No. 878,453. PATENTED FEB. 4, 1908.

N. C. BOHR.

INSOLE.

APPLICATION FILED OCT. 22, 1906.

Fig. 1.

Fig. 2.

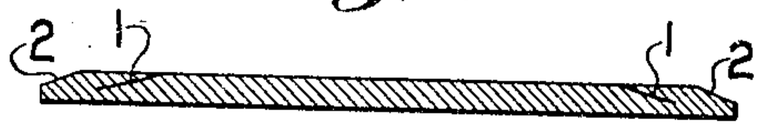


Fig. 3.

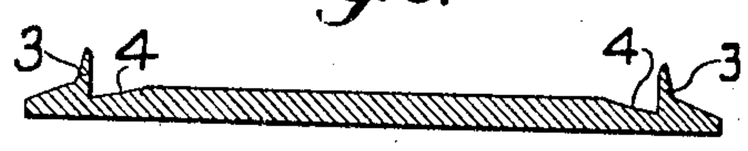


Fig. 4.

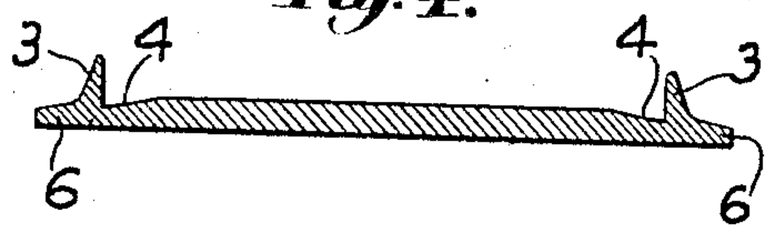
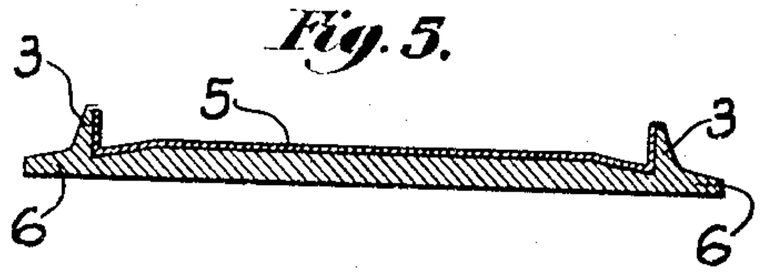


Fig. 5.



Witnesses:
Edwin T. Luce
Robert H. Kammler.

Inventor:
Nicholas C. Bohr,
by Emery & Booth,
Atty's.

UNITED STATES PATENT OFFICE.

NICHOLAS C. BOHR, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO MANUFACTURERS MACHINE COMPANY, OF MONTCLAIR, NEW JERSEY, A CORPORATION OF NEW JERSEY.

INSOLE.

No. 878,453. Specification of Letters Patent. Patented Feb. 4, 1908.

Application filed October 22, 1906. Serial No. 339,904.

To all whom it may concern:

Be it known that I, NICHOLAS C. BOHR, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Insoles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention aims to provide a novel and improved reinforced insole for boots and shoes.

The various features of the nvention will be best understood from a description of one embodiment thereof, illustrated in the accompanying drawing.

Referring to the drawing, the several figures, numbered 1 to 5 inclusive, illustrate cross sections of a sole made in accordance with my invention, in different stages of completion.

Referring to the drawing, in the embodiment of the invention selected for illustration herein and there shown, Figure 1 is a cross section of an ordinary died or rounded sole.

This may be of any usual material, commonly of leather, and of a quality and weight or thickness such as makes it desirable to reinforce it by applying thereto a fabric or other layer or piece of reinforcing material.

This sole will be of the desired outline for the particular style or shape of shoe of which it is to become a part.

In practicing this invention, it is preferred to channel this sole, from its upper or inner face downwardly and outwardly towards the periphery as at 1, said channel commonly following the marginal outline of the sole and suitably distant within said margin, said channel preferably being farther removed from the margin along the narrower shank portion of the sole than around the forepart thereof, as is common with insoles whether reinforced or not.

The particular depth and curve or shape of this channel 1 and its angle or obliquity may be such as best fit it for the particular shoe of which it is to become a part, and also to suit it to the reinforcement to be applied thereto and the machine in connection with which it is to be used in welting.

The marginal edge of the sole, around that portion thereof which is channeled and at the same side as the channel is preferably chamfered, beveled or feather edged, as at 2, the bevel being such as to leave the margin of the desired thickness to best adapt it for practical use in a boot or shoe. Preferably this bevel will be such as to bring said marginal edge always to a uniform thickness, irrespective of the possible varying thickness of the sole blank itself. This bevel is preferably such as to leave a considerable portion of the upper face of the marginal portion of the sole next the lip and near the base thereof when it is upturned, uncut and with its natural flesh or commercial face. This channel flap, which is here marked 3, is next "turned" into an upright position, as in Fig. 3, by any suitable instrument or machine and left with its inner face as preferably straight and vertical and forming an open corner at its base with the opposite face 4 of the channel cut. This turning of the channel flap tends to thicken the same, particularly in the vicinity of the base thereof, but when turned, as in Fig. 3, a portion of the sole outside the turned channel-flap or lip is thicker than that portion of the sole at and near the bottom of the channel. This is undesirable because it would prevent a curved needle of the usual "welter" from penetrating said lip close to the bottom of the channel. To obviate this, and also to strengthen and solidify the sole at and near the base of the lip I consolidate and reduce the thickness of said outer or marginal portion of the sole near the base of the lip by compression, hammering or the like, preferably to the outline indicated in Fig. 4. This reducing or consolidating action is preferably such as to cause the material to flow toward the lip and into and to thicken and strengthen the same so that when completed the outer marginal portion of the sole, outside the upturned lip, is so consolidated, compressed and solidified as greatly to strengthen the sole at the base of the lip where it is required to receive and sustain the inseam stitches, as compared with the

