Jan. 13, 1942. K. A. STRITTER 2,269,562

SHOEMAKING

Filed Aug. 30, 1938 2 Sheets-Sheet 1

Fig.1.

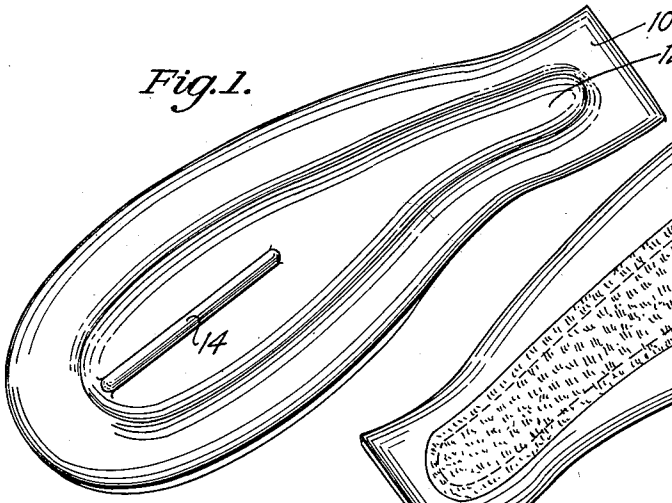


Fig.2.

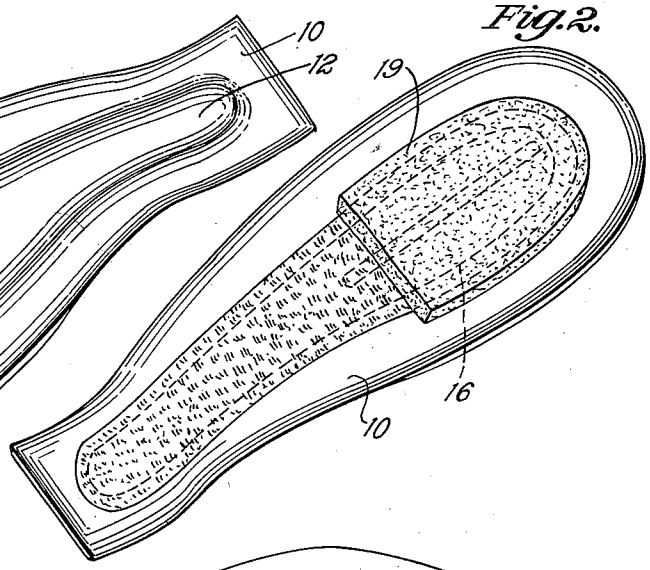


Fig.3.

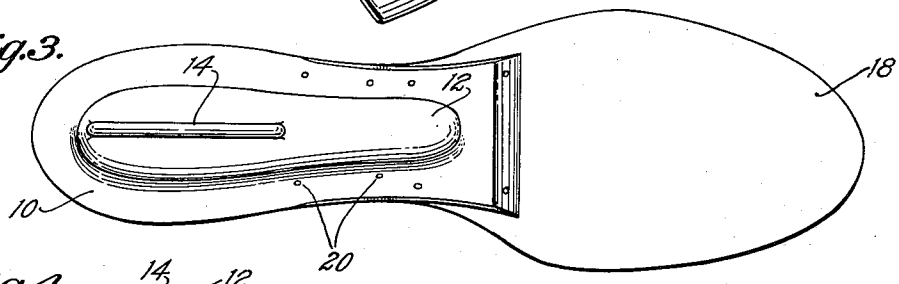


Fig.4.

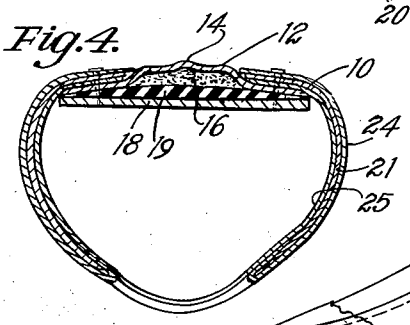


Fig.5.

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Jan. 13, 1942. K. A. STRITTER 2,269,562

SHOEMAKING

Filed Aug. 30, 1938 2 Sheets-Sheet 2

Fig. 7.

