially semi-circular shape, but I find otherwise. Claims 3 and 6 each require that “said half cycle having a radius of curvature of at least about” a certain length.

Claim 1, which is not asserted in this investigation, provides support for the position that the “radius of curvature” language in claims 3 and 6 does not require a waveform with a substantially semi-circular shape. Claim 1 requires that “said wire having a substantially linear cast in the form of an undulating curve generally in a single plane.” The claim goes on to require “said cast having a *generally fixed radius of curvature* in the range of about 15-40 inches.” (emphasis added). By using the term “generally fixed” radius of curvature in claim 1, the patentees strongly implied that the use of “radius of curvature” on its own in claims 3 and 6 does not require a generally fixed radius, i.e. a substantially semi-circular shape. *See Phillips*, 415 F.3d at 1314 (“To take a simple example, the claim in this case refers to ‘steel baffles,’ which strongly implies that the term ‘baffles’ does not inherently mean objects made of steel.”) If the patentees wanted the radius of curvature in claims 3 and 6 to be fixed, they could have included the “generally fixed” language used in claim 1.

The doctrine of claim differentiation provides further support for the position that the “substantially semi-circular” limitation should not be read into the claims. Claim differentiation is the doctrine that “create[s] a presumption that each claim in a patent has a different scope.” *Comark Communications, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998). “In the

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most specific sense, ‘claim differentiation’ refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim.” *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006).

The Federal Circuit has stated that the “presumption is especially strong when the limitation in dispute is the only meaningful difference between an independent and dependent claim, and one party is urging that the limitation in the dependent claim should be read into the independent claim.” *SunRace Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1303 (Fed. Cir. 2003); *see also Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004) (“[W]here the limitation that is sought to be ‘read into’ an independent claim already appears in a dependent claim, the doctrine of claim differentiation is at its strongest.”)

Claim 5 recites “[t]he weld wire as defined in claim 3, wherein each half cycle of said waveform is substantially semi-circular.” Claim 9 recites “[t]he weld wire as defined in claim 8, wherein said waveform having half cycles that are substantially semi-circular.”<sup>11</sup> Claim 14 recites “[t]he weld wire as defined in claim 13, wherein said waveform having half cycles that are substantially semi-circular.”<sup>12</sup> Thus, under the doctrine of claim differentiation, there is a presumption that the asserted claims do not include the substantially semi-circular limitation. I find that Staff and Respondents have failed to present any evidence to overcome this presumption.

Turning to the specification, the Summary of the Invention states that “[i]n still another embodiment, the desired shape memory imparted onto the weld wire is a waveform; however, as can be appreciated, other shapes for the shape memory can be imparted onto the weld wire.” (JX-1 at 4:10-13.) The Summary of the Invention goes on to state “[i]n still yet another

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<sup>11</sup> Claim 9 is indirectly dependent on claim 6. (JX-1.)

<sup>12</sup> Claim 14 is indirectly dependent on claim 12. (JX-1.)

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embodiment of the present invention, the imparted shape memory on the weld wire creates a waveform for a cut section of the weld wire, wherein each half cycle has a substantially semi-circular shape, wherein each half cycle for each cycle of the cut weld wire section has substantially the same radius.” (JX-1 at 4:59-64.)

The specification thus states that in one embodiment of the invention, the wire is given a waveform shape, and in a separate embodiment of the invention, the waveform has a semi-circular shape. The specification does not provide any support for a finding that any reference to a waveform in the claims means that the wire has a semi-circular shape.

Respondents argue that Lincoln’s proposed construction would cover the prior art wire depicted in the specification, specifically the prior art wire shown in Figure 4. (*See, e.g.*, ERB at 7.) Respondents miss the point on this issue, as the specification itself identifies the shape of the wire in Figure 4 as a waveform. (JX-1 at 6:22-23, 7:18-20.) The waveform shape of the weld wire is not the distinguishing feature of the claimed invention; instead, the patentees distinguish their invention from the prior art in Figure 4 based on the fact that the wire in Figure 4 lacks a shape memory, while the claimed invention requires wire with a shape memory. (*See* JX-1 at 7:17-50) (“Since the weld wires of FIGS. 4-6 have no shape memory, the weld wire has inconsistent placement in the welding gun as the weld wire travels through the welding gun during the formation of the weld bead.”) Thus, adopting a construction of “waveform” that does not require a semi-circular shape will not result in a situation where the claims read on the prior art depicted in Figure 4.

Figures 8 and 8A of the specification depicts an embodiment in which each half cycle of the waveform is substantially semi-circular. (JX-1 at 8:47-9:8, Figs. 8, 8A.) Respondents and Staff have offered no evidence that the patentees intended to limit the asserted claims based on

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this single embodiment, and thus it would be improper to import the semi-circular limitation from this embodiment into the asserted claims. *In re Omeprazole Patent Litig.*, 483 F.3d 1364, 1372 (Fed. Cir. 2007) (“Absent some clear intent to the contrary, this court does not import examples from the specification into the claims.”)

Finally, Staff asserts that the prosecution history supports its position that the reference to “radius of curvature” in claims 3 and 6 really means a fixed radius of curvature, i.e. a semi-circular shape. Staff cites to an Office Action where the examiner allowed claims 5 and 6 of the pending application. As a reason for allowance, the examiner stated that “the prior art of record does not teach or suggest a weld wire...in which the wire has a substantially linear cast in the form of an undulating curve in a single plane, wherein the cast has a fixed radius of curvature in the range of 15-40 inches...” (JX-2 at LEITC 000946-947.) Staff focuses on the term “fixed” to bolster its argument. (SRB at 8.)

Staff fails to acknowledge that this reference in the prosecution history addresses a different claim with far different claim language. It does not support an assertion that the examiner believed all of the claims to cover a waveform with a fixed radius of curvature. As can be seen in the prosecution history, the claim language at issue was eventually incorporated into claim 1 of the ‘864 patent. (JX-2 at LEITC 000890, 000971, 000993, 001005-001008; JX-1.) Claim 1 of the ‘864 patent teaches “a generally fixed radius of curvature in the range of about 15-40 inches.” (JX-1.) Thus, Staff’s citation to the prosecution history fails to support its assertion that claims 3 and 6 should be construed to require a waveform with a semi-circular shape.

Finally, I find that Staff’s proposed construction of “waveform” fails to appreciate the waveform in the context of the ‘864 patent. Staff’s construction requires “a shape which repeats

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periodically in time.” There is no mention in the patent or specification of a time component, and thus I find it improper to include one in the construction. (*See* JX-1, JX-2.)

Based on the intrinsic evidence, I find that the proper construction of “waveform” is “a recurring undulating curve.” (*See, e.g.,* JX-1 at 4:10-64, 7:17-20, 8:47-9:8.)

### IV. INVALIDITY

#### A. Applicable Law

It is Respondents’ burden to prove invalidity, and the burden of proof never shifts to the patentee to prove validity. *Scanner Techs. Corp. v. ICOS Vision Sys. Corp. N.V.*, 528 F.3d 1365, 1380 (Fed. Cir. 2008). “Under the patent statutes, a patent enjoys a presumption of validity, *see* 35 U.S.C. § 282, which can be overcome only through facts supported by clear and convincing evidence[.]” *SRAM Corp. v. AD-II Eng’g, Inc.*, 465 F.3d 1351, 1357 (Fed. Cir. 2006).

The clear and convincing evidence standard placed on the party asserting the invalidity defense requires a level of proof beyond the preponderance of the evidence. Although not susceptible to precise definition, “clear and convincing” evidence has been described as evidence which produces in the mind of the trier of fact “an abiding conviction that the truth of a factual contention is ‘highly probable.’” *Price v. Symsek*, 988 F.2d 1187, 1191 (Fed. Cir. 1993) (citing *Buildex, Inc. v. Kason Indus., Inc.*, 849 F.2d 1461, 1463 (Fed.Cir.1988).)

#### 1. Priority Date

Section 119 of the Patent Act allows an applicant to claim priority to a provisional application if the non-provisional application claiming priority is filed no later than a year after the filing date of the provisional application. 35 U.S.C. § 119(e)(1) (2009). In describing 35 U.S.C. § 119(e)(1), the Federal Circuit has explained that “the specification of the *provisional* must ‘contain a written description of the invention and the manner and process of making and

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using it, in such full, clear, concise, and exact terms,' 35 U.S.C. § 112 ¶ 1, to enable an ordinarily skilled artisan to practice the invention *claimed* in the *non-provisional* application.” *New Railhead Mfg, L.L.C. v. Vermeer Mfg. Co.*, 298 F.3d 1290, 1294 (Fed. Cir. 2002). As the Federal Circuit recently explained:

Claims enjoy the earlier filing date only if the provisional application provided adequate written description under 35 U.S.C. § 112, ¶ 1. The “prior application itself must describe an invention ... in sufficient detail that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.” Therefore, the provisional application must describe the invention in such a way that one of ordinary skill in the art “would understand that the genus that is being claimed has been invented, not just the species of a genus.”

*Trading Techs. Int’l, Inc. v. eSpeed, Inc.*, 595 F.3d 1340, 1359 (Fed. Cir. 2010) (citations omitted); *see also Eiselstein v. Frank*, 52 F.3d 1035, 1038 (Fed. Cir. 1995) (explaining that “the prior application need not describe the claimed subject matter in exactly the same terms as used in the claims; it must simply indicate to persons skilled in the art that as of the earlier date the applicant had invented what is now claimed.”) The priority date analysis must be undertaken on a claim-by-claim basis. *See Waldemar Link v. Osteonics Corp.*, 32 F.3d 556, 559 (Fed. Cir. 1994) (“[W]hen a priority date dispute arises, the trial court must examine closely the prosecution history to discover the proper date for each claim at issue.”)

### 2. Anticipation

“A patent is invalid for anticipation if a single prior art reference discloses each and every limitation of the claimed invention. Moreover, a prior art reference may anticipate without disclosing a feature of the claimed invention if that missing characteristic is necessarily present, or inherent, in the single anticipating reference.” *Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (citations omitted).

“When no prior art other than that which was considered by the PTO examiner is relied

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on by the attacker, he has the added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job[.]” *Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed. Cir. 1984). Therefore, the challenger’s “burden is especially difficult when the prior art was before the PTO examiner during prosecution of the application.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1467 (Fed.Cir.1990).

Under the Patent Act, prior use of a patented invention may serve to invalidate a patent. Section § 102(a) states that a person shall be entitled to a patent unless “the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent.” 35 U.S.C. § 102(a) (2009.) Section § 102(b) states that a person shall be entitled to a patent unless “the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.” 35 U.S.C. § 102(b) (2009.)

In describing § 102(a), the Federal Circuit explained:

Section 102(a) establishes that a person can not patent what was already known to others. If the invention was known to or used by others in this country before the date of the patentee’s invention, the later inventor has not contributed to the store of knowledge, and has no entitlement to a patent. Accordingly, in order to invalidate a patent based on prior knowledge or use, that knowledge or use must have been available to the public.

*Woodland Trust v. Flowertree Nursery, Inc.*, 148 F.3d 1368, 1370 (Fed. Cir. 1998). The court then distinguished § 102(a) from § 102(b):

Section 102(b), unlike § 102(a), is primarily concerned with the policy that encourages an inventor to enter the patent system promptly, while recognizing a one year period of public knowledge or use or commercial exploitation before the patent application must be filed. Thus an inventor’s own prior commercial use, albeit kept secret, may constitute a public use or sale under § 102(b), barring him from obtaining a patent.

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*Id.*

“[T]he first determination in the § 102(b) analysis must be whether the subject of the barring activity met each of the limitations of the claim, and thus was an embodiment of the claimed invention.” *Scaltech Inc. v. Retrec/Tetra, L.L.C.*, 178 F.3d 1378, 1383 (Fed. Cir. 1999); *see also Juicy Whip, Inc. v. Orange Bang, Inc.*, 292 F.3d 728, 737 (Fed. Cir. 2002) (quoting *Scaltech*). In addition, “oral testimony of prior public use must be corroborated in order to invalidate a patent.” *Juicy Whip*, 292 F.3d at 737-738 (citing *Finnigan Corp. v. Int’l Trade Comm’n*, 180 F.3d 1354, 1366-1368 (Fed. Cir. 1999)).

### 3. Best Mode

The best mode requirement is found in 35 U.S.C. § 112, ¶ 1, which states:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and **shall set forth the best mode contemplated by the inventor of carrying out his invention.**

(Emphasis added.)

“The purpose of the best mode requirement is to restrain inventors from applying for patents while at the same time concealing from the public preferred embodiments of the inventions they have in fact conceived.” *Teleflex, Inc. v. Ficoso N. Am. Corp.*, 299 F.3d 1313, 1330 (Fed. Cir. 2002).

A holding of invalidity for failure to disclose the best mode requires clear and convincing evidence that the inventor both knew of and concealed a better mode of carrying out the claimed invention than was set forth in the specification. *Transco Prods., Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 560 (Fed. Cir. 1994) (citing *Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1578 (Fed.Cir.1991).)



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### B. Priority Date

**ESAB's Position:** ESAB contends that the asserted claims of the '864 patent are not entitled to the priority date of the provisional application cited on the face of the patent. (EIB at 40.)

ESAB argues that it is Lincoln's burden to establish that the asserted claims are entitled to the priority date of the provisional application. (Citing *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1305-1306 (Fed. Cir. 2008); *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008).) ESAB asserts that Lincoln has failed to meet its burden, and that the evidence of record actually establishes that the provisional application fails to disclose several key limitations of the asserted claims. (EIB at 41-42.)

ESAB argues that the provisional application lacks support for the limitations in claims 3 and 6 that require a weld wire with a "radius of curvature of at least about 15 inches [5 inches]." ESAB asserts that the provisional application merely discloses a radius in the range of 15-20 inches. ESAB thus argues that the provisional application fails to support the open-ended radius range asserted in the claims. (Citing *Certain Doxorubicin & Preparations Containing Same*, Inv. No. 337-TA-300, Commission Opinion (May 2, 1990).) (EIB at 42-43.)

ESAB argues that the provisional application fails to provide support for the limitation in the asserted claims that the shape memory be imparted at least partially prior to the weld wire being wound on a spool. According to ESAB, the provisional application fails to mention the words "partially" or "partial" at all, a point acknowledged by co-inventor Hartman. (Citing JX-3; RX-2C at 247:10-21.) (EIB at 44.)

ESAB claims that the provisional application lacks support for the requirement in all asserted claims that the "shape memory substantially [lies] in a single plane" or the "shape

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memory [is] imparted substantially in one plane.” ESAB states that this limitation requires that the wire products have a displacement from a single plane of up to 6 inches. (Citing CX-377C at Q. 113-114; Tr. at. 379:10-19.) ESAB asserts that the provisional application only discloses a displacement of up to about 5 inches. (Citing JX-3 at 2:18-20.) Thus, ESAB claims that this claim limitation is broader than what is supported by the provisional application. (EIB at 44-46.)

In its reply brief, ESAB reiterates its argument that the provisional application fails to support the “radius of curvature of at least about 15 inches [5 inches]” and the “substantially in [a single/one] plane” limitations. ESAB claims that Lincoln is incorrect in attempting to argue that a person of ordinary skill in the art would consider 5 inches and 6 inches to be substantially the same. ESAB argues that a magnitude of 5 is not equal to a magnitude of 6, and thus Lincoln is incorrect in its assertion. (Citing Tr. at 382:24-383:3; *Anascape, Ltd. v. Nintendo of Am., Inc.*, 601 F.3d 1333, 1340 (Fed. Cir. 2010).) (ERB at 25-28.)

**Sidergas’ Position:** Sidergas contends that the asserted claims of the ‘864 patent are not entitled to the priority date of the provisional application cited on the face of the patent. Sidergas’ argument in its opening post-trial brief is substantively identical to ESAB’s argument, and will not be repeated for the sake of brevity. (SGIB at 43-46.)

In its reply brief, Sidergas argues that Lincoln misstates Federal Circuit law regarding entitlement to priority dates. (Citing *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555 (Fed. Cir. 1991).) Sidergas claims that the Federal Circuit cases relied upon by Lincoln do not support Lincoln’s position that the numerical ranges in the asserted claims are adequately supported by the provisional application. (Citing *Contra Eiselstein v. Frank*, 52 F.3d 1035, 1040 (Fed. Cir. 1995); *In re Blaser*, 556 F.2d 534, 538 (C.C.P.A. 1977).) (SGRB at 25-27.)

Sidergas reiterates its argument that the “at least partially” limitation from the asserted

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claims does not appear in the provisional application. (Citing JX-3; SGIB at 45; RX-2C at 248:1-15, 247:10-21.) Sidergas states that Lincoln cites its expert's testimony and two lines from the provisional application for the proposition that "the inventors possessed the claimed invention in the '864 patent at least as of the filing date of the provisional application." (Citing CIB at 135-136.) However, Sidergas claims that this assertion directly contradicts Mr. Hartman's own testimony that he did not know the meaning of the term "partially" as used in the claim. (Citing RX-2C at 247:10-21, 248:1-15.) According to Sidergas, Dr. Swanger's arguments of what a hypothetical person of ordinary skill in the art would understand the provisional application to mean cannot overcome a co-inventor's testimony of what he actually understood. (Citing *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (*en banc*)). (SGRB at 27-28.)

Sidergas asserts that Lincoln's arguments supporting the adequacy of the radii of curvature disclosure in the provisional application fail as a matter of law. Sidergas claims that Lincoln offered no evidence that a person of ordinary skill in the art would understand a disclosure of 15-20 inches in the provisional application to encompass an unbounded claim of "at least about 15 [5] inches." (Citing JX-1 at Claims 3, 6; CIB at 137.) (SGRB at 28.)

Sidergas argues that Lincoln misstates the law its attempt to support its argument. Specifically, Sidergas claims that Lincoln cites case law regarding enablement. (Citing *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524 (Fed. Cir. 1987).) According to Sidergas the priority date issue is one of written description, and not enablement. (Citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326 (Fed. Cir. 2008).) (SGRB at 28.)

Sidergas argues that a case upon which Lincoln relies, *In re Wertheim*, 541 F.2d 257 (C.C.P.A. 1976) is factually distinct. Sidergas states that the discussion of numerical ranges in

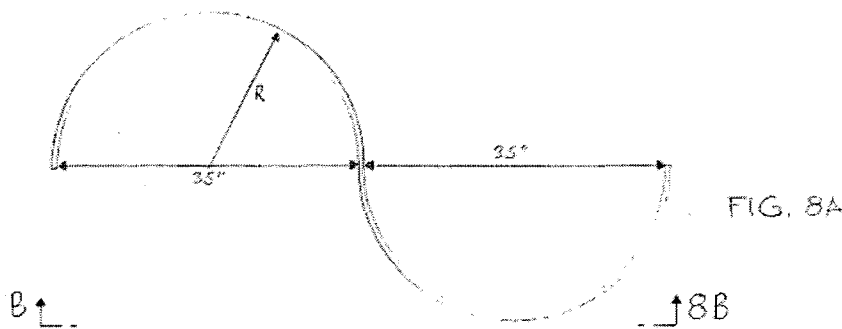
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*Wertheim* actually supports Respondents' argument that a disclosure of a radius of curvature of 15-20 inches does not support the ranges for the radii of curvature found in the asserted claims. (SGRB at 28-29.)

Sidergas states that Lincoln attempts to stretch the provisional application's disclosure by arguing that a typo expanded the disclosed range beyond 15-20 inches. (Citing CIB at 137.)

Sidergas asserts that a closer look at the provisional application shows that "35 inches" was a typo:

As shown in FIGURE 8A, each half of the cycle is substantially semi-circular and has a substantially constant amplitude, i.e. the radius of the semi-circle is about 35 inches.



(Citing JX-3 at 3, 12.) Sidergas claims that the complete quoted text, along with the referenced figure, show that applicant mistakenly wrote "35 inches" for the radius ("R" in Fig. 8A) instead of "17.5 inches." Sidergas claims that in Fig. 8A, "35 inches" is the diameter, not the radius of the semi-circle. Sidergas states that the provisional application supports the fact that "35 inches" is a typo because 17.5 inches falls within the "15-20 inches" recited in the provisional application's claims. (Citing JX-3 at 6-7.) Sidergas argues that Lincoln's proposed interpretation of a disclosure including 15-20-inches and 35 inches requires a strained and internally-contradictory reading of the provisional application. (SGRB at 29-30.)

Sidergas states that Lincoln argues that an exemplary embodiment of wire having a maximum amplitude of *less than* about 50 inches "provides support for a radius of curvature

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greater than the specified value of about 15 inches.” (Citing CIB at 137.) Sidergas argues that Lincoln’s assertion is not supported by any fact or law. Sidergas claims that Lincoln offered no evidence for an *unbounded* radius of curvature of “at least 15 [5] inches” to infinity. (Citing JX-1.) According to Sidergas, without written description support for the unbounded radius of curvature in the claims, Lincoln cannot claim priority to the provisional application. (SGRB at 30.)

Sidergas states that Lincoln argues that the provisional application, which discloses a maximum deviation of “about 5 inches,” supports the asserted claims’ limitation of “substantially lying in a single plane.” (Citing JX-3 at 21; JX-1 at Claims 3, 4, 6, 12, 13.) Sidergas reiterates its argument that for Lincoln to prevail, it will require a factual determination that five (5) is equal to six (6). (Citing SGIB at 46.) Sidergas argues that Lincoln’s expert testimony that there is no substantial difference between five inches and six inches cannot overcome the difference between the two values. (Citing CIB at 138; Tr. at 383:2-9.) (SGRB at 31.)

**Lincoln’s Position:** Lincoln contends that the asserted claims are entitled to the filing date of the provisional application. (CIB at 133.)

With regard to the “at least partially prior...” limitation, Lincoln notes that the provisional application states that the “present invention includes the concept of imparting memory on a welding wire (i.e., cast the wire) at the time of and/or prior to the time the wire is wound onto a reel of welding wire.” (Citing JX-3; CX-422C at Q. 102.) Lincoln asserts that this statement shows the inventors possessed the claimed invention in the ‘864 patent at least as of the filing date of the provisional application. (Citing CX-422C at Q. 102.) According to Lincoln, one of ordinary skill in the art would understand this sentence to define three

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possibilities at which memory is imparted to the welding wire: (1) the memory is completely imparted “at the time” of the welding wire being wound on the reel of welding wire; (2) the memory is completely imparted “prior to” the welding wire being wound on the reel of welding wire; or (3) the memory is imparted partially “prior to” the welding wire being wound on the reel of wire and imparted partially “at the time” the welding wire is being wound on the reel of welding wire. (Citing CX-422C at Q. 103.) (CIB at 135-136.)

Lincoln asserts that the provisional application further supports the claimed feature by distinguishing the present invention from the prior art. Specifically, Lincoln claims the provisional application states that “the present invention diverts from common industry practice by maintaining ... memory in the welding wire as the wire is wound onto a reel of welding wire.” (Citing JX-3; CX-422C at Q. 103.) (CIB at 136.)

Furthermore, Lincoln asserts that a person of ordinary skill in the art reading the provisional application would understand that shape memory is the result of the application of plastic deformation and the development of a residual stress distribution in the welding wire. (Citing CX-422C at Q. 103.) Plastic deformation is a continuous process of adding deformation to the wire from the beginning of deformation to the end of deformation (*Id.*) That continuous process can be interrupted and then resumed. (*Id.*) At the point of interruption, the plastic deformation and the resulting residual stress pattern would be partially imposed in the wire as one of ordinary skill in the art would understand. (*Id.*) CIB at 136.)

With regard to the radius of curvature limitation, Lincoln asserts that the provisional application discloses a radius of curvature of about 35 inches and the claims of the provisional application recite a radius of curvature “in the range of 15-20 inches.” (Citing JX-3.) Additionally, Lincoln states that the provisional application recites that the maximum amplitude

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of an exemplary embodiment can be less than about 50 inches. (*Id.*) According to Lincoln, such disclosure fully discloses and describes the claimed inventions. (Citing *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1533-1534 (Fed. Cir. 1987); *In re Cook*, 439 F.2d 730, 735 (C.C.P.A. 1971).) (CIB at 137.)

With regard to the “substantially lying in a single plane” limitation, Lincoln states that the provisional application recites “[i]n one aspect of this embodiment, when the cut wire is laid upon a flat surface, the cut wire rises above the flat surface 20 less than about 5 inches, preferably less than about 3 inches, more preferably less than about 2 inches, and even more preferably less than about 1.5 inches.” (Citing JX-3.) Lincoln notes that Figure 8B and the related description in the specification of the provisional application show that the inventive wire “is substantially in one plane as shown in FIGURE 8B.” (*Id.*) Similarly, Lincoln notes that Claim 1 of the provisional application states that the wire is “generally in a single plane.” (*Id.*) Lincoln thus asserts that in no fewer than five separate locations, the provisional explains that the shape memory in the wire should lie substantially in one plane. (CIB at 138.)

Lincoln claims that the only testimony provided by any witness at the hearing on this issue summarized that within the context of the ‘864 patent, there is no substantial difference to one of ordinary skill in the art between “about 5 inches” and “about 6 inches.” (Citing Tr. at 382:24-383:9.) Thus, Lincoln asserts that no testimony contradicts this understanding by one of ordinary skill in the art. (CIB at 138.)

Lincoln notes that no dispute has been raised with regard to the other claim elements. Nevertheless, Lincoln provides a chart identifying where in the provisional application each claim limitation finds support. (CIB at 139-141.)

In its reply brief, Lincoln reiterates that the provisional application provides adequate

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support for the “radius of curvature” limitations. Lincoln further notes that claims 12 and 13 do not include “radius of curvature” limitations, so this argument is irrelevant with respect to those claims. (CRB at 60-61.)

With regard to the “at least partially prior” limitation, Lincoln states that there is no dispute the provisional application specifically discloses imparting shape memory “prior to the time the wire is wound onto a reel of welding wire.” (Citing JX-3.) Lincoln claims that the disclosure in the provisional application plainly informs those of skill in the art that Lincoln was in possession of the claimed invention at least as of the filing of the provisional application. According to Lincoln, Respondents’ “continued insistence on identity of disclosure” is not supported by and is, in fact, contradicted by, controlling Federal Circuit precedent. (CRB at 62-63.)

Lincoln asserts that the provisional application states that “the waveform of the wire is substantially in one plane as shown in FIGURE 8B.” (Citing JX-3.) Lincoln notes that Dr. Caulfield was the only expert that offered testimony that one of ordinary skill in the art would find that the provisional application’s disclosure of “about 5 inches” would support a construction of less than about 6 inches. (Citing Tr. at 381:10-383:9.) (CRB at 63.)

Lincoln argues that under the Federal Circuit’s possession standard, *see, e.g., Trading* there is no credible dispute that “about 5 inches” supports 6 inches in the context of the patent at issue. (Citing *In re Hayes Microcomputer Prods., Inc.*, 982 F.2d 1527, 1533 (Fed. Cir. 1991); *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1566 (Fed. Cir. 1997).) Lincoln argues that the use of “about” in the provisional precludes Respondents’ attempts to put a hard limit on the disclosure and Respondents have come forward with no evidence to contradict Dr. Caulfield’s testimony. (CRB at 63-64.)



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**Staff's Position:** Staff contends that the resolution of the priority date question is not material to any issue in this investigation. Thus, Staff takes no position regarding the priority date of the asserted claims. (SIB at 38-39.)

**Discussion and Conclusion:** Based on the evidence in the record, I find that asserted claims 3, 4, 6, 12, and 13 are not entitled to the priority date of the provisional application.

The provisional application was filed on June 15, 2001, and names David J. Barton and Otto Ferguson as the co-inventors. (JX-3.)<sup>13</sup> It contains a written description, seven claims, and multiple drawings. (*Id.*) Attached to the end of the provisional application are five slides from a Lincoln Electric presentation regarding “Improved Placement” wire. (*Id.*)

Respondents argue that three limitations from the asserted claims find inadequate support in the provisional application. Those limitations are: (1) “a radius of curvature of at least about 15 inches”/“a radius of curvature of at least about 5 inches;” (2) “imparted on said weld wire at least partially prior to said weld wire being wound on said spool;”<sup>14</sup> and (3) “substantially lying in a single plane”/“substantially in one plane.”

The first limitation relates to the range of sizes for a radius of curvature. Claim 3 discloses a range from “about 15 inches” to infinity, while claim 6 discloses a range from “about 5 inches” to infinity. Respondents argue that the limited range disclosed in the provisional application fails to support the broad claimed ranges.

As described in Section IV.A.3 *supra*:

In order to determine whether a prior application meets the “written description” requirement with respect to later-filed claims, the prior application need not

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<sup>13</sup> While the ‘864 patent lists Dennis K. Hartman as an inventor instead of David J. Barton, Otto Ferguson is a named inventor on both the provisional application and the patent. Because there is at least one common inventor between the provisional application and the patent, Lincoln may claim priority to the provisional application. *New Railhead*, 298 F.3d at 1294.

<sup>14</sup> This limitation is not identically-worded in each of claims 3, 6, and 12, but there is no dispute between the parties that the substance of the limitation is the same in each claim.

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describe the claimed subject matter in exactly the same terms as used in the claims; it must simply indicate to persons skilled in the art that as of the earlier date the applicant had invented what is now claimed.

*Eiselstein*, 52 F.3d at 1038.

Thus, a claim limitation claiming a broad range of values may be adequately supported by a written description that discloses a narrower range. *Bilstad v. Wakalopulos*, 386 F.3d 1116, 1124 (Fed. Cir. 2004) (“[T]his court has continued to apply the rule that disclosure of a species may be sufficient written description support for a later claimed genus including that species.”); *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575 (Fed. Cir. 1985) (“[A] predecessor to this court has held ‘that a claim may be broader than the specific embodiment disclosed in a specification is in itself of no moment.’”) (citation omitted). In describing the law regarding ranges, the Federal Circuit explained that “the ranges in applicant’s claims need not correspond exactly to those disclosed in the parent application. Rather...the issue is whether one of skill in the art could derive the claimed ranges from the parent’s disclosure.” *Union Oil Co. v. Atlantic Richfield Co.*, 208 F.3d 989, 1001 (Fed. Cir. 2000) (citation omitted).

The provisional application discloses a very limited range of radii of curvature. Certain claims found in the application disclose a radius of curvature “in the range of 15-20 inches.” (JX-3.006-007.) Lincoln cites to a portion of the provisional application that states that “the maximum amplitude of each half cycle of the cut wire is less than about 50 inches.” (JX-3.004.) Lincoln additionally cites to a passage which states that “[a]s shown in FIGURE 8A, each half of the cycle is substantially semi-circular and has a substantially constant amplitude, i.e. the radius of the semi-circle is about 35 inches.” (*Id.*)<sup>15</sup> Beyond that, Lincoln cites to no other disclosures

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<sup>15</sup> Respondents assert that there is an inconsistency between this statement and what is depicted in Figure 8A. According to Respondents, Figure 8A depicts a semi-circle with a diameter 35 inches, making the radius 17.5 inches. (JX-3.0012.) My determination on this issue does not depend on whether or not the semi-circle in Figure

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regarding the range of the radius of curvature.

I find that the disclosures cited by Lincoln are insufficient to support the claimed ranges found in claims 3, 4, and 6. While the law is clear that the provisional application does not need to include ranges identical to those claimed in the patent, there must still be a showing that “one of skill in the art could derive the claimed ranges from the parent’s disclosure.” *Union Oil*, 208 F.3d at 1001. Lincoln makes an unsupported assertion that “there is no doubt from the disclosure in the provisional application that the inventor possessed at the time of the filing of the provisional application the invention claimed in the ‘864 patent.” (CIB at 137; see also CRB at 60-61.) Lincoln offers no expert testimony or other evidence in an attempt to show that one of ordinary skill in the art could derive the ranges claimed in claims 3 and 6 from the disclosure in the provisional application.

With only the minimal disclosure of the provisional application remaining, I find that there is insufficient evidence to support a finding that one of ordinary skill in the art, reading the provisional application, would understand the patentee to be in possession of an invention with the radius of curvature ranges disclosed in claims 3, 4, and 6.

Lincoln relies heavily on the Federal Circuit’s decision in *Spectra-Physics, Inc. v. Coherent, Inc.*, 827 F.2d 1524, 1533-1534 (Fed. Cir. 1987) to support its argument. Lincoln’s reliance on *Spectra-Physics* is misplaced, as that case addressed enablement, and not written description. *Id.* at 1533 (“If an invention pertains to an art where the results are predictable, e.g., mechanical as opposed to chemical arts, a broad claim can be enabled by disclosure of a single embodiment[.]”)

Regarding the limitation requiring that the shape memory of the weld wire be imparted at

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8A has a radius of curvature of 35 inches or 17.5 inches. Thus, I take no position at this time regarding whether or not the description of Figure 8A is inconsistent with the drawing.

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least partially prior to the weld wire being wound on a spool, I find that there is adequate disclosure in the provisional application. The provisional application discusses the prior art killed wire, and then states that “[t]he present invention diverts from common industry practice by *maintaining* or creating memory in the welding wire as the wire is wound onto a reel of welding wire.” (JX-3.002-003) (emphasis added.) As explained by Dr. Swanger, it follows that for memory to be maintained while the wire is wound onto a reel, shape memory must have been imparted at least partially prior to winding. (CX-422C at Q. 102-103.)

The specification continues to state that “[t]he present invention includes the concept of imparting memory on a welding wire (i.e. cast the wire) at the time of and/or prior to the time the wire is wound onto a reel of welding wire.” (JX-3.003.) As explained by Dr. Swanger, this passage further demonstrates that at the time of the provisional application, the patentee had possession of the concept that shape memory could be at least partially imparted prior to the weld wire being wound onto a spool. (CX-422C at Q. 102-103.)

Respondents’ argument centers on the fact that the words “partially” or “partial” do not appear in the provisional application. (See EIB at 44; SGIB at 45.) Whether or not the provisional application discloses the specific terms “partial” or “partially” is not the pertinent inquiry; the inquiry centers on whether or not one ordinary skill in the art, when reading the provisional, would understand the patentee to be in possession of the invention. *Eiselstein*, 52 F.3d at 1038; see also *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-1564 (Fed. Cir. 1991) (stating that the applicant must “convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *the invention*.”)

Regarding the limitation related to the shape memory lying substantially in one plane, I find that there isn’t a sufficient disclosure in the provisional application. The provisional

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application states:

In one embodiment, the waveform of the wire is substantially in one plane as shown in FIGURE 8B. In one aspect of this embodiment, when the cut wire is laid upon a flat surface, the cut wire rises above the flat surface less than about 5 inches, preferably less than about 3 inches, moves preferably less than about 2 inches, and even more preferably less than about 1.5 inches.

(JX-3.003.)

As discussed in Section III.B.4 *supra*, I have construed the claim language at issue to require: “the weld wire, when laid upon a flat surface, rises above the flat surface less than about 6 inches.” Respondents contend that because the provisional application only discloses a rise of less than about 5 inches, it cannot support a claim construction that requires a rise of less than about 6 inches.

The analysis requires a determination of whether or not one of ordinary skill in the art, reading the provisional application, would have known that the patentee had possession of the claimed invention. *Eiselstein*, 52 F.3d at 1038; *Vas-Cath*, 935 F.2d at 1563-1564. There is no evidence in the record to support the conclusion that one of ordinary skill in the art, reading the provisional application would have known that the patentee was in possession of an invention requiring a rise of less than about 6 inches when the provisional application discloses a rise of less than about 5 inches. Dr. Caulfield testified that he wouldn’t “quibble” over the difference between about 5 inches and about 6 inches, and that “about 5” and “about 6” are the same to him. (Tr. at 379:24-383:9.) This testimony does not equate to evidence that one of ordinary skill in the art would understand the patentee to have been in possession of this feature of the invention at the time of the filing of the provisional application. Thus, I find that the provisional application does not provide an adequate disclosure for this claim limitation.

Respondents do not address any other limitations from the asserted claims. Lincoln

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offers a chart identifying the support in the provisional application for each of the claim limitations. (CIB at 139-141.) For all of the claim limitations outside of the limitations discussed *supra*, I find that Lincoln has demonstrated that the provisional application provides adequate written description support.

Because I find that the provisional application does not provide adequate written description support for “a radius of curvature of at least about 15 inches”/“a radius of curvature of at least about 5 inches” and “substantially lying in a single plane”/“substantially in one plane,” I conclude that asserted claims 3, 4, 6, 12, and 13 are not entitled to the filing date of the provisional application.

### C. Anticipation

#### 1. ESAB’s Prior Products

**ESAB’s Position:** ESAB contends that if its accused products are found to infringe the an asserted claim of the ‘864 patent, then that asserted claim is invalid pursuant to 35 U.S.C. §§ 102(b) or 103. (EIB at 35.)

ESAB states that the evidentiary record demonstrates that the accused welding wire products include products packaged in ESAB Group’s Marathon Pac drums using machines and procedures that are the same as have been used to package these products since prior to any potential “critical date” associated with the ’864 patent. For example, ESAB claims that one brand of drumming machine used by the ESAB Group to package its Marathon Pac products in Ashtabula, Ohio since before the critical date was manufactured and supplied by { } a leading supplier of machines of this type in Sweden. (Citing RX-95C at Q. 30-34, 39; RX-64C; RX-65C.) (EIB at 35.)

ESAB asserts that the accused “MIG-6” and “Arc-Plus” products made in Mexico by

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ESAB Group were also manufactured on { } machines of the same type (and used in the same manner) as used by ESAB Group at its Ashtabula facility since before the critical date. (Citing RX-95C at Q. 40-43; Tr. at 784:22-785:9, 809:4-9.) According to ESAB, the design and operation of these machines is the same in all material respects as the machines used in both Ashtabula and Monterrey; the wire passes through straightening rolls just prior to the capstan arrangement (where the wire is then passed down through the guide tube mounted on the laying head to form a series of loops in the drum). (Citing RX-95C at Q. 100-107; RDX-1C; RDX-3C.005; RDX-5C.006-07; Tr. at 572:16-573:7, 574:9:575:5; RX-96C at Q. 11-14, 40.) (EIB at 36.)

ESAB states that according to Federal Circuit precedent, Lincoln's accusation of infringement against the Marathon Pac products establishes the correspondence between the claim elements and the accused products necessary to establish the invalidity of the asserted claims even where the issue of infringement is disputed by the accused party. (Citing *Vanmoor v. Wal-Mart Stores, Inc.*, 201 F.3d 1363, 1366 (Fed. Cir. 2000); *Evans Cooling System, Inc. v. General Motors Corp.*, 125 F.3d 1448, 1451 (Fed. Cir. 1997).) Thus, ESAB argues that the claims must either be construed and applied in a manner that excludes the accused products or, in the alternative, Lincoln's accusation of infringement against the same products may be used as the basis to hold these claims invalid as a matter of law under 35 U.S.C. § 102(b). (EIB at 36-37.)

ESAB claims that it has met its initial burden of establishing that its Marathon Pac products were, in fact, on sale prior to June 15, 2000. ESAB notes that Mr. McBride testified that ESAB Group began selling its Marathon Pac products manufactured on the Lämneå Bruk drumming machines by 1993, and that the Marathon Pac products made on the Lämneå Bruk

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machines are the same today in all material respects as they were in early 2000, prior to the earliest possible critical date. (Citing RX-95C at Q. 30, 72-73, 90-91; RX-96C at Q. 40.) (EIB at 37.)

ESAB asserts that documentary evidence corroborates that, in 1998, ESAB Group's Marathon Pac products were manufactured using { } machines and that the resulting welding wire had a shape memory that resulted in the following general waveform:

{

}

(Citing RX-55C.001; RX-95C at Q. 68-73.) (EIB at 37-38.)

ESBAB claims that the record also demonstrates that ESAB Group currently manufactures Marathon Pac products on { } machines to the same specifications and having the same general waveform shape as specified since prior to the critical date. (Citing RX-58C.001; RX-95C at Q. 90-91.) (EIB at 38.)

ESAB notes that Mr. McBride further testified that the Monterrey facility itself began producing Marathon Pac products using the { } machines in about 1996. (Citing RX-95C at Q. 95.) Mr. McBride also testified that the { } machines used in Monterrey, Mexico to produce the accused products manufactured in that country are the same type as machines used in Ashtabula, Ohio since before the critical date, and that the shape of the wire produced on the { } machines in Monterrey has the same characteristics as the wire



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produced on the { } machines in Ashtabula since prior to 2000. (Citing RX-95C at Q. 100, 106; RX-96C at Q. 40.) (EIB at 38.)

ESAB states that Dr. Brown also offered his expert opinion that any asserted claims applied to the accused products manufactured in the Monterrey facility would likewise apply to the prior art Marathon Pac wire products manufactured by ESAB Group at its Ashtabula facility prior to the critical date in light of the use of the same type of equipment to produce the relevant products and the material role of the relevant components of the drumming machines in causing the resulting shape of the finished wire products. (Citing RX-96C at Q. 49.) Dr. Brown also testified that none of the minor changes to the drumming machines referenced by Lincoln in the testimony of its experts affected whether or not the resulting wire products met the limitations of the asserted claims of the '864 patent. (Citing RX-96C at Q. 15.) ESAB notes that Lincoln chose to refrain from cross examining Dr. Brown on any of his material opinions at the evidentiary hearing. ESAB claims that Lincoln's own expert conceded that he was not offering any opinion that any of the minor changes made by ESAB Group, individually or collectively, had any effect on the properties of the wire in relation to the claims of the '864 patent. (Citing Tr. at 827:23-828:15.) (EIB at 39-40.)

In its reply brief, ESAB reiterates its argument that if the accused products are found to infringe the asserted claims, then the asserted claims are invalid because the products made using the same machinery and processes were around prior to any critical date of the '864 patent. (ERB at 20-23.)

According to ESAB, Lincoln attempts to dismiss the issue by asserting that ESAB Group is not currently importing products from Mexico, but Lincoln conveniently overlooks the fact that the Complaint in this action specifically accused the products wound on the { }

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drumming machines in Mexico of infringing the '864 patent. (Citing RX-22.006; Lincoln's Amended Complaint at ¶ 66.) Indeed, ESAB states that Lincoln's post-trial brief also indicates that these products should be included in any ruling in this proceeding in the event that importation of these products resumes. (Citing CIB at 20-21.) (ERB at 21.)

ESAB argues that Lincoln's response to ESAB's position is to attempt to create doubt through generalized testimony suggesting that, perhaps, the products may be different because the particular source of the machines used in China, for example, is different from the machines used prior to the critical date. (Citing CIB at 145.) ESAB asserts that this ignores Lincoln's accusation of products manufactured in Mexico which *were* manufactured on the same machines as used in Ashtabula. (Citing RX-95C at Q. 94-95; Tr. at 809:4-9.) Moreover, ESAB notes that Dr. Swanger acknowledged that he had not undertaken any evaluation of the actual machines to identify any material differences while the theoretical differences outlined in his rebuttal testimony, such as the relative orientation of the capstans (vertical and horizontal) do not actually apply to the machines of interest. (Citing Tr. at 814:9-815:11.) (ERB at 22.)

ESAB states that Lincoln also attempts to suggest that certain, minor process changes made over the years *might* have affected the properties of the resulting products. ESAB argues that Dr. Swanger conceded that the proper question was not whether any changes had been made, but whether any changes were made to actually affect the material properties of the resulting wire product in relation to the asserted claims:

Q. Now, do you agree that there could be changes to the processes or procedures that would not affect a product in any way relevant to the claims of the '864 patent? Is that right?

A. Yes.

Q. What is actually significant is not whether or not there may have been some changes over time but whether there were any changes made that actually

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affected the resulting shape of the wire. Isn't that right?

A. That's correct.

(Citing Tr. at 819:10-21.) (ERB at 22-23.)

Furthermore, ESAB asserts that Dr. Swanger also confirmed that he was not offering the opinion that any of the alleged changes, individually or collectively, actually affected the resulting products in a manner material to the asserted claims:

Q. Dr. [Swanger], notwithstanding the various observations in your witness statements of possible criticisms of one methodology or another, possible comments concerning practices, manufacturing practices in one time relative to another, isn't it true that you are not actually offering an opinion that any of the changes made by ESAB, either alone or in combination with any other changes, actually changed the wire in a manner material to the claims of the '864 patent?

A. Consistent with my deposition testimony, that's correct.

Q. You are not offering such an opinion?

A. I am not offering an opinion that any particular change or any particular combination of changes made any particular change in the resulting wire.

(Citing Tr. at 827:23-828:15.) (ERB at 23.)

In the absence of any actual testimony from its experts demonstrating that any of the minor process changes actually affected the product in a manner pertinent to the asserted claims, ESAB argues that Lincoln's generalized arguments ring hollow, especially in the face of evidence demonstrating that the relevant specifications and material equipment components actually affecting the shape of the wire are the same today in all material respects as used prior to the critical date. (Citing RX-96C at Q. 49-51.) (ERB at 23.)

**Sidergas' Position:** Sidergas takes no position on this issue.

**Lincoln's Position:** Lincoln contends that ESAB failed to produce clear and convincing evidence that its prior products render the asserted claims invalid under 35 U.S.C. §§ 102 or 103.

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(CIB at 141.)

Lincoln states that ESAB employs three different manufacturing facilities to manufacture bulk weld wire, one in China, one in Monterrey, Mexico and one in Ashtabula, Ohio. (Citing RX-95C at Q. 12-14.) Lincoln claims that only the infringing wire manufactured in China and imported into the United States is accused of infringement. Lincoln argues that ESAB's various attempts to correlate wire made at different times, on different machines, at different plants, in different countries and pursuant to different specifications cannot establish that any ESAB wire manufactured prior to the relevant priority date for the '864 patent disclosed each limitation of the asserted claims. Moreover, Lincoln asserts that Mr. McBride testified as to numerous changes and differences between the various wire manufacturing processes used at ESAB's different locations during the hearing. (Citing Tr. at 527:13-543:15.) Lincoln argues that these changes are material to any invalidity analysis because without any detailed analysis of the impact of the changes, no conclusion can be drawn regarding the properties of a prior art weld wire based on the properties of wire made today. (Citing CX-422C at Q. 77-92.) (CIB at 143.)

Lincoln notes that Dr. Brown testified that, in his opinion, "the products made prior to the alleged invention date of the '864 patent" are the same as the products packaged by ESAB today because he understands "that the accused products were manufactured to product specifications and quality control standards that are in all significant respects the same as the standards reflected in ESAB's historical procedures and records." (Citing RX-96C at Q. 49.) Lincoln argues that this opinion, however, is insufficient to anticipate the asserted claims. (Citing RX-422C at Q. 77-92.) Lincoln claims that this opinion fails at least because evidence offered by ESAB fails to provide any detail as to the shape memory imparted to the purported ESAB prior product and how such shape memory disclosed the shape memory claimed in the asserted claims

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of the '864 patent. (Citing RX-422C at Q. 77-92.) (CIB at 143-144.)

Lincoln argues that Dr. Brown's opinion also fails at least because he does not identify the "product specifications and quality control standards" referred to in his witness statement. (Citing RX-96C at Q. 49.) Lincoln states that Dr. Brown's opinions are based entirely on Mr. McBride's testimony and the product specification and quality control standard documents for ESAB's products. (Citing RX-96C at Q. 49.) The product control standards identified by Mr. McBride provide final inspection criteria for determining whether the finished wire is within an acceptable manufacturing range. (Citing RX-95C at Q. 28-29, 140-141; RX-42C; RX-50C; CX-422C at Q. 77.) Lincoln asserts that ESAB's specification and standards are related to tensioned wire, and thus do not provide information about untensioned wire which is necessary to assess shape memory as claimed in the '864 patent. (Citing CX-422C at Q. 77.) (CIB at 144.)

Lincoln states that Mr. McBride testified about a procedure document for ESAB's Chinese facility that includes product specifications and quality control standards at the end of the document in a section entitled "finished goods inspection" (Citing RX-42C.010; RX-95C at Q. 40.) This product specification sets forth a single test for the final inspection of the ESAB wire product made in China. (Citing RX-42C.010.) The test involves taking four loops of wire, laying the wire on the floor, shaking one end of the wire, and then inspecting the amplitude of the wire in accordance with a "Figure 13" (at RX-42C.011) which shows a curved wire. (Citing RX-42C.011.) Lincoln claims that because of the length of the wire and the conditions under which the wire is tested, this test standard bears no relationship to the shape memory claimed in the '864 patent. (Citing CX-422C at Q77; RX-42C.) (CIB at 144-145.)

Lincoln argues that Mr. McBride also states that the standard is "just like in Ashtabula and in Monterrey" but this conclusion is contradicted by the documents themselves. For

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example, the Ashtabula and Monterrey manufacturing standard allows for a greater maximum amplitude of five loops of wire. (Citing RX-50C.) Thus, Lincoln asserts that the relied-on documents fail to establish that the wire produced in China (in accordance with RX-42C) and in Mexico and Ashtabula (in accordance with RX-50C) are in any significant respects the same. (Citing CX-422C at Q. 77.) Because these manufacturing standards are in fact different, Lincoln argues that Dr. Brown's conclusion that the wire is the same is not supported. (CIB at 145.)

Lincoln notes that Dr. Brown testified that "the products made prior to the alleged invention date of the '864 patent" are the same as the products packaged by ESAB today because the ESAB manufacturing machines used for those products are "the same type of machines having the same relevant components that cause any shape in the wire were used to make these products." (Citing RX-96C at Q. 49.) Dr. Brown thus asserts that different machines operated in different countries will produce wire with the same shape memory because the machines are "the same type of machines having the same relevant components." (*Id.*) (CIB at 145-146.)

