

A. H. PRENZEL.
 PROCESS OF MAKING SHOES.
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1,050,040.

Patented Jan. 7, 1913

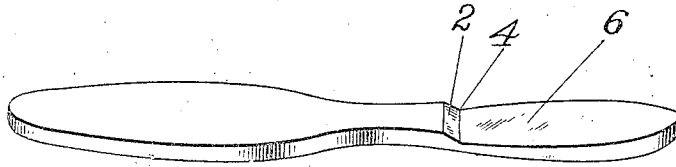


Fig. 1.

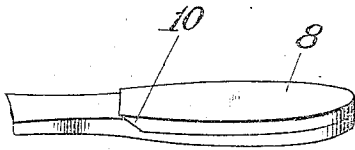


Fig. 2.

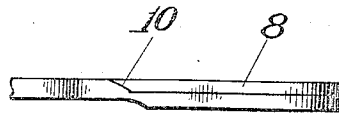


Fig. 3.

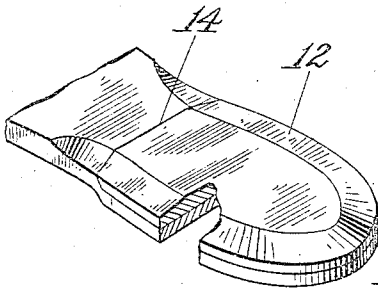


Fig. 4.

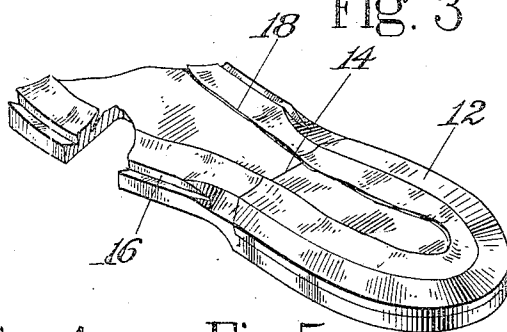


Fig. 5.

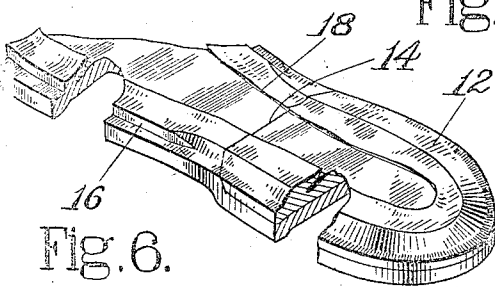


Fig. 6.

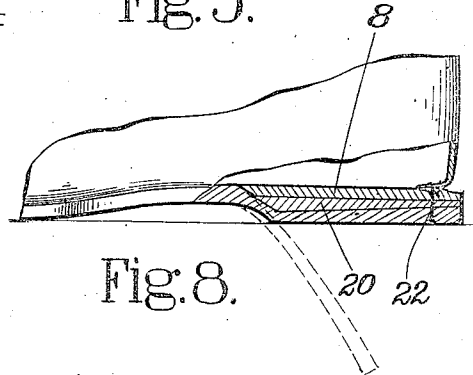


Fig. 8.

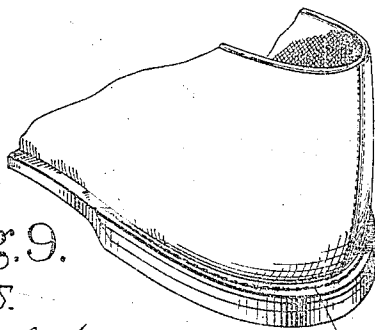


Fig. 9.

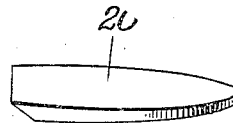


Fig. 7.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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PROCESS OF MAKING SHOES.

1,050,040.

Specification of Letters Patent.

Patented Jan. 7, 1913.

Application filed February 5, 1912. Serial No. 675,594.

To all whom it may concern:

Be it known that I, ADAM H. PRENZEL, a citizen of the United States, residing at Halifax, in the county of Dauphin and State of Pennsylvania, have invented certain Improvements in Processes of Making Shoes, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to spring heel shoes and particularly to spring heel shoes of the "underwedge" type, underwedge shoes being so called from the fact that the spring heel is formed by inserting between the sole and the heel seat a filling piece or lift which is usually, though not necessarily, wedge-shaped, and then securing said piece or lift permanently in this position.

