No. 887,593. PATENTED MAY 12, 1908.

M. R. CROSSMAN.

HEEL.

APPLICATION FILED JUNE 6, 1907.

Fig. 1.

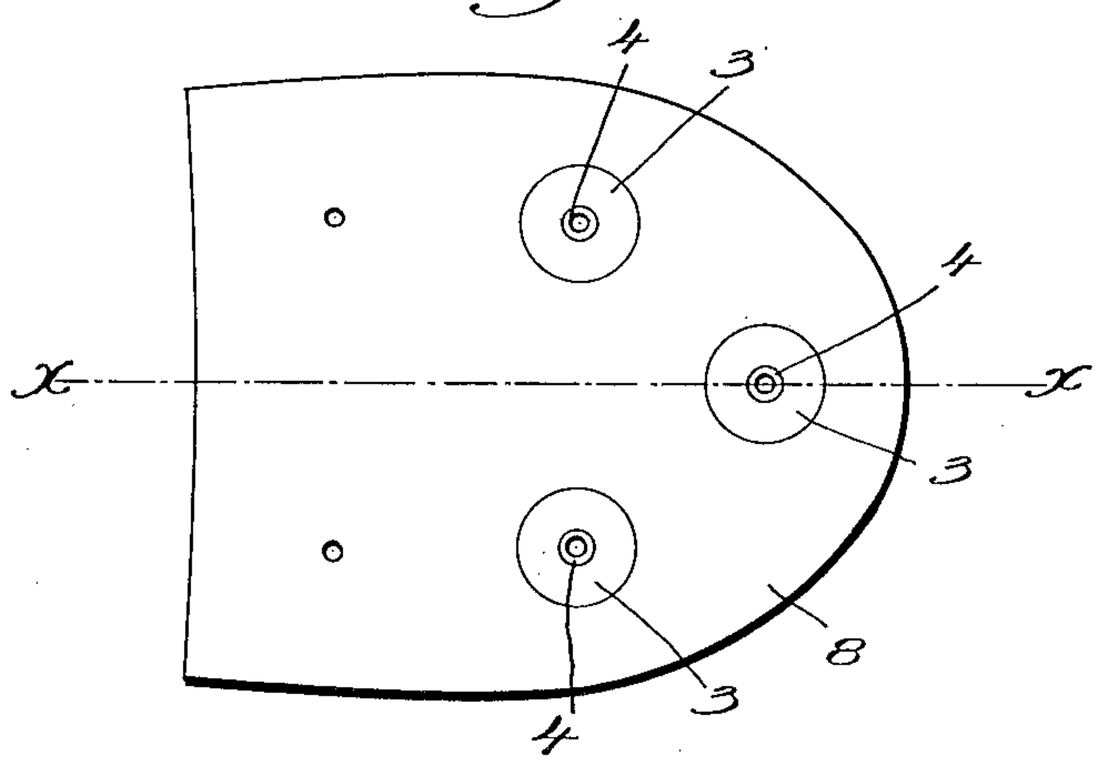


Fig. 2.

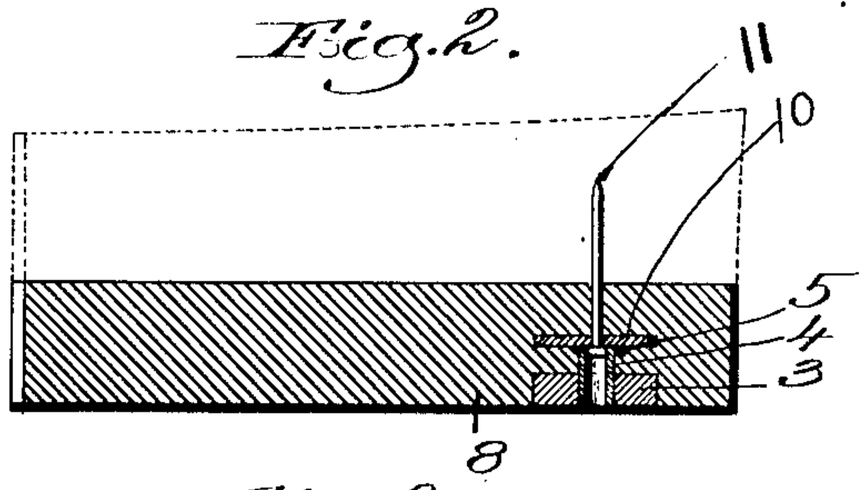


Fig. 3.

