

**In the Matter of**

# **CERTAIN TROLLEY WHEEL ASSEMBLIES**

**Investigation No. 337-TA-161**



**USITC PUBLICATION 1605**

**NOVEMBER 1984**

**UNITED STATES INTERNATIONAL TRADE COMMISSION**

**COMMISSIONERS**

**Paula Stern, Chairwoman**

**Susan W. Liebeler, Vice Chairman**

**Alfred E. Eckes**

**Seeley G. Lodwick**

**David B. Rohr**

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**Kenneth R. Mason, Secretary to the Commission**

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Washington, D.C. 20436**

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

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COMMISSION ACTION AND ORDER

Procedural History

On July 20, 1983, C. L. Frost & Son, Inc. (Frost), of Grand Rapids, MI, filed a complaint under section 337. A supplement to the complaint was filed on August 8, 1983. On August 19, 1983, the Commission instituted an investigation to determine whether there is a violation of section 337 in the unauthorized importation or sale of certain trolley wheel assemblies by reason of the alleged:

- (a) patent infringement;
- (b) infringement of common law trademark rights;
- (c) violation of section 43(a) of the Lanham Act; false representation;
- (d) passing off; and
- (e) violation of 19 U.S.C. § 1304; failure to mark country of origin;

the effect or tendency of which is to destroy or substantially injure an industry which is efficiently and economically operated in the United States. The notice of institution of this investigation was published in the Federal Register on August 29, 1983 (48 F.R. 39165-66).

The original notice of investigation named the following four respondents:

(1) Sam Kwang Metal Ind. Co., Ltd., Kyungik-do, Korea; (2) Sunkyong Ltd., Seoul, Korea; (3) Tri-II, Inc., Atlanta, GA; and (4) Bestar, Metairie, LA. One respondent, Tri-II, reached a settlement agreement with Frost, and the investigation as to Tri-II was therefore terminated in April 1984.

On May 31, 1984, the Administrative Law Judge (ALJ) issued his initial determination that, of the remaining three respondents, Bestar had violated section 337. The ALJ found that (1) trolley wheel assemblies imported by Tri-II and Bestar infringe the claims of U.S. Letters Patent 4,109,343 (the '343 patent) held by Frost; (2) there is an "industry . . . in the United States;" and (3) importation of the infringing trolley wheel has a tendency to substantially injure the domestic industry.

On July 2, 1984, the Commission issued a notice that it had determined to review three issues presented by the investigation:

(1) Whether there has been an importation and sale of the infringing products, either in the shipment of nine trolley wheel assemblies which have no commercial value or in the offer for sale of the infringing products which occurred outside the United States;

(2) Whether to consider the imports of terminated respondent Tri-II, Inc., for the purpose of determining whether there is an effect or tendency to substantially injure the domestic industry; and

(3) Whether there is an effect or tendency to substantially injure the domestic industry.

The Commission requested written submissions on these issues and on the questions of remedy, public interest, and bonding.

#### Action

Having reviewed the record compiled in this investigation including (1) the parties' submissions, (2) the transcript of the evidentiary hearing before the ALJ and the exhibits accepted into evidence, (3) the ALJ's initial determination on violation, and (4) the documents and submissions made in connection with the Commission's review of parts of the initial determination, the Commission determined, on August 13, 1984, that, with respect to

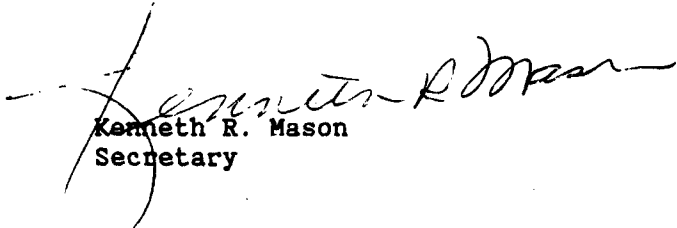
respondent Bestar, there is a violation of section 337 of the Trade Act of 1930 in the importation or sale in the United States of certain trolley wheel assemblies which have the tendency to substantially injure the domestic industry. 1/

Order

Accordingly, it is hereby ORDERED THAT--

1. Trolley wheel assemblies which are made in accordance with at least claims 1 and 13 of U.S. Letters Patent 4,109,343 are excluded from entry into the United States except under license of the patent owner for the remaining term of the patent.
2. The Secretary shall serve copies of this Commission Action and Order and the Commission opinion in support thereof upon each party of record to this investigation and shall publish notice of this Action and Order in the Federal Register.
3. The articles ordered to be excluded from entry into the United States shall be entitled to entry under bond in the amount of 50 percent of the entered value of the subject 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, and 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 of this action; and
4. The Commission may amend this order in accordance with the procedure described in section 211.57 of the Commission's Rules of Practice and Procedure (19 CFR § 211.57).

By order of the Commission.

  
Kenneth R. Mason  
Secretary

Issued: August 29, 1984

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1/ Chairwoman Stern dissented from the Commission's finding of a violation by reason of a tendency to substantially injure the domestic industry, but concurred in the Commission's determination of no present effect to substantially injure the domestic industry.

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 In the Matter of )

CERTAIN TROLLEY WHEEL ASSEMBLIES) )  
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Investigation No. 337-TA-161

VIEWS OF THE COMMISSION

On July 1, 1984, the Commission determined to review portions of the Administrative Law Judge's ("ALJ's") initial determination ("ID") issued in Certain Trolley Wheel Assemblies, inv. No. 337-TA-161. The Commission specified three issues for review:

- (1) Whether there has been an importation and sale of the infringing products, either in the shipment of nine 1/ trolley wheel assemblies which have no commercial value or in the offer for sale of the infringing products which occurred outside the United States;
- (2) Whether to consider the imports of terminated respondent Tri-II, Inc., for the purpose of determining whether there is an effect or tendency to substantially injure the domestic industry; and
- (3) Whether there is an effect or tendency to substantially injure the domestic industry.

We determine that there is a violation of section 337 of the Trade Act of 1930 in the importation or sale of certain trolley wheel assemblies which have the tendency to substantially injure the relevant domestic industry. 2/

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1/ Although the ALJ referred to the importation of nine trolley wheel assemblies by Bestar, according to the complainant and the Commission investigative attorney (IA), there was only one such trolley wheel assembly. See, Brief of complainant on the issues for review, at 4 n.1; Brief of the IA of issues on review, at 1 n.1.

2/ Chairwoman Stern concurs with the majority of the Commission on the questions of the unfair act, the definition of the domestic industry, efficient and economic operation, and that infringing imports have no effect to substantially injure or destroy the domestic industry. However, she finds that the infringing imports do not have a tendency to substantially injure or destroy the domestic industry.

## PROCEDURAL HISTORY

On July 20, 1983, C. L. Frost & Son, Inc. ("the complainant"), of Grand Rapids, MI., filed a complaint under section 337. 3/ A supplement to the complaint was filed on August 8, 1983. On August 19, 1983, the Commission instituted an investigation to determine whether there is a violation of section 337 in the unauthorized importation or sale of certain trolley wheel assemblies by reason of alleged:

- (a) infringement of U.S. Letters Patent 4,109,343;
- (b) infringement of common law trademark rights;
- (c) violation of section 43(a) of the Lanham Act: false representation;
- (d) passing off; and
- (e) violation of 19 U.S.C. § 1304: failure to mark country of origin;

the effect or tendency of which is to destroy or substantially injure an industry, efficiently and economically operated, in the United States. The notice of institution of this investigation was published in the Federal Register on August 29, 1983. 4/

The original notice of investigation named the following four respondents:

- (1) Sam Kwang Metal Ind. Co., Ltd., of Kyungik-do, Korea;
- (2) Sunkyong Ltd. of Seoul, Korea;
- (3) Tri-II, Inc. of Atlanta, GA.; and
- (4) Bestar of Metairie, LA.

Respondent Sam Kwang was alleged to be a forging company engaged in the manufacture of trolley wheel assemblies. Sunkyong was alleged to be a trading company. Bestar and Tri-II were alleged to be importers. 5/

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3/ 19 U.S.C. § 1337.

4/ 48 Fed. Reg. 39165-66.

5/ In addition, although Hwasung Joengmil Co. of Seoul, Korea, was not named as a respondent, the investigation indicated that Hwasung Jeongmil, a trading company, was related to respondent Bestar by virtue of the affiliation of Bestar's principal, Mr. Lee, with both companies. It is the trolley wheel which Bestar's U.S. distributor received from Hwasung Jeongmil that the ALJ found to be infringing.

One respondent, Tri-II, entered into a consent order settlement agreement with the complainant. 6/ On May 31, 1984, the ALJ issued his initial determination that, of the remaining three respondents, Bestar had violated section 337. The ALJ found that (1) trolley wheel assemblies imported by Tri-II and Bestar infringe the claims of U.S. Letters Patent 4,109,343 ("the '343 patent") held by the complainant; (2) there is an efficiently and economically operated "industry . . . in the United States;" and (3) importation of the infringing trolley wheel has a tendency to substantially injure the domestic industry.

The ALJ made the following determinations which we do not review:

- The Tri-II and Bestar trolley wheel assemblies infringed the '343 patent.
- There was insufficient evidence to establish that the trolley wheel assembly manufactured by respondent Sam Kwang infringed the '343 patent.
- There is no common law trademark in the overall configuration and appearance of the Frost R.A.P. trolley wheel, and even if there were, there was no infringement.
- There was no violation of section 43(a) of the Lanham Act, which prohibits the use of "a false designation of origin . . . ."
- The named respondents did not engage in passing off the imported articles as patented Frost R.A.P. wheels.
- Although the imported trolley wheels did not indicate their country of origin as required by 19 U.S.C. § 1304, the Customs Marking Statute, such a violation does not constitute an unfair act under section 337.
- The relevant domestic industry is efficiently and economically operated and consists of those parts of complainant's facilities that are devoted to the manufacture, sale, and servicing of the R.A.P. Sani-trolley wheel which exploits the teachings of the '343 patent.
- There was no importation into the United States by respondents Sunkyong or Sam Kwang.



The ALJ also made the following determinations which we do review here:

- The domestic industry was not substantially injured by reason of the importation of infringing trolley wheels for respondent Bestar.
- The importation into and sale in the United States of infringing trolley wheels would have the tendency to substantially injure the domestic industry.

In reaching the latter determinations, the ALJ specifically determined not to include the imports by terminated respondent Tri-II on the grounds that inclusion of those imports would be inconsistent with the Consent Order Agreement entered into by the parties, which provides that the agreement does not constitute a determination that Tri-II violated section 337. Further, the basis for the ALJ's finding of a tendency to substantially injure the domestic industry was the apparent intent of at least a Mr. Lee, who was associated with Bestar, Sam Kwang, and Sunkyong, and also the intent of a Mr. Han, who was Tri-II's contact in Korea, to sell trolley wheel assemblies in the United States.

#### IMPORTATION AND SALE

The ALJ found that Bestar had imported trolley wheels into the United States, but that the imports by Bestar had no commercial value and had not been sold in the United States. On review, both the complainant and the IA urged the Commission to find that there has been an importation of infringing trolley wheel assemblies inasmuch as at least one assembly was imported for the express purpose of serving as a sample of what the Korean manufacturer could provide. They further contended that the commercial value of an item is irrelevant to the question of whether there has been an importation.

Specifically, the IA noted that Mr. Park, a Louisiana businessman, was contacted by the principal of Bestar of Korea, Lee, who requested that Park

serve to act as a distributor for Korean-made trolley wheel assemblies in the United States. It was upon Park's agreement to that offer that the trolley wheel assembly was imported into the United States.

We note that section 337 is written in the disjunctive: "Unfair methods of competition and unfair acts in the importation of articles into the United States, or in their sale by the owner, importer, consignee, or agent of either . . . ." <sup>7/</sup> Thus, the fact that the single trolley wheel was not sold and was imported under the designation "without commercial value" is irrelevant. So long as there has been an importation, the Commission may go on to consider whether the effect or tendency of that importation "is to destroy or substantially injure an industry." In this investigation, the "importation or sale" requirement has been met by the importation of the sample wheel.

#### EFFECT OR TENDENCY TO SUBSTANTIALLY INJURE THE DOMESTIC INDUSTRY

##### A. Consideration of the imports of a settled respondent

Directly at issue in this investigation was whether to consider the importation of 7,200 trolley wheels (and sale of 6,200 of those imports) by settled respondent Tri-II in assessing whether there had been substantial injury or was a tendency to substantially injure the domestic industry by reason of infringing imports. The ALJ specifically determined not to include the imports by Tri-II in his assessment of injury on the grounds that such inclusion would be inconsistent with the Consent Order Agreement entered into by complainant, Tri-II, and the IA.

The complainant and the IA disagreed with this determination and have argued that "the Commission has clearly and consistently supported the view that imports by parties who have been terminated from an investigation as a

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<sup>7/</sup> 19 U.S.C. § 1337(a). (Emphasis added.).

result of a settlement agreement must be considered in determining whether injury to a domestic industry has occurred" and that the Commission should do so here as well. In support of this contention, the parties cited Food Slicers and Components Thereof, inv. No. 337-TA-76, USITC Publication 1159 (1981) and Certain Heavy Duty Staple Gun Tackers, inv. No. 337-TA-137, USITC Publication 1506 (1984).

In Food Slicers, two of the four respondents entered into settlement agreements. One of the settling respondents thereupon entered into a licensing agreement with the complainant which permitted it to import up to 10,000 food slicers per year without payment of a royalty. The other respondent agreed to cease importing allegedly infringing food slicers. The two remaining respondents imported a miniscule number of food slicers compared with the volume sold by the complainant, a healthy and growing company. It was in that context that the Commission considered whether to aggregate the impact of imports by parties who have been terminated from an investigation on the basis of legitimate settlement or licensing agreements. The Commission noted:

We do not intend to discourage amicable settlements of section 337 actions. We conclude that injury from imports by parties terminated from an investigation will as a general rule be relevant to the "effects" of imported devices, when there is some indication that an "unfair act" has occurred. In addition, import competition is an economic factor relevant to our consideration of tendency to injure. For example, the presence of significant import competition may be an indication that the domestic industry is vulnerable to injury. A slight increase in unfair import competition could have a disproportionate future impact, and this circumstance could sustain a finding of tendency to injure. The relevance of such imports will be dependent on the facts presented. 8/

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8/ Food Slicers, USITC Publication 1159 at 19. In that investigation, the Commission found that even if it were to cumulate the imports of the settled respondents, it could find no present substantial injury or a tendency to substantially injure the industry in the future.

In Certain Heavy Duty Staple Gun Tackers, the Commission did not review the ALJ's ID that there was a violation and thereby adopted it as the Commission's determination. In that investigation, of the over 25 named respondents, all but 11 had entered into settlement agreements with the complainant. Further, the majority of allegedly infringing imports came from one of the settled respondents. Citing the Commission's determination in Food Slicers and the case of Bally/Midway Mfg. Co. v. USITC, <sup>9/</sup> the ALJ determined that "an assessment of injury must include imports by respondents who were importing the accused staple guns into the United States at the commencement of this investigation, or were subsequently discovered and joined, irrespective of their subsequent termination." <sup>10/</sup>

We disagree with that interpretation of Food Slicers and Bally/Midway. Food Slicers does not dictate that the Commission in every instance find the imports of settled respondents to be relevant. Further, Bally/Midway's holding was limited to the issue of the existence of a domestic industry and does not mandate that we assess the impact of imports of settled respondents in determining injury.

However, in this particular case, we believe that it is appropriate to consider the imports of Tri-II in determining whether there is an effect or tendency to substantially injure the domestic industry. Here, virtually all of the infringing imports came from the settled respondent. In addition, Tri-II was the importer of the subject trolley wheels and not the original source. Thus, the settlement agreement with Tri-II does not effect or limit the original source of the infringing imports.

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<sup>9/</sup> 714 F.2d 1117, 219 U.S.P.Q. 97 (C.A.F.C. 1983).

<sup>10/</sup> Heavy Duty Staple Gun Tackers, USITC Publication 1506 at 75. In Bally/Midway, the court held that the determination as to the existence of a domestic industry for purposes of section 337 should have been based on the situation existing at the filing of the complaint, rather than that existing at the time the Commission rendered its decision.

B. Effect

Section 337(a) requires that the unfair methods of competition or unfair acts have the effect or tendency to destroy or substantially injure a domestic industry. In considering whether there is an effect or tendency to substantially injure a domestic industry, the Commission has typically considered the following factors: the volume of imports, prices (vis-a-vis domestic prices), foreign capacity, domestic capacity, domestic capacity utilization, employment, production, shipments, inventories, sales, and profit-and-loss figures in the domestic industry. 11/ In the case of patented articles, any evidence of lost sales, declining market share, or acts that would lead to lost sales, such as price undercutting, is probative of whether the infringing imports have an effect or tendency to substantially injure.

Complainant argued that it produced evidence of lost sales as a result of sales of Tri-II imports and that it suffered declining sales and profits, allegedly, at least in part, due to Tri-II's lower prices.

In considering the issue of present effect, we note the following facts found by the ALJ:

- (a) Between August 31 and September 28, 1982, Tri-II imported 7,200 allegedly infringing trolley wheels at a cost of \$1.40 per wheel. 12/ (Fact Finding ("FF") 74).
- (b) Between August 31, 1982, and January 10, 1984, Tri-II sold 6,200 of those trolley wheels. (FF 79).

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11/ See, e.g., Food Slicers, USITC Publication 1159 at 17; Staple Gun Tackers, USITC Publication 1506 at 73.

12/ Around April 1983, complainant's patented trolley wheels sold for about the same price per unit. (FF 80). Currently, complainant's trolley wheels wholesale for about twice that amount. Complainant's brief on the Issues of Remedy, Public Interest, and Bonding at 13.

- (c) Frost's trolley wheel enjoys a substantial market share and this market share increases if the market is narrowed to the heavy-duty end of the poultry-processing industry (where the Frost R.A.P. wheel is preferred because of its higher quality and longer life). (FF 66).
- (d) Complainant's total trolley wheel production, including the Frost R.A.P. wheel, increased substantially between 1978 and 1979, fell slightly in 1980, increased again in 1981, but then fell sharply in 1982 to below 1978 levels. (FF 56).
- (e) Complainant's sales of the Frost R.A.P. wheel to Pritchard Sales Co., a U.S. poultry processor, with whom it had an exclusive sales agreement until 1981, fell by half between 1978 and 1979, then increased in 1980 to just above 1978 levels before falling steadily in 1981, 1982, and 1983. By 1983, sales to Pritchard were less than one-quarter of what they had been in 1978. (FF 64).
- (f) Complainant is capable of manufacturing 50,000 Frost R.A.P. wheels per month and under healthy U.S. market conditions, sales of the Frost R.A.P. wheels "or its equivalent" could range from 10,000 to 25,000 per month. (FF 71).
- (g) Tri-II's sale of 6,200 infringing wheels represented a loss to complainant of under \$10,000 in lost sales. (FF 80).
- (h) Complainant's gross sales, in dollar terms, of the Frost R.A.P. wheel to its primary customer, Pritchard, almost doubled between 1979 and 1980, fell slightly in 1981, and then in 1982 fell to less than half of 1979 levels, and in 1983 fell again to less than a quarter of 1979 receipts. (FF 64).
- (i) Complainant's gross sales of the R.A.P. wheel to all customers totaled well over 100,000 units between 1978 and 1982 and constituted over \$500,000 in gross revenues. (FF 63).

With these facts in mind, we do not believe that the complainant has established that the effect of imports of trolley wheel assemblies is to substantially injure or destroy the domestic industry. Although on the one hand, the maximum possible loss of revenue is almost one-quarter of complainant's revenues from sales to its biggest customer, Pritchard, in 1982 and almost one-half of complainant's revenues from Pritchard in 1983, those sales actually occurred over a 1-1/2-year period and accounted for only a

small fraction of complainant's gross sales to all of its customers during 1978-82.

Although it is apparent that the volume of sales by complainant to Pritchard declined substantially in 1982 and 1983 compared with that in 1981, we note that complainant's sales to Pritchard appear to have been on a downward slide even in 1981. It was in 1981 that complainant and Pritchard canceled their exclusivity agreement. Thus, we believe that at least some of the blame for the declining sales to Pritchard must be assigned to the cancellation of that agreement. The reduction in the number of trolley wheels purchased by Pritchard from Frost since 1980 far exceeds the number of trolley wheels imported by Tri-II.

Another factor we considered regarding the lack of a present injury is the fact that the wheels sold by Tri-II do not appear to have been underselling complainant's wheels. Although complainant notes that the Bestar wheel was offered at a price that would have considerably undersold the Frost R.A.P. wheel, that wheel has, to date, not been sold in the United States.

Under these circumstances, we do not find that an effect to substantially injure has been shown here. Thus, we concur with the determination of the ALJ on this issue.

C. Tendency 13/

In determining the existence of tendency to injure, the Commission typically considers any foreign cost advantage, foreign production capacity, the ability of the imported product to undersell the domestic product, and evidence of any intent to further penetrate the U.S. market. In this case,

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13/ Chairwoman Stern determines that there is no tendency to substantially injure or destroy the domestic industry and therefore does not join in this section of the opinion.

the facts point to at least some foreign cost advantage since Lee was able to offer trolley wheels to the complainant for 90 cents each (FF 74, 93), a foreign production capacity which exceeds domestic consumption (FF 85, 91), a possibility that the imported product could undersell the domestic product (FF 93), and definite evidence of a resolve on the part of several Korean principals to penetrate the U.S. market (FF 84, 88, 93; Deposition of Warner Willis, CPX Exhibit 13 at 87-89).

We make this determination even though there have essentially been no imports of infringing trolley wheels by any company other than settled respondent Tri-II. However, the import by Bestar of a sample trolley wheel in the context of its attempt to establish a U.S. distributor evidences an intent and an ability to import. Should such importation occur in the quantities the evidence indicated are possible, the domestic industry would be substantially injured.

