(No Model.)

G. H. CLARK.

MOLD FOR MOLDING THE UPPERS OF BOOTS AND SHOES.

No. 293,631. Patented Feb. 19, 1884.

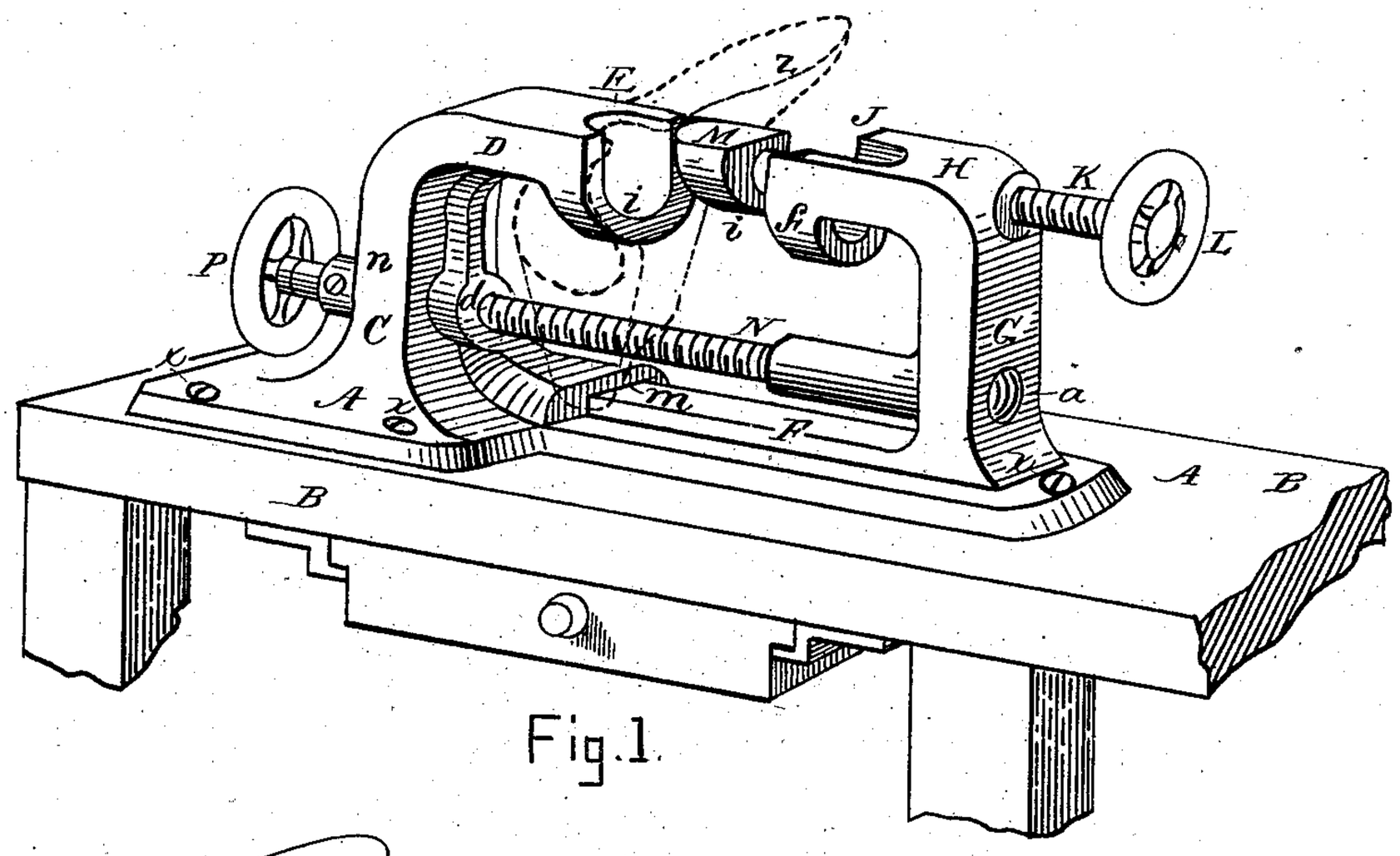

Fig. 1.