Underwedge shoes are usually made only in children's sizes and the ordinary practice is to make them by the turn shoe process with a single sole. To secure the underwedge in position, when the shoe is made by the turn shoe process, it is necessary to provide the shoe with a heel seat piece and considerable difficulty has been experienced in this step of the process. Moreover, difficulty has been experienced in so inserting the heel seat piece that the inside of the shoe will be smooth. The ordinary practice has been to sew the upper wrong side out to the sole about the forepart and in the shank, the forepart and the shank of the sole being provided with the usual sewing channel, then to turn the shoe and last in the heel seat piece, and then to insert the lift or underwedge between the heel seat and the heel end of the sole and secure it in this position.

By the improved process described in my reissued Letters Patent No. 13,447, dated July 23, 1912, a number of the objections to, and the disadvantages of, the usual methods of making spring heel shoes of the underwedge type have been avoided and not only has the manufacture of these shoes been greatly facilitated, but the quality of the product has also been improved. By the process just referred to the heel seat is channeled at the same time that the forepart and the shank of the sole are channeled and is sewed to the upper at the same

time that the aforementioned parts of the sole are sewed to the upper. These operations are made practicable by recessing the heel end of the sole and so disposing the heel seat in said recess that the upper surface of the sole and the corresponding surface of the heel seat are substantially flush at the line of junction of said surfaces, whereby the formation of a continuous channel in the sole and the heel seat is facilitated.

An object of the present invention is to improve the process disclosed in the Letters Patent above identified, to the end that the manufacture of shoes of the general type hereinabove referred to may be still further facilitated, and to the further end that a novel shoe may be produced having many features of improvement over shoes hitherto known.

The process of the prior Letters Patent, broadly stated, comprises four characteristic operations, namely, the preparation of the sole and the heel seat for the formation therein of a continuous sewing channel, the stitching operation by which the upper is sewed to the sole all the way around, and the operation of turning the shoe, separating the heel seat from the sole and inserting the underwedge piece or lift. These four principal operations also characterize the improved process of the present invention. It will be observed, however, from the following description, that a further and a novel characteristic of the process of the present invention is that the various steps incident to the performance of the four principal operations are of such a nature and are taken in such order that each contributes as much as possible to the easy, quick and effective performance of the later steps, not only of the same principal operation but also of the succeeding principal operations, and that each contributes as much as possible to the production of a shoe superior both in quality and appearance to shoes of the same type hitherto known.

Another important characteristic of the invention, when practised in the preferred manner, is the novel preparation of the sole for the insertion of the underwedge, whereby an underwedge or lift which is so proportioned as to compensate for the arch of

the last may be utilized and the tread face of the heel may thus be made substantially level.

Having regard to the purposes and objects of the invention above set forth and to other purposes and objects which will appear hereinafter, the invention will now be described, with especial reference to its application to the manufacture of underwedge shoes by the turn process.

In the accompanying drawings, which illustrate various steps in the preferred mode of procedure,—Figure 1 is a perspective view of a sole as it appears after the first or recessing step of the process has been carried out; Fig. 2 is a broken view showing the sole with the heel seat piece cemented in position in the recess at the heel end thereof; Fig. 3 is a broken view showing the sole after the breaking down or offsetting operation has been performed; Fig. 4 is a broken view, partly in section, showing the sole after the beveling operation has been performed upon the edge of the heel seat piece and for a short distance in front of said piece; Fig. 5 is a broken view, partly in section, showing the sole after the channeling operation has been performed; Fig. 6 is a broken view, partly in section, showing the sole after it has been molded; Fig. 7 is a perspective view of the underwedge piece; Fig. 8 is a detail view, partly in section, of the heel end of the shoe showing the shoe after it has been turned and after the underwedge piece has been inserted and nailed in position; and Fig. 9 illustrates an alternative mode of permanently securing the underwedge in position by a line of stitches passing through the heel seat piece, the underwedge and the sole outside the upper.

In practising the improved process in the preferred manner, the sole of the shoe is first provided with a recess at its heel end substantially like that shown in Fig. 1, this recess being provided at its front end with a beveled or inclined wall 2 and having its greatest depth at the lower end of said wall. The thinnest portion of the recessed sole is therefore located at the line of junction 4 of the front wall of the recess with the bottom 6 of the recess and the thickest part of the heel end of the sole is at the rear end thereof. The sole having been recessed in the manner shown in Fig. 1, a heel seat piece 8 is selected, of a thickness somewhat greater than the greatest depth of the recess, and this heel seat piece is provided at its front end with a bevel 10 corresponding to the bevel of the front wall of the recess. The lower face of the heel seat piece is provided with a coating of cement and the heel seat piece is then temporarily secured in the recess in the heel end of the sole by pressing it into engagement with the bottom 6 of

