Aug. 5, 1958 A. E. MURRAY 2,845,640

PROCESS OF PRODUCING A SALE FOR SHOES

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Fig. 1.

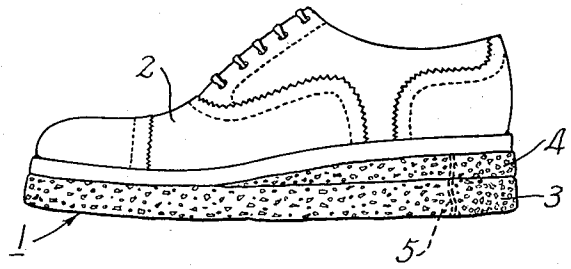


Fig. 2.

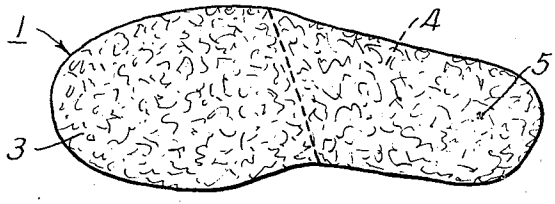


Fig. 3.

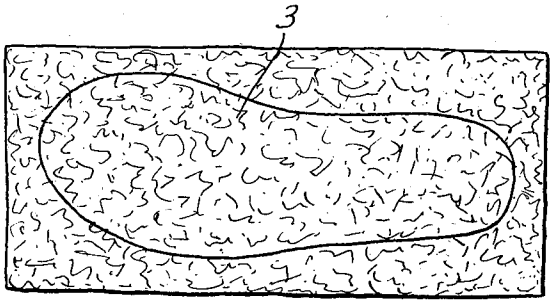


Fig. 4.



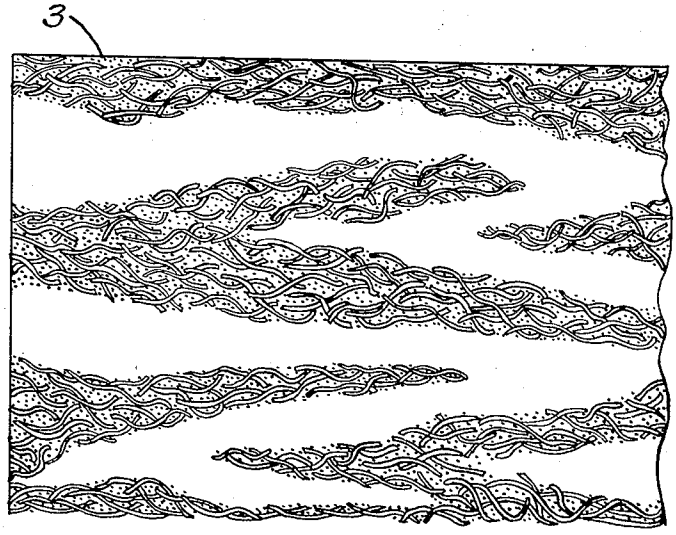
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PROCESS OF PRODUCING A SALE FOR SHOES

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Fig. 5.



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PROCESS OF PRODUCING A SOLE FOR SHOES

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Application November 7, 1952, Serial No. 319,345

1 Claim. (Cl. 12—146)

My invention relates particularly to the method of making the soles of shoes.

An object of my invention is to provide a method of making shoe soles, whereby shoes of leather or plastic materials, whether of a conventional type or made by any one of my previous processes, may be effectively and expeditiously provided with soles in accordance with my invention, having many advantageous characteristics.

This invention is an improvement upon my previous shoe soles and shoe soling methods and especially upon the subject matter of my application entitled Shoe Sole, executed on the 19th day of September, 1952, Ser. No. 317,627, filed October 30, 1952, now Patent No. 2,733,523.

In accordance with the objects of my invention, shoe soles may be applied to new or used shoes of all types, such for instance as leather shoes or shoes made of moldable plastics, and are applied preferably by a wet process, involving plastic or moldable fibrous materials in which the moldable materials are still liquid, or in a fluid condition before becoming entirely set. The soles thus produced, furthermore, have a greatly improved and increased tensile strength, while at the same time being light in weight and requiring less latex than previously, in their manufacture. Furthermore, the sole is quicker in drying and has better insulating properties, obviating moisture condensation within the shoe. Also, the fibres are waterproofed and the sole is, therefore, water repellant and so constructed as not to absorb any water which may in wet weather enter between the waterproofed felted fibres in the connecting air pockets which are vented to the outer air. Also the latex between the sole and the shoe makes the top surface of the sole waterproof. This top sealing is aided by the plaster of Paris present.

These soles, accordingly, have a marked effect of comfort on the feet in view of the constant tendency of the elastic compressible sole to be ventilated by breathing from within the soles under variations of pressure from the air and due to the weight of the body supported thereon, in walking or otherwise. Also, the shoes, because of their conformability to the foot contours, when in use have distinct dynamic properties. Besides, the steps involved in fastening the soles to the shoes have a great simplicity, and the sole becomes a permanent integral part of the shoe.

While my invention is capable of embodiment in various different forms, and of being carried out in many different ways, I have illustrated only certain forms thereof hereinafter in the accompanying drawings, in which—

Fig. 1 is a side elevation of a shoe of the usual conventional type made of leather, provided with a sole, made in accordance with my invention and showing the heel piece wedge that may be applied thereto;

Fig. 2 is an underneath view of the same;

Fig. 3 is a plan view of a sheet of material, such as felt, from which the sole may be made;

Fig. 4 is a vertical section, enlarged, of the sole made in accordance with my invention, showing the connecting air pockets between the rubber-coated felted fibres therein leading to the outer air; and

Fig. 5 is an enlarged detail of Fig. 4.

