

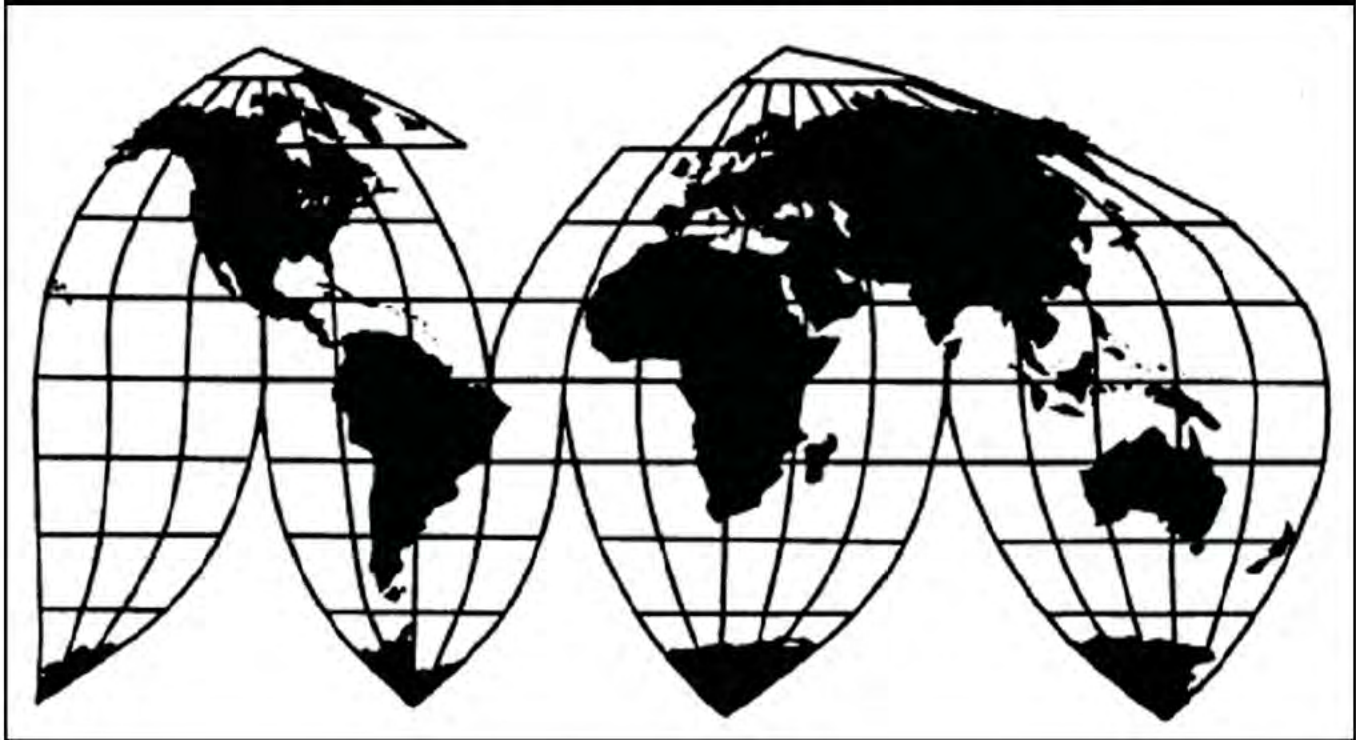
*In the Matter of*  
**Certain Ground Fault Circuit Interrupters  
and Products Containing Same**

Investigation No. 337-TA-615

Publication 4146

October 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 Ground Fault Circuit Interrupters and Products Containing Same**

Investigation No. 337-TA-615







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

**In the Matter of**

**CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING SAME**

**Investigation No. 337-TA-615**

**NOTICE OF COMMISSION FINAL DETERMINATION OF VIOLATION OF  
SECTION 337; TERMINATION OF INVESTIGATION; ISSUANCE OF LIMITED  
EXCLUSION ORDER AND CEASE-AND-DESIST ORDERS**

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

**ACTION:** Notice.

**SUMMARY:** Notice is hereby given that the U.S. International Trade Commission has determined that there is a violation of 19 U.S.C. § 1337 in the above-captioned investigation by respondents General Protecht Group, Inc. ("GPG") of Zhejiang, China; Shanghai ELE Manufacturing Corporation ("ELE") of Shanghai, China; Shanghai Meihao Electric, Inc. ("Meihao") of Shanghai, China; Wenzhou Trimone Company ("Trimone") of Zhejiang, China; Cheetah USA Corp. ("Cheetah") of Sandy, Utah; Nicor Inc. ("Nicor") of Albuquerque, New Mexico; Orbit Industries, Inc. ("Orbit") of Los Angeles, California; The Designer's Edge ("TDE") of Bellevue, Washington; and Colacino Electric Supply, Inc. ("Colacino") of Newark, New York by reason of infringement of one or more of claims 1, 7, and 8 of United States Patent No. 5,594,398 ("the '398 patent"); claims 14, 18, and 30 of United States Patent No. 7,283,340 ("the '340 patent"); claim 52 of United States Patent No. 7,154,718 ("the '718 patent"); and claims 1 and 15 of United States Patent No. 7,164,564 ("the '564 patent"). To remedy the violation it has found, the Commission has determined to issue a limited exclusion order and to issue cease-and-desist orders to certain respondents. The investigation is terminated.

**FOR FURTHER INFORMATION CONTACT:** Paul M. Bartkowski, Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 708-5432. 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:** This investigation was instituted on September 18, 2007, based on a complaint filed by Pass & Seymour, Inc. ("P&S") of Syracuse, New York. The complaint, as supplemented, alleged violations of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain ground fault circuit interrupters and products containing the same by reason of infringement of certain claims of certain United States patents. The complaint named 15 respondents. After institution of the investigation, by separate initial determinations, each of which the Commission determined not to review, certain respondents were terminated from the investigation; the '340 patent was added to the investigation; P&S's motion for summary determination that it satisfied the economic prong of the domestic industry requirement was granted with respect to all asserted patents; and the investigation was terminated with respect to all claims except claims 1, 7, and 8 of the '398 patent, claim 1 of U.S. Patent No. 7,212,386 ("the '386 patent"), claims 14, 18, and 30 of the '340 patent, claims 1 and 15 of the '564 patent; claims 1, 2, 5, and 6 of U.S. Patent No. 7,256,973 ("the '973 patent"); and claim 52 of the '718 patent.

On September 24, 2008, the administrative law judge ("ALJ") issued his final initial determination ("ID"), finding a violation with section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain ground fault circuit interrupters and products containing same by reason of infringement of one or more of claims 1, 7, and 8 of the '398 patent; claims 14, 18, and 30 of the '340 patent; claim 1 of the '386 patent; claims 1 and 15 of the '564 patent; claim 1 of the '973 patent; and claim 52 of the '718 patent. Respondents ELE (in a joint brief with its respondent customers Cheetah, Colacino, Orbit, and Nicor), Meihao (in a joint brief with its respondent customer TDE), GPG, and Trimone each filed a petition for review of the ID. P&S and the Commission investigative attorney ("IA") each filed a response to the respondents' petitions for review.

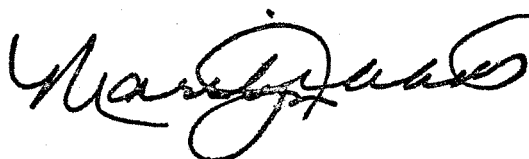
On December 8, 2008, the Commission determined to review the ID in part. Specifically, the Commission determined to review: (1) the ALJ's construction of "unitary, electrically conducting member carrying a pair of spaced electrical contacts" in the '398 patent and related issues of infringement, domestic industry, and validity; (2) the ALJ's construction of "mounting means" in the '398 patent and related issues of infringement, domestic industry, and validity; (3) the ALJ's construction of "latching means" in the '398 patent and related issues of infringement, domestic industry, and validity; (4) the ALJ's conclusion that the asserted claims of the '340 patent are not invalid; (5) the ALJ's construction of "an actuator assembly configured to provide an actuator signal in response to the fault detection or the wiring state detection signal" in the '386 patent and related issues of infringement, domestic industry, and validity; (6) the ALJ's construction of "the circuit interrupter being configured to disconnect the first conductive path from the second conductive path in response to the actuator signal in the reset state" in the '386 patent and related issues of infringement, domestic industry, and validity; (7) the ALJ's

determination regarding validity of the '386 patent; (8) the ALJ's determination of infringement of the '973 patent regarding ELE's 2006 GFCIs; and (9) the ALJ's construction of "cantilever" in the '718 patent and related issues of infringement, domestic industry, and validity. In its notice of review, the Commission asked the parties remaining in the investigation to address certain questions in their written submissions regarding the issues under review. Each of the remaining private parties and the IA filed written submissions regarding the issues on review, and on remedy, bonding, and the public interest. In addition, non-respondent Hubbell Inc. ("Hubbell") submitted briefs on the issues of remedy, the public interest, and bonding.

Having examined the record of this investigation, the Commission has determined to make certain modifications to the ALJ's ID, as set forth in the Commission's opinion. Applying these modifications to the ALJ's ID, the Commission has determined that a violation of section 337 has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain ground fault circuit interrupters by respondents GPG, ELE, Meihao, Trimone, Cheetah, Nicor, Orbit, TDE, and Colacino by reason of infringement of one or more of claims 1, 7, and 8 of the '398 patent; claims 14, 18, and 30 of the '340 patent; claim 52 of the '718 patent; and claims 1 and 15 of the '564 patent. To remedy the violation it has found, the Commission has determined to issue a limited exclusion order, and to issue cease-and-desist orders to Cheetah, Colacino, Nicor, Orbit, and TDE. The Commission has determined that the public interest factors set out in section 337(d) do not preclude issuance of these remedial orders. Finally, the Commission has determined that the bond to permit temporary importation during the Presidential review period should be set at 100% of the entered value of the imported articles. The investigation is terminated.

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 section 210.45 of the Commission's Rules of Practice and Procedure (19 C.F.R. § 210.45).

By order of the Commission.



Marilyn R. Abbott  
Secretary to the Commission

Issued: March 9, 2009

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

**In the Matter of**

**CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING THE SAME**

**Inv. No. 337-TA-615**

**LIMITED EXCLUSION ORDER**

The Commission has determined that there is a violation of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) in the unlawful importation and sale of certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1, 7, and 8 of United States Patent No. 5,594,398 (“the ‘398 patent”); claims 14, 18, and 30 of United States Patent No. 7,283,340 (“the ‘340 patent”); claim 52 of United States Patent No. 7,154,718 (“the ‘718 patent”); and claims 1 and 15 of United States Patent No. 7,164,564 (“the ‘564 patent”) by General Protecht Group, Inc. (“GPG”); Shanghai ELE Manufacturing Corporation (“ELE”); Shanghai Meihao Electric, Inc. (“Meihao”); Wenzhou Trimone Company (“Trimone”); Cheetah USA Corp. (“Cheetah”); Nicor Inc. (“Nicor”); Orbit Industries, Inc. (“Orbit”); The Designer’s Edge (“TDE”); and Colacino Electric Supply, Inc. (“Colacino”).

Having reviewed the record in this investigation, including the written submissions of the parties, the Commission has made its determination on the issues of remedy, the public interest, and bonding. The Commission has determined that the appropriate form of relief is a limited exclusion order prohibiting the unlicensed entry of ground fault circuit interrupters and products containing the same that infringe the asserted claims of the ‘398, ‘340, ‘718, and ‘564 patents and



are manufactured abroad by or on behalf of, or imported by or on behalf of, GPG, ELE, Meihao, Trimone, Cheetah, Nicor, Orbit, TDE, or Colacino.

The Commission has also determined that the public interest factors enumerated in 19 U.S.C. §§ 1337(d) do not preclude the issuance of the limited exclusion order, and that the bond during the Presidential review period shall be in the amount of 100% of the entered value of the articles in question.

Accordingly, the Commission hereby ORDERS that:

1. Ground fault circuit interrupters and products containing the same covered by one or more of claims 1 and 7 of the '398 patent and claims 14 and 18 of the '340 patent, and that are manufactured abroad by or on behalf of, or imported by or on behalf of, GPG or any of its affiliated companies, parents, subsidiaries, or other related business entities, or its successors or assigns are excluded from entry for consumption, entry for consumption from a foreign-trade zone, or withdrawal from a warehouse for consumption, for the remaining term of the patents, except under license of the patent owner or as provided by law.
2. Ground fault circuit interrupters and products containing the same covered by one or more of claims 1 and 7 of the '398 patent, claims 14 and 18 of the '340 patent, and claim 52 of the '718 patent, and that are manufactured abroad by or on behalf of, or imported by or on behalf of, Meihao, TDE, or any of their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns are excluded from entry for consumption, entry for consumption from a foreign-trade zone, or withdrawal from a warehouse for

consumption, for the remaining term of the patents, except under license of the patent owner or as provided by law.

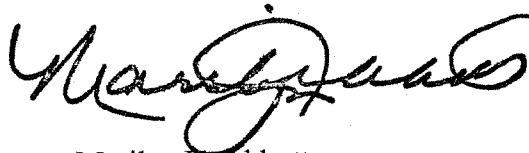
3. Ground fault circuit interrupters and products containing the same covered by one or more of claims 14 and 18 of the '340 patent, and that are manufactured abroad by or on behalf of, or imported by or on behalf of, Trimone or any of its affiliated companies, parents, subsidiaries, or other related business entities, or its successors or assigns are excluded from entry for consumption, entry for consumption from a foreign-trade zone, or withdrawal from a warehouse for consumption, for the remaining term of the patents, except under license of the patent owner or as provided by law.
4. Ground fault circuit interrupters and products containing the same covered by one or more of claims 1, 7, and 8 of the '398 patent, claims 14, 18, and 30 of the '340 patent, and claims 1 and 15 of the '564 patent, and that are manufactured abroad by or on behalf of, or imported by or on behalf of, ELE, Cheetah, Nicor, Orbit, or Colacino or any of their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns are excluded from entry for consumption, entry for consumption from a foreign-trade zone, or withdrawal from a warehouse for consumption, for the remaining term of the patents, except under license of the patent owner or as provided by law.
5. Notwithstanding paragraphs 1-4 of this Order, the aforesaid ground fault circuit interrupters and products containing the same are entitled to entry into the United States for consumption, entry for consumption from a foreign-trade zone, or withdrawal from a warehouse for consumption, under bond in the amount of

100% of the entered value of such articles, from the day after this Order is received by the United States Trade Representative as delegated by the President, 70 *Fed. Reg.* 43251 (July 21, 2005), until such time as the United States Trade Representative notifies the Commission that this action is approved or disapproved but, in any event, not later than sixty (60) days after the date of receipt of this action.

6. At the discretion of U.S. Customs and Border Protection ("CBP") and pursuant to procedures it establishes, persons seeking to import ground fault circuit interrupters and products containing the same that are potentially subject to this Order may be required to certify that they are familiar with the terms of this Order, that they have made appropriate inquiry, and thereupon state that, to the best of their knowledge and belief, the products being imported are not excluded from entry under paragraphs 1 through 10 of this Order. At its discretion, Customs may require persons who have provided the certification described in this paragraph to furnish such records or analyses as are necessary to substantiate the certification.
7. In accordance with 19 U.S.C. § 1337(l), the provisions of this Order shall not apply to ground fault circuit interrupters and products containing the same imported by and for the use of the United States, or imported for, and to be used for, the United States with the authorization or consent of the Government.
8. The Commission may modify this Order in accordance with the procedure described in section 210.76 of the Commission's Rules of Practice and Procedure (19 C.F.R. § 210.76).

9. The Commission Secretary shall serve copies of this Order upon each party of record in this investigation and upon the Department of Health and Human Services, the Department of Justice, the Federal Trade Commission, and the Bureau of Customs and Border Protection.
10. Notice of this Order shall be published in the *Federal Register*.

By order of the Commission.

A handwritten signature in black ink, appearing to read "Marilyn R. Abbott", written in a cursive style.

Marilyn R. Abbott  
Secretary to the Commission

Issued: March 9, 2009



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

**In the Matter of**

**CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING THE SAME**

**Inv. No. 337-TA-615**

**ORDER TO CEASE AND DESIST**

IT IS HEREBY ORDERED THAT Nicor Inc., of Albuquerque, New Mexico ("Nicor"), cease and desist from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or distributors for, certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1, 7, and 8 of U.S. Patent No. 5,594,398; claims 14, 18, and 30 of U.S. Patent No. 7,283,340; and claims 1 and 15 of U.S. Patent No. 7,164,564, in violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337.

**I.**

**Definitions**

As used in this Order:

(A) "Commission" shall mean the United States International Trade Commission.

(B) "P & S" or "Complainants" shall mean Pass & Seymour, Inc. of 50

Boyd Avenue, Syracuse, New York 13209.

(C) “Nicor” or “Respondent” shall mean Nicor Inc. of 2200 Midtown Place NE, Suite A, Albuquerque, New Mexico 87107.

(D) “Person” shall mean an individual, or any non-governmental partnership, firm, association, corporation, or other legal or business entity or its majority owned or controlled subsidiaries, successors, or assigns.

(E) “United States” shall mean the fifty States, the District of Columbia, and Puerto Rico.

(F) The terms “import” and “importation” refer to importation for entry for consumption under the Customs laws of the United States.

(G) The term “covered products” shall mean certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1, 7, and 8 of U.S. Patent No. 5,594,398 (“the ‘398 patent”); claims 14, 18, and 30 of U.S. Patent No. 7,283,340 (“the ‘340 patent”); and claims 1 and 15 of U.S. Patent No. 7,164,564 (“the ‘564 patent”).

## II.

### **Applicability**

The provisions of this Cease and Desist Order shall apply to Respondents and to any of its principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) and majority-owned business entities, successors, and assigns, and to each of them, insofar as they are engaging in conduct prohibited by Section III, *infra*, for, with,

or otherwise on behalf of Respondent.

### **III.**

#### **Conduct Prohibited**

The following conduct of Respondent in the United States is prohibited by the Order. For the remaining term of the respective patents, Respondent shall not:

- (A) import or sell for importation into the United States covered products;
- (B) market, distribute, offer for sale, sell, or otherwise transfer (except for exportation), in the United States imported covered products;
- (C) advertise imported covered products;
- (D) solicit U.S. agents or distributors for imported covered products; or
- (E) aid or abet other entities in the importation, sale for importation, sale after importation, transfer, or distribution of covered products.

### **IV.**

#### **Conduct Permitted**

Notwithstanding any other provision of this Order, specific conduct otherwise prohibited by the terms of this Order shall be permitted if, in a written instrument, the owner of the '398, '340 and '564 patents licenses or authorizes such specific conduct, or such specific conduct is related to the importation or sale of covered products by or for the United States.

**V.****Reporting**

For purposes of this reporting requirement, the reporting periods shall commence on July 1 of each year and shall end on the subsequent June 30. However, the first report required under this section shall cover the period from the date of issuance of this Order through June 30, 2009. This reporting requirement shall continue in force until such time as Respondent will have truthfully reported, in two consecutive timely filed reports, that it has no inventory of covered products in the United States.

Within thirty (30) days of the last day of the reporting period, Respondent shall report to the Commission the quantity in units and the value in dollars of covered products that Respondent has imported or sold in the United States after importation during the reporting period and the quantity in units and value in dollars of reported covered products that remain in inventory in the United States at the end of the reporting period.

Any failure to make the required report or the filing of any false or inaccurate report shall constitute a violation of this Order, and the submission of a false or inaccurate report may be referred to the U.S. Department of Justice as a possible criminal violation of 18 U.S.C. § 1001.

**VI.****Record-keeping and Inspection**

(A) For the purpose of securing compliance with this Order, Respondent



shall retain any and all records relating to the sale, offer for sale, marketing, or distribution in the United States of covered products, made and received in the usual and ordinary course of business, whether in detail or in summary form, for a period of three (3) years from the close of the fiscal year to which they pertain.

(B) For the purpose of determining or securing compliance with this Order and for no other purpose, and subject to any privilege recognized by the federal courts of the United States, duly authorized representatives of the Commission, upon reasonable written notice by the Commission or its staff, shall be permitted access and the right to inspect and copy in Respondent's principal offices during office hours, and in the presence of counsel or other representatives if Respondent so chooses, all books, ledgers, accounts, correspondence, memoranda, and other records and documents, both in detail and in summary form as are required to be retained by subparagraph VI(A) of this Order.

## **VII.**

### **Service of Cease and Desist Order**

Respondent is ordered and directed to:

(A) Serve, within fifteen (15) days after the effective date of this Order, a copy of this Order upon each of its respective officers, directors, managing agents, agents, and employees who have any responsibility for the importation, marketing, distribution, or sale of imported covered products in the United States;

(B) Serve, within fifteen (15) days after the succession of any persons referred to in subparagraph VII (A) of this Order, a copy of the Order upon each

successor; and

(C) Maintain such records as will show the name, title, and address of each person upon whom the Order has been served, as described in subparagraphs VII(A) and VII(B) of this Order, together with the date on which service was made.

The obligations set forth in subparagraphs VII(B) and VII(C) shall remain in effect until the date of expiration of the '398, '340, or '564 patent, whichever is later.

## **VIII.**

### **Confidentiality**

Any request for confidential treatment of information obtained by the Commission pursuant to Sections V and VI of this Order should be in accordance with Commission Rule 201.6, 19 C.F.R. § 201.6. For all reports for which confidential treatment is sought, Respondent must provide a public version of such report with confidential information redacted.

## **IX.**

### **Enforcement**

Violation of this Order may result in any of the actions specified in section 210.75 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.75, including an action for civil penalties in accordance with section 337(f) of the Tariff Act of 1930, 19 U.S.C. § 1337(f), and any other action as the Commission may deem appropriate. In determining whether Respondent is in violation of this

Order, the Commission may infer facts adverse to Respondent if Respondent fails to provide adequate or timely information.

## **X.**

### **Modification**

The Commission may amend this Order on its own motion or in accordance with the procedure described in section 210.76 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.76.

## **XI.**

### **Bonding**

The conduct prohibited by Section III of this Order may be continued during the sixty (60) day period in which this Order is under review by the United States Trade Representative as delegated by the President, *70 Fed Reg* 43251 (July 21, 2005), subject to Respondent posting a bond of in the amount of 100% of the entered value for infringing ground fault circuit interrupters and products containing the same. This bond provision does not apply to conduct that is otherwise permitted by Section IV of this Order. Covered products imported on or after the date of issuance of this order are subject to the entry bond as set forth in the limited exclusion order issued by the Commission, and are not subject to this bond provision.

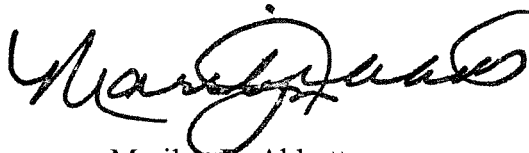
The bond is to be posted in accordance with the procedures established by the Commission for the posting of bonds by complainants in connection with the issuance of temporary exclusion orders. *See* Commission Rule 210.68, 19 C.F.R.

§ 210.68. The bond and any accompanying documentation is to be provided to and approved by the Commission prior to the commencement of conduct which is otherwise prohibited by Section III of this Order.

The bond is to be forfeited in the event that the United States Trade Representative approves, or does not disapprove within the review period, this Order, unless the U.S. Court of Appeals for the Federal Circuit, in a final judgment, reverses any Commission final determination and order as to Respondent on appeal, or unless Respondent exports the products subject to this bond or destroys them and provides certification to that effect satisfactory to the Commission.

The bond is to be released in the event the United States Trade Representative disapproves this Order and no subsequent order is issued by the Commission and approved, or not disapproved, by the United States Trade Representative, upon service on Respondent of an order issued by the Commission based upon application therefore made by Respondent to the Commission.

By Order of the Commission.

A handwritten signature in black ink, appearing to read "Marilyn R. Abbott", written in a cursive style.

Marilyn R. Abbott  
Secretary to the Commission

Issued: March 9, 2009



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

**In the Matter of**

**CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING THE SAME**

**Inv. No. 337-TA-615**

**ORDER TO CEASE AND DESIST**

IT IS HEREBY ORDERED THAT Orbit Industries, Inc. (“Orbit”) of Los Angeles, California, cease and desist from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or distributors for, certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1, 7, and 8 of U.S. Patent No. 5,594,398; claims 14, 18, and 30 of U.S. Patent No. 7,283,340 ; and claims 1 and 15 of U.S. Patent No. 7,164,564, in violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337.

**I.**

**Definitions**

As used in this Order:

(A) “Commission” shall mean the United States International Trade Commission.

(B) “P & S” or “Complainants” shall mean Pass & Seymour, Inc. of 50

Boyd Avenue, Syracuse, New York 13209.

(C) “Orbit” or “Respondent” shall mean Orbit Industries, Inc. of 2100 S. Figueroa Street, Los Angeles, California 90007.

(D) “Person” shall mean an individual, or any non-governmental partnership, firm, association, corporation, or other legal or business entity or its majority owned or controlled subsidiaries, successors, or assigns.

(E) “United States” shall mean the fifty States, the District of Columbia, and Puerto Rico.

(F) The terms “import” and “importation” refer to importation for entry for consumption under the Customs laws of the United States.

(G) The term “covered products” shall mean certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1, 7, and 8 of U.S. Patent No. 5,594,398 (“the ‘398 patent”); claims 14, 18, and 30 of U.S. Patent No. 7,283,340 (“the ‘340 patent”); and claims 1 and 15 of U.S. Patent No. 7,164,564 (“the ‘564 patent”).

## II.

### **Applicability**

The provisions of this Cease and Desist Order shall apply to Respondents and to any of its principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) and majority-owned business entities, successors, and assigns, and to each of them, insofar as they are engaging in conduct prohibited by Section III, *infra*, for, with,

or otherwise on behalf of Respondent.

### **III.**

#### **Conduct Prohibited**

The following conduct of Respondent in the United States is prohibited by the Order. For the remaining term of the respective patents, Respondent shall not:

- (A) import or sell for importation into the United States covered products;
- (B) market, distribute, offer for sale, sell, or otherwise transfer (except for exportation), in the United States imported covered products;
- (C) advertise imported covered products;
- (D) solicit U.S. agents or distributors for imported covered products; or
- (E) aid or abet other entities in the importation, sale for importation, sale after importation, transfer, or distribution of covered products.

### **IV.**

#### **Conduct Permitted**

Notwithstanding any other provision of this Order, specific conduct otherwise prohibited by the terms of this Order shall be permitted if, in a written instrument, the owner of the '398, '340, and '564 patents licenses or authorizes such specific conduct, or such specific conduct is related to the importation or sale of covered products by or for the United States.

**V.****Reporting**

For purposes of this reporting requirement, the reporting periods shall commence on July 1 of each year and shall end on the subsequent June 30. However, the first report required under this section shall cover the period from the date of issuance of this Order through June 30, 2009. This reporting requirement shall continue in force until such time as Respondent will have truthfully reported, in two consecutive timely filed reports, that it has no inventory of covered products in the United States.

Within thirty (30) days of the last day of the reporting period, Respondent shall report to the Commission the quantity in units and the value in dollars of covered products that Respondent has imported or sold in the United States after importation during the reporting period and the quantity in units and value in dollars of reported covered products that remain in inventory in the United States at the end of the reporting period.

Any failure to make the required report or the filing of any false or inaccurate report shall constitute a violation of this Order, and the submission of a false or inaccurate report may be referred to the U.S. Department of Justice as a possible criminal violation of 18 U.S.C. § 1001.

**VI.****Record-keeping and Inspection**

(A) For the purpose of securing compliance with this Order, Respondent

shall retain any and all records relating to the sale, offer for sale, marketing, or distribution in the United States of covered products, made and received in the usual and ordinary course of business, whether in detail or in summary form, for a period of three (3) years from the close of the fiscal year to which they pertain.

(B) For the purpose of determining or securing compliance with this Order and for no other purpose, and subject to any privilege recognized by the federal courts of the United States, duly authorized representatives of the Commission, upon reasonable written notice by the Commission or its staff, shall be permitted access and the right to inspect and copy in Respondent's principal offices during office hours, and in the presence of counsel or other representatives if Respondent so chooses, all books, ledgers, accounts, correspondence, memoranda, and other records and documents, both in detail and in summary form as are required to be retained by subparagraph VI(A) of this Order.

## **VII.**

### **Service of Cease and Desist Order**

Respondent is ordered and directed to:

(A) Serve, within fifteen (15) days after the effective date of this Order, a copy of this Order upon each of its respective officers, directors, managing agents, agents, and employees who have any responsibility for the importation, marketing, distribution, or sale of imported covered products in the United States;

(B) Serve, within fifteen (15) days after the succession of any persons referred to in subparagraph VII (A) of this Order, a copy of the Order upon each

successor; and

(C) Maintain such records as will show the name, title, and address of each person upon whom the Order has been served, as described in subparagraphs VII(A) and VII(B) of this Order, together with the date on which service was made.

The obligations set forth in subparagraphs VII(B) and VII(C) shall remain in effect until the date of expiration of the '398, '340, or '564 patent, whichever is later.

### **VIII.**

#### **Confidentiality**

Any request for confidential treatment of information obtained by the Commission pursuant to Sections V and VI of this Order should be in accordance with Commission Rule 201.6, 19 C.F.R. § 201.6. For all reports for which confidential treatment is sought, Respondent must provide a public version of such report with confidential information redacted.

### **IX.**

#### **Enforcement**

Violation of this Order may result in any of the actions specified in section 210.75 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.75, including an action for civil penalties in accordance with section 337(f) of the Tariff Act of 1930, 19 U.S.C. § 1337(f), and any other action as the Commission may deem appropriate. In determining whether Respondent is in violation of this

Order, the Commission may infer facts adverse to Respondent if Respondent fails to provide adequate or timely information.

## **X.**

### **Modification**

The Commission may amend this Order on its own motion or in accordance with the procedure described in section 210.76 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.76.

## **XI.**

### **Bonding**

The conduct prohibited by Section III of this Order may be continued during the sixty (60) day period in which this Order is under review by the United States Trade Representative as delegated by the President, *70 Fed Reg* 43251 (July 21, 2005), subject to Respondent posting a bond of in the amount of 100% of the entered value for infringing ground fault circuit interrupters and products containing the same. This bond provision does not apply to conduct that is otherwise permitted by Section IV of this Order. Covered products imported on or after the date of issuance of this order are subject to the entry bond as set forth in the limited exclusion order issued by the Commission, and are not subject to this bond provision.

The bond is to be posted in accordance with the procedures established by the Commission for the posting of bonds by complainants in connection with the issuance of temporary exclusion orders. *See* Commission Rule 210.68, 19 C.F.R.

§ 210.68. The bond and any accompanying documentation is to be provided to and approved by the Commission prior to the commencement of conduct which is otherwise prohibited by Section III of this Order.

The bond is to be forfeited in the event that the United States Trade Representative approves, or does not disapprove within the review period, this Order, unless the U.S. Court of Appeals for the Federal Circuit, in a final judgment, reverses any Commission final determination and order as to Respondent on appeal, or unless Respondent exports the products subject to this bond or destroys them and provides certification to that effect satisfactory to the Commission.

The bond is to be released in the event the United States Trade Representative disapproves this Order and no subsequent order is issued by the Commission and approved, or not disapproved, by the United States Trade Representative, upon service on Respondent of an order issued by the Commission based upon application therefore made by Respondent to the Commission.

By Order of the Commission.

A handwritten signature in black ink, appearing to read "Marilyn R. Abbott", written in a cursive style.

Marilyn R. Abbott  
Secretary to the Commission

Issued: March 9, 2009



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

**In the Matter of**

**CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING THE SAME**

**Inv. No. 337-TA-615**

**ORDER TO CEASE AND DESIST**

IT IS HEREBY ORDERED THAT The Designer's Edge ("TDE") of Bellevue, Washington, cease and desist from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or distributors for, certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1 and 7 of U.S. Patent No. 5,594,398; claims 14 and 18 of U.S. Patent No. 7,283,340; and claim 52 of U.S. Patent No. 7,154,718, in violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337.

**I.**

**Definitions**

As used in this Order:

(A) "Commission" shall mean the United States International Trade Commission.

(B) "P & S" or "Complainants" shall mean Pass & Seymour, Inc. of 50

Boyd Avenue, Syracuse, New York 13209.

(C) “TDE” or “Respondent” shall mean The Designer’s Edge of 11730 NE 12th Street, Bellevue, Washington 98005.

(D) “Person” shall mean an individual, or any non-governmental partnership, firm, association, corporation, or other legal or business entity or its majority owned or controlled subsidiaries, successors, or assigns.

(E) “United States” shall mean the fifty States, the District of Columbia, and Puerto Rico.

(F) The terms “import” and “importation” refer to importation for entry for consumption under the Customs laws of the United States.

(G) The term “covered products” shall mean certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1 and 7 of U.S. Patent No. 5,594,398 (“the ‘398 patent”); claims 14 and 18 of U.S. Patent No. 7,283,340 (“the ‘340 patent”); and claim 52 of U.S. Patent No. 7,154,718 (“the ‘718 patent”).

## II.

### **Applicability**

The provisions of this Cease and Desist Order shall apply to Respondents and to any of its principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) and majority-owned business entities, successors, and assigns, and to each of them, insofar as they are engaging in conduct prohibited by Section III, *infra*, for, with,

or otherwise on behalf of Respondent.

### **III.**

#### **Conduct Prohibited**

The following conduct of Respondent in the United States is prohibited by the Order. For the remaining term of the respective patents, Respondent shall not:

- (A) import or sell for importation into the United States covered products;
- (B) market, distribute, offer for sale, sell, or otherwise transfer (except for exportation), in the United States imported covered products;
- (C) advertise imported covered products;
- (D) solicit U.S. agents or distributors for imported covered products; or
- (E) aid or abet other entities in the importation, sale for importation, sale after importation, transfer, or distribution of covered products.

### **IV.**

#### **Conduct Permitted**

Notwithstanding any other provision of this Order, specific conduct otherwise prohibited by the terms of this Order shall be permitted if, in a written instrument, the owner of the '398, '340, and '718 patents licenses or authorizes such specific conduct, or such specific conduct is related to the importation or sale of covered products by or for the United States.

**V.****Reporting**

For purposes of this reporting requirement, the reporting periods shall commence on July 1 of each year and shall end on the subsequent June 30. However, the first report required under this section shall cover the period from the date of issuance of this Order through June 30, 2009. This reporting requirement shall continue in force until such time as Respondent will have truthfully reported, in two consecutive timely filed reports, that it has no inventory of covered products in the United States.

Within thirty (30) days of the last day of the reporting period, Respondent shall report to the Commission the quantity in units and the value in dollars of covered products that Respondent has imported or sold in the United States after importation during the reporting period and the quantity in units and value in dollars of reported covered products that remain in inventory in the United States at the end of the reporting period.

Any failure to make the required report or the filing of any false or inaccurate report shall constitute a violation of this Order, and the submission of a false or inaccurate report may be referred to the U.S. Department of Justice as a possible criminal violation of 18 U.S.C. § 1001.

**VI.****Record-keeping and Inspection**

(A) For the purpose of securing compliance with this Order, Respondent

shall retain any and all records relating to the sale, offer for sale, marketing, or distribution in the United States of covered products, made and received in the usual and ordinary course of business, whether in detail or in summary form, for a period of three (3) years from the close of the fiscal year to which they pertain.

(B) For the purpose of determining or securing compliance with this Order and for no other purpose, and subject to any privilege recognized by the federal courts of the United States, duly authorized representatives of the Commission, upon reasonable written notice by the Commission or its staff, shall be permitted access and the right to inspect and copy in Respondent's principal offices during office hours, and in the presence of counsel or other representatives if Respondent so chooses, all books, ledgers, accounts, correspondence, memoranda, and other records and documents, both in detail and in summary form as are required to be retained by subparagraph VI(A) of this Order.

## **VII.**

### **Service of Cease and Desist Order**

Respondent is ordered and directed to:

(A) Serve, within fifteen (15) days after the effective date of this Order, a copy of this Order upon each of its respective officers, directors, managing agents, agents, and employees who have any responsibility for the importation, marketing, distribution, or sale of imported covered products in the United States;

(B) Serve, within fifteen (15) days after the succession of any persons referred to in subparagraph VII (A) of this Order, a copy of the Order upon each

successor; and

(C) Maintain such records as will show the name, title, and address of each person upon whom the Order has been served, as described in subparagraphs VII(A) and VII(B) of this Order, together with the date on which service was made.

The obligations set forth in subparagraphs VII(B) and VII(C) shall remain in effect until the date of expiration of the '398, '340, or '718 patent, whichever is later.

### **VIII.**

#### **Confidentiality**

Any request for confidential treatment of information obtained by the Commission pursuant to Sections V and VI of this Order should be in accordance with Commission Rule 201.6, 19 C.F.R. § 201.6. For all reports for which confidential treatment is sought, Respondent must provide a public version of such report with confidential information redacted.

### **IX.**

#### **Enforcement**

Violation of this Order may result in any of the actions specified in section 210.75 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.75, including an action for civil penalties in accordance with section 337(f) of the Tariff Act of 1930, 19 U.S.C. § 1337(f), and any other action as the Commission may deem appropriate. In determining whether Respondent is in violation of this

Order, the Commission may infer facts adverse to Respondent if Respondent fails to provide adequate or timely information.

## **X.**

### **Modification**

The Commission may amend this Order on its own motion or in accordance with the procedure described in section 210.76 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.76.

## **XI.**

### **Bonding**

The conduct prohibited by Section III of this Order may be continued during the sixty (60) day period in which this Order is under review by the United States Trade Representative as delegated by the President, *70 Fed Reg* 43251 (July 21, 2005), subject to Respondent posting a bond of in the amount of 100% of the entered value for infringing ground fault circuit interrupters and products containing the same. This bond provision does not apply to conduct that is otherwise permitted by Section IV of this Order. Covered products imported on or after the date of issuance of this order are subject to the entry bond as set forth in the limited exclusion order issued by the Commission, and are not subject to this bond provision.

The bond is to be posted in accordance with the procedures established by the Commission for the posting of bonds by complainants in connection with the issuance of temporary exclusion orders. *See* Commission Rule 210.68, 19 C.F.R.

§ 210.68. The bond and any accompanying documentation is to be provided to and approved by the Commission prior to the commencement of conduct which is otherwise prohibited by Section III of this Order.

The bond is to be forfeited in the event that the United States Trade Representative approves, or does not disapprove within the review period, this Order, unless the U.S. Court of Appeals for the Federal Circuit, in a final judgment, reverses any Commission final determination and order as to Respondent on appeal, or unless Respondent exports the products subject to this bond or destroys them and provides certification to that effect satisfactory to the Commission.

The bond is to be released in the event the United States Trade Representative disapproves this Order and no subsequent order is issued by the Commission and approved, or not disapproved, by the United States Trade Representative, upon service on Respondent of an order issued by the Commission based upon application therefore made by Respondent to the Commission.

By Order of the Commission.

A handwritten signature in black ink, appearing to read "Marilyn R. Abbott", is written in a cursive style.

Marilyn R. Abbott  
Secretary to the Commission

Issued: March 9, 2009



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

**In the Matter of**

**CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING THE SAME**

**Inv. No. 337-TA-615**

**ORDER TO CEASE AND DESIST**

IT IS HEREBY ORDERED THAT Cheetah USA Corp. (“Cheetah”) of Sandy, Utah, cease and desist from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or distributors for, certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1, 7, and 8 of U.S. Patent No. 5,594,398; claims 14, 18, and 30 of U.S. Patent No. 7,283,340; and claims 1 and 15 of U.S. Patent No. 7,164,564, in violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337.

**I.**

**Definitions**

As used in this Order:

(A) “Commission” shall mean the United States International Trade Commission.

(B) “P & S” or “Complainants” shall mean Pass & Seymour, Inc. of 50

Boyd Avenue, Syracuse, New York 13209.

(C) “Cheetah” or “Respondent” shall mean Cheetah USA Corp. of 9091 Sandy Parkway, Sandy, Utah 84070.

(D) “Person” shall mean an individual, or any non-governmental partnership, firm, association, corporation, or other legal or business entity or its majority owned or controlled subsidiaries, successors, or assigns.

(E) “United States” shall mean the fifty States, the District of Columbia, and Puerto Rico.

(F) The terms “import” and “importation” refer to importation for entry for consumption under the Customs laws of the United States.

(G) The term “covered products” shall mean certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1, 7, and 8 of U.S. Patent No. 5,594,398 (“the ‘398 patent”); claims 14, 18, and 30 of U.S. Patent No. 7,283,340 (“the ‘340 patent”); and claims 1 and 15 of U.S. Patent No. 7,164,564 (“the ‘564 patent”).

## II.

### **Applicability**

The provisions of this Cease and Desist Order shall apply to Respondents and to any of its principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) and majority-owned business entities, successors, and assigns, and to each of them, insofar as they are engaging in conduct prohibited by Section III, *infra*, for, with,

or otherwise on behalf of Respondent.

### **III.**

#### **Conduct Prohibited**

The following conduct of Respondent in the United States is prohibited by the Order. For the remaining term of the respective patents, Respondent shall not:

- (A) import or sell for importation into the United States covered products;
- (B) market, distribute, offer for sale, sell, or otherwise transfer (except for exportation), in the United States imported covered products;
- (C) advertise imported covered products;
- (D) solicit U.S. agents or distributors for imported covered products; or
- (E) aid or abet other entities in the importation, sale for importation, sale after importation, transfer, or distribution of covered products.

### **IV.**

#### **Conduct Permitted**

Notwithstanding any other provision of this Order, specific conduct otherwise prohibited by the terms of this Order shall be permitted if, in a written instrument, the owner of the '398, '340, and '564 patents licenses or authorizes such specific conduct, or such specific conduct is related to the importation or sale of covered products by or for the United States.

**V.****Reporting**

For purposes of this reporting requirement, the reporting periods shall commence on July 1 of each year and shall end on the subsequent June 30. However, the first report required under this section shall cover the period from the date of issuance of this Order through June 30, 2009. This reporting requirement shall continue in force until such time as Respondent will have truthfully reported, in two consecutive timely filed reports, that it has no inventory of covered products in the United States.

Within thirty (30) days of the last day of the reporting period, Respondent shall report to the Commission the quantity in units and the value in dollars of covered products that Respondent has imported or sold in the United States after importation during the reporting period and the quantity in units and value in dollars of reported covered products that remain in inventory in the United States at the end of the reporting period.

Any failure to make the required report or the filing of any false or inaccurate report shall constitute a violation of this Order, and the submission of a false or inaccurate report may be referred to the U.S. Department of Justice as a possible criminal violation of 18 U.S.C. § 1001.

**VI.****Record-keeping and Inspection**

(A) For the purpose of securing compliance with this Order, Respondent

shall retain any and all records relating to the sale, offer for sale, marketing, or distribution in the United States of covered products, made and received in the usual and ordinary course of business, whether in detail or in summary form, for a period of three (3) years from the close of the fiscal year to which they pertain.

(B) For the purpose of determining or securing compliance with this Order and for no other purpose, and subject to any privilege recognized by the federal courts of the United States, duly authorized representatives of the Commission, upon reasonable written notice by the Commission or its staff, shall be permitted access and the right to inspect and copy in Respondent's principal offices during office hours, and in the presence of counsel or other representatives if Respondent so chooses, all books, ledgers, accounts, correspondence, memoranda, and other records and documents, both in detail and in summary form as are required to be retained by subparagraph VI(A) of this Order.

## **VII.**

### **Service of Cease and Desist Order**

Respondent is ordered and directed to:

(A) Serve, within fifteen (15) days after the effective date of this Order, a copy of this Order upon each of its respective officers, directors, managing agents, agents, and employees who have any responsibility for the importation, marketing, distribution, or sale of imported covered products in the United States;

(B) Serve, within fifteen (15) days after the succession of any persons referred to in subparagraph VII (A) of this Order, a copy of the Order upon each

successor; and

(C) Maintain such records as will show the name, title, and address of each person upon whom the Order has been served, as described in subparagraphs VII(A) and VII(B) of this Order, together with the date on which service was made.

The obligations set forth in subparagraphs VII(B) and VII(C) shall remain in effect until the date of expiration of the '398, '340, or '564 patent, whichever is later.

### **VIII.**

#### **Confidentiality**

Any request for confidential treatment of information obtained by the Commission pursuant to Sections V and VI of this Order should be in accordance with Commission Rule 201.6, 19 C.F.R. § 201.6. For all reports for which confidential treatment is sought, Respondent must provide a public version of such report with confidential information redacted.

### **IX.**

#### **Enforcement**

Violation of this Order may result in any of the actions specified in section 210.75 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.75, including an action for civil penalties in accordance with section 337(f) of the Tariff Act of 1930, 19 U.S.C. § 1337(f), and any other action as the Commission may deem appropriate. In determining whether Respondent is in violation of this

Order, the Commission may infer facts adverse to Respondent if Respondent fails to provide adequate or timely information.

## **X.**

### **Modification**

The Commission may amend this Order on its own motion or in accordance with the procedure described in section 210.76 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.76.

## **XI.**

### **Bonding**

The conduct prohibited by Section III of this Order may be continued during the sixty (60) day period in which this Order is under review by the United States Trade Representative as delegated by the President, *70 Fed Reg* 43251 (July 21, 2005), subject to Respondent posting a bond of in the amount of 100% of the entered value for infringing ground fault circuit interrupters and products containing the same. This bond provision does not apply to conduct that is otherwise permitted by Section IV of this Order. Covered products imported on or after the date of issuance of this order are subject to the entry bond as set forth in the limited exclusion order issued by the Commission, and are not subject to this bond provision.

The bond is to be posted in accordance with the procedures established by the Commission for the posting of bonds by complainants in connection with the issuance of temporary exclusion orders. *See* Commission Rule 210.68, 19 C.F.R.

§ 210.68. The bond and any accompanying documentation is to be provided to and approved by the Commission prior to the commencement of conduct which is otherwise prohibited by Section III of this Order.

The bond is to be forfeited in the event that the United States Trade Representative approves, or does not disapprove within the review period, this Order, unless the U.S. Court of Appeals for the Federal Circuit, in a final judgment, reverses any Commission final determination and order as to Respondent on appeal, or unless Respondent exports the products subject to this bond or destroys them and provides certification to that effect satisfactory to the Commission.

The bond is to be released in the event the United States Trade Representative disapproves this Order and no subsequent order is issued by the Commission and approved, or not disapproved, by the United States Trade Representative, upon service on Respondent of an order issued by the Commission based upon application therefore made by Respondent to the Commission.

By Order of the Commission.



Marilyn R. Abbott  
Secretary to the Commission

Issued: March 9, 2009



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

**In the Matter of**

**CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING THE SAME**

**Inv. No. 337-TA-615**

**ORDER TO CEASE AND DESIST**

IT IS HEREBY ORDERED THAT Colacino Electric Supply, Inc. of Newark, New York (“Colacino”), cease and desist from conducting any of the following activities in the United States: importing, selling, marketing, advertising, distributing, offering for sale, transferring (except for exportation), and soliciting U.S. agents or distributors for, certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1, 7, and 8 of U.S. Patent No. 5,594,398; claims 14, 18, and 30 of U.S. Patent No. 7,283,340; and claims 1 and 15 of U.S. Patent No. 7,164,564, in violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337.

**I.**

**Definitions**

As used in this Order:

(A) “Commission” shall mean the United States International Trade Commission.

(B) “P & S” or “Complainants” shall mean Pass & Seymour, Inc. of 50

Boyd Avenue, Syracuse, New York 13209.

(C) “Colacino ” or “Respondent” shall mean Colacino Electric Supply, Inc., 319 West Union Street, Newark, New York 14513.

(D) “Person” shall mean an individual, or any non-governmental partnership, firm, association, corporation, or other legal or business entity or its majority owned or controlled subsidiaries, successors, or assigns.

(E) “United States” shall mean the fifty States, the District of Columbia, and Puerto Rico.

(F) The terms “import” and “importation” refer to importation for entry for consumption under the Customs laws of the United States.

(G) The term “covered products” shall mean certain ground fault circuit interrupters and products containing the same that infringe one or more of claims 1, 7, and 8 of U.S. Patent No. 5,594,398 (“the ‘398 patent”); claims 14, 18, and 30 of U.S. Patent No. 7,283,340 (“the ‘340 patent”); and claims 1 and 15 of U.S. Patent No. 7,164,564 (“the ‘564 patent”).

## II.

### **Applicability**

The provisions of this Cease and Desist Order shall apply to Respondents and to any of its principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) and majority-owned business entities, successors, and assigns, and to each of them, insofar as they are engaging in conduct prohibited by Section III, *infra*, for, with,

or otherwise on behalf of Respondent.

### **III.**

#### **Conduct Prohibited**

The following conduct of Respondent in the United States is prohibited by the Order. For the remaining term of the respective patents, Respondent shall not:

- (A) import or sell for importation into the United States covered products;
- (B) market, distribute, offer for sale, sell, or otherwise transfer (except for exportation), in the United States imported covered products;
- (C) advertise imported covered products;
- (D) solicit U.S. agents or distributors for imported covered products; or
- (E) aid or abet other entities in the importation, sale for importation, sale after importation, transfer, or distribution of covered products.

### **IV.**

#### **Conduct Permitted**

Notwithstanding any other provision of this Order, specific conduct otherwise prohibited by the terms of this Order shall be permitted if, in a written instrument, the owner of the '398, '340, and '564 patents licenses or authorizes such specific conduct, or such specific conduct is related to the importation or sale of covered products by or for the United States.

**V.****Reporting**

For purposes of this reporting requirement, the reporting periods shall commence on July 1 of each year and shall end on the subsequent June 30. However, the first report required under this section shall cover the period from the date of issuance of this Order through June 30, 2009. This reporting requirement shall continue in force until such time as Respondent will have truthfully reported, in two consecutive timely filed reports, that it has no inventory of covered products in the United States.

Within thirty (30) days of the last day of the reporting period, Respondent shall report to the Commission the quantity in units and the value in dollars of covered products that Respondent has imported or sold in the United States after importation during the reporting period and the quantity in units and value in dollars of reported covered products that remain in inventory in the United States at the end of the reporting period.

Any failure to make the required report or the filing of any false or inaccurate report shall constitute a violation of this Order, and the submission of a false or inaccurate report may be referred to the U.S. Department of Justice as a possible criminal violation of 18 U.S.C. § 1001.

**VI.****Record-keeping and Inspection**

(A) For the purpose of securing compliance with this Order, Respondent

shall retain any and all records relating to the sale, offer for sale, marketing, or distribution in the United States of covered products, made and received in the usual and ordinary course of business, whether in detail or in summary form, for a period of three (3) years from the close of the fiscal year to which they pertain.

(B) For the purpose of determining or securing compliance with this Order and for no other purpose, and subject to any privilege recognized by the federal courts of the United States, duly authorized representatives of the Commission, upon reasonable written notice by the Commission or its staff, shall be permitted access and the right to inspect and copy in Respondent's principal offices during office hours, and in the presence of counsel or other representatives if Respondent so chooses, all books, ledgers, accounts, correspondence, memoranda, and other records and documents, both in detail and in summary form as are required to be retained by subparagraph VI(A) of this Order.

## **VII.**

### **Service of Cease and Desist Order**

Respondent is ordered and directed to:

(A) Serve, within fifteen (15) days after the effective date of this Order, a copy of this Order upon each of its respective officers, directors, managing agents, agents, and employees who have any responsibility for the importation, marketing, distribution, or sale of imported covered products in the United States;

(B) Serve, within fifteen (15) days after the succession of any persons referred to in subparagraph VII (A) of this Order, a copy of the Order upon each

successor; and

(C) Maintain such records as will show the name, title, and address of each person upon whom the Order has been served, as described in subparagraphs VII(A) and VII(B) of this Order, together with the date on which service was made.

