

Sept. 7, 1937.

C. C. HYDE

2,092,533

MANUFACTURE OF SHOES

Filed Aug. 11, 1934

2 Sheets-Sheet 1

Fig. 1.

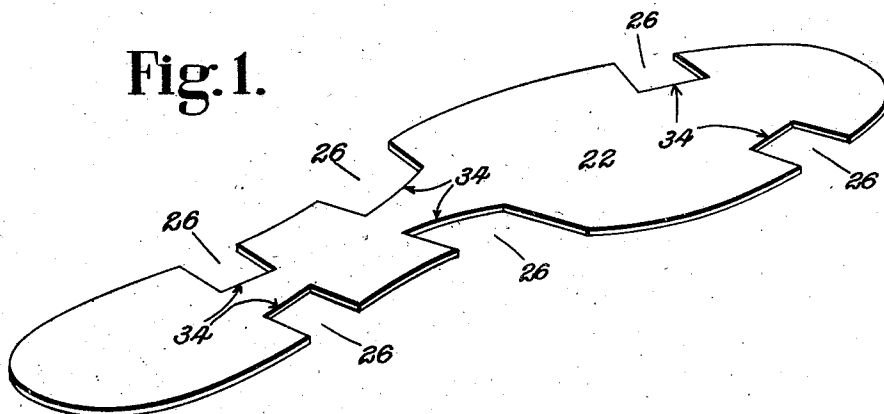


Fig. 2.

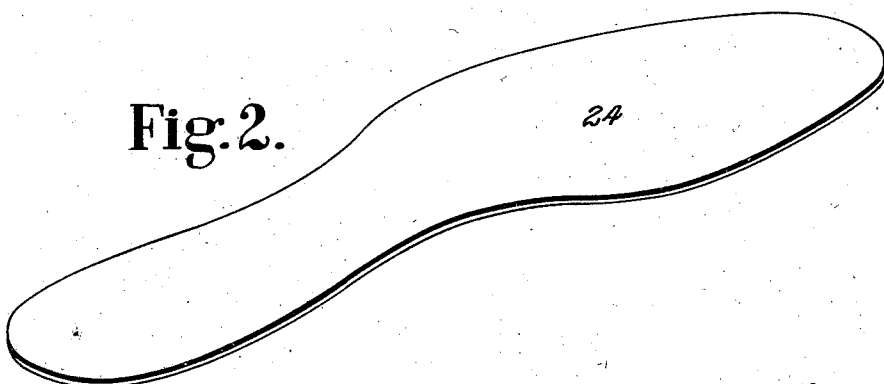
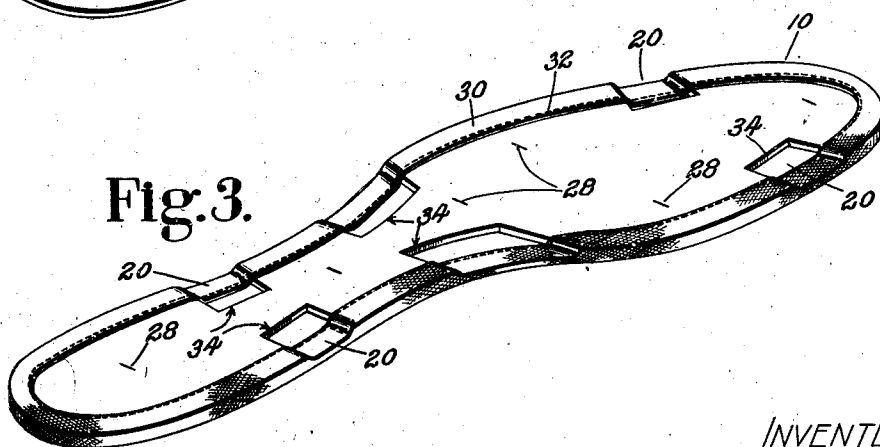


Fig. 3.



