

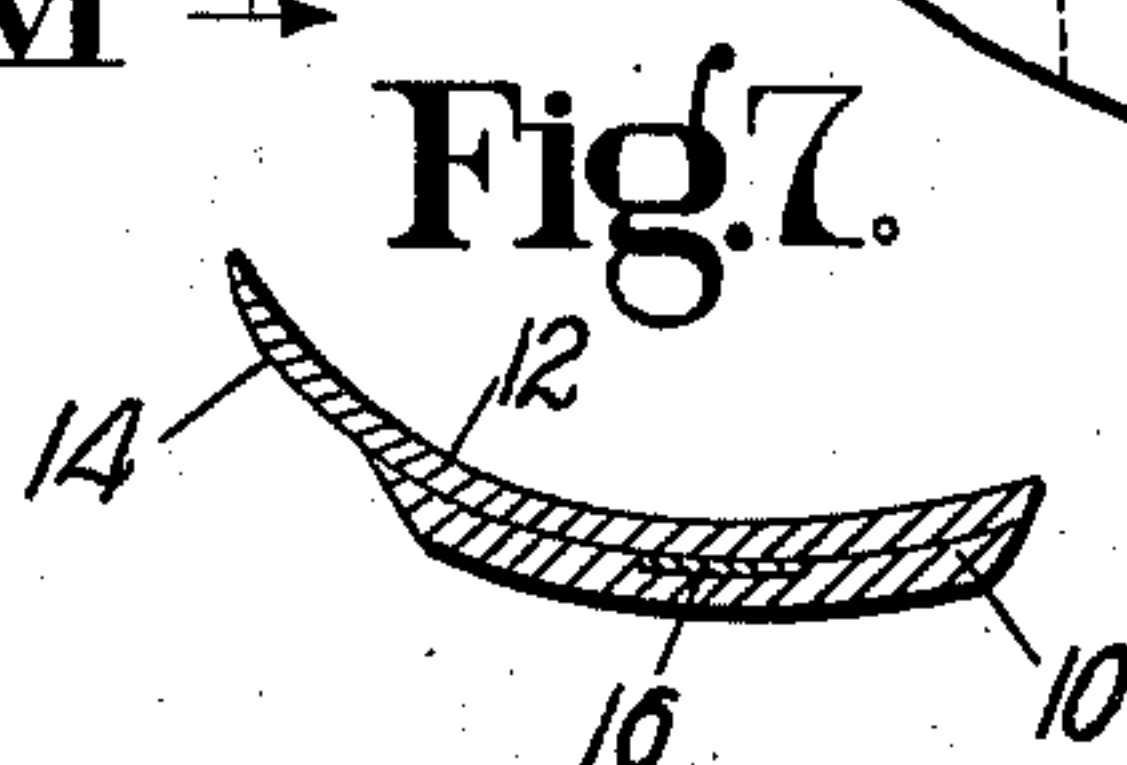
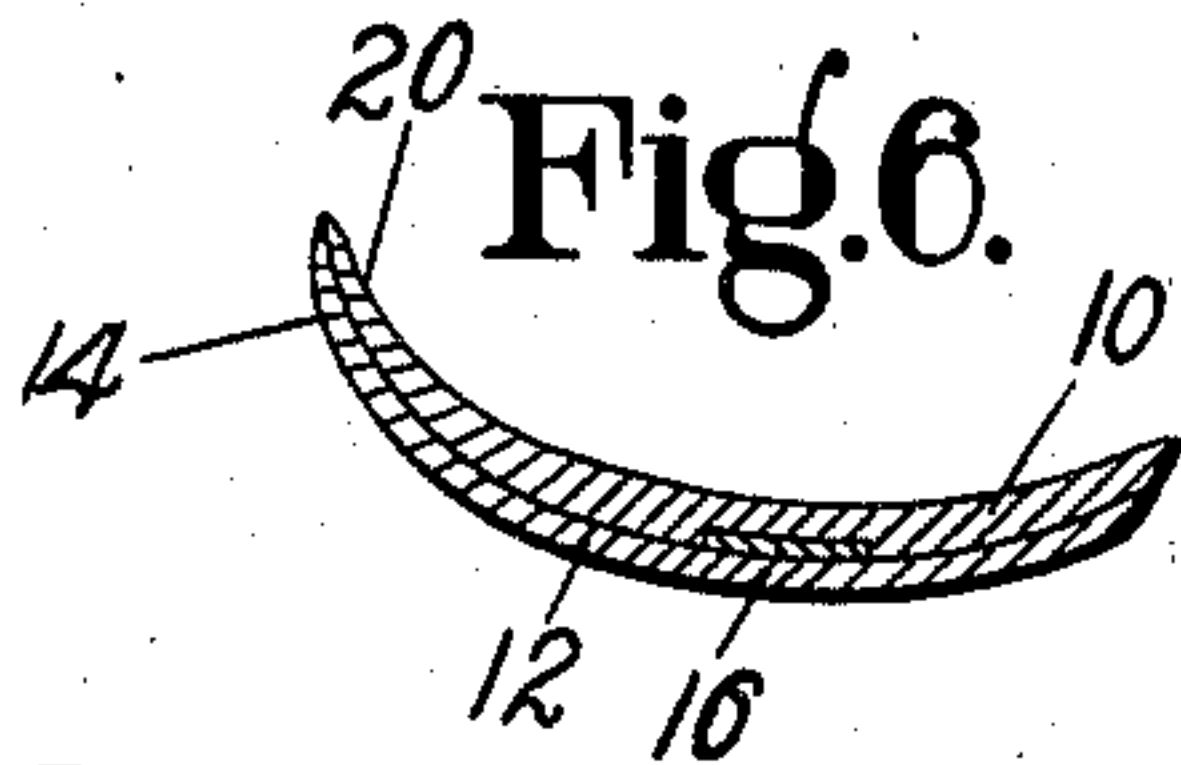
