

In the Matter of

CERTAIN ROTARY SCRAPING TOOLS

Investigation No. 337-TA-62



USITC PUBLICATION 1027

JANUARY 1980

UNITED STATES INTERNATIONAL TRADE COMMISSION

COMMISSIONERS

Catherine Bedell, Chairman
Bill Alberger, Vice Chairman
George M. Moore
Paula Stern

Kenneth R. Mason, Secretary to the Commission

Address all communications to
Office of the Secretary
United States International Trade Commission
Washington, D.C. 20436

Determination

Having reviewed the record compiled in this investigation, the Commission on January 9, 1980, determined--

1. That with respect to eight of the respondents in this investigation, 1/ there is a violation of section 337 of the Tariff Act of 1930, as amended, in the importation and sale by the owner, importer, consignee, or agent of either, of rotary scraping tools which infringe U.S. Letters Patent No. 3,958,294, the effect or tendency of which is to substantially injure an industry, efficiently and economically operated, in the United States;

2. That the appropriate remedy for such violation is to direct that rotary scraping tools manufactured abroad which infringe U.S. Letters Patent No. 3,958,294 be excluded from entry into the United States for the term of said patent, except where such importation is licensed by the owner of said patent;

3. That, after considering the effect of such exclusion upon the public health and welfare, competitive conditions in the U.S. economy, the production of like or directly competitive articles in the United States, and U.S. consumers, such rotary scraping tools should be excluded from entry for the term of said patent, except where such importation is licensed by the owner of said patent; and

4. That the bond provided for in subsection (g)(3) of section 337 of the Tariff Act of 1930, as amended, be in the amount of 484 percent ad valorem

1/ Those eight respondents are as follows: Colonial Tool Company, Inc.; King Imports, Ltd.; Dao Hung Manufacturing Co.; Eastman Sales Corp.; Boo Ping Industrial Co., Ltd.; V. Lee Industrial Co., Ltd.; Long Lee Industrial Co.; and Chun Her Machinery Co.

of the imported article (ad valorem to be determined in accordance with sec. 402 of the Tariff Act of 1930, as amended (19 U.S.C. 1401a)).

Order

Accordingly, it is hereby ordered--

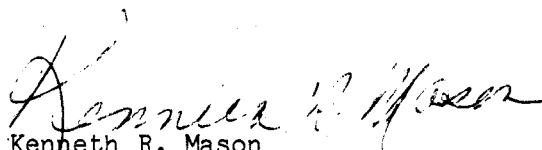
1. That rotary scraping tools which infringe U.S. Letters Patent No. 3,958,294 are excluded from entry into the United States for the term of said patent, except where such importation is licensed by the owner of said patent;

2. That rotary scraping tools ordered to be excluded from entry are entitled to entry into the United States under bond in the amount of 484 percent ad valorem (ad valorem to be determined in accordance with sec. 402 of the Tariff Act of 1930, as amended (19 U.S.C. 1401a)) from the day after this order is received by the President pursuant to section 337(g) of the Tariff Act of 1930, as amended, until such time as the President notifies the Commission that he approves or disapproves this action, but, in any event, not later than 60 days after the date of receipt;

3. That this order be published in the Federal Register and that this order and the opinion in support thereof be served upon each party of record in this investigation and upon the U.S. Department of Health, Education, and Welfare, the U.S. Department of Justice, the Federal Trade Commission, and the Secretary of the Treasury; and

4. That the Commission may amend this order at any time.

By order of the Commission.


Kenneth R. Mason
Secretary

Issued: January 10, 1980

COMMISSION OPINION

Procedural History

The present investigation was instituted by the Commission on January 5, 1979, on the basis of a complaint filed by Thompson Tool Company, Inc., on December 5, 1978, pursuant to section 337 of the Tariff Act of 1930, as amended. The complaint was amended on December 21, 1978, and January 3, 1979. Notice of the Commission's investigation was published in the Federal Register of January 10, 1979 (44 F.R. 2206).

The amended complaint alleged unfair methods of competition and unfair acts in the importation of certain rotary scraping tools into the United States, or in their sale, by reason of the alleged coverage of such rotary scraping tools by the claims of U.S. Letters Patent 3,958,294 ('294 patent) and by reason of misleading packaging and/or deceptive advertising of the imported rotary scraping tools, including the simulation of complainant's trade dress. The effect or tendency of the unfair methods of competition and unfair acts was alleged to destroy or substantially injure an industry, efficiently and economically operated, in the United States. Complainant requested both temporary and permanent exclusion of said imports from entry into the United States. Complainant further requested a cease and desist order prohibiting misleading packaging and/or deceptive advertising of the imported rotary scraping tools.

The parties named as respondents in the notice of investigation were Dao Hung Manufacturing Co.; Colonial Tool Company, Inc.; Fay Products; John Sturges House, Inc.; King Imports, Ltd.; Marco Hardware; and Caprice Products. Only Colonial Tool Company, Inc. filed an answer to the complaint

within the time permitted under Commission rules 210.21(a) and 201.16(d) (19 CFR 210.21(a) and 201.16(d)). Additionally, none of the other respondents named in the original notice of investigation appeared or participated as parties to the investigation.

