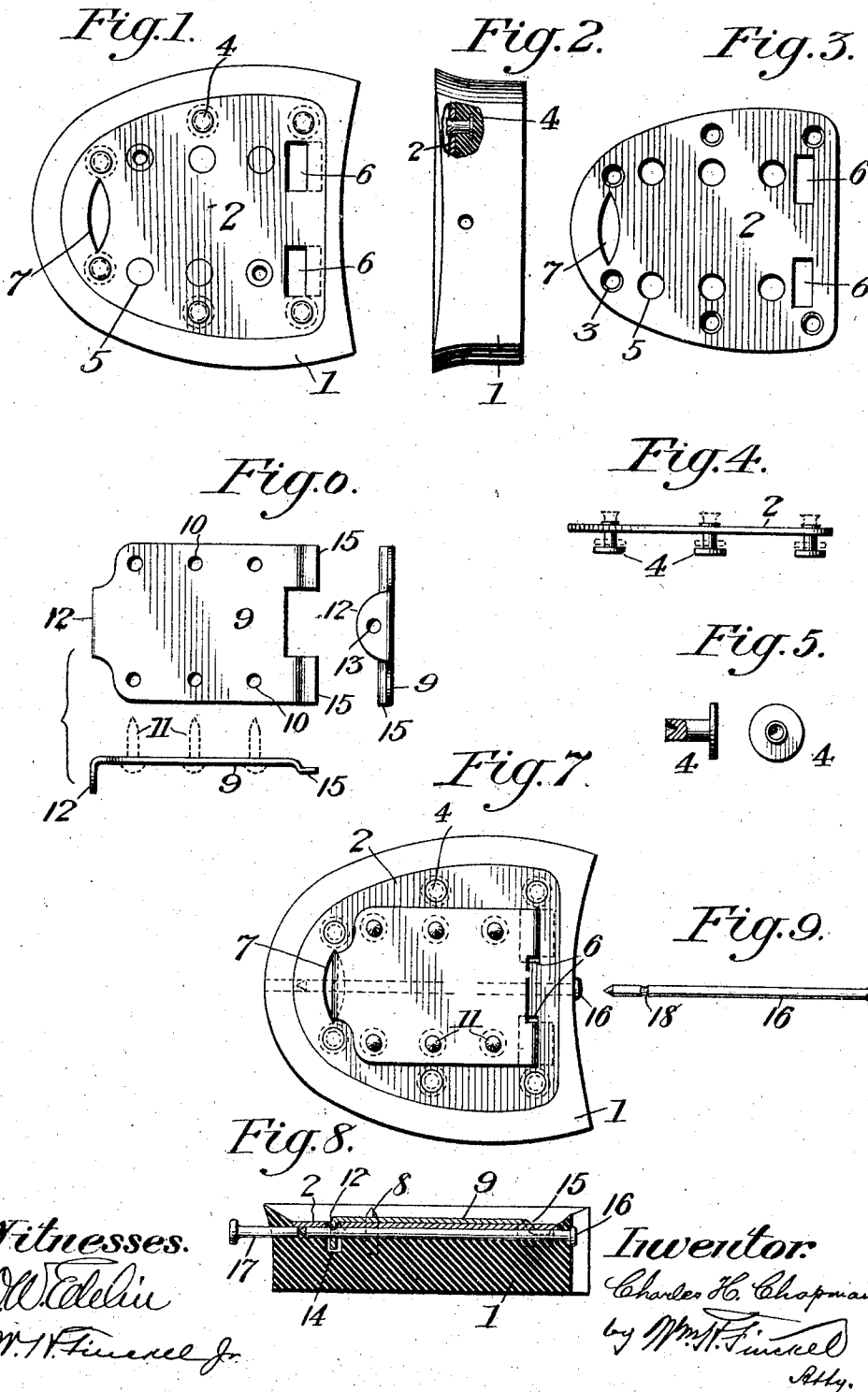


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DETACHABLE RUBBER HEEL FOR BOOTS AND SHOES.
APPLICATION FILED JAN. 20, 1910.

987,047.

Patented Mar. 14, 1911.