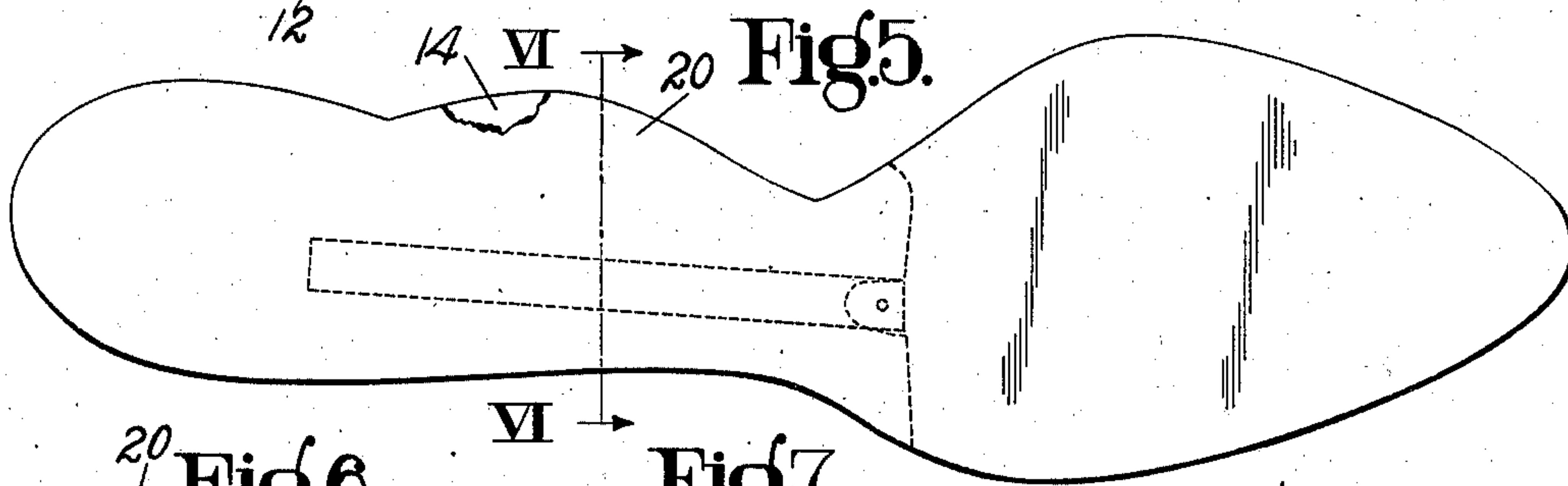
