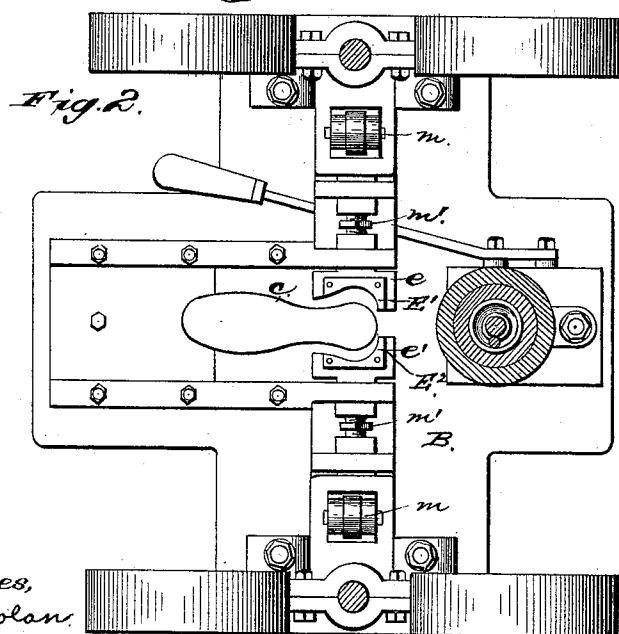


2 Sheets—Sheet 1.

No. 464,255.

Patented Dec. 1, 1891.



Witnesses,
J. W. Dolan.
A. B. Merrill.

Inventor,
F. F. Raymond

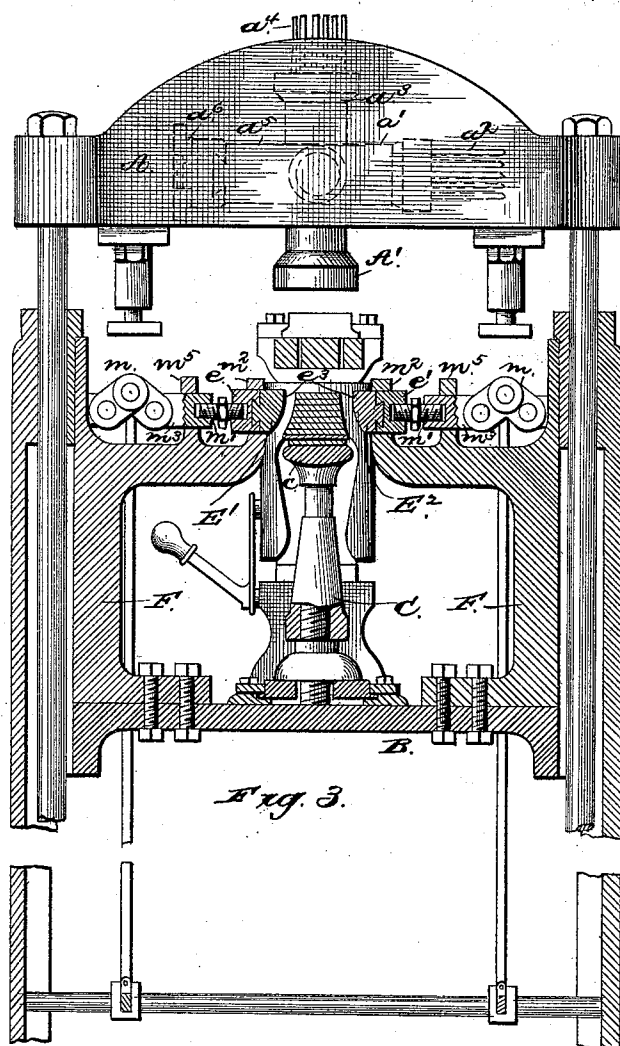
(No Model.)

2 Sheets—Sheet 2.

F. F. RAYMOND, 2d.
HEEL NAILING MACHINE.

No. 464,255.

Patented Dec. 1, 1891.



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J. H. Dolan
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F. F. Raymond, 2d.

UNITED STATES PATENT OFFICE.

FREEBORN F. RAYMOND, 2D, OF NEWTON, MASSACHUSETTS.

HEEL-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 464,255, dated December 1, 1891.

Application filed March 15, 1889. Serial No 303,374. (No model.)

To all whom it may concern:

Be it known that I, FREEBORN F. RAYMOND, 2d, a citizen of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Heel-Nailing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

The invention is an improvement in heel-nailing machines, comprising heel-attaching mechanism having a heel-compressing device for compressing the heel-blanks laterally or upon their side surfaces or edges while they are being attached to the soles of a boot or shoe. It further relates to various features of construction and organization, all of which will be hereinafter explained.

In the drawings, Figure 1 is a front sectional elevation of the machine. Fig. 2 is a top plan view with part of the mechanism removed. Fig. 3 is a transverse section.