Witnesses.

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UNITED STATES PATENT OFFICE

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DETACHABLE RUBBER HEEL FOR BOOTS AND SHOES.

987,047.

Specification of Letters Patent. Patented Mar. 14, 1911.

Application filed January 20, 1910. Serial No. 539,064.

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.

The object of this invention is to provide a rubber or cushion heel for boots and shoes, of simple construction and application, readily adapted for interchange, and capable of being locked in place on a boot or shoe against the possibility of becoming detached while in use, and at the same time maintaining its full resiliency.

The invention consists of a heel having a body of rubber in which is securely and accurately embedded a metal heel plate, which is adapted to be engaged by a metal clip which is attached to the sole of the boot or shoe, and the clip connected with the plate by a pin extending through the rubber of the heel and a portion of the clip, from breast to back, and adapted to be removed for detaching the heel and for interchange of heels, the whole construction providing for the adaptation of the parts to conditions arising in use, while insuring the attachment of the heel to the boot or shoe, all as I will proceed now more particularly to set forth and 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 top 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 plate and 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.

During the molding operation, two holes are molded in the rubber heel at opposite corners, as shown in Fig. 1, to receive two marking pins 8, and these marking pins 8 are arranged in the holes 5 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 manufacturer in applying the heel-securing device or clip, now to be described, to the sole.

The clip 9 is made of metal, and has a series of holes 10 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 11 are driven through the holes 10 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 12, having in it a hole 13, said lip 12 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 por-

tion may be provided with a cavity 14 to receive the projecting ends of the lip 12, and similar cavities may be made in the rubber body adjacent to the holes 6 to receive the offset lips 15. See Fig. 8. The opposite end of the clip is provided with offset or depressed lips 15, which as shown more particularly in Fig. 8, are adapted to pass into and through the holes 6 in the heel-plate and underlie them. This engagement of the lips 15 with the heel-plate is first effected, and then the lip 12 is passed into the hole 7, after which the pin, such as an ordinary wire nail 16, is driven longitudinally through the heel from its breast toward its back and between the lips 15 and in line to engage the hole 13 in the lip 12. Of course, any suitable core may be used to preform this hole for the connecting pin 16, and to insure its alinement with the hole 13 in the lip 12.

Obviously, the connecting pin effects a perfect union and tight connection between the clip and the heel.

By the simple driving out of the pin 16, the heel may be detached, and if it be run down, then the heels of a pair of boots or shoes may be interchanged, or either heel of a pair may be replaced. Inasmuch as the rubber will exert considerable traction or friction upon the pin, it may be necessary to use force to drive out this pin, and by extending the hole clear through the heel from the breast to the back, a nail such as indicated at 17, Fig. 8, may be used to drive out the connecting pin or to start it. The traction referred to is of considerable value also in insuring the retention of the engagement of the pin with the parts it connects.

The loose engagement of the rivets 4 with the heel-plate 2, provides for the relative vertical and lateral movement, and this serves to admit of the compression or expansion of the heel in use, or, in other words, compensates for the resiliency of the rubber in use.

It will be observed that the holes 5 in the heel-plate are filled with rubber to a level with the surface of the plate, and these fillings aid in securing the heel and its plate. The heads of the nails 11 are embedded in the rubber in these holes when the plates 9 and 2 are locked together, and thus help to prevent the relative lateral movement of the two plates.

It is to be noted that the offset lips or projections 15 point forward, and thereby any blow against the heel by the forward movement of the foot tends to force the heel onto the plate attached to the sole, instead of knocking it off.

The yielding character of the connection between the heel-plate and the rubber portion of the heel, the forward pointing of the lips 15, and the connection of the clip

with the heel by means of a pin passed through the hole 13 in its lip 12, combine to make a heel which is easy to apply and is securely held to the shoe.

In manufacturing the heel, the mold is provided with projections which fill the holes 6 and 7 in the heel-plate, and it is also provided with two or more pins whose purpose it is to form two or more holes in the rubber heel to receive and hold the marking pins 8. It will be understood, of course, that after the marking pins have subserved their purpose, they are extracted from the heel.

