

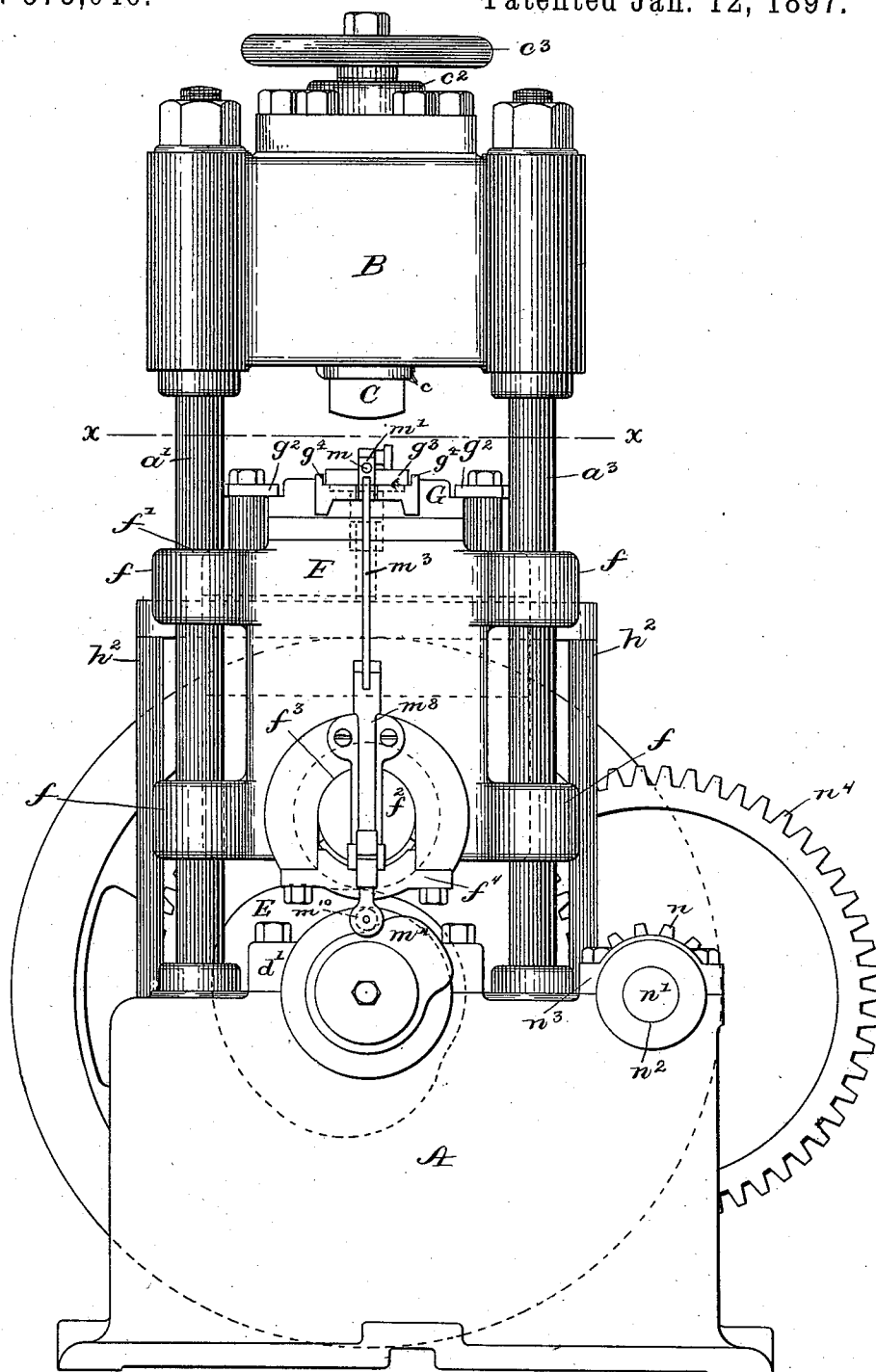
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4 Sheets—Sheet 1.