Upon institution, this matter was referred to an Administrative Law Judge (ALJ). A preliminary conference was held on March 2, 1979, at which time the complainant's and the Commission's investigative attorney were present as well as attorneys representing Colonial. By telephone and by letter of July 9, 1979, Colonial gave notice that it no longer desired to contest the allegations in the investigation.

In Motion 62-3 of March 7, 1979, the complainant moved for default against all non-appearing respondents and requested, that they be barred from appearing at a later date and/or participating in further proceedings and that evidentiary sanctions be imposed. The Commission investigative attorney joined in complainant's motion for default. Colonial also supported such action. In an Order Certifying Motions to Amend Complaint and Granting Motion for Default, dated April 16, 1979, the ALJ granted complainant's motion for default to the extent that the non-appearing respondents had waived their rights to appear and contest the allegations of the complaint and notice of investigation.

After consideration of Motions 62-1 and 62-2 by the complainant to amend the complaint and Motion 62-4 by the Commission investigative attorney to add parties, the ALJ on April 16, 1979, recommended the addition of 18 more respondents to the investigation in the above referenced Order Certifying Motions to Amend Complaint and Granting Motion for Default. In an addendum of

May 29, 1979, the ALJ recommended the addition of two more respondents named in the referenced motions who had been omitted from the certification. On July 13, 1979, the Commission ordered that twenty additional respondents be added to the notice of investigation, that the complaint be amended to show further litigative action information, and that the complaint be further amended to show an explanatory statement as to economic data filed with the complaint. Notice of the Commission's amendment to the supplemented complaint and notice of investigation was published in the Federal Register of July 18, 1979 (44 F.R. 41972).

The parties named as respondents in the Federal Register notice of July 18, 1979, were Bandwagon, Inc., Eastman Sales Corp., Boo Ping Industrial Co., Ltd., V. Lee Industrial Co., Ltd., Long Lee Industrial Co., Best Associates Inc., Pay-N-Pak, Belknap Hardware, Bishop Hardware, Bradlees, Pamida, Elegant Worldwide Co., Ltd., Trans Sun (Taiwan) Corp., Robin & Leslie Company, Ltd., Chun Her Machinery Industrial Co., Ltd., Fuerza International Co., Ltd., Test Rite Products, Collins Trading Company, Ltd., Miramar Corporation, Ltd., and Golden Mean Trading Co., Ltd.

A joint motion was filed by the complainant and Commission investigative attorney on June 22, 1979, Motion 62-5, for a judgment by default and/or for summary determination in favor of the complainant against all seven of the original respondents. There were no exceptions filed to the motion.

On July 25, 1979, a recommended determination was issued by the ALJ to the effect that after consideration of the joint motion for summary determination filed by the complainant and the Commission's investigative attorney, and supporting papers submitted therewith, that the motion be

granted as to six of the seven originally named respondents pursuant to Commission rules 210.50 and 210.53 (19 CFR 210.50 and 210.53). The motion was denied as to respondent Caprice Products by reason of a finding of defective service on that party. The ALJ recommended in his determination that the Commission find six respondents in violation of section 337 of the Tariff Act of 1930, as amended (19 U.S.C. 1337), in the unauthorized importation of certain rotary scraping tools into the United States, or in their sale, by reason of the coverage of such tools by the '294 patent and additionally as to five of such respondents, by reason of misleading packaging and/or deceptive advertising of the imported rotary scraping tools, including the simulation of complainant's trade dress. It was the recommendation of the ALJ that the effect or tendency of such acts was to destroy or injure substantially an industry, efficiently and economically operated in the United States.

Pursuant to Commission rule 210.54 (19 C.F.R. 210.54), the Commission investigative attorney on August 6, 1979, filed exceptions to the ALJ's recommendation that service on Caprice was inadequate and that there was no establishment of substantial injury, or a tendency to injure. The further position of the investigative attorney was that the previous trade dress of the respondent Colonial Tool Company, Inc. was literally identical to the complainant's and that Colonial's subsequent trade dress was substantially similar. In a mailgram received on August 7, 1979, the complainant noted exception to the ALJ's recommendation of a lack of service on Caprice and stated that the trade dress of Colonial and Dao Hung was substantially similar to that of respondent; a memorandum in support thereof was received on August 16, 1979, and attached an affidavit concerning the matter of service.

On August 17, 1979, a joint motion, Motion 62-6 was filed by the complainant and Commission investigative attorney for judgment by default and/or for summary determination as to the twenty parties added to the investigation by the Commission on July 13, 1979, on the basis of the failure of any of the parties to respond to the notice of investigation and the complaint. In his recommended determination of September 18, 1979, the ALJ recommended that the joint motion for summary determination be granted as to all twenty additional respondents and that they be determined to be in violation of section 337 of the Tariff Act of 1930, as amended, by reason of their unauthorized importation and sale in the United States of the accused rotary scrapers infringing the '294 patent. The joint motion of the Commission investigative attorney and the complainant excepted these twenty respondents from the issues of trade dress appropriation and false advertisement.

