(No Model.) 3 Sheets—Sheet 1.

F. F. RAYMOND, 2d.

HEEL COMPRESSING MACHINE.

No. 376,754. Patented Jan. 24, 1888.

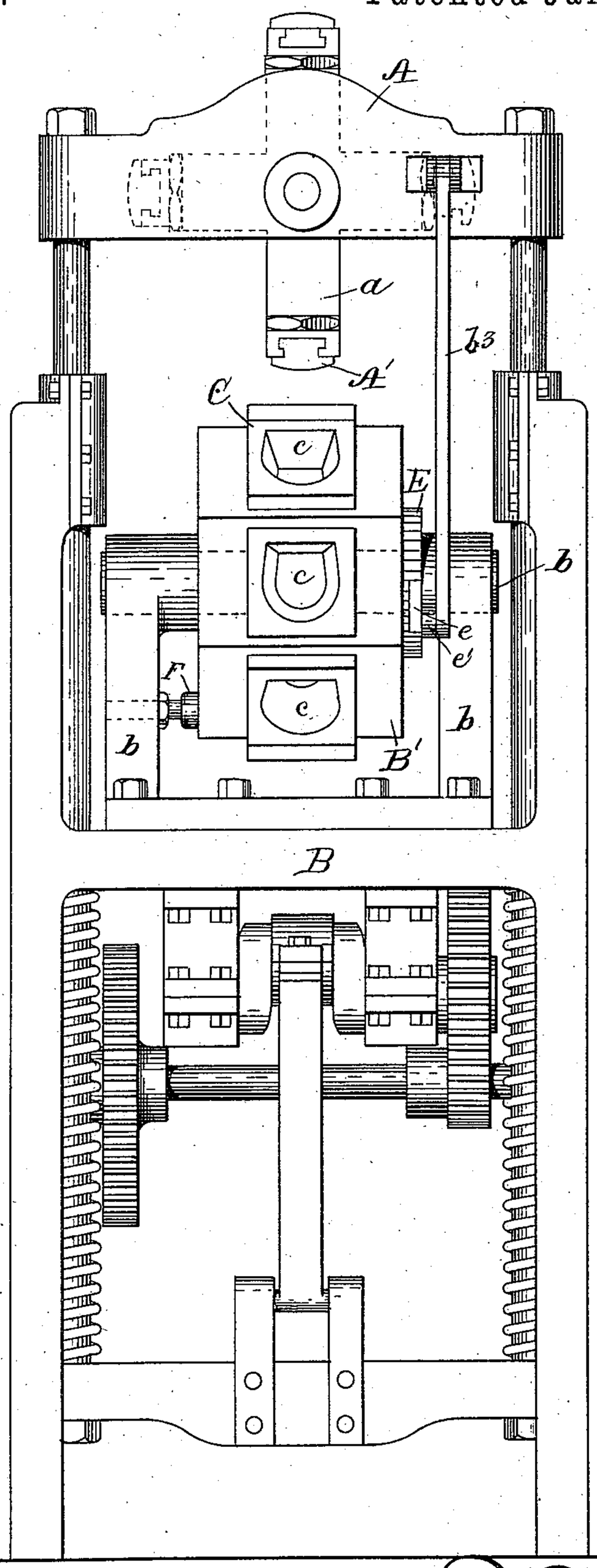

FIG. 1.

WITNESSES.
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(No Model.) 3 Sheets—Sheet 2.

F. F. RAYMOND, 2d.

HEEL COMPRESSING MACHINE.

No. 376,754. Patented Jan. 24, 1888.