Lincoln argues that Dr. Brown's testimony is again unsupported and in error and fails to provide clear and convincing evidence that any purportedly prior art product disclosed each element of the asserted claims of the '864 patent. (Citing CX-422C at Q. 78.) Lincoln asserts that Dr. Brown fails to provide any credible evidence that the ESAB machines in the U.S., China and Mexico are the same or are configured to produce identical end products. (Citing CX-422C at Q. 78; Tr. at 636:12-637:18.) (CIB at 146.)

Lincoln argues that Mr. McBride's testimony fails to establish that the ESAB machines in the U.S., Mexico, and China are the same or that they have the same "relevant" components. (Citing CX-422C at Q. 78.) According to Lincoln, Mr. McBride did not provide testimony that would permit Dr. Brown

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- (1) to identify whether a component is relevant,
- (2) to identify similarities or differences of the machines, or
- (3) to determine how those differences are to be evaluated in a comparison of the machines.

(Citing CX-422C at Q. 78.) Lincoln states that Mr. McBride's testimony is thus insufficient to draw any credible conclusions regarding the sameness of an end product weld wire manufactured on different machines at different facilities and at different times. (Citing CX-422C at Q. 78.) Lincoln asserts that Dr. Brown's reliance on Mr. McBride's testimony demonstrates that Dr. Brown did not evaluate the ESAB machinery or testing standards. (Citing CX-422C at Q. 78.) Lincoln thus concludes that Dr. Brown's opinions as to the sameness of the ESAB machines therefore fails to prove by clear and convincing evidence that the any claim of the '864 patent is anticipated by any prior art ESAB product. (CIB at 146.)

Lincoln claims that ESAB's expert witness' testimony is inconsistent with ESAB's fact witness' testimony. Dr. Brown's testimony refers to information he obtained from Mr. McBride's deposition, but Lincoln asserts that Dr. Brown did not rely on that same information in his earlier expert reports or explain what information he was provided. Lincoln claims that Dr. Brown's testimony is also inconsistent with his prior testimony and reports because, prior to his direct witness statement, Dr. Brown never opined on the reasoning set forth in his responses to Questions 33-34 of his witness statement. (CIB at 147.)

Lincoln asserts that Mr. McBride's testimony is insufficient to allow Dr. Brown to opine on the properties of the ESAB wire purported to be prior art. Lincoln claims that Mr. McBride's testimony does not provide Dr. Brown a technical basis for showing that the processes used today are similar to the processes used in the past, or a technical basis for showing that the

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manufacturing machinery in Ohio is similar to the machinery in Mexico or China. (Citing CX-422C at Q. 81.) Lincoln states that Mr. McBride’s testimony also does not provide a technical basis for showing that the wire produced today meets all of the limitations of the ‘864 patent claims. (Citing CX-422C at Q. 81.) (CIB at 147.)

Lincoln claims that changes in ESAB’s machine undermine Dr. Brown’s testimony. For example, Mr. McBride testified regarding the manufacturing of wire in Ohio, China and Mexico. Mr. McBride asserted that wire currently made in China on { } machines is the same as that made before 2000 in Ohio on { } machines because the machines “... have the same arrangement of the key mechanical parts that place the wire in the drum....” (Citing RX-95C at Q. 134.) (CIB at 147-148.)

Lincoln argues that Mr. McBride makes an unsupported assumption that wire made on one brand of machine in China is the same as the wire made on a different brand of machine in Ohio simply because the machines have the same arrangement of key parts. (Citing RX-95C at Q. 129-135.) Lincoln claims that Mr. McBride does not offer any proof or corroboration that his assumption is correct. (Citing RX-95C.) Lincoln argues that this assumption is more likely than not to be incorrect, i.e., the machinery in China is more likely to be substantially different from the machinery in Ohio. (Citing CX-422C at Q. 85.) Lincoln claims that this is because the machinery in China was made by a different manufacturer than the machinery in Ohio and, because of that, it is more likely that the machines will not operate the same way. (Citing CX-422C at Q. 85.) Lincoln notes that Mr. McBride’s direct testimony omitted the discussion of components employed on ESAB’s machines –{ } – which affect the shape of the wire. (Citing Tr. at 531:21-540:17.) (CIB at 148.)

Lincoln argues that Mr. McBride’s assumption also fails because he assumes that the



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arrangement of parts within the machinery is the controlling factor affecting wire shape. (Citing CX-422C at Q. 85.) Lincoln claims that Mr. McBride thus overlooks the influence of the operator in the wire manufacturing process. (Id.) (CIB at 148-149.)

Furthermore, Lincoln asserts that even if the { } machines were operating with similar manufacturing specifications, that is not sufficient to demonstrate the shape memory of the wire. (Citing CX-422C at Q. 85.) This is because the specification used with the wire made with the { } machines evaluates the shape of a wire under tension, which is not the untensioned wire required to reveal the shape memory recited in the '864 patent claims. (Citing CX-422C at Q. 85.) (CIB at 149.)

Lincoln states that Mr. McBride testified as to the purported sameness of ESAB's various winding machines is based on his review of two different operator manuals. (Citing RX-95C; RX-40C; RX-63C.) According to Lincoln, these manuals are very basic descriptive manuals containing insufficient detail to demonstrate either similarities or differences between the machines. (Citing CX-422C at Q. 86; RX-40C; RX-63C; Tr. at 546:4-21.) (CIB at 149.)

Lincoln states that the manuals state that the machines are intended for wire in the range { } and that the maximum wire speed is { } The { } manual states that there are { } (Citing RX-63C.) The { } manual has no description of the straighteners { } (Citing RX-40C; Tr. at 546:4-21.) Conversely, the { } manual describes the capstan as having a diameter of { } while the { } manual does not disclose the diameter of the capstan. (Citing RX-63C; RX-40C.) Lincoln argues that these manuals are totally deficient of any information to compare the { } machines. (Citing CX-422C at Q. 86-90.) (CIB at 149-150.)

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Lincoln claims that ESAB's documents demonstrate that ESAB has implemented numerous changes to the Lämneå Bruk machines over the relevant time period. Lincoln asserts that these changes demonstrate that ESAB has failed to provide evidence that wire produced today is the same as was produced in 1998. Lincoln claims that Dr. Brown is incorrect in his testimony that no change has been made in ESAB's manufacturing process since 2000. (Citing RX-96C at Q. 24, 50-51.) To the extent Dr. Brown acknowledges the existence of "changes," Lincoln argues that he does not identify the changes of which he is aware and thus the testimony is not persuasive. (Citing RX-96C at Q. 50-51.) (CIB at 150-151.)

Lincoln argues that even minor changes made to the process can and often do change the physical characteristics, including but not limited to the shape memory, of weld wire. Lincoln avers that every step in the process affects the finished weld wire. (Citing CX-379C at Q. 57.) Lincoln alleges that the cumulative effect of several changes can result in a significant change in the shape memory of the weld wire. (Tr. at 834:20-843:18.) Lincoln argues that one of skill in the art of manufacturing and packaging bulk welding wire would also recognize that any change in the shape of the wire during its manufacture and packaging will change the shape memory of the wire in nature, extent, or both. (CIB at 151.)

Lincoln states that ESAB's documents show many changes in the procedures used at ESAB over the years, many of which will affect wire shape memory. Lincoln asserts that as far back as 1990, ESAB recognized that changes in the machinery used to package the wire can significantly affect wire properties. For example, ESAB instructs its staff to check "the wire loop length ... whenever major parts of the equipment ... have been replaced." (Citing RX-46C.003.) ESAB documents further warn that the "dispersion of a loop may be caused by large differences in the tensile strength of wire or by equipment problems." (Citing RX-46C.003.)

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(CIB at 151.)

ESAB's documents specify that the loop size for a {  
} (Citing RX-55C.001.) Other ESAB document report that the  
specification has been changed to specify {  
} (Citing RX-56C.001.) Lincoln argues that this change will change the shape memory of the wire  
being loaded into the drum, and hence the observed shape memory of the wire after extraction  
from the drum. (Citing CX-422C at Q. 92.) (CIB at 152.)

As another example, Lincoln states that the Marathon Pac Handbook dated 4/19/00  
consists of 14 pages while the Marathon Pac Handbook dated 11/06/08 consists of 19 pages, with  
much new material added. (Citing RX-60C; RX-62C.) In the earlier version, the first page  
states {  
} (Citing RX-60C.) In the newer version, the first page states  
{  
} (Citing RX-62C; Tr. at 527:13-528:11.) Lincoln argues that  
this one difference demonstrates that the shape memory of the 2008 product would necessarily  
be substantially different than the shape memory of the April, 2000 product. (Citing CX-422C at  
Q. 92.) Lincoln highlights new language in the 2008 handbook version that reads:

{  
  
  
  
  
  
  
  
  
  
}

(Citing RX-62C.011.) Lincoln claims that this specification is absent from the earlier April 2000  
version of this manual. (Citing RX-60C.) Again, Lincoln argues that this emphasizes that  
changes in the procedures from April 2000 to November 2008 will make substantial changes to  
the shape memory of the weld wire produced by ESAB over that time period. (Citing CX-422C  
at Q. 92.) (CIB at 152.)

Lincoln asserts that Mr. McBride (as a corporate representative) explained additional

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changes have occurred since the effective filing date of the '864 patent that are not identified in any of ESAB documents. (Citing CX-398C at 186-189.) According to Mr. McBride, ESAB has implemented, without documentation, { } and has, without documentation, changed the material of the rollers. (Citing CX-398C at 186: 21-187:12, 189:25-190:11.) According to Lincoln, these undocumented changes further demonstrate that that the wire produced today is not the same as that produced in 1998. (Citing CX-422C at Q. 92.) (CIB at 152-153.)

In its reply brief, Lincoln states the following alleged facts: (1) No actual ESAB product was introduced at trial; (2) ESAB presented no testimony related to any actual product, has not offered into evidence any actual product, has provided no claim charts or any particularized testimony or evidence regarding each claim element of the asserted claims and has not offered into evidence any testing of any actual product; and (3) Not a single piece of evidence shows that any of ESAB's earlier products had any "imparted shape memory" of any kind. (Citing CX-422C at Q. 77.) Lincoln claims that ESAB tries to string together different products made on different machines in different plants located in different countries (and all without ESAB's expert inspecting these machines and with ESAB's only fact witness not having seen these machines since 2003 for the Mexican facility and 2007 for the Chinese facility). (Citing Tr. at 545:22-546:3.) Lincoln reiterates its reasons for asserting that the evidence does not support a finding that the prior ESAB products are materially identical to the current accused products. (CRB at 77-79.)

**Staff's Position:** Staff contends that because the accused ESAB products do not infringe the asserted claims of the '864 patent, it follows that ESAB's prior products do not invalidate the '864 patent. (SIB at 39-40.)

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**Discussion and Conclusion:** Based on the evidence before me, I find that ESAB has failed to offer clear and convincing evidence that its own prior products render the asserted claims of the '864 patent invalid under 35 U.S.C. §§ 102 or 103.

In Section V, *infra*, I conclude that Lincoln has failed to prove by a preponderance of the evidence that ESAB infringes the asserted claims. ESAB's invalidity argument is based on the assumption that the accused ESAB products are found to infringe, as ESAB argues that it has been packaging wire the same way since prior to the critical date of the '864 patent. (See EIB at 35-40.) Thus, ESAB argues that if the accused products are found to be covered by the asserted claims of '864 patent, the asserted claims are necessarily invalid because ESAB's pre-critical date products are identical to the asserted products. See *Vanmoor v. Wal-Mart Stores, Inc.*, 201 F.3d 1363, 1366 (Fed. Cir. 2000) (finding that defendant met its burden to prove that its own product that was the subject of pre-critical date sales anticipated the asserted patent by relying on patentee's allegation that the same product infringed the asserted patent). Because I have concluded that ESAB's accused products do not infringe the asserted claims of the '864 patent, ESAB's invalidity argument necessarily fails.

Assuming *arguendo* that ESAB's accused products are found to infringe the asserted claims of the '864 patent, I find that ESAB failed to produce clear and convincing evidence of invalidity. ESAB contends that it was producing weld wire in its Ohio facility prior to the critical date of the '864 patent using a materially identical process used to produce the wire that ESAB currently imports into the United States. (RX-96C at Q. 49.)

Lincoln offers multiple reasons for questioning ESAB's assertion that the prior product manufactured in Ohio is materially identical to the current wire being imported by ESAB. (See CX-422C at Q. 77-92.) Specifically, Lincoln's expert raises the following issues: (1)

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differences in the product specifications between the prior products and current products (CX-422C at Q. 77; RX-42C; RX-50C); (2) the different machines (and machine operators) used to package the prior products and the current products (CX-422C at Q. 78, 82-91; RX-40C; RX-63C); and (3) the changes made to ESAB’s Lamnea Bruk machines throughout the years (CX-422C at Q. 92). I find that these issues identified by Lincoln raise sufficient doubt and preclude a finding that there is clear and convincing evidence demonstrating that the prior product manufactured by ESAB in Ohio is materially identical to the current accused products being imported by ESAB.

**2. Lincoln’s Prior Use & Sales**

**ESAB’s Position:** ESAB argues that the effective filing date of the ‘864 patent is March 26, 2002, and that the “critical date” for analysis pursuant to 35 U.S.C. § 102(b) is March 26, 2001. ESAB avers that Lincoln admitted in responses to interrogatories that it {

} (Citing Order No. 39

“In an October 26, 2009 interrogatory response, {

}”).<sup>16</sup> ESAB argues that, unless

the claims of the ’864 patent are entitled to the earlier priority date of the provisional application, the claims must be held invalid over Lincoln’s { .} (EIB at 40.)

ESAB asserts that both inventors named on the ’864 patent testified that Lincoln { } prior to *any* potentially applicable critical date associated with the claims of the ’864 patent. (Citing Tr. 319:2-7; JX-

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<sup>16</sup> ESAB refers to RX-13C.006-010, .051, Lincoln’s First Supplemental Response to Hyundai’s First Set of Interrogatories (responses to interrogatory numbers 4 and 5 {

} Lincoln’s Second Supplemental Response to ESAB’s First Set of Interrogatories {

.}

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26C at 30:7-31:13.) ESAB contends that the undisputed evidentiary record establishes that {

}” ESAB continues that the evidentiary

record also establishes that {

} (Citing JX-26C at 112:6-18.) (EIB at

46-47.)

ESAB asserts that documentary records generated by Lincoln in relation to the

{

}

ESAB states that Lincoln’s {

} (Citing Tr. a

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at 312:9-313:3.) (EIB at 48.)

ESAB contends that all of the relevant documents produced by Lincoln consistently reflect that {

}

(EIB at 48-49.)

{



}

ESAB argues that, once a *prima facie* case of prior use or sale is established, the burden of production shifts to the patentee to demonstrate that the prior use does not affect the validity of claims, as by demonstrating the applicability of the experimental-use exception to the on-sale bar or by demonstrating that the products sold prior to the critical date were in some manner materially different from the claimed subject matter. (Citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008).) ESAB states that in this case Lincoln failed to come forward with any evidence suggesting any material difference between the {

.} ESAB says the provisional application describes the alleged invention and includes PowerPoint slides identifying the relevant products using the { } (Citing Tr. at 327:24-329:5, 358:11-20 {

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<sup>17</sup> ESAB also cites JX-26C at 44:7-16 {

}

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} ; Order

No. 39 at 8.) (EIB at 50.)

ESAB summarizes its argument that the evidence of record clearly and convincingly establishes that Lincoln {

} ESAB argues that the record reflects Lincoln’s failure to come forward with any evidence excusing { } or demonstrating any material difference between the { } and the claimed subject matter. {

}<sup>18</sup> (EIB at 51.)

In its reply brief, ESAB asserts that Lincoln’s {

} (Citing Order No. 39.)<sup>19</sup>

(ERB at 24.)

ESAB then argues that Lincoln’s Post-Trial Brief “does not attempt to dispute the basic fact that Lincoln made {

}” (Citing Tr. at 313:4-14, 319:2-7.) (ERB at 28-29.)

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<sup>18</sup> ESAB notes that in response to ESAB Group’s Motion for Summary Determination of Invalidity based upon the pre-critical date sales, Lincoln asserted the experimental-use defense; but “abandoned” that assertion in connection with the evidentiary hearing.

<sup>19</sup> ESAB refers to RX-13C.006-010, .051, Lincoln’s First Supplemental Response to Hyundai’s First Set of Interrogatories (responses to interrogatory numbers 4 and 5 {

}

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ESAB contends that Lincoln’s Post-Trial Brief argues that because ESAB Group’s previous motion for summary determination on the same issues was denied, the same ruling is essentially dispositive of the issues following the full evidentiary hearing. ESAB says that Lincoln’s approach “misapprehends the fundamental difference between the standards applied in the distinct contexts, and particularly that Lincoln does not at present receive the benefit of favorable factual inferences on the complete record.” (ERB at 29.)

ESAB argues that it made a *prima facie* case of prior use, and that Lincoln made no attempt during the evidentiary hearing or in related briefing to demonstrate any material difference between the { } and the claimed subject matter encompassed by the asserted claims (including asserted Claim 3). (ERB at 29.)

ESAB avers that the evidence of record demonstrates that the {

} .)<sup>20</sup> (ERB at 29-30.)

ESAB argues that the evidence of record clearly and convincingly demonstrates that Lincoln sold its {

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<sup>20</sup> ESAB also cites JX-26C at 44:7-16, 53:14-54:12.



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claim of the Patents-in-Suit that Complainants contend covers that product, and set forth facts in sufficient detail to describe the basis for Complainants' contentions, stating whether coverage is literal or under the doctrine of equivalents.

**Supplemental Response No. 8**

. . . Lincoln hereby incorporates by reference its response, including its supplemental responses, to Interrogatory Nos. 2 and 4-6 of Hyundai's First Set of Interrogatories to Lincoln . . . .

**Second Supplemental Response No. 8**

. . . Lincoln incorporates herein the Expert Report of Dr. Edward M. Caulfield, Ph.D., P.E. dated December 22, 2009 . . . .

(Citing JX-23C.) Sidergas notes that Lincoln incorporated Dr. Caulfield's expert report in its second supplemental response to Sidergas' Interrogatory No. 8. (*Id.*) (SGIB at 47-48.)

Sidergas says that Dr. Caulfield's expert report analyzes Lincoln's alleged domestic-industry products, and finds that they practice claim 3 of the '864 patent. (Citing RX-25C at ¶ 11.) Sidergas concludes that, by its sworn interrogatory responses, Lincoln has admitted {

} (SGIB at 48.)

Sidergas contends, "[e]ven if the '864 patent is entitled to an earlier priority date based on the provisional application, { } would render the '864 patent invalid pursuant to 35 U.S.C. § 102(b) (on-sale bar)." (SGIB at 48.)

Sidergas alleges that Lincoln {



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'864 Patent Claim	Exact-Trak Wire Sold in U.S. by Lincoln before 6/15/2000
<p>-----</p> <p>said shape memory substantially lying in a single plane wherein said shape memory is generally a waveform having a maximum amplitude for each half cycle,</p> <p>-----</p> <p>said half cycle having a radius of curvature of at least about 15 inches.</p>	<p>This limitation of the claim is a product by process limitation that need not be demonstrated to determine invalidity.</p> <p>-----</p> <p>The PowerPoint presentation discloses a waveform with a rise of 3 inches maximum. JX-3, U.S. Prov. App. 60/298555 at PowerPoint pg. 1. This means that the shape memory substantially lies in a single plane. The PowerPoint presentation also discloses a waveform having a maximum amplitude of 14 to 20 inches. JX-3 at PowerPoint pg. 1.</p> <p>-----</p> <p>The formula for determining radius of curvature of an arc segment</p> $r = \frac{c^2 + 4h^2}{8h}$ <p>Where <math>c</math>=chord length &amp; <math>h</math>=arc height yields a calculated radius of curvature of 151.5 inches, which is greater than "at least about 15 inches."</p>
<p>4. The weld wire as defined in claim 3, wherein said waveform has substantially the same maximum amplitude for each half cycle of a full waveform.</p>	<p>{</p>
<p>6. A weld wire for storage on a spool of weld wire,</p> <p>-----</p> <p>said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool</p>	<p>}</p>

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'864 Patent Claim	Exact-Trak Wire Sold in U.S. by Lincoln before 6/15/2000
	<p>83:3.</p> <p>This limitation of the claim is a product by process limitation that need not be demonstrated to determine invalidity.</p>
<p>and at least partially retained on said weld wire after said weld wire is unwound from said spool,</p>	<p>{</p> <p style="text-align: center;">}</p>
<p>said shape memory imparted substantially in one plane alone [sic] a longitudinal length of said weld wire, said shape memory generally in the form of a waveform, said waveform having a maximum amplitude for each half cycle,</p>	<p>The PowerPoint presentation discloses a waveform with a rise of 3 inches maximum. JX-3 at PowerPoint pg. 1. This means that the shape memory substantially lies in one plane along a longitudinal length of the weld wire. The PowerPoint presentation also discloses a waveform having a maximum amplitude of 14 to 20 inches. JX-3 at PowerPoint pg. 1.</p>
<p>said half cycle having a radius of curvature of at least about 5 inches.</p>	<p>The formula for determining radius of curvature of an arc segment</p> $r = \frac{c^2 + 4h^2}{8h}$ <p>Where <math>c</math>=chord length &amp; <math>h</math>=arc height yields a calculated radius of curvature of 151.5 inches, which is greater than "at least about 15 inches."</p>
<p>12. A weld wire for storage on a spool of weld wire,</p> <p>-----</p> <p>said weld wire having a shape memory that</p>	<p>{</p> <p>-----</p>



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<b>'864 Patent Claim</b>	<b>Exact-Trak Wire Sold in U.S. by Lincoln before 6/15/2000</b>
is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool	}
and at least partially retained on said weld wire after said weld wire is unwound from said spool,	{  }
said shape memory imparted substantially in one plane along a longitudinal length of said weld wire,	The PowerPoint presentation discloses a waveform with a rise of 3 inches maximum. JX-3 at PowerPoint pg. 1. This means that the shape memory substantially lies in one plane along a longitudinal length of the weld wire.
said shape memory generally in the form of a waveform,	The PowerPoint presentation also discloses a waveform having a maximum amplitude of 14 to 20 inches. JX-3 at PowerPoint pg. 1.
said waveform having a maximum amplitude for each half cycle, said maximum amplitude of each half cycle having a deviation of less than about 6 inches within one cycle of said weld wire.	{          }
13. The weld wire as defined in claim 12, wherein said deviation of said maximum amplitude of each half cycle within one cycle is less than about 4 inches.	The maximum amplitude of each half cycle must have a deviation of less than about 4 inches because (As noted above) a maximum amplitude of 3 inches is less than a deviation of 4 inches.

(SGIB at 49-53.)

In its reply brief, Sidergas contends that Lincoln argues that because “ESAB previously presented this exact defense in its motion for summary determination of invalidity,” Respondents

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have failed to satisfy their burden of proof regarding the prior-sales affirmative defense. (Citing CIB at 154.) Sidergas argues that Lincoln’s analysis ignores Mr. Hartman’s trial testimony, Dr. Savoy’s direct witness statement, and RDX-10C. (Citing Tr. at 317:16-320:15; RX-204C at Q. 94.) (SGRB at 31-32.)

Sidergas argues that Lincoln’s reliance on Order No. 39, where the standard applied was to view the evidence “in the light most favorable to the party opposing the motion . . . with doubt resolved in favor of the nonmovant,” is misplaced. Sidergas continues that Order No. 39 declined to grant summary determination because “there are genuine issues of material fact related to both factual assertions . . . .” (Order No. 39 at 6.) Sidergas asserts that at trial and in its briefing, Lincoln “failed to meet its burden of going forward with evidence rebutting Respondents’ evidence of {

}” Sidergas cites *Tech. Licensing*, 545 F.3d at 1327 to support its position.

Sidergas contends that the ’864 patent’s priority date does not affect its validity here because {

}” (Citing RX-6C at LEITC00162571; RX-2C at 268:4-270:14; JX-26C at 113:20-114:5.) (SGRB at 32.)

**Lincoln’s Position:** Lincoln argues that to succeed on its public use defense under § 102(b), ESAB must establish that { } included all of the limitations of each asserted claim. (Citing Order No. 39 at 5-6; *Clock Spring, L.P. v. Wrapmaster, Inc.*, 560 F.3d 1317, 1325 (Fed. Cir. 2009).) Lincoln asserts that Respondents have failed to prove by clear and convincing evidence that any claim of the ’864 patent is invalidated by {

} Lincoln contends that Order No. 39 denied Respondents’

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motion for summary determination of invalidity based on identical facts at least in part because Respondents failed to provide a “detailed analysis comparing the asserted claims of the ‘864 patent to { }” (Citing Order No. 39.) Lincoln says that Respondents “failed to cure this deficiency at the hearing.” Lincoln states that no additional evidence was proffered showing that any product made by Lincoln during { } had each limitation of the asserted claims of the ‘864 patent prior to the critical date. (CIB at 153.)

Lincoln contends that Order No. 39 found that that Lincoln’s response to ESAB’s Interrogatory No. 2 is not sufficient to support a finding that the { } practices every asserted claim of the ‘864 patent, as the response fails to provide the necessary detail regarding how the asserted claims are practiced by the { } (Citing Order No. 39 at 7-9.) Lincoln adds that Order No. 39 also stated that Mr. Ferguson’s testimony “is general and does not provide any detailed comparison between the asserted claims and the {

}” (Citing Order No. 39 at 8; CX-422C at Q. 105.) Lincoln argues that it was also found that Mr. Ferguson acknowledged that he lacked any detailed understanding of how the patent is written. Lincoln argues that Order No. 39 also recognized Mr. Hartman’s disagreement with ESAB’s position and that Lincoln’s documents reflect numerous changes that preclude a finding that Lincoln’s pre-critical date activity with respect to { } anticipated or rendered obvious the claims of the ‘864 patent. (Citing Order No. 39 at 7-9.) (CIB at 154.)

Lincoln asserts that Respondents have not overcome the foregoing deficiencies through briefing or additional evidence. Lincoln states that Mr. Ferguson did not testify at the hearing and Mr. Hartman’s hearing testimony contradicts Respondents’ defense. (Citing Tr. at 351:2-353:13.) Lincoln concludes that no additional documents have been uncovered or presented

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other than those previously found insufficient, and Mr. Hartman provided no testimony as to any specific physical attributes of any version of the wire made during {

} (CIB at 154-155.)

In its reply brief, Lincoln argues that Sidergas<sup>21</sup> contends that Lincoln admitted to {  
} embodying claim 3 prior to January 2001 based on certain discovery responses. (Citing SGIB at 47-48.) Lincoln elaborates that Sidergas was previously informed in this investigation that Lincoln's interrogatory responses did not specify that any product practiced claim 3, quoting:

I find that Lincoln's response to ESAB's Interrogatory No. 2 is {  
} every asserted claim of  
the '864 patent, as the response fails to provide the necessary detail regarding how  
the asserted claims are practiced {  
}.

(Citing Order No. 39 at 7-8.) Lincoln counters that the interrogatory upon which Sidergas relies is not directed to the asserted claims, but to "any of the claims of the Asserted Patents." (Citing SGIB at 47.) (CRB at 64.)

Lincoln addresses Sidergas' assertion that "Lincoln's Confidential Exhibit 3 shows {  
}]" (Citing SGIB at 47.) Lincoln asserts that the referenced Confidential Exhibit 3, makes no such statement. Lincoln says that Hyundai's interrogatory is not specific to any claim of the patent, and is not limited in scope to asserted claim 3. (Citing RX-13C.) Lincoln contends that Sidergas' interpretation of this interrogatory as being directed to claim 3 or otherwise being limited to the asserted claims is plainly incorrect. (CRB at 64.)

Lincoln adds that Sidergas' position is directed entirely to claim 3, and there is no

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<sup>21</sup> Lincoln says that "ESAB does not appear to advance an invalidity defense based on Lincoln's discovery responses." (Citing EIB at 35-52.)

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argument or evidenced presented as to asserted claims 4, 6 or 12-13. Lincoln says, “[e]ven assuming [that] the Court were to find merit in Sidergas’ position, this argument necessarily fails to invalidate these other claims.” (CRB at 65.)

Lincoln contends that Sidergas defense is based on { },” yet Sidergas presents no evidence of the properties of any wire { } (Citing SGIB at 48-53.) Lincoln continues that there is no evidence cited and no testing done for any product { } Lincoln argues that Sidergas “attempts to combine various documents created at different times and referring to different versions of product with unrelated testimony responding to poorly worded questions in an attempt to show a { }” Lincoln asserts that Sidergas’ effort to tie the provisional application (JX-3) to Mr. Ferguson’s testimony is improper and fails to establish that any product { } anticipated the asserted claims. Lincoln argues that the provisional application is not a production specification for wire { } Lincoln alleges that the document is temporally and logically unrelated to the wire { } (CRB at 65-66.)

Lincoln asserts that Respondents’ position with respect to the { } is that an article sold prior to the critical date had each feature of the asserted claims. (Citing SGIB at 48.) Lincoln states that to show a weld wire having “said shape memory substantially laying in a single plane where said shape memory is generally a waveform having a maximum amplitude for each half cycle,” Respondents point to a PowerPoint presentation which is actually a part of the provisional application.<sup>22</sup> (Citing SGIB at 50 (citing JX-3).) (CRB at 66.)

Lincoln says that to show a weld wire having “said half cycle having a radius of

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<sup>22</sup> Lincoln adds in a footnote that Respondents’ position that the subject PowerPoint presentation discloses “substantially laying in a single plane” is entirely inconsistent with Respondents’ assertion that this very same presentation (which is a part of the provisional application) fails to disclose this very limitation.

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curvature of at least about 15 inches,” Respondents rely on a “calculated radius of curvature” from some unknown source. (Citing SGIB at 50.) Lincoln states that Sidergas’ claim chart does not (1) identify the source for this calculated value, (2) identify the values obtained for the variables used in the formula, (3) explain why a formula for a circle is appropriate, or (4) explain why scaling results from figures not identified as drawn to scale is acceptable. Lincoln concludes that the combination of figures from an undisclosed source with actual wire is improper to show anticipation. (CRB at 66.)

Lincoln begins that there is no citation to any evidence in Sidergas’ “claim chart” to support the “radius of curvature” contention. (Citing SGIB at 50.) Lincoln asserts, without an identification of source, that it cannot tell if Respondents’ position is one of anticipation or obviousness, if the calculated values are appropriate, if the drawings are to scale, or if the drawing is in any way related to the products referenced in the rest of the claim chart. (CRB at 67.)

Lincoln argues that Sidergas fails to identify how the values were “calculated,” what results were obtained or what values were used for the variables used in the calculation. (Citing SGIB at 50.) (CRB at 67.)

Lincoln asserts that the formula employed by Sidergas is for a circular arc. (Citing CX-422C at Q. 110-111.) Lincoln contends that Sidergas fails to justify its selection of a formula for a circular arc. (Citing SGIB at 50.) (CRB at 67.)

Lincoln contends that it is established in Federal Circuit case law that a court cannot render a patent invalid based on scaled drawings or unstated assumptions from documents that are not to scale where the claims of the challenged patent recite specific dimensions not disclosed directly in the prior art. (Citing *Nystrom v. Trex Co., Inc.*, 424 F.3d 1136, 1149 (Fed.

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Cir. 2005); *Hockerson-Halberstadt Inc. v. Am. Sporting Goods Corp.*, 222 F.3d 951 (Fed. Cir. 2000); *In re Wright* 569 F.2d 1124, 1127 (C.C.P.A. 1976).) Lincoln asserts that it is apparent that values of chord length and arc height were measured, and it is not clear that the drawings from which these measurements were taken were drawn to scale. (CRB at 67-68.)

Lincoln asserts that Sidergas repeatedly mischaracterizes Mr. Ferguson's testimony, and provides an example with respect to claim 4, quoting:

The weld wire as defined in claim 3, wherein said waveform has substantially the same maximum amplitude for each half cycle of a full waveform.

Lincoln says that Sidergas states:

Statement by Mr. Ferguson explaining PowerPoint - maximum amplitude of less than 3 inches would apply to all pitches of the waveform, otherwise the term maximum would be violated. JX-26C at 92:3-7, 92:24-93:6.

(Citing SGIB at 50.) Lincoln argues that Mr. Ferguson's deposition testimony does not, however, support Sidergas' contentions. Lincoln quotes Mr. Ferguson's deposition testimony:

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(Citing JX-26C at 92:3-7, 92:24-93:6 (objection omitted).) (CRB at 68-69.)

Lincoln asserts that the cited testimony fails to support Sidergas' statement in any way. Lincoln says the cited testimony – testimony related to Lincoln's Accu-Trak product – is also contrary to the agreement of the parties and my order precluding reliance on Accu-Trak products for invalidity purposes. (Citing Tr. at 19:6-12.) Lincoln concludes that Mr. Ferguson did not

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testify in the cited passages that “maximum amplitude of less than 3 inches would apply to all pitches of the waveform, otherwise the term maximum would be violated.” (Citing JX-26C at 92:3-7, 92:24-93:6.) Lincoln adds that, with respect to claim 12, Sidergas relies on citations to portions of Mr. Ferguson’s deposition transcript that were not designated as evidence. (Citing SGIB at 52 (citing JX-26C at 84:4-7).) (CRB at 69.)

Lincoln argues that ESAB continues to refuse to accept that {

} (Citing CX-378C at Q. 35-43; Lincoln’s

Opposition to Respondent The ESAB Group Inc.’s Mot. For Summ. Det. Of Invalidity of U.S. Patent No. 6,708,864 Under 35 U.S.C. § 102(b) (Motion Docket No. 686-045); Order No. 39 at 8-9.) (CRB at 69-70.)

Lincoln reiterates its argument that Respondents incorrectly advance a “product by process” construction of the asserted claims. Lincoln reiterates that this is inconsistent with the Court’s prior orders. (Citing Order No. 36 at 8, 11.) Lincoln, referring to footnote 8 in Sidergas’ initial post-hearing brief, argues that the cited language is not a process step and must be considered in any invalidity analysis. (CRB at 70.)

**Staff’s Position:** Staff expresses the view that the evidence does not clearly or convincingly establish that that any of the asserted claims, as correctly construed, were anticipated by Lincoln’s { }. Staff cites for example, regarding the “waveform . . . having a radius of curvature” recitations in claims 3, 4, and 6, the evidence does not show that the accused product had a substantially semi-circular shape. (Citing RX-204C at Q. 94 (relying on JX-3 at PowerPoint page 1 (*i.e.*, JX-3.0019).) (SIB at 41.)



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Staff says that regarding the “unwound from” a spool limitations that appear in claims 6, 12, and 13, Dr. Savoy relies on the deposition testimony of Mr. Ferguson at page 84, lines 4-7. (Citing RX-204C at Q. 94 (citing JX-26C at 84:4-7).) Staff asserts that lines 4-7 on page 84 of JX-26C are not in evidence. (Citing JX-26C at page 84 (redacting lines 1-20).) Staff concludes, therefore, that no evidence of record supports Dr. Savoy’s assertion that {

} satisfied the “unwound from” a spool limitations. (SIB at 41-42.)

**Discussion and Conclusion:** Based upon the evidence in the record, I find that the Respondents have presented clear and convincing evidence that claim 3 of the ‘864 patent is invalid due to prior use by Lincoln, pursuant to 35 U.S.C. § 102(b). I find that Respondents failed to present clear and convincing evidence that claims 4, 6, 12, and 13 are invalid due to prior use by Lincoln, pursuant to 35 U.S.C § 102(b). The inquiry requires separate treatment for each asserted claim. It is Respondents’ burden to prove that Lincoln’s products practiced each and every element of each respective claim prior to the critical date, which is March 26, 2001.

**Claim 3**

Claim 3 of the ‘864 patent teaches:

A weld wire having a desired imparted shape memory for storage on a spool of weld wire, said weld wire having said shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool, said shape memory substantially lying in a single plane, wherein said shape memory is generally a waveform having a maximum amplitude for each half cycle, said half cycle having a radius of curvature of at least about 15 inches.

(JX-1 at 10:30-37.)

During his deposition, Otto Ferguson, one of the inventors named in the ‘864 patent, testified credibly that the “Accu-Trak” name was used on Lincoln products stored in drums when he arrived at Lincoln in approximately May of 1998. Mr. Ferguson said that, {

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<sup>24</sup> Reference to the exhibits in Mr. Ferguson's testimony is actually to exhibit numbers during the deposition. For ease of reference I use the same documents and pages using the Exhibit numbers from the hearing record.

<sup>25</sup> The slides bear dates in January and February 2001, and were included in the provisional application filed on June 15, 2001.

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Mr. Hartman testified at the hearing as a witness for Lincoln. On cross-examination, he confirmed that, { } Mr.

Hartman testified that Lincoln {

} Mr. Hartman

referred specifically to {

} (Tr. at 314:5-20; 314:21-316:9.)

{

}

(Tr. at 316:18-22, 316:23-317:15, 317:16-318:11, 318:12-319:15, 319:16-320:14, 320:16-322:19, 323:20-325:7, 325:8-25, 326:17-25; RX-226C.)

I found no testimony by Mr. Hartman regarding the proper definition of the terms “cast,” “amplitude” or “radius of curvature.” In fact, on cross-examination, Mr. Hartman testified that he had not identified a radius of curvature during his deposition in this case. He pointed out that his reference was to “maximum amplitude” and not to radius of curvature. (Tr. at 267:24-269:14; 270:4-271:6.)

Mr. Land testified at the hearing as a witness for Lincoln. He testified from personal knowledge regarding the step-by-step process used by Lincoln to produce its {

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} (CX-379C at Q. 12, 14-56.) {

}

I found no testimony by Mr. Land defining the terms “cast,” “amplitude” or “radius of curvature.”

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Respondent Sidergas used a chart to illustrate its view of the evidence regarding the practice of the elements of the ‘864 patent by Lincoln’s { } In each of the three independent claims 3, 6 and 12, Sidergas’ chart indicates that it needed no proof of the element requiring that the shape memory be imparted prior to the wire being wound on a spool, because Sidergas asserted that it was a “product by process” limitation. The chart also indicated for each of independent claims 3 and 6 the evidence showed that the Lincoln product has a calculated radius of curvature of 151.5 inches, which is greater than “at least about 15 inches.”<sup>26</sup>

Upon a review of the record, however, I find that Sidergas’ chart fails to provide any evidence to support the statement that the Lincoln product has a “calculated radius of curvature of 151.5 inches.” (RX-204C at Q. 94.) There is no showing of the data to be used in the formula

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<sup>26</sup> I note that a radius of curvature measuring greater than at least about 15 inches, would meet the requirement of claim 6, which requires a radius of curvature of greater than at least about 5 inches.



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Exact Trak { } weld wire that would reasonably be expected to change the manner of imparting the shape memory to the wire after March 26, 2001. That such a change would be noted by Lincoln is illustrated by the single reference found at CX-310C,

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} No other changes noting differences in cast, amplitude, radius of curvature or the like were found in the cited exhibits, and the single such change noted above occurred prior to March 26, 2001.

I find that Respondents have made a *prima facie* showing that the current Exact Trak product practices all of the elements of claim 3 of the '864 patent, and that the material characteristics of the weld wire have not changed since prior to March 26, 2001.

It is always Respondents' burden to prove by clear and convincing evidence that the claim is invalid. When Respondents produce evidence that Lincoln's products practiced each and every element of each respective claim prior to the critical date, the burden to go forward with evidence shifts to Lincoln, and Lincoln must produce credible evidence that its product did not practice at least one element of the claim. *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326-1327 (Fed. Cir. 2008).

Lincoln's witness, Mr. Land, testified that the process has changed over time, as Lincoln

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} (Tr. at 209:12-210-15.)



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As discussed in detail above, the only exhibits in evidence on this point, CX-259C, CX-299C, CX-300C, CX-301C and CX-310C, do not support Mr. Land's assertions regarding the nature of changes made to the process or the Exact-Trak { } product from and after March 26, 2001.

Based upon the foregoing, I find that Respondents have shown by clear and convincing evidence that, Lincoln's Exact-Trak { } product, which I find in Section VI.C, *infra*, to practice claim 3 of the '864 patent, was publicly used and sold in this country prior to March 26, 2001, and that said product has not materially changed in the interim. Inasmuch as, said Exact-Trak product practices each and every element of claim 3, I find that claim 3 of the '864 patent is invalid under 35 U.S.C. § 102(b) as anticipated by Lincoln's prior use of said Exact-Trak product.

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**Claim 4**

Claim 4 of the '864 patent teaches:

The weld wire as defined in claim 3, wherein said waveform has substantially the same maximum amplitude for each half-cycle of a full waveform.

The evidence already cited demonstrates clearly and convincingly that Mr. Ferguson's

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} The evidence fails, however, to show that the wire has "substantially the same maximum amplitude for each half-cycle of a full waveform." The best evidence on this point is set forth at CX-9C, Table 1, in which Dr. Caulfield measured both the left and right half-cycles of four samples of the Lincoln product. {

} While Lincoln produced evidence that its Exact-Trak product practices claim 3 of the '864 patent, it made no effort to demonstrate that its product practices claim 4. Respondents also failed to produce evidence on this specific point.

Based upon the foregoing, I find that Respondents have failed to show by clear and convincing evidence that claim 4 of the '864 patent is invalid under 35 U.S.C. § 102(b) as anticipated by Lincoln's prior use of the Exact-Trak { } product.

**Claims 6, 12 and 13**

Independent claims 6 and 12 of the '864 patent are similar. Both include a limitation that the shape memory be "at least partially retained on said weld wire after said weld wire is unwound from said spool." Upon a complete review of the record, I find one mention of that

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characteristic in Mr. Ferguson's testimony,<sup>28</sup> but it is completely without corroboration in the record.<sup>29</sup> Therefore, based upon the evidence of record I cannot find that Respondents have proven by clear and convincing evidence that the Exact-Trak wire produced as early as January 2001, met all of the limitations of claim 6 or claim 12.<sup>30</sup>

A patent is presumed to be valid, and each claim of a patent shall be presumed valid even though dependent on an invalid claim. 35 U.S.C. § 282. If I determined claim 12 to be anticipated and invalid, I could still find that claim 13, which depends from claim 12, is valid. Since, however, I have found claim 12 to be *not* anticipated, claim 13 is necessarily not anticipated, because it depends from claim 12 and must include all of the elements of claim 12. *See In re Fritch*, 972 F.2d 1260, 1266 (Fed. Cir. 1992); *In re Royka*, 490 F.2d 981, 983-985 (C.C.P.A. 1974); *see also In re Sernaker*, 702 F.2d 989, 991 (Fed. Cir. 1983) (when argued together, dependent claims stand or fall with the independent claims from which they depend).

### 3. U.S. Patent No. 6,301,944

**ESAB's Position:** ESAB takes no position on this issue.

**Sidergas' Position:** Sidergas contends that all of the asserted claims are anticipated by U.S. Patent No. 6,301,944 ("the '944 patent"). (SGIB at 53.)

Sidergas alleges that the '944 patent discloses the same product (weld wire wound on a spool with a shape memory) as the '864 patent. (Citing RX-110; JX-1.) Sidergas states that the '944 patent teaches a process for imparting shape memory to the wire prior to winding the wire

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<sup>28</sup> See JX-26C at 74:2-5.

<sup>29</sup> An inventor's testimony regarding prior use is generally not sufficient to resolve the issue of anticipation by prior use. The courts require corroboration of such testimony. Although the inventor's testimony in this case is largely adverse to Lincoln's own interests, I find that corroboration is still required. I note that Mr. Ferguson testified that he was attempting to remember years in the past. *See, e.g., Finnigan Corp. v. Int'l Trade Comm'n*, 180 F.3d 1354 (Fed. Cir. 1999).

<sup>30</sup> I note that, although Lincoln has shown that its product currently practices claim 3 of the '864 patent, the evidence adduced to make that showing does not include evidence that the current product manufactured by Lincoln meets this limitation of claims 6 and 12. *See Section VI.C, infra.*

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on a spool, and the patent was not considered by the patent examiner during prosecution of the '864 patent. (Citing RX-110; JX-1; JX-2; RX-204C at Q. 102-103; RDX-8.) (SGIB at 53.)

Sidergas claims that the '944 patent discloses the desired imparted shape memory for storage on a spool of weld wire, as recited in claim 3 of the '864 patent. (Citing RX-204C at Q. 103; RDX-8.) Sidergas states that the '944 patent discloses that the rotary straightening followed by bending in first one then another direction prior to winding on a spool produces wire that is "S" shaped as illustrated in the patent drawing, and has enough shape memory to be wound on a spool without experiencing additional curvature from winding on a spool. (Citing RX-204C at Q. 103; RDX-8.) Sidergas notes that claim 1 of the '944 patent recites "winding the wire onto a spool as the wire exits the exit opening of the second die" and, as such, discloses the limitation of claim 3 of the '864 patent, "said shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool." (Citing RX-110; RX-204C at Q. 103; RDX-8.) (SGIB at 53-54.)

According to Sidergas, the '944 patent recites at claim 2 "[a] method according to Claim 1 including bending the wire in each of the first and second dies to introduce a cast in excess of 10 times the diameter of the hub of said spool" and, as such, discloses the '864 patent's claim 3 ("a radius of curvature of at least about 15 inches") and claim 6 ("half cycle having a radius of curvature of at least 5 inches"). (Citing RX-110; RX-204C at Q. 103; RDX-8.) Sidergas asserts that the '944 patent describes spools as being four (4) or eight (8) inches in diameter. (Citing RX-110; RX-204C at Q. 103; RDX-8.) Therefore, Sidergas argues that it discloses a cast radius of forty (40) to eighty (80) inches, which meets the "at least 15 inches" and "at least 5 inches" limitations of claims 3 and 6, respectively, of the '864 patent. (Citing RX-110; RX-204C at Q. 103; RDX-8; JX-1.) (SGIB at 54.)

