(No Model.)

3 Sheets—Sheet 1.

F. F. RAYMOND, 2d.

HEEL COMPRESSING MACHINE.

No. 376,908. Patented Jan. 24, 1888.

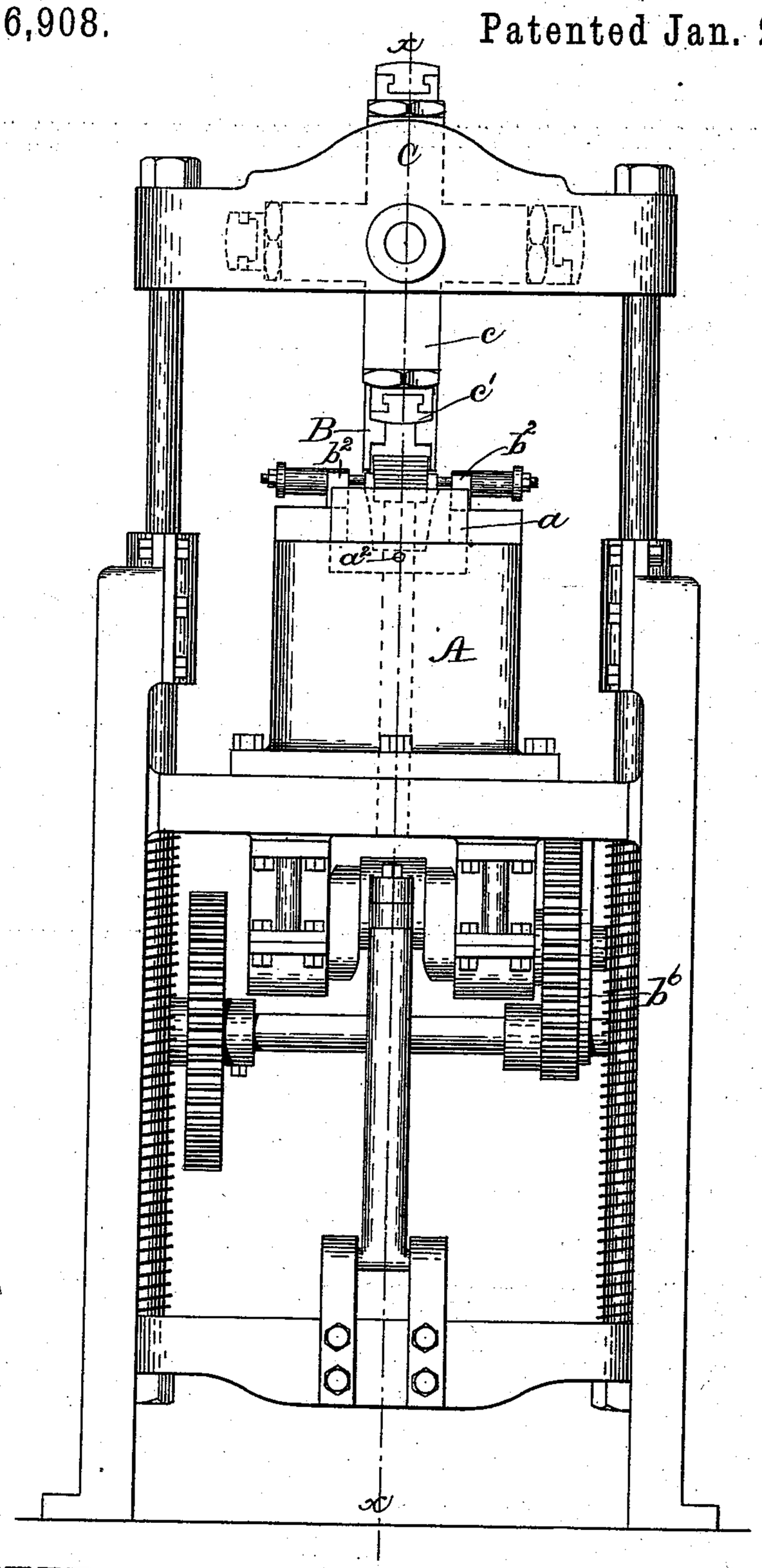


Fig. 1.

WITNESSES.
L. McDolan.
E. P. Small.

INVENTOR.
F. F. Raymond 2d

(No Model.) 3 Sheets—Sheet 2.

F. F. RAYMOND, 2d.

HEEL COMPRESSING MACHINE.

