

In the Matter of

**SPRING ASSEMBLIES AND
COMPONENTS THEREOF, AND METHODS
FOR THEIR MANUFACTURE**

Investigation No. 337-TA-88



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United States International Trade Commission / Washington, D.C. 20436

UNITED STATES INTERNATIONAL TRADE COMMISSION

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COMMISSION ACTION AND ORDER

Introduction

The United States International Trade Commission has concluded its investigation under section 337 of the Tariff Act of 1930 (1930 U.S.C. § 1337) of alleged unfair methods of competition and unfair acts in the unauthorized importation into the United States of certain spring assemblies and components thereof or in their sale by the owner, importer, consignee, or agent of either, the alleged effect or tendency of which is to destroy or substantially injure an industry, efficiently and economically operated, in the United States. The Commission's investigation concerned allegations that spring assemblies imported or sold by respondents P. J. Wallbank Manufacturing Co., Ltd., General Motors Corp., and Ford Motor Corp. are covered by certain claims of U.S. Letters Patent 3,782,708 and are the product of a process covered by U.S. Letters Patent 3,866,287. Both patents are owned by complainant Kuhlman Corp.

This Action and Order provides for the final disposition of investigation No. 337-TA-88 by the Commission. It is based upon the Commission's unanimous determination, made in public session at the Commission meeting of July 14, 1981, that there is a violation of section 337.

Action

Having reviewed the record and the recommended determination of the Administrative Law Judge in investigation No. 337-TA-88, the Commission, on July 14, 1981, determined that--

1. There is a violation of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337) in the importation and sale of certain spring assemblies which infringe U.S. Letters Patent 3,782,708 and which are the product of a process that, if practiced in the United States, would infringe U.S. Letters Patent 3,866,287, the effect or tendency of which is to substantially injure an industry, efficiently and economically operated, in the United States;
2. The appropriate remedy for such violation of section 337 is an exclusion order, pursuant to subsection (d) of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337(d)), preventing the importation of spring assemblies and components thereof which infringe claims 1, 2, 7, 8, 9, 10, or 11 of U.S. Letters Patent 3,782,708 or which are the product of a process that, if practiced in the United States, would infringe claims 1, 3, 6, 7, or 31 of U.S. Letters Patent 3,866,287.

3. The public interest factors enumerated in subsection (d) of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337(d)) do not preclude the issuance of an exclusion order in this investigation; and
4. As provided in subsection (g)(3) of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337(g)(3)), the appropriate bond during the period this matter is pending before the President is in the amount of 72 percent of the c.i.f. value of the imported articles.

Order

Accordingly, it is hereby ORDERED THAT--

1. Spring assemblies and components thereof that infringe claims 1, 2, 7, 8, 9, 10, or 11 of U.S. Letters Patent 3,782,708 or are the product of a process which, if practiced in the United States, would infringe claims 1, 3, 6, 7, or 31 of U.S. Letters Patent 3,866,287 are excluded from entry into the United States for the remaining terms of the patents, except where such importation is licensed by the patent owner;
2. The articles to be excluded from entry into the United States shall be entitled to entry under bond in the amount of 72 percent of the c.i.f. value of the imported articles from the day after this order is received by the President pursuant to subsection (g) of section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337(g)) until such time as the President notifies the Commission that he approves or disapproves this action, but, in any event, not later than 60 days after the date of receipt;
3. Notice of this Action and Order be published in the Federal Register;
4. A copy of this Action and Order and of the Commission opinion in support thereof be served upon each party of record to this investigation and upon the Department of Health and Human Services, the Department of Justice, the Federal Trade Commission, and the Secretary of the Treasury; and

5. This Order supersedes the Order issued by the Commission on August 10, 1981.
6. The Commission may amend this Order in accordance with the procedure described in rule 211.57 of the Commission's Rules of Practice and Procedure (46 F.R. 17533, Mar. 18, 1981).

By order of the Commission.

Kenneth R. Mason
Secretary

Issued:

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COMMISSION OPINION

PROCEDURAL HISTORY 1/

Kuhlman Corporation of Troy, Michigan, (Kuhlman) filed a complaint with the Commission on June 23, 1980, alleging that P. J. Wallbank Co., Ltd. of Canada (Wallbank) had violated section 337.

The Commission voted on July 22, 1980, to institute an investigation in order to determine if there was a violation of section 337 in the unauthorized importation of certain spring assemblies and components thereof into the United States, or in their sale, because such spring assemblies are alleged to be covered by claims 1, 2, and 7-11 of U.S. Letters Patent 3,782,708 (the '708 patent) and to be made in accordance with claims 1-37 of U.S. Letters Patent 3,866,287 (the '287 patent), the effect or tendency of which is to destroy or substantially injure an industry, efficiently and economically operated, in the United States. The Commission issued a notice of investigation on August 8, 1980, 2/ naming as respondents P. J. Wallbank Co., Ltd., Ford Motor Co. (Ford) and General Motors Corp (GM). Ford entered an appearance, cooperated in discovery, and filed submissions relating to the public interest, but did not otherwise participate in the investigation.

The evidentiary hearing before the ALJ (Judge Saxon) was held from February 2 to February 27, 1980. Findings of fact, conclusions of law, and posthearing briefs were filed by all active participants in the hearing. 3/

1/ The following abbreviations will be used in this opinion: (1) ALJ for Administrative Law Judge, (2) R.D. for the Recommended Determination of the ALJ, (3) Tr. for transcript of the hearing before the ALJ, (4) KX for Kuhlman Exhibit, (5) WX for Wallbank exhibit, and (6) GMX for GM exhibit.

2/ 46 F.R. 7106.

3/ Kuhlman Corp., General Motors Corp., P. J. Wallbank Co., Ltd., and the Commission investigative attorney.

Judge Saxon filed her recommended determination with the Commission on April 27, 1980, finding a violation of section 337 by virtue of the infringement of the '287 patent only. 4/ All active parties filed exceptions to the recommended determination and briefs with the Commission.

The hearing before the Commission was held on Wednesday, June 10, 1981, notice of which was published in the Federal Register on May 13, 1981. 46 F.R. 26590. Representatives of Kuhlman, GM, and Wallbank, as well as the Commission investigative attorney, presented oral argument to the Commission on the issues of the violation of section 337, the appropriate remedy, bonding and the public interest. Ford submitted a statement on the issue of the public interest, but chose not to make an oral presentation at the Commission hearing. Kuhlman, GM, Wallbank, and the Commission investigative attorney all submitted posthearing briefs and responses to specific questions of the Commissioners. Ford filed only a response to a request from one Commissioner regarding the level of spring assembly inventory that Ford is currently maintaining. No government agency filed submissions or entries of appearance.

The Canadian Government submitted two diplomatic notes to the Deputy Assistant Secretary of State for Trade and Commercial Affairs, one on February 19, 1981, and one on June 4, 1981, in response to the ALJ's recommended determination. Canada expressed its opposition to the exclusion of only imported articles from the U.S. market, alleging that such action would be in violation of the "national treatment" provisions of article III of the General Agreement on Tariffs and Trade (GATT). Canada also expressed concern over the treatment of the substantial injury issue in the R.D.

4/ The ALJ found the '708 (product) patent invalid.

I. FACTUAL SUMMARY 5/

The investigation concerns spring assemblies used exclusively in certain automatic transmissions of GM and Ford automobiles. The assembly consists of an annular steel plate to which a number of compression coil springs are attached. The springs are substantially perpendicular to the plate, substantially parallel to each other, of substantially the same height, and evenly spaced around the ring-shaped plate.

In 1969, GM used helical springs in the clutch assemblies of some of its transmissions. The springs for some clutches were assembled by hand; others were assembled by automatic spring feeders before they were secured in place in the clutch. Tr. 596-602. Assembly of the springs by hand often resulted in the tangling of many of the springs. After the springs were assembled loosely on a base, they were carried on a jiggling conveyor, sometimes falling out of position before they were finally secured in place in the clutch. KX-129, p. 9-11. Manual assembly of the springs required high labor costs to assure that all the springs in each assembly reached the clutch. Moreover, a large number of tangled springs were lost as scrap. R.D. at 7. Difficulties were also experienced with the automatic spring feeders. Tr. 600-601. Several GM employees suggested that the springs be preassembled on a base, so that they would not become tangled and would remain in position until they were secured in the clutch assembly. R.D. at 7.

In late 1970, Mr. Kruse, an engineer at GM's Chevrolet-Parma plant, built a model spring assembly by securing 17 springs to a base with epoxy. The

5/ For a more detailed discussion of the factual background of this case, see the R.D. of the ALJ at 6-13.

spring assembly was put in an oven to harden the epoxy. This model (the Kruse epoxy model) was intended as a concept model to show what parts were to be assembled. The epoxy which was used had not been tested or used for functional use in a transmission. Tr. 2378-2384.

On February 3, 1971, Mr. Kruse submitted a "methods improvements proposal" to attach springs to a spring retainer. GM Ex. 1. He suggested three possible methods of attaching the springs to the base: (1) gluing, (2) brazing, 6/ or (3) "making projections on retainer which capture spring." KX-92. GM devoted some time and effort to the development of spring assemblies using the above methods. However, it ultimately decided to present the problem and the desired end product to its spring suppliers. It is not clear whether GM abandoned any serious efforts to develop the spring assemblies or whether it decided that it would be more economical to let a supplier develop and supply them.

In 1971, Mr. Dooley, a buyer at GM's Chevrolet-Parma plant, showed the Kruse epoxy model to various spring suppliers. KX-90, p. 40. Mr. Dooley met with Mr. Dulude of Kuhlman on February 24, 1971, for approximately 20 to 30 minutes. Tr. 3593. During the conversation three possible ways to make the spring assembly were discussed: (1) welding, (2) adhesive bonding, and (3) snapping the spring over a protuberance on the base. It is not clear whether Mr. Dooley indicated that these methods of attachment were tried by GM but did not work or whether he suggested them as ways that could be pursued. It is unlikely that Mr. Dooley told Mr. Dulude that the three suggested

6/ Brazing involves soldering, or putting an alloy between the spring and the base and then heating the alloy to form a seal. Welding involves heating the point of contact between the spring and the base until they both melt enough to form a seal.

methods would work, because he was aware that GM had considered them and had not produced a usable spring assembly. KX-90, p. 29-42. In addition, the Kruse epoxy model was shown to Mr. Dulude.

Under the GM specifications, the springs had to be so securely attached that they could survive a 90-degree bend in any direction when a load was applied to the unattached end of the coil. The springs had to be relatively straight, i.e., perpendicular to the base. If the springs were securely attached to the base, the expensive cast bosses 7/ on the transmission which formerly had held the springs in the clutch could be eliminated, thereby effecting a cost saving. Tr. 2372-2374. Thus, ideally, the attachment not only had to be secure enough to keep the spring in place until assembled, but also had to last the life of the transmission.

