F. POWELL.

APPARATUS FOR MOLDING AND PIERCING SOLES.

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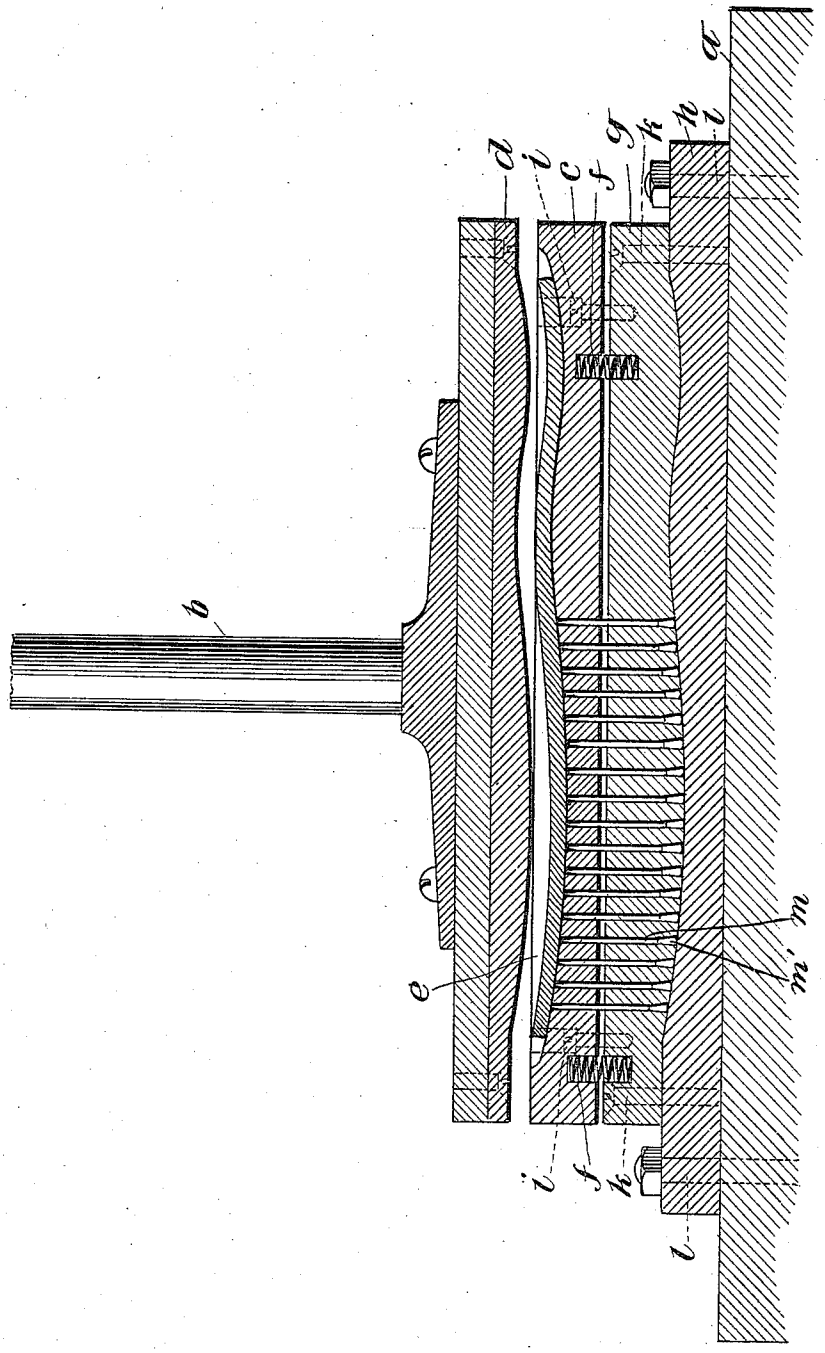
987,742.

Patented Mar. 28, 1911.



Witnesses

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR MOLDING AND PIERCING SOLES.

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Application filed December 12, 1907. Serial No. 406,175.