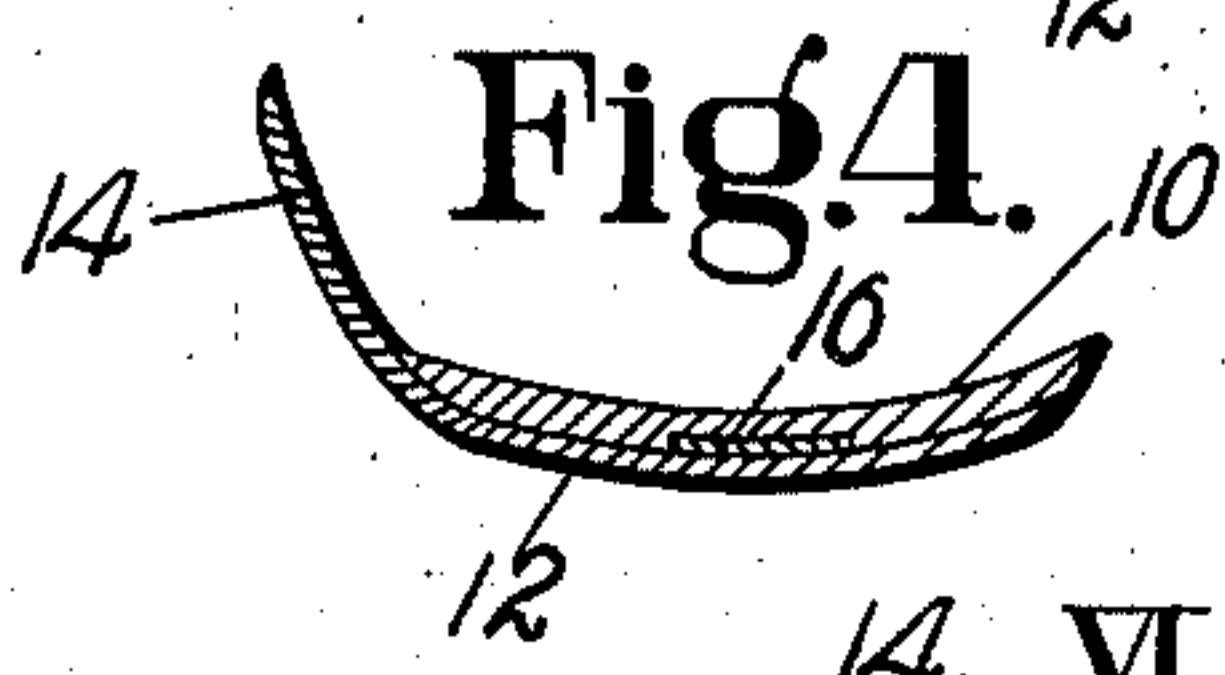
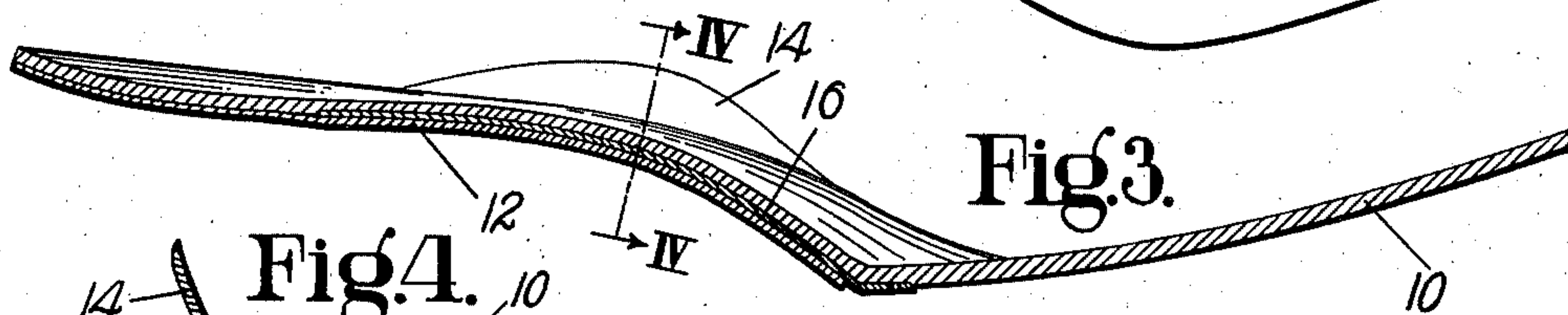