The obligations set forth in subparagraphs VII(B) and VII(C) shall remain in effect until the date of expiration of the '398, '340, or '564 patent, whichever is later.

## **VIII.**

### **Confidentiality**

Any request for confidential treatment of information obtained by the Commission pursuant to Sections V and VI of this Order should be in accordance with Commission Rule 201.6, 19 C.F.R. § 201.6. For all reports for which confidential treatment is sought, Respondent must provide a public version of such report with confidential information redacted.

## **IX.**

### **Enforcement**

Violation of this Order may result in any of the actions specified in section 210.75 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.75, including an action for civil penalties in accordance with section 337(f) of the Tariff Act of 1930, 19 U.S.C. § 1337(f), and any other action as the Commission may deem appropriate. In determining whether Respondent is in violation of this

Order, the Commission may infer facts adverse to Respondent if Respondent fails to provide adequate or timely information.

## **X.**

### **Modification**

The Commission may amend this Order on its own motion or in accordance with the procedure described in section 210.76 of the Commission's Rules of Practice and Procedure, 19 C.F.R. § 210.76.

## **XI.**

### **Bonding**

The conduct prohibited by Section III of this Order may be continued during the sixty (60) day period in which this Order is under review by the United States Trade Representative as delegated by the President, *70 Fed Reg* 43251 (July 21, 2005), subject to Respondent posting a bond of in the amount of 100% of the entered value for infringing ground fault circuit interrupters and products containing the same. This bond provision does not apply to conduct that is otherwise permitted by Section IV of this Order. Covered products imported on or after the date of issuance of this order are subject to the entry bond as set forth in the limited exclusion order issued by the Commission, and are not subject to this bond provision.


The bond is to be posted in accordance with the procedures established by the Commission for the posting of bonds by complainants in connection with the issuance of temporary exclusion orders. *See* Commission Rule 210.68, 19 C.F.R.

§ 210.68. The bond and any accompanying documentation is to be provided to and approved by the Commission prior to the commencement of conduct which is otherwise prohibited by Section III of this Order.

The bond is to be forfeited in the event that the United States Trade Representative approves, or does not disapprove within the review period, this Order, unless the U.S. Court of Appeals for the Federal Circuit, in a final judgment, reverses any Commission final determination and order as to Respondent on appeal, or unless Respondent exports the products subject to this bond or destroys them and provides certification to that effect satisfactory to the Commission.

The bond is to be released in the event the United States Trade Representative disapproves this Order and no subsequent order is issued by the Commission and approved, or not disapproved, by the United States Trade Representative, upon service on Respondent of an order issued by the Commission based upon application therefore made by Respondent to the Commission.

By Order of the Commission.

A handwritten signature in black ink, appearing to read 'Marilyn R. Abbott', written in a cursive style.

Marilyn R. Abbott  
Secretary to the Commission

Issued: March 9, 2009



**PUBLIC CERTIFICATE OF SERVICE**

I, Marilyn R. Abbott, hereby certify that the attached **NOTICE OF COMMISSION  
FINAL DETERMINATION OF VIOLATION OF SECTION 337;  
TERMINATION OF INVESTIGATION; ISSUANCE OF LIMITED EXCLUSION  
ORDER AND CEASE-AND-DESIST ORDERS** has been served by hand upon the  
Commission Investigative Attorney, Bryan Moore, Esq., and the following parties as  
indicated, on MAR 09 2009.



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PUBLIC VERSION

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

**In the Matter of**

**CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING SAME**

**Investigation No. 337-TA-615**

**COMMISSION OPINION**

**Background**

On September 24, 2008, the presiding administrative law judge (“ALJ”) issued his final initial determination (“ID”) in the above-referenced investigation. The ALJ found that a violation of 19 U.S.C. § 1337 (“section 337”) has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain ground fault circuit interrupters (“GFCIs”) by reason of infringement of one or more of claims 1, 7, and 8 of U.S. Patent No. 5,594,398 (“the ‘398 patent”); claims 14, 18, and 30 of U.S. Patent No. 7,283,340 (“the ‘340 patent”); claim 1 of U.S. Patent No. 7,212,386 (“the ‘386 patent”); claims 1 and 15 of U.S. Patent No. 7,164,564 (“the ‘564 patent”); claim 1 of U.S. Patent No. 7,256,973 (“the ‘973 patent”); and claim 52 of U.S. Patent No. 7,154,718 (“the ‘718 patent”). Because the ID contains a detailed technical background, general information regarding each patent, and a full procedural history of the investigation, that information will not be repeated herein.

On December 8, 2008, the Commission determined to review the ID in part. Specifically, the Commission determined to review: (1) the ALJ’s construction of “unitary, electrically

conducting member carrying a pair of spaced electrical contacts” in the ‘398 patent and related issues of infringement, domestic industry, and validity; (2) the ALJ’s construction of “mounting means” in the ‘398 patent and related issues of infringement, domestic industry, and validity; (3) the ALJ’s construction of “latching means” in the ‘398 patent and related issues of infringement, domestic industry, and validity; (4) the ALJ’s conclusion that the asserted claims of the ‘340 patent are not invalid; (5) the ALJ’s construction of “an actuator assembly configured to provide an actuator signal in response to the fault detection or the wiring state detection signal” in the ‘386 patent and related issues of infringement, domestic industry, and validity; (6) the ALJ’s construction of “the circuit interrupter being configured to disconnect the first conductive path from the second conductive path in response to the actuator signal in the reset state” in the ‘386 patent and related issues of infringement, domestic industry, and validity; (7) the ALJ’s determination regarding validity of the ‘386 patent; (8) the ALJ’s determination of infringement of the ‘973 patent regarding ELE’s 2006 GFCIs; and (9) the ALJ’s construction of “cantilever” in the ‘718 patent and related issues of infringement, domestic industry, and validity

In its notice of review, the Commission asked the parties remaining in the investigation<sup>1</sup> to address the following questions:

Regarding the ‘398 patent:

- (1) How would modifying the construction to more clearly provide meaning to

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<sup>1</sup> The remaining parties are complainant Pass & Seymour, Inc. (“P&S”) and respondents General Protecht Group, Inc. (“GPG”) of Zhejiang, China; Shanghai ELE Manufacturing Corporation (“ELE”) of Shanghai, China; Shanghai Meihao Electric, Inc. (“Meihao”) of Shanghai, China; Wenzhou Trimone Company (“Trimone”) of Zhejiang, China; Cheetah USA Corp. (“Cheetah”) of Sandy, Utah; Nicor Inc. (“Nicor”) of Albuquerque, New Mexico; Orbit Industries, Inc. (“Orbit”) of Los Angeles, California; The Designer’s Edge (“TDE”) of Bellevue, Washington; and Colacino Electric Supply, Inc. (“Colacino”) of Newark, New York.

the terms “unitary” and “carrying” affect the determinations of infringement, validity, and domestic industry, if at all?

- (2) Please specifically address the statement made in reference to the Doyle and Van Haaren patents in CX-9, PS-ITC 336699, referenced in P&S’s response to the petitions for review, in your response to question (1).
- (3) Is “mounting” a required function of the claimed “mounting means”? If so, what structure from the ‘398 patent performs the function of “mounting”?
- (4) How would modifying the structure identified as corresponding to the “latching means” to include the “latch member” disclosed in the ‘398 patent affect the determinations of infringement, validity, and domestic industry?
- (5) Does the structure in Trimone’s 2006 GFCIs accused of meeting the “mounting means” limitation permit movement to a “second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals”?

Regarding the ‘340 patent:

- (1) Does the DiSalvo patent’s<sup>2</sup> statement that “[c]losing the reset contacts activates the operation of the circuit by, for example simulating a ground fault . . . ” constitute a disclosure of “a predetermined signal not simulating a fault condition”? If so, are the asserted claims of the ‘340 patent obvious over the DiSalvo patent?
- (2) Does the Neiger patent’s<sup>3</sup> disclosure of a circuit that detects a miswire condition constitute a disclosure of “at least one detection circuit . . . configured to generate a predetermined signal in response to detecting a proper wiring condition,” under the ALJ’s construction of “detection”? If so, are the asserted claims of the ‘340 patent obvious over the Neiger patent?
- (3) Please address any remaining arguments, that were previously raised, in

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<sup>2</sup> U.S. Patent No. 6,246,558.

<sup>3</sup> There are actually two “Neiger patents” — U.S. Patent Nos. 6,111,733 and 5,600,524 — that each have the same disclosure, because one is a continuation of the other. *Compare* CX-97 *with* CX-94. The common disclosure will be referred to as the “Neiger patent” herein.

favor of obviousness/nonobviousness of the asserted claims of the '340 patent that were not discussed in response to questions (1) and (2).

Regarding the '386 Patent:

- (1) What effect would a construction that recognizes that the “configured to disconnect” limitation requires the device to trip in response to an actuator signal—whether that actuator signal is generated in response to either a fault detection signal or a wiring state detection signal—in the reset state have on infringement, domestic industry, and validity? Please provide record evidence supporting your conclusions under such a construction.
- (2) Please provide specific limitations of claim 1 of the '386 patent that are not disclosed in the DiSalvo patent, and supporting evidentiary citations.

Regarding the '973 patent:

In what way is the “user-accessible housing feature” in ELE’s device, that is, the hole, in communication with the switch element?

Regarding the '718 patent:

What effect would modifying the ALJ’s construction of “cantilever” to adopt Meihao’s proposed construction have on the determinations of infringement, validity, and domestic industry regarding the '718 patent?

Each of the private parties<sup>4</sup> and the Commission investigative attorney (“IA”) filed written submissions regarding the issues on review, and filed submissions on remedy, bonding, and the public interest. Furthermore, non-respondent Hubbell Inc. (“Hubbell”) submitted briefs on the issues of remedy, the public interest, and bonding.

For the reasons discussed below, the Commission has determined to make certain modifications to the constructions of claims under review. Further, the Commission reverses the findings of infringement of the asserted claims of the '386 and '973 patents, and therefore

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<sup>4</sup> Respondent ELE filed joint submissions with its respondent customers Cheetah, Colacino, Orbit, and Nicor; and respondent Meihao’s submissions made certain arguments on behalf of its respondent customer TDE.



reverses the findings of violation of section 337 based thereon. The Commission's determinations regarding the appropriate remedy, whether the public interest precludes that remedy, and what bond should be set during the period of Presidential review are also set forth below.

## **Analysis**

### **I. The '398 Patent**

#### A. Construction of "unitary, electrically conducting member carrying a pair of spaced electrical contacts" and related issues

The ALJ adopted P&S's proposed construction of the "unitary member" limitation, construing the limitation to mean "a member that provides an electrical current carrying path between two or more spaced contacts."<sup>5</sup> In their petitions for review, certain respondents argued, *inter alia*, that the ALJ's construction accorded no meaning to the requirements that the "member" be "unitary" or that it "carry[]" the pair of electrical contacts.<sup>6</sup> The Commission agrees that the ALJ's construction does not provide any meaning to the claim's requirements that the member be "unitary" and "carry" the spaced contacts. In other words, the ALJ's construction reads the words "unitary" and "carrying" out of the claim. The Commission has therefore determined to modify the ALJ's construction of the "unitary, electrically conducting member" limitation.

The prosecution history demonstrates that these two requirements not only limit the claim, but were also important features of the claimed invention. Specifically, during

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<sup>5</sup> ID at 48.

<sup>6</sup> *See, e.g.*, GPG Pet. for Review at 11-12.

prosecution, the inventor distinguished prior art references that “utilize a conventional mounting of a pair of movable contacts on the free ends of a respective pair of separate, resilient, self-biasing ‘arms’ or ‘straps.’”<sup>7</sup> Further, the inventor stated that “[o]ne of the principal features of the gfi wiring device of the present invention is the mounting of a pair of electrical contacts on a single, electrically conducting member in the nature of a buss bar.”<sup>8</sup>

These statements demonstrate that, consistent with the ordinary meaning of the words, the inventor viewed “unitary” to mean “single,” that is, not “separated” like the distinguished prior art, and viewed “carrying” the two contacts to mean that they are mounted, or disposed, on the member.<sup>9</sup> In other words, the single member must carry the pair of contacts. The Commission therefore modifies the ALJ’s construction of “unitary, electrically conducting member carrying a pair of spaced electrical contacts” and construes it to mean “a single member carrying two or more spaced contacts that provides an electrical current-carrying path between two or more spaced contacts.”

The Commission requested and received briefing regarding what effect according meaning to the “unitary” and “carrying” limitations would have on the ALJ’s determinations. Having reviewed the submitted materials, the Commission has determined that the modification to the ALJ’s claim construction discussed above requires reversing the ALJ’s conclusion that

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<sup>7</sup> CX-9, PS-ITC 336699.

<sup>8</sup> *Id.*, PS-ITC336697.

<sup>9</sup> *See* Commission Investigative Staff’s Submission Regarding Issues on Review Pursuant to Order No. 8 (“IA Submission”) at 2.

GPG's 2003 products meet the "unitary member" limitation,<sup>10</sup> and therefore also requires reversing the ALJ's conclusion that GPG's 2003 products infringe the '398 patent. GPG's 2003 product's accused "unitary member" is not a single member carrying two contacts; rather, [[ ]]<sup>11</sup> As to GPG's 2006 products, although GPG tries to lump its 2006 products into its discussion of the effects of the modification, any argument regarding GPG's 2006 products is waived because it was not presented below, and is also without merit in light of the fact that GPG's 2006 products have a single member with contacts disposed thereon.<sup>12</sup> The modification to the ALJ's construction does not have any effect on any of the other products that the ALJ found met the "unitary member" limitation because each of the products contains a single member with two contacts disposed thereon.<sup>13</sup>

The Commission's modification does not have any effect on the ALJ's ultimate conclusion that the respondents failed to meet their burden of proving invalidity of the '398 patent. It does, however, provide additional support for the ALJ's conclusion that the prior art

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<sup>10</sup> See IA Submission at 4.

<sup>11</sup> CX-212 at Fig. 15.

<sup>12</sup> See P&S's Written Submission in Response to Notice To Review In-Part the Final Initial Determination on Violation ("P&S Submission") at 67; P&S's Reply Written Submission in Response to Notice To Review In-Part the Final Initial Determination on Violation ("P&S Reply") at 19.

<sup>13</sup> See P&S Submission at 65-69; Tr. at 1300-02; ID at 59 ("ELE 2006 GFCIs contain an elongated metal, electrically conducting member with two contacts on it"); Brief by [ELE] in Response to Commission Determination To Review in Part a Final Determination on Violation of Section 337 ("ELE Submission") at 4-5 (arguing only that its member is not a buss bar); Tr. at 1358-59; CX-254, Fig. 4; JX-7C; Tr. at 1375-77; ID at 71.

references do not disclose the “unitary member” limitation. Finally, no party argues that the Commission’s modification would affect the ALJ’s determination that there is a domestic industry for the ‘398 patent.

B. Construction of “mounting means” in the ‘398 patent and related issues

The ALJ construed “mounting means” such that the means-plus-function limitation’s function was, as recited in the claim, “permitting movement between a first position, wherein a pair of contacts are in respective, circuit-making engagement with a pair of terminals, and a second position, wherein both of the pair of contacts are in spaced, circuit-breaking relation to the pair of terminals” and found that the corresponding structure is “a block including a central body and an arm for supporting the conducting member, and structural equivalents thereof.”<sup>14</sup> Trimone and ELE argued, *inter alia*, that the ALJ’s construction was erroneous because it did not include the claimed function of “mounting.”<sup>15</sup> Based upon our review of the briefing received in response to the Commission’s questions regarding the “mounting means” limitation, the Commission has determined to modify the ALJ’s construction to require the function of “mounting.”<sup>16</sup>

Adding this function to the ALJ’s identified function does not require any additional structure. The “block” and “arm” identified by the ALJ perform the function of mounting,

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<sup>14</sup> ID at 49.

<sup>15</sup> See Trimone Pet. for Review at 5-6; ELE Pet. for Review at 51.

<sup>16</sup> See *BBA Nonwovens Simpsonville, Inc. v. Superior Nonwovens, LLC*, 303 F.3d 1332, 1344 (Fed. Cir. 2002) (concluding that the function of the limitation “corona means cooperating with said attenuator” is “forming a corona.”)

without any additional structure, in embodiments disclosed in the patent.<sup>17</sup> Specifically, in Figure 30a, mounting is achieved through the block 82 and the arm extending therefrom. Indeed, the ALJ's identification of structure included "a central body and an arm for supporting the conducting member," which is consistent with the requirement that the body and arm "mount" the member. The ALJ's conclusion that "integral posts 82a and 82a' and unnumbered legs" are not necessary to perform the claimed function, therefore, need not be altered.<sup>18</sup>

Additionally, although it does not constitute a modification to the ALJ's identification of the required function of the "mounting means" limitation, the Commission notes that the plain language of the claim requires the function of permitting movement to a "second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals." In other words, merely breaking the circuit by permitting only one contact to move into spaced, circuit-breaking relation is not sufficient to perform the claimed function; both of the contacts must be permitted to move into spaced, circuit-breaking relation to the pair of terminals.

The Commission's addition of the function of "mounting" to the "mounting means" limitation, by itself, does not affect the ALJ's determinations concerning whether the accused products meet the limitation. Each of the structures identified by the ALJ mounts the conducting member because each was found to have an arm supporting the conducting member.<sup>19</sup>

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<sup>17</sup> '398 Patent at Fig. 30a.

<sup>18</sup> It appears that the "arm" identified by the ALJ is also referred to as an "integral post" in the '398 patent. *See* '398 Patent (6:5-10); Figs. 11, 18, 30a. The Commission understands the ALJ's rejection of Respondents' arguments regarding "integral posts and unnumbered legs" to relate to posts *other than* the identified arm.

<sup>19</sup> ID at 59-60, 62-63, 65, 69, 71-72.

The Commission, however, determines to modify the ALJ's conclusions that the GPG 2003 products and Trimone 2006 products perform the claims' required *function* of "permitting movement between a first position . . . and a second position, wherein both of the pair of contacts are in spaced, circuit-breaking relation to the pair of terminals." Neither of these accused devices meet the literal claim requirement of permitting movement to a position where *both* contacts are in spaced, circuit-breaking relation to the pair of terminals.<sup>20</sup> Besides arguing that this claim limitation should not be read literally, P&S makes virtually no argument that these two accused products perform the identified function.<sup>21</sup> This constitutes an additional ground of non-infringement of the '398 patent with respect to the GPG 2003 products, and requires reversal of the ALJ's finding of infringement with respect to Trimone's 2006 products.

The Commission's modifications and clarifications regarding claim construction have no effect on the ALJ's determinations regarding invalidity or domestic industry.

C. Construction of "latching means" in the '398 patent and related issues

The ALJ concluded that the function of the latching means is the function stated in the claim, specifically, "releasably retaining the conducting member in the first position."<sup>22</sup> He identified the structure corresponding to that function to be "a pin passing through a hole in the block having a shoulder that cooperates with a hole in the latch member and a spring biasing the pin to retain the conducting member in the first position, and equivalents thereof."<sup>23</sup>

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<sup>20</sup> CDX 340; Tr. at 2740-41; Tr. at 3061-62; RDX 1039; RDX 1015.

<sup>21</sup> See P&S Submission at 73-76; P&S Reply at 36-38.

<sup>22</sup> ID at 54.

<sup>23</sup> *Id.*

Trimone and ELE argued in their petitions for review that the ALJ should have included “latch spring 78,” also referred to in the patent and ID as a “latch member,” in its entirety, as opposed to only the “hole in the latch member” identified by the ALJ.<sup>24</sup> Specifically, Trimone and ELE argued that the ALJ should have included the leaf spring or coil spring that the ‘398 patent identified as part of the “latch member.”

The Commission agrees with Trimone and ELE that the “latch member” identified in the ‘398 patent, in its entirety, should have been identified as structure corresponding to the “latching means.”<sup>25</sup> Every disclosed embodiment in the ‘398 patent includes a latch member having a spring portion. Importantly, this spring portion is required to perform the function of *releasably* retaining the conducting member in the first position.<sup>26</sup> Indeed, P&S’s expert, Dr. Stolfi, testified that the “latch member,” without excluding the member’s spring portion, is part of the corresponding structure for the “latching means” limitation.<sup>27</sup> The Commission has therefore determined to modify the ALJ’s identification of structure corresponding to the “latching means” to include the entire “latch member,” and not only the hole therein. As Dr. Stolfi testified, the “latch member” includes a spring.

The Commission’s addition to the structure corresponding to the “latching means”

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<sup>24</sup> See, e.g., Trimone Pet. for Review at 9-11; ELE Pet. for Review at 54.

<sup>25</sup> See Trimone’s Reply Regarding Written Submission on Issues Under Review in the Final Initial Determination (“Trimone Reply”) at 12; Brief by ELE, Cheetah, Colacino, Nicor, and Orbit in Response to Commission Determination To Review In Part a Final Determination on Violation of Section 337 (“ELE Submission”) at 9-10.

<sup>26</sup> See, e.g., ‘398 Patent (10:59-65; 11:29-38).

<sup>27</sup> Tr. at 1290.

limitation does not affect the ALJ's determinations that the accused products meet the limitation. As set forth in P&S's submission, Meihao's 2003 GFCIs and Trimone's 2006 GFCIs each have a coil spring that is part of the identified latch member.<sup>28</sup> Similarly, ELE's 2006 GFCIs contain a spring that operates in conjunction with the reset stem and shoulder and latch member to perform the function of the "latching means" limitation.<sup>29</sup> Finally, inclusion of the entire "latch member" in the structure corresponding to the "latching means" limitation does not affect that ALJ's factual findings that GPG's 2003 and 2006 products<sup>30</sup> contain structural equivalents to the structure identified as corresponding to the "latching means."

The Commission's modification of the structure identified as corresponding to the "latching means" limitation does not affect the ALJ's determinations regarding invalidity or domestic industry.

## **II. Validity of the '340 Patent**

In their respective petitions for review, Trimone and ELE argued that the ALJ's conclusion that the asserted claims of the '340 patent were not proven to be obvious by clear and convincing evidence was erroneous. The Commission determined to review the ALJ's conclusions regarding the validity of the '340 patent and asked the parties to respond to certain briefing questions, set out in detail above, regarding the validity of the '340 patent. Having considered the parties' briefing in response to the Commission's questions, the Commission

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<sup>28</sup> CX-254 at Fig. 6A; CX-308 at Fig. 2.

<sup>29</sup> CX-277 at Fig. 1.

<sup>30</sup> As noted, *supra*, GPG waived any non-infringement arguments relating to its 2006 products.



hereby determines not to modify the ALJ's determination that the respondents failed to prove the asserted claims of the '340 patent were invalid.

Before the ALJ, Trimone admitted that the signal in the DiSalvo patent is a simulated fault signal, as opposed to the claimed "predetermined signal not simulating a fault condition."<sup>31</sup> To the extent Trimone now argues that the claims are anticipated by DiSalvo, that argument is rejected in light of Trimone's admission. Trimone now argues that the asserted claims of the '340 patent are obvious in light of the DiSalvo patent in conjunction with testimony of P&S's expert, Dr. Harman.<sup>32</sup> Specifically, Trimone argues that Dr. Harman's affirmative response to its cross-examination question that "it's well-known that, if you want to cause that SCR to conduct, you would send a signal to the gate of the SCR here, is that correct?"<sup>33</sup>

Trimone bases its obviousness argument on Dr. Harman's testimony because, as pointed out by P&S, Trimone did not ask its own expert, Mr. Mernyk, about the relevant language of the DiSalvo patent, "[c]losing the reset contacts activates the operation of the circuit by, for example simulating a ground fault . . . ." Dr. Harman's cited testimony, however, demonstrates only that one skilled in the art would have known, at some unstated time, that a circuit can be activated by sending a signal to the gate of the SCR, as opposed to simulating a ground fault.<sup>34</sup> In other words, the cross-examination of Dr. Harman did not clearly relate to the proper time frame – that

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<sup>31</sup> ID at 101.

<sup>32</sup> Trimone's Written Submission on Issues Under Review in the Final Initial Determination on Violation of Section 337 ("Trimone Submission") at 20.

<sup>33</sup> Tr. at 3205.

<sup>34</sup> *Id.* at 3205-07.

is, at the patent's effective filing date. Moreover, even if the testimony related to the proper time frame, it at most demonstrates that one of skill in the art would generally know how to activate the circuit, and does not constitute clear and convincing evidence that it would have been obvious to one of skill in the art to modify the DiSalvo reference to do so.

Regarding the Neiger patent, P&S's submissions demonstrate that ELE failed to prove that it discloses "at least one detection circuit including a circuit segment coupled between the line terminals and configured to generate a predetermined signal in response to detecting a proper wiring condition, the predetermined signal not simulating a fault condition."<sup>35</sup> As P&S points out, the Neiger patent has not been shown, by clear and convincing evidence, to disclose the claimed "detection circuit" because the circuit identified by ELE has not been shown to be "configured to generate a predetermined signal in response to a detecting a proper wiring condition. . . ."<sup>36</sup> Rather, the "Q bar" signal identified is generated regardless of whether it is properly wired or miswired."<sup>37</sup> Furthermore, as demonstrated by P&S, ELE has failed to prove that Neiger discloses a device that is "substantially prevented from effecting the reset state" absent the "predetermined signal" identified by ELE.<sup>38</sup> In sum, ELE has failed to meet its burden of proof that the Neiger patent renders the asserted claims of the '340 patent obvious.

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<sup>35</sup> P&S Submission at 145-160.

<sup>36</sup> *Id.* at 154-156.

<sup>37</sup> P&S Reply Submission at 62.

<sup>38</sup> *Id.* at 62-64.

### III. The '386 Patent

#### A. Construction of “an actuator assembly configured to provide an actuator signal in response to the fault detection or the wiring state detection signal” and related issues

The ALJ construed the above limitation to mean “an assembly including, for example, one or more SCRs and/or solenoids configured to respond to the signal indicating detection of a fault and the signal indicating detection of a proper wiring state by, in response to either one of these signals, providing a signal to drive component or components into motion, for example, a solenoid armature.” The Commission determined to review the ALJ’s construction of this limitation in conjunction with its review of the “configured to disconnect” limitation, discussed below.

Having considered the parties’ submissions, the Commission determines not to modify the ALJ’s construction of this limitation. In our view, the ALJ properly construed the limitation such that the assembly must provide an actuator signal in response to either the fault detection signal or the wiring state detection signal. In other words, the ALJ’s construction properly requires the actuator assembly to provide an actuator signal if it receives a fault detection signal, and also to provide an actuator signal if it receives a wiring state detection signal.

We agree with the ALJ and the complainants that the actuator assembly may constitute one or more “actuators,” or “SCRs and/or solenoids.” Similarly, we agree with the ALJ that, under controlling Federal Circuit precedent, the claimed “actuator signal” generated by the “actuator assembly” may constitute one or more signals.<sup>39</sup> As discussed in more detail below,

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<sup>39</sup> See *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342-43 (Fed. Cir. 2008) (explaining the rule that “a” or “an” can mean “one or more” and detailing its “extremely limited” exceptions).

however, we add that, if the claimed actuator signal in an allegedly infringing/anticipating device indeed constitutes more than one signal, claim limitations referring to “the actuator signal” must be construed to refer to the one or more signals identified as constituting the claimed “actuator signal.” Put another way, in such a device, all of the signals that make up the claimed “actuator signal” need to be considered when considering other limitations involving “the actuator signal.”

This additional clarification to the ALJ’s claim construction, by itself, has no effect on his determinations regarding infringement, validity, or domestic industry.

B. Construction of “the circuit interrupter being configured to disconnect the first conductive path from the second conductive path in response to the actuator signal in the reset state” and related issues

The ALJ, in construing this limitation, agreed with P&S that the “plain words of this limitation provide a sufficient definition of the limitation for the analyses that must be conducted.” Nonetheless, the ALJ provided some “construction” of the limitation by addressing, and rejecting, the IA’s and Trimone’s proposed constructions. The ALJ first rejected Trimone’s proposed construction that “the device must be configured to open or trip in response to the ‘actuator signal,’ which is provided in response to the ‘wiring state detection signal.’”<sup>40</sup> The ALJ rejected this construction “inasmuch as it would exclude embodiments in the patent,” which the ALJ characterized as providing a “wiring state detection signal” when a device is properly wired in the tripped condition, enabling the device to be reset. The ALJ rejected the IA’s proposed construction because, the ALJ reasoned, the claim only requires the “circuit interrupter” to trip in response to the “actuator signal” in the reset state, and not in response to the “wiring state detection signal” in the reset state. The Commission determined to review the ALJ’s

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<sup>40</sup> ID at 120 (quoting Trimone Post-Hearing Br. at 98).

construction of this limitation in conjunction with its review of the “actuator assembly” limitation, discussed above.

Having considered the parties’ submissions, we determine to modify the ALJ’s construction. Specifically, the Commission modifies the ALJ’s construction to make clear that the limitation literally requires the claimed circuit interrupter to be “configured to disconnect” or “trip” in response to “the actuator signal” in the reset state. Because the “actuator assembly” limitation requires the assembly to generate the “actuator signal” in response to the wiring state detection signal, it follows that the “configured to disconnect” limitation requires an infringing device to be configured to disconnect in response to an actuator signal generated as a result of the actuator assembly’s receipt of a wiring state detection signal when the device is in the reset state. Although the actuator assembly’s generation of the actuator signal is required as a “middle step,” the Commission’s construction of the claim ultimately reverses the ALJ’s conclusion that an infringing device need not trip in response to a wiring state detection signal in the reset state.

Where the claimed “actuator signal” limitation is met by two or more signals, the Commission construes the limitation to require that an infringing device be “configured to disconnect” in response to *any* and *all* of the signals that comprise the claimed “actuator signal.” In other words, an infringing device must be configured to trip in response to the actuator signal generated in response to the wiring state detection signal when the device is in the reset state.

The Commission recognizes that its construction leads to the counterintuitive result that, when an infringing device is in the reset state and receives a signal that it is *properly wired*, it must be configured to *trip the device* in response to the actuator signal generated in response to the signal indicating *proper wiring*. The Commission’s duty, however, is to construe the

language of the claims, and not to rewrite them.<sup>41</sup> It is undisputed that the “wiring state detection circuit” limitation literally requires that a wiring state detection signal be generated upon proper wiring.<sup>42</sup> In order for the claim limitations requiring an actuator signal in response to a wiring state detection signal, and requiring the device to be configured to disconnect in response to an actuator signal, to have any meaning, therefore, an infringing device must be configured to trip in response to an actuator signal received in response to a wiring state detection signal.

Moreover, the Commission’s construction does not necessarily result in an inoperative device. Specifically, a device “configured to disconnect” in response to an actuator signal received in response to a wiring state detection signal in the reset state need not actually generate a wiring state detection signal in the reset state, and therefore need not actually trip when properly wired (although it must be configured to do so). Such a device might use the wiring state detection signal to allow the device to reset when the device is in the “tripped” state.<sup>43</sup> Again, the Commission recognizes that the claim is not perfectly logical, and that this is perhaps due to a claim-drafting error. But the Commission’s duty is to construe the claims as written in light of the intrinsic and extrinsic evidence. The modified construction achieves this purpose.

Finally, we note that the Commission’s construction is consistent with P&S’s arguments regarding the “configured to disconnect” limitation. Specifically, P&S acknowledges that “the circuit interrupter must be configured to disconnect the first conductive path from the second conductive path (*i.e.*, trip the device) in response to an actuator signal provided in the reset state,

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<sup>41</sup> *Chef Am., Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1374 (Fed. Cir. 2004).

<sup>42</sup> ‘386 patent (14:56-60).

<sup>43</sup> ‘386 Patent (3:43-48).

regardless of whether the actuator signal . . . is provided in response to a fault detection signal or a wiring state detection signal.”<sup>44</sup> Indeed, P&S’s expert admitted that, if a wiring state detection signal is generated in the reset state, an infringing device would be required to trip.

Regarding infringement, P&S has provided no evidence that any respondents’ product satisfies the “configured to disconnect” limitation under the Commission’s construction. Specifically, P&S provides no evidence that any accused device is configured to trip in response to an actuator signal generated in response to the wiring state detection signal in the reset state.

P&S admits that GPG’s device is the only accused product capable of producing a wiring state detection signal in the reset state,<sup>45</sup> but it is undisputed that GPG’s devices’ accused actuator signal in response to a wiring state detection signal—[[

]]—does not cause the device to trip in the reset state. P&S’s argument that a user pressing the reset button while a device is in the reset state would be an “abnormal” operation, and should therefore not be considered in the infringement analysis, ignores the fact that the claim itself requires such an “abnormal” result, as acknowledged by P&S and its expert.<sup>46</sup> The parties agree that the remaining accused devices are not configured to disconnect in response to their respective, identified actuator signals generated in response to a wiring state detection signal in the reset state. To the contrary, P&S argues that

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<sup>44</sup> P&S Submission at 163.

<sup>45</sup> P&S Submission at 173.

<sup>46</sup> P&S Submission at 163 (“The circuit interrupter must be configured to [trip the device] in response to an actuator signal provided in the reset state, regardless of whether the actuator signal in the reset state is provided in response to a fault detection signal or a wiring state detection signal.”); Tr. at 911-912.

they meet the limitation based on the fact that they trip in response to actuator signals that are “simply the result of a fault detection signal,” which P&S admits is “a feature of a conventional GFCI.”<sup>47</sup> We therefore reverse the ALJ’s conclusion that each of the accused devices meets the “configured to disconnect” limitation, and accordingly reverse the ALJ’s conclusions that each device infringes claim 1 of the ‘386 patent.<sup>48</sup>

C. Validity

The Commission’s modification to the ALJ’s construction provides an independent ground for the ALJ’s finding that claim 1 of the ‘386 patent is not invalid because none of the accused prior art devices are configured to trip in response to an actuator signal generated in response to a wiring state detection signal in the reset state. Moreover, the Commission determines that P&S has amply demonstrated that Trimone failed to meet its burden of proving that the DiSalvo patent discloses the claimed “wiring state detection circuit coupled to the first conductive path, the wiring state detection circuit selectively providing a wiring state detection signal when the at least one line terminal is coupled to a source of AC power” limitation of claim 1.<sup>49</sup> We therefore determine not to modify the ALJ’s conclusion that the respondents failed to meet their burden of proving that claim 1 of the ‘386 patent is invalid.

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<sup>47</sup> P&S Submission at 165.

<sup>48</sup> The Commission notes that the result would be the same if its construction required that the “actuator assembly” limitation required an infringing device to produce one actuator signal, or even one or more identical signals, in response to either the wiring state detection signal or the fault detection signal.

<sup>49</sup> P&S Reply Submission at 93-96.



#### IV. Alleged Infringement of the '973 patent by ELE's 2006 GFCIs

The ALJ, in addressing claim construction of the '973 patent, explicitly rejected adopting “the limitations that ELE and the [IA] would read into claim 1” and, as such, adopted P&S’s argument that the terms contained in claim 1 “do not need ‘any construction as the plain and ordinary meaning of the claim language suffices.’”<sup>50</sup> Specifically, the ALJ rejected arguments that the “user-accessible housing feature” limitation must be a physical object, and rejected arguments in favor of excluding “a hole” from the limitation’s scope. The ALJ determined, based on his claim construction, that ELE’s 2006 products meet the “user-accessible housing feature limitation” because they contain a hole. On review, the Commission asked the parties to brief the question of whether the “hole” in ELE’s 2006 products is, as required by claim 1, in communication with the switch element.

Having reviewed the parties’ submissions, the Commission determines to reverse the ALJ’s conclusion regarding claim 1 of the '973 patent because P&S has failed to prove that the “hole” in ELE’s 2006 GFCI is “in communication” with the alleged switch element. At most, the “hole” *allows for* communication with the switch element, by allowing insertion of a pin to close the switch. We reject P&S’s argument to interpret “in communication with” to mean “providing access to” because it is inconsistent with the limitation’s ordinary meaning.<sup>51</sup> We also reject P&S’s argument that, because dependent claim 13 is explicitly limited to a plug and a spring, claim 1 must refer only to a hole.<sup>52</sup> In our view, claim 1 refers to any user-accessible

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<sup>50</sup> ID at 148-50.

<sup>51</sup> See P&S Reply Submission at 105.

<sup>52</sup> See *id.* at 102-03.

housing feature that is in communication with the spring element, which includes but is not limited to claim 13's plug and spring. Notably, however, claim 1 does not cover user-accessible housing features that are not in communication with the spring element, and does not cover pins that are not housing features that are in communication with the spring element. The patent never suggests that the hole in its figures is in communication with the switch, and there is no evidence that the hole in ELE's 2006 GFCI is in communication with the identified switch element.

**V. Construction of "cantilever" in the '718 patent and related issues**

The ALJ construed "cantilever" to mean "an elongated flexible member having a fixed end and a movable end." ID at 155. In its petition for review, Meihao, the only party accused of infringing asserted claim 52 of the '718 patent, argued the ALJ erred by importing "limitations of 'flexibility' and 'movability'" into the claims from the preferred embodiment of the '718 patent. The Commission determined to review the construction of "cantilever" and requested that the parties brief the effect that modifying the ALJ's construction of 'cantilever' to adopt Meihao's proposed construction would have on the ALJ's determinations of infringement, validity, and domestic industry regarding the '718 patent.

Having reviewed the parties's submissions, the Commission determines that so modifying the claim construction would have no effect on the ALJ's determinations regarding infringement, validity, or domestic industry, and would therefore have no effect on the question of violation. The contemplated modification would have no effect because, first, the parties' proposed constructions are quite similar. Specifically, there is no virtually no difference between the ALJ's construction's "moveable end" and Meihao's proposed construction's "free end."

Similarly, the ALJ’s requirement that the claimed “cantilever” be flexible does not significantly limit the claim in light of P&S’s own expert’s acknowledgment—which Meihao cites—that “everything” is flexible, including “all metal.”<sup>53</sup>

However, in light of the P&S’s expert’s admission that, according to its ordinary meaning, a “cantilever” is “not required to be flexible,”<sup>54</sup> the Commission hereby determines to modify the ALJ’s construction and adopt Meihao’s proposed construction. As noted above, however, the Commission’s modification has no effect on the ALJ’s conclusion of violation with respect to claim 52 of the ‘718 patent. Meihao only argues that its proposed construction would impact the ALJ’s validity analysis but, as pointed out by P&S, in addition to the ALJ’s other independent justifications for his conclusion regarding validity, “Meihao did not introduce evidence that the allegedly anticipatory ‘952 patent shows ‘an *elongated* structure’ per Meihao’s own proposed construction.”<sup>55</sup>

## **VI. Remedy, the public interest, and bonding**

Section 337 provides that, “[i]f the Commission determines, as a result of an investigation under this section, that there is a violation of this section, it shall direct that the articles concerned, imported by any person violating the provision of this section, be excluded from entry into the United States . . . .”<sup>56</sup> This statutorily mandated exclusion is achieved, as

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<sup>53</sup> Tr. at 3258:5-7; 1545:14-25.

<sup>54</sup> See Tr. at 3249:12-16

<sup>55</sup> P&S Submission at 201.

<sup>56</sup> 19 U.S.C. § 1337(d)(1).

appropriate, through either a “limited exclusion order” or a “general exclusion order.”<sup>57</sup>

Generally, a limited exclusion order is appropriate unless either of the statutory criteria in section 337(d)(2) are met, that is, unless “(A) a general exclusion from entry of articles is necessary to prevent circumvention of an exclusion order limited to products of named persons; or (B) there is a pattern of violation of this section and it is difficult to identify the source of infringing goods.”

In addition to, or instead of, an exclusion order, the Commission may issue cease-and-desist orders to respondents violating or believed to be violating Section 337.<sup>58</sup> The Commission generally issues a cease-and-desist order only when a respondent maintains a commercially significant inventory of infringing products in the United States.<sup>59</sup>

When issuing either an exclusion order or a cease-and-desist order, the Commission must also consider whether the statutory “public interest” factors preclude the contemplated relief. The “public interest” factors the Commission must consider are the effect of the contemplated relief on “the public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, and United States consumers . . . .”<sup>60</sup>

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<sup>57</sup> See *Kyocera Wireless Corp. v. Int’l Trade Comm’n*, 545 F.3d 1340, 1356 (Fed. Cir. 2008).

<sup>58</sup> *Id.* § 1337(f)(1).

<sup>59</sup> See, e.g., *Certain Display Controllers and Products Containing Same*, Inv. No. 337-TA-491/481, Commission Opinion at 66 (Feb. 4, 2005); *Certain Integrated Repeaters, Switches, Transceivers and Products Containing Same*, Inv. No. 337-TA-435, Commission Opinion on Remedy, the Public Interest, and Bonding, at 27, USITC Pub. 3547 (Oct. 2002).

<sup>60</sup> 19 U.S.C. § 1337(d)(1); § 1337(f)(1).

A. Exclusion Order

The ALJ, in his Recommended Determination on Remedy and Bonding (“RD”), recommended that the Commission issue a general exclusion order. We disagree with the ALJ’s recommendation in light of our conclusion that P&S has failed to demonstrate that either section 337(d)(2)(A) or (B) is satisfied. In the Commission’s notice of review, we requested “briefing specific to whether the statutory criteria set forth in section 337(d)(2) are met in this investigation.”<sup>61</sup> In response, P&S presented an argument devoted mostly to an analysis of the *Spray Pumps*<sup>62</sup> factors, rather than addressing the statutory criteria directly. While the Commission has in the past considered analysis based on the *Spray Pumps* factors when evaluating whether the statutory criteria are satisfied, we now focus principally on the statutory language itself in light of recent Federal Circuit decisions.<sup>63</sup>

Nevertheless, we have considered those of P&S’s arguments that reasonably bear on the language of section 337(d)(2), even if P&S presented some of those arguments in relation to the *Spray Pumps* factors.<sup>64</sup> The sole argument presented by P&S in express relation to the language of section 337(d)(2) is that “[t]here is likely to be circumvention of [a] limited exclusion order because Chinese companies such as the manufacturing respondents frequently change names

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<sup>61</sup> Notice of Review at 5.

<sup>62</sup> *Certain Airless Paint Spray Pumps and Components Thereof*, Inv. No. 337-TA-90, USITC Pub. 1199 at 18-19 (Nov. 1981).

<sup>63</sup> *Vastfame Camera, Ltd. v. ITC*, 386 F.3d 1108, 1113 (Fed. Cir. 2004); *see also Kyocera*, 545 F.3d at 1356; *In re Certain Hydraulic Excavators and Components Thereof*, Inv. No. 337-TA-582 (Jan. 2009) (“*Hydraulic Excavators*”) at 16-17.

<sup>64</sup> *See, e.g., Hydraulic Excavators* at 18 (using factual findings made under a *Spray Pumps* analysis to conclude that section 337(d)(2)(B) was met).

and/or corporate structure, making them difficult to identify.”<sup>65</sup> We disagree that this allegation, by itself, warrants a general exclusion order because the Commission’s limited exclusion order excludes products found to infringe that are manufactured or imported by or on behalf of the violating respondents, as well as their affiliates, successors, or assigns. In other words, P&S has failed to show by this argument that a general exclusion order is “necessary to prevent circumvention of an exclusion order limited to products of named persons.”

In discussing the *Spray Pumps* factors, P&S maintains that there is a “widespread pattern of unauthorized use,” an assertion that we treat as relevant to section 337(d)(2)(B) and whether “there is a pattern of violation of this section and it is difficult to identify the source of infringing products.”<sup>66</sup> In support of its assertion of a widespread pattern, P&S notes that the four manufacturing respondents [[

]] . . . .”<sup>67</sup> While the scale of infringement is arguably quite large, we do not regard infringement by four respondents to establish a “pattern of violation” of the type to be sufficient to justify the imposition of a general exclusion order when a limited exclusion order is available instead. Nor does large-scale infringement by four respondents establish that “it is difficult to identify the source of infringing products.”

Discussing another *Spray Pumps* factor, P&S maintains that “with relative ease, foreign

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<sup>65</sup> Complainant Pass & Seymour, Inc.’s Submission on Remedy, the Public Interest and Bonding (“P&S Remedy Submission”) at 5.

<sup>66</sup> P&S Remedy Submission at 6.

<sup>67</sup> P&S Remedy Submission at 7.

entrepreneurs can build facilities capable of producing the patented GFCI's.”<sup>68</sup> Even if true, however, that assertion is insufficient to establish either that a general exclusion order “is necessary to prevent circumvention of an exclusion order limited to products of named persons,” or that “there is a pattern of violation of this section and it is difficult to identify the source of infringing products.” We accordingly find that P&S failed to prove that section 337(d)(2)(A) or (B) are met and has failed to prove that a general exclusion order is necessary.<sup>69</sup>

Certain respondents argue that the exclusion order should specify the particular model numbers of products found to infringe. P&S counters that, if the exclusion order is limited to specific model numbers, merely changing the adjudicated products’ model numbers would allow respondents to circumvent the order. In order to prevent such circumvention, we reject Trimone’s invitation to deviate from the long-standing Commission practice of declining to limit exclusion orders to specific model numbers. The Commission’s practice is consistent with Federal Circuit law, which provides that the Commission’s infringement determinations with respect to the adjudicated products are effective for the purposes of the exclusion order against different models presented for importation at a future date if there is a “close identity between the relevant features of an accused device and the device determined to be infringing.”<sup>70</sup> Correspondingly, the exclusion order would not apply to products not adjudicated to be

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<sup>68</sup> P&S Remedy Submission at 6, 12.

<sup>69</sup> The Commission’s rejection of P&S’s request for a general exclusion order addresses non-party Hubbell’s concern that its products might be excluded under a general exclusion order.

<sup>70</sup> See *Yingbin Nature (Guangdong) Wood Indus. Co. v. Int’l Trade Comm’n*, 535 F.3d 1322, 1332-33 (Fed. Cir. 2008).

infringing, and not having such a “close identity,” thus alleviating respondents’ concerns,<sup>71</sup> unless infringement is established by other means. We also note that the exclusion order contains a certification provision that gives U.S. Customs & Border Protection the authority to accept a certification from the parties that goods being imported are not covered by the exclusion order. This certification provision also addresses the respondents’ concerns.

We therefore determine to issue a limited exclusion order against all respondents found to violate section 337. We note that, in addition to the manufacturing respondents whose products are discussed above and in the ID, the limited exclusion order will also cover the violating domestic respondents, who each stipulated that they import, sell, and maintain an inventory of certain accused products.<sup>72</sup> The findings of patent infringement, and corresponding findings of violation of section 337, with respect to the manufacturing respondents above, therefore, also apply to the manufacturing respondents’ respective domestic distributors. Specifically, Orbit, Cheetah, Colacino, and Nicor distribute ELE products, and TDE distributes Meihao products. The ALJ’s findings of infringement and violation with respect to ELE and Meihao are, therefore, equally applicable to their domestic distributors who admit to importing, and selling after importation, certain accused products.

B. Cease-and-Desist Orders

The ALJ’s RD recommended issuance of cease-and-desist orders against Orbit, Cheetah, Colacino, Nicor, and TDE.<sup>73</sup> Each of these respondents was found to have a commercially

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<sup>71</sup> *Id.*

<sup>72</sup> RD at 12; ID at 5-6.

<sup>73</sup> RD at 12.



significant inventory of the products at issue. While ELE—whose brief is joined by Orbit, Cheetah, Colacino, and Nicor—argues that the evidence relied on by the ALJ is out of date, they do not point to any more recent evidence demonstrating the absence of inventory. We therefore adopt the ALJ’s recommendations regarding issuance of cease-and-desist orders against Orbit, Cheetah, Colacino, Nicor, and TDE.

C. The Public Interest Factors

The Commission finds that a contemplated limited exclusion order and cease-and-desist orders are not precluded by the “public interest” factors set out in section 337(d). As the IA points out, the respondents have not made a showing that the contemplated orders should not be issued in view of the public interest concerns. Hubbell, the only member of the public that submitted briefing regarding remedy, raised no public interest arguments. Moreover, evidence submitted during the remedy stage of the investigation indicates that the manufacturing respondents’ products account for less than [[ ]]% of the domestic GFCI market. This demonstrates that the remedial orders will not have substantial effects on the public health and welfare, the competitive conditions in the United States economy, or on domestic GFCI consumers. We therefore find the contemplated orders not to be precluded by the statutory public interest factors.

D. Bonding

When the Commission issues an exclusion order, infringing products are nonetheless entitled to entry under bond during the Presidential review period.<sup>74</sup> The Commission must set

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<sup>74</sup> 19 U.S.C. § 1337(j).

the amount of the bond at a level sufficient to protect Complainants from any injury.<sup>75</sup> When reliable price information is available, the Commission has often set the bond amount as that which would eliminate the differential between the domestic product and the imported, infringing product.<sup>76</sup> In cases where the Commission does not have sufficient evidence upon which to base a determination of the appropriate amount of the bond, the Commission has set a 100% bond.<sup>77</sup> Here, the RD recommended a bond of 100% of entered value. In making this recommendation, the ALJ found there to be “a lack of reliable price information” on which to make a recommendation concerning an appropriate bond. In particular, he found the evidence presented by ELE—the only party that attempted to make a showing regarding the appropriate bond—to be “not useful in determining how to protect P&S from injury . . . .”<sup>78</sup> No respondent has provided evidence demonstrating that the ALJ’s recommendation was erroneous. The Commission therefore adopts the ALJ’s recommendation, which is supported by the IA, to set a 100% bond for entry of products determined to violate section 337 during the Presidential review period.

## **VII. Motions for Oral Argument and for Stay of Remedial Orders**

The Commission determines that oral argument is not necessary to resolve the issues

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<sup>75</sup> 19 U.S.C. § 1337(e).

<sup>76</sup> *See Certain Microsphere Adhesives, Processes for Making Same, and Products Containing Same, Including Self-stick Repositionable Notes*, Inv. No. 337-TA-366, USITC Pub. 2949, Comm’n Op., 1996 ITC LEXIS 280, at \*44 (1996).

<sup>77</sup> *See Certain Sortation Systems, Parts Thereof, and Products Containing Same*, Inv. No. 337-TA-460, USITC Pub. 3588, Comm’n Op., 2003 ITC LEXIS 176, at \*47 (March 2003).

<sup>78</sup> RD at 14.

presented in the parties' respective written submissions, and therefore denies GPG's and Meihao's motions for oral argument.<sup>79</sup> Similarly, the Commission finds that GPG and Trimone have not made a sufficient showing that staying the Commission's remedial orders pending appeal is appropriate. The criteria for granting a stay are (1) whether the applicant has made a strong showing that he is likely to succeed on the merits; (2) whether the applicant will be irreparably injured absent a stay; (3) whether issuance of the stay will substantially injure the other parties interested in the proceeding; and (4) where the public interest lies.<sup>80</sup> We conclude that the respondents have failed to make a showing that any respondent is likely to succeed on the merits in an appeal of the Commission's determination. This is particularly true in the case of GPG because GPG did not advance any invalidity arguments in front of the ALJ, and any such arguments are now waived. Moreover, as the IA points out, the public interest favors providing intellectual property owners rapid relief against unfair import practices. A stay would therefore not be in the public interest and is, for at least that reason not appropriate here.

### **Conclusion**

The Commission determines to make the modifications discussed above to the ALJ's ID. Applying these modifications to the ALJ's ID, the Commission hereby determines that a violation of section 337 has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain ground fault circuit

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<sup>79</sup> See Written Submission of GPG on the Issues Under Review by the Commission, and on Remedy, the Public Interest, and Bonding; Motion for Oral Argument; Contingent Motion for Stay at 85.

