

(No Model.)

M. V. B. ETHRIDGE.

SHOE HEELING MACHINE.

No. 271,617.

Patented Feb. 6, 1883.

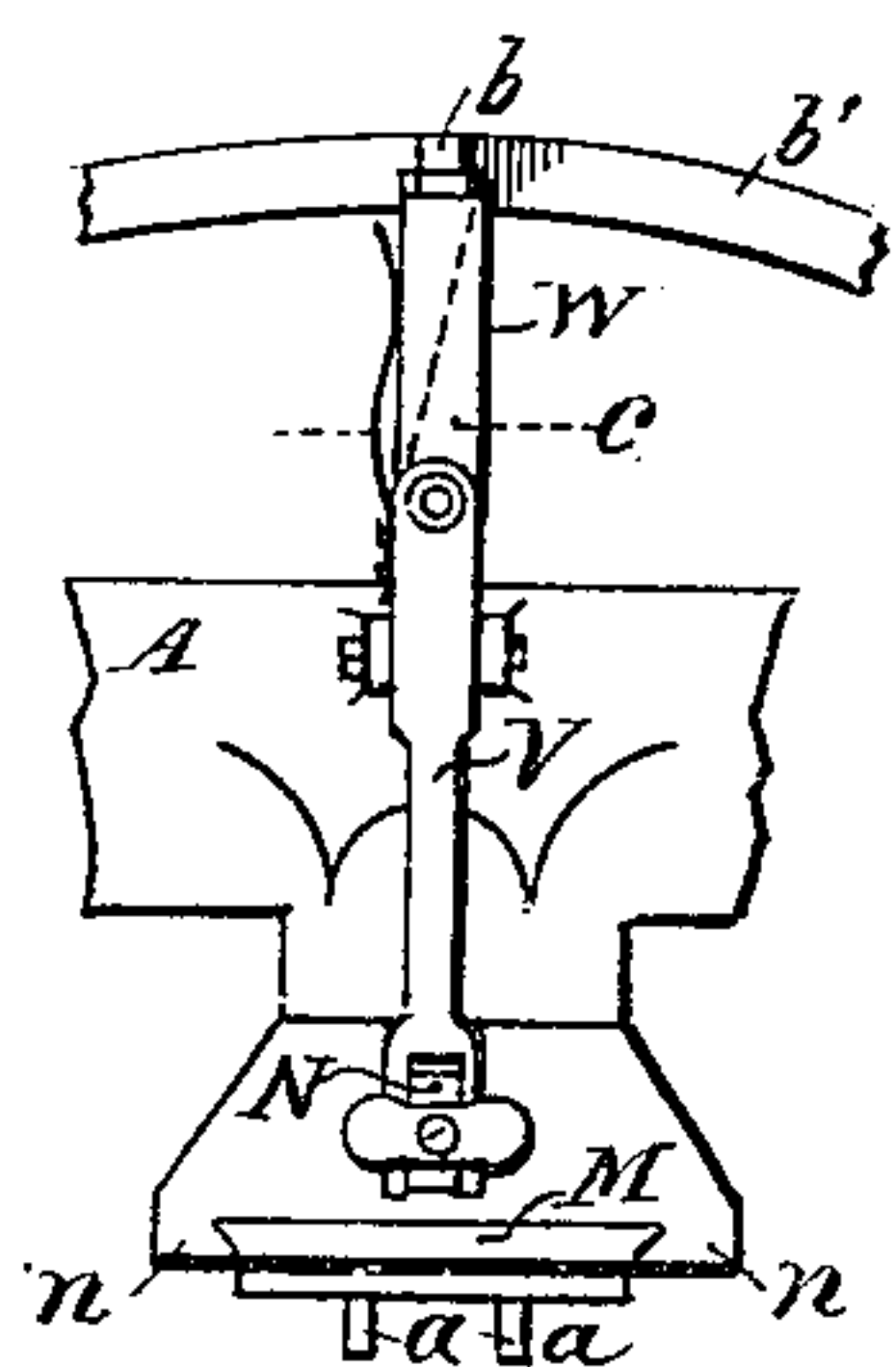


Fig. 3.

