

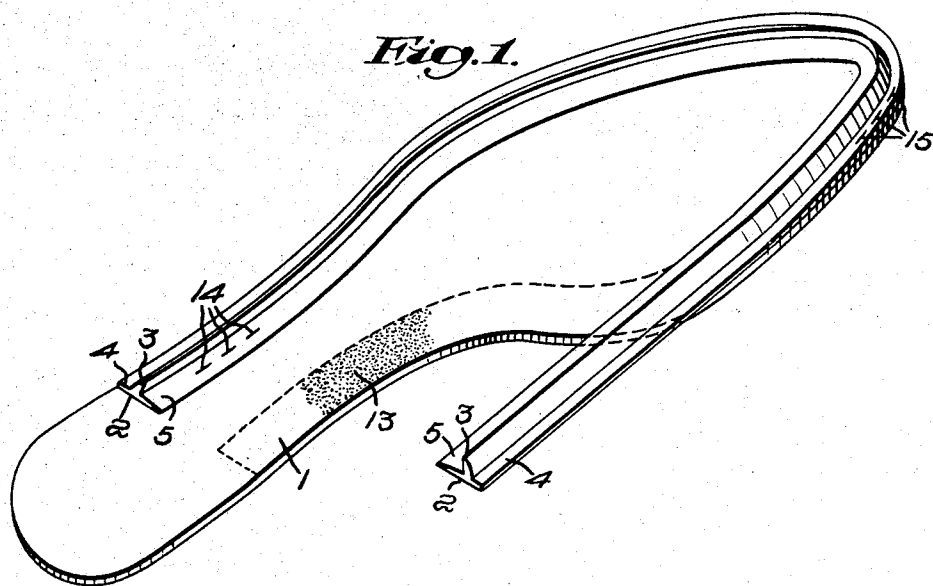
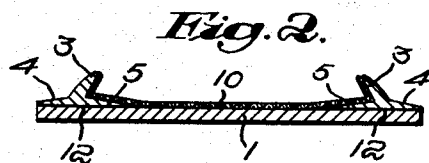
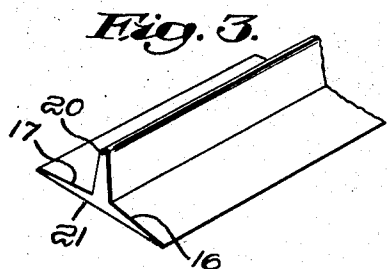
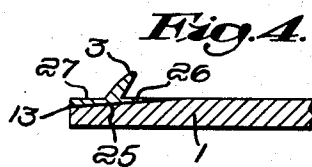
Nov. 21, 1944.

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2,363,455

WELT INSOLE

Filed Oct. 3, 1941



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UNITED STATES PATENT OFFICE

2,363,455

WELT INSOLE

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Application October 3, 1941, Serial No. 413,500

2 Claims. (Cl. 36—22)

My present invention is a novel and improved welt insole for use in the manufacture of boots and shoes, and includes a novel type of sewing rib in combination with the insole, the present application being a continuation in part of my prior application Ser. No. 348,387, filed July 30, 1940.

In the manufacture of welt shoes, it is customary to form a sewing rib on the insole, either by cutting from the material of the insole, usually leather, and turning up a rib or by attaching a rib to the insole by stitching, adhesive, or the like, and thereafter the welt insole thus made is usually reinforced by the well-known gemming operation.

In my present invention, I have devised a novel form of rib structure made with a substantial quantity of plasticized poly-vinyl resin. To this combination of poly-vinyl resin and a suitable plasticizer, I prefer also to add a stabilizing ingredient and, preferably, a filler. The resultant material when extruded or molded into an integral upstanding rib and attaching flange has sufficient rigidity to maintain its rib-like form and to withstand the lasting, strains, and operations, and also of suitable inherent strength to insure stitch-retaining during the welt-inseaming operation, as well as being of a consistency which will be initially and permanently pliable and plastic, and suitable to be trimmed off during the insole trimming operation with the same cutting instrumentalities used to trim the upper and lining during such operation.

The rib structure is preferably formed as a continuous strip of material with an upstanding rib for the insole stitching and a horizontal flange portion for attachment of the rib to the insole blank.

