S. J. HARRIS.

FRICTION AND METAL PLUG FOR RUBBER HEELS, &c.

APPLICATION FILED OCT. 8, 1914.

1,129,672. Patented Feb. 23, 1915.

Fig. 1.

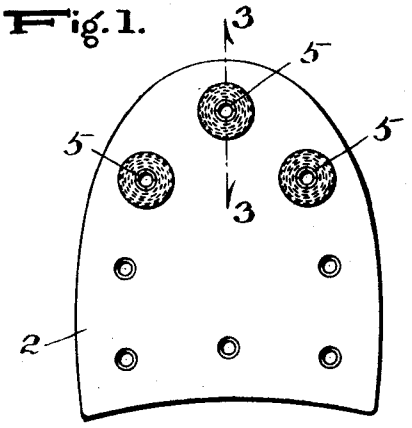


Fig. 2.

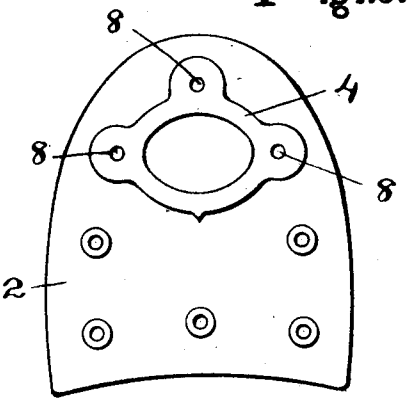


Fig. 4.

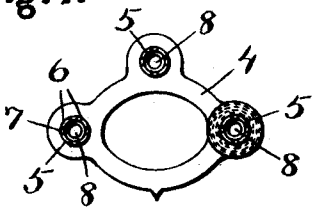


Fig. 6.

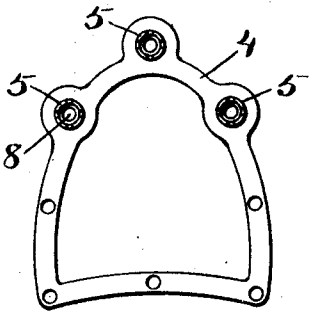


Fig. 5.

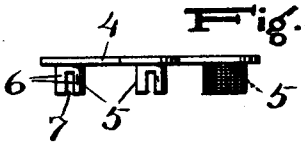
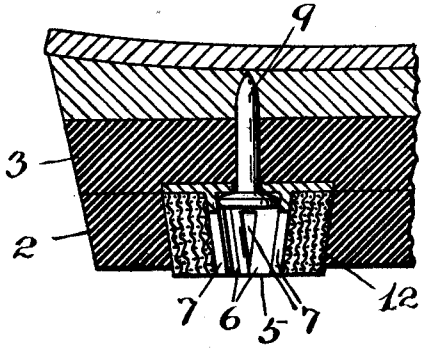


Fig. 3.



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UNITED STATES PATENT OFFICE.

SAMUEL J. HARRIS, OF STOUGHTON, MASSACHUSETTS.

FRICTION AND METAL PLUG FOR RUBBER HEELS, &c.

1,129,672. Specification of Letters Patent. Patented Feb. 23, 1915.

Application filed October 8, 1914. Serial No. 865,722.

To all whom it may concern:

Be it known that I, SAMUEL J. HARRIS, a citizen of the United States, resident of Stoughton, in the county of Norfolk and State of Massachusetts, have made a certain new and useful Invention in Friction and Metal Plugs for Rubber Heels, &c.; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a bottom plan view of a rubber heel having my invention applied thereto. Fig. 2 is a top plan view of the wear lift of the heel having the invention applied thereto. Fig. 3 is a section on the line 3—3, Fig. 1. Fig. 4 is a detail bottom plan view of the metal frame plate and posts, with a canvas plug in engagement with one of the posts. Fig. 5 is a detail side view of the same. Fig. 6 is a detail bottom plan view of a modification of the metal frame plate.

The invention has relation to means for reducing wear upon and preventing slippage of rubber heels and other tread surfaces, having for its object the provision of a friction and metal plug therefor, and it consists in the novel construction and combinations of devices, as hereinafter set forth.

In the accompanying drawings, illustrating the invention as applied to a rubber heel, the numeral 2 indicates the top or wear lift of the heel, which in use forms the bottom of the heel, and 3 the lift next to it, other lifts being sometimes employed, according to requirement, these lifts forming when compressed together and finished, as hereinafter described, the rubber heel.

In the manufacture, after the rubber compound has been properly calendered and brought into sheet form, the heel lifts are cut out with a die, and are ready to be built into the heel. In this construction, a metal frame is provided having a flat base 4, and projecting from this base hollow posts 5, of substantially tubular form but usually of split character and having separated arms 6, between which are intervals 7. The hollow of the post extends through the base by a perforation 8, for the passage of a fastening nail 9, the head of which may be driven home in the post against the base. Each post is substantially cylindrical, but the arms 6 may have some flexibility, so that they may be slightly pressed toward the axis of the post, to provide for a slight taper toward its end portion. Each post is designed to be encircled with a packing or plug of frictionized canvas or other suitable material, rolled into a spool of sufficient diameter and length and having a hollow center to receive the frame post, which it is designed to hug firmly. Each frame is provided with a suitable number of these posts.