<sup>80</sup> *Standard Havens Prods., Inc. v. Gencor Indus., Inc.*, 897 F.2d 511, 512 (Fed. Cir. 1990).

interrupters by respondents GPG, ELE, Meihao, Trimone, Cheetah, Nicor, Orbit, TDE, and Colacino by reason of infringement of one or more of claims 1, 7, and 8 of United States Patent No. 5,594,398; claims 14, 18, and 30 of United States Patent No. 7,283,340; claim 52 of United States Patent No. 7,154,718; and claims 1 and 15 of United States Patent No. 7,164,564. To remedy the violation it has found, the Commission has determined to issue a limited exclusion order, and to issue cease-and-desist orders to Cheetah, Colacino, Nicor, Orbit, and TDE. The Commission has determined that the public interest factors set out in section 337(d) do not preclude issuance of these remedial orders, and has determined that the bond to permit temporary importation during the Presidential review period should be set at 100% of the entered value of the imported articles. The Commission hereby affirms and adopts the ID's findings, conclusions, and analyses that are not inconsistent with this opinion.

By Order of the Commission.



Marilyn R. Abbott  
Secretary to the Commission

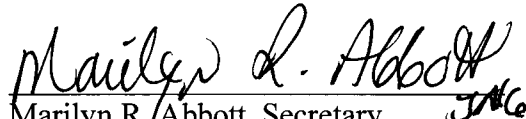
Issued: March 26, 2009

**CERTAIN GROUND FAULT CIRCUIT INTERRUPTERS  
AND PRODUCTS CONTAINING SAME**

**337-TA-615**

**PUBLIC CERTIFICATE OF SERVICE**

I, Marilyn R. Abbott, hereby certify that the attached **COMMISSION OPINION** has been served by hand upon the Commission Investigative Attorney, Bryan Moore, Esq., and the following parties as indicated, on MAR 27 2000

  
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**PUBLIC VERSION**

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

**In the Matter of**

**CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-615**

**RECOMMENDED DETERMINATION  
ON REMEDY AND BONDING  
Administrative Law Judge Carl C. Charneski**

Pursuant to the notice of investigation, 72 Fed. Reg. 54291 (2007), this is the Recommended Determination in the matter of *Certain Ground Fault Circuit Interrupters and Products Containing Same*, United States International Trade Commission Investigation No. 337-TA-615. *See* 19 C.F.R. § 210.42(a)(1)(ii).

For the reasons stated herein, it is recommended that a general exclusion issue. It is further recommended that cease and desist orders issue as to respondents Orbit Industries, Inc., Cheetah USA Corp., Colacino Electric Supply, Inc., Nicor Inc. and The Designer's Edge. Additionally, it is recommended that if the Commission issues an exclusion order as a result of this investigation, the Presidential review period bond should be set at 100% (one hundred percent) of the entered value of any covered product.

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## **I. Procedural Background**

The Commission's Rules provide that subsequent to an initial determination on the question of violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, the administrative law judge shall issue a recommended determination ("RD") containing findings of fact and recommendations concerning: (1) the appropriate remedy in the event that the Commission finds a violation of section 337, and (2) the amount of bond to be posted by respondents during Presidential review of Commission action under section 337(j). *See* 19 C.F.R. § 210.42(a)(1)(ii).

On September 24, 2008, the undersigned issued the initial determination ("ID") in this investigation, finding that a violation of section 337 has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain ground fault circuit interrupters ("GFCIs") by reason of infringement of claims 1, 7, and 8 of United States Patent No. 5,594,398; claims 14, 18, and 30 of United States Patent No. 7,283,340; claim 52 of United States Patent No. 7,154,718; claims 1 and 15 of United States Patent No. 7,164,564; claim 1 of United States Patent No. 7,212,386; and claim 1 of United States Patent No. 7,256,973.

The notice of investigation named Pass & Seymour, Inc. ("P&S") of Syracuse, New York as the complainant. 72 Fed. Reg. 54291 (2007). The following companies were named as the respondents:

General Protecht Group, Inc. ("GPG") of Zhejiang, China;

General Protecht Group U.S., Inc. ("GPGUS") of Atlanta, Georgia;

Shanghai ELE Manufacturing Corporation ("ELE") of Shanghai, China;

Shanghai Meihao Electric, Inc. (“Meihao”) of Shanghai, China;  
Wenzhou Trimone Company (“Trimone”) of Zhejiang, China;  
Cheetah USA Corp. (“Cheetah”) of Sandy, Utah;  
GX Electric (“GX”) of Pompano Beach, Florida;  
Nicor Inc. (“Nicor”) of Albuquerque, New Mexico;  
Orbit Industries, Inc. (“Orbit”) of Los Angeles, California;  
The Designer’s Edge (“TDE”) of Bellevue, Washington;  
Universal Security Instruments, Inc. (“USI”) of Owings Mills, Maryland;  
Colacino Electric Supply, Inc. (“Colacino”) of Newark, New York;  
Ingram Products, Inc. (“Ingram”) of Jacksonville, Florida;  
Lunar Industrial & Electrical, Inc. (“Lunar”) of Miami, Florida; and  
Quality Distributing, LLC. (“Quality”) of Hillsboro, Oregon.

*Id.*

Respondents Lunar, GX, Ingram, Quality, GPGUS and USI settled or were otherwise terminated as respondents in this investigation. *See* ID at 3-5.

The Commission Investigative Staff (“Staff”) of the Commission’s Office of Unfair Import Investigations is also a party in this investigation. 72 Fed. Reg. 54291 (2007).

## **II. Remedy**

### **A. Summary Of The Parties’ Arguments**

P&S argues that due to widespread patent infringement and other business conditions, an exclusion order directed only to respondents would fail to provide an effective remedy. Thus, it is argued, the Commission should issue a general exclusion order. Nevertheless, P&S argues

that if the Commission does not issue a general exclusion order, the Commission should at least issue a limited exclusion order. P&S argues that the Commission should also issue cease and desist orders against the respondents located in the United States, specifically, Orbit, Cheetah, Colacino, Nicor and TDE. P&S also requests that a 100% bond be required for the importation of covered products during the Presidential review period in the event that the Commission finds a violation of section 337 and issues an exclusion order. *See* Compl. Br. at 2, 229-37; Compl. Reply at 117-19.

ELE argues that P&S failed to make the requisite showing for a general exclusion order, and (without citation to supporting evidence) that “many of its competitors with patents that predate Complainant’s patents manufacture their GFCIs in China.” Thus, it is argued, a general exclusion order would affect manufacturers not accused of infringement in this investigation. ELE Br. at 194-96; ELE Reply at 95-98. Although ELE argues that it has not infringed any asserted patent claim, it does not dispute the fact that a limited exclusion order would be appropriate in the event that a violation of section 337 is ultimately found. *See* ELE Reply at 98.

ELE argues that no cease and desist order should be entered against it because it maintains no inventory in the United States. It is further argued that there is no evidence that Orbit, Colacino, Cheetah or Nicor (all of which are represented by ELE counsel) maintains commercially significant inventories in the United States, and (without citation to supporting evidence) that any inventories that do exist would have “an extremely diffuse impact” on P&S due to the existence of alternate suppliers of GFCIs and an anticipated change in GFCI standards. ELE Br. at 196-97; ELE Reply at 98-99.

ELE also argues that if a bond becomes necessary, based on a comparative pricing

analysis, the bond should be no more than \$0.72, or 21%, per unit. *See Id.* at 198; ELE Reply at 99-100.

GPG argues that any exclusion order that may issue against it “should be limited to GFCIs with those specific components that directly constitute the patented technology found to be infringed.” GPG Br. at 40.<sup>1</sup> GPG argues that even if it is subject to an exclusion order, it should not be required to post an importation bond during the Presidential review period because P&S has not shown that a bond is required to offset any competitive advantage resulting from the alleged acts of GPG. *See Id.* at 41; GPG Reply at 47-49.

Meihao disputes P&S’s allegations of patent infringement, but did not include the question of remedy in its main post-hearing brief in the event that a violation of section 337 is found. *See Meihao Br.* at 141.<sup>2</sup> In its reply, Meihao opposes a general exclusion order, argues that any exclusion order against it should be limited to products found to infringe, opposes a cease and desist order against it, and argues that it should not be required to post a bond because it “ceased manufacture and sale of the GFCIs prior to the institution of this Investigation.” *See Meihao Reply* at 72-74.<sup>3</sup>

Trimone argues that any exclusion order against it should be limited to the articles at

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<sup>1</sup> In its reply, GPG opposes the entry of a general exclusion order. *See* GPG Reply at 43-47.

<sup>2</sup> The parties were instructed at the hearing that they were to brief the “whole case” in their post-hearing briefs. *See* Tr. 3271.

<sup>3</sup> It is unclear whether Meihao intended this argument to be a non-importation defense (which would be a new defense, at least with respect to Meihao’s 2006 products), and why Meihao would argue against an importation bond if in fact it no longer sells for importation or imports accused devices. In any event, as found in the ID, the importation requirement has been satisfied with respect to Meihao, and indeed all respondents. *See* ID at 20-26.

issue as identified by model numbers, and opposes the entry of a general exclusion order.

Trimone Br. at 109-12; Trimone Reply at 57-59. Trimone argues that no cease and desist order is warranted against it. *Id.* at 112-13; Trimone Reply Br. at 59. Trimone also argues that there is no need for it to post a bond because P&S has failed to prove importation of certain accused products. *See Id.* at 112-14. Commenting on P&S's argument that there is a lack of comparative price information in the record, Trimone argues that "P&S has failed to carry its burden with respect to bond." Trimone Reply at 59.<sup>4</sup>

The Staff argues that in view of applicable law and Commission precedent, the evidence supports P&S's request for entry of a general exclusion order. If the Commission determines not to enter a general exclusion order, the Staff would support the entry of a limited exclusion order as an alternate remedy. The Staff opposes Trimone's request that in a limited exclusion order covered products be identified by model number, as contrary to Commission practice. The Staff further supports the entry of cease and desist orders as to Orbit, Cheetah, Colacino, Nicor and TDE. The Staff argues that due to a lack of evidence upon which a precise bond could be calculated, a 100% bond should be required for importation during the Presidential review period. *See Staff Br.* at 97-98; *Staff Reply* at 14-17.

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<sup>4</sup> Trimone does not affirmatively represent that there is no importation of its accused products. Furthermore, if a violation is found, the lack of comparative pricing information does not result in unencumbered importation during the Presidential review period. To the contrary, as discussed in detail, *infra* in section II.D, under applicable law and precedent, the lack of pricing or royalty information increases the likelihood that a 100% bond will be required to fulfill the statutory mandate of preventing "any injury" to complainant.

## B. A General Exclusion Order

### 1. Legal Framework Of Exclusion Orders

The Commission has broad discretion in selecting the form, scope, and extent of the remedy in a section 337 proceeding. *Viscofan, S.A. v. United States Int'l Trade Comm'n*, 787 F.2d 544, 548 (Fed. Cir. 1986). A limited exclusion order directed to respondents' infringing products is among the remedies that the Commission may impose.<sup>5</sup> In lieu of a limited exclusion order, the Commission may, in appropriate circumstances, issue a general exclusion order that applies to all infringing products, regardless of their manufacturer, if such an order "is necessary to prevent circumvention of an exclusion order limited to products or named persons; or there is a pattern of violation and it is difficult to identify the source of the infringing products." See 19 U.S.C. § 1337(d).

The Commission's determination of whether to issue a general exclusion order is guided by a two-part test set forth in its opinion in *Certain Airless Paint Spray Pumps and Components Thereof*, Inv. No. 337-TA-90 ("*Spray Pumps*"), USITC Pub. 1199 at 18-19, 216 U.S.P.Q. 465 (Nov. 1981). See *Certain Tadalafil or Any Salt or Solvate Thereof and Prods. Containing Same*, Inv. No. 337-TA-539 ("*Tadalafil*"), Comm'n Op., 2008 ITC LEXIS 744 at \*4 (May 2008) (applying the *Spray Pumps* test even after the statute was amended in 1994 specifically to authorize the issuance of general exclusion orders). Under *Spray Pumps*, the Commission

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<sup>5</sup> The Commission may add "downstream products" to an exclusion order. Thus, in certain circumstances, products may be excluded from importation because they contain one or more infringing devices. See *Erasable Programmable Read-Only Memories, Components Thereof, Products Containing Such Memories, and Processes for Making Such Memories*, Inv. No. 337-TA-276 ("*EPROMs*"), USITC Pub. No. 2196, Comm'n Op. at 125-26 (May 1989), *aff'd sub nom.*, *Hyundai Electronics Co. v. United States Int'l Trade Comm'n*, 899 F.2d 1204 (Fed. Cir. 1990). Downstream products have not arisen as an issue in this investigation.



requires a complainant to prove “both a widespread pattern of unauthorized use of its patented invention and certain business conditions from which one might reasonably infer that foreign manufacturers other than the respondents to the investigation may attempt to enter the U.S. market with infringing articles.” *See Spray Pumps*, 216 U.S.P.Q. at 473.

## **2. The Accused Products Are Subject To Exclusion**

If a violation of section 337 is found to exist, P&S is at least entitled to a limited exclusion order that corresponds to the Commission’s findings. There is no evidence to the contrary.

As noted by the Staff, Trimone requests that any limited exclusion order pertaining to its products be based on the particular model numbers of products found to infringe. However, it is the Commission’s longstanding standard practice to issue limited exclusion orders for all products “covered by” the asserted claims as to which a violation has been found, rather than by reference to particular product models. *See Certain Laser Bar Code Scanners and Scan Engines, Components Thereof and Products Containing Same*, Inv. No. 337-TA-551, Comm’n Op. at 23, 2007 ITC LEXIS 623, \*33-34 (June 14, 2007) (“We reject [respondent’s] invitation to deviate from the long-standing Commission practice of declining to limit exclusion orders to specific models.”). Thus, it is not recommended that the Commission issue an exclusion order that identifies excluded products by model number.

Moreover, as discussed below, it is recommended that in lieu of a limited exclusion order, P&S’s request for a general exclusion order be granted.

## **3. Analysis Under The *Spray Pumps* Test**

As referenced above, the Commission has determined to issue a general exclusion order

when it finds a “widespread pattern of unauthorized use of the patented invention”<sup>6</sup> and other business conditions from which one might infer that foreign manufacturers might attempt to enter the U.S. market with infringing articles.<sup>7</sup> See *Spray Pumps*, 216 U.S.P.Q. at 473.

Unless the Commission substantially or completely reverses the infringement findings contained in the ID, there is unquestionably a “widespread pattern of unauthorized use of the patented invention,” indeed not of a single patented invention, but of 11 claims spanning six United States patents. See ID section XI (Conclusions of Law) and XII (Initial Determination and Order).

Furthermore, this is not a case in which a complainant seeks a general exclusion order after proposing only one or a few companies as respondents. Rather, as detailed above in section I of this RD (and in ID sections I.B.4 and XI), this investigation was noticed as to 15 respondents; and even after reaching settlements with some of the respondents, P&S litigated at the hearing and its post-hearing filings against 10 of the respondents and numerous products

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<sup>6</sup> In *Spray Pumps*, the Commission identified five factors as to which evidence might be presented to prove the “widespread pattern of unauthorized use” referred to *supra*. Those factors are: (1) a Commission determination of unauthorized importation into the United States of infringing articles by numerous foreign manufacturers; (2) the pendency of foreign infringement suits based upon foreign patents which correspond to the domestic patent in issue; and (3) other evidence which demonstrates a history of unauthorized foreign use of the patented invention. *Spray Pumps*, 216 U.S.P.Q. at 473.

<sup>7</sup> In *Spray Pumps*, the Commission identified five factors as to which evidence might be presented to prove the “business conditions” referred to *supra*. Those factors are: (1) an established demand for the patented article in the U.S. market and conditions of the world market; (2) the availability of marketing and distribution networks in the United States for potential foreign manufacturers; (3) the cost to foreign entrepreneurs of building a facility capable of producing the patented article; (4) the number of foreign manufacturers whose facilities could be retooled to produce the patented article; or (5) the cost to foreign manufacturers of retooling their facility to produce the patented articles. *Spray Pumps*, 216 U.S.P.Q. at 473.

made by the four manufacturing respondents (*i.e.*, ELE, GPG, Meihao and Trimone).

Consequently, the “widespread pattern,” or first prong of the *Spray Pumps* test is satisfied. As discussed below, the “other business conditions,” or second prong is satisfied as well.

There is ample evidence of established demand for the patented products in the United States market. For example, the record shows that P&S manufactured on average about four million model G3 GFCIs per year during the late 1990s. Packard Tr. 420-421. In 2007, P&S sold 130,000 G4 units. Osterbrock Tr. 728. The evidence further shows that there are marketing and distribution networks available in the United States for foreign manufacturers. As detailed below in connection with the issuance of cease and desist orders, the current manufacturing respondents already have extensive domestic distribution channels in place.

The evidence shows that foreign manufacturers could retool their facilities to produce the patented article. As stipulated by USI, it “does not consider it difficult for competitors to get into the GFCI business because all that is needed is money.” Indeed, USI was aware of foreign manufacturers that “came into the business and went out of the GFCI business.” *See* Joint Stipulation of P&S and USI, dated June 5, 2008, ¶¶ 4-6. ELE, whose products have been distributed by USI, was founded only four years ago when its founders left Meihao to start their own GFCI manufacturing operation. *See* JX-7C (H. Huang Dep.) at 24-25. Yet, ELE is a major manufacturer of GFCIs. GPG admitted in its answer to the complaint that its capacity to manufacture GFCI devices is 6,000,000 units per year. GPG Resp. to Compl., Conf. Ex. B.

The evidence also shows that companies manufacturing and importing GFCIs, particularly from China, frequently change their name and corporate structure. As a result, these

companies are difficult to identify. The testimony of Mr. Bao of ELE, shows that ELE created a company called Leon Investment Company (“Leon”) to export GFCIs. JX-2C (B. Bao Dep.) at 37-39. ELE sells GFCIs to Leon, and Leon in turn sells GFCIs to customers. *Id.* Mr. Gao of Trimone indicated that [

] *See* Gao Tr.

2295-2296. [

] Additionally, GPG has also been known by other names, including Dongzheng Electric Company, Huameili and Tongling Group. CX-795C (H. Song Dep.) at 22-25; CX-796C (H. Song Dep.) at 142.

Thus, there is already a widespread pattern of patent infringement, and despite the issuance of any limited exclusion order, there would be ample incentive and opportunity for foreign manufacturers to make and sell for importation GFCIs that infringe the asserted patents. Accordingly, it is recommended that the Commission issue a general exclusion order.

### **C. Cease And Desist Orders**

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. No. 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).

As indicated above in the summary of the parties' arguments, P&S requests a cease and desist order only against the following respondents: Orbit, Cheetah, Colacino, Nicor and TDE. As discussed in the ID, Orbit, Cheetah, Colacino and Nicor sell or otherwise distribute ELE products (and are represented along with ELE by the same counsel), while TDE sells Meihao products (and did not appear at the hearing).

Orbit, Nicor, Colacino, Cheetah and TDE admit through signed stipulations that each maintains an inventory of accused products in the United States. There is no question that these inventories are maintained for commercial purposes, and in some cases, the evidence shows that the inventories are quite large. Orbit and Nicor admit to having inventory in at least four different warehouses. Joint Stipulation of P&S and Orbit, dated June 2, 2008; Joint Stipulation of P&S and Nicor, dated June 2, 2008. In fact, Orbit stipulated that as of February 7, 2008, it had inventory and was selling ground fault circuit interrupters that were compliant with the 2003 UL 943 Standard for Safety; and as of October 7, 2007, it had inventory in the United States amounting to [ ] ground fault circuit interrupters that were manufactured by ELE and which were compliant with the 2006 UL 943 Standard. *See* Joint Stipulation of P&S and Orbit, dated June 2, 2008, ¶¶ 4, 5. Cheetah admitted importing, selling, and maintaining an inventory as of April 15, 2008. *See* Joint Stipulation of P&S and Cheetah, dated June 2, 2008. Colacino admitted importing, selling, and maintaining an inventory of GFCIs with the Nicor trade name as

of February 25, 2008. *See* Joint Stipulation of P&S and Colacino, dated June 2, 2008. Finally, TDE stipulated that as of April 2, 2008, it had an inventory of GFCIs manufactured by Meihao in its warehouse in Kent, Washington. *See* Joint Stipulation of P&S and TDE, dated June 5, 2008.

Consequently, it is recommended that to the extent they are found to have violated section 337, a cease and desist order should be issued as to Orbit, Nicor, Colacino, Cheetah and TDE.

#### **D. Bond**

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 issue a remedy. The purpose of the bond is to protect the complainant from any injury. 19 C.F.R. § 210.42(a)(1)(ii), § 210.50(a)(3).

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. a 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 Certain Integrated Circuit Telecommunication Chips and Products Containing Same, Including Dialing Apparatus*, Inv. No. 337-TA-337, Comm'n Op. at 41 (1995). A 100 percent bond has been required when no effective alternative existed. *See 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, and the proposed royalty rate appeared to be *de minimis* and without adequate support in the record).

In this case, there is a lack of reliable price information. ELE is the only party that attempted a showing in this regard. Although ELE argues for an “apples-to-apples” price comparison, it proceeds to base its proposed bond on “the difference, if any, between the price Pass & Seymour pays to the manufacturer of its GFCIs, its China-based sister-company Rocom, and the price ELE charges to its customers.” *See* ELE Br. at 198. Thus, ELE relies on a comparison of prices at different levels of commerce. It is not useful in determining how to protect P&S from injury due to the importation of infringing products during the Presidential review period.

In addition, there is inadequate evidence to permit an alternate method of bond calculation, such as the calculation of a reasonable royalty rate.

Consequently, it is recommend that a 100% bond be required of respondents during the Presidential review period.

### **III. Conclusions And Recommended Determination**

In accordance with the discussion of the issues contained herein, it is the RECOMMENDED DETERMINATION (“RD”) of the undersigned that in the event the Commission determines that respondents have committed a violation of section 337, the Commission should issue a general exclusion order, and should also issue cease and desist orders directed toward respondents Orbit, Cheetah, Colacino, Nicor and TDE. In addition, if the Commission imposes a remedy that prohibits importation, in order to import subject products

during the Presidential review period, respondents should be required to post a bond of 100% of the entered value of the imported products.

The Secretary shall serve a confidential version of this RD upon counsel who are signatories to the Protective Order issued in this investigation (Order No. 1), and upon the Commission investigative attorney.

To expedite service of the public version, counsel for each party shall file by no later than October 15, 2008, a copy of this RD with those sections considered by the party to be confidential bracketed in red, or if confidential treatment is not requested for any portion of this RD, a statement to that effect.

SO ORDERED.

  
\_\_\_\_\_  
Carl C. Charneski  
Administrative Law Judge

Issued: October 8, 2008

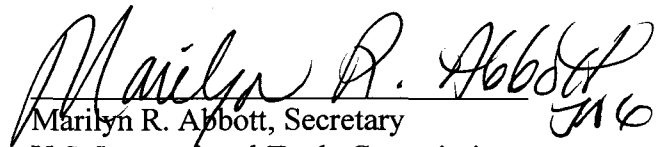


**CERTAIN GROUND FAULT CIRCUIT INTERRUPTERS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-615**

**PUBLIC CERTIFICATE OF SERVICE**

I, Marilyn R. Abbott, hereby certify that the attached **RECOMMENDED DETERMINATION** has been served upon the Commission Investigative Attorney, **Bryan F. Moore, Esq.**, and the following parties as indicated, on December 22, 2008



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**CERTAIN GROUND FAULT CIRCUIT INTERRUPTERS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-615**

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**CERTAIN GROUND FAULT CIRCUIT INTERRUPTERS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-615**

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

In the Matter of

CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING SAME

Investigation No. 337-TA-615

**NOTICE OF COMMISSION DETERMINATION TO REVIEW IN PART A FINAL  
DETERMINATION ON VIOLATION OF SECTION 337; SCHEDULE FOR  
BRIEFING ON THE ISSUES ON REVIEW AND ON REMEDY,  
PUBLIC INTEREST, AND BONDING; DENIAL OF  
MOTION FOR LEAVE TO FILE A REPLY**

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

**ACTION:** Notice.

**SUMMARY:** Notice is hereby given that the U.S. International Trade Commission has determined to review in part the final initial determination ("ID") issued by the presiding administrative law judge ("ALJ") in the above-captioned investigation finding a violation of 19 U.S.C. § 1337 ("section 337") in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain ground fault circuit interrupters and products containing same by reason of infringement of one or more of claims 1, 7, and 8 of U.S. Patent No. 5,594,398 ("the '398 patent"); claims 14, 18, and 30 of U.S. Patent No. 7,283,340 ("the '340 patent"); claim 1 of U.S. Patent No. 7,212,386 ("the '386 patent"); claims 1 and 15 of U.S. Patent No. 7,164,564 ("the '564 patent"); claim 1 of U.S. Patent No. 7,256,973 ("the '973 patent"); and claim 52 of U.S. Patent No. 7,154,718 ("the '718 patent").

**FOR FURTHER INFORMATION CONTACT:** Paul M. Bartkowski, Office of the General Counsel, U.S. International Trade Commission, 500 E Street, S.W., Washington, D.C. 20436, telephone (202) 708-5432. 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:** This investigation was instituted on September 18, 2007, based on a complaint filed by Pass & Seymour, Inc. (“P&S”) of Syracuse, New York. The complaint, as supplemented, alleged violations of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) in the importation into the United States, the sale for importation, and the sale within the United States after importation of certain ground fault circuit interrupters and products containing the same by reason of infringement of certain claims of certain United States patents. The complaint named 15 respondents: General Protecht Group, Inc. (“GPG”) of Zhejiang, China; General Protecht Group U.S., Inc. of Atlanta, Georgia; Shanghai ELE Manufacturing Corporation (“ELE”) of Shanghai, China; Shanghai Meihao Electric, Inc. (“Meihao”) of Shanghai, China; Wenzhou Trimone Company (“Trimone”) of Zhejiang, China; Cheetah USA Corp. (“Cheetah”) of Sandy, Utah; GX Electric (“GX”) of Pompano Beach, Florida; Nicor Inc. (“Nicor”) of Albuquerque, New Mexico; Orbit Industries, Inc. (“Orbit”) of Los Angeles, California; The Designer’s Edge (“TDE”) of Bellevue, Washington; Universal Security Instruments, Inc. (“USI”) of Owings Mills, Maryland; Colacino Electric Supply, Inc. (“Colacino”) of Newark, New York; Ingram Products, Inc. (“Ingram”) of Jacksonville, Florida; Lunar Industrial & Electrical, Inc. (“Lunar”) of Miami, Florida; and Quality Distributing, LLC. (“Quality”) of Hillsboro, Oregon.

After institution of the investigation, by separate initial determinations, each of which the Commission determined not to review, respondents Lunar, GX, Ingram, Quality, General Protecht Group U.S., Inc., and USI were terminated from the investigation; the ‘340 patent was added to the investigation; P&S’s motion for summary determination that it satisfied the economic prong of the domestic industry requirement was granted with respect to all asserted patents; and the investigation was terminated with respect to all claims except claims 1, 7, and 8 of the ‘398 patent, claim 1 of the ‘386 patent, claims 14, 18, and 30 of the ‘340 patent, claims 1 and 15 of the ‘564 patent; claims 1, 2, 5, and 6 of the ‘973 patent; and claim 52 of the ‘718 patent.

On September 24, 2008, the ALJ issued his final ID, finding a violation with respect to each patent by each remaining respondent. Respondents ELE (in a joint brief with its respondent customers Cheetah, Colacino, Orbit, and Nicor), Meihao (in a joint brief with its respondent customer TDE), GPG, and Trimone each filed a petition for review of the ID. P&S and the Commission investigative attorney (“IA”) each filed a response to the respondents’ petitions for review. Meihao filed a motion for leave to file a reply to P&S’s response, along with a proposed reply submission.

Having examined the record of this investigation, including the ALJ’s final ID and the submissions of the parties, the Commission has determined to deny Meihao’s motion for leave to file a reply, and has determined to review the final ID in part. Specifically, the Commission has determined to review (1) the ALJ’s construction of “unitary, electrically conducting member carrying a pair of spaced electrical contacts” in the asserted claims of the ‘398 patent and related issues of infringement, domestic industry, and validity; (2) the ALJ’s construction of “mounting means” in the asserted claims of the ‘398 patent and related issues of infringement, domestic

industry, and validity; (3) the ALJ's construction of "latching means" in the '398 patent and related issues of infringement, domestic industry, and validity; (4) the ALJ's conclusion that the asserted claims of the '340 patent are not invalid; (5) the ALJ's construction of "an actuator assembly configured to provide an actuator signal in response to the fault detection or the wiring state detection signal" in claim 1 of the '386 patent and related issues of infringement, domestic industry, and validity; (6) the ALJ's construction of "the circuit interrupter being configured to disconnect the first conductive path from the second conductive path in response to the actuator signal in the reset state" in claim 1 of the '386 patent and related issues of infringement, domestic industry, and validity; (7) the ALJ's determination that claim 1 of the '386 patent is not invalid; (8) the ALJ's determination of infringement of claim 1 of the '973 patent regarding ELE's 2006 GFCIs; and (9) the ALJ's construction of "cantilever" in claim 52 of the '718 patent and related issues of infringement, domestic industry, and validity. The Commission requests briefing based on the evidentiary record on these topics. The Commission is particularly interested in responses to the following questions:

Regarding the '398 patent:

- (1) How would modifying the construction to more clearly provide meaning to the terms "unitary" and "carrying" affect the determinations of infringement, validity, and domestic industry, if at all?
- (2) Please specifically address the statement made in reference to the Doyle and Van Haaren patents in CX-9, PS-ITC 336699, referenced in P&S's response to the petitions for review, in your response to question (1).
- (3) Is "mounting" a required function of the claimed "mounting means"? If so, what structure from the '398 patent performs the function of "mounting"?
- (4) How would modifying the structure identified as corresponding to the "latching means" to include the "latch member" disclosed in the '398 patent affect the determinations of infringement, validity, and domestic industry?
- (5) Does the structure in Trimone's 2006 GFCIs accused of meeting the "mounting means" limitation permit movement to a "second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals"?

Regarding the '340 patent:

- (1) Does the DiSalvo patent's statement that "[c]losing the reset contacts activates the operation of the circuit by, for example simulating a ground fault . . ." constitute a disclosure of "a predetermined signal not simulating a fault condition"? If so, are the asserted claims of the '340 patent obvious over the DiSalvo patent?

- (2) Does the Neiger patent's disclosure of a circuit that detects a miswire condition constitute a disclosure of "at least one detection circuit . . . configured to generate a predetermined signal in response to detecting a proper wiring condition," under the ALJ's construction of "detection"? If so, are the asserted claims of the '340 patent obvious over the Neiger patent?
- (3) Please address any remaining arguments, that were previously raised, in favor of obviousness/nonobviousness of the asserted claims of the '340 patent that were not discussed in response to questions (1) and (2).

Regarding the '386 Patent:

- (1) What effect would a construction that recognizes that the "configured to disconnect" limitation requires the device to trip in response to an actuator signal—whether that actuator signal is generated in response to either a fault detection signal or a wiring state detection signal—in the reset state have on infringement, domestic industry, and validity? Please provide record evidence supporting your conclusions under such a construction.
- (2) Please provide specific limitations of claim 1 of the '386 patent that are not disclosed in the DiSalvo patent, and supporting evidentiary citations.

Regarding the '973 patent:

In what way is the "user-accessible housing feature" in ELE's device, that is, the hole, in communication with the switch element?

Regarding the '718 patent:

What effect would modifying the ALJ's construction of "cantilever" to adopt Meihao's proposed construction have on the determinations of infringement, validity, and domestic industry regarding the '718 patent?

Furthermore, in connection with the final disposition of this investigation, the Commission may (1) issue an order that could result in the exclusion of the subject articles from entry into the United States, and/or (2) issue one or more cease-and-desist orders that could result in the respondent being required to cease and desist from engaging in unfair acts in the importation and sale of such articles. Accordingly, the Commission is interested in receiving written submissions that address the form of remedy, if any, that should be ordered. If a party seeks exclusion of an article from entry into the United States for purposes other than entry for consumption, the party should so indicate and provide information establishing that activities involving other types of entry either are adversely affecting it or likely to do so. For background, *see In the Matter of Certain Devices for Connecting Computers via Telephone Lines*, Inv. No. 337-TA-360, USITC Pub. No. 2843 (December 1994) (Commission Opinion).



If the Commission contemplates some form of remedy, it must consider the effects of that remedy upon the public interest. The factors the Commission will consider include the effect that an exclusion order and/or cease-and-desist orders would have on (1) the public health and welfare, (2) competitive conditions in the U.S. economy, (3) U.S. production of articles that are like or directly competitive with those that are subject to investigation, and (4) U.S. consumers. The Commission is therefore interested in receiving written submissions that address the aforementioned public interest factors in the context of this investigation.

If the Commission orders some form of remedy, the U.S. Trade Representative, as delegated by the President, has 60 days to approve or disapprove the Commission's action. *See* Presidential Memorandum of July 21, 2005, 70 *Fed. Reg.* 43251 (July 26, 2005). During this period, the subject articles would be entitled to enter the United States under bond, in an amount determined by the Commission and prescribed by the Secretary of the Treasury. The Commission is therefore interested in receiving submissions concerning the amount of the bond that should be imposed if a remedy is ordered.

**WRITTEN SUBMISSIONS:** The parties to the investigation are requested to file written submissions on the issues under review. The submissions should be concise and thoroughly referenced to the record in this investigation, including references to exhibits and testimony. Additionally, parties to the investigation, interested government agencies, and any other interested parties are encouraged to file written submissions on the issues of remedy, the public interest, and bonding. Such submissions should address the recommended determination by the ALJ on remedy and bonding. Further, regarding the potential issuance of a general exclusion order, the Commission requests briefing specific to whether the statutory criteria set forth in section 337(d)(2) are met in this investigation. Complainants and the Commission investigative attorney are also requested to submit proposed remedial orders for the Commission's consideration. Complainants are also requested to state the dates that the patents expire and the HTSUS numbers under which the accused products are imported. The written submissions and proposed remedial orders must be filed no later than close of business on December 22, 2008. Reply submissions must be filed no later than the close of business on December 31, 2008. No further submissions on these issues will be permitted unless otherwise ordered by the Commission.

Persons filing written submissions must file the original document and 12 true copies thereof on or before the deadlines stated above with the Office of the Secretary. Any person desiring to submit a document to the Commission in confidence must request confidential treatment unless the information has already been granted such treatment during the proceedings. All such requests should be directed to the Secretary of the Commission and must include a full statement of the reasons why the Commission should grant such treatment. *See* 19 C.F.R. § 201.6. Documents for which confidential treatment by the Commission is sought will be treated accordingly. All nonconfidential written submissions will be available for public inspection at the Office of the Secretary.

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 section 210.42 of the Commission's Rules of Practice and Procedure (19 C.F.R. § 210.42).

By order of the Commission.

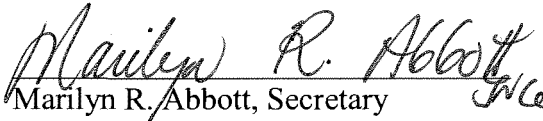
A handwritten signature in black ink, appearing to read "Marilyn R. Abbott". The signature is fluid and cursive, with a large initial "M" and a long, sweeping underline.

Marilyn R. Abbott  
Secretary to the Commission

Issued: December 8, 2008

**PUBLIC CERTIFICATE OF SERVICE**

I, Marilyn R. Abbott, hereby certify that the attached **NOTICE OF COMMISSION DETERMINATION TO REVIEW IN PART A FINAL DETERMINATION ON VIOLATION OF SECTION 337; SCHEDULE FOR BRIEFING ON THE ISSUES ON REVIEW AND ON REMEDY, PUBLIC INTEREST, AND BONDING; DENIAL OF MOTION FOR LEAVE TO FILE A REPLY** has been served by hand upon the Commission Investigative Attorney, Bryan Moore, Esq., and the following parties as indicated, on DEC 09 2008.

  
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**PUBLIC VERSION**

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

**In the Matter of**

**CERTAIN GROUND FAULT CIRCUIT  
INTERRUPTERS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-615**

**INITIAL DETERMINATION  
Administrative Law Judge Carl C. Charneski**

Pursuant to the notice of investigation, 72 Fed. Reg. 54291 (2007), this is the Initial Determination in the matter of *Certain Ground Fault Circuit Interrupters and Products Containing Same*, United States International Trade Commission Investigation No. 337-TA-615. See 19 C.F.R. § 210.42(a).

It is held that a violation of section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain ground fault circuit interrupters by reason of infringement of one or more of claims 1, 7, and 8 of United States Patent No. 5,594,398; claims 14, 18, and 30 of United States Patent No. 7,283,340; claim 52 of United States Patent No. 7,154,718; claims 1 and 15 of United States Patent No. 7,164,564; claim 1 of United States Patent No. 7,212,386; and claim 1 of United States Patent No. 7,256,973.

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The following abbreviations may be used in this Initial Determination:

- ALJ - Administrative Law Judge
- ALJX - Administrative Law Judge Exhibit
- CDX - Complainant's Demonstrative Exhibit
- CPX - Complainant's Physical Exhibit
- CX - Complainant's Exhibit
- Dep. - Deposition
- EDIS - Electronic Document Imaging System
- FF - Finding(s) of Fact
- JPX - Joint Physical Exhibit
- JX - Joint Exhibit
- PCL - Proposed Conclusion of Law (CPCL, RPCL or SPCL)
- PFF - Proposed FF (CPFF, RPFF or SPFF)
- PRF - Proposed Reply or Rebuttal Finding (CPRF, RPRF or SPRF)
- RDX - Respondents' Demonstrative Exhibit
- RPX - Respondents' Physical Exhibit
- RX - Respondents' Exhibit
- SX - Commission Investigative Staff Exhibit
- Tr. - Transcript.

## **I. Background**

### **A. Institution and Procedural History of This Investigation**

By publication of a notice in the *Federal Register* on September 24, 2007, pursuant to subsection (b) of section 337 of the Tariff Act of 1930, as amended, the Commission instituted this investigation 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 ground fault circuit interrupters and products containing the same by reason of infringement of one or more of claims 1-36 of U.S. Patent No. 5,594,398; claims 12, 14, 19, 25, and 26 of U.S. Patent No. RE38,293; claims 52, 59, and 60 of U.S. Patent No. 7,154,718; claims 1-3, 13, 15, and 22 of U.S. Patent No. 7,164,564; claims 1, 9, and 15-17 of U.S. Patent No. 7,212,386; and claims 1-6, 8, 12, 21, 22, and 24-34 of U.S. Patent No. 7,256,973, and whether an industry in the United States exists as required by subsection (a)(2) of section 337.

72 Fed. Reg. 54291 (2007).

The notice of investigation named Pass & Seymour, Inc. (“P&S”) of Syracuse, New York as the complainant. *Id.* The following companies were named as the respondents:

General Protecht Group, Inc. (“GPG”) of Zhejiang, China;

General Protecht Group U.S., Inc. of Atlanta, Georgia;

Shanghai ELE Manufacturing Corporation (“ELE”) of Shanghai, China;

Shanghai Meihao Electric, Inc. (“Meihao”) of Shanghai, China;

Wenzhou Trimone Company (“Trimone”) of Zhejiang, China;

Cheetah USA Corp. (“Cheetah”) of Sandy, Utah;

GX Electric (“GX”) of Pompano Beach, Florida;

Nicor Inc. (“Nicor”) of Albuquerque, New Mexico;  
Orbit Industries, Inc. (“Orbit”) of Los Angeles, California;  
The Designer’s Edge (“TDE”) of Bellevue, Washington;  
Universal Security Instruments, Inc. (“USI”) of Owings Mills, Maryland;  
Colacino Electric Supply, Inc. (“Colacino”) of Newark, New York;  
Ingram Products, Inc. (“Ingram”) of Jacksonville, Florida;  
Lunar Industrial & Electrical, Inc. (“Lunar”) of Miami, Florida; and  
Quality Distributing, LLC. (“Quality”) of Hillsboro, Oregon.

*Id.*

The Commission Investigative Staff (“Staff”) of the Commission’s Office of Unfair Import Investigations is also a party in this investigation. *Id.*

Order No. 7 contains an unreviewed initial determination granting complainant’s motion to amend the complaint and notice of investigation: (1) to remove respondent Lunar from the investigation; (2) to add United States Patent No. 7,283,340 (“the ‘340 patent”) to the investigation; (3) to make changes relating to the names, addresses and affiliations of certain respondents; and (4) to amend information relating to harmonized tariff schedule item numbers. *See* Notice of Comm’n Decision Not to Review an Initial Determination Granting a Motion to Amend the Complaint and Notice of Investigation (Jan. 4, 2008).

Order No. 19 contains an unreviewed initial determination granting a joint motion to terminate the investigation as to respondent GX on the basis of a settlement agreement. *See* Notice of Comm’n Decision Not to Review an Initial Determination Granting a Joint Motion to Terminate the Investigation As to Respondent GX Electric on the Basis of a Settlement

Agreement (March 27, 2008).

Order No. 25 contains an unreviewed initial determination terminating the investigation as to respondent Ingram based on a settlement agreement. *See* Notice of Comm'n Decision Not to Review an Initial Determination Granting a Joint Motion to Terminate the Investigation As to Respondent Ingram Products, Inc. on the Basis of a Settlement Agreement (May 6, 2008).

Order No. 29 contains an unreviewed initial determination terminating the investigation as to respondent Quality based on a settlement agreement. *See* Notice of Comm'n Decision Not to Review an Initial Determination Granting a Joint Motion to Terminate the Investigation As to Respondent Quality Distributing, LLC on the Basis of a Settlement Agreement. (May 14, 2008).

Order No. 45 contains an unreviewed initial determination granting complainant's motion for summary determination that it has satisfied the economic prong of the domestic industry requirement. It was found for the purposes of this investigation that P&S satisfied the economic prong of the domestic industry requirement as to all currently asserted patents. *See* Notice of Comm'n Decision Not to Review an Initial Determination Granting a Motion for Summary Determination That the Economic Prong of the Domestic Industry Requirement Has Been Satisfied (June 11, 2008).

Order No. 48 contains an unreviewed initial determination granting complainant's motion to terminate the investigation as to certain claims. As a result, the following claims remained asserted: claims 1, 7, and 8 of U.S. Patent No. 5,594,398 ("the '398 patent"); claim 1 of U.S. Patent No. 7,212,386 ("the '386 patent");<sup>1</sup> claims 14, 18, and 30 of U.S. Patent No. 7,283,340

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<sup>1</sup> P&S intended to offer evidence relating to claim 34 of the '386 patent in connection with its domestic industry case. *See* Order No. 48 at 1.

("the '340 patent"); claims 1 and 15 of U.S. Patent No. 7,164,564 ("the '564 patent"); claims 1, 2, 5, and 6 of U.S. Patent No. 7,256,973 ("the '973 patent"); and claim 52 of U.S. Patent No. 7,154,718 ("the '718 patent"). *See* Notice of Comm'n Decision Not to Review an Initial Determination Granting a Motion to Terminate the Investigation As to Certain Asserted Claims (June 23, 2008).

Order No. 51 contains an unreviewed initial determination granting a joint motion to terminate the investigation as to respondent General Protecht Group U.S., Inc. based on a settlement agreement.<sup>2</sup> *See* Notice of Comm'n Decision Not to Review an Initial Determination Granting a Joint Motion to Terminate the Investigation As to Respondent General Protecht Group U.S., Inc. on the Basis of a Settlement Agreement (June 23, 2008).

Order No. 53 contains an initial determination granting a joint motion to terminate the investigation as to respondent USI on the basis of a consent order. *See* Notice of Commission Decision Not to Review an Initial Determination Granting a Motion to Terminate the Investigation As to Respondent Universal Security Instruments, Inc. (Sept. 17, 2008).

Order No. 54 denied a post-hearing motion filed by Meihao to terminate the investigation as to alleged infringement of the '386 and '340 patents by certain of its devices.

The parties reached a number of stipulations during the course of the investigation, including the following:

On June 1, 2008, complainant and respondent Orbit signed their Joint Stipulation concerning Orbit's importation, sale and inventory of GFCIs.

On June 2, 2008, complainant and respondent Colacino signed

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<sup>2</sup> GPG of Zhejiang, China remains a respondent in this investigation.

their Joint Stipulation concerning Colacino's importation, sale and inventory of GFCIs.

On June 2, 2008, complainant and respondent Cheetah signed their Joint Stipulation concerning Cheetah's importation, sale and inventory of GFCIs.

On June 1, 2008, complainant and respondent Nicor signed their Joint Stipulation concerning Nicor's importation, sale and inventory of GFCIs.

On June 5, 2008, complainant and respondent USI signed their Joint Stipulation concerning USI's importation and sale of GFCIs.

On May 30 and June 5, 2008, complainant and respondent TDE signed their Joint Stipulations concerning TDE's importation, sale and inventory of GFCIs.

Each of the aforementioned stipulations was filed with the Commission Secretary, and is accepted by the undersigned.

A tutorial session was held on May 28, 2008, followed by a prehearing conference. An additional prehearing conference was held on June 2, 2008, followed on that date by the commencement of the evidentiary hearing on violation of section 337. The hearing concluded on June 12, 2008. The complainant, the Staff, and all remaining respondents participated in the hearing, except USI (which subsequently settled on the basis of a consent order) and TDE. *See* Tr. 123 (Prehearing Conference). All participating parties have filed posthearing briefs, proposed findings of fact, and replies. The issues are ripe for determination.

## **B. The Patents and Products at Issue**

### **1. Technological Background**

As reflected in the notice of investigation, the asserted patents, along with the accused devices and the domestic industry products all relate to ground fault circuit interrupters (or



GFCIs), which are also known as ground fault interrupters (or gfis). *See* 72 Fed. Reg. 54291 (2007) (notice); Tutorial Tr. 12 (Harman); CX-2 (the ‘398 patent), Abstract (referring to a “gfi”). GFCIs are devices that are specifically designed to protect people from electrical shock when current accidentally travels through a human body to ground. Tutorial Tr. 12 (Harman), 36-37 (Stolfi), 105 (Horenstein).

A house usually receives electricity from a utility company that supplies power to the house’s service panel. Electricity can flow through branches in the house that terminate in outlets. From outlets, homeowners can draw current through loads such as lamps, hair dryers, power tools, and other appliances. The power circuit that supplies the loads with current contains two conductors. One is an ungrounded conductor, and in the art is usually called the “hot” conductor. The other is known as the “neutral” conductor. The neutral conductor is grounded back at the service panel which has fuses or circuit breakers. The purpose of so-called “overcurrent” protective devices such as circuit breakers and fuses is not to prevent immediate electrical injury to humans, but rather to prevent electrical damage to equipment or to prevent overheating in the house’s wiring thereby reducing the risk of fires. In contrast, GFCIs are specifically designed to protect people from electrical shocks. Tutorial Tr. 11-12 (Harman).

When designing GFCIs, manufacturers look to the standards set by Underwriters Laboratories (“UL”), and specifically its National Electric Code. Manufacturers also consider the state and local building codes of the locales in which they plan to sell their GFCIs. Tutorial Tr. 95 (Haynes). UL’s standard or specification no. 943 (often referred to simply as UL 943) is the present standard that applies to GFCIs. It covers the technical requirements, testing and use of GFCIs. Tutorial Tr. 12 (Harman), 95 (Haynes). UL 943 defines a ground fault circuit

interrupter as: “A device intended for the protection of personnel that functions to de-energize a circuit or portion of a circuit within an established period of time when a current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit.” Tutorial Tr. 12 (Harman) (paraphrasing definition); CDX-5 (tutorial demonstrative showing wording of definition).

In its basic mode of operation, a GFCI opens a circuit to prevent current flow in the event of a ground fault. The physical opening of the circuit is typically accomplished through parts that move according to the operation of electromagnetism. To prevent the electrical shock of an individual, as a practical matter and as reflected in the definition of UL 943, a GFCI must act much more quickly than the house’s circuit breaker would act during an overcurrent event. Further, the GFCI must open the circuit in response a change in current level that is very small in comparison to the standard branch circuit rating of a house, which is typically measured at 15 to 20 amperes. *See* Tutorial Tr. 12, 19 (Harman), 45-49 (Stolfi).

For example, a person might be using a power tool with a load of 5 amperes. Normally, current would flow out through the tool and back through the neutral conductor (mentioned above). This flow of current is usually balanced, and the person is safe from electrical shock. Yet in some circumstances, the power tool might allow current to flow through the body of a person to ground. Such an event might be caused by any of a number of circumstances such as faulty insulation in the tool, or by the hot conductor touching the metal case of the tool.

The current flowing through the person might be relatively small compared to the total 5 amps used by the power tool. Perhaps the current traveling through the user of the tool would be measured at only eight thousandths of an ampere, or 8 milliamperes. Nevertheless, that current

level is typical of a ground fault due to so-called “leakage current,” and would deliver a shock to an individual holding the power tool. Indeed, GFCIs typically operate so as to de-energize a circuit or “trip” at as little as 4 to 6 milliamps. In accordance with UL standards, a 10 milliamp ground fault must trip the GFCI in about one-tenth of a second. In modern GFCIs, this action is accomplished in part by the use of circuitry found on a chip that senses the ground fault by detecting a difference in current returning from the load with the goal of tripping the GFCI and opening the circuit before injury could be sustained by an individual. Tutorial Tr. 13-15, 18 (Harman).

In addition to the above example based on an individual’s use of a defective power tool, other situations in which ground faults typically occur include household situations that involve potential exposure to electricity near water, faucets or wet surfaces. In fact, the use of GFCIs has increased greatly during the past 30 years, especially in response to changing regulations that require GFCIs to be installed in areas near water and in other areas of new homes. Tutorial Tr. 15-17 (Harman), 72-73 (Mernyk).

GFCIs may take the form of GFCI breakers or GFCI receptacles. Thus, GFCIs may be installed at the circuit breaker panels in, for example, the basement of a home, with circuits extending to bathrooms, the garage, the kitchen, the pool or other areas; or GFCI receptacles may be placed at individual outlets. GFCI breakers are usually more expensive than individual GFCI receptacles. Depending on the situation, it may be more economical for a home builder or one making home improvements to use receptacles rather than breakers. Indeed, it is not necessary for a GFCI receptacle to be placed at every outlet in a home. Subject to certain limitations, including the implementation of proper wiring (discussed further below), a receptacle with a

GFCI can provide protection via other ordinary electrical outlets that are said to “cascade” or are considered “downstream” of the GFCI receptacle. Tutorial Tr. 20-23 (Harman), 72-73 (Mernyk), 86 (Engel).

In the absence of a ground fault, when a GFCI is in the normal state, contacts located within the device are closed so as to permit current to flow to and through the loads (such as electrical consumer devices and household appliances) and to return. In that case, the GFCI is said to be in the “reset” state. However, if a ground fault is sensed by the circuitry of the GFCI, contacts within the device pull apart from each other so that the electrical circuit is opened and current is prevented from flowing. In that state, the GFCI is said to be in the “trip” state.

To accomplish this action, GFCIs typically have sensing toroids or coils that are known in the art as differential transformers. They react to differences in the level of current flowing out to the load (such as a power tool plugged into an outlet) and the current flowing back from the load. If a difference is sensed that exceeds the low thresholds discussed above, which are measured in milliamperes, a signal is created and processed by an integrated circuit, which is often referred to as a ground fault detection chip. A silicon controlled rectifier or “SCR” acts as an electronic switch that is controlled by a signal from the integrated circuit. When the pre-determined amount of differential current is sensed, and thus a ground fault can be presumed to have occurred, a signal will be sent, which in turn makes the SCR conduct current.