This attachment may be and, preferably, is secured by any suitable adhesive or cement, which can be coated on the insole blank or on the flange, or both, and properly attached to the marginal portion of the insole progressively so that the rib is properly spaced from the margin of the insole around the forepart to thus complete the welt insole. In addition to the adhesive, or any substitution therefor, staples or stitches may be employed to attach the rib and flange to the insole.

In carrying out my present invention, I utilize a suitable compound of plasticized poly-vinyl resin together with a stabilizer, an inert filler, if desired, and also I may incorporate a small quantity of coloring matter.

I have discovered that this will produce, when

attached to an insole, a rib structure which has inherent strength for stitch-retaining, together with rigidity to facilitate the lasting and inseaming operation and constituting an initially and permanently flexible rib structure, thus giving added flexibility to the resultant shoe.

I find that a considerable range of proportions of material can be utilized in making such a flexible rib. Thus, a proportion of plasticized poly-vinyl resin in combination with a stabilizer, a plasticizer, and the optional coloring matter may be from 25% to 75% by weight of resin, depending somewhat on the physical properties of the base resin and on the plasticizer used. The largest portion of the remainder in weight would be the plasticizer and relatively small amounts of a stabilizing ingredient, plus an inert filler, when used, and the coloring matter may be an extremely small proportion.

I have discovered that such a rib structure is of great strength and tenacity and, as far as can be at present determined, maintains its initial pliability indefinitely and, therefore, constitutes an ideal substance for a sewing rib which, also, can be trimmed closely after lasting and inseaming, and thus presents a very slight ridge between the insole and outsole, giving a substantial saving in the filler used as well as eliminating all ridges or "guttering" in the foot-contacting surface of the insole during use in the shoe because of the inherent flexibility of the rib structure.

Furthermore, I have discovered that such a plastic rib structure is of sufficient strength and rigidity to eliminate entirely the necessity of reinforcing or gemming, although such gemming can be applied, if desired, mainly to give weight and thickness to the body of the insole blank. Preferably, however, I eliminate the gemming entirely, although if gemming is desired a slight saving in material could be made in the thickness of the rib structure.

I am aware that various efforts have been made heretofore to attach canvas ribs or canvas and a filler to an insole blank, as well also as rubber or rubber and a filler, but such prior efforts have not resulted satisfactorily, are not permanently as well as initially pliable, and constitute a built-up rib structure also requiring gemming, and rubber alone has not sufficient inherent stitch-retaining strength to be suitable for a welt insole sewing rib.

As far as I am advised, my discovery of the use of a plasticized poly-vinyl resin as the main and principal constituent in a homogeneous mass,

in the form of an integral upstanding rib and horizontally extending attaching flange as a sewing rib structure, is a distinct novelty in this art and I wish to claim the rib structure so made and the combination of an insole blank and such plastic rib structure broadly.

In the drawing illustrating a preferred embodiment of the invention:

Fig. 1 is a perspective view illustrating the operation of applying the plastic rib structure with integral flange and rib to the insole;

Fig. 2 is a cross-sectional view illustrating my completed insole with the reinforcing flange, and

Fig. 3 is a fragmentary perspective view illustrating the plastic rib material centralized relatively with the flange; and

Fig. 4 is a fragmentary cross-sectional view illustrating a modification.

As shown in the drawing, an insole blank 1 is formed in any suitable manner, and of any desired material such as leather, fibre, leather-board, or other suitable sheet material, and of any desired length, size, and contour for the shoe to which the same is to be incorporated. I provide my novel type of plastic rib structure having stitch-retaining capacity as well as sufficient rigidity to maintain its rib and flange conformation as above stated, while permitting lengthwise flexibility to enable the rib to be applied around the contour of the insole, particularly at the toe portion, either with or without pinking.

My improved rib structure comprises a flange 2 and an upstanding rib portion 3 integral therewith, the flange 2, preferably, extending on each side of the rib 3, as shown at 4 and 5, although a single flange extending at the side of the base of the rib is within the scope of my present invention. Preferably, the flanges or the edge portions of the sides 4 and 5 are thin or are tapered from the base of the rib 3 to present a smooth surface or to facilitate the applying of the reinforcing or gemmed material 10, if same is employed.

If desired, the insole could be slightly recessed or bevelled around its margin, to which the flange and rib may be secured, thus giving the insole a substantially even thickness from the base of one rib on one side to the base of the rib on the opposite side of the insole.

