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J. CAVANAGH

METHOD OF MAKING SHOES

Filed Oct. 17, 1921

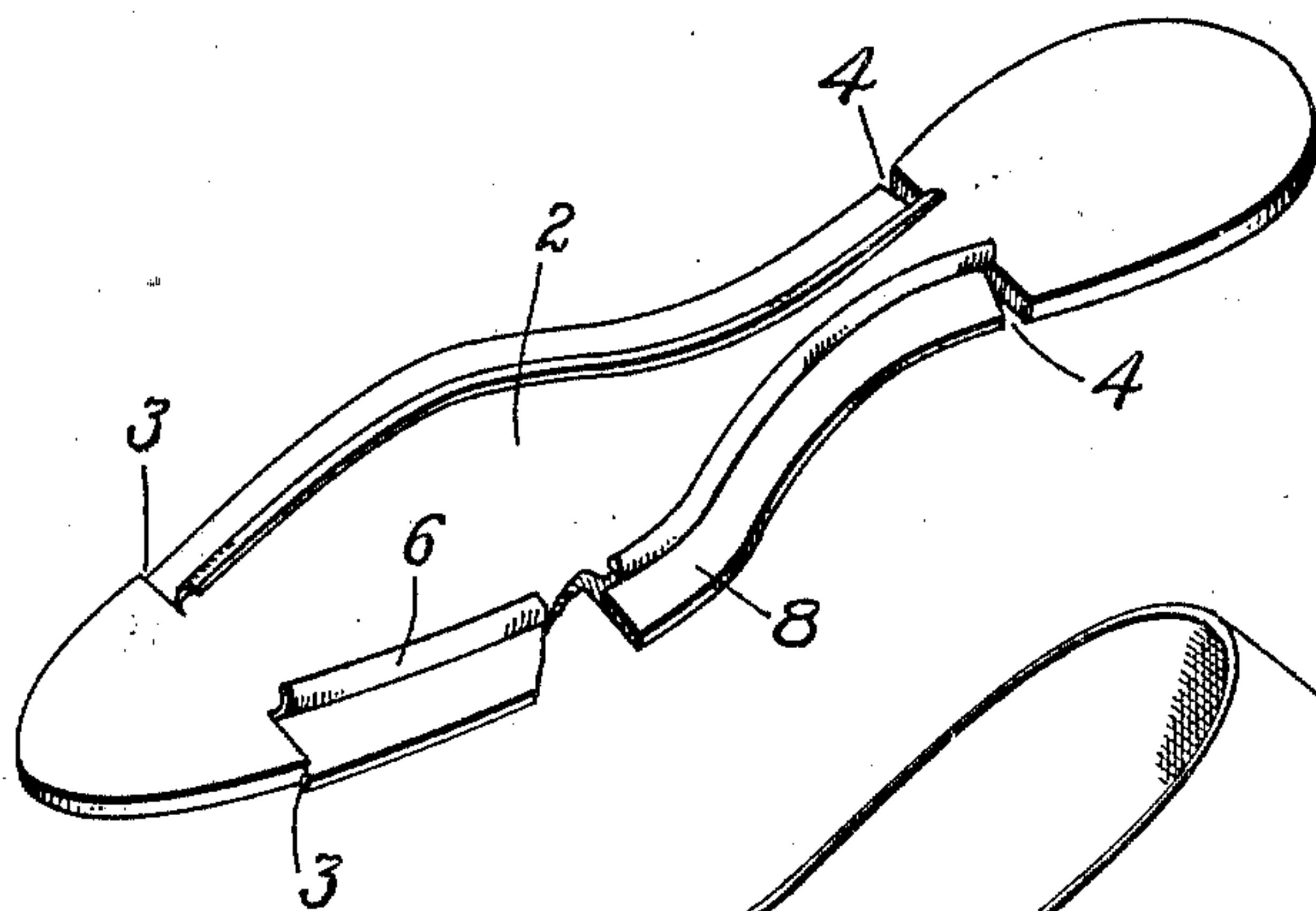


Fig. 1.

