(No Model.) 2 Sheets—Sheet 1.

F. F. RAYMOND, 2d.

HEEL COMPRESSING AND LOADING MACHINE.

No. 566,336. Patented Aug. 25, 1896.

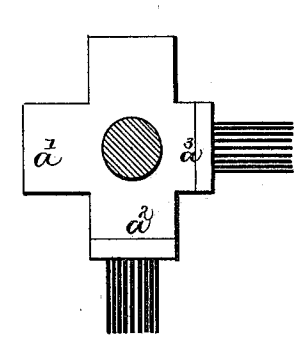

Fig. 3.

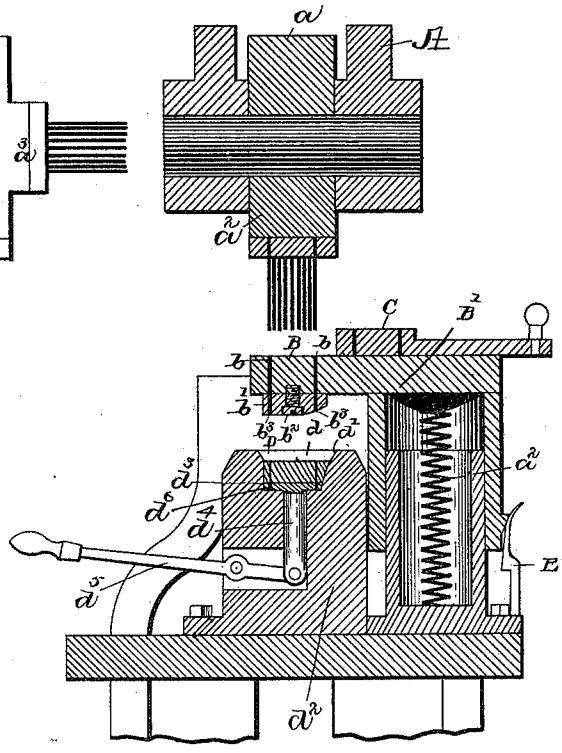

Fig. 1.

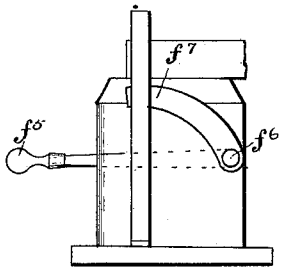

Fig. 8.

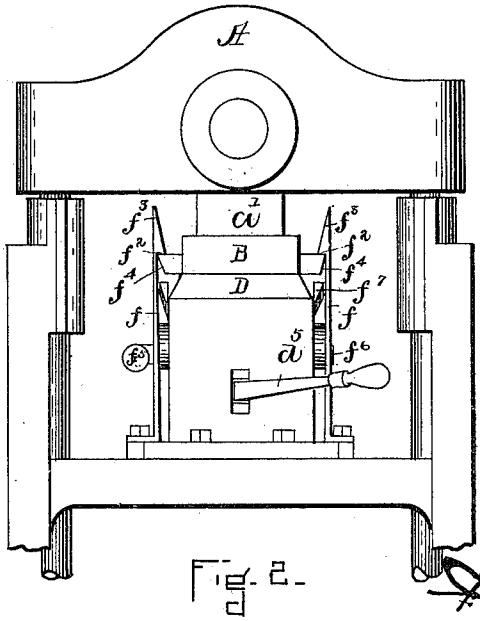

Fig. 2.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 2 Sheets—Sheet 2.

F. F. RAYMOND, 2d.

HEEL COMPRESSING AND LOADING MACHINE.

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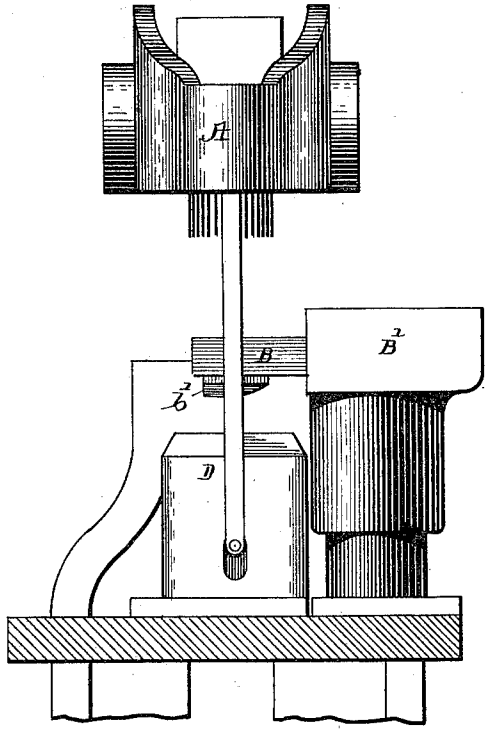

Fig. 4.

