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W. C. WRIGHT

2,448,165

PREFORMED WELT

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Fig. 1.

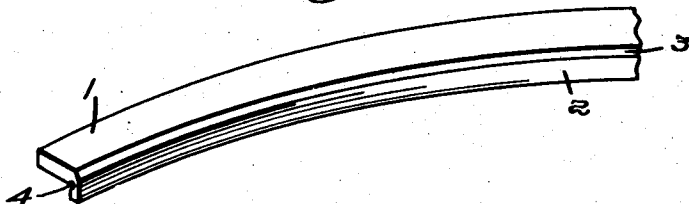


Fig. 2.



Fig. 3.

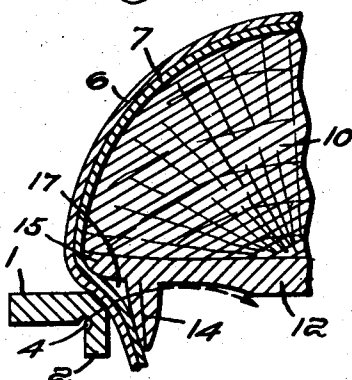


Fig. 4.

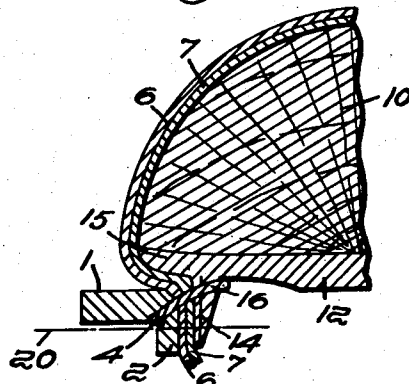
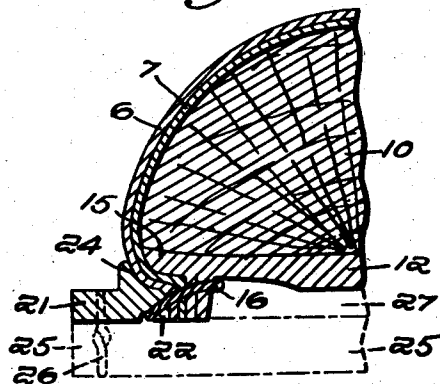


Fig. 5.



Fig. 6.



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PREFORMED WELT

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My present invention is a novel welt, and includes an improved preformed welt of novel design so constructed and arranged as to be attached to the upper and insole to eliminate the beating-out operation.

Heretofore in the making of welt, or Goodyear welt, footwear it has been customary to use welts in the form of flat leather strips, having the short lengths of leather scarfed and cemented together to make a continuous strip of substantial length, which leather strip was applied in substantially flat condition to a lasted shoe and stitched thru the upper and sewing rib on the insole, after which the welt had to be bent or beaten-out widthwise to enable the marginal portion of the welt, which was to receive the outsole stitching, to extend substantially horizontal from the sides of the shoe and in a plane parallel with the shoe bottom.

Such prior welts ordinarily had a stitch-receiving groove formed near one edge and were frequently bevelled slightly along the corner edge opposite to but adjacent the groove, the insole stitching normally passing from the groove on one side, close to or thru a bevel, and thru the upper materials and sewing rib of the insole. This in-seaming operation thus held the welt in contact with the forepart of the lasted shoe with the body of the welt lying flat against the upper. Consequently the entire welt had to be bent widthwise after such attachment and beaten out to extend substantially horizontal, requiring special treatment around the toe portion to stretch and bend the upstanding welt into an outstanding position.

My present welt construction and the method of attaching eliminates the difficulties above outlined and enables the beating-out operation to be entirely omitted, as I so pre-form my novel welt structure that it can be attached to the shoe by the insole stitching with the body portion of the welt extending horizontally in final outstanding position, both around the forepart and the toe. Thus the beating-out is unnecessary and the labor, time, delay, skill and handling are eliminated, and the use of beating-out machines for such purpose is saved.

Furthermore, an important advantage of my present invention is that the outstanding portion of the welt is in a normally outsole-contacting

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position for the outsole-stitching, thus giving a better, close, and tighter seam between the outer edge of the welt and the corresponding portion of the outsole, preventing the tendency of a normally beaten-out welt to spring or separate from the outsole, as in former leather welt constructions.

