

(No Model.)

J. P. BUSFIELD.
APPARATUS FOR FORMING SPRING HEELS.

No. 524,101.

Patented Aug. 7, 1894.

Fig. 1.

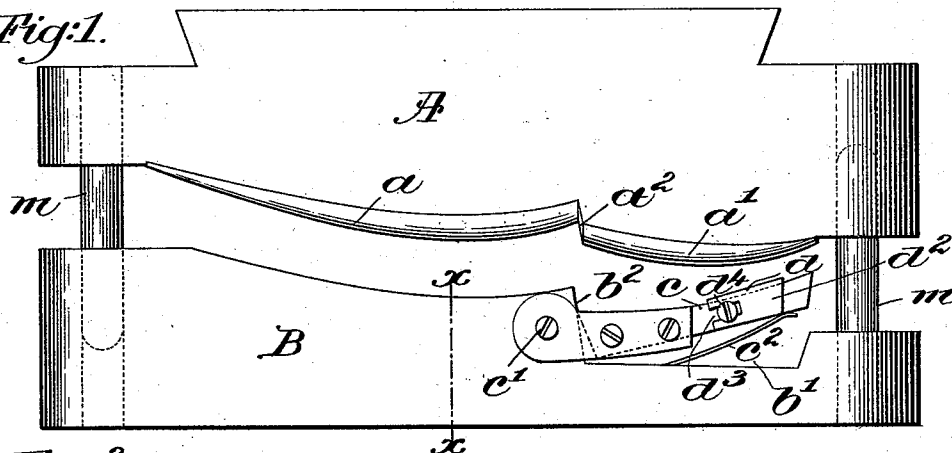


Fig. 2.

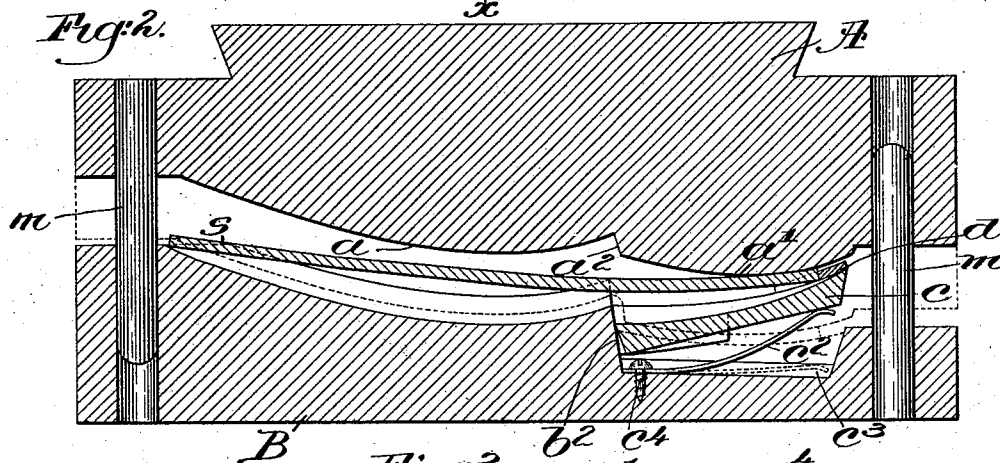


Fig. 3.

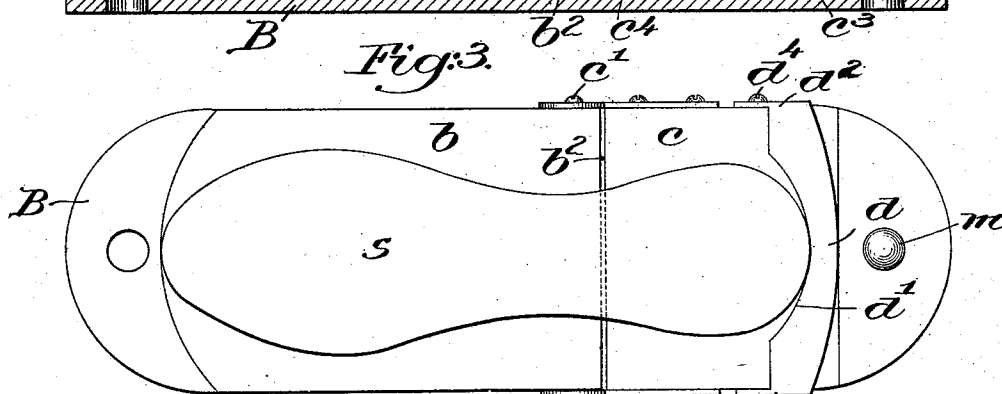
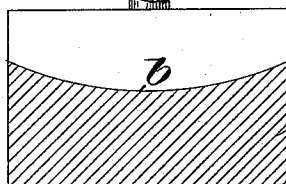