The complainant had originally requested both temporary and permanent exclusion of imports from entry into the United States. In a preliminary conference, however, held before the ALJ on March 2, 1979, counsel for the complainant waived the request for a temporary exclusion order. In addition to the exclusion of the accused rotary scrapers, the complaint of the Thompson Tool Co. asked the Commission to issue a cease and desist order during the pendency of the investigation prohibiting the improper use of misleading packaging and/or advertising designed to confuse the public as to the origin of the product.

A notice of Commission procedure on the Presiding Officer's recommended determinations and relief, bonding, and the public interest, and of the schedule for filing written submissions was published in the Federal Register on December 21, 1979 (44 F.R. 75739). A submission in response thereto was filed by the Commission investigative attorney and brief comment was offered by the complainant.

The Issue of Violation

Under section 337, the Commission must determine whether there is a violation of that statute and, if there is, what statutory remedy, if any, is appropriate. Provision for a bond must also be made for application against appropriate imports during the period of Presidential review.

Having considered the ALJ's recommended determination, the information of record, including the exhibits of the complainant's product and the two exhibits of record of the respondents products, we have determined that there are unfair methods of competition and unfair acts by Colonial Tool Company, Inc., King Imports, Ltd., Dao Hung Industrial Co., Ltd., Eastman Sales Corp., Boo Ping Industrial Co., Ltd., V. Lee Industrial Co., Ltd., Long Lee Industrial Co., and Chun Her Machinery Co., in the importation or sale by the owner, importer, consignee, or the agent of either, of articles that infringe U.S. Letters Patent No. 3,958,294, and that the effect or tendency of such methods and acts is to destroy or substantially injure an industry, efficiently and economically operated in the United States. 1/ The Commission

1/ Vice Chairman Alberger and Commissioner Stern further determined as follows: "I also determine that there is insufficient evidence to establish a violation by any respondent by reason of misleading labeling or deceptive advertising."

adopts the findings of fact and conclusions of law recommended by the ALJ to the extent they are not inconsistent with this opinion.

Motions for default.

The findings of fact and conclusions of law of the ALJ form a recommendation to the Commission as to the disposition of the investigation. The effect of granting a default motion is to authorize the ALJ "to create certain procedural disabilities for the defaulting party and to entertain, without opposition, proposed findings and conclusions based upon substantial, reliable and probative evidence which would support a recommended determination." 2/ The Commission bases its final determination on its own review of the record as well as the recommended determination of the ALJ. A complainant is not, therefore, permitted "to rely solely upon the allegations of its complaint to support an affirmative determination. (footnote deleted)" 3/

Section 210.53 of Commission rules (19 CFR 210.53) indicates that the presiding officer's findings of fact and conclusions of law constitute a recommendation. This recommendation under the Administrative Procedure Act (to which section 337 proceedings are subject) must be based upon "reliable, probative, and substantial evidence." 5 U.S.C. 556(d).

The ALJ in this investigation recommended to the Commission that it make an affirmative determination with respect to twenty-six of the twenty-seven

2/ See Commission Opinion in Support of Orders Terminating Certain Respondents, Declaring this Matter More Complicated, and Remanding This Matter for Further Proceedings, in Certain Electric Slow Cookers, Inv. No. 337-TA-42, at 6; Certain Attache Cases, Inv. No. 337-TA-49, USITC Pub. 955; and Certain Novelty Glasses, Inv. No. 337-TA-55, USITC Pub. 991.

3/ Certain Electric Slow Cookers, supra n.2, at 7.

respondents as to violations of section 337 by reason of infringement of the patent and with respect to five of the 27 respondents by reason of misleading packaging and/or deceptive advertising of the imported rotary scraping tools, including the simulation of complainant's trade dress. It was the further recommendation of the ALJ that the effect or tendency of such acts was to destroy or injure substantially an industry, efficiently and economically operated in the United States.

Validity of the Patent

The '294 patent in this investigation was issued on May 25, 1976, based upon application Serial No. 500,031 filed August 23, 1974. The patent was assigned to the Complainant by the named inventor, David E. Thompson, by virtue of an Assignment dated March 14, 1977, recorded in the United States Patent and Trademark Office.

The ALJ in his recommended determinations of summary judgment based on joint Motions 62-5 and 62-6 found that there being no evidence offered to the contrary, the '294 patent is presumed valid pursuant to 35 U.S.C. 282.

The respondent, Colonial Tool Co. in its initial answer to the complaint claimed that the Thompson patent was invalid, void, and unenforceable for a variety of reasons, including in part a lack of novelty, that the claimed invention had been patented or described in a printed publication in this country for more than one year prior to the application, that the differences between the subject matter and the prior art are such that the subject matter as a whole would have been obvious, to one skilled in the art, and that the specification of the patent does not contain a written description of the alleged invention or the manner and process of making and using it, in such

clear, concise and exact terms as to enable any person skilled in the art to make and use the alleged invention.