Current conducted by the SCR switch travels through a solenoid switch (or coil of wire and armature) that is moved by the forces of electromagnetism and opens the contacts in the GFCI or “trips” the device. In that manner, the circuit through which current had been flowing to the load such as an electrical appliance is interrupted and an individual using the appliance is

protected from an electric shock. Tutorial Tr. 18-19 (Harman), 33-36, 50 (Stolfi), 67-68 (Mernyk), 90-91 (Haynes).

The front face of a GFCI receptacle contains sockets for plugging in loads (such as appliances) that are typical of other wall receptacles. The front also contains two buttons, one called the reset button, and the other called the test button. If the GFCI has tripped for any reason the reset button pops out a bit, and the only way for it to be reset and able to pass current again is for a user to press the reset button. When the GFCI is allowing current to pass to loads, and monitoring current for the protection of users, the reset button should be flush with the face of the receptacle. The test button on the front of the GFCI receptacle is used to test the GFCI when it has been reset. Pushing in the test button simulates a ground fault such that the device is caused to trip. If that does not happen, then the device is defective. Tutorial Tr. (Harman) 21-22.

The back face of the receptacle contains two sets of two screw terminals that are used for installation, likely by an electrician. One set of screw terminals consists of the two “line” terminals. The line terminals are to be connected to the branch circuit (both hot and neutral) so that the GFCI can be powered. The other set of screw terminals on the back of the GFCI receptacle contains two “load” terminals. The load terminals are typically used to protect the conventional receptacles that are downstream of the GFCI receptacle. Tutorial Tr. 20-21 (Harman).

Several problems regarding GFCI use, however, have been observed over the years. For example, a surge voltage failure can occur that is usually the result of a lightning strike in the area of the device. In that situation, a large overvoltage to the power service to a home may cause damage by burning the chip or other internal circuitry of the GFCI. Another problem is

false tripping, which is often called nuisance tripping. It occurs when the GFCI tripped (*i.e.*, opened the circuit as though a ground fault had occurred) when there has been no ground fault. Inasmuch as power is removed from the circuit, a refrigerator or freezer, for example, could unexpectedly lose power for an extended period of time. Although surges and false tripping still exist, the incidence of those problems have been greatly reduced due to improvements in the design and manufacture of GFCI devices. Tutorial Tr. (Harman) 22-23.

A persistent problem associated with GFCIs has been the miswiring of devices by electricians or other installers. In those situations, reverse wiring has occurred. The power or branch circuit is connected to the load terminals instead of the line terminals, and vice versa. Such miswiring has been known to occur despite the fact that the back of the GFCI receptacle was clearly marked for proper installation, and when the device was distributed with printed instructions. If such miswiring occurs, a user may not be protected from a ground fault when a load is plugged into the device. Tutorial Tr. 22-24 (Harman).

Some industry groups have conducted studies of how GFCIs have actually been installed in homes. The industry, including UL, and has taken various actions to try to prevent miswiring. By 1998, yellow tape was put on the load terminals to identify them further. Yet, the use of yellow tape was not fully effective, and so the industry began to implement mechanical solutions. Major revisions to the UL standard occurred in 2003 and 2006, which addressed the problem of miswiring, as well as other technical and testing requirements for GFCIs. Tutorial Tr. 98-101 (Haynes). The issue of miswiring is discussed below in connection with some of the patents asserted in this investigation.

## **2. Overview of the Asserted Patents**

The following is a brief overview of each asserted patent (in the order in which they are asserted in P&S's brief) based on each patent's Abstract, the claims asserted, and a listing of the respondent or respondents alleged to infringe each specific patent claim.

### **a. U.S. Patent No. 5,594,398**

According to its abstract, U.S. Patent No. 5,594,398, entitled "Ground Fault Interrupter Wiring Device with Improved Moveable Contact System," covers a ground fault interrupter wiring device in the form of a duplex wall receptacle. A pair of electrically conducting members in the form of small buss bars each carry two, spaced contacts. The buss bars are moveable to bring their respective contacts into and out of engagement with fixed contacts on the hot and neutral terminals on the line and load sides of the receptacle. The buss bars are biased toward movement to the circuit-breaking position by respective coil springs extending through openings in a separator member dividing the interior of the receptacle housing into front and rear compartments. One end of each spring rests upon a respective buss bar and the other end is contacted by an integral portion of the front housing section, the springs being compressed to apply a biasing force to the buss bars only upon placing the front housing section in mating engagement with the rear section. The support means for the buss bars permits pivotal movement of the latter to ensure good engagement with the fixed contacts. The line terminals and a separator element within the device housing permits mounting of the terminals with the female contact for receiving a plug blade and the fixed contact in upper and lower compartments defined by the separator. CX-2 (the '398 patent), cover page and Abstract.

P&S asserts claims 1 and 7 of the '398 patent against GPG. Compl. Br. at 2.

P&S asserts claims 1, 7, and 8 against ELE and its distributors Cheetah, Colacino and Nicor (but not its distributor Orbit). *Id.* & n.1.

P&S asserts claims 1 and 7 against Meihao. Although P&S asserted claims 1 and 7 against Meihao's distributor USI, that respondent has settled. P&S does not assert any claim of the '398 patent against Meihao distributor TDE. Compl. Br. at 2 & n.2.

P&S asserts claims 1, 7, and 8 against Trimone. Compl. Br. at 2.

P&S relies on claim 1 for its domestic industry case under the '398 patent. *Id.*

**b. U.S. Patent No. 7,283,340**

According to its abstract, U.S. Patent No. 7,283,340, entitled "Electrical Wiring Device," is directed to a protective device that includes a plurality of line terminals and a plurality of load terminals. A wiring state detection circuit is configured to detect a wiring state associated with the plurality of line terminals and the plurality of load terminals. A fault detection circuit is coupled to the plurality of line terminals and configured to generate a fault detection signal in response to detecting at least one fault condition. A circuit interrupter is coupled to the fault detection circuit. The circuit interrupter includes four sets of interrupting contacts configured to provide electrical continuity at least between the hot line terminal and the hot load terminal and the neutral line terminal and the neutral load terminal in a reset state. The four sets of interrupting contacts are open in a tripped state. CX-8 (the '340 patent), cover page and Abstract.

P&S asserts claims 14 and 18 against GPG. Compl. Br. at 2.

P&S asserts claims 14, 18, and 30 against ELE and its distributors Cheetah, Colacino, Nicor and Orbit. *Id.*



P&S asserts claims 14 and 18 against Meihao and its distributors TDE and USI (although it is noted that USI recently settled). *Id.*

P&S asserts claims 14 and 18 against Trimone. *Id.*

P&S relies on claim 30 for its domestic industry case under the '340 patent. *Id.*

**c. U.S. Patent No. 7,212,386**

According to its abstract, U.S. Patent No. 7,212,386, entitled "GFCI with Miswire Lockout" is directed to an electrical wiring protection device that includes a housing assembly having at least one line terminal and at least one load terminal partially disposed therein. A first conductive path is electrically coupled to the at least one line terminal. A second conductive path is electrically coupled to the at least one load terminal, the second conductive path being connected to the first conductive path in a reset state. A fault detection circuit is coupled to the first conductive path. The fault detection circuit is configured to generate a fault detection signal in response to detecting at least one fault condition. A wiring state detection circuit is coupled to the first conductive path. The wiring state detection circuit selectively provides a wiring state detection signal when the at least one line terminal is coupled to a source of AC power, and not providing the wiring state detection signal otherwise. An actuator assembly is configured to provide an actuation stimulus in response to the fault detection signal or the wiring state detection signal. A circuit interrupter is coupled to the actuator assembly. The circuit interrupter is configured to disconnect the first conductive path and the second conductive path in response to the actuation stimulus. CX-6 (the '386 patent), cover page and Abstract.

P&S asserts claim 1 against all respondents in this investigation, *i.e.*, GPG, ELE (and its distributors Cheetah, Colacino, Nicor and Orbit), Meihao (and its distributors TDE and USI

(although it is noted that USI recently settled)), and Trimone. P&S relies on claim 34 for its domestic industry case under the '386 patent.

**d. U.S. Patent No. 7,164,564**

According to its abstract, U.S. Patent No. 7,164,564, entitled "Shorted SCR Lockout and Indication" is directed to a protective device that includes a plurality of line terminals and a plurality of load terminals. A fault detection circuit is coupled to the plurality of line terminals. The fault detection circuit is configured to provide a detection output signal in response to a detected condition. A switching device is coupled to the fault detection circuit. The switching device is configured to provide a trip signal in response to the detection output signal, the switching device being characterized by at least one device parameter. A circuit interrupting assembly is configured to electrically connect the plurality of line terminals and the plurality of load terminals in a reset state and disconnect the plurality of line terminals from the plurality of load terminals in response to the trip signal in a tripped state. An indicator circuit assembly is coupled to the switching device. The indicator circuit assembly is configured to generate a user-perceivable output signal based on the at least one device parameter. CX-5 (the '564 patent), cover page and Abstract.

P&S asserts claims 1 and 15 against ELE and its distributors Cheetah, Colacino, Nicor and Orbit. P&S relies on claim 1 for its domestic industry case under the '564 patent. Compl. Br. at 2.

**e. U.S. Patent No. 7,256,973**

According to its abstract, U.S. Patent No. 7,256,973, entitled "Miswire Protection Switch Compression Spring," is directed to a GFCI device. The GFCI device includes a GFCI device

housing. A GFCI circuit is enclosed within GFCI device housing. The GFCI circuit is configured to detect a ground fault condition. A second detection circuit is coupled to the GFCI circuit and disposed within the GFCI device housing. The second detection circuit includes a switch element configured to be in an open position during at least one post-manufacture test procedure and configured to be in a closed position during usage. A protection switch is disposed on the exterior of the GFCI device housing and operatively coupled to the switch element. The protection switch is configured to allow a user to throw the switch element into the closed position without accessing the interior of the GFCI device housing. CX-7 (the '973 patent), cover page and Abstract.

P&S asserts claim 1 against ELE and its distributors, Cheetah, Colacino, Nicor and Orbit. Compl. Br. at 2. P&S relies on claim 1 for its domestic industry argument under the '973 patent. *Id.*

**f. U.S. Patent No. 7,154,718**

According to its abstract, U.S. Patent No. 7,154,718, entitled "Protection Device with Power to Receptacle Cut-Off," is directed to an electrical wiring protection device that includes a housing assembly having at least one receptacle. The receptacle is configured to receive plug contact blades inserted therein. The housing assembly includes a hot line terminal, a neutral line terminal, a hot load terminal, and a neutral load terminal. A set of receptacle contacts is disposed in the housing assembly and in communication with the receptacle. The receptacle contacts include a hot user-accessible load contact and a neutral user-accessible load contact. A fault detection circuit is coupled to the test assembly. The fault detection circuit is configured to detect at least one fault condition and provide a fault detect signal in response thereto. A four-

pole interrupting contact assembly is coupled to the fault detection circuit and includes a set of four-pole interrupting contacts. A reset mechanism is coupled to the four-pole interrupting contact assembly. The reset mechanism includes a reset button and a reset actuator configured to reestablish electrical continuity between the first pair of hot contacts, the second pair of hot contacts, the first pair of neutral contacts, and the second pair of neutral contacts in response to a reset stimulus. CX-4 (the '718 patent), cover page and Abstract.

P&S asserts claim 52 against Meihao and its distributor TDE, but not against Meihao distributor USI (which in any event has settled). P&S relies on claim 52 for its domestic industry case under the '718 patent. Compl. Br. at 2 & n.2.

### **3. The Level Of Ordinary Skill In The Art**

During the hearing, the parties' experts presented differing opinions on the level of ordinary skill in the art relevant to the asserted patents. Yet, there is no indication that the skill level would differ significantly from patent to patent. Moreover, the differences in the expert testimony concerning ordinary skill do not appear to be material. For example two of complainant's experts expressly testified that even if they adopted respondents' definitions of ordinary skill, their opinions would not change. *See* Harman Tr. 827; Littman Tr. 170. Indeed, based upon the parties' briefs, there appears to be no area in which the adoption of one expert's definition of ordinary skill over another would change the outcome of a claim construction, infringement, domestic industry, validity or enforceability determination.<sup>3</sup>

The record evidence shows that one of ordinary skill in the art relevant to the asserted

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<sup>3</sup> In fact, GPG expressly argues that with respect to the '398, '386 and '340 patents, there are no material differences in the parties' proposals on ordinary skill. *See* GPG Br. at 14 n.9.

patents would have a bachelor's degree in electrical engineering or a similar discipline, as well as two to three years of experience in the design of electrical circuits. Although prior experience with the design of GFCI circuits would accelerate one's acquisition of ordinary skill in the relevant art, it is not necessary. If a one had an associate's degree, rather than a bachelor's degree, in order to possess ordinary skill one would have to have at least five years of electrical circuit design experience. *See* Harman Tr. 825-827; Stolfi Tr. 1274-1275; Littman Tr. 1703-1705; Haynes Tr. 2068-2071; Roberge Tr. 3027; Mernyk Tr. 2696; Horenstein Tr. 2821-2822.

#### **4. The Products Accused In This Investigation**

P&S alleges that each of the respondents is responsible for either the manufacture, importation and, or, sale of GFCIs that infringe one or more of the six patents asserted in this investigation. During the hearing, and in the parties' briefs, the accused products have been identified by manufacturer and year. As explained above in section I.B.1 (Technological Background), major revisions of the UL standard applicable to GFCIs occurred in 2003 and 2006. Thus, the accused products are identified according to the UL 943 (either 2003 or 2006) revision that the products were allegedly designed to implement.

P&S alleges that the '398 patent is infringed by ELE's 2006 GFCIs (claims 1, 7, and 8); by Meihao's 2003 GFCIs (claims 1 and 7); by GPG's 2003 and 2006 GFCIs (claims 1 and 7); and by Trimone's 2006 GFCIs (claims 1, 7, and 8). Compl. Br. at 49, 53, 61, & 64.

P&S alleges that the '340 patent is infringed by ELE's 2006 GFCIs (claims 14, 18, and 30); by Meihao's 2003 and 2006 GFCIs (claims 14 and 18); by Trimone's 2006 GFCIs (claims 14 and 18); and by GPG's 2003 and 2006 GFCIs (claims 14 and 18). *Id.* at 117, 120, 123, & 124.

P&S alleges that the '386 patent is infringed by ELE's 2003 and 2006 GFCIs (claim 1); by Meihao's 2003 and 2006 GFCIs (claim 1); by Trimone's 2006 GFCIs (claim 1); and by GPG's 2003 and 2006 GFCIs (claim 1). *Id.* at 154, 156, 157, & 159.

P&S alleges that the '564 patent is infringed by ELE's 2006 GFCIs (claims 1 and 15). *Id.* at 184.

P&S alleges that the '973 patent is infringed by ELE's 2006 GFCIs (claim 1). *Id.* at 195.

P&S alleges that the '718 patent is infringed by Meihao's 2006 GFCIs (claim 52). *Id.* at 204.

## **5. The Domestic Industry Products**

The notice of investigation (72 Fed. Reg. 54291 (2007)) provides that a determination must be made as to whether an industry in the United States exists or is in the process of being established, as required by 19 U.S.C. § 1337(a)(2). The domestic industry requirement must be satisfied as to each asserted patent. There is no requirement that the domestic industry be based on the same claim or claims alleged to be infringed. *See* 19 U.S.C. § 1337(a)(2).

As indicated above, P&S argues that the evidence shows that a domestic industry practices at least one claim of each of the asserted patents. As detailed below in section X (Domestic Industry), as to each patent other than the '718 patent, P&S relies on both its G4 and G5 GFCIs. As to the '718 patent, P&S relies on its Series 1595 and 2095 GFCIs, which are subsets of the G5 product. *See* Compl. Br. at 210 & n.55 (P&S's G5 GFCIs consist of Series 1595, 2085 and 2095 products).

## **II. Importation Or Sale**

The Commission instituted this investigation "to determine whether there is a violation of

subsection (a)(1)(B) of section 337 [of the Tariff Act of 1930, as amended] in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain ground fault circuit interrupters and products containing the same by reason of infringement of one or more” of the aforementioned patent claims. Indeed, subsection (a)(1)(B) of section 337 makes unlawful “the importation into the United States, the sale for importation, or the sale within the United States after importation by the owner, importer, or consignee, of articles” that infringe a valid and enforceable United States registered copyright or patent. *See* 19 U.S.C. § 1337 (a)(1)(B).

Thus, in order to prevail in this investigation, complainant must establish that the devices or products that it accuses of patent infringement are imported into the United States, sold for importation to the United States, or sold domestically after importation. Complainant and the Staff argue that the importation or sale requirement has been satisfied as to all accused products, while in some cases certain respondents argue that it has not. For the reasons stated below, it is found that the importation or sale requirement has been satisfied as to all accused products.

**A. Importation Or Sale Of Accused Products**

***ELE Products***

ELE and its distributors (Cheetah, Colacino, Nicor and Orbit) filed a combined brief in which they did not contest the fact that the importation or sale requirement is satisfied with respect to the accused ELE products. In addition, their admission of importation extends back as far as their answers to the complaint. *See* Compl. Br. at 219-29.

***Meihao Products***

Meihao, in its brief, did not contest the fact that the importation or sale requirement is

satisfied with respect to its accused products, except to the extent that it referenced its post-hearing motion (discussed above) to terminate the investigation as to alleged infringement of the '386 and '340 patents by its 2003 devices. Meihao claims a “lack of subject matter jurisdiction” on the ground that it ceased to manufacture and sell for importation its 2003 GFCI on, or shortly after, July 28, 2006, which was before the issue dates of the '386 and '340 patents. Meihao Br. at 2.

First, the importation question must be decided in the Initial Determination on violation. Thus, if Meihao or any party sought to raise an importation question or any other question material to a finding of violation or no violation of section 337, it should have done so in its post-hearing brief. Although that point is a fundamental matter that should require no explanation, the parties were in fact instructed at the hearing that they were to brief the “whole case” in their post-hearing briefs. *See* Tr. 3271 (“In the main briefs that are due June 26th, the parties are to address the whole case, both infringement and validity issues.”). Meihao cannot now be permitted to enlarge its post-hearing brief by cross-referencing another post-hearing pleading (which, in addition, is of a substantial number of pages in length). One party cannot contravene the page limitations set on post-hearing briefs, especially to the detriment of other parties.

Second, even if Meihao has ceased to import the 2003 GFCIs, they could nonetheless be subject to this investigation. It has long been recognized by the Commission that “[m]ere voluntary cessation of allegedly illegal conduct does not moot a case; if it did, the courts would be compelled to leave the defendant ... free to return to his old ways.” *Certain Integrated Circuit Telecomms. Chips*, Inv. No. 337-TA-337, Comm’n Op., 1993 ITC LEXIS 854 at \*36-37



(Aug. 1993); *see Certain Variable Speed Wind Turbines and Components Thereof*, Inv. No. 337-TA-376, Initial Det., 1996 ITC LEXIS 251 at \*31 (May 30, 1996), *aff'd sub nom, Enercom GmbH v. United States Int'l Trade Comm'n*, 151 F.3d 1376 (Fed. Cir. 1998) (holding that the Commission properly exercised jurisdiction over accused wind turbines where the respondent made an offer for sale of an accused wind turbine two years prior to the commencement of the investigation). As a related matter, throughout this investigation (from the complaint through discovery and in its post-hearing briefs), P&S has argued and provided declarations to the effect that since 2006, it has purchased Meihao 2003 products in the United States – specifically from Meihao distributor USI in 2007, and from a retail outlet in 2008. *See* P&S Br. at 222. Meihao has not contested those allegations in either its main or reply brief .

Finally, it appears that importation (or the lack thereof) may not be at the core of Meihao's argument. Although P&S has accused Meihao's 2003 GFCI products of infringing the '398, '340 and '386 patents (*see* section I.B.4), Meihao's arguments concerning the cessation of manufacture and importation pertain only to the '386 and '340 patents, a fact that is not lost on P&S. *Compare* Meihao Br. at 2 *with* Compl. Br. at 221 n.59.

If Meihao's 2003 GFCIs are no longer made or imported, it is unclear why Meihao's argument would not also extend to the '398 patent. Indeed, Meihao links its alleged cessation of manufacture and importation not only to the issuance of the 2006 UL standards (which should have made many earlier products obsolete) but also to issue dates of the '386 and '340 patents. Again, however, Meihao refers to its post-hearing motion to terminate, which cannot be used to supplement its post-hearing brief. *See* Meihao Br. at 2, 73 & n.15, 74. To the extent that Meihao has briefed questions surrounding the issue dates of the '386 and '340 patents as a matter of

substantive patent infringement law, they could have been substantively addressed in that context,<sup>4</sup> but they have no bearing on the question of importation.

Consequently, it is found that the importation requirement is satisfied with respect to all accused Meihao products.

### ***Trimone Products***

Throughout this investigation, Trimone has admitted importation of its accused products. *See* Compl. Reply at 112-13 (cataloging Trimone admission from its response to the complaint through its pre-hearing statement). Yet, inexplicably at the end of its post-hearing brief, in concluding remarks on the remedy issue, Trimone states that “P&S has also failed to prove that Trimone is importing its 2006 GFCI models into the United States.” Trimone Br. at 114. Trimone has not, however, directly challenged P&S on any importation or jurisdictional issue, or shown why its prior admission should not be credited.

Consequently, it is found that the importation requirement is satisfied with respect to the accused Trimone products.

### ***GPG Products***

GPG states in its brief that “it is undisputed that GPG is not currently importing – and has not imported during the pendency of this investigation – any of the accused GFCIs, which precludes the issuance of an exclusion order.” GPG Br. at 1. Indeed, GPG argues that it ceased manufacture and sale of the 2003 GFCIs in June of 2006 (prior to the issue dates of the ‘386 and

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<sup>4</sup> Meihao did not, however, brief these issues in any detail in connection with its arguments of non-infringement. Rather, Meihao referred to its motion to terminate. *See* Meihao Br. at 72-73 & n.15. As explained, *supra*, Meihao is not authorized to rely on extraneous motions or other documents to supplement its brief.

'340 patents), and that it has made only manufacturing samples of its 2006 designs. *See Id.* at 3, 39.

It appears that GPG's arguments concerning alleged non-importation or cessation of importation were raised for the first time in its post-hearing brief. *See Compl. Reply* at 114 & n.61. Furthermore, as illustrated above, GPG admits in its brief that it has in the past imported its 2003 products (subject to voluntary cessation), and that it has manufactured its 2006 under the moniker of "samples for its customers." That is consistent with GPG deposition testimony to the effect that has sold its 2006 GFCIs to United States customers. *See CX-819C (D. Wu Dep.)* at 73; *see also*, GPG Br. at 39 (sale for importation of prototype 2006 devices in 2007).

Consequently, it is found that the importation requirement is satisfied with respect to the accused GPG products.

#### **B. Jurisdiction**

No party contests the Commission's *in personam* jurisdiction. ELE, Meihao, Trimone, and GPG have appeared and have argued the merits of the investigation. Also, P&S argues that the Commission has the necessary subject matter and *in rem* jurisdiction as to all issues and products in the investigation. *See Compl. Br.* at 6-8. The Staff similarly argues that the Commission has subject matter jurisdiction over this investigation, personal jurisdiction over the respondents, and *in rem* jurisdiction over the products at issue by virtue of the fact that all accused products have been imported into the United States. *See Staff Br.* at 10.

Indeed, no party has contested that Commission's jurisdiction, except to the extent indicated above with respect to the question of importation. As discussed, *supra*, the importation requirement has in fact been satisfied with respect to all accused products.

Accordingly, it is found that the Commission has subject matter, personal, and *in rem* jurisdiction necessary to adjudicate the questions presented in this investigation.

### **III. General Principles of Patent Law**

#### **A. Claim Construction**

Pursuant to the Commission's notice of investigation, this is a patent-based investigation. See 71 Fed. Reg. 66193 (2006). Accordingly, all of the unfair acts alleged by complainant are instances of alleged infringement of the asserted patents. Any finding of infringement or non-infringement requires a two-step analytical approach. First, the asserted patent claims must be construed as a matter of law to determine their proper scope.<sup>5</sup> Second, a factual determination must be made as to whether the properly construed claims read on the accused devices. See *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (*en banc*), *aff'd*, 517 U.S. 370 (1996).

Claim construction begins with the language of the claims themselves. Claims should be given their ordinary and customary meaning as understood by a person of ordinary skill in the art, viewing the claim terms in the context of the entire patent. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005), *cert. denied*, 546 U.S. 1170 (2006).<sup>6</sup> With respect to claim

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<sup>5</sup> Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Vanderlande Indus. Nederland BV v. Int'l Trade Comm.*, 366 F.3d 1311, 1323 (Fed. Cir. 2004); *Vivid Tech., Inc. v. American Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

<sup>6</sup> Factors that may be considered when determining the level of ordinary skill in the art include: "(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field."

*Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 696 (Fed. Cir. 1983), *cert. denied*,

(continued...)

preambles, the Court of Appeals for the Federal Circuit has explained that:

[A] claim preamble has the import that the claim as a whole suggests for it. In other words, when the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects.

*Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003) (quoting *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620 (Fed. Cir. 1995)).

In some instances, claim terms do not have particular meaning in a field of art, and claim construction involves little more than the application of the widely accepted meaning of commonly understood words. *Phillips*, 415 F.3d at 1314. In such circumstances, general purpose dictionaries may be helpful. In many cases, claim terms have a specialized meaning, and it is necessary to determine what a person of skill in the art would have understood disputed claim language to mean, by analyzing the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, as well as the meaning of technical terms, and the state of the art. *Id.* (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

In cases in which the meaning of a claim term is uncertain, the specification usually is the best guide to the meaning of the term. *Id.* at 1315. As a general rule, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations.

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<sup>6</sup>(...continued)  
464 U.S. 1043 (1984).

*Markman*, 52 F.3d at 979. However, the specification is always highly relevant to the claim construction analysis. The specification is usually dispositive. It is the single best guide to the meaning of a disputed term. *Phillips*, 415 F.3d at 1315. Moreover, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Id.* at 1316.

In any event, claims are not necessarily, and are not usually, limited in scope to the preferred embodiment. *RF Delaware, Inc. v. Pacific Keystone Techs., Inc.*, 326 F.3d 1255, 1263 (Fed. Cir. 2003); *Decisioning.com, Inc. v. Federated Dep’t Stores, Inc.*, 527 F.3d 1300, 1314 (Fed. Cir. May 7, 2008) (“[The] description of a preferred embodiment, in the absence of a clear intention to limit claim scope, is an insufficient basis on which to narrow the claims”).

Furthermore, claim interpretations that exclude the preferred embodiment, are “rarely, if ever, correct and require highly persuasive evidentiary support.” *Vitronics Corp. v. Conceptoronic, Inc.*, 90 F.3d 1576, 1583 (Fed. Cir. 1996). Such a conclusion can be mandated in rare instances by clear intrinsic evidence, such as unambiguous claim language or a clear disclaimer by the patentees during patent prosecution. *Elektta Instrument v. O.U.R. Sci. Int’l*, 214 F.3d 1302, 1308 (Fed. Cir. 2000); *Rheox, Inc. v. Entact, Inc.*, 276 F.3d 1319 (Fed. Cir. 2002).

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 inventor testimony, expert testimony and learned treatises. *Id.* at 1317. Inventor testimony can be useful to shed light on the relevant art. In evaluating expert testimony, a court should discount any expert testimony that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution

history, in other words, with the written record of the patent. *Id.* at 1318. Extrinsic evidence may be considered if a court deems it helpful in determining the true meaning of language used in the patent claims. *Id.*

This investigation involves some means-plus-function claim limitations. When a claim uses the term “means” to describe a limitation, a presumption arises that the inventor used the term to invoke the means-plus function format authorized by 35 U.S.C. § 112, ¶ 6.<sup>7</sup> *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1375 (Fed. Cir. 2003). “This presumption can be rebutted when the claim, in addition to the functional language, recites structure sufficient to perform the claimed function in its entirety.” *Id.*

Once a court concludes that a claim limitation is a means-plus-function limitation, two steps of claim construction remain: 1) the court must first identify the function of the limitation; and 2) the court must then look to the specification and identify the corresponding structure for that function. *Biomedino LLC v. Waters Technologies Corp.*, 490 F.3d 946, 950 (Fed. Cir. 2007). If there is no structure in the specification corresponding to the means-plus-function limitation, the claim will be found invalid as indefinite. *Id.*

While the specification must contain structure linked to claimed means: “[a]ll one needs

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<sup>7</sup> The relevant portion of section 112 provides:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

35 U.S.C. § 112, ¶ 6.

to do in order to obtain the benefit of [§ 112, ¶ 6] is to recite some structure corresponding to the means in the specification, as the statute states, so that one can readily ascertain what the claim means and comply with the particularity requirement of [§ 112,] ¶ 2.” *Id.* (citing *Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1382 (Fed. Cir. 1999)). Additionally, interpretation of what is disclosed in the specification must be made in light of the knowledge of one skilled in the art. *Id.* at 1380.

Thus, in order for a means-plus-function claim to be valid under section 112, the corresponding structure of the limitation “must be disclosed in the written description in such a manner that one skilled in the art will know and understand what structure corresponds to the means limitation. Otherwise, one does not know what the claim means.” *Id.* at 1382. However, “the testimony of one of ordinary skill in the art cannot supplant the total absence of structure from the specification.” *Id.* (quoting *Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1302 (Fed. Cir. 2005)).

“A means-plus-function claim encompasses all structure in the specification corresponding to that element and equivalent structures.” However, “[t]he statute does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim. Nor does the statute permit incorporation of structure from the written description beyond that necessary to perform the claimed function.” *Micro Chem. Inc. v. Great Plains Chem. Co., Inc.*, 194 F.3d 1250, 1258 (Fed. Cir.1999).

## **B. Patent Infringement**

Under 35 U.S.C. §271(a), direct infringement consists of making, using, offering to sell, or selling a patented invention without consent of the patent owner.



Under 35 U.S.C. §271(b), “[w]hoever actively induces infringement of a patent shall be liable as an infringer.” To establish liability, a patentee must prove direct infringement for each instance of indirect infringement. *DSU Medical Corp. v. JMS Co.*, 471 F.3d 1293, 1303 (Fed. Cir. 2006). “In order to succeed on a claim of inducement, the patentee must show, first that there has been direct infringement, and second, that the alleged infringer knowingly induced infringement and possessed specific intent to encourage another’s infringement.” *Cross Medical Products, Inc. v. Medtronic Sofamor Danek, Inc.*, 424 F.3d 1293, 1312 (Fed. Cir. 2005).

Under 35 U.S.C. §271(c), “[w]hoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination, or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be specially made to or specially adapted for use in the infringement of the patent, and not a staple article or commodity suitable for substantial non-infringing use, shall be liable as a contributory infringer.”

A seller of a component of an infringing product can also be held liable for contributory infringement if: (1) there is an act of direct infringement by another person; (2) the accused contributory infringer knows its component is included in a combination that is both patented and infringing; and (3) there are no substantial non-infringing uses for the accused component, *i.e.*, the component is not a staple article of commerce. *Carborundum Co. v. Molten Equip. Innovations, Inc.*, 72 F.3d 872, 876 (Fed. Cir. 1995).

In a section 337 investigation, the complainant bears the burden of proving infringement of the asserted patent claims by a “preponderance of the evidence.” *Certain Flooring Products*, Inv. No. 337-TA-443, Comm’n Notice of Final Determination of No Violation of Section 337,

2002 WL 448690 at 59, (Mar. 22, 2002); *Enercon GmbH v. Int'l Trade Comm'n*, 151 F.3d 1376 (Fed. Cir. 1998).

Each patent claim element or limitation is considered material and essential. *London v. Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538 (Fed. Cir. 1991). Literal infringement of a claim occurs when every limitation recited in the claim appears in the accused device, *i.e.*, when the properly construed claim reads on the accused device exactly. *Ambil Enters., Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1562 (Fed. Cir. 1996); *Southwall Tech. v. Cardinal IG Co.*, 54 F.3d 1570, 1575 (Fed. Cir. 1995).

If the accused product does not literally infringe the patent claim, infringement might be found under the doctrine of equivalents. The Supreme Court has described the essential inquiry of the doctrine of equivalents analysis in terms of whether the accused product or process contains elements identical or equivalent to each claimed element of the patented invention. *Warner-Jenkinson Co., Inc. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 40 (1997).

Under the doctrine of equivalents, infringement may be found if the accused product or process performs substantially the same function in substantially the same way to obtain substantially the same result. *Valmont Indus., Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 1043 (Fed. Cir. 1993). The doctrine of equivalents does not allow claim limitations to be ignored. Evidence must be presented on a limitation-by-limitation basis, and not for the invention as a whole. *Warner-Jenkinson*, 520 U.S. at 29; *Hughes Aircraft Co. v. U.S.*, 86 F.3d 1566 (Fed. Cir. 1996). Thus, if an element is missing or not satisfied, infringement cannot be found under the doctrine of equivalents as a matter of law. *See, e.g., Wright Medical*, 122 F.3d 1440, 1444 (Fed. Cir. 1997); *Dolly, Inc. v. Spalding & Evenflo Cos., Inc.*, 16 F.3d 394, 398 (Fed. Cir. 1994); *London v.*

*Carson Pirie Scott & Co.*, 946 F.2d 1534, 1538-39 (Fed. Cir. 1991); *Becton Dickinson and Co. v. C.R. Bard, Inc.*, 922 F.2d 792, 798 (Fed. Cir. 1990).

The concept of equivalency cannot embrace a structure that is specifically excluded from the scope of the claims. *Athletic Alternatives v. Prince Mfg., Inc.*, 73 F.3d 1573, 1581 (Fed. Cir. 1996). In applying the doctrine of equivalents, the Commission must be informed by the fundamental principle that a patent's claims define the limits of its protection. See *Charles Greiner & Co. v. Mari-Med. Mfg., Inc.*, 92 F.2d 1031, 1036 (Fed. Cir. 1992). As the Supreme Court has affirmed:

Each element contained in a patent claim is deemed material to defining the scope of the patented invention, and thus the doctrine of equivalents must be applied to individual elements of the claim, not to the invention as a whole. It is important to ensure that the application of the doctrine, even as to an individual element, is not allowed such broad play as to effectively eliminate that element in its entirety.

*Warner-Jenkinson*, 520 U.S. at 29.

Prosecution history estoppel may bar the patentee from asserting equivalents if the scope of the claims has been narrowed by amendment during prosecution. A narrowing amendment may occur when either a preexisting claim limitation is narrowed by amendment, or a new claim limitation is added by amendment. These decisions make no distinction between the narrowing of a preexisting limitation and the addition of a new limitation. Either amendment will give rise to a presumptive estoppel if made for a reason related to patentability. *Honeywell Int'l Inc. v. Hamilton Sundstrand Corp.*, 370 F.3d 1131, 1139-41 (Fed. Cir. 2004), *cert. denied*, 545 U.S. 1127 (2005)(citing *Warner-Jenkinson*, 520 U.S. at 22, 33-34; and *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 535 U.S. 722, 733-34, 741 (2002)). The presumption of estoppel

may be rebutted if the patentee can demonstrate that: (1) the alleged equivalent would have been unforeseeable at the time the narrowing amendment was made; (2) the rationale underlying the narrowing amendment bore no more than a tangential relation to the equivalent at issue; or (3) there was some other reason suggesting that the patentee could not reasonably have been expected to have described the alleged equivalent. *Honeywell*, 370 F.3d at 1140 (citing, *inter alia*, *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 344 F.3d 1359 (Fed. Cir. 2003) (*en banc*)).

As noted, some of the claim elements at issue in this investigation are written in means-plus-function format. “Literal infringement of a § 112, ¶ 6 limitation requires that the relevant structure in the accused device perform the identical function recited in the claim and be identical or equivalent” to the structure identified in the written description as corresponding to the recited function. *JWW Enter. v. Interact Accessories, Inc.*, 424 F.3d 1324, 1333 (Fed. Cir. 2005) (citing *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1267 (Fed. Cir.1999)). For the relevant structure in the accused device to be equivalent to the structure in the written description, differences between the two must be insubstantial. For example, the structure in the accused device must perform the claimed function in substantially the same way to achieve substantially the same result as the structure in the written description. *JWW*, 424 F.3d at 1333.

“The primary difference between structural equivalents under section 112, paragraph 6 and the doctrine of equivalents is a question of timing.” *Frank’s Casing, Crew & Rental Tools, Inc. v. Weatherford Int’l, Inc.*, 389 F.3d 1370, 1379 (Fed. Cir. 2004) (citing *Al-Site Corp. v. VSI Int’l, Inc.*, 174 F.3d 1308, 1321 n.2 (Fed. Cir. 1999)). As the Federal Circuit has explained, “[a] proposed equivalent must have arisen at a definite period in time, i.e., either before or after

[patent filing]. If before, a § 112, ¶ 6 structural equivalents analysis applies and any analysis for equivalent structure under the doctrine of equivalents collapses into the § 112, ¶ 6 analysis. If after, a non-textual infringement analysis proceeds under the doctrine of equivalents.” *Id.*

### **C. Validity**

One cannot be held liable for practicing an invalid patent claim. *See Pandrol USA, LP v. AirBoss Railway Prods., Inc.*, 320 F.3d 1354, 1365 (Fed. Cir. 2003). However, the claims of a patent are presumed to be valid. 35 U.S.C. § 282; *DMI Inc. v. Deere & Co.*, 802 F.2d 421 (Fed. Cir. 1986). Although a complainant has the burden of proving a violation of section 337, it can rely on this presumption of validity. A respondent that has raised patent invalidity as an affirmative defense must overcome the presumption by “clear and convincing” evidence of invalidity. *Checkpoint Systems, Inc. v. United States Int’l Trade Comm’n*, 54 F.3d 756, 761 (Fed. Cir. 1995).

#### **1. Anticipation**

Pursuant to 35 U.S.C. § 102, prior art anticipates a patent claim when a single piece of art discloses each and every limitation of the claimed invention. *See Schering Corp. v. Geneva Pharms.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003); *C.R. Bard v. M3 Sys.*, 157 F.3d 1340, 1349 (Fed. Cir. 2000).

The disclosure by an invalidating reference need not be express, but may anticipate by inherency where such inherency would be appreciated by one of ordinary skill in the art. *EMI Group North America, Inc. v. Cypress Semiconductor Corp.*, 268 F.3d 1342, 1350 (Fed. Cir. 2001). Anticipation does not require that the reference “teach” the subject matter of the patent. It is necessary only that the claims being challenged “read on” something that is disclosed in the

reference. *Celeritas Techs., Ltd. v. Rockwell Int'l*, 150 F.3d 1354, 1361 (Fed. Cir. 1998).

Anticipation, like all forms of patent invalidity, must be established by clear and convincing evidence. *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047 (Fed. Cir. 1995).

Whether a patent claim is anticipated is a question of fact. *See Smith Kline Beecham Corp. v. Apotex Corp.* 403 F.3d 1331, 1343 (Fed. Cir. 2005).

## **2. Obviousness**

Obviousness is grounded in 35 U.S.C. § 103, which provides, *inter alia*, that:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35 U.S.C. § 103(a).

An allegation of obviousness is evaluated under the so-called *Graham* factors: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness, the so-called “secondary considerations,” *e.g.*, commercial success, long felt need, and failure of others. *See Graham v. John Deere Co.*, 383 U.S. 1, 13-17 (1966); *Dystar Textilfarben GmbH v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006).

“Thus evidence arising out of the so-called ‘secondary considerations’ must always when present be considered en route to a determination of obviousness.” *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1536 (Fed. Cir. 1983). Secondary considerations, such as commercial success, will not always dislodge a determination of obviousness based on analysis of the prior

art. See *KSR Int'l Co. v. Teleflex Inc.*, No. 04-1350, \_\_\_ U.S. \_\_\_, 127 S.Ct. 1727, 1745 (2007)

(commercial success did not alter conclusion of obviousness).

“One of the ways in which a patent’s subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent’s claims.” *KSR Int'l*, 127 S.Ct. at 1742. “[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.*

Specific teachings, suggestions or motivations to combine prior art may provide helpful insights into the state of the art at the time of alleged invention. *Id.* at 1741. Nevertheless, “an obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modern technology counsels against limiting the analysis in this way.” *Id.* “Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.* at 1742. A “person of ordinary skill is also a person of ordinary creativity . . . .” *Id.*

The Federal Circuit has harmonized the *KSR* opinion with many prior circuit court opinions by holding that when a patent challenger contends that a patent is invalid for obviousness based on a combination of prior art references, “the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would have had a reasonable expectation of success in doing so.” *PharmaStem*

*Therapeutics, Inc. v. ViaCell, Inc.*, 491 F.3d 1342, 1360 (Fed. Cir. 2007) (citing *Medichem S.A. v. Rolabo S.L.*, 437 F.3d 1175, 1164 (Fed. Cir. 2006)); *Noelle v. Lederman*, 355 F.3d 1343, 1351-52 (Fed. Cir. 2004); *Brown & Williamson Tobacco Corp. v. Philip Morris, Inc.*, 229 F.3d 1120, 1121 (Fed. Cir. 2000) and *KSR*, 127 S.Ct. at 1740 (“a combination of elements ‘must do more than yield a predictable result’; combining elements that work together ‘in an unexpected and fruitful manner’ would not have been obvious”).

The ultimate determination of whether an invention would have been obvious is a legal conclusion based on underlying findings of fact. *In re Dembiczak*, 175 F.3d 994, 998 (Fed. Cir. 1999).

### **3. Indefiniteness Under Section 112**

The definiteness requirement of 35 U.S.C. § 112 ensures that the patent claims particularly point out and distinctly claim the subject matter that the patentee regards to be the invention. See 35 U.S.C. § 112, ¶ 2; *Metabolite Labs., Inc. v. Laboratory Corp. of America Holdings*, 370 F.3d 1354, 1366 (Fed. Cir. 2004). If a claim’s legal scope is not clear enough that a person of ordinary skill in the art could determine whether a particular product infringes or not, it is indefinite and invalid. *Geneva Pharm., Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373, 1384 (Fed. Cir. 2003). It has been found that:

When a proposed construction requires that an artisan make a separate infringement determination for every set of circumstances in which the composition may be used, and when such determinations are likely to result in differing outcomes (sometimes infringing and sometimes not), that construction is likely to be indefinite.

*Halliburton Energy Servs. v. M-I LLC*, 514 F.3d 1244, 1255 (Fed. Cir. 2008).



#### **D. Inequitable Conduct**

Applicants for patents have a duty to prosecute patents in the U.S. Patent and Trademark Office (“PTO”) with candor and good faith, which includes a duty to disclose information known to the applicants to be material to patentability. *Pharmacia Corp. v. Par Pharm, Inc.*, 417 F.3d 1369, 373 (Fed. Cir. 2005). A breach of this duty may render the patent that issues unenforceable for inequitable conduct. *Cargill, Inc. v. Canbra Foods, Ltd.*, 476 F.3d 1359, 1363 (Fed. Cir. 2007).

Thus, a patent is unenforceable if the patentee withheld material information with an intent to deceive or mislead the PTO. *See Purdue Pharma L.P. v. Endo Pharms., Inc.*, 438 F.3d 1123, 1128 (Fed. Cir. 2006).

The Federal Circuit has rejected a “but for” standard of materiality (*i.e.*, the patent would not have issued but for the omission art from the prosecution). *Merck & Co. v. Danbury Pharmacal, Inc.*, 873 F.2d 1418, 1421 (Fed. Cir. 1989). Instead, information is deemed material “if there is a substantial likelihood that a reasonable examiner would consider it important in deciding whether to allow the application to issue as a patent.” *Brasseler, U.S.A. L.L.P. v. Stryker Sales Corp.*, 267 F.3d 1370, 1380 (Fed. Cir. 2001).

Intent is a subjective inquiry based on all the evidence, including evidence of good faith. *See Kingsdown Med. Consultants, Ltd. v. Hollister, Inc.*, 863 F.2d 867, 876 (Fed. Cir. 1988) (en banc in relevant part). A finding of deceptive intent requires clear and convincing evidence. *See Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 939 (Fed. Cir. 1990). “[G]eneralized allegations lack the particularity required to meet the threshold level of deceptive intent necessary for a finding of inequitable conduct.” *Sanofi-Synthelabo v. Apotex, Inc.* 470 F.3d 1368, 1381

(Fed. Cir. 2006). Indeed, an intent to deceive, “cannot be ‘inferred solely from the fact that information was not disclosed; there must be a factual basis for a finding of deceptive intent.’” *Purdue Pharma, L.P.*, 438 F.3d at 1134 (quoting *Hebert v. Lisle Corp.*, 99 F.3d 1109, 1116 (Fed. Cir. 1996)).

In determining whether there has been inequitable conduct, a court (1) determines whether the withheld information meets a threshold level of materiality and whether the applicant’s conduct at issue meets a threshold level of intent to deceive, and (2) weighs the materiality and intent in light of the circumstances to determine whether the applicant’s conduct is so culpable that the patent should be held unenforceable. *Cargill*, 476 F.3d at 1363.

#### **IV. U.S. Patent No. 5,594,398**

##### **A. Claim Construction**

United States Patent No. 5,594,398, entitled “Ground Fault Interrupter Wiring Device with Improved Moveable Contact System,” issued on January 14, 1997, to Jean-Claude Marcou, Thomas N. Packard, James K. Findlay and Patrick J. Murphy, and was assigned to P&S. CX-2 (the ‘398 patent).

According to the Background portion of the specification, the patent relates to a GFCI (or gfi, as per the patent’s usage), and “more specifically, to improved contact means moveable between circuit-making and breaking positions, and to the means for biasing the moveable contacts toward movement to one of such positions.” *Id.*, col. 1, ll. 7-11. As explained in the specification:

In conventional gfi wiring devices, a first contact or set of contacts is mounted for movement into and out of contact with a corresponding number of fixed contacts. In many cases, the moveable contacts are mounted on one end of an arm which is

fixedly mounted at the other end, about which the arm is pivotally moveable. The arm is biased toward movement in one direction or the other either by its own natural resilience or by a separate spring. Movement of the arm, which may also serve to carry current from the moveable contact to a portion of the circuit connected to the fixed end, makes and breaks contact between a single fixed and a single moveable contact.

In typical prior art gfi devices, one or more of the springs which bias the moveable contacts must be maintained in a compressed or otherwise loaded or biasing condition as the device is assembled. This, of course, complicates assembly since certain of the parts are being urged toward undesired movement as assembly proceeds. It is thus desirable that none of the spring means used in the device be placed in a biased condition, tending to move parts away from an assembled condition, until assembly is completed.

It is an object of the present invention to provide a gfi wiring device having novel and improved means for carrying the moveable contacts and for transmitting current between fixed contacts during normal operation.

Another object is to provide improved means for biasing and moving the moveable contacts of a gfi wiring device.

A further object is to provide a gfi wiring device wherein spring means which bias moveable contacts of the device are compressed to a biasing condition only when housing sections are placed in mutually mating relation to enclose moveable elements of the device.

Other objects will in part be obvious and will in part appear hereinafter.

*Id.*, col. 1, ll.12-47 (“Background of the Invention”).

The specification further summarizes the claimed invention, as follows:

The gfi device of the present invention is disclosed in the form of a duplex receptacle having a first pair of fixed contacts attached to the line side of the device and a second pair of fixed contacts attached to the load side. Current is carried between one of the line and one of the load fixed contacts during normal operation by a first, rigid, electrically conducting member having a pair of spaced

contacts for respective engagement with the line and load fixed contacts. Likewise, current is carried between the other set of line and load contacts by a second conducting member, identical to the first, such members being in the nature of buss bars.

The buss bar members are carried in spaced relation on a moveable block member with the spaced contacts all facing in the same direction. The block member is carried by and moveable with a latch member. A first spring, acting through a reset button and associated stem, biases the latch member to a position wherein the spaced contacts of both buss bar members are engaged with the corresponding fixed contacts. Second spring means, weaker than the first, bear against each of the buss bar members, urging them, together with the block and latch members, toward movement in the opposite direction, i.e., away from the fixed contacts. Upon release of the latching means, the second spring means act to move the buss bar members away from the fixed contacts to break the circuit. The buss bar members are moved simultaneously, by equal distances, in parallel paths perpendicular to the single plane in which all four of the fixed contacts are positioned. Thus, all four moveable contacts are simultaneously moved out of contact with the fixed contacts.

In a preferred embodiment, the springs urging the buss bar members away from the fixed contacts are coil springs, each having one end contacting a respective one of the buss bar members and the other end contacting fixed structure within the device housing when assembly is complete. The device housing is provided in two sections, placeable in mating relation to define the space enclosing the components of the device, and an interior wall dividing the space within the housing into two compartments is provided by a separator member. The latch, block and buss bar members are positioned in the lower or rear compartment, with the separator member in covering relation thereto. The coil springs extend through respective ones of a pair of openings in the separator, with their lower ends resting upon the buss bar members and their upper ends above the separator member. As the front housing section is moved downwardly into mating engagement with the rear housing section, integral portions, termed towers, on the interior side of the front section contact the upper ends of the springs, which are compressed between the buss bar members and the towers when the front and rear housing sections are joined. Also, the configuration of the separator member permits a pair of terminals, each carrying one of the fixed contacts, to be mounted in

the upper or front compartment with the fixed contacts communicating with the lower or rear compartment for engagement with the moveable contacts.

*Id.*, col. 1, l. 51 - col. 2, l. 39. (“Summary of the Invention”).

As enumerated above (*see* section I.B.2), P&S asserts claims 1, 7, and 8 of the ‘398 patent in this investigation. Independent claim 1, dependent claim 7 (and claim 6 from which it depends) and dependent claim 8 provide as follows:

1. A ground fault interrupter (gfi) wiring device for connection in an electrical circuit, said device comprising:

a) housing means defining an enclosed space;

b) at least one pair of electrical terminals fixedly supported in spaced relation within said enclosed space;

c) a unitary, electrically conducting member carrying a pair of spaced electrical contacts;

d) mounting means for said conducting member to permit movement thereof between a first position, wherein said pair of contacts are in respective, circuit-making engagement with said pair of terminals, and a second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals;

e) biasing means urging said conducting member toward movement to said second position;

f) latching means releasably retaining said conducting member in said first position; and

g) actuating means for releasing said latching means to permit said biasing means to move said conducting member to said second position in response to a predetermined fault condition in said electrical circuit.

6. The gfi device of claim 1 wherein said device is a gfi receptacle and said housing means includes a plurality of apertures for receiving the blades of an electrical plug.

7. The gfi device of claim 6 wherein said device is a two-pole device including first and second pairs of spaced electrical terminals, first and second electrically conducting members each carrying a pair of spaced electrical contacts, and mounting means for both of said conducting members to permit concurrent movement thereof between circuit-making and circuit-breaking relation of said contacts said terminals.

8. The gfi device of claim 7 wherein each of said conducting members is a buss bar moveable in a direction perpendicular to a line through said spaced contacts.

*Id.*, col. 13, ll. 24-46; col 13, l. 57 - col. 14, l. 3.

Several claim terms (words or phrases) of the '398 patent are in dispute. Each is discussed below.

### ***The Preamble***

P&S argues that the preamble of independent claim 1, *i.e.*, “a ground fault circuit interrupter (gfi) wiring device,” should be construed to mean: “a ground fault interrupter receptacle intended for the electrocution protection of personnel that functions to deenergize a circuit within some predetermined period of time when current to ground exceeds some predetermined value that is less than that required to operate the overcurrent protective device of the supply circuit. These devices are intended for use only in alternating-current circuits and for use on 120 Volts AC or 120/240 Volts AC, 60 Hertz circuits.” *See* Compl. Br. at 34 (citing, *inter alia*, Stolfi Tr. 1278).