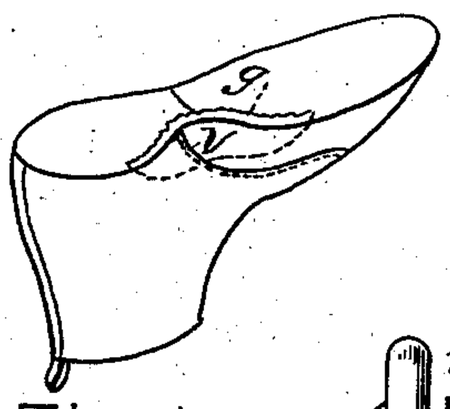

Fig. 4.

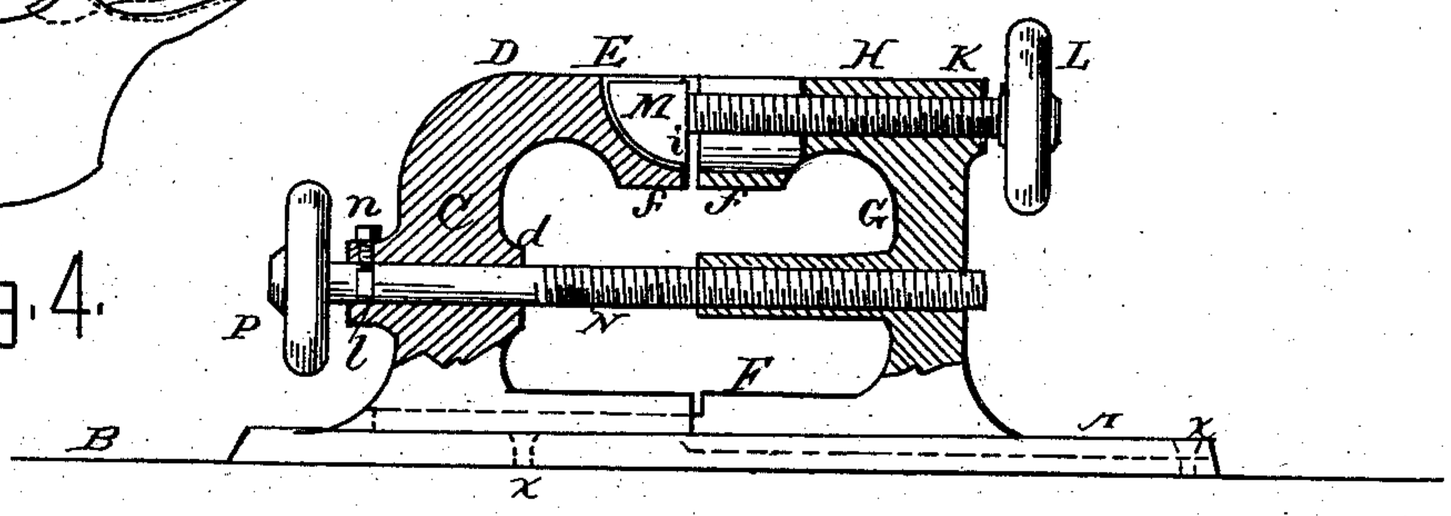

Fig. 2.

