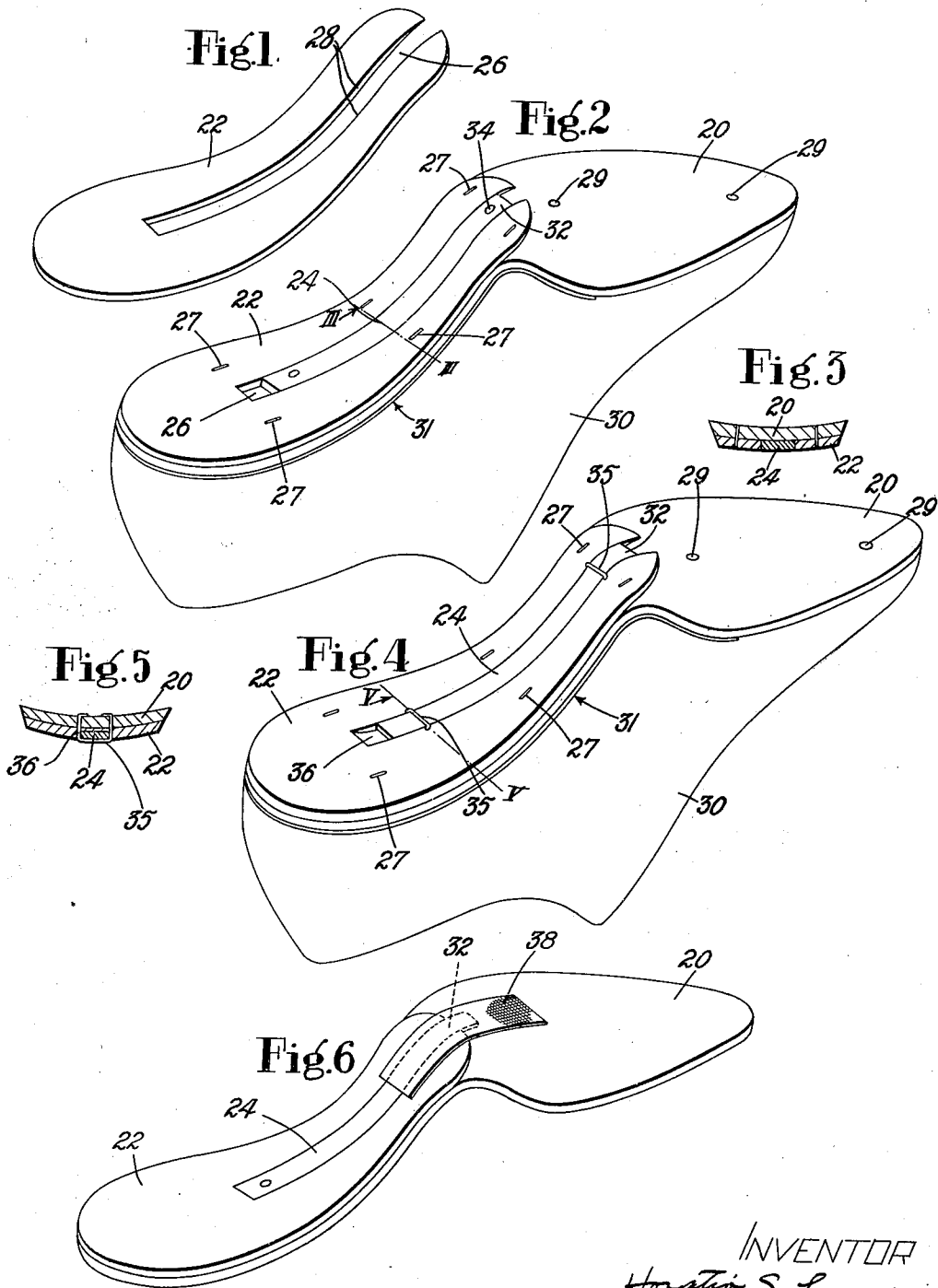


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REINFORCED INSOLE
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REINFORCED INSOLE

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This invention relates to improvements in reinforced insoles.

