June 30, 1931. M. W. WHITE 1,811,912

SHOE AND SHANK STIFFENER THEREFOR

Filed March 14, 1929

Fig. 2.

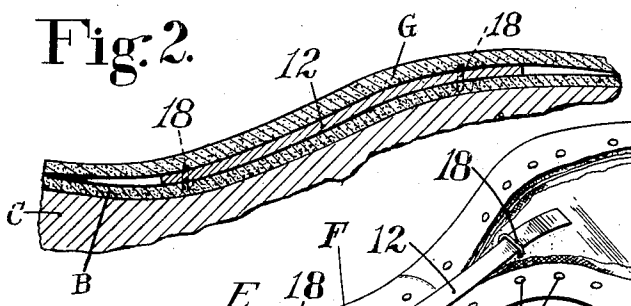


Fig. 1.

Fig. 5.

Fig. 3.

Fig. 4.

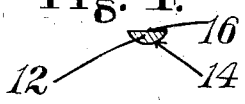


Fig. 6.

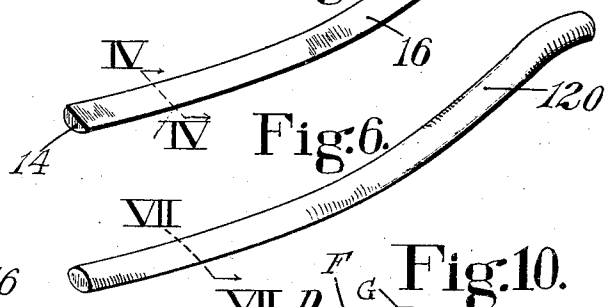


Fig. 7.

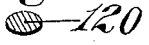


Fig. 8.

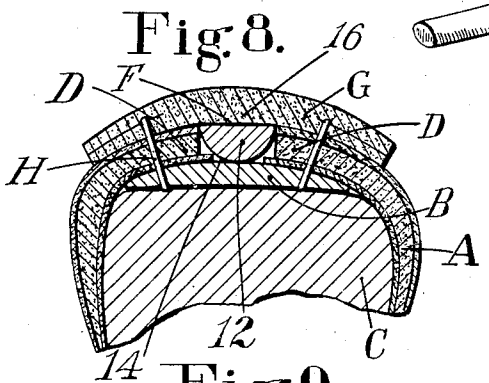


Fig. 10.

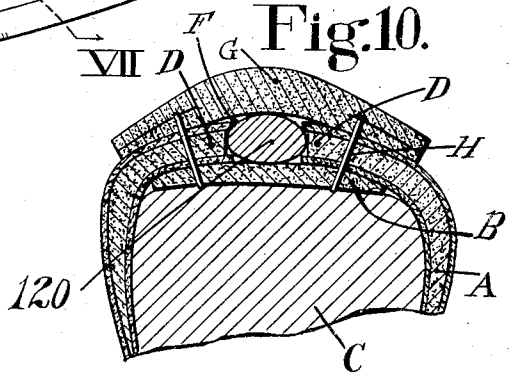
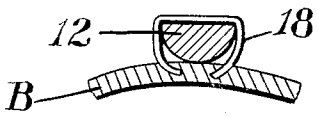


Fig. 9.



INVENTOR

Melbourne W. White

By his Attorney

Nelson W. Howard

Patented June 30, 1931 1,811,912

UNITED STATES PATENT OFFICE

MELBOURNE W. WHITE, OF LYNN, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY

SHOE AND SHANK STIFFENER THEREFOR

Application filed March 14, 1929. Serial No. 347,088.

This invention relates to improvements in shoes and shank stiffeners therefor. The invention is herein illustrated in its application to McKay-sewed shoes, although it is useful also in connection with other types of shoes, as for example welt shoes.

