J. E. JACKSON.

PROCESS OF MAKING BOOTS AND SHOES.

APPLICATION FILED AUG. 27, 1906.

1,003,463. Patented Sept. 19, 1911.

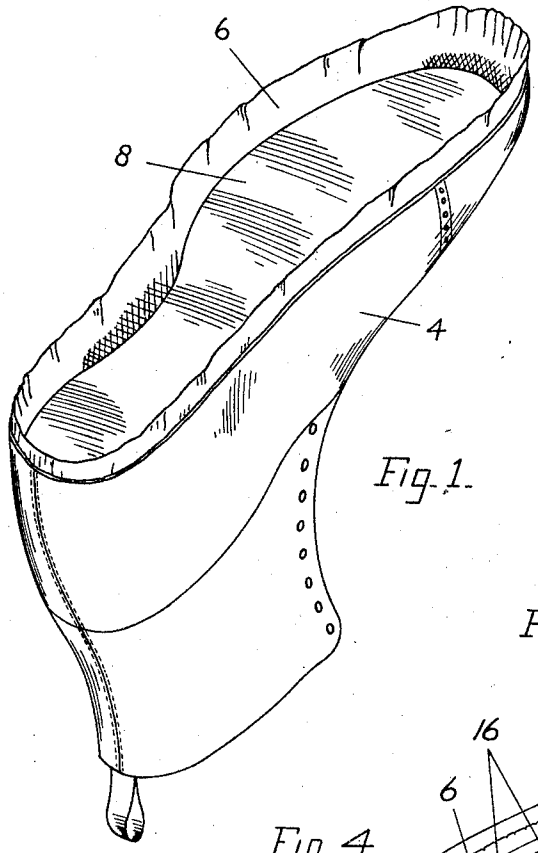

Fig. 1.

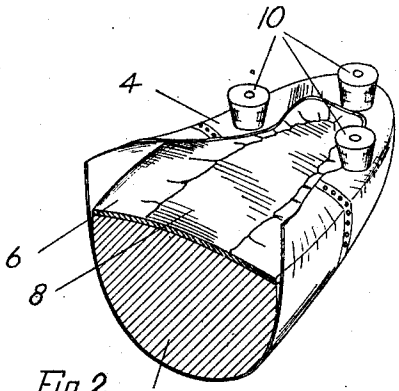

Fig. 2.

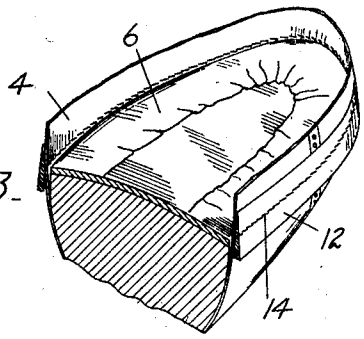

Fig. 3.

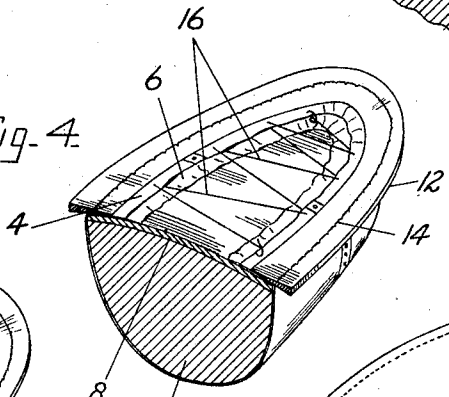

Fig. 4.

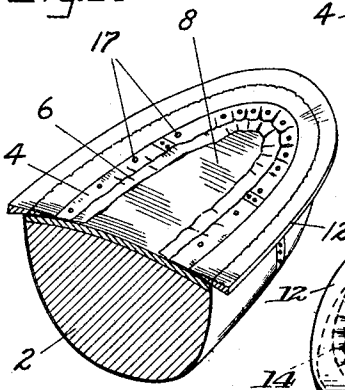

Fig. 5.

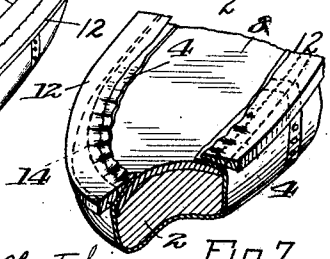

Fig. 7.

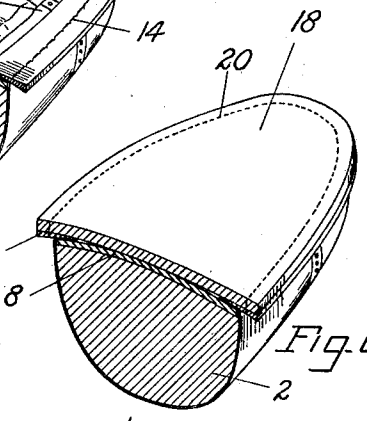

Fig. 6.