In Motion 62-5 (filed June 22, 1979) it was stated in part by the complainant and the Commission investigative attorney as follows:

Neither the complainant nor the Commission investigative attorney is aware of any prior art which has been found which is more pertinent than that considered by the patent examiner in the course of the prosecution of the application for the '294 patent. As a consequence, the statutory presumption of validity to which every United States patent is entitled is not only unimpaired but strengthened.

In the absence of any clear and convincing evidence submitted to controvert the validity of the patent, we agree with the ALJ that the statutory presumption of validity must prevail. (35 U.S.C. 282).

Domestically manufactured product reads on the patent.

The domestically manufactured rotary scraper 4/ of the complainant, Thompson Tool Co., is a tool made for attachment to a hand held electric

4/ The Thompson exhibit tools are composed in part of two metal plates approximately 3 inches in diameter which are approximately 1-1/4" apart and directly in line with each other. The plates are held in position by a center shaft which extends about 1" from one of the plates (the top plate) and by 6 posts or shafts located equidistant from each other near the periphery of the plate. These plates with the center shaft and six connecting posts are referred to as a "hub".

There extend from the periphery of the "hub" (about 2-1/2" at an angle) six groups of wire fingers. Each group is attached in a row to one of the six posts. Each wire of a group is wound around one of the peripheral posts to secure the wire, to give it flexibility, and to allow it to pivot back and forth on such post to a limited extent. With the tool resting on its back plate in front of the observer, using the post nearest as the focal point, each wire of this post group extends within the "hub" a distance of approximately 1", veering off to the right at what is almost a right angle to the length of the wire outside the "hub". When the outside length of the wire is moved to the left, such movement is restrained by the post immediately to the right. As the tool is rotated clockwise (left) the restraining post immediately to the right of the bottommost post is in a direction opposite to

(footnote continued)

drill. It is intended to clean, polish and anneal and to remove surface layers from a work surface such as layers of paint, rust, welding scale, or metallic plating or oxides without gouging the work surface.

Based on examination of two exhibits of the Thompson rotary scraping tools, the Commission determines that these articles read on each of the three claims of the patent.

Infringement

In an affidavit of June 21, 1979, David E. Thompson, the inventor of the rotary scraping tool covered by the '294 patent, showed a cut-away drawing as representative of the rotary scraping tools of Colonial, King Imports, Ltd., and Fay Products. The affiant stated that the products of Colonial, King Imports, Ltd., and Fay Products are functionally identical to the products manufactured by Thompson. Thus, it was stated, these products read on the claims of the patent in a manner literally identical to that of the products of the complainant.

In addition, the affidavit stated that there was personal examination of certain other respondents' products which read on the claims of the '294 patent in a manner literally identical to the manner in which the Thompson Tool Co. product reads on the patent. It was further stated by the affiant that to the best of his knowledge and belief all rotary scraping tools manufactured in Taiwan or Hong Kong and exported to the United States are identical to the above referred to rotary scrapers and would therefore read on the '294 patent.

(footnote continued)

the rotation of the tool. The restraining means prevents the wires from extending fully radially by reason of the centrifugal force of the rapidly rotating tool.

The ALJ made no findings based on the two imported tool exhibits of record but accepted the Thompson affidavit as establishing infringement. Where physical samples of allegedly infringing articles are readily available as they were in this case, it is the opinion of the Commission that such should be submitted into the record as exhibits. 5/ In a motion for summary determination where respondents are in default, it is necessary for the complainant to introduce reasonably available evidence sufficient to establish a prima facie violation. We determine that the findings of the ALJ based on an unsupported affidavit without exhibits of the merchandise are not acceptable for establishing infringement. Rather, based on examination of the physical exhibits of record of King Imports, Ltd. and Colonial Tool Company, Inc., it is determined that these two exhibits read on each of the three claims of the '294 patent and therefore infringe the patent.

Since there is credible evidence of record to show that Eastman Sales Corp. imported merchandise for Colonial, that Dao Hung Industrial Co., Ltd., Boo Ping Industrial Co., Ltd., Long Lee Industrial Co., and V. Lee Industrial Co., Ltd. were foreign exporters to Eastman and that Chun Her Machinery Co., manufactured for Dao Hung Industrial Co., Ltd., these respondents are connected with the physical samples of record found to be infringing.

In the absence of physical samples or other supporting evidence, the Commission is unable to make a determination as to the other nineteen

5/ See Commission Rule 210.20(b) (Submission of articles as exhibits), which requires that

"[a]t the time the complaint is filed, when practical and possible the involved articles shall be submitted as exhibits--both the involved domestic article and that of each person named as violating section 337 of the Tariff Act."

respondents. Since there is no physical exhibit for Caprice Products, the Commission would not be able to make a determination with respect to infringement. Thus, no determination is made as to whether Caprice was properly served.