No. 376,908. Patented Jan. 24, 1888.

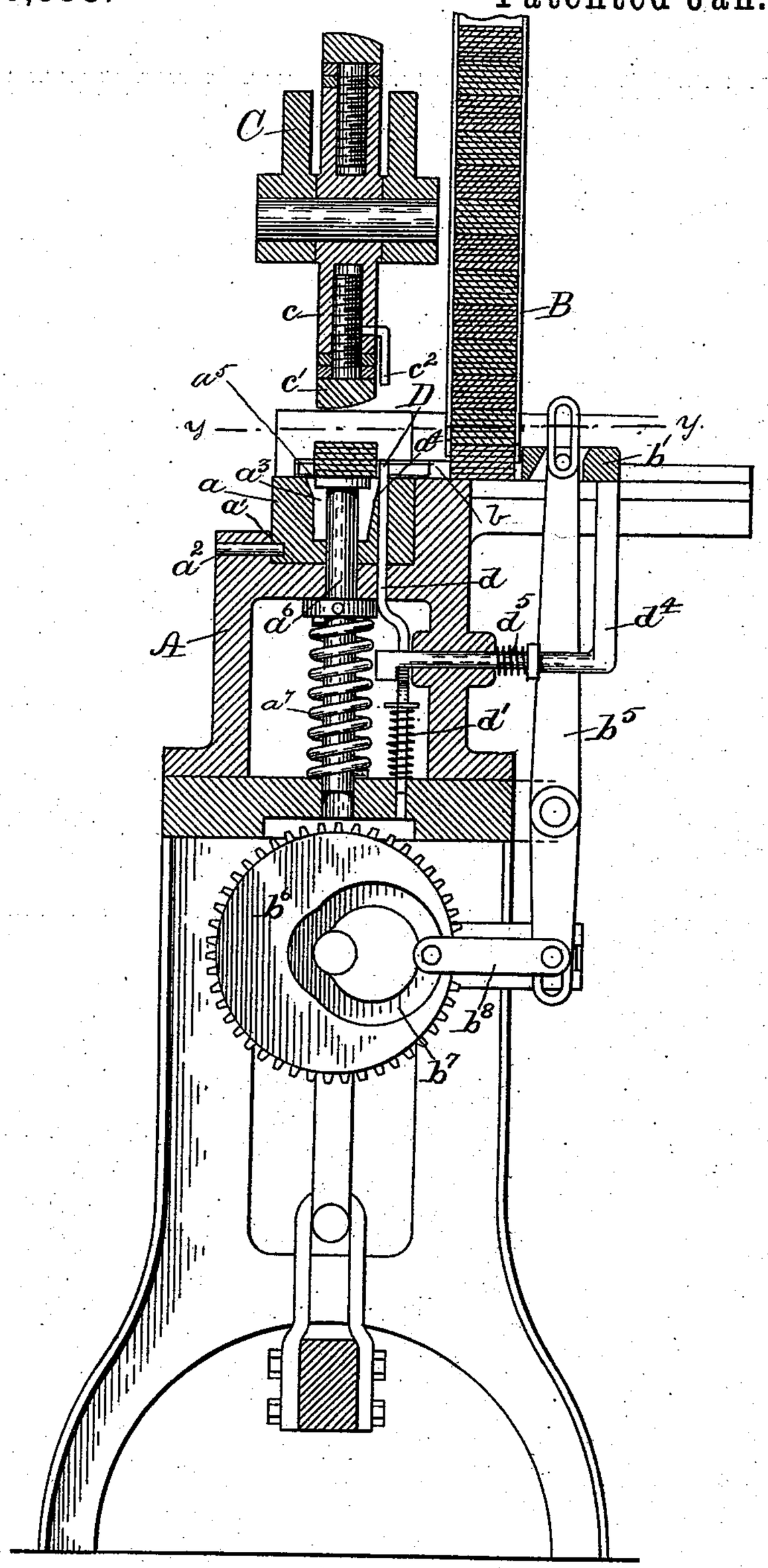


Fig. 2.

WITNESSES.
J. M. Dolan.
E. P. Small.

INVENTOR.
F. F. Raymond 2d

(No Model.) 3 Sheets—Sheet 3.

F. F. RAYMOND, 2d.

HEEL COMPRESSING MACHINE.

No. 376,908. Patented Jan. 24, 1888.

