2 Sheets—Sheet 1.

W. FITZGERALD.

BOOT AND SHOE NAILING MACHINE.

No. 169,429. Patented Nov. 2, 1875.

Fig. 1.

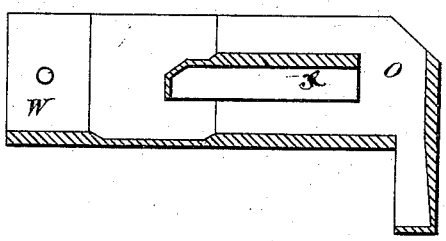
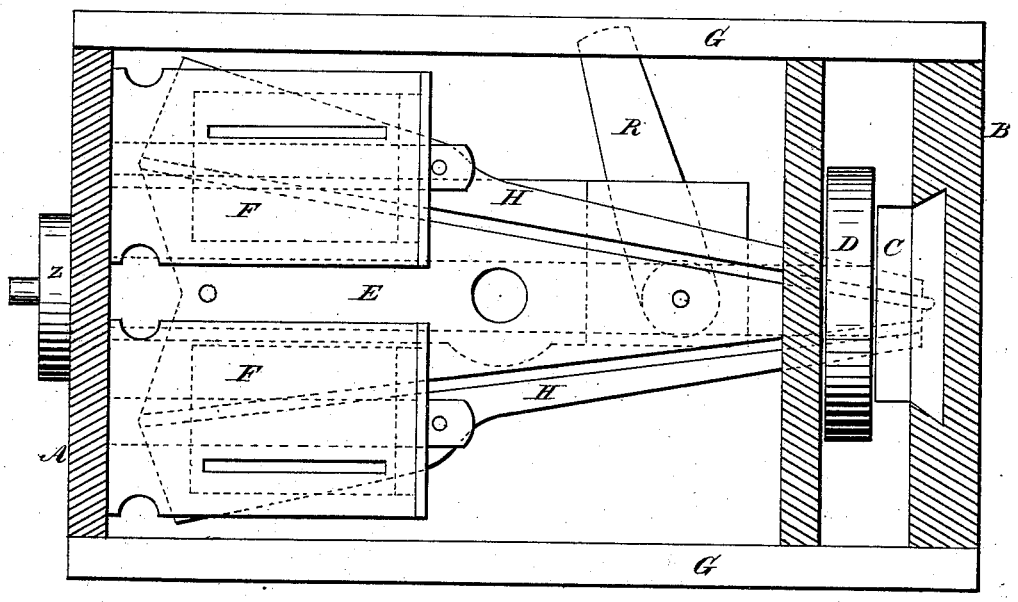


Fig. 2.



Witnesses:
Jno. D. Patten
Alonzo Hughes

Inventor:
Walter Fitzgerald,
By his Attorneys,
Stansbury & Munn

2 Sheets—Sheet 2.

W. FITZGERALD.

BOOT AND SHOE NAILING MACHINE.

No. 169,429. Patented Nov. 2, 1875.

Fig. 3.

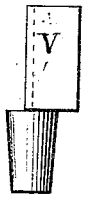


Fig. 4.