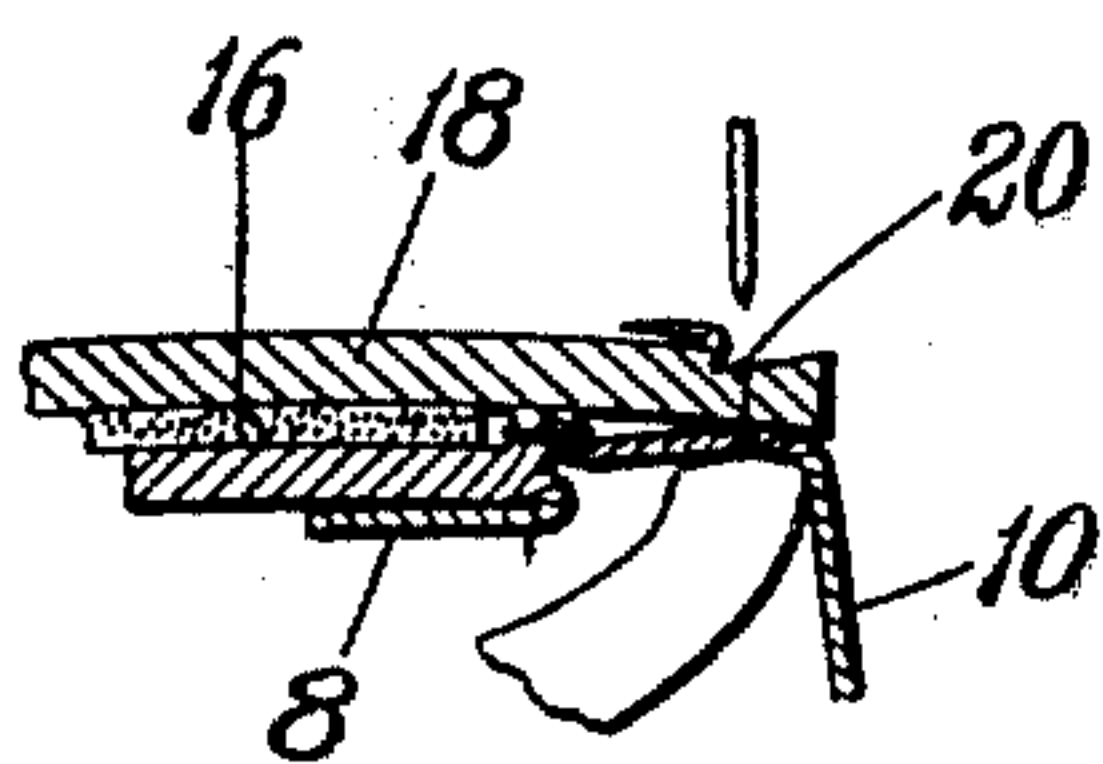


Fig. 4.