Shank stiffeners are curved longitudinally to correspond to the curvature of the longitudinal arch at the bottom of the last for the shoes in which the stiffeners are to be used and in use the stiffeners are located in the space between the lasted-over margins of the upper materials (if the shoes are of the McKay-sewed type) or in the space between the opposite portions of the sewing rib (if the shoes are of the welt type). It is customary to make the stiffeners more or less transversely convex or "ribbed" at their longitudinally concave sides for the purpose of insuring greater rigidity of construction. A shank stiffener of this type when assembled in place between the inner and outer soles of a shoe is necessarily arranged with the transversely concave side of the stiffener facing the insole and with the transversely convex side facing the outsole and usually the arrangement is such that the ribbed middle portion of the stiffener bears against the outsole while the lateral edges only of the stiffener engage the insole. The space between the lasted-over upper margins of a McKay-sewed shoe (or the space between the opposite portions of the sewing rib of a welt shoe) is sometimes too narrow along the shank of the shoe properly to receive a shank stiffener and, as a result, only one lateral edge or neither lateral edge of the stiffener is permitted to engage the insole. In either case the shank stiffener is improperly positioned and is held away from the insole to such an extent that the outsole cannot be properly leveled at the shank and will not conform accurately to the longitudinal curvature of the last bottom.

In view of the foregoing, one object of the present invention is to provide an improved shank stiffener having the requisite rigidity which will be adapted readily to adjust itself into a transversely level position within the space between the lasted-over upper margins of a McKay-sewed shoe (or between the opposite portions of the sewing rib of a welt shoe) as well as to provide a shank stiffener which will be inexpensive to manufacture and which will afford a substantial backing or support for the outsole.

With this object in view, one feature of the present invention consists in the provision of a shank stiffener consisting of a longitudinally arched strip transversely convex on its longitudinally convex side for engagement with the insole of a shoe and transversely straight on its longitudinally concave side throughout the entire length of the stiffener strip for engagement with the outsole. Preferably, and as herein illustrated, the improved stiffener is of solid construction and it is made unusually narrow to adapt it to fit within the narrow recess between the lasted-over upper margins of ladies' shoes. Also, in order to avoid weakening it, the illustrated stiffener has been made without any fastener-receiving holes, notches or the like, it having been found practicable and advantageous to secure the stiffeners in place by means of staples arranged to straddle the stiffeners at their opposite ends. Thus, the illustrated stiffener is adapted to be manufactured at minimum cost merely by cutting a strip of stock of the requisite cross-sectional contour into short pieces and molding the short pieces to impart the desired longitudinal curvature thereto.

Considered in another aspect the invention consists in a shoe comprising an insole, an outsole, upper materials having lasted-over margins interposed between the soles and arranged to provide a relatively narrow space between said margins at the shank portion of the shoe, and a shank stiffener located within and filling this space and consisting of a longitudinally arched strip having at its longitudinally convex side a surface of salient cross-sectional contour bearing against the insole and engaging the lasted-over upper margins and at its opposite side a surface of non-reentrant cross-sectional contour engaging and supporting the outsole.

Other features of the invention will be referred to in the following description and

more particularly set forth in the appended claims.

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

Fig. 1 is a perspective view of a McKay-sewed shoe in process of manufacture, illustrating the application to the shoe of a shank stiffener constructed in accordance with the present invention;

Fig. 2 is a longitudinal sectional view of a portion of a McKay-sewed shoe embodying features of the invention, the plane of the section extending through the middle of the shank stiffener;

Fig. 3 is a perspective view of the improved shank stiffener shown in Fig. 1;

Fig. 4 is a cross-sectional view taken along the line IV—IV of Fig. 3;

Fig. 5 is another perspective view of the improved stiffener;

Fig. 6 is a perspective view of a modified form of the stiffener;

Fig. 7 is a cross-sectional view taken along the line VII—VII of Fig. 6;

Fig. 8 is a fragmentary cross-sectional view of a completed McKay-sewed shoe embodying features of the invention;

Fig. 9 is a detail cross-sectional view illustrating particularly the manner in which the shank stiffener is stapled to the insole; and

Fig. 10 is a cross-sectional view similar to Fig. 8 but illustrating the application to a shoe of a shank stiffener of the modified form shown in Fig. 6.

