Feb. 19, 1946. J. A. MAHONEY ET AL 2,395,133

CEMENTING OUTSOLES TO SHOES

Filed March 28, 1945

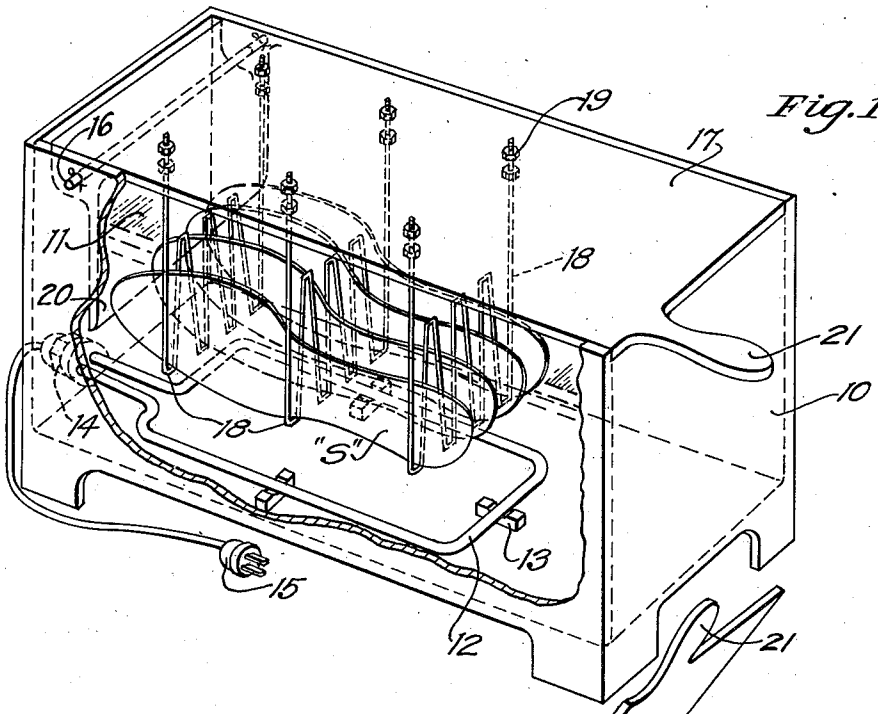


Fig. 1.

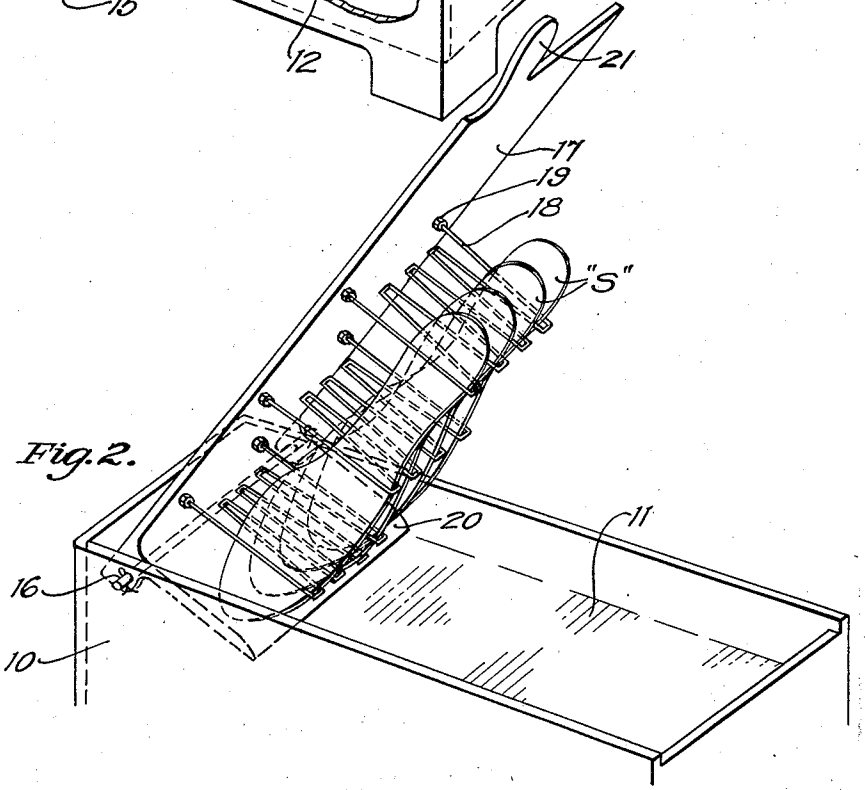


Fig. 2.

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Patented Feb. 19, 1946 2,395,133

UNITED STATES PATENT OFFICE

2,395,133

CEMENTING OUTSOLES TO SHOES

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Application March 28, 1945, Serial No. 585,334

8 Claims. (Cl. 12—142)

This invention relates to the cementing of outsoles to shoes and more particularly to a method of cementing outsoles of synthetic or waterproof materials to shoes.