Preferably I unite my special plastic rib structure to the insole by a suitable adhesive 12, coating the bottom portion of the flange 2 from one extreme edge 4 to the opposite edge 5 with adhesive, or I may coat the surface of the insole to which the flange of the rib structure is to be attached by adhesive, as indicated in dotted lines at 13; or I may coat both surfaces and thereupon apply the rib and flange structure to the insole following the contour of the margin of the same either by hand or any suitable machine, and with sufficient pressure to unite the rib structure and insole firmly together.

I may also, if desired, especially at the shank and toe portions unite a rib structure and insole blank by staples or stitches 14—14 either thru the inner flange 5 or the outer flange 4, as shown at 15.

In case the plastic or the insole blank is of such a material as to be capable of forming an adhesive surface by applying a solution to the contacting surface, this process may be utilized in uniting the rib to the insole blank.

With the flanged rib attached to the insole blank, the same may be then reinforced, if desired, by putting it thru the gemming operation, which attaches a strip or a belt of canvas or other reinforcing material 10 to the surface of the insole 1 and the upstanding rib portions 3, as illustrated in Fig. 2.

Preferably, I may form the rib and flange structure with the rib portions 3 inclined inwardly for better stitch-retaining, as shown in Fig. 2, or I may make the ribs substantially vertical with the flange, as shown in Fig. 3.

I may also form the flanged parts 4 and 5 either specially to have one part cooperate with the marginal edge of the upper, giving greater thickness and strength thereon, as shown in Figs. 1 and 2, or I may form each flange 16 and 17 where the rib 20 is vertical so that these flange portions are interchangeable and the rib can be applied to the insole blank and follow the contour and portions of the same with either marginal edge portions 16 and 17 of the flange 21 interchangeable on the inner or on the outer side of the rib.

The advantages of my improved welt insole with the integral flange and rib structure of a homogeneous plastic material, incorporating a substantial proportion of plasticized poly-vinyl resin will be readily appreciated.

In Fig. 4 I have illustrated a somewhat modified form of structure wherein the insole 1 has its margin around the shank and forepart bevelled or cut away as shown at 25, and with the rib and flange of special form to cooperate with the bevel so that the inner surface of the insole 1 is flush widthwise from rib to rib. For this purpose, the rib 3 has its integral flange formed with a bevelled or wedge-shaped structure in cross-section, as shown at 26 and 27, and the adhesive 13 coated on either the flange or the bevelled part of the marginal edge portion of the insole, or both, to unite the same and, preferably, build up the outer edge of the insole and flange 27 to normal thickness of the insole.

My invention includes not only the welt insole thus formed, with a rib and attaching flange made of a substantial proportion of plasticized poly-vinyl resins of a consistency and rigidity to insure standing up during the inseaming operation when the lasted shoe is guided around the inseam stitching machine, but also provides ample toughness to constitute a stitch-retaining sewing rib independently of gemming, while maintaining an initial and permanent elasticity, and also consists in the provision of a new and novel article of manufacture of a prefabricated rib and flange structure capable of being made in long lengths of uniform consistency and at a minimum of expense, and then kept in stock and utilized as desired.

I claim:

1. A prefabricated rib for attachment to an insole, for use in the manufacture of welt boots and shoes, said rib comprising a continuous unscarfed strip in the form of an upstanding stitch-receiving portion and an integral horizontal attaching flange, said strip being formed solely of a plasticized polyvinyl resinous material, having a consistency and a rigidity to insure withstanding the lasting operations in shoe manufacture, with toughness to constitute stitch-retaining for the inseaming operation, said polyvinyl resinous material being between twenty-five per cent to

seventy-five per cent in weight of the said material, whereby an initially and permanently pliable sewing rib is provided for welt footwear.

2. A welt insole comprising an insole blank and a sewing rib secured to the marginal portion of said insole blank, said sewing rib comprising an upstanding stitch-receiving portion and an integral horizontal attaching flange, said attaching flange being adhesively secured to the insole, said rib and flange being preformed from a plasticized 10

polyvinyl resinous compound of initial and permanent pliability for yielding with the flexing of a shoe, said resinous compound comprising between twenty-five per cent to seventy-five per cent in weight of the compound, and being of sufficient rigidity to withstand lasting and a toughness to retain stitching independently of gemming or other reinforcing.

WALLACE C. WRIGHT.