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SHOE AND METHOD FOR USE IN THE MANUFACTURE THEREOF.

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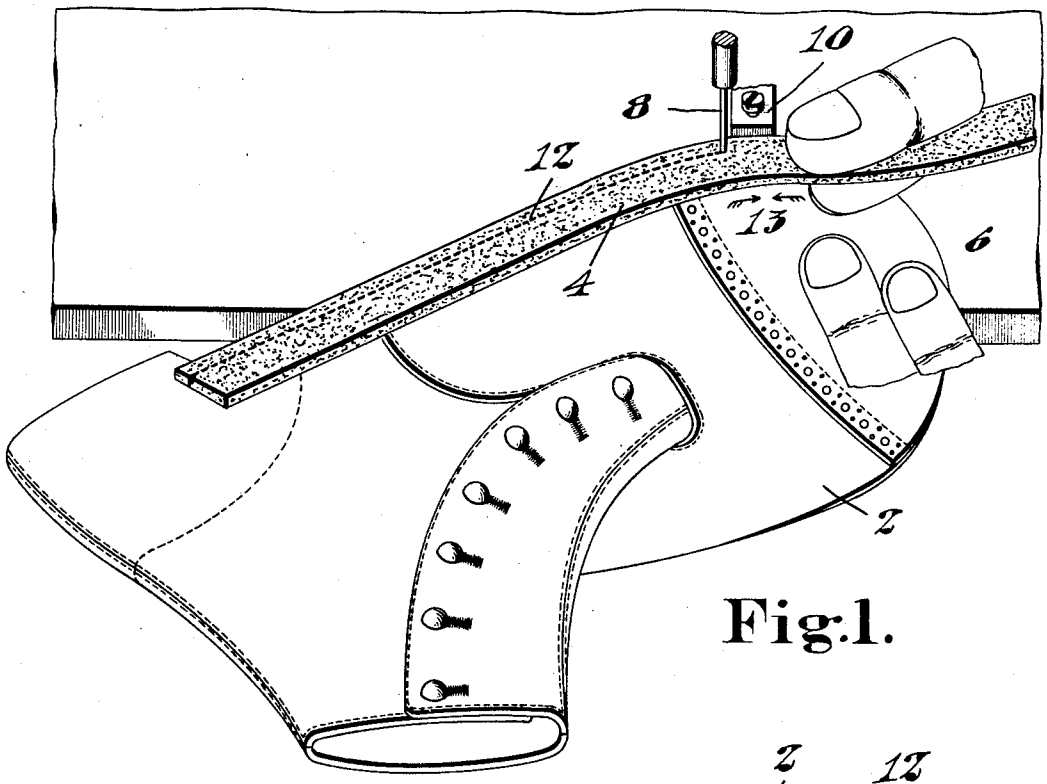


Fig.1.

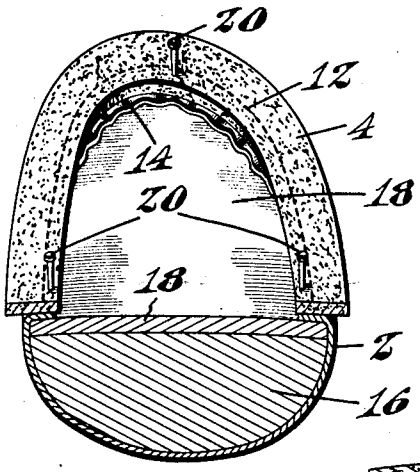


Fig.3.

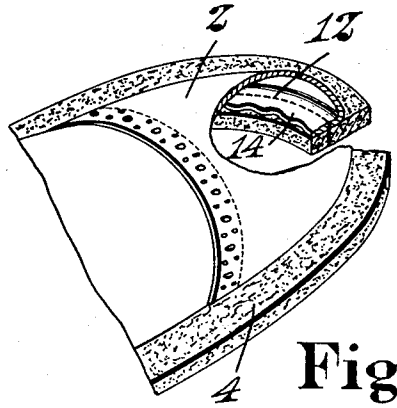


Fig.2.