F. F. RAYMOND, 2d & C. H. FOGG.
PRESS.

No. 575,040.

Patented Jan. 12, 1897.



WITNESSES.

J. W. Dolan.
Ernest L. Ford.

FIG. 1.

INVENTORS.

F. F. Raymond
Chas. H. Fogg

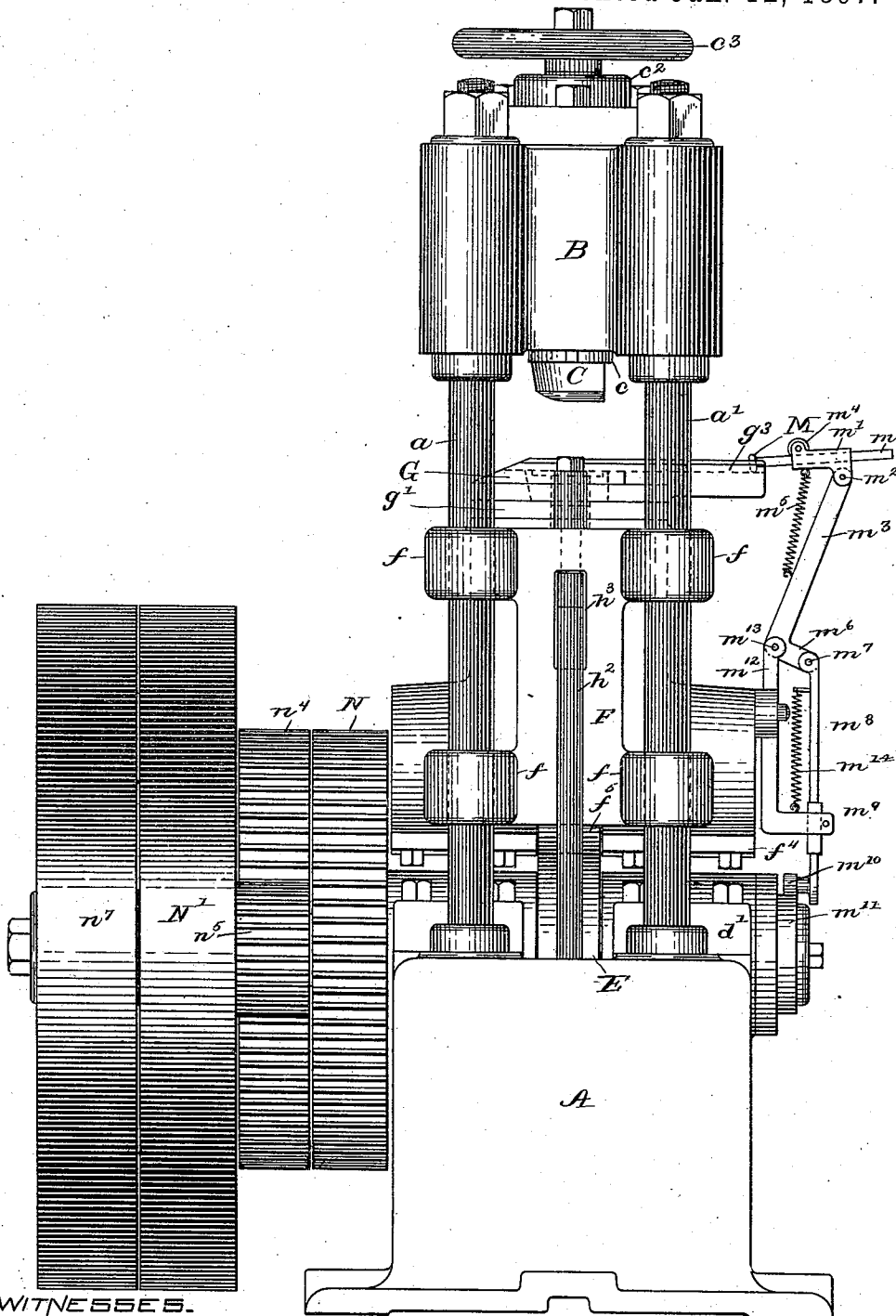
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J. W. Dolan.
Ernest L. Ford.