Referring to the drawings, the improved shank stiffener shown in Figs. 1 to 5, inclusive, is made from a strip of so-called half-round stock, that is, the stock is transversely convex or "round" at one side but is flat or transversely straight at its opposite side, the cross-sectional contour of the stock being the same as that shown in Fig. 4. Individual shank stiffeners 12 are formed from such a strip of stock by cutting the strip into short pieces and imparting to each piece a longitudinal curvature corresponding to the arch at the bottom of lasts of the type in connection with which the shank stiffener is to be used. After being cut from the strip of stock each individual piece is so positioned relatively to co-acting forming dies, which are to curve the piece longitudinally, that the finished stiffener is made transversely convex or rounded at its longitudinally convex side, as indicated at 14 in Fig. 5. At the opposite side of the stiffener shown in Figs. 1 to 6, the transverse elements of the stiffener are straight, as shown at 16 in Figs. 3 and 4.

A shank stiffener of the above-described construction is particularly adapted for use in shoes wherein only an exceptionally narrow space is left between the lasted-over margins of the upper materials along the shank portion of the shoe. Such a condition is illustrated in Fig. 1 which shows a McKay-sewed shoe as it appears before the outsole has been laid, the shoe comprising upper materials A and an insole B. As shown, the insole and the upper materials are assembled upon a last C and the bottom margins D of the upper materials are lasted over the insole and secured thereto by lasting tacks E, the arrangement being such that only an exceptionally narrow space or recess F is left between the lasted-over margins at the shank of the shoe. The shank stiffener 12 is fitted within the narrow recess F with the transversely convex or rounded side 14 of the stiffener facing the insole B. The shank stiffener is thus positioned so that it will readily adjust itself into a transversely level position within the recess F whereby the transversely straight surface 16 will be adapted to engage and provide a firm and adequate support or backing for the outsole. As shown, the thickness of the stiffener is substantially the same as that of the lasted-over margins of the upper materials and accordingly the surface 16 of the stiffener is substantially flush with the outer surfaces of the upper margins so that a smooth and practically continuous surface is presented throughout the width of the shank portion of the shoe for engagement with the outsole. Inasmuch as the rounded or transversely convex side of the stiffener bears against the insole the tendency of the stiffener when it is placed within the recess F will be to assume a level or transversely untilted position, the stiffener rocking if necessary along its convex side to adjust itself as described. The stiffener is shown, in Figs. 1 and 9, as being secured in place by means of two staples 18, 18 which straddle the stiffener near its opposite ends and the legs of which are deflected inwardly and clinched within the material of the insole without passing therethrough, it being practicable to drive and clinch staples in this manner by the use of machines such, for example, as the machine described in United States Letters Patent No. 1,625,958, granted April 26, 1927, upon application of J. H. Reed.

After the shank stiffener has been fastened to the insole the shoe is completed in the usual way, the lasted-over margins of the upper being roughened to facilitate the temporary securement of the outsole by adhesive, the outsole G being laid, the last being pulled, and the outsole being secured by McKay stitching H in the customary manner. If the shank stiffener has not fully adjusted itself into a transversely level position before the outsole is laid the stiffener will be forced to assume such a position when the leveling pressure is applied to the outsole.

Heretofore in McKay shoe making it has been customary to attach the shank stiffener to the insole by means of tacks which are driven through holes in the shank stiffener,

the points of the tacks being driven entirely through the insole and bent over against the inner face of the insole by contact with the metal plate along the bottom of the last. Customarily the tacks have been located one at either end portion of the shank stiffener. In lasts for use in making McKay-sewed shoes the metal bottom plate is usually provided, in the vicinity of the ball line, with a hole of substantial size through which a lasting tack is adapted to be driven into the wood of the last for the purpose of temporarily holding the insole in place. It has often happened that the tack driven through the forward end portion of the shank stiffener, instead of clinching as desired against the metal last bottom, would be driven through the hole in the metal plate and into the wood of the last. As a result, when the last was pulled the unclinched point of the tack would extend into the shoe where it was liable to cause discomfort to the wearer. The use of staples clinched within the insole material, as hereinbefore described, results in eliminating this objectionable feature.

Figs. 6, 7 and 10 show a stiffener 120 of modified cross-sectional form wherein both the insole and outsole engaging sides of the stiffener are made transversely salient or convex. The use of a stiffener of this modified form in a shoe, as shown in Fig. 10, is sometimes desirable to facilitate the production of a more rounding cross-sectional contour along the longitudinal center of the shank portion of the outsole.