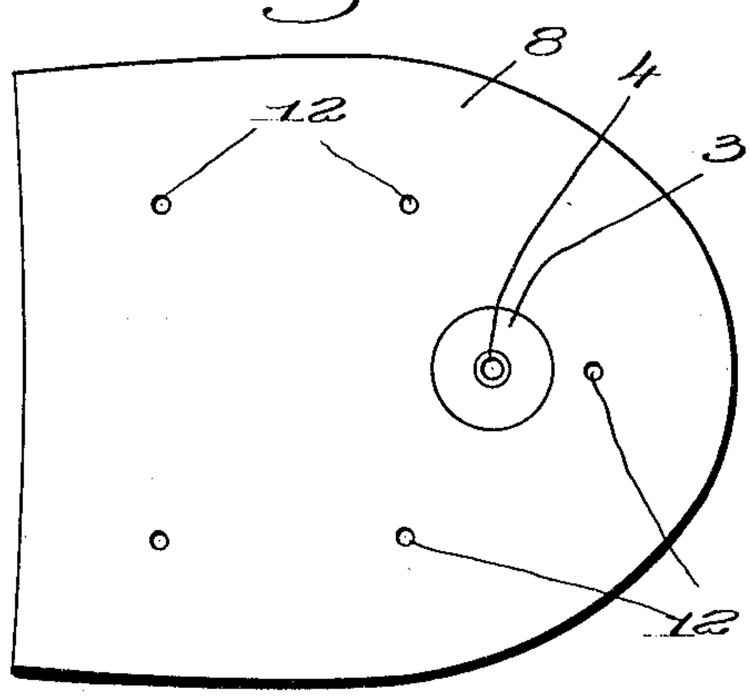


Fig. 4.

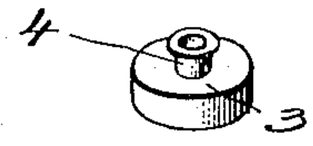
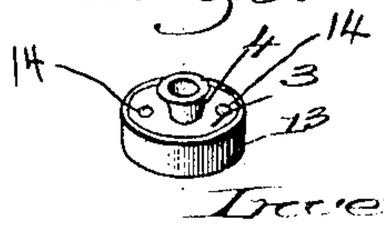


Fig. 5.



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UNITED STATES PATENT OFFICE.

MARTIN R. CROSSMAN, OF BOSTON, MASSACHUSETTS.

HEEL.

No. 887,593. Specification of Letters Patent. Patented May 12, 1908.

Application filed June 6, 1907. Serial No. 377,577.

To all whom it may concern:

Be it known that I, MARTIN R. CROSSMAN, a citizen of the United States, residing at Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Heels, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

This invention relates to heels for boots and shoes, and its object is to provide a novel form of friction or wear plug for a heel which is adapted for use either with rubber or leather heels.

Some embodiments of the invention will first be described and then the novel features thereof pointed out in the appended claims.

In the drawings, Figure 1 is a bottom view of a rubber heel embodying my invention; Fig. 2 is a section on the line *x*—*x*, Fig. 1; Fig. 3 shows a bottom view of a heel showing another way of applying my improved wear or friction plug thereto; Fig. 4 is a perspective view showing one form of friction plug embodying my invention; Fig. 5 is a similar view showing another embodiment of my invention.

In accordance with my invention I embed in the heel whether it be made of rubber or leather one or more friction or wear plugs of novel construction. The friction plug that I use is made with a head and an attaching shank, and in constructing the plug I have made the head or at least that portion thereof which forms the friction surface of a good friction material, and I make the shank of the plug of a shape which will readily interlock with and hold the plug in place, and preferably also of such material that rubber may be vulcanized thereto.

