

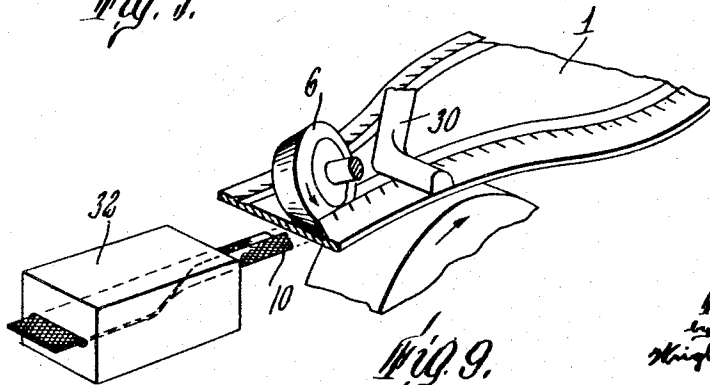
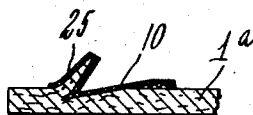
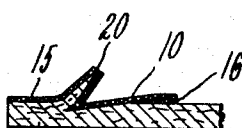
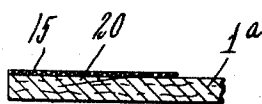
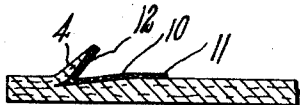
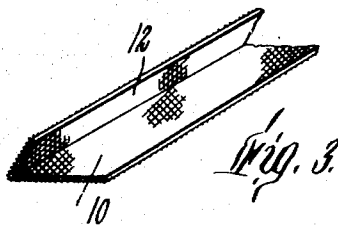
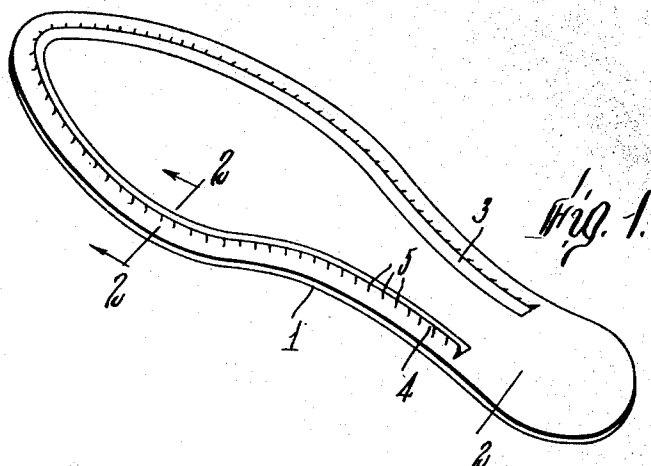
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INNERSOLE AND METHOD OF MAKING THE SAME

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UNITED STATES PATENT OFFICE

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INNERSOLE AND METHOD OF MAKING THE SAME

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6 Claims. (Cl. 36-22)

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This invention relates to the manufacture of innersoles of a type particularly suitable for use in the manufacture of shoes of the welt type.

It has for an object to produce an innersole from thin stock, provided with a non-floating in-seam-receiving rib so formed as to add little stiffness to the innersole.

It has for another object to produce an inner-sole which presents the full thickness of the innersole stock at its margin. This latter is of particular importance where a very thin innersole stock is employed in order that its edge may present sufficient stiffness so as not to be curled up by the upper in the shoe.

In order to provide a non-floating stitch-receiving rib, it is necessary to utilize a portion, at least, of the sole blank in forming the rib, and in order to present the full thickness of the blank at its margin, the blank cannot be channeled inwardly from its margin to form any portion of the rib. In order to provide a portion of the blank in the stitch-receiving rib, the blank is therefore channeled outwardly toward the margin on one face, in accordance with this invention, and the material of the lip formed by the channeling operation is replaced in the blank by a reinforcing member cemented to the face of the channel which substantially fills the gutter formed by the channeling operation. This reinforcing member may also have a part forming with the lip a further portion of the in-seam fastener receiving rib. The lip being formed by outwardly channeling the blank tends to return toward its position in the blank so that the rib tends to lie near to the plane of the blank rather than to stand out substantially perpendicular thereto, so that flexing of the innersole bends the lip substantially in its thickness direction where it is much more flexible than across its width. Flexing widthwise of the lip would be produced with the lip projecting from the face of the blank at a more nearly rectangular position.

In order that the lip may be raised sufficiently to permit the placing of the reinforcing strip, its edge portion may be slashed, but preferably this slashing is not carried to the root of the lip. This increases the tendency of the rib to lie closely to the blank so as to be more flexible as the innersole is flexed.

In order, also, that thin stock may be used, the channeling must be very shallow so as not to unduly weaken the blank and its upper face may be provided with a reinforcing layer of fabric or other suitable material through which the channeling may be made.

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

Figure 1 is a perspective view of the channeled blank.

Figure 2 is a detail sectional view on line 2-2 of Figure 1.

Figure 3 is a perspective view of a folded reinforcing strip or tape.

Figure 4 is a view similar to Figure 2, but showing the strip of Figure 3 applied to the blank of Figures 1 and 2.

Figure 5 is a view somewhat similar to Figure 2, but showing a modification.

Figure 6 is a view similar to Figure 4, but illustrating the modification of Figure 5.

Figure 7 is a view similar to Figure 5, but showing a modification.

Figure 8 is a view similar to Figure 6, but showing the modification of Figure 7.

Figure 9 is a fragmentary perspective view showing a method of progressively folding and applying the strip of Figures 3 to the innersole blank of Figure 1.