INVENTORS.

FIG. 2. F. F. Raymond
C. H. Fogg.

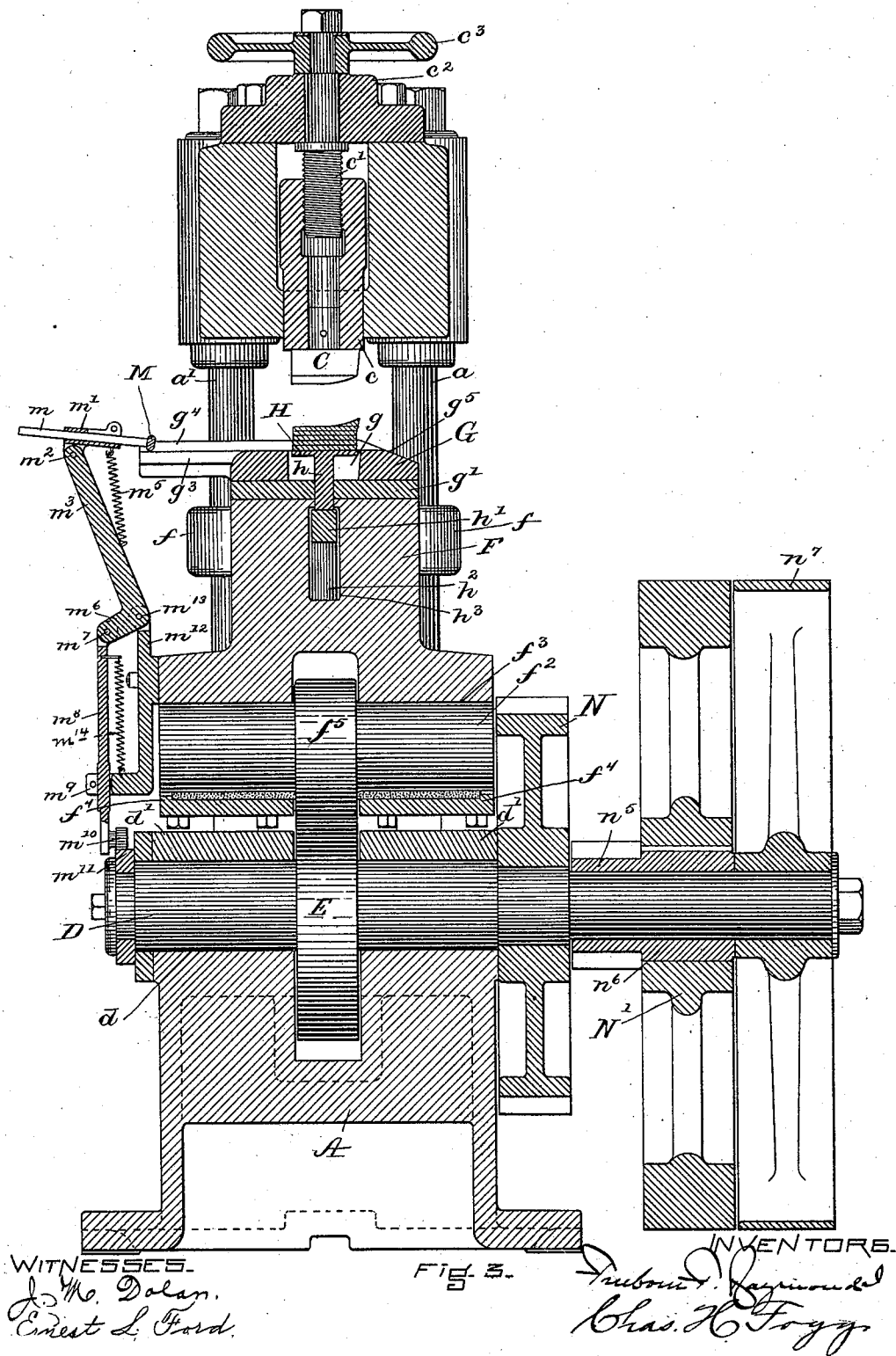