It is well known in the manufacture of shoes that if the shank stiffener is incorrectly positioned on the shoe bottom or is so disposed thereon that it projects considerably above the adjacent portions of the shoe bottom, it is liable to interfere with the proper lasting of the upper and, if the outsole is to be attached by means of cement, it is difficult to secure the outsole properly to the shoe.

One object of the present invention is to provide a reinforced insole unit of improved and simplified construction having a shank stiffener so disposed with respect to the other members of the unit that it will have no tendency to interfere with either the lasting of the upper or the cement attachment of the outsole.

To the accomplishment of this object the invention, in one aspect, provides a reinforced insole unit characterized by the features of construction and arrangements of parts hereinafter described and claimed, the advantages of which will be apparent to those skilled in the art.

The invention will be explained with reference to the accompanying drawing, in which

Fig. 1 is a perspective view of a heel and shank reinforcing piece employed in the manufacture of my improved insole unit;

Fig. 2 is a perspective view of the insole unit showing the insole unit attached to a last;

Fig. 3 is a cross-sectional view taken along the line III—III of Fig. 2;

Fig. 4 is a perspective view of an insole unit illustrating a modification of the invention, the unit being shown upon a last;

Fig. 5 is a cross-sectional view taken along the line V—V of Fig. 4; and

Fig. 6 is a perspective view of an insole unit illustrating another modification of the invention.

Referring to the drawing, my improved insole unit comprises a full length insole 20, a heel and shank reinforcing piece 22, and a shank stiffener 24. The insole 20 is made of relatively flexible material, such as leather or a suitable leather substitute. The reinforcing piece 22 is made of relatively stiff material, such as fiber or leather, and, as shown, it corresponds in marginal contour to that of the heel and shank portion of the insole and is provided with a longitudinally elongated shank stiffener-receiving and locating recess or slot 26 having substantially perpendicular side walls or edges 28. The shank stiffener 24 consists of a relatively narrow metallic strip

which is curved or arched longitudinally to correspond to the longitudinal curvature of the bottom of a last (such as the last 30, upon which a shoe having the insole unit incorporated therein is to be made) and having a reversely curved forward or table portion 32.

As shown, the reinforcing piece 22 is molded into conformity with the longitudinal and transverse curvatures of the bottom of the last prior to being assembled with the insole. The molding of the reinforcing piece may be accomplished by the use of properly shaped cooperating molds or forms (not shown). As indicated in Figs. 1 to 3, inclusive, the shank stiffener-receiving recess 26 is in the form of a slot. The width and depth of the recess or slot 26 preferably corresponds to the width and thickness, respectively, of the shank stiffener so that the latter will fill the slot and its upper or outsole-forming surface will be flush with the adjacent upper surface portions of the reinforcing piece. Moreover, the slot extends entirely through the reinforcing piece, dividing its shank portion into separated wings between which the shank stiffener is located. After having been molded and slotted, as above described, the reinforcing piece 22 is secured in any suitable manner to the previously unmolded insole 20 as by means of staples 27, or by means of cement. The staple attachment of the reinforcing piece may be accomplished by the use of a suitable staple inserting machine before the insole is placed upon the last, the legs of the staples extending through the reinforcing piece and the insole and being clenched upon the upper surface of the insole by means of a suitable anvil in the stapling machine. The attaching of the premolded reinforcing piece to the insole in this manner will impart to the heel and shank portion of the latter a contour corresponding to that of the reinforcing piece and consequently to that of the last bottom. Advantageously, however, the reinforcing piece may be secured to the insole after the latter has been applied to the last and the forepart of the insole has been secured in place thereon as by means of tacks 29 in which case the points of the staples may be clenched against the surface of the insole by means of a metallic plate 31 upon the bottom of the last. If desired, the reinforcing piece 22 may be attached to the insole while the parts are being molded between cooperating molding forms, one of which may be the last itself, and in such a case no premolding of the reinforcing piece will be necessary. After the reinforcing piece has been secured to the insole the shank stiffener 24 is