Mr. Dulude decided that he would try to form protuberances with holes in them on the steel stamping on which the springs would be placed, and to put a punch through the center of the protuberances so that they would be expanded to stake or grip the springs. After returning from his meeting with Mr. Dooley, Mr. Dulude discussed this idea with Mr. Winbigler, an engineer at Quality Spring, a division of the Kuhlman Corporation. 8/ Mr. Winbigler immediately went to work on the project, devoting substantially all of his time to it.

7/ Bosses are nubs or protuberances which were formerly used to keep the individual springs in place once they were placed in the transmission. The subject spring assemblies dispensed with the need for the bosses because the springs are securely attached to the base. See p. 7, supra.

8/ Kuhlman and Quality Spring will be used interchangeably in this opinion.

A few hand-made prototypes were made within approximately two weeks. However, it took several months for Mr. Dulude and Mr. Winbigler to develop a process for mass producing the spring assemblies. Quality Spring began selling the assemblies to GM in 1971. The initial patent application was filed on December 1, 1971. The process is taught in the '287 patent and the product made by this process is described in the '708 patent. The '708 product patent issued on January 1, 1974, and the '287 process patent issued February 18, 1975.

Soon after the product was accepted for use at GM, GM advised Quality Spring that, pursuant to their multiple sourcing policy, a second source for these spring assemblies would be required. Quality Spring sent a letter dated June 12, 1972, to Buick Motor Division of GM (GM Ex. 51) in which Quality Spring stated that it would give Buick a free license under any patents it obtained on the spring assembly as long as Quality Spring supplied a minimum of two-thirds of the spring assemblies purchased by Buick. On July 21, 1972, this offer was expressly rejected by GM. GM Ex. 51. Nevertheless, for approximately three years, GM purchased 100 percent of its spring assemblies for Buick's low and reverse clutch assemblies from Quality Spring. Quality Spring also received 100 percent of the business on certain spring assemblies used at Chevrolet-Parma. R.D. at 13.

Quality Spring in fact did not press its patent claims until its share of GM's purchases of spring assemblies fell substantially below two-thirds. When that occurred in 1977 (after Wallbank entered the U.S. market selling identical spring assemblies), Quality Spring began to take steps to

enforce its patents, and eventually brought this section 337 action against Wallbank. Quality Spring is also suing Wallbank in Canadian and U.S. courts, and has stated that it will file infringement actions against domestic sources of its patented product.

Prior to Wallbank's entry into the market, there were four U.S. producers of transmission spring assemblies: Associated Spring, Peterson Spring, Rockford Spring, 9/ and Quality Spring. Rockford Spring stopped manufacturing spring assemblies in 1979. Thus, there are now three U.S. producers of the spring assemblies, plus one Canadian producer, Wallbank. The spring assemblies produced by Associated Spring and Peterson Spring are almost indistinguishable from those manufactured by Quality Spring.

II. JURISDICTION

The Agreement Concerning Automotive Products Between the Government of the United States of America and the Government of Canada (the Autopact), and the ensuing Automotive Products Trade Act of 1965 (APTA) do not deprive the Commission of section 337 jurisdiction in this case. Wallbank argued that the two instruments, in effect, make Canadian automotive products manufacturers part of the U.S. industry; thus, the spring assemblies are not "imported" for purposes of section 337. Wallbank Posthearing Brief at 3-6. The Commission action in this case does not result in unequal treatment of a Canadian corporation vis-a-vis U.S. corporations. We find that section 337 jurisdiction properly lies in this case.

9/ Rockford produced a welded spring assembly, which it developed three to four years after Quality Spring's invention. Rockford's spring assembly never gained a large share of the market.

The Autopact deals specifically with the reduction of tariffs. It mentions the reduction of other barriers to trade in the sense of a future goal. Moreover, the Autopact deals with the liberalization of fair trade practices, not unfair trade practices. One of the objectives of the treaty is "the liberalization of United States and Canadian automotive trade in respect to tariff barriers and other impediments with a view to enabling the industries of both countries to participate on a fair and equitable basis in the expanding total market of the two countries" (Emphasis added.) Article I of the Autopact.

Wallbank contends that since APTA does not specifically exclude section 337 from the purview of the Autopact, section 337 proceedings cannot be brought against Canadian corporations selling auto parts in the United States because it would be a "factor tending to impede" automotive trade between Canada and the United States.

Although section 2033 of APTA, which specifically exempts the antidumping laws and the antitrust laws from the Autopact, does not specifically mention section 337 proceedings, the legislative history of section 2033 states:

The agreement permits either government to take action consistent with its obligation under part II of the General Agreement on Tariffs and Trade (GATT)(art. III). Part II of the GATT includes provisions permitting contracting parties to take antidumping measures and escape clause actions. In this connection, it should be made clear that nothing in this agreement nor in this enabling legislation acts to dull the operation of our remedial statutes. Report of the Committee on Finance, S. Rep. No. 782, 89th Cong., 1st Sess. 7 (1965). (Emphasis added.)

The use of the word "includes" in referring to part II of the GATT plainly indicates that "antidumping measures and escape clause actions" was not meant

to be an exhaustive list of the measures permissible under either Part II of the GATT or the legislation. The last sentence quoted was clearly intended to cover a broader class of actions than those specifically referred to in the legislative history. Use of the phrase "[i]n this connection" indicates that the sentence is not limited to the specifics of the surrounding discussion. Moreover, the use of the term "remedial statutes" clearly addresses a broader category of statutes than merely the antitrust laws, the escape clause and the antidumping laws. The plain import of the sentence is that the Congress did not interpret the Autopact as affecting or intend the enabling legislation to affect U.S. remedial statutes involving trade between the two countries. Section 337, addressing only unfair trade practices, is such a statute.

Wallbank's claim of status as a U.S. corporation is somewhat disingenuous in light of the fact that it successfully avoided a complete inspection of its factory in Canada on the grounds that the Commission had no authority to require that a Canadian company allow a U.S. competitor to inspect its production facilities. R.D. at 5.

Section 337 does not discriminate against foreign corporations by virtue of their foreign status. It applies to foreign and domestic corporations alike. Section 337 gives the Commission jurisdiction over products imported from a foreign country, even if they are manufactured and/or imported by a U.S. corporation. The Commission's jurisdiction lies in unfair acts occurring in connection with the importation of goods into the United States or their sale, and it extends to all persons engaged in such unfair acts. A U.S. corporation that is not engaged in the importation or sale of articles can be sued for the same unfair trade practice under an analagous cause of action, patent infringement, in a U.S. District Court. Moreover, in order to obtain

relief in the district court, a plaintiff must prove only one of the elements of a section 337 cause of action, the unfair act of patent infringement. A district court plaintiff need not prove the other elements of a section 337 violation, nor demonstrate that the remedy is in the public interest.

III. VALIDITY OF THE '708 PATENT

Respondents contend that the claims of the '708 patent in issue are invalid because they would have been obvious to one of ordinary skill in the relevant art at the time of the claimed invention. Respondents further allege that the '708 patent is invalid for failure to teach the "best mode" for use of the claimed invention.

A. Obviousness

Section 103, 35 U.S.C. § 103 of the U.S. patent statute, states 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 the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The Supreme Court has set forth the appropriate analysis to determine the validity of a patent under section 103:

[T]he scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. As indicia of obviousness or nonobviousness, these inquiries may have relevancy. Graham v. John Deere Co., 383 U.S. 1, 17-18 (1965)

1. The Scope and Content of the Prior Art

The Schaad Patent, U.S. Letters Patent 3,122,829, is the most relevant prior art. Cited by the patent examiner in the '708 patent, it is closer to the '708 patent than any of the other alleged prior art cited in this investigation. The Schaad patent (KX-15) teaches an assembly of unground springs staked to a single metal base pan in which the upwardly turned rim portions are crimped or bent over the bottom coil of each spring. The upper end of each spring is attached to and positioned by a separator pan. The Schaad assembly was intended to be used in seats, but the method was never used. 10/

We fully agree with the ALJ's analysis of the status of the Delco Moraine products and the Delco Moraine process as prior art. R.D. at 16-17. The Delco Moraine brake cylinder return spring assembly, the Delco Moraine brake hold-down spring assembly, and the Delco Moraine valve seat and spring assembly for brake main cylinders qualify as prior art for purposes of section 103, as these products would fall under section 102(b) of the Patent Act if they met all of the elements of the claims in issue. All parties agree that art under section 102(b) can be "prior art" under section 103, and can be combined with other prior art to show obviousness. 11/ The various Delco Moraine brake assemblies consist of a single spring having a sheet metal seat attached to each end. 12/ For purposes of brevity, we will only discuss the

10/ For a more detailed discussion of the content of the Schaad patent, see R.D. at 18-19, which we incorporate by reference.

11/ See R.D. at 16-17 for the ALJ's analysis of the prior art status of the Delco Moraine assemblies, which we incorporate by reference.

12/ The Delco Moraine hold-down spring assembly submitted in GM Phys. Ex. H-42 had a sheet metal seat attached to only one end. For a more detailed discussion of the content of the Delco Moraine brake assemblies, see R.D. at 19, which we incorporate by reference.

Delco Moraine brake cylinder return spring assembly in analyzing the obviousness of the '708 patent, as the other Delco Moraine products are of no greater relevance to any of the elements of the patent claims in issue.

GM's Delco Moraine process does not qualify as prior art, as it was not open to the public and does not fall under an exception to the rule that information which is kept secret is not prior art under section 103. Although the Delco Moraine process does not qualify as prior art for purposes of section 103, it is an indication of the level of skill in the art at the time of the alleged invention.

The Dooley disclosures actually involve two distinct categories of disclosures. First, Mr. Dooley showed Mr. Dulude a model (the Kruse epoxy model) of a desired end product. Second, Mr. Dooley and Mr. Dulude discussed three possible ways of making the desired end product: welding, adhesive bonding, and snapping the springs over the protuberances. Although we find, as did the ALJ, that none of these qualify as prior art, our rationale is different. 13/

The Kruse epoxy model was a nonfunctional, concept model. Its purpose was to illustrate the product that several GM employees had suggested be developed. It showed the parts that needed to be assembled as well as the assembly that was needed in order to replace the old method of assembling transmissions. The Kruse epoxy model, at the time it was shown to Mr. Dulude, represented unfulfilled desires. It was not a functional model on which GM hoped to improve. Consequently, we find that the Kruse epoxy model is not

13/ See R.D. at 15-16 for the ALJ's discussion of the prior art status of the Dooley disclosures.

properly considered "prior art." We do find, however, as did the ALJ, that it is an indication of the level of skill of a person of ordinary skill in the pertinent art at the time of the invention.