Misleading packaging and/or deceptive advertising (including simulation of trade dress). Having found patent infringement, and ordered exclusion of all infringing rotary scraping tools, we do not determine whether there has been misleading packaging and/or deceptive advertising. 6/

Efficiently and economically operated domestic industry.

The Commission agrees with the findings of fact and conclusions of law of the ALJ that the domestic industry consists of that part of the industry engaged in the manufacture and sale of rotary scrapers produced in accordance with the claims of the '294 patent, and is efficiently and economically operated. The complainant has a research and development department which includes a physical laboratory for testing, design and implementation. There is no evidence of record that the domestic industry is not efficiently and economically operated.

Injury

The Commission agrees with the findings of fact and conclusions of law of the ALJ regarding injury caused by the importation and sale of foreign-made rotary scraping tools by Eastman Sales, Colonial Tool Co., and King Imports. There is evidence of record which shows that very substantial quantities of

6/ See Additional Views of Vice Chairman Alberger and Commissioner Stern regarding misleading packaging and/or deceptive advertising (including simulation of trade dress).

rotary scraping tools were imported by Colonial in 1978. In fact, the quantities imported by Colonial in 1978 are in the magnitude of total unit sales for that year by Thompson Tool Co., Inc., the complainant. The imports of King Imports, Ltd. are not known. Sales of complainant's rotary scraper during the first quarter of 1979 decreased approximately 35.4 percent compared with the first quarter of 1978. The information of record shows that from the time that manufacture and sales of rotary scraper tools began in 1975 there was a rapid growth in sales and profit each year until 1978 when sales were affected by large quantities of imports. The profits of the company for 1978 and 1979 decreased dramatically; employment went from a high of approximately 130 employees to only 40. Changes in complainant's wholesale prices also suggest the influence of lower priced imports, namely a pattern of price depression. In 1975 and 1976, the wholesale price range for the standard homeowner's version of the rotary scraper were from \$4.02 per unit to \$6.30. In 1977 wholesale prices ranged from \$5.00 per unit to \$8.97 per unit. At the end of August 1978 prices ranged from \$3.75 per unit to \$5.25 per unit.

We determine therefore that the complainant was substantially injured by imported infringing rotary scrapers.

Remedy, the Public Interest, and Bonding

1. Remedy.

The Commission finds that an exclusion order is the appropriate remedy for the violation of section 337 which it has found to exist. Therefore, the Commission has ordered exclusion from entry into the United States of rotary scraping tools which infringe U.S. Letters Patent No. 3,958,294, except where

such importation is licensed by the owner. This exclusion will run for the term of this patent, i.e., through May 25, 1993.

2. The public interest.

Under subsection (d) of section 337, the Commission must consider the effect of an exclusion order on the public health and welfare, competitive conditions in the U.S. economy, the production of like or directly competitive articles in the U.S. economy, and U.S. consumers. Opportunity for public comments on those possible effects was given by Commission notice. In addition, the views of the the Federal Trade Commission, the Department of Justice, the Department of Health, Education, and Welfare, and the Customs Service were solicited. No comments were received indicating that an exclusion order would adversely effect on public interest considerations. The Commission, therefore, determines that there are no public-interest factors which oppose the issuance of the exclusion order in this investigation.

3. Bonding.

The Commission has determined that a bond in the amount of 484 percent ad valorem (ad valorem to be determined in accordance with section 402 of the Tariff Act of 1930, as amended, (19 U.S.C. 1401a)) of the imported rotary scraping tools should be required during the 60-day period in which the President may approve the Commission's determination or disapprove it for policy reasons. A bond in this amount is designed to offset the unfair competitive advantage, accruing to importers or sellers as the result of lower prices of imported rotary scraping tools which infringe the patent.

ADDITIONAL VIEWS OF VICE CHAIRMAN ALBERGER AND COMMISSIONER STERN
REGARDING MISLEADING PACKAGING AND/OR DECEPTIVE ADVERTISING
(INCLUDING SIMULATION OF TRADE DRESS)

We find that the record is insufficient to establish a violation by reason of misleading packaging and/or deceptive advertising (including simulation of trade dress) by any of the five respondents alleged to have used that unfair method of competition or committed that unfair act.

We reach that conclusion after examining the record and the portions of the ALJ's recommended determination of July 25, 1979, applicable to this issue. We disagree with the ALJ that the record shows that there were unfair methods of competition used by or unfair acts committed by Colonial, King, Fay, John Sturges, or Dao Hung for the reasons discussed below.

The record is unclear as to when Colonial imported the sample device, which has also been linked to Dao Hung (see Complaint, Exh. E). 1/ It is possible that this particular sample came in pursuant to a license agreement between Thompson and Colonial, signed in 1977 (see Complaint, Exh. H-c). If so, the use of Thompson's trade dress would presumably be permissible.

1/ See p. 11 of Commission Opinion, supra.

As to King, we do not find that King's package (see Complaint, Exh. F) is likely to be confused with that of Thompson. Nor do we find that the record clearly establishes that the King tool was not advertised on television as claimed on its box. Absent some reliable indication in the record that the label on the King box ("As seen on TV!") is false, there is no basis for finding that the packaging is misleading or deceptive.