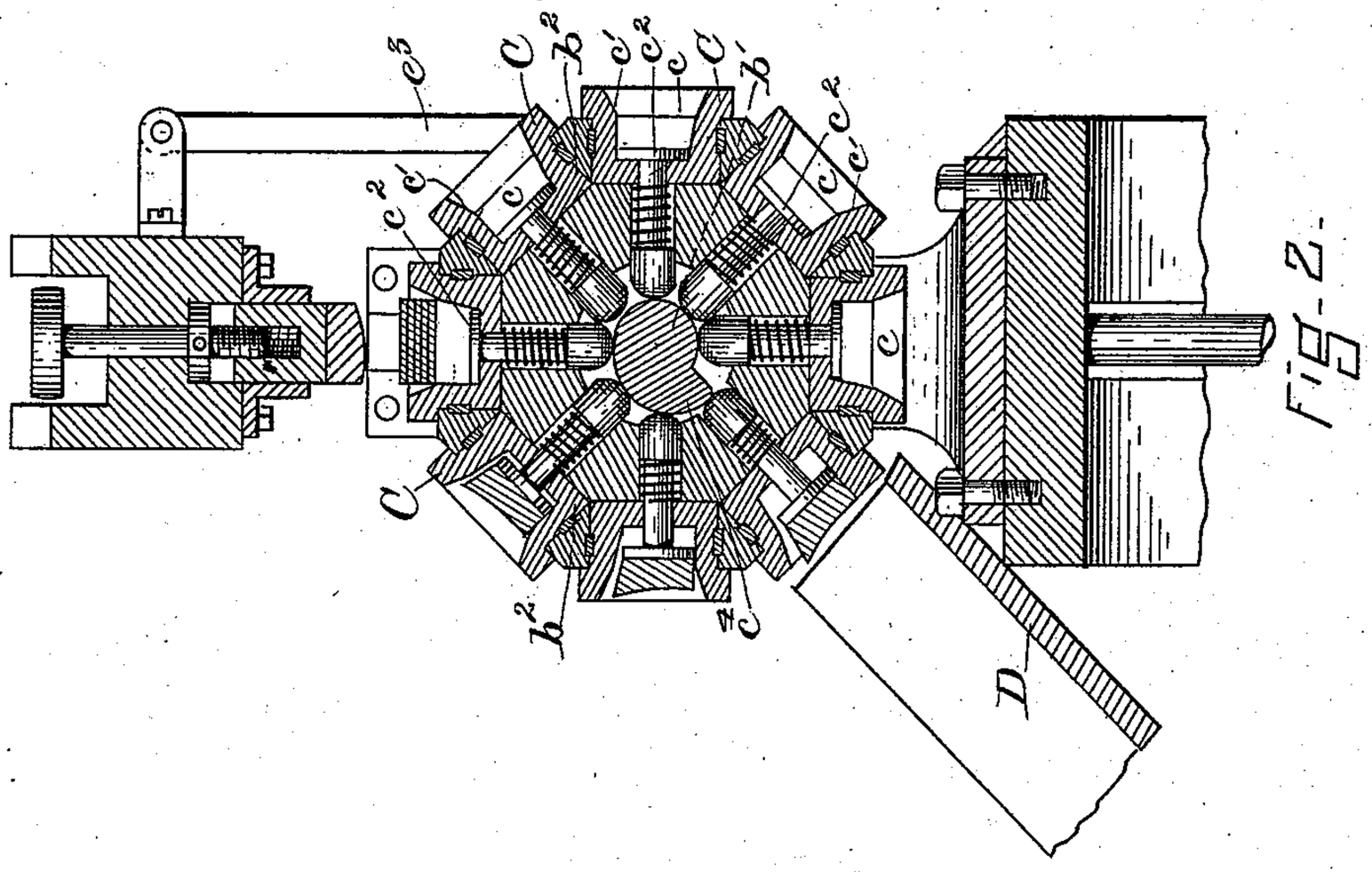

FIG. 2.