The three methods of attachment discussed by Mr. Dooley and Mr. Dulude do not rise to the level of relevant prior art for purposes of section 103. It is not entirely clear whether the three methods were suggested by Mr. Dooley as possible ways of achieving the desired end product, or as methods that GM had tried and rejected. However, under either assumption, they do not qualify as prior art. If one assumes that they were suggested as possible ways to produce the desired article, then they would amount to no more than mere suggestions from someone with no apparent expertise in the field. On the other hand, if one assumes that Mr. Dooley was told that these were methods that GM had tried and rejected, the methods would be no more than the equivalent of prior unsuccessful experimentation. Although the three methods discussed do not qualify as prior art, they are indicative of the level of ordinary skill in the pertinent art at the time.

In sum, we find, as did the ALJ, that the relevant prior art consists of the Schaad patent and the Delco Moraine brake assemblies. The Delco Moraine process, the Dooley disclosures, and the Kruse epoxy model do not qualify as prior art, but they are indicative of the level of ordinary skill in the pertinent art at the time.

2. The Differences Between the Claims in Issue and the Prior Art

After determining the scope and content of the prior art, Graham v. John Deere Co., supra, requires that the differences between the claims in issue and the prior art be determined.

Claims 1, 2, 7, 8, 9, 10, and 11 of the '708 patent are in issue.

Claims 2, 7, 8, 9, and 10 are dependent on claim 1, and claim 11 is dependent on claim 2.

Claim 1 reads as follows:

A spring assembly comprising a sheet metal stamping including an annular base portion and a plurality of protuberances formed integrally on said base portion and circumferentially spaced around said annular base portion and projecting in one direction therefrom, and a plurality of compression coil springs individually having a portion of one turn secured by each of said protuberances to said annular base portion, said one turn being unground and of uniform cross-sectional material, all other turns of each of said springs being spaced from said base portion, all portions of said springs other than said one turn lying in their free unconstrained positions, said springs projecting in substantial parallelism with one another from said base portion in said one direction.

All the elements in claim 1, except the format of the spring assembly needed by GM, and the requirement that all turns of the spring other than a portion of the lower turn lie in their free, unconstrained positions, are found in the prior art.

Schaad teaches "a spring assembly comprising a sheet metal stamping" and "a plurality of protuberances formed integrally on said base portion."

KX-15. Schaad does not teach an "annular base portion" or protuberances "circumferentially spaced" around it; however, the arrangement of an annular base with circumferentially spaced springs was known to those skilled in the art at the time, and was disclosed by Mr. Dooley to Mr. Dulude. 14/ If the idea of circumferentially spaced protuberances was not also disclosed, it would have been obvious to one skilled in the art at the time.

14/ The Kruse epoxy model.

The Schaad protuberances project "in one direction" from the base. The Schaad patent teaches a "plurality of compression coil springs."

It is not clear whether each Schaad spring "individually" has "a portion of one turn secured by" (emphasis added) a protuberance or whether the whole first turn is secured to the base. The Schaad patent teaches a secure attachment by staking. "Secured" in claim 1 is read as requiring a firm attachment because of the dictionary definition of this word. In the Delco Moraine brake cylinder return spring assembly, only a portion of one turn is attached by a protuberance to the base. However, the Delco Moraine assembly is not firmly "secured" by the four-point staking (and need not be for the purposes for which it is used).

Schaad's bottom turn is unground, although the patent examiner may not have known this. Tr. 925. Delco Moraine's bottom turn also is "unground and of uniform cross-sectional material." "All other turns" of each Delco Moraine spring area are "spaced from" the "base portion." This is not true of the Schaad assembly.

Claim 1 calls for all turns of the spring other than that portion of the first turn secured by a protuberance to lie "in their free unconstrained positions, said springs projecting in substantial parallelism with one another from said base portion in one direction." This language indicates that the springs must be unconstrained and relatively parallel to one another, but it does not necessarily require that the springs be perpendicular to the base. 15/

15/ Claim 8 of the '708 patent, dependent on claim 1, requires that the springs be perpendicular to the base.

None of the prior art contains the requirement that all turns of each spring other than the one turn secured to the base be free and unconstrained while projecting in substantial parallelism with the other springs. The springs in a completed Schaad assembly are "in substantial parallelism with one another" from the base in "one direction." However, this is only achieved by placing a "separator pan" (a constraint) on top of the springs. The separator pan contains bosses 16/ extending downward to keep the springs apart and parallel. The springs in the Schaad assembly do not stand "substantially parallel" in the absence of the separator pan. Unlike the '708 patent, the springs in the Schaad patent do not stand parallel by virtue only of their attachment to the base.

The Delco Moraine spring assemblies meet neither the requirement that the springs be free and unconstrained nor that the springs be substantially parallel to one another. The Delco Moraine springs are staked (constrained) to bases on both ends, and the assemblies sometimes lean severely. Moreover, each Delco Moraine spring assembly is a separate spring (not "a plurality of compression coil springs"). Thus, there is only one spring in each assembly, making the concept of parallelism between springs in one assembly inapposite.

The Kruse epoxy model 17/ showed parallel springs in their free, unconstrained position, but more than one turn of each spring near the base was constrained. Furthermore, the Kruse epoxy model was not functional.

16/ These bosses are characteristically and functionally similar to the bosses used in GM's old method of transmission assembly to keep the springs separated and in place. The bosses used by GM are now obsolete, as they were found to be no longer necessary once GM started using Kuhlman's spring assembly.

17/ Evidence of skill in the art.

Claim 2 reads as follows:

The combination of claim 1 in which each of said protuberances include a lip portion and in which at least a portion of the lower turn of the one of said springs individual thereto is trapped between said lip portion of the protuberance and said annular base portion.

Claim 2 adds the limitation that at least a portion of the lower turn of the springs is trapped between the lip of the protuberance and the base.

The method of securement used in the Schaad patent involves trapping at least a portion of the lower turn of each spring between the lip portion of the protuberance and the base portion. The Schaad patent meets the element of this claim despite the fact that the lower turns of the springs are coiled, not helical; the formation of the springs is not essential to the elements of this claim. The Delco Moraine spring assembly also discloses trapping at least a portion of the lower turn of each spring between the lip of the protuberance and the base. (It should be noted, however, that four protuberances of the type used in the Delco Moraine spring assembly are needed to secure one spring to the base.)

The only new limitations found in claim 2, beyond those in claim 1, are found individually in the prior art.

Claim 7 reads as follows:

The combination of claim 1 in which a portion of said one turn of each of said springs is also spaced from said base portion.

Claim 7 adds to claim 1 the limitation that a portion of the lower turn of each spring is also spaced from the base portion. This is not found in Schaad, where about the lower 1-1/2 turns are coiled. However, the Delco Moraine assembly shows a staking of a helical spring where part of the lower turn is spaced from the base. The only new limitation in claim 7 is found in the prior art.

Claim 8 reads as follows:

The combination of claim 1 in which the axis of said all other turns of each of said springs is substantially perpendicular to said base portion.

Claim 8 adds the limitation that the springs will stand substantially straight. This makes more specific the limitation already found in claim 1 where the springs are required to be substantially parallel to one another in one direction from the base. Under claim 1, they could all lean in the same direction. Under claim 8 they would have to be substantially perpendicular to the base. In Schaad, all the springs are straight or substantially perpendicular to the base. In the Delco Moraine spring assemblies, they are not.

The only new limitation found in claim 8 is found in the prior art.

Claim 9 reads as follows:

The combination of claim 1 in which each of said springs is secured to said annular base portion by permanent distortion of said sheet metal protuberances.

Claim 9 adds to claim 1 the limitation that the springs are secured to the base by permanent distortion of the sheet metal protuberances. Claim 9 would eliminate some methods of attachment otherwise covered by claim 1.

Schaad and the Delco Moraine spring assembly both teach a permanent distortion of the sheet metal protuberances by staking.

The only new limitation found in claim 9 is found in the prior art.

Claim 10 reads as follows:

The combination of claim 1 in which said all other turns of each of said springs including the turn most remote from said one turn are unground and of uniform cross-sectional material.

Claim 10 adds to claim 1 the limitation that all "other" turns of each spring, including the top turn, be unground and of uniform cross-sectional material. In the Delco Moraine spring assembly, all turns are unground and of uniform cross-sectional material. The only new limitation found in claim 10 is found in the prior art.

Claim 11 reads as follows:

The combination of claim 2 in which each said one turn is closed. Claim 11 adds the claim 2 limitation to claim 1 (trapping part of the lower turn of the spring between the lip and the base), and the further limitation that the lower turn is closed. Delco Moraine shows the lower turn closed.

The only new limitation added by claim 11 is found in the prior art.

All of the elements of the claims in issue, except the format of the needed assembly (including the requirement that the the springs stand substantially parallel to one another while free and unconstrained), are found individually (but not in combination) in the prior art.

3. Obviousness or Nonobviousness of the Subject Matter

Finally, Graham v. John Deere Co., supra, requires consideration of the question of whether the differences between the claimed invention and the prior art would have been obvious to a hypothetical person with ordinary skill in the pertinent art at the time the invention was made.

The format needed to solve GM's problem would have been obvious to one skilled in the pertinent art at the time of the invention. However, what was necessary to construct a functional version of the needed format would not have been obvious to one of ordinary skill.

The combination of prior art fails to teach the critical result of the invention: the secure mechanical attachment of compression springs to a metal stamping in such a way that they remain substantially parallel while free and unconstrained. Messrs. Dulude and Winbigler not only achieved the critical result, but did so using less metal to secure the springs and engaging fewer coils of the springs than had previously been possible where a secure attachment was needed. 18/ When the prior art fails to teach the critical result of an invention, even when the claimed structural changes are minor, the invention is patentable. Saf-Gard Products, Inc., et al. v. Service Parts, Inc., et al., 532 F.2d 1266 (9th Cir. 1976).

As noted by the ALJ, "[a]lthough the method of attachment . . . was not new, the combination of prior art which worked was not predictable from the known art at that time." R.D. at 26. Secondary considerations support this conclusion. All the prior art cited against the '708 patent was known by GM, but GM did not solve the problem. No other GM supplier found a solution until long after the '708 patent application was filed in 1971, and that supplier's solution never gained the level of acceptance that the subject spring assemblies have achieved. 19/ If the problem were easy to solve, or if the solution were obvious, it is reasonable to expect that it would have been solved promptly and without difficulty by GM or one of the other, larger spring suppliers.

18/ This excludes the Delco Moraine assemblies, as the attachment in the Delco Moraine assemblies is not secure.

19/ Rockford Spring created a welded spring assembly in 1974. It sold it to GM for three to four years, gaining a nominal share of the market. In 1977, Rockford Spring took its welded spring assembly off the market.

Other secondary considerations further support the patentability of this invention.

The spring assemblies have had commercial success, 20/ and the product has been imitated. The products manufactured by Wallbank, Peterson and Associated Spring are indistinguishable from Kuhlman's products. Only one supplier has produced a successful alternative design (the Rockford welded spring assembly).