We do not find the record sufficient in regard to Fay or John Sturges, because no physical samples of their products were before the Commission for consideration of the trade dress they used. The affidavit of David E. Thompson stated that the affiant believes that the trade dress of John Sturges and Fay, in addition to that of Colonial, Dao Hung, and King, are either literally or substantially similar to the trade dress of Thompson. Thompson is the founder and Chairman of complainant; thus, the affidavit could be considered self-serving and should not be relied upon, especially where physical samples are not on record. It would not have been an impossible burden for complainant or the Commission investigative attorney to place on record physical samples of rotary scraping tools which allegedly simulate the trade dress used by Thompson.

Physical samples on the record, including packaging, would allow comparison of trade dress used. In some instances, it might not be practicable to place physical samples on record, e.g., heavy and cumbersome machinery. In those cases, evidence such as accurate photographs of excellent quality or actual examination of the products at their locations would be an

appropriate means to make necessary comparisons. 2/ Rotary scraping tools, however, do not fall within that category, and physical samples from all respondents alleged to have misleading packaging and/or deceptive advertising would have been appropriate.

2/ See Commission rule 210.20(a)(9)(I) (Contents of the complaint) (19 C.F.R. 210.20(a)(9)(I)).

[54] ROTARY SCRAPER

[75] Inventor: David E. Thompson, Norwalk, Conn.

[73] Assignee: The Thompson Tool Co., Inc., Norwalk, Conn.

[22] Filed: Aug. 23, 1974

[21] Appl. No.: 500,031

[52] U.S. Cl. 15/198; 15/93 R; 15/186; 15/187; 15/236 C

[51] Int. Cl.² A46D 9/02; A46D 13/00

[58] Field of Search 15/195-200, 15/179-187, 236; 134/6

[56] References Cited
UNITED STATES PATENTS

2,631,315 3/1953 Hauser 15/198 UX

FOREIGN PATENTS OR APPLICATIONS

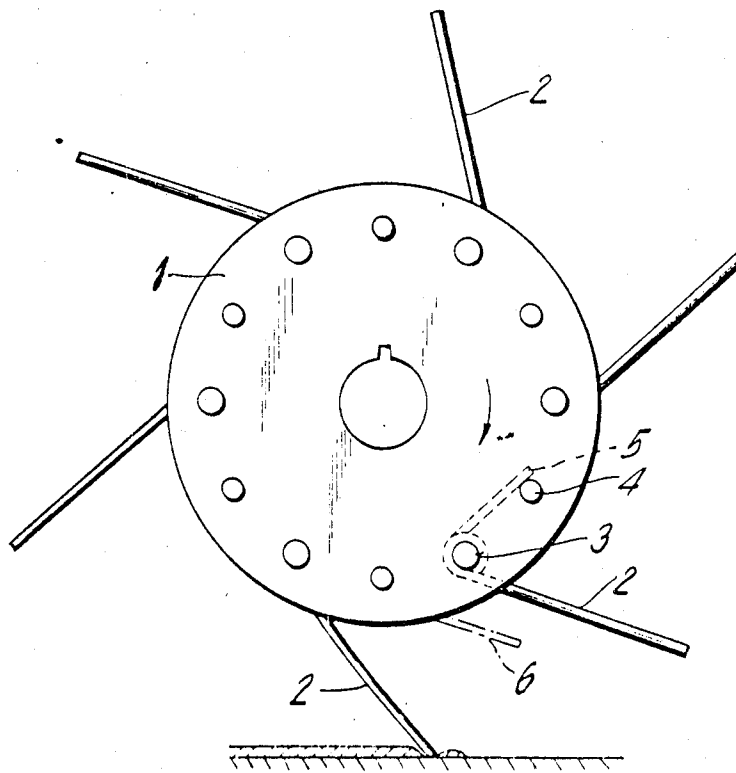
223,718 10/1924 United Kingdom 15/198

Primary Examiner—Peter Feldman
Attorney, Agent, or Firm—Robert L. Zink

[57] ABSTRACT

A rotary scraper with fingers striking the work surface at a lagging angle, thus removing material by impact rather than by a scraping action. By way of an example, a wire brush with pivoted fingers that are restrained and unable to fully centrifugally extend radially.