In particular, we note the following facts found by the ALJ:

- (a) The Korean manufacturer of the trolley wheels imported by Tri-II has the capacity to produce 25,000 to 30,000 units per month. Under normal market conditions, the demand for trolley wheels is 10,000 to 25,000 units per month. (FF 85).
- (b) In February or March 1983, Lee solicited Park in the United States to act as his U.S. distributor of infringing trolley wheels on behalf of Bestar of Korea. (FF 88).
- (c) Park thereafter tendered a sample Bestar trolley wheel to complainant and offered to sell the wheels at a price of \$1.89 to \$2.13 each depending on the quantity ordered. (FF 90).
- (d) Park estimated that the manufacturing source of the wheels he offered to sell Frost had a production capacity of 30,000 units per month. (FF 91).
- (e) In April 1983, Lee offered to sell Frost any quantity of trolley wheels at 90 cents each. (FF 93).

We note additionally that the same two individuals, Han and Lee, appear each to have had some connection with the named respondents and they are



currently principals in other companies, including a trading company (Hando, Ltd.) and the company from which Park received the sample trolley wheel (Hwasung Jeongmil). 14/

Thus, we determine that a violation of section 337 exists in the unauthorized importation or sale of infringing trolley wheel assemblies the tendency of which unfair acts is to destroy or substantially injure the domestic industry dedicated to the manufacture, sale, and servicing of R.A.P. Sani-trolley wheel assemblies.

#### REMEDY 15/

We have determined that a general exclusion order is appropriate in this investigation. We note, in particular, the evidence that Tri-II made offers to sell its trolley wheel assemblies to virtually every one of complainant's customers, all members of the chicken-processing industry. 16/ Further, the ALJ found:

There is no evidence to indicate that Mr. Han, through Hando, does not retain the ability to have trolley wheels, such as those sold to Tri-II, manufactured in Korea. The dies for the manufacture of the accused trolley wheels remain in the possession of certain Korean parties. If the U.S. market for the accused trolley wheels improves, it is possible that Yae Dong's successor company, Hando, will institute production of the accused trolley wheels. This may result, in part, because Korean companies tend to move from one shell or corporate entity to another. (FF 84).

In light of the above facts, the ability and potential for a company not specifically named as a respondent to attempt to import infringing trolley

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14/ The ALJ made a specific finding of fact that "Korean companies tend to move from one shell or corporate entity to another. While the formal corporate designation changes, the business enterprise may remain the same." (FF 84).

15/ Having found no violation, Chairwoman Stern makes no determination as to the appropriate remedy, the public interest, or bonding.

16/ FF 81.

wheels in the future appears to be strong. 17/ A limited exclusion order would be insufficient to protect the patent-holder here.

#### THE PUBLIC INTEREST

We find that there are no public interest factors which would preclude the issuance of a general exclusion order in this case. The domestic industry has the ability to supply the demand for the wheel and the patented wheel is not the only domestic trolley wheel on the market. Thus, there is little cause for concern that the domestic industry's pricing behavior will be affected by the absence of imports. Further, there is no indication that trolley wheel assemblies are "an essential item for the preservation of the public health and welfare." 18/

#### BONDING

We find that the bond required under 19 U.S.C. § 1337(g) should be set at 50 percent of the entered value of the products involved.

Complainant and the IA proposed that a 200-percent bond be imposed upon any infringing imports during the 60-day Presidential review period. The basis for this proposal is the fact infringing trolley wheels were offered at prices as low as 90 cents each, whereas the wholesale prices for complainant's trolley wheels are currently two to three times that amount.

We do not believe that such a comparison is appropriate. The oral offer to sell the infringing trolley wheel at 90 cents each was made in April 1983 and therefore should not be compared with Frost's current wholesale prices. In addition, Tri-II's infringing wheels cost \$1.40 each in September 1982, and

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17/ FF 84, 87, 92.

18/ Airless Paint Spray Pumps, USITC Publication 1199 at 21.

the April 1983 written offer by Bestar to Frost was for \$1.89 to \$2.13 per wheel. Currently, complainant's trolley wheels sell for as much as 50 percent above Bestar's April 1983 prices.

We, therefore, determine that a bond of 50 percent of the entered value of the respondents' trolley wheels would be appropriate during the Presidential review period. This represents the best available approximation of the difference in wholesale prices between the infringing imports and complainant's patented wheel.



This is an initial determination issued by a Commission administrative law judge that the Commission determined to review in part. That part of the initial determination the Commission did not reviewed has, therefore, become the Commission determination in this investigation on the issue of violation of section 337. See section 210.53(h) of the Commission's Rules of Practice and Procedure (19 C.F.R. § 210.53(h)) and the notice published in the Federal Register on July 18, 1984 (49 Fed. Reg. 29,164).



## VIEWS OF CHAIRWOMAN PAULA STERN

I concur with the views of my fellow Commissioners on all of the issues of violation except tendency to substantially injure or destroy. On the basis of the facts on the record, I am unable to find that such a tendency exists. My interpretation of the facts presented here is clearly different from that of my colleagues.

The facts in this investigation are somewhat clouded by the relationships existing between the named respondents and several other firms and persons revealed in the record. The relationships are complex, but they do not appear to exist for the purpose of evading the 337 process. Settled respondent Tri-II bought its infringing imports through its Korean agent, General Kim, from a trading company, Yae Dong. The President of Yae Dong was Mr. Han Joe Ho. Mr. Han is now the President of another trading company, Hando Ltd. Since the time of the settlement agreement, there is no indication that any of these individuals have been involved with the subject trolley wheels. However, it was alleged that Mr. Han was a partner of Mr. S. H. Lee in Yae Dong.

Mr. Lee operated respondent Bestar of Korea, which in turn contacted respondent Mr. K. H. Park of Louisiana about Park's becoming a distributor for imported trolley wheel assemblies. Bestar exported a sample trolley wheel to Park through Hwasung Jeongmil Co., a Korean trading company. Since the bankruptcy of Bestar, Lee works for Hwasung Jeongmil and the Wong Chang trading companies. In April of 1983, Mr. Lee represented respondent Sunkyong, Ltd. (Sunkyong), a trading company, in discussions with a representative of the complainant. Mr. Lee indicated in those discussions that trolley wheels would be provided by a Korean manufacturer, respondent Sam Kwang. Sunkyong and Sam Kwang were not found to be in violation. With these relationships in mind, I now turn to the question of tendency to substantially injure.

The respondent who has settled in this investigation, Tri-II, began importing the subject trolley wheels at the request of Mr. R. A. Pritchard of Pritchard Sales Co. (Pritchard). Until 1980 or 1981, Pritchard purchased the subject trolley wheels (wheel(s)) under an exclusive sales agreement with the complainant. In fact, the wheel was named for Mr. Pritchard. In addition to this relationship with the primary customer for the wheels, Tri-II attempted national marketing of the wheel. In spite of this effort, respondent Tri-II was able to sell only 6,200 infringing wheels over a one and one-half year period. The Commission has unanimously determined that at this level of importation there was not an effect to substantially injure or destroy the domestic industry.

The only major importer of these wheels, who had advantages which should have led to successful marketing, was unable to substantially impact the domestic industry. And that importer has entered into a consent order which



will prevent future importations. At the time of the consent order, this importer indicated that it chose not to purchase any more trolley wheels from Korea because a less expensive, better quality wheel was available in the United States. Additionally, there is no indication that Pritchard has imported or sought to purchase any imported wheels subsequent to the cessation of Tri-II imports.

In light of the above, one must turn to the only other importation -- that from respondent Bestar in February or March 1983. That importation consisted of one wheel and occurred approximately eighteen months ago. Moreover, this one import by Mr. Park from Bestar has in those eighteen months never been sold, nor has it led to the importation or sale of any additional wheels.

In April 1983, complainant's principal, Mr. Frost, traveled to Korea where he visited the trading company, Sunkyoung. At Sunkyoung, Frost met with Mr. Lee. Lee offered to sell to Frost trolley wheels manufactured by Sam Kwang, a Korean forging company. Lee then contacted Park, providing Park with stationery bearing a Bestar letterhead and instructing Park to send a quotation and samples of the Korean product to Frost. Park did so, sending to Frost a quotation for a number of items including trolley wheel assemblies. Included among the samples Park sent to Frost was the wheel Park had received in February or March 1983. Frost subsequently declined to purchase the items offered by Park.

So the one trolley wheel from Bestar, exported by Hwasung Jeongmil, shows up in the one offer for sale on the record of this investigation. However, this offer occurred over a year ago. It did not result in a sale. If it had

resulted in a sale, it would have been a sale to the patent holder and an implied license could be present. And despite the sample provided by Park to the complainant, the offer of Mr. Lee was for trolley wheel assemblies produced by Sam Kwang against whom there is no finding of infringement.

Of the four respondents in this investigation, Sunkyong and Sam Kwang have not been found to be infringing. Tri-II has entered into a consent order, and Bestar is reportedly in bankruptcy. (Though not a named respondent, Yae Dong, the company through which Tri-II obtained their wheels, is also in bankruptcy.)

In assessing the prospect of substantial injury occurring in the future, the Commission must not construct a hypothetical as to what would happen if a certain level of importation were achieved. Rather we must predict what level of importation is probable, not what is possible. We then assess the impact of this level of imports on the domestic industry given the conditions in the business environment we predict for this industry. In this investigation, there is a total absence of information to support a finding that Mr. Lee, or any other individual or firm -- either named respondent or a principal of a named respondent -- can successfully penetrate the U.S. market. In fact, all the evidence is to the contrary.

PUBLIC VERSION  
337-TA-101

UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, D.C.

6-7-84  
Public X 7  
ID svd 6-2-84  
Petition due 6-20-84  
Resp to pet. due \_\_\_\_\_  
Gov't comments due 6-27-84  
Public comments due 6-30-84  
Comm. decision due 6-30-84  
7-2-84, not due.  
*Ben*

3-22  
SECRETARY  
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In the Matter of )  
CERTAIN TROLLEY WHEEL ASSEMBLIES )  
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Investigation No. 337-TA-101

INITIAL DETERMINATION

John J. Mathias, Administrative Law Judge

Pursuant to the Notice of Investigation in this matter (48 Fed. Reg. 39165-66, August 29, 1983), this is the Presiding Officer's Initial Determination under Rule 210.53(a) of the Rules of Practice and Procedure of this Commission. (19 C.F.R. 210.53(a)).

The Presiding Officer hereby determines that there is a violation of Section 337 of the Tariff Act of 1930, as amended (19 U.S.C. §1337, hereafter Section 337), in the importation of certain trolley wheel assemblies into the United States, or in their sale. The complaint herein alleges that such importation or sale constitutes unfair methods of competition and unfair acts by reason of alleged: (1) infringement of the claims of U.S. Letters Patent No. 4,109,343; (2) common law trademark infringement; (3) false designation of source of origin; (4) passing off and (5) failure to mark country of origin. It is further alleged that the effect or tendency of the unfair methods of competition and unfair acts is to destroy or substantially injure an industry, efficiently and economically operated, in the United States.

\* \* \* \* \*

The following abbreviations are used in this Initial Determination:

- Tr.- Official Transcript, usually preceded by the witness' name and followed by the referenced page(s);
- CX - Complainant's Exhibit, followed by its number and the referenced page(s);
- CPX - Complainant's Physical Exhibit
- SX - Staff Counsel's Exhibit
- CB - Complainant's Post Hearing Brief
- FF - Finding of Fact



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PROCEDURAL HISTORY

On July 20, 1983, C. L. Frost & Son, Inc., 2020 Bristol, N.W., Grand Rapids, Michigan 49504, filed a complaint with the U.S. International Trade Commission pursuant to 19 U.S.C. §1337 (Section 337). A supplement to the complaint was filed on August 8, 1983. The complaint alleged unfair methods of competition and unfair acts in the importation of certain trolley wheel assemblies into the United States, or in their sale, by reason of alleged (1) infringement of the claims of U.S. Letters Patent No. 4,109,343; (2) common law trademark infringement; (3) false designation of source of origin; (4) passing off; and (5) failure to mark country of origin. The effect and tendency of these unfair acts and unfair methods of competition was alleged to be to destroy or substantially injure an industry, efficiently and economically operated, in the United States. The complainant requested that the Commission institute an investigation, and, after a full investigation, issue both a permanent exclusion order and permanent cease and desist orders.

Upon consideration of the complaint, the Commission ordered, on August 19, 1983, that an investigation be instituted pursuant to subsection (b) of Section 337 to determine whether there is a violation of subsection (a) of Section 337, as alleged in the complaint.<sup>1/</sup> The notice of institution of such investigation was published in the Federal Register on August 29, 1983 (48 Fed. Reg. 39165-66).

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<sup>1/</sup> The third unfair method of competition alleged in the complaint is designated as "false designation of source of origin." The Notice of Investigation designates this unfair method of competition as "false representation."

The following four parties were named as respondents in the Notice of Investigation:

Sam Kwang Metal Ind. Co., Ltd.  
775-3 Wonsi-Ri  
Kunja-Meun, Siheung-Kun  
Kyungik-do, Korea

Sunkyong Limited  
C.P.O. Box 1780  
Seoul, Korea

Tri-II, Inc.  
8505 Dunwoody Place  
Atlanta, Georgia 30338

Bestar  
1116 Aris Ave.  
Metairie, Louisiana 70005

Jeffrey S. Neeley, Esq., Unfair Import Investigations Division, U.S. International Trade Commission, was named as Commission investigative attorney, a party to this investigation. On October 5, 1983, a notice of change of the Commission investigative attorney was issued, redesignating Harold Brandt, Esq. as a party to this investigation (48 Fed. Reg. 46633, October 13, 1983).

By Order No. 1, issued August 26, 1983, Chief Administrative Law Judge Donald K. Duvall was designated as the Presiding Officer in this investigation. On September 16, 1983, by Order No. 3, for reasons of judicial economy and administrative necessity, Chief Administrative Law Judge Donald K. Duvall was relieved, and Administrative Law Judge John J. Mathias was designated as Presiding Officer in this investigation.

Although none of the above-named respondents formally entered an appearance in this investigation, certain letters were filed in response to the complaint on

behalf of respondent Bestar by Mr. K. H. Park on August 18, 1983, October 6, 1983, and October 18, 1983, generally denying the allegations contained in the complaint. In addition, respondent Tri-II acknowledged receipt of the complaint by letter of November 15, 1983. None of the remaining respondents responded to the complaint and Notice of Investigation.

A preliminary conference was held in this matter before Administrative Law Judge John J. Mathias on October 28, 1983. Appearances were made on behalf of complainant and the Commission investigative staff. No appearance was made by any respondent.

Order No. 6, issued November 8, 1983, granted complainant's motion to compel discovery from respondents Tri-II, Inc., Sam Kwang Metal Ind. Co. Ltd., and Sungkyong, Ltd. Order No. 8, issued February 23, 1984, granted complainant's motion for imposition of sanctions against respondents Sam Kwang Metal Ind. Co., Ltd. and Sunkyong Ltd. to the extent that these respondents shall not be heard to object to the introduction and use of secondary evidence to show what the withheld evidence, including responses to interrogatories and document requests compelled by Order No. 6, would have shown.

Order No. 9, issued February 27, 1984, was an initial determination granting a joint motion by complainant, respondent Tri-II Inc., and the Commission investigative attorney to terminate this investigation as to Tri-II on the basis of settlement and consent order agreements entered into by complainant and Tri-II. On March 26, 1984, the Commission issued a Notice of Commission Decision Not To Review Initial Determination Terminating Respondent on the Basis of a Consent Order; Issuance of Consent Order (49 Fed. Reg. 13441, April 4, 1984).

A prehearing conference was held in this matter on February 21, 1984. The hearing commenced immediately thereafter before Administrative Law Judge John J. Mathias to determine whether there is a violation of Section 337 as alleged in the complaint and set forth in the notice investigation. Appearances were made on behalf of complainant and the Commission investigative staff. No respondents appeared at the prehearing conference or hearing.

The issues have been briefed and proposed findings of fact and conclusions of law submitted by the participating parties. The matter is now ready for decision.

This initial determination is based on the entire record of this proceeding, including the evidentiary record compiled at the final hearing, the exhibits admitted into the record at the final hearing, and the proposed findings of fact and conclusions of law and supporting memoranda filed by the parties. I have also taken into account my observation of the witnesses who appeared before me and their demeanor. Proposed findings not herein adopted, either in the form submitted or in substance, are rejected either as not supported by the evidence or as involving immaterial matters.

The findings of fact include references to supporting evidentiary items in the record. Such references are intended to serve as guides to the testimony and exhibits supporting the findings of fact. They do not necessarily represent complete summaries of the evidence supporting each finding.

## FINDINGS OF FACT

### I. JURISDICTION

1. Service of the complaint and Notice of Investigation was perfected on respondents Sam Kwang Metal Ind. Co., Ltd. (Sam Kwang), Sunkyong, Limited (Sunkyong), and Bestar. (SX 35; letter of Mr. K. H. Park, filed October 6, 1983).

### II. PARTIES

2. Complainant, C. L. Frost & Son, Inc., (Frost) is a Michigan corporation with its principal place of business at 2020 Bristol, N.W., Grand Rapids, Michigan 49504. Frost is engaged in the sale, distribution and marketing of components for the material handling industry, including trolley wheel assemblies, components for overhead trolley wheel conveyors, conveyor roller assemblies, attachments, conveyor chain and other components. Such items are incorporated in material handling systems used in food, chemical, medical products, automobile and other applications serviced by the material handling industry. (Frost, CX 69, pp. 1-5, 7-8; SX 3, Interrogatories 1-3; SX 4-7).
3. Respondent Sam Kwang is alleged to be a South Korean company with its principal place of business at 775-3 Wonsi-Ri, Kunja-Meun, Siheung-Kun, Kyungik-Do, Korea. Sam Kwang is alleged to be a forging company engaged in the manufacture of certain of the accused trolley wheel assemblies. It is further alleged that Sam Kwang is now bankrupt. (Complaint, ¶ 27; Frost, CX 69, pp. 36-39; Frost, Tr. 35).

4. Respondent Sunkyong is alleged to be a Korean company having its principal place of business at C.P.O. Box 1780, Seoul, Korea. Sunkyong is alleged to be a trading company engaged in the exportation to the United States of certain of the accused trolley wheel assemblies. (Complaint, ¶ 27; Frost CX 69, pp. 36-39; Frost, Tr. 35).
  
5. Respondent Bestar is alleged to be a South Korean entity, now bankrupt, which has operated in the United States through a representative, Mr. K. H. Park, at 1116 Aris Avenue, Metairie, Louisiana 7005. It is alleged that the principal of Bestar in Korea is Mr. S. H. Lee, who is now affiliated with Hwasung Jeongmil Co., No. 3, 1-Ka Moon Lae-Dong, Yeong Deung Po-Ku, Seoul, South Korea. It is alleged that respondent Bestar is engaged in the importation into and sale in the United States, of certain of the accused trolley wheel assemblies. (CX 65; Park dep., CPX 14, pp. 7-13; Complaint ¶¶ 23-26).

### III. PRODUCT IN ISSUE

6. The product of complainant involved in this investigation is a trolley wheel assembly identified as the Frost R.A.P. wheel, which is included in Frost's line of wheels known as Sani-Trolley wheels. The R.A.P. wheel consists of a curved plastic tire which is brown in color and has annular grooves in the faces of the wheel. This wheel is primarily used in the food processing, and particularly by the poultry processing, industry. (CX 1-6; Rood, CX 68, pp. 5-8, 12, 13; Frost, CX 69, pp. 16-22; CPX 1-8).

7. The accused imported trolley wheel assemblies are trolley wheels having the same color, configuration, appearance, and functional aspects as the Frost R.A.P. trolley wheel. (CX 1-4; CX 10-13; Rood, CX 68, pp. 13-16; Frost, CX 69, pp. 34-39; CPX 1, 9-12).

#### IV. UNFAIR ACTS AND METHODS OF COMPETITION

##### A. The Patent in Issue

##### 1. Background of the Invention and Validity of the Suit Patent

8. U.S. Letters Patent No. 4,109,343 ('343 patent) discloses a trolley wheel assembly which is principally adapted for use in conveyor applications where sanitary conditions must be maintained, such as the poultry processing industry. Conventional or prior trolley wheel assemblies were not acceptable in such an environment due to corrosion problems. Such were subject to attack from cleaning solutions. Problems were experienced with conveyor rail flaking, wear and noise. Further, lubrication of prior trolley wheel assemblies was a problem in such an environment. (CX 8; SX 3, p. 4; Rood, CX 68, pp. 9-12; Frost, CX 69, pp. 12-15).
9. The assembly of the '343 patent overcomes these problems and provides a high load bearing capability. An antifriction plastic tire wheel extends around a pair of annular, metallic and preferably stainless outer bearing race rings. The molded plastic tire extends around the edges of the rings to maintain their axial positions and is molded into at least one recess or scallop formed in the rings to prevent wear producing rotation between the rings and the wheels. This

increases the trolley wheel assembly's reliability and life. The design offers a resistance to attack from cleaning solutions and reduced wheel drag due to friction. Conveyor chain or cable tension is lowered, thereby increasing bearing life, reducing conveyor drive horsepower requirements and providing a lower start-up torque. The plastic tire also eliminates or reduces conveyor rail flaking, wear problems and noise. The trolley wheel is designed to operate with a minimum of required lubrication. (CX 8; Rood, CX 68, pp. 9-12; Frost, CX 69, pp. 12-15; Frost, Tr. 56-58).

10. The '343 patent for a trolley wheel assembly was issued on August 29, 1978, from an application filed on May 10, 1976. Complainant Frost is the owner by assignment of the '343 patent, which consists of nineteen claims. (CX 8, 9, 32; Rood, CX 68, pp. 9-10; Frost, CX 69, pp. 8-9).
11. The claims of the '343 patent cover and read on the Frost R.A.P. trolley wheel assembly. (CX 1-4, 8, 34; Rood, CX 68, pp. 9-10; Rood, Tr. 16-19).
12. The Frost trolley wheel assemblies covered by the claims of the '343 patent, i.e., the Sani-Trolley line, have obtained a high degree of acceptance in the poultry processing industry. (Frost, Tr. 56-59, 62).
13. There is no prior art cited or other activity of record in connection with the prosecution of the '343 patent which would call into question its validity. The '343 patent was duly issued by the U.S. Patent and Trademark Office on August 29, 1978. (CX 8, 9, 32, 33).