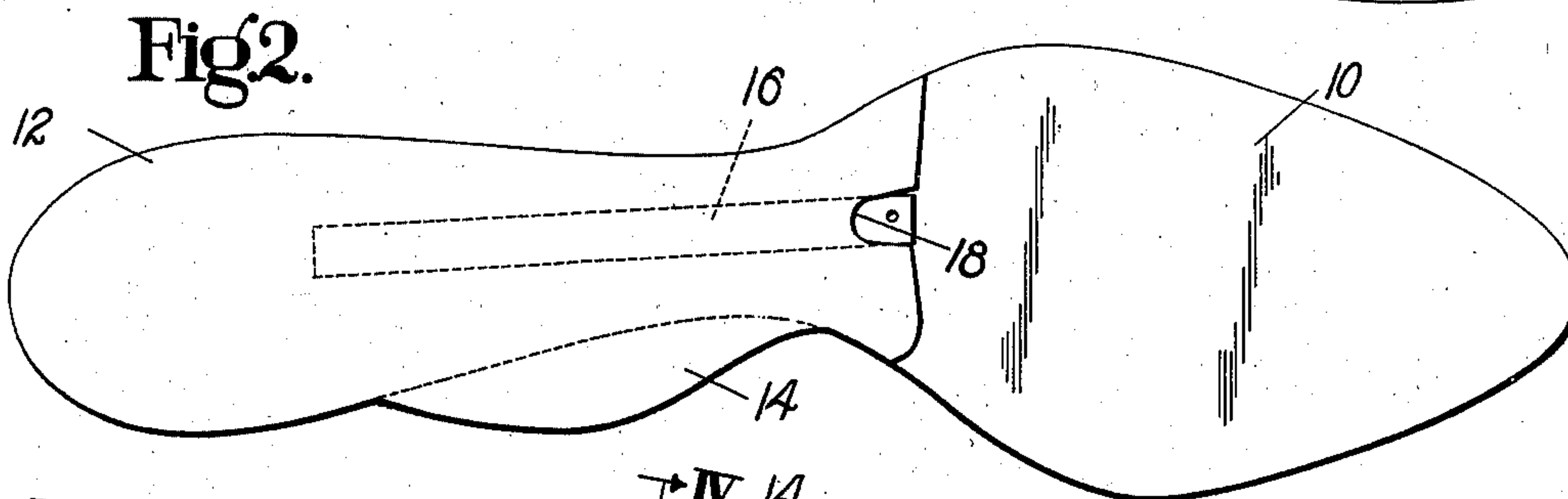
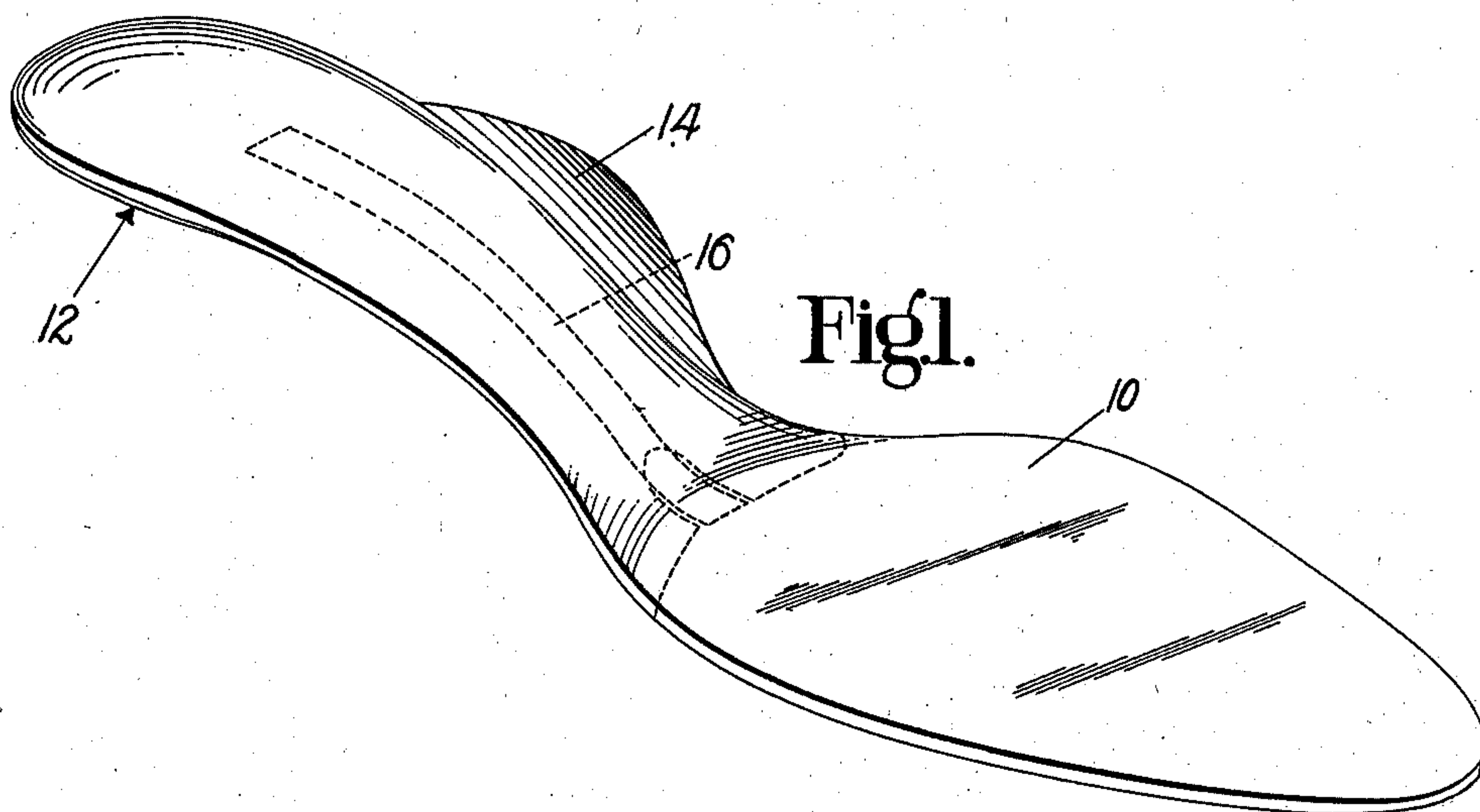
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ORTHOPEDIC INSOLE.