3 Claims, 4 Drawing Figures



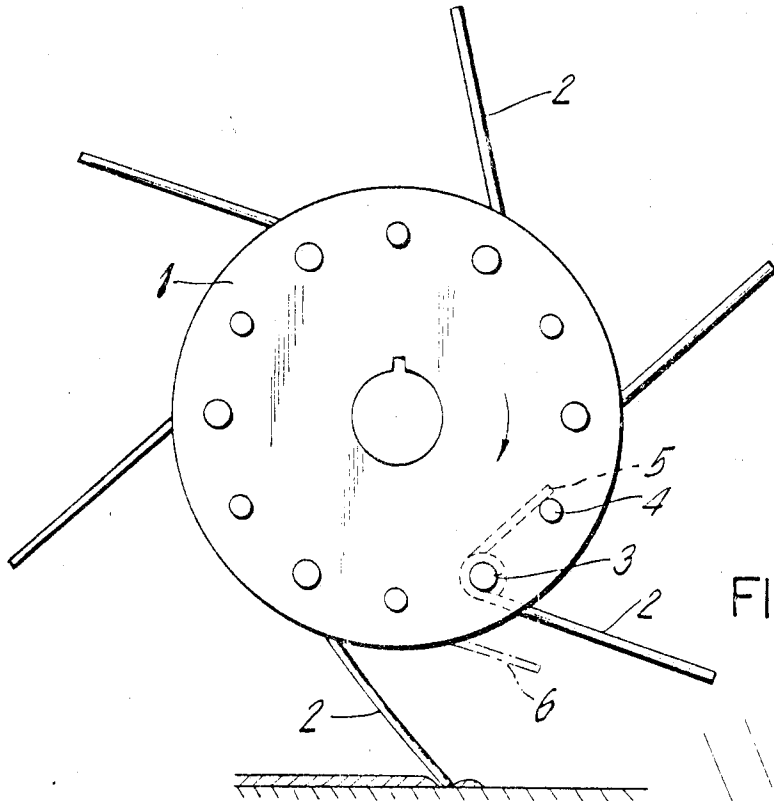


FIG. 1

FIG. 2

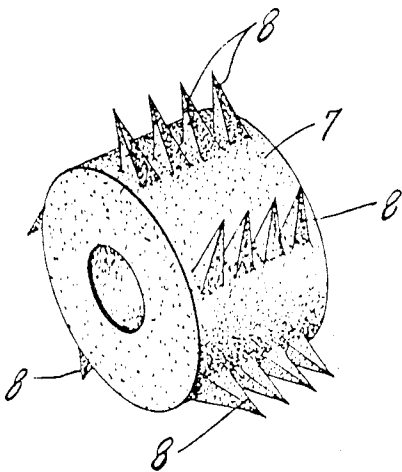
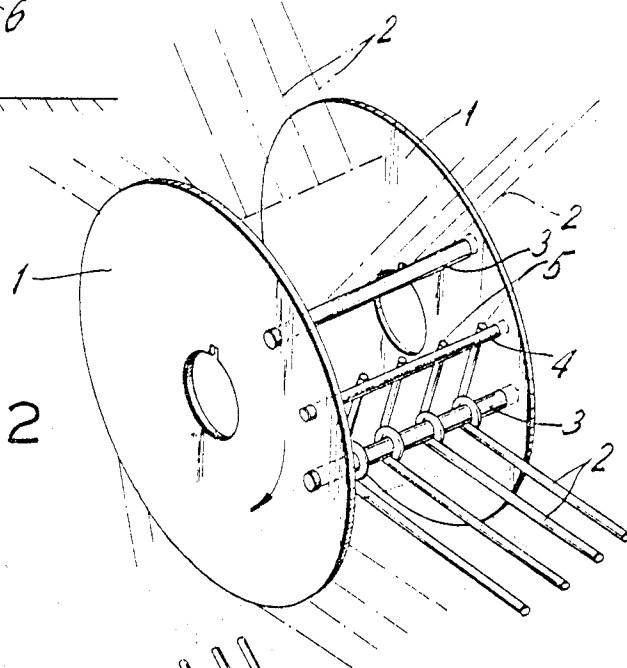


FIG. 3

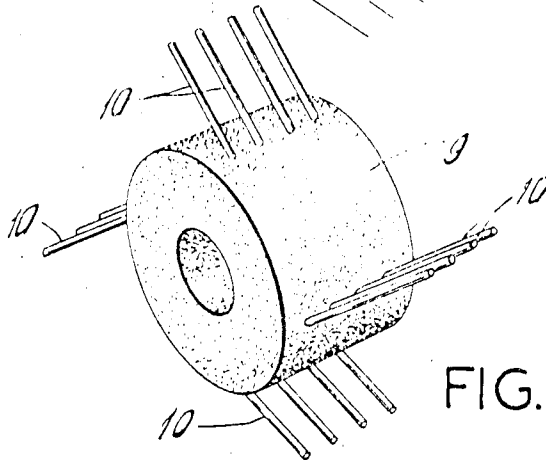


FIG. 4

STATE OF CALIFORNIA
COUNTY OF SAN DIEGO

IN SENATE
January 11, 1961

REPORT OF THE
COMMISSIONERS OF THE STATE BOARD OF CONTROL

ATTACHMENT A

STATE OF CALIFORNIA
COUNTY OF SAN DIEGO

San Diego

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

November 30, 1978
(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 No.
3,958,294.

By authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS

M. R. Francis

Certifying Officer.

1 ROTARY SCRAPER

BACKGROUND OF THE INVENTION

This invention is a rotary machine for treating work surfaces, the fingers impacting the work surface, the effects being to remove the surface finish, clean, polish, or anneal.