ELE argues that the body of claim 1 defines a structurally complete invention, that the preamble adds no specific structure, and that therefore it need not be construed as a claim limitation. *See* ELE Br. at 79. Nevertheless, ELE argues that if the preamble were construed, it should be construed according to its ordinary meaning to be “a wiring device designed to

interrupt the flow of electricity in the event of a ground fault. This would include, but not be limited to, a receptacle GFI.” *Id.* at 80.

The Staff agrees with ELE that the preamble does not limit claim 1 because an electrical circuit would be readily apparent to one of ordinary skill without reference to the preamble.

Thus, the Staff submits that the preamble does not add any structural elements. Staff Br. at 21.

As discussed above in the general legal section of this Initial Determination, “a claim preamble has the import that the claim as a whole suggests for it. In other words, when the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects.” *Eaton*, 323 F.3d at 1339. In this instance, it is clear from the claim language that the applicants intended through the preamble to define a particular electrical circuit, specifically a gfi, and none other.

Further, as pointed out by the parties that addressed the preamble question, it has long been the practice to determine whether or not a preamble provides structure for the claim that would otherwise be lacking. *See Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989). In this case, the “actuating means” recited later in claim 1 references “said electrical circuit” of the preamble, thereby indicating that the preamble does not merely describe the field of invention but serves as a limitation. Indeed, that limitation is reflected numerous times in the specification, which states that the claimed invention is a type of ground fault interrupter wiring device rather than any other device. *See CX-2* (‘398 patent) at col. 1, ll. 7-12 (“The present invention relates to the class of electrical wiring devices known as ground fault interrupter (gfi) receptacles...”); col. 1, ll. 34-37, col. 1, ll. 39-40.

Consequently, the preamble is construed to limit the claimed invention to a GFCI

(otherwise known as a gfi) as understood by one of ordinary skill. It has not been shown, however, that all the limitations of P&S's proposed construction (receptacle, voltage, Hertz) are contained in the claim preamble.

***“a unitary, electrically conducting member carrying a pair of spaced electrical contacts”***

P&S argues that “a unitary, electrically conducting member carrying a pair of spaced electrical contacts” contained in claim 1 should be construed to mean “a member that provides an electrical current carrying path between two or more spaced contacts.” Compl. Br. at 35 (citing, *inter alia*, Stolfi Tr. 1281).

ELE argues that in P&S's proposed construction, P&S attempts to retract statements made to the PTO examiner concerning a “single, electrically conducting member in the nature of a buss bar,” which is reflected in the '398 specification disclosing only such a buss (or bus) bar. Without providing a specific construction, it appears that ELE would require the claim term “unitary, electrically conducting member” to be limited to a bus bar. ELE Br. at 80-81 (citing, *inter alia*, CX-9 ('398 prosecution history) at PS-ITC 000336697, and Haynes Tr. 2137).

Meihao argues that “a unitary, electrically conducting member carrying a pair of spaced electrical contacts” should be construed to be “a buss (or bus) bar having a pair of spaced electrical contacts.” Meihao argues that this construction would “best comport with the actual disclosure and the words repeatedly used by the patentee to describe the invention – not just a preferred embodiment, but the invention.” It argues that P&S's proposed construction impermissibly eliminates the term “unitary.” Meihao Br. at 19-24.

GPG argues that the proper construction of this limitation is “a single, electrically conductive structure that transports a pair of conducting elements.” GPG Br. at 24 (quoting



Roberge Tr. 3047-3048).

Trimone does not provide a concise definition of this claim limitation. Instead, it offers a lengthy discussion concerning its meaning. Trimone concludes that “[t]he limitations recited in the claim itself require that the conducting member provides an electrical current path between the pair of spaced contacts affixed thereon, from one contact to the other.” Trimone Br. at 16.

The Staff argues that “unitary, electrically conducting member carrying a pair of spaced electrical contacts” means “a member which is not physically separate that provides an electrical current carrying path between two or more spaced contacts.” Staff Br. at 21.

The proposed construction offered by P&S of “a member that provides an electrical current carrying path between two or more spaced contacts” is consistent with the patent’s specification. *See* CX-2 (‘the ‘938 patent), Abstract, col. 1, ll. 34-37 (“[i]t is an object of the present invention to provide a gfi wiring device having novel and improved means for carrying the moveable contacts and for transmitting current between fixed contacts”); col. 1, ll. 54-57 (“[c]urrent is carried ... by a first, rigid, electrically conducting member having a pair of spaced contacts”); col. 1, ll. 59-60; col. 6, ll. 9-10; col. 13, ll. 15-17. While the specification discloses a bus bar,<sup>8</sup> nothing in the specification limits this claim element to a bus bar. In fact, the specification discloses other types of unitary electrically conducting members. *See* Stolfi Tr. 1282-1285 (discussing the structures disclosed in the specification).

P&S’s proposed construction is also consistent with the prosecution history. The prior art before the examiner, U.S. Pat. No. 4,595,894 to Doyle et al. (“the Doyle patent”) (CX-33) and

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<sup>8</sup> The disclosed bus bar “is sort of an elongated form that contains both the spaced contacts.” Stolfi Tr. 1283. As disclosed, the leaf spring can be formed integrally with it. *Id.*

U.S. Pat. No. 5,223,810 to Van Haaren (CX-34) (“Van Haaren patent”) referred to separating a conducting arm on the hot side from one on the neutral side. *See* CX-9 (‘398 prosecution history) at PS-ITC 336699; Stolfi Tr. 1284-1285. Counsel, on behalf of the applicants, distinguished this claim element of the ‘398 patent from the prior art. CX-9 (‘398 prosecution history) at PS-ITC 336699 (distinguishing claim 1 from the art of record in that “[n]either reference teaches or suggests a unitary member carrying a pair of spaced contacts, as recited in applicants’ claim 1”). The fact that at one point counsel referred to the claimed structure as being “in the nature of” a bus bar is not an indication that a bus bar alone could satisfy the claim limitation. *See* CX-9 at PS-ITC 336697 (‘398 prosecution history) (“One of the principle features of the gfi wiring device of the present invention is the mounting of a pair of electrical contacts on a single, electrically conducting member in the nature of a buss bar.”).

Consequently, “a unitary, electrically conducting member carrying a pair of spaced electrical contacts” is construed to mean “a member that provides an electrical current carrying path between two or more spaced contacts.”

***“mounting means for said conducting member to permit movement thereof between a first position, wherein said pair of contacts are in respective, circuit-making engagement with said pair of terminals, and a second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals”***

Claim 1 of the ‘398 patent contains several means-plus-function limitations. The portion of P&S’s brief on the construction of this claim contains a chart setting forth each means-plus-function element, its proposed function and “exemplary corresponding structure” from the patent specification. *See* Compl. Br. at 40. There is a dispute concerning the proper construction of most of the means-plus-function limitations with at least one respondent. The first means-plus-

function limitation as to which there is a dispute concerns “mounting means for said conducting member to permit movement thereof between a first position, wherein said pair of contacts are in respective, circuit-making engagement with said pair of terminals, and a second position, wherein both of said pair of contacts are in spaced, circuit-breaking relation to said pair of terminals.”

P&S argues that the function of the mounting means limitation is “permitting movement between a first position, wherein a pair of contacts are in respective, circuit-making engagement with a pair of terminals, and a second position, wherein both of the pair of contacts are in spaced, circuit-breaking relation to the pair of terminals,” and that the corresponding structure is “a block including a central body and an arm for supporting the conducting member, and structural equivalents thereof.” Specifically, P&S refers to CX-2 (‘398 patent) at col. 1, ll. 62-64 (“moveable block member”); col. 6, ll. 5-9 (describing buss bars 80, 81 supported on opposite sides of latch block 82); col. 11, ll. 19-29; col. 12, ll. 46-51 (embodiment wherein the leaf spring is “formed integrally” with a buss bar); & Figs. 11, 18, 23, and 29-31 (element 82). *Id.* at 40 (citing, *inter alia*, Stolfi Tr. 1285).

ELE argues that “[i]n plain English, the ‘mounting means’ permits the bus bar to go between the closed-contact position and the open-contact position.” ELE further argues that the “mounting means” should be construed to cover “the actual structure in the ‘398 patent that opens and closes contacts. That structure is latch block 82, and it includes the central opening, integral posts, side tabs and legs.” ELE Br. at 81-83.

Meihao argues that this means-plus-function element should be construed as a “coil spring” or “leaf spring” as shown in Figure 34 and structural equivalents thereof. It is further

argued that the specified function is to urge the unitary electrically conducting member toward the second position, which is the circuit-breaking position of the GFCI. Meihao Br. at 24 (citing, *inter alia*, Horenstein Tr. 2845; Stolfi Tr. 1287).

GPG argues that its GFCIs lack a “mounting means.” It discusses that limitation in conjunction with its discussion regarding non-infringement. Respondent GPG focuses on many of the same portions of the specification relied upon by ELE. *See* GPG Br. at 27-28.

Trimone argues that the function of the mounting means “for seating the ‘unitary, conducting member’ directly thereon so that when the mounting means is moved into a first position, the two contacts on the conducting member are physically engaged with respective contacts for either the hot or neutral line and load terminals to place the GFI into the reset state, and when the mounting means is moved into a second position, the two contacts are physically spaced apart from the contacts from the respective hot or neutral line and load terminals to place the GFI into a tripped state.”

Trimone also argues that the mounting means must enable the spaced contacts on the unitary electrically conducting member to be in “circuit-making arrangement” or “spaced, circuit-breaking arrangement” with the line and load terminals. Focusing on latch block 82, it further argues that the corresponding structure for the “mounting means” is a latch block with an upwardly extending integral post on an electrically conducting member. Trimone also asserts that the posts in the latch block are the corresponding structure for the function performed by the mounting means. *See* Trimone Br. at 21-24.

The Staff argues that the function of this limitation is “permitting movement between a first position, wherein a pair of contacts are in respective, circuit-making engagement with a pair

of terminals, and a second position, wherein both of the pair of contacts are in spaced, circuit-breaking relation to the pair of terminals.” Staff Br. at 25 (quoting Stolfi Tr. 2185). The Staff further argues that the corresponding structure is latch block 82, but not including integral posts 82a, 82a’ and the unnumbered leg because they are not necessary to perform the function (but rather were included in the structure for manufacturability). *Id.* at 26 (citing Haynes Tr. 2228; Stolfi Tr. 1437; Packard Tr. 429).

P&S’s proposed construction does not differ substantially from most of the other parties, especially with respect to the function to be performed by this claim element. Indeed, in accordance with the law applicable to a means-plus-function element, P&S’s proposed construction simply recites the function called for in the claim. P&S’s proposed construction does, however, differ markedly from that of Trimone, which bases its claim construction on seating the unitary conducting member directly on the mounting means. However, that function is not called for by the claim, and thus it would be improper to read that function into the limitation. *See Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1258 (Fed. Cir. 1999).

With respect to the term “mounting means,” the Staff states that “[t]he parties agree on the relevant function but not on the corresponding structure.” Staff Br. at 25. The Staff then appears to agree with P&S’s construction, ultimately construing the mounting means structure as a block (referencing “latch block 82”). Staff Br. at 25-26. Unlike P&S and the Staff, some respondents identify a structure that is too broad because they include components (such as integral posts 82a and 82a’ and unnumbered legs) that are not necessary to perform the recited function.

As established at the hearing, these posts and unnumbered legs cited by respondents, and illustrated in the specification, do not perform any function during operation and were included in the preferred embodiment strictly for ease of manufacture and assembly. *See* Packard Tr. 429-430; Stolfi Tr. 3231-3236. In addition, the '398 patent specification discloses embodiments wherein the conducting member does not even sit directly on the latch block and would also have no need of extraneous posts or legs. *See* CX-2 ('398 patent) at col. 12, ll. 41-51 (design variations in the event that the leaf spring is "formed integrally with" conducting member). Thus, respondents' position regarding the structure of the mounting means must fail.

Accordingly, for the reasons discussed above, the construction offered by P&S for the mounting means, and apparently endorsed by the Staff, is adopted.

***"biasing means urging said conductor member toward movement to said second position"***

With respect to the "biasing means urging said conducting member toward movement to said second position," P&S argues that the function is "urging the conducting member toward movement to the second position" and the exemplary corresponding structure is "a resilient member such as a coil spring or leaf spring, and structural equivalents thereof." The structure identified by P&S is CX-2 ('398 patent) at col. 2, ll. 2-8 (describing second spring means which acts to move the buss bar members away from the fixed contacts to break the circuit), col. 2, ll. 14-18 ("coil springs"), col. 4, ll. 62-65, col. 6, ll. 60-64, col. 9, ll. 60-64, col. 10, ll. 24-30, col. 12, ll. 46-51 (embodiment wherein the leaf spring is "formed integrally" with a buss bar); and Figs. 11, 23, 29-31 and 34 (elements 97, 80d). Compl. Br. at 41 (citing, *inter alia*, Stolfi Tr. 1287-1288).

ELE argues that the proper construction of the “biasing means” limitation is “coil springs 97 and 97’, or leaf springs 80d, and equivalents thereof that perform the recited function of urging the conducting member toward movement to the circuit-breaking position.” ELE argues that the function is “urging said conducting member toward movement to said second position.” ELE Br. at 83 (citing, *inter alia*, Haynes Tr. 2151).

Trimone also argues that the structure disclosed in the ‘398 specification to preform the recited function of the biasing means “includes coil spring 97 (in Figure 11 or Figure 30A) or leaf spring 80d (in Figure 34) that abuts a fixed nonconductive surface on one end of the spring and the conducting member 80 on the other end, such that it urges the conducting member 80 away from physical engagement with the fixed contacts for the line and load terminals.” Trimone Br. at 25.

The Staff argues that the function associated with the “biasing means” is “urging said conducting member toward movement to said second position.” Staff Br. at 26 (citing Stolfi Tr. 1287-1289). The Staff states that “the structure corresponding to this element includes coil springs 97 and 97’, or leaf springs 80d and equivalents. The leaf springs may be “integrally formed” with the buss bar.” *Id.* (citing Stolfi Tr. 1288). In the Staff’s view, however, the structure should not be characterized generally as a “resilient member” as this does not appear in the specification. *Id.* (citing Haynes Tr. 2161).

The function and structure identified by P&S are both consistent with the ‘398 patent specification. *See* Stolfi Tr. 1287. While the structures corresponding to the “biasing means” include coil springs and leaf springs, and equivalents thereof, other types of springs and additional types of resilient members would also fall within the structures corresponding to the

claim element. *See* Stolfi Tr. 1288. Indeed, both the specification of the ‘398 patent and the prior art of record during prosecution disclose biasing means formed integrally with the conducting member. *See* Stolfi Tr. 1284, 1288.<sup>9</sup> At the time the ‘398 patent was filed, a person of ordinary skill in the art would have understood and appreciated that such structures would be either leaf-spring type biasing means structures or structural equivalents thereof.

Accordingly, for the foregoing reasons, P&S’s construction of the “biasing means” element is adopted.

***“latching means releasably retaining said conducting member in said first position”***

With respect to the “latching means releasably retaining said conducting member in said first position,” P&S argues that the function is “releasably retaining the conducting member in the first position” and the exemplary corresponding structure is “a pin passing through a hole in a block having a shoulder that cooperates with a hole in a latch member and a spring biasing the pin to retain the conducting member in the first position, and structural equivalents thereof.” The structure identified by P&S is CX-2 (‘398 patent) at col. 1, l. 64 - col. 2, l. 1 (describing latch member and spring which biases the latch member to a position wherein the spaced contacts of both buss bar members are engaged with the corresponding fixed contacts), col. 5, l. 66 - col. 6, l. 5 (“sheet metal member”), col. 6, ll. 24-26, col. 10, ll. 31-33, col. 10, ll. 46-50, col. 10, l. 55 - col. 11, l. 13, col. 11, ll. 40-55; and Figs. 11, 29-31 and 36 (elements 28, 78, 89). Compl. Br. at 41 (citing, *inter alia*, Stolfi Tr. 1288-1291).

ELE argues that the “latching means” of the claim is what keeps the bus bar in place

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<sup>9</sup> *V-Formation, Inc. v. Benetton Corp. SpA*, 401 F.3d 1307, 1311 (Fed. Cir. 2005) (prior art of record is intrinsic evidence relevant to claim construction).



during normal operation, and when released, allows the mounting means to move the bus bar and open the contacts. As recited in Claim 1, the function of the “latching means” is “releasably retaining said conducting member in said first position.” ELE asserts that “latching means” is “reset button 28 (which includes stem 28a and shoulder 28b), latch spring 78 (which is made of sheet metal and includes either leaf spring 78b or coil spring 78d, and opening 78c), and spring 89, and equivalents thereof, that perform the recited function of releasably retaining the conducting member in the circuit-making position.” ELE Br. at 88-89.

GPG argues that its GFCIs lack a “latching means,” and provides a discussion of that limitation that is intertwined with its discussion of alleged non-infringement. GPG focuses on many of the same portions of the specification relied upon by ELE. *See* GPG Br. at 19-24.

Trimone argues that the ‘398 patent expressly recites a conventional, “mousetrap” mechanical structure for the latch arrangement, which P&S left unchanged since its G3 GFCI. Trimone does not provide a concise definition of the claimed “latching means,” although it does provide a narrative concerning the mechanical functions of a so-called mousetrap design that retains contacts in a closed position even without power. According to Trimone, the corresponding structure disclosed in the ‘398 patent “includes a reset stem 28a with a shoulder 28b, a latch spring 78, which includes a latch with a hole 78c and a spring maintaining the latch hole in misalignment with the reset stem. The latch is configured such that the latch hole is momentarily aligned with the reset stem when engaging the reset shoulder with an edge of the latch hole to latch the device into the reset state.” Trimone Br. at 27-28.

The Staff argues that “[t]he function of the ‘latching means’ is ‘releasably retaining the conducting member in the circuit-making position.’” Staff Br. at 27 (citing Stolfi Tr. 1456,

1463-1464). It further argues that the corresponding structure described in the specification “includes a reset button 28 (which includes stem 28a and shoulder 28b), latch spring 78 (which is made of sheet metal and includes either leaf spring 78b or coil spring 78d, and opening 78c), and spring 89, and equivalents thereof.” *Id.* (citing Haynes Tr. 2158-2159).

The function of the latching means proposed by P&S recited the function required by the claim. P&S has also identified the structure in the specification that closely corresponds to the recited function. As explained at the hearing by P&S’s expert, Dr. Stolfi, Figure 11 shows the a corresponding structure that covers item 28, which is the reset button, and which “is really the stem of the reset button, 28a, and the shoulder on the stem, 28b, the spring, 89 and the latch member which is element 78 in that figure and has a hole through the center, 78c.” Stolfi Tr. 1290.

The specification also discloses two alternate structures, but even they do not require all the elements proposed by respondents, such as the entire reset button or a latch spring to keep reset stem 28a engaged with the latch member. *See* CX-2 (‘398 patent), col. 10, ll. 59-65; col. 11, ll. 33-38; Stolfi Tr. 1290-1291. Accordingly, complainant’s proposed construction is adopted.

***“actuating means for releasing said latching means to permit said biasing means to move said conducting member to said second position in response to a predetermined fault condition in said electrical circuit”***

With respect to the “actuating means for releasing said latching means to permit said biasing means to move said conducting member to said second position in response to a predetermined fault condition to said electrical circuit,” P&S argues that the function is

“releasing the latching means to permit the biasing means to move the conducting member to the second position in response to a predetermined fault condition in the electrical circuit” and the exemplary corresponding structure is “a solenoid, an armature, toroidal cores and associated windings, and an SCR, and structural equivalents thereof.” The specific structure identified by P&S is CX-2 (‘398 patent) at col. 5, ll. 48-65, col. 11, ll. 29-55, col. 8, l. 41; and Figs. 11, 12, 16 and 26 (elements 62, 66, 72, 108). Compl. Br. at 41 (citing, *inter alia*, Stolfi Tr. 1291-1292).

Trimone argues that this element is to perform the function of momentarily re-aligning the latch spring hole with the reset pin to disengage the latch spring in response to a detected current imbalance, causing the electrical contacts on the conducting member to disengage from both electrical terminals to trip the device. It is further argued that P&S’s proposed claim construction fails to account for the operation of the trip solenoid actually disclosed in the patent.

Trimone also states that the “actuating means” refers to “an SCR and a solenoid coil that, when energized due to an imbalance in current, momentarily moves an armature positioned within the solenoid core to compress a latch spring. This movement causes the latch spring to momentarily disengage from a shoulder on a reset button stem, which allows a pair of coil springs to move the buss bars downwardly, such that the contacts on the buss bars are moved out of engagement with corresponding line and load terminal contacts.” Trimone Br. at 31-34.

The Staff argues that the “function associated with the term “actuating means” is “releasing the latching means to permit the biasing means to move the conducting member to the circuit breaking position in response to a predetermined fault condition in the electrical circuit.” Staff Br. at 27 (citing Stolfi Tr. 1291). It further argues that “the structure corresponding to this element is toroidal coils 72 and their associated windings, solenoid coil 62, and armature 66 and

equivalents thereof.” *Id.* (citing Haynes Tr. 1292).

The function proposed by P&S is supported by the patent claim, rather than that proposed by Trimone which is not recited therein. In addition, the corresponding structure identified by P&S of “a solenoid, an armature, toroidal cores and associated windings, and an SCR, and structural equivalents thereof,” find support in the specification. *See* Stolfi Tr. 1291-1292. In contrast, the armature position proposed by Trimone is shown to be unnecessary by the description in the specification of the toroidal cores of the device that sense a differential current, and an SCR triggers the solenoid causing the armature to move. *See* CX-2 (‘398 patent) col. 11, ll. 29-39.

Accordingly, P&S’s proposed construction of the actuating means is adopted.

***Claim 7***

Meihao presents a very brief argument that claim 7 of the ‘398 patent requires the device to be a two-pole device, and that “[a] two-pole device ‘is a GFCI where the load and the user accessible load terminals are not separated in the tripped state.’” Meihao Br. at 26-27 (quoting Horenstein Tr. 2845, 2829-2830). There is no indication that Meihao has raised this argument previously, and for this reason alone it is rejected.

In any event, such a construction does not find support in the intrinsic evidence, and Meihao does not point to any. Indeed, Meihao’s proposal is contrary to the plain meaning of the claim read in view of the specification, in which the mounting means permits concurrent movement of the conducting members between circuit-making and circuit-breaking relation of the contacts and the terminals. *See* CX-2 (‘398 patent) at col. 13, ll. 60-67.

## **B. Infringement Determination**

It is undisputed that each of the accused devices is a GFCI, as required by the preamble of claim 1 of the '398 patent. P&S has set forth evidence concerning all limitations of the asserted claims, even those whose construction was not in dispute. Most of respondents' arguments against a finding of infringement are based on their proposed claim constructions that were rejected in favor of those proposed by P&S. Each of the accused products is discussed below with a particular emphasis on the claim limitations that are in dispute.

### ***ELE's 2006 GFCIs Infringe Claims 1, 7, and 8***

As discussed above, claim 1 requires "a unitary, electrically conducting member carrying a pair of spaced electrical contacts." The ELE 2006 GFCIs contain an elongated metal, electrically conducting member with two contacts on it. Stolfi Tr. 1300-1302; CX-275-C (engineering document) at ELE-ITC 1951 (ref. no. 4); CX-1501 (photo of conducting member); CX-1502 (photo of pair of spaced contacts); Li Tr. 1997-1998, 2000-2001, 2003-2004 (member is "made of metal"). Thus, the ELE 2006 GFCIs literally satisfy element (c) of claim 1.

Element (d) of claim 1 is the "mounting means." The ELE 2006 GFCIs satisfy the structure of the "mounting means" because they contain a block with a central body and an arm extending from the central body supporting the conducting member. Stolfi Tr. 1305-1306; CX-275C (design document) at ELE-ITC-1951 (ref. no. 7); CX-1503 (photo of "mounting means"). The ELE 2006 GFCIs perform the function of the "mounting means" because the block and its support arm permit movement of the conducting member between a first (circuit-making) position and a second (circuit-breaking) position with respect to the pair terminals. Stolfi Tr. 1305. When the block moves upward toward the upper housing of the GFCI, the conducting

member also moves upward and into circuit-making engagement with respect to the pair of terminals. Haynes Tr. 2168. Conversely, when the block moves back downward into the lower housing, the conducting member also moves downward breaking the circuit between the pair of terminals. Haynes Tr. 2166-2168. Thus, the ELE 2006 GFCIs perform the identical function of the “mounting means” of claim 1 using the structure described in the ‘398 patent for performing that function.

Element (e) of claim 1 is the “biasing means.” The ELE 2006 GFCIs satisfy the structure of the “biasing means” because the conducting member, having an “S-shaped” bend and natural resiliency, is a leaf spring. Stolfi Tr. 1306-1307; Haynes Tr. 2166-2167 (“[T]he bias of the contact arm” in the ELE 2006 GFCIs creates the force to move the contact arm into the second (circuit-breaking) position.). The ELE 2006 GFCIs perform the function of the “biasing means” because the leaf spring urges the conducting member to the second (circuit-breaking) position. Stolfi Tr. 1307; Haynes Tr. 2166-2167. Hence, in the ELE 2006 GFCIs, when no force is applied by the block to the conducting member, the “S-shaped” bend and natural resiliency of the conducting member urges it to the second (circuit-breaking) position. *See* Stolfi Tr. 1307; Haynes Tr. 2166-2167. Thus, the ELE 2006 GFCIs perform the identical function of the “biasing means” of claim 1 using the structure described in the ‘398 patent for performing that function.

Element (f) of claim 1 is the “latching means.” The ELE 2006 GFCIs include the structure of the “latching means” because they contain a reset pin with a shoulder (CX-1507), a spring surrounding the pin (CX-1506) and a latch member (CX-1505 and CX-1505A), which collectively retain the conducting member in a first (circuit-making) position with respect to the pair of terminals. Stolfi Tr. 1307-1308; Haynes Tr. 2102-2103. This function is achieved when

the shoulder of the reset pin becomes engaged with the hole in the latch member. Stolfi Tr. 1308-1309; Haynes Tr. 2102-2103. The bias force of the spring surrounding the reset pin thereupon urges the stem and shoulder, and thus the latch member, up toward the upper housing, which in turns urges the latch block and conducting member upward into the first (circuit making) position as well. Stolfi Tr. 1308-1309; Haynes Tr. 2102-2103. The conducting member is then retained in the first position as long as the shoulder of the reset pin is engaged with the latch member. Stolfi Tr. 1308-1309; Haynes Tr. 2102-2103. In that way, the ELE 2006 GFCIs perform the identical function of the “latching means” of claim 1 using the structure described in the ‘398 patent for performing that function.

The ELE 2006 GFCIs satisfy the structure of the “actuating means” because they contain an armature (CX-1508), solenoid (CX-1509), toroidal cores (CX-1510) and an SCR (CX-1511). Stolfi Tr. 1311-1314. The ELE 2006 GFCIs perform the function of the “actuating means” because the solenoid armature moves, releasing the latch, when the SCR is tripped in response to the toroidal cores sensing a differential current. Once the latch is released, the “leaf spring” (biasing means) moves the conducting member into a second (circuit-breaking) position. Stolfi Tr. 1312; Haynes Tr. 2166-2167. Thus, the ELE 2006 GFCIs perform the identical function of the “actuating means” of claim 1 using the structures described in the ‘398 patent for performing that function.

The ELE 2006 GFCIs satisfy all of the elements of claim 1 of the ‘398 patent. Further, the evidence shows that ELE 2006 GFCIs also literally infringe claims 7 and 8 of the ‘398 patent.

The “housing” of the ELE 2006 GFCIs has “a plurality of apertures for receiving the blades of an electrical plug” (a requirement of claim 6). *See* Stolfi Tr. 1315. Additionally, the

ELE 2006 GFCIs contain a first and second pair of electrical terminals and first and second electrically conducting members. Stolfi Tr. 1315-1316. Further, the block in the ELE 2006 GFCIs identified above as the “mounting means” of claim 1 has two arms extending from its center (one from each side) which permit movement of both conducting members between a circuit-making and circuit-breaking position with respect to the pair of terminals. Stolfi Tr. 1316-1317. Accordingly, the ELE 2006 GFCIs contain each element of claim 7 and thus infringe the claim.

With respect to claim 8, the conducting members of the ELE 2006 GFCIs are bus bars. Stolfi Tr. 1317. The bus bars in the ELE 2006 GFCIs are the “paddle” shaped end of each conducting member. They are formed integrally with a leaf spring, as disclosed in the ‘398 patent. Stolfi Tr. 1317; *see* CX-2 (‘398 patent) at col. 12, ll. 46-51. Accordingly, the ELE 2006 GFCIs contain each element of claim 8 and thus infringe the claim.

***Meihao’s 2003 GFCIs Infringe Claims 1 and 7***

The 2003 Meihao GFCIs contain a metal electrically conducting member with a pair of spaced contacts. Stolfi Tr. 1320-1323, 1552-1558; JX-7C (H. Huang Dep.) at 41 (Meihao’s 2003 GFCIs electrically conducting member is “one piece of metal”). Thus, the Meihao 2003 GFCIs literally satisfy element (c) of claim 1.

The Meihao 2003 GFCIs satisfy the structure of the “mounting means” because they contain a block with a central body and an arm extending from the central body and supporting the conductive member. *See* Stolfi Tr. 1323-1324. The Meihao 2003 GFCIs perform the function of the “mounting means” because the block and its support arm permit movement of the conducting member between a first (circuit-making) position and a second (circuit-breaking)



position with respect to the pair of terminals. Stolfi Tr. 1323-1324; JX-7-C (H. Huang Dep.) at 48.

When the block moves upward toward the upper housing of the GFCl, the conducting member also moves upward and into circuit-making engagement with said pair of terminals. Conversely, when the block moves back downward into the lower housing, the conducting member also moves downward breaking the circuit between the pair of terminals. Thus, the Meihao 2003 GFClS perform the identical function of the “mounting means” of claim 1 using the structure described in the ‘398 patent for performing that function.

The Meihao 2003 GFClS satisfy the structure of element (e), the “biasing means,” because the conducting member, having an “S-shaped” bend and natural resiliency, is a leaf spring. Stolfi Tr. 1325-1326; JX-7C (H. Huang Dep.) at 41-42 (flexibility of members allow them to move up and down). The Meihao 2003 GFClS perform the function of the “biasing means” because the leaf-spring urges the conducting member to the second (circuit-breaking) position. Stolfi Tr. 1326. Thus, in the Meihao 2003 GFClS, when no force is applied by the block to the conducting member, the “S-shaped” bend and natural resiliency of the conducting member urges it to the second (circuit breaking) position. The Meihao 2003 GFClS perform the identical function of the “biasing means” of claim 1 using the structure described in the ‘398 patent for performing that function.

The Meihao 2003 GFClS satisfy the structure of the “latching means” because they contain a reset pin with a shoulder (CX-2019), a spring surrounding the stem (CX-2018) and a latch member (CX-2017), which collectively retain the conducting member in the first (circuit-making) position with respect to the pair of terminals. This function is achieved when

the shoulder of the reset pin becomes engaged with the hole in the latch member. Stolfi Tr.

1326-1328; *see* Horenstein Tr. 2932.

When the shoulder of the reset pin is engaged with the latch member, the force of the spring surrounding the reset pin urges the stem and shoulder, and thus the latch member, up toward the upper housing, which in turns urges the latch block and conducting member upward as well. As a result, the conducting member moves into circuit-making engagement with the pair of terminals. The conducting member is retained in the first position as long as the shoulder of the reset pin is engaged with the latch member. Stolfi Tr. 1327-1328; Horenstein Tr. 2932. In that way, the Meihao 2003 GFCIs perform the identical function of the “latching means” of claim 1 using the structure described in the ‘398 patent.

The Meihao 2003 GFCIs contain an armature (CX-1521), solenoid (CX-1520), toroidal cores (CX-1522) and SCR. Stolfi Tr. 1336-1337, 1339. The Meihao 2003 GFCIs perform the function of the “actuating means” because the solenoid armature moves, releasing the latch, when the SCR is tripped in response to a differential current sensed by the toroidal cores. Stolfi Tr. 1336-1337. Once the latch is released, the “leaf spring” (biasing means) moves the conducting member into the second (circuit breaking) position. *See* Stolfi Tr. 1336-1337. Thus, the Meihao 2003 GFCIs perform the identical function as the “actuating means” of claim 1 using the structures described in the ‘398 patent for performing that function.

Accordingly, the Meihao 2003 GFCIs satisfy all of the elements of claim 1 of the ‘398 patent, and literally infringe claim 1.

Further, the Meihao 2003 GFCIs literally infringe claim 7 of the ‘398 patent. The “housing” of the Meihao 2003 GFCIs have “a plurality of apertures for receiving the blades of an

electrical plug” (a requirement of claim 6). *See* Stolfi Tr. 1339. Additionally, the Meihao 2003 GFCIs contain a first and second pair of electrical terminals and a first and second electrically conducting member, each carrying a pair of spaced contacts. Stolfi Tr. 1340-1341. The block in the Meihao 2003 GFCIs, identified above as the “mounting means” of claim 1, has two arms extending from its center (one from each side) which permit movement of both conducting members between a circuit-making and circuit-breaking position with respect to the pair of terminals. Stolfi Tr. 1341. Accordingly, the Meihao’s 2003 GFCIs contain each element of claim 7, and thus infringe the claim.

***GPG’s 2006 GFCIs Infringe Claims 1 and 7***

GPG’s 2006 GFCIs contain a metal electrically conducting member with three spaced contacts. Two contacts are for connection with the feed-through load and user-accessible load terminals and one contact is for connection with the line terminal. Stolfi Tr. 1345-1346. Thus, GPG’s 2006 GFCIs satisfy element (c) of claim 1.

GPG’s 2006 GFCIs satisfy the structure of the “mounting means” because they contain a block with a central cylindrical body and a support arm extending from the central body. Stolfi Tr. 1348-1349. The GPG 2006 GFCIs perform the function of the “mounting means” because the block supports an arm and permits movement of the conducting member between a first (circuit-making) position and a second (circuit-breaking) position with respect to the pair of terminals.

When the block moves upward toward the upper housing of the GFCI, the conducting member also moves upward and into circuit-making engagement with respect to the pair of terminals. Conversely, when the block moves back downward into the lower housing, the

conducting member also moves downward breaking the circuit between the pair of terminals.

Stolfi Tr. 1349. In that way, the GPG 2006 GFCIs perform the identical function of the “mounting means” of claim 1 using the structure described in the ‘398 patent for performing that function.

The GPG 2006 GFCIs satisfy the “biasing means” limitation because they contain a coil spring surrounding an armature. Stolfi Tr. 1350. The GPG 2006 GFCIs perform the function of the “biasing means” because the coil spring urges the conducting member into a second (circuit-breaking) position. Stolfi Tr. 1350. Hence, the GPG 2006 GFCIs perform the identical function of the “biasing means” of claim 1 using the structure described in the ‘398 patent for performing that function.

The GPG 2006 GFCIs perform the function of the “latching means” element because they contain a magnet capable of retaining an armature that is attached to the GFCI’s “mounting means.” Stolfi Tr. 1350-1351, 1627-1628. Consequently, the magnet in the GPG 2006 GFCIs performs the identical function of the “latching means” of claim 1. When the armature is retained by the magnet, the conducting member is in a first (circuit-making) position with respect to the pair of terminals. Stolfi Tr. 1351.

The GPG 2006 GFCIs also satisfy the structure of the “latching means.” Specifically, the GPG 2006 GFCIs contain a structural equivalent to the “latching means” and therefore literally infringe the means-plus-function element. *See Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934 (Fed. Cir. 1997) (*en banc*).

In the GPG 2006 GFCIs, the magnet retains the conducting member in the first (circuit-making) position because the force of the magnet on the armature is greater than the

force of the coil spring urging the armature and the conducting members to the circuit-breaking position. Stolfi Tr. 1627-1628. In the '398 patent, the biasing force of the spring surrounding the pin of the reset button lifts a latch member upward causing the conducting members to move upward toward a circuit-making position with the pair of fixed terminals. The conducting member is retained in that position because the biasing force of the spring associated with the pin is greater than the force of the "biasing means urging the conducting member toward movement to the second [circuit breaking] position." CX-2 ('398 patent) at col. 10, l. 66 - col. 12, l. 10.

Moreover, at the filing of the '398 patent, a person of ordinary skill in the art would have considered the magnetic latching structure in the GPG 2006 GFCIs to be interchangeable with the "latching means" recited in claim 1. The use of magnets as a latching means in GFCIs was well known at the filing of the '398 patent. Stolfi Tr. 1352-1353 (discussing U.S. Patent Nos. 5,173,673 (CX-471) and 5,563,756 (CX-473) which disclose magnetic latching in GFCIs); Haynes Tr. 2240 ("permanent magnets known in the art of latching structures and GFCIs in late 1980s and 1990s"); Roberge Tr. 3141 (use of permanent magnets in "latching relays" known at the filing of '398 Patent). Specifically, the prior art discloses the use of magnets to retain contacts in the closed position. Stolfi Tr. 1352-1353. Accordingly, the magnet in the GPG 2006 GFCIs is an equivalent structure of the "latching means" of the '398 Patent. Thus, the GPG 2006 GFCIs literally satisfy element (f) of claim 1. *See* Stolfi Tr. 1441-1442.

The GPG 2006 GFCIs satisfy the structure of the "actuating means" because they contain an armature, solenoid, toroidal cores and SCR. Stolfi Tr. 1353-1336. The GPG 2006 GFCIs perform the function of the "actuating means" because when the SCR is tripped in response to a differential current sensed by the toroidal cores, the solenoid armature moves away from the

magnet. When the armature breaks away from the magnet, the bias force of the coil spring surrounding the armature moves the conducting member to a second (circuit-breaking) position with respect to the pair of terminals. Stolfi Tr. 1354. Thus, the GPG 2006 GFCIs perform the identical function of “actuating means” of claim 1 using the structures described in the ‘398 patent to perform that function.

Accordingly, the GPG 2006 GFCIs satisfy all the elements of claim 1 of the ‘398 patent, and literally infringe the claim.

Further, the GPG 2006 GFCIs literally infringe claim 7 of the ‘398 patent. The “housing” of the GPG 2006 GFCIs has “a plurality of apertures for receiving the blades of an electrical plug” (a requirement of claim 6). *See* Stolfi Tr. 1354-1355. Additionally, the GPG 2006 GFCIs contain a first and second pair of electrical terminals and a first and second electrically conducting member. Stolfi Tr. 1355. Further, the block in the GPG 2006 GFCIs identified above as the “mounting means” of claim 1 has two arms extending from its center (one from each side) which permit movement of both conducting members between a circuit-making and circuit-breaking position with respect to the pair of terminals. Stolfi Tr. 1355-1356.

Accordingly, the GPG 2006 GFCIs contain each element of claim 7, and thus infringe the claim.

#### ***GPG’s 2003 GFCIs Infringe Claims 1 and 7***

Element (c) of claim 1 is “a unitary, electrically conducting member carrying a pair of spaced electrical contacts.” The GPG 2003 GFCIs contain two electrically conducting metal members each with a contact attached on one end and welded (or permanently attached) to separate braided copper cables that are each welded to a line terminal on the other end. Stolfi Tr. 1358-1363 (photos taken of electrically conducting member). Inasmuch as the two contacts,

metal members and braided cables are all permanently attached (welded) together, they form a current carrying path from the one terminal of the pair to the other. *See* Stolfi Tr. 1359; Roberge Tr. 3135-3136. Thus, the GPG 2003 GFCIs literally satisfy element (c) of claim 1.

The GPG 2003 GFCIs satisfy the structure of the “mounting means” element because they contain a “U-shaped” block with a hole through its vertical center. Stolfi Tr. 1359-1361. The GPG 2003 GFCIs perform the function of the “mounting means” because the block has an arm extending from the central body that supports the conducting member and permits the conducting member to move between a first (circuit-making) position and a second (circuit-breaking) position with respect to the pair of terminals.

When the block moves toward the solenoid in the GFCI housing, the conducting member also moves in that direction, and thus into circuit-making engagement with respect to the pair of terminals. Conversely, when the block moves away from the solenoid, the conducting member also moves away, breaking the circuit between the pair of terminals. *See* Stolfi Tr. 1360-1361; Roberge Tr. 3139. In that way, the GPG 2003 GFCIs perform the identical function of the “mounting means” of claim 1 using the structure described in the ‘398 patent for performing that function.

The GPG 2003 GFCIs satisfy the structure of element (e), the “biasing means,” because they contain a coil spring surrounding an armature. Stolfi Tr. 1363. The GPG 2003 GFCIs perform the function of the “biasing means” because the coil spring urges the conducting member into the second (circuit-breaking) position. Stolfi Tr. 1363; Roberge Tr. 3033-3034. Thus, the GPG 2003 GFCIs perform the identical function of the “biasing means” of claim 1 using the structure described in the ‘398 Patent for performing that function.

The GPG 2003 GFCIs perform the function of the “latching means” element because they contain a magnet capable of retaining an armature that is attached to the GFCI’s “mounting means.” Stolfi Tr. 1627-1628; Roberge Tr. 3045-3046. Consequently, the magnet in the GPG 2003 GFCIs performs the identical function of the “latching means” of claim 1. When the armature is retained by the magnet, the conducting member is in a first (circuit-making) position with respect to the pair of terminals. Stolfi Tr. 1627-1628; Roberge Tr. 3045.

The GPG 2003 GFCIs also satisfy the structure of the “latching means.” Specifically, the GPG 2003 GFCIs contain a structural equivalent to the “latching means” and therefore literally infringe the means-plus-function element. *See Pennwalt Corp.*, 833 F.2d at 934. For the same reasons set forth above with respect to the magnetic latch in the GPG 2006 GFCIs, the magnetic latch in the GPG 2003 GFCIs is the structural equivalent to the “latching means” of claim 1. Accordingly, the magnet in the GPG 2003 GFCIs is an equivalent structure of the “latching means” of the ‘398 patent. Thus, the GPG 2003 GFCIs literally satisfy element (f) of claim 1.

The GPG 2003 GFCIs satisfy the structure of the “actuating means” because they contain an armature, solenoid, toroidal cores and SCR. Stolfi Tr. 1365. The GPG 2003 GFCIs perform the function of the “actuating means” because when the SCR is tripped in response to a differential current sensed by the toroidal cores, the solenoid armature moves away from the magnet. When the armature breaks away from the magnet, the bias force of the coil spring surrounding the armature moves the conducting member to a second (circuit-breaking) position with respect to the pair of terminals. Stolfi Tr. 1366. Hence, the GPG 2003 GFCIs perform the identical function of “actuating means” of claim 1 using the structures described in the ‘398 patent to perform that function.



Thus, the GPG 2003 GFCIs literally satisfy all the elements of claim 1 of the '398 patent. Accordingly, the GPG 2003 GFCIs infringe claim 1.

Further, the GPG 2003 GFCIs literally infringe claim 7 of the '398pPatent. The “housing” of the GPG 2003 GFCIs has “a plurality of apertures for receiving the blades of an electrical plug” (a requirement of claim 6). *See* Stolfi Tr. 1366-1367. Additionally, the GPG 2003 GFCIs contain a first and second pair of electrical terminals and a first and second electrically conducting member. Stolfi Tr. 1367-1368. The “U-shaped” block in the GPG 2003 GFCIs identified above as the “mounting means” of claim 1 has two arms extending from its center (one from each side) which permit movement of both conducting members between a circuit-making and circuit-breaking position with respect to the pair of terminals. Stolfi Tr. 1367-1368. Thus, the GPG 2003 GFCIs contain each element of claim 7, and thus infringe the claim.

***Trimone's 2006 GFCIs Infringe Claims 1, 7, and 8***

Element (c) of claim 1 is “a unitary, electrically conducting member carrying a pair of spaced electrical contacts.” The Trimone 2006 GFCIs contain a “moveable contact arm” with an electrical contact fixed at both ends. *See* Stolfi Tr. 1375-1377. Thus, the Trimone 2006 GFCIs satisfy element (c) of claim 1.

The Trimone 2006 GFCIs satisfy the structure of the “mounting means” element because they contain a block with a central body and a support arm extending from the central body. Stolfi Tr. 1377. The Trimone 2006 GFCIs perform the function of the “mounting means” of claim 1 because the block and its support arm permit movement of the conducting member between a first (circuit-making) position and a second (circuit-breaking) position with respect to

the pair of terminals. Stolfi Tr. 1377-1378.

When the block moves upward toward the upper housing of the GFCI, the conducting member also moves upward and into circuit-making engagement with respect to the pair of terminals. Conversely, when the block moves back downward into the lower housing, the conducting member also moves downward breaking the circuit between the pair of terminals. Stolfi Tr. 1377-1378. Thus, the Trimone 2006 GFCIs perform the identical function of the “mounting means” of claim 1 using the structure described in the ‘398 patent to perform that function.

The Trimone 2006 GFCIs satisfy the structure of the “biasing means” element through a coil spring. Stolfi Tr. 1378-1379, 1389-1390. The Trimone 2006 GFCIs perform the function of “biasing means” because the coil spring urges the conducting member toward the second (circuit-breaking) position between the pair of terminals. Stolfi Tr. 1378-1379, 1389-1390. Thus, the Trimone 2006 GFCIs performs the identical function of the “biasing means” of claim 1 using the structure described in the ‘398 patent for performing that function.

The Trimone 2006 GFCIs satisfy the structure of the “latching means” element because they contain a reset pin with a shoulder (CX-1534), a spring surrounding the stem (CX-1535) and a latch member (CX-1533), which collectively retain the conducting member in the first (circuit-making) position with respect to the pair of terminals. This function is achieved when the shoulder of the reset pin becomes engaged with the hole in the latch member. When the shoulder becomes engaged with the latch member, the bias force of the spring surrounding the reset pin urges stem and shoulder, and thus the latch member, up toward the upper housing, which in turns urges the latch block and conducting member upward as well. The conducting

member is then retained in the first position as long as the shoulder of the reset pin is engaged with the latch member. Stolfi Tr. 1382-1383. Thus, the Trimone 2006 GFCIs perform the identical function of the “latching means” of claim 1 using the structures described in the ‘398 Patent to perform that function. Stolfi Tr. 1384-138.

The Trimone 2006 GFCIs also satisfy the structures of the “actuating means” of element (g) because they contain an armature (CX-1536), solenoid (CX-1537), toroidal cores (CX-1535) and SCR. Stolfi Tr. 1385-1387. The armature in Trimone’s 2006 GFCI is the ferrous plate that moves in response to the solenoid. *See* Stolfi Tr. 1622 (“armature is part that moves” in response to solenoid), 1626, 1635. The Trimone 2006 GFCIs perform the function of the “actuating means” because the solenoid armature moves, releasing the latch, when the SCR is tripped in response to toroidal cores sensing a differential current. Once the latch is released, the coil spring (biasing means) moves the conducting member into a second (circuit-breaking) position. Stolfi Tr. 1386. Thus, the Trimone 2006 GFCIs perform the identical function of the “actuating means” of claim 1 using the structures described in the ‘398 patent for performing that function.

Accordingly, Trimone 2006 GFCIs literally satisfy all the elements of claim 1 of the ‘398 patent and infringe the claim.

Further, the Trimone 2006 GFCIs literally infringe claims 7 and 8. The “housing” of the Trimone 2006 GFCIs has “a plurality of apertures for receiving the blades of an electrical plug” (a requirement of claim 6). *See* Stolfi Tr. 1387-1388. Additionally, the Trimone 2006 GFCIs contain first and second pairs of electrical terminals and first and second electrically conducting members each carrying a pair of spaced contacts. Further, the block in the Trimone 2006 GFCIs identified above as the “mounting means” of claim 1 has two arms extending from its center (one

from each side) which permit both conducting members to move from a circuit-making to a circuit-breaking position. Stolfi Tr. 1388-1390. Accordingly, the Trimone 2006 GFCIs contain each element of claim 7 and thus infringe the claim.

With respect to claim 8, the conducting members of the Trimone 2006 GFCIs are bus bars. Stolfi Tr. 1390. Accordingly, the Trimone 2006 GFCIs contain each element of claim 8 and thus infringe that claim as well.

### **C. Validity**

ELE argues that under P&S's proposed claim constructions (which were for the most part adopted in this Initial Determination) the asserted claims of the '398 patent are invalid as obvious in view of the prior art. In particular, ELE provides a detailed discussion and chart alleging that each element of claims 1, 6, 7 and 8 can be found in the Doyle patent (CX-33)<sup>10</sup> in combination with United States Patent Nos. 4,421,959 to Chen et al. ("the Chen patent") (RX-2099) and, or, U.S. Patent No. 4,616,117 to Kleine ("Kleine patent") (RX-2044). *See* ELE Br. at 100-113.

GPG did not brief the validity issue with respect to the '398, the '340, or the '386 patents under which it is accused of infringement. In its brief, GPG states that it "incorporates by reference as if fully set forth herein the arguments and analyses contained within the Post-Hearing Briefs of all other Respondents regarding the validity of the '398 Patent, '386 Patent, and '340 Patent." GPG Br. at 39. Essentially, GPG is simply casting its lot with the other respondents concerning alleged invalidity of the asserted claims of the '396, '386, and '340 patents.

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<sup>10</sup> As indicated, *supra*, in the section on claim construction, the Doyle patent was before the PTO examiner during prosecution of the '398 patent.

Meihao did not brief the validity of the asserted claims of the '398 patent. In fact, its expert, Dr. Horenstein, did not present evidence during the hearing on the validity question. *See* Horenstein Tr. 2826-2828.

Trimone argues that under P&S's proposed claim constructions (which, as noted, were for the most part adopted herein) claims 1 and 6 through 8 of the '398 patent would be invalid in view of the elements disclosed in the Van Haaren patent<sup>11</sup> and known "contactor relay devices" which have freestanding bus bars with spaced apart contacts. Along with ELE, Trimone also refers to the Kleine patent, U.S. Patent No. 4,523,165 to Schedele ("the Schedele patent") (RX-4109), and U.S. Patent No. 4,044,395 issued to Eckart et al. ("the Eckart patent") (RX-4030). *See* Trimone Br. at 53-58.

The Staff argues that under its construction of "unitary, electrically conducting member," Doyle does not anticipate. Staff Br. at 83. The Staff also argues that it has not been shown by clear and convincing evidence that the asserted claims of the '398 patent are obvious. Staff Br. at 94.

P&S denies that any claim of the '398 patent is invalid. *See* P&S Br. at 76-94.

At the outset, it must be appreciated that the Doyle patent and Van Haaren patent, which figure dominantly in respondents' arguments, were before and considered by the PTO during the prosecution of the '398 patent.<sup>12</sup> Furthermore, Chen, Kleine and Schedele are patents based on a

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<sup>11</sup> As indicated, *supra*, in the discussion of claim construction, the Van Haaren patent was before the examiner during prosecution of the '398 patent.

<sup>12</sup> *See* CX-9 ('398 prosecution history) at PS-ITC 336669-672. The PTO allowed the claims of the '398 patent over the Doyle and Van Haaren patents. Thus, inasmuch as these patents were expressly considered by the PTO during prosecution of the '398 patent, respondents  
(continued...)

very different application than the '398 patent – they are based on what P&S calls “contactor art.” Indeed, as discussed further below, the prior taught away from the combination of art proposed by respondents.<sup>13</sup> In addition, P&S sets forth substantial objective evidence of nonobviousness. Consequently, it is not found that the asserted claims of the '398 patent are invalid.

