

No. 652,371.

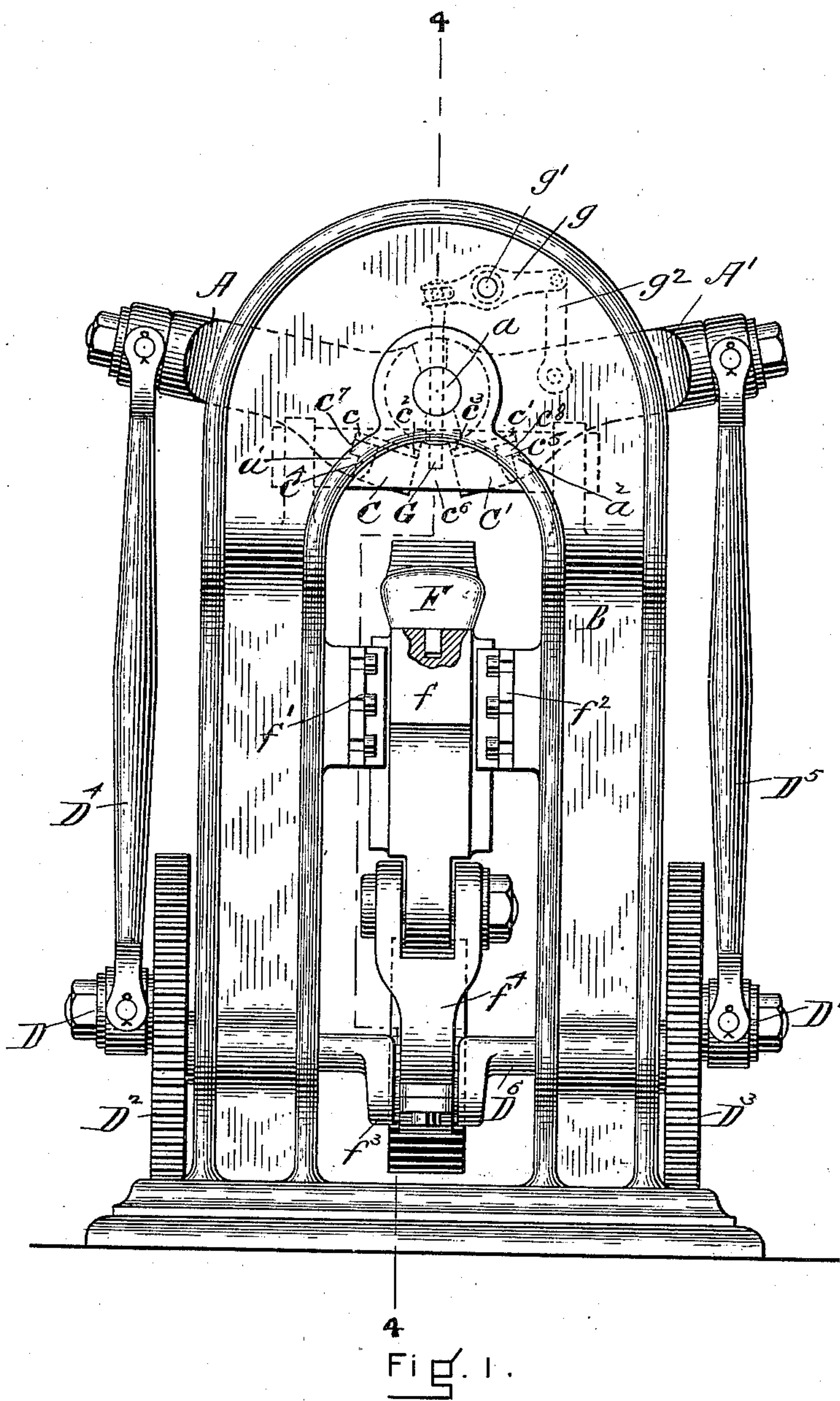
Patented June 26, 1900.

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

(Application filed Mar. 20, 1899.)

(No Model.)