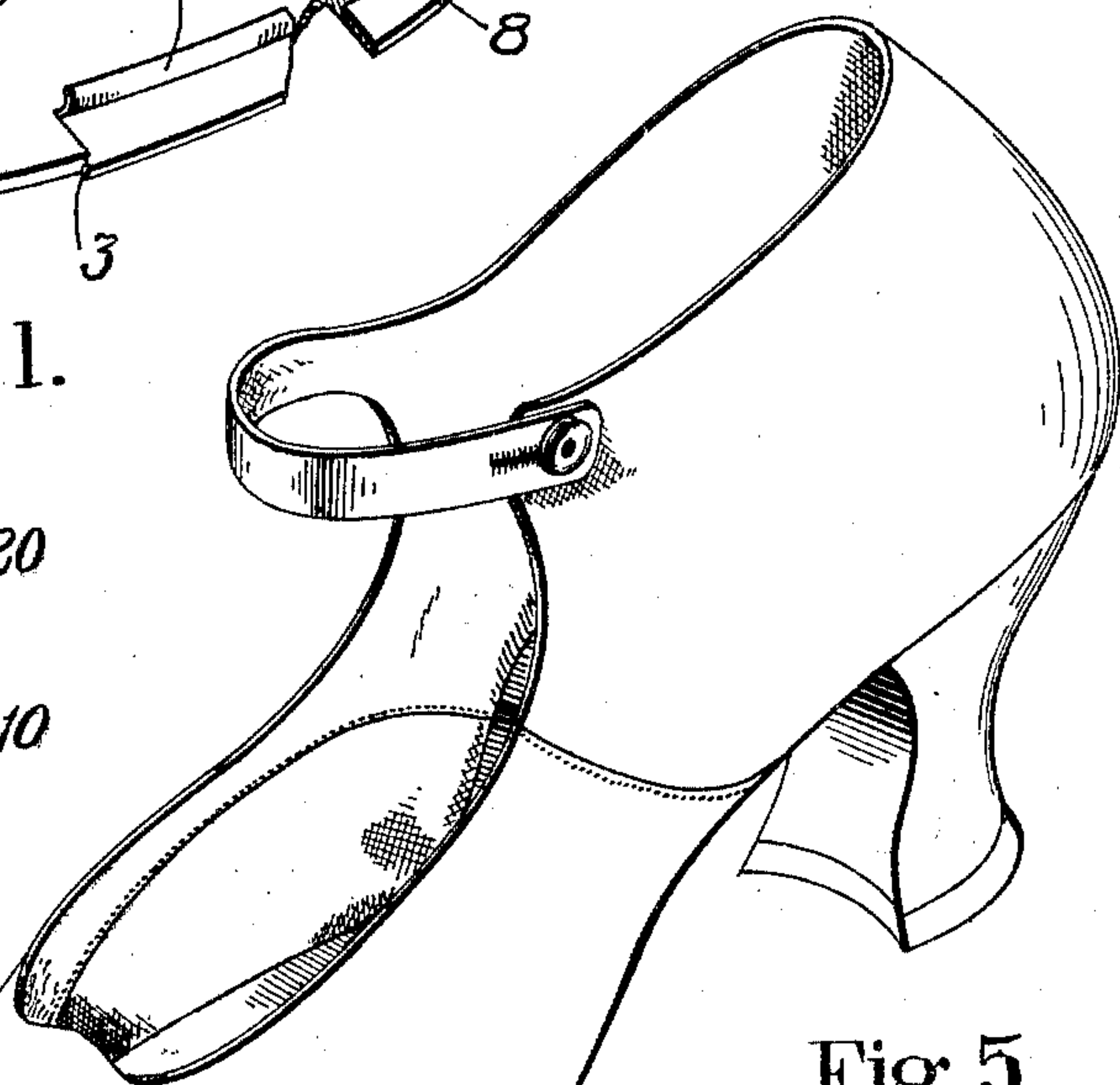


Fig. 5.