In carrying out my invention, I prefer to utilize a continuous strip of synthetic plastic material having stitch-retaining toughness, permitting a pre-formed contour and permanent pliability, as explained in my patent granted December 4, 1945, Patent No. 2,390,485, on "Shoe and welt therefor," and my abandoned application Serial No. 357,293, filed September 18, 1940, on "Shoe, welt therefor and process of making," wherein I have described and claimed certain advantages in the use of synthetic plastic material, such as Koroseal, Vinylite, or the like stitch-retaining and permanently pliable materials.

My present invention is a development of and a novel design in cross-section of a welt to present the pre-beaten-out final form, so that as the welt is attached the outsole stitch-receiving portion is in horizontally extended position, as above explained. Thus, by my present invention the in-seaming operation not only attaches the welt but simultaneously acts to position the main body of the welt in horizontally extended relation for the outsole-stitching operation.

Thus, in carrying out my improved welt construction, I have so designed the same in cross-section that the insole attaching portion of the welt is a downstanding portion, and the outsole stitch-receiving portion is an outstanding portion, these two portions being preformed at nearly right angles with each other and, preferably, with the main body or outstanding portion of slightly greater width and, if desired, thickness than the downstanding portion. A stitch-receiving groove can be formed on the interior of these two right-angled downstanding and outstanding portions, and a slight bevel would ordinarily be made on the outside corner of the two portions.

I find that the angular position best suited for these welt portions is substantially a right angle, which may be varied from approximately 255 to 275° for the outside angle. Also, my novel welt is so designed and constructed that the pulling

forces of the in-seam stitching passing thru the welt also extends substantially thru the center of twist of the cross-section of the welt with the in-seaming thru the downstanding portion and the outseaming thru the outstanding portion.

Thus, my novel eccentric L-shaped welt construction results in the in-seaming operation passing diagonally thru the downstanding part of the welt and slightly below the outside corner edge, thus holding the welt solidly against the upper and snugly under the marginal feather edge of the insole as the stitching is sewn thru the welt and sewing rib of the insole. Thus, I provide a construction whereby a cross-section thru the welt at any point will illustrate the stitching along a line on an axis about which the welt itself would be bent or stretched to conform to the curvature of the shoe around the forepart and toe and, thus, the attaching forces acting on the welt imposed by the process of in-seam stitching, and opposed by the resistance of the material itself, reach an equilibrium without causing the outstanding portion of the welt to be substantially deflected from its normal approximately horizontal plane.

Thus, the formation of my welt with a downstanding portion and an outstanding portion substantially at right angles with each other normally cooperate with the concavity of the shoe insole between the feather and sewing rib into which the upper materials are drawn during the in-seaming action, concentrating the bearing pressure and forces between the welt and the shoe both above and below the point of sewing, thus automatically tending to hold the outsole-attaching or outstanding portion of the welt to lay in its horizontal plane.

Furthermore, the welt is not only attached with the outstanding portion in pre-beaten-out position, but my novel construction also tends to prevent the welt from wrinkling or putting undue strain on the in-seam stitching around the toe portion even when sharp toes with relatively short radii are being made. This advantageous feature is still further secured by utilizing a stitch-retaining synthetic plastic material, having the toughness and permanent pliability characteristic of such plastics as Koroseal, Vinylite, or the like.

Thus an advantageous cooperation is obtained by my right-angled welt construction of such material in improving the entire shoe structure, resulting in so attaching my novel welt as to insure a tight outer seam between the welt and outsole, facilitating the cementing and attaching of the outsole as well as improving the trimming, inking, waxing, and other finishing operations, while entirely eliminating the beating-out operation and difficulties incident thereto.

The outstanding portion of the welt normally automatically and permanently is maintained in its desired position without any other action than the simple and necessary in-seaming operation. The upper and welt are more snugly drawn into the corner between the insole sewing rib and feather edge, thus producing a better fitting shoe and preventing any possibility of the in-seam stitches becoming exposed to view or grinning, as it is termed, a highly objectionable feature in standard welt shoe construction.

