March 25, 1941. G. H. GILLIS 2,235,819

ARMORED SHOE SOLE

Filed Feb. 23, 1940

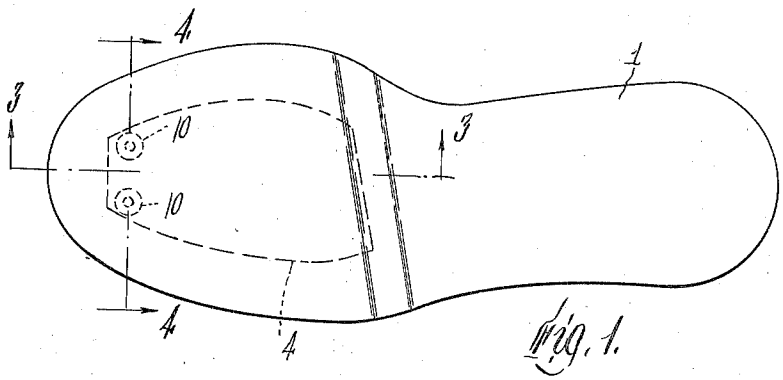


Fig. 1.

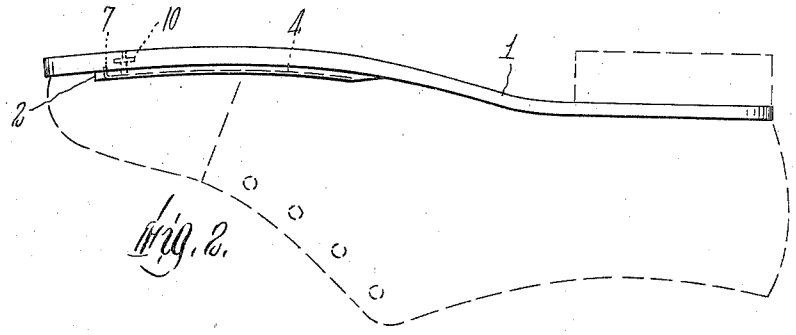


Fig. 2.

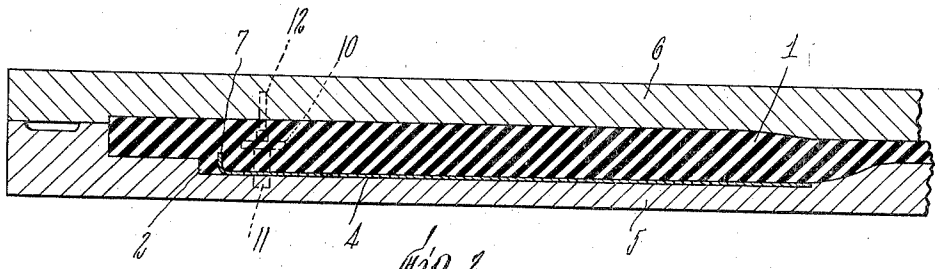


Fig. 3.

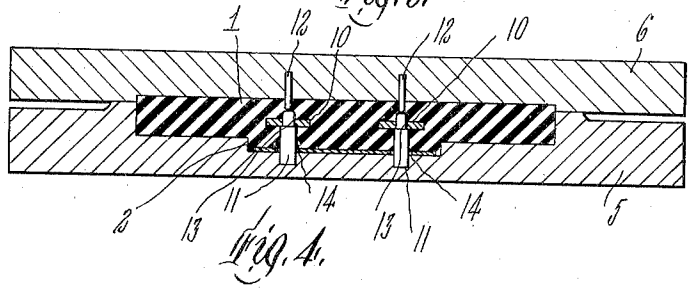


Fig. 4.

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2,235,819

ARMORED SHOE SOLE

George H. Gillis, Fitchburg, Mass.

Application February 23, 1940, Serial No. 320,255

2 Claims. (Cl. 36—32)

This invention relates to shoes and shoe soles, more particularly intended for heavy work service and has for an object to provide protection against the possibility of the shoe sole being punctured by nails, or the like, which might otherwise be driven therethrough and injure the foot of the wearer. The invention is particularly concerned with shoes having rubber treads.