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Fig. 4.

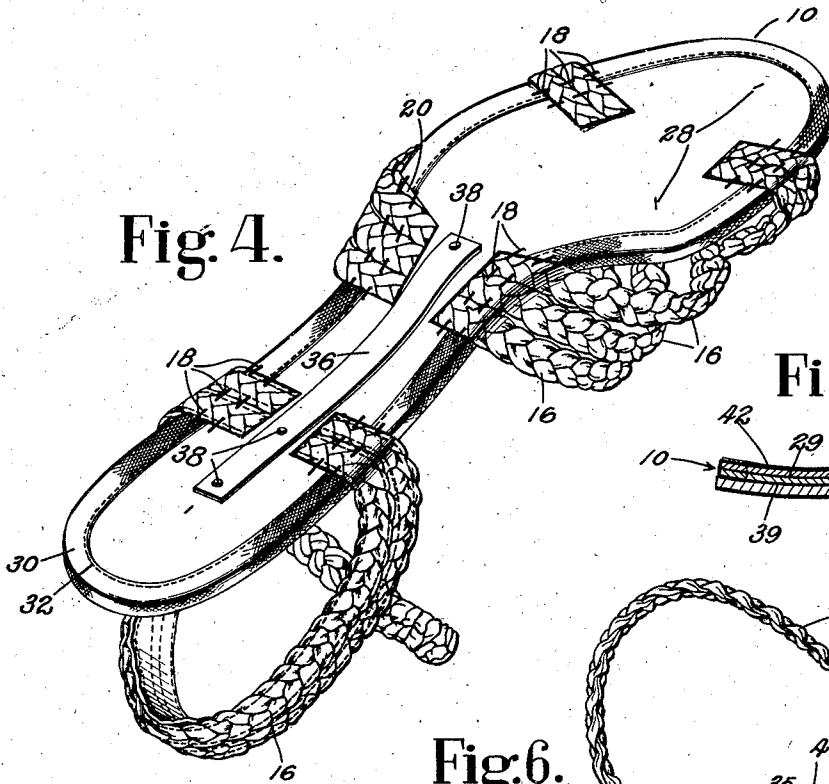


Fig. 7.

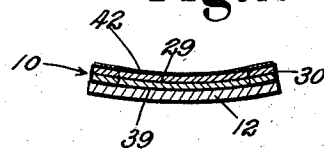


Fig. 6.

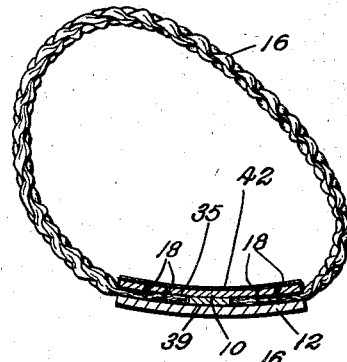
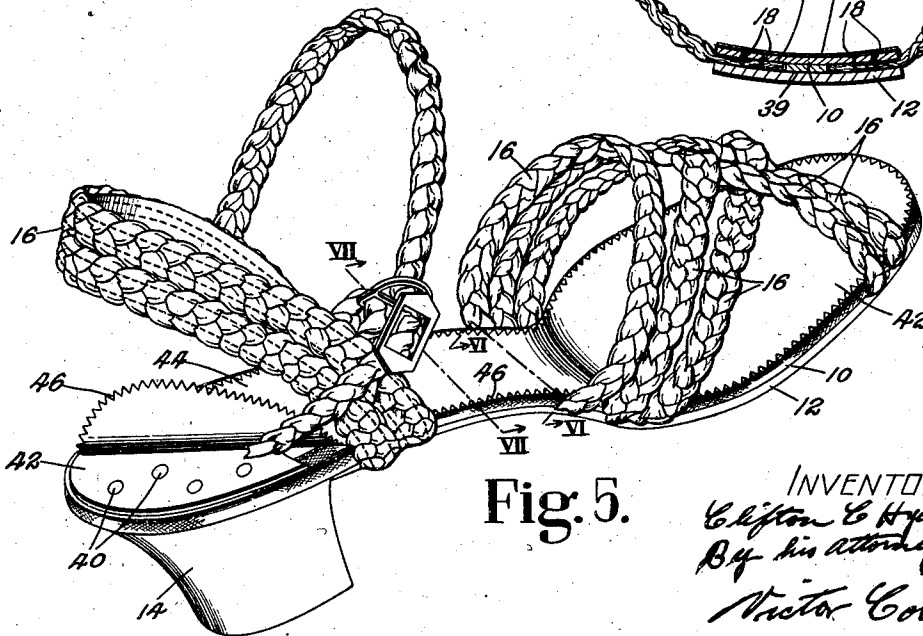