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

1. A shank stiffener consisting of a longitudinally arched strip of solid construction having a salient cross-sectional contour from edge to edge at its longitudinally convex side, and a straight cross-sectional contour at its longitudinally concave side.

2. A shank stiffener consisting of a solid strip longitudinally arched throughout the greater portion of its length, said strip having a straight cross-sectional contour throughout the length of its arched portion at the longitudinally concave side thereof and having a convex cross-sectional contour throughout the length of said arched portion and from one lateral edge thereof to the other at the longitudinally convex side thereof.

3. A shank stiffener consisting of a longitudinally arched strip transversely convex on its longitudinally convex side and transversely straight on its longitudinally concave side throughout the entire length of the stiffener strip.

4. A shoe comprising, in combination, an insole, an outsole, upper materials having lasted-over margins interposed between the soles and arranged to provide a relatively narrow space between them at the shank portion of the sole, and a shank stiffener located within and filling said space and consisting of a longitudinally arched strip having at its longitudinally convex side a surface of salient cross-sectional contour bearing against the insole and engaging said lasted-over margins and at its opposite side a surface of non-reentrant cross-sectional contour engaging and supporting the outsole.

5. A shoe comprising, in combination, an insole, an outsole, upper materials having lasted-over margins interposed between the soles and separated along the shank by a relatively narrow space, a longitudinally arched shank stiffener located between the soles and within the narrow space between the lasted-over margins of the upper materials and engaging both soles and both of said margins throughout the greater part of the shank portion of the shoe, the stiffener having a surface substantially flush with the exposed surfaces of the lasted-over upper materials at the outsole-engaging side of the stiffener and serving in conjunction with said surfaces to provide a continuous bearing surface for the outsole throughout the width of the shoe bottom in said portion of the shank of the shoe.

6. A shoe comprising, in combination, an insole, an outsole, upper materials having lasted-over margins interposed between the soles and separated along the shank by a relatively narrow space, a longitudinally arched shank stiffener located between the soles and within the narrow space between the lasted-over margins of the upper materials and engaging both soles and both of said margins throughout a substantial portion of the length of the stiffener, the stiffener having a surface substantially flush and continuous with the exposed surfaces of said margins at the outsole-engaging side of the stiffener and having a salient cross-sectional contour at the insole-engaging side of the stiffener.

7. A shoe comprising, in combination, an insole, an outsole, upper materials having lasted-over margins interposed between the soles, and a shank stiffener located within the space between the soles and between the lasted-over margins of the upper materials and engaging both soles and both of said margins throughout the greater part of the length of the stiffener strip, the stiffener having a surface substantially flush with the exposed surfaces of the lasted-over upper materials at the outsole-engaging side of the stiffener, and having a transversely convex surface at its insole-engaging side.

8. A shoe comprising, in combination, an insole, an outsole, upper materials having lasted-over margins interposed between the soles, a shank stiffener located within the space between the soles and between the lasted-

over margins of the upper materials and engaging both soles, the stiffener having a surface substantially flush with the exposed surfaces of the lasted-over upper materials at the outsole-engaging side of the stiffener and having a transversely convex surface at its insole-engaging side, and staples straddling the stiffener at its opposite end portions and securing the stiffener to the insole.

9. A shoe comprising, in combination, an insole, an outsole, upper materials having lasted-over margins interposed between the soles, a shank stiffener located within the space between the soles and between the lasted-over margins of the upper materials and engaging both soles, the stiffener having a surface substantially flush with the exposed surfaces of the lasted-over upper materials at the outsole-engaging side of the stiffener and having a transversely convex surface at its insole-engaging side, and staples straddling the stiffener at its opposite end portions and securing the stiffener to the insole, the points of the staples being clinched within the material of the insole without passing therethrough.

10. A shank stiffener consisting of a longitudinally arched strip of uniform cross-sectional contour throughout its length, said contour being salient at the longitudinally convex side of the stiffener and straight at the longitudinally concave side of the stiffener.

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

MELBOURNE W. WHITE.