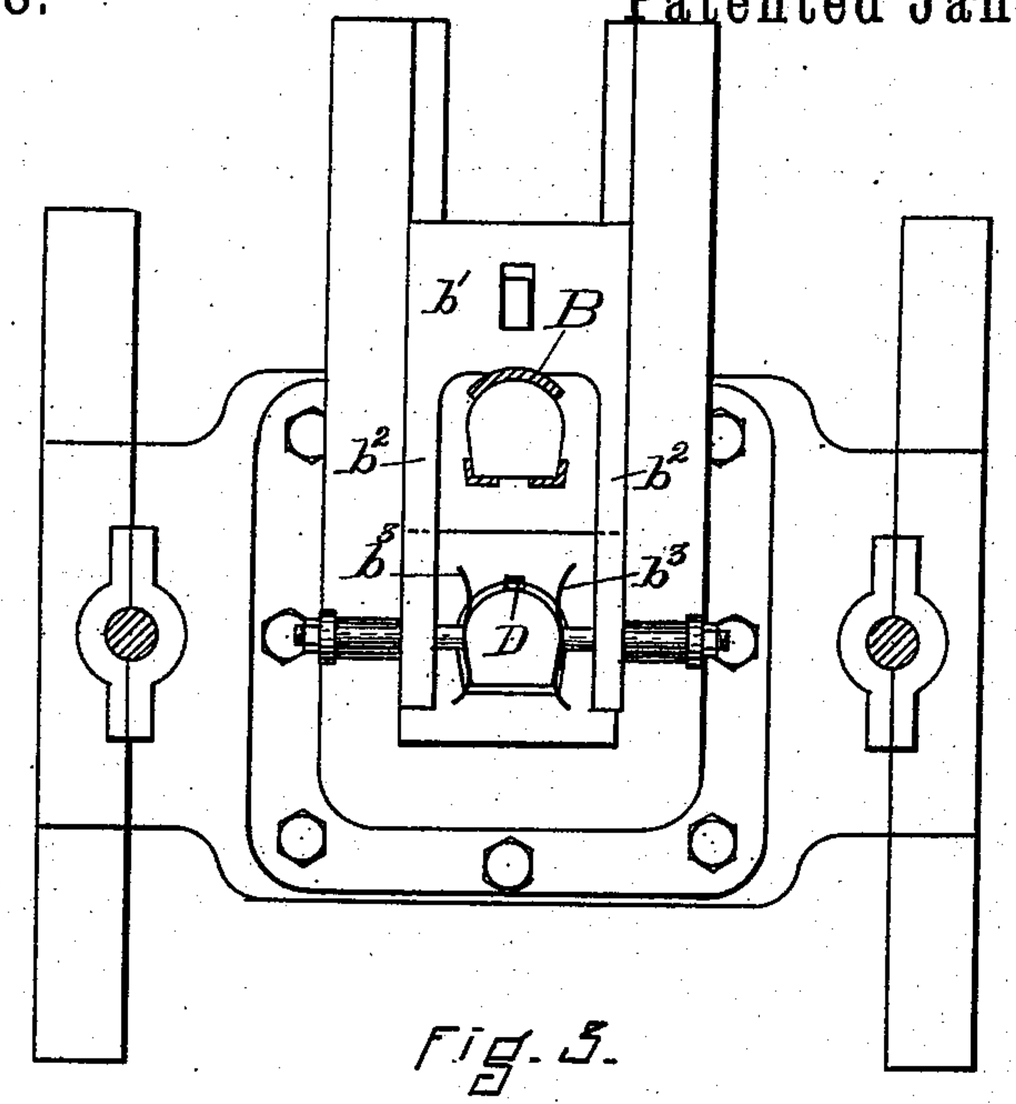
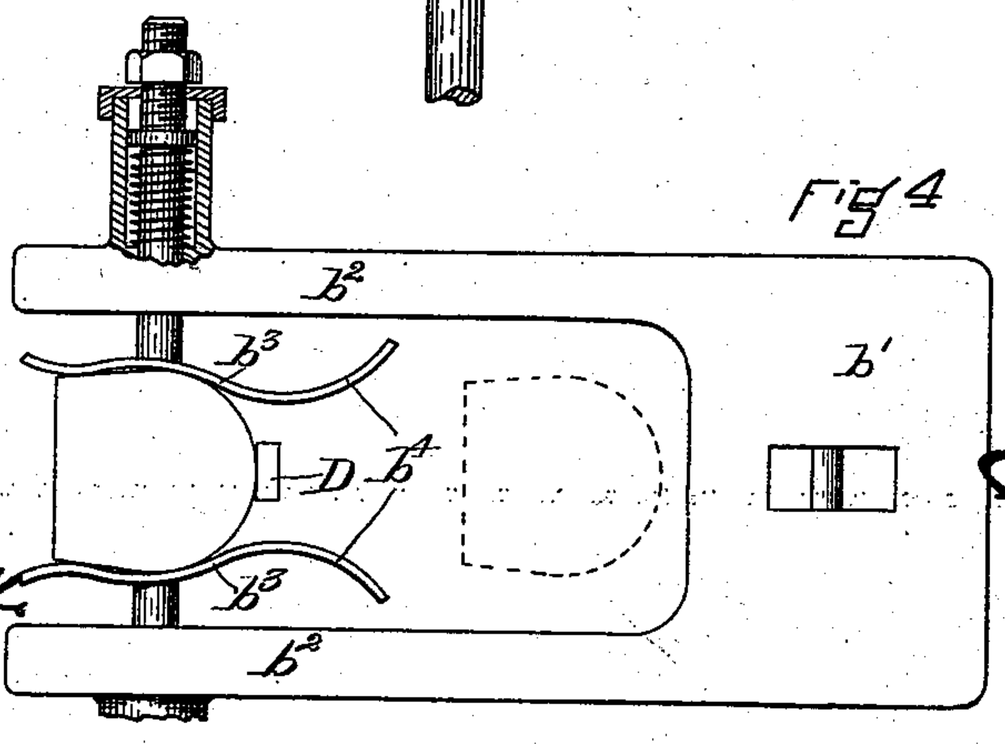


