C. H. CHAPMAN.

DETACHABLE RUBBER HEEL FOR BOOTS AND SHOES.

APPLICATION FILED FEB. 21, 1911.

1,172,671. Patented Feb. 22, 1916.

Fig. 1.

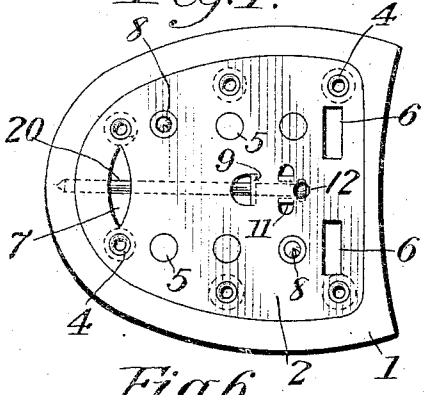


Fig. 2.

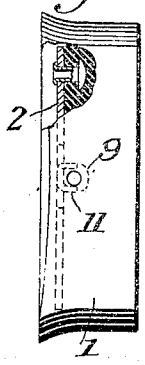


Fig. 3.

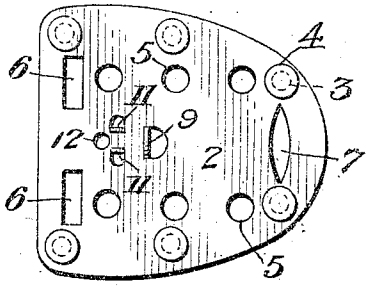


Fig. 6.

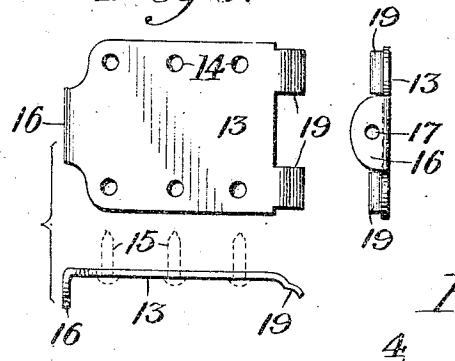


Fig. 4.

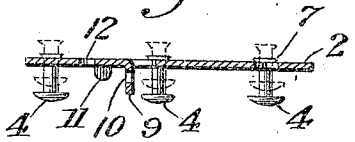


Fig. 5.

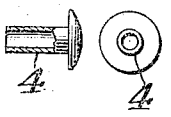


Fig. 7.

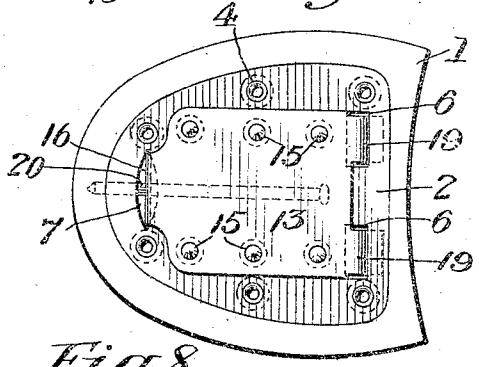


Fig. 8.

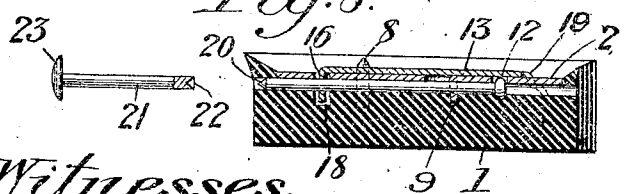


Fig. 9.



Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES H. CHAPMAN, OF WINCHESTER, MASSACHUSETTS, ASSIGNOR TO CHAPMAN DETACHABLE RUBBER HEEL COMPANY, A CORPORATION OF MAINE.

DETACHABLE RUBBER HEEL FOR BOOTS AND SHOES.

1,172,671. Specification of Letters Patent. Patented Feb. 22, 1916.

Original application filed January 20, 1910, Serial No. 539,064. Divided and this application filed February 21, 1911. Serial No. 610,005.

To all whom it may concern:

Be it known that I, CHARLES H. CHAPMAN, a citizen of the United States, residing at Winchester, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Improvement in Detachable Rubber Heels for Boots and Shoes, of which the following is a full, clear, and exact description.