The record evidences a long-felt need at GM for the the subject spring assembly. Quality Spring's assembly successfully solved several troublesome and expensive problems GM had experienced using the old method of assembly. R.D. at 30-31. Mr. Kobs, a GM engineer, testified that the production people would have bought the Quality Spring assemblies at any price, even if the cost savings had not been large. KX-129 at 26-29. GM's subsequent purchases of the product confirm this finding. The usefulness of the product was recognized by both GM and Ford.

The ALJ found that there was a patentable invention; that a combination of all the prior art failed to teach the critical result of the invention; that the combination of prior art which worked was not predictable; and that the secondary considerations supported the patentability of the product. However, she found the patent invalid. The basis for her determination was that the claims of the patent were broader than the patentable invention. She found that the spring assembly invented by Messrs. Dulude and Winbigler was a patentable product, but that the patentable invention was limited to a product

20/ KX-66, Tr. 3665.

where the springs were secured to the base by "staking" only. The overbreadth of the claims, according to the ALJ, lies in the method of securing the springs to the base. She found that--

[t]he fact that Quality Spring may have been the first to invent a satisfactory means for attaching springs to a base plate does not entitle it to broad claims covering all possible means for attaching springs. In re Ferguson, 88 F.2d 693 (C.C.P.A. 1936). . . . The '708 patent claims are not limited to a spring assembly made by the particular method invented by Dulude and Winbigler. Alternative methods such as welding, brazing, gluing, or a friction fit (snapping springs over protuberances) could be covered by most of the claims, and the patent itself states that alternative methods were contemplated." R.D. at 26, 27.

We agree with the ALJ that the complainant is not entitled to claims covering all possible means for attaching springs to a base; however, we disagree with her analysis of the coverage of the claims.

The crucial language regarding the claimed method of securement is found in independent claim 1. It calls for the springs to be "secured by each of said protuberances." (Emphasis added.) This language unequivocally limits the claimed method of attachment not only to a mechanical attachment, but to a mechanical attachment effected by the claimed protuberances.

The language does cover methods of attachment beyond the preferred method of staking described in the specifications. For example, the language would arguably cover a friction fit where the springs are snapped over the claimed protuberances. However, contrary to the finding of the ALJ, the claims would not cover attachment by welding, gluing, or brazing. In gluing, the attachment is effected by the epoxy glue, not by the protuberance. The attachment in brazing is effected by an alloy that is put between the base and the spring (which is then heated to form a seal). In welding, the securement

is effected by fusing the point of contact between the spring and the base, or the protuberance and the base, not by the protuberance alone. Indeed, it is arguable that the claim would not even read on a friction fit between the spring and the protuberance because it is the friction between the spring and the protuberance and not just the obstruction of the protuberance that is securing the spring to the base.

Although the claim could cover a method of attachment other than the preferred method described in the specification, that does not mean the claim is too broad. A claim can cover material not found in the preferred method in the specification as long as enough is revealed to a person with ordinary skill in the pertinent art to enable him to practice the invention. The specification for the '708 patent has satisfied that requirement for any method that could be conceivably covered by the claims in issue.

The ALJ's reading of claim 1 is unduly broad. It is true, as the ALJ notes, that the specification states that alternative methods of attachment (i.e., methods other than the preferred method of staking) are contemplated, and that brazing is mentioned in particular. However, just as the specification cannot be read to narrow an overly broad patent, General Electric Co. v. Wabash Appliance Corp., 304 U.S. 364 at 374 (1938), it cannot be read to cover subject matter that is not fairly covered by the language of the claims. The language of the claims controls.

Once issued, a patent is presumed valid. 35 U.S.C. § 282. The presumption is sufficient to sustain a finding of validity until rebutted by clear and convincing evidence. Solder Removal Co. v. U.S. International Trade Commission, 582 F.2d 628 (C.C.P.A. 1978). Moreover, when the most pertinent

prior art was considered by the patent examiner, the presumption of validity is strengthened even though less relevant prior art was not before him.

Universal Athletic Sales Co. v. American Gym, Recreational & Athletic Equipment Corp., 546 F.2d 530, 540 n. 28 (3d Cir. 1976), cert. denied, 430 U.S. 984; Ortho Pharmaceutical Corp. v. American Hospital Supply Corp., 534 F.2d 89, 93-94 (7th Cir. 1976); Tapco Products Co. v. Van Mark Products Corp., 446 F.2d 420, 426 (6th Cir. 1971), cert. denied, 406 U.S. 948.

The Schaad patent is unquestionably the most pertinent prior art in considering the obviousness of the '708 patent. It teaches many more elements of the claim than does the Delco Moraine spring assemblies. Moreover, it deals more completely with all the essential elements of the patent than do the Delco Moraine spring assemblies. The Delco Moraine assemblies cover only one element of the claim that the Schaad patent does not cover more completely: the requirement that all turns except the portion of the turn that is attached to the base by the protuberance be "spaced from said base portion." This element is not present in the Schaad patent, but is present in the Delco Moraine spring assembly. However, the Delco Moraine attachment to the base is not a secure, functional attachment; it is attached at only four points on the base, rather than by a single circumferential attachment as in the Schaad and Dulude patents. It is an "assembly" only in the sense that it has a thin piece of metal attached to each end of a spring. It is not a plurality of springs attached to a unitary base, as in the Schaad and Dulude patents. Its purpose is to reduce the tangling of the springs to facilitate installment, rather than to keep the springs in place for the life of the product, as with the Schaad and Dulude patents. Moreover, many of the

elements of the Delco Moraine assemblies teach away from the Dulude patent.

The Schaad patent was before the examiner. Its elements more closely teach the elements of the '708 patent than does any of the other prior art; yet the patent was issued. In light of the strong presumption of validity, and the clear indications of nonobviousness, we conclude that the respondents have not met their burden of proving that the '708 patent is invalid under 35 U.S.C § 103.

B. Best Mode

Respondents contend that both patents in issue are invalid because they fail to reveal the "best mode" as required by 35 U.S.C. § 112. This section requires, inter alia, that the inventor disclose in his application the best mode of which he was aware for practicing his invention.

Respondents note that the inventor, Mr. Winbigler, observed that after the springs had been attached to the base, they leaned in different directions. Tr. 252-60. This leaning problem rendered the spring assemblies ineffective for GM's production requirements. However, Mr. Winbigler readily perceived that each spring leaned in the same direction relative to the cutoff of the turn of that spring. Since the lean can be predicted on the basis of the cutoff point, one constructing the patented assembly need only adjust the springs to compensate for the leaning to make the springs stand parallel and perpendicular. Respondents argue that this technique was one aspect of the best mode for carrying out both the '708 and '287 patents and should therefore have been revealed.

Mr. Winbigler testified that the method of turning the springs to align

them in a parallel fashion is obvious to those with skill in the art. Tr. 575-576. Although the respondents argue that the turning of the springs is more than an obvious step, they have presented no evidence to support their allegation. Furthermore, the assertion that adjustment of the springs is beyond the ability of an ordinary mechanic is not credible when viewed in the context of the respondents' general contention that the entire '708 and '287 patents would have been obvious to one skilled in the art at the time.

A patent may be invalidated for failure to reveal the best mode only where the applicant intentionally or accidentally concealed the best mode. In re Sherwood, 613 F.2d 809, 816 (C.C.P.A. 1980). To establish concealment, the respondents must prove "that the quality of [complainant's] best mode disclosure is so poor as to effectively result in concealment." Sherwood, supra. However, one must bear in mind that patents are written for those skilled in the relevant art. An applicant need not divulge every piece of information which a lay person would need to operate the invention most effectively. The best mode disclosure need not explain techniques which would be readily understood and applied by those skilled in the art.

The ALJ determined that both patents satisfied the best mode requirement for three distinct reasons: (1) the leaning problem could be readily solved by one skilled in the art; (2) leaning is not a problem in some embodiments of the inventions in issue; and (3) there is no evidence that Mr. Winbigler acted in bad faith to conceal the best mode. We concur with the ALJ's conclusion that the best mode requirement is satisfied.

IV. INFRINGEMENT OF THE '708 PATENT

The parties have stipulated that claims 1, 2, 8, 9, 10, and 11 of the '708 patent are readable on the spring assemblies in issue which are made by Wallbank. The parties did not stipulate that claim 7 of the '708 patent is readable on Wallbank's spring assemblies. We find, as did the ALJ, that the Wallbank spring assemblies also infringe claim 7. 21/

V. VALIDITY OF THE '287 PATENT

As with the '708 (product) patent, respondents assert that the '287 (process) patent is invalid due to the obviousness of the subject matter, and for failure to recite the "best mode" for the patent's use.

A. Obviousness

We concur with the ALJ's recommendation and analysis of the validity of the '287 patent. She found all claims of the '287 patent valid, except for claim 29. A summary of the Commission's analysis follows. 22/

The combination of elements from the Schaad patent, the Moorehead article, the Focht patent, the Docker patent and the Hathaway patent would not make obvious the subject matter of the invention as a whole to someone with ordinary skill in the art at the time the invention was made. Each prior art reference discloses one or more elements of the patented prior art, but no

21/ For the ALJ's rationale in finding claim 7 infringed, see R.D. at 36, which we incorporate by reference.

22/ See R.D. at 37-49 for the complete analysis, which we incorporate by reference.

method or combination of prior art discloses all of the elements of the invention as a whole.

As to those elements disclosed separately in the various prior art references, it would not have been obvious to one with ordinary skill in the art to combine the elements in the manner disclosed in the claims in issue of the '287 patent, other than claim 29. The many references combined by respondents in their attempt to invalidate the '287 patent claims in issue are indications that the invention as a whole was not obvious. Unlike the other claims in issue, claim 29 was much broader than the invention described by complainant in this case. The broad description of methods of attachment and stress relieving found in claim 29 would have been obvious to one with ordinary skill in the art at that time, and the combination of elements found in the prior art would have been obvious.

B. The Best Mode

Our conclusions with regard to the argument that the applicant failed to disclose the best mode contemplated by him for practicing the invention at the time of filing the '287 patent application are the same as those reached in connection with the '708 patent.

VI. INFRINGEMENT OF THE '287 PATENT

Kuhlman alleges that claims 1, 2, 3, 6, 7, 29 and 31 of the '287 patent would be infringed by the two processes used by Wallbank to manufacture its spring assemblies, if those processes were practiced in the United States.

Each of these claims will be discussed in connection with the two processes that Wallbank is currently using, the old method * * *

* * * * * and the new
 method, * * * * *

Claim 1 of the '287 patent reads as follows:

The method of manufacturing a spring assembly including a sheet metal base and a plurality of springs disposed on and extending in spaced parallelism from the base, which comprises the steps of individually securing the springs to the base to form a spring assembly, compressing said assembly between a pair of parallel electrodes with the base in engagement with one of the electrodes and with the projecting ends of all of the plurality of springs in engagement with the other one of the electrodes, applying a voltage between the electrodes to flow current through all of the springs in parallel as well as through the base, and controlling the current so that each of the individual springs is resistance heated to stress relieving temperature while limiting the current to a value to prevent heating of the base to a damaging temperature. (Emphasis added.)