## 2. Infringement of the '343 Patent

14. The trolley wheel assembly that was imported by Tri-II, Inc. includes an antifriction trolley wheel assembly comprising a plastic trolley wheel having a central opening with an axis therethrough; a pair of annular, metallic, outer bearing races positioned back to back with one another in said central opening; said outer bearing races each including an outer surface having an annular, axially inward facing portion, an annular, contoured inner surface portion adapted to receive antifriction bearing means for rotational support of said wheel and outer races, an annular, outer end surface facing axially in a direction opposite to said axially inward facing portion of said outer surface and recessed means positioned axially outwardly of said contoured inner surface for preventing rotation of said outer bearing race with respect to said wheel; said annular, axially inward facing surfaces of said outer races directly contacting and abuttingly engaging one another in said back to back position; said central opening including a central portion having a V-like cross-sectional shape engaging the remainder of said outer surfaces of said outer races except for said abuttingly engaged, annular, axially inward facing surfaces; engaging means on said wheel engaging said outer bearing races including first portions engaging said recessed means for each of said outer bearing races to prevent such rotation and second portions engaging said annular, outer end surfaces of said outer bearing races to prevent axial movement of said outer races away from said back to back position, said engaging means retaining said annular, axially inward facing outer race surfaces in engagement with one another and the remainder of said outer surfaces against said

central opening surfaces; axially extending means in said central opening having a pair of inner raceways in registry with the contoured portions of said outer bearing races; and antifriction bearing means disposed between each of said outer bearing races and inner raceways for rotationally supporting said wheel and outer races. (CX 8, claim 1; Rood, Tr. 16-19; CX 68, pp. 13-16, 20-22; CX 10-13, 34; CPX 9).

15. The trolley wheel assembly that was imported by Tri-II, Inc. also includes an antifriction trolley wheel assembly comprising a plastic trolley wheel having a central opening with an axis therethrough; a pair of annular, metallic, outer bearing races each including an annular, radially extending flange, an annular axially extending flange having an annular axial end surface, and a curved transition area between said flanges forming a contoured area for receiving bearing means; said outer races being positioned back to back in said central opening with said radial flanges being parallel to and abutting one another and said axial flanges extending away from each other such that said contoured areas face away from one another; said outer races each further including recessed means for preventing rotation of said outer bearing race with respect to said wheel, said recessed means including at least one recessed area within said axial end surface of said annular, axially extending flange of each outer bearing race; said wheel including engaging means formed in one piece therewith and extending axially into, engaging, and filling said recessed means including said recessed area of each of said outer bearing races to prevent such rotation and engaging the

entirety of said annular, axial end surface of each of said outer bearing races to prevent axial movement of said outer races away from said back to back position; axially extending means in said central opening having a pair of inner raceways in registry with the contoured portions of said outer bearing races; and antifriction bearing means disposed between each of said outer bearing races and inner raceways for rotationally supporting said wheel and outer races. (CX 8, claim 13; Rood, Tr. 16-19; CX 68, pp. 13-16, 20-22; CX 10-13, 34; CPX 9).

16. The trolley wheel assembly that was imported by Tri-II, Inc. was manufactured in Korea in accordance with specifications provided by Warner Willis, President of Tri-II, Inc. (Willis dep., CPX 13, pp. 57-62; CX 40; CPX 9).
17. The trolley wheel assembly manufactured in Korea for Tri-II, Inc. in accordance with the specifications provided by Mr. Willis reads on at least claims 1 and 13 of the '343 patent. (FF 14-16).
18. The trolley wheel assembly imported into the United States by Bestar, in care of Mr. Park, is of substantially the same structure, and manufactured in accordance with the same specifications as the Tri-II wheel. The Bestar trolley wheel differs from the Tri-II wheel in that it has a single recess in each of the outer race rings, instead of two recesses, as in the Tri-II wheel. (Rood, Tr. 18-19; CX 68, pp. 14-15, 22; CX 14-15; CPX 10).
19. The only Bestar trolley wheel of record in this investigation does not include the shaft, bearings or inner race rings, as required by the claims of the '343 patent. However, it appears that the sample trolley

wheel imported by Bestar and sent to Frost included a stainless steel shaft, and was in all respects of substantially the same structure as the Tri-II wheel. (CX 14-15; CPX 10).

20. The trolley wheel assembly imported by Bestar reads on, and therefore, literally infringes, at least claims 1 and 13 of the '343 patent. (FF 14-19).

21. The trolley wheel which is alleged to have been manufactured by Sam Kwang is not of the same origin as the wheel manufactured for Tri-II. The Sam Kwang wheel appears to be made of a different resin than the Tri-II wheel, and the shaft and outer races do not appear to be made from stainless steel, as is the Tri-II. The exterior configuration of the Sam Kwang wheel, with these exceptions, is substantially similar to the Tri-II wheel. (Willis dep., CPX 13, pp. 123-25; CPX 12).

22. If the Sam Kwang wheel were of the same internal construction and made from the same specifications as the Tri-II wheel, it would infringe at least claims 1 and 13 of the '343 patent. (FF 16, 17, 21). There is no evidence on this record which establishes the internal construction of the Sam Kwang wheel.

23. There is insufficient evidence on this record to find that the Sam Kwang trolley wheel infringes any of the claims of the '343 patent.

#### B. Common Law Trademark Infringement

24. The exterior configuration of the Frost R.A.P. trolley wheel is a brown, plastic wheel having a crown shape on the outer diameter. The side-walls of the wheel have a recessed ring, or groove. On the inside of

the wheel there is imprinted the following: "R.A.P. Wheel; U.S.  
(R)  
Pat No. 4,109,343; Mfd. by Frost ." (Rood, CX 68, p. 12; Frost,  
CX 69, pp. 18-22; CPX 1).

25. The design of the Frost R.A.P. wheel is different from the remaining wheels in the Sani-Trolley line. The other Sani-Trolley wheels are gray in color and rather than having a crown-shaped diameter, have an angular diameter. The gray Sani-Trolleys have an angle of cross section which, in their application will match the angle of the I-beam. By contrast, the R.A.P. wheel, because of its crown shape, will make point contact with the I-beam. Thus, the gray Sani-Trolleys have a greater area of contact where the angle of cross section matches the I-beam. (Frost, CX 69, pp. 20-22; Cf. CPX 1-8).
26. The Frost R.A.P. trolley wheel, which was originally designed by Frost specifically for Pritchard Sales Co., was given a rust brown color to designate the crowned tire design and to distinguish it from the design of the remaining, gray, Sani-Trolley Wheels. (Frost, CX 69, pp. 20-22).
27. The features of the Frost R.A.P. wheel which are nonfunctional include the annular groove on the sidewalls of the wheel, and the rust brown color. (Rood, CX 68, pp. 12-13; Frost, CX 69, pp. 18-23; CPX 1).
28. There are many other competitive trolley wheels on the market which are functionally interchangeable with the Frost R.A.P. wheel, but which are of different colors and have different nonfunctional design features. (Rood, Tr. 7-15, 22-23, 27-29; CPX 15-26).

29. The Frost R.A.P. wheel was designed for Pritchard Sales Co. and sold exclusively to them beginning in 1977. In about 1980-1981, Frost began to sell the R.A.P. wheel to its other customers as well. (Frost, CX 69, p. 22).
30. Frost typically sells its trolley wheels to distributors and original equipment manufacturers, who in turn incorporate the trolley wheels in overhead conveyor lines. Thus, Frost does not sell directly to the end users -- i.e., poultry processors, although Frost does provide direct maintenance and repair service to end users. (Frost, Tr. 41, 48-51, 61, 64-65).
31. The color and annular groove on the sidewall of the R.A.P. wheel are visible when the wheel is incorporated in an overhead conveyor application. (Frost, Tr. 52-53; CX 69, pp. 22-23).
32. Since 1977, Frost has sold several hundred thousand of the R.A.P. trolley wheel. (CX 16, 16(a), 67).
33. Frost engages in various forms of advertising of its entire line of Sani-Trolleys, including advertising brochures, attendance at trade shows, employment of a sales manager, and telephone advertisements. (Frost, Tr. 54, 62; CX 7; Rood, CX 68, p. 23).
34. A large amount of sales of trolley wheels are concluded by telephone. (Frost, Tr. 54, 62).
35. Frost spends approximately \$3,500-\$5,000 per year for advertising literature for the Sani-Trolley line of wheels. (CX 7).

36. In Frost's promotional literature and ordering brochures for its line of Sani-Trolley wheels, the trolley wheel is generally depicted in an operational mode, attached to a conveyor chain in position along an I-beam. Although the Sani-Trolley name is frequently shown, the R.A.P. wheel is not separately identified as such. The brochures are printed in two tones, generally black and white. These advertisements describe the functional parameters of the trolley wheels. (SX 4-7).
37. In the relevant industry, it is common to identify trolley wheels according to their color. The designated color is considered to be an indication of the identify of the manufacturer. (Frost, Tr. 53-54).
38. In the opinion of Mr. Harold Olson, General Manager of Pritchard Sales Co., the external configuration of the Frost R.A.P. wheel, particularly the groove on the tire, identifies the wheel as one originating from Frost. Mr. Olson is further of the opinion that the poultry processing industry identifies a wheel of the R.A.P. configuration as originating from Frost. (CX 70).
39. In the opinion of Mr. Ray Nix, President of Ray Nix Associates, a competitor of Pritchard Sales, the color and configuration, particularly the annular grooves in the sidewall of the wheel, identify the R.A.P. wheel as originating from Frost. Furthermore, it is Mr. Nix's opinion that the R.A.P. wheel is widely recognized in the poultry processing industry due to its color and configuration. (CX 72).

40. Complainant is not certain that any of its customers have ever purchased the accused imitation trolley wheels believing them to be the Frost R.A.P. Wheel. (Frost, Tr. 49, 59-61).
41. The color and exterior configuration and appearance of the accused imported trolley wheels are substantially identical to the appearance, color and configuration of the Frost R.A.P. trolley wheel. (Rood, Tr. 15-19; CX 68, pp. 15-16; CPX 1, 9-12).

C. False Representation and Passing Off

42. The trolley wheel assembly imported by Bestar contains no markings on the wheel which indicate the origin or manufacturer of the wheel. Both the exterior appearance as well as the functional design features of the Bestar wheel are substantially identical to the Frost R.A.P. wheel. (Rood, Tr. 18-19; CX 68, pp. 14-15; CX 15; CPX 10).
43. In its quotation to Frost for the accused trolley wheel, Bestar identified its trolley wheel as ECL or ESL standard, and provided a specification sheet for a "Style E" trolley wheel. (CX 14).
44. The only attempt to sell the accused trolley wheels by Bestar was directed to Frost. Mr. Park, acting on behalf of Bestar, was requested by Mr. Lee in Korea to send a quotation and samples to Frost. Mr. Park did not have any independent knowledge of the existence of Frost, and he did not send quotations to any other company in the United States. (Park dep., CPX 14, pp. 16-17, 20-21; CX 14).



45. When Mr. Frost was in Korea in April of 1983, during a visit to Sunkyong, a Mr. Lee offered to sell him a trolley wheel which was substantially identical in appearance to the Frost R.A.P. wheel. Mr. Lee was prepared to sell as many trolley wheels as Mr. Frost wanted to buy at a unit cost of \$.90. (Frost, CX 69, pp. 36-39).
46. There is no evidence on this record to suggest that Sunkyong or Sam Kwang have attempted to sell the accused trolley wheel in the United States market to anyone other than Mr. Frost.

D. Failure to Mark Country of Origin

47. None of the accused trolley wheels bears any marks which indicate their country of origin. (CPX 9-12).

V. IMPORTATION AND SALE

48. The trolley wheels imported by Tri-II were obtained from a trading company in Korea by the name of Yae Dong Industrial Co., Ltd. This company is alleged to be bankrupt. The principal of this company is alleged to be Mr. Han Jae Ho. Mr. Han is alleged to be the partner of Mr. S. H. Lee. (CX 42; Willis dep., CPX 13, pp. 77-78, 86-91).
49. Mr. K. H. Park, acting as a representative of Bestar, sent Frost a quotation which included a quote for trolley wheels. This quotation, dated April 15, 1983, indicated that Bestar had 9,000 trolley wheels in stock and had a monthly production capacity of 30,000 standard ESL and ECL trolley wheels. A set of samples was forwarded to Frost which included one trolley wheel. (CX 14, 60).

50. Mr. Park has imported nine trolley wheels into the United States on behalf of Bestar, which were received from Hwasung Jeongmil Co. in Seoul, Korea. This shipment was designated as having no commercial value. There is no evidence that any of these trolley wheels have been sold in the United States. (CX 61).
51. In October 1983, Mr. Park, on behalf of Bestar, notified the Commission and complainant that Bestar was a Korean company that had become bankrupt in Korea. Mr. Park indicated that Bestar's principal, Mr. S. H. Lee is now associated with a company named Hwasung Jeongmil Co. in Seoul, South Korea. (CX 65).
52. When Mr. Frost was in Korea in April 1983, a Mr. Lee of Sunkyong offered to sell him the accused trolley wheel. At that time, Mr. Lee indicated that the wheel was manufactured or assembled by Sam Kwang. It is alleged that Sam Kwang is now bankrupt. (Frost, Tr. 35; CX 69, pp. 36-39).
53. There is no evidence on this record that Sunkyong or Sam Kwang have exported to, or had imported into, or sold or offered to sell in the United States, any of the accused trolley wheels.

#### VI. DOMESTIC INDUSTRY

54. Complainant C. L. Frost & Son (Frost), a wholly owned subsidiary of Frost, Inc., is a manufacturing company devoted to the manufacture of overhead conveyor components and chain components for the poultry processing industry. (Frost, CX 69, p. 3).

55. The Frost trolley wheel involved in this investigation is manufactured at Frost's facility, which is located in Grand Rapids, Michigan.

C Within this facility, approximately                      sq. ft. are devoted to the manufacture of trolley wheel assemblies. (CX 17; Frost, CX 69, p. 7).

56. For 1978-82, Frost's Sani-Trolley wheel production and labor input to achieve such production was as follows:

	<u>Production</u>	<u>Labor Hours</u>
C	1978	
C	1979	
C	1980	
C	1981	
C	1982	

(CX 20).

57. The domestic industry is comprised of those portions of complainant's operations and facilities devoted to the design, manufacture, assembly, inspection, packaging, distribution, sale, and servicing of the Frost R.A.P. trolley wheel, which is covered by all claims of U.S. Patent No. 4,109,343. (FF 54-56).

#### VII. ECONOMIC AND EFFICIENT OPERATION

58. Complainant's advertising and sales promotional efforts are marked by  
C expenditures of approximately                      to                      per year for literature  
C related to all its products. Of these expenditures, approximately  
is directed toward advertising and promoting the Sani-Trolley line of  
wheels. Additionally, with the exception of 1982, Frost has incurred  
C trade show expenditures of approximately                      per year associated  
specifically with the Atlanta show. (CX 7).

59. As part of its marketing effort, Frost maintains what it characterizes as an "outside sales organization" of field representatives and an "inside sales organization" at the Frost facilities. Each group is made up of four salespersons who call on accounts throughout the United States in an attempt to sell Frost's products. The inside sales organization's role is that of supporting the outside sales organization in its marketing efforts. (Frost, Tr. 43).
60. Complainant's salesmen follow a "pull-through" marketing strategy, whereby Frost contacts poultry processing equipment end-users in order to inform them of Frost product features and recent developments in Frost's product line. However, Frost does not sell directly to the end-users, but rather to the original equipment manufacturers (OEMs) such as Stork-Gamco, Pritchard Sales Co. and Gordon Johnson, who then become Frost's product distributor by selling Frost's products as part of their poultry processing systems or as replacement parts. (Frost, Tr. 38-39, 41, 59, 64).
61. When an end-user experiences a problem with a Frost wheel component of the poultry processing apparatus, it contacts Frost directly. Initially, Frost's field representative attempts to solve the problem by telephone. If the problem is more severe, said field representatives travel to the plant and perform direct servicing on the site. Typically, the Frost representative would be the field representative responsible for that account, however, if the problem is more severe and requires additional manpower, assistance would come from Frost's inside sales organization. (Frost, Tr. 48-49).

62. In part due to this vigorous marketing campaign, Frost has made substantial sales of its line of Sani-Trolley wheels. Specifically, from 1978 through 1982, Frost sold Sani-Trolley wheel units, constituting gross sales of and a gross profit of . (CX 16).

63. Sales of trolley wheels by the domestic industry, as defined above, include all wheels in the Sani-Trolley line. During the same period 1978 through 1982, the R.A.P. Sani-Trolley was also marketed quite successfully. Frost sold R.A.P. Sani-Trolley units, constituting gross sales of approximately . (CX 67).

64. Total R.A.P. Sani-Trolley wheel sales to Pritchard have been as follows:

	<u>Units</u>	<u>Gross Sales</u>
C	1977	
C	1978	
C	1979	
C	1980	
C	1981	
C	1982	
C	1983	

C

(CX 67; Frost, CX 69, p. 24).

65. The record evidence, although limited to 1982-83, indicates that sales of the R.A.P. Sani-Trolley wheel, although declining, have resulted in profits for Frost. (CX 16(a)).

66. Frost's trolley wheel market share is approximately percent, however, this market share increases if the market is narrowed to the heavy-duty end of the poultry processing operation. This higher percentage in the heavy-duty end of processing can be attributed to the higher quality and longer life of the Frost trolley wheel. (Frost, Tr. 51, 59).

C67. Frost has spent approximately                    for capital equipment used in the production and assembly of Sani-Trolley wheels. In addition, Frost has experienced tooling costs of approximately                    in relation to Sani-Trolley products. (CX 19, 28).

68. Between 1978 and 1982 Frost employed a skilled and semi-skilled workforce ranging from                    to                    in number to manufacture Sani-Trolley wheels. These employees constitute between                    and                    percent of the total workforce devoted to Sani-Trolley production. (CX 18).

C69. Between 1978 and 1982 Frost employed between                    to                    engineers in research and development activities related to its Sani-Trolley wheels. (CX 22).

70. Between 1979 and 1982, Frost's Sani-Trolley wheel inventory was as follows:

C	September 30, 1979	units
C	September 30, 1980	units
C	September 30, 1981	units
C	September 30, 1982	units

(CX 25).

C71. By conservative estimates, Frost is capable of manufacturing                    R.A.P. wheels per month. Under relatively healthy U.S. market conditions, sales of R.A.P. wheels or its equivalent would be expected to range from                    to                    per month. (Frost, CX 69, p. 32-33).

72. Complainant has insured reliability, safe operation and quality of its patented trolley wheels by applying stringent quality control testing. (SX 29-31; CX 19, 23, 28).

73. For the foregoing reasons, I find that the domestic industry is efficiently and economically operated. (Findings 58-72).

## VIII. INJURY

74. Between August 31 and September 28, 1982, Tri-II imported 7200 of the accused trolley wheels of foreign manufacture at a cost of \$1.40 per wheel. (CX 38; CPX 13, Willis dep., pp. 45-48).
75. Manufacture of the accused wheel took place in Korea as a result of a meeting between Mr. Willis, the President of Tri-II, and General Kim Kwi So, Tri-II's Korean agent. At that time, Mr. Willis provided General Kim with an R.A.P. wheel he received from Pritchard and a list of modifications to be performed in Korea on that wheel. (CPX 13, Willis dep., pp. 57-58).
76. Following his meeting with General Kim, Mr. Willis transcribed the substance of his discussions with General Kim into a specification sheet and purchase order for trolley wheels to be manufactured in Korea. (CX 40; CPX 13, Willis dep., p. 63).
77. The purchase order for 7200 of the accused trolley wheels was placed with Mr. Han Jae Ho, the President of Yae Dong, a trading company which has since gone bankrupt. (CX 43; CPX 13, Willis dep., pp. 78-79, 85).
78. The 7200 trolley wheels purchased by Tri-II were manufactured by a certain unknown party or parties in Korea. (CPX 13, Willis dep., p. 87).
79. Since September 1982, Tri-II has sold 6200 of the accused trolley wheels to U.S. companies. Such sales ended at least by January 10, 1984, at which time Tri-II and complainant entered into

a Consent Order and Settlement Agreement, whereby this investigation was terminated as to Tri-II in consideration of Tri-II's promise to refrain from further purchase and sale of the accused wheel, and to transfer its remaining inventory of said wheels to complainant. (Order No. 9, see Procedural History, supra, at 3; CX 29; CX 51-55; CPX 13, Willis dep., pp. 75, 99-110).

80. Tri-II's sale of 6200 allegedly infringing wheels represents  
C a loss to Frost of anywhere from        to        per unit, or  
C        to        in cumulative lost sales. (Frost, CX 69,  
p. 69).

81. Before entering into the foregoing agreement, Tri-II had made sales offers to virtually all the members of the U.S. poultry processing industry. (CPX 13, Willis dep., p. 112).

82. Before entering into the foregoing agreement, Tri-II had decided not to place further orders for the accused wheels beyond the 7200 already received because the market for such wheels was in a depressed state, said wheels were too expensive for the U.S. market, and because there was a better wheel available at a lower price. (CPX 13, Willis dep., p. 88).

83. Currently, Mr. Han, who previously dealt with Tri-II through Yae Dong, does business through a company called Hando, Ltd. or Hando Industrial Co., Ltd. (CPX 13, Willis dep., p. 87).



84. There is no evidence to indicate that Mr. Han, through Hando, does not retain the ability to have trolley wheels, such as those sold to Tri-II, manufactured in Korea. The dies for the manufacture of the accused trolley wheels remain in the possession of certain Korean parties. If the U.S. market for the accused trolley wheels improves, it is possible that Yae Dong's successor company, Hando, will reinstitute production of the accused trolley wheels. This may result, in part, because Korean companies tend to move from one shell or corporate entity to another. While the formal corporate designation changes, the business enterprise may remain the same. (CPX 13, Willis dep., p. 111).
85. The unknown Korean manufacturers of the 7200 accused wheels shipped to Tri-II apparently have the capacity to produce at least 25,000 to 30,000 wheel units per month. Under normal U.S. market conditions, the demand for said wheels would be between 10,000 and 25,000 units per month. (Finding 71, supra; CPX 13, Willis dep., pp. 91-94, 126-27; CX 61-62, 69).
86. There exists no evidence of record that any of the accused trolley wheels have been sold in the United States other than the 6200 units sold by Tri-II.
87. Mr. Han's partner in Yae Dong's business was a Mr. Lee, who also operated a corporation known as Bestar in Korea, which corporation has since gone bankrupt. (CPX 14, Willis dep., pp. 88-89; CPX 13, Park dep., pp. 32, 49).