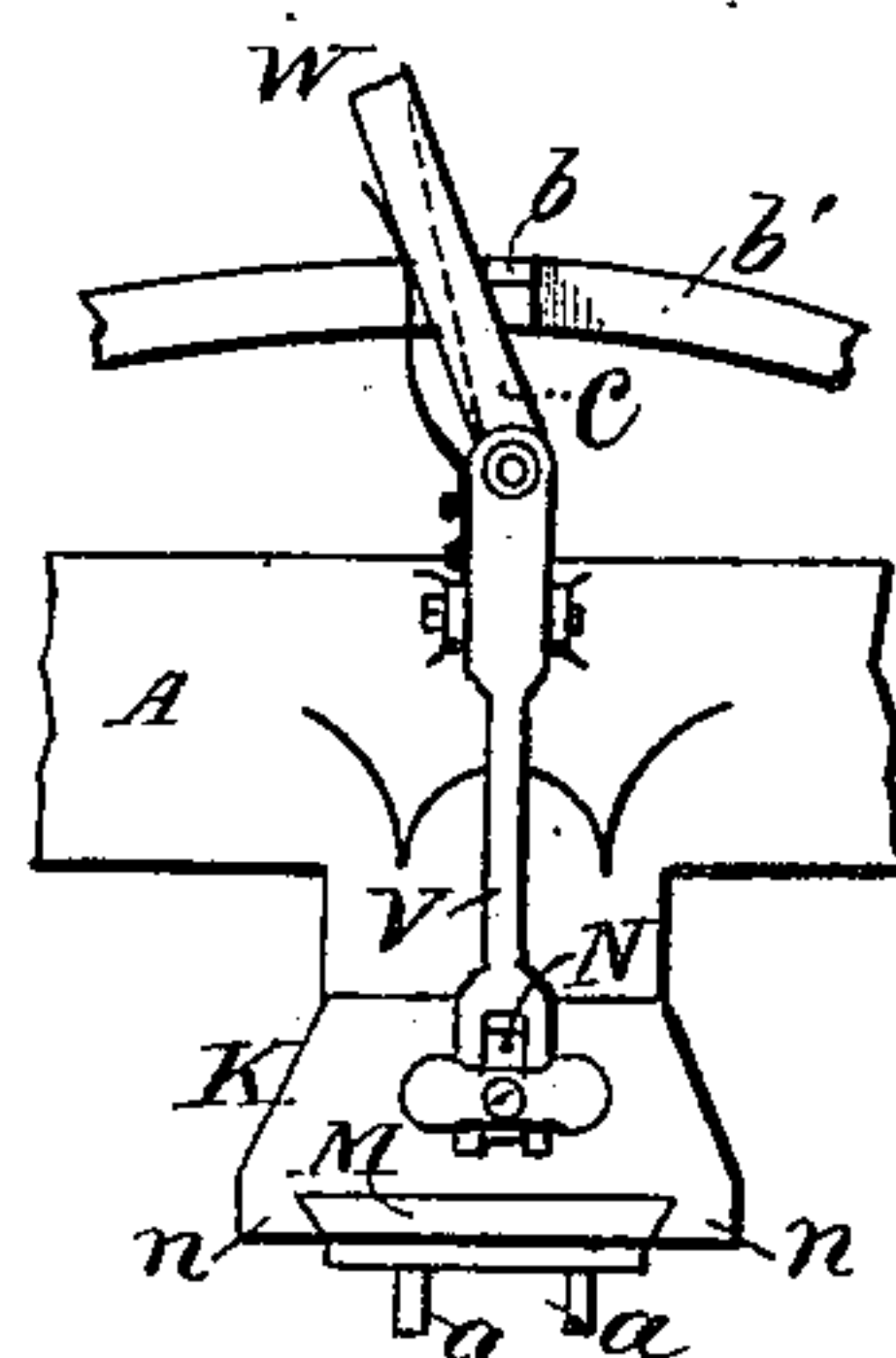


Fig. 4.