Fig. 5.

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UNITED STATES PATENT OFFICE

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MANUFACTURE OF SHOES

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Application August 11, 1934, Serial No. 739,366

4 Claims. (Cl. 36—11.5)

This invention relates to improvements in the manufacture of cross-strap sandals and other shoes of the type wherein the sole is adapted to be retained in place upon the foot by means of straps or the like extending from one lateral edge portion of the sole to the other.

A sandal or shoe of this type as constructed at the present time usually comprises an insole, an outsole, and a plurality of cross-straps the opposite ends of which extend between the soles and are permanently attached to one or both of them. In such a shoe the cross-straps tend to form humps or ridges in the insole at the points where their attached ends underlie the insole. Such humps or ridges are unsightly and are liable to cause discomfort to the wearer of the shoe.

In view of the foregoing, it is one object of the present invention to insure against the formation of any such undesirable humps or ridges in the bottoms of cross-strap sandals or similar shoes.

To the accomplishment of this object the invention, as herein illustrated, provides an improved strap sandal comprising an outsole, a two-layer insole having notches formed in and extending entirely through the opposite lateral margins of its outer layer and one or more cross-straps the opposite end portions of which are received in said notches and are secured to the inner layer of the insole. As herein shown, the notched insole layer is of a thickness substantially equal to the thickness of the end portions of the straps so that when the latter are received in the notches their outer surfaces will be substantially flush with the adjacent outer surface of the insole. The ends of the straps being thus countersunk in the insole, they will not hold the insole and outsole apart where they extend between them and they will have no tendency to form humps or ridges in the insole.

As illustrated, the ends of the cross-straps are secured to the portions of the insole which define the bottoms of the recesses (i. e., to the inner layer in the laminated insole herein shown) by means of suitable fastenings such as staples, the straps being assembled with the insole and the staple fastenings being inserted with the parts either on or off the last as may be desired. The straps may be secured to the insole, however, by means of cement or by means of both cement and staple fastenings.

It is to be recognized that invention resides also in an insole embodying the various novel features of construction herein referred to.

The invention will be explained with reference to the accompanying drawings, in which

Fig. 1 is a perspective view of the outer or lower layer of a two-ply insole employed in the manufacture of my improved cross-strap sandal;

Fig. 2 is a perspective view of the inner or upper layer of the two-ply insole;

Fig. 3 is a perspective view of a completed two-ply insole ready for assembly with the other parts of a cross-strap sandal, the view showing the outer or lower side thereof;

Fig. 4 is a perspective view of the sandal as it appears before the outsole has been attached;

Fig. 5 is a perspective view of the completed sandal; and

Figs. 6 and 7 are sectional views taken, respectively, along the lines VI—VI and VII—VII of Fig. 5.

