March 21, 1939. H. E. M. VESTERGREN 2,151,341

MEANS FOR FASTENING ATTACHABLE HEELS OR SOLES TO SHOES

Filed March 9, 1937

Fig. 1.

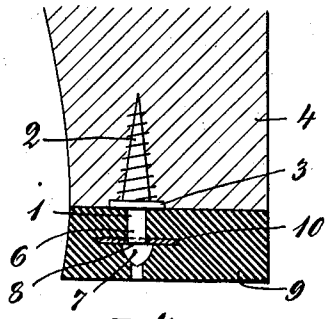


Fig. 2.



Fig. 3.

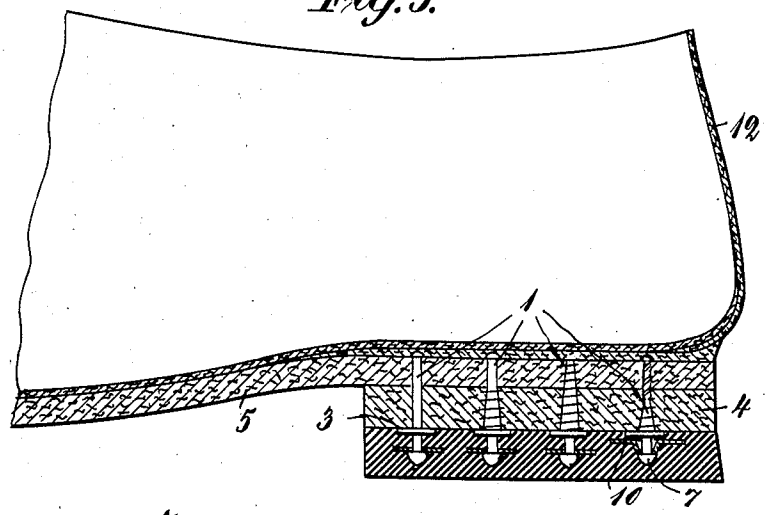


Fig. 4.

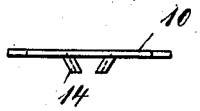
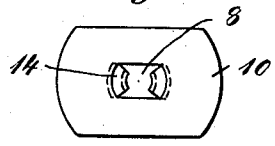


Fig. 5.



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MEANS FOR FASTENING ATTACHABLE HEELS OR SOLES TO SHOES

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3 Claims. (Cl. 36—36)

The present invention relates to improved means for fastening attachable heels or soles of elastic material, such as rubber, to the heel portion or heel base or outsole of shoes.

The invention relates more particularly to such fastening means which consist of pins adapted to be inserted and fastened in said part of the shoe leaving a projecting portion provided with a head adapted to be forced through an opening in a locking member, such as a metal plate, embedded in the attachable heel or sole and thereafter retain the latter to the shoe.

Such fastening means are known in the art and consist of nails that are driven into said part of the shoe, the head of the projecting part of the nail being tapered so as to expand the opening in the embedded locking member when being forced through said opening. When the head thus has been forced through said opening the annular base of the head will abut against the material of the locking member about said opening thus retaining the heel to the shoe.

In such attachable rubber heels said locking plate or plates have been molded in the heel at a predetermined distance from that surface of the heel which is to abut against the heel portion of the shoe. In order to secure a uniformly tight attachment of the rubber heel to the heel portion of the shoe without any danger of becoming loose or exposing the heel when walking to unfavourable stresses or breakage it would be necessary that the heads of all such nails firmly abut against said locking plate or plates without any play between them. This desired result is very difficult to reach when using said known attaching means without a tedious and careful work, since there are no means provided for securing a determined distance between the base of said heads and the outer surface of the heel portion of the shoe.

The main object of the present invention is to remove said disadvantage and to provide means whereby the heads of all the attaching means when inserted will be positioned at the same distance from the outer surface of the heel base or outsole of the shoe. This distance must of course correspond to the depth at which the locking plate or plates are embedded in the attachable heel or sole.

The feature which broadly characterises the invention to reach said object consists therein that the pins of attachment are provided with a stop member adapted to abut against the outer surface of the portion of the shoe to which the heel or sole is to be attached so that said stop member will limit the extent of insertion of the pin. As said stop member is positioned at a fixed distance from the locking head of the projecting part of the pin, it is obvious that a fixed distance will be secured between the said outer surface and the heads of all the pins thus inserted.

According to a preferred embodiment said stop member consists of a flanged portion of the pin provided with a flat surface of abutment to rest against the outer surface of said part of the shoe.

The character of the fastening means according to the invention and the mode of their attachment are illustrated on the accompanying drawing.