WITNESSES.

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PROCESS OF MAKING BOOTS AND SHOES.

1,003,463. Specification of Letters Patent. **Patented Sept. 19, 1911.**

Application filed August 27, 1906. Serial No. 332,177.

To all whom it may concern:

Be it known that I, JAMES E. JACKSON, a citizen of the United States, residing at Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in the Process of Making Boots and 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 a process of making boots and shoes, and in particular to a process in which a welt is used as a means to last the upper.

Some of the objects of the invention are to simplify and cheapen the lasting operation, to avoid all seams directly under the foot of the wearer, to avoid the necessity of using an expensive insole, or if desired to dispense with an insole altogether, to make the boot or shoe more water proof and more flexible than usual, and to avoid the use of tacks to a large extent. In the broad aspect of this invention, these objects are accomplished by securing the welt to the upper only, and using the welt as a means to work the upper over the last.

In carrying out this invention, the upper is assembled in any desired manner and properly positioned on a last, either with or without an insole. If an insole is used, it is preferably coated with cement on the outside and the lining of the upper worked over the cemented surface of the insole and held thereby. It is of course obvious that the cement may be applied to the lining instead of to the insole, and that other means besides cement may be used. The upper is then preferably secured temporarily to the last-bottom or to the insole, especially at the toe portion by means of hand-lasters' tacks which are readily removable. If desired the upper may be pulled somewhat by hand pincers or otherwise to cause it to conform to the shape of the last before being thus temporarily secured. The welt is then secured firmly to the outer face of the upper near the bottom of the last, preferably by a line of stitching that conforms approximately to the middle or median line of the welt and to the edge of the last. The temporary fastenings previously referred to are removed as the securing of the welt proceeds, so that at the completion of this step, the upper together with the attached welt stands up around the edge of the last. The next step is to turn the welt outwardly from the outer face of the upper which causes the inner portion of the welt to force the edge of the upper over the edge of the last and lay it down upon the last-bottom or upon the insole, the outer portion of the welt standing out at substantially right angles to the side of the last in its normal position. A considerable stretching of the upper over the last is produced, especially at the toe portion. The edges of the upper may then be secured in inturned position. This may be done by cementing, or by joining the edges of the upper or the inner edges of the welt by a thread extending across the shoe bottom or if an insole is used tacks may be driven to secure the upper to the insole. The next step essential to this process is to secure an outsole to the welt. This may be done in any usual way. It will be seen that in this process the welt may be secured only to the upper, and the outsole in turn secured to the welt so that a strong and expensive insole is not necessary, and in fact may be dispensed with altogether as previously stated. In the latter case the process is substantially the same as set forth above with the exception that there is no cementing of the lining of the upper to an insole. There being no seams directly under the foot, a sock-lining suffices to make the inside of the shoe smooth enough for comfort even though no insole be used.

In a shoe made in accordance with this process the welt lies flat against the upper instead of being bent at an angle against the lip of the insole as is usual in welt shoes. This permits the outsole thus to fit snugly upon the entire lower surface of the welt, and the shoe is rendered more water proof than the usual welt shoe.

Referring to the drawings: Figure 1 is a perspective view showing a shoe in position on a last for carrying out this process; Figs. 2–6 inclusive are views in transverse section showing different stages of the process, the view shown in Fig. 5 being a modification in which the edge of the upper is secured by tacks. Fig. 7 shows graphically the inward displacement of the seam and the consequent tightening of the upper caused by turning up the welt.