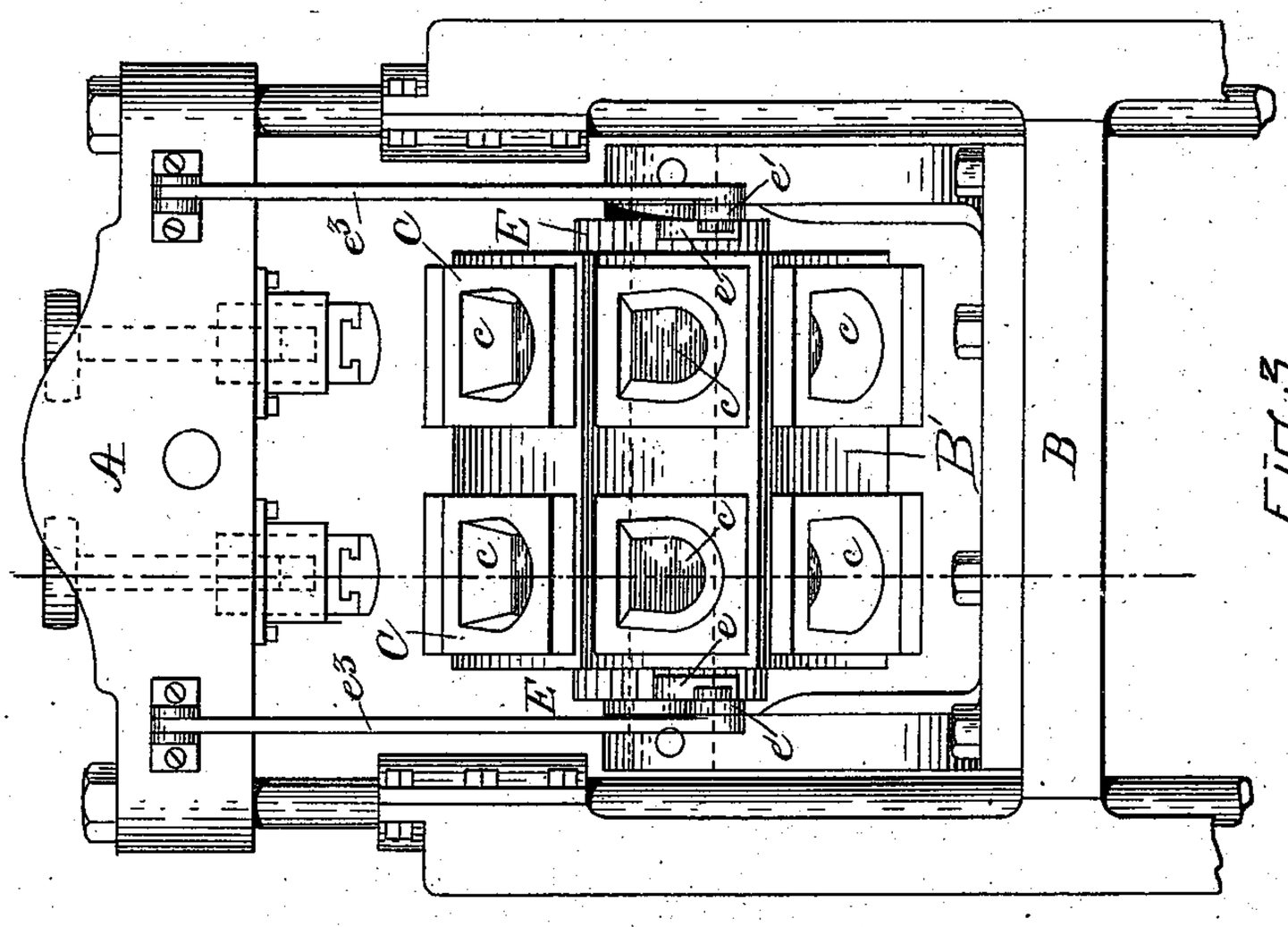

FIG. 3.

WITNESSES.

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(No Model.) 3 Sheets—Sheet 3.

F. F. RAYMOND, 2d.

HEEL COMPRESSING MACHINE.

No. 376,754. Patented Jan. 24, 1888.