Referring to the drawings, A is a cross-head, which carries the rotary head *a*. This rotary head has a compressing-arm *A'*, an arm *a'*, carrying a gang or group of awls *a*², an arm *a*³, carrying a gang or group of drivers *a*⁴, and an arm *a*⁵, carrying a top-lift spanker and preferably a top-lift-holding device *a*⁶. The cross-head A preferably is reciprocated, as set forth in patent to Henderson, No. 316,894—namely, by means of a crank and pitman—a lower cross-head upon which the pitman acts when it is desired to depress the upper cross-head, and connecting-rods uniting the lower cross-head with the upper cross-head. This construction is fully described in the patent referred to.

B is the table of the machine, upon which is arranged the sliding jack C, carrying or holding the last or work-support *c*. The said table also carries the post D, upon which is mounted the vertically-moving table *d*. On this table *d* is arranged, to be moved horizontally into and out of operative position, a plate *d'*, carrying at its front end a templet *d*². There is also carried by this table, or rather by the templet-plate *d'*, a nail-carrier plate *d*³, which has mounted or formed in its front end the nail-carrier *d*⁴. These parts are also like those described in said patent, with the exception that the upper part of the post

D, upon which the table is vertically movable, is cylindrical in shape, and the table has the cylindrical sleeve *d*⁵, which surrounds the post. 55

Uprights or standards F are bolted to the table B at their lower ends, and project upward to form a support for the compressing mechanism. The upper ends of said uprights have apertured ribs or projections *m*² and *m*⁵, for purposes hereinafter more fully referred to. 60

The heel-compressing device consists of two plates or blocks *e e'*, which are mounted and have lateral movement in the ribs *m*² of the uprights F. Each of the plates or blocks *e e'* are constructed with a dovetail mortise adapted to receive the dovetail tongues of sections or formers *E'* and *E*², having compressing-surfaces *e*³ of the shape which it is desired to give the side or edge of the heel. The plates *e e'* do not move vertically with the templet, being operated to have a lateral movement by means of the toggle *m*, which are operated by the vertically-reciprocating cross-head A through the medium of connecting-pieces, which may be attached to the said cross-head or to the toggles. To one member of each of the toggles *m* a plate *m*³ is secured and has play through the ribs or projections *m*² of the uprights F. The front ends of the blocks or plates *m*³ and the rear ends of the plates *e e'* are provided with screw-threaded apertures to receive the right and left screw threaded ends of combined double screw-bolts and nuts *m'*. By means of said mechanism the plates *e* and *e'* are given an initial horizontal adjustment toward or away from each other, as may be desired, to adapt them to be acted upon by different sizes of heels or to exert varying degrees of pressure. 75 80 85 90

In operation the boot or shoe is mounted upon the last or work-support, and is moved into operative position, the templet is moved outward from its table or support into operative position over the heel end of the jacked boot or shoe, the heel-blank is placed over the heel end of the shoe, and the table supporting the templet and side heel is moved downward by the hand-lever, as described and shown in said Henderson patent, bringing the templet into contact with the upper surface of the heel-blank. The pressure-arm *A'* is then moved down, forcing the templet 95 100

vertically upon the heel-blank and automatically locking it, and at the same time the toggles *m* are straightened, and the die-blocks are moved against the heel-blank and automatically locked by the pivots of the links coming in line, and these parts—namely, the templet and die-blocks—remain locked and the heel-blank held compressed on the outsole during the driving of the awls and the feeding and driving of the attaching-nails when the heel is entirely released, or the templet only released and withdrawn, and the top lift then spanked on while the heel-blank is held compressed by the side-compressors. Of course the extent of the downward movement of the templet is varied according to the extent of the side compression of the blank before the blank is brought into contact with the upper surface of the templet—that is, when the side-compressors are set with great force against the heel-blank before the awls are caused to enter it. Then the extent of the vertical movement of the templet may vary from comparatively nothing to a quarter of an inch or more after contact of the upper surface of the awl-block therewith, in which case the side-compressors may be held stationary upon the edge of the heel-blank during the downward movement of the templet, or they may be farther moved inward toward each other, or they may be partially released, according to the character of the work and the results desired, by the adjustment hereinbefore referred to.

Heel-blanks constructed either of whole sec-

tions or pieces are adapted to be operated upon by the mechanism hereinbefore set forth.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a heel-nailing machine, the combination of a jack carrying a last or work-support, a vertically-movable table, a templet carried thereby, the laterally-adjustable compressors having an initial adjustment by right and left screw-bolts, toggles connected to said compressors, the vertically-reciprocating head, and the rotary arms carrying gangs of heel-attaching devices, as described, and a spanker adapted to be successively brought into operative position, as and for the purposes set forth.

2. In a heel-nailing machine, the combination of the table B, supporting a jack carrying a last or work support and uprights F, the vertically-movable table carrying a templet, the nail-carrier over said templet, the laterally-adjustable compressors, the operating-toggles, the right and left screws adjustably connecting the compressing-sections with the toggles, the vertically-reciprocating head, and the rotary arms carrying gangs of heel-attaching devices, as described, and a spanker adapted to be successively brought into operative position, as and for the purposes set forth.

FREEBORN F. RAYMOND, 2D.

In presence of—

J. M. DOLAN,

A. B. MERRILL.