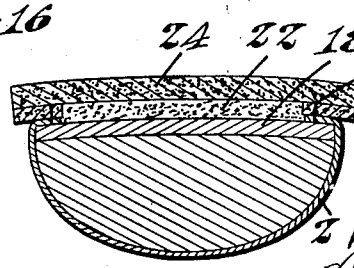


Fig.4.

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UNITED STATES PATENT OFFICE.

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SHOE AND METHOD FOR USE IN THE MANUFACTURE THEREOF.

Application filed February 20, 1925. Serial No. 10,588.

This invention relates to shoes and the art of making shoes, and particularly to the making of shoes of that type in which the welt is attached to the upper prior to the lasting of the upper. Shoes of this type have come to be known as "pre-welted" shoes.

The usual practice in making pre-welted shoes is to lay the margin of the upper upon the table of a sewing machine, to place a welt upon the margin of the upper with its grain face, that is, the face which is exposed in the finished shoe, in contact with the outer face of the upper, and to sew the margin of the welt to the outer portion of the margin of the upper. A last is provided with an innersole temporarily attached to its bottom and the welted upper is assembled with the last. The margins of the upper and welt, through which the seam uniting them extends, are then lasted over upon the margin of the innersole. In this lasting operation difficulty is experienced in lasting the toe portion and also the heel portion when, as is frequently the practice, the welt extends about the heel portion of the upper as well as about the shank and forepart. This difficulty is due to the fact that the welt is as long as the periphery of the upper and hence, in gathering and shaping the end portions of the upper to the last, the welt, as well as the periphery of the upper materials, as to be shortened.

With the object in view of overcoming this difficulty, the invention, in one of its aspects, consists in providing an extensible welt and in attaching the welt, while in extended condition, to the unlasted upper. Since the welt is extensible it is also contractible and when, in lasting, the upper at the ends of the shoe is gathered in, the welt may be contracted without distortion. Preferably the welt is resilient and is attached to the unlasted upper, at those portions where the periphery of the upper is to be shortened to correspond to the periphery of the last, while in a stretched or extended condition, so that when it is allowed to contract after attachment it causes those portions of the upper to be contracted or gathered, thereby greatly enhancing the facility with which the upper may be lasted, shaped and fitted to the ends of the last.

In another aspect the invention consists in a novel shoe having a relatively non-elastic upper and an elastic, resilient welt attached to the upper, the upper being gathered to provide the shortened periphery at the end portions of the shoe and the welt being in a substantially normal, unstretched and uncontracted condition corresponding in length substantially to the periphery of the last or innersole along which it lies in the completed shoe.

In the drawing,

Fig. 1 illustrates the method of attaching the welt to the upper;

Fig. 2 is a perspective view of the toe portion of an upper, partly broken away and in section, to which the welt has been attached by the present method;

Fig. 3 is a perspective view, partly in section, of the toe portion of the shoe after the upper has been lasted; and

Fig. 4 is a sectional view of a completed shoe.

In Fig. 1 is shown a shoe upper 2 to which a welt 4 is being attached by the present method. The upper may be of any usual kind in the condition in which it is assembled on a last. The margin of such a shoe upper is placed upon a table 6 of a sewing machine, which may be a straight-needle, chain-stitch machine of the usual type such as the Puritan machine. The welt 4 is placed with one edge flush with the edge of the upper 2 and the welt and upper located beneath a needle 8 of the sewing machine. In order to facilitate the relative location of the welt and upper with their edges flush and to determine the location of such edges with respect to the needle, an edge gage 10 is preferably provided on the machine. A seam 12 is made preferably fairly close to the edge of the welt which is flush with the edge of the upper, the margins of the welt and upper being thus united. The welt employed may be of any extensible material but is preferably of a material which is not only extensible but which is resilient; that is, which has a tendency to return to its original length after extension. For example, the welt may be of crepe rubber, that is, pure rubber in a raw state, or it may be of soft, vulcanized rubber. In attaching a welt of such material along the side of a shoe upper, the welt is maintained substantially in an unstretched position. When, however, a curved portion of the periphery of the upper is reached as shown in Fig. 1, the welt is