3 Sheets—Sheet 1.



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INVENTOR:

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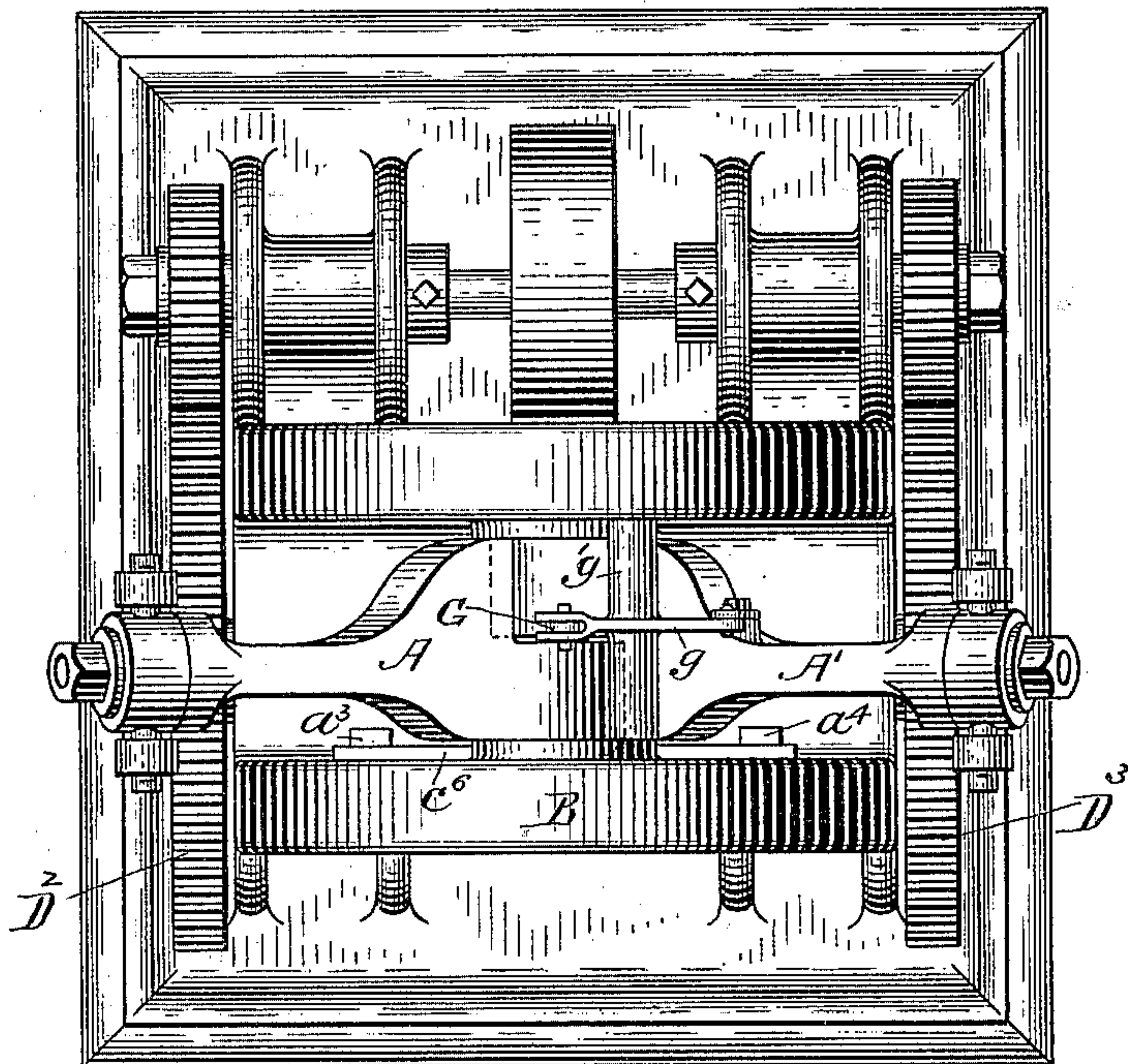
