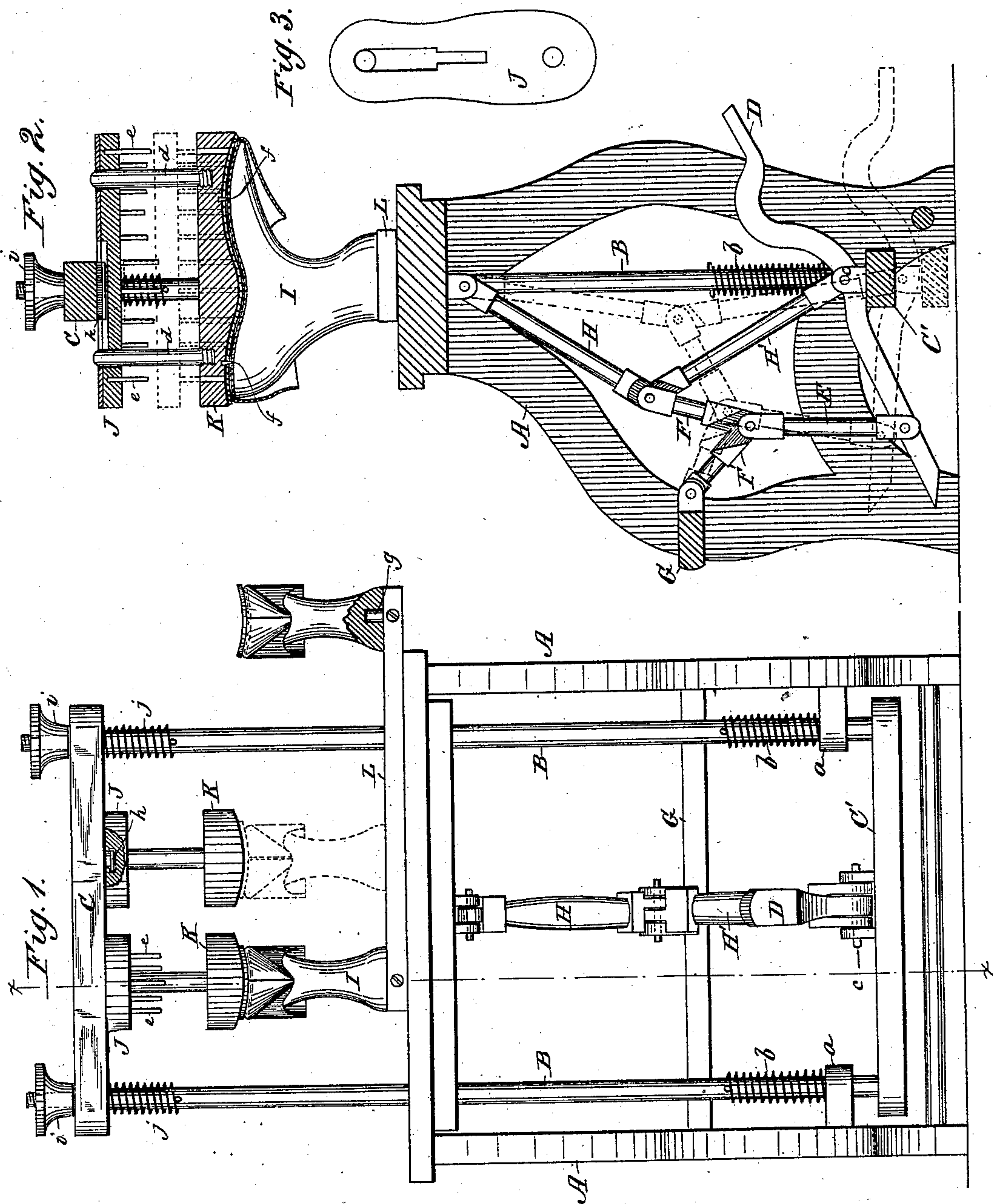


(No Model.)

J. WESTWOOD.
SHOE SOLING MACHINE.

No. 273,207.

Patented Feb. 27, 1883.



WITNESSES:

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JOHN WESTWOOD, OF LYNN, MASSACHUSETTS.

SHOE-SOLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 273,207, dated February 27, 1883.

Application filed November 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN WESTWOOD, of Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Shoe-Soling Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation. Fig. 2 is a vertical section through the line $x x$ of Fig. 1. Fig. 3 is a top view of the soling-block J.

The object of my invention is to provide a machine for fastening the sole to the shoe by means of nails, which machine shall mold the sole, lay it, hold the nails, drive all the nails at once, guide the nail-drivers straight, and beat out the shoe to a uniform edge and smooth bottom, all in one operation.

To these ends my invention consists in the peculiar construction and arrangement of parts, as will be hereinafter fully described.

