Nov. 1, 1949 L. L. STEED 2,486,995

METHOD OF MAKING VULCANIZED, FABRIC-UPPER SHOES

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Fig. 1.

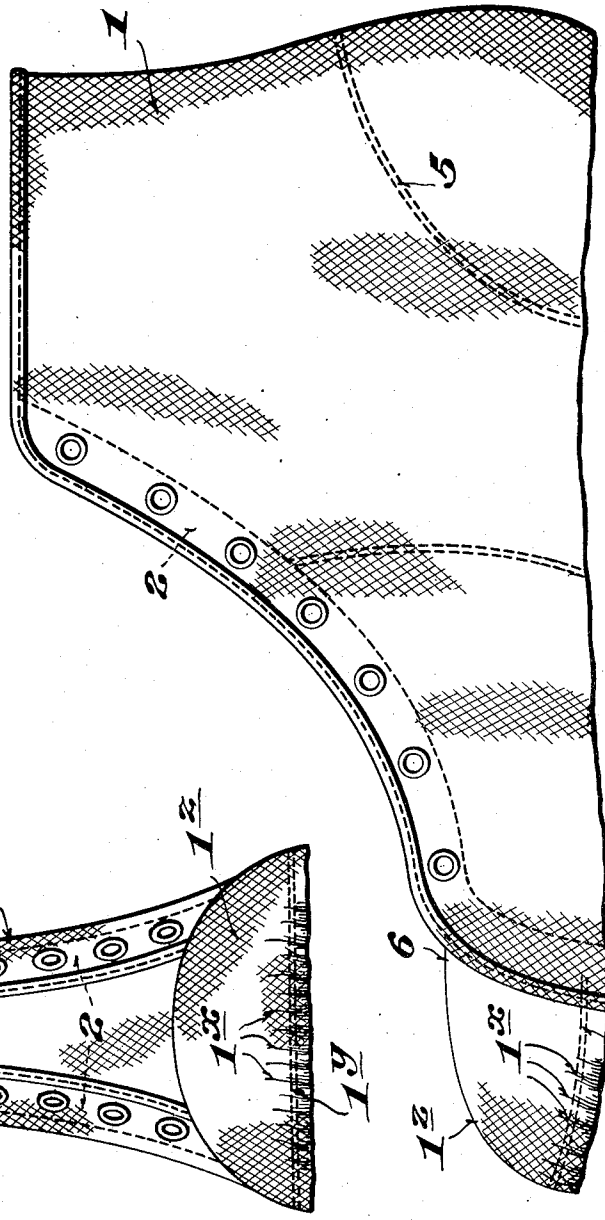


Fig. 2.

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Fig. 3.

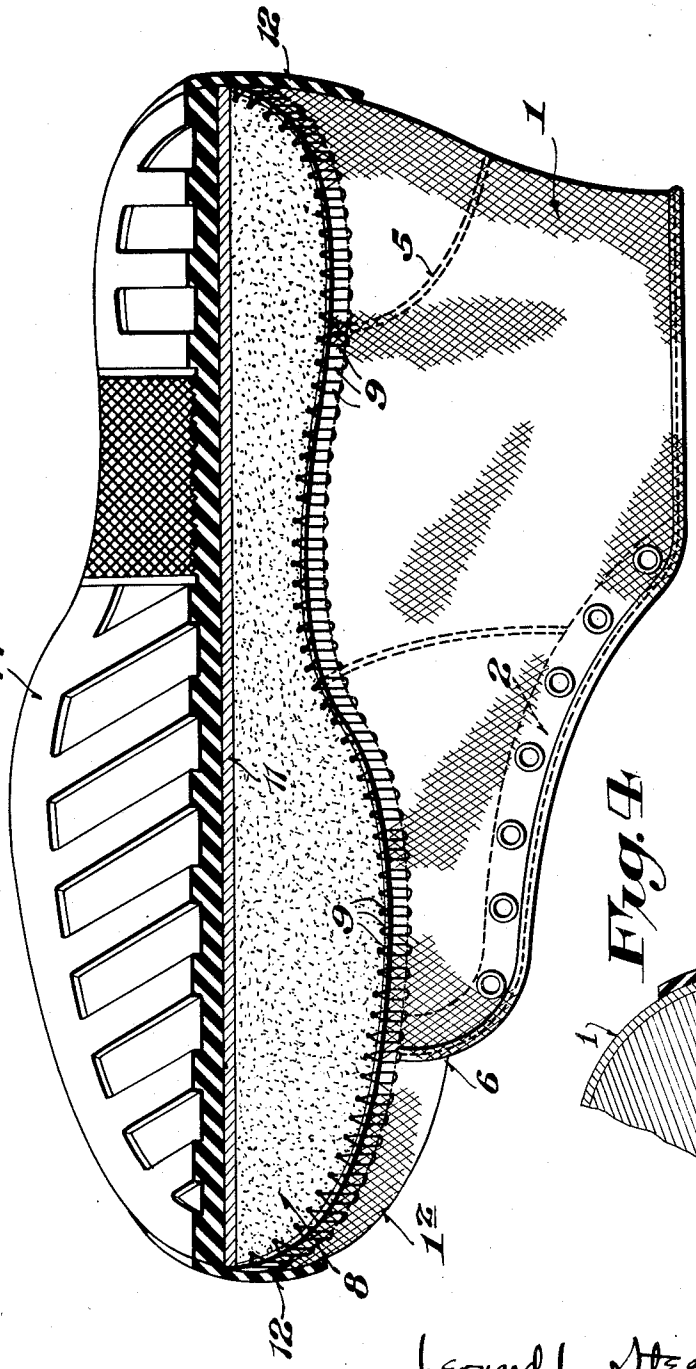
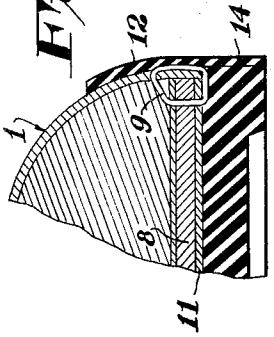


