L. BRADFORD, 2d.

Machine for Making the Shank-Pieces for Boots and Shoes.

No. 162,740. Patented May 4, 1875.

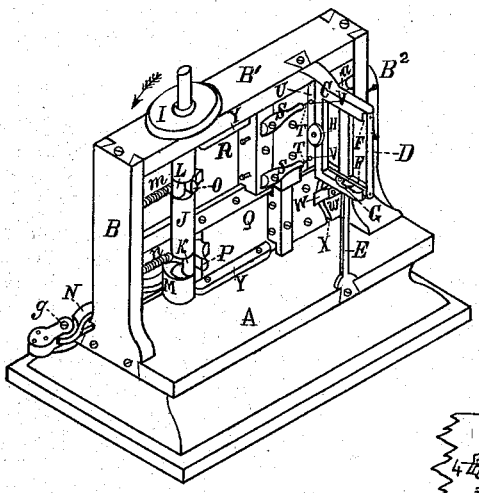

Fig. 1.

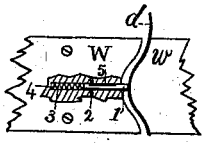

Fig. 3.

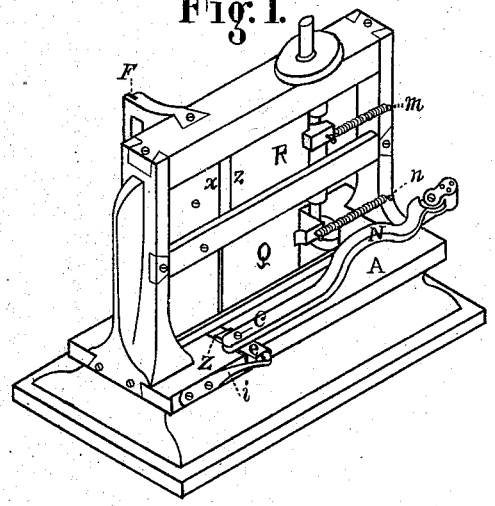

Fig. 2.

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UNITED STATES PATENT OFFICE.

LEMUEL BRADFORD, 2D, OF PLYMOUTH, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR MAKING THE SHANK-PIECES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **162,740**, dated May 4, 1875; application filed March 30, 1875.

To all whom it may concern:

Be it known that I, LEMUEL BRADFORD, 2d, of Plymouth, in the county of Plymouth, State of Massachusetts, have invented a certain new and useful Improvement in Machines for Making the Shank-Pieces of Boots and Shoes, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which my invention appertains to make and use the same, reference being had to the accompanying drawing forming a part of this specification, in which—

Figures 1 and 2 are isometrical perspective views, showing the opposite sides of my improved machine; and Fig. 3 a sectional view to be referred to.

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

My invention relates to that class of machines which are employed in the manufacture of metallic shank-pieces for boots and shoes; and consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a simpler, cheaper, and more effective device for this purpose is produced than is now in ordinary use.