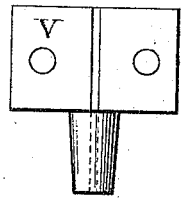
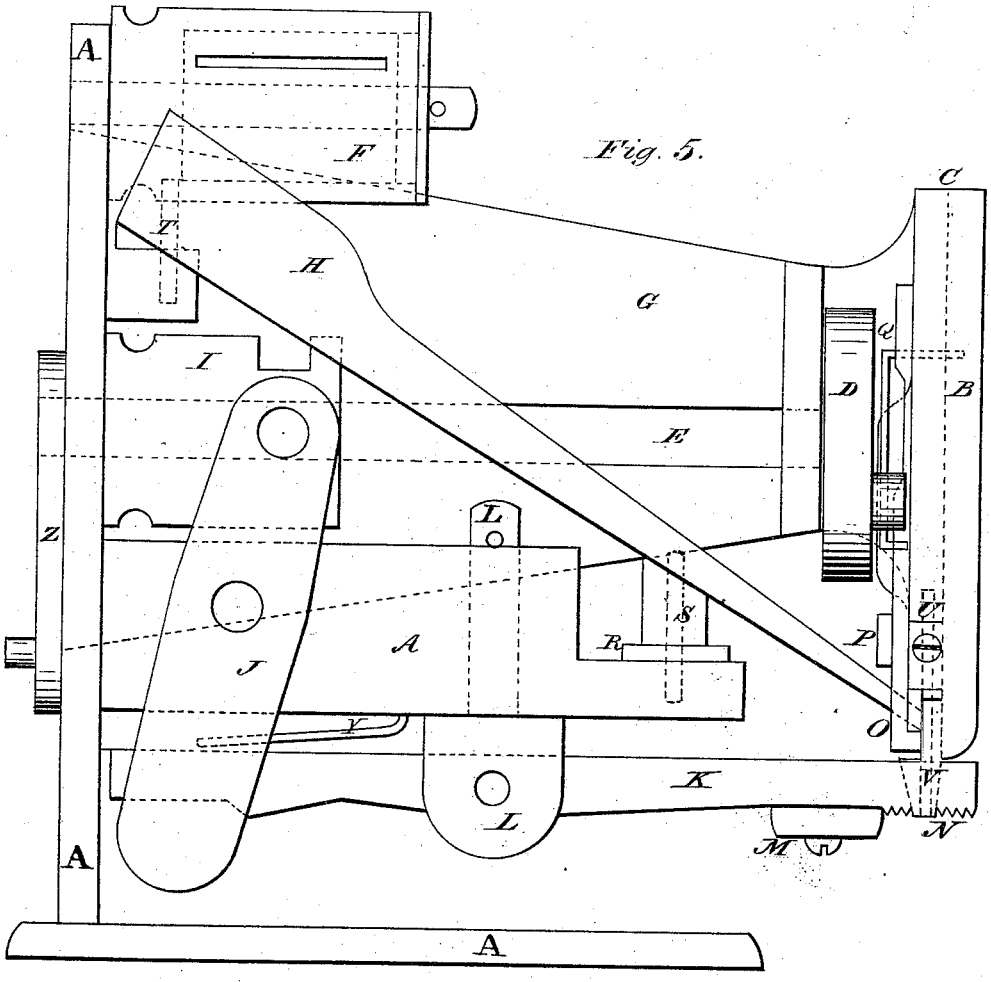


Fig. 5.



Witnesses:

Jno. D. Patten

Alonzo Hughes

Inventor:

Walter Fitzgerald

By his Attorneys

Stansbury & Munn.

UNITED STATES PATENT OFFICE.

WALTER FITZGERALD, OF BOSTON, MASS., ASSIGNOR OF TWO-THIRDS HIS RIGHT TO W. E. PUTNAM AND H. S. JENKINS, OF SAME PLACE.

IMPROVEMENT IN BOOT AND SHOE NAILING MACHINES.

Specification forming part of Letters Patent No. **169,429**, dated November 2, 1875; application filed February 1, 1875.

To all whom it may concern:

Be it known that I, WALTER FITZGERALD, of Boston, in the State of Massachusetts, have invented a new and useful Machine for Nailing Boots and Shoes; and I do hereby declare the following to be a correct description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the feed-pawl. Fig. 2 is a horizontal section of the machine near the top, showing the operative parts in plan. Fig. 3 is a side view of the throat through which the nails are driven. Fig. 4 is a rear view of the same; and Fig. 5 is a side elevation of the machine, with one of the sides removed to show the operative parts.

The same part is marked by the same letter of reference wherever it occurs in the several figures.

It is well known to boot and shoe manufacturers that a longer nail is required for nailing the ball and toe of a boot or shoe than is needed for the shank, and yet the common nailing-machines are intended to use nails of uniform length for all parts of the work.