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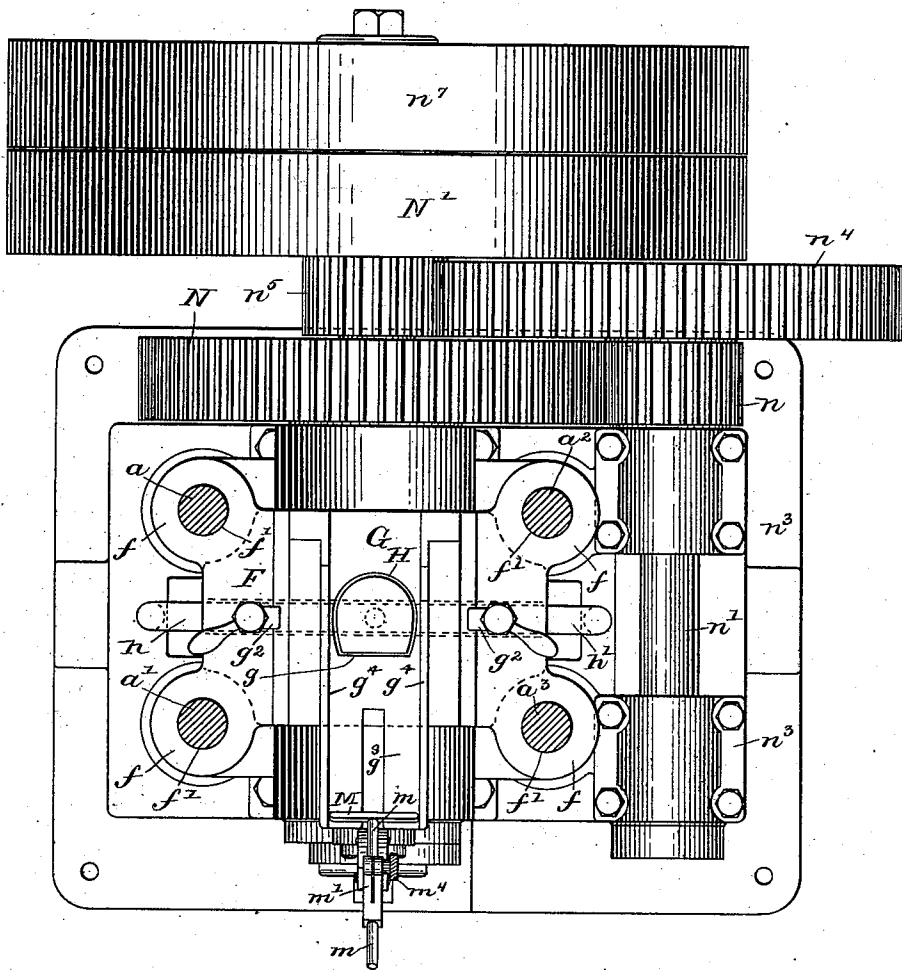