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ORTHOPEDIC INSOLE

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2 Claims. (Cl. 36—71)

This invention relates to improvements in so-called orthopedic insoles of the type in which a lateral shank extension or wing is provided for supporting the instep portion of the foot.

In a shoe having an orthopedic insole of this type the arch supporting wing is commonly made integral with the insole and inasmuch as the insole is composed of relatively flexible material so that its ball portion will readily conform to the movements of the foot in walking, the wing is liable to break down or become distorted under the weight of the foot after the shoe has been worn a short time so that it soon becomes ineffective to perform its arch-supporting function. Moreover, shoes having orthopedic insoles of this type often fail to support the foot adequately because the insoles are not shaped in their shank portions to fit the feet properly.

For the purpose of overcoming the above-mentioned difficulties in the use of orthopedic insoles, the present invention provides an insole of the type referred to which embodies certain features of reinforced insole unit construction and which comprises a relatively flexible insole and a relatively stiff heel-and-shank-reinforcing piece which is arranged to overlie substantially the entire heel and shank portion of the insole, the insole and the reinforcing piece each having its shank portion molded both longitudinally and transversely to conform to the curvatures of the corresponding portion of the bottom of a last or foot and the arch-supporting wing being formed as an integral extension of the relatively stiff reinforcing piece. As herein illustrated, a single arch-supporting wing may be located at the inside shank portion of the insole, or, if desired, wings may be provided at both the inside and outside shank portions of the insole. The illustrated insole is beveled to a thin edge along its inside shank portion to avoid the presence of any abrupt shoulder between the body of the insole and the arch-supporting wing and to enable the foot-engaging surface of the latter to blend with the adjacent foot-engaging surface of the insole itself. If desired, however, the insole itself may be formed with an integral shank extension adapted to overlie and be supported by the extension on the reinforcing piece.

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

Fig. 1 is a perspective view of my improved reinforced orthopedic insole unit showing the upper or foot-engaging side of the insole;

Fig. 2 is a bottom plan view of the insole unit;

Fig. 3 is a longitudinal sectional view of the insole unit;

Fig. 4 is a cross-sectional view taken along the line IV—IV of Fig. 3;

Fig. 5 is a top plan view of an insole unit of modified construction;

Fig. 6 is a cross-sectional view taken along the line VI—VI of Fig. 5; and

Fig. 7 is a cross-sectional view of an insole unit of still further modified construction.

As shown in Figs. 1 to 4, inclusive, of the drawing, my improved orthopedic insole comprises a full length insole 10, a heel-and-shank-reinforcing piece 12 having a lateral wing or extension 14, and a shank stiffener 16 which is interposed between the insole and the reinforcing piece. As indicated in Figs. 1 to 6, inclusive, the wing 14 extends from the inner edge of the shank portion of the reinforcing piece 12 and is bent abruptly upward at a substantial angle to the rest of the reinforcing piece to afford a support for the inner longitudinal arch of the foot. The insole 10 is preferably made of relatively flexible material such as leather or a suitable leather substitute so that it is capable of flexing freely in the vicinity of the break between its shank and forepart to accommodate the movements of the foot in walking. The reinforcing piece 12 is made of material such, for example, as fiber or leatherboard which is capable of being readily molded to conform to the contour of a last and which is relatively stiff so that it will retain its molded form and afford the required firmness and support for the heel and shank portions of the insole and the required stiffness for the wing 14 which, as shown, is formed as an integral extension of the reinforcing piece. The reinforcing piece 12 is so shaped as to overlie or to be substantially coextensive in area with the entire heel and shank portions of the insole and to conform in marginal contour to that of the heel and shank portions of the insole except along the inside shank portion of the latter where the extension or wing 14 is located. As shown, the reinforcing piece is applied to the under or outer side of the insole which is to face the outsole and preferably it is secured to the insole by means of adhesive, for example, latex or rubber cement. The illustrated shank stiffener 16 consists of a narrow strip of metal longitudinally arched to conform to the longitudinal curvature of the bottom of a last. The adhesive which secures the reinforcing piece to the insole assists in holding the shank stiffener in place. As shown, the forward portion of the shank stiffener

extends into an open notch 18 in the reinforcing piece which further assists in holding the shank stiffener in place.