inserted within the slot 26, the slotted portion of the reinforcing piece cooperating with the insole to provide a shank stiffener-receiving pocket. If the insole unit is on the last when the shank stiffener is inserted within the pocket, the stiffener may be located lengthwise of the insole merely by moving the stiffener rearwardly until the curve or arch of its body portion conforms to that of the shank portion of the insole on the last and the reversely curved forward or table portion 32 of the stiffener conforms to the correspondingly curved surface of the insole which overlies the break line of the last bottom. If the insole unit is not on the last when the shank stiffener is assembled therewith, the lengthwise relation of the stiffener to the insole may be determined with substantial accuracy by merely moving the shank stiffener rearwardly until the curvature of its body portion conforms to that of the shank portion of the unit and, if necessary, the position of the shank stiffener may be adjusted after the unit has been placed upon the last. The shank stiffener 24 may be secured in place by any suitable means, such as the tacks 34, or it may be secured in place by means of cement. Inasmuch as the shank stiffener is located in the slot 26 with its lower or outsole-facing surface flush with the adjacent lower surface portions of the reinforcing piece 22, the stiffener will not interfere with either the lasting of the upper or the securing of a satisfactory cement bond between the outsole and the shoe bottom.

Similar advantages may be obtained, as indicated in Figs. 4 and 5, by making the shank stiffener-receiving recess in the reinforcing piece in the form of a groove 36 in the outsole-facing side of the piece, the groove being of a depth corresponding to the thickness of the shank stiffener but not extending through to the upper or insole-facing surface of the reinforcing piece. The groove 36 may be formed by a cutting operation or it may be formed by a molding operation in which case the molding of the groove may advantageously take place at the same time that the reinforcing piece is shaped to conform to the last. The shank stiffener may be applied before the upper is assembled upon the last or it may be applied after the upper has been lasted and its margins secured in overlapped position upon the insole unit. As shown, the shank stiffener may be secured in place by means of staples 35 which straddle the stiffener and the legs of which extend through both the reinforcing piece and the insole and assist in securing those parts together.

In Fig. 6 I have shown an insole unit in which the shank stiffener is located within a slot in the reinforcing piece with its lower surface flush with that of the reinforcing piece and I have also shown a covering or shield 38 for the forward portion of the stiffener. This shield 38 may conveniently consist of a short strip of adhesive tape and it serves to offset any tendency of the forward extremity of the shank stiffener

to work its way into the outsole as the shoe is flexed in walking or to rub upon the outsole so as to wear it away or produce undesirable squeaking.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A reinforced insole unit comprising a relatively flexible insole, a relatively stiff heel and shank reinforcing piece secured to the lower side of the heel and shank portion of the insole, said reinforcing piece having a rear edge and side edges aligned with the rear edge and the side edges, respectively, of the heel and shank portion of the insole and having a slot extending entirely therethrough from its front edge into its heel portion and forming spaced wings extending from the heel portion of said piece and having free forward extremities, and a shank stiffener consisting of a metallic strip of the same thickness as said reinforcing piece fitting within and substantially filling said slot, the upper side of said stiffener bearing throughout its length upon the insole and the entire lower surface of the stiffener being flush with the adjacent lower surface portions of said wings.

2. A reinforced insole unit comprising an insole, a heel and shank reinforcing piece secured to the lower side of the insole, the heel portion of said piece being substantially coextensive with the heel portion of the insole and the shank portion of said piece being divided by a longitudinal slot into two wings, a shank stiffener located within said slot with its lower surface flush with the lower surfaces of said wings and with its forward end portion extending forwardly beyond said wings, and a strip of tape covering said forwardly projecting portion of said shank stiffener, the rear portion of said tape bridging said slot and being secured by means of adhesive to said wings and the forward portion of said tape being secured by means of adhesive to said insole.

3. A reinforced insole unit comprising a relatively flexible insole, a relatively stiff heel and shank reinforcing piece secured to the lower side of the heel and shank portion of the insole, said reinforcing piece having a rear edge and side edges aligned with the rear edge and the side edges, respectively, of the heel and shank portion of the insole and having a slot extending entirely through said piece from its front extremity into its heel portion and forming two wings integrally connected at their rear portions and spaced apart throughout the length of the shank portion of said unit, a shank stiffener consisting of a metallic strip of the same thickness as said reinforcing piece fitting within and substantially filling said slot, the upper side of said stiffener bearing upon the insole throughout the length of the stiffener and the entire lower surface of the stiffener being flush with the adjacent lower surface portions of said wings, and means secured to the lower surfaces of said wings and bridging said shank stiffener.

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