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Sidergas offers the following chart that depicts where in the '944 patent Sidergas believes all of the claim elements of the asserted claims are located:

<b>'864 Patent Claim</b>	<b>U.S. Patent No. 6,301,944</b>
<p>3. A weld wire having a desired imparted shape memory for storage on a spool of weld wire,</p>	<p>Fig. 1 shows weld wire with a desired imparted shape memory stored on a spool.</p> <p>“The present invention relates to a method of fabricating welding wire . . . having increased hardness and low cast in a continuous length for winding on a spool.” 1:5-8.</p> <p>“The wire exiting the dies is wound on a spool.” Abstract.</p>
<p>-----</p> <p>said weld wire having said shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool,</p>	<p>-----</p> <p>Fig. 1 shows weld wire having the shape memory imparted on the weld wire at least partially prior to the weld wire being wound on the spool. <i>See</i> col. 5:25-28, claim 2, (describing bending the wire to introduce a cast prior to winding on a spool). This limitation of the claim is a product by process limitation that need not be demonstrated to determine invalidity.</p>
<p>-----</p> <p>said shape memory substantially lying in a single plane wherein said shape memory is generally a waveform having a maximum amplitude for each half cycle,</p>	<p>-----</p> <p>Fig. 1 shows the shape memory substantially lying in a single plane wherein the shape memory is generally a waveform having a maximum amplitude for each half cycle. <i>See</i> Fig. 2, col. 2:44-76.</p>
<p>-----</p> <p>said half cycle having a radius of curvature of at least about 15 inches.</p>	<p>-----</p> <p>The radius of curvature of the half cycle is greater than 15 inches. Specifically, the patent discloses “a spool having a 4 or 8-inch diameter flange for use in welding” and one of the preferred embodiments discloses wire with a cast of “10 times the diameter of the spool.” 5:3-4, 5:25-28. Thus, wire with a half cycle of radius of curvature of least about 15 inches (here ~ 40 inches) is taught.</p> <p>The '944 patent describes a spool having a 4-</p>

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'864 Patent Claim	U.S. Patent No. 6,301,944
	<p>or 8-inch diameter flange (col. 5:3), and a hub illustrated in Fig. 1, having a diameter equal to about 25% of the diameter of the flange, i.e. 1 or 2 inches. The case of the wire when taken off the spool is described as being in excess of 10 times the diameter of the spool hug (col. 5:25-28), or in excess of 10 to 20 inches, which includes a radius of curvature more than at least about 15 inches.</p>
<p>4. The weld wire as defined in claim 3, wherein said waveform has substantially the same maximum amplitude for each half cycle of a full waveform.</p>	<p>Fig 1 shows bending of the weld wire first in one direction and then the other. As such, a waveform is imparted to the wire. The waveform in Fig. 1 has the same amplitude for each half cycle.</p> <p>The bending first in one direction and then in the other imparts an "S" shape in the wire. As drawn, the waveform has the same amplitude for each half cycle.</p>
<p>6. A weld wire for storage on a spool of weld wire,</p> <p>-----</p> <p>said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool</p> <p>-----</p> <p>and at least partially retained on said weld wire after said weld wire is unwound from said spool,</p>	<p>Fig. 1 shows weld wire with a desired imparted shape memory stored on a spool.</p> <p>"The present invention relates to a method of fabricating welding wire . . . having increased hardness and low cast in a continuous length for winding on a spool." 1:5-8.</p> <p>"The wire exiting the dies is wound on a spool." Abstract.</p> <p>-----</p> <p>Fig. 1 shows weld wire having the shape memory imparted on the weld wire at least partially prior to the weld wire being wound on the spool. See col. 5:25-28, claim 2 (describing the bending of the wire to introduce a cast prior to winding the wire on a spool).</p> <p>This limitation of the claim is a product by process limitation that need not be demonstrated to determine invalidity.</p> <p>-----</p> <p>"The weld wire when unwound from the spool has a low-cast and a high-yield strength." Abstract.</p>

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'864 Patent Claim	U.S. Patent No. 6,301,944
<p>said shape memory imparted substantially in one plane alone [sic] a longitudinal length of said weld wire,</p>	<p>Fig. 1 shows the shape memory substantially lying in a single plane. <i>See</i> Fig. 2, col. 2:46-64.</p>
<p>said shape memory generally in the form of a waveform,</p>	<p>Fig. 1 shows weld wire with shape memory generally in the form of a waveform. <i>See</i> col. 4:5-23 (describing the introduction of a bend in the wire in a first direction and then in a second, opposite direction).</p>
<p>said waveform having a maximum amplitude for each half cycle,</p>	<p>Fig. 1 shows weld wire with a waveform shape having a maximum amplitude for each half cycle. <i>See</i> col. 4:5-23 (describing the introduction of a bend in the wire in a first direction and then in a second, opposite direction).</p>
<p>said half cycle having a radius of curvature of at least about 5 inches.</p>	<p>The radius of curvature of the half cycle is greater than 15 inches. Specifically, the patent discloses “a spool having a 4 or 8-inch diameter flange for use in welding” and one of the preferred embodiments discloses wire with a cast of “10 times the diameter of the spool.” 5:3-4, 5:25-28. Thus, wire with a half cycle of radius of curvature of least about 15 inches (here ~ 40 inches) is taught.</p> <p>The '944 patent describes a spool having a 4- or 8-inch diameter flange (col. 5:3), and a hub illustrated in Fig. 1 having a diameter equal to about 25% of the diameter of the flange, i.e. 1 or 2 inches. The case of the wire when taken off the spool is described as being in excess of 10 times the diameter of the spool hub (col. 5:25-28), or in excess of 10 to 20 inches, which includes a radius of curvature more than at least 15 inches. <i>See, e.g.</i>, Fig. 1.</p>
<p>12. A weld wire for storage on a spool of weld wire,</p>	<p>Fig 1 shows weld wire with a desired imparted shape memory stored on a spool.</p> <p>“The present invention relates to a method of</p>

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'864 Patent Claim	U.S. Patent No. 6,301,944
	<p>fabricating welding wire . . . having increased hardness and low cast in a continuous length for winding on a spool.” 1:5-8.</p> <p>“The wire exiting the dies is wound on a spool.” Abstract.</p>
<p>said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool</p>	<p>Fig 1 shows weld wire having the shape memory imparted on the weld wire at least partially prior to the weld wire being wound on the spool. <i>See</i> Col. 5:25-28, claim 2 (describing the bending of the wire to introduce a cast prior to winding the wire on a spool).</p> <p>This limitation of the claim is a product by process limitation that need not be demonstrated to determine invalidity.</p>
<p>and at least partially retained on said weld wire after said weld wire is unwound from said spool,</p>	<p>“The weld wire when unwound from the spool has a low-cast and a high-yield strength.” Abstract.</p>
<p>said shape memory imparted substantially in one plane along a longitudinal length of said weld wire,</p>	<p>Fig. 1 shows the shape memory imparted substantially in one plane along a longitudinal length of the weld wire. <i>See</i> Fig. 2, col. 2:46-64.</p>
<p>said shape memory generally in the form of a waveform,</p>	<p>Fig. 1 shows weld wire with shape memory generally in the form of a waveform. <i>See</i> col. 4:5-23 (describing the introduction of a bend in the wire in a first direction, then in a second direction).</p>
<p>said waveform having a maximum amplitude for each half cycle,</p>	<p>Fig. 1 shows weld wire with a waveform shape having a maximum amplitude for each half cycle.</p>
<p>said maximum amplitude of each half cycle having a deviation of less than about 6 inches within one cycle of said weld wire.</p>	<p>The weld wire in Fig. 1 has a maximum amplitude of each half cycle having a deviation of less than about 6 inches within one cycle the weld wire. Further, the mechanism in Fig. 1, as shown, will not allow a deviation in the amplitude of the waveform of more than 6 inches.</p>



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'864 Patent Claim	U.S. Patent No. 6,301,944
13. The weld wire as defined in claim 12, wherein said deviation of said maximum amplitude of each half cycle within one cycle is less than about 4 inches.	The weld wire in Fig. 1 has a maximum amplitude of each half cycle having a deviation of less than about 4 inches within one cycle the weld wire. Further, the mechanism in Fig. 1, as shown, will not allow a deviation in the amplitude of the waveform of more than 4 inches.

(SGIB at 54-58.)

Sidergas claims that the analysis provided by Dr. Swanger, Lincoln's expert, is deficient because he uses the wrong standard for reviewing the prior art '944 patent. Sidergas states that Dr. Caulfield defined the relevant field of art as the "mechanical machine design arts, such as arts related to welding equipment and packaging." (Citing RX-25C at ¶ 29.) Sidergas asserts that this definition is at odds with the one stated in the specification of the '864 patent: "The present invention pertains to the art of welding, and more particularly to welding wires used in welding machines." (Citing JX-1 at 1:6-8; Tr. at 736:13-737:12.) Thus, Sidergas argues that Dr. Swanger's analysis is deficient at least because he used the wrong standard under 35 U.S.C. § 102. (Citing *Phillips*, 415 F.3d at 1313; *Ajinomoto Co., Inc. v. Int'l Trade Comm'n*, 597 F.3d 1267, 1273 (Fed. Cir. 2010); *Stewart-Warner Corp. v. City of Pontiac, Mich.*, 767 F.2d 1563, 1570 (Fed. Cir. 1985).) (SGIB at 58-59.)

Sidergas asserts that Dr. Swanger's rebuttal analysis is also deficient because he fails to explain any patentably-distinct features claimed in the '864 patent that are missing from the '944 patent. For example, Dr. Swanger states "[t]he '944 patent is directed to a method of producing weld wire with a stated goal of providing straight wire with as little cast as possible, as described in the '944 patent at column 1, lines 20-24." (Citing CX-422C at Q. 107.) Sidergas argues that the passage cited by Dr. Swanger states no such goal. (Citing RX-110 at 1:20-24.) Accordingly, Sidergas avers that Dr. Swanger's conclusion that "the '944 patent does not show or describe

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weld wire with a shape memory having a waveform and the particular features recited in the ‘864 patent claims,” is both over-broad and incorrect. (Citing CX-422C at Q. 107.) (SGIB at 59.)

Sidergas states that Dr. Swanger again misses the mark by arguing that because a waveform is allegedly “undesired” in the ‘944 patent, the reference cannot anticipate the ‘864 patent. (Citing CX-422C at Q. 107 ¶ 2; *Celeritas Techs.*, 150 F.3d at 1361.) Sidergas states that the differences in stated goals between the ‘944 and ‘864 patents is irrelevant to an anticipation analysis. (*Id.*) (SGIB at 60.)

Sidergas claims that Dr. Swanger argues that “any prior art weld wire . . . will have a radius of curvature. Thus, the weld wire produced by the apparatus disclosed in the ‘944 patent will produce weld wire which is equivalent to the prior art shown in Figure 5 of the ‘864 patent.” (Citing CX-422C at Q. 107.) According to Sidergas, this is a faulty syllogism that does not address Dr. Savoy’s invalidity analysis. Sidergas asserts that Dr. Swanger states that the ‘944 patent will only produce wire as depicted in Figure 5 of the ‘864 patent, but provides no basis or explanation for this assumption. Sidergas argues that Dr. Swanger’s summary dismissal of Dr. Savoy’s detailed anticipation analysis is not proper or sufficient rebuttal. (SGIB at 60.)

In its reply brief, Sidergas claims that Lincoln believes the only element missing from the ‘944 patent is the waveform. (Citing CIB at 158; CDX-19C.) Sidergas argues that the “waveform” element is present in the ‘944 patent. (Citing RX-110 at Fig. 1; RX-204C at Q. 103; RDX-8; SGIB at 55.) Sidergas concludes that because Lincoln has failed to rebut Sidergas’ *prima facie* case of invalidity, the ‘864 patent is invalid. (SGRB at 34.)

**Lincoln’s Position:** Lincoln contends that Respondents have failed to meet their burden of proving by clear and convincing evidence that any claim of the ‘864 patent is rendered invalid by the ‘944 patent. (CIB at 157.)

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According to Lincoln, the '944 patent describes a weld wire with increased hardness and low cast that is formed in a continuous length for winding on a spool. (Citing RX-110; CX-422C at Q. 32.) Lincoln states that the '944 patent defines cast as a permanent circular curvature that remains in the wire once the wire has been bent past its elastic limit. (Citing RX-110; CX-422C at Q. 32.) Lincoln asserts that the low-cast wire of the '944 patent has a very large circular radius of curvature. (Citing RX-110; CX-422C at Q. 32.) (CIB at 157.)

Lincoln states that the '944 patent explains that wire removed from a "spool" will have a radius of curvature in the range of ten to twenty feet. (Citing RX-110; CX-422C at Q. 33.) Lincoln asserts that the '944 patent also describes that wire produced without the benefit of the '944 patent's invention would have a radius of curvature of about 4 feet. (Citing RX-110; CX-422C at Q. 33.) Lincoln argues that the weld wire produced by the apparatus disclosed in the '944 patent will produce a weld wire which is equivalent to the prior art shown in Figure 5 of the '864 patent. (Citing RX-110; CX-422C at Q. 33.) Lincoln asserts that the '944 patent is an example of the prior art identified in the '864 patent and is not the subject of the invention disclosed and claimed in the '864 patent. (CX-422C at Q. 33.) (CIB at 157-158.)

In its reply brief, Lincoln states that Sidergas admits that it only made, at best, a *prima facie* showing of anticipation based on the '944 patent. (Citing SGIB at 58). Lincoln claims that a *prima facie* showing does not amount to clear and convincing evidence. (CRB at 73.)

Lincoln claims that imparted shape memory as used in the '864 patent is a specific concept. Lincoln argues that a weld wire has an "imparted shape memory" if it has a residual stress such that weld wire reverts to a substantially consistent memory shape when the weld wire is untensioned; the residual stress can be demonstrated by cut sections from a weld wire in a first shape, with or without a notable waveform, that reverts to a second shape which is substantially

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consistent from one cut section to the next. (Citing JX-1; RX-113.) (CRB at 73.)

Lincoln argues that there is no evidence of imparted shape memory in the '944 patent. Lincoln claims that a bent wire shown in one patent drawing, that illustrates the processing of wire, does not prove to any standard that the illustrated wire had an "imparted shape memory" as that term is used and specifically defined in the '864 patent after the completion of the processing of the wire. Lincoln states that the only "evidence" to support an imparted shape memory in the disclosure of the '944 patent is Dr. Savoy's *ipse dixit* assertions that Figure 1 shows a wire having imparted shape memory contained in a demonstrative exhibit (RDX-8) incorporated into his witness statement (RX-204C). According to Lincoln, Figure 1 of the '944 patent is entirely silent about what happens when the wire illustrated therein is untensioned. Further, to the extent Figure 1 of the '944 patent illustrates a waveform as asserted by Sidergas, Lincoln states that the illustration is without dimension of any kind, and it is, again, exhibiting the wire during processing and not after processing. (CRB at 73-74.)

**Staff's Position:** Staff contends that the evidence does not clearly or convincingly establish that any of the asserted claims, as correctly construed, are anticipated by the '944 patent. (SIB at 42.)

Staff argues that with respect to the "waveform...having a radius of curvature" limitation in claims 3, 4, and 6, the evidence does not show that the '944 patent discloses a wire having a waveform of substantially semi-circular shape. (Citing RX-204C at Q. 103; Tr. at 722:23-724:1.) Staff notes that Dr. Savoy does not even testify that the '944 patent discloses a wire having a waveform of substantially semi-circular shape. (SIB at 42.)

Staff states that all asserted claims require "shape memory" that is imparted to the weld wire. Staff notes that Respondents construe "shape memory" to be the result of "plastic

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deformation, as distinguished from elastic deformation.” (Citing EPHB at 15; SGPHB at 18.)

Staff argues that the ‘944 patent explicitly states that the wire that is subject of the patent “does not deform plastically but, rather, behaves elastically.” (Citing RX-110 at 5:34-35.) Thus, Staff asserts that the ‘944 patent does not disclose the “shape memory” limitation. (SIB at 42-43.)

**Discussion and Conclusion:** Based on the evidence before me, I find that Sidergas failed to introduce clear and convincing evidence that the ‘944 patent anticipates any of the asserted claims.

The ‘944 patent is entitled “Methods of Fabricating Mechanized Welding Wire.” It was filed on September 22, 1999, and issued on October 16, 2001. (RX-110.) It was not considered during the prosecution of the ‘864 patent. (JX-1; JX-2.)

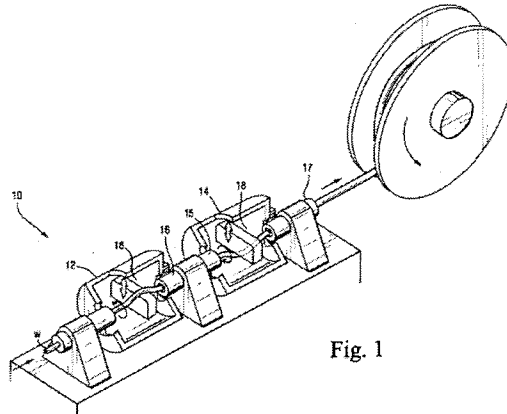
The ‘944 patent relates to a method for “fabricating weld wire having increased hardness and low cast in a continuous length for winding on a spool.” (RX-110 at 1:6-8.) The patent explains the meaning of “cast” as follows:

Cast is the permanent curvature remaining in wire which has been bent past its elastic limit, such as typically remains in wire after being unwound from a spool. Low-cast wire therefore has a very large radius of curvature; cast-free wire is essentially straight. The cast of spooled wire is a result of having been permanently bent as it was wound onto a spool hub and varies greatly as the wire on the outer layers is consumed and the take-off point progresses to the remaining wire on the inner layer on the spool, which has a significantly smaller radius of curvature.

(*Id.* at 1:20-29.)

In the embodiment described in detail in the specification, the wire passes through two wire dies before being wound on a spool. The wire dies are labeled 12 and 14 in Figure 1:

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(RX-110 at Fig. 1.)

The specification explains that “[i]t will be appreciated that as the wire passes through the counter-rotating dies, the wire is cold-hardened and straightened.” (RX-110 at 4:62-64.) The specification also states that wire emanating from a rotary straightener typically has a helix or corkscrew effect. (*Id.* at 5:37-42.) The specification discloses a method of precluding this helix or corkscrew effect by adjusting one or both of the sliders inside of the dies. (*Id.* at 5:42-64.)

The ‘944 patent describes the cast of the wire when the wire is unwound from the spool: “it has been found that the cast when the wire is taken off the spool should be in excess of 10 times the diameter of the spool hub (the diameter of the hub without wire wound thereon).” (RX-110C at 5:25-28.) This cast can be imparted by the dies, as claim 2 recites: “[a] method according to claim 1 including bending the wire in each of the first and second dies to introduce a cast in excess of 10 times the diameter of a hub of said spool.” (*Id.* at 6:28-30.)

I find that Sidergas failed to present clear and convincing evidence that the ‘944 patent discloses “shape memory substantially lying in a single plane” as required by claims 3 and 4, and “shape memory imparted substantially in one plane along a longitudinal length of said weld wire” as required by claims 6, 12, and 13. I have construed these phrases to require “the weld wire, when laid upon a flat surface, rises above the flat surface less than about 6 inches.”

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In arguing that the foregoing limitations are present in the '944 patent, Sidergas and Dr. Savoy point to Figure 1 and the discussion at column 2, lines 46 to 64. (RX-204C at Q. 103; SGIB at 54-58.) Figure 1 depicts wire passing through the wire dies and being wound on a spool. The portion of the specification cited by Sidergas discusses the goal of the invention to create a low-cast, increased yield strength wire, and discusses the ideal uses for such wire. (RX-110 at 2:46-64.) Neither the figure nor the cited text provide any insight into whether or not the wire rises above the flat surface less than about six inches. Thus, Sidergas presented no evidence that these claim limitations are present in the '944 patent. Because I have concluded that the '944 patent does not clearly disclose all of the claim elements of the asserted claims, there can be no finding of anticipation by the '944 patent. *Schering*, 339 F.3d at 1377.<sup>31</sup>

#### 4. ProStar Brochure

**Sidergas' Position:** Sidergas contends that all of the asserted claims of the '864 patent are rendered invalid by the ProStar brochure. (SGIB at 60.)

Sidergas states that this brochure is a publication of Praxair Technology Inc. titled "PROSTAR™ Premium Quality Twist-Free Robotic Welding Wire." (Citing RX-18; RX-206C at Q. 14-16.) Sidergas claims that the copyright dates shown on this brochure are 1997, 1999, and April 2000, all of which precede the filing of the '864 provisional application on June 15, 2001. (Citing RX-206C at Q. 14-16.) Sidergas asserts that the brochure was not considered by the examiner during the prosecution of the application for the '864 patent. (Citing JX-2.) (SGIB at 60-61.)

Sidergas states that the ProStar brochure displays, on page 2, a drawing depicting weld

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<sup>31</sup> I find that Staff's argument that the wire in the '944 patent is only elastically deformed relies on a quotation from the '944 patent that is taken out of context. The part of the '944 patent cited by Staff describes that after the desired cast is imparted onto the wire (i.e. after it has been plastically deformed), an additional work-hardening process is performed to ensure that the wire will not longer deform plastically, but will only exhibit elastic deformation. (See RX-110 at 5:25-36.) Thus, there is disclosure of plastically deforming the wire in the '944 patent.

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wire after the wire is unwound from its container, having an “S” shaped waveform, thus teaching the “S” shape waveform recited in claims 3, 4, 6, 12, and 13 of the ’864 patent. (Citing RX-18.) Sidergas claims that the ProStar brochure specifies “a period for the waveform of 60 inches” and a maximum amplitude of three inches. (Citing RX-18; RX-206C at Q. 18; RX-204C at Q. 105; RDX-11.) Sidergas asserts that these published dimensions allow one of ordinary skill to calculate a radius of curvature of 151.5 inches. (Citing RX-18; RDX-11.) Sidergas claims that the ProStar brochure’s illustration of weld wire having an “S” shaped waveform after it is unwound from the container, with a period of 60 inches, maximum amplitude of three inches, and calculated radius of curvature of 151.5 inches, discloses the claimed elements of claim 3 of the ’864 patent, which recites the limitation “. . . is generally a waveform having a maximum amplitude for each half cycle, said half cycle having a radius of curvature of at least about 15 inches.” (Citing RX-18; RDX-11; JX-1.) Sidergas asserts that the additional limitation of claim 4 (“waveform has substantially the same maximum amplitude for each half cycle”) is disclosed by the brochure’s illustration and statement of a maximum amplitude of three inches. (Citing RX-18; RDX-11; JX-1.) (SGIB at 61-62.)

Sidergas argues that the limitation of claim 6 (“in the form of a waveform, said waveform having a maximum amplitude for each half cycle, said half cycle having a radius of curvature of at least about 5 inches”) is disclosed by the ProStar brochure’s showing of an “S” shaped waveform, with a wavelength of 60 inches, maximum amplitude of three inches and calculated radius of curvature of 151.5 inches, which is greater than at least 5 inches. (Citing RX-18; RDX-11; JX-1.) (SGIB at 62.)

Sidergas argues that the limitation of claim 12 (“said shape memory generally in the form of a waveform, said waveform having a maximum amplitude for each half cycle, said maximum

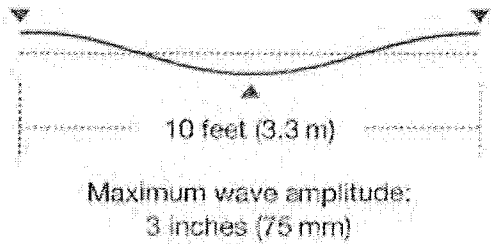


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amplitude of each half cycle having a deviation of less than about 6 inches within one cycle of said weld wire”) is disclosed by the ProStar brochure’s illustration showing a waveform and the specification in the brochure of a maximum amplitude of three inches, which is less than the six (6) inch amplitude deviation of claim 12. (Citing RX-18; RDX-11; JX-1.) (SGIB at 62.)

Sidergas asserts that the limitation of claim 13 (“said deviation of said maximum amplitude of each half cycle within one cycle is less than about four inches”) is disclosed by the ProStar brochure’s illustration showing a waveform and the specification in the brochure of a maximum amplitude of three inches. (Citing RX-18; RDX-11; JX-1.) (SGIB at 62.)

Sidergas point to the following figure from the ProStar brochure and claims that it depicts a wire which has a waveform shape with maximum amplitude of 3 inches over a length of ten (10) feet, which Lincoln characterizes as wire which lies in a single plane and has a waveform shape. (Citing RX-18.)



Sidergas further states that the maximum amplitude of three (3) inches described the ProStar brochure inherently will have a deviation of less than about six (6) inches as required in claim 12, and less than the four (4) inch value as required in claim 13. (Citing RX-18; JX-1.) (SGIB at 62-63.)

Sidergas provides the following claim chart comparing the asserted claims to the ProStar brochure:

<b>'864 Patent Claim</b>	<b>PROSTAR Brochure</b> <b>Copyright dates of 1997, 1999, 2000</b>
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'864 Patent Claim	PROSTAR Brochure Copyright dates of 1997, 1999, 2000
<p>3. A weld wire having a desired imparted shape memory for storage on a spool of weld wire,</p> <p>-----</p> <p>said weld wire having said shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool,</p> <p>-----</p> <p>said shape memory substantially lying in a single plane wherein said shape memory is generally a waveform having a maximum amplitude for each half cycle,</p> <p>-----</p> <p>said half cycle having a radius of curvature of at least about 15 inches.</p>	<p>“PROSTAR MIG welding wire is also available in 2 lb, 10 lb, 44 lb and 60 lb spools, in various diameters.” Pg. 4.</p> <p>-----</p> <p>This limitation of the claim is a product by process limitation that need not be demonstrated to determine invalidity.</p> <p>-----</p> <p>The ProStar brochure discloses weld wire with shape memory substantially lying in a single plane as illustrated on pgs. 2 and 4. The twist free (one rotation in 30 feet) feature defines a maximum rise in 10 feet (illustration pg. 2) of 120 degrees (1/3 of 360 degrees) which with a maximum amplitude of 3 inches would be a rise of 1 inch. This 1 inch maximum rise is substantially in one plane wherein the shape memory is generally a waveform having a maximum amplitude of 3 inches for each half cycle. Lower right hand corner illustration on page 2.</p> <p>-----</p> <p>The half cycle has a radius of curvature of about 151.5 inches. Illustration, pitch of 10 feet, maximum amplitude of 3 inches is shown on page 2. Using the formula for determining radius of curvature of an arc segment:</p> $r = \frac{c^2 + 4h^2}{8h}$ <p>Where <i>c</i>=chord length &amp; <i>h</i>=arc height yields calculated radius of curvature of 151.5 inches, which his greater than about 15 inches.</p>
<p>4. The weld wire as defined in claim 3, wherein said waveform has substantially the same maximum amplitude for each half cycle of a full waveform.</p>	<p>The illustration in the lower right hand corner of page 2 shows a waveform with substantially the same maximum amplitude for each half cycle of a full waveform.</p>
<p>6. A weld wire for storage on a spool of weld wire,</p>	<p>“PROSTAR MIG welding wire is also available in 2 lb, 10 lb, 44 lb and 60 lb spools, in various diameters.” Page 4.</p>

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'864 Patent Claim	PROSTAR Brochure Copyright dates of 1997, 1999, 2000
<p>said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool</p>	<p>This limitation of the claim is a product by process limitation that need not be demonstrated to determine invalidity.</p>
<p>and at least partially retained on said weld wire after said weld wire is unwound from said spool,</p>	<p>The ProStar brochure discloses weld wire with shape memory at least partially retained on the weld wire after the weld wire is unwound from the spool. Lower right hand corner illustration on page 2 &amp; page 4.</p>
<p>said shape memory imparted substantially in one plane alone [sic] a longitudinal length of said weld wire,</p>	<p>The ProStar brochure discloses weld wire with shape memory substantially lying in one plane along a longitudinal length of the weld wire as illustrated on pg. 2 and pg. 4. The twist free (one rotation in 30 feet) feature defines a maximum rise in 10 feet (illustration pg. 2) of 120 degrees (1/3 of 360 degrees) which with a maximum amplitude of 3 inches would be a rise of 1 inch. This 1 inch maximum rise is substantially in one plane wherein the shape memory is generally a waveform having a maximum amplitude of 3 inches for each half cycle. Lower right hand corner illustration on page 2.</p>
<p>said shape memory generally in the form of a waveform,</p>	<p>The ProStar brochure discloses weld wire with shape memory generally in the form of a waveform. Illustration on pg. 2 in lower right hand corner.</p>
<p>said waveform having a maximum amplitude for each half cycle,</p>	<p>The waveform on pg. 2 has a maximum amplitude of 3 inches for each half cycle.</p>
<p>said half cycle having a radius of curvature of at least about 5 inches.</p>	<p>The half cycle has a radius of curvature of about 151.5 inches. Illustration, pitch of 10 feet, maximum amplitude of 3 inches is shown on page 2. Using the formula for determining radius of curvature of an arc segment:</p> $r = \frac{c^2 + 4h^2}{8h}$ <p>Where <i>c</i>=chord length &amp; <i>h</i>=arc height yields calculated radius of curvature of 151.5 inches, which his greater than about 15</p>

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’864 Patent Claim	PROSTAR Brochure Copyright dates of 1997, 1999, 2000
	inches.
12. A weld wire for storage on a spool of weld wire,	“PROSTAR MIG welding wire is also available in 2 lb, 10 lb, 44 lb and 60 lb spools, in various diameters.” Page 4.
said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool	This limitation of the claim is a product by process limitation that need not be demonstrated to determine invalidity.
and at least partially retained on said weld wire after said weld wire is unwound from said spool,	The ProStar brochure discloses weld wire with shape memory at least partially retained on the weld wire after the weld wire is unwound from the spool. Lower right hand corner illustration on page 2 & page 4.
said shape memory imparted substantially in one plane along a longitudinal length of said weld wire,	The ProStar brochure discloses weld wire with shape memory substantially lying in one plane along a longitudinal length of the weld wire as illustrated on pg. 2 and pg. 4. The twist free (one rotation in 30 feet) feature defines a maximum rise in 10 feet (illustration Pg. 2) of 120 degrees (1/3 of 360 degrees) which with a maximum amplitude of 3 inches would be a rise of 1 inch. This 1 inch maximum rise is substantially in one plane. wherein the shape memory is generally a waveform having a maximum amplitude of 3 inches for each half cycle. Lower right hand corner illustration on page 2.
said shape memory generally in the form of a waveform,	The ProStar brochure discloses weld wire with shape memory generally in the form of a waveform. See illustration on pg. 2 in lower right hand corner.
said waveform having a maximum amplitude for each half cycle,	The waveform on pg. 2 has a maximum amplitude of 3 inches for each half cycle.
said maximum amplitude of each half cycle having a deviation of less than about 6 inches within one cycle of said weld wire.	The maximum amplitude of each half cycle must have a deviation of less than about 6 inches within one cycle of the weld wire

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'864 Patent Claim	PROSTAR Brochure Copyright dates of 1997, 1999, 2000
	because the maximum wave amplitude is only 3 inches.
13. The weld wire as defined in claim 12, wherein said deviation of said maximum amplitude of each half cycle within one cycle is less than about 4 inches.	The maximum amplitude of each half cycle must have a deviation of less than about 6 inches within one cycle of the weld wire because the maximum wave amplitude is only 3 inches.

(SGIB at 63-66.)

Sidergas claims that Dr. Swanger argues, without any supporting evidence, that the ProStar brochure is not in a single plane. (Citing CX-422C at Q. 36.) Sidergas asserts that this argument is unavailing because a person of ordinary skill in the art would interpret the two-dimensional figure at the bottom right of RX-18.002 as lying in a single plane unless the drawing indicated otherwise. (Citing RX-206C at Q. 17-20.) Sidergas claims that Dr. Swanger's assumption that the diagrams on RX-18.002 must be combined in the way he argues are not supported by any evidence. According to Sidergas, Dr. Swanger himself never states that a person of ordinary skill in the art would interpret RX-18 in the manner presented in Q. 36 of CX-422C. (SGIB at 66.)

In its reply brief, Sidergas argues that it presented sufficient evidence to demonstrate that the ProStar brochure is prior art to the '864 patent. Sidergas notes that Lincoln declined to cross-examine Mr. Gilmour, the co-author of the ProStar brochure, and now attempts to discredit his testimony in its post-trial brief. (Citing Tr. at 758:19-20.) (SGRB at 32.)

Sidergas states that Mr. Gilmour testified that 5,000 copies of the ProStar brochure were published in April 2000. (Citing RX-206C at Q. 16.) According to Sidergas, he also testified that "[i]t was distributed in the trade prior to June 15, 2000." (Citing RX-206C at Q. 21.) Sidergas asserts that Mr. Gelmetti confirmed the same information. (Citing RX-203C at Q. 13,

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15-17.) (SGRB at 32-33.)

According to Sidergas, Lincoln makes three arguments in an attempt to show the ProStar brochure does not anticipate the '864 patent: (1) there is no shape memory; (2) the wire is not in a single plane; and (3) the wire is killed. (Citing CIB at 156-157.) Sidergas argues that this is not enough to rebut Sidergas' *prima facie* showing of invalidity. (SGRB at 33.)

Regarding the first argument, Sidergas states that Dr. Swanger summarily testified that because the ProStar brochure's wire is described as "twist-free" with "no twist, helix or cast," it must be killed wire that does not describe the wire as recited in the claims of the '864 patent. (Citing RX-18 at 2; CX-422C at Q. 35.) Sidergas states that Dr. Savoy explained that the ProStar brochure teaches weld wire that reads on the claims of the '864 patent, as evidenced by the illustrations in the brochure. (Citing RX-18 at 2; RX-204C at Q. 105; RDX-11.) (SGRB at 33.)

Regarding the second argument, Sidergas asserts that Dr. Swanger summarily concludes that the two-dimensional illustration in the ProStar brochure, combined with other illustrations, shows weld wire that does not lie "substantially . . . in a single plane . . ." (Citing JX-1.) Sidergas argues that to accept Lincoln's interpretation, one would have to assume that the authors of the ProStar brochure, who both testified at trial, were unable to illustrate wire lying in multiple planes in a single figure, and therefore had to resort to multiple figures to convey this point. Sidergas reiterates that Lincoln had an opportunity to question the authors during the trial concerning this point, but declined to do so. Sidergas argues that without a compelling contrary reason, a two-dimensional illustration should be accepted as teaching precisely what is shown—an object in a single plane. (Citing JX-1 at Figs. 6, 6A.) (SGRB at 33-34.)

Regarding Lincoln's third argument, Sidergas claims that Dr. Swanger again summarily

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concludes that the ProStar brochure discloses an arcuate cast that is “typically in multiple planes.” (Citing CX-422C at Q. 39; CIB at 157.) Sidergas responds that the ProStar brochure shows wire with a waveform nearly identical to that described and illustrated in the ’864 patent. (Citing RX-204C at Q. 105; RDX-11; JX-1 at Fig. 8.) According to Sidergas, Lincoln has not provided sufficient evidence to overcome Sidergas’ *prima facie* showing of invalidity based on the ProStar brochure. (SGRB at 34.)

**ESAB’s Position:** ESAB incorporates by reference Sidergas’ analysis of the ProStar brochure. (EIB at 51; ERB at 30.)

**Lincoln’s Position:** Lincoln contends that Sidergas failed to present clear and convincing evidence that the ProStar Brochure anticipates any asserted claim. (CIB at 155.)

Lincoln argues that is insufficient evidence that the ProStar brochure qualifies as prior art under the provisions of 35 U.S.C. § 102(b). Lincoln asserts that Respondents presented no evidence that the ProStar brochure is a printed publication that was available prior to the critical date of the ’864 patent. Lincoln claims that Mr. Gilmour offered testimony that purports to establish a date when the brochure was allegedly printed, but he did not testify to any actual distribution of the brochure to any party. (Citing RX-206C at Q. 14-16.) Lincoln argues that Mr. Gilmour’s attempt to offer a date of distribution of the brochure is nothing more than his best guess at what might have happened. (Citing RX-206C at Q. 22.) Lincoln asserts that Mr. Gilmour’s testimony is insufficient to establish the ProStar brochure as prior art under § 102(b). Lincoln further claims that Mr. Gelmetti’s testimony as to the ProStar brochure is not credible “given his contradictory statements regarding authorship of the document.” (Citing Tr. at 644:25-648:23.) (CIB at 155-156.)

Lincoln states that if the ProStar brochure is considered prior art, then the Respondents

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failed to prove any claim invalid at least because the brochure fails to disclose a weld wire having an imparted shape memory with the physical properties set forth in the asserted claims. (Citing CX-422C at Q. 35-39.) (CIB at 156.)

Lincoln states that the ProStar brochure has diagrams at the bottom of that page that show wire that is described as “twist-free robotic welding wire” having “no twist, helix or cast” and having a maximum wave amplitude of three inches. (Citing RX-18.002; CX-422C at Q. 35.) Lincoln asserts that based on that description, this wire is killed wire. (Citing RX-18.002; CX-422C at Q. 35.) According to Lincoln, the ProStar brochure does not describe a weld wire having a shape memory as recited in the claims of the ‘864 patent. (Citing RX-18.002; CX-422C at Q. 35; Order No. 13 at 8-9.) (CIB at 156.)

Lincoln asserts that the wire disclosed in the ProStar brochure is not a single plane as required by the claims of the ‘864 patent. (Citing RX-18; CX-422C at Q. 36.) Lincoln claims that the ProStar brochure shows the “twist-free” wire exiting through a torch tip and provides a circular area indicating where the wire can move when passing through the torch tip. (Citing RX-18.002; CX-422C at Q. 36.) Lincoln states that the circular area indicates that the wire can move in any combination of up, down, left, or right as the wire exits the torch tip. (*Id.*) Lincoln claims that the diagram on the bottom right shows the shape of a ten foot length of the wire as seen from a side view, and indicates that the wire can vary from perfectly straight by up to three inches. (*Id.*) Lincoln argues that when taken together, the bottom-left and bottom-right diagrams show that the ProStar wire is not in a single plane. (*Id.*) (CIB at 156-157.)

Lincoln argues that the ProStar brochure represents an example of the prior art wire illustrated in Figure 4 of the ‘864 patent. (Citing JX-1.) Lincoln states that both the ProStar brochure and the ‘864 patent describe “killed” wire. (Citing CX-422C at Q. 38.) Lincoln claims



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that this is evidenced by the fact that the ProStar brochure show wire with an arcuate cast that is typically in multiple planes. (Citing CX-422C at Q. 39.) Lincoln asserts that this is the same as the information provided regarding Figure 4 in the '864 patent. (Citing CX-422C at Q. 39; JX-1; RX-18C.) (CIB at 157.)

In its reply brief, Lincoln argues that Respondents' continue to fail to establish that the ProStar brochure is prior art. Lincoln states that the only dates on the brochure itself are three different copyright dates. Lincoln asserts that copyright dates do not signify publication or distribution, as publication is not a requirement for copyright protection under the 1976 Copyright Act and the United States Copyright Office advises on its website that it is permissible to use the © mark on unpublished works. Lincoln claims that Mr. Gilmour's testimony is based entirely on hypothetical scenarios and likelihoods (*see, e.g.*, RX-206C at Q22) and Mr. Gilmour admits to having no "specific recollection at this date" as to key dates related to the purported publication of this brochure. (Citing RX-206C at Q. 22-23.) Lincoln reiterates that Mr. Gelmetti's testimony as to the brochure is not credible given his contradictory statements as to the authorship of the document. (Citing Tr. at 644:25-648:23.) (CRB at 75.)

Lincoln argues that Respondents' defense is based entirely on scaling figures in the brochure that are not indicated as drawn to scale. (Citing SGIB at 61; Tr. at 622:10-16.) Lincoln claims that it is improper to rely on scaled drawings or unstated assumptions from documents that are not to scale where the claims of the challenged patent recite specific dimensions not disclosed directly in the prior art. (Citing *Nystrom v. Trex Co., Inc.*, 424 F.3d 1136, 1149 (Fed. Cir. 2005); *Hockerson-Halberstadt Inc. v. Am. Sporting Goods Corp.*, 222 F.3d 951, 956 (Fed. Cir. 2000); *In re Wright*, 569 F.2d 1124, 1127 (C.C.P.A. 1976).) (CRB at 75-76.)

Lincoln argues that Sidergas relies on the silence of a reference to expressly teach an

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element. (Citing SGIB at 66.) According to Lincoln, this epitomizes the absence of an anticipatory disclosure. Lincoln claims that the silence of a reference does not amount to express or implied teaching. (Citing *Hockerson-Halberstadt*, 222 F.3d at 956; *In re Burt and Walter*, 356 F.2d 115, 121 (C.C.P.A. 1966).) Lincoln further argues that there is no evidence or testimony which suggests that the claim language “lying in a single plane” of the asserted claims is “inherent” in the ProStar Brochure. (CRB at 76.)

Lincoln reiterates its argument that the ProStar brochure fails to disclose wire with “shape memory” as required by the asserted claims. Lincoln notes that the ProStar Brochure expressly states that the wire disclosed therein is wire having “no twist, helix, or cast.” (Citing CIB at 156-157.) (CRB at 77.)

**Staff’s Position:** Staff contends that Sidergas has not presented clear and convincing evidence that the ProStar Brochure anticipates any of the asserted claims. (SIB at 43.)

Staff states that with regard to the “waveform . . . having a radius of curvature” recitations in claims 3, 4, and 6, the evidence does not show that the ProStar brochure discloses a wire having a waveform of substantially semi-circular shape. Staff claims that the ProStar brochure instead discloses a wire having a sine wave shape. (Citing RX-18.002; Tr. at 727:14-23.) Staff asserts that there is no disclosure in the ProStar brochure that the wire contains “shape memory,” as recited in each of the asserted claims and as correctly construed to mean “plastic deformation, as distinguished from elastic deformation.” Thus, for at least these reasons, Staff argues that the evidence does not clearly or convincingly demonstrate that any asserted claim, as correctly construed, is anticipated by the ProStar brochure. (SIB at 43.)

**Discussion and Conclusion:** Based on the evidence before me, I find that Sidergas has failed to present clear and convincing evidence that the ProStar brochure anticipates any of the

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asserted claims of the '864 patent.

The parties first dispute whether or not the ProStar brochure is in fact prior art. Sidergas claims that the ProStar brochure is a “printed publication” pursuant to 35 U.S.C. § 102(b). Section 102(b) states that a person shall be entitled to a patent unless “the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States[.]” 35 U.S.C. § 102(b) (2009).

The Federal Circuit has addressed the meaning of the term “printed publication” in § 102(b), and found that “‘public accessibility’ has been called the touchstone in determining whether a reference constitutes a ‘printed publication’ bar under 35 U.S.C. § 102(b).” *In re Hall*, 781 F.2d 897, 899 (Fed. Cir. 1986). The court has explained that:

A document is publicly accessible if it “has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it and recognize and comprehend therefrom the essentials of the claimed invention without need of further research or experimentation.”

*Cordis Corp. v. Boston Scientific Corp.*, 561 F.3d 1319, 1333 (Fed. Cir. 2009) (quoting *In re Wyer*, 655 F.2d 221, 226 (CCPA 1981)). “Whether an asserted anticipatory document qualifies as a ‘printed publication’ under § 102 is a legal conclusion based on underlying factual determinations.” *Cooper Cameron Corp. v. Kvaerner Oilfield Prods., Inc.*, 291 F.3d 1317, 1321 (Fed. Cir. 2002). Respondents bear the burden of demonstrating by clear and convincing evidence that the ProStar brochure qualifies as a “printed publication.” *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 936-937 (Fed. Cir. 1990.)

Sidergas asserts that the ProStar brochure was publicly accessible prior to June 15, 2000. Thus, Sidergas asserts that the ProStar brochure is § 102(b) prior art regardless of the priority

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date assigned to the asserted claims. The ProStar brochure includes copyright dates of 1997, 1999, and 2000. (RX-18.004.)

To prove that the ProStar brochure is prior art, Sidergas offers the testimony of Robert Gilmour, a former employee of Praxair Inc. (RX-206C at Q. 2.) Mr. Gilmour testified that he, along with Mr. Gelmetti, helped generate and create the ProStar brochure that is labeled as RX-18. (*Id.* at Q. 14-15.) Mr. Gilmour stated that in April 2000, 5,000 copies of the brochures were printed. (*Id.* at Q. 16.) Mr. Gilmour testified that the “5M” on the last page of the brochure represents the printing of 5,000 copies, and the “4/2000” on the last page of the brochure indicates that the brochure was printed in April 2000. (*Id.*; RX-18.004.)

Mr. Gilmour testified that after the publication of the brochure in April 2000, it was distributed in the trade prior to June 15, 2000. (RX-206C at Q. 21.) Mr. Gelmetti also testified that after the brochure was created in April 2000, it was immediately mailed and hand delivered to customers and distributors in the United States and Canada. (RX-203C at Q. 16-17.) Mr. Gelmetti specifically testified that the ProStar brochure was distributed at the International Welding and Fabricating Exposition that took place in Chicago from April 26-28, 2000. (*Id.*)

Based on this testimony, I find that the ProStar brochure is a “printed publication” and qualifies as § 102(b) prior art for all asserted claims, regardless of the priority date assigned to the asserted claims. As explained *supra*, the focus of the analysis is on public accessibility of the brochure. *See Cordis*, 561 F.3d at 1333. The unrebutted testimony from both Mr. Gilmour and Mr. Gelmetti is that the ProStar brochure was publicly distributed in the trade to Praxair customers and distributors prior to June 15, 2000. (RX-203C at Q. 16-17; RX-206C at Q. 21.)

Lincoln does not offer any contrary evidence, but it takes issue with both Mr. Gilmour’s testimony and Mr. Gelmetti’s testimony. With respect to Mr. Gilmour, Lincoln asserts that his

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testimony amounts to his “best guess” regarding how the brochures were distributed, and such testimony does not rise to clear and convincing evidence that the ProStar brochure is a printed publication under § 102(b). (CIB at 155-156; CRB at 75.) Specifically, Lincoln focuses on Mr. Gilmour’s responses to Questions 22-23 in his witness statement. In responding to these questions, Mr. Gilmour testified regarding how the brochures would have been distributed based on his past experience at Praxair. (RX-206C at Q. 22-23.)

I concur with Lincoln that Mr. Gilmour’s testimony in response to Questions 22-23 rests on assumptions. Mr. Gilmour does not have first-hand knowledge of how the ProStar brochure was distributed; his testimony merely provides his beliefs regarding how the brochure likely was distributed. (RX-206C at Q. 22-23.) Such testimony, by itself, does not reach the level of clear and convincing evidence. *See DePuy, Inc. v. Zimmer Holdings, Inc.*, 343 F. Supp. 2d 675, 681-682 (N.D. Ill. 2004) (finding that testimony providing assumptions about the printing and distribution of a brochure does not equate to clear and convincing evidence of the date and extent of publication). What Lincoln fails to acknowledge is that prior to this testimony, Mr. Gilmour unambiguously and definitively testified that the ProStar brochure “was distributed in the trade prior to June 15, 2000.” (RX-206C at Q. 21.) Therefore, it is unnecessary to rely on Mr. Gilmour’s assumptions found in response to Questions 22-23.

Lincoln next asserts that Mr. Gelmetti’s testimony is not credible because of an inconsistency between his deposition and his witness statement. (*See, e.g.*, CRB at 75.) I find that this inconsistency does not affect the credibility of Mr. Gelmetti’s testimony regarding the distribution of the ProStar brochure. The inconsistency relates to an issue separate from the distribution of the ProStar brochure – whether or not Mr. Gelmetti was involved in the creation of the brochure. During Mr. Gelmetti’s deposition, he testified that he remembered being given

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the ProStar brochure by Mr. Gilmour, but he did not remember who created the brochure. (Tr. at 647:20-648:20.) He further testified at his deposition that he was certain that the brochure was created by Praxair. (*Id.*) In his witness statement, Mr. Gelmetti stated that “I helped Bob Gilmour of Praxair create the brochure, RX-18.” (RX-203C at Q. 15.)

Thus, I concur with Lincoln that there is an inconsistency in Mr. Gelmetti’s testimony between his deposition and his witness statement concerning the creation of the ProStar brochure. Nevertheless, I find that this does not affect the credibility of Mr. Gelmetti’s testimony regarding the distribution of the ProStar brochure, as this is a different subject and Lincoln has not identified any inconsistencies concerning this testimony. Therefore, I find that Mr. Gelmetti’s testimony supports Mr. Gilmour’s statement that the ProStar brochure “was distributed in the trade prior to June 15, 2000.” (RX-206C at Q. 21.)

Turning to the merits of the ProStar brochure, I find that Sidergas has failed to offer clear and convincing evidence that the ProStar brochure anticipates any asserted claim of the ‘864 patent.

I find that Sidergas failed to demonstrate that the ProStar brochure discloses weld wire with a shape memory. I defined “shape memory” to mean “a specified shape or cast that is applied to the wire by plastic deformation so that the wire has a residual stress such that the wire reverts to substantially consistent memory shape when the wire is untensioned.” The wire in the ProStar brochure is described as having “no twist, helix or cast per 30 feet tested.” (RX-18.002.) The wire is also referred to as “Twist-Free Robotic Welding Wire.” (*Id.*) Based on these disclosures, I find that there is no clear and convincing evidence that the ProStar brochure discloses weld wire with shape memory. Such a conclusion is supported by expert testimony from Dr. Swanger. (CX-422C at Q. 35.)

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In addition, I find that even if the weld wire in the ProStar brochure was shown to have a shape memory, there is no indication that the shape memory is imparted on the wire at least partially prior to the wire being wound on a spool. The descriptions and images found in the ProStar brochure show the wire stored in a container. (RX-18.003-004.) At the end of the brochure, there is a sentence that states that “PROSTAR MIG welding wire is also available in 2 lb, 10 lb, 33 lb, 44 lb, and 60 lb spools, in various diameters.” (RX-18.004.) This is the only disclosure of a spool in the brochure, and there is no mention of shape memory being imparted at least partially prior to winding on a spool. Dr. Savoy fails to explain how the ProStar brochure meets this claim element that is found in all of the asserted claims. (RX-204C at Q. 105.) Specifically, Dr. Savoy states that “I am informed by counsel that this limitation of the claim is a product by process limitation that need not be demonstrated to determine invalidity.” (*Id.*) I do not concur with Dr. Savoy’s statement, and find that Sidergas failed to demonstrate that the ProStar brochure discloses shape memory that is at least partially imparted prior to the wire being wound on a spool.

I find that the limitation in the asserted claims that the shape memory be imparted at least partially prior to the weld wire being wound on a spool is not a “product by process” limitation.

The ‘864 patent is directed to a product, not a process. First, the asserted claims do not contain the language courts have found to be indicative of product-by-process claims, such as “prepared in accordance with,” “by the process of,” “product of the process,” “resulting from the process of,” and “being produced by the process comprising.” *Lupin Ltd. v. Abbott Laboratories*, 484 F. Supp. 2d 448, 464-465 (E.D. Va. 2007); *Biacore v. Thermo Bioanalysis Corp.*, 79 F. Supp. 2d 422, 456 (D.Del.1999).

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Second, the asserted claims are not “devoid of significant structural description of the final article” and they do not rely instead on a description of “the process used to obtain [the claimed invention]” to define it. *Id.*

Third, the description of shape memory imparted at least partially prior to the weld wire being wound on a spool is descriptive of the condition of the product rather than the process. It is analogous to the term “chemically engraved” which was found to describe the product more by its structure than by the process used to obtain it, resulting in a finding that the claims at issue were pure product claims. See *Hazani v. United States Int’l Trade Comm’n*, 126 F.3d 1473, 1479 (Fed. Cir. 1997). The entire fabric of the patent is addressed to weld wire that has a shape memory, rather than the prior art that taught the use of “killed” wire. (See JX-1 at 1:35-57.) The description of the shape memory of the invention as being imparted at least partially prior to winding the weld wire on a spool is descriptive of the product rather than a specific process. Nowhere in the asserted claims does the patent claim a specific process for imparting that shape memory. In the description of the preferred embodiment, the ‘864 patent describes one way of practicing the invention as “casting;” but makes clear that it is not the only way in which the invention can be practiced, when it specifically says:

The desired shape memory imparted onto the weld wire can be imparted onto the weld wire at the time the weld wire is formed and/or at a time subsequent to the weld wire being formed. The weld wire is typically formed by standard extrusion processes; however, other processes can be used. During the extrusion process, the weld wire has a shape memory imparted onto the weld wire. Typically the shape memory has an inconsistent shape along the longitudinal length of the weld wire. As a result the weld wire formed by the extrusion process is typically “killed,” and **the desired shape memory is subsequently imparted onto the weld wire by various other processes such as, but not limited to, a casting process. As can be appreciated, the desired shape memory can be imparted onto the weld wire during the extrusion process for the weld wire. Alternatively the shape memory imparted onto the weld wire during the extrusion process can be fully or partially retained on the weld wire prior to the weld wire being subjected to a subsequent shaping process**



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**which imparts the desired shape memory onto the weld wire. Once the shape memory is imparted onto the weld wire, the weld wire is wound onto a spool of weld wire...**

(JX-1 at 8:20-41 (emphasis added).)

