Oct. 2, 1928.

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C. ROBERTS

HEEL FOR BOOTS AND SHOES

Filed March 5, 1924

Fig. 2.

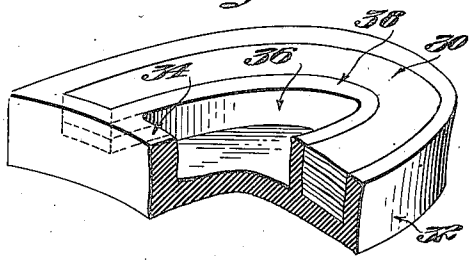


Fig. 1.

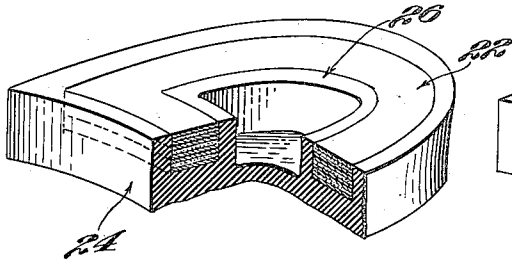


Fig. 3.

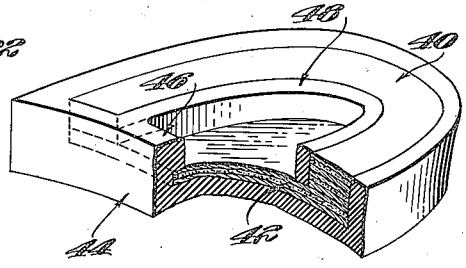
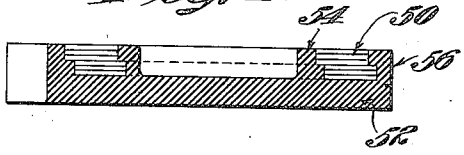


Fig. 4.



Witness

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UNITED STATES PATENT OFFICE.

CLIFFORD ROBERTS, OF REIGATE, ENGLAND.

HEEL FOR BOOTS AND SHOES.

Application filed March 5, 1924. Serial No. 697,153.

The present invention relates to tread members or heels for boots and shoes and more particularly to tread members made of resilient material such as rubber compound having a nail holding insert embedded therein.

It has been suggested that heels of rubber and similar resilient material be provided with a substantially unyielding insert embedded within the heel which is penetrable by securing nails or fastenings but which is sufficiently dense and tough to hold the nail heads. The employment of an insert or core of this character facilitates attachment of the heel and by the selection of proper material may actually lighten the finished heel and reduce the cost of manufacture. A resilient heel embodying a nail holding insert of this type is shown and described in the pending application of Cooke, filed May 25, 1923, Serial No. 641,487.

It is the object of the present invention to reduce the cost of manufacture and otherwise improve tread members of the general type hereinbefore set forth.

With this and other objects in view, one feature of the invention contemplates the use of a hollow core built up of a plurality of layers of wood and bonded to an outer covering of vulcanizable material which extends about the bottom and sides of the core to form the sides and tread surface of the heel. The hollow core provides a nail holding insert and is of sufficient width to afford the desired nailing area without necessitating accurate location of the attaching nails. The core may be formed as a generally U-shaped member open at the breast or may be closed at the breast and have the general form of a D. In the event that the open core is employed, the vulcanizable material is preferably permitted to flow partially into the space within the core to provide a thickened breast portion of vulcanizable material.

This general form of core furnishes the desired nailing area and will bond securely to the outer cover of rubber compound. The removal of the central portion of the core with the resultant formation of an opening in the interior permits a heel of the desired dimensions to be obtained with a minimum of both core material and rubber compound.

In the accompanying drawings illustrating the preferred form of the invention Fig. 1 represents a perspective partially in section of a rubber heel embodying one form of core; Fig. 2 is a perspective view partly in section illustrating a heel employing an open ended core; Fig. 3 is a view similar to Fig. 2 showing a heel embodying an open ended core with a solid or imperforate base portion; Fig. 4 illustrates a cross section of a half heel embodying the open core.

The heels shown in the illustrated embodiment of the invention are provided with hollow core members partially or wholly formed of nail holding material and firmly bonded within a covering of rubber compound. In a certain form of the invention, the cores are closed at the bottom portion by an imperforate sheet or layer of nail holding material in order to strengthen the core and promote the bond between the core and outer covering.