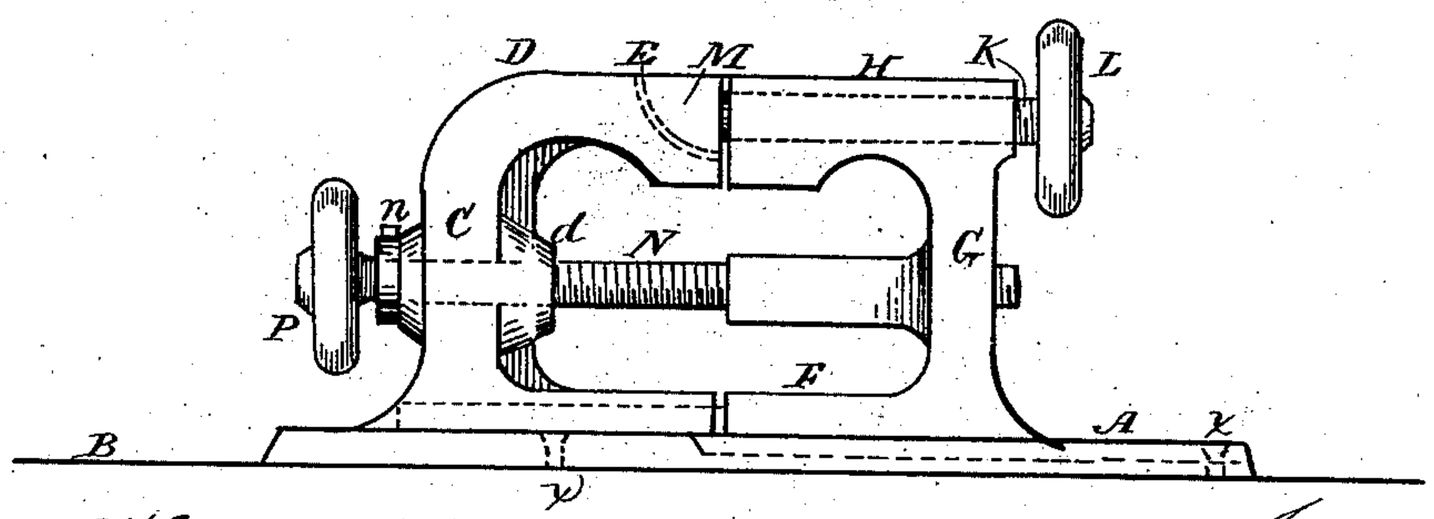

Fig. 3.

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UNITED STATES PATENT OFFICE.

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MOLD FOR MOLDING THE UPPERS OF BOOTS AND SHOES.

SPECIFICATION forming part of Letters Patent No. 293,631, dated February 19, 1884.

Application filed May 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. CLARK, of Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Molds, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view of my improved mold; Fig. 2, a vertical longitudinal section of the same; Fig. 3, a side elevation, and Fig. 4 a view showing the upper after having been molded.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to that class of molds which are employed in molding the uppers of boots and shoes; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a simpler and more effective device of this character is produced than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the bed of the machine, which is firmly secured by the screws *x* to the bench B. Projecting upwardly from the bed there is a standard, C, having the horizontally-arranged arm D, provided with the concavity or female die E at its inner end. A slide, F, resting on the bed A, is fitted to work horizontally in a corresponding mortise, *m*, in the lower part of the standard C, and projecting upwardly from the outer end of the slide there is a standard, G, having the horizontally-arranged arm H, provided with the recess J at its inner end. Mounted in the standard G there is a screw-shaft, K, provided at its outer end with the hand-wheel, L, and at its inner end with the male die or former M. A screw-shaft, N, arranged in parallelism with the shaft K, and provided with the hand-wheel P at its outer end, is fitted to work in a corresponding female screw, *a*, in the standard G. This shaft passes through a smooth or unthreaded hole, *d*, in the standard C, being fitted to revolve therein, but prevented from moving longitudinally by the screw *n*, which enters an annular groove, *l*, in said shaft. The male die M is quadrantal in form, having a flat top, a straight vertical side next the shaft K, and a spherical face, the female die E being correspondingly formed, but slightly larger, so as to provide for the reception of the upper of the boot or shoe between the dies when they are brought together.

In the use of the improvement the shaft K is turned back by the wheel L until the die M enters the recess J. The upper is then placed in the mold, as shown by the dotted lines in Fig. 1, with its top down and the shank across the mouth of the die E. The shaft N is then turned in, causing the standard G to advance toward the standard C and firmly clamp the upper around the shank portion, between the squared or flat inner ends, *f*, of the arms H D. The shaft K is then turned in by the wheel L, causing the die M to force the shank portion of the upper into the die E, thereby permanently stretching it at that point, and adapting it to fit the foot much better when embodied in the finished shoe than an unmolded shank.