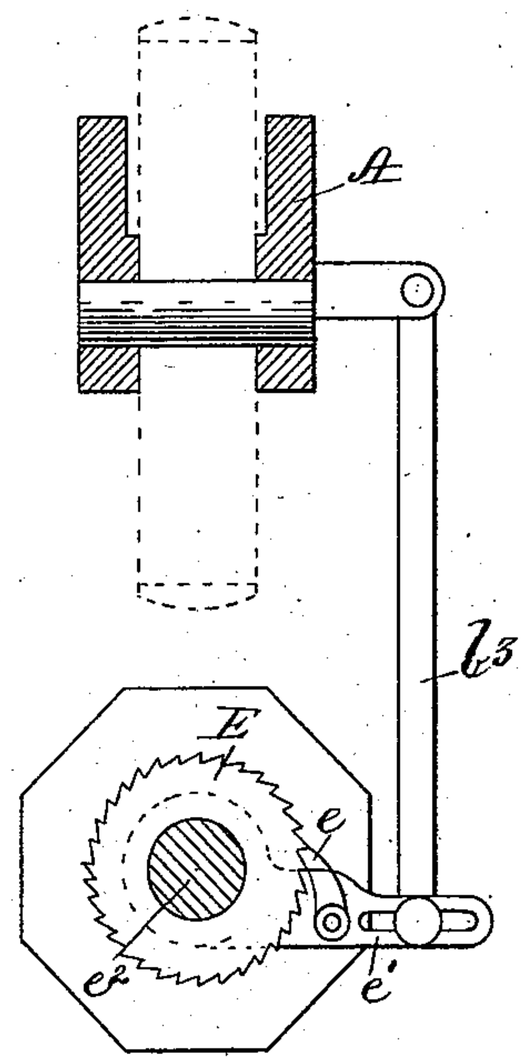
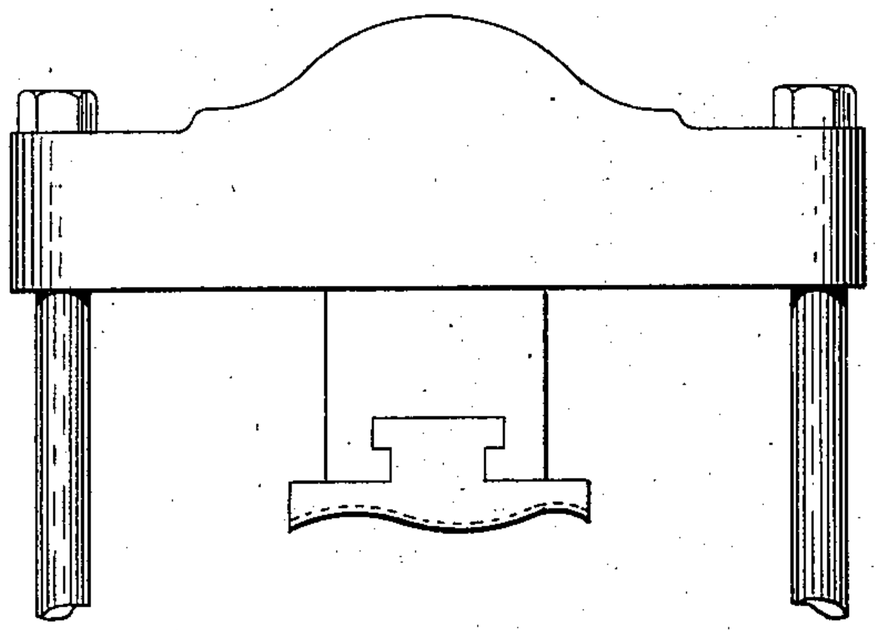


Fig-4-



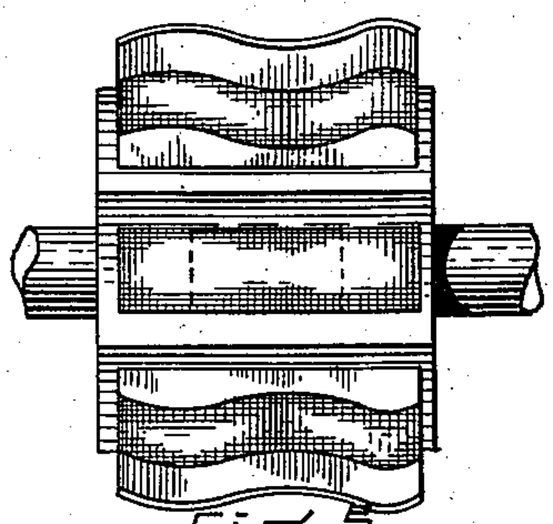


Fig-5-

WITNESSES-

J. H. Dolan.

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UNITED STATES PATENT OFFICE.

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

HEEL-COMPRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 376,754, dated January 24, 1888.

Application filed November 2, 1887. Serial No. 254,040. (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-Compressing Machines, of which the following is a full, clear, and exact description.

The invention relates to a heel-compressing machine having a rotary die-holder and die-blocks carried thereby, and a reciprocating head carrying one or more heel-seat formers.

In the drawings, Figure 1 is a view of the machine in front elevation. Fig. 2 is a view of the upper part of the machine in vertical section upon the vertical dotted line of Fig. 3. Figs. 3 and 5 are views representing slight modifications, and Fig. 4 is a detail view.

Referring to the drawings, A is a cross-head. It is reciprocated vertically, preferably by means substantially as described in the patent to Henry A. Henderson, No. 316,894. It supports an arm, *a*, carrying a heel-blank former, A′. This arm *a* may be fixed or the cross-head may support a rotary head, as represented in Fig. 1, having a number of arms *a*, each of which supports a former, A′. Upon the bed or table B of the machine is mounted a bracket, *b*, which supports or carries a drum or rotary support, B′. This drum is rotated upon the stationary shaft *b*′, which is carried by the bracket or support *b*. The drum or rotary support also has a number of die-holders, b^2, arranged in or upon its circumference, each of which is adapted to receive a die-block, C. Each die-block has a die-recess, *c*, of a shape to form the sides and breast of the heel, the flaring mouth *c*′, and a movable diaphragm, c^2, which forms the bottom of the die. This diaphragm is of metal and has a downward or inward extending stem or spindle, c^3, which passes through a hole in the bottom of the die-block, and is adapted to be moved from the center of the rotary block D′ by means of the incline c^4 on the shaft *b*′. (See Fig. 2.) This wedge c^4 is placed so that the diaphragm c^2 is moved outwardly when the die-block has been turned so as to cause its opening to be downward instead of upward, and the heel-blank is thus freed or stripped from the die and falls upon the conveyer or chute D.

