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C. EMANUELE

RESILIENT MATERIAL FOR SOLING AND HEELING SHOES

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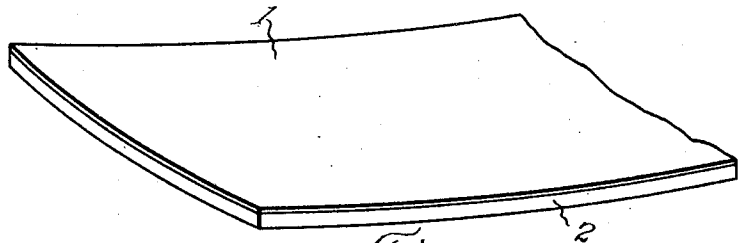


Fig. 1

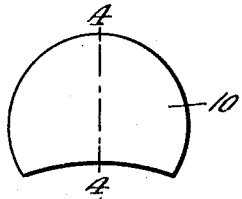


Fig. 2

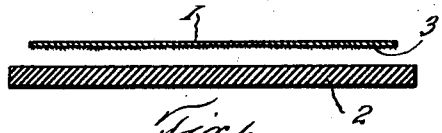


Fig. 6



Fig. 3



Fig. 7



Fig. 4

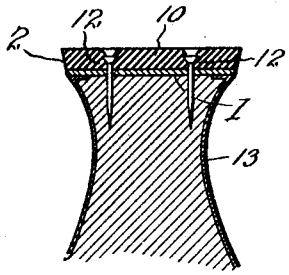


Fig. 5



Fig. 8

Inventor
Charles Emanuele
By Hull, Brock & West
Attys.

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CHARLES EMANUELE, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO FRANK J. DEIBEL, OF CLEVELAND HEIGHTS, OHIO.

RESILIENT MATERIAL FOR SOLING AND HEELING SHOES.

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This invention relates to a material for soling and heeling shoes. It is in the nature of a composite that is made up of a layer of elastic material, such as rubber, and a layer of relatively non-elastic material, such as leather, superimposed one upon the other, the latter layer being adapted to be placed next to the shoe part when the material is applied.

While the invention provides a highly desirable material for the soles and heels of practically all kinds of shoes, it probably has its greatest value in connection with French heels of women's shoes. It has always been a source of considerable difficulty to attach rubber lifts or taps to heels of this style and to finish them satisfactorily and obtain reasonable service from them. As is well known, French heels, and frequently military and other similar style heels, are constructed in the most part of wood and are usually covered with soft kid or satin. When using the prevailing types of rubber heels on heels of this character, the relatively large nails which cooperate with the washers that are embedded in such rubber heels very often split the wooden heels, although if this, by special care or mere chance, is avoided, the soft kid or satin wherewith the wooden heel is covered may and usually does become chafed about the edge of the heel from the sandpapering or rasping of the rubber heel to smooth it and make it properly fit and harmonize with the shoe heel; and from the rubbing of the rubber upwardly about the edge of the satin or kid covering of the wooden heel when the person wearing the shoe is walking. In the latter instance, the rubber spreads and squashes about the edge of the covered wooden heel, while in the former instance, the rubber, yielding under the pressure of a rasp or sandpaper, recedes from the edge of the delicate kid or satin covering, subjecting the same to abrasion.

Furthermore, with respect to rubber soles and heels, it is highly desirable to have them normally slightly concaved on their attaching side so that when they are nailed or cemented to a shoe there is a tendency for the edge of the rubber sole or heel to cling to the surface to which it is applied, thus preventing the unsightly appearance of a separation of the parts and avoiding the danger of things catching under the applied sole or heel.

The objects of my invention are to provide a material from which soles and heels of any size may be cut, and which, upon being cut, will assume the desirable concaved condition above referred to; to provide a material which includes a relatively non-elastic surface for application to the shoe part so that the use of washers in the elastic portion of the heel is rendered unnecessary, thus permitting the use of small or slender nails and as a consequence thereof, reducing to a minimum the likelihood of splitting wooden heels in applying the material to them, and, with the relatively non-elastic material next to the soft kid or satin covering of the heel, the possibility of chafing the kid or satin covering is eliminated.

The invention also has to do with the method of producing the material, as will hereinafter more fully appear.

In the drawing accompanying and forming a part hereof, Fig. 1 is a perspective view of a piece of the material; Fig. 2 is a plan view of a heel cut from the material; Fig. 3 is a front edge view of the heel; Fig. 4 is a section on the line 4—4 of Fig. 2; Fig. 5 is a sectional view through a wooden heel having applied thereto a tap cut from my improved material; Fig. 6 is a section through the two layers of which the material is composed in separated condition; Fig. 7 shows the elastic layer compressed within a cavity of a suitable support and the other layer held thereto by a suitable pressure plate; and Fig. 8 is a section through the material when released from the cavity of the support.

The layer 1 is preferably composed of a thin piece of sole leather, while the layer 2 is of a suitable grade of rubber having high elastic and wearing qualities. The layer 1 is arranged with the flesh side 3 of the leather next to the layer 2, and either or both of the adjacent surfaces is or are covered with a coating of rubber cement. According to one method of forming the material, the layer 2 is compressed within a cavity 5 of a support 6 and the layer 1 is then applied to the former layer and firmly pressed thereon, as by means of a pressure plate 7. When the cement by which the

parts are connected is thoroughly dry the material is lifted from the cavity 5 and when the layer 2 expands it imparts to the material a concavo-convex condition as illustrated in Fig. 7. Substantially the same result may be obtained by forming the material 1 over a curved surface and, while held in this condition, applying the elastic layer thereto, pressing it in about the edge while so doing. Once so united, the layers retain their curved shape. The former method, however, is at present preferred, because it places the entire layer 2 under compression.

As a consequence of this treatment, any piece cut from the material has a concavo-convex condition, such as shown in connection with the heel tap 10. In applying the heel tap to the heel 11 of a shoe, it may or may not be cemented to the shoe, because when secured thereto by nails 12, it is drawn into surface contact with the heel and by reason of the curved condition of the heel tap, there is a tendency for the edge of the tap to cling to the periphery of the heel. After the heel tap is applied, the workman may smooth the edge of the tap and finish it to the exact size of the shoe heel, by means of a rasp or suitable abrasive material, such as sandpaper, and inasmuch as the layer 1 does not yield to the pressure of the rasp or abrasive material, there need be no danger of injuring the surface of the heel covering 13. Also, when the shoe is being worn, the layer 1 prevents the relatively soft elastic layer 2 from chafing the edge of the covering 13.

By disposing the flesh side 3 of the leather next to the elastic layer 2, the fibers of the leather, which are always present on the flesh side, will be caused to embed themselves into and effect a bond with the cement so that the parts will be practically amalgamated under pressure, and will have the effect of being a solid piece.

Having thus described my invention, what I claim is:—

1. The method of producing a composite material of the character set forth which consists in uniting in surface contact a layer of relatively non-elastic and a layer of elastic material while the layer of elastic material is contracted to less than its normal area thereby to effect a concavo-convex condition to the composite material with the non-elastic layer on the concave side when the elastic material is permitted to expand.

2. The method of producing a material of the character set forth which consists in compressing the elastic layer in a lateral direction and while the same is so compressed cementing the relatively non-elastic layer to the elastic layer in surface contact therewith whereby when the elastic layer is released it will impart to the material a concavo-convex condition.

In testimony whereof, I hereunto affix my signature.

CHARLES EMANUELE.