Combining the Background of the Invention with the Description of the Invention, the drawings, and the Description of the Preferred Embodiments cited, in section III.B.1, *supra*, it is readily apparent that the patent is describing the characteristic of the weld wire necessary to achieving the purpose of the invention of the '864 patent to place weld wire onto a spool having already had a shape memory imparted to it rather than the prior art weld wire that was "killed" prior to winding on a spool. (See JX-1 at 8:39-46.)

Based upon the foregoing, I find that the limitation that the shape memory be imparted prior to the wire being wound on the spool is a limitation of the asserted claims that must be included in the elements to be proven by Respondents in their effort to establish by clear and convincing evidence that the ProStar brochure anticipates the asserted claims of the '864 patent. Hence, the Respondents' assertions that this particular element need not be proved is incorrect.

Finally, I find that the ProStar brochure fails to disclose wire with "shape memory substantially lying in a single plane," or "shape memory imparted substantially in one plane alone [*sic*] a longitudinal length of said weld wire" as required by the asserted claims. I construed these phrases to require "the cut weld wire, when laid upon a flat ground surface, rises above the flat ground surface less than about 6 inches." Sidergas argues that these claim limitations are clearly found in the ProStar brochure, but I do not concur.

Sidergas cites to Dr. Savoy's explanation from his witness statement, which states:

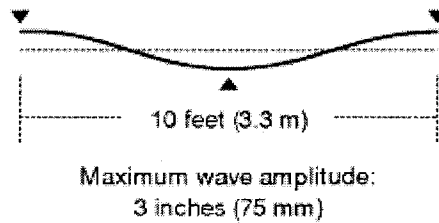
The ProStar brochure discloses weld wire with shape memory substantially lying in one plane along a longitudinal length of the weld wire as illustrated on pgs. 2 and 4. The twist free (one rotation in 30 feet) feature defines a maximum rise in 10 feet (illustration pg. 2) of 120 degrees (1/3 of 360 degrees) which with a

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maximum amplitude of 3 inches would be a rise of 1 inch. This 1 inch maximum rise is substantially in one plane wherein the shape memory is generally a waveform having a maximum amplitude of 3 inches for each half cycle. Lower right hand corner illustration on page 2.

(RX-204C at Q. 105.)

It is unclear from an examination of the ProStar brochure how Dr. Savoy reached a conclusion that the wire would have a 1 inch maximum rise. Dr. Savoy appears to focus on the figure shown in the lower right-hand corner of page 2 of the brochure, but this figure is two-dimensional and does not provide any indication of the rise of the wire:



(RX-18.002.)

This figure demonstrates that when examining a 10 foot section of ProStar wire, the maximum wave amplitude will be 3 inches. I find nothing in this figure to demonstrate that the weld wire, when laid upon a flat surface, rises above the flat surface less than about 6 inches. Dr. Swanger provides expert testimony to support the conclusion that the foregoing figure does not disclose the “substantially lying in a single plane” limitation. (CX-422C at Q. 36.)

Sidergas argues that Lincoln had the opportunity to question the authors of the brochure regarding whether the shape memory was in a single plane, but failed to do so. (SGRB at 33.) According to Sidergas, “[w]ithout a compelling contrary reason, a two-dimensional illustration should be accepted as teaching precisely what is shown – an object in a single plane.” (*Id.* at 33-34.)

Sidergas seeks a finding regarding the amount of rise of the ProStar wire based on the

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two-dimensional figure shown *supra*. This two-dimensional figure does not depict the dimension that would allow one to determine the rise of the wire from the ground. Thus, I find that the figure fails to depict the amount of rise in the wire, and cannot be relied upon as clear and convincing evidence that the ProStar brochure discloses the limitations at issue.

Sidergas further states that because Lincoln did not present evidence to the contrary or seek to cross-examine the brochure's authors on this point, the two-dimensional figure should be accepted as showing a wire with shape memory that is substantially in a single plane. In making this argument, Sidergas seeks to place the burden on Lincoln to prove validity, which would be incorrect pursuant to Federal Circuit precedent. *Scanner Techs.*, 528 F.3d at 1380 (“[I]t is [the defendant’s] burden to prove invalidity by clear and convincing evidence, and that that burden of proof never shifts to the patentee to prove validity.”) There was no requirement for Lincoln to cross-examine the brochure's authors on this point. Sidergas has the burden to prove by clear and convincing evidence that the ProStar brochure discloses wire with shape memory that is substantially in a single plane, and I conclude that Sidergas failed to meet its burden.

### D. Best Mode

**Respondents’ Position:** Sidergas contends that the ‘864 patent is invalid under 35 U.S.C § 112, ¶ 1 for failure to disclose the best mode. (SGIB at 67.) Specifically, Sidergas claims that the ‘864 patent provides no disclosure as to how the inventors believed that the claimed shape of the wire was to be imparted in the claimed manner. (SGIB at 67.)<sup>32</sup>

Sidergas notes that the provisional patent application that the ‘864 patent claims priority to includes certain PowerPoint slides but fails to include the full PowerPoint presentation. According to Sidergas, one of the slides left out of the provisional application depicts a concept

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<sup>32</sup> ESAB also asserts that the ‘864 patent is invalid due to failure to comply with the best mode requirement, but it defers to Sidergas’ discussion of the issue. (EIB at 51-52; ERB at 30.)

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of a machine that could be used to impart shape to the wire prior to the capstan. (Citing RX-13C at 42.) Sidergas identifies another slide that allegedly depicts the precise arrangement of the casting unit to be used with welding wire of different diameters such that the curvilinear shape would be imparted prior to the capstan. (Citing RX-214C at 2.) (SGIB at 68-69.)

Sidergas asserts that these additional slides that were withheld from the provisional application demonstrate how Mr. Ferguson contemplated imparting the claimed shape memory into the welding wire in the claimed fashion. Sidergas argues that the '864 patent contains no disclosure at all of even the general type of apparatus that should preferably be used to impart the shape and then wind the wire on spools. {

} (Citing Tr. at 220:12-19.) (SGIB at 69-70.)

In its reply, Sidergas attempts to refute Lincoln's argument that Sidergas waived its best mode argument. Sidergas points to ESAB's interrogatory response regarding § 112, ¶ 1 and states that it was sufficient to put Lincoln on notice of the best mode defense. In addition, Sidergas asserts that I may consider the best mode defense *sua sponte*. (SGRB at 35.)

Sidergas next addresses Lincoln's argument that there is no evidence of the inventors' subjective beliefs regarding the best mode or the inventors' intention to conceal the best mode. Sidergas claims that Lincoln ignores the evidence offered by Sidergas that relates to these issues. (Citing Tr. at 220:12-19; RX-214C at 2; SGIB at 67-70.) Sidergas argues that the '864 patent fails to disclose any mode of practicing the claimed invention. (SGRB at 35-36.)

**Lincoln's Position:** Lincoln contends that Respondents have failed to offer clear and convincing evidence that the '864 patent is invalid for failure to disclose the best mode. (CIB at

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158.)

Lincoln argues that during the pre-hearing conference, Respondents were precluded from asserting a best mode argument. Specifically, Lincoln asserts that I limited Respondents to relying on ESAB's response to Lincoln's Interrogatory No. 1, and that ESAB's response includes no discussion of the best mode requirement. (CIB at 158-159, 161-162.)

Lincoln argues that even if the best mode defense is properly part of the investigation, Respondents failed to meet their burden to adduce clear and convincing evidence. According to Lincoln, the best mode defense is highly subjective and neither Respondents nor Staff inquired of either inventor regarding their subjective belief regarding the best mode or their intent to conceal the best mode. Absent any testimony from the inventors on these issues, Lincoln states that Respondents cannot meet their burden. (CIB at 162.)

In its reply brief, Lincoln reiterates its procedural argument that Respondents were precluded from raising a best mode defense. Lincoln argues that Respondents offer no evidence that either Mr. Hartman or Mr. Ferguson had a best mode of practicing the claimed invention, and that they concealed this best mode. (Citing RX-214C.) Lincoln argues that the testimony of Mr. Land cited by Respondents is irrelevant regarding the determination of whether or not the inventors believed there was a best mode to practicing the claimed invention. (CRB at 71-73.)

**Staff's Position:** Staff takes the position that the best mode defense is not at issue in this investigation. (SIB at 44.)

**Discussion and Conclusion:** I find that Respondents have waived the ability to assert the best mode defense based on their failure to identify this affirmative defense during discovery.

At the pre-hearing conference, I found that Respondents failed to properly disclose a best mode defense during discovery. (Tr. at 28:25-30:5.) Later in the pre-hearing conference,

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counsel for Sidergas again raised the issue of the best mode defense. I found that Sidergas' arguments regarding best mode would be limited to the contents of ESAB's response to Lincoln's Interrogatory No. 1, as Sidergas incorporated ESAB's response by reference. (Tr. at 120:13-130:19.)<sup>33</sup> ESAB's response to Interrogatory No. 1 contains the following reference to 35 U.S.C. § 112, ¶ 1:

ESAB Group also maintains that the asserted claims of the '864 patent are invalid for one or more reasons under 35 U.S.C. § 112, ¶1. For example, the specification does not provide a written description of, or enable one of ordinary skill in the art, to make a welding wire with the claimed "waveform" as distinguished from other prior art shapes (*see also* Expert Report of Peter Savoy). In addition, the specification does not provide a written description of, or enable one of ordinary skill in the art, to create a weld wire "having said shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool" (claim 3), "having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool" (claim 6), or "having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool." (claim 12). The specification also does not provide a written description of any "waveform" having "a radius of curvature of at least about 15 inches" (claim 3) or "a radius of curvature of at least about 5 inches" (claim 6) as distinguished from the product having a radius of curvature in the range of 15-40 inches.

(CX-381C at 4-5.)

The first paragraph of § 112 contains three separate requirements: enablement, written description,<sup>34</sup> and best mode. *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 921 (Fed. Cir. 2004) (describing the "[t]hree separate requirements" of § 112, ¶ 1); *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985) (stating that § 112, ¶ 1 "requires that the inventor adequately disclose three separate items"). ESAB's interrogatory response quoted *supra* only asserts that the '864 patent fails to satisfy the written description and enablement

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<sup>33</sup> While Sidergas included a best mode argument in its proposed Second Amended Response, I denied Sidergas leave to file that pleading because, *inter alia*, Sidergas attempted to add the best mode defense without addressing it in the accompanying motion for leave. (See Order No. 34.) I reaffirm my ruling at the hearing that Sidergas' rejected pleading cannot serve as the basis of Sidergas' best mode defense.

<sup>34</sup> The Federal Circuit recently reaffirmed in an *en banc* decision that § 112, ¶ 1 contains a written description requirement separate from the enablement requirement. *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1340 (Fed. Cir. 2010) (*en banc*).

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requirements; it is wholly silent regarding the best mode requirement.

Sidergas argues that the above-quoted passage includes a best mode argument because it states that “the asserted claims of the ‘864 patent are invalid for one or more reasons under 35 U.S.C. § 112, ¶1. For example,...” Sidergas asserts that “use of exemplary language in the remainder of the response does not waive Sidergas’ best mode defense.” (SGRB at 35.) I do not concur. While this passage refers to 35 U.S.C. § 112, ¶1, it says nothing regarding best mode. Thus, Respondents failed to demonstrate that they disclosed any detail regarding a best mode defense during discovery. Respondents are foreclosed from pursuing a best mode defense when they failed to disclose the details of that defense during discovery, despite being served an interrogatory seeking Respondents’ invalidity contentions.<sup>35</sup>

Assuming *arguendo* that the best mode defense is properly part of this investigation, I find that Respondents have failed to offer clear and convincing evidence of a failure to disclose the best mode. The Federal Circuit has explained that “determining compliance with the best mode requirement is a two-prong inquiry.” *Ajinomoto Co. v. Int’l Trade Comm’n*, 597 F.3d 1267, 1273 (Fed. Cir. 2010). The two prongs are described as follows:

First, the court must determine whether, at the time the patent application was filed, the inventor possessed a best mode of practicing the claimed invention. This prong is highly subjective; it focuses on the inventor’s own personal preferences as of the application’s filing date. Second, if the inventor has a subjective preference for one mode over all others, the court must then determine whether the inventor “concealed” the preferred mode from the public. In other words, the second prong asks whether the inventor’s disclosure is adequate to enable one of ordinary skill in the art to practice the best mode of the invention. This second inquiry is objective; it depends upon the scope of the claimed invention and the level of skill in the relevant art.

*Id.* (citations omitted).

I find that Respondents failed to offer any evidence to support a finding that the inventors

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<sup>35</sup> I decline to address the best mode argument *sua sponte*, as suggested by Sidergas. (SGRB at 35.)

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possessed a best mode of practicing the claimed invention at the time of filing. Respondents first  
rely on {

} (RX-13C at 42; RX-214C at 2.) Respondents argue that the patent fails to  
disclose the details regarding how to impart shape into the wire {

} both

well before the June 15, 2001 filing date of the provisional application. {

} In addition, Respondents fail to offer any testimony  
from Mr. Ferguson or Mr. Hartman that supports a finding that the {

}

Respondents rely on testimony from Mr. Ferguson that, {

} (JX-

26C at 116:2-21.) Respondents also rely on the testimony of James Land. Mr. Land was asked  
about a figure in CX-259C that corresponds to the slide that Respondents cite in RX-214C.

Specifically, Mr. Land testified as follows:

{

}

(Tr. at 220:12-19.)



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Neither Mr. Ferguson's testimony nor Mr. Land's testimony reaches the crucial issue of whether or not, at the time the patent application was filed, Mr. Ferguson or Mr. Hartman possessed a best mode of practicing the claimed invention. *Ajinomoto*, 597 F.3d at 1273. Mr. Land is not an inventor of the '864 patent, so his equivocal testimony regarding whether or not { } demonstrates the best mode to practice the invention is neither relevant nor material to the pertinent inquiry. Mr. Ferguson's testimony that he {

} (JX-26C at 116:2-21.)

Based upon the foregoing, I find no evidence regarding the subjective belief of the inventors at the time of filing the patent application regarding the existence of a best mode for practicing the invention of the '864 patent. Therefore, the absence in the patent of any details from the cited slides does not constitute clear and convincing evidence of a best mode violation.

## V. INFRINGEMENT

### A. Applicable Law

A complainant must prove either literal infringement or infringement under the doctrine of equivalents. Infringement must be proven by a preponderance of the evidence. *SmithKline Diagnostics, Inc. v. Helena Labs. Corp.*, 859 F.2d 878, 889 (Fed. Cir. 1988). A preponderance of the evidence standard "requires proving that infringement was more likely than not to have occurred." *Warner-Lambert Co. v. Teva Pharm. USA, Inc.*, 418 F.3d 1326, 1341 n. 15 (Fed. Cir. 2005).

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Literal infringement is a question of fact. *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323, 1332 (Fed. Cir. 2008). Literal infringement requires the patentee to prove that the accused device contains each and every limitation of the asserted claim(s). *Frank's Casing Crew & Rental Tools, Inc. v. Weatherford Int'l, Inc.*, 389 F.3d 1370, 1378 (Fed. Cir. 2004).

As for the doctrine of equivalents:

Infringement under the doctrine of equivalents may be found when the accused device contains an “insubstantial” change from the claimed invention. Whether equivalency exists may be determined based on the “insubstantial differences” test or based on the “triple identity” test, namely, whether the element of the accused device “performs substantially the same function in substantially the same way to obtain the same result.” The essential inquiry is whether “the accused product or process contain elements identical or equivalent to each claimed element of the patented invention[.]”

*TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc.*, 529 F.3d 1364, 1376-77 (Fed. Cir. 2008)

(citations omitted).

Thus, if an element is missing or not satisfied, infringement cannot be found under the doctrine of equivalents as a matter of law. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538-39 (Fed. Cir. 1991). Determining infringement under the doctrine of equivalents “requires an intensely factual inquiry.” *Vehicular Techs. Corp. v. Titan Wheel Int'l, Inc.*, 212 F.3d 1377, 1381 (Fed. Cir. 2000).

### **B. Claim 3**

Claim 3 recites:

3. A weld wire having a desired imparted shape memory for storage on a spool of weld wire, said weld wire having said shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool, said shape memory substantially lying in a single plane wherein said shape memory is generally a waveform having a maximum amplitude for each half cycle, said half cycle having a radius of curvature of at least about 15 inches.

**Lincoln's Position:** Lincoln contends that a preponderance of the evidence presented at

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the hearing showed that the accused Sidergas products (and similarly manufactured bulk weld wire products) and ESAB's accused products (and similarly manufactured bulk weld wire products) imported, sold for importation or sold within the United States infringe claim 3 of the '864 patent literally and under the doctrine of equivalents. (CIB at 69.)

Lincoln relies on the opinion of its expert, Dr. Caulfield. According to Lincoln, Dr. Caulfield's opinion is grounded in his detailed analysis and physical testing of samples of the accused products, his review of what little process documentation ESAB and Sidergas produced and his extensive experience in the area of materials science. (Citing CX-377C at Q. 5, 278.) Lincoln asserts that Dr. Caulfield correctly concluded that each of the accused products possesses each of the required physical characteristics of the weld wire set forth in claim 3 of the '864 patent. (Citing CX-377C at Q. 174, 176-189, 209-210, 221, 223-236, 256-257.) To the extent literal infringement is not found, Lincoln asserts that Dr. Caulfield provided detailed testimony establishing infringement under the doctrine of equivalents. (Citing CX-377C at Q. 259-267; Tr. at 485:10-487:19.) (CIB at 70-71.)

Lincoln states that Dr. Caulfield's testimony establishing that ESAB's accused products (and similarly made products) and Sidergas' accused products (and similarly made products) are weld wire is unrebutted. (Citing CX-377C at Q. 165, 176, 212, 223; CX-18C; CX-22C; CX-420C.) Lincoln states that ESAB and Sidergas have corroborated Dr. Caulfield's conclusions and have each admitted that their respective accused products are a weld wire. (Citing RX-95C at Q. 6-16, 147-151; RX-203C at Q. 58.) (CIB at 71.)

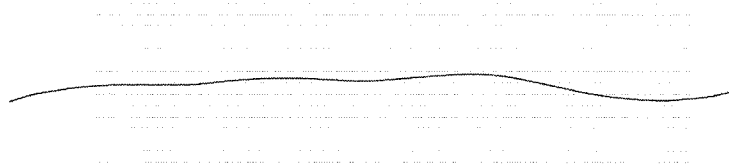
Lincoln argues that Dr. Caulfield's detailed analysis and testing demonstrates that the accused ESAB and Sidergas products have an "imparted shape memory" as each product possesses a residual stress such that the weld wire reverts to a substantially consistent memory

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shape when the weld wire is untensioned. (Citing CX-377C at Q. 166-176, 213-223; CX-20C; CX-24C.) Lincoln claims that Dr. Caulfield obtained and tested ESAB weld wire manufactured in and imported from China and Sidergas weld wire manufactured in and imported from Italy. (Citing CX-377C at Q. 165, 212; CX-18C; CX-20C; RX-203C at Q. 79-80; Tr. at 650:16-651:3, 666:21-667:1; RX-95C at Q. 12-15, 147-151.) (CIB at 71-72.)

Lincoln state that Dr. Caulfield obtained lengths of accused ESAB and Sidergas weld wire from their respective packaging and laid those lengths on a flat testing surface to allow the removed wire to obtain an at-rest shape. (Citing CX-377C at Q. 165-176, 212-223; CX-18C; CX-19C; CX-20C; CX-22C; CX-23C; CX-24C.) Dr. Caulfield then removed the tension on the wire, tension resultant from the weight of extra wire, leaving the remaining portion of the wire on a vibration table. (Citing CX-377C at Q. 41-42, 165-176, 212-223; Tr. at 462:14-463:2.)

Lincoln asserts that a vibration table was employed to minimize the effects from frictional forces between the weld wire and the surface upon which it was resting. (Citing CX-377C at Q. 166-169, 213-216.) Lincoln claims that this allowed the residual stresses within the weld wire to reveal the shape memory of the wire with minimal hindrance from outside forces. (Citing CX-377C at Q. 166-169, 213-216.) According to Lincoln, the accused ESAB and Sidergas wire both exhibited a first shape as illustrated in the Exhibits excerpted below:

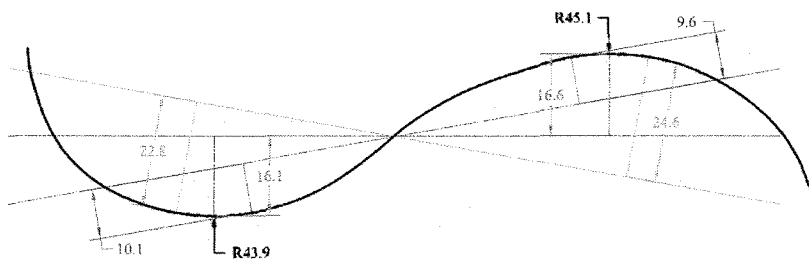


(Citing CX-20C at J-3-1 (ESAB).)

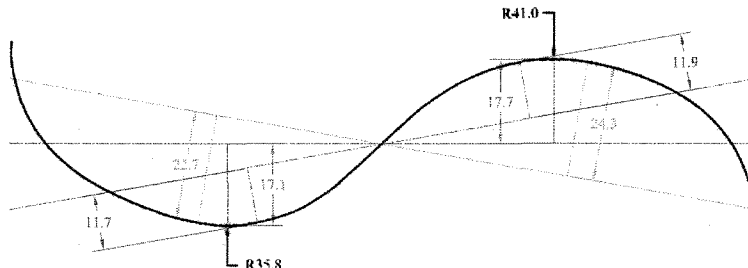
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(Citing CX-24C at K-3-1 (Sidergas).) Lincoln claims that the accused wire then exhibited a second shape, when the residual stress within the wire was allowed to reveal the shape memory of the wire:



(Citing CX-20C at J-3-4 (ESAB).)



(Citing CX-24C at K-3-5 (Sidergas); CX-377C at Q. 165-176, 212-223; CX-20C; CX-24C; CDX-4C; CDX-5C.) (CIB at 72-73.)

Lincoln claims that Dr. Brown provided no opinions regarding the sufficiency or accuracy of Dr. Caulfield's testing in either his opening or rebuttal testimony. (Citing RX-96C; RX-218C.) Lincoln further asserts that Dr. Brown provided no evidence of any independent testing that he performed to contradict in any way Dr. Caulfield's testing and conclusions regarding the demonstration of shape memory. (*Id.*) (CIB at 73-74.)

With respect to Sidergas, Lincoln asserts that Dr. Savoy set forth a number of different

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criticisms of Dr. Caulfield's testing which he contends resulted in inaccurate results.

Specifically, Dr. Savoy testified that: (1) Dr. Caulfield did not use the testing methodology discussed in the '864 patent (RX-208C at Q. 15); (2) Dr. Caulfield did not use the appropriate equipment to analyze the resultant shape of the wire (*id.* at Q. 16); and (3) Dr. Caulfield's use of a vibration table "may" have affected the residual stresses in the weld wire tested (*id.* at Q. 9-13). Lincoln argues that each of Dr. Savoy's criticisms lack merit and should be disregarded. (CIB at 74.)

Lincoln asserts that the testing discussed in the '864 patent involves placing a sample of wire on a flat surface and then cutting the wire to allow a section of the wire to reveal its imparted shape memory. (Citing JX-1 at 8:47-67.) According to Lincoln, this is exactly what Dr. Caulfield's testing entailed. (Citing CX-377C at Q. 166-169, 213-216.) Lincoln claims that consistent with the guidance of the '864 patent, Dr. Caulfield's testing allowed the tested weld wire samples to reveal their internal residual stresses, which were imparted during the manufacture and processing of the weld wire, and thus the imparted shape memories of the wire samples tested. (Citing CX-377C at Q. 166-169, 213-216; Tr. at 462:14-463:2.) (CIB at 74.)

Lincoln argues that any criticism from either ESAB or Sidergas regarding Dr. Caulfield's perceived departure from the testing methodology disclosed in the '864 patent is not well founded or credible because neither Dr. Brown nor Dr. Savoy conducted any testing of the wire in accordance with any teachings of the '864 patent. (Citing RX-96C; RX218C; RX-204C at Q. 74, 78.) Lincoln claims that Dr. Brown did not testify to any testing performed or witnessed by him, and to the extent Dr. Savoy did any testing it involved "throwing" or "casting" weld wire onto the floor. (CIB at 74-75.)

Lincoln argues that Dr. Savoy's criticism of Dr. Caulfield's use of the "survey station" is

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similarly unfounded and lacks credibility. (Citing RX-208C at Q. 16.) Lincoln states that Dr. Savoy does not identify or discuss any actual deficiencies in the methodology of data collection employed by Dr. Caulfield, or any specific deficiencies the equipment employed by Dr. Caulfield. (Citing RX-208C at Q. 16.) In fact, Lincoln asserts that Dr. Savoy only states that “[i]t is probable that the AutoCAD operator conveniently selected three points to yield numbers purporting that the Sidergas welding wire infringed the asserted claims.” (*Id.*) According to Lincoln, such an unsupported conclusion is an irrelevant, abstract and ineffective criticism. Lincoln asserts that the most telling deficiency in this aspect of Dr. Savoy’s criticism is his failure to use the very equipment he proffers as that which would have been needed by Dr. Caulfield. (Citing RX-204C; RX-208C.) Rather, Lincoln claims that Dr. Savoy’s “testing” involved throwing wire onto a floor and observing a shape, where Dr. Savoy did not find it necessary to record the results of his testing or to take any photos or video of the tests he performed. (Citing RX-204C at Q. 74, 78; Tr. at 714:15-23.) (CIB at 75-76.)

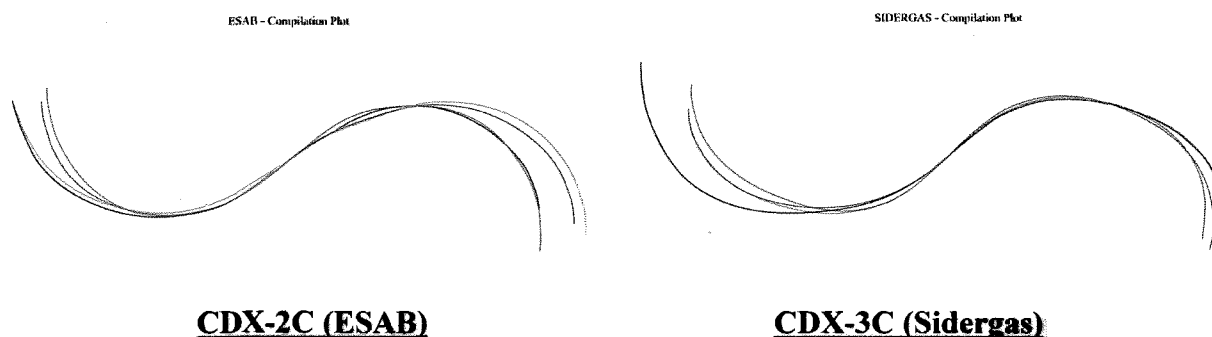
Lincoln claims that to the extent that Sidergas argues that the test results from Dr. Caulfield are “inconsistent” with the test results obtained by Dr. Savoy, these arguments are equally unpersuasive. Lincoln reiterates that Dr. Savoy did not record, in any credible way, the results of his testing. Lincoln argues that Dr. Savoy’s testing is internally inconsistent. Lincoln states that Dr. Savoy first testifies to a test in which he threw on a floor two turns of weld wire which exhibited a circular shape, and then testifies to a second test in which the wire “exhibited a slight waveform pattern and formed a wide circular loop” when thrown to the floor. (Citing RX-204C at Q. 74, 78.) (CIB at 76.)

Lincoln states that Sidergas may also attempt to argue its weld wire product has no “imparted shape memory” because the accused weld wire is “straight.” Lincoln notes that Mr.

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Gelmetti testified in rebuttal that he performed a test which resulted in weld wire which was “straight” when it was removed from a stationary laying head of a machine used to package the weld wire. (Citing RX-209C at Q. 21-23.) Lincoln argues that this testimony should be disregarded because the testing was done after the close of fact discovery (March 2010) and outside of the presence of Dr. Savoy, and the results obtained by Mr. Gelmetti are completely inconsistent with results of an identical test performed by Dr. Savoy during a visit to Sidergas in December 2009. (Citing Tr. at 655:18-657:1, 717:4-720:19; RX-112C at 11.) (CIB at 76-77.)

Lincoln claims that Dr. Caulfield also provided credible evidence that the imparted shape memory in both ESAB’s and Sidergas’ accused weld wire products was substantially consistent, in accordance with the proper definition of “imparted shape memory.” (Citing CX-377C at Q. 172, 176, 219, 223.) Lincoln notes that Dr. Caulfield testified that the tested samples for both the accused ESAB and Sidergas accused products demonstrate “a shape memory in a waveform because each of the four wire samples [respectively] has a substantially consistent shape to each other.” (Citing CX-377C at Q. 176, 223.) Dr. Caulfield prepared demonstrative exhibits to provide visual context to his conclusion, shown below. (Citing CX-377C at Q. 172, 219; CX-20C; CX-24C; CDX-2C; CDX-3C.)



(CIB at 77.)

Lincoln states that these demonstratives represent overlays of the individual tests results



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obtained by Dr. Caulfield. (Citing CX-377C at Q. 172, 219.) Lincoln argues that by creating this overlay, Dr. Caulfield was able to visually demonstrate that his conclusions regarding the consistency of the shape memory in the ESAB and Sidergas accused weld wires were sound. (Citing CX-377C at Q. 172, 219.) Lincoln claims that this testimony from Dr. Caulfield is un rebutted and Dr. Brown agrees that the ESAB accused products, which are wound in a container has a “uniform” shape memory as a result of the winding process. (Citing RX-96C at Q. 43.) (CIB at 77-78.)

Lincoln expects that Respondents will argue that Dr. Caulfield did not test a statistically significant sample size of the accused products to justify his conclusions regarding the properties or “consistency” of the weld wire. (Citing Tr. at 468:17-20.) Lincoln asserts that neither Respondent raised this issue in its pre-hearing brief. (Citing EPHB; SGPHB.) In any event, Lincoln claims that such criticisms are without merit. (CIB at 79.)

Lincoln asserts that Dr. Caulfield stated that the scanned samples of wire that are Exhibits CX-20C and CX-24C are not the only examples of wire that were tested, but are rather representative sampling of wire that he tested, and that statistical sampling need only be utilized if a continuous trend is not observed. (Citing Tr. at 464:19-468:16.) Lincoln claims that neither Dr. Brown nor Dr. Savoy challenged Dr. Caulfield’s sampling methodology or the number of samples that he tested. (Citing RX-96C; RX-218C; RX-204C; RX-208C.) Lincoln argues that any criticism of Dr. Caulfield’s testing methodology should be contrasted with Dr. Brown’s decision to not test any wire, including an alleged prior art ESAB weld wire product (RX-96C and RX-218C), and Dr. Savoy’s undocumented “testing” of less samples of wire than Dr. Caulfield. (Citing RX-96C; RX-218C; RX-204C at Q. 74, 78.) (CIB at 79.)

Lincoln claims that any suggestion that Dr. Caulfield’s testing samples set forth in

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Exhibits CX-20C and CX-24C are not “representative” of the accused Sidergas and ESAB weld wire products is inconsistent with the evidence presented from Respondents themselves.

Specifically, Lincoln states that Dr. Brown has admitted any “shape memory” imparted from a process of packaging wire into containers would be “uniform in the resulting wire product.”

(Citing RX-96C at Q. 43.) According to Lincoln, this statement applies to each of the ESAB and Sidergas processes as the wire is packaged into containers. (Citing RX-95C at Q. 117; RX-204C at Q. 83.) Also, Lincoln notes that ESAB has admitted that “there are no material differences in its procedures for packaging bulk wire in its Marathon Pac container based on diameters.”

(Citing CX-382.) Similarly, Lincoln notes that Dr. Savoy stated that he only tested a single package of the accused Sidergas product because the Sidergas products are “identically the same for infringement purposes,” and the “only real difference is the size of the bulk package and thus the amount of wire within a package.” (Citing RX-204C at Q. 71.) (CIB at 80.)

Lincoln reiterates its claim construction argument regarding the claim language “on a spool.” Lincoln states that to the extent this claim language is considered an actual limitation, the evidence presented at the hearing clearly indicates that each of the accused ESAB and Sidergas products comprise a “spool of weld wire [] organized as a stack of cylindrical loops, which is the same structure that would be required to wind the weld wire on a cylindrical piece of material.” (Citing CX-377C at Q. 178-186, 225-233; CX-424C at Q. 18, 21, 23-24.) (CIB at 80-82.)

Lincoln reiterates its claim construction argument that the claim language “prior to said weld wire being wound on said spool” is not a limitation of the claim, but is merely a statement of intended use. If the language is found to constitute a limitation, Lincoln asserts that Dr. Caulfield provided detailed testimony that in each of the accused Sidergas and ESAB

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products, the imparted shape memory is at least partially imparted before the wire is wound on the spool of weld wire. (Citing CX-377C at Q. 177-182, 224-229; CX-424C at Q. 18, 21, 23, 24.) Lincoln states that it is Dr. Caulfield's reasoned conclusion that the packaging used for the accused weld wire products does not, and is incapable of, imparting the entirety of the shape memory being exhibited by the tested weld wire samples. (Citing CX-377C at Q. 177-182, 224-229; CX-424C at Q. 18, 21, 23, 24.) (CIB at 82-83.)

Lincoln expects that Respondents will argue that (1) there is no shape memory imparted prior to the spool because the process of "winding" the wire begins at some arbitrary point during the processing of the wires – namely before the capstan of a winding machine (RX-96C at Q. 37, RX-204C at Q. 91); (2) there can be no infringement because each of the Respondents claim to use components referred to as "straightening rollers" at some point in the processing of the weld wire; and (3) Dr. Caulfield cannot point to any specific component in the processing of the wire which imparts the "shape memory" as seen in his testing. Lincoln asserts that each of these arguments lacks credibility. (CIB at 83.)

Lincoln states that Dr. Caulfield testified that the shape memory exhibited by the accused weld wire products in his testing comes from two distinct types of processing on the weld wire. (Citing CX-377C at Q. 182, 229.) Lincoln claims that to obtain the waveform shape that is being exhibited by the tested wires, there is a planar cast placed in the wire, as well as a "twist." (*Id.*) Lincoln asserts that in discussing the interaction of the "cast" and the "twist" components of the shape memory, Dr. Caulfield testified that the cast in the wire tends to make the wire form circles, while the twist causes the resultant waveform shape. (Citing CX-377C at Q. 182, 229; CX-424C at Q. 18, 21, 23-24.) (CIB at 83-84.)

Lincoln states that the cast and the twist components are imparted via plastic deformation

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of the wire as it is processed through the winding machine. (Citing CX-377C at Q. 182, 229; CX-424C at Q. 18, 21, 23-24.) According to Lincoln, without the plastic deformation causing the “twist” in the wire, the weld wire would exhibit a circular type shape memory if laid out on a flat surface rather than a waveform shape memory as exhibited in the accused weld wire. (*Id.*) (CIB at 84.)

Lincoln asserts that Dr. Caulfield concluded that the plastic deformation for the “twist” must be imparted into the wire prior to the weld wire being wound, for example prior to being placed into a container as a spool of weld wire. (Citing CX-377C at Q. 182, 229; CX-424C at Q. 18, 21, 23-24.) Lincoln claims that this unremarkable conclusion comes from the fact that the packaging of the wire, regardless of its type, can not impart a “twist” in the wire once the wire is wound, whether it be wound on a spool or reel, or in a package as a spool of weld wire. (Citing CX-424C at Q. 24.) Lincoln argues that the evidence presented at the hearing makes it clear that the plastic deformation which causes the “twist” in the wire is at least partially imparted by the laying head of a winding machine, during the rotation of the laying head. (Citing CX-424C at Q. 24; CX-377C at Q. 182, 229; RX-218C at Q. 64.) Lincoln states that Dr. Brown’s testimony is completely consistent with Dr. Caulfield’s, as Dr. Brown testified that “Dr. Caulfield indicates that the shape memory consists of two principal elements: a cast and twist, and states that, in the case of the ESAB Group products, that the twist is imparted by the laying head of the coiling apparatus. I do not disagree with that aspect of the answer.” (Citing RX-218C at Q. 64.) Lincoln notes that Dr. Brown confirmed his agreement with Dr. Caulfield when questioned by me during the hearing. (Citing Tr. at 628:5-631:12.) (CIB at 84-86.)

Lincoln claims that Sidergas’ contractor Tecknoadda similarly uses this “laying head” configuration to place the wire into the weld wire packaging. (Citing RX-203C at Q. 61; RX-

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204C at Q. 83.) Thus, Lincoln asserts that the testimony and evidence clearly established that at a minimum the plastic deformation of the accused ESAB and Sidergas weld wire products, which causes the twist in the weld wire, is imparted to the wire while the wire is being processed by the winding machine and before the wire is placed into its packages as loops. Lincoln argues that it logically follows that because the “twist” represents at least some of the shape memory exhibited in the accused ESAB and Sidergas weld wire products, the imparted shape memory of the accused weld wire products is “at least *partially prior* to said weld wire being wound.” (CIB at 86-87.)

Lincoln argues that Dr. Caulfield further reasoned and testified that because of the effects of plastic deformation on the internal residual stress distributions existing in the weld wire during processing, at least some, if not most, of the “cast” shape memory in the weld wire must be imparted into the weld wire prior to the “twist” being imparted. (Citing CX-377C at Q. 182, 229; CX-424C at Q. 24.) According to Lincoln, Dr. Caulfield concluded that at least some, if not most of, the cast being seen in the wire that he tested must be imparted prior to twist being imparted on the wire because of the interaction and interplay of the residual stress pattern in the wire. (*Id.*) (CIB at 87.)

Lincoln states that the twist is achieved via a rotational plastic deformation of the wire, along its long axis, while the cast is being imparted to the wire via plastic deformation of the wire in a single plane, along its longitudinal axis. (Citing CX-377C at Q. 182, 229; CX-424C at Q. 24; RX-218C at Q. 64; Tr. at 628:5-631:12.) Lincoln asserts that if the plastic deformation causing the twist came entirely before the plastic deformation causing the “cast” in the wire, the process of imparting the new residual stresses from the “cast” will interfere with and affect the residual stress patterns for the “twist,” causing a fundamental change in the residual stress

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patterns of the twist in the wire. (Citing CX-377C at Q. 182, 229; CX-424C at Q. 24.) Lincoln states that these changes in the twist residual stress pattern will adversely affect the twist in the wire and will thus not result in the production of the shape memory exhibited in the accused ESAB and Sidergas products. (*Id.*) Therefore, Lincoln concludes that at least some of the cast in the accused weld wire products is being imparted into the wire before the plastic deformation for the twist in the wire, and as such is being imparted prior to the weld wire being wound onto or into its packaging. (*Id.*) (CIB at 87-88.)

With respect to ESAB, Lincoln reiterates that Dr. Brown stated at the hearing that both the twist and the cast are being imparted by the laying head, which comprises the spinning cylinder and the helical tube through which the wire passes. (Citing RX-40C at 17; Tr. at 540:18-542:1, 630:20-24.) Thus, Lincoln asserts that Dr. Brown agrees with Dr. Caulfield on a very critical point – the box, container, drum, spool, or reel is not causing any, or only a minimal, aspect of the waveform shape being exhibited by the accused weld wire products. (*Id.*) (CIB at 88.)

With respect to Sidergas, Lincoln notes that the testimony of both Dr. Savoy and Mr. Gelmetti also confirms that Sidergas' weld wire product has shape memory imparted prior to the wire being wound into the package. Lincoln states that Dr. Savoy confirmed the results of a test he performed in which wire that was removed from the laying head before it was placed into a package had a cast. (Citing Tr. at 719:2-720:1; RX-112C at 11.) Lincoln asserts that Mr. Gelmetti testified that the Sidergas products are intended to have a cast. (Citing RX-209C at Q. 25.) According to Lincoln, Mr. Gelmetti also testified that during the manufacture of the Sidergas weld wire, the wire is not entirely straight as it passes to the capstan, thus admitting that the wire has some cast before the capstan and the laying head. (Citing RX-203C at Q77; RX-

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209C at Q. 26.) (CIB at 88-89.)

Lincoln states that Respondents will attempt to argue that the act of “winding” the weld wire onto a spool begins not when the wire is actually deposited onto the spool in the package, which is the only reasonable interpretation, but rather at some randomly selected point during the processing of the wire, conveniently located after a purported “straightening unit.” Further, Lincoln expects that Respondents will attempt to discredit Dr. Caulfield’s testimony and evidence on a number of grounds regarding his analysis. Lincoln argues that each of these anticipated arguments lack credibility and are merely lawyer created arguments in an effort to direct attention away from the clear evidence of infringement. (CIB at 89.)

Lincoln claims that Respondents are expected to argue that in their respective manufacturing processes their weld wire is being “wound” only after their “straightening rollers” and prior to their respective capstans. (Citing EPHB at 23-26; SGPHB at 28-35.) Lincoln asserts that this argument lacks merit for a number of reasons.

Lincoln argues that infringement of an apparatus claim is not governed by the method of manufacture. (Citing *Vanguard Prods.*, 234 F.3d at 1372.) According to Lincoln, such a result would deny the patentee the apparatus invention that was claimed. (*Id.*) Lincoln argues that the asserted claims of the ‘864 patent are not “product-by-process” claims, as the asserted claims are each directed to a “weld wire.” (Citing JX-1 at claims 3-4, 6, 12-13; Order No. 36 at 11-12.) Lincoln thus claims that any argument of non-infringement based on the method under which the wire is manufactured should be ignored. (CIB at 89-90.)

Lincoln claims that Respondents selected an arbitrary point in their respective manufacturing processes to begin the “winding” process in an attempt to avoid infringement. Lincoln asserts that Respondents argue that their respective weld wires are “straight” after the

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straightening rollers, that every step after the straightening rollers constitutes the “winding” of the wire on a spool, and for this reason, there can be no infringement. (Citing EPHB at 24-26; SGPHB at 33-35.) Lincoln asserts that there are numerous problems with this argument. (CIB at 90.)

Lincoln argues that neither Respondent has provided any evidence that the processing of their respective weld wires ends after the “straightening rollers.” Lincoln states that there is no evidence at all that either Respondent places any weld wire directly into any packaging directly after the “straightening rolls.” (Citing RX-424C at Q. 31.) Lincoln claims that the evidence presented contradicts this assertion. Lincoln notes that Mr. McBride testified that RX-45C represents a manual from { } a manufacturer of one of the packaging machines employed by ESAB, in its Ashtabula, Ohio plant. (Citing RX-95C at Q. 27.) Lincoln states that this manual clearly indicates {

} (Citing RX-424C at Q. 31; RX-45C at RX-45C.013.) Lincoln states that there is no indication from the manufacturer of the { } machine that the machine is capable of “winding” anything prior to the end of the guide nozzle. (Citing RX-424C at Q. 31; RX-45C at RX-45C.013.) Lincoln states that neither ESAB nor Sidergas has pointed to any documentation or evidence that either ESAB or Sidergas has historically considered weld wire “wound” before the capstan of the packaging machines. (CIB at 90-91.)

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} (Citing RX63C at 025, 031; RX-40C at 010, 015; RX-62C at 007; Tr. at 527:13-25;



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RX-60C.) Lincoln claims that Respondents' argument directly contradicts the testimony of numerous witnesses, who testified that the processing of the wire ends only when the wire leaves the tube of the laying head. (Citing CX-379C at Q. 57; CX-378C at Q. 22; CX-424C at Q. 31; Tr. at 199:12-21, 209:23-210:7, 221:25-223:23, 261:4-22, 388:8-22, 452:1-453-2, 628:5-631:12, 841:15-843:7.) Lincoln argues that the arbitrary selection of after the "straightening rollers" and prior to a capstan as the "winding on a spool" lacks credibility. (*Id.*) (CIB at 91.)

Lincoln avers that neither Respondent presented any credible evidence that the "straightening rollers" in their respective manufacturing processes make "straight wire." As to ESAB, Lincoln states that Mr. McBride testified to numerous changes made by ESAB to its packaging machines after they were received from the original manufacturer. (Citing Tr. at 528:8-11, 529:7-12, 531:21-25, 532:13-533:24, 534:11-535:17, 537:6-23, 538:3-11, 538:21-539:14, 540:3-10; 542:8-14.) Lincoln notes that Mr. McBride did not testify to any of these changes in his direct testimony, but rather this testimony was elicited only on cross-examination. (*Id.*) Lincoln asserts that with respect to ESAB's manufacturing process in China, Mr. McBride's direct testimony, and the demonstratives upon which he relied, failed to discuss, or even completely show a { } (Citing Tr. at 532:13-533:24.) Lincoln claims that it was unbelievable that Mr. McBride was unable to identify the { } and that he testified that there were no drawings or documents that discussed the implementation, structure or function of this { } (Citing Tr. at 533:11-24, 538:8-11.) Furthermore, Lincoln argues that there is no credible testimony or evidence presented by Mr. McBride, or any evidence provided by Dr. Brown, that the wire after the "straightening rollers" employed in ESAB's China facility is in fact straight. (CIB at 91-92.)

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Lincoln asserts that with respect to Sidergas, Mr. Gelmetti has admitted that the process for manufacturing the accused Sidergas products does not employ perfectly straight wire prior to the capstan. (Citing RX-203C at Q. 77; RX-209C at Q. 26.)

Lincoln states that it is likely that ESAB will argue that the presence of the { } means nothing since it is followed by “straightening rollers.” Lincoln states that this argument lacks credibility as the evidence at trial clearly showed that straightening rollers do not necessarily make straight weld wire. (Citing RX-203C at Q. 77; RX-209C at Q. 26; Tr. at 215:4-216:5, 386:24-387:9, 390:1-9, 396:24-398:19, 399:11-400:3, 401:15-402:8.) According to Lincoln, there is clear testimony that the individual rollers of the straightening units are adjustable and are adjusted by the operators of the packaging equipment. (Citing Tr. at 531:23-540:17.) (CIB at 92.)

Furthermore, Lincoln notes that Dr. Brown provided no testimony regarding ESAB’s manufacturing in China. (Citing RX-95C; RX-218C.) Dr. Brown only observed ESAB’s process in Ohio (Tr. at 636:12-19), but Lincoln claims that this observation is irrelevant since, contrary to Mr. McBride’s written testimony (RX-95C), there are numerous differences between the manufacturing process in Ohio and China. (Citing Tr. at 539:15-542:14, 566:17-571:6.) In fact, Lincoln notes that Mr. McBride himself has not been to the facility in China since 2007. (Citing Tr. at 546:1-3.) Moreover, Lincoln states that Dr. Brown’s opinions and testimony are based on information that he learned from Mr. McBride, and some other unidentified engineers, regarding ESAB’s manufacturing processes in Ohio. (Citing RX-96C at Q. 9-10, 38, 40, 47.) Lincoln reiterates that Mr. McBride’s direct testimony failed to disclose and address critical components in ESAB’s manufacturing process, including at least the function and operation of { } (Citing Tr. at 532:13-533:24.) Lincoln questions the need for ESAB to add

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{ } to its manufacturing process, or change { } if all the straightening rollers did was make straight wire. (Citing Tr. at 539:24-542:14, 566:17-571:6.) (CIB at 92-93.)

Lincoln claims that Mr. Land, Mr. Hartman, Dr. Caulfield and Dr. Swanger explained that the end shape of a wire is a function of every processing step that the weld wire see during manufacture. (Citing CX-379C at Q. 57; CX-378C at Q. 22; CX-424C at Q. 31; Tr. at 199:12-21, 209:23-210:7, 221:25-223:23, 261:4-22; 841:15-843:7.) Lincoln notes that Mr. Land stated: “[t]he shape [of the wire] is going to reflect everything that the wire has seen from its onset all the way through its process.” (Citing Tr. at 199:15-17.) Further, Lincoln notes that Mr. Hartman testified that “the shape memory is the memory of the welding wire is part [*sic*] of everything it sees in the manufacturing system.” (Citing Tr. at 261:17-19.) Finally, Lincoln notes that Dr. Swanger testified that the residual stresses and thus the resultant shape memory of a weld wire are a function of every step the wire sees in its manufacturing and packaging. (Citing Tr. at 841:15-843:7.) (CIB at 93-94.)