The cross-strap sandal illustrated in the drawings comprises an insole 10, an outsole 12, a heel 14 (Fig. 5), and a plurality of cross-straps 16 which are arranged to encircle different portions of the foot and the opposite end portions of which extend between the insole and the outsole and are firmly secured by means of staple fastenings 18 (Fig. 4) to the insole 10. In order to insure against the formation of any undesirable humps or ridges in the insole in those locations where the cross-straps underlie the insole, the outer or outsole-engaging side of the insole has formed therein a series of shallow marginal recesses 20 (Fig. 3) for receiving the end portions of the straps. As shown, the recesses 20 do not extend through the full thickness of the insole but are made only deep enough to accommodate the thickness of the straps and to allow a substantial thickness of insole material at the bottoms of the recesses to receive the legs of the staple fastenings 18 so that the latter will serve firmly to anchor the straps to the insole. Each recess 20 extends inwardly from the edge of the sole a substantial distance to enable two or more lines of staples to be inserted if desired and to provide ample area for adhesive attachment of the straps to the insole as an additional means for securing the straps in place.

To facilitate the manufacture of shoes of this type in quantity without the use of expensive machinery for forming the recesses in the insoles, it is preferred to employ an insole of laminated construction comprising a full length outer or lower layer 22 (Fig. 1) and a full length inner or upper layer 24 (Fig. 2), the inner layer 24 having a normal edge contour and the outer layer 22 having formed therein a series of marginal

rectangular notches 26 and having its edge portions between said notches of the same contour as corresponding portions of the inner layer 24. Advantageously the notches 26 in the outer layer 22 may be cut by means of a die which may be shaped to determine also the outline of the unnotched portions of the layer 22. After being died out the two layers 22 and 24 are superposed with the edge portions of the outer layer 22 which are located between the notches 26 aligned with the edge of the inner layer 24 so that the notched portions of the layer 22 cooperate with the adjacent portions of the unnotched layer 24 to provide the strap-receiving recesses 20. The layers 22 and 24 are permanently secured together in any suitable manner, for example by staple fasteners or by cement or, as herein illustrated by means of staple fasteners 28 and cement, the cement being indicated at 29 in Fig. 7. As shown, the edge of the two-ply insole thus produced is bound by a strip of tape 30 which is secured by stitches 32 to the inner surface of the inner layer 24 and to the outer surface of the outer layer 22 in the marginal portions of the insole between the notches 26 and secured to the inner and outer surfaces of the inner layer 24 in those portions of the insole where the notches 26 or recesses 20 are located. It will be noted that the portions of the tape 30 which overlie the recessed portions of the insole are held in intimate contact with the outer surface of the inner layer 24 so as not to interfere with the countersinking of the cross straps into the insole.

In making the cross-strap sandal herein illustrated the insole 10 and the straps 16 may be assembled either on or off a last, the opposite end portions of the straps being positioned within the recess 20 with their extremities abutting the shoulders 34 formed at the bottoms of the notches 26 in the insole layer 22 and being firmly and permanently secured to the insole layer 24 by means of the staple fastenings 18, or by means of pyroxylin or other suitable cement, or, as illustrated, by means of both staple fastenings 18 and cement, the cement being indicated at 35 in Fig. 6. The straps 16 herein illustrated are formed by braiding strips of fabric or the like and it is to be noted that the use of staple fastenings for attaching such straps is particularly advantageous inasmuch as the staple fastenings secure the ends of the straps so as effectively to prevent any raveling of the braided strips.

The staple fastenings 18 may advantageously be inserted by means of a staple fastening machine such, for example, as that disclosed in United States Letters Patent No. 1,016,930, granted February 13, 1912, upon an application of W. H. Borden. If the parts being secured together have been previously assembled upon a last, the bottom of the last will preferably be faced with metal for clenching the legs of the staples, the metal facing having suitable apertures through which tacks may be driven into the wood of the last for temporarily securing the insole to the last. If the parts are to be assembled off the last the staple fastening machine may advantageously be provided with a staple clenching anvil carried by a suitably curved work-supporting arm or horn, such as that disclosed in United States Letters Patent No. 1,852,152, granted April 5, 1932, upon an application of L. G. Dingeldej. The staple fastening machine above referred to without the anvil and work-supporting horn may also be used for inserting the staples 28 for securing together the insole layers 22 and 24. If the