In the drawings, A represents the main frame of the machine, which is preferably made of iron, but may be made of wood, if desired. The upper portion of this frame is provided with a table-surface, which is at each end perforated to receive the slide-rods B B of a vertically-reciprocating frame, which frame is formed by said slide-rods and the upper and lower cross-bars, C C', connecting the ends of the same. This frame is guided for true vertical reciprocation by the perforations in the table, and also by perforated lugs $a a$ in the lower part of the frame-work, through which its side rods pass. This frame is held up by spiral springs $b b$, and is brought down with sufficient power to perform the required work of nailing the sole to the shoe by a treadle and compound-toggle mechanism.

D is the treadle, which is jointed to lugs about the middle of the lower cross-bar, C', and at its back end is jointed to the lower end of a link-rod, E, which at its upper end is jointed to the middle joint of two toggle-arms, F F', which give a horizontal thrust. Of these two toggle-arms the back one, F', is jointed at its rear end to a fixed horizontal bar, G, of the frame-work, and the front one, F, is jointed to

the middle joint of another pair of toggle-arms, H H', which give a vertical thrust. The lower one of the second set of toggle-arms is jointed to the lower cross-bar, C', of the reciprocating frame by means of the same bolt, c , that fastens the treadle thereto, while the upper toggle-arm, H, is at its upper end jointed to the bottom of the table. Now, to bring down the reciprocating frame, it will be seen that a pressure on the treadle not only gives a direct downward pressure on the reciprocating frame, but in straightening out the two sets of toggle-arms F F' and H H' it gives a compound movement of great leverage, which has greatest power at the last part of the stroke, or just when the greatest resistance is met with in fastening on the sole and the greatest power is required.

To the upper cross-bar, C, of the reciprocating frame are adjustably attached the shoe-soling devices proper, which act upon the shoe, which is supported upon an iron foot, I. These shoe-soling devices consist of a metal block, J, corresponding in contour to the sole of the foot, and a metal block, K, of a corresponding shape, which latter has two stems, $d d$, that pass through holes in the upper block and loosely connect it thereto and guide it for up-and-down movement. The upper block, J, is the nail-driver, and it carries on its lower side a series of studs, $e e$, projecting downwardly, and arranged near the edge of the block and in a position corresponding to the row of nails to be driven around the sole of the shoe. The lower metal block is provided with a series of marginal holes corresponding exactly to the studs above and immediately beneath the same, and on its under side it is concaved or curved to correspond with the curve which it is desired to give the sole at the ball and shank. This block molds and lays the sole, forms the nail-guide, and beats the shoe out into proper shape on its bottom and edges.

The operation of these parts is as follows: The shoe having been lasted, or the upper tacked over the insole in the usual way, it is put on the iron foot, the sole placed on the same, and the lower block, K, is brought down thereupon, and as there are two points, f , in the bottom face of the block K, these perform

the work of laying the sole or puncturing and fixing it in proper position upon the other parts of the shoe. Nails are then dropped by hand in the row of perforations in the lower block, and then as the cross-bar and block J come down by the action of the treadle the nail drivers or studs *e* enter the holes in the lower block and force the nails into the sole of the shoe, and through it and the upper, and clinch against the iron foot below. Then as the pressure is continued the face of the upper block, J, strikes the face of the lower block, K, and by pressing the latter against the face of the sole the curve of block K is made to give the proper curve to the face of the sole and to beat or flatten the sole to uniform surface and even edge.

To facilitate the work of fastening on the soles, a reversible bar, L, is pivoted to turn horizontally about one of the vertically-sliding rods, and is made to support the iron feet in a detachable manner by means of two pegs or dowel-pins, *gg*, that enter holes in the bottoms of the feet. On one end of this board is arranged one foot, upon which the right shoe is fitted, and on the other end of the board is the other foot, upon which the left shoe is fitted, the sole being connected to one shoe while the other shoe is being fitted on the other foot, thus enabling two operatives to work together. Two sets of blocks J K are used for each size of shoe, one right and the other left, and they are detachably fastened to the upper cross-bar by a slot in the top of block J and undercut keys *h* on the cross-bar. The bar upon which the iron feet are mounted is not pivoted about the vertical rod in its middle, but nearer

one end than the other, and its feet are so arranged that when one is swung around, it comes under the right set of soling devices J K, and when the other end is swung around, the left foot is swung under the left soling devices connected to the cross-bar. The soling devices J K are to be made in varying sizes, and are readily attached to and detached from the cross-bar by means of their slots and keys.

For limiting the downward movement of the sole-driving studs, according as the shoe is a single or double soled shoe, the upper cross-bar may be adjusted down on the vertical rods by nuts *i*, working on the threaded stems of said rods, the cross-bar being prevented from falling down by spiral springs *j*.

Having thus described my invention, what I claim as new is—

1. The combination, with the reciprocating frame C C' B B, carrying duplicate nail-driving devices J K, one for the right foot and the other for the left, of the bar L, pivoted about one of the rods B, and bearing lasts I, arranged at different distances from the pivotal center to adapt them to be brought alternately under the two separate nail-driving devices, as described.

2. The combination of the main frame A, the reciprocating frame B B C C', lugs *a*, springs *b b*, the treadle mechanism, the nail-driving mechanism, and the removable iron foot, substantially as and for the purpose described.

JOHN WESTWOOD.

Witnesses:

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