At the present time a shortage of sole leather has led to the introduction of numerous synthetic materials for use as outsoles for shoes, e. g. "Vinylite," "Koroseal," "Neolite," "Accolite," etc., also, outsoles of such materials as synthetic rubber and compositions thereof, reclaimed rubber compounds, and natural rubber compounds are in common use.

Outsoles of above materials do not hold as satisfactorily to shoes with stitching as does leather, since the stitches have a tendency to cut or tear the materials, which are not fibrous like leather, causing the outsoles to become loosened from the shoes, and in some cases, they may become entirely detached, also, as is well known, the above mentioned substitutes for leather soles can not be readily or satisfactorily cemented to the shoe bottoms with the usual sole attaching cements such as pyroxylin or latex, nor can they be cement attached with the usual technique.

While it has been found that some of the substitute materials will outlast leather outsoles for general wear and that they possess such desired features as flexibility, waterproofness and nonskid properties, they have heretofore been extremely difficult for shoe repair shops to use for resoling shoes for the reasons previously mentioned. However, with such cements as now manufactured from "neoprene" and some of the "Buna" type synthetic rubbers, we have found that they can be cemented to the shoe bottoms by the simple and efficient method hereinafter described, which can be carried out in shoe repair shops regardless of how small they may be since no bulky or expensive equipment is required such as vapor generators used in factories where shoes are manufactured.

It is an object of this invention to provide an improved method of cementing outsoles of synthetic materials to shoes. Another object of the invention is to provide a method of cementing waterproof and waterproofed outsoles to soles.

A further object of the invention is to provide an improved method of cementing waterproof outsoles to shoes that is simple, efficient, and which can be readily practiced by shoe repair shops and shoe factories.

A still further object of the invention is to provide an improved method of resoling shoes with outsoles of substantially waterproof materials which can be practiced by shoe repair shops to repair shoes rapidly and cheaply, without the necessity of obtaining additional or expensive sole treating equipment.

Other objects of the invention will, in part, be obvious, and will, in part, appear hereinafter.

The invention accordingly comprises the several steps and the relation of one or more of such steps with respect to each of the others thereof, which will be exemplified in the method hereinafter disclosed, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description, part of which should be taken in connection with the accompanying drawing, in which:

Fig. 1 is a perspective view, with portions broken away for reasons of clarity, of an apparatus which may be used to advantage in carrying out our improved method; and,

Fig. 2 is a partial perspective view of an apparatus shown in Fig. 1, the cover being shown in the open position as required when inserting or removing outsoles from the apparatus.

In its preferred form our method comprises removing the worn outsole from the shoe, which may be accomplished in the usual manner for the type of shoe being worked upon, and roughing or scouring the exposed shoe bottom to remove all traces of previously applied cements. The roughed surface of the shoe bottom is then coated with a substantially waterproof thermoplastic cement, e. g. a butadiene polymer or polymerized chloroprene, in solution with suitable solvents and plasticizers, and the coating is allowed to dry or harden.

Of course, other suitable and available waterproof thermoplastic cements may be used which can be softened or activated, i. e. they will adhere to a dry coating of a similar or like cement when heated to a temperature of 80° to 100° C. and will not be affected by any small percentage of water they may absorb.

An outsole of synthetic material, rubber or other waterproof or waterproofed material is provided and preferably its attaching face is roughed. The roughened surface is then coated with the waterproof thermoplastic cement and it is allowed to set or harden thereon.

Prior to pressing the cemented outsole to the shoe bottom, the outsole is submerged in water heated to a temperature of 80° to 100° C., according to the activating temperature of the particular cement used, for a period of up to 10 minutes, after which period the outsole is re-

moved from the heated water and any water adhering thereto is shaken or wiped off and the outsole is located or spotted on the shoe bottom and the parts are placed in a conventional shoe press where pressure is applied to effect the final cement attachment of the outsole to the shoe bottom.

It can readily be seen that as such synthetic soles or soles of other materials previously mentioned are substantially waterproof, i. e. they may absorb a small percentage of water but are not affected thereby in a manner which prevents satisfactory adhesion nor will they become soggy so that they are marked or otherwise affected by the sole attaching pressure, the process is suitable for either factories or repair shops.

It can also be seen that our novel method can be practiced without the necessity of purchasing special equipment such as vapor or steam generators since the outsoles can be submerged in any form of container which will hold water and of course any suitable and available heating means such as a coal stove, gas stove or electrical immersion heater may be used to heat the water in the container.

A suitable and preferred form of apparatus, in which the cemented outsoles may be placed for submersion in heated water, is shown in the accompanying drawing and comprises a tank 10 adapted to hold a body 11 of water. Preferably the body of water in the tank is heated by means of an electrical resistance heater 12 which rests upon the blocks 13 secured to the inside bottom of the tank. The terminals of the heater 12 pass through an end wall of the tank at 14 in a manner which forms a liquid tight seal and a line cord and plug 15 is provided for connecting the heater to any convenient electrical source.