With respect to Sidergas, Lincoln argues that neither Dr. Savoy nor Mr. Gelmetti has any first hand knowledge of the packaging process used to package the Sidergas accused product. (Citing Tr. at 651:4-24, 721:2-10.) Lincoln claims that the packaging information is solely within the possession of third-party, Tecknoadda, and Dr. Savoy did not speak with any Tecknoadda employees, or review any of Tecknoadda’s manufacturing documents. (Citing Tr. at 721:2-10.) Lincoln argues that this is significant, as Dr. Savoy has no experience in the manufacture of weld wire, and has no understanding of what “cast” means in the art of manufacturing weld wire. (Citing Tr. at 710:12-17, 711:9-712:18.) Further, Lincoln claims that Sidergas has no documents which reflect or summarize the manufacturing process being

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employed by the third-party Tecknoadda, and to the extent Mr. Gelmetti purports to have knowledge of this process, he obtained it from a Mr. Antonio Rebughini of Teknoadda, who he only knows as an “owner.” (Citing Tr. at 651:25-652:18, 653:21-25.) Lincoln states that Mr. Gelmetti’s lack of firsthand knowledge regarding the packaging of Sidergas wire is evident in the inconsistencies in his testimony. Namely, Lincoln states that Mr. Gelmetti first testifies that the shape of the wire imported by Sidergas has a sinusoidal waveform shape and not a semi-circular shape, but then testifies in his rebuttal testimony that “if anything, Sidergas intends to produce a circular shape in the weld wire.” (Citing RX-203C at Q. 75; RX-209C at Q. 25.) (CIB at 95-96.)

Lincoln states that another anticipated criticism of Dr. Caulfield’s well reasoned analysis is that Dr. Caulfield was unable to identify any specific documents from either Respondent which demonstrated that the claimed “shape memory” was being imparted in the wire prior to being “wound.” As an initial matter, Lincoln states that the asserted claims, including claim 3, are directed to a weld wire having certain physical properties, and that those physical properties are imparted to the wire by its processing and not by its packaging. (Citing Order No. 36 at 11.) Secondly, Lincoln states that such criticism is entirely baseless as neither Respondent produced the very documentation Dr. Caulfield was unable to review. (Citing Tr. at 533:17-24, 540:20-23, 542:24-543:14, 653:21-25.) According to Lincoln, Respondents can not be heard to criticize Dr. Caulfield for not reviewing the very documents they claim do not exist and they did not produce. Moreover, Lincoln asserts that Respondents can similarly not be heard to criticize Dr. Caulfield regarding the understanding of their respective processes, when in fact they have little or no knowledge of the details of the manufacturing processes being employed. (*Id.*) (CIB at 96-97.)

Lincoln states that to the extent the language “on a spool of weld wire” is improperly

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construed as suggested by Respondents – “on a cylindrical piece of material around which wire is wound” – the unrebutted testimony of Dr. Caulfield is that the accused ESAB and Sidergas products are a “spool of weld wire [] organized as a stack of cylindrical loops, which is the same structure that would be required to wind the weld wire on a cylindrical piece of material.”

(Citing CX-377C at Q. 178-186, 225-233; CX-424C at Q. 18, 21, 23-24.) Lincoln asserts that the photographs (CX-18C and CX-22C) of the accused products show that a cylindrical space is present at the center of the spool of weld wire into which a cylindrical piece of material can be located during the stacking of the loops of wire. (CIB at 98.)

Lincoln states that the only testimony provided by Dr. Brown or Dr. Savoy is that Respondents’ products do not have a “physical spool.” (Citing RX-96C at Q. 37; RX-204C at Q. 86.) Lincoln argues that this testimony misses the mark because the question is not whether or not a spool is present. (Citing Order No. 36 at 11.) According to Lincoln, the issue is whether “if the accused weld wire was wound on a spool, the shape memory of the wire would meet the requirements set forth in claim 3, and that the shape memory would be imparted at least partially prior to such winding.” (Citing Order No. 36 at 11.) Lincoln notes that this issue was addressed clearly by Dr. Caulfield. (Citing CX-377C at Q. 178-186, 225-233; CX-424C at Q. 18, 21, 23-24.) (CIB at 98.)

Lincoln claims that there is relevant testimony from each of the Respondents related to this issue as well. According to Lincoln, when discussing the ProStar brochure (RX-18), Dr. Savoy acknowledged that the figure on page two of the brochure was representative of wire taken from a bulk container. (Citing Tr. at 728:8-13.) Lincoln states that Dr. Savoy also acknowledged his belief that if the wire represented in that figure was wound on a spool (as he understood the term) he would expect the shape memory of the wire to be the same. (Citing Tr.

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at 728:14-729:9.) Further, Lincoln notes that Mr. McBride indicated that up until 1998 ESAB was placing a “center core” in their bulk wire packages, before switching to the octagon shape packaging ESAB currently utilizes. (Citing CX-398C at 65:4-11.) (CIB at 98-99.)

Lincoln states that by focusing on only the claim language “on a spool,” Respondents and the Staff are attempting to redirect the analysis from the actual language of the claim, which is “on a spool of weld wire.” Lincoln claims that the term “spool of weld wire” refers to the coil of wire itself. Lincoln argues that, contrary to the testimony of Mr. Gelmetti, the bulk weld wire industry has frequently referred to wire packaged in bulk containers, such as boxes or drums, as “spools of weld wire.” (Citing CX-421 at 1:20-25; RX-149 at 3:35.) Lincoln notes that Sidergas identifies its bulk packaging on invoice type documents as “spools.” (Citing Tr. at 662:6-25; RX-202C.000117.) (CIB at 99.)

Lincoln argues that to the extent that the claim language “spool of weld wire” is to be interpreted as suggested by Respondents or Staff, and that the accused weld wire products do not literally satisfy this claim language, each of the accused ESAB and Sidergas products infringe under the doctrine of equivalents. (Citing CX-377C at Q. 262, 265; RX-25C at ¶ 48, 57; Tr. at 414:9-24.) Lincoln states that Dr. Caulfield testified that “[w]inding a coil of wire into the specialized containers would provide a coil of wire for storage substantially similar to winding the weld wire on a spool” because “Figure 11 of a preferred embodiment in the ‘864 patent, shows the reel sitting stationary and the wire pays out from the reel around the perimeter [which] operates in the same way to the box/container system where the box sits stationary and the wire is paid out from under the retainer ring.” (Citing CX-377C at Q. 262, 265; RX-25C at ¶ 48; Tr. at 414:9-24.) (CIB at 100.)

Lincoln argues that the testimony of Dr. Brown and Dr. Savoy fails to specifically rebut

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Dr. Caulfield's testimony. (Citing RX-96C at Q. 24, 43; RX-204C at Q. 88-89.) Lincoln asserts that both Dr. Brown and Dr. Savoy have testified that the use of an actual physical spool has a different process of manufacture as the loops of the wire would gradually increase in diameter from the center of the "spool" as the wire is being wound. (*Id.*) Lincoln argues that this criticism misses the mark because this is one of the very issues the '864 patent was attempting to address. (Citing JX-1 at 1:16-2:22.) Specifically, Lincoln claims that the '864 patent taught that by using a stationary container (*see, e.g.*, Figure 11) and a weld wire having a certain shape memory, such inconsistencies could be negated and improved weld wire performance, at the weld, could be obtained. (Citing JX-1 at 2:25-6:8.) Accordingly, Lincoln argues that because Respondents import a weld wire with such a shape memory, the particularized container for storage of the weld wire is insubstantial in the storage of the wire. (Citing Tr. at 414:9-24.) Lincoln claims that Dr. Savoy's criticisms miss the mark because they do not evaluate equivalents using the construction proposed by Respondents, and thus the construction evaluated by Dr. Caulfield. (CIB at 100-101.)

Lincoln claims that Dr. Savoy argues that the process of winding wire on a spool is substantially different because the wire is being wound between two flanges, which hold the wire in place. (Citing RX-204C at Q. 89.) However, Lincoln notes that Respondents' construction does not identify or require "flanges" to be a part of the "spool." As such, Lincoln argues that Dr. Savoy's criticisms do not address Dr. Caulfield's conclusions in a relevant manner. (CIB at 101.)

Lincoln asserts that the un rebutted testimony and evidence from Dr. Caulfield establishes that ESAB's and Sidergas' accused weld wire products, and similarly made products, have a shape memory which lies substantially in a single plane. (Citing CX-377C at Q. 187, 234.)

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Lincoln notes that all parties have agreed that this limitation represents the rise, if any, a weld wire has as it lays on a flat surface. (Citing RX-113.) Lincoln claims that Dr. Caulfield's detailed testing of the accused products demonstrates that under any theory of construction of the phrase "substantially lying in a single plane" the accused products from ESAB and Sidergas possess this feature of claim 3. (CIB at 102.)

Lincoln states that for ESAB's accused weld wire products, Dr. Caulfield's testing has shown that ESAB's weld wire rises off of a flat surface by no more than 1.03 inches. (Citing CX-377C at Q.187; CX-19C.) Lincoln states that for Sidergas' accused weld wire products, Dr. Caulfield's testing has shown that Sidergas' weld wire rises off of a flat surface by no more than 0.62 inches. (Citing CX-377C at Q. 234; CX-23C.) (CIB at 102-103.)

Lincoln argues that under the proposed construction set forth by Respondents, the accused ESAB and Sidergas weld wire literally possesses this feature of claim 3, because the accused products do not rise more than 6 inches off of the ground. (CX-377C at Q. 187, 234; CX-19C; CX-23C.) Additionally, Respondents notes that even under the Staff's overly narrow proposed interpretation of the claim language, the accused ESAB and Sidergas accused products have a shape memory which results in wire not rising more than 1.5 inches off of the ground. (*Id.*) (CIB at 103.)

Lincoln states that the testimony and evidence from Dr. Caulfield establishing that ESAB's and Sidergas' accused weld wire products, and similarly made products, have a shape memory which is generally a waveform having a maximum amplitude for each half cycle stands un rebutted. (Citing CX-377C at Q. 187, 234.) Lincoln claims that for ESAB's accused weld wire products, Dr. Caulfield's testing has shown that ESAB's weld wire has a shape memory which is generally in the shape of a waveform having a maximum amplitude for each half cycle.



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(Citing CX-377C at Q. 187; CX-20C.) Lincoln claims that for Sidergas' accused weld wire products, Dr. Caulfield's testing has shown that Sidergas' weld wire has a shape memory which is generally in the shape of a waveform having a maximum amplitude for each half cycle.

(Citing CX-377C at Q. 234; CX-24C.) (CIB at 103-104.)

Lincoln argues that any non-infringement argument from Respondents and Staff is based on an incorrect construction of the term "waveform." (Citing EPHB at 26; SGPHB at 35; SPHB at 26-27.) Lincoln states that Respondents and Staff seek a construction requiring a "substantially semi-circular" shape. However, Lincoln claims that neither Respondent nor the Staff has defined or provided guidance as to what a "substantially" semi-circular shape is, and Dr. Savoy has admitted that a "substantially semi-circular" shape is one having more than one radius. (Citing Tr. at 735:8-11.) Lincoln argues that a cursory review of the shape memory of the wire tested by Dr. Caulfield, reveals that both ESAB's and Sidergas' accused weld wire products is "generally" semi-circular. (Citing CX-20C; CX-24C.) (CIB at 104-105.)

Additionally, Lincoln states that Dr. Caulfield also concludes that to the extent either of Staff's or Respondents' constructions are adopted, the differences between a "substantially semi-circular" half cycle and the measured half cycles of the accused products are insubstantial. (Citing CX-377C at Q. 266; RX-25C at ¶ 58.) Lincoln notes that Dr. Caulfield stated that while Respondents' products are not "semi-circles," "the waveforms are in plane and substantially consistent in shape" which ensures that the wire will maintain consistent placement and substantially consistent contact with the contact tip during welding. (*Id.*) (CIB at 105.)

Lincoln argues that the analyses of Dr. Brown and Dr. Savoy are incorrect. Lincoln claims that Dr. Brown's testimony demonstrates that Dr. Brown is incorrectly assuming that the claim language "having a radius of curvature" necessarily means that the claims contemplate

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only a single or “specified” radius of curvature. (Citing RX-96C at Q. 37, 45.) For reasons described in its claim construction analysis, Lincoln argues that this is an improper reading of claim language. Lincoln further criticizes Dr. Brown’s opinion that wire with a “generally” semi-circular shape will have a “uniform” curvature. (Citing RX-96C at Q. 45.) Lincoln claims that the flaw in Dr. Brown’s reasoning is that something that is “generally” semi-circular has more than one radius of curvature. (Citing Tr. at 735:8-11.) (CIB at 105-106.)

Lincoln argues that Dr. Savoy’s analysis suffers from the same fundamental error. (Citing RX-208C at Q. 49.) Lincoln asserts that Dr. Savoy’s criticism of Dr. Caulfield’s analysis improperly assumes that a “general” semi-circular shape has a single radius, and then argues that because of the “single” radius such a shape would not be “equivalent” to a shape with more than one radius. (Id.) Lincoln notes that Dr. Savoy’s criticism of Dr. Caulfield is surprising since Dr. Savoy agrees that a “generally” semi-circular shape has more than one radius. (Citing Tr. at 735:8-11.) (CIB at 106.)

Lincoln argues that the testimony and evidence from Dr. Caulfield establishing that ESAB’s and Sidergas’ accused weld wire products, and similarly made products, have a shape memory which results in a weld wire having a waveform with half cycles having a radius of curvature of at least 15 inches, stands unrebutted with any credible evidence. (Citing CX-377C at Q. 188, 235; CX-19C; CX-20C; CX-23C; CX-24C.) Lincoln incorporates its arguments regarding the “waveform” limitation, *supra*, in its analysis for this claim limitation. (CIB at 107.)

Lincoln claims that for ESAB’s accused weld wire products, Dr. Caulfield’s testing has shown that each half-cycle of the evaluated ESAB weld wire has a radius of curvature over 15 inches. (Citing CX-377C at Q. 188; CX-19C; CX-20C.) Lincoln claims that for Sidergas’

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accused weld wire products, Dr. Caulfield's testing has shown that each half-cycle of the evaluated Sidergas weld wire has a radius of curvature over 15 inches. (Citing CX-377C at Q. 235; CX-23C; CX-24C.) (CIB at 107-108.)

In its reply brief, Lincoln asserts that any arguments regarding the methodology of Dr. Caulfield's testing are unfounded. According to Lincoln, Staff's and Respondents' criticisms of Dr. Caulfield's testing are unsupported attorney argument and are directly contradicted by the evidence presented at the hearing. (CRB at 27-32.)

Lincoln reiterates its arguments regarding the "spool" language of the claim. Lincoln states that both Sidergas and ESAB continue to ignore the express teachings of the '864 patent by wrongly asserting that the only problem that the '864 patent was directed to inconsistencies related to winding wire on a "physical spool." (Citing SGIB at 29; EIB at 27.) Lincoln claims that this argument ignores nearly the entire Background of the '864 patent. (Citing JX-1 at 1:15-2:22.) Lincoln asserts that the '864 patent expressly states that it addressed inconsistency in wire placement during welding, not exclusively wire wound on a "physical spool." (Citing JX-1 at 1:15-2:22, 2:40-3:20, 4:65-6:3, 9:58-10:7.) (CRB at 32-33.)

Lincoln addresses Respondents' arguments that Dr. Caulfield failed to wind and unwind the accused wire on a spool to test if it infringed the asserted claims. Lincoln responds by stating that Order No. 36, which raised this issue, was issued after the close of discovery, preventing Dr. Caulfield from engaging in such action. Nevertheless, Lincoln argues that Dr. Caulfield provided detailed testimony regarding this very issue. Lincoln states that Dr. Caulfield testified that, consistent with the construction proposed by Respondents, if wire was wound on a "spool" (as asserted by Respondents) it would not affect the shape memory of the weld wire. (Citing Tr. at 413:25-414:24.) Lincoln claims that Dr. Caulfield's testimony is quite unremarkable because

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if someone were to simply insert a “cylindrical piece of material around which wire is wound” into the cylindrical opening of the accused Sidergas and ESAB products, it would have no effect on the shape of the wire in the package. (Citing Tr. at 413:25-414:24.) (CRB at 33-34.)

Lincoln avers that the un rebutted evidence presented by Dr. Caulfield clearly establishes that if the accused weld wires were wound onto a physical “spool,” as defined by Respondents (that is if a “cylindrical piece of material around which wire is wound” were inserted into the cylindrical opening of Respondents respective wire spools), the shape and physical parameters of the weld wire would not change. (Citing Tr. at 413:25-414:24.) Thus, Lincoln states that Dr. Caulfield provided sufficient, clear, detailed and un rebutted testimony that the insertion of a “cylindrical piece of material around which wire is wound” into the accused packages would have no affect on the shape memory of the accused products. (CRB at 34-35.)

Lincoln responds to Staff’s and Respondents’ arguments that the “spool” language cannot be met under the doctrine of equivalents. Lincoln states that Staff’s and Respondents’ analyses regarding the doctrine of equivalents is only relevant if (1) it is determined that a “spool” is a structure having a round cylindrical core and flanges on each end which extend beyond the diameter of the core, and (2) Dr. Caulfield had to actually test winding the wire onto such a spool (*i.e.*, with “flanges”) and then remove it from that spool. (CRB at 36.)

Lincoln states that Staff and Respondents are incorrect in asserting that Lincoln is barred from arguing doctrine of equivalents, as no clear disclaimer exists which dedicates anything to the public. (Citing CIB at 40-44.) Lincoln states that this argument is predicated on the assumption that “spool” (as defined with a core and flanges) is the same as “spool of weld wire,” and that by using the claim language “spool of weld wire,” the ‘864 patent applicants intended to disclaim the other disclosed applications of the ‘864 patent – namely, reels, containers, “and the

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like.” (Citing JX-1 at 1:35-39, 2:35-50.) Lincoln claims that there is no clear disclaimer of structures beyond a spool found in the intrinsic evidence. (Citing *Voda v. Cordis Corp.*, 536 F.3d 1311, 1321 (Fed. Cir. 2008); CIB at 16-19, 40-44.) (CRB at 36-37.)

Lincoln claims that there is no vitiation of any claim language or any violation of the “all elements” rule, as asserted by Staff and Respondents. (Citing SIB at 31-32; SGIB at 32-34; EIB at 28.) Lincoln states that Dr. Caulfield’s testimony is that weld wire wrapped around a cylindrical piece of material having the claimed shape memory is not substantially different from weld wire stacked as a coil or spool of weld wire. (Citing CIB at 98-100; CX-377C at Q. 262, 265; RX-25C at ¶¶ 47, 48, 53, 55, 57; Tr. at 414:9-24.) Thus, Lincoln argues that Dr. Caulfield does not ignore the “physical spool,” but, to the contrary, testifies that the stack or coil of wire placed in a container is not substantially different from that wound onto a “spool,” and that, to the extent a distinction exists, it does not affect the shape or performance of the weld wire itself. (*Id.*) Lincoln asserts that Dr. Caulfield’s straightforward testimony is simply that weld wire having the claimed shape memory wrapped around a “spool” and weld wire having the claimed shape memory wrapped in a coil as a spool of weld wire are equivalent to each other under the teachings of the ‘864 patent. (Citing CIB at 98-102; CX-377C at Q. 262, 265; RX-25C at ¶¶ 47, 48, 53, 55, 57; Tr. at 414:9-24.) (CRB at 37-38.)

Lincoln notes that Sidergas and Staff both criticize Dr. Caulfield for allegedly applying an incorrect “legal” analysis because his equivalence analysis purportedly analyzed the weld wire “as a whole.” (Citing SIB at 33-34; SGIB at 34.) Lincoln asserts that not only is this argument directly contradicted by Dr. Caulfield’s detailed testimony regarding the equivalents of various individual claim limitations (CX-377C at Q. 261-277), it is tantamount to criticizing Dr. Caulfield for not being a patent lawyer who understands the nuances of a distinction put forth in

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poorly worded cross-examination questioning. (Citing Tr. at 480:16-481:15.) Lincoln claims that Dr. Caulfield's unrebutted testimony is clear – Dr. Caulfield analyzed specific limitations, individually, to determine if any differences were insubstantial. (CRB at 39.)

Lincoln states that ESAB and Sidergas argue that there can be no infringement because the claims require that the shape memory be imparted prior to the process of “winding” the weld wire on a spool. (Citing SGIB at 34-36; EIB at 28-32.) Lincoln asserts that Respondents' arguments are predicated on (1) a mischaracterization of the actual claim language, (2) an arbitrary interpretation of where the winding begins, and (3) that the asserted claims are directed to a specific method of manufacture. (*Id.*) (CRB at 40.)

Lincoln claims that ESAB and Sidergas boldly ignore the “at least partially” language in the asserted claims. (SGIB at 34-36; EIB at 28-32.) Lincoln further claims that ESAB and Sidergas change the claim language from having at least some of the shape memory imparted prior to the wire being “wound” to prior to “winding” the wire. Lincoln asserts that none of the asserted claims refers to imparting “material aspects” of the shape memory in any way. (Citing JX-1 at claims 3, 4, 6, 12, 13.) (CRB at 41.)

Lincoln states that by ignoring the “at least partially” language, Respondents are attempting to change the claims to require the entirety or the “material aspects” of the shape memory be imparted prior to the process of “winding” wire. Lincoln asserts that by referring to prior to “winding,” Respondents are attempting to change the claim language to referring to the point at which the wire has been “wound” to a much earlier point in the process of “winding.” (SGIB at 34-36; EIB at 28-32.) According to Lincoln, Respondents arbitrarily assert that the winding process “begins” after straightening rollers and before a capstan. (Citing SGIB at 35-36; EIB at 29-32.) Lincoln claims that Respondents appear to designate this location for the

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“beginning” of the winding process because of the mistaken belief that their evidence has established that their respective processes have perfectly “straight” wire at this location, *i.e.*, the wire has no residual stress or shape memory. (CRB at 41-42.)

Lincoln argues that this argument is contrary to the claim language, as the claims state that at least some of the shape memory is imparted before the wire is “wound,” not before an arbitrarily selected point in the “process of winding.” Thus, Lincoln states that the plain language of the claim refers to the end of the winding process, as the wire is deposited onto the spool of weld wire. (Citing CIB at 82-97; Tr. at 388:8-22.) According to Lincoln, this is entirely consistent with a proper interpretation of this claim, and of the general understanding of the winding process. (Citing CX-377C at Q. 177-182, 224-229; CX-424C at Q. 18, 21, 23, 24.) (CRB at 42.)

Lincoln states that by their logic, Respondents could also argue that because a Lamnea Bruk is a “winding machine” the winding process begins at the WIP reel, and thus, any shape imparted after the wire goes through the WIP reel does not count. (Citing RX-40C; RX-63C.) Lincoln asserts that Respondents choose an arbitrary (albeit convenient) location in the processing of the wire to begin their “winding process.” Lincoln states that Respondents provided no evidence that anyone has ever “wound” any wire into any packaging immediately after “straightening rolls.” (Citing RX-45C.013.) (CRB at 42-43.)

Lincoln states that the un rebutted evidence establishes that the processing of the weld wire is not complete until the wire leaves the laying head of the winding machine and is deposited onto the spool of weld wire. (Citing CIB at 82-97; CX-379C at Q. 57; CX-378 at Q. 22; CX-424C at Q. 31; Tr. at 199:12-21, 209:23-210:7, 221:25-223:23, 261:4-22, 388:8-22, 452:1-453-2; 628:5-631:12, 841:15-843:7.) Thus, Lincoln argues that Respondents’ tortured

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application and misquotation of the relevant claim language should be disregarded. (CRB at 43.)

Lincoln claims that the record is replete with unrebutted testimony that clearly establishes that “at least some,” of the shape memory exhibited by the weld wire tested by Dr. Caulfield came before the wire was “wound” onto the respective spools of weld wire. (Citing CIB at 82-97; CX-377C at Q. 177-182, 224-229; CX-424C at Q. 18, 21, 23, 24.) Lincoln asserts that the testimony clearly establishes that the resultant shape memory of a weld wire is a function of its entire processing. (Citing CIB at 82-97; CX-379C at Q. 57; CX-378 at Q. 22; CX-424C at Q. 31; Tr. at 199:12-21, 209:23-210:7, 221:25-223:23, 261:4-22, 388:8-22, 452:1-453-2; 628:5-631:12, 841:15-843:7.) Because of this, Lincoln states that Respondents’ convenient selection of where its “winding process” begins should be disregarded. Lincoln argues that even if Respondent’s position were adopted, the infringement result would be the same because at least some of the shape memory in the accused wire, as shown by Dr. Caulfield, is imparted by the wire processing even before the “straightening” rollers. (CRB at 43-44.)

Lincoln notes that both ESAB and Sidergas make much of the use of alleged “straightening rolls.” Lincoln argues that because the claims are not method claims and because the claims refer to shape memory being imparted “at least partially” to the wire being “wound,” reliance on straightening rolls cannot change the outcome. (Citing JX-1 at claims 3, 4, 6, 12, 13; CIB at 82-97.) (CRB at 44.)

Lincoln asserts that Sidergas and ESAB argue that the evidence showed that the wire, in their respective manufacturing processes is straight after going through straightening rolls. (Citing SGIB at 35-36; EIB at 28-31.) As to ESAB, Lincoln states that neither Mr. McBride nor Dr. Brown provided any evidence that the wire manufactured in China possesses “straight” shape memory at any given point during manufacture. In fact, Lincoln notes that ESAB admits that its



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wire is only “generally” straight prior to the capstan. (Citing EIB at 31.) Lincoln states that this is an admission that the wire has some shape memory at least prior to the capstan. Lincoln argues that this is confirmed by ESAB’s manufacturing documents, which contradict ESAB’s assertions regarding the “straightness” of ESAB’s weld wire after the “straightening” unit. (Citing RX-62C.004; RX-60C; Tr. at 527:17-25.) Thus Lincoln states that, with respect to ESAB’s Ohio operations, Mr. McBride’s testimony and ESAB’s representations are not consistent with ESAB’s documents, and prove that Dr. Caulfield’s testimony is accurate with respect to ESAB’s processes. (CRB at 44-45.)

Lincoln claims that Sidergas makes similar admissions that its wire prior to the capstan is not perfectly straight. (Citing RX-203C at Q. 77; RX-209C at Q. 26.) Lincoln notes that it is telling that neither Respondent has provided any testing or credible evidence about the shape memory or lack thereof midway through the winding process. (CRB at 45-46.)

Lincoln claims that Respondents’ attempts to use Dr. Caulfield’s testimony to support the assertion that the ‘864 patent distinguished between using “straightening” rolls prior to the capstan completely mischaracterizes his testimony. According to Lincoln, Dr. Caulfield does not state that it is the mere use of “straightening” rolls which is distinguishing, but rather the use of “straightening rolls” to provide “killed” weld wire to a spool of weld wire. (Citing Tr. at 355:21-388:14.) Lincoln states that based on Dr. Caulfield’s testimony and testing, there is no serious question that Respondents’ accused weld wire products are not “dead,” and there is no evidence that the apparent shape of Respondents’ accused weld wire products is a result of “inherent” properties of a winding machine. (Citing CX-18C; CX-19C; CX-20C; CX-22C; CX-23C; CX-24C; CDX-2C; CDX-3C; CDX-4C; CDX-5C.) (CRB at 46.)

Lincoln asserts that ESAB attempts to summon further support for its argument by

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asserting that Dr. Caulfield admitted that an “inherent resulting shape of the wire” existed or was known in the prior art regarding the use of “known elements” of winding machines. (Citing EIB at 29.) Lincoln states that Dr. Caulfield made no such assertion, and to suggest otherwise completely mischaracterizes his testimony. (Citing EIB at 29; Tr. at 387:17-388:7; 388:23-389:2.) Lincoln claims that Dr. Caulfield acknowledged that the general components of winding machines were known, but that there was no testimony as to “inherent” properties of weld wire made on older machines. (CRB at 46-47.)

Lincoln notes that ESAB also attempts to criticize Dr. Caulfield’s testimony that a modification was likely made to impart “some unidirectional cast” in the wire prior to the capstan. (Citing EIB at 30.) Lincoln states that Dr. Caulfield is correct, as ESAB did modify all of its winding machines to install a {

} (Citing Tr. at 532:13-533:24, 539:15-540:21.) Further, Lincoln argues that the fact that that the { } is before a set of “straightening rolls” is of no relevance as there is no credible evidence that “straight” wire exists at any of Respondents’ respective manufacturing processes. (CRB at 47.)

Lincoln states that there is further evidence against any “inherency” argument in ESAB’s own documents. Lincoln notes that RX-62C, which is a newer version of RX-60C (not discussed in Mr. McBride’s direct testimony), clearly shows that the configuration of the guide tube (an alleged well known and old aspect of winding machines) can have a great affect on the packaging process of the wire. (Citing RX-62C; RX-60C; Tr. at 527:17-25.) (CRB at 47.)

Lincoln argues that ESAB’s and Staff’s non-infringement position regarding the “waveform” limitation is based on an incorrect claim construction that requires the wire to have a substantially semi-circular shape. For reasons already discussed with respect to claim

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construction, Lincoln argues that this position is incorrect, and that under a correct construction of “waveform,” the accused wire has the claimed waveform. Lincoln asserts that even under the incorrect construction of “waveform” offered by Respondents and Staff, the accused products still meet this limitation. (CRB at 48, 50-54.)

Lincoln notes that Sidergas argues that the accused Sidergas products do not infringe any of the asserted claims because the accused Sidergas products “exhibit a circular shape when removed from the top of containers analyzed under accepted industry practice.” (Citing SGIB at 36-37.) To support this assertion, Sidergas points to select testimony from Dr. Savoy. (*Id.*) (CRB at 48-49.)

Lincoln argues that neither Sidergas nor Dr. Savoy has established that that “throwing” or “casting” a short length of wire to the ground of a warehouse is an acceptable or reasonable test methodology. Lincoln claims that in an effort to support his approach, Dr. Savoy points to the deposition testimony of Dennis Hartman. (Citing RX-204C at Q. 74.) According to Lincoln, Mr. Hartman never provided any testimony or guidance which involved the “throwing” of weld wire to the ground. (Citing Tr. at 715:1-717:3.) Lincoln argues that such a testing methodology is so far a field from the guidance of the ‘864 patent or common sense that it should be disregarded out-of-hand. (Citing JX-1; Tr. at 462:14-463:2.) (CRB at 49.)

Lincoln claims that Dr. Savoy has provided no photos, video, or any contemporaneous recordings that support his testimony. (Citing CIB at 75-76, 95-96.) Thus, Lincoln asserts that there is insufficient evidence of Sidergas’ position to refute Dr. Caulfield’s testing and testing results. (*Id.*) Lincoln argues that Dr. Caulfield’s results could not be clearer: the accused Sidergas products exhibit a shape memory with a waveform when tension and frictional forces are removed from the wire. (Citing CX-377C at Q. 165-176, 212-223; CDX-4C; CDX-5C; CIB

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at 71-80.) (CRB at 49.)

Lincoln argues that Sidergas' representations regarding the "circular shape" of the wire is directly contradicted by the testimony of both Dr. Savoy and Mr. Gelmetti. Specifically, Lincoln notes that Dr. Savoy testified that some of his testing showed that the Sidergas wire exhibited a slight waveform pattern. (Citing RX-204C at Q. 74, 78.) Further, Lincoln notes that Mr. Gelmetti testified that the Sidergas wire imported today has the shape of a "waveform." (Citing RX-203C at Q. 75.) (CRB at 49-50.)

Lincoln argues that in the event that the accused products are not found to literally meet the "waveform" limitation, they meet the limitation under the doctrine of equivalents. Lincoln claims that Dr. Caulfield provided detailed, unrebutted testimony as to why the exhibited shapes of the accused products are equivalent to substantially semi-circular shapes. (Citing CIB at 103-107; CX-377C at Q. 266; RX-25C at ¶ 58.) Lincoln asserts that each of Drs. Savoy and Brown criticize Dr. Caulfield's analysis because of a purported difference between a single radius shape (semi-circle) and one having multiple radii of curvature. Lincoln argues that both Staff and Respondents fail to recognize that their proposed definition of "substantially semi-circular" also has multiple radii. (Citing RX-113; Tr. at 735:8-11.) Thus, Lincoln concludes that Dr. Caulfield's testimony sets forth the unremarkable conclusion that a consistent waveform shape having multiple radii of curvature in each half cycle (the accused products) is not substantially different from another consistent waveform shape having multiple radii of curvature in each half-cycle (a waveform having "substantially semi-circular" half cycles, as understood by Respondents). (Citing CIB at 103-107; CX-377C at Q. 266; RX-25C at ¶ 58.) (CRB at 54-55.)

Lincoln notes that Sidergas only argues that "the radius of curvature in a semi-circular waveform is consistent, while the radius of curvature of a non-semi-circular waveform is not

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consistent at every point of the curve. [citations omitted] Thus, the ‘result’ under the function-way-result test is substantially different.” (Citing SGIB at 37.) Lincoln asserts that Sidergas again ignores that Respondents did not propose that a waveform is “semi-circular” but “substantially” so, which admittedly has multiple radii of curvature. (Citing RX-113; Tr. at 735:8-11.) (CRB at 55.)

Lincoln notes that ESAB argued that there is no “equivalents” because “the ‘way’ in which the waveform is imparted and the ‘result’ are fundamentally different.” (Citing EIB at 33.) Lincoln states that with respect to “way,” ESAB argues that a “general waveform is an inherent consequence of the use of a drumming machine with straightening rolls just prior to the capstan, and has been since at least 1990.” (*Id.*) Lincoln argues that this statement is completely contrary to the overwhelming evidence presented in this investigation. (Citing CIB at 103-107; CX-377C at Q. 266; RX-25C at ¶ 58.) (CRB at 55.)

Lincoln asserts that the un rebutted testimony of Dr. Caulfield, Dr. Swanger, Mr. Land and Mr. Hartman make it clear that the resultant shape of the weld wire after manufacture is the result of all operations or processing steps seen by the wire. (Citing CIB at 82-97; CX-379C at Q. 57; CX-378 at Q. 22; CX-424C at Q. 31; Tr. at 199:12-21, 209:23-210:7, 221:25-223:23, 261:4-22, 388:8-22, 452:1-453-2; 628:5-631:12, 841:15-843:7.) Lincoln states that this has been confirmed by ESAB through the admission that it has made changes to its manufacturing processes that affected the shape of the wire. (Citing CIB at 91-93.) Lincoln argues that if the only thing that affected the shape of the wire were the straightening rolls and the capstan, ESAB’s many changes and modifications to its equipment, in particular {  
} would not have been necessary. (Citing CIB at 91-93; RX-60C.001; RX-62C.001; Tr. at 527:17-25, 566:17-571:6.) (CRB at 55-56.)

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Lincoln claims that Respondents' position is expressly contradicted by the very teachings of the '864 patent. Lincoln notes that in discussing Figures 4-6, the '864 patent makes clear that "conventional" drumming or winding equipment could result in many different shapes of weld wire. (Citing JX-1 at 7:17-50.) Lincoln argues that the '864 patent makes clear that "conventional" wire winding operations produced "killed" wire as depicted and discussed. Thus, Lincoln states that there was nothing conventional about "shape memory" in weld wire, and certainly nothing conventional about the shape memory exhibited in the accused ESAB and Sidergas products. (Citing JX-1 at Figs. 4-6; CX-18C; CX-19C; CX-20C; CX-22C; CX-23C; CX-24C; CDX-2C; CDX-3C; CDX-4C; CDX-5C.) Further, Lincoln avers that to the extent ESAB's assertions of "inherency" had any merit, it is hard to believe that ESAB decided to keep that evidence to itself in this investigation. (CRB at 56.)

Lincoln argues that ESAB's "way" analysis is legally flawed because rather than taking into consideration the teachings of the '864 patent, ESAB compares its manufacturing process to Lincoln's manufacturing process, and not the '864 patent. (Citing EIB at 33; *Johnson & Johnston Associates Inc. v. R.E. Service Co., Inc.*, 285 F.3d 1046, 1052 (Fed. Cir. 2002); *SRI Int'l v. Matsushita Elec. Corp.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985); *see also Catalina Lighting, Inc. v. Lamps Plus, Inc.*, 295 F.3d 1277, 1286 (Fed. Cir. 2002).) Lincoln claims that as testified to by Dr. Caulfield and Dr. Brown (with respect to ESAB's Ohio facility) and shown by ESAB's many changes, ESAB is imparting its shape memory prior to the weld wire being wound into its package. (Citing Tr. at 539:15-541:2.) Thus, Lincoln argues that the way in which the shape memory is being imparted is substantially the same as that in the '864 patent. (Citing JX-1 at 3:24-33.) (CRB at 56-57.)

Lincoln concludes that Staff's and Respondents' criticisms of Dr. Caulfield's doctrine of

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equivalents analysis (1) ignore Dr. Caulfield's detailed analysis, (2) ignore Respondents' and Staff's proposed construction of the term "waveform," and (3) are irrelevant. Thus, to the extent that "waveform" is construed as suggested by Respondents or Staff, Lincoln argues that the evidence clearly establishes that each of the accused products has a waveform shape which is equivalent to "substantially semi-circular." (Citing CIB at 105-107.) (CRB at 57-58.)

**ESAB's Position:** ESAB contends that the accused products do not infringe claim 3 of the '864 patent. ESAB offers three separate reasons regarding why it believes that it does not infringe. (EIB at 26-32.)

First, ESAB argues that the accused products are not wound on a spool, and thus do not infringe. ESAB asserts that no party to this investigation disputes the fact that the accused products of the Respondents are not literally wound on a spool. (Citing SX-1 at p. 2.) ESAB asserts that the evidence confirms that the accused products are bulk packages of wire coiled in a drum and are not wound around a central core. Similarly, ESAB asserts that no party to this investigation disputes that once the wire is processed by the drumming machines, the wire is packaged in a drum or container and is not repackaged on a spool. (Citing Tr. at 563:4-15.) Thus, ESAB argues that if this claim element is construed to require the presence of a spool or reel, all parties are in agreement that the Respondents' products do not infringe. (Citing SX-1.) (EIB at 26.)

ESAB notes that Lincoln has espoused the position that Order No. 36 merely requires that *if the wire were to be* wound on a spool, that the wire would have the claimed shape memory and waveform properties. ESAB states that while this construction is incorrect, Lincoln has also failed to provide essential proof that the accused products meet the limitation even if construed in this manner. In particular, ESAB claims that Lincoln's expert witness on the issue of

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infringement, Dr. Caulfield, conceded that he conducted no testing or evaluation of either of Respondents' wire products involving winding and unwinding of the accused wire products onto and from a spool. (Citing Tr. at 419:9-17.) (EIB at 26-27.)

ESAB argues that Lincoln also has not presented evidence sufficient to support its position of alleged infringement under the doctrine of equivalents. To the contrary, ESAB asserts that the evidence received at the hearing clearly demonstrates an art-recognized distinction between wire wound on a spool or reel and wire packaged in drums as exemplified by the accused products. (Citing JX-26C at 34:20-35:2.) (EIB at 27.)

ESAB claims that the evidence demonstrates that both the "way" in which the wire is wound and the "result" are fundamentally different. According to ESAB, the testimony of the inventors cited previously in the background discussion demonstrated that the alleged invention of the '864 patent was directed to products having an undesired property specifically resulting from the process of winding the wire around a central core as in a spool or reel. (Citing JX-26C at 37:16-40:3; Tr. at 316:18-317:15; RX-96C at Q. 24-25.) ESAB notes that the same witnesses further acknowledged that the wire-placement issue was not experienced with wire wound into drums. (Citing JX-26C at 33:18-40:12; Tr. at 336:21-337:14; RX-96C at Q. 26.) ESAB argues that both the "way" in which the wire is wound and the "result" of winding the wire onto and off of a spool is materially different from the characteristics of the accused products. (EIB at 27-28.)

ESAB argues that it is well-settled that when a patentee discloses the alleged equivalent in the specification, but chooses not to draft claims to literally cover it, the doctrine of equivalents cannot be used to recapture that disclaimed subject matter. (Citing *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1361 (Fed. Cir. 2005); *Sage Prods. Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997).) ESAB asserts that by disclosing the



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additional possibilities of packaging wire “wound onto a reel, spool, *container, or the like*” in the specification, but then only expressly claiming wire “wound on a spool,” Lincoln disclaimed these alternatives and cannot resort to the doctrine of equivalents to recapture the alternative products packaged in a container or drum as a matter of law. (*Id.*) (EIB at 28.)

Next, ESAB argues that Respondents’ products do not infringe the asserted claims of the ’864 patent for at least the additional reason that the requisite shape memory is not imparted to the wire at least partially before the wire is “wound on a spool,” as specifically required by each asserted claim. (EIB at 28.)

ESAB claims that the entire premise of the ’864 patent is to impart the material aspects of the so-called shape memory to the wire *prior to* winding the wire on a spool in contrast to prior-art techniques involving the removal of shape from the wire (*i.e.*, straightening or “killing” the wire) prior to the winding process. (Citing Order No. 36 at 9.) ESAB states that Dr. Caulfield acknowledged that the structural elements of the drumming machines responsible for placing the wire into the drums in a series of loops (and the inherent resulting shape of the wire) were known in the prior art. (Citing Tr. at 387:17-388:7, 388:23-389:2.) As a result, ESAB argues that Dr. Caulfield conceded that the asserted claims of the ’864 patent did *not* encompass the shape of the wire resulting from the process of placing the wire into the drum (*i.e.*, the components “downstream” of the capstan), but rather required imparting a curvilinear shape to the wire *prior to* the capstan. (Citing Tr. at 385:21-386:17, 394:18-24, 395:23-396:6, 453:3-455:25; RX-96C at Q. 28-29.) ESAB asserts that Dr. Swanger also testified that the claims of the ’864 patent, as distinguished from the prior art, required applying a shape that was other than generally straight to the wire prior to the wire engaging the capstan. (Citing Tr. at 805:24-806:6.) (EIB at 28-29.)

ESAB notes that Lincoln’s experts also testified that, in the accused process, ESAB

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Group *must have* added a mechanical structure between the straightening rolls and the capstan to apply the requisite shape to the wire. (Citing Tr. at 398:10-24, 803:8-806:9.) ESAB argues that the contrary is true, as the record actually demonstrates that Respondents utilize straightening rolls in the conventional manner in packaging the accused products. (Citing RX-96C at Q. 41.) ESAB states that the record establishes that the accused product sold by ESAB Group, as manufactured in facilities located in Monterrey, Mexico and { } China, are produced using straightening rolls that are positioned just prior to the capstan, and that these rolls are the last structure encountered by the wire prior to the capstan. (Citing RX-95C at Q. 61-64, 101-105, 131-132; Tr. at 574:9-578:18; RDX-5C.006-007; RDX-6C.004-005.) (EIB at 30.)

ESAB argues that the evidentiary record is clear that the function and purpose of the straightening rolls as used in the manufacture of the accused products sold by ESAB Group is, in fact, to straighten the wire as in the prior art. ESAB notes that Mr. McBride testified, based on his direct knowledge and experience, that the straightening rolls are used on the relevant machines in the conventional manner to produce a generally straight wire product prior to the capstan. (Citing RX-95C at Q105, 119; Tr. at 574:9-578:18; RX-40C.011.) ESAB states that Mr. McBride also testified that the machine operators periodically check the function of the straightening rolls to ensure that the wire is generally straight in order to produce a consistent product conforming to ESAB Group's specifications. (Citing RX-95C at Q. 64; Tr. at 571:21-572:15; RX-40C.011.) ESAB claims that Mr. McBride's testimony was further corroborated by the operative specifications and the machine manuals for the {

} for example, that specifically provide the wire must be as straight as possible as it is fed into the guide tube. (Citing RX-40C.011; RX-70C.014-015; RX-71C.014-015; Tr. at 575:19-576:22.) ESAB states that Mr. McBride also testified that if the wire was not straight,

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then the resulting product would not be deposited into the drum properly and that the non-straight wire would cause an “emergency stop” of the drumming machines. (Citing Tr. at 576:23-578:18.) (EIB at 31.)

ESAB argues that the undisputed evidence received at the hearing establishes that straightening rolls are used on the drumming machines to manufacture the accused products sold by ESAB Group in the same position and for the same purpose as exemplified by the prior art (*i.e.*, to produce a so-called “killed” or substantially straight wire prior to the capstan). ESAB asserts that Lincoln offered no credible evidence to the contrary, or any evidence in support of its experts’ theory that the accused products were manufactured using an additional mechanical device between the straightening rolls and capstan to apply a curvilinear shape. (EIB at 32.)

Finally, ESAB argues that its accused products do not include wire with the “waveform” required by claims because the accused products do not have a waveform with half-cycles that are generally semi-circular in shape. (Citing CX-19C.) ESAB claims that neither Lincoln nor Dr. Caulfield contest that, if the Respondents’ construction is adopted, ESAB Group’s wire does not literally infringe this claim element. (EIB at 32-33.)

ESAB argues that Lincoln also has not presented evidence sufficient to support its position of alleged infringement under the doctrine of equivalents. Once again, ESAB asserts that the evidence demonstrates that both the “way” in which the waveform is imparted and the “result” are fundamentally different. First, ESAB claims that a general waveform is the inherent consequence of the use of a drumming machine with straightening rolls just prior to the capstan, and has been since at least 1990. (Citing Tr. at 627:19-633:2; RX-96C at Q. 12-14; Tr. at 217:11-20, 785:10-16.) In contrast, ESAB states that in order to create a waveform with semi-circular half cycles, one must add a casting unit just prior to the capstan. (Citing CX-25C at 4,

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6.) Second, ESAB argues that wire produced in a waveform with generally semi-circular half cycles will have a uniform curvature along its length since the wire has a constant radius of curvature. (Citing RX-96C at Q. 45.) In contrast, ESAB claims that wire with only a general waveform will have a varying curvature resulting from the continuous variation in the radius of curvature along its length and will perform differently when used in the welding process. (*Id.*) (EIB at 33.)

ESAB reiterates the point that when a patentee discloses the alleged equivalent in the specification, but chooses not to draft claims to cover it, the doctrine of equivalents cannot be used to recapture that disclaimed subject matter. (Citing *Freedman Seating*, 420 F.3d at 1361; *Sage Prods.*, 126 F.3d at 1425.) ESAB claims that the specification and drawings disclose the general waveform (*i.e.* one with a varying radius of curvature) to be “prior art,” and thus disclaim that general waveform from the scope of the claims. (EIB at 33-34.)

In its reply brief, ESAB notes that Lincoln’s Post-Trial Brief does not contest that none of the accused products contain a spool, nor are they “wound on said spool,” should those terms be construed in the manner advocated by the Respondents and the Staff. ESAB’s reply brief reiterates its arguments that the accused products do not infringe, either literally or under the doctrine of equivalents, due to the absence of a spool. (ERB at 11-13.)

ESAB states that Lincoln’s Post-Trial Brief essentially glosses over the “prior to” limitation by focusing on the undisputed fact that the combined effect of feeding the wire through the guide tube mounted on the rotating laying head imparts shape to the accused products. ESAB claims that the fact that Dr. Brown testified that the winding process imparted shape to the wire does not assist Lincoln in meeting its burden of proof on the issue of infringement, however. To the contrary, ESAB notes that Lincoln’s own expert on the issue of

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infringement, Dr. Caulfield, conceded that the asserted claims of the '864 patent did *not* properly encompass shape imparted to the wire as a result of the process of winding the wire into the drum (*i.e.*, the components “downstream” of the capstan including the laying head). (Citing Tr. at 385:21-286:17, 453:3-455:25.) (ERB at 14.)

ESAB claims that Lincoln’s own experts concurred that, in order to meet the requirements of the claims, the wire had to be imparted with a curvilinear shape (*i.e.*, at least a material part of the ultimate waveform shape), *prior to* the capstan of the drumming machines. Thus, while Lincoln’s Post-Trial Brief accuses Respondents of choosing an allegedly “arbitrary” point in the winding process, ESAB states that the same relevant stage of the winding process was independently identified by *Lincoln’s* own experts. (Citing Tr. at 256:12-19, 394:18-24, 395:23-396:6, 805:24-806:6; RX-96C at Q. 28-29.) (ERB at 14-15.)

ESAB states that the record in this case clearly demonstrates that drumming machines antedated the alleged invention of the '864 patent and that the formation of the wire into loops during winding imparted a general waveform shape to the wire. ESAB claims that these facts were acknowledged by experts on both sides. (Citing Tr. at 217:11-20, 387:17-388:7, 388:23-389:2, 627:19-633:2, 784:22-785:16; RX-96C at Q. 12-14.) (ERB at 15-16.)

ESAB claims that Lincoln’s experts formulated opinions that the accused products were actually made using machines having a structure between the straightening rolls and the capstan for imparting a curvilinear shape. (Citing Tr. at 398:10-24, 803:8-806:9.) ESAB argues that the record contradicts Lincoln’s experts and clearly establishes that the accused products sold by ESAB Group, as manufactured in facilities located in Monterrey, Mexico and { } China, are actually produced using straightening rolls that are positioned just prior to the capstan. According to ESAB, the undisputed testimony demonstrates that these rolls are the last

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mechanical structure encountered by the wire prior to the capstan. (Citing RX-95C at Q. 61-64, 101-105, 131-132; Tr. at 574:9-578:18; RDX-5C.006-007; RDX-6C.004-005.) (ERB at 16.)