P&S does appear, at least tacitly, to concede that one could find each of the elements of the asserted '398 patent claims in the prior art. Yet, respondents must concede that no single prior art reference contains all elements inasmuch as they have chosen a defense of obviousness rather than anticipation. In fact, the record shows that each reference is found to be lacking when compared to the '398 patent. With respect to claim 1 of the '398 patent, the Doyle and Van Haaren patents fail to disclose or suggest a ground fault interrupter wiring device for connection in an electrical circuit having a “unitary, electrically conducting member carrying a pair of spaced electrical contacts,” as required by that claim.<sup>14</sup> Instead, the Doyle patent includes a pair of conductive members 462 each carrying a single contact 466. Stolfi Tr. 32. Likewise, the Van

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<sup>12</sup>(...continued)

have a more difficult task in proving invalidity by clear and convincing evidence based on those references. *Al-Site Corp. v. VSI Int'l, Inc.*, 174 F.3d 1308, 1323 (Fed. Cir. 1999) (“[T]he challenger’s ‘burden is especially difficult when the prior art was before the PTO examiner during prosecution of the application.’”).

<sup>13</sup> The Supreme Court redirected several aspects of the law of obviousness in its *KSR* opinion. Nevertheless, in that opinion the Court recognized the long-held appreciation that “when the prior art teaches away from combining certain known elements, discovery of a successful means of combining them is more likely to be nonobvious.” See *KSR*, 127 S.Ct. at 1740 (citing *United States v. Adams*, 383 U.S. 39, 52 (1966)).

<sup>14</sup> Claim 7 and 8 depend from claim 1 and require the same “unitary, electrically conducting member carrying a pair of spaced electrical contacts.”

Haaren patent includes a pair of conductor straps 16 each carrying a single contact 12. Stolfi Tr. 3211. Thus, respondents must look to additional art.

However, the Chen, Kleine and Schedele patents involve contactors, not GFCIs, and thus do not satisfy the preamble of claim 1 for a GFCI. *See* Stolfi Tr. 3210, 3225-3228.<sup>15</sup> When the contacts are closed, the arcing contacts make contact first and when the contacts are opened, the arcing contacts break contact first. Thus, the arcing contacts absorb the effects of arcing during the make and break cycles protecting and preserving the main contacts. The teaching of Chen is that the main and arcing contacts should be used together in each conducting path and should not be separated. Stolfi Tr. 3225-3228; RX-2099 (the Chen patent) at col. 2, ll. 19-24, col. 55, ll. 12.

The Eckart patent even distinguishes GFCIs and contactors. The Eckart patent teaches a

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<sup>15</sup> Contactors are much different products from GFCIs and involve entirely different design constraints than GFCIs. *See* Stolfi Tr. 3223-3225, 3246-3247; Packard Tr. 658. As such, contactors are non-analogous and not properly combinable with GFCI art.

As an initial matter, contactors are much more expensive than GFCIs and typically are much larger and heavier than GFCIs. Stolfi Tr. 3223-3225; Packard Tr. 658. More importantly, contactors are typically used to repetitively make and break electrical connections. Stolfi Tr. 3223-3225; Packard Tr. 658. For repetitive operations of the type required by a contactor an electrically conductive member with two contacts is a better design alternative than a flexible arm with a single contact as had been used in the prior art Doyle and Van Haaren patents. Stolfi Tr. 3223-3225; Packard Tr. 658. In contrast, GFCIs typically are tested no more than once a month and trip even less frequently, so metal fatigue resulting from repetitive operations is not of the same concern. Stolfi Tr. 3223-3225; Packard Tr. 658. Contactors generally involve many different types of current loads and/or voltage loads than GFCIs and therefore the design constraints associated with contactors differ from the design constraints associated with GFCIs. Stolfi Tr. 3223-3225; Packard Tr. 658; Mernyk Tr. 2754 (contactors “would only be used in high current”); Haynes Tr. 2185 (contactors “typically carry large currents”). Contactors do not include sensing circuitry such as the GFCI ground fault and neutral fault detection circuits. Stolfi Tr. 3223-3225; Packard Tr. 658. GFCI technology requires higher break speed operations than contactors. Stolfi Tr. 3224-3225. Increasing the number of contacts on the electrically conducting member made for a larger electrically conducting member with more mass introduces the risk that the GFCI would be slower to react to faults. Indeed, P&S’s engineers do not look to the contactor art when designing GFCIs. Packard Tr. 658-659.

circuit breaker 16 and a GFCI 26. Throughout the Eckart patent, the circuit breaker 16 and GFCI 26 are referenced as separate components. *See* RX-4030 (the Eckart patent), col. 3, ll. 33-34, col. 4, ll. 13-22, Figs 1 & 2. In that regard, Dr. Stolfi explained:

[T]he teachings of this patent [the Eckart patent] seems to say that you would not put a contactor into a GFCI because what this patent teaches is that item 26 is actually the GFCI, and item 16 is actually the contactor, and the way this works is you connect the electrical service to, you know, one side of the GFCI, and then the load terminals of the GFCI that actually goes through the solenoid 22, the solenoid of the contactor.

And then when the GFCI detects a ground fault, then the connection is broken to the load side of the GFCI, which de-energizes the solenoid 22 and then opens the contacts, *and so this actually teaches that you wouldn't put the contactor in the GFCI, it would be two separate elements.*

Stolfi, Tr. 3228-3229 (emphasis added)..

In any event, respondents have provided no reason to make the combination of prior art references. ELE's expert, Mr. Haynes, testified that certain contact structures (conducting members with two contacts) were well known in the 1990s. Haynes Tr. 2191, 2207. Similarly, Trimone's expert, Mr. Mernyk, testified that these contact structures were well known in contactors. Mernyk Tr. 2753. However, the fact that those contact structures were allegedly known for many years, but never applied to GFCIs, is evidence that there was no reason to make the combination proposed by respondents and that a person of ordinary skill in the art would not have made such a combination.

Indeed, the record shows that a person of ordinary skill in the art would not have modified respondents' primary references (the Doyle and Van Haaren patents) to incorporate the structures shown in respondents' secondary references (the Chen, Kleine, and Schedele patents).



The prior art affirmatively taught away from making the combination of references proposed by respondents. In particular, significant design and manufacturing concerns would have deterred a person of ordinary skill in the art from modifying the Doyle and Van Haaren patents by making the combinations proposed by respondents, such as: (1) the material costs associated with the use of an additional two contact sets having four contacts in the GFCI described and claimed in the '398 patent; (2) increased mechanical and electrical complexity introduced by the additional two contact sets in the GFCI of the '398 patent; (3) the additional heat load generated by the additional two contact sets in the GFCI of the '398 patent; (4) the additional contact forces required by the additional two contact sets in the GFCI of the '398 patent; and (5) contact resistance, contact wiping, contact bounce and contact alignment issues created by the additional two contact sets in the GFCI of the '398 Patent. *See* Stolfi Tr. 3211-3215, 3216-3217, 3219-3223.

Additionally, there also is objective evidence showing that the '398 patent is not invalid for obviousness, most notably respondents' widespread infringement of P&S's '398 patent.

Accordingly, it has not been established by clear and convincing evidence that the asserted claims of the '398 patent are invalid due to obviousness.

## **V. U.S. Patent No. 7,283,340**

### **A. Claim Construction**

United States Patent No. 7,283,340, entitled "Electrical Wiring Device," issued on October 16, 2007, to David A. Findlay, Sr. and Thomas N. Packard, and was assigned to P&S. CX-8 (the '340 patent). The '340 patent, as well as the '386 patent which is construed in a subsequent section, relate to protection against miswiring. CX-6 ('386 patent) at col. 2, ll. 22-24;

CX-8 ('340 patent) at col. 2, ll. 21-24; Harman Tr. 89. The patents are siblings because both of them claim priority to a series of three earlier filed applications and incorporate them by reference. CX-6 ('386 patent) at col. 1, ll. 6-17; CX-8 ('340 patent) at col. 1, ll. 6-14. Their ultimate parent is U.S. Application No. 09/718,003, filed on November 21, 2000, which issued as U.S. Patent No. 6,522,510 ("the '510 patent"). *See* CX-6 ('386 patent); CX-8 ('340 patent). The inventors of the '340 patent are also the inventors listed on the '386 patent (although in that case along with Richard Weeks). All of the inventors testified at the hearing.

The Background portion of the '340 patent specification provides a detailed tutorial on the subject of ground faults and GFCI devices. It also discusses the miswiring problem addressed above in section I.B.1 of this Initial Determination, including the fact that wiring instructions may be ignored by an installer. *See Id.*, col. 1, l. 18 - col. 2, l. 24. The specification summarizes the claimed invention, as follows:

The present invention addresses the needs described above by providing a protective device that detects the wiring state of the device and inhibits device operation if the device is miswired. The protective device of the present invention also has an indicator lamp which lights when the device is in the tripped condition and turns off when the device is reset. If the device is miswired after having been wired properly, the indicator lamp does not light when the device is tripped, and so provides a supplemental indication of miswiring. The protection circuit is powered from the hot line bus bar. The indicator lamp is also powered via the hot line bus bar of the interrupting contacts to meet safety standards. The protective device of the present invention also includes circuitry that more effectively guards against damage from transient voltage surges.

One aspect of the present invention is directed to a protective device that includes a plurality of line terminals and a plurality of load terminals. A wiring state detection circuit is configured to detect a wiring state associated with the plurality of line terminals and the plurality of load terminals. A fault detection circuit is

coupled to the plurality of line terminals and configured to generate a fault detection signal in response to detecting at least one fault condition. A circuit interrupter is coupled to the fault detection circuit. The circuit interrupter includes four sets of interrupting contacts configured to provide electrical continuity at least between the hot line terminal and the hot load terminal and the neutral line terminal and the neutral load terminal in a reset state. The four sets of interrupting contacts are open in a tripped state.

In another aspect, the present invention is directed to a electrical wiring device that includes line terminals and load terminals. At least one detection circuit is coupled to the line terminals and/or the load terminals. The at least one detection circuit is configured to generate a predetermined signal in response to detecting a wiring condition. The predetermined signal does not simulate a fault condition. An interrupting contact assembly is coupled to the at least one detection circuit. The interrupting contact assembly includes four sets of interrupting contacts that are configured to provide electrical continuity between the line terminals and the load terminals in a closed state and configured to interrupt the electrical continuity in an open state. The interrupting contact assembly is in the open state absent the predetermined signal being provided by the at least one detection circuit.

Additional features and advantages of the invention will be set forth in the detailed description which follows, and in part will be readily apparent to those skilled in the art from that description or recognized by practicing the invention as described herein, including the detailed description which follows, the claims, as well as the appended drawings.

It is to be understood that both the foregoing general description and the following detailed description are merely exemplary of the invention, and are intended to provide an overview or framework for understanding the nature and character of the invention as it is claimed. The accompanying drawings are included to provide a further understanding of the invention, and are incorporated in and constitute a part of this specification. The drawings illustrate various embodiments of the invention, and together with the description serve to explain the principles and operation of the invention.

*Id.*, col. 2, l. 28 - col. 3, l. 23.

As enumerated above (*see* section I.B.2), P&S asserts claims 14, 18, and 30 of the '340 patent in this investigation. Independent claim 14, dependent claim 18 and independent claim 30 provide as follows:

**14.** An electrical wiring device comprising:

line terminals and load terminals;

at least one detection circuit including a circuit segment coupled between the line terminals and configured to generate a predetermined signal in response to detecting a proper wiring condition, the predetermined signal not simulating a fault condition, a proper wiring condition being effected when the line terminals are connected to a source of AC power; and

an interrupting contact assembly coupled to the at least one detection circuit, the interrupting contact assembly including four sets of interrupting contacts that are configured to provide electrical continuity between the line terminals and the load terminals in a reset state and configured to interrupt the electrical continuity in tripped state, the interrupting contact assembly being substantially prevented from effecting the reset state absent the predetermined signal being generated by the at least one detection circuit.

**18.** The device of claim **14**, wherein the at least one detection circuit includes a wiring state detection circuit configured to generate the predetermined signal.

**30.** An electrical wiring device comprising:

a plurality of line terminals and a plurality of load terminals;

a ground fault detection circuit coupled to the plurality of line terminals and the plurality of load terminals;

a wiring state detection circuit coupled to the plurality of line terminals and configured to generate a predetermined response when the plurality of line terminals are properly connected to a source of AC power, the wiring state detection circuit being permanently disabled after the occurrence of the predetermined

response;

a solenoid coil coupled to the wiring state detection circuit; and

a circuit interrupter including four sets of interrupting contacts configured to provide electrical continuity between the plurality of line terminals and the plurality of load terminals in a reset state and decouple the four sets of interrupting contacts in a tripped state, the circuit interrupter being substantially prevented from effecting the reset state until an occurrence of the predetermined response.

*Id.*, col 10, ll. 7-25; col. 10, ll. 34-36; col. 11, l. 16 - col. 17, l. 5.

Several claim terms of the '340 patent are in dispute. Each is discussed below.

***“detection circuit”***

P&S argues that the term “detection circuit” should be construed as “at least one detection circuit having a circuit segment connected between the line terminals and configured to generate a predetermined signal in response to detecting a proper wiring condition, which occurs when the line terminals are connected to a source of AC power.” Compl. Br. at 98.

ELE argues that its accused devices do not detect their wiring condition as required by the asserted claims, and responds to P&S’s allegations based on its proposed claim construction. ELE bases its argument in part on what it means to “detect” something, as explained by its expert and Webster’s Collegiate Dictionary. However, with respect to this claim term and others used in the '340 patent, as well as the '386 patent to be construed below, ELE does not set forth a set of specific proposed claim constructions independently of the infringement issues. *See* ELE Br. at 114-116 ('340 patent), 42-52 ('386 patent).

ELE’s failure to set forth specific claim constructions is problematic. First, this approach provides no clear argument, or record citation, that can be used in construing the disputed claims.

Second, if one were to adopt ELE's arguments, there is a danger of construing claim terms with reference to the preferred embodiment or the accused devices, rather than the claims themselves – a practice that is reversible error because it eschews the cardinal principles of claim construction. *See Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1347 (Fed. Cir. 2003).<sup>16</sup>

As for GPG, it has combined claim construction and infringement issues in the same sections of its brief. However, GPG's claim construction arguments appear, at least in most cases, to be set apart logically, stylistically and with respect to citations to evidence. Thus, its proposed claim construction may be evaluated independently of its infringement analysis. With respect to the detection circuit of the '340 patent, GPG argues that while P&S's expert, Dr. Harman, testified that in the detection circuit the predetermined signal is generated when AC power is applied to the line terminal, its own expert added only the requirement that the signal be generated only when the line terminals are connected. Thus, GPG states, "for the purposes of the temporal aspect of this limitation, the meanings are synonymous." GPG Br. at 31.

Trimone argues that "[t]he limitation 'at least one detection circuit' means that the circuit must 'discover or determine the existence, presence or fact' of proper wiring." Trimone Br. at 71 (citing Engel Tr. 2475). It further argues that "[w]hat the circuit 'detects' may be understood by reference to the remaining limitations of claim 14, which read: the 'at least one detection circuit'

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<sup>16</sup> P&S correctly notes the difficulties caused by ELE's approach to some of the claim construction issues. *See* Compl. Reply at 40 ("ELE fails to provide explicit constructions, as legally required.") ('340 patent), 73 ("ELE's jumbled argument, addressing limitations in a different order than they appear in the claim and switching back-and-forth between disclosed embodiments and accused products without stating constructions, is improper.") ('386 patent), ("ELE should have expressly construed the claims and compared the claims, as construed, to its devices").

must be ‘configured to generate a predetermined signal in response to detecting a proper wiring condition.’” *Id.* (citing CX-8 (the ‘340 patent) at col. 10, ll. 9-15).

According to the claim’s plain language, the “detection circuit” operates by generating a “predetermined signal” in response to a proper wiring condition.<sup>17</sup> P&S’s expert, Dr. Harman, pointed out on cross-examination that the concept of “detection” is well understood in the context of circuits. In that regard, a circuit reacts in a particular way to a particular stimulus. Harman Tr. 1036-1040. The claimed circuit performs “detection” by providing the “predetermined signal” when properly wired, not when miswired. *See* CX-8 (‘340 patent) at col. 7, ll. 20-26. Furthermore, neither P&S, nor its expert, imposed a temporal restraint on when the “predetermined signal” is generated because it would have no basis in the claim language. Unlike respondents, they do not propose a construction that would exclude embodiments disclosed in the patent. *See* Engel Tr. 2560-2561.<sup>18</sup>

Accordingly, “detection circuit” is construed to mean “at least one detection circuit having a circuit segment connected between the line terminals and configured to generate a predetermined signal in response to detecting a proper wiring condition, which occurs when the line terminals are connected to a source of AC power.”

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<sup>17</sup> Rather than relying on a dictionary definition, “the context in which a term is used in the asserted claim can be highly instructive” and can provide “a firm basis for construing the term.” *Phillips*, 415 F.3d at 1314.

<sup>18</sup> *See OSRAM GmbH v. Int’l Trade Comm’n*, 505 F.3d 1351, 1358 (Fed. Cir. 2007) (finding its conclusion that the Commission’s claim construction was incorrect reinforced by the fact that it would exclude the preferred embodiment); *MBO Labs., Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007) (finding two constructions incorrect because they excluded preferred embodiments, stating, “[A] claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.”).

***“a circuit segment coupled between the line terminals”***

P&S argues that “a circuit segment coupled between the line terminals” should be construed to mean “connected between the line terminals, either directly or indirectly.” Compl. Br. at 104.

Meihao argues that “coupled between” means “directly coupled to or linked to,” as defined in the ‘386 patent, which is incorporated by reference. Meihao Br. at 113. It submits that inasmuch as the ‘340 patent is a continuation of U.S. Patent No. 6,522,510 (“the ‘510 patent”), and P&S claims priority, the term “circuit segment” can only mean the fuse resistor segment that is shown in all embodiments of the ‘510 patent. *Id.* Meihao further argues that the “predetermined signal” is a current pulse of sufficient duration to allow the resistor to burn out, which is consistent with a “one-shot” circuit as disclosed in the ‘510 patent. *Id.* at 113-14.

Trimone argues that “[t]he limitation ‘a circuit segment coupled between the line terminals’ as recited in claim 14 means that the detection circuit includes a circuit segment that must be electrically connected between the hot line terminal and the neutral line terminal.” Trimone Br. at 72-73 (citing Mernyk Tr. 2766-2767). It further argues that “[t]he purpose of this claim limitation is to indicate where the circuit segment is located in the claimed device.” *Id.* at 73.

The Staff argues that the phrase “coupled between the line terminals” allows for a direct or indirect connection. The Staff disagrees with a proposed construction that requires direct electrical connection between the line terminals. *See* Staff Br. at 45.

As a general matter, the term “coupled” in electrical circuit design indicates that components are associated in some sense. Coupling can be accomplished directly, or indirectly,



through intervening components. Generally, coupling can be achieved in many ways, even in some electrical applications by way of a magnetic field. Harman Tr. 833. With respect to the ‘340 patent, the limitation on coupling proposed by Meihao and Trimone does not find support in the claims, specification, or prosecution history, including CX-16 (‘340 prosecution history) at 414733, a portion of the history whose statements are ambiguous at best.<sup>19</sup> In contrast, the construction proposed by P&S through its expert is consistent with the claim language and the embodiments disclosed in the specification. *See* Harman Tr. 832-834.

Consequently, “a circuit segment coupled between the line terminals” is construed to mean “connected between the line terminals, either directly or indirectly.”

***“a predetermined signal in response to detecting a proper wiring condition, the predetermined signal not simulating a fault condition”***

P&S argues that “a predetermined signal in response to detecting a proper wiring condition, the predetermined signal not simulating a fault condition” should be construed to mean “a signal set in advance of device installation that does not simulate a fault condition.”

Compl. Br. at 108.

Meihao argues that the phrase “not simulating a fault conditions” means “not generating a leakage current to pass through the differential transformer.” Meihao Br. at 114 (citing Horenstein Tr. 2950).

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<sup>19</sup> During prosecution, the applicants replaced “coupled to the line terminals and/or the load terminals” with “coupled between the line terminals.” CX-16 (‘340 prosecution history) at 414733. Thus, they may have surrendered the concept of coupling to the load terminals. Nevertheless, such a change does not surrender the ordinary meaning of the term “coupled,” and cannot be used to narrow the scope of the claim with respect to the way in which components are coupled.

Trimone argues that a “predetermined signal” in this instance may be understood by referring to the elements of claim 14. Trimone refers also to the testimony of its expert to the effect that “this one detection circuit produces a predetermined signal, that signal is not the fault signal, it’s not the wiring state detection signal, it’s the clearing.” Trimone Br. at 76 (Mernyk Tr. 2769-2770).

As explained during the hearing, the predetermined signal is a signal set in advance of device installation that does not simulate a fault condition. Of course, a ground fault current could not be a predetermined signal because if it occurs, it occurs randomly. In any event, the predetermined signal will not be associated with the toroids (differential transformers) or the sensing coils. Harman Tr. 831-833.

Accordingly, “a predetermined signal in response to detecting a proper wiring condition, the predetermined signal not simulating a fault condition” is construed to mean “a signal set in advance of device installation that does not simulate a fault condition.”

***“four sets of interrupting contacts”***

P&S argues the “four sets of interrupting contacts” should be construed to mean “four pairs of electrical contacts that can separate from each other to interrupt the flow of electricity.” Compl. Br. at 112.

ELE does not explicitly construe the claim term, but apparently seeks to limit it to “bus bars.” ELE Br. at 119-22 (quoting Engel Tr. 2505).

Meihao argues that this term means “a pair of bus bars with contacts located on both the bus bars and the power lines at the four contact points” because that is the only configuration that

can yield four sets of interrupting contacts in the '510 patent. Meihao Br. at 115 (citing Horenstein Tr. 2951).

Trimone argues that the “four sets of interrupting contacts” recited in claim 14 “means that four sets of contacts provide electrical continuity in the tripped state.” Trimone Br. at 78 (citing Mernyk Tr. 2776). Trimone further argues that the term “load terminals” as claimed cannot include the outlets/receptacles of the GFCI. *Id.* at 79.

The Staff argues that the phrase “four sets of contacts” should be given its plain and ordinary meaning, which is broader than that proposed by respondents. *See* Staff Br. at 46.

There is nothing in the intrinsic evidence to limit the “four sets of interrupting contacts” to a bus bar. In addition, the testimony of multiple witnesses confirms that outlets/receptacles have load terminals. *See* Harman Tr. 892; Horenstein Tr. 2978-2979; Osterbrock Tr. 776-778, 780. The fact that one would be unlikely to miswire a GFCI by wiring AC power to the outlets/receptacles does not preclude them from being considered “load terminals” in the context of miswiring protection.

Consequently, P&S’s proposed construction is adopted, and thus “four sets of interrupting contacts” is construed to mean “four pairs of electrical contacts that can separate from each other to interrupt the flow of electricity.”

***“the interrupting contact assembly being substantially prevented from effecting the reset state absent the predetermined signal”***

P&S argues that “the interrupting contact assembly being substantially prevented from effecting the reset state absent the predetermined signal” should be construed to mean “the interrupting contact assembly being largely, but not necessarily wholly, prevented from effecting

the reset state absent the predetermined signal.” Compl. Br. at 115.

Trimone argues that “substantially prevented from effecting the reset state absent the predetermined signal” means “that the GFCI must trip absent the predetermined signal.”

Trimone Br. at 80 (citing Mernyk Tr. 2771-2772).

The Staff focuses upon a comment made by the PTO examiner. The PTO examiner stated that claim 14 was allowable because it claimed, *inter alia*, “an interrupting contact assembly coupled to the at least one detection circuit interrupt continuity between the line terminals and the load terminals in the absence of the predetermined signal being generated by the at least one detection circuit . . . .” RX-4092 (allowance) at 3. The Staff argues that although the PTO examiner during prosecution of the ‘340 patent may have made statements that respondents view as narrowing the scope of claim 14, the Federal Circuit has held that while statements about a claim term made by an examiner during prosecution may be evidence of how one of skill in the art understood the term at the time the application was filed, such statements alone do not amount to a clear and unmistakable disavowal of claim scope by the applicant. Staff Br. at 48 (citing *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1347-1348 (Fed. Cir. 2005)). Based on the claim language and the statements made by the applicants (or lack thereof), the Staff does not believe that claim 14 requires any action upon miswiring. *See* Staff Br. at 47-48.

The undersigned concurs with the Staff, based on the prosecution history as analyzed by the Staff, and in view of the prevailing law concerning the need of clear disavowal of subject matter by a patentee. Further, the interrupting contact assembly set forth in claim 14 does not cause tripping of the electrical wiring device in the absence of the predetermined signal. *See*

Harman Tr. 835-836, 1116-1117.

Accordingly, “the interrupting contact assembly being substantially prevented from effecting the reset state absent the predetermined signal” is construed to mean “the interrupting contact assembly being largely, but not necessarily wholly, prevented from effecting the reset state absent the predetermined signal.”

### **B. Infringement Determination**

P&S has set forth evidence concerning all limitations of the asserted claims, even those whose construction was not in dispute. Many of respondents’ arguments against a finding of infringement are based on their proposed claim constructions that were rejected in favor of those proposed by P&S. Each of the accused products is discussed below with a particular emphasis on those claim limitations that are in dispute.

#### ***ELE’s 2006 GFCIs Infringe Claims 14, 18, and 30***

P&S’s expert, Dr. Harman, testified that the 2006 ELE GFCI infringes claim 14. Harman Tr. 840. Dr. Harman used ELE’s own circuit schematic (CX-275-C at ELE-ITC-1948) to explain this infringement. In particular, the 2006 ELE GFCI reads on the claim limitation reciting line and load terminals. Harman Tr. 842-844; *see* CX-275-C (design documents) at ELE-ITC-1948. The 2006 ELE GFCI also reads on the “at least one detection circuit” limitation. Harman Tr. 844-845. Dr. Harman testified that the detection circuit illustrated is coupled between the line terminals. Harman Tr. 845. This circuit provides a predetermined signal upon proper wiring, and this signal does not simulate a fault condition. Harman Tr. 846.

The 2006 ELE GFCI also reads on the “interrupting contact assembly” limitation. Harman Tr. 848. The 2006 ELE GFCI includes four sets of interrupting contacts that are closed

in the reset state to allow electrical continuity between the line terminals and the load terminals, and that are open in the tripped state. Harman Tr. 848-850; Li Tr. 2035. With respect to the part of the limitation reciting the “interrupting contact assembly being substantially prevented from effecting the reset state absent the predetermined signal generated by the at least one detection circuit,” the 2006 ELE GFCI cannot be reset absent the predetermined signal through the detection circuit. Harman Tr. 849-850, 1048-1052, 1067-1068.

With respect to claim 18, the 2006 ELE GFCI meets the limitation added by this dependent claim (*i.e.*, “at least one detection circuit includes a wiring state detection circuit configured to generate the predetermined signal”). Here, the evidence shows that the 2006 ELE GFCI devices that satisfy claim 14 also satisfy claim 18 because they all have a “wiring state detection circuit.” Harman Tr. 983-984. Wiring state detection circuitry figures prominently in the ‘386 patent, which also is asserted by P&S. It is in connection with the ‘386 patent that much of the argument and evidence relating to this topic was developed. The presence of the “wiring state detection circuit” in the accused devices is specifically addressed in the section of this Initial Determination pertaining specifically to the ‘386 patent, in which the wiring state detection circuitry is discussed in detail.

The 2006 ELE GFCI also reads on independent claim 30. Harman Tr. 1007-1008. Like claims 14 and 18, claim 30 recites line and load terminals, a wiring state detection circuit limitation, and a circuit interrupter limitation. Claim 30 also recites a ground fault detection circuit coupled to the plurality of line terminals and the plurality of load terminals. P&S’s expert, Dr. Harman, identified the ground fault detection circuit when he was explaining how the 2006 ELE GFCI infringes claim 1 of the ‘386 patent. *See* Harman Tr. 929-930. Claim 30 also

recites a solenoid coil coupled to the wiring state detection circuit. Again, Dr. Harman identified this solenoid coil when he was addressing infringement of claim 1 of the '386 patent by the 2006 ELE GFCI and described its relationship with the wiring state detection circuit. *See* Harman Tr. 932-933.

With respect to the part of the “wiring state detection circuit” limitation that reads “the wiring state detection circuit being permanently disabled after the occurrence of the predetermined response,” Dr. Harman explained that a switch (which is labeled S-2 in the circuit schematic CX-275-C at ELE-ITC-1948) will permanently open after the 2006 ELE GFCI is properly wired. Harman Tr. 1007-1008. ELE’s GFCI designer, Mr. Chengli Li, conceded that a buyer who installs an ELE GFCI in the wall of his home cannot reset this switch, and furthermore would not need to do so. Li Tr. 2022.

ELE’s expert, Dr. Engel, disputes that the switch is “permanently disabled” on the basis that in theory a consumer could try to reset it after taking a GFCI out of the wall. Dr. Engel conceded, however, that the switch cannot be reset when the GFCI is installed in the wall, which is in fact the intended use of the device. *See* Engel Tr. 2591.

Moreover, ELE provides no instructions to purchasers for resetting the switch. Li Tr. 2022. The purely theoretical possibility identified by Dr. Engel, which is not part of the intended use of the device, and as to which ELE submitted no evidence of actual occurrence, cannot avoid infringement.<sup>20</sup> *See Golden Blount, Inc. v. Robert H. Peterson Co.*, 438 F.3d 1354, 1363 (Fed. Cir. 2006) (“[I]t matters not that the assembled device can be manipulated into a

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<sup>20</sup> Dr. Engel never spoke to anyone at ELE in forming his opinions. He also never spoke to ELE’s GFCI designer, Mr. Li. *See* Engel Tr. 2556.

non-infringing configuration, because the instructions packaged with each device teach the infringing configuration and nothing in the record suggests that either Peterson or any end-user ignored the instructions....”).

***Meihao’s 2003 and 2006 GFCIs Infringe Claims 14 and 18***

P&S presented persuasive evidence that the 2003 Meihao GFCI infringes claim 14. *See* Harman Tr. 868. P&S’s expert used Meihao’s own patent, which Meihao represented accurately described its 2003 GFCIs, when explaining how the 2003 Meihao GFCI infringes claim 14. For example, the 2003 Meihao GFCI has line and load terminals. Harman Tr. 868-869; CX-254 at 12 (Fig. 8 of Meihao’s patent<sup>21</sup>). Also, the 2003 Meihao GFCI reads on the “at least one detection circuit” limitation of claim 14. *See* Harman Tr. 869-870.

In addition, current flow through the circuit illustrated by Dr. Harman reads on the predetermined signal recited in the claim. *See* Harman Tr. 870. The predetermined signal does not simulate a fault condition and is generated upon proper wiring of AC power to the line side and closure of a switch. Harman Tr. 871. The 2003 Meihao GFCI also satisfies the “interrupting contact assembly” limitation. In particular, the 2003 Meihao GFCI has four sets of interrupting contacts that are closed to provide electrical continuity between the line and load terminals in the reset state and that are open in the tripped state to break that continuity. Harman Tr. 872-873. The interrupting contacts can only be reset upon generation of the predetermined signal. Harman Tr. 873. The reason is that, for the 2003 Meihao GFCI to attain the reset state, current must flow through solenoid 26. The predetermined signal turns on the SCR, which allows current through flow through this solenoid. Harman Tr. 872.

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<sup>21</sup> U.S. Patent No. 7,019,952 to Huang (“the ‘952 patent”) (CX-254).



The 2006 Meihao GFCI also infringes claim 14. Harman Tr. 873-874. Dr. Harman used Meihao's own circuit schematic (CX-259-C at UL 3565) to explain this infringement. The 2006 Meihao GFCI meets the "line terminals and load terminals" limitation. Harman Tr. 876-877. The 2006 Meihao GFCI also meets the "at least one detection circuit" limitation. *See* Harman Tr. 877, 883-886. Dr. Harman identified the predetermined signal as current flowing through the detection circuit. Harman Tr. 886. This predetermined signal does not simulate a fault condition and exists when AC power is properly wired to the line terminals, an internal test has been passed, and a switch is closed through depression of the reset button. Harman Tr. 886-887.

The 2006 Meihao GFCI also meets the "interrupting contact assembly" limitation of claim 14. Harman Tr. 888-889. The Meihao 2006 GFCI includes four sets of interrupting contacts that are closed in the reset state to allow electrical continuity between the line and load terminals, and that are open in the tripped state to break that electrical continuity. Harman Tr. 888-889. It is not possible to close the contacts to reset the GFCI absent the predetermined signal because current must flow through solenoid L3 to reset the GFCI. Harman Tr. 887-890. The predetermined signal triggers SCR V23, which allows current to flow through the solenoid. Harman Tr. 883-888.

With respect to claim 18, the 2003 and 2006 Meihao GFCIs meet the sole limitation added by this dependent claim. In particular, the devices that satisfy claim 14 also satisfy claim 18 because they all have a "wiring state detection circuit." *See* Harman Tr. 983-984. The presence of the "wiring state detection circuit" in these devices is specifically addressed in the context of claim 1 of the '386 patent below.

*Trimone's 2006 GFCIs Infringe Claims 14 and 18*

The 2006 Trimone GFCI infringes claim 14. *See* Harman Tr. 851. As shown in Trimone's circuit schematic (CX-317-C), the 2006 Trimone GFCI meets the "line terminals and load terminals" limitation. Harman Tr. 851-851. The 2006 Trimone GFCI also meets the "at least one detection circuit" limitation. Harman Tr. 851-852.

The predetermined signal in the 2006 Trimone GFCI is the current flow through the circuit Dr. Harman illustrated, which does not simulate a ground fault and occurs when the line terminals of the GFCI are properly connected to a source of AC power and a switch labeled K1C is closed. Harman Tr. 853-854. The 2006 Trimone GFCI also meets the "interrupting contact assembly" limitation. Harman Tr. 854. In particular, the 2006 Trimone GFCI has four sets of interrupting contacts that are closed in the reset state to allow for electrical continuity between the line and load sides of the GFCI and that are opened in the tripped state so that no current can flow from the line side to the load side. Harman Tr. 854-855. With respect to the part of the limitation reading "the interrupting contact assembly being substantially prevented from effecting the reset state absent the predetermined signal," it is not possible to close the contacts to reset the GFCI without the predetermined signal. Harman Tr. 854-855.

With respect to claim 18, the 2006 Trimone GFCI also meets the sole limitation added by this dependent claim. In particular, the devices that satisfy claim 14 also satisfy claim 18 because they all have a "wiring state detection circuit." Harman Tr. 983-984. The presence of the "wiring state detection circuit" in these devices is specifically addressed below in the context of claim 1 of the '386 patent.

***GPG's 2003 and 2006 GFCIs Infringe Claims 14 and 18***

Dr. Harman testified that the 2003 GPG GFCIs infringe claim 14. *See* Harman Tr. 857. As indicated by GPG's own circuit schematic (CX-218-C at GPG 1514), the 2003 GPG GFCI meets the "line terminals and load terminals" limitation. Harman Tr. 857-858. The 2003 GPG GFCI also meets the "at least one detection circuit" limitation. Harman Tr. 858.

The current flow through this circuit is the predetermined signal. Harman Tr. 861. The predetermined signal does not simulate a ground fault. Harman Tr. 861. The 2003 GPG GFCI also meets the "interrupting contact assembly" limitation. Harman Tr. 861-862. The 2003 GPG GFCI includes four sets of interrupting contacts that are closed in the reset state to allow electrical continuity between the line and load terminals and open in the tripped state to break that continuity. Harman Tr. 861-862. With respect to the part of the limitation that reads "the interrupting contact assembly being substantially prevented from effecting the reset state absent the predetermined signal," Dr. Harman testified that it is not possible to close the contacts to reset the GFCI without the predetermined signal. *See* Harman Tr. 862. This is because the current must flow through a solenoid (labeled J1 on the GPG schematic) for the GFCI to be able to reset. Harman Tr. 862-863; CX-218C (GPG schematic) at GPG 1514. The predetermined signal turns on an SCR that allows current to flow through the solenoid J1. Harman Tr. 862-863.

The evidence also shows that the 2006 GPG GFCI infringes claim 14. *See* Harman Tr. 863-864. P&S's expert used GPG's own circuit schematic (CX-219-C at GPG 1827)<sup>22</sup> to explain this infringement. The 2006 GPG GFCI meets the "line terminals and load terminals"

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<sup>22</sup> GPG's corporate designee authenticated the documents in this exhibit as the design documents for the 2006 GPG GFCI. *See* CX-796C (H. Song Dep.) at 165-166.

limitation. *See* Harman Tr. 864-864. The 2006 GPG GFCI also meets the “at least one detection circuit” limitation. *See* Harman Tr. 864-865.

The current flow through the GPG circuit is the claimed predetermined signal. *See* Harman Tr. 866. Under normal operating conditions, current will flow through this circuit when AC power is properly wired to the line terminals and the user attempts to reset the GFCI. Harman Tr. 866. The predetermined signal does not simulate a ground fault. Harman Tr. 866. The 2006 GPG GFCI also meets the “interrupting contact assembly” limitation. *See* Harman Tr. 867-868. The GFCI includes four sets of interrupting contacts that are closed in the reset state to allow continuity between the line and the load terminals, and opens in the tripped state to break that electrical continuity. Harman Tr. 867-868. Regarding the part of the limitation reading “the interrupting contact assembly being substantially prevented from effecting the reset state absent the predetermined signal,” it is not possible to close the contacts to reset the GFCI without the predetermined signal. Harman Tr. 868. Current must flow through the solenoid J2 for the GFCI to be reset. Harman Tr. 866-867; CX-219C (GPG schematic) at GPG 1827. The predetermined signal triggers the SCR VD2, which allows current to flow through solenoid J2. Harman Tr. 866-867.

GPG’s expert, Dr. Roberge, testified that during an abnormal device operation the GPG devices do not infringe. For example, he contended that the GPG devices will produce the same signal when miswired in the reset state as when properly wired in the reset state. However, Dr. Roberge did not know that GPG’s GFCIs are sold in the tripped condition. *See* Roberge Tr. 3145. He conceded that if they were shipped in the tripped condition, which they are, as with all of respondents’ GFCIs (*see* Harman Tr. 840-841), then in order to have them miswired in the

reset state, one would have to (1) properly wire the GFCIs, (2) reset the GFCIs, (3) unwire the GFCIs, and finally (4) miswire the GFCIs.

GPG submitted no evidence that this series of events has actually occurred. *See Harman Tr. 3145-3150*. Dr. Harman testified that this would be an unrealistic operation of the device and that, in his 30 years of experience in the electrical trade, he had never heard of such a thing occurring. *Harman Tr. 1135-1137*. This is an unrealistic scenario. Such an unlikely scenario does not negate the infringement that does occur under normal operation.<sup>23</sup>

With respect to claim 18, the 2003 GPG GFCI and the 2006 GPG GFCI meet the sole limitation added by this dependent claim. Specifically, the devices that satisfy claim 14 satisfy claim 18 because they all have a “wiring state detection circuit.” *See Harman Tr. 983-984*. As explained above, the presence of the “wiring state detection circuit” in these devices is addressed in detail in the subsequent portion of this Initial Determination concerning of claim 1 of the ‘386 patent.

### **C. Validity**

ELE states that the ‘340 patent “basically combines miswire protection with a particular ‘double-break’ circuit interrupter configuration with four sets of interrupting contacts.” ELE Br. at 127. ELE argues, based on the testimony of its expert, Dr. Engel, that “this combination

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<sup>23</sup> *See z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1350 (Fed. Cir. 2007) (“[I]nfringement is not avoided merely because a non-infringing mode of operation is possible”); *Golden Blount*, 438 F.3d at 1363 (“[I]t matters not that the assembled device can be manipulated into a non-infringing configuration.”); *Hilgraeve Corp. v. Symantec Corp.*, 265 F.3d 1336, 1343 (Fed. Cir. 2001) (“We agree that tests of an accused device under unusual conditions are not necessarily relevant to an infringement analysis ... we have held that an accused device may be found to infringe if it is reasonably capable of satisfying the claim limitations, even though it may also be capable of non-infringing modes of operation.”).

would have been obvious to a person of ordinary skill in the art.” *Id.* (citing Engel Tr. 2517). ELE further argues generally about the “prior art,” and provides specific arguments only in relation to P&S’s own G3 GFCI’s (which are older than the G4 and G5 products relied on for P&S’s domestic industry case in this investigation). ELE also addresses P&S’s ‘398 patent (which, as discussed above, ELE believes to be invalid under P&S’s claim construction), U.S. Patent No. 5,600,524 to Neiger et al. (CX-94) (“the Neiger patent”) and the Kleine patent (discussed above in connection with the ‘398 patent). *See* ELE Br. at 127-133.

As discussed above in connection with the ‘398 patent, GPG did not brief the validity issues. Also, Meihao did not brief the validity question concerning the subject ‘340 patent.

Trimone argues that under P&S’s construction of claim 14 (which was adopted herein), a device cannot enter the reset state unless properly wired. Trimone asserts that under such a construction, every limitation is found in U.S. Patent No. 6,246,558 to DiSalvo et al. (“the DiSalvo patent”) (CX-64). Trimone argues that claim 14 is invalid due to obviousness (rather than anticipation). *See* Trimone Br. 90-94. Trimone concludes that claim 18 is invalid in view of DiSalvo. *See Id.* at 94-95.

The Staff argues that the evidence has not shown that the asserted claim are obvious, particularly under its proposed claim construction. *See* Staff Br. at 86-87.

P&S denies that the claims are invalid. *See* P&S Br. at 130-35.

The primary prior art references relied upon by respondents, the Neiger and DiSalvo patents, were before, and substantively considered by, the examiner during prosecution of the

'340 patent.<sup>24</sup> *See* CX-16 ('340 prosecution history) at 414674-414838. Thus, as explained above in connection with the '398 patent, respondents bear an especially heavy burden to the extent that they rely on those prior art patents. Yet, in many areas the evidence supporting respondents' arguments is quite scant or absent from the record. *See* Mernyk Tr. 2776; Engel Tr. 2515-1516. Mere attorney argument or conjecture in respondents' briefs cannot fill the evidentiary void. *See Koito Mfg. Co., LTC v. Turn-Key-Tech, LLC*, 381 F.3d 1142, 1152 (Fed. Cir. 2004) (conclusory statement by expert that prior art reference in the record invalidates the claims was not clear and convincing evidence of invalidity).

In addition, the record is clear that the type of combinations proposed by respondents run contrary to the teachings and limitation of independent claim 14 of the '340 patent, as well as the prior art. Claim 14 requires, among other things, "at least one detection circuit including a circuit segment coupled between the line terminals and configured to generate a predetermined signal in response to detecting a proper wiring condition, the predetermined signal not simulating a fault condition." Yet, Trimone must admit that the signal it identifies as the supposed "predetermined signal" in the DiSalvo patent would simulate a ground fault. *See* Trimone Br. at 92. Indeed, the DiSalvo patent discloses the use of a simulated ground fault because testing the operation of the circuits through a simulated ground fault is an important part of the disclosed design. It would be inconsistent with the teachings of DiSalvo not to use a simulated ground fault. *See* Harman Tr. 3208-3209. While Trimone may be correct that one of ordinary skill might know how to use the DiSalvo signal, the use of a simulated ground fault signal in the claimed invention of the '340

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<sup>24</sup> In fact, as pointed out by P&S, the examiner even had these references under consideration after the Supreme Court issued its opinion in the *KSR* case. P&S Br. at 130.

patent is contrary to the express language of claim 14.

Consequently, in view of the lack of clear and convincing evidence of invalidity, and the record evidence that is contrary to respondents' arguments, it is not found that any asserted claim of the '340 patent is invalid due to obviousness.

**D. Enforceability**

ELE argues that the '340 patent is unenforceable due to inequitable conduct by P&S (on behalf of the applicants) during patent prosecution before the PTO. In particular, ELE argues that P&S withheld highly material prior art from the examiner, specifically, P&S's own G3 GFCI and its own '398 patent, "both of which disclosed the four sets of interrupting contacts claimed in the '340 patent." *See* ELE Br. at 134-142.

Meihao argues that the '340 patent contains "new matter" not found in its antecedent applications, and moreover that P&S (on behalf of applicants) committed material misrepresentations concerning that fact to the PTO during prosecution of the '340 patent. Meihao further argues that P&S falsely represented a "continuation" relationship between the '340 patent and its antecedents. Thus, Meihao argues, the '340 patent cannot be enforced due to P&S's inequitable conduct. *See* Meihao Br. at 116-135.

The Staff argues that although Meihao states that the '340 claims a multi-shot approach not disclosed in the '510 parent patent, Meihao has not properly interpreted the '340 patent, and the evidence has not shown that P&S committed inequitable conduct. Staff Br. at 92.

P&S denies that the patent is unenforceable. *See* P&S Br. at 172-79.

Arguments concerning the non-disclosure of P&S's G3 products are discussed separately from those concerning "new matter" and the continuation relationship among P&S's



applications.

### ***Non-Disclosure of the P&S G3 GFCI Products***

It is undisputed that P&S did not disclose its G3 GFCI products to the PTO during prosecution of the '340 patent. P&S also admits that the '340 patent inventors Thomas Packard and David Finlay were aware of P&S's G3 product as well as P&S's '398 patent, and further that both the products and patent disclosed four sets of interrupting contacts. *See* P&S Br. at 174-75. Thus, the remaining inquiries are those of materiality and intent. *See FMC Corp. v. Manitowoc Co.*, 835 F.2d 1411, 1415 (Fed. Cir. 1987) (One who alleges a failure to disclose form of inequitable conduct must offer clear and convincing proof of: (1) prior art or information that is material; (2) knowledge chargeable to applicant of that prior art information and of its materiality; and (3) failure of the applicant to disclose the art or information resulting from an intent to mislead the PTO.); *ATD Corp., v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998) ("Materiality of the non-disclosed information, and culpable intent, must be established by clear and convincing evidence.").

A review of the parties' briefs concerning the question of materiality confirms that the record contains little direct evidence concerning the specific question of whether it is likely that a reasonable examiner would have considered the G3 or the '398 patent important in deciding whether to allow the application to issue as the '340 patent. However, a substantial portion of hearing time in this investigation was used by respondents to delve into the question of whether or not the inventors, or those acting on their behalf, acted with deceptive intent in failing to disclose the '398 patent and G3 GFCI to the PTO.

P&S's patent attorney, Daniel Malley, testified that he did not become aware of the '398

patent until late April 2007, or a couple of months before allowance of the claims. *See* Malley Tr. 2676-2677; CX-8 (prosecution history) at PS-ITC 414817. Malley's testimony indicates that he was never aware of P&S's G3 product during prosecution of the '340 patent. *See* Malley Tr. 2665-2666. He testified that he did not intentionally fail to bring the '398 patent to the attention of the examiner. Malley explained, "it didn't even occur to me to cite that patent" because he had already "disclosed the closest prior art" and because the '398 patent to "Marcou was just this mechanical device that had no circuitry and no miswire or anything." Malley Tr. 2677. Respondents fail to show why Malley's testimony should not be credited.

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Packard Tr. 526-527, 577-578; Finlay Tr. 2391-2392. The inventors therefore rely upon Packard and attorney Malley to make submissions of prior art to the PTO. Finlay Tr. 2393-2398.

Finlay testified that he provides any necessary prior art and other information to either Packard or Malley for submission to the PTO in connection with patent applications. Finlay, Tr. 2393-2400. In fact, he and Packard have worked together for over 30 years, have similar technical backgrounds, and speak to each other almost every day. Finlay Tr. 2397-2398. Finlay also testified that whenever Packard has asked him for information relevant to his patent applications, he has provided it. Finlay Tr. 2399. Finlay added that whenever he has been aware of prior art material to one of his patent applications, he has provided such art to either Packard or Malley, and that he has never intentionally failed to provide such information to them. Finlay Tr. 2400. [

] Finlay Tr. 2409-2411.

As to Packard, he could not recall why the '398 patent and G3 device were not disclosed to the examiner during prosecution of the '340 Patent application. Packard Tr. 557-559.

Overall, however, the inventors, through P&S's patent attorney, did disclose a substantial number of prior art references to the PTO in the '340 patent application, including the DiSalvo '558 and Neiger '524 patents upon which respondents rely here as their primary references supporting their invalidity positions. See CX-16 ('340 patent prosecution history) at PS-ITC 414712-717. In fact, respondents in this investigation were unable to find more pertinent references to the claims of the '340 patent than those the inventors provided to the examiner through P&S's patent attorney. Thus, the record in this investigation does not support a finding of intent specific to withhold the G3 GFCI and '398 patent to deceive the PTO. Accordingly, respondents have failed to prove by clear and convincing evidence that the '340 patent is unenforceable due to inequitable conduct for failure to disclose P&S's G3 GFCI products.

***“New Matter” and the Continuation Application***

The patent application that matured into the '340 patent claims priority to Patent Application Serial No. 10/884,304 (now U.S. Patent No. 7,133,266 (the '266 patent)), which in turn claims priority to U.S. Patent Application Serial No. 09/971,525 (now U.S. Patent No. 6,856,498 (“the '498 patent”)). CX-8 (the '340 patent); CX-16 ('340 patent prosecution history) at PS-ITC 414626. P&S admits that '498 patent is a continuation-in-part of the '510 patent which means, according to its definition, that the '498 patent application would be expected to have new matter not found in the '510 patent application, which in this case is the embodiment

illustrated in Fig. 5 of the '498 Patent. *See* P&S Reply at 62. However, the record does not support a finding of materiality with respect to any errors made before the PTO, or any intent to deceive.

In fact, the '340 patent is supported by the disclosure of the '510 patent. Figures 1-4 of the '340 patent are identical to Figures 1-4 of the '510 patent. The claims of the '340 patent are supported by these embodiments in the '510 patent and do not rely on the Figure 5 embodiment added in the '498 patent for support. Although the terms “four sets of interrupting contacts,” “wiring state detection circuit” and “proper wiring condition” were first recited in the '340 patent application, the embodiments of the '510 patent illustrate these features. Packard Tr. 468; Harman Tr. 987-991.

P&S's expert, Dr. Harman, presented evidence that the “four sets of interrupting contacts” are expressly disclosed in the '510 patent. Harman Tr. 990-991. Moreover, the “detection circuit” is disclosed in the '510 patent as well. Harman Tr. 989; Malley Tr. 2675-2676. It was also clear that the detection circuit illustrated in the '510 patent application is configured to generate a “predetermined signal” in response to detecting a “proper wiring condition.” Harman Tr. 989-990. Thus, it has not been established that the amendment of the '340 patent application in fact constituted the addition of new matter.<sup>25</sup>

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<sup>25</sup> A function or property that is inherent in the original disclosure can be expressly described in an amendment to the specification and is not new matter. *Kennecott Corp. v. Kyocera Int'l, Inc.*, 835 F.2d 1419, 1423 (Fed. Cir. 1987). An amendment that conforms the written specification to the original drawings or claims, or that clarifies something inherent in the original disclosure, does not introduce new matter. *Litton Sys., Inc. v. Whirlpool Corp.*, 728 F.2d 1423, 1438 (Fed. Cir. 1984).

There is also a lack of clear and convincing evidence concerning intent to mislead the examiner, who was at a minimum in a position to verify the proper effective filing date(s) for the claims of the '340 patent application.<sup>26</sup> Malley, the P&S prosecuting attorney, testified that he believed the '340 patent claims derive priority from the filing date of the '510 patent application and he did not add any "new matter" to the '340 patent application because all amendments were supported by the '510 patent disclosure. *See* Malley Tr. 2662, 2675-2676.

The claim in the '340 patent application that the '498 patent was a continuation of the '510 Patent was, as explained by P&S, a mistake. The '340 patent claims derive support, in any event, from the '510 patent. There is no evidence of any intent to mislead the PTO.

Accordingly, it is not found that the '340 patent is unenforceable due to inequitable conduct.