While a novel cross-section of my welt is, as far as I am informed, a distinct novelty in this art and I therefore wish to claim the same herein broadly, and of any material, yet I find it desirable to utilize a synthetic plastic material for

my welt, as above explained. Such plastic is particularly advantageous in enabling continuously, long, unscarfed strips of my novel welt to be readily made, molded, extruded, or otherwise formed in an economical manner, and of uniform thickness, with permanent pliability, of color throughout the entire mass of the welt, and with a pre-formed angular position of the outstanding and downstanding portions of the welt in permanent relationship. The resultant advantages in the entire shoe structure give a permanently plastic shoe, and because of the snug fitting and characteristics of the synthetic plastic, results also in a substantially waterproof shoe, preventing moisture from flowing thru the in-seam stitching.

While my right-angled welt construction is designed for standard welt, or Goodyear welt footwear, I may also readily make such right-angled welt with an upstanding portion in alignment with the downstanding portion to thus produce a beaded welt effect, as well as to still further afford an upper-engaging element to force the upper materials more snugly into the corner between the insole feather and sewing rib, which would result still further in a moment of forces to hold the outstanding portion of the welt in its horizontal plane relatively with the shoe bottom. Several diagrammatic cross-sectional contours of my welt are shown in the attached drawings, and various other modifications will readily occur to those skilled in the art.

My novel design of an L-shaped welt and, preferably, of eccentric L-shape in cross-section, wherein the welt comprises a longitudinal and horizontally extending body portion to receive the outsole stitching, and a substantially right-angled depending smaller and, preferably, narrower downstanding portion to receive the in-seam stitching, either with or without an intermediate bevelled surface between the horizontal and the downstanding portions, are essential novelties of my present invention.

Also, it is an inherent and fundamental principle of my present invention that the cross-section of the welt is so constructed and designed that any bending of the welt around a continuous succession of axes during the process of the in-seam stitching that the forces acting on the welt imposed by the in-seam stitching reach an equilibrium without causing the outstanding portion of the welt itself to leave its normally horizontal plane. The condition just described is inherently impossible in a flat welt or in one with only normal curvature or slight pre-bending at the bevel, as such prior welts are bent around the contour of the shoe.

All such prior efforts have been of negative value prior to my discovery of the range of an effective angle necessary to obtain the result desired, as above explained.

Referring to the drawings illustrating preferred embodiments of my present invention:

Fig. 1 is a view in perspective of my improved welt;

Fig. 2 is a cross-sectional view on an enlarged scale of the welt shown in Fig. 1;

Fig. 3 is a diagrammatic view in cross-section illustrating the application of a welt to a lasted shoe;

Fig. 4 is a corresponding view showing my welt attached by in-seam stitching;

Fig. 5 is a cross-sectional view of a beaded form of welt embodying my invention, and

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Fig. 6 is a fragmentary cross-sectional view of the welt of Fig. 5 sewed to the shoe.

As shown in the drawing, my novel form of welt, preferably made of synthetic plastic, and molded or extruded in long lengths of uniform width, contour in cross-section, color, of stitch-retaining strength, and of substantially permanent pliability, is preformed in Fig. 1, either in straight or slightly longitudinally pre-curved form, having an outstanding body portion 1 intended to constitute the part of the welt to receive the outsole stitching, a downstanding portion 2 to receive the in-seam stitching and preferably, although not necessarily, an intermediate or bevelled portion 3 on the outer surface of the portions 1 and 2.

On the inner surfaces of the portions 1 and 2 and opposite the narrow bevelled strip 3 is, preferably, a stitch-receiving groove 4. With my novel welt as thus pre-formed, it is then applied to a lasted shoe, as shown in Figs. 3 and 4. The upper materials 6 and lining 7 are assembled on a last 10, with an insole 12, having a sewing rib 14, and a feather edge portion 15, to which the welt is attached by in-seam stitching or other permanent fastenings 16.

The conformation of my welt either with or without the narrow bevel 3 enables the in-seam stitching 16 to draw the welt and upper materials snugly into and under the corner 17 between the feather 15 and the downwardly projecting sewing rib 14, the in-seam stitching passing thru the groove 4 and the downstanding portion 2 at, near, or thru the junction of the portion 2 and the bevel 3, thus enabling the outstanding body portion 1 to be attached to the lasted shoe while the body portion 1 is maintained in its desired final or ultimate horizontal position.