Fig. 4.

WITNESSES.

J. W. Dolan.
Ernest L. Ford.

INVENTORS.

F. F. Raymond
Chas. H. Fogg

UNITED STATES PATENT OFFICE.

FREEBORN F. RAYMOND, 2D, OF NEWTON, AND CHARLES H. FOGG, OF HYDE PARK, MASSACHUSETTS, ASSIGNORS TO JAMES W. BROOKS, OF PETERSHAM, AND JOHN BROOKS, OF CAMBRIDGE, MASSACHUSETTS, TRUSTEES.

PRESS.

SPECIFICATION forming part of Letters Patent No. 575,040, dated January 12, 1897.

Application filed October 3, 1895. Serial No. 564,493. (No model.)

To all whom it may concern:

Be it known that we, FREEBORN F. RAYMOND, 2d, of Newton, in the county of Middlesex, and CHARLES H. FOGG, of Hyde Park, in the county of Norfolk, State of Massachusetts, citizens of the United States, have invented a new and useful Improvement in Presses, 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 is illustrated as provided with attachments or devices for compressing the heel of a boot or shoe, but it may be used for other purposes as well by substituting for said attachments such others as may be necessary or desirable.

The invention will be described in connection with the drawings, wherein—

Figure 1 is a view in front elevation of a press having the features of our invention. Fig. 2 is a view in side elevation thereof. Fig. 3 is a view in vertical central section of the press. Fig. 4 is a view in section upon the dotted line $x x$ of Fig. 1 and a plan of parts below said line.

A is the frame or base of the machine. From its upper surface extend upward the rods a a' a^2 a^3 . The lower ends of the rods are firmly attached or anchored to the base. To their upper ends there is attached by a collar and nut a stationary head B, the head having at each corner holes through which the ends of the rods extend. This head supports the heel-former C, the heel-former being secured to a holder c , vertically adjustable in the head by means of the adjusting-screw c' , which screws into the holder and turns in the support or cap c^2 , rigidly secured to the upper surface of the head, the screw having at its upper end a hand-wheel c^3 , by which it is turned. The frame A has in its upper surface a bearing d for the main shaft D of the machine, which is secured to the bearing by caps d' , bolted to the top of the frame. This shaft carries a pressure-cam E of any required shape for compressing heels. That having the configuration in Fig. 1 is desirable. The cam is keyed or otherwise firmly attached to the shaft D, and it provides the lower head

F with an upward movement and permits it to move downward. The head F is a solid block having extensions f at each corner, in which are holes f' , through which the rods a a' a^2 a^3 respectively extend, the rods serving as guides for the head. The movable head also supports a short stud or shaft f^2 , having a bearing in its under side at f^3 , to which it is secured by caps f^4 . This shaft carries a roll f^5 , which rests upon the periphery of the cam E. The pressure-cam E preferably is shaped to move the head F upwardly, rapidly at first, and as it approaches the point where the greatest pressure is desired slowly; that is, the pitch of the cam is very much decreased, thereby increasing its compressing power or effect, and this compressing-section is made as long as desirable, and the cam is then reduced in diameter to permit the head to fall or return to its original position.

The head supports the compressing die-block G, which has a die-cavity g opening upward of the desired form for compressing the heel-blank and is supported upon a plate g' , mounted on the top of the movable head, being fastened in place by the buttons g^2 , which button onto the top of the die-block. The die-block also has a forward-extending section g^3 , which has side guides or walls g^4 , which extend backward on each side of the die-opening, and the die-block is inclined upon its top and rear corner at g^5 . The extension g^3 and guides g^4 form a support and road or guide way for the heel as it is fed to the die. The section g^3 supports the heel. The guides or walls g^4 prevent it from turning. The heel is adapted to be automatically fed to the die and to be automatically discharged from it. It is held stationary after the compressing action by the plate H, which forms the bottom of the die during the compressing action and which is at the upper end of the post h . After the head F has been moved upwardly to some extent the plate g' comes into contact with the plate H, which then is in the bottom of the die, and moves it upwardly, and when the head F moves downwardly the post h comes in contact with a cross-bar h' , extending from and supported by the posts h^2 on each side of the movable head through a hole h^3 in the

