Dec. 12, 1944. H. L. SUTCLIFFE 2,364,763

ARTICLE OF FOOTWEAR

Filed Nov. 4, 1943

Fig. 1.

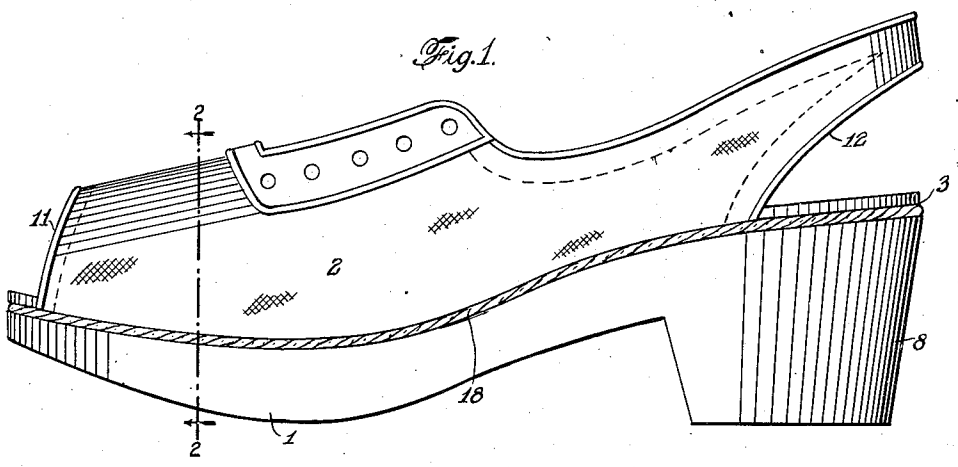


Fig. 3.

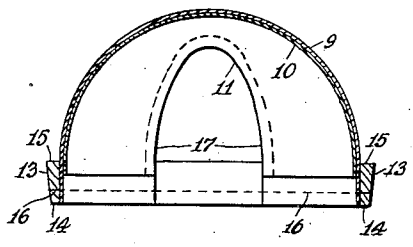


Fig. 2.

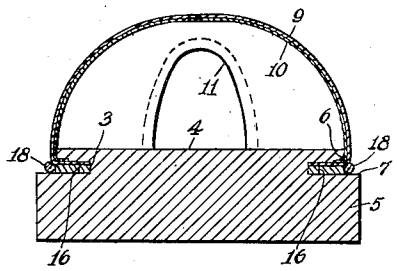


Fig. 4.

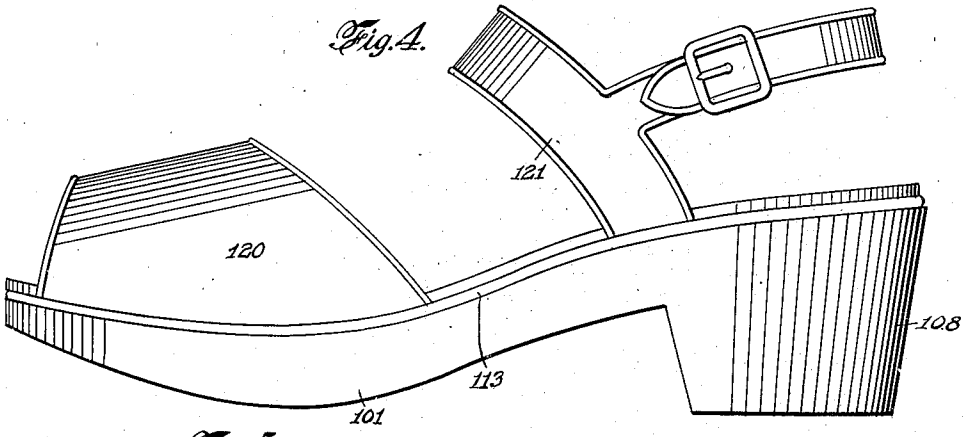
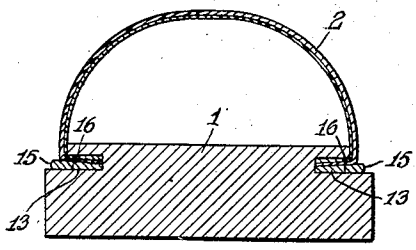


Fig. 5.



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ARTICLE OF FOOTWEAR

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Application November 4, 1943, Serial No. 508,901

5 Claims. (Cl. 36—11.5)

My invention consists in the novel features hereinafter described, reference being had to the accompanying drawing, which shows one embodiment of the same, and a slight modification thereof, suggested by me for purposes of illustration, and the said invention is fully disclosed in the following description and claims.

The present invention relates to articles of footwear such as shoes, sandals, slippers and the like.

An object of the present invention is to produce articles of footwear of attractive appearance and durable construction while using only non-critical materials in their manufacture. It is also an object of the invention to provide a means of uniting the upper and the sole of an article of footwear in a novel manner providing a joint that is easily and quickly made and yet is unusually strong so that there is no danger of the upper pulling away from the sole even when the article is subjected to hard use.