This invention is in the nature of an improvement upon the detachable rubber heels for boots and shoes forming the subjects of my applications for patents Serial No. 539,064 filed January 20, 1910, and Serial No. 571,826, filed July 13, 1910 as a division of the first named application.

The object of the present invention is to increase the efficiency of the parent invention in matters of detail relating to the application of the heel to the boot or shoe and its removal therefrom, and otherwise.

The invention consists in providing the metal heel plate with guides and stops for the connecting pin, whereby a shorter pin than that used in the parent invention may be used and wholly concealed and effectively retained within the rubber heel when in use; also in using hollow or tubular rivets for anchoring the heel plate in the rubber; also in providing means for accurately engaging the connecting pin to discharge it when the heel is to be detached; and also in modifying the lips of the clip so as more readily to find and engage the holes in the heel plate, all as I will proceed now more particularly to set forth and finally claim.

In the accompanying drawings illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a top plan view of the heel without the clip. Fig. 2 is an elevation looking at the breast, partly broken out to show the riveting. Fig. 3 is a bottom plan view of the heel-plate. Fig. 4 is a side elevation of the heel plate and rivets, indicating by dotted lines the hereinafter described vertical movements of the rivets relatively to the heel plate. Fig. 5 shows, on a larger scale, in elevation and plan view, the heel plate attaching rivets. Fig. 6 shows in top plan, edge and end views, the clip. Fig. 7 is a top plan view of the complete heel. Fig. 8 is a central vertical longitudinal section of the complete heel, including the clip for connecting with the boot or shoe sole, and showing one of the marking pins in place. Fig. 9 is an elevation of the connecting pin.

The heel 1 may be of the usual shape, and composed of rubber. In the hollow of the heel is a plate 2 of sheet-metal, of less area than the heel. This plate 2 is provided with a series of edge holes 3, in which are arranged rivets 4, the holes being enough larger than the shanks of the rivets to permit relative vertical and lateral movement of the rivets. The plate is also provided with holes 5 preferably arranged in two longitudinal parallel rows. Transversely arranged rectangular holes 6 are made in the plate at its breast end, and a transverse elliptical hole 7 is made in said plate at its back end. The plate 2 with the rivets 4 arranged therein substantially as shown in Fig. 4, is arranged so as to have the rubber of the heel vulcanized about it; the heads of the rivets serving as anchors to anchor the plate firmly to the rubber, as indicated in Fig. 2, and yet allow relative vertical and lateral movement of the heel and rivets due to the vertical and lateral movements of the rivets and the resilience of the rubber in use. The rivets 4 are of the tubular or hollow variety, by preference, for lightness and facility in upsetting.

During the molding operation two or more holes in line with the holes 5 are formed in the rubber heel at opposite sides and ends, to receive marking pins 8,—see Figs. 1 and 8, and these marking pins are arranged in the holes so that their points project somewhat above the plate 2, and then when the heel is to be applied to the sole, the heel, constructed as already described, and provided with these marking pins, is pressed against the sole in proper position, and these marking pins leave their impress on the sole, so as to guide the maker or user in applying the heel-securing device or clip, presently described, to the sole.

The heel plate 2 is provided near its center with the lip 9 perforated transversely at 10, and adjacent to and forwardly of this lip are the lugs 11 spaced apart so as to aline their intervening space with the hole 10 in

the lip 9; and next to and forwardly of the lugs is a hole 12 in the heel plate, also alined with the hole 10, to guide, receive and stop the connecting pin hereinafter referred to.