As highlighted above, claim one calls for "individually securing the springs to the base to form a spring assembly." The ALJ found that "'individually,' as used in claim 1, refers to the securing of each spring to a separate protuberance on the base. The word 'individually' does not require that the springs be secured to the base one after another, in sequence." R.D. at 50. We agree.

It is important to note at the outset that in interpreting a claim for purposes of infringement, one compares the infringing process with the language of the claim, not with the current practice of the patent holder.

The interpretation of "individually" as used in claim 1 23/ to connote

23/ And as used in all the claims of the '287 patent.

the attachment of each spring to a separate protuberance is a reasonable and fair interpretation of the plain import of the language of the claim.

The second college edition of Webster's New World Dictionary of the American Language defines "individually" in part as follows: "As an individual or individuals rather than as a group; one at a time; separately; singly." As the dictionary definition of the word admits of more than one meaning, it is of limited assistance in this case. However, of the seven English language references submitted by Wallbank in support of its position, 24/ * * * appeared only three times. * * * appeared three times, but two of those three times it was qualified by "singly" and "not collectively." The * * * connotation is not a necessary inference of * * * * *
* * *. For example, customers of a restaurant are served "individually" or * * *. However, they are not necessarily served * * * as normally more than one waiter or waitress is serving the clientele. In fact, a number of customers are frequently served at the same time, even though each customer is being served "individually" or * * *

"Individually" does not have a strong, inherent, temporal connotation. Nowhere in the English language references available to the Commission does * * * * * or any other language with an unequivocal * * * connotation appear. In contrast, the explication of

24/ Webster's New World Dictionary of the American Language (2d ed. 1979); 1 The Lexicon Webster Dictionary (1977); The Universal Dictionary of the English Language; The Random House Dictionary of the English Language; The Oxford Dictionary of the English Language (2d ed. 1975); Odhams Dictionary of the English Language; Roget's International Thesaurus (3d ed.).

"individually" to connote singularity or separateness from a group appears universally.

The claim states "individually securing the springs to the base," not * * * securing each spring to the base." If the author of the patent had simply intended to claim the * * * of attachment, it would have been easy for him to use language that clearly and concisely conveys that narrow concept. It is much more difficult to select a single or concise adverbial phrase that conveys the concept of attaching each spring to a separate protuberance.

The ALJ's interpretation of "individually" is supported by the description in the specification. The specification at column 1 (lines 50-68) to column 2 (lines 1-2) describes the process in part as follows: "Each spring is accurately positioned relative to each nub The spring is then secured to the plate, desirably by staking During the staking, each individual spring is accurately precompressed, centered and straightened." The first sentence indicates the desire to communicate the fact that each spring is independently or "individually" attached to the plate. The use of "individual" in the third quoted sentence indicates the use of the word by the author of the patent in a sense that clearly means "separate" rather than * * *.

In both of Wallbank's processes, each spring is attached to a separate protuberance on the base. Both processes use * * * * *
* * * * *
* * * * *

Wallbank additionally claims that neither of its processes infringes

claim 1 * * * * *

* *. Claim 1 refers to "compressing the assembly" between a pair of electrodes. * * * * *

* * * * *. This helps to insure a good electrical contact between the electrode and the ends of the springs. Claim 1 does not call for * * * * *

* * * * *.

Wallbank's processes literally infringe the steps called for in claim 1.

Claim 1 calls for controlling the electrical current. Wallbank contends that * * * * *

* * * *. Current and voltage are related, and one cannot be varied without varying the other (assuming the resistance is constant). Tr. 3704-05. Under Ohm's law, voltage equals current times resistance. The Wallbank processes necessarily control current when they control voltage.

All other steps recited in claim 1 are found in both Wallbank processes. Claim 1 is infringed by both processes.

Claim 2 reads as follows:

The method according to claim 1 in which said compressing step is performed by moving the electrodes towards one another to a distance selected in accordance with the selected final height of the spring assembly after stress relieving and cooling.

Claim 2 requires movement of the electrodes towards one another to a distance selected in accordance with the selected final height as part of the compressing step. Although the springs are compressed slightly to get a good electrical contact * * * * *

* * * * *

* * * * *.

* * * * *
 * * * * *. Tr. 2991, 3117-3119, 3125-3126,

3130. Claim 2 is not infringed by either Wallbank process.

Claim 7 includes all of the limitations of claims 6 and 3 on which it depends. Claims 3, 6 and 7 read as follows:

3. The method of manufacturing a spring assembly including a base and a plurality of compression springs each having an end turn portion abutting and secured to the base and each extending in free spaced parallelism with the other springs from the base which comprises the steps of forming with a spring coiler from spring wire a plurality of separate individual compression coil springs, said forming step including the steps of coiling the spring wire and severing the coiled spring, mechanically transferring the severed springs from the spring coiler to end-turn-portion butting relationship with individual locations on the base, said transferring step including mechanically guiding each spring throughout its individual path from the spring coiler to its final location in abutment with the base, and directly securing only the abutting end turn portion of each of the transferred individual springs to the base with the remaining portion of each compression spring extending in free spaced parallelism with the other springs from the base.

6. The method according to claim 3 in which said transferring step further includes the step of exerting forces tending to straighten the spring and tending to establish perpendicularity between the longitudinal axis of the spring and the plane of the base.

7. The method according to claim 6 in which said transferring step further includes the step of exerting forces tending to compress the spring a preselected amount upon the base prior to the performance of said securing step.

The step of "mechanically transferring the severed springs from the spring coiler to end-turn portion abutting relationship with individual locations on the base, said transferring step including mechanically guiding

each spring throughout its individual path from the spring coiler to its final location in abutment with the base" is * * * * *

* * * *

In both processes, * * * * *
* * * * *
* * * * *
* * * * *

Whether the spring is guided from the inside or from the outside, it is mechanically transferred and guided.

The ALJ found that the * * * * *
infringed claim 3, but that the * * * * *
* did not. According to the ALJ's analysis, the * * * * *
* * * * * does not infringe claim 3 because in that process, the base
is * * * * *
* * * * * She
found that this prevents the process from meeting the requirement that the
springs be guided to their final location in abutment with the base. We
disagree.

In the * * * * *
* * * * *
* * * * *
* * * * *. Claim 3 calls for mechanical guidance of the springs
only; it does not require * * * * *
*. The fact that * * * * *
* * * * * does not negate the fact that the springs are mechanically
guided to their final location, * * * * *
* * * * *

"In abutment with" in this claim is clearly used to indicate a junction, the point where parts meet. It does not mean * * * * * nor does the patent require that the springs be mechanically guided to their final location * * * * *. The * * * * * process as well as the * * * * * process meet this requirement of claim 3.

All other steps found in claim 3 are found in both Wallbank processes. Both Wallbank processes literally infringe claim 3.

Claim 6 depends on claim 3, and it further calls for the transferring step to include the step of exerting forces tending to straighten the spring and tending to establish perpendicularity between the longitudinal axis of the spring and the plane of the base.

This step is found in both Wallbank processes. * * * * *
 * * * * *
 * * * * *
 * * * * *
 * * * * *

Claim 7 depends on claim 6 and further calls for the transferring step to include the step of exerting forces tending to compress the spring to a preselected height upon the base prior to staking. This step is present in both Wallbank processes. * * * * *
 * * * * *
 * * * * * KX-104, p. 153.

In sum, both Wallbank processes infringe claims 3, 6, and 7 of the '287 patent.

Claim 29 of the '287 patent reads as follows:

The method of manufacturing a spring assembly including a base and a plurality of springs each having an end turn portion abutting and secured to the base and each extending in spaced parallelism with the other springs from the base which comprises the steps of distorting the material of the base at a plurality of circumferentially spaced locations to form on the base a plurality of protuberances from the material of the base and circumferentially spaced thereon and projecting in one direction therefrom, forming with a spring coiler from spring wire a plurality of separate individual coil springs, said forming step including the steps of coiling the spring wire and severing the coiled spring, transferring at least some of the severed springs before stress relieving from the spring coiler to end-turn-portion abutting relationship with the base at individual ones of the plurality of the protuberances on the base, said transferring step including mechanically guiding each transferred spring throughout its individual path from the spring coiler to its final location at an individual one of the protuberances on the base, thereafter further distorting the material of the base at the protuberances to directly secure the abutting end turn portion of each of the transferred individual springs to the base with a portion of the individual protuberance in securing engagement with the end turn portion of the spring individual thereto, and thereafter heating the springs to a stress-relieving temperature to stress relieve the springs subsequent to the securing step.

All of the steps called for in claim 29 are met by both Wallbank processes. We interpret "individually" here as we did in claim 1. We find the springs in both Wallbank processes are "mechanically guided" (emphasis added) as we did in claims 3, 6 and 7. Finally, here as in claim 3, *

* * * * *

* * * * * does not negate the fact that each spring is mechanically guided "throughout its individual path . . . to its final location at an individual protuberance on the base." (Emphasis added.) We note the use of the preposition "at" as opposed to "on" to describe the position of the springs vis-a-vis the base. We further note that "on the base" in the portion of claim 29 quoted above describes the relationship of

the protuberance to the base, not the springs to the base. We conclude that both Wallbank processes would infringe claim 29, if claim 29 were valid.

Claim 31 reads as follows:

The method of manufacturing a spring assembly including a base and a plurality of springs each having an end turn portion abutting and secured to the base and each extending in spaced parallelism with the other springs from the base which comprises the steps of distorting the material of the base at a plurality of circumferentially spaced locations to form on the base a plurality of protuberances from the material of the base and circumferentially spaced thereof and projecting in one direction therefrom and each having a generally cylindrical wall portion surrounding an aperture in the base, forming with a spring coiler from spring wire a plurality of separate individual coil springs, transporting a spring from the spring coiler and placing the spring upon and surrounding a guide tool, thereafter establishing engagement between the end-turn-portion of the spring and the base at one of the protuberances with the spring surrounding the guide tool and with the end turn of the spring in surrounding relationship to the wall portion of the protuberance, thereafter moving the guide tool and the base towards one another to partially compress the spring, thereafter moving the guide tool and the base towards one another to deform a portion of the wall portion of the protuberance into securing relationship with at least a portion of the end turn of the spring and thereafter removing the guide tool.

Both Wallbank processes include each step called for in claim 31. The step of "moving the guide tool and the base towards one another" to "compress" the spring partially is met because * * * * *
* * * * *

Tr. 996-998, 1013; KX-104 at 153.