As shown in the drawings, I may, for example, apply a shoe sole 1 to a leather shoe 2 of the usual conventional type, preferably after any ground contacting sole thereon has been removed therefrom, although the sole may, of course, be applied to any other type of shoe, in any other way.

I first provide a sheet or other body of material, which may be a fibrous absorbent material, but which preferably comprises felted fibres or felt 3. The felt 3 may comprise loosely felted fibres of reclaimed wool, such as the loosely felted carpet padding used beneath carpets and rugs. Instead, however, I may use the other fibrous materials, such as the felted residue from the manufacture of felt or cloth, but other felted materials may be used, such as cotton, rayon, shoddy, fur residues, hair, jute, linen or Spanish moss. However, mixtures thereof may be advantageous instead, as for example a felt containing 70% by weight of wool fibres and 30% by weight of cotton fibres. The felt sheet 3 may be of any desired thickness but is preferably from ½" to 1" in thickness, for example, graduated according to the weight of the person for whom shoes are being made. The shoe 2 is placed over the felt 3, having a thickness of about 1", and the felt sheet 3 is then cut out all around the shoe on an outline about ¼" beyond the edge of the bottom of the leather shoe 2. A similarly made wedge-shaped heel piece of the felt or other such material 4 is then made tapering from the rear towards the forward or middle part of the shoe.

These cut-out pieces of felt 3 and 4 are then put into a receptacle containing any latex, but preferably thin latex, until they are saturated thereby, and they may then be individually pressed down on a flat surface, preferably inclined to provide drainage therefrom, with a glass roller having a handle, which roller is moved back and forth thereon to drive out at least some air bubbles, leaving vented connecting air pockets between the loosely felted fibres, so as to aid in the penetration of the latex within the felt, and so as to lessen or express excess latex therefrom and so that vented air pockets, by expansion, take in air when the pressure is released, but without substantially distorting or breaking the said fibres and the felted interlocking mass of the felt.

In the case of the leather shoe 2 above referred to, the roughened surface of the sole is then covered with any tacky type of cement as a primer, so as to form a bond with the neoprene latex to be applied over the said tacky cement, as hereinafter referred to. Thereupon, the under surface of the shoe 2 carrying the cement while still tacky is coated with any latex, but preferably thick latex, by which I mean, for example, preferably, a "thickened latex" as hereinafter referred to. Plaster of Paris, which combines with the water of the water-suspended self-vulcanizing rubber known as latex, is then dusted onto the thick latex applied to the bottom of the shoe. Then I immediately apply the impregnated felt piece 3 to the under surface of the shoe and, after applying more of the thick latex, followed by powdered plaster of Paris, to the exposed surface of the felt piece 3, I then apply thereto, immediately, the felt heel wedge 4, while pressing down onto the shoe 2 the said pieces 3 and 4 with a spatula, which quickly stick together and to the bottom of the shoe.

For the thick latex and thin latex as referred to herein I preferably utilize a latex comprising a water-suspension of self-vulcanizing artificial rubber known as "neoprene," although latex made of natural rubber or any artificial rubber can be used herein. For the thick latex herein I may use the "thickened latex" such as referred

to in my Patent No. 2,568,291, column 1, lines 15 to 55, which is made as stated therein, by adding a thickener, such as methyl cellulose, to the self-vulcanizing water-suspended neoprene latex generally sold under the name of "latex." Also, in carrying out my process, I may use a thin latex, which may be, for example, of any consistency thinner than said "thickened latex" but by which I may mean herein, for instance, the said neoprene latex generally sold under the name of "latex" and from which the said "thickened latex" is made, as above referred to, in my said Letters Patent No. 2,568,291.

With a curved-end shears I now trim all around the shoe 2, leaving a margin of about 1/16" all around the lower edge of the shoe 2. Thereupon, preferably, I apply to the shoe, which may be inverted for this purpose, a little more of the thin latex over the forward horizontal exposed portion of the sole 3 and the rear horizontal exposed portion of the heel wedge 4.

The shoe 2 is then hung up to dry, for about twelve hours, the shoe being placed, if desired, in an air current from a fan or being subjected to heat, for instance at about 150° F., with or without the current of air from the fan.

However, before the shoe has completely dried, and for instance after it has been drying for about six of the said twelve hours, the drying can be accelerated by buffing the sole edge and heel piece edge with a sand wheel, or even at any time after a partial drying while the sole and heel piece are still somewhat wet with the latex. When dry, the sole may be provided with a heat conducting metallic cord 5 passing through the same, contacting

with the ground. Also, the edge of the sole 3 and heel piece 4 may be colored with any desired dye or stain.

In the case where a molded shoe, made in accordance with any of my known processes, is to be soled with this sole, the bonding of the sole thereto can be accomplished merely by applying some of the thick latex to the underneath portion of the shoe followed by dusting plaster of Paris thereon.

While I have described my invention above in detail I wish it to be understood that many changes may be made therein without departing from the spirit of the same. It will be of course understood that the heel piece 4 may be omitted if desired.

I claim:

The process which comprises impregnating a shoe sole of felt fibres throughout its extent with a water suspension of prevulcanized rubber so as to coat said fibres therewith, pressing out an excess of latex therefrom on an inclined open draining surface, thereafter relaxing pressure from the drained fibrous material, and permitting evaporation of water therefrom so as to leave interconnecting air pockets between the fibres while leaving the edge of the sole porous.

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