The rotary block or holder B′ is given an intermittent rotation by means of the ratchet-wheel E, secured thereto, the pawl *e*, which is hung upon the lever *e*′, pivoted at e^2, and the link b^3, which connects the lever *e*′ with the cross-head. The pawl and ratchet are so arranged that the rotary block or holder is moved upon the upward movement of the cross-head only, and is stationary during the downward movement of the cross-head and former A′ in relation to the die, so that before starting the machine the operator places a heel-blank in the cavity of the die in advance of the one to be compressed, and upon the downward movement of the plate the said heel-blank is compressed and its seat formed, and upon the upward movement an uncompressed and unformed heel on the die is fed automatically into position.

The rotation of the block B′ is checked upon the end of the feed movement of the pawl *e* by means of a friction-clamp, F, which bears against the side of the rotary block. The die-blocks are held in place upon or to the drum by spring-latches, or in any other desired way.

The advantages of the invention arise from the rapidity with which the heel is compressed and heel-seat formed, the formed heel-blanks being automatically removed from the dies and the dies being moved automatically into position in relation to the heel-seat former.

Another advantage arises from the fact that the operator places the heel-blank in a die that is out of operative position, so that there is no liability of accident, which there might be if he were obliged to place the heel-blank in the die immediately under the former, and the die-block having its mouth or entrance upward at that time enables this to be done readily, so that the capacity of the machine is very great, the operator simply having to put the heel-blanks into the open cavities of the dies and start the machine.

I would say that the rotary block B′ may be sufficiently wide to hold two or more die-blocks in line and that the cross-head A may carry a heel-seat former for each die-block. (See Fig. 3.) I would also say that the rotary block may support sole-compressing molds or formers instead of heel-compressing molds or formers, as represented in Fig. 5, in which event the cross-head would also support a sole-

forming section. Any form of mold or former suitable for this purpose may be used. I prefer that the concave die or former be carried by the block or holder and that the convex die or former be carried by the reciprocating head.

The machine may be organized to stop after every reciprocation of the former, as described in said Henderson patent, or to run continuously.

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

1. The combination of the head A, a reciprocating former, A′, carried thereby, the rotary block B′, adapted to be rotated upon the horizontal shaft b', the bracket or support b, and the die-blocks C, carried thereby, substantially as described.

2. The combination of the reciprocating head A and former A′, carried thereby, the rotary block B′, the horizontal shaft b', upon which it is mounted, the die-blocks C, carried by said block or holder, the diaphragm c^2, having the spindle c^3, and the wedge or incline c^4, arranged upon said shaft to operate as specified, all as described.

3. The combination of the head A, former A′, carried thereby, the block B′, mounted upon a horizontal shaft, b', the die-blocks C, carried thereby, and devices for rotating the block during the upward movement of the cross-head, substantially as described.

4. The combination of the head A, the former A′, carried thereby, the rotary block B′, mounted upon a horizontal shaft, b', the die-blocks C, carried by said block or holder, the heel-discharger c^2, adapted to be operated upon the rotation of the die-blocks to bring their openings below the diaphragm, with a device for rotating the block or holder B′ during the upward movement of the cross-head, substantially as described.

5. The combination of the head A, the former A′, the head or holder B, the die-blocks C, carried thereby, the ratchet-wheel E, pawl e, lever e', and links e^3, connecting the lever and cross-head A, substantially as described.

6. The combination of the cross-head A, two or more arms, a, carrying a former, A′, with the rotary block or holder B′, mounted upon a horizontal shaft, b', and die-blocks C, carried by said holder or block, substantially as described.

7. The combination of the head A, two or more arms, a, carried thereby, a heel-former, A′, for each arm, the rotary block or holder B′, and two or more die-blocks, C, arranged in the same horizontal line upon said block or holder, and adapted to be brought simultaneously into operative position, as and for the purposes specified.

FREEBORN F. RAYMOND, 2D.

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