As clearly shown in Figs. 3 and 4, the shank portion of the insole and the corresponding portion of the reinforcing piece are each molded or shaped both longitudinally and transversely to correspond to the longitudinal and transverse curvatures of the bottom of a last or foot. The wing or extension 14 of the reinforcing piece is likewise molded or shaped to conform to the contour of the inner side of the instep portion of the last or foot, the transverse curvature of the wing 14 blending with the transverse curvature of the body portion of the reinforcing piece. The illustrated insole 10 is beveled to a thin edge along its inside shank portion to avoid the formation of an abrupt shoulder between the adjacent inner surface of the wing 14 and the insole and to provide a substantially flush or continuous surface for engagement with the foot.

The upper or foot-engaging surface of the arch-supporting wing may be made continuous with the adjacent upper surface of the insole by forming a lateral extension or wing, such as the integral extension 20, upon the insole 10 for overlying the wing 14 on the reinforcing piece, as shown in Figs. 5 and 6.

Moreover, as shown in Fig. 7, the reinforcing piece 12, with the lateral extension or wing 14 formed thereon, may be secured to the upper side of the insole 10, i. e., to the side which is to face the foot.

In providing an orthopedic insole in which the lateral shank extension or instep supporting wing is formed partially or wholly upon a shank reinforcing member of relatively stiff material, the wing or instep support will not break down under the weight of the foot but will retain its original foot-conforming shape throughout the life of the shoe and thus will remain permanently effective to perform its arch-supporting function. Moreover, by embodying the herein-described features of reinforced insole unit construction in an orthopedic insole I am enabled to provide such an insole which has the required flexibility in the vicinity of the break line between its shank and forepart so that it will conform readily to the movements of the foot in walking but which, nevertheless, has the required firmness and stiffness in its shank portion and which, because of the molded contour imparted to its shank portion, will accurately conform to the shape of the bottom of the foot so that it will supplement the action of the arch-supporting wing or extension in providing adequate support for the instep portion of the foot. Inasmuch as the reinforcing piece and the insole are cemented together, the construction is further such as to insure that the

molded contours of the shank portion of the improved insole unit, including the shank extension or wing, will remain permanently notwithstanding the strains to which the insole is subjected in use.

The reinforced orthopedic insole unit herein described is adapted to be employed in the usual way in the manufacture of a shoe, the insole unit being assembled with the upper on a last, the upper being lasted and secured to the insole in any suitable manner, and the outsole being assembled and secured in proper relation to the insole and the upper either by stitching or cementing, depending upon the type of construction desired.

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 full length flexible insole, a relatively stiff heel and shank reinforcing piece underlying the heel and shank portions of the insole at the side which is to face the outsole and having an integral lateral extension in its shank portion for supporting the inner longitudinal arch of the foot, and a metallic stiffener of uniform width interposed between the reinforcing piece and the insole, said stiffener lying throughout its length beneath said insole and being located substantially midway between the opposite lateral edges of the shank portions of the insole, and said reinforcing piece and the portion of the insole covered by it being curved both longitudinally and transversely to conform to the corresponding longitudinal and transverse curvatures of the bottom of a last and being permanently retained in said curved formation by means of cement whereby said parts are secured together.

2. A reinforced insole unit comprising a relatively flexible insole having a wing extending laterally from the inner edge of its shank portion for supporting the inner longitudinal arch of the foot, a relatively stiff heel and shank reinforcing piece secured by means of adhesive to the heel and shank portions of the insole and coextensive in area with said portions and having a lateral extension in its shank portion underlying said wing and coextensive therewith and a shank stiffener interposed between the reinforcing piece and the insole, the insole and the reinforcing piece each having its shank portion, including the lateral extensions thereof, molded both longitudinally and transversely to conform to the longitudinal and transverse curvatures respectively of the corresponding portion of the last bottom, and said reinforcing piece extending to the forward extremity of said stiffener.

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