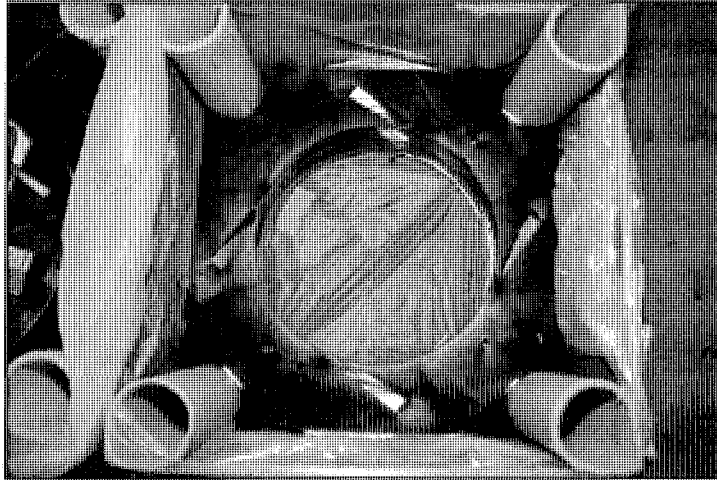
ESAB reiterates that the evidence supports a finding that the function and purpose of straightening rolls as used in the manufacture of the accused products sold by ESAB Group is, in fact, to straighten the wire in accordance with the relevant prior art practice. (ERB at 17-18.)

With regard to the “waveform” limitation, ESAB reiterates its argument that the accused products do not literally infringe because they do not have a waveform with half-cycles that are generally semi-circular in shape. ESAB further reiterates that Lincoln failed to demonstrate that the accused products meet the “waveform” limitation under the doctrine of equivalents. (ERB at 18-19.)

**Sidergas’ Position:** Sidergas contends that Lincoln has failed to demonstrate that Sidergas’ accused products infringe claim 3. (SIB at 27.)

Sidergas first argues that the accused products do not meet the “spool” limitations because Sidergas’ accused products are not wound on or unwound from anything, much less a spool. (Citing Tr. at 457:1-20, 484:12-17, 663:18-20, 666:4-12; CX-22C; RX-203C at Q. 78; RX-204C at Q. 85-86; RX-208C at Q. 25-26; RX-209C at Q. 32-33.) Sidergas claims that it merely deposits its bulk welding wire in a bulk storage container. (Citing RX-203C at Q. 78; RX-204C at Q. 86.) In this container, Sidergas states that the weld wire is always stored in a coil configuration, as seen in the figure below, reproduced from Lincoln’s Expert Report alleging infringement (CX-22C). (Citing Tr. at 457:1-20.)

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(SGIB at 27-28.)

Sidergas recites the asserted claims and notes that each of them includes a spool requirement. Sidergas argues that the difference between an infringing product and Sidergas' non-infringing product is illustrated by a comparison of the Sidergas' accused products with Lincoln's Exact-Trak product alleged by Lincoln to practice at least claim 3 of the '864 patent. Sidergas notes that Lincoln's Exact Trak product is stored on a cylindrical piece of material upon which the weld wire is wound. (Citing Tr. at 188:1-5, 188:21-24, 201:19-202:1, 412:1-11.) Sidergas claims that the purpose of the invention of the '864 patent was to overcome issues of weld consistency of products stored on a spool. (Citing Tr. at 316:23-317:15, 797:3-798:2.) According to Sidergas, the same issues did not exist in products stored in coils like the Sidergas accused products. (Citing Tr. at 336:21-337:14.) (SGIB at 28-29.)

Sidergas states that Lincoln maintains that Sidergas' accused products infringe because Order No. 36 merely requires that if the wire were to be wound on a spool, the wire would have the claimed shape memory and waveform properties. Sidergas says that Lincoln's argument fails for at least two reasons. First, Sidergas claims that it fails as a matter of law because the Federal Circuit has repeatedly and expressly rejected a hypothetical "reasonably capable" standard of

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infringement. (Citing *Ball Aerosol*, 555 F.3d at 994-95; *ACCO Brands*, 501 F.3d at 1312-14.) Sidergas asserts that Lincoln's argument further fails because Lincoln's own expert, Dr. Caulfield, freely admitted that he conducted no tests and utilized no actual spool in any analysis of Respondents' accused products. (Citing Tr. at 419:9-17.) Sidergas states that when asked if he "perform[ed] any tests where you wound any of the wire samples that you evaluated as obtained from . . . Sidergas on an actual spool for purposes of making the evaluation" under Order No. 36, Lincoln's expert responded that "I didn't do any." (Citing Tr. at 419:9-17.) (SGIB at 29-30.)

Sidergas next argues that the accused products cannot be found to satisfy the "spool" limitations under the doctrine of equivalents because a "spool" is not equivalent to Sidergas' containers used to hold bulk weld wire. Sidergas states that under the tripartite test (e.g., function-way-result test), the way in which welding wire is wound on and unwound from a spool is substantially different from the way in which it is deposited in, and removed from, bulk welding wire containers. (Citing *Amgen v. F. Hoffman-LA Roche*, 580 F.3d at 1382.) (SGIB at 30.)

Specifically, Sidergas asserts that the weld wire of the accused products is not equivalent to the limitations of the claims in that welding wire wound "on a spool" is wound starting at the core or center post adjacent to one of the flanges and a layer of wire is wound around the core, the welding wire being tightly wound adjacent to the core with the spool turning, as the laying mechanism guides the welding wire toward the other end flange. (Citing RX-204C at Q. 88-89; RX-208C at Q. 20.) The guiding mechanism then reverses and winds the second layer tightly overlapping the first layer while moving back toward the first flange. (Citing RX-204C at Q. 88-89; RX-208C at Q. 20.) The welding wire winding progresses from one flange back to the other



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and works outward a tightly adjacent layer at a time until the spool is full. (Citing RX-204C at Q. 88-89; RX-208C at Q. 20.) The unwinding (paying out) occurs by taking welding wire from the outside layers first working between end flanges a layer at a time, progressing inward toward the core or center post. (*Id.*) Sidergas argues that this order cannot be changed. (Citing RX-204C at Q. 88-89; RX-208C at Q. 20.) Sidergas notes that with a spool, the wire loops closest to the core have a smaller diameter than the wire loops of successively wound layers. (Citing RX-204C at Q. 88-89; RX-208C at Q. 20.) Sidergas argues that this difference in loop diameter is what causes placement problems and is what the '864 patent purports to address. (Citing RX-204C at Q. 89; RX-208C at Q. 20; Tr. at 316:23-317:5, 797:3-798:2.) (SGIB at 30-31.)

Sidergas claims that its bulk welding wire containers work differently. Sidergas states that welding wire is placed in Sidergas' square box container at the bottom with the coils touching the outer walls of the box at one or more points. (Citing RX-204C at Q. 89; CX-22C.) The welding wire is placed in a complete layer of numerous coils on the bottom of the box before the second layer is deposited on top of the first layer. (Citing RX-204C at Q. 89; CX-22C.) The filling of the box continues, building layer upon layer and progressing toward the open top of the box until the box is full. (Citing RX-204C at Q. 89; CX-22C; Tr. at 457:15-20.) (SGIB at 31.)

Sidergas explains that instead of winding welding wire on a spool, where the tightly wound core and two end flanges are essential to retaining the weld wire, the bulk container relies only on the sides of the box and the box bottom to hold the welding wire. (Citing RX-204C at Q. 89.) Sidergas states that in a bulk-wire container, all the wire loops have the same diameter, as distinguished from a spool, where the wire loop diameters increase with each layer from the spool core. (*Id.*) Sidergas asserts that welding wire is paid out from the center of the bulk

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container box, exhausting the topmost tier before the next lower tier is started. (*Id.*) Therefore, Sidergas argues that instead of unwinding from one flange to the second flange and from the outside layer to the inside or core layer, the bulk storage box pays out the welding wire from the inside to the outside of a tier and progressively pays out a tier at a time, always drawing the welding wire from the inside of the coiled tiers. (*Id.*) In sum, Sidergas asserts that its accused products perform the same function – that of storing and paying out weld wire – but in a completely different way and with a completely different result. Thus, Sidergas argues that there can be no infringement under the doctrine of equivalents. (Citing *Amgen v. F. Hoffman-LA Roche*, 580 F.3d at 1382.) (SGIB at 31-32.)

In addition, Sidergas argues that under the “all elements” rule, for infringement to exist under the doctrine of equivalents, the accused device must contain at least an equivalent for each limitation. Here, Sidergas claims that the accused device contains no equivalent to the “on a spool” limitation. (Citing *Warner-Jenkinson*, 520 U.S. at 39 n.8.) In other words, Sidergas states that “nothing” cannot, as a matter of law, be the equivalent of “something.” (Citing *Strumskis v. United States*, 474 F.2d 623, 628 (Cl. Ct. 1973).) (SGIB at 32.)

Sidergas argues that Lincoln cannot now claim as equivalent that which it dedicated to the public. According to Sidergas, subject matter disclosed in a patent specification but not claimed is deemed to have been dedicated to the public. (Citing *Miller*, 104 U.S. at 352; *Maxwell*, 86 F.3d at 1106-07; *Johnson & Johnston*, 285 F.3d 1046.) Sidergas says that the ’864 patent specification explicitly discloses “weld wire being wound onto a reel, spool, container, or the like” in several places in the summary of the invention section. (Citing JX-1 at 2:33-39, 2:43-46.) Sidergas notes that the asserted patent claims, in contrast, distinctly refer exclusively to weld wire wound “on a spool.” (Citing JX-1 at claims 3, 4, 6, 12, and 13.) According to

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Sidergas, the patentee has effectively informed the public that a weld wire on a spool infringes (if it has the other required limitations of the claim), while the other disclosed alternatives (e.g., “container”) do not. Accordingly, Sidergas argues that Lincoln may not now recapture what it previously dedicated to the public. (SGIB at 32-33.)

Next, Sidergas argues that when a patentee had the ability to foresee the use of an accused equivalent, but did not draft claim language to cover it, courts have held that this foreseeability means that there is no infringement of the doctrine of equivalents. (Citing *Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997); *Freedman Seating Co. v. Am. Seating Co.*, 420 F.3d 1350, 1360-61 (Fed. Cir. 2005).) Here, Sidergas claims that the patentee not only had the ability to foresee the use of bulk wire containers, but specifically and repeatedly referenced them in the patent specification. (Citing JX-1 at 2:33-39, 2:43-46.) In addition, Sidergas notes that several manufacturers, including Lincoln, were packaging welding wire in bulk wire containers at the time the ’864 patent application was filed. (Citing Tr. at 191:10-18, 211:12-20, 388:23-389:11, 418:11-19, 798:9-18; RX-204C at Q. 90.) (SGIB at 33-34.)

Finally, Sidergas argues that Dr. Caulfield’s doctrine-of-equivalents analysis is fatally flawed. According to Sidergas, Dr. Caulfield explained that his analysis under the doctrine of equivalents entails a comparison of the accused products *as a whole* with embodiments of the ’864 patent. (Citing Tr. at 480:10-481:15.) Sidergas claims that the Supreme Court has specifically rejected this type of analysis. (Citing *Warner-Jenkinson*, 520 U.S. at 29.) Thus, Sidergas states that Dr. Caulfield’s flawed doctrine-of-equivalents analysis is completely irrelevant to the issue of whether the accused products contain *an element* that is equivalent to the “on a spool” limitation of the claims. (SGIB at 34.)

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Sidergas argues that its accused products also do not infringe the asserted claims because the shape memory is not imparted to the wire “prior to” the wire being “wound on a spool,” as specifically required by the claims. (SGIB at 34-35.)

Sidergas states that as recognized in Order No. 36, imparting the shape memory to the wire prior to winding the wire on a spool is in contrast to prior-art techniques involving the removal of shape from the wire (i.e., straightening or “killing” the wire) prior to the winding process. (Citing Order No. 36 at 9.) Indeed, Sidergas says that Dr. Caulfield, acknowledged that the “shape memory” of the claims of the ’864 patent was a curvilinear shape applied to the wire prior to winding. (Citing Tr. at 388:8-14, 395:23-396:6, 385:21-386:17, 453:3-455:25, 394:18-24.)

Sidergas claims that according to Lincoln’s expert testimony on the issue of infringement, the application of a specific waveform shape to the wire at least partially “prior to said weld wire being wound on said spool” is in direct contrast to the acknowledged prior-art practice of using straightening rolls or “killing” the wire prior to forming the wire into loops and pacing them in the drum. (Citing Tr. at 395:12-396:6, 805:24-806:6.) (SGIB at 35.)

Sidergas argues that like the prior art described in the ’864 patent, Sidergas employs straightening rolls prior to the capstan. (Citing RX-204C at Q. 83; Tr. at 655:9-657:1.) Thus, Sidergas argues that it does not impart shape memory into its accused weld wire before winding the wire on a spool. Here, again, Sidergas asserts that the difference between Sidergas’ non-infringing product and the limitations of the ’864 patent may be illustrated by comparing Sidergas’ accused products to Lincoln’s Exact-Trak product. (SGIB at 35-36.)

Sidergas claims that Lincoln’s Exact-Trak product has no straightening rolls, but rather only a casting unit directly before the capstan in the wire-winding process. (Citing Tr. at

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194:22–195:8.) In other words, Sidergas claims that Lincoln imparts a curvilinear cast prior to winding the wire on a spool. In contrast, Sidergas argues that its accused products have only a set of straightening or “kill” rolls directly before the capstan in the wire-winding process.

(Citing RX-204C at Q. 83.) Sidergas says that no curvilinear cast is imparted, but rather a substantially straight wire is fed to the capstan. (Citing RX-204C at Q. 83; Tr. at 655:9-657:1.) (SGIB at 36.)

Thus, Sidergas argues that the accused products cannot infringe the properly construed claims of the '864 patent for at least the reason that Sidergas does not impart the “shape memory” (i.e., a curvilinear shape to the wire) before the process of winding the wire into the bulk wire containers. As a result, Sidergas claims that to the extent the packaged Sidergas wire has any shape in the finished product, this shape is the result of the packaging process itself, just as the prior art products manufactured by Sidergas prior to the alleged invention of the '864 patent. (Citing Tr. at 628:5-633:2.) (SGIB at 36.)

Finally, Sidergas argues that its accused products also do not infringe any of the asserted claims because its products do not have a “waveform.” Sidergas claims that its accused products fail to meet the “waveform” limitation under any of the parties’ proposed claim constructions. (Citing CX-19C.) Sidergas says that the evidence shows that Sidergas’ accused products exhibit a circular shape when removed from the top of the containers analyzed under accepted industry practice. (Citing RX-204C at Q. 78; RX-208C at Q. 46-48.) (SGIB at 36-37.)

Sidergas argues that Lincoln has provided insufficient evidence to support its allegation that Sidergas’ accused products meet the waveform limitation under the doctrine of equivalents. Here, Sidergas asserts that the radius of curvature in a semi-circular waveform is consistent, while the radius of curvature of a non-semi-circular waveform is not consistent at every point of

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the curve. (Citing RX-208C at Q. 49.) Thus, Sidergas concludes that the “result” under the function-way-result test is substantially different. (SGIB at 37.)

In its reply brief, Sidergas states that Lincoln’s infringement allegations rest on an interpretation of the claims that was explicitly rejected in Order No. 36, or alternatively rests on an interpretation of the claims that Lincoln has been explicitly precluded from arguing in this Investigation.

Sidergas reiterates that the evidence is undisputed that the accused products are not wound on a spool. (Citing Tr. at 457:1-20, 484:12-17, 663:18-20, 666:4-12; CX-22C; RX-203C at Q. 78; RX-204C at Q. 85-86; RX-208C at Q. 25-26; RX-209C at Q. 32-33.) Sidergas asserts that Lincoln’s claim that the spool limitations are statements of intended use has been rejected in Order No. 36. (SGRB at 13.)

Sidergas argues that Lincoln next tries to proffer a new construction for the “on a spool” limitation of the claims. Sidergas states that long after the deadline for proposing claim constructions had expired, Lincoln asserted that “‘spool of weld wire’ is not a separate object, but the weld wire itself.” (Citing CIB at 43, 81, 97, 99.) According to Sidergas, Lincoln is not allowed to resurrect this dead issue. (Citing Tr. at 47:23-25.) Moreover, Sidergas argues that Lincoln’s untimely construction is also completely at odds with the entire internal and external record regarding this claim limitation. (SGRB at 13-14.)

Sidergas states that despite Lincoln’s recognition of the importance of the “spool” limitations, Lincoln “didn’t do any” evaluation of Sidergas wire on an actual spool. (Citing Tr. at 419:9-17.) According to Sidergas, Lincoln failed to show the very thing that Order No. 36 explicitly stated that “Lincoln must show” to establish infringement by Sidergas. (SGRB at 14-15.)

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Sidergas next reiterates its arguments regarding why Lincoln failed to demonstrate that the “spool” limitations are met under the doctrine of equivalents. (SGRB at 15.)

Sidergas argues that even if one were to assume the fiction that Sidergas accused products were wound on a spool, Lincoln has failed to show that any alleged shape memory was at least partially imparted prior to winding the weld wire on said spool as required by the claims. Sidergas states that its packaging machines currently in use have been in use continuously since 1991. (Citing JX-27C at 84:21-85:13; RX-203C at Q. 59.) (SGRB at 16.)

Sidergas explains that the accused wire is fed from a “capstan” down a guide tube. (Citing RX-204C at Q. 83.) The guide tube is mounted on a large cylinder called the laying head. (Citing RDX-12C; RDX-13C.) Sidergas states that the process of winding the wire takes place between the capstan and the laying head to place the wire into the weld wire package. (Citing Tr. at 255:15-256:19, 395:23-396:6, 805:24-806:6.) Sidergas asserts that this undisputed process is common in the industry and has been practiced by Sidergas since 1991. (Citing JX-27C at 84:21-85:13; RX-203C at Q. 59.) (SGRB at 16-17.)

Sidergas states that it feeds wire to the capstan directly from a series of straightening rolls (a.k.a. “kill rolls”), thereby producing a straight wire with no “shape memory,” as that term is used in the ’864 patent and specification. (Citing RX-203C at Q. 64.) Sidergas claims that its manufacturing process is designed to feed straight wire, rather than wire with a desired imparted cast, through the capstan and into the laying head. (Citing RX-208C at Q. 37; RX-209C at Q. 26.) According to Sidergas, its process does not use a casting unit, or any equivalent equipment or machinery. (Citing RX-209C at Q. 27.) Sidergas notes that Lincoln quibbles that Sidergas’ wire is not completely straight but only “substantially straight” or “very close to perfectly straight.” (Citing CIB at 89.) Sidergas argues that Lincoln does not, however, dispute that

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Sidergas' wire is very close to perfectly straight, and as close to straight as Sidergas can get it, when the wire is fed to the capstan to begin the winding process. (*Id.*) Sidergas says that this is precisely the state of the prior art as described in the '864 patent. (Citing Tr. at 195:21-25, 256:12-19, 392:10-16, 395:12-22, 397:16-398:24; JX-1 at 2:39-46.) Sidergas certainly does not feed wire with a "desired" imparted cast (i.e. "shape memory") to the capstan.

Sidergas states that Lincoln's expert theorizes "the plastic deformation which causes the 'twist' in the wire is at least partially imparted by the laying head of a winding machine, *during the rotation of the laying head.*" (Citing CIB at 85) (Emphasis added.) Sidergas claims that Lincoln conceded that the process of winding the wire takes place between the capstan and the laying head to place the wire into the weld wire package. (Citing Tr. at 255:15-256:19, 395:23-396:6, 805:24-806:6.) Sidergas asserts that Lincoln's argument regarding the point at which the winding process begins ignores the undisputed fact that winding wire is a process and wire is not "unwound" at one moment and instantly "wound" in the next moment. Sidergas notes that Lincoln argues that "the arbitrary selection of after the straightening rollers and prior to the capstan as the 'winding on a spool' lacks credibility." Yet, Sidergas states that Lincoln's employee and named co-inventor Mr. Hartman testified that winding process begins at the capstan. (Citing Tr. at 255:15-256:19.) According to Sidergas, each of Lincoln's experts agreed with Mr. Hartman. (Citing Tr. at 395:23-396:6, 805:24-806:6.) Sidergas says that there is nothing "arbitrary" in defining the winding process in the same way Mr. Hartman, Dr. Caulfield, and Dr. Swanger have defined it. (SGRB at 18-19.)

Sidergas states that Lincoln's attempts to show infringement with assertions that the shape memory of the wire is imparted by "every step the wire sees in its manufacturing and packaging." (CIB at 93-94.) Sidergas argues that Lincoln's argument completely ignores the



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plain teachings of the '864 patent. According to Sidergas, the '864 patent explains the prior art: “[i]t is common industry practice to feed a ‘killed’ weld wire to a welder during the welding process. A ‘killed’ weld wire is a weld wire that has had its shape memory removed prior to the weld wire being wound onto a reel, spool, container, or the like.” (Citing JX-1 at 1:36-39.) Sidergas notes that it is undisputed that Sidergas uses straightening or “kill” rolls *immediately prior to winding* the wire in its packaging. (Citing RX-203C at Q. 64.) Sidergas argues that in light of these teachings, even assuming *arguendo* that the entire process of manufacturing and packaging the wire somehow creates a “desired imparted shape memory,” Lincoln still must show by a preponderance of the evidence that the kill rolls employed by Sidergas do not in fact perform their sole function of straightening or killing the wire within the meaning of the '864 specification prior to the weld wire being wound. Sidergas states that Lincoln has provided no evidence of any kind that Sidergas is not feeding “killed” weld wire, with all prior shape memory removed, into the winding process. Sidergas claims that Lincoln’s infringement expert acknowledged that he has no evidence on that point. (Citing Tr. at 409:9-410:6.) Sidergas concludes that any shape memory that may result from depositing the wire into containers is imparted *during* the winding process as the wire is being deposited, *not* at least partially *prior* to the winding process beginning at the capstan. (SGRB at 19-20.)

Sidergas states that Lincoln has offered no argument that imparting shape memory during the winding process is equivalent to imparting shape memory at least partially prior to winding the weld wire under the doctrine of equivalents. Indeed, Sidergas claims that it would seem logical that no equivalence argument is even possible to transmute “prior” to a later time period of “during.” Instead, Sidergas asserts that Lincoln points to a number of arguments made by Drs. Brown and Savoy. (Citing CIB at 100-102.) Sidergas states that this is another instance of

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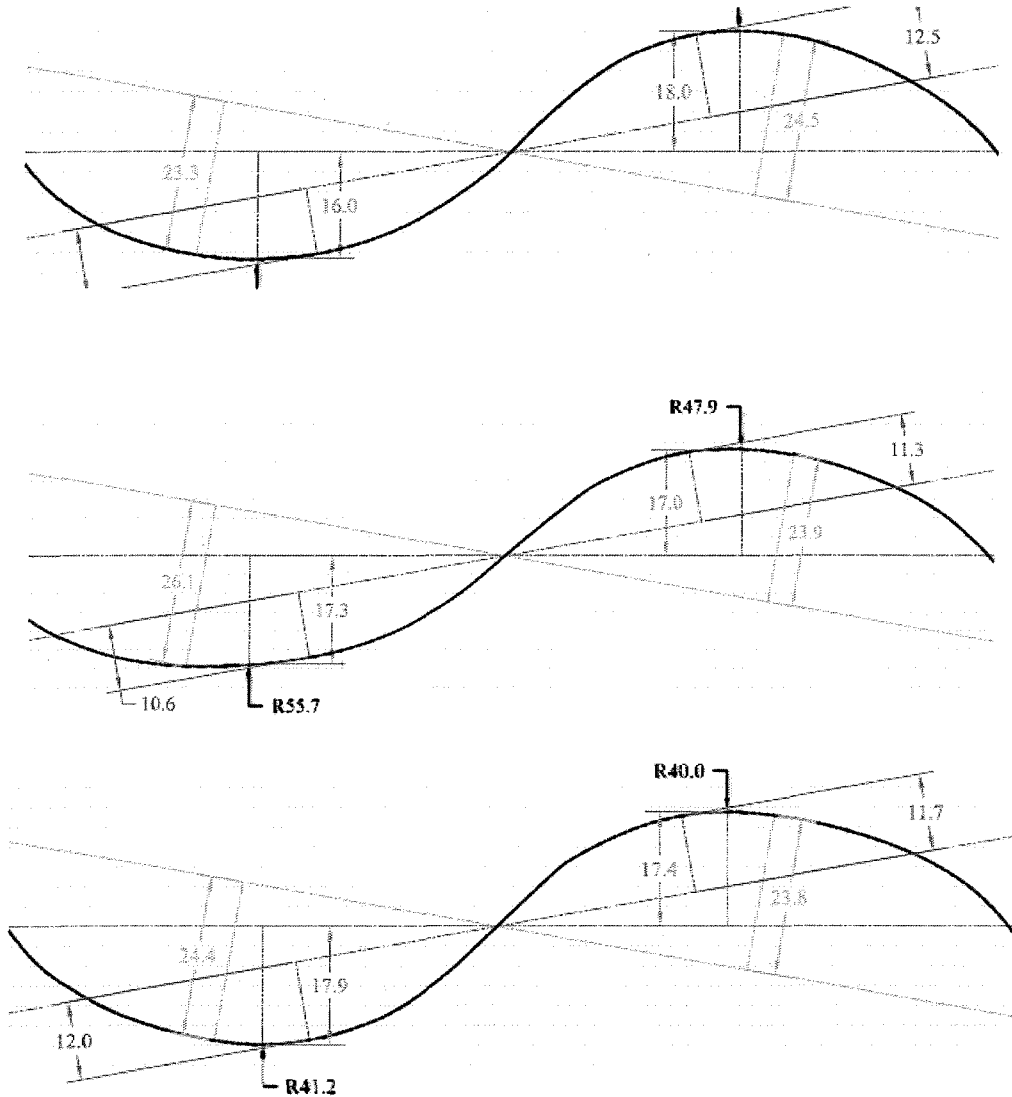
Lincoln's attempt to shift the burden of proving infringement. According to Sidergas, notably absent from Lincoln's brief is reference to any evidence that Sidergas' accused products perform the same function, in the same way, with the same result as the claimed limitation as required under established Federal Circuit law. (Citing *Amgen Inc. v. F. Hoffman-LA Roche Ltd.*, 580 F.3d 1340, 1382 (Fed. Cir. 2009).) (SGRB at 20.)

Sidergas reiterates its argument that the accused products also do not infringe any of the asserted claims because its products do not have a "waveform," even under Lincoln's proposed claim construction. Sidergas states that Dr. Savoy testified that Sidergas' accused products exhibit a circular shape when removed from the top of the containers under accepted industry practice. (Citing RX-204C at Q. 78; RX-208C at Q. 46-48.) (SGRB at 20.)

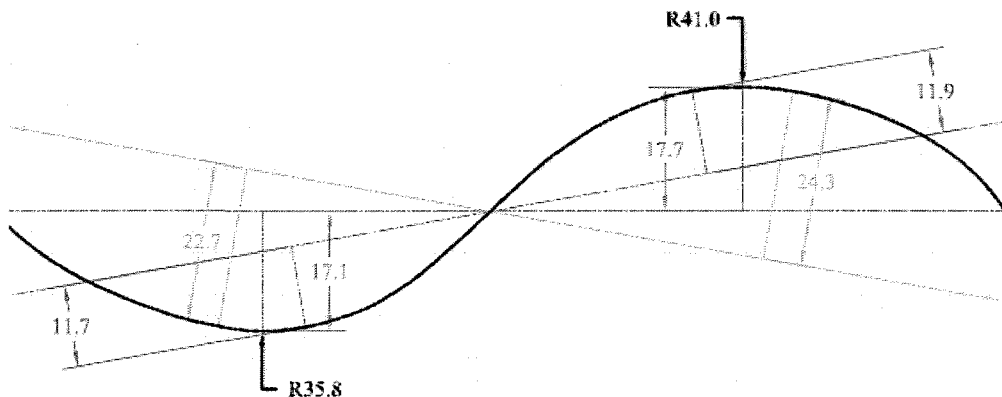
According to Sidergas, Dr. Savoy examined the weld wire by removing two loops of wire, cutting the wire and casting the wire on the floor as described in the '864 patent and Mr. Hartman. (Citing RX-204C at Q. 74.) Sidergas notes that Lincoln's analysis of the weld wire was performed after the weld wire was removed from the container; however, Lincoln has not offered into evidence any description of how the weld wire was paid out from the container (i.e. removed as loops, pulled out, with or without use of a payout ring, etc.). Sidergas says that Dr. Caulfield has admitted that the method by which the wire is paid out may affect the shape of the resulting weld wire. (Citing Tr. at 390:16-391:19.) Sidergas claims that because it has shown that when the wire is paid out under accepted industry practice, the weld wire does not form the claimed "waveform," and because Lincoln has not presented any countering evidence of how the wire performs when properly paid out, Lincoln has not satisfied its burden of showing that Sidergas' wire infringes the asserted claims under any construction of the term "waveform." (SGRB at 20-21.)

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Sidergas states that Lincoln further argues that under the correct construction of the term waveform, "Sidergas' accused weld wire products [are] 'generally' semi-circular." (Citing CIB at 105.) Sidergas claims that this statement is easily belied by a cursory review of the wire tested by Dr. Caulfield. Sidergas notes that the following figures were produced by Dr. Caulfield of Sidergas' wire:



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(Citing CX-24C.) (SGRB at 21-22.)

Sidergas asserts that a generally semi-circular shape as required by the claims will exhibit a generally consistent radius of curvature from the center of the curve to all points of the curve in the half cycle of the waveform. (Citing JX-1 at Abstract; Tr. at 411:10-17.) Sidergas argues that the shapes shown above do not have a generally consistent radius of curvature as required by the claims. (SGRB at 22.)

Sidergas claims that Lincoln has provided no credible evidence to support its allegation that Sidergas' accused products meet the "waveform" limitation under the doctrine of equivalents. Sidergas asserts that it is undisputed that "the radius of curvature in a semi-circular waveform is consistent, while the radius of curvature of a non-semi-circular waveform is not consistent at every point of the curve." (Citing RX-208C at Q. 49.) According to Sidergas, the shape of the waveform is intended to create a consistent weld bead when the weld wire is used for welding. (Citing CX-377C at Q. 31.) Sidergas claims that this consistent weld bead placement could be considered the "result" of the way function result test. (Citing CX-377C at Q. 31; *Amgen*, 580 F.3d at 1382.) Sidergas argues that Lincoln has presented absolutely no credible evidence of what a weld bead looks like when the accused products are used for welding. (SGRB at 22-23.)

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**Staff's Position:** Staff contends that Lincoln has failed to demonstrate infringement of claim 3 because the evidence was undisputed that Respondents' accused products do not contain wire that is wound on a spool and unwound from a spool, as correctly construed. (SIB at 28.)

Staff notes that Dr. Caulfield, testified:

Q. Now, sir, you would agree with me that at no time is any of the accused weld wire wound on or unwound from an actual physical spool; is that correct?

A. I have never seen it that way, so I will agree.

(Citing Tr. at 484:12-17; SX-1; CX-377C at Q. 183-186, 230-233.) Accordingly, Staff argues that neither ESAB nor Sidergas literally infringes claim 3. (SIB at 29.)

Staff notes that Lincoln advances several theories to try to show that ESAB and Sidergas literally infringe. Staff lists the theories as such: (1) the "wound on a spool" and "unwound from a spool" limitations are statements of intended use and are otherwise not relevant to an infringement analysis (Citing CX-377C at Q. 74, 76, 86, 99; Tr. at 78:16-21); (2) these limitations require only that the weld wire be *capable* of being wound on and unwound from a spool, *i.e.*, an actual, physical spool (Citing CX-377C at Q. 183-186, 230-233); and (3) the claimed "spool" really is not an actual spool but is the weld wire itself. (Citing RX-27C at ¶ 18.)

Staff asserts that none of these arguments has merit. Staff claims that my ruling in Order No. 36 already rejected the first argument, *i.e.* that the language is merely a statement of intended use. (Citing Order No. 36 at 13-14.) Staff claims that the second argument rests on legal error because it contradicts the plain language of the claims. Staff claims that the third argument, if adopted, would render the claims insolubly ambiguous and indefinite under 35 U.S.C. § 112. (SIB at 29.)

With regard to Lincoln's theory of infringement under the doctrine of equivalents, Staff argues that abundant precedent holds that such a theory of infringement is precluded as a matter

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of law. Staff states that the asserted claims may not be broadened to capture wire not wound on and unwound from a spool because doing so would effectively remove those limitations from the claims. (Citing *Warner-Jenkinson*, 520 U.S. at 29.) (SIB at 31.)

Staff discusses an allegedly analogous factual situation that occurred in *Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188 (Fed. Cir. 2005). There, Staff states that the Federal Circuit reviewed the district court's conclusion regarding the patent-at-issue's "mounted on" limitation. Staff states that the district court reasoned that the "mounted on" limitation was "binary in nature" such that "the second microcomputer means must be either mounted or unmounted." (Citing *Asyst*, 402 F.3d at 1195.) Thus, Staff states that the district court concluded that "an unmounted microcomputer means cannot be equivalent to a mounted one." (*Id.*) Staff notes that the Federal Circuit agreed:

To hold that "unmounted" is equivalent to "mounted" would effectively read the "mounted on" limitation out of the patent. . . . [T]he doctrine of equivalents does not apply if applying the doctrine would vitiate an entire claim limitation.

(Citing *Asyst*, 402 F.3d at 1195; *Sage Prods.*, 126 F.3d at 1424.) (SIB at 32.)

Even assuming for the sake of argument that Lincoln's theory of infringement under the doctrine of equivalents was not precluded as a matter of law, Staff asserts that there still would be no infringement by equivalents. Staff claims that Dr. Caulfield, on cross-examination, admitted that he adopted an analytical approach to the doctrine of equivalents that is legally erroneous:

Q. And when you rendered your opinion regarding the doctrine of equivalents, and discussed the overall function and result, you are referring to the weld wire product as a whole, correct?

A. That's correct.

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Q. So your opinion regarding the accused products infringing under the doctrine of equivalents, allegedly, is based upon the accused product as a whole, correct?

A. Correct.

(Citing Tr. at 480:16-481:15.) According to Staff, Dr. Caulfield's approach contradicts the correct approach, in which "the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole." (Citing *Warner-Jenkinson*, 520 U.S. at 29.) (SIB at 33.)

Staff argues that Dr. Caulfield's testimony should be discredited also because it misleadingly confuses the limiting recitations in the body of the claims with a recitation in the preamble. Specifically, in responding to a question regarding the "wound on" and "unwound from" a spool limitations, Dr. Caulfield testified instead that the accused products contain the substantial equivalent of the non-limiting "storage on" a spool recitation:

If the term 'wound on a spool' is considered to be a limitation of the weld wire, . . . then the Respondents' weld wire products would still infringe under the doctrine of equivalents. Winding the weld wire into the specialized weld wire containers used by Respondents for storage substantially meets this requirement and any difference does not significantly affect the overall function or result of the weld wire.

(Citing CX-377C at Q. 265.) Staff asserts that because Lincoln has failed to show that the accused products contain the substantial equivalent of the "wound on" and "unwound from" a spool limitations, it has failed to satisfy its burden to demonstrate infringement under the doctrine of equivalents. (SIB at 33-34.)

Staff further argues that the preponderance of the evidence did not show that Respondents' accused products contain, either literally or by equivalents, the claimed "waveform having . . . half cycle[s] having a radius of curvature of at least about 15 inches," as correctly construed. Specifically, Staff states that the preponderance of the evidence did not show that

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Respondents' accused products contain wire wherein the shape memory of the wire is a waveform whose half cycles have a generally semi-circular shape or a substantial equivalent thereof. (SIB at 34-35.)

Staff notes that Lincoln conceded that the accused wire does not have semi-circular waveforms. (Citing CX-377C at Q. 267.) Thus, Staff argues that Lincoln would concede that claim 3 is not literally infringed, as correctly construed. (SIB at 35.)

Staff states that with regard to the doctrine of equivalents, Lincoln fails to satisfy its burden for at least two distinct reasons. Staff reiterates its claim that Dr. Caulfield employed an analytically incorrect approach to the doctrine of equivalents whereby he discussed the overall function and result of the weld wire product as a whole, rather than as to the individual elements of the claim. (Citing Tr. at 480:16-481:15.)

Staff argues that Dr. Caulfield's testimony should be discredited because it is purely conclusory. According to Staff, Dr. Caulfield merely asserts, with no support or explanation, that "even though the waveforms are not semi-circular, Respondents' weld wire will perform the same function and perform in substantially the same way to achieve substantially the same result." (Citing CX-377C at Q. 267.) (SIB at 35.)

**Discussion and Conclusion:** Based on the evidence before me, I find that Lincoln has failed to demonstrate by a preponderance of the evidence that accused ESAB or Sidergas products infringe claim 3 of the '864 patent.

Respondents raise three non-infringement positions relevant to claim 3: (1) the accused wire is not wound on a spool; (2) shape memory is not imparted on the accused wire prior to winding; and (3) the accused wire does not have the claimed "waveform."



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### “Spool” Limitations

Claim 3 requires “[a] weld wire having a desired imparted shape memory for storage on a spool of weld wire” and “shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool.” In Section III.B.1. *supra*, I construed the “on a spool” limitation to mean “on a cylindrical piece of material,” thus necessitating the presence of a spool for there to be infringement of claim 3.

The undisputed evidence reveals that ESAB and Sidergas neither wind their wire on a spool, nor store their wire on a spool. Focusing first on ESAB, Lincoln and ESAB signed a joint stipulation that states, *inter alia*, “Lincoln and ESAB Group stipulate that, for purposes of this investigation, none of ESAB Group’s accused products physically contains a ‘spool,’ as defined by Respondents.” (SX-1 at ¶ 2.) Respondents’ proposed construction of “spool” is in accord with the construction articulated in Section III.B.1., *supra*. The testimony in the record supports the conclusion that ESAB’s accused wire is packaged in drums, and is never wound “on a cylindrical piece of material.” (RX-96C at Q. 37; RX-95C at Q. 16; Tr. at 484:12-17, 563:4-15.)

With regard to Sidergas, the evidence also supports a finding that Sidergas’ accused products are not wound on a spool, as Sidergas deposits its wire in a bulk storage container. (Tr. at 457:1-20, 484:12-17, 663:18-20; CX-22C; RX-204C at Q. 85-86; RX-208C at Q. 24-26; RX-209C at Q. 31-32.) Thus, I find that Sidergas’ accused wire is never wound “on a cylindrical piece of material.”

Therefore, I conclude that the accused ESAB and Sidergas products do not literally meet the “[a] weld wire having a desired imparted shape memory for storage on a spool of weld wire” and “shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool” limitations of claim 3.

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Lincoln argues that the phrase “spool of weld wire” means more than just wire wound on a cylindrical piece of material, as it refers to the wire itself. Thus, Lincoln claims that the phrase encompasses wire stored in a drum or container. (*See, e.g.*, CIB at 97-99; CRB at 35-36.) For reasons articulated in Section III.B.1. *supra*, I have rejected this reading of the claim language. In addition, I have found that Lincoln waived the ability to offer such a construction. (*See* Tr. at 10:18-11:5, 47:9-14; RX-113.)

Lincoln also argues that even under the adopted construction of “spool,” the accused products can still literally infringe because the wire is organized as a stack of cylindrical loops, which is the same structure that would be required to wind the weld wire on a cylindrical piece of material. (CX-377C at Q. 186, 233.) The fact that the wire is deposited in the containers in such a way that would allow for a “spool” to be placed in the center of the container, even if true, is irrelevant, as the undisputed evidence demonstrates that no spool is ever used by Respondents.

In addition, Lincoln asserts that if the “spool” limitation is construed as a limitation and given the definition proposed by Respondents, then the accused products still meet this limitation under the doctrine of equivalents. I do not concur for multiple reasons.

I find that, as a matter of law, Lincoln is precluded from asserting that the containers used by Respondents are the equivalent of a spool. The specification of the ‘864 patent makes multiple mentions of storing weld wire on “a reel, spool, container, or the like.” One example of the language found in the specification is as follows:

In accordance with the present invention, there is provided a weld wire with a predefined shape memory imparted onto the welding wire prior to the welding wire being wound onto a **reel, spool, container, or the like**. The shape memory of the weld wire is fully or partially retained by the weld wire as the weld wire is wound and unwound from a **reel, spool, container, or the like** and as the weld wire is fed through a welding machine.

(JX-1 at 3:21-28) (Emphasis added.) There are additional instances in the specification where

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this language appears. (*See, e.g., JX-1 at 2:33-39, 5:66-6:3.*) Yet, when claiming the invention, the patentee limited the claims to a spool, and did not refer to other storage means such as a container. Thus, the disclosed but unclaimed subject matter, here a container, cannot be recaptured through the doctrine of equivalents. *Johnson & Johnston Assocs. Inc. v. R.E. Service Co.*, 285 F.3d 1046, 1054 (Fed. Cir. 2002) (*en banc*) (holding that a patentee cannot use the doctrine of equivalents to recapture subject matter disclosed in the patent but not claimed).

In *Johnson & Johnston*, the patent at issue related to the manufacture of printed circuit boards. The patent claimed a component including an aluminum substrate. While the patent expressly claimed an aluminum substrate, the specification noted that “[w]hile aluminum is currently the preferred material for the substrate, other metals, such as stainless steel or nickel alloys, may be used.” The accused product used a steel substrate, and the question was whether the patentee could use the doctrine of equivalents to argue that an steel substrate was the equivalent of an aluminum substrate.

The *en banc* Federal Circuit held that the patentee could not use the doctrine of equivalents in this instance because the specification disclosed a steel substrate, but the claims were expressly limited to an aluminum substrate. The court explained:

As stated in *Maxwell*, when a patent drafter discloses but declines to claim subject matter, as in this case, this action dedicates that unclaimed subject matter to the public. Application of the doctrine of equivalents to recapture subject matter deliberately left unclaimed would “conflict with the primacy of the claims in defining the scope of the patentee's exclusive right.”

*Johnson & Johnston*, 285 F.3d at 1054 (citation omitted).

In the case at hand, the specification of the ‘864 patent discloses storage of weld wire in a container, yet the claims are expressly limited to wire wound on a spool. Therefore, Lincoln cannot use the doctrine of equivalents in an attempt to argue that the accused wire stored in

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containers meets the “spool” limitations of claim 3.

In addition, the use of a container instead of a spool was a foreseeable alternative that could have been claimed, but was not. Beyond the fact that the container is expressly mentioned in the specification, as described *supra*, Respondents cite evidence that bulk welding wire was packaged in containers at the time the ‘864 patent was filed, and that Lincoln utilized bulk welding wire containers prior to the filing date of the ‘864 patent. (*See, e.g.*, RX-204C at Q. 90; Tr. at 191:10-192:4, 211:12-20.) The Federal Circuit has explained that when an alternative is clearly foreseeable and has not been claimed, the doctrine of equivalents cannot be used to cover such an alternative:

The claim at issue defines a relatively simple structural device. A skilled patent drafter would foresee the limiting potential of the “over said slot” limitation. No subtlety of language or complexity of the technology, nor any subsequent change in the state of the art, such as later-developed technology, obfuscated the significance of this limitation at the time of its incorporation into the claim. If Sage desired broad patent protection for any container that performed a function similar to its claimed container, it could have sought claims with fewer structural encumbrances. Had Sage done so, then the Patent and Trademark Office (PTO) could have fulfilled its statutory role in helping to ensure that exclusive rights issue only to those who have, in fact, contributed something new, useful, and unobvious. Instead, Sage left the PTO with manifestly limited claims that it now seeks to expand through the doctrine of equivalents. However, as between the patentee who had a clear opportunity to negotiate broader claims but did not do so, and the public at large, it is the patentee who must bear the cost of its failure to seek protection for this foreseeable alteration of its claimed structure.

*Sage Prods., Inc. v. Devon Indus., Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997) (citations omitted).

Based on the fact that the container was a clearly foreseeable alternative to the spool, I find that Lincoln is precluded from relying on the doctrine of equivalents to claim that the containers used by Respondents are the equivalent to a spool.

Finally, I find that the differences between winding wire onto a spool and depositing wire into a container cannot be considered insubstantial. *Honeywell Int’l Inc. v. Hamilton Sundstrand*

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*Corp.*, 370 F.3d 1131, 1139 (Fed. Cir. 2004) (“An element in the accused device is equivalent to a claim limitation if the only differences between the two are insubstantial.”); *Sage Prods.*, 126 F.3d at 1423 (“A claim element is equivalently present in an accused device if only ‘insubstantial differences’ distinguish the missing claim element from the corresponding aspects of the accused device.”) As Dr. Brown explained, wire wound onto a spool will have a varying diameter depending on the radial distance of the wire relative to the core of the spool, while wire placed into a container will have loops that all have generally the same diameter. (RX-96C at Q. 24-25, 42-43.) Dr. Brown characterized the differences between winding the wire onto a spool and placing the wire into a container as “material differences.” (*Id.* at Q. 24.) Because this patent is addressing concerns regarding the shape memory of bulk welding wire, I find that the differences arising between the use of a spool and a container are not insubstantial. (RX-96C at Q. 24-25, 42-43.) Thus, I find that placing wire into a container is not an equivalent of winding wire onto a spool.

### **Shape Memory Imparted Prior to Winding**

Claim 3 requires “said shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool.” This language has been construed to mean “at a point in time before the weld wire is physically wound on said spool.”

Regarding ESAB, I find that Lincoln has failed to prove by a preponderance of the evidence that shape memory is imparted on the wire at least partially prior to the wire being wound on a spool. As I have explained *supra*, I have found that the accused ESAB products are not wound on a spool, and thus do not infringe. Therefore, the ESAB products cannot meet the claim elements “said shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool” and “said weld wire having a shape memory that is at

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least partially imparted onto said weld wire prior to said weld wire being wound on said spool” as properly construed.

Assuming *arguendo* that the presence of a spool is not necessary to infringe this claim and that a container would suffice, I still find that Lincoln has failed to prove the existence of this claim element. The law is clear that it is Lincoln’s burden to prove infringement by a preponderance of the evidence, and that burden never shifts to ESAB. *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008) (“Neither [the patentee’s] burden to prove infringement nor [the accused infringer’s] burden to prove invalidity, both ultimate burdens of persuasion, ever shifts to the other party—the risk of decisional uncertainty stays on the proponent of the proposition.”). Lincoln’s evidence of infringement, when weighed against the significant evidence offered by ESAB, is insufficient to meet Lincoln’s burden.

In its Chinese and Mexican facilities, ESAB uses two different types of machines for packaging wire into drums. {

} (RX-95C at Q. 40, 44-45.) ESAB asserts that the { } machines are very similar in design and operation. (*Id.* at Q. 114; RX-40C; RX-63C.) ESAB states that both machines have a “laying head,” which is a component that acts to lay the wire into the drum or container. (RX-95C at Q. 58, 117.) The wire passes through a guide tube attached to the laying head. (*Id.*)

I find that any shape memory imparted by the laying head and guide tube is not shape memory imparted prior to winding on a spool. This issue highlights the difficulty in the comparison of winding wire onto a spool versus laying wire into a container or drum. When a spool is involved, winding the weld wire on the spool clearly begins at the point it is physically wrapped on the cylinder. Absent a spool, there must be a point identified in the ESAB process

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that corresponds to the start of the “winding” process. I find that, in the ESAB process, the winding begins when the wire enters the guide tube mounted on the laying head. Dr. Brown testified that the laying head imparts the necessary shape for the wire to be stored in the drum or container; and physically lays the wire into the drum or container. (Tr. at 628:5-631:12.) The purpose of the laying head is to form the wire into a shape so that it can be stored in a container or drum, as the wire would not stay in the container or drum if it did not pass through the laying head. (*Id.*) Therefore, in the context of the ESAB accused product, I find that Lincoln must demonstrate that shape memory is imparted on the weld wire prior to entering the laying head.

Lincoln relies on Dr. Caulfield’s expert opinion to demonstrate that shape memory is imparted onto the ESAB wire prior to winding. Dr. Caulfield states:

The shape memory consists of two components: cast and twist. Cast is a common term in the production of weld wire and is due to residual stresses in the wire. The cast or residual stresses in the wire can be demonstrated by cutting a longer section of weld wire to remove tension. The twist in the wire is what cases the waveform. Without the twist, weld wire with cast would tend to form circles or arches when cut. The twist in the ESAB wire comes from the laying head and as such is present prior to the wire being place in the ESAB container. If the cast was not present prior to the twist, then the deformation induced during the casting process would alter the plastic twist and hence change the shape of the weld wire. ESAB’s container may induce some deformation to the wire, but this deformation is negligible on the overall shape of the weld wire. Since the two components, twist and cast, of the shape memory are present prior to storage, the shape memory of the weld wire is imparted at least partially prior to placement in ESAB’s container.

(CX-377C at Q. 182; *see also* CX-424C at Q. 24.)

Dr. Caulfield’s testimony, quoted *supra*, states that the shape of the ESAB wire is composed of cast and twist. (*Id.*) Dr. Caulfield states that the twist is imparted by the laying head, and the cast necessarily must be imparted prior to the twist. (*Id.*) Thus, Dr. Caulfield’s testimony demonstrates that he believes ESAB imparts shape memory to the wire prior to the wire reaching the laying head. Dr. Brown directly contradicts this assertion, as he testifies that it

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is unnecessary to impart the cast prior to the wire reaching the laying head. (RX-218C at Q. 61-66.) Dr. Brown testifies that all of the shape memory for the ESAB wire is imparted after the wire enters the laying head. (*Id.*) Dr. Brown states that “the combination of introducing a twist with simultaneous coiling produces the general waveform shape.” (*Id.* at Q. 65; *see also* Tr. at 628:5-631:12.)