Referring to the illustrated embodiment of the invention, Fig. 1 represents a whole heel, indicated at 24, capable of attachment to a boot or shoe. This heel is provided with an inner D-shaped core 22 built up of a plurality of thin wooden layers, and having an opening extending therethrough from top to bottom of the core. The core is completely surrounded about the sides and bottom by a covering of vulcanizable material, this cover constituting the tread face and outer sides of the heel. In addition, the rubber covering is permitted to flow upwardly along the inner side portions of the core to form an inner protective covering, indicated at 26.

In actual practice the various lifts of the core are assembled and secured in any desired manner to form a composite core. Thereafter the composite core is assembled in a suitable heel mold with a rubber blank and an outer covering of rubber compound vulcanized thereabout and bonded firmly thereto. The proper bonding of the outer covering to the core may be practically achieved through the use of plywood, the porous edges of the thin wooden sheets and the unevenness created by the joints into which the rubber compound partially penetrates resulting in a mechanical bond of high efficiency. In order to permit flow of rubber about the inner periphery of the core, the rubber mold may be provided with a projection of slightly smaller dimensions than the inner dimensions of the core, thus

permitting rubber to flow between the mold and face of the core. The covering of the inside of the core in this manner prevents seepage of moisture between the layers of the core and insures against any possibility of distortion of the core after attachment of the heel. It will be evident to those skilled in the art that comparatively little if any moisture can seep into the core through the surface of the plywood layers.

Fig. 2 illustrates a heel of the general type described employing an open ended or substantially U-shaped core indicated at 30. Such a core is preferably built up of a plurality of thin wooden layers and is completely surrounded at the sides and bottom by an outer covering 32 of rubber compound. As the rubber compound is not supported by the core at the breast of the heel, it is desirable in this form of construction to provide for a thicker wall 34 at the breast, this wall as indicated clearly in Fig. 3 extending across the open end of the core and closing the opening or space 36 formed within the core. In addition the heel shown in Fig. 2 is provided with an inner covering 38 of rubber which seals the inner side of the built up core.

A further modification of the improved type of heel is indicated in Fig. 3. In some respects, the modification illustrated in Fig. 3 has advantages over the heel shown in the preceding figures. This form of core is built up of a plurality of U-shaped or open ended wooden layers 40 surmounting a bottom imperforate layer 42 which closes the opening through the core. The rubber compound indicated at 44 extends across the bottom and about the outside face of the core and is provided with a thicker breast portion 46 for the purpose described in Fig. 2. In addition, the compound is permitted to flow about the inner face of the core to form the protective covering 48. With this form of construction, as well as the form of core shown in Fig. 2, it is quite possible that the U-shaped portion of the core may be stamped or died out from a sheet either in a straight form or in a convenient curved form and then molded or bent into the desired shape. The formation of the core in this manner promotes efficiency and avoids waste and may well result in a considerable saving of material. Furthermore the employment of the substantially imperforate bottom layer furnishes a nail holding medium extending across the breast portion of the heel and permits the insertion of a securing nail at this point if so desired.

Fig. 4 is merely intended to illustrate the embodiment of one form of core in a half heel. As indicated in this figure, a plurality of thin wooden layers indicated at 50 are embedded within an outer covering of rubber compound 52, the rubber covering extending upwardly about the inner and outer surfaces of the core forming side portions 54 and 56. It will be evident to those skilled in the art that except for the depth or thickness, a half heel may follow the construction of a whole heel very closely, the problems involved in a half heel, three-quarters heel or whole heel being much the same.

Although the preferred form of the invention contemplates the employment of thin superimposed wooden layers with the grain crossed, such as plywood, due to the toughness and density of this material and the facility with which it may be bonded to the rubber compound, nevertheless it may be practical in whole or in part to utilize cheaper substitutes, such as leather-board, providing that these materials have the necessary bonding qualities and nail holding power.

What I claim is:—

A heel for boots and shoes comprising an unyielding core of nail-penetrable material having a generally U-shaped portion, a body of resilient vulcanizable material surrounding the bottom and inner and outer sides of the U-shaped portion of the core, and terminating substantially flush with the top face of the core to form upwardly projecting walls of substantial thickness bonded to the inner and outer side portions of the core, the walls being integral with the body portion to firmly unite the core to the body portion.

In testimony whereof I have signed my name to this specification.

CLIFFORD ROBERTS.