One object of the present invention is to provide in the sole member a puncture-proof or puncture-resistant plate of metal, fiber, or the like, so arranged as to be firmly supported in proper position but anchored only locally so that it is capable of yielding to flexing pressure. By this mounting it will give no discomfort to the wearer and will not impair the desired flexibility of the sole.

The invention is herein illustrated by way of example in a rubber shoe sole of the type shown in my Patent No. 1,833,606 granted November 24, 1931, for Shoes.

For a more complete understanding of the invention, reference may be had to the accompanying drawing, in which

Figure 1 is a bottom plan of a rubber shoe sole embodying the invention.

Figure 2 is a side elevation of the same, the remainder of the shoe being indicated in outline in dash lines.

Figures 3 and 4 are sectional views through molding dies in which the sole member having the puncture protection may be molded, showing the shoe sole therein, the sections being taken on lines 3—3 and 4—4, respectively of Figure 1.

Referring to the drawing, at 1 is indicated a shoe outersole having formed integral therewith as by a molding operation a facial extension 2 of a shape and size to fit within the usual innersole rib and form an integral innersole filler. In Figures 3 and 4 are shown the mold sections for molding the outersole of rubber, or the like, in this manner. The top face of this innersole filler when incorporated in a shoe has positioned thereon a puncture-proof or resistant sheet material or plate member 4 of substantially the contour of the filler portion 2 and which therefore covers a substantial area of the sole surface in the shoe forepart, where nails, or other sharp articles, might be driven up into the sole by the pressure of the foot thereon during use of the shoe. This sheet material or plate member 4 may be formed of steel, fiberboard, or any other material having the desired resistance to puncturing, and it may be molded with the rubber outersole, being placed in the mold member 5 as shown in Figures 3 and 4, so that in the molding operations an end flange 7 is embedded in the rubber, thus adequately locating and securing the plate 4 relative to the sole before the sole is incorporated in the shoe. In the completed shoe this plate member lies between the inner and outersoles.

For the purpose of securely anchoring the forward portion of the molded sole member to the lasted shoe, as shown in my patent to which reference has been made, there may be embedded in the sole member one or more washers of metal, or other suitable material, as at 10, and for this purpose the mold member 6 may be provided with upstanding posts 12 and the mold member 5 with alined posts 11 having reduced extremity upper ends over which the washers 10 may be placed. The holes 13 through these washers provide for the driving of securing nails or other fasteners through the sole member and into the innersole or other suitable portion of the lasted shoe, where their ends may be clinched, the heads of the nails overlying the outer faces of the washers 10. The posts 12 provide holes in the lower face of the sole indicating where the nails are to be inserted and driven.

The member 4 is perforated as shown at 14 so as to be placed over the posts 11 of the mold, the openings 14 thus being alined with the holes in the washers so that during the securement of the sole member in position, the nails or fasteners which are driven through the washers 10 also pass through the holes in the protecting armor plate or sheet and serve to secure it locally to the shoe in the proper position. The remainder of the armor plate or sheet is then free to move relative to adjacent parts of the shoe so as not to interfere with flexing of the sole.

This application is a continuation in part of my application Serial No. 293,789 filed September 7, 1939, for Armored shoe and shoe sole.

From the foregoing description of an embodiment of this invention, it should be evident to those skilled in the art that various changes and modifications might be made without departing from the spirit or scope of this invention as defined by the appended claims.

I claim:

1. A molded shoe sole having an integral facial extension forming an innersole filler, a puncture resistant plate overlying and substantially coterminous with said filler portion, said shoe sole having embedded therein adjacent to the forward end of said filler extension a washer defining an opening through which a nail may be driven to secure the front end of said sole member to a

shoe, said plate also having a hole positioned to receive said nail and thereby anchor said plate in position, the remainder of said plate being free to move relative to adjacent portions of the shoe under flexing pressure by the wearer.

2. A molded shoe sole having an integral facial extension forming an innersole filler, a puncture resistant plate overlying and substantially coterminous with said filler portion and having a flange at its forward end embedded in said sole, said shoe sole having embedded therein adjacent to the forward end of said filler extension a washer defining an opening through which a nail may be driven to secure the front end of said sole member to a shoe, said plate also having a hole back of said flange positioned to receive said nail and thereby anchor said plate in position, the remainder of said plate back of said hole being free to move relative to adjacent portions of the shoe under flexing pressure by the wearer.

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