To all whom it may concern:

Be it known that I, FRANK POWELL, of West New York, county of Bergen, State of New Jersey, have invented certain new and useful Improvements in Apparatus for Molding and Piercing Soles, of which the following is a full, clear, and exact specification, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an apparatus which makes it possible by a single operation, to mold or shape the soles of shoes and to pierce the same for the reception of headed nails, as usually employed in heavy shoes intended for use by miners and other persons engaged in rough work.

My invention involves various other features of importance, all of which will be set forth hereinafter and particularly pointed out in the claim.

Reference is had to the accompanying drawing which represents a vertical section of an apparatus embodying my invention, the drawing showing the sole in place in the mold and the top die member in position to descend.

In practice, the invention is embodied in a suitable machine operated either manually or by machine power, but I have not illustrated this machine in the drawings since it will be fully understood by persons skilled in the art.

In the drawing, *a* indicates the bed plate or stationary part of such a machine, and *b* a plunger shaft adapted to be connected with suitable devices by which it may be raised and lowered.

c indicates the lower or female section of the sole mold which has on its outer surface the configuration corresponding to that which it is desired to impart to the sole.

e indicates the sole which is shown lying in the mold section *c;* and *d* indicates the male section which is attached to the plunger *b* and moves therewith.

In operation, the sole is inserted between the mold sections and the plunger *b* descends pressing the sole and giving it the configuration of the mold. For this purpose it is usual to wet the sole so that it will readily take the shape imparted to it.

The mold section *c* is supported by springs *f* on a block composed of two superimposed parts *g* and *h*.

i indicates stud bolts which limit the upward movement of the mold section *c* restraining the action of the springs *f* within certain limits.

The two sections *g* and *h* of the block are removably fastened together by screws or the like *k*, while the lower section *h* is fastened by bolts *l* to the before described bed or stationary part *a* of the machine. The engaging surfaces of the parts *g* and *h* of the block have a configuration corresponding to the configuration of the face of the mold section *c* and fitted in vertical openings in the section *g* are a number of pins or needles *m* having slightly enlarged ends *m'* which lie at the under surface of the section *g* of the block. The pins *m* also loosely extend through openings in the mold section *c* and the parts *f* and *i* are so adjusted that when the machine is in inactive position the points of the needles *m* lie flush with the molded surface of the section *c*. It will be observed that, owing to the fact of the needles *m* resting on the curved upper surface of the section *h* of the block which upper surface corresponds to the grooved upper surface of the mold section *c*, the points of the needles follow the contour of the face of the mold section *c* although the needles are all of the same length.

When the sole *e* is inserted in the machine and the mold section *d* depressed, the sole is molded into its necessary shape as before described, and as the pressure is exerted on the mold section *c*, springs *f* give and the mold section drops until it engages and is arrested by the top member *g* of the block. This causes the points of the pins or needles *m* to project beyond the face of the mold and to enter the sole and pierce them for the reception of the hob nails. Upon the return of the plunger *b* and the mold section *d*, the springs *f* return the mold section *c* to the position shown in the drawings and the sole is disengaged from the needles and may be easily removed from the machine. It will thus appear that by a single operation, the soles are molded and pierced. The needles may be in any desired arrangement, piercing the sole regularly or irregularly, as desired. It will also appear that should one of the needles become broken, the damage may be easily repaired by releasing the screws *k* and lifting the section *g* of the block from its seat on the section *h*. Thereupon, the

broken needle may be removed and a new needle inserted. The needles are uniform in length and size, thus adapting the machine readily to repair, and avoiding the necessity of manufacturing a number of needles differing only in size and form.

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

In an apparatus for molding and piercing soles, the combination with male and female sections the contiguous faces of which are shaped to the configuration which it is desired to impart to the sole, and means for imparting relative movement to said sections, of a supporting block for the female section of said mold formed of two superimposed sections separately connected, the contiguous faces of said block sections being shaped to correspond to the shape of the contiguous faces of the mold sections, the female section and the upper section of said supporting block having registering openings, a plurality of headed needles of uniform length arranged in the openings of said upper block section and loosely received by the openings of said female mold section, the heads of said needles being seated upon the lower section of the supporting block and following the configuration thereof, whereby the points of said needles follow the contour of the opposing faces of the mold sections, and means for permitting yielding movement between the female mold section and the upper section of the supporting block.

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

FRANK POWELL.

Witnesses:
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