## **VI. U.S. Patent No. 7,212,386**

### **A. Claim Construction**

United States Patent No. 7,212,386, entitled "GFCI with Miswire Lockout," issued on May 1, 2007, to David A. Findlay, Thomas N. Packard and Richard Weeks, and was assigned to P&S. CX-6 (the '386 patent).

The Background portion of the specification discusses some of the problems associated

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<sup>26</sup> As set forth in P&S's opening brief, P&S acknowledges that an error was made in the priority claim stated in the '340 patent application when the '498 patent was referred to as a continuation rather than a continuation-in-part of the '510 patent. Yet, the same PTO Examiner, Boris Benenson, examined all of the '510 patent, the '498 patent, the '266 patent and the '340 patent applications. *See* CX-101 at PS-ITC 336010, CX-529 at PS-ITC 383286, CX-530 at PS-ITC 415796 and CX-8 at cover page; Malley Tr. 2655-2656. Indeed, the '498 Patent application was properly identified as a continuation-in-part during its prosecution and the PTO Examiner examined it as such. Malley Tr. 2655, CX-540 at PS-ITC 408507, 408488.

with GFCIs. In connection with the testing of the GFCI for proper wiring, the specification uses the term “multi-shot” which, along with (and in contrast to) the terms “single shot” or “one shot,” was used several times during the hearing in this investigation. The specification of the ‘386 patent states in part:

Most GFCIs have test and reset buttons having associated instructions molded into the front cover of the device. The instructions typically require the user/homeowner to push the test button monthly. When depressed, the test button generates a current to simulate a fault condition. The device is not providing ground fault protection when the reset button fails to pop out. Accordingly, the user is instructed to replace the device. However, this approach has several drawbacks. Of course, users routinely ignore the instructions printed on the cover of GFCI devices. If the device fails, the user is not aware that the device is not affording any protection. On the other hand, even if the user does press the button and discover that the device has failed, it may be some time before the user replaces the device.

Another drawback of the standard devices relates to the fact that a line-load miswire condition is often not tested by the test button. When a device is miswired, it may not protect the user from a fault condition even if it is functioning properly. The hazard will be present at the receptacle outlets even if the device is tripped. In other words, when a miswiring condition is present, the AC power is connected directly to the load terminals. The load terminals are typically connected to the user load terminals (i.e., the receptacles). When the device trips, the conductive path between the line terminals and load terminals is interrupted. However, since the load terminals and the user load terminals are still connected, the device fails to protect the user. In this case, the test and reset buttons may operate normally, giving the user a false sense of security.

In one approach that has been considered, a lock-out mechanism has been introduced such that the device will not reset if there is a line-load miswire condition. Power is denied to the load side circuit until the miswire condition is eliminated. Further, if the device is experiencing an internal fault such that the device is not operating properly, the device will likewise, not reset. One

drawback to this condition is that it provides the user a disincentive to test. In other words, the user will feel inconvenienced if the device does not work after the test button is pushed. Further, this approach fails to address the scenario described above, when users fail to routinely use the test button.

In another approach that has been considered, a fused miswire circuit is disposed in the GFCI. If the device is miswired, the circuit induces a current simulating a fault condition, and the device trips. If the device is wired properly, the circuit again induces a current simulating a fault condition, and the device again trips. However, the current continues to flow until a fuse burns out. One drawback to this approach is that the miswire detection circuit may only be used once, and is forever disabled thereafter.

What is needed is a multi-shot method for testing mis-wiring. Further, a device is needed that eliminates any hazard at the receptacle outlets when the device is tripped.

*Id.*, col. 1, l. 45 - col. 2, l. 31 (“Background of the Invention”).

In a lengthy, but informative, summary of the claimed invention, the specification provides:

The present invention address the needs described above. The present invention provides a multi-shot miswire detection circuit. Further, the present invention eliminates hazardous conditions at the receptacle outlets when the device is tripped.

One aspect of the present invention is directed to an electrical wiring protection device that includes a housing assembly having at least one line terminal and at least one load terminal partially disposed therein. A first conductive path is electrically coupled to the at least one line terminal. A second conductive path is electrically coupled to the at least one load terminal, the second conductive path being connected to the first conductive path in a reset state. A fault detection circuit is coupled to the first conductive path. The fault detection circuit is configured to generate a fault detection signal in response to detecting at least one fault condition. A wiring state detection circuit is coupled to the first conductive path. The wiring state detection circuit selectively provides a wiring state detection signal when the at

least one line terminal is coupled to a source of AC power, and not providing the wiring state detection signal otherwise. An actuator assembly is configured to provide an actuation stimulus in response to the fault detection signal or the wiring state detection signal. A circuit interrupter is coupled to the actuator assembly. The circuit interrupter is configured to disconnect the first conductive path and the second conductive path in response to the actuation stimulus.

In another aspect, the present invention is directed to an electrical wiring protection device that includes a housing assembly having at least one line terminal and at least one load terminal partially disposed therein. A first conductive path is electrically coupled to the at least one line terminal. A second conductive path is electrically coupled to the at least one load terminal, the second conductive path being connected to the first conductive path in a reset state. A fault detection circuit is coupled to the first conductive path, the fault detection circuit being configured to generate a fault detection signal in response to detecting at least one fault condition. A reset button is coupled to the at least one line terminal. A wiring state detection circuit is coupled to the reset button, the wiring state detection circuit selectively providing a wiring state detection signal when the reset button is actuated and the at least one line terminal is coupled to a source of AC power, and not providing the wiring state detection signal otherwise. An actuator assembly is configured to provide an actuation stimulus in response to the fault detection signal or the wiring state detection signal. A circuit interrupter is coupled to the actuator assembly, the circuit interrupter being configured to disconnect the first conductive path and the second conductive path in response to the actuation stimulus.

In yet another aspect, the present invention is directed to an electrical wiring protection device that includes a housing assembly including at least one line terminal and at least one load terminal partially disposed therein. A first conductive path is electrically coupled to the at least one line terminal. A second conductive path is electrically coupled to the at least one load terminal, the second conductive path being connected to the first conductive path in a reset state. A fault detection circuit is coupled to the first conductive path, the fault detection circuit being configured to generate a fault detection signal in response to detecting at least one fault condition. A reset mechanism is



coupled to the at least one line terminal. A wiring state detection circuit is coupled to the reset mechanism, the wiring state detection circuit selectively providing a wiring state detection signal when the reset mechanism is actuated and the at least one line terminal is coupled to a source of AC power, and not providing the wiring state detection signal otherwise. An actuator assembly is configured to provide an actuation stimulus in response to the fault detection signal or the wiring state detection signal. A circuit interrupter is coupled to the actuator assembly, the circuit interrupter being configured to disconnect the first conductive path and the second conductive path in response to the actuation stimulus. A reset lockout is coupled to the circuit interrupter, the reset lockout preventing the circuit interrupter from connecting the first conductive path and the second conductive path in response to an actuation of the reset mechanism in the absence of the wiring state detection signal.

In yet another aspect, the present invention is directed to a circuit interrupting device that includes a housing. A phase conductive path and a neutral conductive path are each disposed at least partially within the housing between a line side and a load side, the phase conductive path terminating at a first connection capable of being electrically connected to a source of electricity, a second connection capable of conducting electricity to at least one load and a third connection capable of conducting electricity to at least one user accessible load, and the neutral conductive path terminating at a first connection capable of being electrically connected to a source of electricity, a second connection capable of providing a neutral connection to the at least one load and a third connection capable of providing a neutral connection to the at least one user accessible load. A circuit interrupting portion is disposed within the housing and configured to cause electrical discontinuity in the phase and neutral conductive paths between the line side and the load side upon the occurrence of a predetermined condition. A reset portion is disposed at least partially within the housing and configured to reestablish electrical continuity in the phase and neutral conductive paths. The circuit interrupting device further includes a reset lockout portion that prevents reestablishing electrical continuity in the phase and neutral conductive paths if a reverse wiring condition exists. The reset portion includes a reset button and at least one reset contact which, when depressed, is capable of contacting at least a portion of the phase conductive path to cause the circuit interrupting portion to operate if the device

is properly wired. If the circuit interrupting portion is operational, the circuit interrupting portion is activated to disable the reset lockout portion and facilitate reestablishing electrical continuity in the phase and neutral conductive paths. If the reverse wiring condition exists, the circuit interrupting portion is non-operational, and the reset lockout portion remains enabled so that reestablishing electrical continuity in the phase and neutral conductive paths is prevented.

In yet another aspect, the present invention is directed to a circuit interrupting device that includes a housing. A first electrical conductive path is disposed at least partially within the housing and terminating at a first connection, the first connection being capable of electrically connecting to a source of electricity. A second electrical conductive path is disposed at least partially within the housing and terminating at a second connection, the second connection being capable of electrically connecting to at least one load when electrical continuity between the first and second electrical conductive paths is made. A third electrical conductive path is disposed at least partially within the housing and terminating at a third connection, the third connection being capable of electrically connecting to at least one user accessible load when electrical continuity between the first and third electrical conductive paths is made. A circuit interrupting portion is disposed within the housing and configured to break electrical continuity between the first and second conductive paths and between the first and third conductive paths upon the occurrence of a predetermined condition. A reset portion is disposed at least partially within the housing and configured to make electrical continuity between the first and second conductive paths and between the first and third conductive paths. The circuit interrupting device further comprises a reset lockout portion that prevents the making of electrical continuity between the first and second conductive paths and between the first and third conductive paths, if the circuit interrupting portion is non-operational. The reset portion includes a reset button and at least one reset contact which when depressed is capable of contacting at least a portion of one of the first or second conductive paths to cause the circuit interrupting portion to operate if the device is properly wired. If the circuit interrupting portion is operational, the circuit interrupting portion is activated to disable the reset lockout portion and facilitate making of electrical continuity between the first and second conductive paths and between the first and third conductive

paths. If the device is reverse wired the circuit interrupting portion is non-operational, the reset lockout portion remains enabled so that making of electrical continuity between the first and second conductive paths and between the first and third conductive paths is prevented.

In yet another aspect, the present invention is directed to a circuit interrupting device that includes a housing. At least one input conductor is disposed at least partially within the housing and capable of being electrically connected to a source of electricity. At least one output conductor is disposed within the housing and capable of conducting electrical current to a load when electrically connected to the at least one input conductor. A circuit interrupter is disposed within the housing and configured to break the electrical connection between the input and output conductors in response to the occurrence of a predetermined condition. A reset lock-out is operable between a lock-out position wherein the reset lock-out inhibits resetting of the electrical connection between the input and output conductors, and a reset position wherein the reset lock-out does not inhibit resetting of the electrical connection between the input and output conductors. A reset mechanism is operatively associated with the reset lock-out and the circuit interrupter such that activation of the reset mechanism activates the circuit interrupter if the device is properly wired to facilitate movement of the reset lock-out from the lock-out position to the reset position by the reset mechanism, the reset mechanism does not activate the circuit interrupter if the device is reverse wired such that the reset lock-out remains in the lock-out position.

In yet another aspect, the present invention is directed to ground fault circuit interrupting device that includes a housing. At least one input conductor is disposed at least partially within the housing and capable of being electrically connected to a source of electricity. At least one output conductor is disposed within the housing and capable of conducting electrical current to a load when electrically connected to the at least one input conductor. A circuit interrupter is disposed within the housing and configured to break the electrical connection between the input and output conductors in response to the occurrence of a ground fault or test cycle. A reset mechanism includes a reset lock-out responsive to activation of the circuit interrupter so as to be movable between a lock-out position wherein the reset lock-out inhibits resetting of the electrical connection between the input and output conductors and

a reset position wherein the reset lock-out does not inhibit resetting of the electrical connection between the input and output conductors. An actuation of the reset mechanism in a proper wiring condition activates the circuit interrupter to facilitate movement of the reset lock-out from the lock-out position to the reset position by the reset mechanism and resets the electrical connection between the input and output conductors. An actuation of the reset mechanism in a reverse wiring condition does not activate the circuit interrupter to facilitate movement of the reset lock-out from the lock-out position to the reset position.

In yet another aspect, the present invention is directed to a method for interrupting and resetting electrical connections in fault interrupting devices having a housing. An input conductor is disposed at least partially within the housing and electrically connected to a source of electricity, and an output conductor is disposed at least partially within the housing and capable of conducting electrical current to a load when electrical continuity between the input and output conductors is made. The method includes the steps of sensing the occurrence of a predefined condition; breaking electrical continuity between the input and output conductors when the predefined condition is sensed using a circuit interrupting mechanism; enabling a lock-out mechanism to inhibit the making of electrical continuity between the input and output conductors after breaking electrical continuity between the conductors; and activating a reset mechanism to activate the circuit interrupting mechanism to disable the lock-out mechanism and make electrical continuity between the input and output conductors if the input connector is coupled to AC power, and wherein the circuit interrupting mechanism is not activated if the input connector is not coupled to AC power.

In yet another aspect, the present invention is directed to a circuit interrupting device that includes a line side connection capable of being electrically connected to a source of electricity. A load side connection is capable of being electrically connected to a load side conductor for providing electricity to a load side. A user load connection is capable of conducting electricity to at least one load for providing an electrical connection to the source of electricity. A first conductive path provides an electrical connection between the line side connection and the user load connection. A second conductive path provides an electrical connection between the line side connection and the load side connection. A reset mechanism

is also included. A fault detection circuit is configured to detect a fault condition. A wiring state detector is included, separate from the fault detection circuit, the wiring state detector being configured to test for a proper wiring condition when the reset mechanism is actuated. A circuit interrupter is configured to interrupt the at least one of the first conductive path or the second conductive path when a proper wiring condition or a fault condition is detected....

*Id.*, col. 2, l. 35 - col. 6, l. 21 (“Summary of the Invention”).

As enumerated above (*see* section I.B.2), P&S asserts claim 1 of the ‘386 patent. In addition, complainant relies on claim 34 in connection with its domestic industry argument.

Claims 1 and 34 provide as follows:

1. An electrical wiring protection device comprising:

a housing assembly including at least one line terminal and at least one load terminal partially disposed therein;

a first conductive path electrically coupled to the at least one line terminal;

a second conductive path electrically coupled to the at least one load terminal, the second conductive path being connected to the first conductive path in a reset state;

a fault detection circuit coupled to the first conductive path, the fault detection circuit being configured to generate a fault detection signal in response to detecting at least one fault condition;

a wiring state detection circuit coupled to the first conductive path, the wiring state detection circuit selectively providing a wiring state detection signal when the at least one line terminal is coupled to a source of AC power;

an actuator assembly configured to provide an actuator signal in response to the fault detection signal or the wiring state detection signal; and

a circuit interrupter coupled to the actuator assembly, the circuit interrupter being configured to disconnect the first conductive path from the second conductive path in response to the actuator signal in the reset state.

34. An electrical wiring protection device comprising:

at least one line conductor;

at least one load conductor connected to the at least one line conductor in a reset state and disconnected from the at least one line conductor in a tripped state;

a fault detection circuit coupled to the at least one line conductor, the fault detection circuit being configured to generate a fault detection signal in response to a predetermined signal propagating on the at least one line conductor;

an actuator coupled to the fault detection circuit and configured to generate a stimulus in response to the fault detection signal;

a circuit interrupter configured to be driven into the tripped state in response to the stimulus;

a reset mechanism configured to drive the circuit interrupter from the tripped state into the reset state; and

a miswire detection circuit coupled to the at least one line conductor, the miswire detection circuit being configured to prevent device operation in the reset state when the at least one load conductor is coupled to AC power.

*Id.*, col. 14, ll. 43-67; col. 20, l. 51 - col. 21, l. 4.

Several terms contained in the '386 patent are in dispute. Each is discussed below.

***“coupled to”***

P&S argues that “coupled to” should be construed to mean “connected, either directly or indirectly.”

As discussed above, although the undersigned has addressed some of ELE’s arguments

that bear upon claim construction, ELE has not offered any specific claim constructions with respect to the '340 patent or the '386 patent.

Meihao argues that “coupled to” means “directly connected to or linked to.” Meihao Br. at 65 (citing Horenstein Tr. 2897, 2968-2969; Mernyk Tr. 2766-2767). *See Id.* at 65-66.

The term “coupled” was discussed in detail above in connection with the related '340 patent. The term “coupled” is a broad term in the art and it is construed to mean a connection that is direct or indirect. *See Harman Tr.* 833-834. Such a construction is consistent with the claims of the '386 patent and other intrinsic evidence.

***“a wiring state detection circuit” and “wiring state detection signal”***

P&S argues that a “wiring state detection circuit” is “a circuit that specifically detects wiring of AC power to the line terminals and selectively provides a signal when this proper wiring state is present.” P&S also argues that a “wiring state detection signal” is “a signal from the wiring state detection circuit specifically indicating proper wiring of the AC power to the line terminals.” Compl. Br. at 137.

Meihao argues that a “wiring state detection circuit” is a circuit that detects a wiring state. This wiring state includes “properly wired, reverse wired, not wired, and open neutral conditions.” Meihao Br. at 67 (citing Harman Tr. 1196-1197; Horenstein Tr. 2914-2915). Meihao also argues that the “wiring state detection circuit” should connect to the first conductive path through magnetic coupling of the differential transformer. *Id.* at 70. In addition, Meihao states that use of the term “selectively” in the phrase “selectively providing a wiring state detection signal” means that the wiring state detection circuit provides a wiring state detection

signal the first time the device is properly wired and provides no signal the subsequent times the device is installed. In other words, it is “consistent with the principle of one-shot miswire GFCI.” *Id.* at 71. Finally, Meihao argues that the “wiring state detection signal” means “a long current pulse through a fusible resistive pathway that occurs once when the device is properly wired, and a short current pulse through the same pathway that occurs when the device is miswired.” *Id.* at 72.

GPG argues that a wiring state detection circuit is “a circuit coupled to the first conductive path that specifically detects wiring of AC power to the line terminals and generates an electrical signal (the wiring state detection signal) only when the at least one line terminal is connected to a source of AC power.” GPG Br. at 34.

Trimone argues that a “wiring state detection circuit” “means a detection circuit that provides a ‘wiring state detection signal’ to trip the device, whether the device is properly wired or miswired.” Trimone Br. at 96 (citing Mernyk Tr. 2777-2778).

The Staff argues that the proper construction of a “wiring state detection circuit” is “a circuit that specifically detects wiring of AC power to the line terminals and selectively provides a signal when this proper wiring state is present.” Staff Br. at 37. The Staff further argues that a “wiring state detection signal” can be a voltage or a current. Staff Br. at 38 (citing Harman Tr. 830).

The record shows that “wiring state detection signal” could be “generated either by automatic generation or by pressing the reset button.” *See* Horenstein Tr. 2983-2986. In any event, a signal will be generated only when the wiring AC power is correctly connected to the line terminals. The claim language does not preclude the a wiring state detection signal from



servicing other purposes. The signal, in the case of a GFCI, can be generated in a tripped or reset state. *See* Harman Tr. 896-898.

Accordingly, a “wiring state detection circuit” is “a circuit that specifically detects wiring of AC power to the line terminals and selectively provides a signal when this proper wiring state is present.” Further, a “wiring state detection signal” is “a signal from the wiring state detection circuit specifically indicating proper wiring of the AC power to the line terminals.”

***“an actuator assembly configured to provide an actuator signal in response to the fault detection signal or the wiring state detection signal”***

P&S argues that “an actuator assembly configured to provide an actuator signal in response to the fault detection signal or the wiring state detection signal” should be construed to mean “an assembly including, for example, one or more SCRs and/or solenoids configured to respond to the signal indicating detection of a fault and the signal indicating detection of a proper wiring state by, in response to either one of these signals, providing a signal to drive component or components into motion, for example, a solenoid armature.” Compl. Br. at 148.

GPG states that its expert was largely in agreement with P&S’s expert during the hearing concerning the meaning of the actuator assembly. However, GPG argues that the actuator must be able to respond to the receipt of either a signal indicating a fault or a wiring detection signal by generating an actuator signal that causes the circuit interrupter to disconnect the line and load terminals when the device is in a reset state. GPG Br. at 36-37.

Trimone argues that P&S’s proposed construction fails to include the fact that the actuator assembly must also provide “a signal to drive components(s) into motion, e.g., a solenoid armature.” Trimone Br. at 97-98.

The Staff is in agreement with P&S concerning the meaning of “an actuator assembly configured to provide an actuator signal in response to the fault detection signal or the wiring state detection signal.” *See* Staff Br. at 38 (citing Harman Tr. 903-904).

One of ordinary skill recognizes that an actuator can do a number of things, including move a barrier. *See* Engel Tr. 2568-2569. There appears to be no dispute that the claimed actuator assembly performs the actions described by P&S in its proposed construction. However, the additional limitations sought to be added by respondents do not find support in the intrinsic evidence.

Thus, “an actuator assembly configured to provide an actuator signal in response to the fault detection signal or the wiring state detection signal” is construed to mean “an assembly including, for example, one or more SCRs and/or solenoids configured to respond to the signal indicating detection of a fault and the signal indicating detection of a proper wiring state by, in response to either one of these signals, providing a signal to drive component or components into motion, for example, a solenoid armature.”

***“the circuit interrupter being configured to disconnect the first conductive path from the second conductive path in response to the actuator signal in the reset state”***

P&S argues that “the circuit interrupter being configured to disconnect the first conductive path from the second conductive path in response to the actuator signal in the reset state” needs no construction. Compl. Br. at 152.

Trimone argues that this limitation “means that the device must be configured to open or trip in response to the ‘actuator signal,’ which is provided in response to the ‘wiring state detection signal.’” Trimone Br. at 98.

The Staff argues that “circuit interrupter” should be construed as “a circuit interrupter connected to the actuator assembly, which is configured to disconnect the line conductive path from the load conductive path in response to the actuator signal (from both a ground fault and a proper wiring condition) in the reset state.” Staff Br. at 39, 41.

While P&S is correct that the plain words of this limitation provide a sufficient definition of the limitation for the analyses that must be conducted in this investigation, the arguments of Trimone and the Staff need to be addressed.

Trimone’s proposed construction is rejected inasmuch as it would exclude embodiments of the patent. For example, in the disclosed embodiments, if the device were properly wired in the tripped condition, then there would be a “wiring state detection signal” that enables the device to be reset, without tripping the device. *See* CX-6 (‘386 patent) at col. 7, l. 59 - col. 8, l. 16, col. 9, ll. 43-48; Packard Tr. 464-466, 469.

With respect to the Staff’s concerns, it is noted that P&S’s proposed construction interprets the limitation as always requiring the circuit interrupter to trip in response to an actuator signal in the reset state. Indeed, it is a feature of a conventional GFCIs that they trip in response to an actuator signal in the reset state. *See* Engel Tr. 2569-2570. However, the claim states that the “circuit interrupter” must trip in response to the “actuator signal” in the reset state. This claim limitation does not require the circuit interrupter to trip in response to the “wiring state detection signal” in the reset state.

### **B. Infringement Determination**

P&S has set forth evidence concerning all limitations of the asserted claims, even those whose construction is not in dispute. Most of respondents’ arguments against a finding of

infringement are based on their proposed claim constructions that were rejected in favor of those proposed by P&S. Each of the accused products is discussed below with a particular emphasis on the claim limitations that are in dispute.<sup>27</sup>

***ELE's 2003 and 2006 GFCIs Infringe Claim 1***

P&S's expert, Dr. Harman, established at the hearing that the 2003 ELE GFCI infringes claim 1. In doing so, he used ELE's own mechanical drawing and circuit schematic (CX-279-C at ELE-ITC 1666-67). Dr. Harman showed that the 2003 ELE GFCI meets the "wiring state detection circuit" limitation. Harman Tr. 913, 919; CX-279C (ELE design document) at ELE-ITC 1667. He highlighted a circuit within the GFCI and showed that the current flowing through it is the wiring state detection signal, which is present when the GFCI is properly wired. See Harman Tr. 913, 919-920.

The 2003 ELE GFCI also meets the "actuator assembly" limitation. Dr. Harman identified three components on the ELE schematic that are part of the actuator assembly: solenoids SOL-1 and SOL-2, and an SCR that is electrically connected to solenoid SOL-1. Harman Tr. 921-922. The two solenoids respectively serve to permit reset by removing a blocking member and to open the contacts, *i.e.*, trip the GFCI. Harman Tr. 923. The actuator assembly provides an actuator signal in response to the fault detection signal and also provides an

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<sup>27</sup> It appears that there is no material dispute that the accused products meet the first four limitations of claim 1 (*i.e.*, "housing assembly," "first conductive path," "second conductive path," and "fault detection circuit"), especially under P&S's proposed claim construction. In any event, P&S established at the hearing that those limitations are in fact practiced by all the devices. See Harman Tr. 913-921, 936-937 (2003 ELE GFCI); Harman Tr. 925-930, 937, 1052-1053 (2006 ELE GFCI); Harman Tr. 969-972 (2003 Meihao GFCI); Harman Tr. 975-978 (2006 Meihao GFCI); Harman Tr. 939-943, 951-954 (2003 GPG GFCI); Harman Tr. 960-963 (2006 GPG GFCI).

actuator signal in response to the wiring state detection signal. Harman Tr. 922-923.

The 2003 ELE GFCI also meets the “circuit interrupter” limitation. Harman Tr. 924. In particular, an actuator signal in the reset state causes the circuit interrupter to trip the device. Harman Tr. 925.

Dr. Harman also demonstrated that the 2006 ELE GFCI infringes claim 1. *See* Harman Tr. 925. With respect to the “wiring state detection circuit” limitation, Dr. Harman illustrated the wiring state detection circuit to show that it is the same circuit identified in relation to the “at least one detection circuit” limitation in claim 14 of the ‘340 patent. The wiring state detection circuit provides a wiring state detection signal, *i.e.*, a current flow through the circuit, when the device is properly wired and switch S2 is closed. Harman Tr. 930-932.

The 2006 ELE GFCI also reads on the “actuator assembly” claim limitation. Harman Tr. 932-933. Dr. Harman identified two solenoids and two SCRs on the ELE schematic that are part of the actuator assembly. One solenoid opens the contacts, and the other allows a user to reset the device. The actuator assembly provides a signal in response to the fault detection signal. Harman Tr. 932-935. The actuator assembly also provides a signal in response to the wiring state detection signal. Harman Tr. 933.

Finally, the 2006 ELE GFCI device meets the “circuit interrupter” limitation. Harman Tr. 933-934. In particular, an actuator signal in the reset state, such as energization of the solenoid labeled S-1 on the ELE schematic, would cause the circuit interrupter to disconnect the first conductive path from the second conductive path. Harman Tr. 934.

### ***Meihao’s 2003 and 2006 GFCIs Infringe Claim 1***

P&S established at the hearing that the 2003 Meihao GFCI infringes claim 1. *See*

Harman Tr. 969. Thus, it was shown that the 2003 Meihao GFCI meets the “wiring state detection circuit” limitation. Harman Tr. 972-973. Dr. Harman illustrated the wiring state detection circuit, and it is the same circuit identified in relation to the “at least one detection circuit” limitation in claim 14 of the ‘340 patent (for which he relied in Meihao’s own patent (CX-254) that disclosed the 2003 device). When the GFCI is properly wired and the switch (identified by numerals 37, 38, and 39) is closed, the wiring state detection circuit provides a wiring state detection signal, which is a current flow through the circuit. Harman Tr. 973.

The 2003 Meihao GFCI device meets the “actuator assembly” limitation. The actuator assembly includes the coil 26 and an SCR that is connected in series with the coil. The actuator signal is current that flows through the coil to energize the coil in response to the fault detection signal and also in response to the wiring state detection signal. Harman Tr. 973-975.

Finally, the 2003 Meihao GFCI device meets the “circuit interrupter” limitation. The Meihao circuit interrupter will open the interrupting contacts in response to an actuator signal in the reset state, disconnecting the first conductive path from the second conductive path. Harman Tr. 975.

P&S also presented persuasive evidence that the 2006 Meihao GFCI infringes claim 1. *See* Harman Tr. 975. The GFCI meets the “wiring state detection circuit” limitation.

Dr. Harman illustrated the wiring state detection circuit and showed that it is the same circuit identified in relation to the “at least one detection circuit” limitation in claim 14 of the ‘340 patent. The wiring state detection signal is a current flow through the circuit that occurs when the GFCI is properly wired, and internal test has been passed, and a switch in the circuit is closed. Harman Tr. 878, 980-981.

The 2006 Meihao GFCI also meets the “actuator assembly” claim limitation. Dr. Harman identified the solenoid L3 and the SCR V23 as parts of the actuator assembly. The actuator signal is a current flow through the solenoid in response to the fault detection signal and also in response to the wiring state detection signal. *See* Harman Tr. 981-982.

Finally, the 2006 Meihao GFCI meets the “circuit interrupter” limitation. In the accused devices, the circuit interrupter opens the contacts to trip the device in response to an actuator signal in the reset state, disconnecting the first and second conductive paths. Harman Tr. 982-983.

***Trimone’s 2006 GFCIs Infringe Claim 1***

P&S established that the 2006 Trimone GFCI infringes claim 1. *See* Harman Tr. 939. It’s expert, Dr. Harman, used Trimone’s own circuit schematic (CX-317C) to explain how the 2006 Trimone GFCI infringes. The 2006 Trimone GFCI meets the “wiring state detection circuit” limitation. Dr. Harman illustrated the wiring state detection circuit on CDX-130-C, which is the same circuit identified in relation to the “at least one detection circuit” limitation in claim 14 of the ‘340 Patent. The wiring state detection signal is the current flow through the wiring state detection circuit that occurs when the GFCI is properly wired and the switch K1C is closed during a reset attempt. Harman Tr. 943-944.

The 2006 Trimone GFCI also reads on the “actuator assembly” limitation. Harman Tr. 944-945. In particular, the actuator assembly includes solenoid coil K1B and SCR Q1 in the Trimone schematic. The 2006 Trimone GFCI device has an actuator signal in response to a fault detection signal. Dr. Harman testified that the de-energization of the solenoid coil K1B when the SCR Q1 is triggered to divert current flow through the SCR is the actuator signal in response to

the fault detection signal. Harman Tr. 945-946.

The 2006 Trimone GFCI also has an actuator signal in response to a wiring state detection signal. This actuator signal is a current flowing through the solenoid coil K1B to allow reset. Harman Tr. 948. Thus, there is literal infringement.

Dr. Harman testified that he also considered whether the 2006 Trimone GFCI device meets the "actuator assembly" claim limitation under the doctrine of equivalents. Harman Tr. 946-948. He testified that under a doctrine of equivalents analysis, one would see that the solenoid coil and the SCR are used to close and open the contacts in the GFCI, and any differences between the coil and the SCR and the literal language of the actuator assembly limitation in claim 1 are insubstantial. *Id.*; see *Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*, 868 F.2d 1251, 1261 (Fed. Cir. 1989) ("the substitution of an ingredient known to be an equivalent to that required by the claim presents a classic example for a finding of infringement under the doctrine of equivalents").

Finally, the 2006 Trimone GFCI device meets the "circuit interrupter" limitation. Harman Tr. 948. The first and second conductive paths are electrically connected in the reset state and, when the circuit interrupter receives an actuator signal in the reset state, it will trip and thereby disconnect the first and second conductive paths. Harman Tr. 948-949.

### ***GPG's 2003 and 2006 GFCIs Infringe Claim 1***

P&S established that 2003 GPG GFCI infringes claim 1. See Harman Tr. 951. P&S's expert, Dr. Harman, used GPG's own circuit schematic (CX-218-C at GPG 1514) to explain this infringement. The 2003 GPG GFCI meets the "wiring state detection circuit" limitation.

Dr. Harman illustrated the wiring state detection circuit on a demonstrative exhibit, and showed



that it is the same circuit identified in relation to the “at least one detection circuit” limitation in claim 14 of the ‘340 patent. The wiring state detection signal in the 2003 GPG GFCI is a current flow through the wiring state detection circuit, which occurs when the GFCI is properly wired such that AC power is connected to the line side of the GFCI and switch K3 is closed by depressing the reset button of the GFCI. Harman Tr. 954-956.

The 2003 GPG GFCI also meets the “actuator assembly” claim limitation. Dr. Harman testified that the actuator assembly includes the two solenoids labeled J1 and J2 in the GPG schematic, as well as the two SCRs respectively associated with the two solenoids and shown directly below them. Harman Tr. 956-957.<sup>28</sup> The actuator assembly provides an actuator signal in the form of a current flow through solenoid J2 in response to a fault detection signal. Harman Tr. 957-958; CDX-140-C, CX-218-C at GPG 1514. The actuator assembly also provides an actuator signal in the form of a current flow through solenoid J1 in response to the fault detection signal. Harman Tr. 958.

Finally, the 2003 GPG GFCI device meets the “circuit interrupter” limitation. Dr. Harman testified that in the reset state, the contacts of the circuit interrupter are closed to provide electrical continuity between the line and load sides of the device, and the circuit interrupter will trip in response to an actuator signal in the reset state to disconnect the line and load sides of the device. Harman Tr. 959-960.

Dr. Harman also testified that the 2006 GPG GFCI infringes claim 1. Harman Tr. 960. He used GPG's own circuit schematic (CX-219-C at GPG 1827) to explain how the

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<sup>28</sup> Solenoids J1 and J2 are wrapped around a common structure and act on the same armature. Roberge Tr. 3151-3152.

2006 GPG GFCI infringes claim 1. The 2006 GPG GFCI meets the “wiring state detection circuit” limitation. *See* Harman Tr. 963-964. Dr. Harman illustrated the wiring state detection circuit and showed that is the same circuit identified in relation to the “at least one detection circuit” limitation in claim 14 of the ‘340 patent. The wiring state detection signal is a current flow through the wiring state detection circuit; this current flow occurs when the GFCI is properly wired and the switch labeled “reset” in the GPG schematic is closed. Harman Tr. 964-966.

The 2006 GPG GFCI also meets the “actuator assembly” limitation. Dr. Harman testified that the actuator assembly includes the solenoid J1 on the GPG schematic and its associated SCR VD1 and the solenoid J2 and its associated SCR VD2. Harman Tr. 966. He further testified that the actuator assembly provides an actuator signal in the form of a current flow through solenoid J1 in response to a fault detection signal. Harman Tr. 966-967. The actuator assembly provides an actuator signal in the form of a current flow through solenoid J2 in response to a wiring state detection signal. Harman Tr. 967.

The 2006 GPG GFCI device also meets the “circuit interrupter” limitation. Harman Tr. 967-968. The first and second conductive paths are electrically connected in the reset state and, in response to an actuator signal in the reset state, the circuit interrupter will open the contacts to disconnect the first and second conductive paths. Harman Tr. 968.

GPG’s expert, Dr. Dr. Roberge, testified that the GPG devices do not infringe because the circuits that Dr. Harman identified as the wiring state detection circuit in the 2003 GPG GFCI and the 2006 GPG GFCI will produce the same signal when miswired in the reset state as when properly wired in the reset state. This is the same argument he presented with respect to that “at

least one detection circuit” limitation in claim 14 of the ‘340 patent, and it is incorrect for the same reasons set forth above. No evidence was presented to show that it has ever occurred. *See* Harman Tr. 1135-1137; Roberge Tr. 3145-3150. Abnormal, unrealistic and unsubstantiated device operations do not prevent findings of infringement. *See z4 Techs.*, 507 F.3d at 1350; *Golden Blount*, 438 F.3d at 1363.

### **C. Validity**

ELE argues that claim 1 of the ‘386 patent is invalid due to anticipation by the Neiger patent (discussed above in connection with the ‘340 patent), and “even if the Neiger prior art were deemed to have in some respect fallen short of fully anticipating Claim 1, the claim would still be invalid for obviousness.” ELE Br. at 61, 62-68 (anticipation argument). In connection with its obviousness argument, ELE asserts that all features of claim 1, except for the wiring detection, “were those of a conventional prior art GFCI.” As examples of such conventional prior art, ELE refers to U.S. Patent No. 3,213,321 to Dalziel et al. (RX-2036) and P&S’s own G3 GFCI devices. ELE argues that it would be obvious to add wiring protection to conventional GFCIs, and also refers to the Neiger patent as a source of miswiring protection. *See* ELE Br. at 69-75.

As discussed above in connection with the ‘398 patent, GPG did not brief the validity issues.

Meihao’s brief contains a section entitled “Invalidity of the ‘386 patent,” which does not specifically request a finding that any claim of the ‘386 patent be found invalid under any particular section of the Patent Act. Meihao does, however, argue that “[s]hould claim 1 of the ‘386 patent be construed to include a multi-shot GFCI, the ‘911 patent shows a ‘normally open’

mechanical switch which can be closed when the reset button is depressed.” Meihao Br. at 89-93.

Trimone argues that under P&S’s claim construction (which was adopted herein), the claimed device does not need to be configured to disconnect in response to a wiring state detection signal, and thus claim 1 of the ‘386 patent would be invalid as anticipated by the DiSalvo patent. *See* Trimone Br. at 105-08.

The Staff argues that it has not been shown that the asserted claims of the ‘386 patent are invalid due to anticipation, particularly under its proposed claim construction. Staff Br. at 85. The Staff also argues that it has not been established by clear and convincing evidence that the asserted claims are obvious. *Id.* at 86.

P&S denies that the asserted claims are invalid. *See* P&S Br. at 163-67.

As indicated above in connection with the construction of the ‘340 patent, that patent and the ‘386 patent are considered siblings because both claim priority to a series of three earlier filed applications and incorporate them by reference. CX-6 (‘386 patent) at col. 1, ll. 6-17; CX-8 (‘340 patent) at col. 1, ll. 6-14. Their ultimate parent is U.S. Application No. 09/718,003, filed on November 21, 2000, which issued as U.S. Patent No. 6,522,510 (“the ‘510 patent”). *See* CX-6 (‘386 patent); CX-8 (‘340 patent). The inventors of the ‘340 patent are also the inventors listed on the ‘386 (although in that case along with Richard Weeks). The ‘510 patent figured predominantly in the discussion of the ‘340 patent as it does in connection with the present ‘386 patent, and so does much of the same prior art. As in the case of the ‘340 patent, the invalidity arguments fail. So too do Meihao’s arguments with respect to the ‘911 patent (not raised in connection with the ‘340 patent).

As an initial matter, it is determined that the '911 patent is not prior art to the '386 patent because (as explained in the next section pertaining to alleged inequitable conduct) the '386 patent is entitled to a priority filing date of November 21, 2000, which is the filing date of the application for the '510 patent. Nevertheless, it has not been proven that even as prior art, the '911 patent anticipated claim 1 of the '386 patent.

Again, as seen in connection with the '340 patent, in some cases the hearing record relating to invalidity set forth by respondents contained little in the way of explanation apart from conclusions and demonstrative exhibits. With respect to the DiSalvo patent, there was only conclusory expert testimony. *See* Mernyk Tr. 2780; Horenstein Tr. 2948. Similarly, with the '911 patent a demonstrative exhibit was presented to show the existence of a switch, yet without testimony relating that switch to the elements of claim 1 of the '386 patent. *See* Horenstein Tr. 2947-2948.

Dr. Engel, on behalf on ELE, did provide testimony concerning the Neiger patent (and to some extent the Dalziel patent). He focused on the Open Miswiring Detector 20 and the Closed Miswiring Detector 24 of the Neiger patent based on his erroneous view that miswiring is a wiring state to be detected by the wiring state detection circuit in claim 1 of the '386 patent. *See* Engel Tr. 2491-2492. However, as discussed above in the section on claim construction, claim 1 provides that "a wiring state detection circuit" selectively provides "a wiring state detection signal" when AC power is properly wired to the device. *See* CX-6 ('386 patent) at col. 14, ll. 56-60. Such a circuit or signal was not identified at the hearing in the Neiger patent. ELE's expert also failed to show an interaction between the miswiring detection circuits and any actuator assembly upon proper wiring. Indeed, he testified that in Neiger there is no output from

the miswiring defectors if the device were properly wired. *See* Engel Tr. 2581-2582.

In view of the record, it is found that respondents have failed to show by clear and convincing evidence that claim 1 of the '386 patent is invalid.

#### **D. Enforceability**

Meihao argues that the '386 patent is unenforceable due to inequitable conduct before the PTO that occurred in connection with P&S's petition (on behalf of applicant) "to make special" the underlying application to receive an accelerated examination and an earlier patent date. Meihao accuses P&S of making both intentional misrepresentations and intentional omissions in its filing at the PTO. In particular, Meihao argues that P&S falsely told the PTO that it needed to accelerate the examination of the '386 patent because of infringement by the 2003 Meihao GFCL, and falsely claimed priority of the '386 patent to P&S's earlier '510 patent. *See* Meihao Br. at 93-111.

The Staff understands Meihao to argue that the petition to make special filed by P&S during prosecution of the '386 patent was improper because it asserted that Meihao's 2003 multi-shot device infringed the claims of the '386 patent even though the '510 patent, upon which the '386 patent claims priority, does not use a multi-shot approach. The Staff argues that Meihao has misinterpreted the patents at issue, and that it has not been shown that the petition to make special was improper and the result of inequitable conduct. *See* Staff Br. at 92-93.

The relationship between the '340 patent or the sibling '386 patent and the '510 patent has already been mentioned several times, most notably in connection with the failed inequitable conduct defense raised against the '340 patent. In connection with Meihao's inequitable conduct charges against the '386 patent, it is helpful first to determine whether or not the '386 patent is

entitled to the priority filing date that P&S claims via the '510 patent.

The evidence presented at the hearing by P&S's expert, Dr. Harman, established element-by-element that the application of the '510 patent supports claim 1 of the '386 patent. His testimony was based on the proper construction of the '386 patent as adopted in this Initial Determination. Although the terms "four sets of interrupting contacts," "wiring state detection circuit," and "proper wiring condition" were first recited in the '340 patent application, rather than a parent or grandparent application, the embodiments of the '510 patent illustrate these features. *See* Harman Tr. 987-996.

In contrast, much of the conflicting testimony present by Meihao's expert, Dr. Horenstein, evolved from his own erroneous (and at times contradictory) conclusions based on so-called "one-shot" and "multi-shot" devices. *See* Horenstein Tr. 2923, 2979-2980 ("I still believe that one could attempt to read this claim on to a multi-shot circuit."), 2989 (Claim 1 of the '386 patent only refers to one-shot devices . . ."). In fact (as discussed above in claim construction), while the specification does refer to the need for a multi-shot method for testing miswiring, claim 1 makes no mention whatsoever of "one-shot" or "multi-shot" limitation. There is no reference in that claim to how many times the "wiring state detection circuit" operates. In any event, as explained by Dr. Harman, claim 1 of the '386 is entitled to the priority date provided by the application that issued as the '510 patent. Consequently, neither the materiality nor the intent factors could be present with respect to P&S's representation to the PTO concerning the pending application for the '386 patent priority to the application that issued

as the '510 patent.<sup>29</sup>

In addition, as detailed above (especially in the infringement determination), the Meihao 2003 GFCIs do in fact infringe claims of the '386 patent.

Consequently, there is not clear and convincing evidence of inequitable conduct that would render the '386 patent unenforceable.

## **VII. U.S. Patent No. 7,164,564**

### **A. Claim Construction**

United States Patent No. 7,164,564, entitled "Shorted SCR Lockout and Indication" CX-5 (the '564 patent), issued on January 16, 2007, to David A. Findlay, Sr., Kent Morgan and Jeffrey C. Richards, and was assigned to P&S. CX-5 (the '564 patent).

The Background portion of the specification discusses GFCIs generally, and continues to discuss problems associated with the devices, as follows:

Like all electrical devices, protective devices such as GFCIs, AFCIs,<sup>[30]</sup> and other such devices have a limited life expectancy. When a protective device has reached end of life, the user may not be protected from the fault condition. End of life failure modes include device circuitry failure, circuit interrupter failure, relay

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<sup>29</sup> No evidence was elicited from the patent prosecution attorney, Daniel Malley (who testified at the hearing), that any deceptive intent existed, even if he had made materially false statements to the PTO. *See* Malley Tr. 2677-2679.

<sup>30</sup> AFCI is an acronym for arc fault circuit interrupter. CX-5 (the '564 patent), col. 2, ll. 3-6. The specification of the '564 patent explains that "An arc fault typically manifests itself as a high frequency current signal. Accordingly, an AFCI may be configured to detect various high frequency signals and de-energize the electrical circuit in response thereto. A ground fault occurs when a current carrying (hot) conductor creates an unintended current path to ground. A differential current is created between the hot/neutral conductors because some of the current flowing in the circuit is diverted into the unintended current path. The unintended current path represents an electrical shock hazard. Ground faults, as well as arc faults, may also result in fire." *Id.*, col. 2, ll. 7-17.



solenoid failure, and/or solenoid switching device failure. Note that switching devices include thyristors such as the silicon controlled rectifier (SCR). For the sake of brevity, switching devices are hereinafter referred to as “SCRs.”

Because end of life failure modes may result in the user being unprotected from the faults referred to above, test buttons have been incorporated into protective devices to provide the user with a means for testing the effectiveness of the device. One drawback to this approach lies in the fact that if the user fails to use the test button, the user will not know if the device is functional. Even if the test is performed, the test results may be ignored by the user for various reasons.

One of the failure modes listed above relates to the GFCI becoming inoperative when the SCR reaches end of life (shorts out). Some GFCI devices will continue to deliver power to the load circuit even though the device is non-protective. However, this approach leaves the user unprotected in the event of a fault condition.

In another approach that has been considered, a GFCI may be configured to trip the circuit interrupter in the event that the SCR shorts out. When the device trips out, the user will attempt to reset the device only to find that it immediately trips again. Consequently, the GFCI prevents power from being delivered to the load. However, this approach also has several drawbacks associated with it. It may be some time before the user realizes that the GFCI has tripped -- the user only discovers that power is not available at the exact moment that power is needed for the user's application. In response, the user attempts to reset only to discover that the device trips out again in the manner described above. Subsequently, the user initiates a search for a receptacle that is still functional. The receptacle may be disposed in a different room requiring the user to employ an extension cord.

The trouble-shooting process may be further complicated by the GFCI's inability to differentiate between an internal fault (i.e., shorted SCR) and an external fault condition (i.e., a ground fault in the protected circuit). Accordingly, the GFCI may continue to trip in response to both conditions. This forces the user to guess. If the user assumes that power denial is due to a malfunctioning GFCI, the user will replace the GFCI with a new one only to discover that

the GFCI was denying power in response to an external fault condition. The user then examines the branch circuit to determine the source of the fault condition. Trouble shooting by “trial and error” is costly, time-consuming, and a source of aggravation to the user. What is needed is a protective device that denies power to the protected circuit when the device is non-protective. What is needed is a protective device that provides early indication to the user of power denial to the load circuit. What is needed is a protective device that helps trouble shoot the cause of a power denial to the load circuit.

*Id.*, col. 2, l. 35 - col. 3, l. 27 (“Background of the Invention”).

In view of the foregoing, the specification summarizes the claimed invention of the ‘564 patent, as follows:

The present invention is directed to a protective device that is configured to deny power to the load circuit when the device reaches end of life. The protective device of the present invention includes an indicator configured to emit a visual and/or audible indication when the device reaches end of life. Accordingly, the guess work associated with the trouble shooting process is eliminated.

One aspect of the present invention is directed to a protective device that includes a plurality of line terminals and a plurality of load terminals. A fault detection circuit is coupled to the plurality of line terminals. The fault detection circuit is configured to provide a detection output signal in response to a detected condition. A switching device is coupled to the fault detection circuit. The switching device is configured to provide a trip signal in response to the detection output signal, the switching device being characterized by at least one device parameter. A circuit interrupting assembly is configured to electrically connect the plurality of line terminals and the plurality of load terminals in a reset state and disconnect the plurality of line terminals from the plurality of load terminals in response to the trip signal in a tripped state. An indicator circuit assembly is coupled to the switching device. The indicator circuit assembly is configured to generate a user-perceivable output signal based on the at least one device parameter.

In another aspect, the present invention is directed to a protective device that includes a plurality of line terminals and a plurality of load terminals. A fault detection circuit is coupled to the plurality of line terminals. The fault detection circuit is configured to provide a detection output signal in response to a detected condition. A switching device is coupled to the fault detection circuit. The switching device is configured to provide a trip signal in response to the detection output signal, the switching device being characterized by at least one device parameter. A circuit interrupting assembly is configured to electrically connect the plurality of line terminals and the plurality of load terminals in a reset state and disconnect the plurality of line terminals from the plurality of load terminals in response to the trip signal in a tripped state. A protective circuit is coupled to the switching device and the circuit interrupting assembly. The protective circuit is configured to de-energize at least a portion of the circuit interrupting assembly in response to the trip signal. An indicator circuit assembly is coupled to the switching device. The indicator circuit assembly is configured to generate a user-perceivable output signal based on the at least one device parameter.

In yet another aspect, the present invention is directed to a protective device that includes a plurality of line terminals and a plurality of load terminals. A fault detection circuit is coupled to the plurality of line terminals. The fault detection circuit is configured to provide a detection output signal in response to a detected condition. A switching device is coupled to the fault detection circuit. The switching device is configured to provide a trip signal in response to the detection output signal, the switching device being characterized by at least one device parameter. A circuit interrupting assembly is configured to electrically connect the plurality of line terminals and the plurality of load terminals in a reset state and disconnect the plurality of line terminals from the plurality of load terminals in response to the trip signal in a tripped state. A monitoring circuit is coupled to the switching device. The monitoring circuit is configured to monitor the at least one device parameter and provide an end-of-life signal on the basis of the at least one device parameter. At least one indicator is coupled to the monitoring circuit. The indicator is configured to generate the user-perceivable output signal in response to the end-of-life signal.

In yet another aspect, the present invention is directed to a protective device that includes a plurality of line terminals and a

plurality of load terminals. A fault detection circuit is coupled to the plurality of line terminals. The fault detection circuit is configured to provide a detection output signal in response to a detected condition. A switching device is coupled to the fault detection circuit. The switching device is configured to provide a trip signal in response to the detection output signal, the switching device being characterized by at least one device parameter. A circuit interrupting assembly is configured to electrically connect the plurality of line terminals and the plurality of load terminals in a reset state and disconnect the plurality of line terminals from the plurality of load terminals in response to the trip signal in a tripped state. A protective circuit is coupled to the switching device and the circuit interrupting assembly. The protective circuit is configured to de-energize at least a portion of the circuit interrupting assembly in response to the trip signal. A monitoring circuit is coupled to the switching device. The monitoring circuit is configured to monitor the at least one device parameter and provide an end-of-life signal on the basis of the at least one device parameter. At least one indicator is coupled to the monitoring circuit. The indicator is configured to generate the user-perceivable output signal in response to the end-of-life signal

*Id.*, col. 5, l. 31 - col. 4, l. 59 (“Background of the Invention”).

As enumerated above (*see* section I.B.2), P&S asserts claims 1 and 15 of the ‘564 patent.

Claims 1 and 15 provide as follows:

1. A protective device comprising:

a plurality of line terminals and a plurality of load terminals;

a fault detection circuit coupled to the plurality of line terminals, the fault detection circuit being configured to provide a detection output signal in response to a detected condition;

a switching device coupled to the fault detection circuit, the switching device being configured to provide a trip signal in response to the detection output signal, the switching device being characterized by at least one device parameter;

a circuit interrupting assembly configured to electrically connect the plurality of line terminals and the plurality of load terminals in

a reset state and disconnect the plurality of line terminals from the plurality of load terminals in response to the trip signal in a tripped state; and

an indicator circuit assembly coupled to the switching device, the indicator circuit assembly being configured to generate a user-perceivable output signal based on the at least one device parameter.