Wire brushes and the like provide strands that extend radially due to centrifugal force, and will gouge the work surface if care is not exercised. Because the strand strikes the surface at nearly a right angle, a shearing force is applied to the surface, removing the material at the tip of the strand irrespective of whether such removal is desired or not. Where the strand is made flexible or is composed of articulated links, the end of the strand removes material by frictionally scraping the surface, again with a possible gouging action.

Such machines do not fully take advantage of the physical characteristic differences between the material to be removed and the substratum. They rely either on an inferior shear bond between the two materials, or upon careful and continual visual inspection of extant material.

SUMMARY OF THE INVENTION

The object of the invention is to remove surface layers without tending to remove material from a differentiated base substratum. Examples are the removal of paint, of welding scale, of metallic plating or oxides, of tooth plaque, etc. It is a further object of my invention to treat surface layers with controlled impact without abrading such layers, such as in a peening and annealing process. It is yet a further object of my invention to remove surface layers from a substratum softer than the surface layer without abrading the substratum. My invention accomplishes these objects by providing a multitude of fingers about a rotatable shaft, wherein each finger is pivotable either about the shaft center, or about its own center spaced radially away from the shaft surface on a hub. Normally, in such an arrangement the rotating shaft would cause the fingers to extend centrifugally as radial rays. In my invention, however, the fingers are prevented from so fully extending, making it impossible for the tip of the finger to strike the work surface at a right angle. The limit on the rotation of the finger may be accomplished by mechanical stops or by a fixed relationship to the hub of the machine, whereby the rotation of the finger is limited by the limits of flexibility of the finger material.

In all cases, the finger is unable to strike the surface except at an angle, the finger therefore striking the surface at a point lagging the travel of the scraper is moved transaxially to its shaft along the work surface. This prevents the finger from digging into the surface. Flexibility of the finger additionally prevents the gouging of the surface. The total effect is one of striking the material to be removed so as to loosen it, the material then being lifted off by the unflexing of the finger as the pressure is relieved by the travel of the scraper.

Where the work surface is of a single material, a polishing effect will result since negligible material will be removed. The angle of impingement, and thus the adjustment of the impacting and lifting effect, can be controlled either by the location of the aforementioned stops, or by a curvature of the finger that decreases its angle of impact with the horizontal. Flexibility of the

2
finger may be governed by the material design of the finger, or in the case of a material such as music wire, the number of loose wraps the wire makes around its rotary center before being fixed. Additionally, the wire, when deflected, will either tighten or loosen the wraps, depending upon whether the wrap is in an angular direction co-dimensional with the striking deflection (tightening) or reversal (loosening).

As the tip strikes the work surface, it rebounds away. By varying two parameters (shaft rotational speed and finger flexibility), the finger can be caused to rebound during operation to its stop position, elastically over-travel, and then return, freely striking the work surface more than once. This multiple impingement increases the flicking action at the work surface.

The increased removal effect resulting from the simple arithmetic increase in blows is compounded by the increased impact against the surface due to the elastic rebound from the stop position plus the opportunity to restrike the surface before the substratum recovers from a first harmonic deflection.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a view of the scraper showing the normal operating position.

FIG. 2 is a perspective view of the scraper illustrating the parts.

FIG. 3 is a perspective view of an elastomer embodiment of the invention.

FIG. 4 is a view showing a combination elastomer hub and semi-rigid fingers.

DETAILED DESCRIPTION

A scraper made of hub plates 1 connected by pivot shafts 3 and by restraining shafts 4 bears wire fingers 2 wound about its pivot shafts 3. The inside end 5 of the wire finger is limited in arcuate travel by the restraining shafts 4. The fingers are shown in their fully extended position. Each finger is free to pivot to a position, for example 6 wherein the outer tip is closer to the hub center.

FIG. 3 illustrates another embodiment of the invention with an elastomer hub 7 and contiguous elastomer fingers 8. FIG. 4 illustrates yet another embodiment of the invention using an elastomer hub 9 bearing imbedded wire fingers 10.

I claim:

1. A rotary scraper comprising
 - a. a hub
 - b. a plurality of elastically flexible fingers pivotably attached to the hub extending outwardly therefrom
 - c. restraining means fixed to the hub and located adjacent said pivotably attached fingers in a direction opposite to the direction of rotation, said restraining means including means integral with said fingers and resting on said restraining means for preventing a true radial extension of the fingers from the hub

wherein a rotation of the hub about its central axis proximate to a work surface causes the outward tips of the fingers to flexibly impinge the work surface at a point substantially removed from the projection of the hub axis onto the work surface.

2. The scraper of claim 1 wherein the fingers are comprised of spring wire connected to the hub by winding the hub end of the finger around a pivot shaft and wherein the restraining means limits the rotation of the finger about the pivot shaft by limiting the motion of

3

the end of the winding.
the scraper of claim 1 wherein an elastic restoring
of the flexed finger displaces work surface ele-

4

ments loosened by the impingment.

* * * * *

5

10

15

20

25

30

35

40

45

50

55

60

65