said recess. The appearance of the heel end of the sole will then be substantially as shown in Fig. 2. In order that the upper surfaces of the heel seat piece and the forepart of the sole may be in substantially flush relation for the succeeding channeling operation, the sole is now subjected to pressure in such manner that the heel end of the sole will be offset with respect to the forepart of the sole sufficiently to bring the aforementioned surfaces into flush relation. The resultant appearance of the parts will be substantially as shown in Fig. 3. The edge of the heel seat piece 8 is now beveled to furnish a surface against which the upper may be pressed during the stitching operation, the amount of the bevel determining the distance back from the edge of the sole that the upper will be located as a result of the sewing operation. This bevel 12 is preferably extended a short distance in front of the line of junction 14 of the heel seat piece with the forepart of the sole, on each side of the sole. The extension of the bevel into this region is to insure a proper union of the sole and upper at the point where the beveling meets the shoulder 16 which is formed about the forepart of the sole during the channeling operation, and to avoid having this union come at the line of junction itself. After the beveling operation the sole is provided with a continuous channel 18 which extends about the forepart and the heel seat piece and a shoulder 16 is also provided about the forepart, this shoulder extending into the beveled portion of the sole a short distance upon each side. The sole is then molded in the manner shown in Fig. 6 to emphasize the shoulder and bevel so as to facilitate the stitching operation, after which the upper is sewed to the sole wrong side out. The shoe is then turned and the heel seat piece is separated from the sole. An underwedge piece 20 is then inserted between the heel end of the sole and the heel seat piece, this underwedge preferably being of the shape shown in Fig. 7, that is, having its greatest thickness near its forward end. The forward end of the underwedge is beveled to correspond to the bevel at the forward end of the heel seat piece. The object of making the underwedge piece thicker at the front end than at the rear end is that thereby compensation may be made for the arch of the last and that the resultant spring heel may be provided with a substantially level tread face. For lasts having different degrees of arching, underwedges differently proportioned may obviously be used. The underwedge herein shown is preferably made by compressing a lift piece of substantially uniform thickness in such manner that one end will be subjected to greater pressure than the other end. The underwedge piece hav-

ing been inserted between the heel seat piece and the heel end of the sole, these three parts are united by nails 22 which are driven through the three parts and clenched upon the inside of the shoe. If it is desired to avoid having any metal upon the inside of the shoe, these parts may be united in the manner shown in Fig. 9 by a line of stitches 24 extending through them outside the upper.

It will be seen from an inspection of Fig. 8 of the drawings that after the underwedge has been inserted and has been secured permanently between the heel seat piece and the sole the recess at the heel end of the sole has the appearance of having been deepened. This effect may be produced in either one of two ways, either the line of junction 14 of the offset heel end of the sole with the forepart may be caused to travel forward a short distance or the line 4 where the inclined front wall 2 meets the bottom 6 may be caused to travel toward the rear. In the first case the heel seat will travel up the inclined front wall until it comes into engagement with the newly formed incline, the stitches which bridge the junction permitting the slight forward movement necessary. The preferred mode of procedure, however, is to cause the line 4 to travel back, this being effected easily by breaking the heel end of the sole over the front lower edge of the underwedge, the nails 22 or the stitches 24 securing the parts permanently in their new relative positions.

The improved shoe made by the process of this invention is not herein claimed but is made the subject-matter of a divisional application Ser. No. 714,448, filed August 10, 1912, for Letters Patent for Improvements in shoes.

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

1. That improvement in the art of making underwedge shoes which consists in recessing the heel end of the sole, temporarily securing in said recess a heel seat of a thickness greater than the depth of said recess, effecting a relative offset of the heel end of the sole and the forepart to bring the upper surfaces of the heel seat and the forepart into substantially a flush relation, forming a continuous channel in the sole and the heel seat, sewing the upper to the sole and to the heel seat, separating said sole and heel seat, and permanently securing a lift between said separated parts.

2. That improvement in the art of making underwedge shoes which consists in recessing the heel end of the sole, temporarily securing in said recess a heel seat of a thickness greater than the depth of said recess, subjecting the heel seat and sole to pressure to bring the upper surfaces of the heel seat

and the sole into substantially a flush relation, forming a continuous channel in said sole and heel seat, sewing the upper to the sole and to the heel seat, separating said sole and heel seat, and permanently securing a lift between said separated parts.