88. On behalf of Bestar, Mr. Lee contacted Mr. K. H. Park, who operates a business in New Orleans, Louisiana unrelated to the present investigation, save for the fact that Mr. Park imports various merchandise from Korea. It was on this basis that Mr. Lee contacted Mr. Park to request that Mr. Park become a U.S. distributor of the imported trolley wheels at issue. Mr. Park consented to this distributor relationship. (CPX 14, Park dep., pp. 7, 13).
89. In the period between February to March 1983, Bestar (Korea) delivered nine of the allegedly infringing trolley wheels to Park in Louisiana. (CX 61, p. 5; CPX 14, Park dep., pp. 15-16, 19).
90. Based on Bestar's instructions, Mr. Park approached only complainant Frost in attempting to market the accused product in the United States, as it was a "big company." The offer for sale was sent to Frost on April 15, 1983 along with one of the nine accused wheels imported by Mr. Park from Bestar. Mr. Park offered the wheel to Frost at a price of \$1.89 to \$2.13 per unit, depending on the quantity ordered. Complainant subsequently turned down Mr. Park's offer of sale. (CPX 14, Park dep., pp. 20, 24, 42).
91. The manufacturing source of the accused wheels Mr. Park received from Mr. Lee has a production capacity for said wheels of approximately 30,000 units per month. (CX 61-62; CPX 14, Park dep. pp. 11-12, 28).

92. Although Mr. Lee's business operations under the guise of Bestar ended with that company's demise, he has since begun to work for Hwasung Jeongmil Co. and Wong Chang Trading Co.; both companies are located in Korea. (CX 63, 65; CPX 14, Park dep., p. 32-33, 49).
93. Complainant's Chairman of the Board, Mr. Frost, traveled to Korea in April 1983, at which time he met with a Mr. Lee of respondent Sunkyong. Mr. Frost met with Mr. Lee to discuss pricing for several lasting and forging parts, specifically, forged chain parts. During these discussions, Mr. Lee produced one of the accused trolley wheels, which he then offered to supply to Frost in any quantity, for 90 cents per unit. (Frost, CX 69, pp. 37-38; CPX 12).
94. Mr. Lee indicated that the accused wheel was manufactured by respondent Sam Kwang, a forging company. Apparently Sam Kwang has gone bankrupt within the last 5 or 6 months. (Frost, CX 69, p. 38).
95. Based on the evidence adduced in this investigation, I find that the activities, capacity and intent of certain respondents and others demonstrate a tendency to substantially injure the domestic industry. (Findings 74-94).

## OPINION

### I. INTRODUCTION

This investigation concerns the importation into the United States of certain trolley wheel assemblies which are alleged to infringe U.S. Letters Patent 4,109,343 ('343 patent) and complainant's common law trademark in the configuration of its R.A.P. trolley wheel. Complainant further contends that respondents have engaged in false representation and passing off, in violation of Section 43(a) of the Lanham Act, and that the accused trolley wheels are not marked with their country of origin, as required by the Customs Marking Statute. 15 U.S.C. §1125(a); 19 U.S.C. §1304. These unfair acts and methods of competition are alleged to have the effect or tendency to destroy or substantially injure an industry efficiently and economically operated, in the United States.

The product in issue is a trolley wheel which is specifically designed for use in sanitary conveyor applications and is primarily employed in the poultry processing industry. Complainant Frost manufactures an entire line of trolley wheels in accordance with the claims of the suit patent under the tradename Sani-Trolley. The accused trolley wheels are alleged to have substantially the same external appearance and structure as Frost's R.A.P. trolley wheel, the overall external configuration and appearance of which Frost claims as a common law trademark. The R.A.P. wheel is a member of the Sani-Trolley line, but has a different color and external appearance from the other Frost Sani-Trolley wheels.

There were originally four respondents named in the present investigation. One respondent has been terminated on the basis of settlement and consent order agreements. (See Procedural History, supra). None of the remaining respondents entered a formal appearance or participated in the hearing on this matter. Nevertheless, none of these respondents has been found formally in default, although certain procedural sanctions have been imposed. (See Procedural History, supra; Order No. 6).

## II. JURISDICTION

Pursuant to Section 337, the Commission has jurisdiction over unfair methods of competition and unfair acts in the importation into or sale in the United States of products, the effect or tendency of which is to destroy or substantially injure an industry, efficiently and economically operated, in the United States. Thus, the Commission has jurisdiction to investigate the unfair methods of competition and unfair acts alleged in the complaint and set forth in the Notice of Investigation, and to determine whether there exists a violation of Section 337.

As to each of the respondents remaining in this investigation, the record indicates that service of the complaint and Notice of Investigation was properly served and actually received by each respondent. (FF 1). Nevertheless, the power of the Commission to enter an exclusion order against goods is based on in rem, rather than personal jurisdiction. Thus, the Commission has in rem jurisdiction over any of the accused trolley wheels that have been imported or sold in the United States, whether or not the foreign manufacturer has been named as a respondent or received actual notice of the investigation. (FF 48-53). Sealed Air Corp. v. International Trade Commission, 209 U.S.P.Q. 469 (C.C.P.A. 1981).

Therefore, I find that the Commission has subject matter jurisdiction over this investigation, and in rem jurisdiction over the trolley wheels that have been imported into or sold in the United States.

### III. UNFAIR ACTS AND METHODS OF COMPETITION

#### A. Validity and Infringement of the '343 Patent

The '343 patent for a trolley wheel assembly issued in 1978 and was assigned to complainant Frost. This trolley wheel was specifically designed for use in sanitary conveyor applications and currently is widely used in the poultry processing industry. The earlier wheels that were used were of all metal construction and proved to be undesirable because they required grease for lubrication and were subject to wear, corrosion and deterioration, not to mention the fact that they were quite noisy when in operation. (FF 8, 10).

To overcome these problems, the inventors at Frost developed a ball bearing style wheel of metal and plastic construction. Their objective was to invent a wheel capable of operating in a hostile environment where it would be exposed to water, soap, caustic cleaning agents, grease and feathers from chickens, and still be able to function with a minimum of cleaning and lubrication. This wheel would also have to have considerable durability and load bearing capabilities. (FF 9).

The wheel that was developed was constructed of metal and an antifriction plastic material. To make this wheel function properly, certain parameters became a necessary aspect of the construction. The

metal outer race rings are imbedded by a moulding process into the plastic tire. The positioning of these race rings is crucial to the smooth operation of the bearings in the ring. Thus, the tire must be moulded so that the outer race rings are positioned and held in back-to-back relation to each other. In addition, to reduce wear, it is important that the metal race rings do not rotate in relation to the plastic tire. This rotation was successfully overcome by inserting scallops or recesses in the periphery of the outer race ring and moulding the plastic tire into the recesses. (FF 9; CX 8).

The trolley wheel manufactured in accordance with this invention is capable of surviving harsh surroundings, is quite durable, and requires little lubrication. Frost manufactures a line of trolley wheels under the trade name Sani-Trolley which embodies the invention of the '343 patent. The trolley wheel at issue in the present investigation is a brown trolley wheel identified as the R.A.P. wheel which is a part of Frost's Sani-Trolley line. (FF 6, 9, 11, 12).

#### 1. Presumption of Validity

Under 35 U.S.C. §282, a duly issued patent is entitled to a presumption of validity. The burden of establishing invalidity of a patent rests with the party asserting it. The presumption of validity can be overcome only by clear and convincing evidence of invalidity. Astra-Sjuco A.B. v. U.S. International Trade Commission, 207 U.S.P.Q. 1, 6-7 (C.C.P.A. 1980).

In the present investigation, the validity of the '343 patent has not been challenged by any party. Therefore, the suit patent is entitled to the presumption afforded by 35 U.S.C. §282, and is presumed valid. (FF 13).

## 2. Infringement of the '343 Patent

Under 35 U.S.C. §271(a), "whoever without authority makes, uses or sells any patented invention, within the United States during the term of the patent therefor, infringes the patent." If the accused structure falls within the language of the claims, the patent is infringed. Graver Tank & Mfg. Co. v. Linde Air Products Co., 85 U.S.P.Q. 328, 330 (S. Ct. 1950). The burden of establishing infringement rests with the patentee. Phillips Petroleum Co. v. Richardson Carbon & Gasoline Co., 163 U.S.P.Q. 141, 142 (5th Cir. 1969). The unauthorized importation into the United States of a product which infringes the claims of a valid patent is an unfair act within the meaning of Section 337. In re Von Clemm, 108 U.S.P.Q. 371 (C.C.P.A. 1955).

To establish infringement of the '343 patent, complainant presented a cross section of a trolley wheel imported by Tri-II to reveal the structure of the accused wheel. As demonstrated by Frost's claim chart, the structure of the Tri-II wheel meets every element of claims 1 and 13, two independent claims, of the '343 patent. (FF 14-15).

Since Tri-II has been terminated from this investigation on the basis of settlement and consent order agreements, there is no occasion to make a finding of infringement as to Tri-II. Nevertheless, the record establishes that Tri-II provided manufacturing specifications for the accused trolley wheel to a company in Korea. The identity of the Korean company which manufactured the accused trolley wheels for Tri-II does not appear on this record. (FF 16).



There is no structural cross section of the trolley wheel imported by Bestar in evidence that would establish independently that the Bestar wheel infringes the '343 patent. The physical sample of the Bestar wheel in evidence does not include the inner race rings, bearings or steel shaft which are all necessary parts of the structure disclosed by the '343 patent. (FF 19). However, additional evidence establishes that the sample Bestar wheel sent to Frost was a complete wheel with a stainless steel shaft. The specification of the wheel sent by Bestar to Frost is the specification developed by Tri-II. (FF 18-19). Thus, it is reasonable to conclude that the Bestar wheel has the same structural characteristics as the Tri-II wheel. Since the Tri-II wheel reads on the structure claimed in the '343 patent, it is logical to assume that the Bestar wheel also reads on the '343 patent. Therefore, I find that the Bestar wheel infringes at least claims 1 and 13 of the '343 patent. (FF 17-20).

The record also does not disclose the internal structure of the trolley wheel identified as the Sam Kwang wheel. It appears that the Sam Kwang wheel was not manufactured by the same company which manufactured the Tri-II wheel. (FF 21). There is further nothing to connect the Sam Kwang Wheel to Bestar. Although the exterior appearance of the Sam Kwang wheel is substantially the same as the Tri-II and Frost R.A.P. wheels, a determination of infringement by this wheel can only be made in the light of evidence of its internal structure. There is no such evidence of record. (FF 22-23).

It is noteworthy that complainant has sought and received the imposition of certain sanctions against the nonparticipating respondents in this investigation. (See Procedural History, supra). However, as stated in Order No. 8, although a complainant may obtain the imposition of procedural disabilities against nonparticipating respondents, complainant will not be relieved of its burden of establishing a prima facie case on the issue of violation. The Administrative Procedure Act requires that this initial determination be based on "reliable, probative, and substantial evidence." 5 U.S.C. §556(d). Certain Miniature Plug-In Blade Fuses, Inv. No. 337-TA-114, at 6-7 (1983) (Blade Fuses); Certain Electric Slow Cookers, Inv. No. 337-TA-42, Commission Opinion in Support of Order Terminating Certain Respondents, Declaring this Matter More Complicated and Remanding this Matter for Further Proceedings (March 15, 1979). Thus, all findings in this initial determination which are necessary to a determination of violation of Section 337 must be based on reliable, probative and substantial evidence.

Accordingly, based on the evidence of record, I find that the trolley wheel imported by Bestar infringes at least claims 1 and 13 of the '343 patent. However, there is insufficient evidence on this record to establish infringement of the suit patent by the trolley wheel alleged to be manufactured by Sam Kwang and sold by Sunkyong. (CPX 12).

B. Infringement of Complainant's Common Law Trademark

At common law and under the Lanham Act, a trademark is defined as any word, name, symbol, or device, or any combination thereof, adopted and used by a manufacturer or a merchant to identify his goods and to

distinguish them from those manufactured or sold by others. 15 U.S.C. §1127; 3 R. Callman, Unfair Competition, Trademarks, and Monopolies §65. A trademark thus serves as an indication of origin or ownership, guarantees quality or constancy, entitles the owner to advertise goods bearing the mark, and functions as an objective symbol of the goodwill generated by the owner of the mark. 3 Callman, supra, §65; 1 McCarthy, Trademarks and Unfair Competition §3:1. Infringement of a common law trademark is an unfair act within the meaning of Section 337. Certain Novelty Glasses, Inv. No. 337-TA-55, 208 U.S.P.Q. 830 (1979) (Novelty Glasses).

In order to establish the existence of a common law trademark, complainant must show (1) that it has a right to use the mark; (2) that the mark is inherently distinctive or has acquired a secondary meaning; (3) that the mark has not acquired a generic meaning; and (4) that the mark is not primarily functional. Proof of infringement of such a trademark requires a showing of likelihood of confusion among consumers between complainant's product bearing the mark and the accused product of similar appearance. Certain Cube Puzzles, Inv. No. 337-TA-112, at 4, 7 (1983). (Cube Puzzles).

In the present investigation, complainant alleges that it has acquired a common law trademark in the overall configuration and appearance of its Frost R.A.P. trolley wheel, particularly with respect to the color and the annular groove or "whitewall" on the sidewalls of the wheel. Furthermore, it is Frost's position that respondents' accused trolley wheels, which are of substantially the same appearance, infringe Frost's common law trademark. The Commission investigative attorney disagrees with complainant's assertion of infringement on the basis that Frost has failed to establish either secondary meaning or a likelihood of confusion with respect to the alleged trademark.

## 1. Frost's Right To Use the Alleged Trademark

Frost began to market the R.A.P. trolley wheel in 1977. This wheel was specifically designed for one of its customers, Pritchard Sales Co., and from about 1977-1980 was sold by Frost exclusively to Pritchard. In about 1980-1981, Frost requested and obtained from Pritchard the right to sell its R.A.P. wheel freely to its other customers, thereby terminating the exclusivity with Pritchard. (FF 26-29). The R.A.P. wheel was an original design by Frost, and there appears to be no question as to its right to manufacture and sell trolley wheels of the R.A.P. design. Thus, Frost does have the right to use the trolley wheel configuration for which it claims a trademark.

## 2. Functionality

Complainant claims a common law trademark in the overall configuration of its trolley wheel, placing special emphasis on the rust brown color and the annular groove in the sidewall of the tire. It is complainant's contention that the configuration of the wheel is nonfunctional.

It is clear that although a product may be designed to perform a specific function, certain features of that product may be recognized as an indication of source. Thus, "a discussion of 'functionality' is always in reference to the design of the thing under consideration (in the sense of its appearance) and not the thing itself." In re Morton-Norwich Products, Inc., 213 U.S.P.Q. 9, 13 (C.C.P.A. 1982) (Emphasis in original).

The Commission has followed the Morton-Norwich standard of determining functionality, which requires an assessment of whether competition will be hindered by preventing others from copying a design or configuration. Id.

Thus, there remains the right to copy "[n]ecessary elements of mechanical construction, essential to the practical operation of a device, and which cannot be changed without either lessening the efficacy or materially increasing expense." Id. at 14 (Citation omitted).

In the present case, complainant appears to concede that there are a limited number of design features of its trolley wheel that can possibly be designated nonfunctional. Thus, it scarcely need be said that a wheel, to function as a wheel, must indeed be round. However, complainant does suggest that one of the nonfunctional design features of its trolley wheel is the rounded outer shape of the tire. (CB at 11).

The record indicates that the crown shaped outer circumference of the R.A.P. tire is different from the angular shape of the other wheels in Frost's Sani-Trolley line, and that this distinction was deliberate. (FF 25, 26). However, it was also explained that the shape of the outer tire is important to the manner in which the wheel makes contact with the I-beam when in operation. (FF 25). An examination of the various trolley wheels in evidence demonstrates that the outer surface of the tire can be either flat, angular or rounded. (Cf. CPX 1-26). Thus, there are a limited number of shapes that can be given to the outer surface of the wheel, and the shape chosen is apparently important to the function to be performed. Accordingly, the rounded outer diameter of Frost's R.A.P. trolley wheel is a de jure functional feature which cannot acquire trademark significance. In re Morton-Norwich Products, Inc., 213 U.S.P.Q. at 13.

Complainant also claims as nonfunctional design features the rust brown color of the wheel and the annular groove placed in the sidewalls of the tire. It is alleged that these two features were specifically chosen to serve as an indication of source, and that they have no bearing on the utility of the wheel. (FF 24, 26, 27).

The record supports complainant's position that these features are nonfunctional. These features are not touted as having utilitarian advantages in Frost's advertising, nor are they the result of a simple or cheap method of manufacture. (SX 4-7; CX 66; CX 68, pp. 12-13; CX 69, pp. 16-23). The '343 utility patent does not cover either of these features, and as evidenced by the competitive trolley wheels made of record, there are alternative colors and sidewall design features available. Id. at 15-16. (FF 28). Accordingly, I find that the brown color of the R.A.P. trolley wheel, and the annular groove in the sidewalls are nonfunctional design features.

### 3. Distinctiveness

It is complainant's position that the configuration of the R.A.P. trolley wheel, including the nonfunctional design features, is nondescriptive and nonsuggestive of the product and function involved. Therefore, the design is claimed to be arbitrary, fanciful, and inherently distinctive.

The test of the inherent distinctiveness of a product configuration is whether the design is so unique in its field that the reaction of the average purchaser may be presumed. Cube Puzzles, supra, at 10, citing In re Days-Ease Home Products Corp., 197 U.S.P.Q. 566 (T.T.A.B. 1977); and In re International Playtex Corp., 153 U.S.P.Q. 377 (T.T.A.B. 1967). See

also Certain Heavy-Duty Staple Gun Tackers, 337-TA-137, at 25 (1983) (Staple Gun Tackers). Thus, a determination of inherent distinctiveness depends on the uniqueness of the product's configuration in relation to its competitors in the field, which would condition the reaction of purchasers to the shape or appearance, and what the reaction of the average purchaser to the shape reasonably can be expected to be. In re Days-Ease Home Products Corp., 197 U.S.P.Q. at 568; Staple Gun Tackers, supra, at 25.

The commercial impression of a trademark is derived from its overall appearance, and not from a separate consideration of each element in detail. Therefore, the distinctiveness of a product's configuration can only be determined by looking at the product or mark as a whole. 1 McCarthy, supra, §11.10, citing Estate of P.D. Beckwith, Inc. v. Commissioner of Patents, 252 U.S. 538, 551-52 (1919).

The fact that Frost's R.A.P. wheel may be the only brown trolley wheel on the market, and that trolley wheels may be made in virtually any color of the spectrum, does not necessarily impart trademark significance to the color of the wheel. It is generally recognized that color per se is not capable of functioning as a trademark. See 1 McCarthy, supra, §7.16. Rather, a color can only be considered to have trademark significance in combination with a specific design. SK & F Co. v. Premo Pharmaceutical Laboratories, Inc., 206 U.S.P.Q. 964, 972 (3d Cir. 1980); In re Data Packaging Corp., 172 U.S.P.Q. 396 (C.C.P.A. 1972). Therefore, the color of Frost's trolley wheel can be considered an element of a trademark only in conjunction with specific design features, i.e., the annular groove in the sidewalls.

In this instance, the color of the trolley wheel is not associated with the annular groove as a design feature, nor does it function to set off or distinguish the annular groove. Rather, the entire plastic tire is colored brown, without any contrasting elements. In short, the use of color is unrelated to a design. "All that has happened is that a functional part of [the trolley wheel] has been colored, not that a design has been achieved." Radio Corp. of America v. Decca Records, Inc., 58 U.S.P.Q. 531, 533 (S.D.N.Y. 1943).

The annular groove in the sidewall of the tire is essentially determined by the configuration of the wheel. To function as a trolley wheel, the wheel, not surprisingly, must be round, and it must also have a central opening into which a metal shaft is affixed, so that the wheel can be attached to a bracket for use in a conveyor. These minimum, essential features are present in every trolley wheel placed in evidence. (CPX 1-26). Thus, any auxiliary design features must be adapted to this configuration. The nature of the wheels in this field is such that it is virtually impossible to incorporate a design that is so distinctively unique that it can be expected to condition the reaction of purchasers. In re Days-Ease Home Products Corp., 197 U.S.P.Q. 566. See also, In re Honeywell, Inc., 189 U.S.P.Q. 343 (C.C.P.A. 1976). Although there are several different possible designs for the sidewall of a trolley wheel, complainant's R.A.P. wheel is not the only one which incorporates a recessed groove. (Cf. CPX 1, 15, 19, 20).

For the foregoing reasons, I find that complainant's alleged trademark in the color and annular groove of its R.A.P. trolley wheel, far from being distinctive, is a particularly weak mark, for which there must be a strong showing of secondary meaning to establish the existence of a trademark.



#### 4. Secondary Meaning

When a symbol or mark is not inherently distinctive, as is the case with the trolley wheel at issue, that mark can obtain protection as such only upon proof of secondary meaning. 1 McCarthy, supra, §15.1. Secondary meaning depends on a showing that "in the minds of the public, the primary significance of a product feature or term is to identify the source of the product rather than the product itself." Inwood Laboratories, Inc. v. Ives Laboratories, Inc., 214 U.S.P.Q. 1, 4 n.11 (S. Ct. 1982). In associating the mark with the source of the product, it is not necessary that the buyer be able to identify the source, but rather that he recognize the mark as originating from a single, although anonymous, source. 1 McCarthy, supra, §15.2.

Secondary meaning may be established by evidence of an association between the mark and the seller in the minds of a substantial number of the buyer group. Staple Gun Tackers, supra, at 29; Cube Puzzles, supra, at 10; Certain Vacuum Bottles and Components Thereof, Inv. No. 337-TA-108, at 8 (1982) (Vacuum Bottles); 1 McCarthy, supra, §15.11. The burden of proving secondary meaning rests with the party seeking protection of the mark. Vacuum Bottles, supra, at 8-9. Further, there must be substantial proof of secondary meaning, rather than merely a "very remote possibility." 1 McCarthy, supra, §15.11, citing Restatement of Torts §727, Comment c (1938). Proof of this fact may be achieved by means of direct and/or circumstantial evidence.