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

JAMES P. BUSFIELD, OF HAVERHILL, MASSACHUSETTS.

APPARATUS FOR FORMING SPRING-HEELS.

SPECIFICATION forming part of Letters Patent No. 524,101, dated August 7, 1894.

Application filed April 3, 1894. Serial No. 506,168. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. BUSFIELD, of Haverhill, county of Essex, State of Massachusetts, have invented an Improvement in Methods of and Apparatus for Forming Spring-Heels, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide a novel mold for forming spring heel soles for boots and shoes.

Prior to my invention it has been common to make one or more, usually two, cross-grooves or slits in the sole at the points where the latter is to be bent to form the bevel at the breast of the heel, the sole thus grooved or slitted being placed in position upon the last, the heel end nailed to the heel lifts previously interposed between it and the inner sole of the shoe, after which the slitted shank is bent or curved down in front of the lifts to and upon the inner sole and stitched thereto, the slits or grooves being necessary to enable the shank to be bent down in this manner after the heel end of the sole has been nailed to the heel lift and inner sole.

My invention, therefore, consists, first, in a two-part mold for forming spring heels, the combination with one of the parts having a depression into which the heel portion of the sole is pressed to form a break at the breast of the heel, of a yielding support for the heel end of the sole, substantially as will be described.

My invention further comprehends a yielding gage against which the sole is placed in positioning it, the gage yielding as the parts of the mold come together, said gage being also made longitudinally adjustable to vary the length of the heels. This adjustable gage is preferably arranged upon the yielding support referred to.

My invention also comprehends certain details of construction to be hereinafter described and pointed out in the claims.

In the drawings, Figure 1 represents in side elevation a two-part mold by which to practice this invention, the two parts of the mold being separated slightly preparatory to the insertion of a sole; Fig. 2, a vertical longitudinal section through the middle of the mold

shown in Fig. 1; Fig. 3, a top or plan view of the part B, Fig. 1 showing a sole in position, and Fig. 4, a cross section on the dotted line $x-x$, Fig. 1.

Referring to the drawings, A, B, represent the two parts of a mold adapted to form a spring heel sole in accordance with my improved method, the said mold being adapted to be placed in any suitable machine capable of pressing the two parts together to form a sole, as will be hereinafter described. The part A is provided, as shown, with two convex surfaces a and a' , the curvature of the surface a being such as will properly mold the ball and shank portions of the sole, while the portion a' is of such convexity as will properly mold or curve the heel portion of the sole. The portions a and a' of the part A are joined by a nearly vertical shoulder or wall a^2 to be referred to. The part B is shaped to present at one end, a concaved surface b , see Fig. 4, of proper curvature to co-operate with the convex portion a , of the part A, in the molding of the ball and shank of the sole. At its opposite end, the concave part B is provided with a depression b' which registers with the heel portion of the part A, said depression b' being connected with the portion b by a nearly vertical wall b^2 .

In the present construction I have provided the table c , pivoted at c' to the part B at opposite sides the latter, and preferably at a point just in front of the shoulder or wall b^2 , said table being normally held in its elevated position, Fig. 1, by a suitable spring c^2 secured in a groove c^3 in the said part by a screw c^4 , see Fig. 2. Upon this pivoted or hinged table c , I have, in the present instance of my invention, arranged a gage d , shown as a strip, extending crosswise the table and concaved at its inner edge at d' , to conform somewhat to the rounded heel end of the sole, the said gage being adjustable on the said table in suitable manner, it in the present instance having its ends d^2 turned down over the edges of the pivoted table, and slotted at d^3 to receive the adjusting and clamping screws d^4 , slackening of which permits the gage to be moved forward or back to vary the length of the heel portion of the sole.

