

UNITED STATES PATENT OFFICE.

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CUSHION HEEL-PLATE.

SPECIFICATION forming part of Letters Patent No. 713,971, dated November 18, 1902.

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To all whom it may concern:

Be it known that I, HERMAN F. DERNELL, a citizen of the United States, and a resident of Athens, in the county of Greene and State of New York, have invented new and useful Improvements in Cushion Heel-Plates, of which the following is a full, clear, and exact description.

My invention relates to improvements in heel-plates for use on boots or shoes in order to keep them level; and it is more particularly directed to that class of metallic heel-plates which are provided with yieldable cushions of rubber or other material.

The object that I have in view is the provision of a simple, cheap, and durable construction in which the metallic and cushion elements are so intimately combined and related that the cushion will remain attached to the metallic part until it is worn entirely away, the plate and the cushion will wear uniformly and for a longer time than an ordinary heel or plate, the tendency of the heel to slip on the pavement will be minimized, and the device can be manufactured cheaply, and it may be attached with great security to a heel and without interference from the cushion.

To the accomplishment of these ends the invention consists of a cushion heel-plate embodying certain novel features of construction, which will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view, on an enlarged scale, of a composite heel-plate embodying my invention and showing the top face thereof. Fig. 2 is an inverted or bottom plan view of the same; and Fig. 3 is an enlarged sectional view through a part of the device applied to a portion of a heel which is disproportionately enlarged, the plane of the section being indicated by the dotted line 3 3 of Fig. 1.

In carrying my invention into practice I provide a composite heel-plate consisting of a metallic member A, said member being essentially of channeled form and comprising a transverse web a and the outer and inner flanges a' a^2 . This metallic member is cast

or otherwise made of a single piece of metal of the proper kind, and said member takes the desired shape in order to fit the heel of a boot or shoe. It is evident that the metallic member may be manufactured in different sizes and shapes in order to be used on any or all kinds of boots or shoes. The web a determines the contour of the heel-plate, and this web has the flanges a' a^2 disposed in parallel or concentric relation in order to form the channel or space A' within said member A, said channel or space being closed at its ends by the transverse flanges a^3 . (See Fig. 2.)

The web a of the metallic member A has a flat upper face by which it may be conveniently applied to the heel of any desired character, and in this plate are formed the holes b , adapted for the reception of the nails, screws, or other fasteners by which the cushioned heel-plate may be secured solidly to the boot-heel. I prefer to countersink these fastener-holes b in the under side of the web a of the metallic member, as shown by Fig. 3; but these countersunk holes are not important.

B designates the cushion, which may be of any suitable yieldable material, although I prefer to employ vulcanized rubber as the basis for the cushion. This rubber cushion conforms to the shape and dimensions of the space or channel A' in the metallic member of the heel-plate, and said cushion is intended to be molded in the channeled member. The cushion B has its under or tread surface extended or projected a slight distance, as at b' , below the edges of the flanges a' a^2 a^3 of the metallic channel member, (see Fig. 3,) and the cushion is furthermore provided with the transverse passages c , which are disposed in registering relation to the fastener-holes b of the web of the metallic member, whereby the nails d or their equivalents may easily be inserted through the passages c of the cushion and driven through the holes b of the metallic member. (See Fig. 3.)

One of the important and distinguishing features of my invention consists in uniting the cushion to the metallic member by interlocking or keyed connections. This end is attained by the provision of openings e in the web a of the metallic member and by disposing the member B so that it will fill these

holes *e* in a manner similar to a dovetail or interlocking joint. The tenons or projections of the interlocking or keyed connections are indicated at *f* in Figs. 1 and 3.

5 The holes *e* are countersunk or beveled in the web *a* of the metallic member, so as to flare or enlarge upwardly, and any desired number of these holes may be provided in said metallic member.

10 As shown by Fig. 1, the number of key or joint holes *e* largely exceed the number of nail-holes *b* in the metallic member.

In the manufacture of the article the member *A* is cast in a single piece with the holes *e* in the transverse webs *a*, and the proper quantity of rubber or other composition is placed in the channel or space *A'* and is pressed therein, so as to force certain portions of the composition or rubber through said
20 holes *e*, thereby producing the tenons or keys *f*, which completely fill the openings *e*. The rubber or other composition may be vulcanized or allowed to solidify in order to form the desired elastic cushion, which constitutes
25 an integral part of the composition heel-plate.

It is evident that the plate may be easily applied to a boot or shoe heel and that the fasteners *d* may easily be driven through the
30 passages *c* of the cushion and the nail-holes *b* of the metallic member. The heads of the nails or fasteners bear firmly against the solid web *a* of the metallic member, thereby giving firm support to the nail-heads and securing the
35 device in place in a solid firm manner, the nail-heads being countersunk in the cushion. In the service of the heel the exposed tread *b'* of the cushion wears away until the edge portions of the channeled member are brought
40 into use, and thereafter the thin flanges of the channeled member wear uniformly with the tread-surface of the cushion. The cushion forms by far the largest part of the effective area of the heel-plate, so as to minimize slipping and to be practically noiseless in use.

The great advantage secured by my construction is the union of the yieldable cushion to the metallic member in a manner to permit the parts to wear uniformly and to secure the attachment of the cushion to the
50 metallic member, notwithstanding the wearing down of the parts. It is evident that the

tenons *f*, dovetailed in the web of the metallic member and uniting the upper edge portion of the cushion to said metallic member,
55 will hold the cushion in place until it is practically worn away.

Although I have described the metallic member as adapted to be cast, it is well understood that it may be formed or produced
60 in any other manner—as, for example, by pressing it from a single piece of metal. The cushion heel-plate may be used to keep the heel level or it may be applied to partially-worn heels in order to level them.
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Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A heel-plate for boots and shoes comprising a metallic channeled plate formed in
70 a single piece of metal and composed of a top web and parallel side flanges, said top web being provided with a series of perforations, and a thick rubber tread-cushion molded in said channel of the plate and having a series
75 of integral tenons which fill the perforations of the top web and clench the tread-cushion in the channeled plate throughout all the wear of the heel-plate.

2. A heel-plate for boots and shoes comprising a one-piece metallic plate formed by
80 a top web and parallel curved flanges united at their ends by integral cross-pieces and arranged to produce a curved channel, said top web being provided with countersunk openings and with nail-holes, and a thickened rubber tread or cushion filling the channel of the
85 metallic plate and provided on its top edge with a series of integral tenons which fill the countersunk openings of the metal plate and
90 secure the tread-cushion thereto by a number of clenches, whereby the metallic plate may be secured firmly by fasteners bearing directly thereon and the cushion remains attached to the top web throughout the wear
95 of the heel-plate.

In testimony whereof I have signed my name to this specification in the presence of the subscribing witnesses.

HERMAN F. DERNELL.

Witnesses:

EDWARD A. GIFFORD,
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