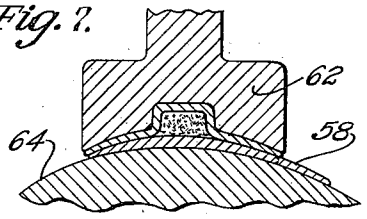
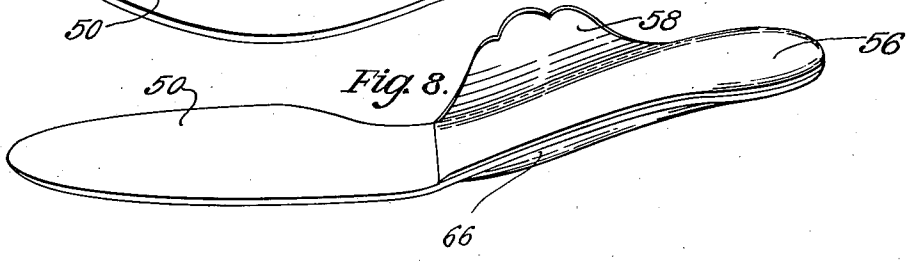


Fig. 6.

Fig. 8.



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Patented Jan. 13, 1942

2,269,562

UNITED STATES PATENT OFFICE

2,269,562

SHOEMAKING

Karl A. Stritter, Nahant, Mass., assignor to United Shoe Machinery Corporation, Borough of Flemington, N. J., a corporation of New Jersey

Application August 30, 1938, Serial No. 227,492

9 Claims. (Cl. 12—146)

This invention relates to shoemaking and more especially to an improved manner of stiffening the shank portion of a shoe and of filling the bottom cavity between overlasted upper materials in the shank and heel portions of a lasted shoe. The invention is also concerned with novel shank pieces and novel insole units.

In the manufacture of shoes having insoles and outsoles it is the general practice to provide a shank piece and a shank stiffener for reinforcing the shank portion of the shoe in order to prevent breakdown and preserve the fine lines of the shoe during wear. After a shoe of this type has been lasted to the insole, provision must be made for filling the cavity within the overlasted margin of the upper, since there would otherwise be a space between the insole and outsole approximating the thickness of the overlasted margin of the upper.

One object of the present invention is to simplify shoemaking by providing for simultaneously stiffening the shank portion of a shoe and filling the cavity in the shoe bottom within the overlasted margin of the upper.

A further object of the invention is to obtain a sturdier shoe by combining the heel seat and shank filling and shank stiffening means with a novel shank piece.

Another object of the invention is to provide a filler unit which can be manufactured and sold to shoe manufacturers ready for incorporation in a shoe and which, in addition to stiffening the shank, fills the shank and heel seat portions only. Thus, my invention contemplates the manufacture of a single prefabricated unit for filling the cavity in the heel seat and shank portions of a lasted shoe as well as for stiffening the shank thereof.

Other objects include lowering the cost of shoemaking, eliminating metal shank stiffeners, providing a gauge for the laster, and making a stronger and more integrated shoe. A further object of the invention is to eliminate the troublesome defect known as a "floating shank."

A feature of the invention lies in a novel shank piece which is shaped to provide a cavity for the heel seat and shank filling and shank stiffening member and is simultaneously molded to fit the contour of a last bottom.

Another advantage of the invention resides in the fact that a shank piece unit comprising a molded shank piece and a heel seat and shank filling and shank stiffening member may be secured to a flexible insole so that the insole receives from the molded unit its proper contour, thus providing in one insole unit an insole, a shank piece, a shank stiffener, and a heel seat and shank filler. It is contemplated that such shank piece units may be manufactured and sold to shoe manufacturers as separate commodities without the insoles.

In carrying out the process of my invention a flat shank piece provided with an elongated depression may be molded with an insole to conform to the shape of a last bottom while at the same time a mass of moldable plastic composition contained in the depression assumes proper form and assists in securing together the insole and the shank piece.

An important advantage incidental to the use of my invention lies in the fact that the edges of the raised portion of the unit can be used as a gauge to insure proper lasting of the shoe, with straight backseams and quarters of even height.

The foregoing, as well as other ancillary objects and features will be apparent from the following detailed description of illustrative embodiments of my invention shown in the accompanying drawings, in which:

Fig. 1 is a bottom view in perspective of a shank piece constructed according to my invention,

Fig. 2 is a plan view of the obverse face of the shank piece illustrated in Fig. 1 and shows the plastic filler in place,

Fig. 3 is a plan view from beneath of an inverted insole and shank reinforcing unit,

Fig. 4 is a view in cross section along the line 4—4 of Fig. 5,

Fig. 5 is a fragmentary view partly in perspective and partly in cross section showing a shoe constructed according to my invention,

Fig. 6 is a view in perspective of the elements constituting an embodiment of my invention,

Fig. 7 is a view in cross section showing the molding operation applied to the elements of Fig. 6, and

Fig. 8 is a view in side elevation of a unit constructed according to Figs. 6 and 7.