**15. A protective device comprising:**

a plurality of line terminals and a plurality of load terminals;

a fault detection circuit coupled to the plurality of line terminals, the fault detection circuit being configured to provide a detection output signal in response to a detected condition;

a switching device coupled to the fault detection circuit, the switching device being configured to provide a trip signal in response to the detection output signal, the switching device being characterized by at least one device parameter;

a circuit interrupting assembly configured to electrically connect the plurality of line terminals and the plurality of load terminals in a reset state and disconnect the plurality of line terminals from the plurality of load terminals in response to the trip signal in a tripped state;

a protective circuit coupled to the switching device and the circuit interrupting assembly, the protective circuit being configured to de-energize at least a portion of the circuit interrupting assembly in response to the trip signal; and

an indicator circuit assembly coupled to the switching device, the indicator circuit assembly being configured to generate a user-perceivable output signal based on the at least one device parameter.

*Id.* col. 11, ll. 5-26; col. 12, ll. 6-32.

While P&S acknowledges that its view is not representative of all parties, P&S nonetheless argues that the terms contained in claims 1 and 15 of the '564 patent "need no

construction apart from the plain and ordinary meaning of claim language.” Compl. Br. at 180.

ELE argues that the prior art included lights that went on when a GFCI tripped, such as the indicator light in the Vibert ‘544 patent, and lights that went off when a GFCI tripped, such as the optional indicator light on P&S’ G3 GFCIs. ELE does not offer element-by-element arguments relating to the construction of the ‘564 patent claims, although it does argue that “Dr. Engel explained at trial, emphatically and in detail, numerous reasons why it would be plain to any person of skill in the art that the ‘564 patent is talking end-of-life indication and lock-out, not just trip indicators.” ELE Br. at 170-183 (citing, *inter alia*, Engel Tr. 2523-2524).

The Staff argues that the entire specification makes it clear that the “parameter” called for in the claims is an “end-of-life” condition. *See* Staff Br. at 50 (citing Engel Tr. 2524-2526; Littman Tr. 1748-1750). The Staff also believes that in order to preserve the validity of the patent, the parameter should be construed “as something related to the end-of-life of the SRC.” *Id.* at 51 (citing Engel Tr. 2536-2543 (concerning U.S. Patent No. 4,051,544 to Vibert (“the Vibert patent”))).

In the case of the claims 1 and 15 of the ‘564 patent, the claims recite specific structures that are not limited in any way to the manner in which the structure may be used, and in particular, they do not refer to an end-of-life situation of the GFCI or one of its components. That fact alone makes it unlikely that an end-of-life “parameter” or other limitation should be found in the asserted claims. *See Ecolab, Inc. v. Envirochem, Inc.*, 264 F.3d 1358, 1367 (Fed. Cir. 2001) (“Where the function is not recited in the claim itself by the patentee, we do not import such a limitation.”).

While the patent specification clearly discusses end-of-life problems in the prior art, and

the failure of GFCIs to indicate, for example, a permanent shorting out of the SCR, nowhere in the specification is there an indication that a solution to that problem must be contained in every embodiment of the invention. An “end-of-life” function is expressly recited by other, non-asserted claims 4, 16, 23, and 30, and is noticeably absent from the asserted claims 1 and 15.

The Staff is correct that, when given a choice, one should choose the claim construction that preserves patent validity. However, one cannot read a limitation into a claim that is not supported by the intrinsic evidence, or put validity considerations ahead of the basic rules of claim construction. *Nazomi Commc'ns, Inc. v. ARM Holdings, PLC*, 403 F.3d 1364, 1368-69 (Fed. Cir. 2005 ). Furthermore, in this case, it is not clear that the validity of the asserted claims must, and could, be preserved by reading into the claim the proposed limitation.

Thus, an “end-of-life” limitation is not read into the asserted claims 1 and 15 of the ‘564 patent.

## **B. Infringement Determination**

P&S has set forth evidence concerning all limitations of the asserted claims, even those whose construction was not in dispute. Most of respondents’ arguments against a finding of infringement are based on their proposed claim constructions that were rejected in favor of those proposed by P&S. The only accused product under the ‘564 patent is ELE’s 2006 GFCI.

### ***ELE’s 2006 GFCIs Infringe Claims 1 And 15 Of The ‘564 Patent***

P&S presented evidence during the hearing through its expert, Dr. Littman, to show that the 2006 ELE GFCI practices every limitation or element recited in claims 1 and 15 of the ‘564 patent. *See* Littman Tr. 1722. In addition to considering the ‘564 patent in reaching his opinions, Dr. Littman studied physical samples of ELE GFCIs, including some disassembly and testing of

samples. Littman Tr. 1689-1690. Using the schematic of the ELE GFCI, Dr. Littman identified the various structures in the device and explained how the device operates. Littman Tr. 1722-1723.

After identifying the undisputed corresponding elements of claims 1 and 15, and explaining how they are present in the ELE GFCI, Dr. Littman showed that the ELE device includes a pair of SCRs that are coupled to an off-the-shelf fault detection chip and provide a trip signal in response to a fault detection signal sent by the chip, as required by claims 1 and 15. Dr. Littman also identified the relevant device parameter in the ELE GFCI as the impedance of the SCR, which is low when the SCR is in an “on” state in response to a fault detection signal. Littman Tr. 1723-1725. After addressing another undisputed claim element, *i.e.*, the circuit interrupting assembly, Dr. Littman identified that the ELE GFCI also includes an LED that is coupled to the SCR and that will illuminate based on the impedance of the SCR, as further required by claims 1 and 15. Littman Tr. 1734-1736. Finally, he described how the ELE GFCI includes the protective circuit recited in claim 15. *See* Littman Tr. 1742-1744.

As seen in the ELE’s circuit diagram, the device includes an indicator circuit assembly (an LED) coupled to a switching device (a pair of SCRs). The ELE GFCI clearly has an LED indicator circuit coupled to a switching device, namely the SCR or SCRs. This arrangement only differs from the example of the claimed invention provided in the specification of the ‘564 patent in that two SCRs are coupled to the LED circuit rather than one. *See* CX-5 (‘564 patent), Fig. 1.<sup>31</sup>

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<sup>31</sup> Dr. Littman’s analysis of the operation of the ELE GFCI is entirely consistent, if not identical, to the explanation provided by Chengli Li, the chief engineer at ELE and the designer (continued...)



ELE's opposition to the assertion of infringement stems from its argument that the 2006 GFCI does not provide an indication that allows a user to determine whether the device is just tripped or whether the SCR has reached its "end-of-life." *See* Engel Tr. 2545; ELE Br. at 183-85. In fact, however, ELE's expert never disputed that the ELE GFCI included all of the elements recited in claims 1 and 15 the '564 patent, except to testify that the accused ELE GFCIs did not infringe because the ELE GFCIs "suffered from the same criticisms" as prior devices discussed in the background of the '564 patent. *See* Engel Tr. 2545. Yet, there is no requirement that each patent claim solve all of the prior art problems identified in the patent specification. In this case, there is no indication in the specification that an "end-of-life" indicator, or "parameter" to the claimed invention, must be included in every claim and every embodiment of the invention. As indicated in the claim construction discussion above, it was not found that the "end-of-life" limitation proposed by ELE should be read into the particular claims asserted by P&S.

Consequently, in view of the evidence that ELE's 2006 GFCI practice all limitations of claims 1 and 15 exactly, it is found that the 2006 GFCI literally infringes those claims.

### **C. Validity**

ELE argues that under P&S's proposed construction (which was adopted herein) claims 1 and 15 of the '564 patent, like the claims of the '386 and 340 patents, "combine a host of conventional GFCI features with a feature that was also already known in the art but not yet

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<sup>31</sup>(...continued)  
of ELE's 2006 Compliant GFCI. Li testified that when the SCR of the ELE GFCI becomes conductive (*i.e.*, the impedance of the SCR drops), the LED will light. Li Tr. 1982. Li also testified that when the SCR shorts out (*i.e.*, reaches its end-of-life), the LED will illuminate. Li Tr. 1989-1990.

conventional at the time of Pass & Seymour's patent applications. In the case of the '564 patent, this is the 'shortened SCR indication' referred to in the patent's title." Thus, although ELE does not expressly say so, it appears that ELE makes an obviousness argument. ELE refers to P&S devices and to the Vibert patent (mentioned above in connection with claim construction). *See* ELE Br. at 186-188.

ELE also argues that under a "proper construction" (presumably its own proposed construction), claims 1 and 15 should nonetheless be found "at least obvious." ELE refers to combinations involving the Neiger patent, U.S. Patent No. 5,546,266 to MacKenzie, et al. ("the MacKenzie patent") (CX-93) and U.S. Patent No. 4,442,470 to Misencik ("the Misencik patent") RX-2038. *Id.* at 186-194.

The Staff argues that under its proposed claim construction, the evidence does not establish the obviousness of claims 1 and 15 by clear and convincing evidence. Staff Br. at 89.

ELE criticizes P&S's proposed claim construction (which was adopted herein) as "absurdly broad" and accuses Dr. Littman of not having studied (or understanding) the Vibert patent. ELE's invalidity arguments, however, do not contain element-by-element analyses of the claims to the prior art such as one would normally expect in attempt to invalidate a patent claim.

Further, during the hearing, when Dr. Littman was questioned on cross-examination about the Vibert patent, which had not figured prominently in ELE's case until that point (*see* P&S Reply at 98), he distinguished the Vibert indicator from that of the asserted claims of the '564 patent by pointing out that "[i]t's a trip indicator that's not connected to a switching device,

but it's a trip indicator."<sup>32</sup> Dr. Littman also pointed out that the diode that he was asked to look at in the Vibert specification was not the same as an SCR. Littman Tr. at 1800.

Thus, the evidence offered by ELE to establish invalidity is cursory at best, and P&S's expert was able to distinguish prior art from the claimed invention when asked to do so (even though it is ELE and not P&S that bears the burden of proof in an invalidity case).

Accordingly, it has not been established by clear and convincing evidence that the asserted claims of the '564 patent are invalid.

## **VIII. U.S. Patent No. 7,256,973**

### **A. Claim Construction**

United States Patent No. 7,256,973, entitled "Miswire Protection Switch Compression Spring," issued on August 14, 2007, to Dejan Radosavljevic, Gerald Savicki, Jr. and Richard Weeks, and was assigned to P&S. CX-7 (the '973 patent).

By way of background, the specification provides that a general technical discussion of GFCIs, some of the problems associated with the devices, and further states:

GFCIs have been provided with mis-wiring protection circuits, and built-in means for detecting defective internal GFCI components, such as a defective solenoid. However, these circuits have proved to be problematic during some test procedures. First, mis-wiring protection circuits often produce differential currents that skew test results. Also, some test procedures may cause the mis-wiring protection circuit to bum out, making the device unsuitable for sale. What further exacerbates the problem is that certain standards, such as Underwriters Laboratories Standard 943 (UL 943), do not allow the manufacturer to open the GFCI device after the device has been tested. Thus, if a circuit does fail during testing, the device must be scrapped.

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<sup>32</sup> As quoted, *supra*, claim 1 of the '564 patent requires "an indicator circuit assembly coupled to the switching device . . . ."

Therefore, it is desirable to provide a GFCI device that is amenable to rigorous testing, such as the test procedures provided by UL 943.

*Id.*, col. 1, l. 66 - col. 2, l. 14.

The specification summarizes the claimed invention, as follows:

The present invention addresses the aforementioned needs. The GFCI of the present invention includes a mis-wiring protection circuit, and a circuit for detecting defective internal GFCI components. The present invention is amenable to testing, in particular, for test procedures complying with Underwriters Laboratories Standard 943 (UL 943).

One aspect of the present invention is directed to a ground fault circuit interrupt (GFCI) device that includes a GFCI device housing and a plurality of line terminals and a plurality of load terminals at least partially disposed in the GFCI device housing. A GFCI circuit is enclosed within GFCI device housing and coupled to the plurality of line terminals and the plurality of load terminals. The GFCI circuit is configured to detect at least one ground fault condition. A second detection circuit is coupled to the GFCI circuit and disposed within the GFCI device housing. The second detection circuit includes a switch element configured to be in an open position during at least one post-manufacture test procedure. A user-accessible housing feature is disposed on the GFCI device housing, the user-accessible housing feature being in operative communication with the switch element, an externally generated stimulus being applied to the switch element to throw the switch element into a closed position by way of the user-accessible housing feature.

In another aspect, the present invention is directed to a method for making a ground fault circuit interrupt (GFCI) device. The method includes the steps of providing a housing and enclosing a GFCI circuit within the housing. The GFCI circuit is configured to detect at least one ground fault condition. The GFCI circuit includes a second detection circuit. The second detection circuit includes a switch element that is configured to be in a first predetermined position during at least one post-manufacture test procedure. A user-accessible housing feature is disposed on the GFCI device

housing. The user-accessible housing feature is in operative communication with the switch element. The at least one post-manufacture test procedure is performed with the switch element in the first predetermined position. The GFCI circuit, the second detection circuit, and the switch element are inaccessibly disposed within the housing. An externally generated stimulus is applied to the switch element to drive the switch element into a second predetermined position.

In yet another aspect, the present invention is directed to a ground fault circuit interrupt (GFCI) device. The device includes a GFCI device housing and a plurality of line terminals and a plurality of load terminals disposed on the GFCI device housing. A GFCI circuit is enclosed within GFCI device housing and coupled to the plurality of line terminals and the plurality of load terminals. The GFCI circuit is configured to detect at least one ground fault condition. A circuit interrupting structure is configured to establish electrical continuity between the plurality of line terminals and the plurality of load terminals in a reset state and interrupt electrical continuity between the plurality of line terminals and the plurality of load terminals in a tripped state. A second detection circuit is coupled to the GFCI circuit and disposed within the GFCI device housing, the second detection circuit including a switch element configured to be in a first predetermined position during at least one post-manufacture test procedure. A user-accessible housing feature is disposed on the GFCI device housing. An external stimulus is applied via the user-accessible housing feature to thereby throw the switch element into a second predetermined position....

*Id.*, col. 2, l. 18 - col. 3, l. 16 (“Summary of the Invention”).

As enumerated above (*see* section I.B.2), P&S asserts claim 1 of the ‘973 patent, which provides as follows:

1. A ground fault circuit interrupt (GFCI) device, comprising:
  - a GFCI device housing;
  - a plurality of line terminals and a plurality of load terminals at least partially disposed in the GFCI device housing;

a GFCI circuit enclosed within GFCI device housing and coupled to the plurality of line terminals and the plurality of load terminals, the GFCI circuit being configured to detect at least one ground fault condition;

a second detection circuit coupled to the GFCI circuit and enclosed within the GFCI device housing, the second detection circuit including a switch element set in an open position prior to being enclosed within the GFCI device housing, the switch element remaining in the open position during at least one post-manufacture test procedure to thereby disarm the second detection circuit during the at least one post-manufacture test procedure; and

a user-accessible housing feature disposed on the GFCI device housing, the user-accessible housing feature being in communication with the switch element, an externally generated stimulus being applied to the switch element to throw the switch element into a closed position by way of the user-accessible housing feature to thereby enable the second detection circuit after the at least one post-manufacture test procedure is completed.

*Id.*, col. 7, l. 43 - col. 2, l. 3.

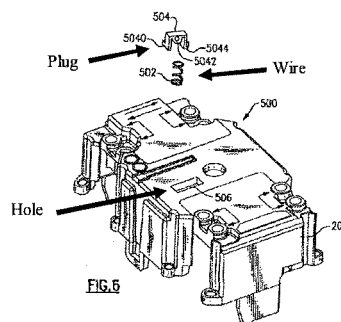
P&S argues that the terms contained in claim 1 of the '973 patent do not need "any construction as the plain and ordinary meaning of the claim language suffices." Nevertheless, P&S, cognizant of the views of some parties concerning the fifth element recited in claim 1, states that the user-accessible housing feature may be a hole in a GFCI housing that allows a wire to be inserted into the device to close a miswire protection switch. Compl. Br. at 192-93 (citing, *inter alia*, Littman Tr. 1761-1762).

ELE argues that in light of the specification, one of ordinary skill would understand "user-accessible housing feature disposed on the GFCI device housing" to mean "user-accessible housing feature disposed on the GFCI device housing: a physical object, accessible to a user, that is located on, but is physically distinct from, the GFCI device housing. The 'user-accessible

housing feature' must be an object, not an absence such as a hole." ELE Br. at 151-52 (citing Haynes Tr. 2083). ELE also argues that "the user-accessible housing feature being in communication with the switch element" means that the "user-accessible housing feature" physically touches the switch element." *Id.* at 156 (citing Haynes Tr. 2090). Finally, ELE asserts that a "post-manufacture test' would be a test that took place *after* the completion of the manufacturing process." *Id.* at 157 (emphasis in original) (citing Haynes Tr. 2091).

The Staff contends that "'post-manufacture test' should not be construed to require a product be 'ready for shipment and sale' but rather construed according to the plain meaning as a test that takes place after the completion of the manufacturing process." Staff Br. at 53 (citing Littman Tr. 1757). The Staff also believes that "in communication" in the context of the '973 patent is limited to "physical touching." *Id.* (citing Haynes Tr. 2213-2216).

The specification of the '973 patent shows an embodiment of the claimed invention where a hole is disposed on the housing to provide a passage for a wire that moves the miswire protection switch into a closed position in post-manufacture testing. CX-7 at Fig. 6. As seen in Fig. 6, reproduced below (with added labels to show "hole," "wire," and "plug"), a wire 502 is also provided as part of the device, and is then capped by a plug 504 that may be pressed to move the wire 502 through the opening 506 into contact to close a miswire protection switch:



Thus, in addition to the fact that the plain claim language would allow the user-accessible feature to consist of a hole in the housing, such a construction is supported by the Figure 6 of the specification with shows that the claimed invention may have a hole in the housing.<sup>33</sup> There is no requirement in the claim for “communication” to consist of “physical touching.” See Haynes Tr. 2214, 2209. Indeed, to require the user accessible housing feature physically to touch the switch would be contrary to the embodiment of Figure 6. Finally, if one were to construe the term “post-manufacture” to refer to testing that occurs only after a GFCI is ready for sale, or sold to, an end-user, one would limit the claim so as to be contrary to the specification. The specification describes post-manufacture testing such as including UL compliance testing that occurs after a GFCI is assembled or manufactured, but is not the type of testing contemplated by ELE and the Staff. See CX-7 (the ‘973 patent) at col. 4, ll. 7-15. col. 5, ll. 38-62; Littman Tr. 1755-1756. Thus, the limitations that ELE and the Staff would read into claim 1 are not adopted.

**B. Infringement Determination**

***ELE’s 2006 GFCIs Infringe Claim 1***

P&S presented evidence through its expert, Dr. Littman, that the ELE 2006 GFCI contains every element recited in claim 1 of the ‘973 patent. See Littman Tr. 1762. In particular, and with reference to schematics and photographs of the ELE GFCIs, Dr. Littman explained how the accused devices include the GFCI device housing, the plurality of line and load terminals, a

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<sup>33</sup> In contrast, Figure 7 shows another embodiment with an actuation plug (resembling a button that can be pushed) with a spring.



GFCI circuit in the housing, the second detection circuit, and the user accessible housing feature.

Littman Tr. 1763-1768.

ELE's expert did not dispute the fact that the ELE GFCIs include a hole on the GFCI device housing that provides access to a miswire protection switch. It is undisputed that a pin is inserted through the hole at ELE's factory to close the switch and, as a result, the miswire protection circuit is armed. *See* Haynes Tr. 2103-2104.

In that regard, ELE's chief engineer confirmed that the miswire protection switch is closed after the device is manufactured. The switch is closed by inserting a pin through the hole in the housing. Li Tr. 2005-2008. The evidence shows that workers on the ELE production line insert the pin into the hole to close the switch. Li Tr. 2008. Thus, the ELE 2006 GFCI falls within the literal scope of claim 1 the '973 patent. The hole is the user-accessible housing feature that allows ELE to use an external stimulus to close and therefore arm the miswire protection switch after testing of the assembled product.

ELE's non-infringement argument is based on its proposed claim constructions, discussed above, that would have required a different structure for the claimed invention. *See* ELE Br. at 159-164; *see also*, Staff Br. at 74 (based on a similar proposed claim construction).

Accordingly, it is found that the ELE 2006 GFCI literally infringes claim 1 of the '973 patent.

### **C. Validity**

At the hearing, ELE adduced no testimony from its expert concerning the validity of the '973 patent. *See* Haynes Tr. 2072 (subjects as to which the expert had prepared an opinion). Consistent with its case-in-chief, ELE's post-hearing brief did not address invalidity. Also, the

Staff argues that it has not been shown that the claimed invention is invalid. *See* Staff Br. at 89-90.

Accordingly, the asserted claim of the '973 patent is presumed to be valid.

## **IX. U.S. Patent No. 7,154,718**

### **A. Claim Construction**

United States Patent No. 7,154,718, entitled "Protection Device with Power to Receptacle Cut-Off," issued on December 26, 2006, to David A. Findlay, Sr., Kent Morgan, Patrick J. Murphy, Dejan Radosavljevic, Jeffrey C. Richards, Gerald R. Savicki, Jr., Richard Weeks and Gary Wilson, and was assigned to P & S. CX-4 (the '718 patent).

The background portion of the specification contains an extensive discussion of GFCIs and problems associated with such devices, including the following:

In particular, a miswire condition exists when the power lines and the [sic] are connected to the hot output terminal and the neutral output terminal, respectively. For 120 VAC distribution systems, the hot power line and the neutral power line are configured to be connected to the hot line terminal and the neutral line terminal, respectively. If the electrical distribution system includes load wires, the miswire is completed by connecting the load wires to the line terminals. A miswire condition may represent a hazard to a user when a cord connected load is plugged into the user accessible receptacle included in the device. Even if the circuit is interrupted in response to a true or simulated fault condition, AC power is present at the terminals of the receptacle because the feed-thru terminals and the receptacle terminals are hard-wired. Thus, the user is not protected if there is a fault condition in the cord-connected load.

Besides miswiring, failure of the device to interrupt a true fault condition or simulated fault condition may be due to the device having an internal fault condition, also known as an end of life condition. The device includes electro-mechanical components that are subject to reaching end of life, including electronic

components can open circuit or short circuit, and mechanical components such as the contacts of the circuit interrupter that can become immobile due to welding, and the like.

In one approach that has been considered, the protective device is configured to trip in response to a miswire condition. Thus, if the power source of the electrical distribution system is connected to the load terminals (i.e., a line-load miswire condition), the circuit interrupting contacts will break electrical connection. The installer is made aware of the miswired condition when he discovers that power is not available to the downstream receptacles coupled to the miswired receptacle. After the miswiring condition is remedied, the interrupting contacts in the device can be reset. One drawback to this approach becomes evident when the protective device is not coupled to any downstream receptacles. In this scenario, the installer may not become aware of the miswire condition.

Accordingly, there is a need to deny power to the user accessible receptacles when the device is tripped. This safety feature is especially needed when the GFCI is miswired.

*Id.*, col. 2, l. 53 - col. 3, l. 26 (“Background of the Invention”).

The specification provides a lengthy summary of the claimed invention, in several aspects, that cannot be efficiently reproduced here. *See Id.*, col. 3, l. 30 - col. 6, l. 67. However, it is noted that the specification states that in general: “The present invention is configured to deny power to the user accessible plug receptacles when the device is tripped. Accordingly, the present invention provides a safety feature that eliminates a hazardous condition that may arise when the device is miswired.” *Id.*, col. 3, ll. 30-34.

As enumerated above (*see* section I.B.2), P&S asserts claim 52 of the ‘718 patent, which provides, as follows:

**52.** An electrical wiring protection device comprising:

a housing assembly including at least one user-accessible receptacle, the at least one user-accessible receptacle being

configured to receive plug contact blades inserted therein, the housing assembly including a hot line terminal, a neutral line terminal, a hot load terminal, and a neutral load terminal;

at least one set of receptacle contacts disposed in the housing assembly and in communication with the at least one user-accessible receptacle, the at least one set of receptacle contacts including a hot user-accessible load terminal and a neutral user accessible load terminal;

a fault detection circuit coupled to the test assembly, the fault detection circuit being configured to detect at least one fault condition and provide a fault detect signal in response thereto, the at least one fault condition including the simulated fault condition; and

a four-pole interrupting contact assembly coupled to the fault detection circuit, the four-pole interrupting contacts including, a hot cantilever assembly including a hot line cantilever connected to the hot line terminal and including a first hot contact disposed thereon, a fixed second hot contact coupled to the hot user-accessible load terminal, and a hot load cantilever connected to the hot load terminal and including a third hot contact disposed thereon, the first hot contact, the second hot contact, and the third hot contact being aligned and configured to provide electrical continuity between the hot line terminal, the hot load terminal, and the hot user-accessible load terminal in a coupled state and cause electrical discontinuity between the hot line terminal, the hot load terminal, and the hot user-accessible load terminal in a tripped state, and a neutral cantilever assembly including a neutral line cantilever connected to the neutral line terminal and including a first neutral contact disposed thereon, a fixed second neutral contact coupled to the neutral user-accessible load terminal, and a neutral load cantilever connected to the neutral load terminal and including a third neutral contact disposed thereon, the first neutral contact, the second neutral contact, and the third neutral contact being aligned and configured to provide electrical continuity between the neutral line terminal, the neutral load terminal, and the neutral user-accessible load terminal in a coupled state and cause electrical discontinuity between the neutral line terminal, the neutral load terminal, and the neutral user-accessible load terminal in a tripped state.

*Id.*, col. 28, l. 65 - col. 30, l. 3.

The disputed terms in claim 52 of the '718 patent are discussed below.

***“cantilever”***

P&S argues that the term “cantilever” should be construed as “an elongated flexible member having a fixed end and a movable end.” Compl. Br. at 200 (citing, *inter alia*, Stolfi Tr. 1409). The Staff, likewise relying upon the testimony of Dr. Stolfi, proposes a construction identical to that of P&S. Staff Br. at 30 (citing Stolfi Tr. 1408-1409).

Relying primarily on extrinsic evidence provided by its expert, Meihao argues that “cantilever” would be understood by one of ordinary skill in the art to mean “an elongated structure that is fixed at one end and free at the other end.” Meihao Br. at 40 (citing Horenstein Tr. 2872-2873).

One of ordinary skill reading claim 52, especially in the context of the '718 patent specification, would understand that a cantilever in the claimed invention is flexible and also that it must have a fixed end and a movable end. For example, with reference to one embodiment, the specification provides that “[n]eutral load contact 804 is a two-way contact that is disposed on flexible member 814, which is connected to load terminal 30. Line neutral contact 800 is connected to flexible member 816” CX-4 (the '718 patent) at col. 14, ll. 58-62; Stolfi Tr. 1408-1409.

Accordingly, the term “cantilever” is construed as “an elongated flexible member having a fixed end and a movable end.”

***“aligned and configured to provide electrical continuity”***

P&S argues that “aligned and configured to provide electrical continuity” should be

construed to mean “arranged in a mating relationship to provide electrical continuity.” Compl. Br. at 201 (citing, *inter alia*, Stolfi Tr. 1409). Similarly, the Staff argues that “[t]he term “aligned and configured to provide electrical connectivity” should be construed to mean “arranged in a mating relationship to provide electrical continuity,” which is entirely consistent with the use of the term in the ‘718 patent specification. Staff Br. at 30.

Meihao, however, argues that “aligned” means ““to bring into a line or alignment; to form a line’ so that, in context, sub element (iv) requires that the first contact, the second fixed contact and the third contact must form a co-axial line, either horizontally or vertically: ‘the essence of aligned is that the contacts being aligned must be in a line, aligned, in a line.” Meihao Br. at 42 (citing, *inter alia*, Horenstein Tr. 2871-2872, 2877).

There is no support in the claims and the specification for Meihao’s proposed construction. In fact, Meihao’s proposed construction is contrary to the ‘718 patent claims and specification. This fact is especially apparent when one considers the dependent claims which require specific alignments that would not be possible under Meihao’s definition of the term in independent claim 52. The mating relationship to provide electrical continuity is detailed in the specification of the ‘718 patent with respect to specific embodiments that would be excluded under Meihao’s definition. Stolfi Tr. 1409-1411; CX-4 (the ‘718 patent) at col. 7, l. 66 - col. 8, l. 2; col. 8, ll. 6-12.

Consequently, “aligned and configured to provide electrical continuity” is construed to mean “arranged in a mating relationship to provide electrical continuity.”

## **B. Infringement Determination**

P&S has set forth evidence concerning all limitations of the asserted claim, even those

whose construction was not in dispute.<sup>34</sup> Although P&S accuses both Meihao and its distributor TDE of infringement, as discussed above in the Background portion of this Initial determination, only Meihao attended the hearing and briefed the issues. Most of Meihao's arguments against a finding of infringement are based on its proposed claim constructions that were rejected in favor of those proposed by P&S.

***Meihao's 2006 GFCIs Infringe Claim 52***

The Meihao 2006 GFCI includes "a hot line cantilever connected to the hot line terminal and including a first hot contact disposed thereon," as required by claim 52. Stolfi Tr. 1412. The Meihao 2006 GFCI also includes "a fixed second hot contact coupled to the hot user-accessible load terminal." Stolfi Tr. 1413 In addition, the Meihao 2006 GFCI contains "a hot load cantilever connected to the hot load terminal and including a third hot contact disposed thereon" as required by claim 52. Stolfi Tr. 1413.

Furthermore, under proper construction of the term "aligned and configured to provide electrical continuity," the first, second, and third hot contacts in the Meihao 2006 GFCI are aligned and configured to provide electrical continuity in a coupled state and cause electrical discontinuity in a tripped state. *See* Stolfi Tr. 1413. Indeed, when fully assembled, the smaller fixed contact on the hot user-accessible load terminal is arranged in a mating relationship with the hot load cantilever, and the larger fixed contact on the hot user-accessible load terminal is arranged in a mating relationship with the hot line cantilever. Stolfi Tr. 1414-1415.

At the hearing, Meihao's expert, Dr. Horenstein seemed to be of the opinion that Meihao's 2006 GFCIs do not infringe because their user-accessible load terminals have four

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<sup>34</sup> *See* Stolfi Tr. 1406-1407 (evidence pertaining to undisputed claim limitations).

fixed contacts. *See* Horenstein Tr. 2887. Meihao argues in its brief that it has four contacts instead of the recited three, and that the indefinite article “a” used in the recited “a fixed second ... contact” must refer to only a single contact. *See* Meihao Br. at 50-51. However, these arguments are in error. As discussed above, infringement may not be avoided simply by adding features or components not required by the claims. In this instance, the claim requirement of having “a fixed second” contact on each of the hot and neutral side has been satisfied, and Meihao's 2006 GFCI does not avoid infringement by having two contacts on each of the user-accessible load terminals, rather than the recited one contact.

The neutral side of the Meihao 2006 GFCI is a mirror image of the hot side of the GFCI in that it contains a neutral line cantilever including a first neutral contact, a fixed second neutral contact coupled to the neutral user-accessible load terminal, and a neutral load cantilever including a third neutral contact. Stolfi Tr. 1417-1418. Thus, under the proper construction of the term “aligned and configured to provide electrical continuity,” the first, second, and third neutral contacts in the Meihao 2006 GFCI are aligned and configured to provide electrical continuity in a coupled state and cause electrical discontinuity in a tripped state. *See* Stolfi Tr. 1419.

When fully assembled, the smaller fixed contact on the neutral user-accessible load terminal is arranged in a mating relationship with the neutral contact on the neutral load cantilever, and the larger fixed contact on the neutral user-accessible load terminal is arranged in a mating relationship with the neutral contact on the neutral line cantilever, literally satisfying claim 52. Stolfi Tr. 1420.

Even if Meihao’s construction of the claim limitation “aligned” were to be adopted, the



Meihao 2006 GFCI nonetheless infringes claim 52 under the doctrine of equivalents. Meihao construes “aligned” to mean “the contacts must be in a line.” The “function” performed by the “aligned” limitation of claim 52 is providing electrical continuity between the line terminals, the load terminals, and the user-accessible load terminals in a coupled state, and causing electrical discontinuity between the line terminals, the load terminals, and the user-accessible load terminals in a tripped state. The alignment of contacts in Meihao's 2006 GFCI performs exactly the same function as is required by claim 52 because the alignment of contacts provides electrical continuity in the device when in a coupled state, and causes electrical discontinuity in a tripped state. Stolfi Tr. 1413-1415 (“the smaller of the two protrusions on the user accessible load terminal contacts the cantilever on the load terminal and the longer of the two protrusions on the user accessible load terminal contacts the cantilever from the line terminal.”). When the contacts described by Dr. Stolfi come into and out of contact with each other, electrical continuity is provided in a coupled state, and electrical discontinuity is caused in a tripped state. Stolfi Tr. 1413-1414; Horenstein, Tr. 2875-2876

The way claim 52 performs the function of providing electrical continuity in a coupled state, and causing electrical discontinuity in a tripped state, is by having three contacts (a line contact, a load contact, and a user-accessible load contact) that are aligned. The way Meihao's 2006 GFCI performs the requisite function is substantially the same as the way recited by claim 52. Meihao's 2006 GFCI uses 4 contacts, instead of just the three contacts recited in claim 52. The alignment of the line cantilever contact, the two user-accessible load contacts, and the load cantilever contact enable the Meihao 2006 GFCI to provide electrical continuity in a coupled state, and cause electrical discontinuity in a tripped state. Stolfi Tr. 1413-1414;

Finally, the result achieved by the aligned contacts recited in claim 52 is that the function of providing electrical continuity in a coupled state and causing electrical discontinuity in a tripped state is performed. The equivalent contact alignment in Meihao's 2006 GFCI achieves exactly the same result as the aligned contacts recited in claim 52. When the four contacts in Meihao's 2006 GFCI are in contact, the function of providing electrical continuity in a coupled state is performed, and when the contacts are out of contact, the function of causing electrical discontinuity in a tripped state is performed. The result achieved in Meihao's 2006 GFCI is exactly the same as the result achieved by the contact alignment recited in claim 52. *See* Stolfi Tr. 1413-1414.

Thus, the evidence shows that the Meihao 2006 GFCI satisfies all limitations of 52 literally, and also that the "aligned" limitation could also be met under the doctrine of equivalents. The Meihao 2006 GFCI infringes claim 52 of the '718 patent.

### **C. Validity**

Meihao argues that claim 52 of the '718 patent is invalid due to anticipation by Meihao's 2003 GFCI, which Meihao argues is prior art to the '718 patent pursuant to 35 U.S.C. § 102(b).<sup>35</sup> Meihao also argues that claim 52 is invalid as anticipated by Meihao's '952 patent (CX-254). Meihao's patent was discussed above in connection with infringement of the '340 patent in order to determine the structure of the 2003 GFCIs. Indeed, the fact that Meihao admits that the '952 describes its 2003 GFCIs is integral to the invalidity argument that Meihao makes as to the '718

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<sup>35</sup> Meihao's 2006 GFCIs are accused of infringing claim 52 of the '718 patent; its 2003 GFCIs are not.

patent. *See* Meihao Br. at 54-63.

The Staff argues that under its proposed claim construction, the evidence has not shown that claim 52 of the '718 patent is anticipated by the '952 patent. Staff Br. at 85.

P&S correctly argues that the Meihao '952 patent and 2003 GFCIs must be analyzed separately. P&S acknowledges that the '952 patent is prior art to the '718 patent. *See* P&S Reply at 106-07.

The '952 patent does not anticipate asserted claim 52 of the '718 patent because it does not disclose the load cantilevers required by claim 52. As discussed above in the section on claim construction, a cantilever in the context of claim 52 is “an elongated flexible member having a fixed end and a movable end.” As explained at the hearing by P&S’s expert, Dr. Stolfi, the elements that Meihao refers to as load cantilevers in the '952 patent are not described therein as either flexible or movable. *See* Stolfi Tr. 3229-3231.

With respect to Meihao’s 2003 GFCI products, there is a lack of clear and convincing evidence that the products were on sale or offered for sale before the critical date of the '718 patent. For example, neither respondent that distributed Meihao products (TDE and USI) appeared at the hearing to offer proof on this issue. They might have explained the circumstances of sales or offers for sale of the Meihao’s 2003 GFCIs; but they did not. Moreover, the documents relied on by Meihao (CX-500C and RX-3022) to establish sale or offer for sale do not state both the date and products that were sold or offered for sale.

Additionally, Meihao fails to compare the 2003 GFCI directly to claim 52 of the '718 patent. In contrast, P&S’s expert provided his opinion that the element Meihao identifies as the load cantilever is not elongated as required by claim 52. *See* Stolfi Tr. 3255-3256. Thus, if it

were established that the Meihao 2003 GFCI were prior art to the '718 patent, there would still be a lack of evidence that it contains all elements required by claim 52.

Accordingly, it has not been shown by clear and convincing evidence that claim 52 of the '718 patent is invalid due to anticipation.

## **X. Domestic Industry**

### **A. Background**

As stated in the notice of investigation, a determination must be made as to whether an industry in the United States exists as required by subsection (a)(2) of section 337. Section 337 declares unlawful the importation, the sale for importation, or the sale in the United States after importation of articles that infringe a valid and enforceable U.S. patent “only if an industry in the United States, relating to articles protected by the patent . . . concerned, exists or is in the process of being established.” There is no requirement that the domestic industry be based on the same claim or claims alleged to be infringed. 19 U.S.C. § 1337(a)(2).

The domestic industry requirement consists of both an economic prong (*i.e.*, there must be an industry in the United States) and a technical prong (*i.e.*, that industry must relate to articles protected by the patent at issue). *See Certain Ammonium Octamolybdate Isomers*, Inv. No. 337-TA-477, Comm’n Op. at 55, USITC Pub. 3668 (Jan. 2004). The complainant bears the burden of proving the existence of a domestic industry. *Certain Methods of Making Carbonated Candy Products*, Inv. No. 337-TA-292, Comm’n Op. at 34-35, USITC Pub. 2390 (June 1991).

Thus, in this investigation it must be shown by P&S that it satisfies both the technical and economic prongs of the domestic industry requirement with respect to the asserted patents.

## **B. Analysis**

### **1. Technical Analysis**

P&S presented evidence that its G4 and, or, G5 products practice at least one claim of each asserted patent.

#### ***The '398 Patent***

During the hearing, P&S presented evidence through its expert, Dr. Stolfi, that its G4 and G5 GFCIs contain each and every element of claim 1 of the '398 patent. The products are “ground fault interrupter wiring device[s]” as required by the preamble. Stolfi Tr. 1391. They contain a “housing means” as required by element (a). Stolfi Tr. 1391-1392, 1398. They have “at least one pair of electrical terminals fixedly supported in spaced relation within said enclosed space” as required by element (b). Stolfi Tr. 1392, 1399. The devices have “a unitary, electrically conducting member carrying a pair of spaced electrical contacts” as required by element (c). Stolfi Tr. 1392, 1399. They have a “mounting means” as required by element (d). Stolfi Tr. 1393, 1399-1400. They contain a “biasing means” as required by element (e). Stolfi Tr. 1393-1394, 1400-1401. They have a “latching means” as required by element (f). Stolfi Tr. 1394, 1401-1402. They contain an “actuating means” as required by element (g). Stolfi Tr. 1395-1396, 1402-1404.

Trimone challenges the G4 on the grounds that the G4 is no longer sold. *See* Trimone Brief at 61.<sup>36</sup> However, that allegation, if true (and which is disputed by P&S), would not preclude the finding of a domestic industry. In any event, the economic prong has already been

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<sup>36</sup> A similar argument is made by ELE with respect to the '973 patent. *See* ELE Br. at 164-69.

decided by summary determination. *See* Order No. 45.

Trimone also argues that the G5 does not have a unitary electrically conducting member because the G5's member is fixedly connected at one end to the line terminal thereby being integral to that terminal. Trimone Br. at 62. However, the fact that the G5's electrically conducting member is attached to another component does not prevent it from satisfying the claim limitation. Indeed, the specification contemplates other components attached to the unitary, electrically conducting member. *See* CX-2 ('398 patent), col. 12, ll. 46-51, Fig. 34.

Trimone also argues that the contacts in the G5 are positioned at the very end of the conducting arm instead of being spaced apart. Trimone Br. at 62. However, the G5 does have the requisite contacts, and their position at the end of the electrically conducting member does not take them out from under the claim. *See* Stolfi Tr. 1399 ("two contacts on the end").

Accordingly, it is found that P&S's G4 and G5 products practice claim 1 of the asserted '398 patent, thereby satisfying the technical prong with respect to the patent.

### ***The '340 Patent***

During the hearing, P&S demonstrated that its G4 and G5 GFCIs practice claim 30 of the '340 patent. In particular, Dr. Harman testified that P&S's G4 and G5 GFCIs have a plurality of line terminals and a plurality of load terminals. Harman Tr. 998-999. The G4 and G5 GFCIs have a ground fault detection circuit coupled to the plurality of line terminals and plurality of load terminals, which claim 30 also recites. Harman Tr. 999, 1003-1004. The G4 and G5 GFCIs contain the "wiring state detection circuit" limitation of claim 30, including the recitation that the wiring state detection circuit is permanently disabled after the occurrence of the predetermined response. Harman Tr. 999-1001, 1004-1005. P&S's G4 and G5 GFCIs also have a solenoid coil

coupled to the wiring state detection circuit. Harman Tr. 1001, 1005. Finally, P&S's G4 and G5 GFCIs satisfy the "circuit interrupter" limitation, which is the last limitation in the claim. Harman Tr. 1001-1002, 1005.

Accordingly, it is found that P&S's G4 and G5 GFCIs practice claim 30 of the '340 patent, and thereby satisfy the technical prong of the domestic industry requirement as to that patent.

### ***The '386 Patent***

During the hearing, P&S established that P&S's G4 and G5 GFCIs satisfy each limitation of claim 34 the '386 patent. They meet the line conductor and load conductor limitation. Harman Tr. 1011, 1013-1014. The G4 and G5 GFCIs also satisfy the "fault detection circuit" limitation of claim 34. Harman Tr. 1011, 1014-1015. The G4 and G5 GFCIs satisfy the "actuator" limitation. Harman Tr. 1012, 1015. P&S's G4 and G5 GFCIs also have a circuit interrupter configured to be driven into the tripped state in response to the stimulus generated by the actuator. Harman Tr. 1012, 1015. As Dr. Harman testified, P&S's G4 and G5 GFCIs also have a reset mechanism configured to drive the circuit interrupter from the tripped state into the reset state. Harman Tr. 1012-1013, 1015-1016. Finally, P&S's G4 and G5 GFCI meet the "miswire detection circuit" limitation of claim 34, which is the last limitation of the claim. Harman Tr. 1013, 1016; Packard Tr. 470-472.

Consequently, it is found that P&S's G4 and G5 GFCIs contain each limitation of claim 34 of the '386 patent, and thereby satisfy the technical prong of the domestic industry requirement as to that patent.

### *The '564 Patent*

P&S established during the hearing that its G4 GFCIs include each limitation of claim 1 of the '564 patent. The G4 GFCI contains the claimed switching device and an indicator circuit coupled to the switching device that illuminates based on the impedance of the switching device. Littman Tr. 1744. In particular, Dr. Littman explained in detail how the G4 GFCIs include the claimed line and load terminals, the claimed fault detection circuit, the switching device and associated limitations, the claimed circuit interrupting assembly, and the claimed indicator circuit coupled to the switching device. Littman Tr. 1745-1750.

As further established by P&S during the hearing, the P&S G5 GFCIs include all of the elements of claim 1. *See* Littman Tr. 1750. In particular, the P&S G5 GFCIs include the claimed line and load terminals, the claimed fault detection circuit, the switching device and associated limitations, the claimed circuit interrupting assembly, and the claimed indicator circuit coupled to the switching device. Littman Tr. 1750-1754.

Accordingly, it is found that P&S's G4 and G5 GFCIs practice claim 1 of the '564 patent, thereby satisfying the technical prong of the domestic industry requirement as to that patent .

### *The '973 Patent*

P&S established during the hearing that its G4 and G5 GFCIs practice claim 1 of the '973 patent. Littman Tr. 1772. The P&S G4 GFCIs include a housing, a plurality of line and load terminals, a GFCI circuit, a second detection circuit, and a user accessible housing feature. Littman Tr. 1772-1778.

P&S's G5 GFCIs include a removable cap that provides a hole on the housing through which a user may close the miswire protection switch by depositing solder to bridge two contacts



associated with the miswire protection switch. As a result, the switch is closed and the miswire protection circuit may be enabled after the conclusion of post-manufacture testing. Littman Tr. 1783-1786. Using photographs and schematics of the P&S G5 GFCIs, Dr. Littman detailed how the P&S G5 GFCIs include each and every element claim 1 of the '973 patent when construed in the manner explained above in the section of claim construction of the '973 patent. See Littman Tr. 1781-1785.

### ***The '718 Patent***

It was undisputed at the hearing P&S's Series 1595 and 2095 of the G5 GFCIs practice claim 52 of the '718 patent. See Horenstein Tr. 2993; Stolfi Tr. 1406-1407. In its brief, Meihao did not challenge the '718 patent specifically on the technical prong issue.

Accordingly, it is found that the technical prong of the domestic industry requirement is satisfied as to the '718 patent.

## **2. Economic Analysis**

The economic prong of the domestic industry requirement is defined in subsection 337(a)(3) as follows:

(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 or mask work 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.

19 U.S.C. § 1337(a)(3).

The economic prong of the domestic industry requirement is satisfied by meeting the criteria of any one of the three factors listed above.

As discussed above in the Background portion of this Initial Determination, Order No. 45 in this investigation contains an unreviewed initial determination granting complainant's motion for summary determination that it has satisfied the economic prong of the domestic industry requirement. It was found for the purposes of this investigation that P&S satisfied the economic prong of the domestic industry requirement as to all currently asserted patents. See Notice of Comm'n Decision Not to Review an Initial Determination Granting a Motion for Summary Determination That the Economic Prong of the Domestic Industry Requirement Has Been Satisfied (June 11, 2008).

Accordingly, the economic prong of the domestic industry question is deemed to be satisfied as to each asserted patent.

### **C. Conclusion**

As discussed above, P&S has established that both the technical and economic prongs of the domestic industry requirement have been satisfied. Consequently, it is found that a domestic industry exists, and the domestic industry is satisfied as to all six patents asserted in this investigation.

## **XI. Conclusions of Law**

1. The Commission has personal jurisdiction over the parties, subject-matter jurisdiction over the investigation, and *in rem* jurisdiction over the accused products.

2. The importation or sale requirement of section 337 is satisfied as to all accused products.

3. ELE's 2006 GFCIs infringe claims 1, 7, and 8 of the '398 patent.
4. Meihao's 2003 GFCIs infringe claims 1 and 7 of the '398 patent.
5. GPG's 2006 GFCIs infringe claims 1 and 7 of the '398 patent.
6. GPG's 2003 GFCIs infringe claims 1 and 7 of the '398 patent.
7. Trimone's 2006 GFCIs infringe claims 1, 7, and 8 of the '398 patent.
8. It has not been established by clear and convincing evidence that any asserted claim of the '398 patent is invalid due to obviousness.

9. ELE's 2006 GFCIs infringe claims 14, 18, and 30 of the '340 patent.
10. Meihao's 2003 and 2006 GFCIs infringe claims 14 and 18 of the '340 patent.
11. Trimone's 2006 GFCIs infringe claims 14 and 18 of the '340 patent.
12. GPG's 2003 and 2006 GFCIs infringe claims 14 and 18 of the '340 patent.
13. It has not been established by clear and convincing evidence that any asserted claim of the '340 patent is invalid due to obviousness.

14. It has not been established by clear and convincing evidence that the '340 patent is unenforceable due to inequitable conduct.

15. ELE's 2003 and 2006 GFCIs infringe claim 1 of the '386 patent.
16. Meihao's 2003 and 2006 GFCIs infringe claim 1 of the '386 patent.
17. Trimone's 2006 GFCIs infringe claim 1 of the '386 patent.
18. GPG's 2003 and 2006 GFCIs infringe claim 1 of the '386 patent.
19. It has not been established by clear and convincing evidence that the asserted claim of the '386 patent is invalid due to anticipation or obviousness.

20. It has not been established by clear and convincing evidence that the '386 patent is

unenforceable due to inequitable conduct.

21. ELE's 2006 GFCIs infringe claims 1 and 15 of the '564 patent.

22. It has not been established by clear and convincing evidence that either asserted claim of the '564 patent is invalid due to obviousness or for any other reason.

23. ELE's 2006 GFCIs infringe claim 1 of the '973 patent.

24. It has not been shown by clear and convincing evidence that claim 1 of the '973 patent is invalid due to obviousness or for any other reason.

25. Meihao's 2006 GFCIs infringe claim 52 of the '718 patent.

26. It has not been shown by clear and convincing evidence that claim 52 of the '718 patent is invalid due to anticipation.

27. The domestic industry requirement has been satisfied with respect to each asserted patent.

## **XII. Initial Determination and Order**

Based on the foregoing, it is the INITIAL DETERMINATION ("ID") of the undersigned that a violation of section 337 of the Tariff Act of 1930, as amended, has occurred in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain ground fault circuit interrupters by reason of infringement of one or more of claims 1, 7, and 8 of United States Patent No. 5,594,398; claims 14, 18, and 30 of United States Patent No. 7,283,340; claim 52 of United States Patent No. 7,154,718; claims 1 and 15 of United States Patent No. 7,164,564; claim 1 of United States Patent No. 7,212,386; and claim 1 of United States Patent No. 7,256,973.

Further, this Initial Determination, together with the record of the hearing in this

investigation consisting of:

- (1) the transcript of the hearing, with appropriate corrections as may hereafter be ordered, and
- (2) the exhibits received into evidence in this investigation, as listed in the attached exhibit lists, is CERTIFIED to the Commission.

In accordance with 19 C.F.R. § 210.39(c), all material found to be confidential by the undersigned under 19 C.F.R. § 210.5 is to be given *in camera* treatment.

The Secretary shall serve a public version of this ID upon all parties of record and the confidential version upon counsel who are signatories to the Protective Order (Order No. 1) issued in this investigation, and upon the Commission investigative attorney.

To expedite service of the public version, each party is hereby ORDERED to file with the Commission Secretary by no later than October 1, 2008, a copy of this ID with brackets that show any portion considered by the party (or its suppliers of information) to be confidential, accompanied by a list indicating each page on which such a bracket is to be found. At least one copy of such a filing shall be served upon the Administrative Law Judge, and the brackets shall be marked in red. If a party (and its suppliers of information) considers nothing in the ID to be confidential, and thus makes no request that any portion be redacted from the public version of this ID, then a statement to that effect shall be filed in lieu of a document with brackets.

Pursuant to 19 C.F.R. § 210.42(h), this Initial Determination shall become the determination of the Commission unless a party files a petition for review pursuant to § 210.43(a) or the

Commission, pursuant to § 210.44, orders on its own motion a review of the ID or certain issues herein.

*Carl C. Charneski*

Carl C. Charneski  
Administrative Law Judge

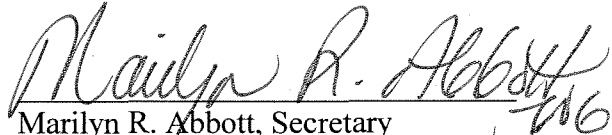
Issued: September 24, 2008

**CERTAIN GROUND FAULT CIRCUIT INTERRUPTERS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-615**

**PUBLIC CERTIFICATE OF SERVICE**

I, Marilyn R. Abbott, hereby certify that the attached **INITIAL DETERMINATION** has been served upon the Commission Investigative Attorney, **Bryan F. Moore, Esq.**, and the following parties as indicated, on December 22, 2008.



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**CERTAIN GROUND FAULT CIRCUIT INTERRUPTERS AND PRODUCTS  
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**Inv. No. 337-TA-615**

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**CERTAIN GROUND FAULT CIRCUIT INTERRUPTERS AND PRODUCTS  
CONTAINING SAME**

**Inv. No. 337-TA-615**

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