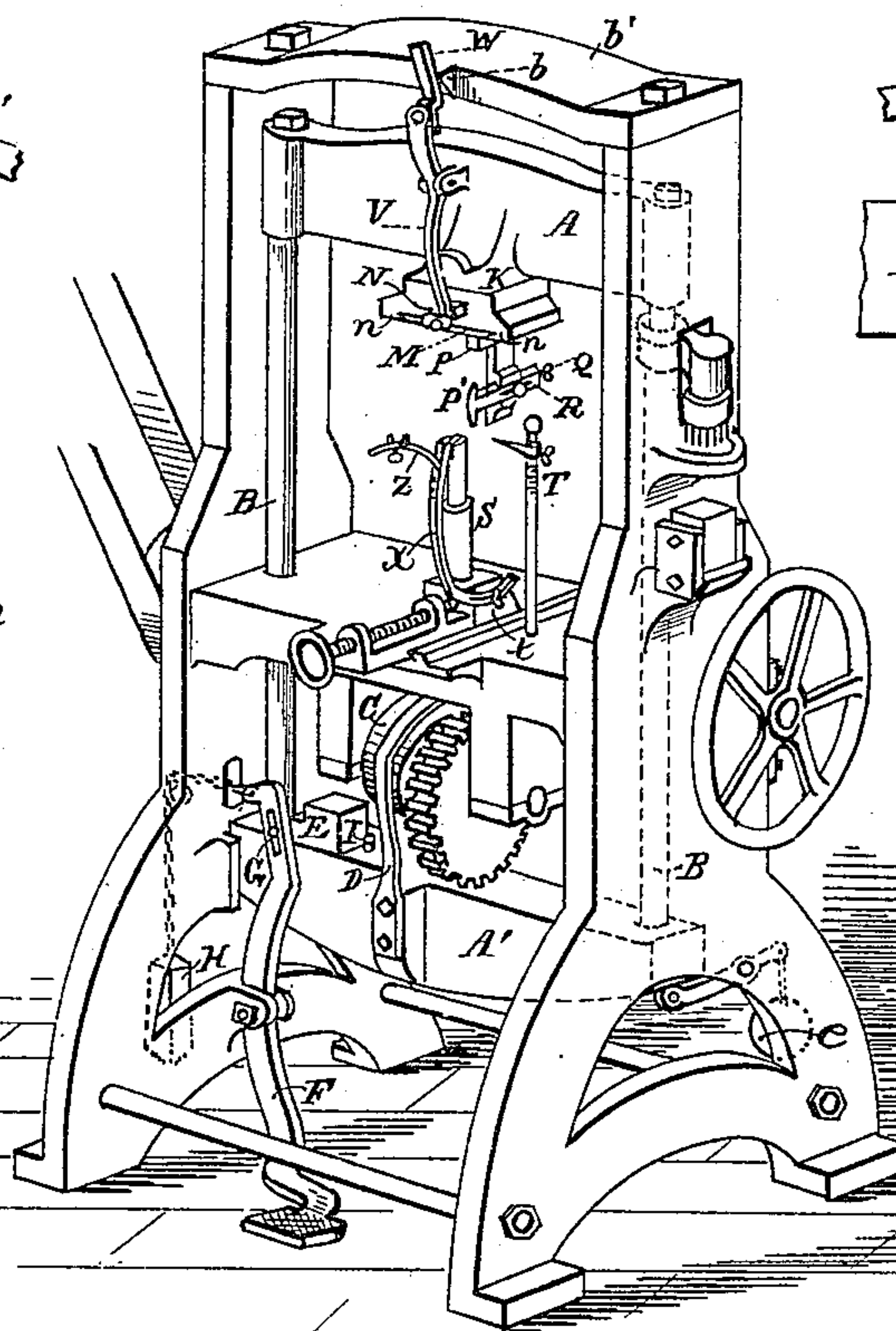


Fig. 1.