In the embodiment of the invention herein shown the plug comprises a head 3 and the attaching shank 4. The head 3 may be made of aluminum, this material being especially desirable because it is light and because it has good frictional properties. The shank 4 is preferably made of brass and the end thereof is enlarged or provided with a flange 5. The shank 4 may be secured to the head 3 in any suitable way, and I have herein shown the head as provided with a central aperture into which the shank is received. The shank is also preferably made hollow as shown.

In embodying my improved plug in a rubber heel the plugs are placed in a mold and may be held in proper position during the formation of the heel by mold rests or pins which set into the core of the shank. When the material of the heel 8 is poured into the mold during the formation of the heel, it molds itself around the plug as herein shown, leaving the end of the plug exposed at the bottom of the heel. The shank 4 of the plug is of a material, such as brass, to which rubber may be vulcanized, and in the process of vulcanizing the heel the rubber becomes firmly attached to the shank 4 thereby firmly securing the plug to the heel. While I prefer to make the shank with the flange 5 so as to more securely retain the plug in place, yet because of the fact that the shank is of brass or some other material to which rubber may be vulcanized, said shank will be firmly secured to the rubber by the vulcanizing process. This construction of plug provides a desirable friction surface at the exposed portion of the plug and also a form of shank which may be firmly secured to a rubber heel.

Any number desired of my improved friction plugs may be employed in the heel, and they may be placed in any desired location. In Fig. 1 I have shown three such plugs placed at the points were the nail holes of the heel are formed and where the plugs are thus placed the usual washer 10 which cooperates with the nail in holding the heel in place may be placed directly above and on the top of the shank 4, the mold rests passing up through each shank and the corresponding washer to hold them in place while the heel is being molded. Where this construction is employed the nail 11 which is used to secure the heel to the shoe will be driven through the shank 4 until its head contacts with the washer 10. In Fig. 3 I have shown one plug only, and this is arranged between the nail holes 12. Where the plug is placed in this position it will be necessary, of course, to employ a specially placed mold rest for maintaining the plug in position during the molding of the heel.

In Fig. 5 I have shown a form of my invention in which the periphery of the head is made of brass, this being done by placing a brass ring 13 around the aluminum head. Where the periphery of the head is thus made of brass or it may be of some other material to which rubber may be vulcanized.

the process of vulcanization of the heel will cause said rubber to be attached both to the shank and to the periphery of the head.

If desired I may provide the head with one or more holes 14, as shown in Fig. 5, which extend therethrough and into which rubber is forced during the molding of the heel. Where this construction is employed the mass of rubber which fills the holes 14 acts as additional attaching means for holding the plug to the heel. If desired I may line the holes 14 with brass or some other material to which rubber can be vulcanized, in which case the mass of rubber filling the holes will still more securely hold the plug in place. It is not essential to my invention, however, that the holes 14 be provided or that they be lined with brass. Where the holes are provided and are thus lined it may not be necessary to use the shank 4, as above referred to. Friction plugs having the same essential features as those above described may also be used in leather heels as well as in rubber heels, although it may be desirable to modify the shape of the heel in some minor particulars, if it is used in leather heels. The specific forms of plug herein shown are especially adapted for use in connection with rubber heels. I would also add that my improved plug may be used on soles of shoes as well as on heels.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A heel having a friction plug embedded therein, which plug has a wearing surface of aluminum and an attaching shank of brass.

2. A friction plug for a shoe presenting an aluminum head provided with a wearing surface and a brass shank extending from said head.

3. A friction plug for a shoe presenting an aluminum head 3 and a hollow brass shank 4 extending therefrom, the end of the shank opposite the head being enlarged.

4. A friction plug for a shoe presenting a wearing surface of aluminum and having portions thereof formed of a material to which rubber can be vulcanized.

5. A rubber heel having a friction plug embedded therein, said plug presenting an aluminum head and a brass shank, the head having apertures 14 therein adapted to be filled with rubber and provided with an exposed frictional surface.

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

MARTIN R. CROSSMAN.

Witnesses:

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