extended or stretched either by the fingers, as shown, or in any suitable manner, the amount it is stretched depending upon the sharpness of the curvature of the periphery of the upper to which it is being attached. The greater the curvature, of course, the more the welt will be extended or stretched. In Fig. 1, the stretched portion of the welt is indicated by opposed arrows 13, indicating its tendency to contract when released. When the welt has been attached to the upper all the way around, or from breast line to breast line, and the welted upper removed from the machine, the welt, if of resilient material, will tend to contract and to assume the condition shown in Fig. 2. In this figure the welt, about the toe portion, has contracted and caused the margin of the upper to be puckered, gathered or wrinkled as at 14 and the whole toe portion has assumed more or less the shape it is to have in the completed shoe. The upper thus prepared is placed upon a last 16 and the margin of the upper and welt drawn over upon an innersole 18, as shown in Fig. 3, this operation being greatly facilitated by the tendency of the welt to contract to cause the upper to assume the shape of the last. The upper and welt may be temporarily secured in place while the upper is becoming set to the shape of the last by a few lasting tacks 20, as indicated, and cement may be applied to the upper or innersole or both to hold the upper permanently in position. After the upper has become set the tacks 20 are removed, a filler 22 inserted in the cavity formed inside the edges of the upper and welt and an outsole 24 applied. The filler 22 may, of course, be applied to the innersole prior to the lasting operation if desired. If a crepe welt has been employed the outsole may also be of crepe rubber, in which case cement or a rubber solvent may be employed to cause adhesion, or, more properly, cohesion, between the sole and welt. Of course, if desired, an outsole of other usual material may be employed and attached to the welt by the usual outsole stitching operation.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. That improvement in methods of making shoes which consists in preparing an upper, providing an extensible welt, and attaching the welt to the upper while the welt is in an extended condition relatively to the upper.

2. That improvement in methods of making shoes which consists in preparing an upper, providing an extensible welt, attaching the welt to the upper progressively by a seam, and during such attachment of the welt to curved portions of the upper maintaining the welt in an extended condition.

3. That improvement in methods of making shoes which consists in preparing a shoe upper, providing a resilient welt, attaching the welt to the upper, and during such attachment of the welt to curved portions of the upper maintaining the welt under tension in a stretched condition.

4. That improvement in methods of making shoes which consists in preparing a shoe upper, providing a resilient welt, attaching the welt to the upper, and during such attachment of the welt to curved portions of the upper maintaining the welt under tension in a stretched condition and varying the amount of stretching of the welt in accordance with the degree of curvature of the periphery of the upper.

5. That improvement in methods of making shoes which consists in preparing an upper, providing an extensible welt, attaching the margin of the welt to the margin of the unlasted upper progressively by a seam and during such attachment of the welt to curved portions of the upper maintaining the welt in an extended condition, applying the welted upper to a last having an innersole thereon, lasting the united margins of the upper and welt over the margin of the innersole, and completing the shoe in the usual manner.

6. That improvement in methods of making pre-welted shoes which consists in preparing a shoe upper, providing a resilient welt, attaching the margins of the welt and upper together and during such attachment of the welt to curved portions of the upper maintaining the welt under tension in a stretched condition, allowing the welt to contract and pucker the upper at the curved portions thereof, applying the welted upper to a last having an innersole thereon, lasting the attached margins of the upper and welt over the upper and the innersole, attaching the margin of the upper to the innersole by temporary tacks and by cement, removing the temporary tacks after the cement has set, applying a filler and outsole to the shoe, and securing the welt and outsole together.

7. That improvement in methods of making pre-welted shoes which consists in providing a shoe upper, providing a resilient welt, attaching the welt to the upper while maintaining the welt under tension in a stretched condition during attachment of the welt to curved portions of the upper and varying the amount of stretching of the welt in accordance with the degree of curvature of the periphery of the upper, allowing the welt to contract and gather up the curved portions of the periphery of the upper, applying the welted upper to a last having an innersole and a filler thereon, lasting the margins of the upper over the innersole, applying an outsole, and securing the welt and the outsole together.

8. As an article of manufacture, a shoe having a relatively non-elastic upper, an elastic and resilient welt stitched at its inner margin to the upper only, an innersole and an outsole, the upper being gathered to provide a shortened periphery at an end portion of the shoe and the welt being in a substantially normal, uncompressed and unextended condition, the upper being secured to the innersole and the outsole being secured to the welt.

In testimony whereof I have signed my name to this specification.

JOHN H. RICHARDSON.