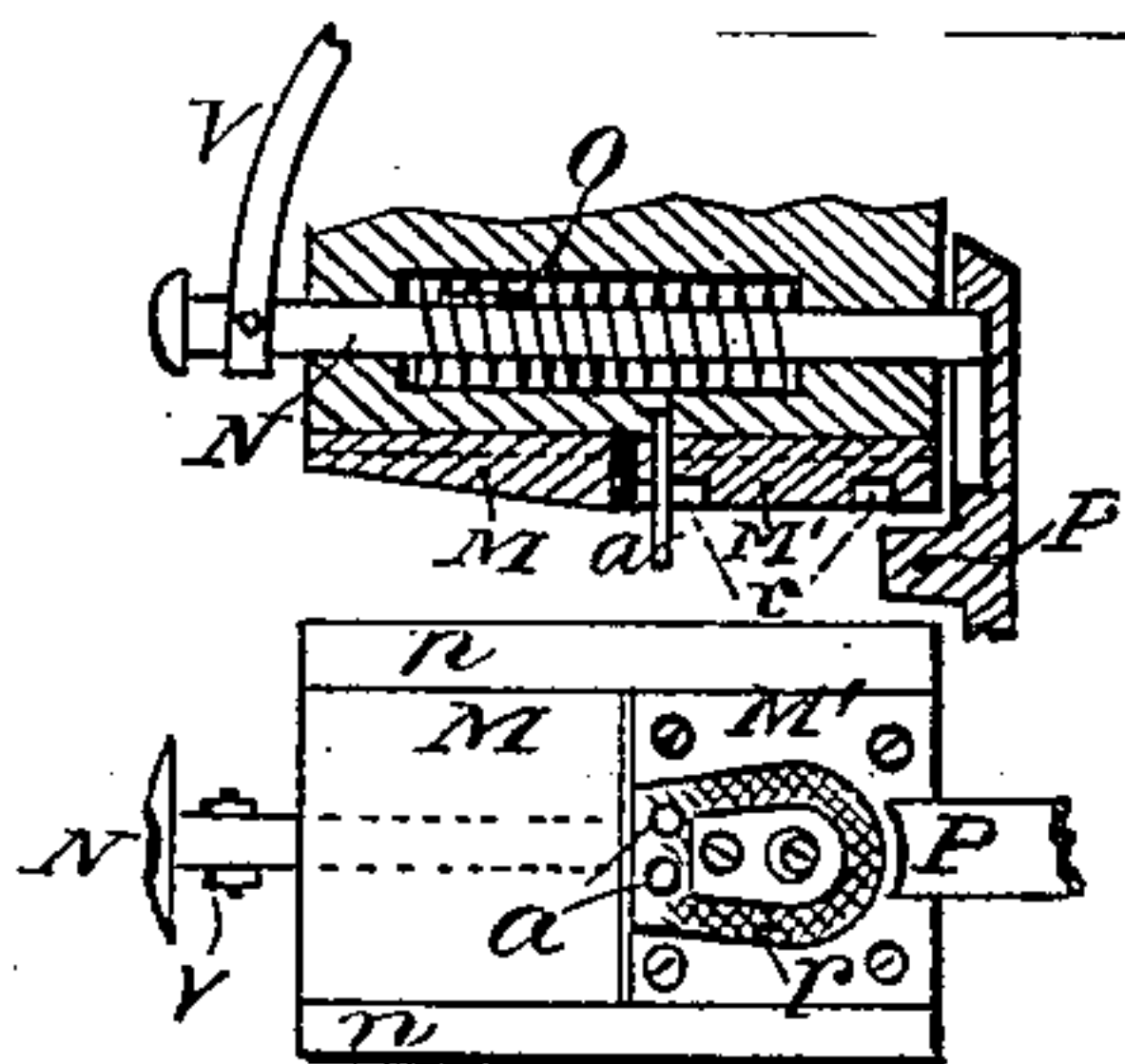


Fig. 5.