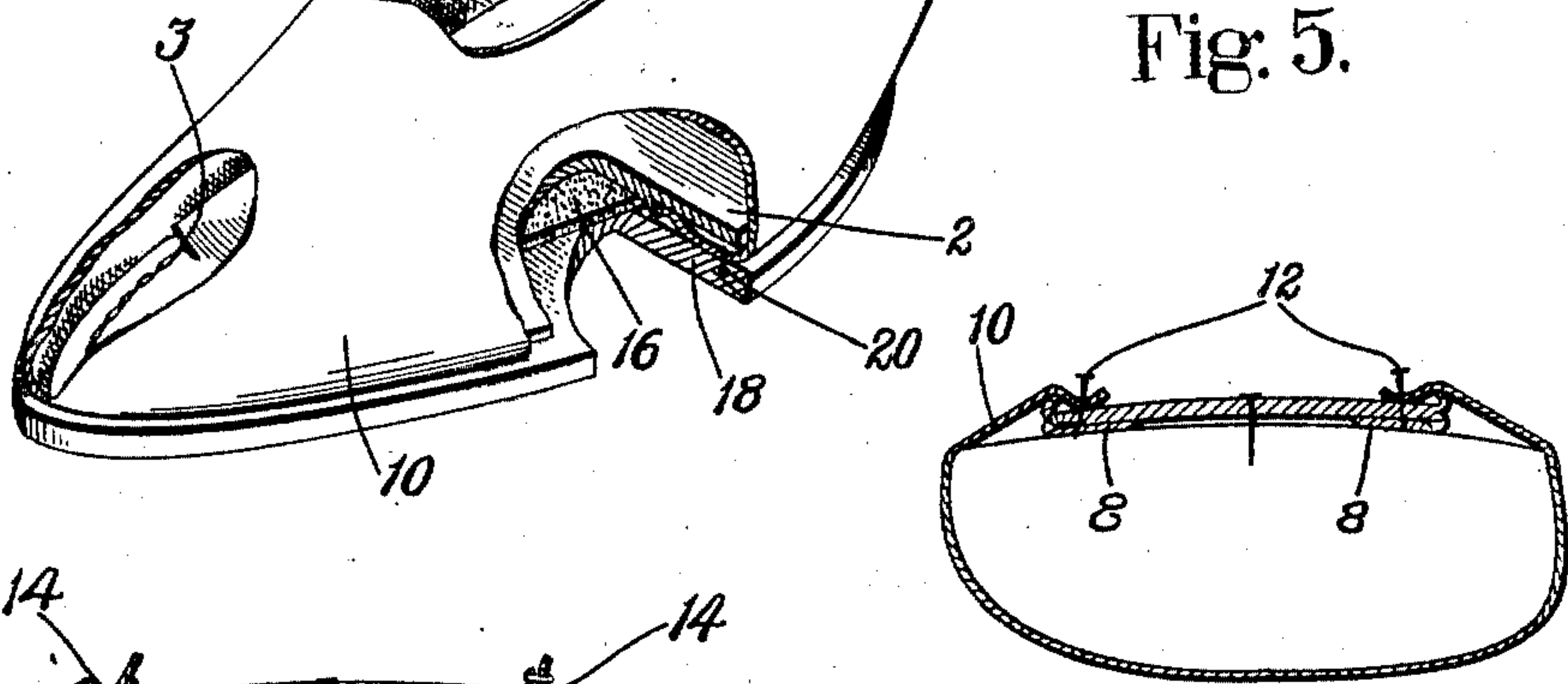


Fig. 2.