Direct evidence consists of the testimony of buyers as to their state of mind and may take the form of live testimony of random buyers, affidavits, or professionally conducted surveys. Circumstantial

evidence may consist of evidence of the nature and extent of the seller's advertising and promotional efforts, the size of the seller, number of sales made, amounts spent in advertising, length of use of the mark, and similar evidence tending to show wide exposure of the relevant buyer class to the mark in question. Such evidence is relevant to the issue of secondary meaning, and may, but will not necessarily, justify an inference that secondary meaning has been established. 1 McCarthy, supra, §§15.11, 15.16; Staple Gun Tackers, supra, at 29; Vacuum Bottles, supra, at 9.

#### Direct Evidence

In this case, complainant has offered direct evidence in the form of affidavits from two of its customers, as well as testimony of a research engineer and the Chairman of the Board of Frost. (FF 37-39). There is no formal survey of the impressions of the ultimate users of the R.A.P. wheels.

The relevant market for the trolley wheel at issue is the food processing industry, and particularly the poultry processing industry. In this industry, Frost does not sell directly to the ultimate users of its trolley wheels, but rather sells to intermediate original equipment manufacturers who incorporate the trolley wheels into conveyor lines. Frost does provide maintenance and repair service directly to the end users. (FF 30).

In evaluating direct evidence of secondary meaning, "[t]he question is not whether the general public, but the relevant buyer class associates a name with a product or its source.... The general public need not be

familiar with, nor even aware of, the existence of the product." American Association for the Advancement of Science v. Hearst Corp., 206 U.S.P.Q. 605, 617 (D.D.C. 1980). Thus, in the present case, the relevant buyer class consists of members of the poultry processing industry who purchase and use trolley wheels. (FF 30).

Nevertheless, the evidence presented of the association made by the relevant buyer class in this case is not particularly probative of secondary meaning. The affidavits placed in evidence are from original equipment manufacturers who purchase trolley wheels directly from Frost. (FF 38, 39). Mr. Olson is an employee of Pritchard Sales Co., for whom the R.A.P. wheel was originally designed. Furthermore, Mr. Olson states his opinion that the external configuration of the R.A.P. wheel identifies it as a wheel originating with Frost, and makes reference to the annular groove in the sidewalls, but does not include color as an identifying factor. (CX 70). Mr. Nix, who states a similar opinion, but includes the color of the wheel as an identifying feature, is also employed by a direct customer of Frost. (FF 39).

This type of evidence is comparable to that offered in In re Semel, in which the PTO Trademark Trial and Appeal Board concluded:

It is well settled that the assertions of retailers, who know full well from whom they are buying, that they themselves recognize a particular designation as a trademark, or that they believe that their customers consider it to be a mark, cannot serve to establish that members of the purchasing public, who come to the marketplace without such specialized knowledge, would in fact recognize the designation as an indication of origin.

189 U.S.P.Q. 285, 288 (T.T.A.B. 1975) (Citations omitted). Accord, Major Pool Equipment Corp. v. Ideal Pool Corp., 203 U.S.P.Q. 577, 583 (N.D. Ga. 1979). See also 1 McCarthy, supra, §15.12. Similarly, the testimony of employees of the trademark owner is entitled to little weight, given the conclusory and biased nature of such testimony. 1 McCarthy, supra, §15.12; Major Pool Equipment Corp. v. Ideal Pool Corp., 203 U.S.P.Q. at 584.

The testimony of Mr. Frost indicates that it is common in this industry to identify a trolley wheel by its color. Since a significant portion of sales are concluded by telephone, frequently a purchaser may request the "brown wheel," or the "blue wheel," or the "yellow wheel," etc. (FF 37). This fact, although relevant to the issue of secondary meaning, is not conclusive. As noted above, color by itself cannot function as a trademark, separate from a distinctive design or composite mark. Although there appears to be only one brown trolley wheel on the market (excluding the accused trolley wheels), the record discloses several blue, white and gray trolley wheels. (Cf. CPX 13-16, 18-21, 24-26). With the exception of Frost's R.A.P. wheel, its entire Sani-Trolley line is gray. (CPX 2-8).

In the absence of any direct testimony from relevant customers regarding their ability to identify the Frost wheel, it is uncertain whether a request for a brown wheel is a recognition of source, which could be either Frost or Pritchard, or whether it is merely an identification of the wheel that the customer already has on a conveyor line. In view of the lack of any relationship between color and design in the configuration of the R.A.P. wheel, an apparent recognition of color in this case does not constitute substantial evidence of secondary meaning.

There is no direct evidence on this record to show the reaction of the relevant buyer group to Frost's alleged trademark in the configuration of the R.A.P. trolley wheel. For the foregoing reasons, I find the affidavits of Frost's customers and the testimony of Frost's employees not to be sufficient probative evidence of secondary meaning.

#### Circumstantial Evidence

As circumstantial evidence of secondary meaning, complainant points to a significant level of sales of the product since 1977, and advertising and promotional efforts directed to creating an association in the minds of purchasers between the mark and its source. In addition, complainant argues that secondary meaning may be presumed from the intentional copying of the R.A.P. wheel. (CB at 16-19). Although this type of evidence is relevant to secondary meaning, in the present case it is insufficient to warrant an inference of secondary meaning.

The Frost R.A.P. wheel has been sold on the market since 1977. (FF 29, 32). There is no arbitrary or minimum length of time that a mark must be in use for acquisition of secondary meaning. Rather, length of use is a factor to be considered in the context of other circumstantial evidence, such as promotion and advertising. 1 McCarthy, supra, §15.20. In this case, although this product has been on the market for seven years, this length of time is not helpful to a determination of secondary meaning.

The Frost R.A.P. trolley wheel was specifically designed for a major customer, Pritchard Sales Co. From 1977 until at least 1980, this wheel was sold exclusively to Pritchard. It was not until 1980 or 1981, when Pritchard's purchases began to decline, that Frost began to sell the R.A.P. wheel to its other customers. (FF 26, 29). In view of the fact that this

wheel was available to end users only through Pritchard for three or four of the seven years that this wheel has been on the market, it appears equally likely that customers may associate this wheel with Pritchard as with Frost. Although the wheel bears the marking that it is an R.A.P. wheel manufactured by Frost, this marking appears imprinted in brown plastic on the inside groove of the wheel and is visible only upon close inspection. (FF 24). Presumably when the wheel is in place on a conveyor line, the marking of the manufacturer cannot be seen at all. This fact, taken together with the manner in which this wheel is marketed, prevents an inference that any association between the mark and the manufacturer is created by simple viewing of the product. Cf., Staple Gun Tackers, supra; Vacuum Bottles, supra.

C Frost's sales figures indicate that it has sold in excess of of R.A.P. wheels since 1977. (FF 64). This figure represents total sales to Pritchard alone, and does not indicate the volume of sales to other customers since the time that Pritchard's exclusivity ended. From the figures of Frost's total sales of all wheels in the Sani-Trolley line since 1978, it is difficult to extrapolate the percentage of sales attributable to the R.A.P. wheel alone. (FF 62). Thus, it is not possible to determine from Frost's sales of the R.A.P. wheel whether or not this wheel is more popular than other wheels in the Sani-Trolley line, or whether the configuration of the wheel contributes in any way to its sales.

Complainant also asserts that its advertising and promotional efforts are indicative of secondary meaning. It appears from the record that a significant portion of sales of this product occur by telephone. (FF 33, 34).

This appears to provide a certain opportunity for promotion of the product. In addition, Frost distributes advertising brochures and ordering information promoting the Sani-Trolley line, and participates in trade shows. (FF 33). Annual advertising in the form of literature is estimated to be for the Sani-Trolley line. (FF 35). The R.A.P. wheel is not separately advertised from the remaining wheels in the Sani-Trolley line. (FF 33, 36).

There is nothing on this record to indicate whether or not the amount spent on promotional literature is high or low on an industry scale. Thus, other factors relating to the nature of this advertising must be considered to arrive at a conclusion as to its effect in proving secondary meaning.

Not only is the amount spent on advertising a relevant factor, but the nature and extent of that advertising is also important to an assessment of its impact on the relevant buying public. 1 McCarthy, supra, §15.19.

[I]n evaluating the significance of advertising figures which are offered as evidence that a particular designation has become distinctive, it is necessary to consider not only the extent of advertising but also whether the use of the designation therein has been of such nature as to create in the minds of the purchasing public an association of the designation with the user and/or his goods or services.

In re Semel, 189 U.S.P.Q. at 287 (citations omitted).

In the present case, the advertising of Frost's Sani-Trolley wheels is essentially unrelated to any of the features for which trademark protection is claimed. The advertising brochures of record cover the entire

Sani-Trolley line, and do not distinguish the trolley wheel at issue, or even identify it as an R.A.P. wheel. Since the brochures are two-tone, and mostly black and white, there is no way to single out the R.A.P. wheel by its color, or to distinguish it from the remaining gray wheels in the line. (FF 36). The objective of the advertising is to promote the utilitarian features of the wheel. No effort is made to identify or to highlight the nonfunctional design features of the R.A.P. wheel. (FF 36). There is nothing on this record to indicate whether any advertising appears in relevant trade publications, or whether the advertising brochures are distributed only to Frost's direct distributors, or also to its ultimate customers in the poultry processing industry. The nature and extent of advertising of the R.A.P. wheel at trade shows also does not appear on this record.

From the foregoing, I conclude that Frost's advertising does not promote in any way the color and design features which it seeks here to protect, and therefore cannot serve to create an association in the minds of buyers between the claimed mark and the owner of the mark. Cf. In re Data Packaging Corp., 172 U.S.P.Q. at 398-99. Accordingly, the nature and extent of Frost's advertising does not contribute to an inference of secondary meaning in the configuration and color of the R.A.P. trolley wheel.

Finally, complainant suggests that a presumption of secondary meaning should be drawn from the fact of respondents' exact copying of the trolley wheel at issue. Although the Commission has in the past considered evidence of copying to be relevant, it has consistently maintained that such



proof is no replacement for other evidence of secondary meaning. Vacuum Bottles, supra, at 15-19; Novelty Glasses, supra, at 11. Thus, intentional close copying is more akin to passing off (which will be considered infra), and will only serve to tip the balance in favor of secondary meaning in the presence of both a strong mark and other substantial evidence of secondary meaning. See Vacuum Bottles, supra, at 15-19, and cases cited therein. In view of my finding that complainant's claimed mark is weak and that the other circumstantial and direct evidence presented are not sufficient proof of secondary meaning, evidence of copying is likewise not conclusive proof in support of this issue.

The foregoing evidence, considered cumulatively, is insufficient to support a finding that the overall configuration of the Frost R.A.P. wheel, including its color and annular groove in the sidewalls, has acquired secondary meaning among the relevant class of purchasers. Accordingly, for the reasons stated above, this configuration is not entitled to protection as a common law trademark.

#### 5. Generic Meaning

There is nothing on this record to suggest that the configuration of the Frost R.A.P. trolley wheel has acquired generic meaning.

#### 6. Likelihood of Confusion

The basic test of infringement of a common law trademark is likelihood of confusion. Although proof of actual confusion may be strong evidence of a

likelihood of confusion, the ultimate test is likelihood, and actual confusion need not be shown. 2 McCarthy, supra, §§23.1-23.2. There is no evidence of actual confusion on this record. (FF 40).

In the past, the Commission has adopted the criteria set forth in the Restatement of Torts §729 to evaluate the existence of a likelihood of confusion. Vacuum Bottles, supra, at 25; Certain Coin Operated Audio-Visual Games and Components Thereof, Inv. No. 337-TA-87, 214 U.S.P.Q. 217 (1981). These criteria consist of:

- (a) the degree of similarity between the designation and the trademark or trade name in
  - (i) appearance;
  - (ii) pronunciation of the words used;
  - (iii) verbal translation of the pictures or designs involved;
  - (iv) suggestion;
- (b) the intent of the actor in adopting the designation;
- (c) the relation in use and manner of marketing between the goods and services marketed by the actors and those marketed by the other;
- (d) the degree of care likely to be exercised by purchasers.

In addition, whether a mark is classified as "strong" or "weak" is an element to be considered in assessing a likelihood of confusion. Vacuum Bottles, supra, at 25-26, citing 2 McCarthy, supra, §23.15. Clearly, the weight given to each of the foregoing criteria must be assessed in the context of the nature of the mark and the commercial setting in which it appears.

In the present case, the accused trolley wheels are essentially identical in appearance to the Frost R.A.P. wheel. (Cf. CPX 1, 9-12; FF 41). However, the intent behind the adoption of the identical configuration cannot be attributed to the respondents in this case. Initially, Pritchard Sales Co. requested Tri-II to produce a cheaper knock off of the R.A.P. wheel. (Willis dep., CPX 13, pp. 52-54, 56-60, 66, 67). Since Pritchard had been the exclusive purchaser of the Frost R.A.P. wheel, it is reasonable to infer that Pritchard wanted an identical copy of the R.A.P. wheel. However, for purposes of the present investigation, the inquiry as to intent must be focused on the remaining parties to this investigation.

The evidence of record demonstrates that the specification for the accused wheel was developed by Tri-II. The Korean manufacturers have developed moulds and manufactured the trolley wheels in accordance with these specifications. (FF 75-78). There is no evidence that any of the remaining respondents shared Tri-II's or Pritchard's intent to copy Frost's wheel, or that they even had particular knowledge of the identity and commercial success of the R.A.P. wheel. Mr. Park, who imported the wheel on behalf of Bestar, had not even heard of Frost, and only made a quotation to Frost at the request of his principal in Korea, Mr. Lee. Mr. Park did not solicit any other trolley wheel distributors. (FF 44, 88-90).

To the extent that the accused trolley wheels have been or are likely to be marketed in the United States, they are likely to be promoted and sold in the same manner as Frost's wheels. However, this manner of marketing does not contribute to a likelihood of confusion. Since trolley wheels are primar-

ily sold by means of telephone orders, a prospective customer is not faced with a visual, side by side display of complainant's and respondents' respective wheels. Consequently, a side-by-side comparison of these trolley wheels is an improper measure of the likelihood of confusion. Rather, confusion must be assessed in terms of how this product is sold. Vacuum Bottles, supra, at 27.

As indicated previously, Frost sells its trolley wheels directly to original equipment manufacturers, who in turn incorporate the wheels in conveyor systems sold to poultry processors. (FF 30). An important factor in deciding which wheel to purchase is the functional parameters of the wheel, as emphasized in Frost's advertising. (FF 36, 66). Thus, in certain portions of a conveyor line, Frost wheels are predominantly used because of their load bearing capabilities, and their ability to withstand harsh environmental conditions. (FF 9, 66). In these instances, performance is a more important criteria in the choice of wheel than price. The purchaser of these wheels is not a casual, inattentive consumer, but rather a discriminating purchaser knowledgeable about the market, and therefore less likely to be confused by similarity in appearance. See 2 McCarthy, supra, §23.29.

Based on the weakness of the alleged mark, the nature of the market, in which visual comparison is not a significant factor in purchasing choice, and the discriminating class of buyer in this industry, I conclude that a likelihood of confusion cannot reasonably be inferred.

C. False Representation

False designation of origin is prohibited by section 43(a) of the Lanham Act, which provides as follows:

(a) Any person who shall affix, apply, annex or use in connection with any goods or services, or any container or containers for goods, a false designation of origin, or any false description or representation, including any words or other symbols tending falsely to describe or represent the same, and shall cause such goods or services to enter into commerce ... shall be liable to a civil action ....

15 U.S.C. §1125(a). False representation exists when (1) the accused articles imitate or so nearly resemble those of complainant as to falsely represent them to be goods of complainant; (2) respondents have deliberately adopted and used imitative trade dress with the intent to deceive the public into confusing their products with those of complainant; and (3) respondents have falsely represented their products to be those of complainant. Certain Miniature Plug-In Blade Fuses, Inv. No. 337-TA-114, at 29-30 (1983) (Blade Fuses).

A prerequisite to a finding of false representation is the existence and infringement of a common law trademark. Certain Sneakers with Fabric Uppers and Rubber Soles, Inv. No. 337-TA-118, at 21 (1983); Cube Puzzles, supra. In this case, the configuration of the Frost R.A.P. trolley wheel has been found not to constitute a trademark and not to be infringed. In addition, as discussed previously with respect to the likelihood of confusion, there is no evidence that the remaining respondents deliberately copied complainant's trolley wheel in an attempt to create confusion among the buying public between the Frost wheel and the imported wheels. Finally, it appears that the remaining respondents have only attempted to solicit sales from complainant itself. (FF 44-46).

For the foregoing reasons, I find that complainant has not established false representation by respondents in violation of Section 43(a) of the Lanham Act.

D. Passing Off

The same elements necessary to a showing of trademark infringement are required to prove passing off. Blade Fuses, supra, at 28. In addition, it must be shown that respondents subjectively and knowingly intended to confuse buyers. Cube Puzzles, supra, at 25-26; Certain Airtight Cast-Iron Stoves, Inv. No. 337-TA-69, at 3 (1981), 215 U.S.P.Q. 963; 2 McCarthy, supra, §25.1. As indicated previously, the facts of this case do not support a finding of a subjective intent to deceive. This, together with the absence of proof of trademark infringement, compels the conclusion that respondents have not engaged in passing off.

E. Failure to Mark Country of Origin

The Customs Marking Statute requires every article of foreign origin which is imported into the United States to be conspicuously, legibly, indelibly and permanently marked with the English name of the country of origin of the article. 19 U.S.C. §1304. None of the accused trolley wheels of foreign origin bear any markings of country of origin. (FF 47).

On the strength of Blade Fuses, complainant asserts that the failure to mark country of origin is an unfair act under Section 337. (CB at 23). Although the accused trolley wheels have no markings of country of origin, which is a technical violation of the Customs Marking Statute, it is inappropriate to elevate this technical violation, standing alone, to an unfair

method of competition within the meaning of Section 337. In Blade Fuses, the Commission found this omission to be a misrepresentation of geographic origin, and therefore an unfair act, specifically because it also found that respondents had infringed complainant's trademark and simulated complainant's trade dress. Blade Fuses, supra, at 30-31. In short, failure to mark country of origin was considered to be an unfair method of competition within the rubric of Section 43(a) of the Lanham Act.

Within the context of the present investigation, in which there is found to be no trademark infringement or other violation of Section 43(a) of the Lanham Act, I find that respondents' failure to mark country of origin on their trolley wheels as required by the Customs Marking Statute, does not constitute an unfair act or method of competition within the meaning of Section 337.

#### IV. IMPORTATION AND SALE

With respect to the respondents remaining in this investigation, the record establishes that respondent Bestar, as represented by Mr. Park, has imported nine trolley wheels into the United States. (FF 49). There is no evidence that any of these trolley wheels have actually been sold in the United States. The only offer to sell the accused trolley wheels was directed to complainant Frost. (FF 49, 50).

The record does not provide any evidence that either Sunkyong or Sam Kwang have imported, sold or offered to sell any of the accused trolley wheels in the United States. The only offer to sell the accused product was made directly to Mr. Frost by Sunkyong in Korea. (FF 52, 53). Sam Kwang is alleged to be in bankruptcy.

The evidence on this record suggests that a company in Korea, most recently identified as Hwasung Jeongmil, with which Mr. S. H. Lee is associated, has the capacity to manufacture and the willingness to export to the United States approximately 30,000 trolley wheels per month. (FF 49, 51). There is no indication that this quantity has been imported. Neither Mr. Lee nor Hwasung Jeongmil is a party respondent to this investigation.

#### V. DOMESTIC INDUSTRY

When the unfair acts or methods of competition alleged under Section 337 are based on the infringement of patent rights, the Commission has customarily defined the domestic industry to consist of the domestic operations of the complainant devoted to exploitation of the teachings of the patent at issue which is the target of the unfair acts or practices. Certain Methods for Extruding Plastic Tubing, Inv. No. 337-TA-110, 218 U.S.P.Q. 348 (1982) (Plastic Tubing); Certain Slide Fastener Stringers, Inv. No. 337-TA-85, 216 U.S.P.Q. 907 (1981) (Slide Fastener Stringers); Trade Reform Act of 1973: Report of the House Committee on Ways and Means, H. Rep.No. 93-571 at 78 (93d Cong., 1st Sess. (1973) (Trade Reform Act). Exploitation of patent rights may include domestic production and manufacture, development, servicing, licensing, and sale of the patented product. Plastic Tubing, supra; Certain Molded-In Sandwich Panel Inserts and Methods for Their Installation, Inv. No. 337-TA-99, 218 U.S.P.Q. 832 (1982); Certain Spring Assemblies and Components Thereof and Methods for Their Manufacture, Inv. No. 337-TA-88, 216 U.S.P.Q. 225 (1981) (Spring Assemblies).



The relevant domestic industry in this investigation must be defined as that portion of complainant's resources that is devoted to the manufacture, sale and servicing of the R.A.P. Sani-Trolley wheel, which wheel exploits the teachings of the '343 patent. (Finding 54). Sandwich Panels, supra; Spring Assemblies, supra.

The R.A.P. Sani-Trolley wheel is manufactured at complainant's facility, which is located at Grand Rapids, Michigan. Within this facility, approximately           sq. ft. are devoted to the manufacture of trolley wheels. (FF 55). Frost has spent approximately           for capital equipment used in the production and assembly of Sani-Trolley wheels, and since 1978, has employed between           and           skilled and semiskilled employees, including           to engineers, for the manufacture of said trolley wheels. (FF 67, 68).

Rather than focusing on the R.A.P. wheel, which defines the domestic industry, much of the record evidence related to the domestic industry issue is directed to Frost's overall Sani-Trolley wheel product line. Thus, such evidence is broader than that which is deemed relevant in defining the scope of the domestic industry under Section 337. Nevertheless, complainant's frequent inability to identify specific resources that are dedicated exclusively to the manufacture of the R.A.P. wheel, be they plant facilities, labor or capital equipment, does not bar the inclusion of activities related to the manufacture of R.A.P. wheels from the definition of the domestic industry. See, e.g., Certain Headboxes and Papermaking Machine Forming Sections for the Continuous Production of Paper and Components Thereof, Inv. No. 337-TA-82, RD at 109 (1981) (Headboxes).