The top lift or wear lift 2 of the heel having been tapped to provide holes 12 for the posts and their plugs, the frame is applied thereto, the posts and plugs being forced into the holes, which may be made slightly smaller in diameter than the plugs, so that the plugs will be closely engaged by the holes. The frame base engages the inner surface or that surface of the top lift which is designed to be joined to the next lift, 3, of the heel, which is cemented and joined to the lift 2, the cement covering in the frame base. These lifts and the intermediate frame are placed in a mold and compressed and vulcanized, so that they provide a solid heel, in which the posts and plugs have their ends substantially flush with or a little below the wear surface of the lift 2. In the construction, the frame is placed in the rear portion of the heel, or near its back, and is designed to toughen and strengthen the same, serving an important purpose in preventing the heel from running down in use, and in guarding against slipping.

When the posts and their plugs are forced into the holes of the heel, the pressure is designed to be sufficient to bend the arms of the post slightly inward, or toward the axis of the hollow of the post, so that the plug assumes a slight taper. In this case, the arms may be separated sufficiently for the introduction of the fastening nail, and after the latter has been driven home and the driving punch withdrawn, the arms will assume their inclined relation, more or less, thereby restoring the taper relation and preventing the plug from coming out of its seat in the lift. The vulcanization will cement and connect the two heel lifts and secure the metal frame plate between said lifts, and will at the same time cement the packing plugs to the lower lift and form a unitary article.

In Fig. 6 of the drawing a modification is

shown wherein the frame plate is extended, usually to accord with the heel contour and take the place of the washers commonly employed between the heel lifts for the fastening nails.

What I claim is:

1. An attachment for rubber heels and other tread surfaces, comprising a metal frame plate provided with a post extension, and a plug of rubber-coated material surrounding said post, said frame plate extending across and having bracing engagement with the top of said plug.

2. An attachment for rubber heels and other tread surfaces, comprising a metal frame plate provided with a compressible post extension, and a compressible plug of rubber-coated material surrounding said post.

3. An attachment for rubber heels and other tread surfaces, comprising a metal frame plate provided with a normally cylindrical compressible post extension, and a normally cylindrical compressible plug of rubber-coated material surrounding said post.

4. An attachment for rubber heels and other tread surfaces, comprising a metal frame plate provided with a hollow split normally cylindrical compressible post extension, and a normally cylindrical compressible plug of rubber-coated material surrounding said post.

5. An attachment for rubber heels and other tread surfaces, comprising a metal frame plate provided with a hollow split normally cylindrical post extension, and a normally cylindrical plug of rubber-coated material surrounding said post, said frame plate being provided with a perforation at the inner end of said post, said perforation having a diameter less than the internal diameter of said post.

6. In a rubber heel, a perforated wear lift, an adjoining lift, a metal frame plate cemented between the lifts and having a post extension projecting through the perforation of the wear lift, and a plug of rubber-coated material surrounding said post and closely engaging the same and cemented to the wall of said perforation.

7. In a rubber heel, a wear lift having a perforation, an adjoining lift, a metal frame plate cemented between the lifts and having a post extension projecting through the perforation of the wear lift, and a compressed tapered plug of rubber-coated material surrounding said post and closely engaging the same and cemented to the wall of said perforation, said perforation being normally of diameter less than the normal diameter of said plug.

8. In a rubber heel, a wear lift having a normally cylindrical perforation, an adjoining lift, a metal frame plate cemented between the lifts and having a post extension projecting through the perforation of the wear lift, and a normally cylindrical compressed tapered plug of rubber-coated material surrounding said post and closely engaging the same and cemented to the wall of said perforation.

9. In a rubber heel, a perforated wear lift, an adjoining lift, a metal frame plate cemented between the lifts and having a hollow split tapering post having elastic yieldable branches projecting through the perforation of the wear lift, and a rubber-coated tapered packing plug surrounding said post and closely engaging the same and cemented to the wall of said perforation, said hollow post being adapted to receive a fastening device.

10. In a rubber heel, a wear lift having normally cylindrical perforations, an adjoining upper lift, a metal frame plate cemented between the lifts and having a plurality of hollow split tapering posts having yieldable elastic branches projecting into the perforations of the wear lift, and rubber-coated tapered packing plugs surrounding said posts and elastically engaging and having cement connection with the walls of said perforations, said hollow posts being adapted to receive fastening devices.

In testimony whereof I affix my signature, in presence of two witnesses.

SAMUEL J. HARRIS.

Witnesses:
S. C. HILL,
STUART HILDER.