My invention relates to the construction of a machine for nailing boots and shoes with nails of different lengths; and consists in devices for feeding the nails of the required length singly to the throat through which they are driven, in the peculiar construction and form of said throat, and in the devices for feeding the edge of the boot or shoe under the throat to receive the nails, all as hereinafter more particularly set forth.

In the accompanying drawings, A marks the base and frame-work of the machine; B, the head of the machine, and G G the sides, which sustain the head. C is the driver-bar, to which is attached the driver U, by which the nails are driven. D is the circular head of the main shaft E, and from it projects a pin, which enters a slot in the sliding driving-bar C, and imparts reciprocating motion to that bar when the shaft E is rotated. E is the driving-shaft, which is rotated by a crank or winch, Z. F F are two hollow drums, driven by band from pulley I, in which nails of the different sizes required are introduced. One drum carries the longer, and the other the shorter, nails. These drums are provided with four or more longitudinal slots, through which, as the drums rotate, the nails drop into the inclined guideways H H, each of which is provided with a long slot at bottom, of a size to permit the passage of the shanks of the nails, but to arrest their heads. These ways are inclined at such an angle that the nails will descend along the slots by their own gravity. The guideways H terminate at the throat V, which, through a rear upper opening, (see Fig. 4,) receives the nail to be driven, and conducts it to the point in which it is to be inserted. A shipping-lever, R, under control of the workman, enables him to give the guideways H a lateral movement in either direction, so as to present either guideway to the opening of the throat V, and introduce either a longer or a shorter nail into the throat, as he may desire. The driver U is a hardened-steel rod of proper size to pass down the throat, and is secured by a set-screw to the slide C. I is a pulley and cam combined, attached to the main shaft E. By means of a band it drives the nail-drums F F, and by a cam-groove cut in its surface it imparts a vibratory vertical motion to lever J, which operates the feed-motion for moving the boot or shoe under the driver. K is the feed-bar for moving the shoe. It is operated by lever J and spring Y, and has four motions—one up, one down, and two lateral—the upward and one lateral movement being imparted by the lever J, and the other motions by the spring Y, which presses the lever K downward and to one side, in both instances acting against the lever J. The swivel L, in which lever K has its fulcrum, permits all of these movements to that lever. The under surface of the outer end N of lever K is roughened to prevent the shoe from sliding on the sole while feeding. An oblong slot in N allows the throat V to descend through it into contact with the sole of the shoe, and admits of the lateral feed-motion of N. M is a roller pivoted to the under side of lever K near its outer extremity, and against which the edge of the sole of the boot or shoe is guided and presses at all times while being nailed. O (shown in detail in Fig. 4, and in place in Fig. 5) is the feed-pawl, which feeds the nails singly to the throat V from the guideways. It is pivoted at the top, through hole

W, to the head B, and swings laterally on that point. Its upper middle portion is made so thin as to form a spring capable of yielding and reacting against the arm P, attached to the lower end of bar C. It has four motions—back and forth, and lateral—so as alternately to open and close the rear opening of the throat, in order to admit one nail at a time, and no more, into the throat at each complete movement of the pawl. The arm P acts as a cam in the slot *x* of pawl O, and also against the rear face of the pawl, to give it the back-and-forth and one lateral motion. The opposite lateral movement is given by spring Q.

What I claim is—

1. The combination of the cam I, lever J, feed-bar K, spring Y, and swivel L, in the manner and for the purpose described.

2. The combination of the pawl O, spring Q, and arm P, in the manner and for the purposes described.

3. The throat V, provided with the opening in its upper rear side for the reception of the nails from the guideways, as described.

4. The combination of the slotted nail-drums F F, for receiving and delivering nails of different lengths, the vibrating double guideways H H, throat V, and driver U, in the manner and for the purpose set forth.

5. The throat V, in combination with the lever K, provided with the slotted end N, as described, for the purpose of bringing the lower end of the throat into contact with the sole of the boot or shoe, so as to give accuracy to the nailing without interfering with the feed, as stated.

WALTER FITZGERALD.

Witnesses:
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H. M. CURRIER.