

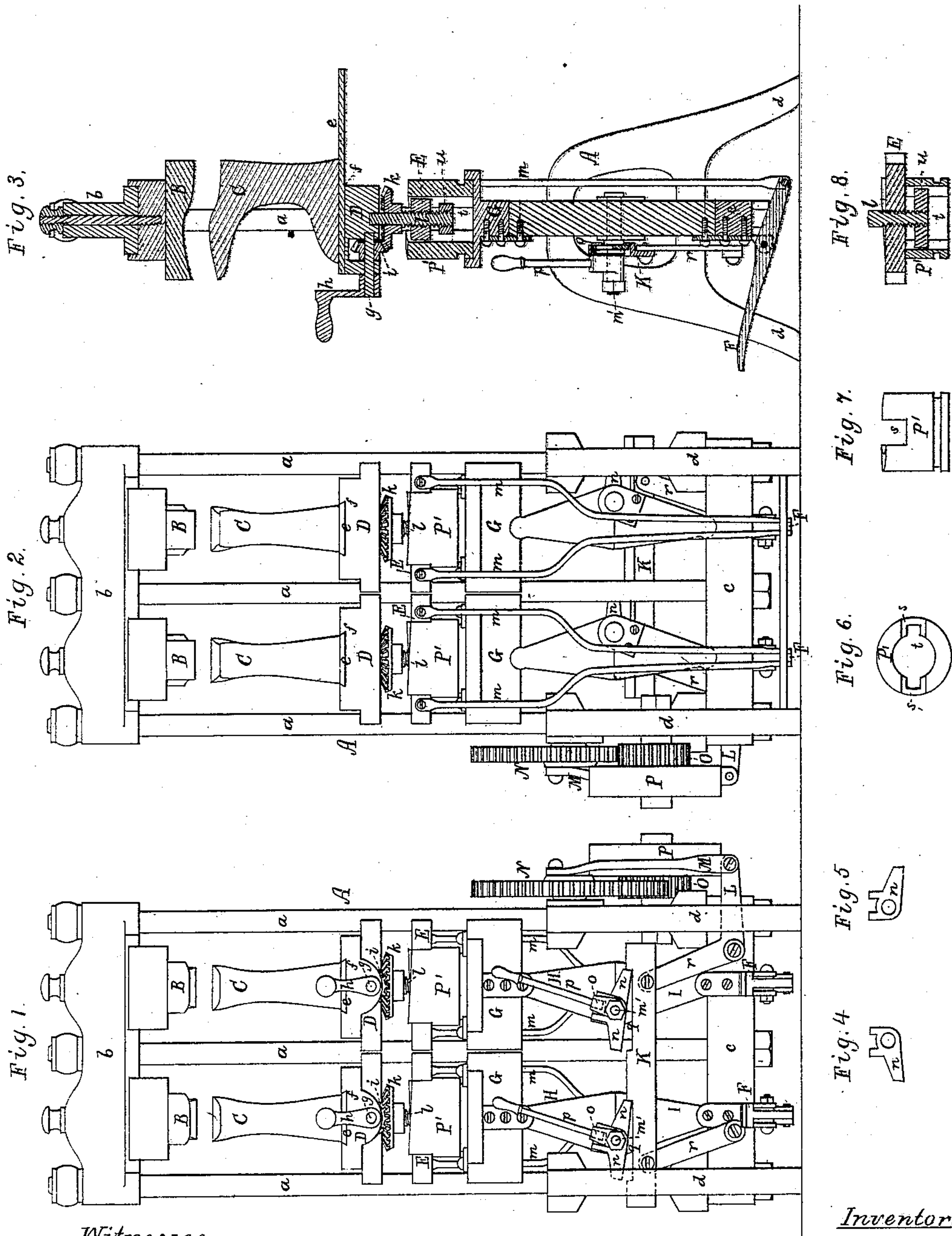
(No Model.)

J. B. JOHNSON.

Machine for Shaping the Soles of Boots and Shoes.

No. 230,187.

Patented July 20, 1880.



Witnesses.

S. N. Piper.
Wm W Lunt

Inventor.

Joseph B. Johnson.

by attorney.

R. H. Eady

UNITED STATES PATENT OFFICE.

JOSEPH B. JOHNSON, OF LYNN, MASSACHUSETTS.

MACHINE FOR SHAPING THE SOLES OF BOOTS AND SHOES.

SPECIFICATION forming part of Letters Patent No. 230,187, dated July 20, 1880.

Application filed May 31, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. JOHNSON, of Lynn, of the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Machinery for Shaping or Molding the Sole of a Shoe or Boot; and I do hereby declare the same to be described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a front elevation, Fig. 2 a rear view, and Fig. 3 a vertical and transverse section, of a duplex machine embodying my invention, the nature of which is fully set forth in the claim or claims hereinafter presented. Figs. 4, 5, 6, 7, and 8 are hereinafter described.

The machine is for the purpose of molding the soles of shoes or boots, or giving to them the requisite shape on their treads by means of molds and lasts, and to effect the requisite pressure of each sole into its mold, however the sole of one shoe or boot may differ in thickness from that of another shoe or boot, or the last for one shoe or boot may differ in size or height from that of another shoe or boot.

The machine, when in use, generally has more than two molds and lasts therefor, and separate mechanism, as hereinafter described, for forcing such lasts upward to effect the molding of the soles.

In the drawings, A denotes the frame of the machine, such frame being mainly composed of a series of vertical rods, *a a*, and two cross heads or bars, *b c*, arranged as represented, such frame being provided with suitable sustaining-legs *d*. The molds B, disposed as shown, are duly connected with the upper bar, *b*, so that each may co-operate with one of a series of lasts, C. Each last extends upward from a slide-plate, *e*, adapted to fit to and slide in a dovetailed groove, *f*, of a last-supporter, D, adapted to slide vertically on two of the rods *a*.