3. That improvement in the art of making underwedge shoes which consists in forming in the heel end of a sole a recess having an inclined front wall, temporarily securing in said recess in abutting relation to said wall a heel seat having a correspondingly inclined or beveled front end and of a thickness greater than the depth of said recess, effecting a relative offset of the heel end of the sole and the forepart in a direction corresponding substantially to the inclination of said recess wall whereby the upper surfaces of the heel seat and the sole are brought into substantially a flush relation while the abutting relation of said heel seat end and said wall remains undisturbed, forming a continuous channel in said sole and heel seat, sewing the upper to the sole and to the heel seat, separating said sole and heel seat, and permanently securing a lift between said separated parts.

4. That improvement in the art of making underwedge shoes which consists in forming in the heel end of a sole a recess having its greatest depth near its front end and having an inclined front wall, temporarily securing in said recess in abutting relation to said wall a heel seat having a correspondingly inclined or beveled front end and of a thickness somewhat greater than the depth of said recess, effecting a relative offset of the heel end of the sole and the forepart in a direction to bring the upper surfaces of the heel seat and the sole into substantially flush relation without disturbing the abutting relation of said heel seat end and said wall, forming a continuous channel in the sole and the heel seat, sewing an upper to the sole and to the heel seat, separating the sole and heel seat and permanently securing between the separated parts a lift which is thicker at its front end than at its rear end.

5. That improvement in the art of making underwedge shoes which consists in forming in the heel end of a sole a recess having its greatest depth near its front end and having an inclined front wall, temporarily securing in said recess a heel seat having a correspondingly inclined or beveled front end and of a thickness at said end somewhat greater than the depth of said recess, effecting a relative offset of the heel end of the sole and the forepart whereby the upper surfaces of the heel seat and sole are brought into substantially a flush relation, beveling the edge of the heel seat and also the edge of the sole for a short distance in front of the heel seat upon each

side, forming a continuous channel in the sole and the heel seat, sewing an upper wrong side out to the sole and to the heel seat, turning the shoe, separating the sole and heel seat and permanently securing a lift between the separated parts.

6. That improvement in the art of making underwedge shoes which consists in forming in the heel end of a sole a recess having an inclined front wall, temporarily securing in said recess in abutting relation to said wall a heel seat having a correspondingly inclined or beveled front end, sewing the upper to the sole and to the heel seat, separating said sole and heel seat and permanently securing between said separated parts a lift likewise having its front end beveled or inclined to correspond substantially to the inclination of the front wall of said recess.

7. That improvement in the art of making underwedge shoes which consists in forming in the heel end of a sole a recess having its greatest depth near its front end and having an inclined front wall, temporarily securing in said recess in abutting relation to said wall a heel seat having a correspondingly inclined or beveled front end, sewing the upper to the sole and to the heel seat, separating said sole and heel seat and permanently securing between said separated parts a lift having its front end beveled or inclined to correspond substantially to the inclination of said front wall and of a thickness at its front end greater than the thickness of its rear end.

8. That improvement in the art of making underwedge shoes which consists in recessing the heel end of the sole, temporarily securing a heel seat in said recess, sewing the upper to the sole and to the heel seat, separating said sole and heel seat, and permanently securing between said separated parts a lift which is thicker at its front end than at its rear end.

9. That improvement in the art of making underwedge shoes which consists in forming in the heel end of the sole a recess having its greatest depth near the front end, temporarily securing in said recess a heel seat of substantially uniform thickness, sewing the upper to the sole and to the heel seat, separating said sole and heel seat, and permanently securing between said separated parts a lift thicker at its front end than at its rear end.

10. That improvement in the art of making underwedge shoes which consists in recessing the heel end of the sole, temporarily securing a heel seat in said recess, sewing the upper to the sole and to the heel seat, separating said sole and heel seat, and permanently securing between said separated parts a lift of an increased thickness at its front end so proportioned to the arch of the last that the resultant spring heel has a substantially level tread surface.

11. That improvement in the art of making underwedge shoes which consists in recessing the heel end of the sole, temporarily securing the heel seat in said recess, beveling the edge of the heel seat and also the edge of the sole for a short distance in front of the heel seat upon each side, forming a continuous channel in the sole and heel seat and forming a shoulder around the forepart of the sole so that said shoulder runs into said bevel at its two ends, sewing the upper to the sole and to the heel seat, separating said sole and heel seat and permanently securing a lift between said separated parts.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ADAM H. PRENZEL.

Witnesses:

LEO RYAN,

G. W. SHULTZ.