Frost has produced significant quantities of R.A.P. wheels since 1977. With the recent general downturn in the poultry processing component market, the R.A.P. wheel has experienced a concomitant production decrease. Nevertheless, Frost's operations with respect to the R.A.P. wheel have continued to remain profitable. (FF 64-65).

Frost devotes significant resources to advertising and promotion, marketing, servicing, quality control, capital equipment acquisitions and labor for trolley wheel production, which production includes the R.A.P. wheel. (FF 56, 58, 67-69, 72). The foregoing activities qualify for inclusion in this domestic industry analysis, although no evidence with respect to the foregoing activity relates specifically or exclusively to the R.A.P. wheel. Headboxes, supra.

Based on the evidence of record, I find that a domestic industry exists which is defined by complainant's operations and facilities devoted to the R.A.P. Sani-Trolley wheel. (FF 57).

#### VI. EFFICIENT AND ECONOMIC OPERATION

In order to prevail under Section 337, complainant must establish that the relevant domestic industry is efficiently and economically operated. The traditional guidelines set forth by the Commission to assess efficient and economic operation include the use of modern equipment and facilities, effective quality control programs, profitability of the relevant product line, and substantial expenditures in advertising, promotion and development of consumer goodwill. Staple Guns, supra; Vacuum Bottles, supra, RD at 69-71 (1982); Certain Coin-Operated Audio

Visual Games and Components Thereof, Inv. No. 337-TA-105, 216 U.S.P.Q. 1106 (1982); Stoves, supra. An evaluation of the record evidence on this issue indicates that complainant's operations are efficiently and economically operated.

Complainant maintains an aggressive market and sales organization for its products, including the R.A.P. wheel, which actually constitutes a dual track system of field representatives and in-house salesmen. This marketing and sales group is responsible for maintaining close contact with Frost's current accounts in order to inform such customers of new developments in Frost's product line and to promote further Frost's existing product features. (FF 59-60).

Frost's repair and replacement service is closely related to Frost's marketing and sales group in that end-user customers will contact Frost's field representatives directly if they experience a problem with a Frost product. If the problem encountered cannot be solved by telephone, field representatives and/or in-house personnel will travel to the poultry processing plant for on-site servicing. (FF 61).

As a result, in part, of the effectiveness of Frost's marketing organization, Frost has experienced substantial sales with respect to its line of Sani-Trolley wheels, especially the R.A.P. wheel. From 1978 to 1982, R.A.P. wheel sales to Pritchard and others constituted approximately        percent of all Sani-Trolley wheel unit sales and in excess of        percent of sales revenue earned. (FF 62-63).

Frost has succeeded in gaining approximately        percent of the overall market for this type of trolley wheels, and enjoys an even higher market share

if the market is confined to trolley wheels used in the heavy-duty end of poultry processing. The reasons behind Frost's higher market share in the heavy-duty end of processing can be attributed to the higher quality and longer life of the Frost trolley wheel. (FF 66).

The quality of Frost's trolley wheels can be attributed to the skilled workforce which Frost employs for research and development and production with respect to its trolley wheels, as well as to the large capital equipment expenditures that Frost has incurred. Frost has spent approximately  
C on capital equipment acquisitions and in tooling costs in relation to  
C Sani-Trolley wheel production. In addition, Frost performs stringent quality control testing on its Sani-Trolley wheels, thereby insuring reliability, safe operation, durability and overall product quality. The record evinced support for the success of Frost's quality control program, in that customers for Frost's Sani-Trolley wheels purchase these wheels due to the foregoing attributes. (FF 66, 67-69, 72).

Frost has maintained a large inventory of its Sani-Trolley wheels and,  
C by conservative estimates, is capable of manufacturing R.A.P. wheels  
per month. Under normal U.S. market conditions, sales of R.A.P. wheels  
C or its equivalent would be expected to range from to per month.  
Thus, the domestic industry is able to satisfy U.S. market demand with little difficulty. (FF 70-71).

For the foregoing reasons, I find that the domestic industry, as defined herein, is efficiently and economically operated. (FF 73).

## VII. INJURY

An essential component in an action under Section 337 is proof that the unfair acts and practices have the effect or tendency to destroy or substantially injure the economically and efficiently operated domestic industry. This element requires proof separate and independent from proof of an unfair act. Further, complainant must establish a causal connection between the injury suffered and the unfair acts of respondents. Spring Assemblies, supra, at 43-44, 216 U.S.P.Q. at 243.

### A. Substantial Injury

Relevant indicia of injury include lost customers, declining sales, volume of imports, underselling, and decreased production and profitability. Certain Drill Point Screws for Drywall Construction, Inv. No. 337-TA-116, at 18 (1982); Spring Assemblies, supra, at 42-49, 216 U.S.P.Q. 242-45; Certain Flexible Foam Sandals, Inv. No. 337-TA-47, RD at 4 (1979); Certain Roller Units, Inv. No. 337-TA-44, at 10, 208 U.S.P.Q. 141 (1979); Certain Reclosable Plastic Bags, Inv. No. 337-TA-22, at 14, 192 U.S.P.Q. 674 (1977).

The only source of possible present substantial injury to the domestic industry is from sales lost to Tri-II, as there exists no record evidence that any other accused trolley wheels have been sold in the United States. (FF 86). Since Tri-II has been terminated from this investigation on the basis of settlement and consent order agreements, it is important to consider whether it is appropriate to include the activities of Tri-II in an assessment of substantial injury.

Although the effect of imports by settling respondents has been included as a measure of injury in past Commission cases, the facts of a given case must determine whether or not this is appropriate. Staple Gun Tackers, supra, at 74-75; Food Slicers and Components Thereof, Inv. No. 337-TA-76, at 19 (1981) (Food Slicers). In this instance, there is evidence only that Tri-II has actually imported commercial quantities of the accused trolley wheels and sold an appreciable quantity of them in the United States. (FF 74, 79, 81). However, due to a declining market for trolley wheels, Tri-II ceased importing them and entered into a settlement agreement with Frost. (FF 79, 82). The sales of trolley wheels by Tri-II covered approximately a one year period during 1982-1983. The sales figures on this record do not allow an estimate of the ratio of trolley wheels sold by Tri-II compared to the R.A.P. wheels sold by Frost during the same period. (FF 63, 79).

The conclusions concerning injury caused by Tri-II that might be extrapolated from this record must be balanced against the significant Commission policy favoring the amicable settlement of Section 337 actions. Food Slicers, supra, at 19. In view of the terms of the Consent Order Agreement entered into by Tri-II, in which there is to be no finding that Section 337 has been violated, it would be inconsistent with that Consent Order to make findings as to Tri-II on every issue necessary for a determination of a violation of Section 337. (CX 29). Accordingly, for purposes of a determination of substantial injury to the domestic industry, the activities of Tri-II will not be considered.

Of the remaining respondents in this investigation, only Bestar has imported trolley wheels into the United States. Bestar has imported

nine trolley wheels, and there is no evidence that any of them have been sold. (FF 50, 89, 90). Further, there is no evidence that any trolley wheels manufactured or sold by Sam Kwang and Sunkyong have been imported into or sold in the United States. (FF 52, 53, 93). Therefore, I find that complainant has not suffered substantial injury by reason of the remaining respondents' importation and sale of trolley wheel assemblies in the United States.

B. Tendency To Substantially Injure

When an assessment of the market in the presence of the accused imported product demonstrates relevant conditions or circumstances from which probable future injury can be inferred, a tendency to substantially injure the domestic industry has been shown. Certain Combination Locks, Inv. No. 337-TA-45, RD at 24 (1979). Relevant conditions or circumstances may include foreign cost advantage and production capacity, ability of the imported product to undersell complainant's product, or substantial manufacturing capacity combined with the intention to penetrate the United States market. Certain Methods for Extruding Plastic Tubing, Inv. No. 337-TA-110, 218 U.S.P.Q. 348 (1982); Reclosable Plastic Bags, supra; Panty Hose, Tariff Commission Pub. No. 471 (1972). The legislative history of Section 337 indicates that "[w]here unfair methods and acts have resulted in conceivable loss of sales, a tendency to substantially injure such industry has been established." Trade Reform Act of 1973, Report of the House Comm. on Ways and Means, H. Rep. No. 93-571, 93d Cong., 1st Sess. at 78 (1973), citing In re Von Clemm, 108 U.S.P.Q. 371 (C.C.P.A. 1955). See also Bally/Midway Mfg. Co. v. U.S. International Trade Commission, 219 U.S.P.Q. 97, 102 (C.A.F.C. 1983).

Although there is no evidence of actual importation and sale of the accused trolley wheels in the United States by any of the foreign respondents, there is sufficient evidence of a capacity to manufacture a significant number of low quality trolley wheels abroad, as well as evidence of an intent to export them to the United States. The record is replete with evidence of Korean manufacturing and trading companies, some of them erstwhile respondents in this investigation, who have gone into bankruptcy, but apparently resurfaced as a new entity. Thus, respondents Bestar, Sam Kwang, and possibly Sunkyong are bankrupt, as well as Tri-II's initial source, Yae Dong. (FF 5, 51, 52, 77). The new source of trolley wheels appears to be a company called Hwasung Jeongmil. (FF 50, 51). The recurrent cast of characters seem to be one Mr. S. H. Lee and a Mr. Han. (FF 77, 78, 83, 84, 87, 88, 92-94).

The Korean source of these trolley wheels, in whatever form it may currently be doing business, is capable of manufacturing approximately 25,000-30,000 trolley wheels per month. (FF 85, 91). This volume of wheels, were it to be imported into the United States, would effectively swamp the United States market. Mr. Frost was offered these trolley wheels by a Mr. Lee in Korea at a unit cost of \$.90, a price that would substantially undercut the price offered by Frost. (FF 71, 74, 80, 85, 93). Finally, closer examination of these accused wheels reveals them to be made of inferior quality materials and construction. (SX 26-28).

On the basis of these factors, I find that importation into and sale in the United States of the accused trolley wheels would have the tendency to substantially injure the domestic industry.



CONCLUSIONS OF LAW

1. The Commission has jurisdiction over the subject matter of this investigation. 19 U.S.C. §1337.
2. U.S. Letters Patent No. 4,109,343 is presumed to be valid. 35 U.S.C. §282.
3. The trolley wheel assembly imported into the United States by respondent Bestar infringes at least claims 1 and 13 of the '343 patent.
4. There is insufficient proof on this record to establish that the trolley wheel assembly allegedly manufactured by respondent Sam Kwang infringes the claims of the '343 patent.
5. Patent infringement is an unfair act or method of competition under 19 U.S.C. §1337.
6. There is no common law trademark in the configuration of complainant's trolley wheel assembly.
7. If there were a common law trademark in the configuration of complainant's trolley wheel assembly, complainant has not proven a likelihood of confusion between complainant's trolley wheel assembly and the accused trolley wheel assemblies of respondents.
8. Respondents have not engaged in false representation in violation of Section 43(a) of the Lanham Act. 15 U.S.C. §1125(a).
9. Respondents have not engaged in passing off in violation of Section 43(a) of the Lanham Act. 15 U.S.C. §1125(a).

10. The accused trolley wheels are not marked with their country of origin as required by the Customs Marking Statute. 19 U.S.C. §1304.
11. In the absence of infringement of a common law trademark or other unfair methods of competition violative of Section 43(a) of the Lanham Act, failure to mark country of origin as required by 19 U.S.C. §1304 is not an unfair act within the meaning of 19 U.S.C. §1337.
12. Respondent Bestar has imported nine trolley wheel assemblies into the United States.
13. There is no evidence that either respondent Sam Kwang or Sunkyong has exported to, imported into or sold in the United States, any of the accused trolley wheel assemblies.
14. The domestic industry consists of complainant's domestic operations devoted to the design, manufacture, assembly, inspection, packaging distribution, sale and servicing of the Frost R.A.P. trolley wheel assembly manufactured in accordance with the claims of the '343 patent.
15. The relevant domestic industry is efficiently and economically operated.
16. Importation of the accused trolley wheel assemblies by the parties to this investigation has not substantially injured the relevant domestic industry.
17. Importation of the accused trolley wheel assemblies by respondents or by foreign manufacturers not party to this investigation would have the tendency to substantially injure the relevant domestic industry.
18. There is a violation of Section 337 by respondent Bestar.

19. There is no evidence of a violation of Section 337 by respondents Sam Kwang or Sunkyong.
20. Respondents Sam Kwang and Sunkyong should be dismissed from this investigation.

INITIAL DETERMINATION AND ORDER

Based on the foregoing findings of fact, conclusions of law, the opinion and the record as a whole, and having considered all of the pleadings and arguments presented orally and in briefs, as well as proposed findings of fact and conclusions of law, it is the Presiding Officer's DETERMINATION that there is a violation of Section 337 in the unauthorized importation into the United States by the respondent Bestar of the accused trolley wheel assemblies.

The Presiding Officer hereby CERTIFIES to the Commission this Initial Determination, together with the record of the hearing in this investigation consisting of the following:

1. The transcript of the hearing, with appropriate corrections as may hereafter be ordered by the Presiding Officer; and further,
2. The exhibits accepted into evidence in the course of the hearing, as listed in the Appendix attached hereto.

The pleadings of the parties are not certified, since they are already in the Commission's possession in accordance with Commission Rules of Practice and Procedure.


Further, it is ORDERED that:

1. In accordance with Rule 210.44(b), all material heretofore marked in camera for reasons of business, financial and marketing data found by the Presiding Officer to be cognizable as confidential business

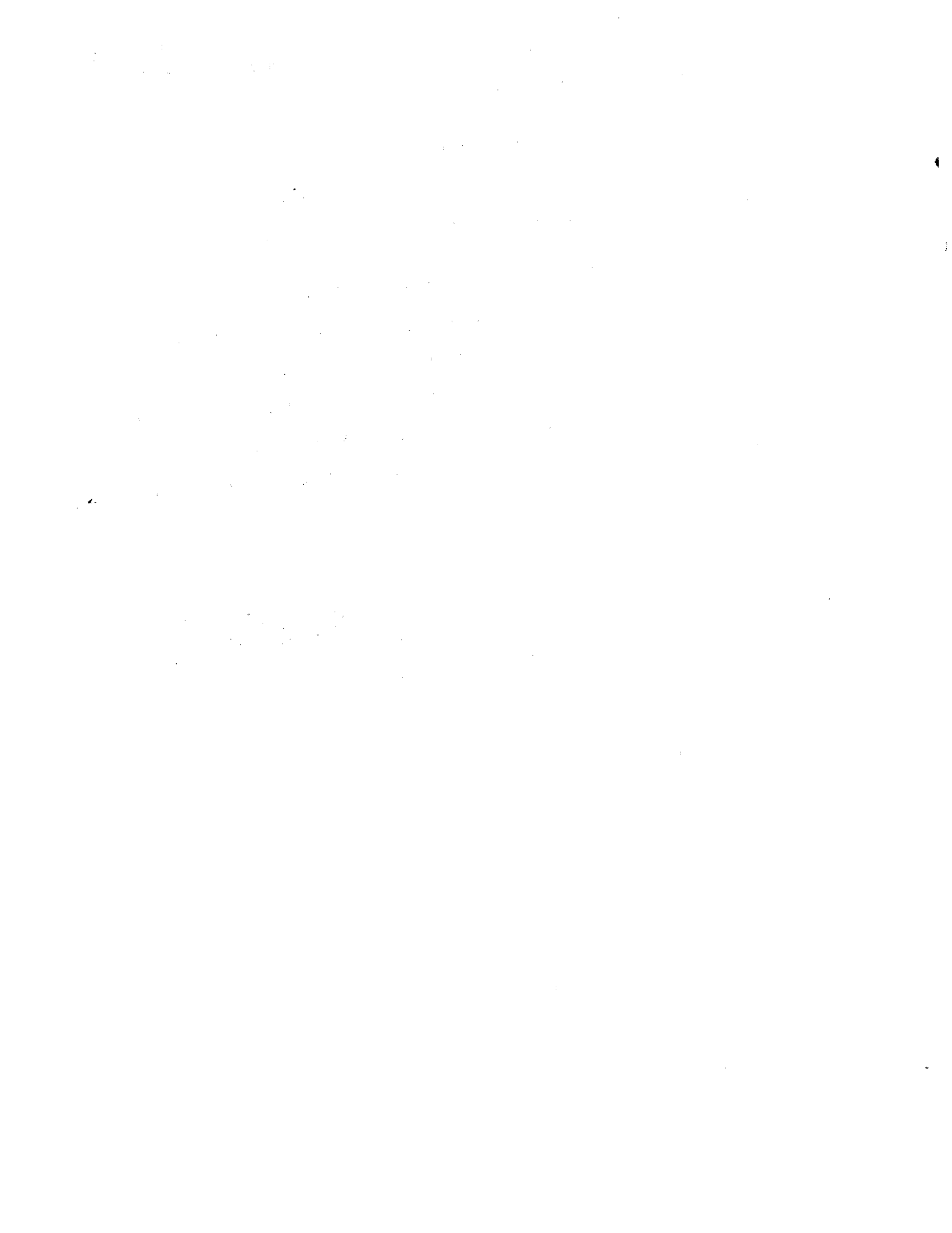
information under Rule 201.6(a) is to be given five-year in camera treatment from the date this investigation is terminated;

2. The Secretary shall serve a public version of this initial Determination upon all parties of record and the confidential version upon counsel for complainant, and upon the Commission investigative attorney;

3. This Initial Determination shall become the determination of the Commission thirty (30) days after the service thereof, unless the Commission, within thirty (30) days after the the date of filing of the Initial Determination shall have ordered review of the Initial Determination or certain issues therein, pursuant to 19 C.F.R. 210.54(b) or 210.55 or by order shall have changed the effective date of this Initial Determination.


  
\_\_\_\_\_  
Judge John J. Mathias  
Presiding Officer

Issued: May 31, 1984



## CERTIFICATE OF SERVICE

I, Kenneth R. Mason, hereby certify that the attached Order was served upon Harold Brandt, Esq., and upon the following parties via first class mail, and air mail where necessary, on June 7, 1984.

  
Kenneth R. Mason, Secretary  
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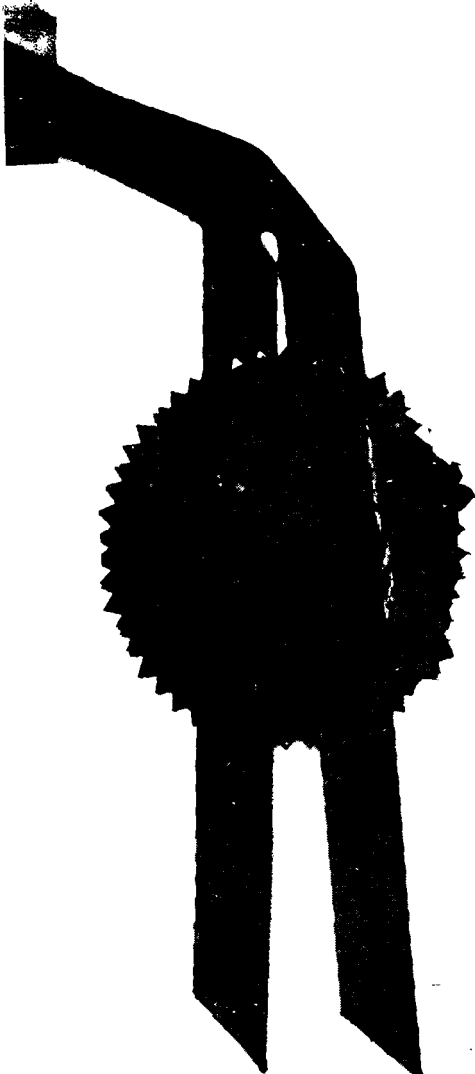


U. S. DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office

March 28, 1983

(Date)

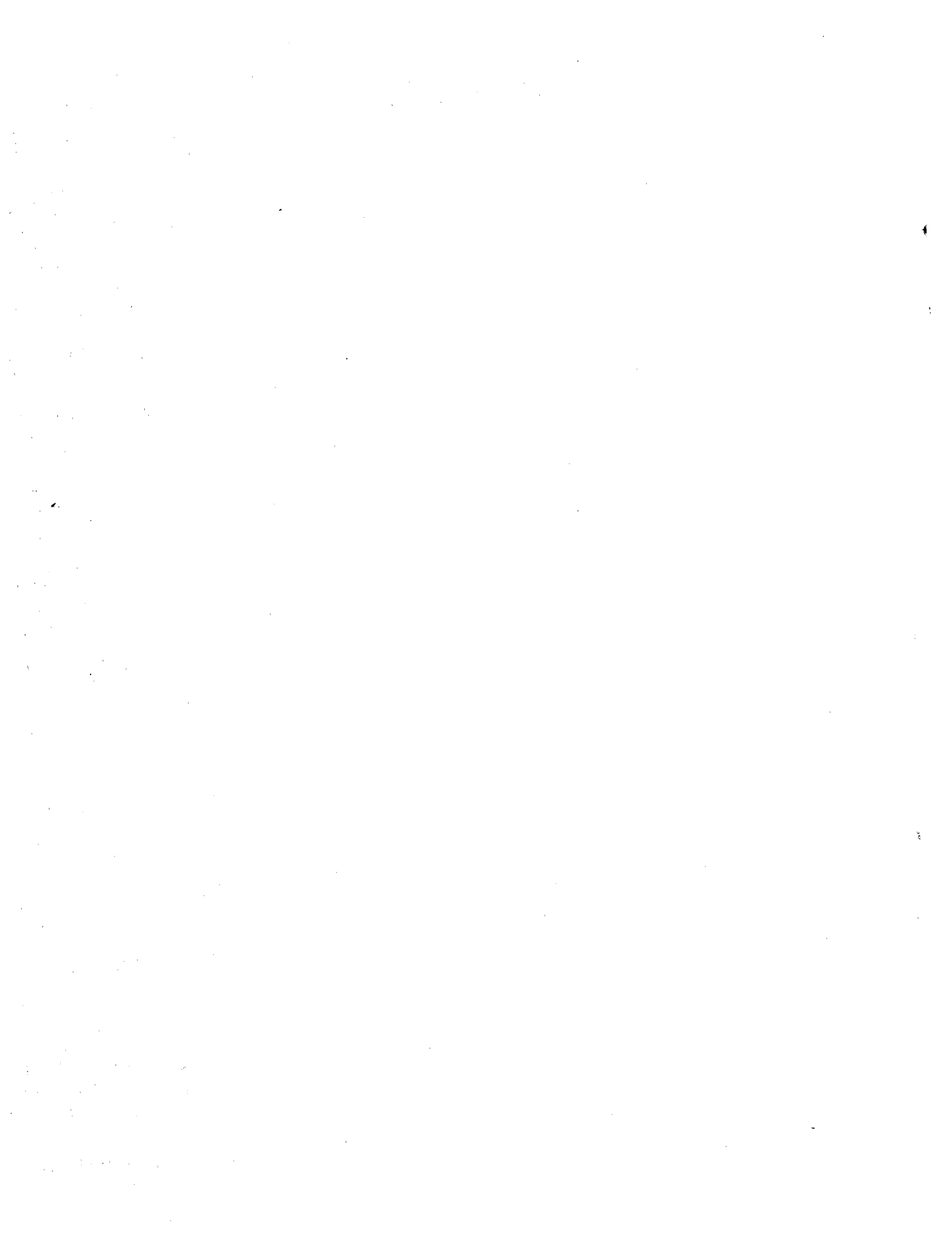
THIS IS TO CERTIFY that the annexed is a true copy from the records of this office  
of the printed Specification and Drawings of U. S. Patent 4,109,343.