Fig. 4



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UNITED STATES PATENT OFFICE

2,486,995

METHOD OF MAKING VULCANIZED, FABRIC-UPPER SHOES

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Application March 28, 1947, Serial No. 737,791

1 Claim. (Cl. 12—142)

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This invention is a novel improvement in athletic shoes and method of making same of the type shown in my U. S. Letters Patent No. 1,753,872, dated April 8, 1930, wherein the athletic shoe was provided with a canvas or other fabric upper and with a vulcanized rubber sole, the upper having no allowance for turning in under the insole, and being stitched directly to the insole without application of any cement to the inside of the upper before placing the last inside the shoe. According to my aforesaid patent the insole and outside of the lower edge of the upper were then coated with cement and allowed to dry, and subsequently a rubber foxing and outsole were applied before vulcanization.

The principal object of my present invention consists of puckering or pleating, and securing by stitching, selected and limited portions of the bottom edge of the upper of a shoe. This operation might be applied to any portion of the bottom edge of the upper, such as the heel portion, shank, or toe or tip, and might be performed on any material from which the upper is made, but it is of particular advantage when performed on the toe portion or tip of athletic shoes, the uppers of which are generally made of canvas or similar fabric, and more particularly of advantage when used on the tips of a shoe of the type disclosed in my aforesaid U. S. Letters Patent No. 1,753,872.

Another object of my present invention is to provide a means and method whereby the toe portion or tip of the upper will conform to the corresponding portion of the last, and the bottom edge of the toe portion or tip will conform exactly with the outline of the toe portion of the insole to which it is attached.

A further object of my invention is to strengthen and reinforce the extreme end or toe of the completed shoe, which point is subjected to considerable strain and is generally regarded as a weak point.

The pattern or shape of tip for a shoe, or the toe portion of a vamp, and such pieces which are designed to cover the toe of a shoe last, always have an outline or periphery much greater than that of the insole to which they are to be attached, this is of course necessary to provide sufficient area to conform to and cover the curved sides and toe of the last which has considerable thickness. Leather, when properly moistened or mulled, may be compressed parallel to its surface and so disposed as to conform to the shape of the toe of the last. Compounded rubber may

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be similarly disposed. But canvas or fabrics such as are used in the manufacture of athletic footwear are comparatively thin, stiff, rigid and unyielding, and to form a desirable acceptable and saleable shoe, the surplus material must be disposed of by notching and removing stock, or by permitting same to overlap by slashing, either method being costly, and in either case weakening the structure of the toe part of the shoe.

According to my invention, I arrange a standard make of stitching machine with proper attachments to "gather" the stock successively into small regular folds around the toe portion of the bottom edge of the upper, and then secure the folds permanently in position by means of stitching, my invention pre-forming the toe portion of the upper to conform to the size and shape of the last, thereby causing the bottom edge of the toe portion of the upper to conform in shape and exact size to the toe portion of the insole, and at the same time providing a reinforced and stronger bottom edge. Since the outline of the upper and insole exactly coincide, the insole stitching operation is accomplished economically with no interference or delay. Moreover the pleating and stitching operation gives shape and form to the toe of the upper, and moreover reinforces the edge of the toe by reason of the surplus stock which is regularly gathered, arranged, and secured by stitching. The line of stitching itself adds to the strength, and the operation as described may be performed at high speed, is inexpensive to perform, and requires no particular skill or training on the part of the operator.

I will explain the invention with reference to the accompanying drawings which illustrate my invention, to enable others familiar with the art to adopt and use the same; and will summarize in the claim the novel features of construction, and novel combinations of parts, for which protection is desired.