A shaft, *g*, carrying with it the last-supporter D, with its accompanying last, and provided with a crank, *h*, has fixed to it a beveled pinion, *i*, to engage with a beveled gear, *k*, attached to the upper part of a vertical screw, *l*. The said screw screws into and through a cross-head, E, applied to slide vertically upon the two next adjacent rods *a a*, and having rods *m* extending down from it

and jointed at their lower ends to the rear arm of a lever-pedal, F, fulcrumed to the frame-bar *c*, and arranged as represented. On an attendant forcing down, by his foot applied thereto, the front arm of the pedal F, the cross-head E will be moved upward.

Arranged below each of the cross-heads E is another movable cross-head, G, having jointed or suitably applied to it the upper of a pair of toggles, H I, the lower one of the pair being stepped on the lower cross-bar, *c*.

Pivoted to the joint-pin *m'* of the toggles are two lever-pawls, *n n*, (side views of which are shown in Figs. 4 and 5,) having extended between their furcated upper arms a projection, *o*, from a hand-lever, *p*, fulcrumed on the said joint-pin. The several sets of pawls *n* have immediately below them a bar, K, provided with long notches *q*, one of them being arranged, as shown, under each set of pawls. On tripping the lever either way on its fulcrum one pawl of the set will be depressed into the notch and the other will at the same time be moved out of it.

The said notched bar K has mechanism for imparting to it reciprocating movements lengthwise of it, the bar being supported by arms *r r* projecting upward from the bar *c*, and pivoted thereto and to such bar K, one of such arms constituting one of the two of an angular lever, L, fulcrumed to the bar *c*, and jointed to a connecting-rod, M. The said rod M is suspended from a crank-pin projecting from a gear, N, which engages with a pinion, O, attached to one side of a driving-wheel, P, arranged as represented.

From the above it will be seen that the bar K is to have a constant reciprocating motion, and that when one lever-pawl of a set is within its notch of the bar the toggles, during a movement of the bar, will be moved so as to force the cross-head G upward; also, that they will remain stationary in the position into which they may have been so moved until the other pawl is thrown down into its notch. The bar K will then act against such pawl and operate the toggles, to allow or cause the head G to move downward.

Between each mold and its supporter I usually interpose an elastic bearing or plate of rubber.

To co-operate with the cross-head E there is the rotary adjuster P', which is recessed diametrically to allow the cross-head to pass down within it to the required distance for it to fall.

5 This device P' has an inclined or helical upper edge, and rests on and is adapted to revolve upon the cross-head G. A top view of such adjuster P' is given in Fig. 6, a side view of it in Fig. 7, and a longitudinal section of it

10 and the parts within it in Fig. 8. Below its recesses s, to receive the cross-head E, there is in the adjuster a circular chamber, t, into which a cross-bar, u, passes as the cross-head E is depressed within the recesses s. This cross-bar

15 is fixed at its middle to the lower part of the screw l, and serves, when raised up into the recesses, to cause the equalizer P' to be revolved on the screw being revolved.

It will be observed that the last-supporter

20 D is supported by the screw l, which is in turn supported by the cross-head E. This screw serves two important purposes: First, simply as a screw to adjust the cross-head E and last-supporter D relatively to each other in order

25 to accommodate varying heights of lasts; second, as a shaft by means of which the adjuster P' may be turned to its position beneath the cross-head E, through the intervention of the cross-bar u, after said cross-head shall

30 have been raised by the pressure of the operator's foot upon the front end of the pedal-lever.

The upper edge of the adjuster P' is made helical or wedge shape, in order that it may

35 accommodate itself to different thicknesses of soles, it being evident that the distance to which it may be forced under the cross-head E bears a direct proportion to the thickness of the boot or shoe sole.

40 In operating with the machine an attendant, while each bar G is at its lowest position, presses down the pedal that is directly under such bar until the shoe-sole is pressed firmly against the mold. Next he is to revolve the

45 crank h until the top of the adjuster P' may come into contact with the under side of the cross-head E. This is necessary because the

bar G is limited in its upward movement by the toggles, and for them to effect the necessary pressure of the sole into the mold some proper device extending up from the bar G to the bar E becomes essential—such in this case being the adjuster P'. Next he moves the hand-lever of the pawls of the toggles so as to throw the proper pawl into the notch of the reciprocating bar, in order that on the next

55 movement of the said bar the toggles may be moved so as to force the bar G and the last upward in a manner to press the sole into the mold. Having done all this, the attendant operates in a like way with each of the other shoes or boots and its mold throughout the series of molding mechanisms, leaving each shoe under pressure while he is proceeding to produce pressure on another.

What I claim as my invention is as follows, viz:

1. The combination of the notched bar having mechanism for reciprocating it, as set forth, with one or more sets of pawls and means of tripping the said pawls into and out of the notch or notches of the bar, as described, with mechanism for molding a lasted sole or soles, all being substantially as and for the purpose, and to operate as set forth.
2. The combination of the rotary adjuster P' with the cross-head G of the toggles and with the last-supporter D, its adjusting-screw l, and the elevating cross-head E thereof, the latter being provided with mechanism for operating it, as described.
3. The rotary adjuster P', chambered and recessed, as explained, and adapted to the cross-head G, as described, in combination with the last-supporter D, its adjusting-screw l, and the cross-bar u of the latter, and with the cross-head E, having mechanism for operating it, as set forth, such screw l being provided with means of revolving it, as specified.

JOSEPH B. JOHNSON.

Witnesses:

R. H. EDDY,
W. W. LUNT.