In the drawing, A represents the bed-piece, B B^2 the uprights, and B^1 the cross-bar or cap, of the machine. Journaled vertically in the bed A and cap B^1 there is a shaft, J, provided with the driving or balance wheel I and with the cams or eccentrics L K. Two slides, R Q, are arranged to move horizontally in the ways or runlets Y Y, the superposed slide R being provided with the stocks S S, carrying punches T T, and also with a cutting-edge at the end nearest the punches. This cutting-edge is slightly inclined from a vertical position, and works in conjunction with a fixed cutting-edge on the back of the standard U to form a shear. This standard is provided at its upper end, on the side nearest the slide R, with two sockets or holes, V V, corresponding with the punches T T, its lower end, on the side nearest the slide Q, being convex or curved outwardly, as shown at *w*. Attached to the slides R Q are two cross-bars, O P, provided with coiled springs *m n*, also attached to the standard B, and which operate by contractile action to keep the cross-bars in contact with the eccentrics L K. The end of the slide Q nearest the standard U is concaved or curved to correspond with the convexity of the part *w*, and forming therewith a matrix or mold, X, as shown in Figs. 1 and 3, of the proper shape to form the shank-piece. Supported by the post E and cap B^1, and extending laterally from the machine, there is a frame-work, C, open at its outer side, D, and provided with ways or runlets F F, a cam-lever, G, and pulley H. Jointed at *g* to the bed A there is a horizontally-arranged lever, *c*, bent inwardly at N to bring it into contact with the cam M, disposed on the lower end of the shaft J. The bed-piece A is mortised through at Z immediately below the matrix X, and provided with a horizontal slide, *e*, which is jointed to the lever *c*, and against the outer end of which the spring *i* acts to force the slide under the matrix and close the mortise. Inserted in the aperture 4, in the end of the slide Q nearest the standard U, there is a sliding pin or spring-dowel, 1, having an elongated slot, 5, in its body, through which the key-pin 2 is inserted to retain it in position. Behind this dowel, and acting expansively to force it out, there is a coiled spring, 3, which is compressed when the dowel is pushed inwardly.

The object of the cam-lever G is to secure the sheet of metal in any desired position, or prevent it from being fed to the punches when necessary.

In the use of my improved machine the sheet of metal from which the shank-pieces are to be cut is placed vertically, or on edge, in the ways F F of the frame C. A cord, (not shown.) having a hook at one end and a weight at the other, is then passed over the pulley H, the hook being attached to the sheet of metal and the weight allowed to hang suspended above the bed A, the action of the weight forcing the sheet along the ways F F in front of the punches, and into the shears formed by the cutting-edges of the slide R and standard U. If power is now applied to the wheel I, causing the shaft J to rotate in the direction of the arrow, the slide R will be made to advance and the slide Q to recede, the punches acting first to perforate the sheet of metal near its

inner end, the shears coming next into action to cut off a narrow strip or piece of suitable width to form the shank-piece. The shaft J continuing to revolve, the slide R is caused to recede, the punches being withdrawn from the sheet, and the blank or strip *d*, which has been cut therefrom by the shears, falling, by gravitation, into the matrix X, in which it is supported in a vertical position by the guard W and slide *e*. The slide Q now advancing, the spring-dowel 1 is brought into contact with the blank near its center, pressing it against the part *w* and keeping it in position until properly pressed or molded, in a manner which will be readily obvious to all conversant with such matters without a more elaborate description. As the slide Q recedes the cam M acts upon the lever *c* to withdraw the slide *e* and allow the molded blank *d* to fall from the matrix X through the mortise in the bed A, the dowel holding it suspended against the part *w* until the matrix is well opened.

It will be understood that the eccentrics L K and cam M on the shaft J are to be so arranged or timed as to cause the rectilinear reciprocating movements of the slides R Q *e* in the manner described; also that the form of the matrix X should correspond with the shape to be given the shank-piece, and that the number of punches may be varied, and their arrangement such as to punch the blank as may be desired; also that the sheet of metal used should conform in width to the length of the shank-piece. It will, furthermore, be evident that a machine constructed substantially as described is well adapted for use in cutting, punching, and molding sheet metals for various purposes other than herein set forth, and I therefore do not confine myself in its use to the manufacture of metallic shank-pieces for boots and shoes.

Having thus described my invention, what I claim is—

1. In a machine substantially such as described, in combination, the slides R and Q, eccentric-shaft J, standard U, and springs *m n*, for punching, cutting, and molding metallic shank-pieces for boots and shoes, substantially as specified.

2. In a machine substantially such as described, in combination, the lever *c*, slide *e*, and cam M, all substantially as and for the purpose set forth.

3. In a machine substantially such as described, the slide Q, provided with the spring-dowel 1, as and for the purpose specified.

4. In a machine substantially such as described, the frame C, provided with the ways F F, pulley H, and cam-lever G, in combination with the slide R, punches T T, and standard U, substantially as and for the purpose set forth.

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Witnesses:

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