Figs. 1 and 2 show in section an attachable heel fastened to the heel base of a shoe respectively an attachable sole fastened to the outsole of a shoe by pins of attachment according to the invention.

Fig. 3 shows in section a portion of a shoe with an attachable heel fastened to the heel base by means of pins of attachment which at the same time attach the heel base to the outsole, four different embodiments of the pins of attachment being illustrated in this figure.

Figs. 4 and 5 shows an elevation respectively a plan view of a modified embodiment of the locking members embedded in the attachable heel or sole. Corresponding parts are designated by the same numeral throughout the several views.

In Fig. 1, **4** is a heel base to which the attachable rubber heel **9** has been attached by a number of pins **1**. The part **2** of the pins **1** driven into the heel base may be formed as nail or be threaded like a wood-screw, which latter embodiment is preferred as the most efficient fastening means. The pins are provided with a stop member **3** formed as a flange which is brought to abut with its upper flat surface against the outer surface of the heel base when the pins are driven into it. The pins thus inserted in the heel base project with their outer portions **6** at the end of which a head **7**, of preferably tapered shape is provided. In the rubber heel **9** one or several locking members **10** have been embedded at the molding of the heel. Said members **10** have preferably the form of a thin metal plate provided with an opening **8** in alignment with a recess for the insertion of the head **7**. When the heel is pressed towards the heel base, the heads **7** of the pins are forced through said recesses and the opening **8** expanding the latter somewhat, whereupon the head will rest with its base surface against the material of the plate surrounding the opening **8** thus holding the heel tightly attached

to the heel base, since the distance between the flange 3 and the base of the head 7 is the same for all the pins and corresponds to the position of the locking plate in the rubber heel.

Fig. 2 shows an attachable rubber sole 11 attached in the same way to the outsole 5 of a shoe by a number of pins 1 designed according to the invention.

Fig. 3 shows a rubber heel 9 attached to the heel base 4 of a shoe 12 by pins according to the invention. In this embodiment the pins have such a length that, when driven into the heel base so that the stop members 3 abut against the outer surface of the heel base, the pins have penetrated also into the outsole 5. As illustrated, the ends of the pins may be riveted to the inside of the outsole. In this way no separate means are necessary for attaching the heel base 4 to the outsole which cheapens the manufacture.

Four different designs of fastening pins are illustrated in Fig. 3, of which from the left to the right the first one is formed as a nail throughout its length, the second as a wood-screw for the part in the heel base and as a nail for the part in the outsole, the third as a wood-screw throughout its length, and the fourth as a wood-screw for the part in the heel base and as a cutting tool provided with cutting edges for the part in the outsole.

Said fourth embodiment is shown combined with a locking plate 10 of a novel design, which is illustrated in a larger scale in Figs. 4 and 5. Resilient flaps 14 are cut out in the plate 10 which after the passage of the head 7 of the fastening pins "spring" back and retain the head as shown in Fig. 3. To prevent the positioning of the locking plates to close to the upper side of the rubber heel so that danger for tearing loose the plate may arise, the plate may be given the shape indicated by dotted lines in Fig. 4.

Having now particularly described the nature of my invention and the manner in its operation what I claim is:

1. In combination with a shoe having a plurality of pins rigidly attached to, and extending outwardly from, the sole thereof, of a removable sole portion having metallic plates securely imbedded therein, an aperture in each plate, at least one flap portion resiliently movable in regard to the plane of the plate and normally extending centrally from the edge of said aperture each of said pins having a flanged portions formed thereon at a predetermined distance from the outer end of the pin, a head formed at the outer end of each pin adapted to engage said flap portion to be automatically interlocked therewith.

2. In combination with a shoe having a plurality of pins rigidly attached to, and extending outwardly from the bottom of the rear portion thereof, of a removable sole portion having metallic plates securely imbedded therein, an aperture in each plate, at least one flap portion resiliently movable in regard to the plane of the plate and normally extending centrally from the edge of said aperture, each of said pins having a flanged portion formed thereon at a predetermined distance from the outer end of the pin, a head formed at the outer end of each pin adapted to engage said flap portion to be automatically interlocked therewith.

3. In combination with a shoe having a plurality of pins rigidly attached to, and extending outwardly from, the heel thereof, of a removable sole portion having metallic plates securely imbedded therein, an aperture in each plate, at least one flap portion resiliently movable in regard to the plane of the plate and normally extending centrally from the edge of said aperture, each of said pins having a flanged portion formed thereon at a predetermined distance from the outer end of the pin, a head formed at the outer end of each pin adapted to engage said flap portion to be automatically interlocked therewith.

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