insole and the straps are assembled without use of a last, a last will be inserted after the straps have been secured to the insole and before the outsole is applied. As shown, a shank stiffener 36 is secured to the outer surface of the insole by means of tacks 38. The outsole is attached to the insole and to the overlying end portions of the strap 16 by means of cement, as indicated at 39, any suitable cement sole attaching press being employed for this purpose. Inasmuch as the end portions of the straps 16 are received within the recesses 20 in the insole so that their outer surfaces are substantially flush with the outer surface of the insole, they will have no tendency to hold the outsole away from the insole and will not interfere with the obtaining of a satisfactory bond between the soles. Moreover, the cement used in attaching the outsole will cause the outsole and the intumed end portions of the straps 16 to become firmly cemented together so that the straps will become even more firmly anchored in place after the outsole has been secured to the shoe.

As shown, the heel 14 is secured to the shoe by means of nails 40 (Fig. 5) which are driven from the inside of the shoe and extend through both the insole and the outsole and preferably, also, through a reinforcing heel piece 42 which is applied to the inner surface of the insole. A sock lining 44 having a pinked edge 46 is adhesively secured to the inner side of the insole, the sock lining covering the heel reinforcing piece 42 and overlying the upper surfaces of the binding 30 of the insole so as to conceal the stitches which attach the binding tape 30.

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

1. A cross-strap sandal comprising an inner insole member having a normal edge contour, an outer insole member having formed therein a series of marginal strap-receiving notches and having its edge portions between said notches of the same contour as corresponding portions of said inner insole member and said outer insole member being permanently secured to said inner member with the edge portions of said outer member between said notches aligned with the edge of said inner member, an edge binding secured to the inner surface of said inner member and the outer surface of said outer member in the marginal portions of said member between said notches and secured to the inner and outer surfaces of said inner member in the portions adjacent to the notches in said outer member, a plurality of cross-strap members having intumed end portions received within said notches and secured to said inner insole member, and an outsole secured to said outer insole member and to said intumed portions of said straps.

2. A laminated insole for a cross-strap sandal comprising an inner layer having a normal edge contour, an outer layer having formed therein a series of marginal strap-receiving notches and having its edge portions between said notches of the same contour as the corresponding portions of said inner layer and said outer layer being permanently secured to said inner layer with the edge portions of the outer layer between the notches aligned with the edge of said inner layer, and an edge binding secured to the inner surface of said inner layer and the outer surface of said outer layer in the marginal portions of the insole between said notches and secured to the inner and outer surfaces of said inner layer in the

portions of the insole where said notches are located.

3. A laminated insole for a cross-strap sandal comprising an inner layer having a normal edge contour, and an outer layer secured to the inner layer and having its opposite lateral edges notched to receive opposite end portions of a cross-strap in overlying relation to said inner layer, and an edge binding overlapping the outer surface of said outer layer and the inner surface of said inner layer, said binding intimately engaging also the outer surface of said inner layer where the latter is exposed by the notches in said outer layer.

4. A strap sandal comprising an inner insole layer having an outline corresponding to that of a normal insole, an outer insole layer permanently secured to said inner layer and having an out-

line corresponding to that of said inner layer except for a plurality of strap-receiving notches formed in the opposite lateral edges of said outer layer, a continuous edge binding strip overlapping the inner surface of said inner layer and the outer surface of the unnotched portions of said outer layer and extending across the notches in said outer layer, said binding strip intimately engaging also the outer surface of said inner layer in localities opposite said notches, an outsole secured to said outer insole layer, and cross-straps having their end portions received in said notches and fixedly secured to said outsole and to said inner insole layer in overlying relation to said edge binding so as permanently to be retained within said notches.

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