Fig. 3.

Fig. 5.

Fig 4



WITNESSES
J. M. Dolan.
E. P. Small.

INVENTOR.
F. F. Raymond

UNITED STATES PATENT OFFICE.

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

HEEL-COMPRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 376,908, dated January 24, 1888.

Application filed November 2, 1887. Serial No. 254,038. (No model.)

To all whom it may concern:

Be it known that I, FREEBORN F. RAYMOND, 2d, of Newton, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Heel Forming and Compressing 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 machine for shaping the sides and heel-seat of heel-blanks, employing an open-mouthed stationary die, a reciprocating heel-seat former, and an automatic heel-blank-feeding device.

It also relates to various details of organization and construction, all of which will be hereinafter described.

In the drawings, Figure 1 is a view of the machine in front elevation. Fig. 2 is a vertical section upon the dotted lines *x x* of Fig. 1. Fig. 3 is a horizontal section upon the lines *y y* of Fig. 2, and in plan of the parts below it. Fig. 4 is a view of the heel-blank carrier enlarged. Fig. 5 is a detail view.

Referring to the drawings, A represents the bed of the machine; *a*, the die-block. It is preferably square in shape, and fits the recess a' in the bed, being locked therein by a pin, a^2. The die-block has the die a^3, the lower section and sides of which have the shape which it is desired to give the sides of the heel-blank, and from the mouth of the die there are outwardly sloping or flaring sides a^4. The bottom of the die is formed by the imperforate plate a^5, formed on the end of a long rod, a^6, which extends down through a hole in the die-block and is moved upward by a spring, a^7.

B is a box or receptacle for holding the heel-blanks to be compressed. This box is suitably supported, and has the opening or mouth *b*, through which the heel-blanks are fed in succession over the die. The heel-blank-feeding device comprises the slide-plate b', having arms b^2, each of which carries a spring or yielding grasping-jaw, b^3, (see Fig. 3,) the rear ends, b^4, of which are curved outwardly, in order that they may ride upon the sides of the heel-blank held in stack upon the backward movement of the slide-plate b'.

The plate is operated by means of a lever, b^5, and cam-disk b^6 upon the crank-shaft, which has a cam-groove, b^7, which is connected with the lever by the link b^8.

C is the cross-head. It preferably is reciprocated in the manner described in the Henderson patent, No. 316,894, and it carries either a single arm, *c*, supporting the heel-seat former-block c', or it has a rotating head supporting a number of arms and heel-seat blocks, as shown in dotted lines, Fig. 1.