I fit the upper ready for lasting by uniting its quarters and vamps before the shank is molded; but the shank may be molded before these parts are so united, if desired. I also place a stay, *g*, over the side seam, *v*, of the upper to prevent stretching the seam too much where the molding is performed after the quarters and vamps have been stitched together; but in some kinds of work the stay may be omitted, if desired.

In molding rights and lefts it will be understood that the position of the upper in the machine will be reversed—that is to say, when molding a right the toe of the upper will be farthest from the workman, as shown by the dotted lines in Fig. 1, and vice versa.

It will be obvious that as the die M advances, as described, it will not force or push the unclamped portion of the upper into the die E in a direct line, or line corresponding with the line of its traverse; but, having a spherical face, it will override the upper, forcing it forward,

and at the same time downward, thereby stretching it most at a point on its lower line, *z*, and least at a point corresponding with the lower sides, *i*, of the dies, the stretching being increased gradually from the point *i* to the lower edge of the upper.

The squared ends *f* of the arms form clamping-jaws, between which the upper is held, and I deem it preferable to make them circular, as shown; but they may be made V-shaped, or of any desired shape to perform substantially the same functions. The form of the dies may also be varied considerably without departing from the spirit of my improvement.

In Fig. 1 the upper is represented as having been molded, but still in the machine, the arm G being moved back and the die M withdrawn; and in Figs. 2 and 3 the die M is represented as in the die E, with the jaws or ends of the arms nearly closed, or in the same position as when grasping the upper to hold it for the action of the dies. By clamping the upper between the ends *f* of the arms around the shank portion, as described, all of that part of the upper which is not acted upon by the dies is kept in its normal condition, and prevented from wrinkling or being drawn out of position as the shank is molded or stretched. The dies and shafts, being arranged horizontally, as shown, enable the upper to be inserted in the machine with its top down, or in such a position as to give the operator an unobstructed view of the work, thereby enabling him to stop the advance of the die M before the upper is stretched too much or the work injured. It will, however, be obvious that the die M could be arranged to move vertically, or at some other angle to a horizontal line; but it is preferable that it should be arranged as shown for the reasons stated.

It will also be obvious that my improved mold is equally adapted for molding or stretching the shanks of uppers in which the vamps and quarters are integral or composed of one piece, and I therefore do not confine myself to its use on any special class of uppers.

As I propose to make the stay *g*, when used as described, the subject-matter of other Letters Patent, the same is not herein claimed.

Having thus described my invention, what I claim is—

1. The improved mold herein described, the same consisting of the bed A, having the standard C and arm D, provided with the die E, the slide F, having the standard G and arm H, provided with the recess J, the shaft N, provided with the wheel P, and the shaft K, provided with the wheel L and die M, combined and arranged to operate substantially as set forth.

2. In a mold for molding or stretching the uppers of boots and shoes, the clamp or clamping device, between the jaws of which the upper around its shank portion is grasped and firmly held or kept in its normal condition, in combination with the movable die or former adapted to mold or stretch the unclamped portion of the upper at the shank, substantially as specified.

3. In a mold for molding or stretching the uppers of boots or shoes, the clamp or clamping device, between the jaws of which the upper around its shank portion is grasped and firmly held or kept in its normal condition, in combination with the movable die or former and suitable operative mechanism, said die or former being adapted to override or partially override and mold or stretch the unclamped portion of the upper at its shank, substantially as set forth.

4. In a mold for molding the uppers of boots and shoes, the recess J, in combination with the arm H, arm D, die E, and die M, substantially as shown and described.

5. The process of molding or stretching the upper of a boot or shoe at its shank, substantially as herein described, the same consisting, essentially, in uniting the vamps and quarters, then clamping the portion around the shank to hold or keep it in its normal condition, and while so clamped molding or stretching the shank portion, substantially as set forth.

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