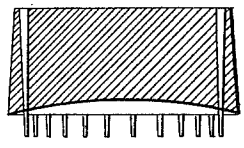

Fig. 5.

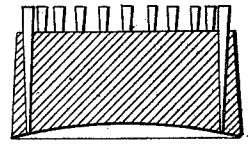

Fig. 6.

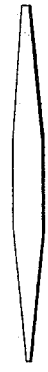

Fig. 7

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UNITED STATES PATENT OFFICE.

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

HEEL COMPRESSING AND LOADING MACHINE.

SPECIFICATION forming part of Letters Patent No. 566,336, dated August 25, 1896.

Application filed June 24, 1889. Serial No. 315,322. (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 Compressing and Loading 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, in explaining its nature.

The invention relates to a heel loading and compressing machine organized to insert the nails into the heel-blank from its heel-seat end.

Referring to the drawings, Figure 1 is a view in vertical section of the central and upper parts of a machine having the features of my invention. Fig. 2 is a view in front elevation thereof. Fig. 3 is a view of the rotary head. Fig. 4 is a view principally in side elevation of the parts represented in Figs. 1 and 2. Figs. 5 and 6 represent loaded heel-blanks; Fig. 7, an improved form of nail; and Fig. 8 is a detail view to represent the templet latching and unlatching devices.

A represents a cross-head of the machine, which is reciprocated in any of the ways described in various of my Letters Patent. *a* is a rotary head carried by said cross-head. It has an arm a', which carries a pressure-block, an arm a^2, which carries a gang of awls, and an arm a^3, which carries a gang of drivers. B is a templet. It is supported by the table B′ and has a vertical movement therewith, being forced downward by the pressure-block a', and being moved upward preferably by a spring a^2 in Fig. 1. The templet has the holes *b* and the heel-seat former b' secured to its under surface and preferably made removable or detachable therefrom. It is shown as secured in place thereto by screws b^2. It has holes b^3 in continuation of the holes *b* of the templet. Its under surface b^4 has any desired convexity.

C is the nail-carrier for feeding nails to the holes *b* of the templet.

D is a die, preferably solid, although not necessarily so, having the die-cavity *d* and the flaring mouth d', which is upwardly presented. It is supported by a post or support d^2, and there is in the die-cavity the lifting-plate d^3, the upper surface of which forms the bottom of the die. This lifting-plate is moved upwardly in the die-cavity by means of the link d^4 and lever d^5. The former b' of the templet is of a size to enter the die-cavity.

The operation of the machine is as follows: A heel-blank is placed in the die-cavity, the pressure-block a' being in position over the templet, the machine is caused to make a reciprocation. This moves the templet downward and causes the former to enter the die-cavity and the heel-blank therein to be compressed. The table supporting the templet is then locked down by means of the latch E, or in any other desired way. The awls are then brought in position and reciprocated, passing into and through the holes *b* of the templet and b^3 of the former, enter the heel-seat of the compressed heel-blank, and preferably pass through the same into the holes d^6 in the lifting-plate d^3, or in the bottom of the die if no lifting-plate be used. This form, however, is used when the nails are afterward to be inserted in the compressed heels from the tread end. When the heel is to be blind-nailed instead of flush-nailed, it is not as necessary to form these holes d^6 in the former or bottom of the die. If the heel-blank is loaded, the nail-carrier is then moved over the templet B and the nails discharged from its holes into the holes *b* b^3, and holes in continuation thereof formed in the compressed heel-blank, and the drivers are then brought into position and reciprocated, driving the nails into the holes of the compressed heel-blank until their heads extend through or enter the tread-lift of the blank.

Any suitable form of nail may be used, and I have represented one that varies from the usual form of heel-nail in that it tapers from the center of its length both ways, but I do not confine myself, of course, to this form of nail. The loaded heel-blank ready for attachment may have the points of its nails extending from the heel-seat, as represented in Fig. 5.