Referring first to Figure 1, a thin sole-shaped blank 1 is channeled outwardly from one face 2 about its margin to form a shallow gutter 3 beneath a thin lip 4. The inner edge portion only of this lip is then slashed as at 5 to render this portion of the lip sufficiently flexible to be lifted, as by a rotary plow 6 of Figure 9, so as to insert beneath the lip a reinforcing strip 10 which may be of fabric or any other suitable material of sufficient strength and of sufficient thickness to substantially fill the gutter formed by the channeling operation and to extend inwardly slightly beyond the inner edge of the gutter as shown at 11. This reinforcing strip does not extend across the innersole blank as it is undesirable to build up the thickness of the blank at its mid portion. This strip is preferably folded upon itself when applied so that a widthwise portion 12 lies beneath the lip 4 and preferably it is pre-coated with cement so that when applied, it is cemented firmly to both the top face of the blank within and slightly inwardly of the gutter and against the under face of the lip. The lip 4, with its reinforcing layer 12, then forms the in-seam receiving rib of the innersole. Since the reinforcing layer substantially fills the gutter formed by the channeling operation and the outer edge portion of the blank being uncut presents its full thickness, the faces of the innersole on opposite sides of the stitch-receiving rib are at substantially the same level so that the in-seam stitches

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can be placed properly with the usual curved needle. The lip 4 being integral with the innersole blank, provides the desired non-floating rib construction, and because of the direction of channeling, this rib tends strongly to incline sharply inwardly so that any flexure imparted to the innersole is exerted substantially in the direction of thickness of the rib rather than widthwise so that it imparts the minimum additional stiffness to the innersole. With this construction an innersole as thin as two and one-half irons can be utilized, an iron being one forty-eighth of an inch.

An even thinner blank may be used, however, say, one and one-half irons, by the use of a reinforcing layer shown as a strip 15 cemented to one face of the thin blank 1a as shown in Figure 5, the outer channeling being then through the strip 15 and into the blank 1a. The lip thus formed is then lifted, as shown in Figure 6, sufficiently to apply the reinforcing strip 10 beneath it, filling the gutter formed by the channeling operation, the inner edge of the strip 10 overlying the inner marginal portion 16 of the strip 15, as shown in Figure 6. The stitching rib in this case comprises the lip formed partly by the reinforcing layer 15 and partly by the portion 20 of the lip cut from the blank by the channeling operation. The completed innersole in this construction presents not only the thickness of the edge of the blank, but also the thickness of the layer 15, although if it is desired that this layer 15 should not show in the finished innersole, a somewhat narrower reinforcing strip may be employed as shown in Figure 7 at 25, or, if desired, the reinforcing strip may be placed somewhat inwardly from the margin of the blank. The channeling is then performed as previously described, cutting through the strip 25 and into the blank 1a, the lip thus formed being raised and the folded reinforcing strip 10 placed in position beneath the lip, as previously described, to form the structure shown in Figure 8.

After the reinforcing strip 10 is placed in position, the lip may be pressed down as by the feeding fingers of the machine, one of which is shown at 30 in Figure 9, to form the completed innersole. As shown the strip 10 may be folded on its way to the blank when it is being applied, this being shown in Figure 9 as accomplished by a folder 32 of well known construction through which the tape passes on its way to the plow 6 by which it is applied to the blank.

From the foregoing description of certain embodiments of this invention, it should be evident to those skilled in the art that various other changes and modifications might be made without departing from the spirit or scope of this invention.

I claim:

1. An innersole comprising a blank, a reinforcing strip secured to one face of said blank around at least its forepart, said reinforcing strip and blank being outwardly channeled to form an inwardly inclined lip, and a second reinforcing strip cemented to said blank beneath said lip and substantially filling the space previously occupied by said lip, the margin of said innersole present-

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ing the full thickness of said blank and said first-mentioned strip.

2. An innersole comprising a blank, a reinforcing strip secured to one face of said blank around at least its forepart, said reinforcing strip and blank being outwardly channeled to form an inwardly inclined lip, and a second reinforcing strip cemented to said blank beneath said lip and substantially filling the space previously occupied by said lip, the margin of said innersole presenting the full thickness of said blank and said first-mentioned strip, said second reinforcing strip having a width-wise portion underlying and cemented to said lip and with said lip forming an in-seam securing rib inclined sharply inwardly.

3. The method of making an innersole, which comprises cementing a surfacing strip to one face of a sole-shaped blank around at least the forepart margin of said blank, outwardly channeling through the reinforcing strip and into said blank to form a lip, and inserting beneath said lip and securing to the blank and strip a second reinforcing strip substantially filling the gutter formed by the channeling operation and cementing a widthwise portion of said second strip to the under face of said lip.

4. An innersole comprising a blank, a reinforcing layer secured to one face of said blank at least over its forepart, said reinforcing layer and blank being outwardly channeled to form an inwardly inclined lip, and a reinforcing strip cemented to said blank beneath said lip and substantially filling the space previously occupied by said lip.

5. An innersole comprising a blank, a reinforcing layer secured to one face of said blank at least over its forepart, said reinforcing layer and blank being outwardly channeled to form an inwardly inclined lip, and a reinforcing strip cemented to said blank beneath said lip and substantially filling the space previously occupied by said lip, said reinforcing strip having a widthwise portion underlying and cemented to said lip and with said lip forming an in-seam securing rib inclined sharply inwardly.

6. The method of making an innersole which comprises cementing a reinforcing layer to one face of a sole shaped blank at least at the forepart of the blank, outwardly channeling through the reinforcing layer and into the blank to form a lip, and inserting beneath said lip and securing to the blank and layer a reinforcing strip substantially filling the gutter formed by the channeling operation.

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