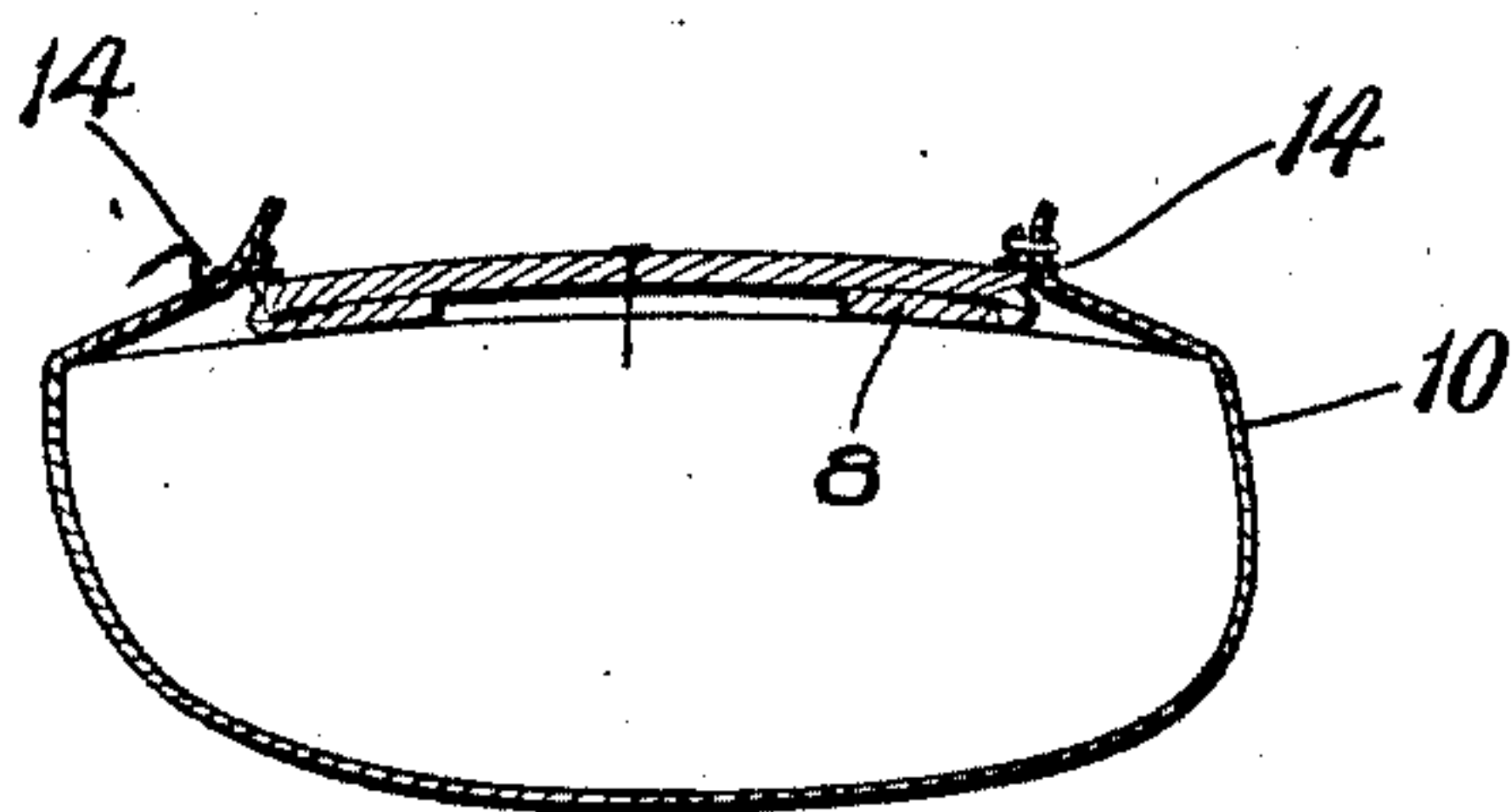


Fig. 3.

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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING SHOES.

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This invention relates to the manufacture of shoes. The invention is hereinafter illustratively exemplified with particular reference to its applicability to the manufacture of shoes in which the outsole is attached by stitches passing through the outsole into the interior of the shoe.

It is well recognized that shoes in which the outsole, upper and innersole are secured together by through and through stitches inside the shoe are easy and cheap shoes to manufacture. Such a shoe, however, as usually manufactured has not the comfort, flexibility and neat appearance of the turn or welt shoe, nor the ready repairability exemplified particularly in the welt shoe. While various attempts have been made to improve shoes of this type in these respects, as is shown by various patents in the prior art, none of these attempted improvements has attained wide use or a permanent status in commercial shoemaking.

An object of this invention is to enable a shoe of the type in which the outsole is attached to the upper by stitches extending inside the shoe to be manufactured which will have comfort, flexibility and style equal to or superior to those of the turn shoe, repairability commensurate with that of a welt shoe, and simplicity of manufacture comparable with that of a shoe in which the outsole, upper and innersole are secured together by through and through stitches.

With this and other objects in view, the present invention provides a novel method for use in the manufacture of shoes which consists, as herein illustrated, in splitting the margin of an innersole from its edge inwardly to form a flexible margin of reduced thickness and a flap. As illustrated, the margin of the flap is trimmed to provide a flap of reduced width which is narrow relatively to the reduced flexible margin, and this narrow flap is turned up at right angles to the sole to form an upper attaching lip or rib. The upper is then lasted and secured permanently to the lip. The excess material of the upper and lip is trimmed off outside the line of permanent fastenings and an outsole attached by fastenings, such as stitches, which pass through the outsole and upper and do not penetrate the inner sole, the flexible margin of the innersole being turned inwardly at this time. The fasten-

ings are then covered by replacing the reduced flexible margin of the innersole in its original position. Advantageously, the upper may be first lasted and temporarily secured to the last and thereafter permanently secured to the innersole lip by fastenings such as staples. Among other advantages of shoes made in the manner above set forth it may be mentioned that a shoe thus made is substantially as trim and neat in appearance as a turn shoe since only a single sole thickness appears outside the shoe; the inside of the shoe sole is perfectly smooth, there being no inseam on the inner side of the shoe as in a turn shoe, while on the other hand there is no inseam or welt to stiffen it. Moreover such a shoe is easily repairable since it is only necessary to cut the outsole seam in order to remove the sole, whereupon another sole may be sewed on in the same manner in which the original sole was attached, the margin of the innersole being turned up again to expose the upper.

In the drawings,

Fig. 1 is a perspective view of an innersole made in accordance with the present invention;

Fig. 2 is a transverse section of an innersole and upper after the lasting operation;

Fig. 3 is a transverse section of the innersole and upper after the operation of stapling the upper to the rib of the innersole;

Fig. 4 is a sectional view showing the operation of sewing the outsole to the upper; and

Fig. 5 is a perspective view, partly in section and broken away, showing the appearance and construction of the completed shoe.