Wallbank contends that claim 31 calls for the spring to be frictionally engaged with the staking tool, and that * * * * *
* * * * *. However, claim 31 does not call for such a frictional engagement; the words "surrounding the guide tool" do not necessarily require a frictional engagement.

VII. ENFORCEABILITY OF THE PATENTS

A. Fraud on the Patent Office

The evidence does not support a finding of fraud, or other inequitable conduct in the procurement of the patents that justifies the invalidation or the refusal to enforce the patents in issue.

To prove technical fraud, the respondents must show by clear and convincing evidence that there was a false representation (including misrepresentation by failure to disclose) of a material fact, made with the intent to deceive, on which the Patent Office justifiably relied to its detriment. Norton v. Curtiss, 433 F.2d 779, 793 (C.C.P.A. 1970); Manual of Patent Examining Procedure § 2010.01 (MPEP). A patent can be found unenforceable even though an applicant's conduct does not meet all the elements of technical fraud, if the inequitable conduct was such that it is the equivalent of fraud, or is "still so reprehensible as to justify . . . refusing to enforce the rights of the party guilty of such conduct." Norton v. Curtiss, supra, at 793. See MPEP, supra, at § 2010.02.

In practice before the Patent Office, the duty to disclose information to the patent examiner is intertwined with the materiality of the information in question. Rule 56(a) of the Patent Office Rules of Practice and Procedure, 37 C.F.R. § 1.56(a), defines the duty of disclosure, candor, and good faith in the procurement of a patent. It provides in relevant part:

(Inventors, their agents and attorneys) have the duty to disclose to the Office information they are aware of which is material to the examination of the application. Such information is material where 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.

A reasonable patent examiner would not have considered the Kruse epoxy model or the content of the conversation that Mr. Dooley had with Mr. Dulude important in deciding whether to allow the patents in question to issue. The Dooley disclosures are not relevant prior art. Although the format needed by GM (as disclosed in the Kruse epoxy model) is a limitation in many of the claims, it is not the essence of the claimed invention. Moreover, Dulude's conversation with Dooley did not teach him how to achieve a functional version of the desired end product. The disclosures are, at best, evidence of the ordinary level of skill in the pertinent art at the time of the invention. Although the duty to disclose extends to information other than prior art, the Manual of Patent Examining Procedure states that rule 56(a) is not intended to require, for example, disclosure of information concerning the level of skill in the art for purposes of determining obviousness." MPEP at § 2001.04. Moreover, there was ample evidence before the patent examiner on the level of ordinary skill in the pertinent art.

The Hathaway patent 25/ also was known to the applicants 26/ but was not disclosed to the Patent Office. The patent examiner searched class 219, subclass 153, in which the Hathaway patent is classified, but it is not certain that the Hathaway patent was there when the search was made, or that the examiner saw it. The patent examiner cited the Docker patent, 27/ which is more pertinent than Hathaway since it discloses a method for simultaneously stress relieving a plurality of springs in an assembly, although Docker does not stress relieve the springs by electric current. In any event, the '287 patent claims clearly would have been allowed over the Hathaway patent. The

25/ Wallbank X-111.

26/ Tr. 3248-3249.

27/ KX-16.

failure of the applicants to disclose Hathaway to the patent examiner does not rise to the level of fraud.

B. Other Allegations Regarding Unenforceability.

We reject, as did the ALJ, the respondents' arguments that the patents are unenforceable due to antitrust violations by the complainant, estoppel, or Kuhlman's failure to practice the claimed invention. We adopt the ALJ's position in full on these issues. See R.D. at 58-59.

VIII. THE DOMESTIC INDUSTRY

The Commission has traditionally defined the domestic industry in patent-based section 337 cases as those facilities devoted to the lawful manufacture of the articles that are the subject of the investigation. E.g., Chain Door Locks, investigation No. 337-TA-5 (1976). Contra, Certain Headboxes and Papermaking Machine Forming Sections for the Continuous Production of Paper, and Components Thereof, investigation No. 337-TA-82 (1981). Specifically, the domestic industry is usually defined to be those portions of the businesses of the patentee and any licensees devoted to the manufacture and/or sale of the products covered by the patent(s) in issue. E.g., Certain Multicellular Plastic Film, investigation No. 337-TA-54 (1979); Certain Molded Golf Balls, investigation No. 337-TA-35 (1978).

We define the appropriate domestic industry in this investigation as that part of the Kuhlman Corporation devoted to the production and sale of the spring assemblies in issue. 28/ Kuhlman has not expressly licensed any other

28/ Commissioner Stern found the appropriate domestic industry in this investigation to consist of those portions of Quality Spring, as well as Associated Spring and Peterson Spring devoted to the production and sale of the spring assemblies in issue. See pp. 1-4 of Commissioner Stern's Additional Views, infra.

company under either patent. Furthermore, Kuhlman's decision not to enforce its patents until it lost more than one-third of the market for GM's requirements of the subject spring assemblies is not, on the facts of this case, tantamount to a de facto license to Associated Spring, Peterson Spring, Wallbank, or GM. 29/

The Quality Spring division of Kuhlman is the only division of Kuhlman that makes the subject spring assemblies. Approximately 51 percent of Quality Spring's business is devoted to the production and sale of the spring assemblies in issue.

Efficient and Economic Operation of the Domestic Industry

The domestic industry is efficiently and economically operated. Since

29/ The "de facto license" alleged in this case is really an implied license by conduct of the patentee. Such an implied license operates by virtue of the doctrines of acquiescence or estoppel, and can arise only out of conduct of the parties that indicates accord. In order to create an implied license, there must be a meeting of the minds as in any contract. 4 Deller's Walker on Patents 563 (2d ed. 1965). Neither element is present in this case.

Furthermore, an implied license by acquiescence can not be predicated on knowledge and omission to interfere with the activities of an infringer, if that omission is fairly accounted for on other grounds. Id. at 562. In this case, the market structure, the bargaining strength of the automobile manufacturers vis-a-vis their suppliers, and the insistence of the automobile manufacturers on multiple sourcing adequately account for Kuhlman's restraint in enforcing its patents until it had lost more than one-third of the market for the patented products.

The record equally contradicts a finding of accord between Kuhlman and GM, or Kuhlman and any other company making transmission spring assemblies. GM emphatically denies that there was any licensing agreement between Kuhlman and GM. GM took the position that the patents were invalid and operated on that assumption. It would contradict the record to find a licensing accord between GM and Kuhlman. The conduct of Kuhlman and the other spring assembly suppliers also contradicts a finding of an implied license. Kuhlman repeatedly informed Associated, Peterson, and Wallbank that they were infringing, and offered to grant them licenses. All three refused. The rejection of an express license negates the agreement necessary for an implied license.

1971, Kuhlman's productivity in the manufacture of spring assemblies has increased significantly. R.D. at 60. The increase in productivity is primarily attributable to modifications in the machinery and process that Kuhlman has made since that time. Quality Spring has an efficient quality control system, which is an important factor in its continued competitiveness as a supplier of U.S. automobiles. It also employs an effective engineering and research staff. Although this increases the cost of the company's overhead, it is a source of improved methods and cheaper products. Quality Spring uses modern accounting techniques to monitor and analyze its costs. None of the parties seriously contested the economic and efficient operation of the domestic industry.

IX. INJURY

The record supports a finding that Quality Spring has been substantially injured in recent years. Quality Spring's total sales of spring assemblies have decreased dramatically since 1977-78. 30/ Its profits from its spring assembly operations as a percentage of spring assembly sales has declined steadily at a rapid rate since 1976. See Kuhlman's Posthearing Memorandum at 6. Quality Spring is no longer producing at its former capacity, 31/ and the number of workers that it employs in the manufacture of the subject spring assemblies has substantially declined. 32/ Quality Spring's overall market

30/ See R.D. at 68.

31/ See R.D. at 63.

32/ We recognize that the decline in the level of employment may be due in part to the downturn in the auto industry, and may also reflect some of the increased efficiency at Quality Spring in the manufacture of the subject spring assemblies. However, a portion of the depressed level of employment is fairly attributable to sales lost to the infringing imports.

share for the subject spring assemblies at GM and Ford has decreased markedly since 1972. A substantial amount of that loss occurred after Wallbank's entry into the market in 1977-78. Indeed, Kuhlman's loss of Ford's business occurred entirely after Wallbank entered the picture.

A portion of Quality Spring's injury since 1978 is attributable to the importation and sale of infringing spring assemblies by Wallbank, and to their purchase by GM and Ford.

Section 337, in requiring that the importation or sale of the infringing articles have "the effect or tendency . . . to substantially injure" the domestic industry, compels a finding not only that the industry's injury be substantial, but also that the injury result from such unfair acts. The requisite nexus between the proscribed act and the substantial injury is not defined by the statute or the legislative history.

Under patent law, a patent is a lawful monopoly, 33/ and the owner of a valid patent is entitled to 100 percent of the domestic market for the product covered by the patent. 34/ Thus, all sales of infringing articles covered by a patent rightfully belong only to the patentee (and/or any licensees). 35/ Similarly, any share of the market for a patented article 36/ held by an infringer represents a market share that rightfully belongs only to the patentee (and/or any licensees).

In determining causation in patent-based cases under section 337, we take

33/ *Corbice Corp. of America v. American Patents Development Corp.*, 283 U.S. 27, 30 (1931).

34/ *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 229 (1964).

35/ *Bauer v. O'Donnell*, 229 U.S. 1, 10 (1913).

36/ Or an article covered by a process patent.

into account this rule of patent law. 37/ Further, we believe that the requisite connection between the imports and substantial injury to the domestic industry is usually established where it is shown that an infringer holds a significant share of the domestic market for articles covered by the patent or that an infringer has made a significant amount of domestic sales of the covered articles, as such sales rightfully belong only to the patentee (and/or any licensees). 38/ This obviously does not contemplate that a single sale lost by a patent holder will automatically result in substantial injury. The complainant is not released from the burden of establishing substantial injury, or of showing the requisite causal connection between the imports and injury.

Causation has been amply shown in this case. Wallbank now supplies a significant portion of GM's and Ford's requirements of the subject spring assemblies. These sales to Ford and GM represent a substantial share of the market that legally and rightfully belongs only to Kuhlman. The fact that GM or Ford might have chosen to award Wallbank's share of

37/ Commissioner Stern notes that patent infringement is related to the finding of an unfair act. An attempt to relate a finding of patent infringement to a finding of "the effect or tendency . . . to substantially injure" is clearly not intended by the statute. This Commission has the obligation to make a judgment as to the causal relationship between the subject imports and any substantial injury to a domestic industry based on the reality demonstrated by the facts on the record and not on a per se analysis based on the same facts establishing the unfair act. An analysis of the import penetration level, like that of direct lost sales and other potential causes of injury, is a significant consideration in determining "the effect or tendency . . . to substantially injure."