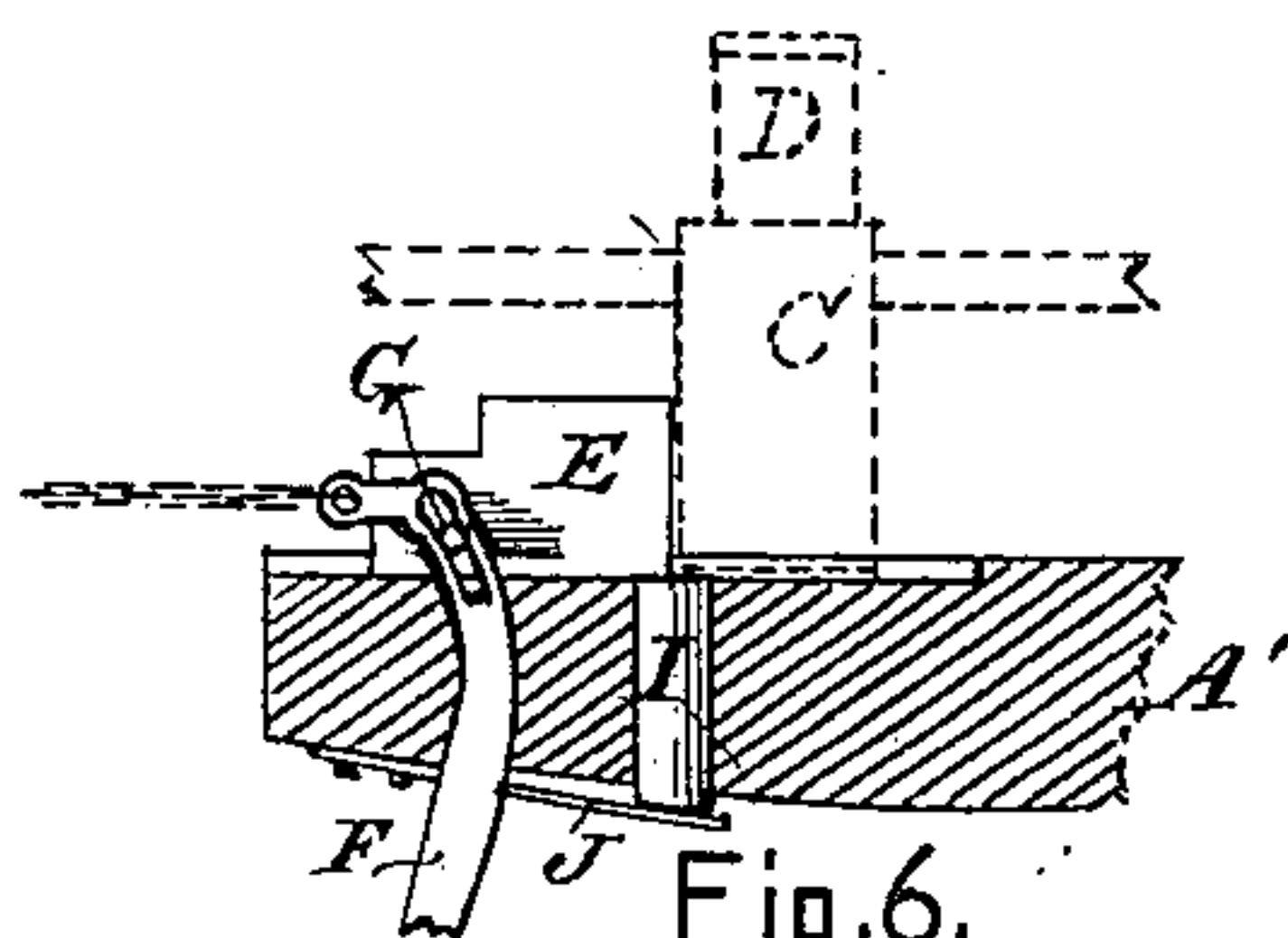


Fig. 6.

Witnesses:

Wm. H. Miller  
Gotham E. Monroe

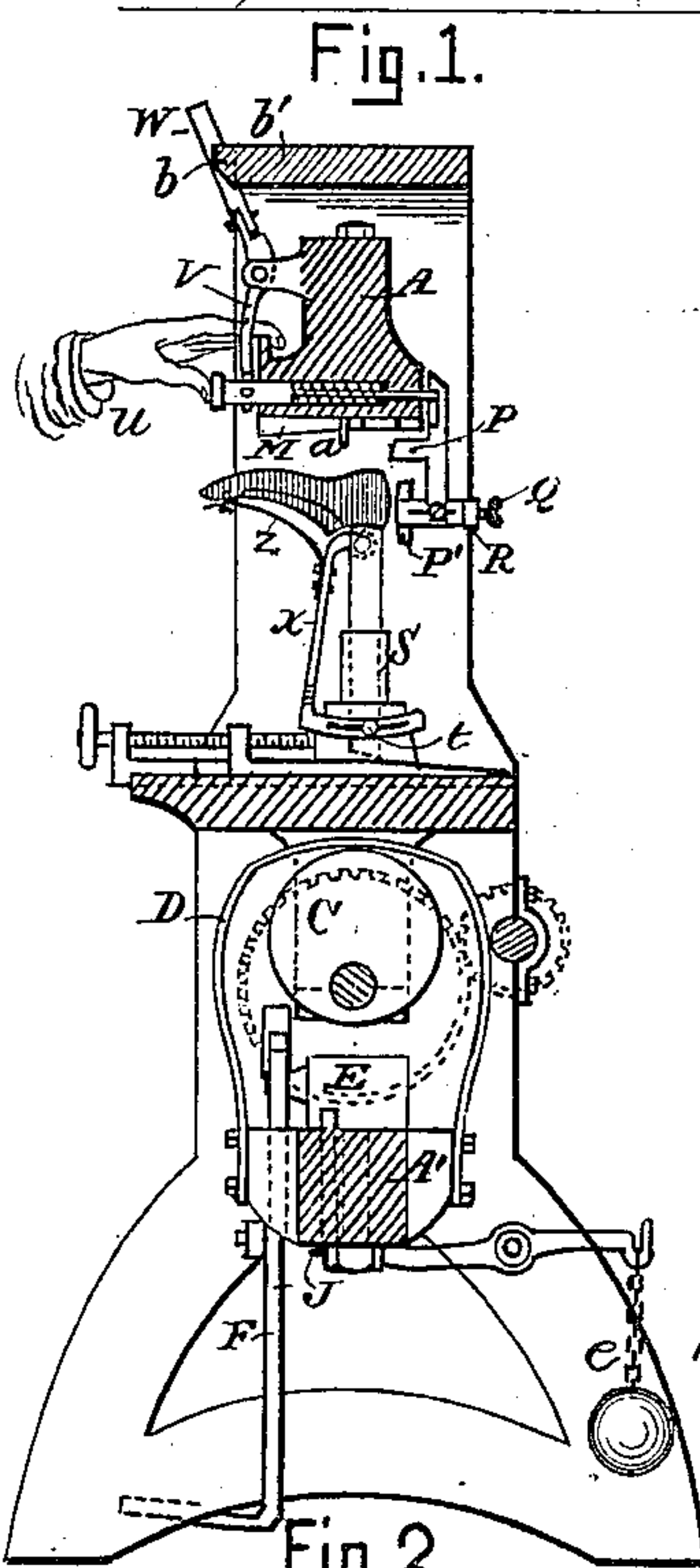


Fig. 2.