By authority of the  
COMMISSIONER OF PATENTS AND TRADEMARKS

*M. L. Harvey*  
Certifying Officer.

FENGAD BAYONNE, N. J.  
Frost  
Exhibit 8



[54] TROLLEY WHEEL ASSEMBLY

[75] Inventors: Siegfried K. Weis, Grand Rapids; Douglas J. Van der Meulen, Shelbyville, both of Mich.

[73] Assignee: C. L. Frost & Son, Inc., Grand Rapids, Mich.

[21] Appl. No.: 684,552

[22] Filed: May 10, 1976

[51] Int. Cl.: E05D 13/02

[52] U.S. Cl.: 16/98; 301/5.7; 308/236; 29/148.4 A

[58] Field of Search 16/98, 46; 301/5.7, 301/63 DS, 63 PW; 308/16, 190, 35, 191, 205, 208, 210, 196, 236; 29/148.4 R, 148.4 A; 46/221; 74/432

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FOREIGN PATENT DOCUMENTS

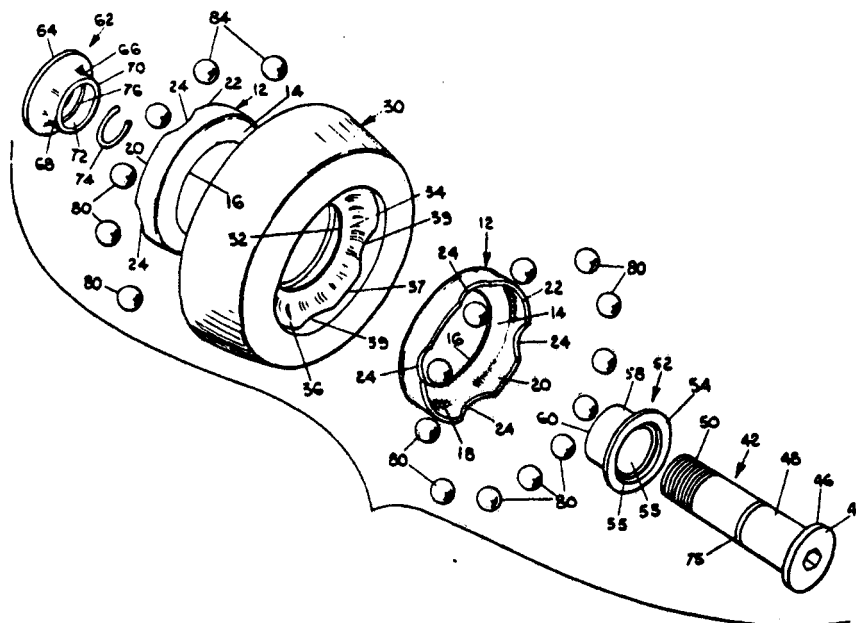
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1,073,364	1/1960	Fed. Rep. of Germany	301/5.7

Primary Examiner—Dave W. Arola  
Assistant Examiner—Moshe I. Cohen  
Attorney, Agent, or Firm—Price, Heneveld, Huizenga & Cooper

[57] ABSTRACT

An improved trolley wheel assembly and method therefor. The assembly is useful in conveyor applications especially where sanitary conditions must be maintained such as in the food processing industry. The assembly has high load bearing capabilities and includes an anti-friction plastic wheel extending about a pair of annular, metallic outer bearing race rings positioned back to back within a central opening of the wheel. The wheel extends around edges of the rings to maintain their axial positions and extends into recesses in the rings to prevent wear-producing rotation between the rings and wheel. The method includes prepositioning the rings in back-to-back alignment and placing or forming by molding the wheel therearound.

19 Claims, 11 Drawing Figures



## TROLLEY WHEEL ASSEMBLY

### BACKGROUND OF THE INVENTION

This invention relates to trolley wheels and, more particularly, to an improved trolley wheel which has a higher load bearing capacity and is longer wearing and more durable, as well as to a method for making the improved trolley wheel which avoids previous manufacturing difficulties and expense.

Trolley wheels have long been used in many industries, especially in overhead and other conveyors. Such wheels typically support suspended brackets which transport goods through various processes. For many years, metal trolley wheels were used and were subject to wear, corrosion, deterioration and were also noisy in operation.

More recently, combination metal and plastic trolley wheel assemblies have been devised which have greatly advanced the industry because of their many advantages. One such trolley wheel is that disclosed in co-pending, commonly assigned United States patent application Ser. No. 528,794, filed Dec. 2, 1974, entitled *SANITARY ANTIFRICTION TROLLEY WHEEL* invented by Frederick R. Sytsma. This trolley wheel essentially utilizes a pair of metallic outer bearing race rings fitted adjacent a central opening in an antifriction plastic trolley wheel with an inner race assembly extending through the opening and a pair of full complement rows of antifriction ball bearings between the inner and outer races. The outer race rings were spaced apart in a predetermined spacing by a portion of the plastic wheel.

A difficulty which has been encountered with such prior wheels is that the portion of the wheel which spaced the outer race rings apart is critical to the spacing of the bearings and thus the proper functioning of the trolley wheel assembly. Because of material shrinkage during manufacture of the wheels, it was difficult to obtain the critical dimensioning necessary for the wheel, and especially the portion intermediate the outer races, prior to insertion of the outer race rings therein.

Another difficulty encountered during use was that of the rotation of the outer metallic bearing race rings with respect to the antifriction plastic wheel. Such rings were also difficult to maintain in axial alignment with the wheel. Rotation of the rings with respect to the wheel causes heat buildup and wear reducing the life of the wheel. Excessive wear throws the bearings out of alignment.

Also, prior outer race ring configurations have required drawing of a portion of the rings meaning that the material used had to be sufficiently ductile to allow that drawing. Incorporation of sufficient ductility in the metallic material prevented the use of harder, longer-wearing materials and limited the load capabilities of the assembly.

Therefore, a need has existed for an improved trolley wheel assembly which maintains the advantages of the more recently designed metal-plastic trolley wheel assemblies useful in sanitary, overhead conveyor applications and yet overcomes the above-mentioned problems of manufacture, maintenance, and use.

### SUMMARY OF THE INVENTION

Accordingly, the present invention provides an improved trolley wheel assembly which is easier to manufacture, has a higher load capacity than prior known

assemblies, and yet maintains the advantages of certain prior known assemblies. The invention is extremely useful in conveyor applications, especially those applications requiring sanitary conditions and frequent steam cleaning or the like such as in the food processing industry where the assemblies must be subjected to high heat and moisture conditions and sustained use without corrosion, deterioration, or breakdown.

In its broader aspects, the invention is a trolley wheel assembly comprising an antifriction plastic trolley wheel having a central opening with an axis there-through, a pair of annular, metallic, outer bearing races positioned back to back in abutment with one another in said central opening, each of the outer bearing races including a contoured portion adapted to receive antifriction bearing means for rotational support of the wheel and outer races and recess means for preventing rotation of the outer bearing race with respect to the wheel. The plastic wheel also includes engaging means engaging the recessed means on the outer bearing races to prevent rotation between the wheel and races as well as to prevent axial movement of the outer races away from the back-to-back position. Axially extending means may be provided in the central opening having a pair of inner raceways in registry with the contoured portions of the outer bearing races as well as antifriction bearing means disposed between each of the outer bearing races and inner raceways for rotational support of the wheel and outer races.

In more detailed aspects of the wheel assembly, the plastic wheel is molded about the outer races and includes portions extending over the axial outermost and surfaces of the outer bearing races to hold them in back-to-back position, the wheel also including integral portions extending into scallops formed in axially extending flanges of the outer bearing races to prevent the races from rotating with respect to the wheel.

A method for manufacturing an antifriction trolley wheel is also disclosed which provides an easier, simpler method than has been heretofore known. A pair of annular, metallic outer bearing race rings is provided including a contoured portion adapted to receive bearing means and recess means for preventing rotation of the races with respect to the wheel. The races are positioned in engagement with one another with the contoured portions in axial alignment and a plastic wheel is positioned around the races such that the wheel contacts the radially outermost surfaces of the races for support. The wheel fills any gaps or spaces between the outer races but does not separate them, contacts the recess means in the outer races to prevent rotation about the races and wheel, and extends axially beyond at least a portion of the outer races to retain them in their axially aligned positions.

The present assembly and method avoids the difficulties of critical dimensioning of portions of a plastic wheel spacing outer races apart because the races are prepositioned in engagement with one another and the wheel is positioned therearound by molding or otherwise. The assembly is very durable and is long wearing because rotation between the outer race rings and plastic wheel is prevented by the recess means while the proper alignment of the bearings is ensured because of the axial retention of the races in engagement with one another by portions of the wheel. A higher load capacity is obtained in the assembly because the configuration of the outer bearing races eliminates drawing during manufacture allowing the use of hardened materials. In

addition to all the above advantages, the assembly maintains the other advantages of usefulness in sanitary conveyor applications such as the food processing industry where the assemblies must be steam cleaned frequently and thus subjected to a high heat and moisture all without corroding, flaking, or chipping or other deterioration which could contaminate food being carried by such assemblies.

These and other objects, advantages, purposes, and features of the invention will become more apparent from a study of the following description taken in conjunction with the drawings.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a fragmentary, sectional view of one embodiment of the improved trolley wheel assembly of the present invention secured to the upper end of a typical overhead conveyor trolley bracket;

FIG. 2 is an exploded, perspective view of the trolley wheel assembly shown in FIG. 1;

FIG. 3 is an end view of the trolley wheel assembly shown in FIGS. 1 and 2;

FIG. 4 is a sectional view of the trolley wheel and outer race rings, without the remainder of the assembly, illustrating the positions of the outer race rings in the plastic wheel;

FIG. 5 is a sectional view of the trolley wheel without the remainder of the assembly taken along line V—V of FIG. 3;

FIG. 6 is a fragmentary, sectional view of the axial end surface of one of the outer race rings and the inter-engagement of wheel and outer bearing race taken along the plane VI—VI of FIG. 4;

FIG. 7 is a sectional view of the trolley wheel of the present invention assembled with another embodiment of the axial inner race assembly;

FIG. 8 is a sectional view of the trolley wheel of the present invention assembled with yet another embodiment of the axial inner race assembly;

FIG. 9 is a sectional view of the present invention shown assembled with a fourth embodiment of the axial inner race assembly;

FIG. 10 is a sectional view of the injection molding apparatus preferably used to manufacture the present trolley wheel; and

FIG. 11 is a plan view of the lower one-half of the injection molding apparatus taken along the parting line and plane XI—XI of FIG. 10.

#### DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings in greater detail, FIGS. 1—3 illustrate the preferred embodiment 10 of the trolley wheel assembly of the present invention including a pair of identical, annular, metallic outer bearing races 12, a plastic, antifriction trolley wheel 30 positioned about rings 12, and an axially extending, multipiece inner race assembly 40 extending through the wheel-outer race combination. A pair of full complement rows of antifriction ball bearings 80 are positioned between the axially and radially aligned outer races and inner raceways to rotationally support the wheel and outer race unit about the multipiece inner race assembly.

As shown in FIG. 1, the assembly 10 is designed for incorporation and support on a trolley bracket 11 at its upper end such that the bracket is suspended from the wheel assembly. The wheel itself includes a sloped or

angled outer circumferential surface on wheel 30 in order to accommodate the sloped surfaces of the lower flange of a conventional I-beam which is commonly used in overhead conveyor applications. Bracket 11 extends on one open side of the I-beam with another bracket 11 and wheel assembly on the opposite side of the I-beam. The two brackets are secured together to hold the wheels in alignment with the beam for movement therealong.

As is best seen in FIGS. 1 and 2, annular, metallic, outer bearing races 12 are utilized in pairs within a single wheel 30. Each of the rings 12 is preferably stamped from precipitation hardened, stainless steel to provide a durable, long-lasting support surface for the rows of ball bearings 80. Each race ring 12 includes a radially extending annular flange 14 having a circular central opening or aperture 16 therethrough. Radial flange 14 merges integrally through a curved transition area 18 into an axially extending, annular flange 20 having an axially outermost radially directed end surface 22 lying in one plane. The curved transition area 18 has the cross-sectional shape of a portion of a circle to match the spherical contour of the ball bearings 80 which are received therein as shown in FIG. 1. The outer axial edge 22 of the axially extending flange 20 of each ring also includes preferably four equally spaced, curved or arcuate scallops or recesses 24 extending thereinto. Recesses or scallops 24 mate with and are tightly engaged by correspondingly shaped portions of plastic wheel 30 to both prevent rotation between the race rings 12 and wheel 30 as well as to prevent axial movement and/or separation of rings 12 when in place within the wheel.

As shown in FIGS. 1-3, plastic antifriction trolley wheel 30 receives rings 12 in an engaged, back-to-back relationship within a central opening 32. Radial flanges 14 engage one another while axial flanges 20 extend away from one another. Although wheel 30 is shown as a separately manufactured part in FIG. 2, in actual manufacture, wheel 30 is injection molded about a pair of the aligned, prepositioned rings 12 in the manner shown in FIGS. 10 and 11. However, it is possible that the wheel could be separately molded apart from the rings and the rings thereafter assembled to the wheel assuming the wheel material had sufficient flexibility to allow insertion of the rings such that portions of the wheel could engage the recesses 24 and the axial outer end surface 22 of axial flange 20.

In either case, whether performed or formed by molding about the prepositioned rings, wheel 30 includes an annular, generally V-shaped cross sectional portion 34 which fits between the contoured backs 18 of the engaged rings 12 to fully support those rings without separating them. Also included on either side of the central portion 34 are contoured areas 36 matching the curvature of the outside radially outermost surface of the rings 12 as well as radially extending annular flanges 37, 38 on either axial end of the wheel 30. Radial flanges 37, 38 extend over axial end surfaces 22 of rings 12 to tightly engage the same to maintain the axial positions of the rings and include axially extending, curved protrusions 39 which are generally parallel to the axis of wheel 30 as are recesses 24 and mate with recesses 24 to prevent rotation between the wheel and rings. The radially innermost surfaces of flanges 37, 38 and protrusions 39 are coterminous and flush with the inner surface of axial flanges 20 of rings 12 to prevent any interference with the bearings 80 (FIGS. 1, 4, and 6).

Preferably, wheel or tire 30 is formed from a thermoplastic material such as an acetal resin sold under the trademark "Delrin" by I. E. DuPont de Nemours and Company. This material may be easily injection molded as will be hereinafter described and cools to form a durable, wear resistant, high load bearing wheel which is friction resistant and easily movable especially in conveyor applications. The material has sufficient strength to hold the race rings 12 in their proper engaged position and is virtually noiseless in operation when in contact with a conventional metallic I-beam.

As is best seen in FIGS. 1-3, the axially extending inner race assembly 40, which is preferably entirely formed from stainless steel, includes a solid shaft 42 having an enlarged outer head portion 44 which tapers inwardly at section 46 to a generally constant diameter cylindrical shank portion 48. The outer free end of shaft 48 is threaded at 50 for receipt of a nut to secure the shaft, and thus the entire wheel assembly, to bracket 11 (FIG. 1).

Received over shaft 48 and in abutment with head 44 and tapered section 46 is a second, hollow, inner race member 52 including a first, enlarged outer diameter portion 54 and a curved, concave surface 56 forming an inner raceway which is complementary to the contour of the spherical ball bearings 80 and has the same radius of curvature as the contoured section 18 of outer race rings 12. Raceway 56 merges with a constant diameter cylindrical portion 58 ending in radial end surface 60. Member 52 has an inside surface 53 having a diameter which matches the outside diameter of shaft 48 and includes an enlarged, tapered opening 55 abutting and engaging correspondingly shaped enlarged head 44 to prevent movement of member 52 past head 44.

A third, hollow, generally cylindrical shaped member 62 includes an enlarged outer diameter portion 64 curving inwardly in a contoured raceway 66 matched to ball bearings 80 to a reduced diameter portion 68 ending in a radially directed shoulder or end surface 70. Member 62 is fitted over shaft 48 into abutment with end surface 60 of member 52 and has an inner surface 72 having a diameter matched to shaft 48.

Inner race members 52, 62 are retained on member 42 by a retainer assembly including a split, resilient retainer clip 74 fitted in registering grooves 75, 76 formed respectively on the outside and inside diameters of shaft 48 and inner race member 62. One of the grooves 75, 76 is slightly wider than the clip 74 such that slight axial movement may be obtained between member 62 and shaft 48 to allow member 52 to be tightened securely against shoulder 60 which, in turn, forces member 52 against head 44 such that the inner race members function together as a unit without rotation therebetween. The width of member 62 is sufficient to project beyond the outer surface or axial side of wheel 30 when assembled in the wheel (FIG. 1). This allows bracket 11 or another abutment to engage member 62 to force it tightly against shoulder 60 of member 52. In addition, at least one of the grooves 75, 76 is sufficiently deep to receive the entirety of the resilient clip 65 after member 52 is on shaft 48 and member 62 is forced over clip 65 on shaft 48.

The structure of multipiece inner race assembly 40 is in accordance with the multipiece race assemblies described and claimed in copending, commonly assigned United States Pat. No. 4,039,233, entitled *CONNECTION APPARATUS FOR MULTIPIECE BEARING RACE* and invented by Devere W. Schmidt, the disclo-

sure of which is hereby incorporated by reference herein.

Referring now to FIGS. 7-9, alternative embodiments of the axially extending inner race assembly are illustrated which may all be used with the present improved trolley wheel structure. All of the alternate inner race assemblies are preferably formed from stainless steel and utilize split, resilient, retainer clips 74 seated in grooves having dimensional characteristics allowing assembly with the clip in place on one of the members and slight axial movement of the inner race pieces with respect to one another after assembly to ensure proper tightening of the members to function as a unit in accordance with the concepts disclosed in copending, commonly assigned United States Pat. No. 4,039,233, mentioned above.

In FIG. 7, a solid shaft 85 having an enlarged head 86 curving through a contoured, inner raceway section 87 matched to the spherical shape of the balls 80 to a constant diameter section 88 is inserted through the opening 16 of the bearing ring 12. A coaxial cylindrical extension 89 extends from the end surface of cylinder 88 and is threaded at 90. A second inner race member exactly similar to member 62 described above is fitted over shaft 89 into abutment with the axial end surface 91 of cylinder portion 88 and is retained on shaft 89 by a resilient clip 74 in the manner described above.

In FIG. 8, the inner race assembly includes a bushing 95 having an outer surface having the same shape and contour as solid stud 85 shown in FIG. 7 except that member 95 is hollow and adapted to receive a stud or shaft such as 42 shown in FIG. 7. Member 95 includes a reduced diameter, cylindrical surface 96 which receives an inner race member 62 as described in connection with FIGS. 7 and 2. Member 62 is retained on surface 96 by a resilient spring clip 74 in the manner described above while member 62 projects slightly beyond the end of member 96 and the side of wheel 30 to allow the two members to be forced tightly together by an abutment or bracket.

In FIG. 9, a three-piece inner race assembly extends through opening 16 of rings 12. This assembly is similar to that shown in FIG. 8 except that two, headed bushings 98, 99 are used in place of the solid bushing 95 shown in FIG. 8. Member 62 abuts the end surface of member 98 and forces the same against the headed end of member 99 to retain all members tightly together while the resilient spring clip 74 is engaged between members 99 and 62 to retain the assembly together. In either FIG. 8 or FIG. 9, a separate axle or support shaft may be inserted through the inner diameter of the inner bushing for support of the assembly in the desired fashion.

#### DESCRIPTION OF THE PREFERRED METHOD AND APPARATUS THEREFOR

Referring now to FIGS. 10 and 11, the preferred method and apparatus for making the improved trolley wheel shown and described in FIGS. 1-9 is illustrated. The wheel is preferably injection molded in a mold apparatus 100 which includes an upper movable mold section 102 and a lower fixed mold section 140. Sections 102, 140 meet and engage one another along parting line P as shown in FIG. 10. Upper mold section 102 includes an upper plate 104 secured by conventional securing means or welding to a lower plate 106. Received within lower plate 106 is a central cavity plate or block 108 held against upper plate 104 by shoulders 110. Received

central opening 112 in cavity block 108 cylindrical mold projections or members 110, cylindrical, contoured end portion 112, central, cylindrical recess 118 therewithin. Reciprocal molding members 114 are biased downwardly by springs 122 seated in upper plate 104 which engage the upper surfaces of members 114, which members are limited in downward movement by shoulders 120. The upper portion of the contoured mold cavity C is formed in central plate or block 108 with reciprocal members 114 being moved downwardly therethrough to help form the mold cavity and preposition the outer race rings 112 as will be described below.