Another object of my invention is to provide a new and improved article of footwear in which the upper is cut from flat material and is united to a sole in such manner that the upper is automatically and accurately shaped to the form desired for the finished article without the necessity of lasting the article during its manufacture.

Other objects and advantages of my invention will be understood from the appended claims and from the following description of the embodiment, selected by me to illustrate my invention, and shown in the accompanying drawing, in which

Fig. 1 is a side elevation of a shoe in accordance with my invention.

Fig. 2 is a vertical cross section of the shoe shown in Fig. 1 taken approximately on the line 2—2.

Fig. 3 is a similar cross section of the upper only before it is attached to the sole.

Fig. 4 is a side elevation of another embodiment of my invention.

Fig. 5 is a vertical cross section similar to Fig. 2, but showing a further modification.

In Figs. 1 and 2 of the drawing there is shown by way of example a shoe made in accordance with my invention and comprising a sole 1 and an upper 2. In the edge of the sole 1 there is provided a peripherally extending groove 3 which divides the sole into an insole portion 4 and an outsole portion 5. While the insole 4 and outsole 5 are of similar contour, the edge 6 of the insole is set back slightly from the corresponding edge 7 of the outsole, so that the insole is of lesser area. As will be seen from Fig. 1, the sole of the shoe may be of varying thickness. However, the groove 3 is preferably uniformly spaced from the upper surface of the sole, so that the insole portion 4 is of approximately uniform thickness. The insole portion 4, outsole portion 5, and preferably also a heel portion 8 are formed as a single unitary structure. While this unitary sole structure could be built up of leather, laminated wood or similar material, it can be formed more simply and economically from solid material, such as wood, glass or plastics. If made of glass, plastic or other moldable material, the sole unit may be molded to the required shape. If made of wood the sole unit may be turned out by suitable woodworking machinery, such as that used in making wooden lasts. The peripheral groove 3, which preferably extends all the way around the edge of the sole, is formed in the course of the molding or woodworking process by which the sole unit is produced. When the sole unit is formed of wood or other material requiring a surface finish it may be enameled, painted or otherwise finished and this is preferably done before the sole and upper are assembled.

The upper of the shoe may be formed from any suitable sheet material, such as leather, fabric or leatherette, the two latter materials being preferable as they are less expensive and more abundant. The upper may be formed of two or more plies of material, for example, an outer material 9 and a lining 10, and is carefully cut to predetermined pattern so that it will have the desired shape when assembled with the sole. In the particular embodiment shown in Figs. 1 and 2, the upper has a cut out toe portion 11 and a cut out heel portion 12.

After the upper has been cut to proper shape the lower edges of the upper are secured for example by stitching to a strip of flexible material 13, hereinafter designated as a wedge strip. The strip 13, which may be formed of a leather composition or other suitable material, is of a length corresponding to the peripheral extent of the groove 3 formed in the edge of the sole and of a width which is preferably slightly less than the maximum depth of said groove, i. e., the depth measured from the outer edge 7 of the outsole 5. The strip 13, if desired, may be of uniform thickness, although in the preferred embodiment shown it is thicker at its outer edge 15 than at its inner edge 14 (Fig. 3). The thickness of the strip 13 plus the thickness of the upper material 9, 10, is at least equal to the width, i. e., the vertical extent of the groove 3, and is preferably slightly

greater so that the strip 13 and the adjacent portion of the upper material being somewhat compressible can be forcibly crowded into the groove 3, as hereinafter described. As shown in Fig. 3 the edge of the lining 10 is set back from the edge of the outer material of the upper with the effect of augmenting taper of the strip 13. In this embodiment the upper is secured to the strip 13 by a line of stitches 16 located adjacent the lower edge of the upper and the inner edge of the strip 13, as clearly shown in Fig. 3.

In securing the upper 2 to the wedge strip 13, the upper is partially shaped to the desired form. This is done by making predetermined points on the edge portion of the upper to coincide with predetermined points on the strip 13, for example by marking said points and bringing them into register with one another in assembling the strip and the upper. For example, in the embodiment shown in Figs. 1 to 3 of the drawing, the edges 17 of the cut out toe portion 11 are secured to the strip 13 at points that are spaced a lesser distance from one another than the spacing of the edges 17 in the flat condition of the upper material as originally cut out. This causes the toe portion of the shoe to become somewhat arched and thus results in the partial shaping of the upper.

After the strip 13 has been stitched to the lower edges of the upper 2, the latter is united with the previously formed sole unit by forcing the strip 13 and adjacent portions of the upper material into the groove 3, provided in the edge of the sole. To supplement the wedging action that results from this operation the strip 13 and adjacent portions of the upper are preferably secured in position in groove 3 by means of suitable adhesive. For example, a small amount of adhesive may be deposited in groove 3 before the strip 13 is pushed in. In its assembled condition the upper extends down over the edges 6 of the insole 4 and into the groove 3. The outer edge 15 of the wedge strip 13 is spaced inwardly from the outer edge 7 of the outsole 5, being preferably approximately in line with the edge 6 of the insole 4, as shown in Fig. 2. To cover the outer edge of the strip 13 and further secure the strip and edges of the upper in the groove 3, a cord 18 is secured, for example by adhesive, in the position shown, i. e., in the groove 3 immediately outside of the strip 13. The ends of the strip 13 and the ends of the cord 18 are preferably joined at different points on the periphery of the sole to provide smoother joints. Alternatively, an endless band may be used if desired.