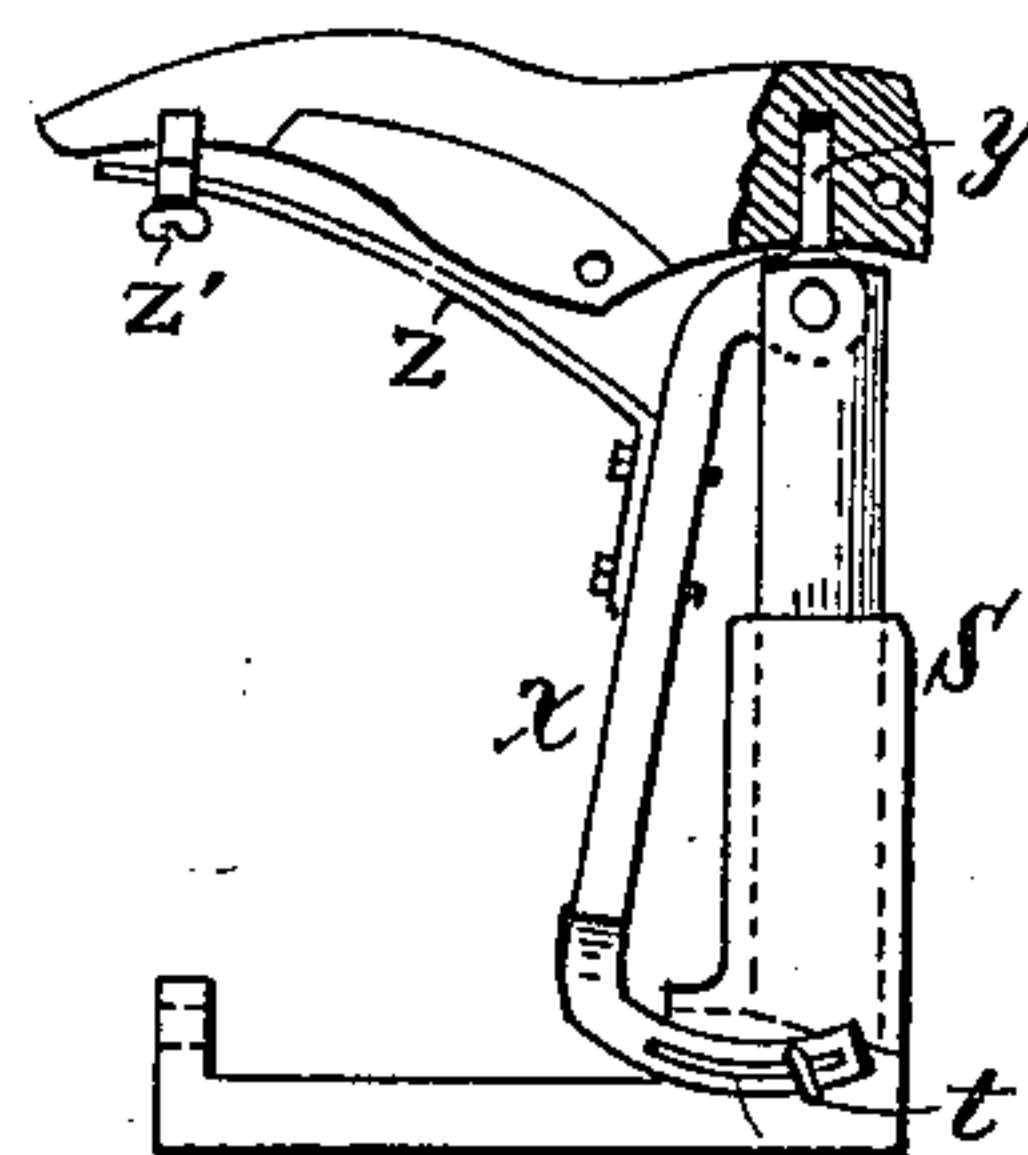


Fig. 7.

Inventor:

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Per H. E. Roemer  
Atty.



# UNITED STATES PATENT OFFICE.

MARTIN VAN BUREN ETHRIDGE, OF BOSTON, MASSACHUSETTS, ASSIGNOR  
TO THE ETHRIDGE HEELING MACHINE COMPANY, OF SAME PLACE.

## SHOE-HEELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 271,617, dated February 6, 1883.

Application filed November 29, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, MARTIN VAN BUREN ETHRIDGE, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improved Shoe-Heeling Machine, of which the following is a specification.

My invention relates to an improved machine for nailing heels on boots or shoes, the present improvement having especial reference to a similar invention on which Letters Patent were issued, bearing date July 18, 1882, and numbered 261,145, wherein is described in detail the operation and particular manner of construction of my shoe-heeling machine. My improvements in said machine comprise a different construction of the upper and lower movable gate-heads, the attachment for raising the same, an improved stop-motion, the adjustment of the shoe-last, and improvement in the metal heeling-plate and in the manner of releasing the heel.

A specific description of the various improved parts and their construction is as follows, with due reference to the drawings forming a part of this specification, in which—

Figure 1 is a view in perspective of a machine embodying my improvements, Fig. 2 being a longitudinal central section of the same. Fig. 3 is a front elevation (enlarged scale) of portions of upper gate-head, frame, and releasing-levers, exhibiting the vertical position of the latter in the upward movement of the gate. Fig. 4 is a similar view illustrating the inclined position of the upper lever when the gate is moving downward. Fig. 5 combines a face plan and a longitudinal section of heel-plate and connecting parts. Fig. 6 indicates a longitudinal vertical section in part of lower gate-head, with sliding block, stop-pin, and foot-lever in elevation. Fig. 7 is a side elevation of the last-jack attachment for regulating the horizontal position of wooden shoe-last, with shoe thereon.

Referring to the letters, A A' are the upper and lower gate-heads, united by two guide-rods, B B. The vertical movement of the gate is imparted through the rotation of the cam C within a strap, D, secured to the lower gate-head, A', said gate being sustained in its po-

sitions of rest through a properly-regulated friction of its parts.

On the upper and left side of the lower gate-head, A', is a sliding block, E, moving in a depressed bed in said gate, and operated through the action of the foot-lever F, to which it is attached by the stud and friction-roll G.

A counter-weight, H, is attached to the upper arm of the foot-lever, retaining the sliding block E in its normal position of rest until moved by foot-pressure up against the spring-cushioned stop-pin I, which retards the movement of said block E until the rotation of the cam C downward overcomes the resistance of the lifting-spring J and presses the stop-pin I to a level with the lower face of the sliding block E, which then moves forward until again retarded by the cam C. In the relative positions of the block and cam the stop-pin I is so arranged that the action of said block and cam is simultaneous in holding the stop-pin (see Fig. 6) until the continued rotation of the cam allows the sliding block to pass over the stop-pin and assume its position beneath the cam, acting as a stop-motion, for which this device is intended, until the block is released by the foot of the operator, and is drawn back to its normal position by the counter-weight H.

Forming an integral part of the upper gate-head, A, is a projection, K, the face or under side of which is provided with suitable guides, *n n*, or grooved to admit and suspend the adjustable metal heel-plates M and M', the former of which has an inclined face, smoothly finished to operate upon the face or top lift of the heel, and is placed in the guides *n n* in a position that coincides with the angle or pitch of the heel to be nailed.