Lower mold section 140 includes a base plate 142 secured against a central plate 144 which in turn is secured to an upper plate 146 having a central opening 147 therewithin receiving lower cavity block 148 secured against plate 144 by means of shoulders 150. Cavity block 148 includes the lower portions of mold cavities C formed therein and upstanding cylindrical posts 152 in the center of each of the lower mold portions. Posts 152 include contoured shoulders 154 which match the contour of contoured portions 18 of outer race rings 12 which will be fitted thereover during the manufacturing method. The upper end of post 152 matches the diameter of recess 118 in reciprocable, biased, mold member 114.

A plurality of ejection rods 156 secured to a reciprocal ejection plate 158 are inserted through aligned passageways or apertures extending through plates 144 and blocks 148 into cavities C. The ends of rods 156 are flush with the bottoms of the cavities when withdrawn but may be reciprocated upwardly to eject the molded wheel assembly out of cavity C via plate 158 after the molding process.

To form the wheels, upper mold portion 102 is withdrawn from lower portion 140 along the parting line. A pair of outer race rings 12 is inserted over post 152 in axially aligned, back-to-back fashion such that contoured portion 18 of the lowermost ring engages shoulders 154 of the central posts. Thereafter, the upper mold portion 102 is lowered into alignment and engagement with the lower mold portion 140 such that contoured portions 116 are received in contoured portions 18 of the uppermost outer race ring seated on posts 152. Posts 152 engage recesses 118 to axially align the posts and the reciprocable mold members 114. Springs 122 bias members 114 downwardly to hold the race rings tightly together during molding. Thereafter, molten plastic, preferably acetal resin as described above, in a flowable, heated condition is injected under pressure through a nozzle 160 and sprue passageways 162, 164 (FIG. 11) into each of the mold cavities until the same are filled. The injected, molten plastic is allowed to cool, set up and solidify to retain the rings in their prepositioned locations before ejection rods 156 are reciprocated via plate 158 to eject the formed wheels when mold top portion 102 is raised.

As will be seen in FIG. 10, the plastic is tightly molded about rings 12 to form portions 34 generally intermediate the backs of the rings for firm support as well as flanges 57, 38 which are flush with the inside ball bearing contacting surfaces of the rings in the manner described above. This method eliminates the necessity for critically dimensioning any central portion of a wheel prior to assembly of the rings thereto and also tightly secures the rings against one another such that

they are retained in proper axial and radial alignment and engagement throughout the life of the wheel.

Of course, it is possible to mold a wheel from a flexible, resilient plastic rubber or other material which could be flexibly positioned about a pair of prepositioned rings without the rings being molded integrally therewithin by prepositioning in a mold cavity C as mentioned above. In such case, to form the wheel 30 alone, the configuration of central, upstanding mold post 152 would be changed accordingly, as would the lower end 116 of reciprocal mold member 114 in order to properly mold portions 32, 34, 36 of the wheel for receipt of the rings.

Accordingly, the present invention provides an improved trolley wheel assembly which maintains the advantages of a plastic-metallic wheel assembly for use in sanitary conveyor applications and yet improves the load bearing, wear, durability, and manufacturing ease of the assembly. While several forms of the invention have been shown and described, other forms will now be apparent to those skilled in the art. Therefore, it will be understood that the embodiments shown in the drawings and described above are merely for illustrative purposes, and are not intended to limit the scope of the invention which is defined by the claims which follow.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows.

1. An antifriction trolley wheel assembly comprising a plastic trolley wheel having a central opening with an axis therethrough; a pair of annular, metallic, outer bearing races positioned back to back with one another in said central opening; said outer bearing races each including an outer surface having an annular, axially inward facing portion, an annular, contoured inner surface portion adapted to receive antifriction bearing means for rotational support of said wheel and outer races, an annular, outer end surface facing axially in a direction opposite to said axially inward facing portion of said outer surface and recessed means positioned axially outwardly of said contoured inner surface for preventing rotation of said outer bearing race with respect to said wheel; said annular, axially inward facing surfaces of said outer races directly contacting and abuttingly engaging one another in said back to back position; said central opening including a central portion having a V-like cross-sectional shape engaging the remainder of said outer surfaces of said outer races except for said abuttingly engaged, annular, axially inward facing surfaces; engaging means on said wheel engaging said outer bearing races including first portions engaging said recessed means for each of said outer bearing races to prevent such rotation and second portions engaging said annular, outer end surfaces of said outer bearing races to prevent axial movement of said outer races away from said back to back position, said engaging means retaining said annular, axially inward facing outer race surfaces in engagement with one another and the remainder of said outer surfaces against said central opening surfaces; axially extending means in said central opening having a pair of inner raceways in registry with the contoured portions of said outer bearing races; and antifriction bearing means disposed between each of said outer bearing races and inner raceways for rotationally supporting said wheel and outer races.

9. The trolley wheel assembly of claim 1 wherein said recessed means on said outer bearing races and said first portions of said engaging means extend parallel to said axis.

3. The trolley wheel assembly of claim 2 including an axially extending, annular flange on each of said outer bearing races, said annular flanges extending away from one another; said second portions of said engaging means including a radially extending, annular flange abutting the end surface of each of said axial, annular, outer race flanges.

4. The trolley wheel assembly of claim 3 wherein said outer races each include an annular, radially extending flange integral with and generally at right angles to said annular, axial flanges, said radial outer race flanges including said axially inward facing surfaces and being generally parallel to and abutting one another back to back, said annular, contoured surface portions of said outer races each including portions of said annular, radial and axial flanges and a curved, annular transition area therebetween.

5. The trolley wheel assembly of claim 4 wherein said contoured surface portions of said outer races include inside surfaces engaging said antifriction bearing means; said annular, radially extending flanges of said second portions of said engaging means being coterminous and flush with said inside surfaces of said annular, axially extending outer race flanges.

6. The trolley wheel assembly of claim 5 wherein said recessed means includes at least one scallop recessed in the edge of each of said annular, axially extending flanges of said outer bearing races; said annular, radially extending flanges of said second portions of said engaging means each having said first portions of said engaging means including an axially extending protrusion extending into and mating with said scallop.

7. The trolley wheel assembly of claim 1 wherein said recessed means include an axially extending recess in each of said outer bearing races; said first portions of said engaging means including axial protrusions extending into and mating with recesses in said outer races.

8. The trolley wheel assembly of claim 7 wherein said second portions of said engaging means include annular, radially extending flanges engaging said annular, outer end surfaces of said outer races, which outer end surfaces lie in radially extending planes, said axial protrusions and radially extending flanges of said engaging means being flush with the surfaces of said outer races which engage said antifriction bearing means.

9. The trolley wheel assembly of claim 1 wherein said wheel is molded about said outer bearing races which are prepositioned in said back to back relationship.

10. The trolley wheel assembly of claim 9 wherein said recessed means include an axially extending recess in each of said outer bearing races; said first portions of said engaging means including axial protrusions extending into and mating with said recesses in said outer races.

11. The trolley wheel assembly of claim 1 wherein said axially extending means include a multipiece inner race assembly having separate, contoured, inner race means for forming the inner raceways in registry with said contoured outer race portions.

12. The trolley wheel assembly of claim 11 including retaining means for retaining said inner race means together including means allowing axial movement therebetween whereby said inner race means may be tightened together.

13. An antifriction trolley wheel assembly comprising a plastic trolley wheel having a central opening with an axis therethrough; a pair of annular, metallic, outer bearing races each including an annular, radially extending flange, an annular axially extending flange having an annular, axial end surface, and a curved transition area between said flanges forming a contoured area for receiving bearing means; said outer races being positioned back to back in said central opening with said radial flanges being parallel to and abutting one another and said axial flanges extending away from each other such that said contoured areas face away from one another; said outer races each further including recessed means for preventing rotation of said outer bearing race with respect to said wheel, said recessed means including at least one recessed area within said axial end surface of said annular, axially extending flange of each outer bearing race; said wheel including engaging means formed in one piece therewith and extending axially into, engaging, and filling said recessed means including said recessed area of each of said outer bearing races to prevent such rotation and engaging the entirety of said annular, axial end surface of each of said outer bearing races to prevent axial movement of said outer races away from said back to back position; axially extending means in said central opening having a pair of inner raceways in registry with the contoured portions of said outer bearing races; and antifriction bearing means disposed between each of said outer bearing races and inner raceways for rotationally supporting said wheel and outer races.

14. The trolley wheel assembly of claim 13 wherein said engaging means include radially extending flanges abutting said annular, axial end surfaces of said axially extending outer race flanges.

15. The trolley wheel assembly of claim 14 wherein said recessed area is a scallop recessed in the edge of each of said axially extending flanges of said outer bearing races; said radially extending flanges of said engaging means each including an axially extending protrusion extending into and mating with said scallop.

16. The trolley wheel assembly of claim 15 wherein said axially extending protrusions and radially extending flanges of said engaging means are each coterminous and flush with the inside, antifriction bearing means engaging surfaces of said outer bearing races.

17. The trolley wheel assembly of claim 16 wherein said plastic wheel is molded about said outer bearing races which are prepositioned and held in said back-to-back position during molding.

18. The trolley wheel assembly of claim 17 wherein said plastic wheel is formed from a thermoplastic material such as an acetal resin; said outer races and axial means including said inner raceways being formed from stainless steel.

19. A trolley wheel assembly comprising a plastic trolley wheel having a central opening with an axis therethrough; a pair of annular, metallic outer bearing races positioned back to back in abutment with one another in said central opening; said outer bearing races each including an outer surface having an axially inward facing portion, a contoured inner surface portion adapted to receive antifriction bearing means for rotational support of said wheel and outer races, an outer end surface facing axially in the opposite direction to said axially inward facing portion of said outer surface and recessed means positioned axially outwardly of said contoured inner surface for preventing rotation of said



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 outer bearing race with respect to said wheel; said axi-  
 ally inward facing surfaces of said outer races directly  
 contacting and abuttingly engaging one another in said  
 back to back position; said central opening including a  
 central portion having a V-like cross-sectional shape  
 engaging the remainder of said outer surfaces of said  
 outer races except for said abuttingly engaged, axially  
 inward facing surfaces; engaging means on said wheel  
 engaging said outer bearing races including first por-  
 tions engaging said recessed means of each of said outer

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 bearing races to prevent such rotation and second por-  
 tions engaging said outer end surfaces of said outer  
 bearing races to prevent axial movement of said outer  
 races away from said back to back position, said engag-  
 ing means retaining said annular, axially inward facing  
 outer race surfaces in engagement with one another and  
 the remainder of said outer surfaces against said central  
 opening surfaces.

\* \* \* \* \*

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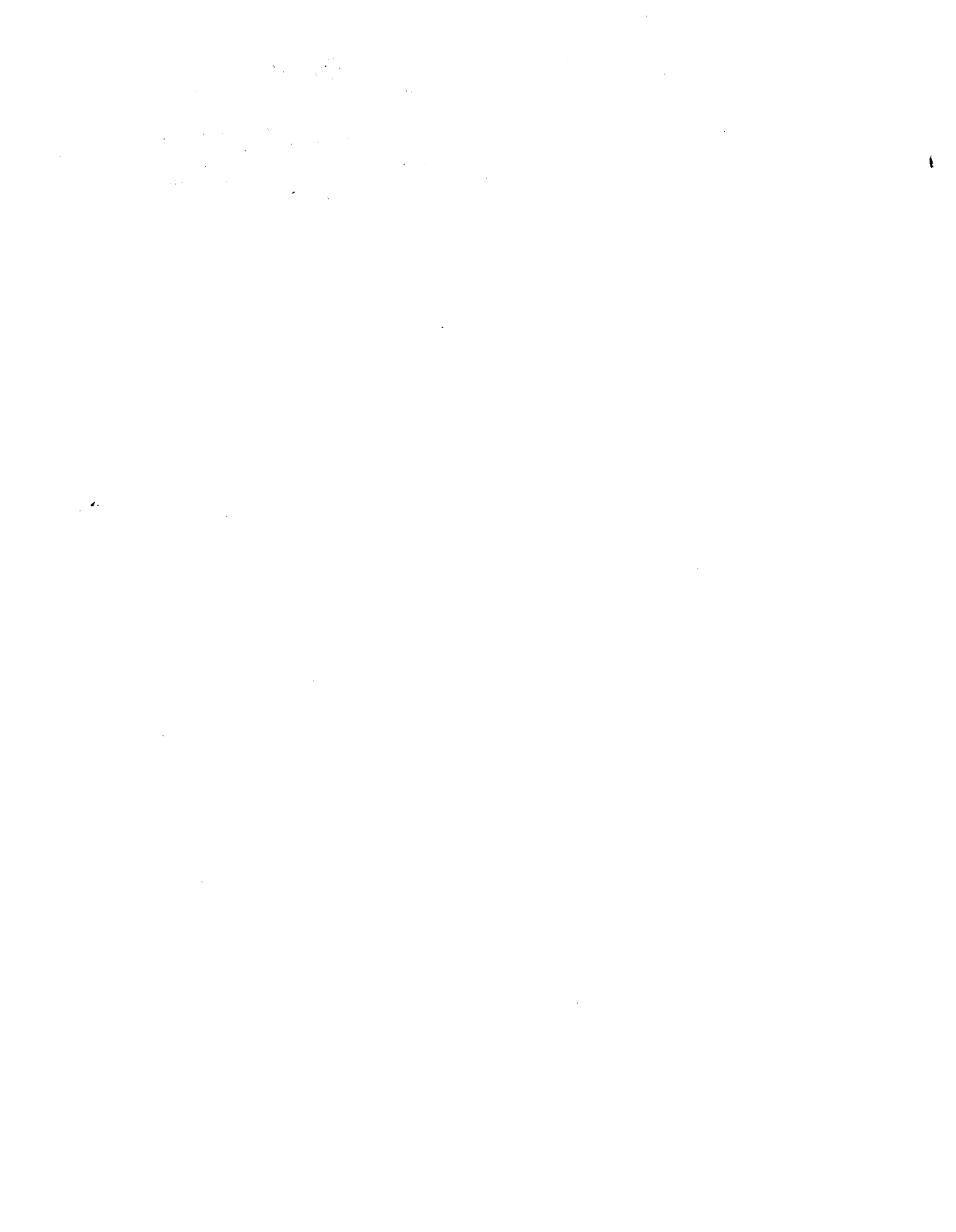
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PRINTER'S TRIM

UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

PATENT NO. : 4,109,343  
DATED : August 29, 1978  
INVENTOR(S) : Siegfried K. Weis

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 10, line 52:

"sais" should be --said--

MAILING ADDRESS OF SENDER:

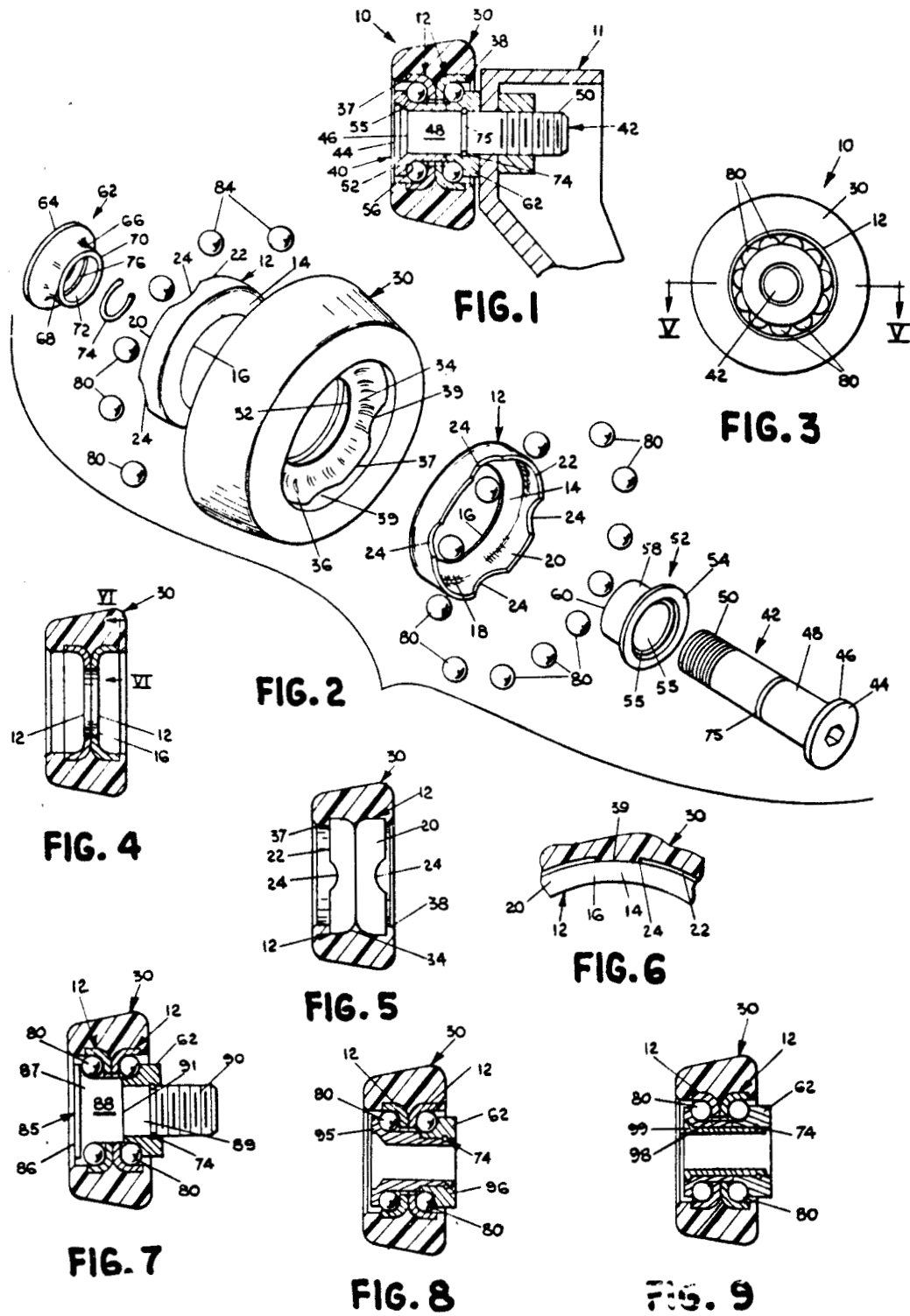
Price, Heneveld, Huizenga & Cooper  
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P.O. Box 2567  
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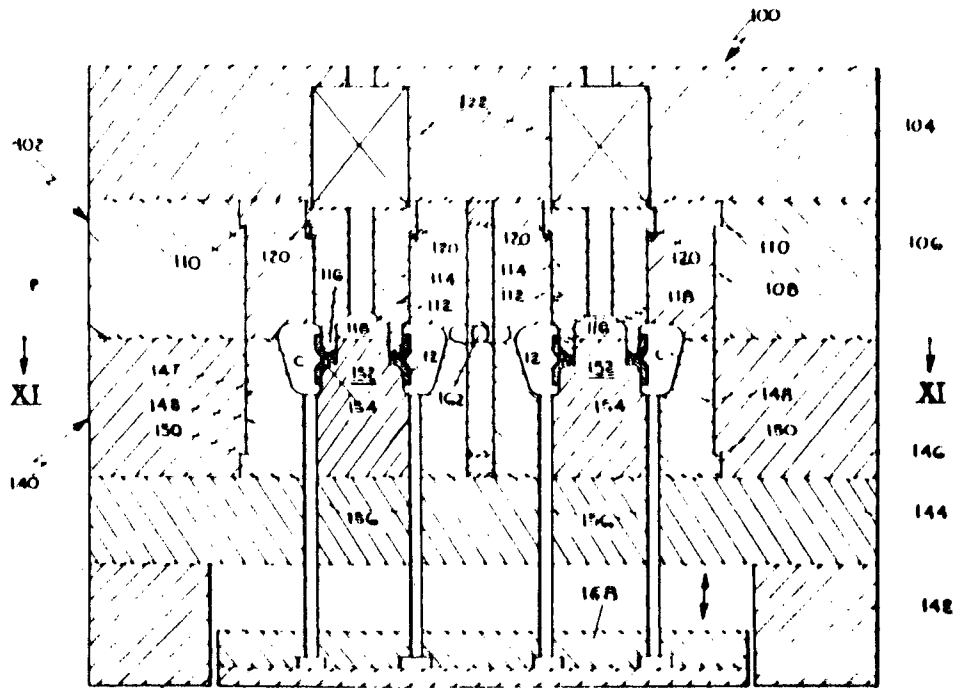


FIG. 10

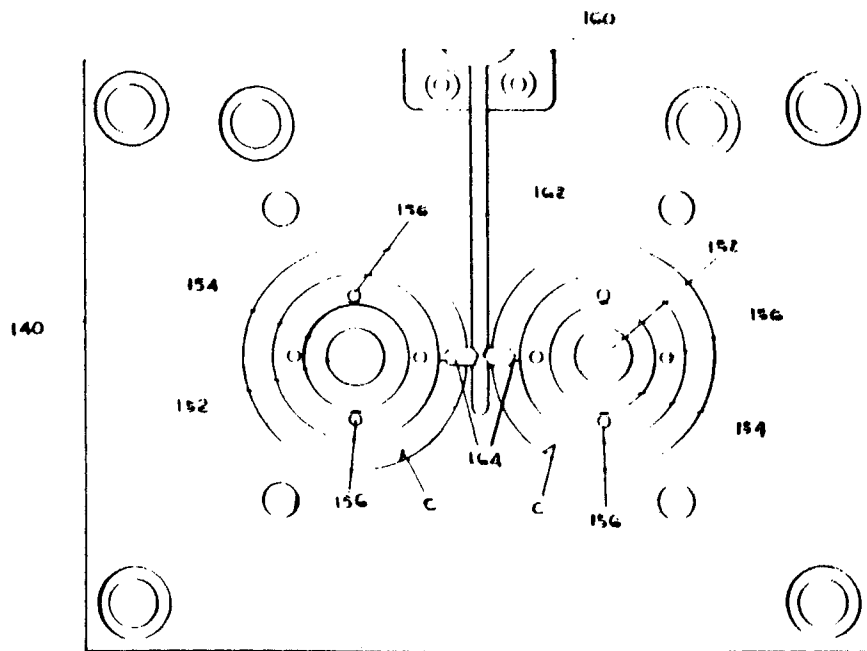


FIG. 11