Prior to reaching the laying head, the wire passes through straightening rolls and then around a capstan. (RX-95C at Q. 61, 63, 101-102, 130-132; Tr. at 574:18-575:18.) Dr. Brown testified that the capstan does not impart any shape memory onto the wire, and Lincoln does not assert that the capstan imparts shape memory. (Tr. at 627:24-628:4.) ESAB asserts that the straightening rolls are used to straighten the wire, and are not used to impart any shape memory onto the wire. (RX-95C at Q. 101-105, 118-128.)

Lincoln argues that the straightening rolls impart cast onto the wire, but I find that the evidence does not support that conclusion. ESAB offered significant evidence supporting the conclusion that the straightening rolls straighten the wire and remove any shape memory in the wire. Mr. McBride testified in numerous places that the purpose of the straightening rolls in both the { } machines is to produce straight wire and remove all prior cast imparted on the wire. (RX-95C at Q. 61-66, 105, 118-128; Tr. at 533:14-16, 571:7-575:18.) The documentation provided for the WWM machine states that the wire must be as straight as possible entering the guide tube. (RX-40C.011; Tr. at 575:19-578:2; RX-70C.) Dr. Brown testified that it was his expert opinion that the wire is killed wire after it leaves the straightening rolls, and that the untensioned wire is straight when removed from the straightening rolls. (Tr. at 627:19-23, 634:15-635:15.)

Lincoln notes that in ESAB’s photographs of the { }



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can be seen prior to the straightening rolls. Lincoln argues that {

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Lincoln argues that an ESAB document provides evidence that the straightening rolls do not necessarily produce straight wire. Lincoln cites to the portion of the document that explains that “[i]f the wire shows inconsistency, the straightening unit should be set to get a slight bending of the wire towards the capstan, but never against the operator.” (RX-62C.004.) I find that this passage is not enough to demonstrate that the straightening rolls are used to impart shape memory into the wire.

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With regard to Sidergas, I find that Lincoln has failed to prove by a preponderance of the

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evidence that shape memory is imparted on the wire at least partially prior to the wire being wound on a spool. As I have explained *supra*, I have found that the accused Sidergas products are not wound on a spool, and thus do not infringe. Therefore, the Sidergas products cannot meet the claim elements “said shape memory imparted on said weld wire at least partially prior to said weld wire being wound on said spool” and “said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool” as properly construed.

Assuming *arguendo* that the presence of a spool is not necessary to infringe this claim and that a container would suffice, Lincoln has still failed to meet its burden to prove the existence of this claim element by a preponderance of evidence.

Sidergas’ wire packaging process is substantially identical to ESAB’s in that the wire passes through straightening rolls, past a capstan, to a laying head, which lays the wire into a container. (RX-204C at Q. 82-83.) Dr. Caulfield offers testimony, similar to that quoted *supra*, that the shape memory of the Sidergas wire is made up of cast and twist, the twist is imparted by the laying head, and the cast must be imparted prior to the twist. (CX-377C at Q. 229.) For the reasons explained *supra* with respect to ESAB, I find that in order to meet the claim limitations at issue, Lincoln must demonstrate that Sidergas imparts shape memory to the wire before it reaches the laying head and guide tube.

Both Dr. Savoy and Mr. Gelmetti testify that the straightening rolls kill the wire by removing any shape memory that the wire had from previous processes. (RX-204C at Q. 83-84; RX-209C at Q. 27.) Mr. Gelmetti states that “our intention is in fact to feed killed wire to the capstan.” (RX-209C at Q. 27.)

Lincoln attacks Sidergas’ position on two fronts. First, Lincoln notes that Mr. Gelmetti

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testified that the wire is engineered to be “substantially straight” when fed to the capstan, and that the wire is “close to perfectly straight” when it is sent to the laying head. (RX-209C at Q. 26; RX-203C at Q. 77.) Lincoln claims that this testimony amounts to an admission that the Sidergas wire has shape memory imparted prior to winding. (CIB at 92.)

Next, Lincoln argues that neither Dr. Savoy nor Mr. Gelmetti have any first-hand knowledge of Sidergas’ packaging process, because the wire is packaged by a third party company, Tecknoadda. (See CIB at 95-96.) Lincoln argues that Dr. Savoy had no interaction with Tecknoadda employees and did not review any Tecknoadda manufacturing documents. Lincoln asserts that Sidergas failed to produce any Tecknoadda documentation to support its position that the wire is killed after exiting the straightening rolls. (*Id.*)

I find that Lincoln has failed to meet its burden to demonstrate the presence of this claim element. As support for its position, Sidergas offers the testimony of Dr. Savoy and Mr. Gelmetti that the straightening rolls kill the Sidergas wire prior to it entering the laying head. (RX-204C at Q. 83-84; RX-209C at Q. 27.) Lincoln’s evidence on the issue amounts to Dr. Caulfield’s challenged assertion that the cast must be applied prior to the twist, and Mr. Gelmetti’s statements that the wire is “substantially straight” and “close to perfectly straight.” (CX-377C at Q. 229; RX-209C at Q. 26; RX-203C at Q. 77.)

The law is clear that it is Lincoln’s burden to prove infringement by a preponderance of the evidence, and that burden never shifts to Sidergas. *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008) (“Neither [the patentee’s] burden to prove infringement nor [the accused infringer’s] burden to prove invalidity, both ultimate burdens of persuasion, ever shifts to the other party-the risk of decisional uncertainty stays on the proponent of the proposition.”). I find that Lincoln’s evidence of infringement is insufficient to meet its burden,

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when weighed against the unambiguous testimony from Dr. Savoy and Mr. Gelmetti that Sidergas does not impart shape memory onto the wire prior to the laying head.

Dr. Caulfield's testimony fails to identify where in the process the cast is imparted, or how the cast is imparted. He testifies that based on his knowledge, it must be the case that the cast is imparted prior to the twist. (CX-377C at Q. 229.) Dr. Brown, in discussing ESAB's similar manufacturing process, provided a rebuttal to this position and opined that it is possible to impart all of the shape memory through the laying head and guide tube. (RX-218C at Q. 61-66.). I find that this testimony applies equally to Sidergas' process, and thus calls into question whether or not Dr. Caulfield is correct in opining that cast must be imparted in the wire prior to it reaching the laying head.

Further, I find that Mr. Gelmetti's testimony that the wire is "substantially straight" and "close to perfectly straight" does not demonstrate that shape memory is imparted on the wire prior to the laying head. (CX-377C at Q. 229; RX-209C at Q. 26; RX-203C at Q. 77.) The testimony, when read in conjunction with the testimony from both Dr. Savoy and Mr. Gelmetti that the wire is killed by the straightening rolls, merely indicates that the wire is made as close to perfectly straight as Sidergas can make it. (See RX-203C at Q. 64; RX-209C at Q. 27; RX-204C at Q. 83-84.) It does not demonstrate that there is shape memory imparted prior to the laying head.

Finally, Lincoln attempts to question the knowledge of Mr. Gelmetti and Dr. Savoy by asserting that a third party company, Tecknoadda, is the party responsible for packaging the wire. I find that such a fact does not prove that Mr. Gelmetti or Dr. Savoy lack the requisite knowledge to competently testify regarding the packaging process. Mr. Gelmetti explained at the hearing that the Tecknoadda facility is 100 miles from his home, and that he has visited the

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facility at least once every two months over the past 16 years. (Tr. at 669:19-670:2.) Mr. Gelmetti stated that he is knowledgeable about Tecknoadda's packaging of the bulk weld wire due to his many visits to the facility and his interaction with Antonio Rebughini of Tecknoadda. (Tr. at 667:18-672:16.) In addition, Dr. Savoy traveled to Italy and Mr. Gelmetti accompanied him on a visit to Tecknoadda's facility so that Dr. Savoy could personally inspect the packaging process. (RX-204C at Q. 80; Tr. at 654:1-655:8.) Based on this evidence, I find no reason to question Dr. Savoy's or Mr. Gelmetti's knowledge of the wire packaging process even though it is performed by a third party and not Sidergas.<sup>36</sup>

### Waveform

Claim 3 requires "said shape memory is generally a waveform having a maximum amplitude for each half cycle, said half cycle having a radius of curvature of at least about 15 inches." In Section III.B.5 *supra*, I found that the term "waveform" means "a recurring undulating curve." In addition, I rejected Respondents' and Staff's arguments that any of the asserted claims require a wire having a waveform with half-cycles that are substantially semi-circular in shape.

ESAB and Staff base their non-infringement arguments on their erroneous claim construction positions with regard to "waveform." Specifically, they argue that because the accused products do not contain wire having a waveform with half-cycles that are substantially semi-circular in shape, the accused products do not infringe. (See EIB at 32-34; SIB at 34-35.) Because I have rejected the "substantially semi-circular" requirement as part of the construction, I find that ESAB's and Staff's non-infringement arguments lack merit.

Sidergas argues that its accused products lack the claimed "waveform" under any of the proposed constructions. Sidergas argues that if "waveform" is construed to mean "a curve that

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<sup>36</sup> I note that Lincoln offers no doctrine of equivalents argument for this claim limitation.

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represents the propagation of a wave,” then its accused products do not meet this limitation because the wire exhibited a slight waveform pattern and formed a wide circular loop when drawn from the package and freely thrown on the floor. (SGIB at 36-37.) To support its argument, Sidergas cites to the testimony of its expert, Dr. Savoy. (RX-204C at Q. 78; RX-208C at Q. 48.) Dr. Savoy testified that “[t]he wire I tested exhibited a slight waveform pattern and formed a wide circular loop when drawing from the package and freely thrown on the floor in the manner proscribed by Mr. Hartman.” (RX-204C at Q. 78.) Dr. Savoy also stated that “Sidergas’s accused weld wire forms a circular loop, not ‘a curve that represents the propagation of a wave.’” (RX-208C at Q. 48.)

In contrast to Dr. Savoy’s conclusory statements, Dr. Caulfield provides a detailed opinion that the accused Sidergas wire has a “waveform” as required by the claims. Dr. Caulfield’s detailed testimony describes the testing process he undertook to establish that the wire has a “waveform.” (CX-377C at Q. 211-219, 234.) Dr. Caulfield cites to exhibits depicting the waveform shape of the tested Sidergas wire. (CX-22C; CX-24C.)

I find that based on Dr. Caulfield’s detailed testimony on the issue, Lincoln has met its burden in demonstrating that the Respondents’ accused products tested by Dr. Caulfield have the claimed “waveform.” (CX-377C at Q. 164-173, 187, 211-219, 234.) Dr. Savoy’s conclusory testimony on this issue, without more, cannot overcome the evidence offered by Lincoln on this issue. (RX-204C at Q. 78; RX-208C at Q. 48.)

Moreover, other testimony from Sidergas contradicts Dr. Savoy’s assertion that the wire does not have a waveform shape. Dr. Savoy’s testimony also states that “[t]he wire I tested exhibited a slight waveform pattern,” thus acknowledging that the accused Sidergas wire has the claimed “waveform.” (*Id.*) Mr. Gelmetti testified that the Sidergas wire “is not a semi-circular

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waveform, rather the shape of the waveform is sinusoidal.” (RX-203C at Q. 75.) This testimony directly contradicts Sidergas’ assertion that its accused wire does not have the required “waveform” shape.

Based upon the foregoing, I find that Lincoln has met its burden to prove by a preponderance of the evidence that the accused ESAB and Sidergas weld wire tested by Dr. Caulfield meets the “waveform” limitation.

**C. Claim 4**

Claim 4 recites:

4. The weld wire as defined in claim 3, wherein said waveform has substantially the same maximum amplitude for each half cycle of a full waveform.

**Lincoln’s Position:** Lincoln contends that the evidence presented at the hearing showed, by a preponderance of the evidence, that each of the accused Sidergas products, and similarly manufactured bulk weld wire products, and the accused ESAB products, and similarly manufactured bulk weld wire products, imported, sold for importation or sold within the United States infringe claim 4 of the ‘864 patent. (CIB at 108.)

Lincoln asserts that Dr. Caulfield’s infringement opinion with respect to claim 4 is grounded in his detailed analysis and physical testing of samples of the accused products, his review of what little process documentation was produced by Respondents ESAB and Sidergas, and his extensive experience in the area of materials science. (Citing CX-377C at Q. 5, 278.) Lincoln states that Dr. Caulfield correctly concluded that each of the accused products possesses each of the required physical characteristics of the weld wire set forth in claim 4 of the ‘864 patent. (Citing CX-377C at Q. 170-174, 190, 209-210, 217-221, 237, 256-257, 268; CX-18C; CX-19C; CX-20C; CX-22C; CX-23C; CX-24C.) (CIB at 109.)

Lincoln claims that for ESAB’s accused weld wire products, Dr. Caulfield’s testing has

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shown that ESAB's weld wire has a maximum amplitude deviation which ranged from 0.1 to 3.4 inches, in the respective scanned waveforms, including all of the different axis rotations. (Citing CX-377C at Q. 170-173, 190; CX-19C; CX-20C.) Lincoln notes that for the nominal centerline axis measurement, Dr. Caulfield's test data for the ESAB products ranges from 0.1 to 1.8 inches. (Citing CX-19C.) Lincoln states that for the +10 degree rotation, the deviation ranges from 0.2 to 0.5 inches, and for the -10 degree rotation the deviation ranges from 0.3 to 3.4 inches. (Citing CX-19C.) (CIB at 110.)

Lincoln claims that for Sidergas' accused weld wire products, Dr. Caulfield's testing has shown that Sidergas' weld wire has a maximum amplitude deviation which ranged from 0.2 to 2.6 inches, including all of the different axis rotations. (CX-377C at Q. 217-220, 237; CX-23C; CX-24C.) Lincoln asserts that for the nominal centerline axis measurement, Dr. Caulfield's test data for the Sidergas products ranges from 0.3 to 2.0 inches. (Citing CX-23C.) Lincoln notes that for the +10 degree rotation, the deviation ranges from 0.2 to 2.6 inches, and for the -10 degree rotation the deviation ranges from 0.6 to 2.2 inches. (Citing CX-23C.) (CIB at 110.)

Lincoln's arguments in reply have been previously addressed in the discussion of claim 3 and will not be repeated.

**ESAB's Position:** For the reasons described in the discussion of claim 3 *supra*, ESAB contends that it does not infringe claim 4.

**Sidergas' Position:** For the reasons described in the discussion of claim 3 *supra*, Sidergas contends that it does not infringe claim 4.

In its reply brief, Sidergas argues that Lincoln has also failed to establish infringement of claim 4 because the maximum amplitudes of the half cycles of the wire contain substantial deviations. Sidergas notes that Dr. Caulfield provided an analysis of the deviations in maximum



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amplitude of the half cycles of the wire Dr. Caulfield evaluated in CX-23C. Sidergas claims that Dr. Caulfield's analysis, however, was completely dependent on where the center-line of the waveform was drawn. Sidergas states that in cross examination, Dr. Caulfield admitted that if the center line is drawn from the inflection points at which the wire was cut, the deviation between half cycles of the waveform changed from approximately two inches to over fourteen inches. (Citing Tr. at 474:10-478:11.) Sidergas asserts that because Lincoln failed to show that the half cycles of the waveform have substantially the same maximum amplitude, Lincoln has not met its burden of showing infringement of claim 4. (SGRB at 23.)

**Staff's Position:** Staff contends that Lincoln failed to prove infringement of claim 4 for all of the reasons discussed *supra* with respect to claim 3.

**Discussion and Conclusion:** Based on the evidence before me, I find that Lincoln has failed to demonstrate that Respondents infringe claim 4. I have previously found that Lincoln failed to prove infringement of claim 3. Claim 4 is dependent on claim 3. This leads to the conclusion that Lincoln has failed to demonstrate infringement of claim 4. *Wahpeton Canvas Co. v. Frontier, Inc.*, 870 F.2d 1546, 1552 n. 9 (Fed. Cir. 1989) ("One who does not infringe an independent claim cannot infringe a claim dependent on (and thus containing all the limitations of) that claim.")

Assuming *arguendo* that Lincoln has proven infringement of claim 3, I find that Lincoln has demonstrated that the accused ESAB and Sidergas weld wires tested by Dr. Caulfield each have a waveform with substantially the same maximum amplitude for each half cycle of a full waveform. Specifically, Lincoln has offered credible testimony from Dr. Caulfield that the ESAB product meets this limitation (CX-377C at Q. 190; CX-19C), and that the Sidergas product meets this limitation. (CX-377C at Q. 237; CX-23C.).

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ESAB did not offer any non-infringement argument unique to claim 4. Sidergas argues that if a different center line is used than the one Dr. Caulfield uses for his measurement, the maximum amplitudes of the half-cycles will vary greatly. (SGIB at 38; SGRB at 23.) Sidergas fails to offer support for choosing the center line it suggests, and offers no expert testimony to support the use of the center line that results in the large deviation in maximum amplitudes. (*See* RDX-14C.) Because I find that Lincoln offered credible expert testimony on the issue, I find that Lincoln has met its burden in demonstrating that the limitation of claim 4 is present in the Sidergas wire tested by Dr. Caulfield.

### **D. Claim 6**

Claim 6 recites:

6. A weld wire for storage on a spool of weld wire, said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool and at least partially retained on said weld wire after said weld wire is unwound from said spool, said shape memory imparted substantially in one plane along a longitudinal length of said weld wire, said shape memory generally in the form of a waveform, said waveform having a maximum amplitude for each half cycle, said half cycle having a radius of curvature of at least about 5 inches.

**Lincoln's Position:** Lincoln contends that Dr. Caulfield correctly concluded that each of the accused products possesses each of the required physical characteristics of the weld wire set forth in claim 6 of the '864 patent. (Citing CX-377C at Q. 174, 191-198, 209-210, 221, 238-245, 256-257, 259-261, 269-273; CX-18C; CX-19C; CX-20C; CX-22C; CX-23C; CX-24C.) To the extent that literal infringement is not found, Lincoln argues that it has established infringement under the doctrine of equivalents. (Citing CX-377C at Q. 259-267; Tr. at 485:10-487:19.) (CIB at 112-113.)

With regard to the claim language “[a] weld wire for storage on a spool of weld wire,” Lincoln incorporates by reference its analysis from claim 3. (Citing CX-377C at Q. 165, 178,

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183-186, 191-195, 212, 225, 230-233, 238-242, 269; CX-424C at Q. 18, 21, 23-24; CX-18C; CX-22C; CX-420.) With regard to the claim language “said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool,” Lincoln incorporates by reference its analysis from claim 3. (Citing CX-377C at Q. 178, 182-186, 191-195, 225, 229-233, 238-242, 270; CX-424C at Q. 18, 21, 23, 24.) (CIB at 114.)

With regard to the claim language “at least partially retained on said weld wire after said weld wire is unwound from said spool,” Lincoln submits that this language of claim 6 is not an affirmative limitation, but rather a statement of intended use. If the language is considered a limitation, Lincoln argues that the accused products meet the limitation. Because the “spool” language of this limitation was discussed fully with respect to claim 3, Lincoln incorporates by reference its analysis in claim 3. Lincoln’s discussion will focus on the “at least partially retained” aspect of the claim language, as that is not found in claim 3. Lincoln asserts that Dr. Caulfield provided detailed testimony and evidence that imparted shape memory in the accused ESAB and Sidergas products is at least partially retained after the weld wire products are removed from their respective packaging. (Citing CX-377C at Q. 192-195, 239-242.) (CIB at 115.)

With respect to the remainder of the claim language from claim 6, Lincoln incorporates by reference its analysis from claim 3. (Citing CX-377C at Q. 196, 197, 243, 244, 271, 272, 273; CX-18C; CX-19C; CX-20C; CX-22C; CX-23C; CX-24C.) (CIB at 116-117.)

Lincoln’s arguments in reply have been previously addressed in the discussion of claim 3 and will not be repeated.

**ESAB’s Position:** For the reasons described in the discussion of claim 3 *supra*, ESAB contends that it does not infringe claim 6.

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**Sidergas' Position:** For the reasons described in the discussion of claim 3 *supra*, Sidergas contends that it does not infringe claim 6.

**Staff's Position:** Staff contends that Lincoln failed to prove infringement of claim 6 for all of the reasons discussed *supra* with respect to claim 3.

**Discussion and Conclusion:** Based on the evidence before me, I find that Lincoln has failed to demonstrate that Respondents infringe claim 6. Claim 6 includes the following “spool” limitations: “[a] weld wire for storage on a spool of weld wire” and “said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool and at least partially retained on said weld wire after said weld wire is unwound from said spool.” For the reasons described *supra* with respect to the “spool” limitations of claim 3, I find that Lincoln has failed to prove that Respondents’ accused products meet these limitations of claim 6.

In addition, claim 6 requires “said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool.” For the reasons described *supra* with the respect to the similar claim language found in claim 3, I find that Lincoln has failed to prove that Respondents’ accused products meet this limitation of claim 6.

### **E. Claim 12**

Claim 12 recites:

12. A weld wire for storage on a spool of weld wire, said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool and at least partially retained on said weld wire after said weld wire is unwound from said spool, said shape memory imparted substantially in one plane along a longitudinal length of said weld wire, said shape memory generally in the form of a waveform, said waveform having a maximum amplitude for each half cycle, said maximum amplitude of each half cycle having a deviation of less than about 6 inches within one cycle of said weld

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wire.

**Lincoln's Position:** Lincoln contends that Dr. Caulfield correctly concluded that each of the accused products possesses each of the required physical characteristics of the weld wire set forth in claim 12 of the '864 patent. (Citing CX-377C at Q. 174, 199-206, 209-210, 221, 246-253, 256-257, 270-271, 274-276; CX-18C; CX-19C; CX-20C; CX-22C; CX-23C; CX-24C.) To the extent that literal infringement is not found, Lincoln argues that it has established infringement under the doctrine of equivalents. (Citing CX-377C at Q. 259-267; Tr. at 485:10-487:19.) (CIB at 118-119.)

Because the language of claim 12 substantially overlaps with the language of claims 3, 4, and 6, Lincoln incorporates by reference the relevant analyses with regard to claims 3, 4, and 6. (Citing CX-377C; CX-424C; CX-18C; CX-19C; CX-20C; CX-22C; CX-23C; CX-24C; CX-420.) (CIB at 119-121.)

Lincoln's arguments in reply have been previously addressed in the discussion of claim 3 and will not be repeated.

**ESAB's Position:** For the reasons described in the discussion of claim 3 *supra*, ESAB contends that it does not infringe claim 12.

**Sidergas' Position:** For the reasons described in the discussion of claim 3 *supra*, Sidergas contends that it does not infringe claim 12.

In its reply brief, Sidergas argues that Lincoln has also failed to establish infringement of claim 12 because the maximum amplitudes of the half cycles of the wire contain substantial deviations. Sidergas notes that Dr. Caulfield provided an analysis of the deviations in maximum amplitude of the half cycles of the wire Dr. Caulfield evaluated in CX-23C. Sidergas claims that Dr. Caulfield's analysis, however, was completely dependent on where the center-line of the

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waveform was drawn. Sidergas states that in cross examination, Dr. Caulfield admitted that if the center line is drawn from the inflection points at which the wire was cut, the deviation between half cycles of the waveform changed from approximately two inches to over fourteen inches. (Citing Tr. at 474:10-478:11.) Sidergas asserts that because Lincoln failed to show that the half cycles of the wave form do not have a deviation of less than about six inches as required by claim 12, Lincoln has not met its burden of showing infringement of claim 12. (SGRB at 23.)

**Staff's Position:** Staff contends that Lincoln failed to prove infringement of claim 12 because the accused products are not on a spool. Staff's argument with respect to the spool limitation from claim 3 applies equally to claim 12.

**Discussion and Conclusion:** Based on the evidence before me, I find that Lincoln has failed to demonstrate that Respondents infringe claim 12. Claim 12 includes the following "spool" limitations: "[a] weld wire for storage on a spool of weld wire" and "said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool and at least partially retained on said weld wire after said weld wire is unwound from said spool." For the reasons described *supra* with respect to the "spool" limitations of claim 3, I find that Lincoln has failed to prove that Respondents' accused products meet these limitations of claim 12.

In addition, claim 12 requires "said weld wire having a shape memory that is at least partially imparted onto said weld wire prior to said weld wire being wound on said spool." For the reasons described *supra* with the respect to the similar claim language found in claim 3, I find that Lincoln has failed to prove that Respondents' accused products meet this limitation of claim 12.

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### F. Claim 13

Claim 13 recites:

13. The weld wire as defined in claim 12, wherein said deviation of said maximum amplitude of each half cycle within one cycle is less than about 4 inches.

**Lincoln's Position:** Lincoln contends that the evidence presented at the hearing showed, by a preponderance of the evidence, that each of the accused Sidergas products, and similarly manufactured bulk weld wire products, and the accused ESAB products, and similarly manufactured bulk weld wire products, imported, sold for importation or sold within the United States infringe claim 13 of the '864 patent literally and under the doctrine of equivalents. (CIB at 122.)

Lincoln relies on the infringement analysis of Dr. Caulfield, who opined that each of the accused products possesses each of the required physical characteristics of the weld wire set forth in claim 13 of the '864 patent. (Citing CX-377C at Q. 174, 207, 209-210, 221, 254, 256-257, 277; CX-18C; CX-19C; CX-20C; CX-22C; CX-23C; CX-24C.) In addition, Lincoln incorporates by reference the applicable analyses for claims 4 and 12. (CIB at 122-123.)

Lincoln's arguments in reply have been previously addressed in the discussion of claim 3 and will not be repeated.

**ESAB's Position:** For the reasons described in the discussion of claim 3 *supra*, ESAB contends that it does not infringe claim 13.

**Sidergas' Position:** For the reasons described in the discussion of claim 3 *supra*, Sidergas contends that it does not infringe claim 13.

In its reply brief, Sidergas argues that Lincoln has also failed to establish infringement of claim 13 because the maximum amplitudes of the half cycles of the wire contain substantial

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deviations. Sidergas notes that Dr. Caulfield provided an analysis of the deviations in maximum amplitude of the half cycles of the wire Dr. Caulfield evaluated in CX-23C. Sidergas claims that Dr. Caulfield's analysis, however, was completely dependent on where the center-line of the waveform was drawn. Sidergas states that in cross examination, Dr. Caulfield admitted that if the center line is drawn from the inflection points at which the wire was cut, the deviation between half cycles of the waveform changed from approximately two inches to over fourteen inches. (Citing Tr. at 474:10-478:11.) Sidergas asserts that because Lincoln failed to show that the half cycles of the wave form do not have a deviation of less than about four inches as required by claim 13, Lincoln has not met its burden of showing infringement of claim 13. (SGRB at 23.)

**Staff's Position:** Staff contends that Lincoln failed to prove infringement of claim 13 because the accused products are not on a spool. Staff's argument with respect to the spool limitation from claim 3 applies equally to claim 13.

**Discussion and Conclusion:** Based on the evidence before me, I find that Lincoln has failed to demonstrate that Respondents infringe claim 13. I have previously found that Lincoln failed to prove infringement of claim 12. Claim 13 is dependent on claim 12. I conclude, therefore, that Lincoln has failed to demonstrate infringement of claim 13. *Wahpeton*, 870 F.2d at 1552 n. 9 ("One who does not infringe an independent claim cannot infringe a claim dependent on (and thus containing all the limitations of) that claim.")

Assuming *arguendo* that Lincoln has proven infringement of claim 12, I find that Lincoln has demonstrated that the accused ESAB and Sidergas weld wire tested by Dr. Caulfield meets the additional limitation added by claim 13. Specifically, Lincoln has offered credible testimony from Dr. Caulfield that the ESAB product meets this limitation (CX-377C at Q. 207; CX-19C),



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and that the Sidergas product meets this limitation. (CX-377C at Q. 254; CX-23C.)

ESAB did not offer any non-infringement argument unique to claim 13. Sidergas argues that if a different center line is used than the one Dr. Caulfield uses for his measurement, the maximum amplitudes of the half-cycles will vary greatly. (SGIB at 38; SGRB at 23.) Sidergas fails to offer support for choosing the center line it suggests, and offers no expert testimony to support the use of the center line that results in the large deviation in maximum amplitudes. (*See* RDX-14C.) Because I find that Lincoln offered credible expert testimony on the issue, I find that Lincoln has met its burden in demonstrating that the limitation of claim 13 is present in the Sidergas wire tested by Dr. Caulfield.

### **G. Additional Products Not Evaluated By Lincoln**

**Lincoln's Position:** Lincoln contends that any finding of infringement should extend beyond the products specifically evaluated by Dr. Caulfield.

With regard to ESAB, Dr. Caulfield evaluated ESAB's 0.045 inch OK AristoRod 12.50 weld wire packaged in the Marathon Pac. (CX-377C at Q. 165.) Dr. Caulfield states that he believes that the features of the ESAB weld wire that he tested are present in other ESAB weld wire products. (*Id.* at Q. 209.) He understands that ESAB packages its wire in different package weights that differ in the amount of wire contained in the package. (*Id.*) He understands that the weld wire can vary in diameter, and that the weld wire can differ due to a difference in a Manganese alloy in the wire. (*Id.*) Dr. Caulfield states that it is his belief that these differences have no meaningful bearing on the shape memory of the weld wire. (*Id.*) Further, he notes that ESAB stated in an interrogatory response that "there are no material differences in its procedures for packaging bulk wire in its Marathon Pac container based on the diameters" of 0.035, 0.045, and 0.052 inches. (*Id.*) Thus, Dr. Caulfield opines that this additional untested ESAB wire

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infringes the asserted claims for the same reasons provided in his infringement analysis. (CX-377C at Q. 210.)

With regard to Sidergas, Dr. Caulfield evaluated Sidergas' 0.045 inch ProStar S-6 bulk welding wire product in the ProStar by Praxair PAC 330 packaging. (CX-377C at Q. 212.) With respect to Sidergas, Dr. Caulfield provided similar testimony that the additional, untested Sidergas wire has the same shape memory characteristics even though there are differences in product weight, wire diameter, and wire composition. (*Id.* at Q. 256.) Thus, Dr. Caulfield opines that the additional untested Sidergas wire infringes the asserted claims for the same reasons provided in his infringement analysis. (*Id.* at Q. 257.)

In its reply brief, Lincoln notes that Staff argues that Dr. Caulfield only tested one product type from each of ESAB and Sidergas and such testing was insufficient for Dr. Caulfield to draw conclusions regarding other wire of a different diameter or package size. Lincoln claims that Staff ignores the evidence presented by Respondents establishing the similarities of their weld wire products. Lincoln states that Dr. Savoy testified that he looked only at a single Sidergas product (the ProStar by Praxair 990 product) because one product was "representative" of the other Sidergas' products because "[t]he only real difference is the size of the bulk package and thus the amount of wire within a package." (Citing RX-204C at Q. 70-71.) Thus, Lincoln argues that any argument that Sidergas products "may" perform differently based on a package has been refuted by Sidergas, and Dr. Savoy's testimony is entirely consistent with Dr. Caulfield's. (Citing RX-204C at Q. 70-71; CX-377C at Q. 209.) Further, Lincoln asserts that there is no evidence that any relevant package dimension is different in Sidergas' packaging. (CRB at 27-28.)

Lincoln states that Staff also dismisses ESAB's interrogatory response (CX-382C) as

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being only related to “procedures for packaging.” (Citing SIB at 27.) Lincoln disagrees with Staff over the import of ESAB’s admission regarding wire diameter, but also notes that ESAB has no evidence of any material differences in the manufacture of different types or diameters of wire. Lincoln states that like Dr. Savoy, Dr. Brown had no criticisms of this aspect of Dr. Caulfield’s testimony. Lincoln claims that Mr. McBride did not rebut or contradict Dr. Caulfield’s conclusions regarding the minor differences between the various types of weld wire produced. Lincoln argues that Staff ignores the fundamental premise of ESAB’s position on invalidity regarding ESAB’s alleged prior art wire products, namely, that ESAB’s accused products are and have been the same and that any intervening changes can be ignored for purposes of the ‘864 patent claims. Lincoln claims that Mr. McBride’s assertion could not be clearer – all of ESAB’s current procedures and wire characteristics are the same regardless of the plant or the time of manufacture. (Citing RX-95C.) Therefore, the unrebutted evidence clearly supports Dr. Caulfield’s conclusions. (CRB at 28.)

**ESAB’s Position:** ESAB contends that despite the fact that Lincoln’s infringement claims in this investigation relate to eight different welding wire products manufactured in Monterrey, Mexico and { } China, Lincoln only offered evidence or expert opinion regarding one of those eight products, the OK AristoRod 12.50 0.045” wire product packaged in Marathon Pac containers. ESAB claims that Dr. Caulfield did not test any of the other wire products. (Citing Tr. at 404:4-21, 447:17-448:3.) ESAB asserts that Lincoln offered no documentary evidence relating to the OK AristoRod wire of other diameters, and it did not even mention the MIG-6, MIG-3, or Arc-Plus products at the hearing. According to ESAB, Lincoln alone bears the burden of establishing infringement by each accused product. (Citing *Certain Nitrile Gloves and Certain Nitrile Rubber Gloves*, Inv. Nos. 337-TA-608 and 337-TA-612,

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Commission Determination (Jan. 15, 2009).) (EIB at 34.)

ESAB reiterates its position in its reply brief. (ERB at 19.)

**Sidergas' Position:** Sidergas contends that Lincoln tested only a single, single-sized container, ProStar® by Praxair PAC 330, with a single wire diameter having a single wire chemistry. Sidergas claims that Mr. Land's testimony is very clear that any change in the wire or the process of creating the wire changes the wire. (Citing Tr. at 209:23-210:7, 221:25-222:12.) Sidergas asserts that Dr. Caulfield testified that a mere lack of maintenance on a manufacturing machine could impact whether or not a given product allegedly infringes the asserted claims. (Citing Tr. at 396:14-23.) Sidergas says that Dr. Caulfield also testified that his opinion on infringement was based entirely on his examination of the physical weld wire, and not on any inspection of the processes used to make the wire. (Citing Tr. at 400:17-401:3.) According to Sidergas, Lincoln thus has no evidence at all regarding any product other than the single wire diameter and single wire chemistry product Dr. Caulfield actually tested, and Lincoln has no basis for extrapolating from that product to other Sidergas products. (SGIB at 38.)

In its reply brief, Sidergas reiterates that Lincoln has offered no evidence of infringement for any wire not actually tested by Dr. Caulfield. Sidergas claims that Lincoln relies entirely on Dr. Savoy's statement that the Sidergas products are "identically the same for infringement purposes." (Citing CIB at 123.) Sidergas argues that Dr. Savoy's testimony that all of the accused products do not exhibit the required limitations of the claims, does not even address the assertion for which Lincoln cites it as support, and in any event Lincoln cannot establish that products never examined, much less tested by anyone, infringe the asserted claims. (SGRB at 24.)

**Staff's Position:** Staff contends that at the evidentiary hearing, Lincoln offered

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probative, non-speculative evidence of alleged infringement with regard to only one ESAB accused product. Specifically, Staff claims that Lincoln offered probative, non-speculative evidence of alleged infringement with regard to only one drum of ESAB's 0.045" OK AristoRod 12.50 Marathon Pac weld wire. (Citing CX-377C at Q. 165, 212, 213.) Staff notes that Dr. Caulfield confirmed this at the hearing. (Citing Tr. at 404:4-21, 457:21-459:25.) (SIB at 24-26.)

Staff claims that Dr. Caulfield confirmed that his opinions are based solely on an evaluation of his limited sampling of accused wire and that he did not, for example, base his opinions on the equipment used to produce the accused wire. (Citing Tr. at 400:4-20.) Staff states that Dr. Caulfield relies on an ESAB interrogatory response that states that "there are no material differences in its procedures for packaging bulk wire in its Marathon Pac container based on the diameters" of 0.035", 0.045", and 0.052", to conclude that "any differences between these differently-sized wire products are not relevant to shape memory." (Citing CX-377C at Q. 209.) Staff submits, however, that "procedures for packaging" is distinct from characteristics and qualities of the wire that is being packaged. Thus, Staff argues that Dr. Caulfield's conclusion that shape memory is necessarily unaffected by differences in size of the product is unwarranted, unsupported, and speculative. (SIB at 27.)

Regarding ESAB, Staff concludes that there has been a failure of proof with regard to all accused products except ESAB's 0.045" OK AristoRod 12.50 Marathon Pac weld wire. (SIB at 28.) Regarding Sidergas, Staff concludes that one Sidergas accused product may be considered representative of all Sidergas accused products based on the testimony of Dr. Savoy that Lincoln cites. (SRB at 10-11.)

**Discussion and Conclusion:** Based on the evidence before me, I find that Lincoln failed to introduce sufficient evidence to conclude that the ESAB product evaluated by Dr. Caulfield is

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a representative product for purposes of the '864 patent. I find that Lincoln introduced sufficient evidence to conclude that the Sidergas product evaluated by Dr. Caulfield is a representative product for purposes of the '864 patent.

As explained earlier in the substantive infringement analysis, it is Lincoln's burden to prove infringement, and the burden never shifts to Respondents to prove non-infringement. *Tech. Licensing*, 545 F.3d at 1327. Thus, if Lincoln chooses to analyze a single "representative" product and claim that a number of other products have identical characteristics, it must point to evidence that supports the proposition that Respondents' accused products are identical for purposes of the '864 patent.

With respect to ESAB, I find that Lincoln has failed to offer sufficient evidence to conclude that the so-called "representative" product tested by Dr. Caulfield is actually representative of all accused ESAB products. Lincoln relies on an ESAB interrogatory response where ESAB stated the following:

ESAB Group advises that there are no material differences in its procedures for packaging bulk weld wire in its Marathon Pac container based on the diameters referenced in Interrogatory No. 19.<sup>37</sup>

(CX-382 at 4.)

I find that this statement is insufficient to demonstrate that all accused ESAB products are the same for the purposes of the '864 patent, as the statement only refers to "procedures for packaging bulk weld wire." The statement says nothing regarding the physical properties of the wire itself, and thus it is not sufficient to support Lincoln's position.

Lincoln also argues that ESAB's invalidity position regarding ESAB's prior products undermines its claim that the untested accused products are different than the single product

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<sup>37</sup> The diameters referenced in Interrogatory No. 19 are 0.035 inches, 0.045 inches, and 0.052 inches. (CX-382 at 3.)

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tested by Dr. Caulfield. ESAB's invalidity position relates to the fact that the packaging process used for the accused products is allegedly the same process that was in use prior to the filing of the '864 patent. (*See generally* RX-95; RX-96.) I find that it does not amount to an admission that all of ESAB's accused products are identical to Dr. Caulfield's "representative" product for purposes of the '864 patent. Thus, I conclude that Lincoln has failed to demonstrate that the product evaluated by Dr. Caulfield is representative of all other accused ESAB products.

With respect to Sidergas, I find that Lincoln has sufficiently demonstrated that the accused products are identical for purposes of infringement. Lincoln points to the testimony of Dr. Savoy for support. Dr. Savoy is Sidergas' expert witness and provided a non-infringement opinion in this investigation.

In his witness statement, Dr. Savoy explained that he "analyzed and tested the ProStar® by Praxair PAC 990 welding wire (manufactured by Sidergas) as a representative product." (RX-204C at Q. 70.) When asked what he meant by "representative product," Dr. Savoy stated:

I understand that Lincoln has accused the ProStar by Praxair PAC 1200, 990, and 330 lines of products manufactured by Sidergas as infringing. I tested the PAC 990 products as representative products because Sidergas manufactures the PAC 1200, 990, and 330 line of products identically the same for infringement purposes. The only real difference is the size of the bulk package and thus the amount of wire within a package. For example, the PAC 1200 contains approximately 1200 pounds of weld wire, the PAC 990 contains approximately 990 pounds, and the PAC 330 contains approximately 330 pounds of wire.

(RX-204C at Q. 71.)

This testimony demonstrates that Sidergas' own expert witness acknowledged that it is sufficient to test a single representative Sidergas accused product for infringement purposes. This is exactly the approach taken by Lincoln and Dr. Caulfield. (CX-377C at Q. 212, 256, 257.) Sidergas cannot now complain that Lincoln's methodology is faulty when it used the same methodology and reasoning in performing its non-infringement analysis. Therefore, I find that

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Dr. Savoy's admission that it is acceptable to test a representative Sidergas accused product, and his testimony that all Sidergas accused products are manufactured identically, constitutes sufficient evidence to demonstrate that all Sidergas accused products may be considered analogous to the product actually evaluated by Dr. Caulfield for purposes of analyzing infringement of the '864 patent. This conclusion does not, however, change the fact that in this Initial Determination, I have found that Lincoln failed to prove that the accused Sidergas product evaluated by Dr. Caulfield infringes any of the asserted claims.

### VI. DOMESTIC INDUSTRY

#### A. Applicable Law

In patent-based proceedings under section 337, a complainant must establish that an industry "relating to the articles protected by the patent...exists or is in the process of being established" in the United States. 19 U.S.C. § 1337(a)(2) (2008). Under Commission precedent, the domestic industry requirement of Section 337 consists of an "economic prong" and a "technical prong." *Certain Data Storage Systems and Components Thereof*, Inv. No. 337-TA-471, Initial Determination Granting EMC's Motion No. 471-8 Relating to the Domestic Industry Requirement's Economic Prong (unreviewed) at 3 (Public Version, October 25, 2002).

The "economic prong" of the domestic industry requirement is satisfied when it is determined that the economic activities set forth in subsections (A), (B), and/or (C) of subsection 337(a)(3) have taken place or are taking place. *Certain Variable Speed Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, USITC Pub. No. 3003, 1996 ITC LEXIS 556, Comm'n Op. at 21 (Nov. 1996). With respect to the "economic prong," 19 U.S.C. § 1337(a)(2) and (3) provide, in full:

(2) Subparagraphs (B), (C), (D), and (E) of paragraph (1) apply only if an industry in the United States, relating to the articles



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protected by the patent, copyright, trademark, mask work, or design concerned, exists or is in the process of being established.

(3) For purposes of paragraph (2), an industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned-

(A) significant investment in plant and equipment;

(B) significant employment of labor or capital; or

(C) substantial investment in its exploitation, including engineering, research and development, or licensing.

Given that these criteria are listed in the disjunctive, satisfaction of any one of them will be sufficient to meet the domestic industry requirement. *Certain Integrated Circuit Chipsets and Products Containing Same*, Inv. No. 337-TA-428, Order No 10, Initial Determination (Unreviewed) (May 4, 2000), citing *Certain Variable Speed Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, Commission Op. at 15, USITC Pub. 3003 (Nov. 1996).

To meet the technical prong, the complainant must establish that it practices at least one claim of the asserted patent. *Certain Point of Sale Terminals and Components Thereof*, Inv. No. 337-TA-524, Order No. 40 (April 11, 2005). “The test for satisfying the ‘technical prong’ of the industry requirement is essentially same as that for infringement, i.e., a comparison of domestic products to the asserted claims.” *Alloc v. Int’l Trade Comm’n*, 342 F.3d 1361, 1375 (Fed. Cir. 2003). The technical prong of the domestic industry can be satisfied either literally or under the doctrine of equivalents. *Certain Excimer Laser Systems for Vision Correction Surgery and Components Thereof and Methods for Performing Such Surgery*, Inv. No. 337-TA-419, Order No. 43 (July 30, 1999).

### **B. Economic Prong**

**Lincoln’s Position:** Lincoln contends that it has satisfied the economic prong of the

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domestic industry requirement by virtue of its significant investments in the United States related to the manufacture and packaging of its Exact-Trak bulk welding wire product that is covered by the '864 patent. (CIB at 166-167.)

To support its assertion, Lincoln provided the testimony of Mr. George Blankenship, President of Lincoln North America and President/CEO of Lincoln Global, Inc. (Citing CX-376C.) Given his current and former positions with The Lincoln Electric Company, Lincoln claims that Mr. Blankenship is knowledgeable about the manufacture and sale of Lincoln's bulk weld wire products, including Lincoln's Exact-Trak product, and his testimony provided extensive details of Lincoln's significant domestic investments in connection with that product. (Citing CX-376C at Q. 1-35.) (CIB at 167.)

For example, Lincoln states that Mr. Blankenship explained that Lincoln has made significant domestic investments relating to the manufacture, inspection, testing, and packaging of its Exact-Trak products using equipment obtained and operated by Lincoln employees in Lincoln's Cleveland, Ohio and Mentor, Ohio facilities. (Citing CX-376C at Q. 12-35; CX-412C.) Lincoln states that it has sold substantial amounts of its bulk wire products, including its Exact-Trak products, and conducted significant research, development and design activities relating to that product. (Citing CX-376C at Q. 24, 26 28.) Lincoln asserts that third parties working for Lincoln have made significant domestic investments in connection with Lincoln's Exact-Trak products. (Citing CX-376C at Q. 27.) (CIB at 167.)

Lincoln asserts that Mr. Blankenship provided details about the Lincoln employees who are involved in the manufacture, assembly, packaging, testing and shipping of Lincoln's Exact-Trak products at both the Cleveland, Ohio and Mentor, Ohio facilities, and he also discussed the Lincoln employees engaged in research and development activities relating to such products.

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(Citing CX-376C at Q. 32-35.) According to Lincoln, Mr. Blankenship described the amount of employee work time that is attributable to activities relating to the Exact-Trak product and Lincoln's significant investment in the salaries paid to such employees. (Citing CX-376C at Q. 33, 35.) (CIB at 167.)

Lincoln notes that Respondents argue in their respective pre-hearing briefs that Lincoln cannot satisfy the economic prong of the domestic industry requirement because Lincoln purportedly stopped selling its Exact-Trak product prior to August 2009, the date Lincoln filed its complaint with the Commission. (Citing EPHB at 41-42; SGPHB at 68-69.) Lincoln states that Respondents' alleged evidence of this purported stoppage of all Exact-Trak product sales in 2009 is a paper indicating that Lincoln would not be renewing the "Exact-Trak" trademark and the testimony of Mr. Blankenship that sales of Exact-Trak product decreased from 2005 to 2008. (Citing EPHB at 41-42; SGPHB at 68-69; RX-221.) However, Lincoln notes that Mr. Blankenship testified that Lincoln did sell Exact-Trak throughout 2009, although at lower levels due to the economic recession. (Citing Tr. at 163:2-164:23.) {

} and the product would continue to be sold under the Accu-Pak name. (Citing Tr. at 150:6-24.) Lincoln states that Mr. Blankenship further testified that sales of Exact-Trak products would be continuing into the future, {

} (Citing Tr. at 163:2-164:23, 168:20-22.) Thus, Lincoln argues that Respondents' assertions are directly contradicted by the evidence in the record. (CIB at 168-169.)

Lincoln claims that Respondents' pre-hearing briefs also imply that the economic prong of the domestic industry requirement cannot be satisfied by Lincoln because the quantity of

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Exact-Trak wire sold { }

(Citing EPHB at 41-42; SGPHB at 68-69.) Lincoln states that Respondents do not cite to any Commission rule, decision or other authority to support their position that sales of the domestic industry product must constitute a certain percentage of total product sales by a complainant to establish a domestic industry under Section 337. Lincoln asserts that Respondents' argument ignores the other evidence of a domestic industry beyond Exact-Trak product sales that are described in Mr. Blankenship's testimony, such as research and development, quality control, and third party activities and investments. (Citing CX-376C.) (CIB at 169.)

In its reply brief, Lincoln reiterates that George Blankenship testified at the hearing that Exact-Trak product was sold throughout 2009. Lincoln claims that Respondents' maintain, without providing any details, that Mr. Blankenship's testimony is not reliable because it is "unsupported." (Citing EIB at 54-55; SGIB at 71-73.) Lincoln asserts that Respondents' argument ignores the considerable testimony of Lincoln witness James Land, who testified in support of Lincoln's domestic industry allegations and provided details about the processes Lincoln employs to manufacture its Exact-Trak product, including an explanation of the equipment used and the improvements to the process that Lincoln has developed over the years. (Citing CX-379C at Q. 12-59; CDX-9C, -10C, -11C, -12C, -13C, -14C, -15C, -16C.) Lincoln thus asserts that Mr. Blankenship's testimony is supported by evidence in the record, and Respondents' unsupported arguments to the contrary are factually wrong. (CRB at 80-81.)

Lincoln notes that Respondents argue that Lincoln did not establish a domestic industry as a matter of law because it did not provide evidence of Exact-Trak sales during August 2009 when Lincoln's complaint was filed with the Commission. Lincoln states that it filed its amended complaint re-naming Sidergas as a respondent and adding ESAB Group to the

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investigation, in October, not August, of 2009. Lincoln further states that, contrary to Respondents' assertions, there is some doubt as to whether the economic prong of domestic industry is assessed at the time the complaint was filed or later in the investigation. (Citing *Certain Static Random Access Memories*, Inv. No. 337-TA-241, Order No. 5 at 4-5 (Dec. 30, 1992); *Certain Concealed Cabinet Hinges and Mounting Devices*, Inv. No. 337-TA-289, Comm'n Op. at 10 (Jan. 8, 1990).) (CRB at 81.)