The operation of forming a heel is as follows, viz:—The sole s shown in section in Fig.

2, tempered or soaked in usual manner, is placed in position upon the part B, the toe part of the sole resting upon the said part at the toe portion of the latter, while the heel portion of the sole rests upon the elevated table *c*, the said sole being thereby held in a nearly horizontal position. The two parts of the mold are now brought together to compress the sole from opposite sides, the convex portion *a* of the part A pressing the ball and shank portions of the sole into the concavity *b* of the part B, to properly mold or form said portions of the sole; the convex heel portion *a'* of the part A acting upon the heel portion of the sole and pressing the latter down upon the table *c*, the latter turning on its pivot until it becomes seated in the bottom of the depression *b'*, as shown in dotted lines Fig. 2, such movement of the parts of the mold, pressing the heel portion of the sole down into the said depression *b'* and upon the top of the depressed table, to thereby mold the heel and form an offset or break in the sole between the shoulders *a²*, *b²*, of the parts of the mold, as shown in dotted lines Fig. 2, thus forming the breast of the heel. The parts of the mold are now separated and the sole removed, the nearly vertical break or offset in the latter expanding slightly so that the breast of the heel will present a slightly more beveled and desirable appearance than when it first leaves the dies. It will thus be seen that the offset in the sole forming the spring heel is formed without previously grooving or treating the sole in any special manner, thereby saving one operation, viz:—that of slitting or grooving the sole; it will also be seen that the sole when formed presents substantially the same thickness throughout and is, therefore, much stronger and more durable than a sole as now formed by grooving, for in the latter instance the grooves present cross-lines of weakness along which the sole when in use is apt to break. It will also be noticed that by the use of my improved mold, the sole is molded at the same time and by the same operation as the break or offset in the sole forming the heel, thereby saving yet another and heretofore independent operation.

The table *c* constitutes one form of yielding support for the heel end of the sole, enabling the latter to be more easily and accurately positioned than would be possible were the heel end of the sole permitted to overhang the portion *b²* of the part B.

The gage *d* may be adjusted forward or backward to make the heel portion of the sole shorter or longer, as desired, for the particular style or size of shoe to be made.

I have herein shown and prefer to employ

two guide pins, as *m, m*, preferably carried by one and the same part of the mold, said pins working in suitable holes in the co-operating parts of the mold to bring the two parts of the latter always accurately together.

This invention is not limited to the particular shape or construction of mold, for it is evident the same may be varied without departing from the spirit and scope of my invention as set forth in the claims.

I am aware that it has heretofore been customary to nail the heel end of the sole to the heel lifts upon the inner sole and thereafter bend or curve the sole down from the higher level of the heel lifts to the level of the inner sole to form a break or offset, but so far as I am aware it is broadly new to make the break or offset in the sole, before the latter is applied to the boot or shoe, by compressing the said sole at opposite sides in a suitable mold.

Having described my invention and without limiting myself to details, what I claim, and desire to secure by Letters Patent, is—

1. In a two-part mold for forming spring heels, the combination with one of the parts having a heel forming depression, of a gage yieldingly supported by said part, said gage yielding as the co-operating part of the mold is moved toward it, substantially as described.

2. In a two-part mold for forming spring heels, the combination with one of the parts having a depression into which the heel portion of the sole is pressed to form the break at the breast of the heel, of a yielding support for the heel end of the sole, substantially as described.

3. In a two-part mold for forming spring heels, the combination with one of the parts having a depression into which the heel portion of the sole is pressed to form the break at the breast of the heel, of a yielding support for the heel end of the sole, and an adjustable gage on said support, substantially as described.

4. In a two-part mold for forming spring heels, the combination with one of the parts having a heel forming depression, of a pivoted table in the said depression and to support the heel end of the sole, a spring to normally elevate the said table, and a gage on the latter, to operate, substantially as described.

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

JAMES P. BUSFIELD.

Witnesses:

FREDERICK L. EMERY,
LAURA T. MANIX.