In Figs. 2 and 8 I have represented the latch-

est position at the end of the reciprocation of the pressure-block. This latching device comprises two latches $f f'$, properly secured at their lower ends to any suitable support and made thin and long enough to yield, and having the engaging-shoulders f^2 and wedge or inclined surfaces f^3 upon each latch extending from the shoulder to its upper end. The templet has the inclined edges f^4. Upon the downward movement of the templet these inclined edges come in contact with the inclines f^3 of the latches and the latches are opened sufficiently to allow the templet to be moved to a position beneath the shoulders f^2, which close upon the upper surface of the templet. The latches are unlocked or released from the templet by means of the lever f^5, rock-shaft f^6, to which the lever is secured, and tripping-arm f^7, shaped to be moved between the edges f^4 of the templet and the latches and to spread or move them horizontally from the templet sufficiently to release it.

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

1. The combination in a machine for molding or compressing heel-blanks before their attachment to the soles of a boot or shoe and for the formation of awl-holes therein from the heel-seat side of the heel, of a stationary heel-compressing die having a flat surface against which the tread end of the heel is compressed, a perforated heel-seat former independent of the die and having a vertical movement toward and from the die, a reciprocating pressure-head for moving the heel-seat former into the die-cavity, and means for holding the former in contact with the heel-seat and a reciprocating gang of awls reciprocating in the plane of the pressure-head and adapted to form holes in the heel-blank from the seat end thereof, as and for the purposes specified.

2. The combination in a machine for molding or compressing heel-blanks before their attachment to the soles of a boot or shoe and for the formation of awl-holes therein from the heel-seat side of the heel, of a stationary heel-compressing die having a flat surface against which the tread end of the heel is compressed, a perforated heel-seat former independent of the die and having a vertical movement toward and from the die, a pressure-head for moving the heel-seat former into the die-cavity, means for holding the former in contact with the heel-seat, a reciprocating gang of awls reciprocating in the plane of the pressure-head and adapted to form holes in a heel-blank from the seat end thereof, a sliding nail-carrier having a horizontal movement toward and from the heel-seat former and adapted to feed nails to the holes thereof while it is held compressed against the heel-seat of the heel and a gang of drivers to drive the nails through the holes of said heel-seat former into the heel-seat end of the heel and reciprocating upon the plane of the awls, as and for the purposes described.

3. The combination in a machine for molding or compressing heel-blanks before their attachment to the soles of a boot or shoe, and for the formation of awl-holes therein from the heel-seat of the heel, of a stationary heel-compressing die having a flat surface against which the tread end of the heel is compressed, an independent heel-seat former for forming the cavity in the heel-blank which provides the heel-seat of the blank, means for moving it vertically toward and from the die comprising a plate supported at the end of a carriage, a spring to act against the carriage to move it upward and a pressure-head to act upon the plate to move it downward, as and for the purposes specified.

4. The combination in a machine for molding or compressing heel-blanks before their attachment to the soles of a boot or shoe and for the formation of awl-holes therein from the heel-seat side of the heel, of a stationary heel-compressing die having a flat surface against which the tread end of the heel is compressed, a perforated heel-seat former for forming the cavity which makes the heel-seat of the blank, means for moving it vertically toward and from the die, comprising a carriage and a spring to act against the carriage to move the heel-seat former away from the die, a sliding nail-carrier to feed nails to the holes of the heel-seat former and a pressure-head carrying a gang or group of drivers to act against the heel-seat former and to drive the nails therefrom into the heel from the heel-seat end thereof, as and for the purposes described.

5. The combination in a machine of the character specified of the stationary die, the perforated heel-seat former independent of the die and having vertical movements toward and from the same, a sliding nail-carrier carried by the heel-seat former, and adapted to be movable horizontally thereon to feed the nails to the holes of the former, and a reciprocating head carrying a gang or group of drivers, as and for the purposes described.

6. In a machine of the character specified the combination of the die having a flat bottom and open at its top, provided with an ejector having a vertical movement in the die to move a compressed heel therefrom, a perforated heel-seat former movable toward and from said die and held normally removed from said die that a heel may be placed in the die and a loaded heel removed therefrom without contact with it, means for depressing the heel-seat former against the heel-blank held in the die, a nail-holder for feeding nails to the holes of the heel-seat former, a gang of drivers of a length to drive the nails while held in the holes of the former into a heel from the heel-seat end leaving the

attaching portions or points of said nails projecting from the heel-blank, the nails being fed by the nail-carrier head first to the holes of the heel-seat former, as and for the purposes specified.

7. The combination in a heel molding or compressing machine of the character specified, of the vertically-movable templet B having holes *b* with a detachable heel-seat former provided with holes in continuation of the holes of the said templet, as and for the purposes described.

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Witnesses:
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A. B. MERRILL.