head, and is thus brought to a rest, while the head F continues to move downward, and this causes the die to strip itself of the heel, the heel at the end of the downward movement of the head and die, occupying a position in relation thereto represented in Fig. 3, being about on a level or a trifle above the level of the upper surface of the die. The machine may have a stop-motion to stop it after each reciprocation of the head, or it may be run continuously. It is represented in the drawings as in the latter form, and the heels are automatically fed by being placed one after another upon the heel table or support g^3 in front of the pusher M, when in its outer position. This pusher is reciprocated toward and from the die-cavity in the space between the two walls or guides g^4 , and it has a central arm m , which extends through a clamp-holder m' , pivoted at m^2 to the upper end of the lever m^3 . The clamp-holder has a clamping-screw m^4 , which fastens the arm or spindle m in any desired position and thereby permits the pusher to be adjusted to dies and heels varying in length. The clamp-holder is held down at its forward end by a spring m^5 , connecting it with the lever m^3 . The lever m^3 is pivoted at m^{13} to a bracket m^{12} , attached to the slide-head F, and has a short arm m^6 , to which is pivoted at m^7 a slide-rod m^8 . The slide-rod is supported in a forward extension m^9 of the bracket m^{12} , and it carries at its lower end a cam-roll m^{10} , which bears upon the edge of the cam m^{11} at the front end of the shaft D. This cam is so shaped as to move upward the slide-bar m^8 and thus move inward the lever M^3 , which causes the pusher M to be moved upon the support g^3 between the ways g^4 and push or feed the heel along the roadway to a position upon the plate H and over the die-cavity, and at the same time the heel then being fed acts to dislodge from the plate II and push off it and the die-block the previously-compressed heel.

The main shaft D is rotated by the gear N, keyed to the shaft and with which a pinion n upon a shaft n' engages. This shaft n' is mounted in the bearings n^2 at one side of the bed or frame and is held therein by the caps n^3 , the pinion being at the back end of the frame, and this shaft n' also carries beyond the pinion the gear n^4 , which is in turn engaged by a pinion n^5 , which is loose upon a rearward extension of the main shaft D, the pinion having a long hub n^6 , to which the balance-wheel N' is attached, the balance-wheel and pinion thus being loose or free upon the shaft D and communicating rotation first to the gear n^4 and shaft n' , and then by the pinion n on shaft n' to the gear N, fixed on the shaft D. At the rear end of the shaft D is a loose pulley n^7 , upon which the belt may be run and which turns freely upon the shaft without communicating movement to it. The advantages of the invention arise from the simplicity of the construction, its strength and power. We prefer that the support g^3 and

guides g^4 be cast with the die-block G, but this is not essential.

We would call attention to the following peculiarities in the operation of the machine: The heel-pusher rests upon the heel-support and travels upward and downward therewith. It is not moved inwardly, however, to push a heel upon the plate II until the head F is in its lowest position and stationary upon the rest of the cam, the head thus remaining sufficiently long to permit the pusher to feed the heel upon the plate II. It is obvious that an uncompressed heel cannot be used for removing a compressed heel until the bottom of the compressed heel is upon a level with or slightly above the upper surface of the die-block. It will further be seen that the pusher and its operating devices, excepting the cam, are carried by the head F and move upwardly and downwardly with it. A spring m^{14} may be used for moving the push-bar m^8 downwardly and drawing forward the heel-pusher. The support g^3 has a central slot or recess opening from its front end into which the upper end of the lever m^3 is moved as the pusher is thrown inwardly in feeding a heel. The heel is fed by the pusher along the roadway or feedway between the guides or walls g^4 to the upper surface of the plate II when the die-block is in its lowest position, (see Fig. 3,) the upper surface of the die-block at that time being substantially upon the level of the upper surface of the plate II. It will be understood that in the operation of feeding a heel to the die, compressing the heel, stripping the heel from the die, and removing the compressed heel the die-block and the plate II have substantially these movements: The heel to be compressed is placed in the roadway in front of the pusher M, when it is in the position represented in Fig. 3. Rotation of the cam m^{11} moves the slide m^8 upwardly and causes the pusher to be moved inwardly, feeding the heel along the roadway to the upper surface of the plate II and dislodging from the plate II the previously-molded heel, which slides down the incline g^5 upon the die-block into a conveyer or receptacle. (Not shown.) The pressure-cam E meanwhile has been revolving, but simply serves to hold the pressure-head F and the die-block stationary, the roll f^5 then being upon a rest of the cam. When the heel is in position upon the plate II, the cam E begins to move upward the head F, causing the die-cavity to close upon the plate II and the heel, and this movement continues until the plate g' comes into contact with the under surface of the plate II and the heel-blank has been partially received into the die-cavity, when the die-block and plate II and heel are lifted together to the stationary heel-seat former C and the heel-blank compressed or molded and the heel-seat formed in the die-cavity. Preferably the first portion of the upward movement of the head F and die-block is relatively rapid, while the latter part of the movement

during the compression of the heel is slower. This permits the pressure-cam E to be used to its best advantage.