In assembling the upper and the sole, predetermined points on the wedge strip 13 are made to register with predetermined points on the sole, for example, by marking these points as described above. By bending the edges of the upper inwardly, as indicated by a comparison of Figs. 3 and 2, and securing the strip 13 and adjacent portions of the upper material in the groove 3 of the sole as shown, the shaping of the upper is completed so that it automatically assumes its desired form without the necessity of any lasting or similar operation. The method in accordance with my invention can thus be carried out rapidly, efficiently and economically.

A further embodiment of my invention is shown in Fig. 4, in which corresponding parts are designated by the same reference numerals with the addition of 100. The construction and method of manufacture are substantially the same as described above, except that the upper is made of a plurality of separate pieces, namely a toe portion 120 and an ankle and heel portion 121. These two parts 120 and 121 are cut out separately and are independently secured to the wedge strip 13. In saying that the pieces are independently secured to the wedge strip it is understood of course that this may be done as part of a continuous stitching operation by which the heretofore unconnected pieces are secured to the strip 113. The pieces 120 and 121 are attached to the strip in predetermined relationship so that when the strip is inserted in the groove provided in the edge of the sole, the toe portion 120 and the heel and ankle strap 121 will automatically assume their correct shape and position.

In Fig. 5 there is shown a slight modification in which the wedge strip 13 is made slightly wider so that the outer edge 15 of the strip extends out beyond the portion of the upper tube that extends down over the edge of the insole. In this embodiment the cord 18 is omitted and the outer edge of the strip 13 may if desired be suitably finished, for example, by being painted or enameled. It will be understood that the modification of Fig. 5 is equally applicable to the embodiment shown in Fig. 4 or other embodiments of the invention.

By forming the entire sole structure including the outsole and the insole as a single completed unit before the upper is attached, and by attaching the upper by first securing the lower edge thereof to a continuous wedge strip and thereafter forcing the wedge strip and adjacent portions of the upper into a peripheral groove formed in the edge of the sole, there is provided a neat, strong and durable shoe structure that can be rapidly and economically produced. Moreover, the product lends itself to the effective use of non-critical materials such as wood, fabric and artificial leather, thereby conserving available leather supplies. It will be understood that footwear in accordance with my invention can be made in a multiplicity of different styles without deviating from the essential features of the invention.

What I claim and desire to secure by Letters Patent is:

1. An article of footwear comprising a sole unit of varying thickness and having in its edge a peripheral groove disposed a uniform distance from the upper surface of said sole unit and dividing said sole into an outsole portion and an insole portion having its edge set back from the edge of said outsole portion, an upper having a lower edge portion extending down over the edge of the insole portion and into said groove, and a strip of flexible material stitched adjacent its inner edge to the lower edge of the upper, said strip and adjacent portion of the upper being wedged into said groove and adhesively secured therein.

2. An article of footwear comprising a rigid sole unit having in its edge a peripherally extending groove dividing said sole into an outsole portion and an insole portion having its edge set back from the edge of said outsole, a continuous wedge strip corresponding in length to the peripheral extent of said groove, an upper having its lower edge stitched to said strip and wedged with said strip into the groove in the sole and adhesively secured therein, and a cord extending around the edge of the sole and secured in place to cover the outer edge of said strip.

3. An article of footwear which comprises a sole unit comprising an insole portion and an outsole portion divided by a groove formed in

the edge of the sole and extending peripherally thereof, a continuous strip of flexible material corresponding in length to the peripheral extent of said groove, an upper comprising a plurality of separate pieces independently secured to said strip in predetermined spaced relation to one another, said strip and adjacent portions of the upper being wedged in said groove in the edge of the sole and adhesively secured therein.

4. An unlasted article of footwear comprising a rigid sole unit having in its edge a peripherally extending groove, a continuous wedge strip corresponding in length to the peripheral extent of said groove; an upper having discontinuous edge portions stitched to said strip in predetermined spaced relation to one another, said strip and adjacent portions of the upper being wedged into said peripheral groove in the sole, and adhesively secured therein.

5. An article of footwear comprising a rigid sole unit, having in its edge a peripherally extending groove, a continuous flat wedge strip corresponding in length to the peripheral extent of said groove, an upper having discontinuous edge portions secured to said strip in predetermined spaced relation to one another by a line of stitches adjacent the lower edge of the upper and the inner edge of said strip, said strip and adjacent portions of the upper being wedged in said peripheral groove in the sole, and adhesively secured therein.

HARRY L. SUTCLIFFE.