The relative proportions of the lip 12 and the hole 7 should be such as to insure a rather close fit between these two parts so as to prevent any lateral movement.

The advantage in making the hole 7 elliptical is that the center of the opening is wide enough to be easily found by the lip 12, and the lateral edges of this lip 12 find closely fitting seats in the V-shaped ends of this opening. A similar result may be obtained by other forms of opening, and in fact, if desired, the opening may be made rectangular.

If necessary, the connecting pin may have a circumferential groove 18 which forms a sort of interlock with the hole 13 in the lip 12.

By constructing a detachable heel in accordance with the present invention, with the offset lips 15 pointing forward, in accordance with the direction of the foot in walking or running, it is impossible to knock off the heel by a forward movement or kick of the foot, without tearing the nails from the sole of the shoe, since such forward movement tends to force the heel onto the clip, instead of loosening it; and the back end of the portion of the heel being directly and positively pinned to the clip, it is absolutely impossible for the heel to become detached at that point without withdrawing the pin.

It is to be understood that the invention is not limited to the specific construction herein shown and described, as variations thereof are within the spirit and scope of the invention.

The feature herein shown and described of the means for marking the exact position required to fasten the clip to the sole of the boot or shoe to thereby facilitate the application of the heel to the boot or shoe is divided out of this application in conformity to the requirement of the Patent Office, and put in the application Serial No. 571,826, filed July 13, 1910.

What I claim is:—

1. A rubber heel, having a plate provided with laterally and vertically yielding devices securely attached to said plate and embedded and vulcanized in the said rubber

heel, and means for detachably securing the heel to the sole of a boot or shoe.

2. A heel having a rubber body, and a heel-plate securely attached to it and having laterally and vertically yielding projections embedded and vulcanized in said rubber body, and means to detachably secure the heel to the sole of a boot or shoe.

3. A heel, having a metallic plate, a series of rivets movably attached to said plate, a rubber body in which said rivets are embedded, said plate and rivets vulcanized in and to the said rubber body, and means for detachably securing the heel to the sole of a boot or shoe.

4. A heel, having a rubber body, a metallic plate, a series of laterally and vertically yielding projections applied to said plate and having heads embedded and vulcanized in said rubber body, said rubber body provided with a hole extending through it below the metallic plate, a connecting pin adapted to be received and held in said hole, said plate and connecting pin adapted to detachably connect the heel to a plate adapted to be firmly secured to the sole of a boot or shoe.

5. A heel, having a rubber body, a metallic heel-plate fixed in said rubber body, and a sole-connecting clip, said plate having openings at its forward end to receive offset lips on the sole-connecting clip, said clip having a rounded lip provided with a hole and adapted to enter an elliptical opening in the rear end of the heel-plate, and a connecting pin passing through the hole in said lip, whereby the heel is detachably and securely attached to the sole of a boot or shoe.

6. A heel, having a rubber body, a plate forming a part of said heel, and a connecting clip, said plate having an opening with two V-shaped ends to receive a lip on the clip, said lip adapted to enter the two V-shaped ends of the said opening and thereby prevent lateral movement of the heel at its point of contact with the sole of the boot or shoe.

7. A heel-attaching clip, provided with nail-holes, offset lips at one end and a downwardly projecting lip at the other end provided with a hole, said offset lips adapted to engage a rubber heel and the downwardly projecting lip passing into the heel, and a pin passing through the heel and engaging the hole in said downwardly projecting lip to detachably retain the heel in place.

8. A detachable rubber heel, having a cushion body, and a heel-plate fixed therein and having openings near the breast and the back of the heel, combined with a connecting clip provided with offset lips adapted to engage the openings in said heel-plate at the breast of the heel, and a downwardly projecting lip adapted to engage the opening in the heel-plate at the back of the heel, and a connecting pin passed through the body and engaging the downwardly projecting lip of the clip and serving to connect the heel to the shoe.

In testimony whereof I have hereunto set my hand this 19th day of January, A. D. 1910.

CHARLES H. CHAPMAN.

Witnesses:

B. L. NEWMAN,
H. H. HOLMES.