The heel-block K is centrally bored to receive the sliding pin N, retained in a proper position by the pushing-spring O. Secured to the rear end of said pin by a grooved or dove-tailed recess are the heel and shoe gaging levers P and P', the latter of which is adjusted through the operation of the thumb-screw Q and sliding bar R, and limits the horizontal movement of the shoe or boot on the last-jack standard S. The vertical position or height of said standard is regulated by the adjustable



index-point and scale T, secured to bed of frame.

Keyed to the front end of the sliding pin N are two releasing-levers, V and W, united by a toggle-joint and automatic in their action. The upper lever, W, operates against a projection, *b*, on the front face of the frame-head *b'* when the gate is moving upward, and releases the heel from the clamping-pins *a a* and heel-gage P after the completed operation of nailing the heel to the shoe. The back of the upper releasing-lever, W, has a diagonal-shaped recess to admit the projection *b* when said lever has reached its highest point. In the movement of the gate downward the projection *b* enters into the recess C, and, pressing against the angular wall of the same, forces the lever *b* laterally from its perpendicular position and renders its function inoperative.

Attached to and forming a part of the last-jack standard S, through the medium of a thumb-screw, *t*, and slot *t'*, is a rocker-lever, *x*, provided at its upper end with a toggle-pin, *y*, which enters the comb of the wooden last centrally near the heel. A spring, Z, is rigidly secured to the rocker-lever *x*, and is provided with a toe-rest traversing said spring, and is secured at any desirable point, governed in its position by the length or size of the last. The office of this spring Z is to insure a stable rest for the last on the jack, and obviates any oscillation or movement of said last occasioned through undue enlargement of the toggle-pin hole in the comb of the last. The lower end of the rocker-lever *x* is offset and curved radially from its point of attachment and at right angles with its arm. A set or thumb screw, *t*, enables the operator to "key" the lever *x* in any desirable position against the base of the last-jack standard, changing the angle of the shoe or last to suit any variation of the toggle-pin hole in the same.

*e e* are counterbalancing-weights operating conjointly with the cam as auxiliary lifting devices.

In the operation of shoe-heeling the workman forces the sliding pin N with the thumb, (shown at *u*, Fig. 2,) and places the prepared heel-face upward between the clamping-pins *a a* and the heel-gage P, so that the exposed nail-heads rest in the depressions of the indented recess *r* in the heel-plate M', with the breast of the heel toward the operator. In this position the gate is moved by the com-

bined action of cam and block downward upon the lasted shoe, which latter is gaged to a proper position by the devices T, *x*, and P', above described. The upward rotation of the cam against its strap D moves the gate upward, instantly actuating the releasing-levers V and W and disengaging the heel. At this moment the operator moves forward the last-jack and places the top lift upon the nails, which are left exposed to a length corresponding with the depth of the recess *r* in the heel-plate M', the movement of the jack bringing the heel in a vertical line with the center of the angle heel-plate M, to receive on the downward movement of the gate the pressure of said angle-plate on the top or face lift, forcing it down on the nails and completing the operation of heeling.

Having explained the operation of my improved machine, what I claim is—

1. In an improved machine for nailing heels, a movable gate provided with a block, K, holding an adjustable and reversible angle heel-plate, M, and a recessed heel-plate, M', in combination with the heel and shoe gaging levers P and P', operating substantially as and for the purpose set forth.

2. In combination with the adjustable heel-plates M and M', the sliding pin N, the releasing-levers V and W, operating the heel gaging lever P, and shoe or last gaging lever P', arranged as set forth.

3. In a heeling-machine, the automatic releasing-lever V and diagonal recessed lever W, operating in combination with the sliding spring-cushioned pin N, for the purpose set forth.

4. In combination with an adjustable last-jack, a lasting adjustment comprising the rocker-lever *x*, toggle-pin *y*, spring Z, and movable toe-rest Z', all substantially as described.

5. In combination with the rocker lever *x* and movable toe-rest Z', the toggle-pin *y*, adjustable and operating in the comb of a wooden last, as and for the purpose specified.

6. The sliding block E, actuated by the lever F, and the spring-cushioned stop-pin I, in combination with the cam C, producing the downward movement of the gate, all as described.

MARTIN VAN BUREN ETHRIDGE.

Witnesses:

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