Hinged to the tank 10 at 16 is a cover 17 to which a series of wire racks 18 are secured by nuts 19. The racks 18 are formed so as to hold a plurality of cemented outsoles "S" and to keep them spaced apart so that the cemented surfaces thereof can not come into contact with each other.

A plate 20 depending from the cover 17, and which may be made integral therewith, serves as a stop to prevent the soles from falling out of the racks 18 when the cover 17 is raised or lowered by means of the handle 21 for inserting and removing soles from the apparatus.

In using our novel sole treating apparatus the tank 10 is filled with water to the proper level and the heater connected to the electrical source. When the water has reached the desired temperature, which has been found to be between 80° and 100° C., the cover 17 is raised and the cemented outsoles are located in the wire racks 18 and the cover is closed thus submerging the outsoles in the heated water. The soles are allowed to remain in the water for several minutes during which time the cement thereon becomes activated by the heat transferred from the water. The cover is raised, and one or more outsoles are removed for attachment to the bottoms of shoes prepared in the manner previously described and, if desired, other cool soles may be inserted to replace those taken out.

It will be readily understood by those skilled in the art that the above described method of attaching waterproof outsoles to shoes is simple, effective, and readily adaptable for shoe repairers and shoe manufacturers.

Furthermore, the apparatus above described is well suited for its intended purpose and is economical to manufacture and maintain. Also, by mere modification of its size and capacity it can be used for carrying out our improved method in both shoe manufacturing plants and shoe repair shops.

Since certain changes may be made in carrying out the above method without departing from the scope of the invention, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. That improvement in cementing synthetic outsoles to shoes which comprises providing a shoe and a synthetic outsole having their corresponding attaching faces coated with a substantially waterproof thermoplastic cement, submerging the cemented outsole in water heated to a temperature of 80° to 100° C. until the cement thereon becomes activated, removing the outsole from the heated water, and thereafter pressing the parts together to effect their permanent cement attachment to each other.

2. That improvement in cementing rubber outsoles to shoes which comprises providing a shoe and a rubber outsole having their corresponding attaching faces coated with a substantially waterproof thermoplastic cement, submerging the cemented outsole in water heated to a temperature of 80° to 100° C. until the cement thereon becomes activated, removing the outsole from the heated water, and thereafter pressing the parts together to effect their permanent cement attachment to each other.

3. That improvement in cementing synthetic outsoles to shoes which comprises providing a shoe and a synthetic outsole having their corresponding attaching faces coated with a substantially waterproof thermoplastic cement, submerging the cemented outsole in water heated to a temperature of 80° to 100° C. until the cement thereon becomes activated, taking the outsole out of the heated water and removing the water adhering thereto therefrom, and thereafter pressing the parts together to effect their permanent cement attachment to each other.

4. That improvement in cementing rubber outsoles to shoes which comprises providing a shoe and a rubber outsole having their corresponding attaching faces coated with a substantially waterproof thermoplastic cement, submerging the cemented outsole in water heated to a temperature of 80° to 100° C. until the cement thereon becomes activated, taking the outsole out of the heated water and removing the water adhering thereto therefrom, and thereafter pressing the parts together to effect their permanent cement attachment to each other.

5. That improvement in cementing waterproofed soles to shoes which comprises providing a shoe and a waterproofed outsole having their corresponding attaching faces coated with a substantially waterproof thermoplastic cement, submerging the cemented outsole in water heated to a temperature of 80° to 100° C. until the cement thereon becomes activated, removing the outsole from the heated water, and thereafter

pressing the parts together to effect their permanent cement attachment to each other.

6. That improvement in cement attaching waterproofed soles to shoes which comprises providing a shoe and a waterproofed outsole having their corresponding attaching faces coated with a substantially waterproof thermoplastic cement, submerging the cemented outsole in water heated to a temperature of 80° to 100° C. until the cement thereon becomes activated, taking the outsole out of the heated water and removing the water adhering thereto therefrom, and thereafter pressing the parts together to effect their permanent cement attachment to each other.

7. That improvement in the resoling of shoes which comprises removing the worn outsole from the shoe and roughing the exposed shoe bottom, providing an outsole of substantially waterproof material and roughing its attaching face, coating the roughed surfaces of the shoe and outsole with a substantially waterproof thermoplastic cement in solution and allowing it to harden thereon, submerging the cemented outsole in water heated to a temperature of 80° to 100° C. until the cement thereon becomes activated, removing the outsole from the heated water, and thereafter placing the cemented parts together in a shoe press to effect their permanent cement attachment to each other.

8. That improvement in the resoling of shoes which comprises removing the worn outsole from the shoe and roughing the exposed shoe bottom, providing an outsole of substantially waterproof material and roughing its attaching face, coating the roughed surfaces of the shoe and outsole with a substantially waterproof thermoplastic cement in solution and allowing it to harden thereon, submerging the cemented outsole in water heated to a temperature of 80° to 100° C. until the cement thereon becomes activated, taking the outsole out of the heated water and removing the water adhering thereto therefrom, and thereafter placing the cemented parts together in a shoe press to effect their permanent cement attachment to each other.

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