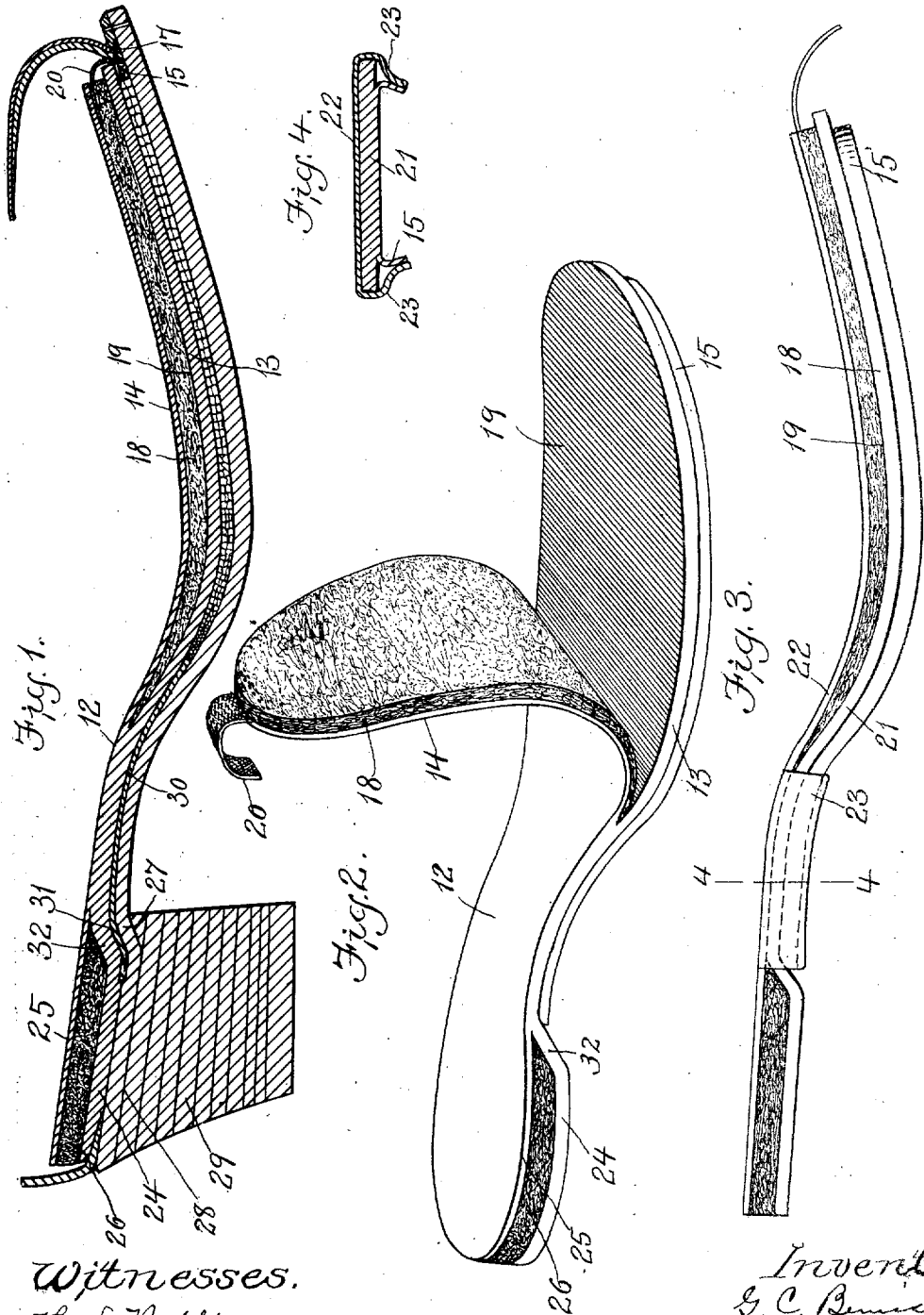


G. C. BEMIS.
BOOT AND SHOE AND INNERSOLE THEREFOR.
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Witnesses.
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UNITED STATES PATENT OFFICE.

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BOOT AND SHOE AND INNERSOLE THEREFOR.

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To all whom it may concern:

Be it known that I, GILBERT C. BEMIS, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Boots and Shoes and Innersoles Therefor, of which the following is a specification.