As shown in Figs. 1–5, I prefer to build the unit of the invention around a shank piece 10, which may be of any suitable plastic or fibrous material, or metal, capable of retaining a shape imparted to it by a molding operation. The outline of the shank piece 10 corresponds to the shape of the rear portion of an insole and extends from the rear end of the heel to a point adjacent the ball line. The shank piece 10 is molded in order to impart to its marginal portion the contour of the corresponding rear portion of a last bottom, and simultaneously to form a deep

longitudinal groove or cavity in the surface designed to be uppermost in the finished shoe, and a correspondingly well-defined hollow ridge 12 on the lower surface of the shank piece 10. The ridge 12 extends longitudinally through the central portion of the shank piece 10 and narrows somewhat as it runs forwardly into the shank proper. During the molding operation a smaller ridge 14 is simultaneously formed on top of the ridge 10. As shown in Fig. 2, the next step is to fill the groove or cavity in the shank piece 10 with moldable plastic material 16. The plastic composition 16 is pressed into engagement with the walls of the cavity in the shank piece 10 and then allowed to harden until it becomes stiff. Due to the fact that the shank piece 10 has been molded to fit the contour of a last bottom, the stiff plastic 16 assumes a longitudinal curve similar to that imparted to the ordinary metal shank stiffener commonly employed in shoe making. An insole 18 of flexible material such as fiber or leather is secured to the upper face of the shank piece 10 either by cement or by small tacks as indicated at 20 so that the insole 18 is given a longitudinal curvature. A small rubber cushion 19 is preferably secured between the shank piece 10 and the insole 18 with its margin spaced inwardly of the margin of the shank piece 10 so that it is not pierced by lasting tacks or heel attaching nails. The cushion 19 imparts a desirable resiliency to the heel seat of the finished shoe.

The unit thus formed may be tacked to a last 22 as shown in Fig. 5 whereupon an upper 24, including a counter 21 and a lining is assembled on the last. It is important to note that the shank piece imparts the correct curvature to the insole, inasmuch as the unit thus formed is given proper and predetermined contour. The overlasted heel seat portion of the upper 24 is drawn over the last 22 against the sides of the ridge 12 which is just high enough to compensate for the thickness of the overlasted margin of the upper 24 and counter. Furthermore, the sides of the ridge 12 serve as a gauge for the laster, which enables him to last the shoe with assurance that the height of the quarters will be equal on both sides of the shoe. The smaller ridge 14 also serves as a gauge for the laster in that the backseam 23 may be aligned with it and properly located on the last 22. It will be apparent that the shank piece 10 with its filler 16 of plastic material may be assembled on the last 22 without having previously been secured to the insole 18. The flat margin around the ridge 12 on the shank piece 10 forms an excellent lasting surface. After lasting has been accomplished, an outsole 26 is cemented or otherwise attached to the bottom of the lasted shoe.

The foregoing method of employing my invention in the construction of a shoe has been described in detail in order that the principles underlying my invention may be easily comprehended. It will be apparent that the plastic composition 16 serves to fill the heel seat and shank cavity as well as stiffen the shank.

An important sales feature of certain types of shoes is the elimination of metal. With a plastic filled shank piece and cement lasting it is possible to build a shoe with practically no metal parts, especially if the heel is attached by fibre pegs. It should be noted that the construction shown in Fig. 1 is especially useful where lasting is accomplished by using staples. Staples can be driven in sideways through the upper and into the sides of the ridge 12. This method of operation eliminates the necessity for providing a rib or raised channel about the shank and heel seat portions of the insole and is particularly advantageous in shoes having welted or sewed foreparts and soles fastened on with cement.

An insole unit may be made according to my invention by providing an insole 50 having a forwardly tapering groove 52 as shown in Fig. 6. A strip of moldable adhesive plastic material 54, such as a wad of cloth impregnated with a cellulose derivative, is disposed in the groove 52, and a tuck, or shank piece 56 provided with an extension arch support or "cookie" 58 is placed on the upper surface of the insole 50 concealing the plastic 54. The parts are then operated on by molds 62 and 64 which simultaneously impart to the assembly a longitudinal and a transverse curve and cause the plastic 54 to adhere to the tuck 56 as well as the insole 50. The finished unit is shown in Fig. 8. The hardened plastic material 54 stiffens the shank, and the lower surface of the insole 50 is shaped to fill the heel seat and shank portions of a lasted shoe, the heel seat filling ridge 66 being formed when the insole 50 is grooved. The unit thus formed functions as an insole, shank stiffener, heel seat filler, and shank piece.

With regard to the materials which can be used for the fillers and molded shank pieces, which I have generally termed "plastics," it should be understood that I do not limit myself to the use of any particular material or type of material. It is sufficient if the material used be moldable and capable of retaining a shape imparted to it by molding, although the material should also be (after molding) strong, stiff, nonwarping. It is preferable that the molded material be non-shrinking and somewhat water resistant. A suitable material can be made from paper or other fibrous substances mixed with Celluloid, synthetic resins, or other binders.