Upon the completion of the molding of the heel the pressure-cam, still revolving, is constructed to permit the head F, the die-block, and the compressed heel to move downward from the former C, and during this downward movement the molded heel is stripped from the die by causing the plate H to come to a rest or stop by the coming in contact of its stud *h* with the bar *h'*, while the head F and the die-block continue to move downward or to the position represented in Fig. 3, and this serves not only to strip the molded heel from the die, but also to bring the plate H into position to receive the next heel to be compressed. The head F is heavy, and its weight is sufficient to cause the die to strip from the heel and the cam-roll *f* to maintain its contact with the pressure-cam E during the downward movement. The heel-pusher M and all its operative parts, except its operating-cam, are movable upwardly or downwardly with the head F, and its slide-bar *m*⁸ is separable from the actuating-cam *m*¹¹, the cam having a section which operates upon the pusher only during a portion of its revolution, and the pusher being withdrawn after the operation of the cam in feeding the heel to the plate H by the spring *m*¹⁴. This permits the pusher to begin its movement, if desired, before the head F has reached its lowest position, and also permits it to be withdrawn after the head begins to lift. The pressure-cam E is constructed to have a very slow rise during the compressing of the heel that it may deliver a great pressure during the molding operation.

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

1. The combination of the bed of the machine, the upwardly-extending rods, the stationary head D, the movable head F guided by the rods and having the cam-roll *f*⁵, the shaft D having bearings on the bed and extending backwardly therefrom, the gear N fast to the shaft, the shaft *n'* having bearings in one side of the bed, the pinion *n* fast thereon and engaging gear N, the gear *n*⁴ on said shaft *n'*, the pinion *n*⁵ having a bearing on an

extension of the shaft D and meshing with the gear *n*⁴, and a driving or fly wheel free on said extension of shaft and connected with the pinion *n*⁵ to rotate it upon said shaft extension, as and for the purposes described. 55

2. The combination of a base A, having a long bearing in its upper surface for the shaft D and a central cavity upon each side of the bearing midway the length of the bearing, a pressure-cam secured to said shaft to turn in said cavity, caps for holding the shaft in the bearing, the pressure-head F having in its under side a long bearing for the shaft *f*² and a cavity midway the length of the same, a pressure-roll *f*⁵ in said cavity arranged to bear upon the pressure-cam, caps for holding the shaft to the pressure-head, and suitable guides for said pressure-head, substantially as described. 60 65

3. The combination of the former C, the die G having a forward-extending feedway, the side guides or walls and a heel-pusher to traverse said feedway when the die is in its lowest position. 70

4. The combination of the die having the heel-guideway with the pusher M, cam *m*¹¹ and intermediate connecting devices. 75

5. The combination of a die having the heel-feedway, the pusher M, its reciprocating holder and means for adjusting it lengthwise in its holder. 80

6. The combination of the die-block having the forwardly-extending feedway, the pusher M, its holding clamp or support *m'*, the lever *m*⁸ to which the said support or clamp is pivoted, the spring *m*⁵, the slide *m*⁸ having a cam-roll at its lower end, and the operating-cam *m*¹¹, the die-block having on each side of the die-cavity raised guides, as and for the purposes described. 85 90

7. The die-block having a die-cavity and an integral forward extension forming a support for a heel, an integral upward extension forming side guides therefor, as and for the purposes described. 95

FREEBORN F. RAYMOND, 2D.
CHAS. H. FOGG.

In presence of—

J. M. DOLAN,
ERNEST L. FORD.