There is formed in the die-block a hole, *d*, which receives the heel-blank holder or stripper D. This stripper or holder comprises a rod which is movable upward by the spring d' and downward by the block c^2, supporting the heel-seat former. It also has a latch, d^2, which is adapted to be engaged by the catch d^3 automatically when it is moved down, and to be held down until the catch is moved to permit it to be lifted by its spring by the contact of the block d^4 upon the slide-plate b' with a part of the latch, the block moving the latch end in opposition to the spring d^5 sufficiently to disengage it from the catch. This release of the blank-holder does not take place, however, until the heel-blank has been moved into the position represented in Fig. 2—that is, over the flaring mouth of the die.

The operation of the device is as follows: The cross-head C and the heel-seat former c' being at their highest position, the diaphragm, a^5 is also in its highest position and is on a level with the upper surface of the die-block, and the heel-blank is in a position over the mouth of the die resting upon the upper surface of the diaphragm, and the stripper or heel-blank holder D, having been released, is in a position to hold the heel-blank against the backward movement of the plate b'. Upon the sarting of the machine the plate b' is moved rapidly backward, leaving the heel-blank upon the diaphragm and engaging the lowermost heel-blank in the stack D. The heel-seat former c' immediately descends, and, striking the top of the heel-blank, forces it and the diaphragm down into the die-cavity and solidifies the blank therein and forms the heel-seat. Upon the lifting of the former the diaphragm follows it until its upper surface reaches substantially the level of the die-block, when its movement is stopped, and the slide-

plate b', with a heel-blank, is then rapidly moved out from the stack and knocks off the heel from the top of the diaphragm while the unformed heel is brought into position, and at the same instant the holder or stripper D is released and moves upward to hold the heel-blank upon the diaphragm during the backward movement of the plate b' and the heel-holders b^3.

It will be understood that the stripper or holder D has previously been moved downward by the arm c^2 and engaged by the latch d^3.

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

1. The combination, in a heel forming and compressing machine, of the bed A, the stationary die-block a, the vertically-movable diaphragm a^5, a reciprocating head, C, the heel-seat-forming block c', carried thereby, with a heel-blank carrier, substantially as specified, for transferring a heel-blank from one position to a position over the opening to the die and diaphragm, substantially as described.

2. The combination, in a heel-blank forming and compressing machine, of the bed A, the die a, the vertically-movable diaphragm a^5, the reciprocating head C, the heel-seat former c', carried thereby, the blank-carrier, and a blank stripper or holder for holding the blank upon the diaphragm during the reverse movement of the carrier, substantially as described.

3. The combination, in a heel-blank forming and shaping machine, of the bed A, die a, vertically-movable diaphragm a^5, vertically-movable head C, the seat-forming block c', carried thereby, a heel-blank-carrying device, the heel-blank holder D, adapted to be moved downward by the block c^2, carried by the heel-seat former, and to be moved upward by a spring, d', and a latch for locking the holder or stripper depressed, and a projection carried by the heel-blank-feeding plate for moving said latch to release the holder after the movement of a heel-blank into position upon the diaphragm, substantially as described.

4. The combination, in a heel-blank forming and shaping machine, of the bed A, the die-block a, the vertically-movable diaphragm a^5, the reciprocating head C, the heel-seat former c', with the stack B, for holding heel-blanks, having the mouth b, slide-plate b', having the long arms b^2, and laterally-movable heel-blank-grasping devices b^3, carried by said arms b^2, substantially as described.

5. The combination of the stack B, for holding heel-blanks, with the slide-plate b', having the long opening formed by the arms b^2, which are disconnected at their front ends, and the heel-blank-grasping jaws b^3, attached to or carried by said arms and laterally movable in relation to each other, as and for the purposes described.

6. The combination, in a heel-blank forming and shaping machine, of the head A, die a, the diaphragm a^5, its operating-spring a^7, the head C, the heel-seat former c', carried thereby, the slide-plate b', carrying the heel-grasping devices, the stripper or holder D, its operating-spring d', a locking device for locking the stripper when moved down, the crank-shaft, and a cam, b^6, thereon, connected with the slide-plate b', all as described.

7. The combination of the die A, the vertically-movable diaphragm a^5, and the reciprocating plate or heel-blank holder for knocking or removing the formed heel-blank from the upper surface of the diaphragm, as and for the purposes specified.

FREEBORN F. RAYMOND, 2D.

Witnesses:
J. M. DOLAN,
E. P. SMALL.