Lincoln asserts that Respondents' argument that there must be sales of Exact-Trak product at the time the complaint was filed in order to establish a domestic industry is incorrect as a matter of law. Lincoln states that this is because a domestic industry will be found to exist if "an industry in the United States, relating to the articles protected by the patent, copyright, trademark, mask work, or design concerned, exists *or is in the process of being established.*" (Citing 19 U.S.C. § 1337(a)(2) (emphasis added).) Thus, Lincoln contends that even if Respondents were correct and Lincoln did not sell any Exact-Trak product in 2009 (which Lincoln denies), a domestic industry would still exist by virtue of Lincoln's activities as described by Mr. Land relating to its production of Exact-Trak wire and its 2010 current sales to customers, { } (Citing Tr. at 163-164, 168.) (CRB at 81-82.)

**ESAB's Position:** ESAB contends that Lincoln failed to demonstrate that it satisfied the economic prong of the domestic industry requirement. (EIB at 54.)

ESAB claims that the only evidence presented at the hearing related to the possible satisfaction of the economic-prong requirement consisted of the testimony of Lincoln's president, Mr. Blankenship, concerning Lincoln's sales of the Exact-Trak product. ESAB asserts that Blankenship's testimony, which was unsupported by relevant documentary records, only

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demonstrated that Lincoln’s sales of the Exact-Trak {  
} (Citing CX-376C at Q. 24.) ESAB claims that the testimony  
also demonstrated that Lincoln’s sales of the Exact-Trak product {  
} (Citing Tr. at 139:25-142:24.) (EIB at 54.)

ESAB claims that the essential inquiry is whether a domestic industry existed at the time of the filing of the Complaint, in this case August 7, 2009. ESAB argues that the evidentiary record is devoid of any documentary evidence establishing any sales of the Exact-Trak product in 2009, and Mr. Blankenship’s witness statement is silent on this topic. (Citing CX-376C.) ESAB asserts that there is also no evidence of *any* manufacturing activity in 2009 (as opposed to possible sales from inventory). (EIB at 54-55.)

Thus, ESAB claims that the only evidence of record supporting Lincoln’s economic-prong contention is Mr. Blankenship’s unsupported indication of possible sales in 2009. According to ESAB, the unsupported testimony provides no proof of any manufacturing activity during 2009 and also provides no insight as to whether any alleged sales were merely *de minimus* as opposed to meeting the statutory requirement of being “significant” or “substantial.” (Citing 19 U.S.C. § 1337(a)(3).) Meanwhile, ESAB states that the record also demonstrates that Lincoln failed to renew its federal trademark registration for the EXACT-TRAK mark, requiring proof of continuing sales under the mark, and that the registration was formally cancelled on August 15, 2009 in the same time frame as the initiation of the present proceeding. (Citing RX-221; Tr. at 148:23-150:24.) (EIB at 55.)

In its reply brief, ESAB asserts that Lincoln points to alleged “domestic investments,” “sales,” and “employee work time” in order to satisfy the economic prong. ESAB claims that the

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record is clear that the so-called “domestic investments” made relating to the Exact-Trak products were made nearly ten years ago. {

} ESAB argues that no evidence of record established that any Exact-Trak product was actually manufactured in 2009 or that any “employee work time” was devoted to the Exact-Trak product in 2009. According to ESAB, the essential inquiry is whether a domestic industry existed at the time of the filing of the Complaint, in this case August 7, 2009. (Citing *Certain Combination Motor and Transmission Systems and Devices Used Therein, and Products Containing Same*, Inv. No. 337-TA-561, Initial Determination at 134; *Bally/Midway Manufacturing Co. v. USITC*, 714 F.2d 1117, 1121-22 (Fed. Cir. 1983).) (ERB at 32.)

ESAB claims that the only purported “evidence” offered by Lincoln relates to its minimal sales of Exact-Trak. ESAB claims that the Commission has held that evidence of marketing and sales alone is not sufficient to establish the existence of a domestic industry. (Citing *Micro lithographic Machines and Components Thereof*, Inv. No. 337-TA-468, Initial Determination at 346 (Jan. 29, 2003), *unreviewed in relevant part*, 68 Fed. Reg. 13951 (Mar. 21, 2003).) (ERB at 32.)

ESAB argues that the evidence supplied by Lincoln relating to sales of Exact-Trak only act to underscore how little market there is for the product that is alleged to actually practice the '864 patent as distinguished from conventional, prior art products sold by Respondents (as well as by Lincoln). {

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} (Citing Tr. at 139:25-142:24.) (ERB at 32-33.)

**Sidergas' Position:** Sidergas contends that Lincoln failed to demonstrate that it satisfied the economic prong of the domestic industry requirement. Sidergas' arguments in its opening brief are substantively identical to ESAB's arguments, in that Sidergas argues that Mr. Blankenship's testimony is insufficient to demonstrate the requirements for economic prong under Section 337. (SGIB at 71-73.)

In its reply brief, Sidergas alleges that Lincoln clutters the record with evidence concerning products unrelated to the Exact-Trak. Sidergas reiterates that the testimony of Mr. Blankenship is simply insufficient to support a finding of domestic industry at the time the Complaint was filed. (SGRB at 37.)

Sidergas states that Mr. Blankenship's testimony that the "Exact-Trak" mark was cancelled for "marketing reasons" is a post-hoc explanation to attempt to salvage domestic industry argument. Sidergas claims that in his witness statement, Mr. Blankenship nowhere acknowledged that the Exact-Trak trademark had been cancelled or testified that Lincoln had plans to market, or had ever marketed, the Exact-Trak product under the Accu-Pak name. (Citing CX-376C.) Sidergas argues that in light of Mr. Blankenship's direct witness statement, such testimony simply isn't credible. Sidergas states that the term "Exact-Trak" complete with the trademark symbol appears thirty times in Mr. Blankenship's witness statement, suggesting continued protection and use of such mark. (Citing CX-376C.) (SGRB at 37.)

**Staff's Position:** Staff contends that Lincoln has met its burden to satisfy the economic prong of the domestic industry requirement. (SIB at 45.)

Staff states that Mr. Blankenship testified that Lincoln's Exact-Trak wire is manufactured



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in Mentor, Ohio. (Citing CX-376C at Q. 22, 29.) Staff states that Lincoln purchased equipment that it uses in Mentor, Ohio to manufacture its Exact-Trak product. (Citing CX-376C at Q. 22, 23, 29; CX-412C.) {

} (Citing CX-376C at Q. 24.) According to Staff, Mr.

Blakenship testified that the fiscal year 2009 sales of Exact-Trak products declined

{ } (Citing Tr. at

163:18-164:2.) {

} Staff claims that Mr.

Blankenship testified that Lincoln's sales of Exact-Trak product continues into the current 2010 fiscal year. (Citing CX-376C at Q. 45; Tr. at 164:12-23.) (SIB at 46.)

{

} (Citing

CX-376C at Q. 31, 33.) Notwithstanding the decline sales rate of the Exact-Trak, Staff submits that all of the foregoing evidence suffices to satisfy the economic prong. (Citing *Certain Semiconductor Integrated Circuits and Products Containing Same*, Inv. No. 337-TA-665, Final Initial Determination, 2009 ITC LEXIS 2386, at \*364-72 (Oct. 14, 2009) (unreviewed in relevant part); *Certain Battery-Powered Ride-On Toy Vehicles and Components Thereof*, Inv. No. 337-TA-314, Initial Determination, Order No. 6, 1990 ITC LEXIS 393, at \*27-29 (Dec. 5, 1990).) (SIB at 46-47.)

**Discussion and Conclusion:** Based on the evidence before me, I find that Lincoln has satisfied the economic prong of the domestic industry requirement.

The relevant domestic industry under consideration is the industry "with respect to the

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articles protected by the patent[.]” 19 U.S.C. § 1337(a)(3) (2009). Because Lincoln asserts that the Exact-Trak bulk wire product practices the ‘864 patent, the analysis must be focused solely on Lincoln’s domestic activities related to the Exact-Trak product. Lincoln’s activities related to other bulk welding wire that is not the Exact-Trak is not relevant and will not be considered in the analysis.

The Commission has assessed the existence and sufficiency of an alleged domestic industry at various points during the investigative process, including: (1) the original filing date of the complaint, (2) the filing date of the most recent amendment or supplement to the complaint, (3) the discovery cut-off date prior to the evidentiary hearing, and (4) in certain instances, at points even after the target date of the investigation. *Certain Short-Wavelength Light Emitting Diodes, Laser Diodes and Products Containing Same*, Inv. No. 337-TA-640, 2008 ITC LEXIS 1041, Order No. 16, at \*31 (June 18, 2008) (“As for the cut-off date for establishing a domestic industry, the Commission has used not only the filing of the complaint as the cut-off point for satisfaction of the domestic industry requirement, but it has also used the end of the discovery as the cut-off point.”); *Certain Stringed Musical Instruments and Components Thereof*, Inv. No. 337-TA-587, 2008 ITC LEXIS 755, Comm. Op. (May 16, 2008); *Certain Concealed Cabinet Hinges*, 337-TA-289, 1990 ITC LEXIS 3, Comm. Op. at 21 (Jan. 9, 1990) (holding that “we assess the existence of the domestic industry as of the discovery cutoff date prior to the evidentiary hearing”); *Certain Variable Speed Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, USITC Pub. No. 3003, 1996 ITC LEXIS 556, Comm’n Op. at 22 (Nov. 1996) (holding that the Commission may even take into account events that occur after the target date when evaluating the existence of domestic industry and the appropriateness of any continued relief). Indeed, the time period for examining a domestic industry is determined “on a

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case-by-case basis in light of the realities of the marketplace.” *Certain Dynamic Random Access Memories, Components Thereof and Products Containing Same*, Inv. No. 337-TA-242, USITC Pub. No. 2034, 1987 ITC LEXIS 170, Comm’n Op. at \*93 (Nov. 1987).

Here, Lincoln filed its original complaint on August 7, 2009. It filed an amended complaint on November 5, 2009. Fact discovery closed on January 15, 2010. Regardless of the date used for the analysis, I find that Lincoln has satisfied the economic prong of the domestic industry requirement.

Lincoln relies on Mr. Blankenship’s testimony to support its economic prong argument. A portion of Mr. Blankenship’s testimony relates to Lincoln’s activities in fiscal year 2008<sup>38</sup> and earlier. Such testimony relates to sales, investments in packaging, quantity of employees, and employee salaries for fiscal year 2008 and earlier. (*See CX-376C* at Q. 24, 28, 33, 35.) All of these investments took place prior to 2009. Thus, I decline to rely on this testimony to find that the economic prong is satisfied.

Still, I find that Lincoln satisfies the economic prong through “significant investment in plant and equipment.” 19 U.S.C. § 1337(a)(3)(A) (2009). Mr. Blankenship testified as follows:

{

}

(*CX-376C* at Q. 31.)

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<sup>38</sup> Mr. Blankenship testified that Lincoln’s fiscal years correspond to the calendar years. (Tr. at 162:11-14.)

<sup>39</sup> Throughout his testimony, Mr. Blankenship refers to the domestic industry product alternatively as “Exact-Track” or “Exact-Trak.” (*See generally CX-376C.*)

{

} Unlike the testimony described *supra*, this testimony is not restricted to investments during a time period prior to 2009. I find that these investments in equipment used to manufacture the Exact-Trak product are sufficient to satisfy the domestic industry requirement. 19 U.S.C. § 1337(a)(3)(A) (2009).<sup>40</sup>

Respondents argue that the evidence demonstrates that Lincoln has stopped manufacturing Exact-Trak wire because as of August 15, 2009, Lincoln has canceled its trademark registration for the mark EXACT TRAK. (RX-221.) I do not find that the cancellation of the EXACT TRAK mark demonstrates that Lincoln has stopped manufacturing and selling its Exact-Trak product. First, Mr. Blankenship testified that Lincoln has sold Exact-Trak wire in 2009, and continues to sell Exact-Trak wire in 2010. (Tr. at 162:15-164:23.)

Second, {

} (*Id.* at

150:6-14.) Respondents have offered no reason to question Mr. Blankenship's testimony. I find Mr. Blankenship's testimony to be credible, and thus find that Respondents have not demonstrated that Lincoln has discontinued the Exact-Trak product.

### C. Technical Prong

**Lincoln's Position:** Lincoln contends that its Exact-Trak product practices claim 3 of the '864 patent, and thus satisfies the technical prong of the domestic industry requirement.

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<sup>40</sup> The parties devote a great deal of effort to discussing Lincoln's sales revenue for the Exact-Trak product. I find that sales revenue is generally not relevant or material to the economic prong analysis. The focus of the analysis is on Lincoln's investment in a domestic industry, and not on the revenues earned by Lincoln from the domestic industry product. 19 U.S.C. § 1337(a)(2)-(3) (2009).

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(Citing CX-377C at Q. 138-163.) (CIB at 124.)

Lincoln notes that in their respective pre-hearing briefs, neither Respondents nor Staff contested Lincoln's satisfaction of the "technical prong" of 19 U.S.C. § 1337(a)(2)-(3). (Citing EPHB at 42-43; SGPHB at 69-70; SPHB at 27-28.) Lincoln asserts that Dr. Caulfield's testing regarding the properties of Lincoln's Exact-Trak products stands unrebutted. (CIB at 124.)

Lincoln states that the unrebutted testimony presented at the hearing demonstrates that Lincoln's Exact-Trak products are manufactured in the United States at Lincoln's Mentor, Ohio facility. (Citing CX-376C at Q. 22, 24.) Lincoln states that Dr. Caulfield provided unrebutted testimony that establishes that the Exact-Trak product meets each of the limitations of claim 3:

- Lincoln's Exact-Trak product is weld wire, *i.e.*, it is a small diameter length of metallic material having a stiffness suitable for use as an electrode. (Citing CX-377C at Q. 138-139, 150; CX-8C.)
- Lincoln's Exact-Trak product has an imparted shape memory, *i.e.*, the product has a residual stress such that the weld wire reverts to a substantially consistent memory shape when the weld wire is untensioned. (Citing CX-377C at Q. 138-160; CX-8C at G-1-5; CX-9C.)
- The imparted shape memory of the weld wire is imparted at least partially prior to the weld wire being deposited onto a spool of weld wire. (Citing CX-377C at Q. 138-160, 163.)
- The shape memory of the wire results in the wire substantially lying in a single plane. (Citing CX-377C at Q. 161; CX-8C at G-1-5; CX-9C.)
- The imparted shape memory in the weld wire is generally in the form of a waveform, and the waveform has a maximum amplitude for each half-cycle.

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(Citing CX-377C at Q. 161; CX-8C at G-1-5; CX-9C.)

- Each half-cycle has a radius of curvature of at least about 15 inches. (Citing CX-377C at Q. 162; CX-8C at G-1-5; CX-9C.)

(CIB at 124-125.)

In its reply brief, Lincoln asserts that neither ESAB nor Sidergas challenges the assertion that the current Exact-Trak product practices claim 3 of the '864 patent. (Citing EIB at 53-54; SGIB at 73-74.) (CRB at 58-59.)

Lincoln claims that Respondents do not challenge Lincoln's showing even though Dr. Caulfield used the same testing methodology, tested the same number of samples and applied the same construction of the claim terms used to test and analyze Respondents' infringement products. Lincoln states that Respondents' technical prong discussion does incorporate a number of irrelevant statements in an apparent attempt to support its deficient non-infringement and invalidity arguments. Lincoln chooses not to respond to such irrelevant arguments in its technical prong analysis. (CRB at 58-59.)

**ESAB's Position:** ESAB does not contest the technical prong evidence offered by Lincoln. Instead, ESAB offers a discussion of why Lincoln's technical prong allegations further underscore the material differences between the '864 patent and the accused products. (EIB at 53-54.)

ESAB argues that in order to satisfy the technical-prong requirement of the statute, Lincoln relies on its "Exact-Trak" product, Lincoln's product wound on a reel, and offers the testimony of its expert Caulfield that this product literally practices Claim 3 of the '864 patent. (Citing CX-377C at Q. 148.) ESAB states that "Exact-Trak" was the commercial name adopted by Lincoln for the Improved Placement wire products manufactured on the Toho apparatus, as

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modified by co-inventor Ferguson by August 1999, to produce the wire products as described in the provisional patent application. Accordingly, ESAB claims that Lincoln's position that it meets the technical prong requirement relies exclusively on a product that is wound on a spool or reel in contrast to additional bulk wire products manufactured by Lincoln in substantially greater volumes packaged in drums (as are the accused products). (Citing CX-8C; CDX-16C; Tr. at 188:1-24.) (EIB at 53.)

ESAB states that in manufacturing the Exact-Trak products, Lincoln imparts a specific curvilinear shape to the wire prior to winding the wire on a reel as distinguished from the prior art practice using straightening rolls. (Citing Tr. at 195:5-8; 198:20-199:11; RX-214C.002-003.) ESAB asserts that this is also consistent with the modifications made by Ferguson to the Toho apparatus to produce the "Improved Placement" wire sold by Lincoln prior to the critical date. (Citing JX-26C at 40:21-44:6.) (EIB at 53-54.)

**Sidergas' Position:** Sidergas' position in its initial post-hearing brief is substantively identical to ESAB's position on this issue. (SGIB at 73-74.)

In its reply brief, Sidergas argues that Lincoln's evidence is insufficient to support the assertion that the Exact-Trak product practices claim 3 of the '864 patent. Sidergas claims that the sole evidence Lincoln puts forward to satisfy the technical prong of domestic industry is the testimony of Dr. Caulfield. Sidergas argues that Dr. Caulfield's analysis is deficient. According to Sidergas, Dr. Caulfield failed to report the results of much of his testing and cherry-picked those results that he did report. (Citing CX-377C at Q. 212; Tr. at 457:21-458:5, 459:21-25.) Sidergas claims that it is true that Respondents did not put forward evidence directly rebutting Dr. Caulfield's analysis, but Sidergas argues that they are not required to do so. Sidergas states that Dr. Caulfield's analysis and credibility speak for themselves. (SGRB at 38.)

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**Staff's Position:** Staff contends that the preponderance of the evidence shows that Lincoln's Exact-Trak product practices claim 3 of the '864 patent. Staff states that Lincoln offered evidence that its Exact-Trak product practices claim 3, and this evidence appears to be unrebutted and uncontested. (Citing CX-10C; CX-377C at Q. 145-155.) (SIB at 36-37.)

**Discussion and Conclusion:** Based on the evidence before me, I find that Lincoln has satisfied the technical prong of the domestic industry requirement.

Lincoln asserts that its Exact-Trak product, specifically the 0.045 SuperArc L-56 weld wire on the Exact-Trak Reel Packaging, practices claim 3 of the '864 patent. (CX-377C at Q. 139; CX-8C.) Lincoln offers evidence, in the form of expert testimony from Dr. Caulfield, to support its assertion that the Exact-Trak product practices claim 3. (CX-377C at Q. 138-163; CX-8C; CX-9C; CX-10C.)<sup>41</sup>

The evidence offered by Lincoln is unrebutted, as Respondents do not dispute any of the evidence in their initial post-hearing briefs. Instead, Respondents assert that Lincoln's domestic industry assertions underscore Respondents' non-infringement arguments. (EIB at 53-54; SGIB at 73-74.) Because Lincoln has offered unrebutted evidence that its Exact-Trak product practices claim 3 of the '864 patent, I find that Lincoln has satisfied the technical prong of the domestic industry requirement. Specifically, I find that Lincoln offered the following unrebutted expert testimony:

- Lincoln's Exact-Trak product is weld wire, as it was described as a small diameter length of metallic material having a stiffness suitable for use as an electrode. (CX-377C at Q. 138-139, 150; CX-8C.)
- Lincoln's Exact-Trak product has an imparted shape memory, *i.e.*, the product

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<sup>41</sup> I note that unlike Respondents' accused products, Lincoln's domestic industry weld wire is wound onto a spool. (CX-8C; CX-377C at Q. 159-160.)



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has a specified shape or cast that is applied to the wire by plastic deformation so that the wire has a residual stress such that the wire reverts to substantially consistent memory shape when the wire is untensioned. (CX-377C at Q. 138-160; CX-8C at G-1-5; CX-9C.)

- The imparted shape memory of the weld wire is imparted at least partially prior to the weld wire being deposited onto a spool of weld wire, as Dr. Caulfield stated that “a significant portion or all of the shape memory is imparted to the Lincoln wire before the wire was placed in Lincoln’s packaging.” (CX-377C at Q. 138-160, 163.) Further, the Lincoln weld wire is wound on an actual spool. (CX-377C at Q. 155; CX-8C.)
- The shape memory of the wire results in the wire substantially lying in a single plane, as the wire’s maximum deviation from a flat surface is less than one inch. (CX-377C at Q. 161; CX-8C at G-1-5; CX-9C.)
- The imparted shape memory in the weld wire is generally in the form of a waveform, and the waveform has a maximum amplitude for each half-cycle. (CX-377C at Q. 161; CX-8C at G-1-5; CX-9C.)
- Each half-cycle has a radius of curvature of at least about 15 inches, as the measured radii varied from 16.3 to 23.7 inches. (CX-377C at Q. 162; CX-8C at G-1-5; CX-9C.)

Sidergas uses its reply brief to assert that Dr. Caulfield’s domestic industry analysis is insufficient. (SGRB at 38.) In its initial post-hearing brief, Sidergas did not raise the argument that Lincoln’s domestic industry evidence was insufficient in any way. Thus, I find that Sidergas waived the ability to raise the argument in its reply brief. (*See* Ground Rule 11.1.)

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Assuming *arguendo* that Sidergas' argument is not waived, I find that it is insufficient to contradict the evidence offered by Lincoln to prove the technical prong. Specifically, Sidergas states that "Dr. Caulfield failed to report the results of much of his testing and cherry-picked those results that he did report." (SGRB at 38.)

To support this assertion, Sidergas first cites to CX-377C at Q. 212. This question asks Dr. Caulfield what Sidergas products he evaluated, and his response describes the Sidergas product he used in his analysis. Sidergas next cites to two portions of the hearing transcript to support its assertion. The first portion is testimony regarding the Sidergas product that Dr. Caulfield tested for his infringement analysis. (Tr. at 457:21-458:5.) The second portion is Dr. Caulfield's testimony that he doesn't know the characteristics of the Sidergas products that he did not test. (Tr. at 459:1-25.) This testimony is not relevant to the issue of domestic industry, and nothing in this testimony demonstrates that Dr. Caulfield failed to report much his testing of Lincoln's product or cherry-picked his results. Thus, I find that the evidence cited by Sidergas does nothing to call into question the credibility of Dr. Caulfield's technical prong analysis.

## VII. REMEDY & BONDING

### A. Limited Exclusion Order

**Lincoln's Position:** Lincoln seeks the issuance of a limited exclusion order against both ESAB and Sidergas. Lincoln argues that pursuant to Commission precedent, the limited exclusion order should not be limited by model number or other such designation. (CIB at 170.)

Lincoln reiterates its request in its reply brief. (CRB at 82.)

**ESAB's Position:** ESAB contends that the record demonstrates that there is no violation of Section 337. Thus, ESAB asserts that I should not recommend the entry of a limited exclusion order. (EIB at 55.)

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**Sidergas' Position:** Sidergas contends that the record demonstrates that there is no violation of Section 337. Thus, Sidergas asserts that I should not recommend the entry of a limited exclusion order. (SGIB at 74.)

In its reply brief, Sidergas states that to the extent that there is a finding that Sidergas violated Section 337, the exclusion order should be limited to the product(s) found to infringe the '864 patent. (SGRB at 38.)

**Staff's Position:** Staff contends that no exclusion order should issue because the evidence does not establish that there has been a violation of Section 337. If a violation is found, Staff believes a limited exclusion order against the Respondents found to infringe would be appropriate. (SIB at 47-48.)

**Discussion and Conclusion:** In this Initial Determination, I have found no violation of Section 337. If, however, a violation of Section 337 is found by the Commission, I recommend that the Commission issue a limited exclusion order that applies to the respondents found to violate Section 337, as well as all of their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns, and covers the bulk welding wire containers and components thereof and welding wire found to infringe the asserted patent.

I decline to recommend an exclusion order that is limited to the specific product names or model numbers that are found to infringe. Commission precedent establishes that it is not appropriate to include specific product names in an exclusion order, as the exclusion order should extend to the products that are within the scope of the investigation and that are found to infringe the applicable patent or patents. *See Certain Integrated Repeaters, Switches, Transceivers & Products Containing Same*, Inv. No. 337-TA-435, Commission Opinion at 22-23, USITC Pub. 3547 (Oct. 2002); *Certain Hardware Logic Emulation Systems & Components*

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*Thereof*, Inv. No. 337-TA-383, Commission Opinion, 1998 WL 307240 (Mar. 1998) (“[T]he Commission’s long-standing practice is to direct its remedial orders to all products covered by the patent claims as to which a violation has been found, rather than limiting its orders to only those specific models selected for the infringement analysis.”)

**B. Cease & Desist Order**

**Lincoln’s Position:** Lincoln seeks the issuance of a cease and desist order directed to the infringing products of ESAB. Lincoln does not seek a cease and desist order for Sidergas. (CIB at 171.)

Lincoln argues that the evidence in the record shows that ESAB maintains a commercially significant inventory of infringing products in the United States. Lincoln notes that in response to the Complaint, ESAB included attachment A, the information submitted pursuant to Commission Rule 210.13(b), which states in relevant part: “From January 2008 to October 31, 2009, ESAB Group imported approximately { } of bulk welding wire packaged in MARATHON PAC products at issue in this investigation, with a value of approximately { } Lincoln states that ESAB witness Mr. McBride testified that this imported product is shipped to ESAB Group distribution centers located in the United States. (Citing CX-398C at 35, 119, 120.) Lincoln states that Mr. McBride further testified that ESAB Group inspects wire imported from China in its Ashtabula, Ohio facility as well as other ESAB warehouses located in the United States. (Tr. at 548-49; RX-95C at 12.) According to Lincoln, the evidence of substantial importations of weld wire taken together with the testimony of Mr. McBride that this wire is shipped to ESAB facilities in the United States prior to sale for testing and distribution confirms that ESAB maintains significant U.S. inventories of its infringing weld wire. (CIB at 171-172.)

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In its reply brief, Lincoln claims that ESAB does not dispute that it maintains inventories of accused products in its U.S. warehouses, but asserts without any factual support that its U.S. inventories are not “commercially significant” as required by Commission precedent. (Citing EIB at 55-56.) (CRB at 82-83.)

Lincoln states that ESAB sends all of its imported wire to its U.S. distribution centers. (Citing CX-398C at 119-120; Tr. at 548:11-549:15.) Lincoln asserts that from January 2008 to October 31, 2009, {

} Assuming each package weighs 900 lbs (as was the ESAB product identified in the Complaint and as indicated in ESAB’s post-trial brief at 4), Lincoln claims that ESAB imported over { } Thus, Lincoln concludes that even if ESAB sells its imported product and then removes it from its U.S. distribution centers within a week after their arrival, it would still have, on average, { } in inventory in the U.S. during any given week.

Moreover, Lincoln states that there is evidence that ESAB keeps its wire in inventory in the U.S., since it inspects the wire it imports from China at its U.S. warehouses. (Citing Tr. at 548-49; RX-95C at 12.) Given the above, Lincoln argues that there is substantial evidence in the record to show that ESAB maintains a “commercially significant” inventory of its accused products in the U.S. to justify issuance of a cease and desist. (CRB at 83-84.)

**ESAB’s Position:** ESAB contends that the record demonstrates that there is no violation of Section 337. Thus, ESAB asserts that no cease and desist should be recommended. In addition, ESAB states that Lincoln failed to offer any evidence to demonstrate that ESAB

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maintains a commercially significant inventory of the accused product in the United States. (EIB at 55-56.)

In its reply brief, ESAB states that Lincoln's Post-Trial Brief concedes that a cease-and-desist order is only appropriate when a complainant can establish the existence of a "commercially significant" amount of imported inventory in the U.S. (Citing CIB at 171.) ESAB argues that the record includes no such evidence, whatsoever. Instead, ESAB claims that Lincoln points to two facts: ESAB Group's listing of past importation levels in its Response to the Complaint and Mr. McBride's description of ESAB Group's distribution centers. According to ESAB, neither of these facts suggests anything about inventory levels. ESAB states that mere evidence of importation activities does not fulfill Lincoln's burden to demonstrate actual U.S. inventory. (Citing *Certain R-134a Coolant (Otherwise Known As 1,1,1,2-tetrafluoroethane)*, Inv. No. 337-TA-623, Initial Determination (Dec. 1, 2008).) (ERB at 33.)

**Sidergas' Position:** Sidergas contends that the record demonstrates that there is no violation of Section 337. Thus, Sidergas asserts that no cease and desist should be recommended. In addition, Sidergas states that Lincoln failed to offer any evidence to demonstrate that Sidergas maintains a commercially significant inventory of the accused product in the United States. (SGIB at 74-75.)

**Staff's Position:** Staff contends that it appears undisputed that Sidergas does not maintain a commercially significant inventory of accused products in the United States. (Citing RX-203C at Q. 79-80.) Thus, Staff asserts that no cease and desist order should be recommended with regard to Sidergas. (SIB at 48.)

With regard to ESAB, Staff states that to the extent imported weld wire may be found in a domestic ESAB facility, and to the extent any such amount is commercially significant, a cease

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and desist order would be appropriate. (Citing Tr. at 547:24-549:11.) (SIB at 48.)

**Discussion and Conclusion:** In this Initial Determination, I have found no violation of Section 337. If, however, a violation of Section 337 is found by the Commission, I do not recommend the issuance of a cease and desist order.

Section 337 provides that in addition to, or in lieu of, the issuance of an exclusion order, the Commission may issue a cease and desist order as a remedy for violation of section 337. *See* 19 U.S.C. § 1337(f)(1). The Commission generally issues a cease and desist order directed to a domestic respondent when there is a “commercially significant” amount of infringing, imported product in the United States that could be sold so as to undercut the remedy provided by an exclusion order. *See Certain Crystalline Cefadroxil Monohydrate*, Inv. No. 337-TA-293, USITC Pub. 2391, Comm’n Op. on Remedy, the Public Interest and Bonding at 37-42 (June 1991); *Certain Condensers, Parts Thereof and Products Containing Same, Including Air Conditioners for Automobiles*, Inv. No. 337-TA-334, Comm’n Op. at 26-28 (Aug. 27, 1997). The complainant bears the burden of proving that a respondent has a commercially significant inventory in the United States. *Certain Integrated Repeaters, Switches, Transceivers & Products Containing Same*, Inv. No. 337-TA-435, Comm’n Op., 2002 WL 31359028 (Aug. 16, 2002).

Lincoln seeks a cease and desist order with respect to ESAB, and not Sidergas. Lincoln relies on the following evidence: (1) ESAB’s admission in its Answer to the Complaint that from January 2008 to October 31, 2009, {

} and (2) the imported product is shipped to ESAB distribution centers in the U.S., where the wire is inspected before being delivered to customers.

(Attachment A to ESAB’s Answer to the Amended Complaint; Tr. at 548:11-549:15; CX-389C

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at 35, 119-120.)

I find Lincoln's evidence to be insufficient to demonstrate that a "commercially significant" amount of accused product is currently being held by ESAB in the United States. Lincoln offers no evidence of ESAB's recent or current U.S. product inventory. Instead, Lincoln seeks to make a logical leap that because ESAB has imported a certain quantity of wire in the past, and because ESAB inspects that imported wire at its U.S. facilities, that ESAB must be holding a commercially significant amount of wire in the U.S. I find that such an assumption does not suffice to prove that ESAB maintains a commercially significant amount of wire in the U.S.

Moreover, Lincoln does not state that ESAB refused to provide discovery regarding its U.S. inventory. Lincoln could have sought evidence from ESAB detailing the amount of accused products being held by ESAB in the U.S. Lincoln offers no such evidence, and thus I find that Lincoln has not met its burden to demonstrate that ESAB has a commercially significant inventory of accused products in the United States. *Certain Integrated Repeaters, Switches, Transceivers & Products Containing Same*, Inv. No. 337-TA-435, Comm'n Op., 2002 WL 31359028 (Aug. 16, 2002).

### C. Bonding

**Lincoln's Position:** Lincoln contends that the Commission should set the level of bond at 100% of the entered value of Respondents' infringing products. (CIB at 172.)

Lincoln states that Respondents maintain that the bond should be based upon any royalty rate paid by former respondents who were terminated from this investigation based on confidential settlement agreements (or that the bond should be zero). (Citing EPHB at 43-44; CX-383 at 4-5; SGPHB at 71-73; CX-394 at 9-10.) However, Lincoln states that the terms of the



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settlement agreements between Lincoln and the settling respondents were not disclosed to the active respondents in view of the “strong public policy” that favors the confidentiality of such information. (Citing Order Nos. 18 and 27.) In view of Order Nos. 18 and 27, Lincoln claims that Respondents’ bond calculation theory has therefore already been rejected. Lincoln states that neither Respondent provided adequate pricing information during discovery when given the opportunity. (Citing CX-383 at 4-5; CX-394 at 9-10.) Thus, Lincoln claims that it is impossible to calculate the bond based on price differential and, pursuant to Commission precedent, the appropriate level of bond should therefore be 100% of the entered value of Respondents’ infringing products. (CIB at 172-173.)

Lincoln notes that Staff proposed two alternatives in its pre-hearing brief for calculating the appropriate level of bond. (SPHB at 39.) The first proposal is to base the level of bond on the difference in price between Lincoln’s products and Respondents’ products. However, as noted previously, Lincoln claims that Respondents refused to provide such information and insist instead that the bond be based on the confidential agreements Lincoln entered into with the settling respondents. (Citing SX-3C at 3-4.) (CIB at 173.)

Lincoln claims that Staff’s second proposal is to base the level of bond {

} (Citing CX-410C at ¶ 7.1.) {

} (CIB at 173-174.)

Lincoln argues that the more appropriate level of bond given Respondents' refusal to provide any adequate pricing information is 100% of the entered value of the infringing imported products. {

} (CIB at 174.)

In its reply brief, Lincoln reiterates its arguments. (CRB at 85-86.)

**ESAB's Position:** ESAB states that Lincoln offered no evidence related to the pricing of ESAB's accused products, nor did it provide any evidence related to the current pricing of the Exact-Trak product. (Citing Tr. at 165:19-22.) As a result, ESAB argues that Lincoln cannot cite any record evidence regarding price differences. ESAB asserts that there is no basis for any bond amount, and no bond should be imposed during the Presidential review period. ESAB contends that if a bond is to be imposed, the rate should be set at the lesser of the rates found in the two settlement agreement that were not fully disclosed to ESAB. (EIB at 57.)

In its reply brief, ESAB argues that a complainant is required to do more than just assert a lack of meaningful price comparison before it is entitled to a 100% bond. (Citing CIB at 173; *Certain Liquid Crystal Display Devices and Products Containing Same*, Inv. No. 337-TA-631, Comm'n Op. at 26-27 (July 14, 2009).) ESAB states that it produced in discovery all of the invoices relating to its accused, imported products for the past two years. According to ESAB,

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because Lincoln made the choice not to move them into evidence does not mean that price information was not available. ESAB concludes that a 100% bond rate is completely uncalled for in this investigation. (ERB at 34-35.)

ESAB notes that Staff suggests that the bond rate should be set at an amount {

} and

does not take into account the two license agreements entered into by Lincoln with the settling respondents. ESAB claims that these two agreements are the most probative evidence relating to an actual established royalty rate. As such, if a bond is recommended, ESAB maintains that the theoretical bond rate should be set at the lesser of the royalty rates of those two settlement agreements. (ERB at 35.)

**Sidergas' Position:** Sidergas states that Lincoln offered no evidence related to the pricing of Sidergas' accused products, nor did it provide any evidence related to the current pricing of the Exact-Trak product. (Citing Tr. at 165:19-22.) As a result, Sidergas argues that Lincoln cannot cite any record evidence regarding price differences. Sidergas asserts that there is no basis for any bond amount, and no bond should be imposed during the Presidential review period. Sidergas contends that if a bond is to be imposed, the rate should be set at the lesser of the rates found in the two settlement agreement that were not fully disclosed to Sidergas. (SGIB at 76.)

In its reply, Sidergas disputes Lincoln's assertion that it was Respondents' fault for failing to provide adequate pricing information. Sidergas claims that allowing Lincoln's request would amount to an adverse inference sanction against Respondents to remedy a discovery issue

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that Lincoln uncovered for the first time during post-trial briefing. Further, Sidergas argues that Lincoln failed to provide adequate pricing information for its own products. (Citing Tr. at 165:23-166:2) (SGRB at 39-40.)

Sidergas reiterates its belief that an appropriate bond rate should be the lesser of the royalty rates found in the settling respondents' licensing agreements. Sidergas argues that Order Nos. 18 and 27 do not preclude reliance on these two licensing agreements. (SGRB at 40.)

**Staff's Position:** Staff contends that in light of Lincoln's failure to pursue evidence regarding the pricing of Respondents' accused products, Lincoln has failed to carry its burden to demonstrate that a 100% bond should be imposed. Staff states that Lincoln is also not entitled to a 100% bond because there is evidence that tends to establish a reasonable royalty. {

}

(SIB at 49-50.)

**Discussion and Conclusion:** In this Initial Determination, I have found no violation of Section 337. If, however, a violation of Section 337 is found by the Commission, I recommend that no bond be set during the Presidential review period.

The administrative law judge and the Commission must determine the amount of bond to be required of a respondent, pursuant to section 337(j)(3), during the 60-day Presidential review period following the issuance of permanent relief, in the event that the Commission determines to order a remedy. The purpose of the bond is to protect the complainant from any injury. 19 CFR §§ 210.42(a)(1)(ii), 210.50(a)(3). The complainant has the burden of supporting any bond amount it proposes. *Certain Rubber Antidegradants, Components Thereof, and Products*

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*Containing Same*, Inv. No. 337-TA-533, Comm'n Op., 2006 ITC LEXIS 591 (Jul. 21, 2006).

When reliable price information is available, the Commission has often set the bond by eliminating the differential between the domestic product and the imported, infringing product. *See Certain Microsphere Adhesives, Processes for Making Same, and Products Containing Same, Including Self-Stick Repositionable Notes*, Inv. No. 337-TA-366, Comm'n Op. at 24 (1995). In other cases, the Commission has turned to alternative approaches, especially when the level of a reasonable royalty rate could be ascertained. *See, e.g., Certain Integrated Circuit Telecommunication Chips and Products Containing Same, Including Dialing Apparatus*, Inv. No. 337-TA-337, Comm'n Op. at 41 (1995).

The Commission has set a bond of 100% when the evidence supported a finding that it would be difficult or impossible to calculate a bond based on price differentials. *Certain Variable Speed Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, Comm'n Op., 1996 WL 1056209 (Sept. 23, 1996) (finding that a bond of 100% was appropriate "because of the difficulty in quantifying the cost advantages of respondents' imported Enercon E-40 wind turbines and because of price fluctuations due to exchange rates and market conditions."); *Certain Systems For Detecting and Removing Viruses or Worms, Components Thereof, and Products Containing Same*, Inv. No. 337-TA-510, Comm'n Op., 2007 WL 4473083 (Aug. 2007) (imposing a bond of 100% based on a finding that the parties had numerous models and products lines, and that a price comparison would be difficult because respondent's products were a combination of hardware and software while the complainant's products were software only); *Certain Flash Memory Circuits and Products Containing Same*, Inv. No. 337-TA-382, USITC Pub. No. 3046, Comm'n Op. at 26-27 (July 1997) (a 100% bond imposed when price comparison was not practical because the parties sold products at different levels of commerce,

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and the proposed royalty rate appeared to be *de minimis* and without adequate support in the record).

In *Certain Rubber Antidegradants*, the Commission did not require a bond. The presiding administrative law judge had set no bond, finding, “no evidence in the record to support any bond to offset any competitive advantage resulting from the unfair acts of [respondents] from their importations.” *Certain Rubber Antidegradants*, 2006 ITC LEXIS 591, at \*59.

The respondent argued that the lack of pricing information was due to the complainant’s failure to adduce such evidence during the hearing and complainant should not be able to benefit from that failure. (*Id.* At 60) In response, the complainant argued that it had no burden of proof with respect to bonding, and that the existence of a violation is sufficient to support a 100% bond. (*Id.*) In deciding the issue, the Commission stated:

We find the ALJ’s recommendation appropriate in the circumstances here and have determined not to require that a bond be posted for temporary importation. In our view, the complainant has the burden of supporting any proposition it advances, including the amount of the bond. [The complainant] did not meet that burden.

(*Id.*)

I find that Lincoln failed to meet its burden to support its argument that a 100% bond is appropriate based on the lack of adequate pricing information. Lincoln claims that Respondents failed to provide adequate pricing data, even though Lincoln requested such data. (CIB at 173.) The record reflects that Lincoln failed to provide any evidence to support its assertion that Respondents refused to produce pricing information in the face of a request from Lincoln. Lincoln cites to Respondents’ interrogatory responses as support for the argument that Respondents failed to produce adequate pricing information during discovery. (CIB at 173.)

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The interrogatory on which Lincoln focuses was a contention interrogatory seeking Respondents' contention regarding an appropriate bond amount. (CX-383 at 4-5; CX-394 at 10.)

The fact that Respondents did not provide pricing information in response to this contention interrogatory does not demonstrate that Respondents refused to provide pricing data. As explained *supra*, the bond amount may be set using more than one analytical method. If Respondents believed that a bond set in this investigation should not be based on pricing data, then they are entitled to that opinion. It was Lincoln's duty to seek specific discovery regarding Respondents' pricing, instead of expecting Respondents to provide such discovery in response to the contention interrogatory concerning the proper level of bond.

Respondents seek no bond, but argue that if a bond is recommended, it should be based on the lesser of any royalty rate found in two settlement agreements that Lincoln entered into with former respondents in this investigation.

In Order No. 18, I issued an Initial Determination terminating the investigation as to Hyundai Welding Co., Ltd. ("Hyundai") based on a settlement agreement. As part of the motion to terminate, Lincoln and Hyundai made joint request to withhold the confidential portions of the settlement agreement from the non-settling respondents. In Order No. 18, I summarized the non-settling respondents' opposition as follows:

The Non-Settling Respondents oppose Lincoln and Hyundai's attempt to withhold the confidential settlement agreement. They state that the agreement is relevant to the affirmative defenses of patent misuse and unclean hands. Specifically, they claim that Hyundai has presented information to Lincoln regarding prior art Hyundai products that may render the asserted patents invalid. Non-Settling Respondents seek to examine the full settlement agreement to determine whether Lincoln is using the settlement agreement to prevent that Hyundai prior art from being disclosed in this investigation. Non-Settling Respondents state that without the full settlement agreement, they cannot assess whether or not the settlement agreement contravenes the public interest.

(Order No. 18 at 3.)

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I found the non-settling respondents' argument unpersuasive and granted the joint request to withhold the confidential portions of the settlement agreement from the non-settling respondents. (Order No. 18 at 4-7.)

In Order No. 27, I issued an Initial Determination terminating the investigation as to Kiswel Ltd. ("Kiswel") based on a settlement agreement. Lincoln and Kiswel made a similar request to withhold the confidential portions of the settlement agreement from the non-settling respondents. I granted this unopposed request. (Order No. 27 at 6.)

When presented with the opportunity to argue that the confidential terms of the settlement agreements should not be withheld from non-settling respondents, neither ESAB nor Sidergas raised the alleged relevance of the settlement agreements to the issue of bonding. If Respondents believed it was necessary to use the settlement agreements for evidence of the proper bond level, as opposed to the parties' sales figures, the time for raising the issue was in response to the joint motions for termination as to Hyundai and Kiswel. After Order Nos. 18 and 27, the confidential terms of the settlement agreements shall not be disclosed to non-settling respondents, and relying on those settlement agreements to determine an appropriate bond would necessarily require disclosure of confidential settlement terms to ESAB and Sidergas. Thus, I find that Respondents have waived the opportunity to rely on the settlement agreements that were the subject of Order Nos. 18 and 27 for purposes of demonstrating a proper bond level.

{

} (CX-410C.) {

} (See SIB at 50 (Citing Lincoln's Amended

Complaint at ¶ 33).) {



} (CX-  
410C at ¶ 7.1.)<sup>42</sup>

I find that this license agreement alone does not provide sufficient evidence of a reasonable royalty that may be used to set a bond. No party has offered an explanation regarding why the royalty found in this license agreement constitutes a “reasonable royalty.” In fact, both Lincoln and ESAB assert that the royalty rate found in the license agreement is not akin to a reasonable royalty {

} (See CIB at 174; ERB at 35.) {

} (CX-376C at Q. 8; Tr. at 169:8-19.) {

.}

There being no credible evidence of an appropriate bond amount in the record, I recommend that should the Commission find a violation of Section 337, no bond be set during the Presidential review period.

### VIII. MATTERS NOT DISCUSSED

This Initial Determination’s failure to discuss any matter raised by the parties, or any portion of the record, does not indicate that it has not been considered. Rather, any such matter(s) or portion(s) of the record has/have been determined to be irrelevant, immaterial or meritless. Arguments made on brief which were otherwise unsupported by record evidence or legal precedent have been accorded no weight.

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<sup>42</sup> {

}

**PUBLIC VERSION**

**IX. CONCLUSIONS OF LAW**

1. The Commission has subject matter jurisdiction, *in rem* jurisdiction, and *in personam* jurisdiction.

2. There has been an importation of the accused ESAB bulk welding wire containers and components thereof and welding wire, which are the subject of the alleged unfair trade allegations.

3. There has been an importation of the accused Sidergas bulk welding wire containers and components thereof and welding wire, which are the subject of the alleged unfair trade allegations.

4. An industry exists in the United States that exploits U.S. Pat. No. 6,708,864, as required by 19 U.S.C. § 1337(a)(2).

5. Claim 3 of U.S. Patent No. 6,708,864 is invalid pursuant to 35 U.S.C. § 102(b).

6. Claims 4, 6, 12, and 13 of U.S. Patent No. 6,708,864 are valid and enforceable.

7. None of the accused ESAB products infringe claims 3, 4, 6, 12, or 13 of U.S. Pat. No. 6,708,864.

8. None of the accused Sidergas products infringe claims 3, 4, 6, 12, or 13 of U.S. Pat. No. 6,708,864.

9. There is no violation of 19 U.S.C. § 1337(a)(1).

**XI. ORDER**

Based on the foregoing, and the record as a whole, it is my Final Initial Determination that there is no violation of 19 U.S.C. § 1337(a)(1) in the importation into the United States, sale for importation, and the sale within the United States after importation of certain bulk welding wire containers and components thereof and welding wire.

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I hereby **CERTIFY** to the Commission my Final Initial and Recommended Determinations together with the record consisting of the exhibits admitted into evidence. The pleadings of the parties filed with the Secretary, and the transcript of the pre-hearing conference and the hearing, as well as other exhibits, are not certified, since they are already in the Commission's possession in accordance with Commission rules.

It is further **ORDERED** that:

In accordance with Commission Rule 210.39, all material heretofore marked *in camera* because of business, financial and marketing data found by the administrative law judge to be cognizable as confidential business information under Commission Rule 201.6(a), is to be given *in camera* treatment continuing after the date this investigation is terminated.

The initial determination portion of the Final Initial and Recommended Determination, issued pursuant to Commission Rule 210.42(a)(1)(i), shall become the determination of the Commission sixty (60) days after the service thereof, unless the Commission, within that period, shall have ordered its review of certain issues therein, or by order, has changed the effective date of the initial determination portion. If the Commission determines that there is a violation of 19 U.S.C. § 1337(a)(1), the recommended determination portion, issued pursuant to Commission Rule 210.42(a)(1)(ii), will be considered by the Commission in reaching a determination on remedy and bonding pursuant to Commission Rule 210.50(a).

Within fourteen days of the date of this document, each party shall submit to the office of the Administrative Law Judge a statement as to whether or not it seeks to have any portion of this document deleted from the public version. The parties' submissions must be made by hard

**PUBLIC VERSION**

copy by the aforementioned date and must include a copy of this document with red brackets indicating any portion asserted to contain confidential business information to be deleted from the public version. The parties' submission concerning the public version of this document need not be filed with the Commission Secretary.

**SO ORDERED.**

Issued:

7/29/2010

DATE



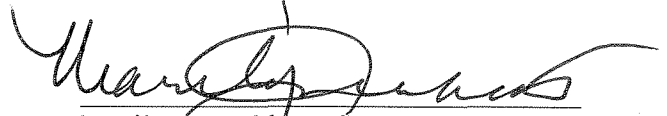
\_\_\_\_\_  
Robert K. Rogers, Jr.  
Administrative Law Judge

**CERTAIN BULK WELDING WIRE  
CONTAINERS AND COMPONENTS  
THEREOF AND WELDING WIRE**

**Inv. No. 337-TA-686**

**PUBLIC CERTIFICATE OF SERVICE**

I, Marilyn R. Abbott, hereby certify that the attached **ORDER** was served upon **Benjamin Levi, Esq.**, Commission Investigative Attorneys, and the following parties via first class mail and air mail where necessary on August 31, 2010



Marilyn R. Abbott, Secretary  
U.S. International Trade Commission  
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**PUBLIC CERTIFICATE OF SERVICE - PAGE 2**

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