38/ See, e.g., Certain Inclined Field Acceleration Tubes and Components Thereof, inv. No. 337-TA-67 (Dec. 1980); Certain Automatic Crankpin Grinders, inv. No. 337-TA-60 (Dec. 1979); Pump Top Insulated Containers, inv. No. 337-TA-59 (Nov. 1979); Certain Thermometer Sheath Packages, inv. No. 337-TA-56 (July 1979); Chain Door Locks, inv. No. 337-TA-5 (April 1976); Panty Hose, inv. No. 337-25 (Mar. 1972).

the market to Associated or Peterson does not negate the fact that there is a demonstrated causal relationship between Wallbank's unfair acts and the injury.

The economic data submitted also support the conclusion that the injury caused by the imports has been adequately proven in this investigation.

The pie charts submitted by the respondents showing the overall market share trends for purchases by GM reveal the following. Since Wallbank's entry into the market in 1978, its market share has rapidly increased. 39/ During the same period of time, Quality Spring's overall market share at GM has declined by almost one-third. At the same time, the combined share of Associated Spring and Peterson Spring has remained relatively stable. In addition, Kuhlman showed loss of market share specifically to Wallbank in its analysis of the market share data on a part-by-part, division-by-division basis. 40/

Under Kuhlman's analysis (which was adopted by the ALJ), a direct market share transfer was deemed to have occurred where Wallbank's share of the market increased at the same time that Kuhlman was the only supplier to lose

39/ Wallbank's figures are based on percent of total purchases based on U.S. dollar value. The data reduces somewhat the percentage of the market that Wallbank holds in terms of units supplied, as Wallbank's prices are lower on the average than any of the other suppliers. Kuhlman submitted the same type of analysis of the overall market share at GM in appendix A of their post-hearing memorandum. However, the basis of its analysis was the number of units supplied as opposed to the dollar value. Consequently, the results of its analysis show a greater loss of market share by Kuhlman, and a greater gain by Wallbank. However, the trends that it reveals are the same as those revealed by Wallbank's analysis.

40/ The overall market share analysis for GM purchases reveals no definitive data on the identification of the source of a particular producer's market share gain or loss, as in any given year two producers lost market share and two producers gained. However, the market share data for each part and each division does provide a basis for the identification of the source of market share transfers.

market share for the same part at the same division. 41/ In light of the market structure, Wallbank's gain in the market share under the above circumstance had to come from the share that Quality Spring had lost. Tr. 1861. A shared market transfer was deemed to have occurred when Kuhlman and a third supplier (either Peterson or Associated) lost market share to Wallbank. In that situation, only Kuhlman's proportion of the market share loss to Wallbank was calculated as Kuhlman's loss. The conclusions are fairly and logically drawn from the data. Since 1978, the same four suppliers have been supplying the market. 42/ Thus, any loss of market share by one was necessarily picked up by one of the other three.

The record supports the finding that both direct and shared market share transfers occurred from Quality Spring to Wallbank. Examples of direct market share transfers can be found in 1978-79 for GM part No. 864005, and in 1979-80 for GM part No. 1242722. KX-71. The record does not support as strongly a finding of shared market share transfers from Quality to Wallbank; however, an example of a shared transfer can be found in 1979-80 for GM part No. 6260382 at the Chevrolet Parma plant. KX-71.

The combination of the overall trend of Kuhlman's losses and Wallbank's gains of market share, and the identification of specific instances where Kuhlman's lost market share was picked up by Wallbank support a finding that Wallbank's infringing imports have had a significant impact on Kuhlman's position at GM.

41/ In cases where a third supplier gained market share simultaneously with Wallbank, only the market share lost by Kuhlman to Wallbank was compiled as Kuhlman's loss.

42/ The exception is Rockford Spring, which supplied a nominal share of the market in 1978, and subsequently dropped out of the market entirely.

The economic data in support of the loss of Kuhlman sales at Ford to Wallbank is even stronger. Kuhlman's loss of market share at Ford is approximately the same as its loss at GM; however, Kuhlman's decline in sales at Ford occurred in approximately one-third the time. Moreover, the overall market share data for Ford, not only the part and division market share data, unequivocally demonstrate direct market share transfers from Quality Spring to Wallbank.

The economic data for sales to Ford and GM amply support a finding that Wallbank's infringing imports have had the effect of substantially injuring the domestic industry.

Wallbank cites five other factors which it contends are equal or greater causes of Kuhlman's injury: (1) GM's and Ford's multiple sourcing policy; (2) GM's and Ford's policies to buy Canadian as a result of Autopact pressures; (3) Kuhlman's allegedly "greedy" pricing policies; (4) competition from Associated and Peterson; and (5) the overall downturn in the auto industry.

The auto companies have a strong preference for having more than one source for all crucial parts in the production of automobiles. The policy is a sound one, as the disruption in supply of one crucial part could paralyze the production of an entire plant. However, the multiple sourcing policy, as practiced in this case, is intrinsically related to the infringing imports in that it is one of the causes of the importation of the infringing imports. It is not an independent, alternative source of harm. In addition, GM and Ford cannot, as they have done here, pursue the policy by ignoring validly issued patents and establishing infringing sources of supply. There will always be a cause of the infringing imports, i.e., reasons why the infringing articles are

being imported. However, that is not the relevant causal connection for section 337 analysis. Section 337 focuses on the connection between the imports and the injury, not on the connection between the infringing imports and the causes of their importation.

Similarly, a policy to buy Canadian cannot be recognized as a legitimate, alternative source of harm when it involves the purchase and importation of articles that infringe a valid U.S. patent. In addition, like the multiple sourcing policy, it represents a cause that is intrinsically related to the infringing imports.

Wallbank has failed to prove that Kuhlman's prices were unreasonable. Although Kuhlman's prices and profits tended to be higher than the industry average, the record does not support a finding of price-gouging or a finding that Kuhlman's prices bore no relationship to its costs.

Associated Spring and Peterson Spring have been alleged by Kuhlman to be infringing its patents as well. If those allegations are true, they cannot be considered legitimate, alternative sources of harm. If Associated Spring and Peterson Spring are not infringing, any loss of sales by Kuhlman to them does not negate the injury inflicted on Kuhlman by Wallbank's unfair methods of competition.

The overall downturn in the automotive industry has undoubtedly affected Quality Spring, as the demand for its products is closely connected to the demand for automobiles. However, the evidence relied on shows that Kuhlman has been injured as the result of factors other than the reduction in size of the market. Market share data factor out the effects of a shrinking market. The loss of market share in a shrinking market always means lost volume of

sales beyond those attributable to reduced demand.

Section 337 does not require that the subject imports be the sole cause of injury. It merely requires that the subject imports have the effect of substantially injuring or the tendency to substantially injure the domestic industry. Such an effect has been adequately proven in this case.

X. TENDENCY TO INJURE

There is strong evidence that imports of the subject goods, in the absence of a remedy, will inflict substantial harm on the complainant's business. Wallbank's market share has increased steadily each year, and Wallbank is increasing its marketing efforts in the United States. In 1978, Wallbank hired a U.S. sales representative to call upon U.S. auto manufacturers in an effort to expand its spring assembly sales to the auto companies. Tr. 2283-2284; KX-125. The U.S. sales representative was still employed by Wallbank as of the date of the hearing before the ALJ.

Wallbank could increase production without much additional cost. The capital investment needed to increase production by adding machines is relatively small, while each additional machine would significantly increase production capacity. Wallbank also could increase production by merely adding a third shift.

Wallbank's infringing imports are priced significantly lower than those of Kuhlman, in large part because Wallbank can produce spring assemblies at the present time at a cost below that of Quality Spring. See R.D. at 70. The lower cost of the imports is a significant factor in Wallbank's ability to increase its market share. Allocation of market share in the automotive

supply industry is based on quality, ability to deliver on time, and price. All current suppliers have proven the quality of their product and their ability to deliver on time. Consequently, the primary factor in determining future market share will be price. In light of Wallbank's ability to produce the assemblies at lower cost, the likelihood that they will continue to gain market share is great. Wallbank has already obtained contracts for spring assembly purchases at two GM divisions for the 1982 model year.

There is some question as to whether the automobile industry will be using spring assemblies very far into the future. The record shows that although spring assemblies probably will not be used indefinitely, there will be a substantial need for them in the immediate future. Tr. 1619, 1771, 2297-2299.

The record shows that the Wallbank importations of spring assemblies have had the effect of substantially injuring that part of Quality Spring's business devoted to the manufacture of spring assemblies, and that future importations would have the tendency to substantially injure Quality Spring.

XI. REMEDY 43/

We find that the appropriate remedy in this case is a general exclusion order, i.e., an order excluding all infringing spring assemblies. The cost of entry into the market for the subject spring assemblies is low relative to the automotive supply industry, especially for a manufacturer which already produces springs. The technology involved here is not extraordinarily complex. Moreover, the domestic producers know the technology and can give

^{43/} For Commissioner Stern's views on remedy, see pp. 4-5 of Commissioner Stern's Additional Views, infra.

any one producer sufficient business to make a spring assembly operation profitable. Consequently, other producers could enter the market with relative ease, especially with the help of GM or Ford. The recent entry into the market of Wallbank, a small family-owned business, testifies to this fact. In addition, a new manufacturer, especially one that already produces springs, could tool up and begin producing infringing spring assemblies in a matter of months. Consequently, readily available new sources of infringing imports are a matter of genuine concern. Only a general exclusion order will prevent the entry into the United States of infringing imports from all sources. Therefore, we find that only a general exclusion order would provide complete relief in this case. 44/

44/ Chairman Alberger would like to point out that the facts in the present case, as they relate to the task of fashioning an appropriate remedy, are distinguishable from those in Certain Headboxes and Papermaking Machine Forming Sections for the Continuous Production of Paper, and Components Thereof, inv. No. 337-TA-82. Thus, a different remedy is required.

In Headboxes, Chairman Alberger recommended that a cease and desist order to the foreign respondents was the appropriate remedy. Only the KMW respondents were identified as infringers of the domestic patent, the item involved was quite large and expensive, and start-up costs were so high in that industry that it was unlikely that other infringers would be entering the market quickly. In his view, the issuance of a cease and desist order in that case would have been the most effective and least onerous remedy.

As stated in the text of the opinion in this case, the Commission has determined that an exclusion order is the most effective remedy. Although the only known domestic and foreign infringers have been identified in this case, a cease and desist order to these respondents would not be completely effective. The domestic importers of the subject spring assemblies are aware of the technology involved in the production of these springs. Also, the spring assemblies are simple items, the cost of producing them is low, and start-up is relatively easy (especially for an already-existing spring manufacturer). Therefore, it is conceivable that new manufacturers could begin production of infringing springs virtually overnight and quickly enter the U.S. market. An exclusion order would be effective in preventing the entry of infringing springs from whatever source into the United States and is, therefore, the most effective remedy.