This invention has for its chief object to provide an inner sole with a cushioned forepart, the upper or foot bearing surface of which shall afford a yielding support for the foot, and shall be free from liability to be wrinkled or distorted by movements of the foot, the said foot-bearing surface always presenting a surface which conforms perfectly to the sole of the wearer's foot.

The invention also has for its object to provide improved means for maintaining a pocket for a heel cushion at the rear portion of the inner sole of a boot or shoe.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification,—Figure 1 represents a longitudinal section of the bottom portion of a shoe embodying my invention. Fig. 2 represents a perspective view of the inner sole shown in Fig. 1 before its incorporation into the shoe, the top layer and cushion of the inner sole being raised to expose the bottom layer. Fig. 3 represents an edge view of a somewhat different construction of inner sole embodying my invention. Fig. 4 represents a section on line 4—4 of Fig. 3.

The same letters of reference indicate the same parts in all the figures.

Referring to Figs. 1 and 2, 12 represents the shank portion of an inner sole, and 13 14 represent two layers or divisions which constitute the fore-part of the inner sole, said layers being formed in this embodiment of my invention, by splitting the fore-part from the toe to the shank portion, thus making the layers 13 14 integral with the shank portion 12. In a welted shoe the bottom layer 13 is preferably considerably thicker than the top layer 14, and is channeled to form the usual lip 15, to which the upper and welt are secured by the usual inseam stitches 17.

18 represents a cushion which is cemented, or otherwise secured to the under side of the top layer 18, said cushion being made of felt or other suitable cushioning material: The top layer is attached to the bottom layer or

to the body of the sole only at its rear end portion, the entire top layer forward of its rear end portion being free to move lengthwise relatively to the bottom layer. The cushion and the top layer 14 are therefore adapted to slip lengthwise upon the bottom layer. The result of this freedom of movement of the top layer and its cushion to slip upon the bottom layer, is to enable the top layer and cushion to conform to the flexure of the bottom layer and the outer sole, caused by the movements of the foot in walking. When the curvature of the outer sole and of the bottom layer of the inner sole is being increased, the top layer and cushion slip forwardly on the bottom layer, and when the said curvature is being decreased, the top layer and cushion slip backwardly upon the bottom layer.

To facilitate the slippage of the cushion upon the bottom layer, I provide the upper surface of the bottom layer with an anti-frictional coating 19, which may be produced by applying with a brush or otherwise a liquid composition, such as a solution of shellac, or any other composition which is capable of forming a smooth, hard surface when dried, the coating composition being of such nature that it will not be affected by any heat or dampness to which it is likely to be subjected.

20 represents a confining strip, which loosely connects the toe portion of the upper layer and cushion to the bottom of the shoe, the said strip being preferably a short piece of elastic fabric, stitched or otherwise secured to the top layer at one end, its other end being carried between the upper and inner sole, and secured by the inseam stitches. The object of the strip 20 is to prevent rearward or upward displacement of the top layer 14 and the cushion 18. When made of elastic material, it yields when the curvature of the bottom is decreasing, thus permitting the cushion to slip rearwardly, and contracts when the curvature of the bottom is increasing, thus drawing the toe portion of the cushion forward. The strip 20, may, however, be of inelastic material, and left sufficiently loose to permit the desired rearward slip of the fore-part of the top layer and cushion when the curvature of the bottom is being decreased. When the strip 20 is of elastic material, it has a tendency to pull the toe portion of the top layer and cushion forward when the shoe is not occupied, thus raising

the central portion of the cushion slightly from the bottom layer 13, and forming an air space between the cushion and the bottom layer to facilitate ventilation and drying of the cushion and of the bottom layer of the inner sole.

In Fig. 3 I show the inner sole composed of two separate layers, viz., a bottom layer 21 and a top layer 22, the latter being provided at the shank portion with ears 23, which are bent downwardly across the channel of the inner sole, so that they are in position to be secured by the inseam stitches. In this embodiment of the invention, the cushion 18 is secured to the under side of the top layer, the upper surface of the bottom layer being coated, as above described, to render it anti-frictional.

The above described improvements may be embodied in a slip inner sole, which is free from attachment to the boot or shoe.