It is important to note that shank pieces, tucks and other inserts commonly made of compositions of fibrous substances are cut to shape from sheets of even thickness. A skiving operation is therefore necessary to eliminate ridges where the edges of the inserts blend into the other elements of a shoe. According to my invention shank pieces, tucks, etc. are molded individually from the mass of material, and feather edges can then be imparted in order to eliminate subsequent skiving operations.

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

1. An insole unit which comprises a stiff shank piece having lateral marginal flanges molded to correspond to the curvature of a last bottom and a longitudinal rib extending from the heel-seat portion through the shank portion of said shank piece between said flanges at its lower side, said rib having well defined lasting shoulders adjacent to said flanges and being shaped to provide a longitudinal depression at the upper side of the shank piece, a mass of hardened plastic composition filling said depression, and a flexible insole conformed to the curvature of said flanges and covering said plastic composition.

2. A shank piece unit which comprises a shank piece having a shouldered longitudinal depression formed therein extending from the heel-seat portion through the shank portion of said shank piece and having a marginal portion

entirely surrounding said depression, said marginal portion being molded to fit a last bottom, and a shank stiffening mass of hardened plastic composition disposed in and filling said depression.

3. A unit for use in shoemaking which comprises a fibrous shank and heel piece molded to fit the bottom of a last and molded to present at the side which is to face the outside of a shoe a transversely curved, hollow ridge extending along the heel and shank portions of the shank piece and shaped and located to fill the bottom cavity inwardly of the overlasted margin of the upper in the heel and shank portions of a shoe, and a mass of hardened plastic composition filling said hollow ridge and serving as an integral shank stiffener.

4. An insole unit comprising a shank piece molded to fit the contour of a last bottom and shaped to present a depression extending along the central heel and shank portion of one side of said piece and a corresponding ridge at the other side of said piece, a shank stiffener filling said depression and forming a surface flush with that of the marginal portions of the shank piece, an insole secured to said shank piece at the side to which said stiffener is applied, and a cushion between said insole and said shank piece.

5. A method of making a shank reinforcing and heel-seat filling unit, which comprises forming a longitudinal groove in the heel seat and shank portion of a shank piece and molding the shank piece to fit the contour of a last bottom, filling said groove with a moldable plastic and allowing said plastic to harden to form a shank stiffener, superposing an insole over said grooved shank piece and said plastic, and securing said shank piece to said insole.

6. A method of making a shank reinforcing and heel-seat filling unit, which comprises shaping a shank piece to present a longitudinal forwardly tapering groove, filling said groove with a mass of moldable plastic and allowing said plastic to harden to form a shank stiffener, assembling an insole with said shank piece with a cushion interposed between said parts, and securing said insole and said shank piece together.

7. A preformed unit for use in shoe bottoms, comprising a stiff shank piece curved longitudinally to fit the last bottom and having a transversely arched center portion extending forwardly from the heel-seat portion through the shank portion of the shank piece and lateral marginal portions offset abruptly from said center portion, hardened plastic material filling said center portion and forming a flush surface with said marginal portions, and a flexible insole adhesively secured to the shank piece and said plastic material and taking its curvature therefrom.

8. A shoe bottom unit comprising a heel and shank piece having a marginal outline corresponding substantially to that of the heel and shank portions of an insole and having in its upper side a relatively wide groove extending longitudinally along its heel and shank portions and having a mass of hardened plastic material filling said groove and constituting a shank stiffener, the lower surface of said heel and shank piece being shaped to provide a relatively wide range corresponding to said groove for filling the cavity between the overlasted upper margins in the heel seat and shank portions of the bottom of a lasted shoe and to provide also a relatively narrow ridge extending lengthwise of said relatively wide ridge in the heel seat portion of the heel and shank piece adapted to serve as a gage in locating the back seam of the upper relatively to said unit.

9. That improvement in methods of making shoe bottom units which consists in providing a longitudinally curved shank and heel piece having an insole facing surface coextensive with that of the heel and shank portions of an insole and shaped to conform to the bottom curvature of the heel and shank portions of a last bottom, said piece having a reinforcing ridge upon its lower side shaped to fill the bottom cavity in the shank and heel-seat portions of the lasted shoe and a groove corresponding to said ridge in its upper side, and filling said groove with plastic stiffening material and allowing said material to harden to constitute a shank stiffener having a longitudinal curvature corresponding accurately to that of said shank and heel piece.

KARL A. STRITTER.

CERTIFICATE OF CORRECTION.

Patent No. 2,269,562. January 13, 1942.

KARL A. STRITTER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, first column, line 9, claim 3, for "outside" read --outsole--; and second column, line 22, claim 8, for "range" read --ridge--; and line 40, claim 9, for "the" read --a--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 3rd day of March, A. D. 1942.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)