The numeral 4 designates an upper which

has been assembled and placed in position on a last 2. In Fig. 1 the lining 6 lies close to the upper and an insole 8 has been placed on the bottom of the last. The outer surface of the insole or the inner surface of the exposed portion of the lining is coated with cement, either before or after the insole is placed on the last. The lining is worked over the insole as shown in Fig. 2, in which position it is held by its adhesion to the insole produced by the cement. This step results in a smoothing out of the lining, and some stretching thereof, whereby wrinkles are avoided. The next step is the securing of the upper temporarily over the insole at the toe-portion and other portions if desired by forcing hand-lasters' tacks 10 through the edge of the upper as shown in Fig. 2. The upper may be pulled somewhat before being temporarily secured in order to make it conform to the last. A welt 12 is then sewed to the outer face of the upper near its lower edge, on a line of stitching 14 which conforms approximately to the edge of the last as seen in Fig. 3. The tacks 10 are removed as the sewing proceeds, so that the upper and the welt stand up around the edge of the last as shown in Fig. 3. While it is considered desirable to secure the welt to the upper after the latter has been placed on the last, it is obvious that this may be done before placing it on the last. The sewing may be done in any desired manner, as for instance by a straight needle machine having a gage to position the welt with respect to the bottom of the last. The welt is then turned outwardly from the outer face of the upper as shown in Fig. 4. This causes the inner portion of the welt to force the edge of the upper inwardly over the last, thereby stretching the upper especially at the toe portion. This feature of the method which involves sewing the welt strip in upright position to the upstanding marginal portion of the upper snugly around the last, as shown in the drawings, by a seam located close to the plane of the shoe bottom and then turning the welt into a plane parallel with the shoe bottom so that the outer edge of the welt, which is no longer than the perimeter of the embraced portion of the shoe, forces the inner edge and the seam inwardly away from the edge of the last bottom and tightens the upper, is of great importance in effecting proper lasting of the upper over the toe. The tapering of the welt widthwise facilitates this lasting action because it enables the inner portion of the welt strip to full or contract readily and makes it easier for the relatively inextensible thick outer portion of the welt to force the seam and the upper inwardly when the welt is turned up into the plane of the shoe bottom. The upper may be secured in overworked position, preferably by connecting the edges of the same by means of the thread 16 as shown in Fig. 4. It is obvious that this may be done in other ways as for instance by driving tacks 17 through the edge of the upper into the insole when one is used, as shown in Fig. 5. The outsole 18 is then secured to the shoe bottom, preferably by sewing it to the welt on the line of stitching 20 as shown in Fig. 6. It will be seen that as soon as the outsole has been secured to the welt, the upper is held thereby in worked over position and therefore in some cases it may be found advisable to dispense with the thread 16 or other means for holding the upper in position.

The process has been set forth in detail as it is carried out when an insole is used. The process is substantially the same when the insole is dispensed with, the chief difference being that the lining is not secured by cementing or otherwise to an insole. In case an insole is not used, it will be readily understood that a sock-lining may be placed on the bottom of the last, the lining cemented to it, and the upper cemented to the lining or otherwise secured.

The welt 12 is preferably skived and the bottom of the last curve as shown, so that when the shoe-bottom is built up, the outsole lies down snugly and no filling is necessary. The sole is more flexible than when the inner edge of the welt, the upper and the insole lip are turned upright because such parts present a formation at either side of the shoe well adapted to serve as a stiffening rib.

It will be seen that by this process, the use of tacks is practically avoided, the only thing of the kind which it is considered desirable to use being the few hand-lasters' tacks shown in Fig. 2 which are merely temporarily in the shoe.

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 method of making shoes which consists in assembling an upper upon a last, sewing a transversely tapered welt about midway of its width in upstanding position to the upstanding edge of the upper only and snugly about the peripheral edge of the shoe bottom, the seam lying close to the plane of the shoe bottom, turning the welt into a plane parallel with the last bottom whereby the attached upper at the toe of the shoe is tightened over the edge of the last by the inward pressure of the welt as its outer edge tends automatically to approach the location at the edge of the last where the seam was sewn, and securing the welt and upper in this position by laying a sole over the shoe bottom and attaching the outer edge of the welt to it.

2. That improvement in method of making shoes which consists in assembling an

upper upon a last, sewing a welt at a distance from its outer edge to the upper only along one side and snugly around the toe of the last and then back along the other side whereby the length of the welt corresponds to the length of the edge of the last embraced by it, said seam being located close down to the plane of the shoe bottom, then turning the outer edge of the welt upwardly and the inner edge downwardly and inwardly whereby the welt is caused to draw inwardly the attached upper as the outer edge of the welt is compelled to conform itself substantially to the linear length of the shoe edge, applying a sole to the shoe bottom, and fastening the welt to the sole with the upper held under tension by the welt.

3. That improvement in method of lasting shoes which consists in sewing to the upper around the forepart of the shoe a strip of comparatively inextensible material of substantially the length of the perimeter of the portion of the shoe edge embraced by it, said strip being sewed in upright position at a substantial distance from its upper edge to the upstanding marginal portion of the upper only and close to the plane of the shoe bottom, and then tightening the upper over the toe of the last by turning the strip inwardly into horizontal position whereby the inner edge portion of the strip and upper at the seam is forced inwardly by the contraction of the strip into a peripheral length substantially equal to the said perimeter of the portion of the shoe embraced by it.

4. That improvement in method of making shoes which consists in assembling an upper on a last, applying a welt snugly about the forepart of the shoe and stitching the welt flatly to the upstanding marginal portion of the upper only by a seam located close to the plane of the shoe bottom and at a distance from the outer edge of the welt, and then turning the welt inwardly to a plane parallel with the shoe bottom whereby the seam is displaced inwardly over the last bottom a distance substantially equal to the distance of the seam from the outer edge of the welt and the upper thereby tightened over the edge of the last.

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

JAMES E. JACKSON.

Witnesses:
JOHN H. RUCKMAN,
FREDERICK L. EDMANDS.