It is obvious that the anti-frictional coating may be applied to the under side of the cushion, instead of to the upper side of the bottom layer of the inner sole. It is also obvious that the anti-frictional surface may be applied to the under side of the top layer of the inner sole, the cushion being attached to the bottom layer. I consider it preferable, however, to attach the cushion to the top layer, and to apply the anti-frictional coating to the bottom layer, as first described.

In Fig. 1 I show the heel part of the inner sole divided to form a bottom layer 24 and a top layer 25, between which a heel cushion 26 is interposed. The heel portion of the outer sole is offset to form an inclined wall 27 and a flat heel seat 28. The bottom layer 24 of the heel portion of the inner sole is offset to conform to the wall 27 and heel seat 28, and is permanently attached to said parts by suitable means, such as the nails which attach the heel 29 to the heel seat. 30 represents a metallic shank stiffener, which is interposed between the shank portions of the inner and outer soles as usual, but is distinguished from the ordinary shank stiffener in that its rear end is extended and curved downwardly at 31 to reinforce and hold in place the inclined wall 27 formed by offsetting the heel portion of the outer sole, the said extension 31 also reinforcing and holding in place the inclined portion 32 of the bottom layer 24. The top layer 25 of the heel portion of the inner sole is free to be raised at its rear end to permit removal and insertion of the cushion 26.

I have hereinafter referred to the strip 20 as a tether, its function being to loosely or yieldingly confine the fore-part of the top layer and cushion.

The top layer 14 and cushion 18 should be shorter than the bottom layer, in order that there may be sufficient space between the

toe end of said layer and cushion and the toe portion of the upper to permit the forward sliding movement of the top layer and cushion when the curvature of the fore part of the sole is being increased.

I claim:

1. An inner-sole having a flexible fore-part composed of a bottom layer and a top layer, the latter being attached to the bottom layer only at its rear end portion, and a cushion attached to one of said layers and free to slip on the other layer.

2. An inner sole having a flexible fore-part composed of a bottom layer and a top layer, the latter being attached to the bottom layer only at its rear end portion, and a cushion attached to one of said layers, and in sliding contact with the other layer, and a substantially anti-frictional coating between said parts.

3. An inner sole having a flexible fore-part composed of a bottom layer having a substantially anti-frictional upper surface, a top layer, and a cushion attached to the top layer, and in sliding contact with the bottom layer, the top layer being attached to the bottom layer only at its rear end portion.

4. A shoe having an inner sole with a flexible two-layer fore-part, the bottom layer being permanently attached to the shoe, while the top layer is attached to the bottom layer only at its rear end portion and is free to move relatively to the bottom layer, and a cushion interposed between the two layers and attached to one of the layers.

5. A shoe having an inner sole with a flexible two-layer fore-part, and a substantially anti-frictional coating between said parts, the bottom layer being permanently attached to the shoe, while the top layer is attached to the bottom layer only at its rear end portion, and is free to move relatively to the bottom layer, the movement being facilitated by the said anti-frictional coating.

6. A shoe having an inner sole with a flexible two-layer fore-part, the bottom layer being permanently attached to the shoe, while the top layer is attached to the bottom layer only at its rear end portion, and is free to move relatively to the bottom layer, a cushion affixed to the top layer, and a tether connecting the toe portion of the top layer to the toe portion of the shoe.

7. A shoe having an outer sole, the heel portion of which is offset to form an inclined pocket wall and a flat heel seat, an inner sole having a two-layer heel portion, the bottom layer being conformed to the inclined wall and heel-seat portions of the outer sole, while the upper layer is loose, and forms a cushion pocket cover, a stiffener interposed between the shank portions of the outer and inner soles, and provided with an extension conforming to and reinforcing said inclined wall, and a heel cushion inserted in said pocket.

8. A shoe having an inner sole with a flexible two-layer fore-part, the bottom layer being permanently attached to the shoe, while the top layer is attached to the bottom layer only at its rear end portion and is free to move relatively to the bottom layer, and a cushion interposed between the two layers and attached to one of the layers, the top layer being shorter than the bottom layer so

that it is free to slip forward thereon when the curvature of the sole is increased.

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

GILBERT C. BEMIS.

Witnesses:

C. F. BROWN,

E. BATCHELDER.