In the practice of the invention an innersole 2 is prepared having the size and shape of the last bottom, and slits 3, 4 are made through the margin of the inner sole at the outer ends respectively of the tip line and of the breast line. Between the slits 3, 4 the margin of the sole is split from its edge inwardly parallel to the plane of the sole bottom and preferably nearer to the flesh surface of the sole to provide a thin flap 6 to which the upper is to be secured and a relatively thicker but reduced margin 8 which, because of its reduced thickness, is flexible and is adapted to be bent inwardly on a line adjacent to the termination of the marginal split. The amount of reduction of the

thickness of the margin made by the splitting operation, that is the thickness of the flap 6, may correspond to the thickness of the upper materials. The flap 6 is formed into an upper attaching lip by trimming off its outer margin and turning the remainder up at right angles to the plane of the sole. The flexible margin 8 of the inner sole, prior to its attachment to the last, is preferably folded under the innersole so as to be out of the way of attachment of the upper to the outsole.

In the lasting operation an upper 10 may, at the toe and heel-seat portions of the innersole, be lasted over and secured as usual, for example by tacks completely driven and clenched upon iron plates with which the toe and heel-seat portions of the last are provided. At the sides the upper is drawn over the last bottom and secured temporarily in lasted position by tacks 12 (Fig. 2) driven through the upper and innersole and into the wood of the last. The upper, after lasting, is permanently secured to the lip or rib 6 of the innersole, for example, by a line of small metallic fastenings, preferably staples 14, driven through the upper and lip (Fig. 3) in a direction substantially parallel to the last bottom. These staples form substantially a metallic inseam by which the upper is permanently secured to the innersole along the inner edge of the marginal portion thereof. In forming a metallic inseam use is preferably made of an upper stapling machine by which staples of fine wire may be inserted through the upper and lip of the innersole in a direction substantially parallel to the shoe bottom, the anvil of the machine being adapted readily to pass under the lasted upper between the lasting tacks 12. One form of upper stapling machine well adapted for this work is disclosed in United States Letters Patent No. 1,103,935 granted July 21, 1914 on application of M. F. Brogan. After the lasted shoe upper has acquired a permanent set the lasting tacks 12 are removed and the excess material of the upper and innersole rib are trimmed off above the line of staples 14. A filler 16 may be now applied if desired, and an outsole 18 laid in the usual manner upon the shoe bottom, being preferably held by cement. The last is removed from the shoe and the outsole sewed to the upper along the sides of the shoe from the breast line to the tip line by stitches 20 which do not connect the innersole and upper together, as clearly illustrated in Fig. 4. About the toe por-

tion the stitches may, as shown in Fig. 5, extend through the innersole as well as through the upper and outsole. The flexible margin 8 at each side of the shoe is now restored to its original position to cover the stitches at the sides of the shoe. In the shoe leveling operation these margins are pressed down into the plane of the body of the innersole rendering the entire inner surface of the shoe with which the foot comes in contact, which preferably is the grain face of the innersole, perfectly smooth and flat. It will be noted that in the completed shoe the inturned margin of the upper occupies the space provided by reducing the thickness of the margin of the innersole. Since the staples 14 remain permanently in the shoe they serve to hold the upper in place when, in repairing the shoe, the outsole is removed and a new one is sewed on. In this operation the margin of the innersole may be lifted as before to allow the stitches to secure only the outsole and upper together.

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 splitting the edge of an innersole to form a flexible margin of reduced thickness and a flap, trimming the margin of the flap to reduce its width, turning up said reduced flap at right angles to the sole to form an upper attaching lip, lasting a shoe upper to said innersole and securing it permanently to said lip, attaching an outsole to the upper by fastenings which pass through the outsole and upper and do not penetrate the innersole, and covering said fastenings with the flexible margin of the innersole.

2. That improvement in methods of making shoes which consists in splitting the edge of an innersole to form a flexible margin of reduced thickness and a flap, turning up said flap at right angles to the sole to form an upper attaching lip, lasting a shoe upper to said innersole and securing it permanently to the lip by a line of fastenings, trimming off the excess material of the upper and lip outside of the line of fastenings, attaching an outsole to the upper by fastenings which pass through the outsole and upper and do not penetrate the innersole, and covering said fastenings with the flexible margin of the innersole.

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

JAMES CAVANAGH.