In light of the above factors, a limited exclusion order and a cease and desist order would not provide effective relief. In order to be effective, the remedy in this case must fully redress the unfair acts of all three respondents. This includes preventing the resumption of such unfair trade practices when possible, especially where, as here, the importation of infringing imports from other sources poses a real concern. A limited exclusion order would not be effective against GM and Ford, as the U.S. Customs Service does not ordinarily have the name of the U.S. purchaser before it. Even if it did have such information available, the use of a middleman would render such an order meaningless. A cease and desist order would be difficult to enforce against Wallbank.

The complainant has proven its right to relief. There are no circumstances present which justify affording the complainant anything less than the most effective relief available, a general exclusion order.

Wallbank is the only known foreign manufacturer of the subject spring assemblies that is not licensed, and no other foreign companies are currently importing into the United States. Anyone who enters the market at this point will do so with knowledge 45/ of the Commission's determination in this investigation.

Wallbank argues that entry of a remedy against it would be discriminatory action prohibited by the Autopact. This argument is rejected for the same reasons that Wallbank's challenge to the Commission's jurisdiction was rejected. 46/

45/ Actual or constructive knowledge.

46/ See the discussion of jurisdiction at 7-10, supra.

Wallbank requests that any order issued by the Commission outline procedures whereby Wallbank can bring to the Commission's attention, with suitable verification by Kuhlman, the fact that it is using a process which does not violate the '287 process patent. The appropriate mode for such action would be a request for an advisory opinion. Such requests are provided for in section 211.54(b) of the Commission's Rules of Practice and Procedure (19 C.F.R. § 211.54(b)).

XII. THE PUBLIC INTEREST

The Commission may order a remedy only "after considering [the remedy's] effect . . . upon 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" 19 U.S.C. § 1337(d)-(f). Consideration of these public-interest factors is "paramount in the administration of the statute." S. Rep. No. 93-1298, 93d Cong., 2d Sess. 193 (1974). The entry of an exclusion order in this case would not adversely affect the public interest.

The entry of remedy will have no adverse impact on the public health and welfare. Spring assemblies have no relationship to maintaining or increasing the supply of fuel-efficient automobiles, as was the case in Crankpin Grinders, investigation No. 337-TA-60 (1979). They are not necessary to basic scientific research, as in Acceleration Tubes, investigation No. 337-TA-67 (1980).

There will be no adverse impact on the competitive conditions in the U.S. economy, or on the production of like or directly competitive articles in the

United States. The Quality Spring division of Kuhlman has sufficient capacity to supply the entire U.S. market; thus, no disruption of production would result. Moreover, Kuhlman has clearly expressed its willingness to license other spring suppliers directly, or indirectly through GM. The issuance of remedy will not significantly affect the prices paid for the subject spring assemblies. Any price increase would be small, as the spring assemblies are low-cost items and the prices of the subject spring assemblies are largely controlled by the auto companies rather than by individual suppliers. The exclusion order in this case will have no impact on the auto industry's ability to compete with imports or to recover from its recent slump. On the contrary, the encouragement of ingenuity gained by protecting valid U.S. patents will assist the U.S. auto industry in meeting the technological challenges it faces in the years ahead.

The entry of an exclusion order will have no adverse impact on U.S. consumers. The spring assemblies are low-cost, specialty items that have little direct connection with U.S. consumers. Should the exclusion order have any impact on the price of the spring assemblies, it would be so small that the effect on U.S. consumers could not be discerned.

BONDING

We find that a bond of 72 percent of the c.i.f. value of the subject spring assemblies and components thereof would offset during the Presidential review period any competitive advantage gained through the unfair trade practice involved. The amount of the bond is based on the discrepancy in current prices between the complainant's goods and those of Wallbank.

ADDITIONAL VIEWS OF PAULA STERN

The Domestic Industry

In patent-based investigations, the Commission has traditionally defined domestic industry as the patentee and its component suppliers to the extent they produce merchandise in accord with the teachings of the patent. 1/ The Commission has consistently adhered to the exploitation of the patent definition 2/ and the Ways and Means Committee Report on the Trade Reform Act of 1973 (the bill that became the Trade Act of 1974) confirms the "exploitation of the patent" approach to defining the domestic industry.

In the first patent-based investigation, Synthetic Phenolic Resin, the Commission defined the industry to encompass the legal domestic exploitation of the patents in issue. 3/ However, the Commission recognized the narrowness of that definition and quoted from an early case decided under these provisions, Revolvers:

1/ Certain Rotatable Photograph and Card Display Units and Components Therefor, Investigation No. 337-TA-74 at 13 (1980).

2/ Certain Rotatable Photograph and Card Display Units and Components Therefor, Investigation No. 337-TA-74 at 13 (1980). See also Certain Roller Units, Investigation No. 337-TA-44 (1979); Certain Exercising Devices, Investigation No. 337-TA-24 (1977); Panty Hose, Investigation No. 337-TA-25 (1972); Meprobamate, Investigation No. 337-L-41 (1971).

3/ Synthetic Phenolic Resin of Form C and Articles Made Wholly or in Part Thereof, Investigation No. 316-4 (1927).

In reaching the conclusions here stated, it is hardly necessary to say that we have constantly borne in mind that section 316 is a part of the public law. The unfair methods of competition there declared unlawful must work injury to one or more individual producers, but in view of this statute the effect on the individual is incidental and secondary. For the purpose of section 316 is not to protect complainant's business as such, but to safeguard an industry of the United States. The considerations upon which the machinery of the statute is set in motion must therefore be considerations primarily of a public nature. ^{4/}

This investigation presents us with a factual situation which forces us to strip away the legal fiction that an "industry" is defined solely by the legal exploitation of a patent. As I discussed in Headboxes 5/ the exploitation of the patent definition of industry in patent-based cases has become an accepted legal fiction. However, it is not to be applied without question, especially in situations where it could lead to an unreasonable definition of industry. The facts in this investigation present just such a situation. The record discloses that two other domestic firms, Associated Spring and Peterson Spring, are supplying transmission spring assemblies that are almost identical to those produced by Kuhlman. They have supplied a significant share of the GM market for seven years and are now supplying a significant portion of Ford's requirements. Kuhlman's failure to enforce its patent rights falls short of acquiescence or estoppel which would justify the Commission's refusal to enforce the patents in issue. However, Kuhlman's inaction prevents the exclusion of Associated Spring and Peterson Spring from the definition of the domestic industry.

^{4/} Investigation No. 316-1 (1924), Ninth Annual Report of the Tariff Commission, p. 106. Section 316 of the Tariff Act of 1922 was the predecessor to Section 337 of the Tariff Act of 1930 and is virtually identical.

^{5/} Certain Headboxes and Papermaking Machine Forming Sections for the Continuous Production of Paper, and Components Thereof, Investigation No. 337-TA-82 (Dissenting Opinion of Commissioner Paula Stern) (1981).

Kuhlman admitted that it was willing to allow infringement of its patents as long as it maintained two-thirds of GM's market for the patented products. When Associated Spring and Peterson Spring refused to take a license, Kuhlman took no action to prevent their blatant infringement. In its post-Commission-hearing memorandum, Kuhlman states

[T]he domestic industry could be defined as the involved portion of Kuhlman and the involved portions of Associated Spring and Peterson Spring. Prior to Wallbank's entry into the domestic market, Associated Spring and Peterson Spring were de facto licensees under Kuhlman's offer to the industry to allow sourcing so long as Kuhlman received two-thirds of the requirements for this product Accordingly, but for Wallbank's importation of the subject spring assemblies, Associated Spring and Peterson Spring would have continued to be protected, de facto licensees. 6/

Although I concur in the Commission finding that there was no licensing arrangement between Kuhlman and GM or between Kuhlman and the other domestic suppliers, it is clear that Associated Spring and Peterson Spring have acted and been accepted for years as legitimate components of an industry in the United States. Therefore, in this case, the appropriate domestic industry consists of the facilities of Associated Spring and Peterson Spring, as well as Kuhlman, devoted to the production of the subject spring assemblies.

The record supports a finding that the domestic industry, as defined in these views, has been substantially injured and that the imports have the tendency to substantially injure the domestic industry in the future. The overall market share data submitted by both Wallbank and Kuhlman

6/ Kuhlman's Post-Commission-Hearing Memorandum at 2.

show that the market share of the domestic industry has steadily declined since Wallbank's entry into the market, while Wallbank's share of the market has steadily increased. Indeed, the increase in Wallbank's share of the domestic market corresponds exactly with the amount of the decrease of the domestic manufacturers' share of the market, as the market was supplied wholly by domestic manufacturers prior to Wallbank's entry into the market. The significant declines in profits, employment, and capacity utilization of Kuhlman, the major portion of the domestic industry, parallels and reinforces the finding of injury as to the entire industry.

Remedy

I have determined that an exclusion order directed to imports of infringing articles by Wallbank and an order directing Ford and GM to cease and desist from importing or purchasing any infringing articles is the appropriate remedy in this case.

It is the Commission's long-standing policy to provide only that remedy necessary to eliminate the injury to the industry. ^{7/} Exclusion orders have traditionally been most appropriate in cases involving large

^{7/} See Certain Large Video Matrix Display Systems and Components Thereof, Investigation NO. 337-TA-75 at 34 (1981) (Views of Commissioner Stern Regarding Remedy); see also Certain Headboxes and Papermaking Forming Sections for the Continuous Production of Paper, and Components Thereof, Investigation No. 337-TA-82 at 47 (1981) (Views of Chairman Alberger on Remedy and Public Interest).

volumes of small, easy-to-produce, fungible products, the producers of which can change identity rapidly. 8/ This case is distinguishable from Windowshades. 9/ The subject goods are not a fungible product. They are produced for a very specific, individualized purpose for identifiable customers. They are not easy to produce, as they require significant investments in specially developed machine tools. Moreover, while the foreign producers could change identity, they could not do so without the knowledge of the U.S. producers.

I agree with the majority that in order to be effective, the remedy in this case would have to affect all three respondents. However, I differ with my colleagues in that I view an exclusion order on infringing imports by Wällbank, combined with a cease and desist order against GM and Ford as providing the most effective relief. Currently, GM and Ford are the only domestic purchasers of these articles. An order requiring them to cease and desist from purchasing infringing spring assemblies from any source would effectively preclude other foreign concerns from importing infringing articles. This remedy has the added benefit of being less likely to create delays in the importation of similar, but non-infringing, products which Customs would have to examine in order to administer a general exclusion order.

8/ See Certain Rotatable Photograph and Card Display Units and Components Thereof, Investigation No. 337-TA-74 (1980); Certain Thermometer Sheath Packages, Investigation No. 337-TA-56 (1979); and Certain Novelty Glasses, Investigation No. 337-TA-55 (1979).

9/ Certain Windowshades and Components Thereof, Investigation No. 337-TA-83 (May 1981).