In said drawings:

Figure 1 is a side elevation of a fabric upper of an athletic shoe, made in accordance with my invention.

Fig. 2 is a front elevation of the upper shown in Fig. 1.

Fig. 3 is a perspective view of the shoe (inverted), showing the outsole partly broken away, and showing the upper stitched to the insole.

Fig. 4 is a transverse section through the ball of the shoe, with last inserted therein.

As shown, the shoe upper 1 is made of canvas, but may be made of other suitable fabric or ma-

terial, and is provided with lacing strips 2 of vulcanized rubber, leather, or any other suitable material; and is provided with the usual heel counter stiffener 5, and with a combined toe and tongue 6, the same being assembled in the usual manner to form the upper of a vulcanized athletic shoe.

The insole 8 (Fig. 3) is cut or preformed to desired shape, and the upper 1 is preformed or trimmed so that the bottom edge of the upper will neatly cover the peripheral edge of insole 8 entirely around the sole and heel portions of the insole, as shown in Fig. 3. The bottom edge of the upper is to be stitched directly to the periphery of insole 8, such as by over-and-over stitches 9 or the like, extending entirely around the insole, no portion of the insole extending outside the upper thus stitched, and no portion of the upper extending below, or being turned under, the insole 8. The insole 8 is of suitable frictional material which will unite with the rubber outsole 14 upon vulcanization. If desired, a fabric sock sole may be incorporated with the insole 8.

According to my present invention, I gather as at 1*x* and stitch as at 1*y* (Figs. 1 and 2) the bottom edge of the toe end 1*z* of the toe portion 6 of the upper 1 so that it will conform with the periphery of the toe portion of insole 8, so that when the upper 1 is stitched as at 9 to the insole 8 the margin of the upper and edge of the insole abut, thereby saving material and labor costs as described, also my method providing an effective reinforcement to the toe of the upper which as before stated is generally recognized as a point of weakness and wear in any athletic type shoe. In using my system I save time, material and labor and produce a shoe which has a longer useful life compared with similar footwear made in the usual manner.

A last is then placed inside of the shoe, which directly completes the lasting operation, and the bottom of insole 8 is then coated with cement 11 (Fig. 3) and in the same operation the lower edge of the lasted upper may also be coated with cement, and the cement is then allowed to dry. A rubber foxing 12 (Fig. 3) may then be applied all around the upper as shown in my U. S. Letters Patent No. 1,753,872 aforesaid, and the rubber whole outsole 14 is then applied as shown in Fig. 3, the same being cemented to the insole 8 and to the lower edge of the rubber foxing covering the stitches 9. The whole shoe thus assembled with the last inside is then placed in a vulcanizer and the foxing and the outside 14 will upon vulcanization adhere firmly together and to the lower edge of the fabric upper and to the insole 8, and will form a unitary structure with the upper.

The puckering or pleating 1*x* and securing by stitching 1*y* selected and limited portions of the bottom edge of the upper of a shoe might apply to any portion of the edge such as the heel portion, shank, or toe or tip, and might be used on any material from which uppers are made, but it is of particular advantage when performed on the toe portion or tip of athletic shoes, the uppers of which are generally made of canvas or similar fabric, and more particularly of advantage when used on the tips of a type of shoe manufactured as disclosed in my U. S. Letters Patent No. 1,753,872 before mentioned, since the toe or tip of the upper conforms to the corresponding portion of the last and the bottom edge of the toe portion or tip conforms exactly with the outline of toe portion of the insole to which it is attached. Moreover, same strengthens and reinforces the extreme end or toe of the completed shoe, a point subject to considerable strain and generally regarded as a weak point.

Since the outline of the upper and insole exactly coincide, the operation of stitching the upper to the insole 8 is accomplished economically with no interference or delay. Moreover, the pleating and stitching operation gives shape and form to the toe of the upper, and the line of stitching 1*y* itself adds to the strength; and the stitching operation may be performed at high speed, is inexpensive to perform, and requires no particular skill or training on the part of the operator.

I do not limit my invention to the exact form shown in the drawings for obviously changes may be made therein within the scope of the claim.

I claim:

In the method of making vulcanized shoes, the steps of providing a short upper of fabric having its lower margin formed to be secured in edge engagement with the edge of the insole with the lower edge of the upper flush with the lower surface of the insole; pleating and stitching the marginal portion of the toe end of the upper to conform with the peripheral contour of the toe portion of the insole; stitching the upper in edge engagement with the insole so that the lower edge of the upper is flush with the lower face of the insole; placing a last into the assembled structure; securing an outsole to the insole and to the lower edge of the upper; and securing a foxing to the outer face of the bottom margin of the upper to cover said stitchings.

LEONARD L. STEED.

REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
377,391	Keith	Feb. 7, 1888
1,753,872	Steed	Apr. 8, 1930