holding quality of the sole if of the texture or composition of the sole as a whole.

Another and highly important advantage obtained by compressing and consolidating this marginal portion of the sole is that the stability of the sole outside the lip and its ability to hold its shape after the shoe has been made and put into use is greatly increased, thereby making the sole more suitable and attractive for commercial use. The sole is now reinforced by applying thereto a reinforcing material 5 (see Fig. 5) preferably a sheet of a textile material, such as the well-known duck used in shoe manufacture. This reinforcing material preferably is died out previously to the shape of the channel, with sufficient margin to be upturned to cover the inner face of the lip. This reinforcing material, or the surface to which it is to be applied, or both, is or are suitably cemented or prepared with adhesive and is then laid in position covering the whole or such part as is desired of the channel surface of the insole, said reinforcing material being carried as indicated in Fig. 5 closely and smoothly down into the bottom of the channel, thence upward, on and secured to the inner face of the upturned lip. The bottom of the channel, after it has been reinforced as in Fig. 5, will preferably be at about the same level as the consolidated sole margin 6 at the base of the lip, so that a curved needle entering the lip from the outer side thereof and near the base will emerge in the channel close to the bottom thereof, thus insuring a free passage of the needle with a maximum of support for the stitch furnished by the reinforced lip. This reinforcing material may be worked into place finally by the hands of the operative, or it may be applied by machinery or applied by hand and finished, rolled or otherwise finally positioned by the aid of machinery.

While it is possible to die out the reinforced blanks with sufficient accuracy to enable them to be positioned without leaving any ragged or uneven projections above the lip or any part thereof it is, however, sometimes convenient to use reinforced blanks that are not accurately died or cut to shape, in which event there would likely be more or less of the reinforcing material left projecting above the upturned insole lip, which may be trimmed off to the level of the lip itself if desired.

In practice, the insole channel and the marginal bevel or feather may conveniently be produced simultaneously by the use of one and the same machine. While the marginal consolidation may be separately performed, it has been found convenient to combine it with one of the other operations, for example, that of upturning the channel lip, or it might be combined with or repeated with the tucking or rolling of the reinforcing material into the channel and upon the inner face of the lip thereof.

The sole here illustrated presents many features of advantage. It requires less reinforcing material than where such material is carried over or beaded about the upturned lip and carried down to or out upon the projecting marginal portion of the sole. The inseam may be carried closer to the bottom of the channel than with many of the commercial reinforced soles, because the outer marginal portion of the sole is not above the level of the bottom of the channel, hence does not keep the needle of the inseaming machine from reaching to the bottom of said channel. The consolidation or hardening of the outer marginal portion of the sole strengthens the same against any deformation or change of shape during the process of manufacture or after the sole is put into use, which is very desirable because it preserves the comfort of the shoe, the shape thereof and prevents any objectionable bunches or inequalities on the foot supporting surface of the insole. By the solidifying, compressing or hardening of the material in the vicinity of the base of the lip an effect is obtained which is tantamount to improving the quality of the insole at or along the point or line where it is called upon to perform its principal work, namely, that of resisting the stitch forming operation and holding the stitches of the inseam while the shoe is in use, thus providing a better and more durable shoe with a given quality or grade of insole stock. These and other advantages will be readily apparent to those skilled in the art and who make a study of an insole made in accordance with my invention.

While it has been found convenient and preferable to practice the invention in the manner here illustrated, nevertheless this invention obviously is not limited to the particular embodiment here shown and described.

Having described one embodiment of this invention and without limiting myself in the matter of details, what I claim and desire to secure by Letters Patent is:

1. The described insole for boots and shoes having a channel, a lip upturned from said channel, a marginal consolidated portion outside said lip, and reinforcing material secured to the sole inside the channel lip.

2. The described insole for boots and shoes, the same comprising a channel having an upturned lip, a marginal beveled portion outside said lip, a consolidated portion between the beveled portion and said lip, and provided within said lip with reinforcing material.

3. The described reinforced insole for boots and shoes, comprising a channel having an

upturned lip, reinforcing material applied to the channel within said lip, and an outer marginal portion consolidated substantially to the level of the bottom of the reinforced channel.

4. The described reinforced insole, provided with a channel having an upturned channel lip, a reinforcing fabric applied to the sole and extended within the channel, and a marginal sole portion outside said lip having a consolidated face substantially in the plane of the reinforced bottom of the channel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NICHOLAS C. BOHR.

Witnesses:
ROBERT H. KAMMLER,
CHARLES M. LAWRENCE.