Ordinarily, in the attaching of welts the outer body portion extends or lays forwardly against the upper materials, and hence, has to be strained, pulled, or beaten out into downward horizontal position, as previously explained, and my invention eliminates this prior difficulty and expensive operation, as well as the handling needed and the machines required therefor.

After the in-seam stitching, the trimming is applied approximately on the line 20, as shown, and subsequently the outer sole is affixed, the entire shoe structure subjected to leveling pressures, and the outsole permanently attached.

In Fig. 5 I have illustrated a modified form wherein my novel type of right-angled welt is illustrated with an integral beaded mass or form. As shown in Figs. 5 and 6, this type of welt comprises a body portion 21, a downstanding right-angled portion 22 on the bevelled strip 23, and an upstanding portion 24, preferably with the stitch-receiving groove 4 also in this type of welt. By the utilization of such plastic material as above explained, it is peculiarly beneficial to make a beaded type of welt having both an upstanding and a downstanding portion relatively with the body portion, as thus illustrated.

This welt is readily fitted to the lasted welt shoe and held in position by the in-seam stitching 16, all while maintaining the outstanding body portion 21 substantially horizontal and in normal predetermined relationship with regard to the margin of the lasted and welted shoe to eliminate the beating-out operation and to facilitate the attachment of the welt to the outsole, illustrated at 25 in dotted lines, Fig. 6, by out-seam stitching 26, a suitable filler having in the meantime been ap-

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plied to the space 27 between the insole and outsole.

I believe that my novel type and form of welt is a distinct novelty in this art and that the process of shoe-making, wherein the welt-attaching is effected with a horizontal or body portion of the welt extending at right angles to the sewing rib is a distinct novelty and I wish to claim these features broadly.

Also, as far as I am informed, my novel welt having a normal horizontal portion and a substantially right-angled depending portion is a distinct novelty, as well as the welt of synthetic plastic material, having a horizontal body portion, a downstanding portion, and an upstanding portion of an integral, permanently plastic, and stitch-retaining mass of predetermined color and permanent flexibility, and I wish to claim these herein broadly.

I claim:

1. A shoe welt of the kind described, having a relatively narrow portion approximately at right angles with a relatively broader portion, the narrow portion being adapted to receive in-seam stitching, and the broader portion to receive outsole stitching, the outer angle between said portions being bevelled, and the inner angle being curved.

2. A shoe welt of the kind described, having a horizontally extending body portion and upper-contacting portions extending above and below said body portion.

3. A shoe welt of the kind described, comprising a continuous unscarfed strip of stitch-retaining synthetic plastic material, a horizontally extending portion to hold outsole stitching, an angularly depending portion to hold in-seam stitching, an upper-engaging projection between said two portions preformed to fit the lasted contour of the upper, and a stitch-receiving groove adjacent the inner angle between said two portions.

4. A shoe welt of the kind described of substantially eccentric L-shaped cross-section, the portion of greater width extending horizontally and constituting the outsole stitch-receiving portion, the narrower portion extending vertically and substantially at right angles to the other portion and constituting the in-seam-fastening receiving portion of the welt, and a bevelled surface extending between the wider and narrower portions.

5. A shoe welt of the kind described of substantially eccentric L-shaped cross-section, the portion of greater width extending horizontally and constituting the outsole stitch-receiving portion, the narrower portion extending vertically and substantially at right angles to the other portion and constituting the in-seam-fastening receiving portion of the welt, a bevelled surface extending between the wider and narrower portions, and having a stitch-receiving groove at the inner angle of the wider and narrower portions.

6. A shoe welt of the kind described preformed with a horizontally extending body portion and an upper-contacting portion extending above and below said body portion, said welt being formed of synthetic plastic material having the characteristics of Koroseal, Vinylite, or the like.

7. A shoe welt of the kind described, formed of synthetic plastic material with a horizontally extending body portion and an upper-contacting portion extending above and below said body

portion in preformed contour to fit the lasted contour of the upper.

WALLACE C. WRIGHT.

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