The clip 13 is made of metal, and has a series of holes 14 corresponding in location and arrangement with the holes 5 in the heel plate 2, and adapted to register with the marking pins 8 in the heel. When the sole has been properly marked, then any suitable fastening nails or other devices 15 are driven through the holes 14 in the clip and into the sole, so as to secure the clip accurately to the sole. In order that the clip may firmly engage the heel plate 2, it is provided with a downwardly projecting lip 16, having in it a hole 17, said lip 16 being designed to extend through the hole 7 in the heel plate and into the rubber of the heel; and if necessary, or desirable, the rubber portion may be provided with a cavity 18 to receive the projecting ends of the lip 16, and similar cavities may be made in the rubber body adjacent to the holes 6 to receive the offset lips 19 at the opposite end of the clip. These lips 19 are depressed from the plane of the clip and have a double outward and downward curve so as most efficiently to find and pass through the holes 6 in the heel plate and underlie their edges, thereby to effect a firm engagement of the clip and heel plate. This engagement of the lips 19 with the heel plate is first effected, and then the lip 16 is passed into the hole 7, after which the pin, such as an ordinary wire nail 20, is driven longitudinally through the heel from its breast toward its back and between the lips 19 and in line to engage the hole in the lip 9, being guided thereto by and between the lugs 11, and thence extending in and through the hole in the lip 16 of the clip, until its head is arrested by the lugs and snaps into the hole 12, by which, under the tension between the clip and heel plate, it is held securely against accidental displacement. The pin is wholly concealed within the heel. The hole in the rubber for the connecting pin may be formed in molding the heel, by means of a core, or it may be otherwise produced. This hole is slightly smaller than the connecting pin and closes upon it so as to greatly retard its escape and practically prevent its accidental loss.

As a convenient means for finding the pin and driving it out, so as to disconnect the heel itself from the clip, I provide the push-pin 21 having the tapered bore 22 in its tip to engage the point of the pin 20 and a head 23 by which pressure may be applied to the push-pin to drive out the connecting pin. The heel plate and its rivets may be copper-plated in order to vulcanize the rubber firmly about the metal parts.

The operations of attaching and removing the heel are deemed to have been made plain by the foregoing, and for further details and for a further statement of the advantages of the invention reference is made to the specifications of the cases hereinabove mentioned.

What I claim is:—

1. In a detachable rubber heel for boots and shoes, a sole clip, a rubber portion, a heel plate embedded in the said rubber portion of the heel and having a depending perforated lip and adjacent guide and stop lugs, and an attaching pin arranged to engage said lip and lugs and said sole clip and be arrested by said lugs when so engaged.

2. In a detachable rubber heel for boots and shoes, a sole clip, a rubber portion, a heel plate embedded in said rubber portion of the heel and having a hole, a depending perforated lip and adjacent guide lugs, said guide lugs serving as stops, and a connecting pin arranged to engage said lip and guide lugs and said sole clip and its head arranged to enter the hole next to said lugs.

3. In a detachable rubber heel for boots and shoes, sole clip, a rubber portion, and a metal plate embedded therein and having a depending perforated lip, a pair of adjacent lugs and a hole next to the lugs, the said rubber portion having a transverse perforation extending through it in line with the lips and hole and between the lugs aforesaid, and a connecting pin adapted to enter and be concealed in the perforation in said rubber portion and engage the lip and lugs of said plate and said sole clip, a portion of the pin arranged to enter the hole in said plate to lock said pin in place.

4. In a detachable rubber heel for boots and shoes, a rubber portion, a metal plate embedded therein and having a depending perforated lip, a pair of adjacent lugs and a hole next to the lugs, the said rubber portion having a transverse perforation extending through it in line with the lips and hole and between the lugs aforesaid and arranged to receive, conceal and stop a connecting means, a clip to be secured to the sole of the boot or shoe, and means for detachably connecting the heel plate and clip.

5. In a detachable rubber heel for boots and shoes, a heel plate and a rubber portion in which it is securely embedded, said heel plate having transverse holes in its breast end, and a clip adapted to be attached to the sole of the boot or shoe and provided with lips at one end depressed from the plane of the clip and having a double outward and downward curve thereby most efficiently to find and pass through the transverse holes in the heel plate and underlie their edges so as to effect a firm engagement of the clip and heel plate.

6. In a detachable rubber heel for boots and shoes, a rubber portion, a sole clip, a heel plate embedded in the rubber portion of the heel and having a depending perfo-

rated lip and adjacent guide and stop lugs, said rubber portion having a hole extending therethrough, and an attaching pin in said hole engaging said lip and lugs and said sole clip and arrested by said lugs when so engaged and capable of being readily driven out to permit the detachment of the heel.

In testimony whereof I have hereunto set my hand this twentieth day of February, A. D. 1911.

CHARLES H. CHAPMAN.

Witnesses:

BESSIE L. NEWMAN,

ELLA L. NEWMAN.