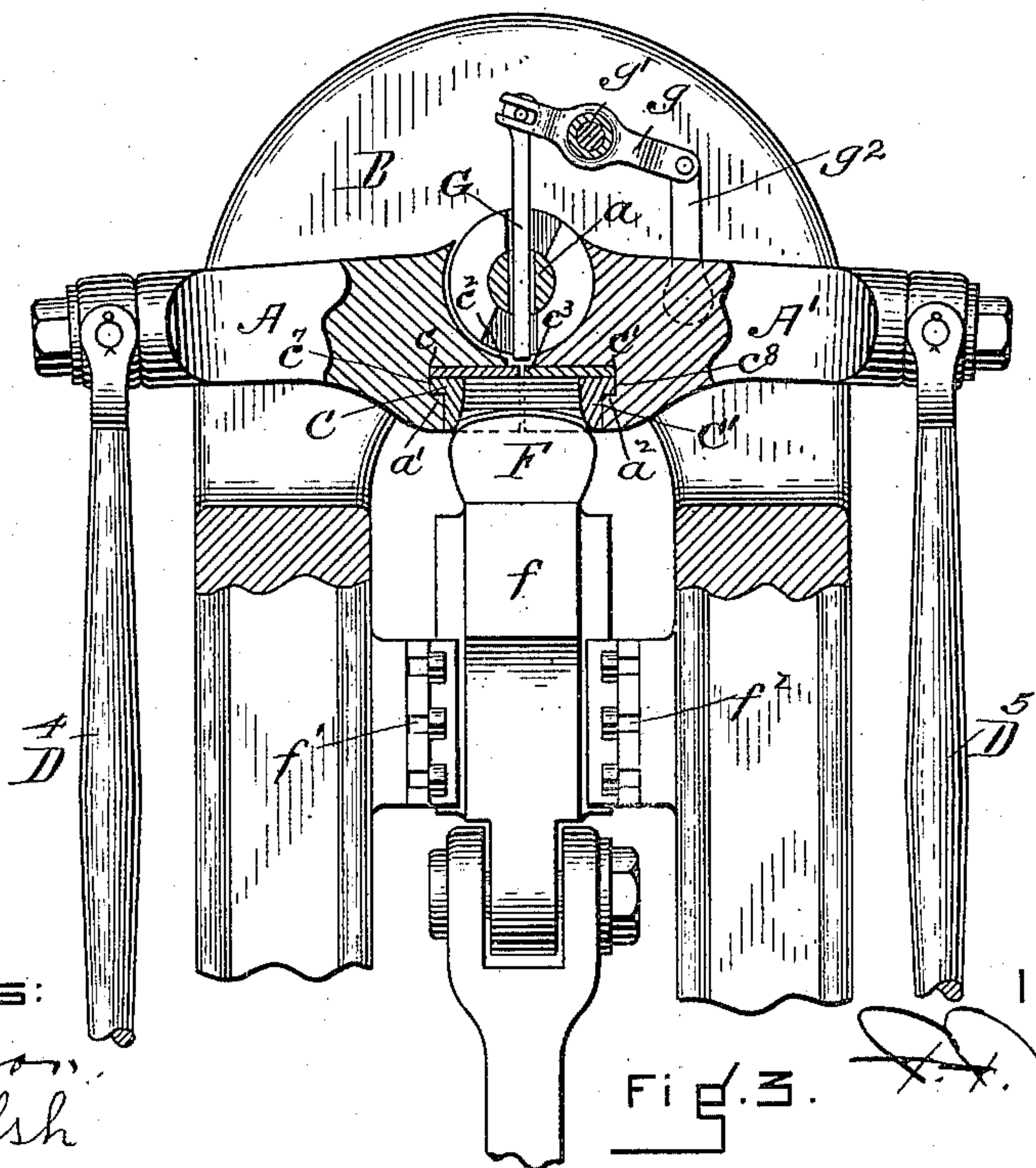


FIG. 2.



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FIG. 3.

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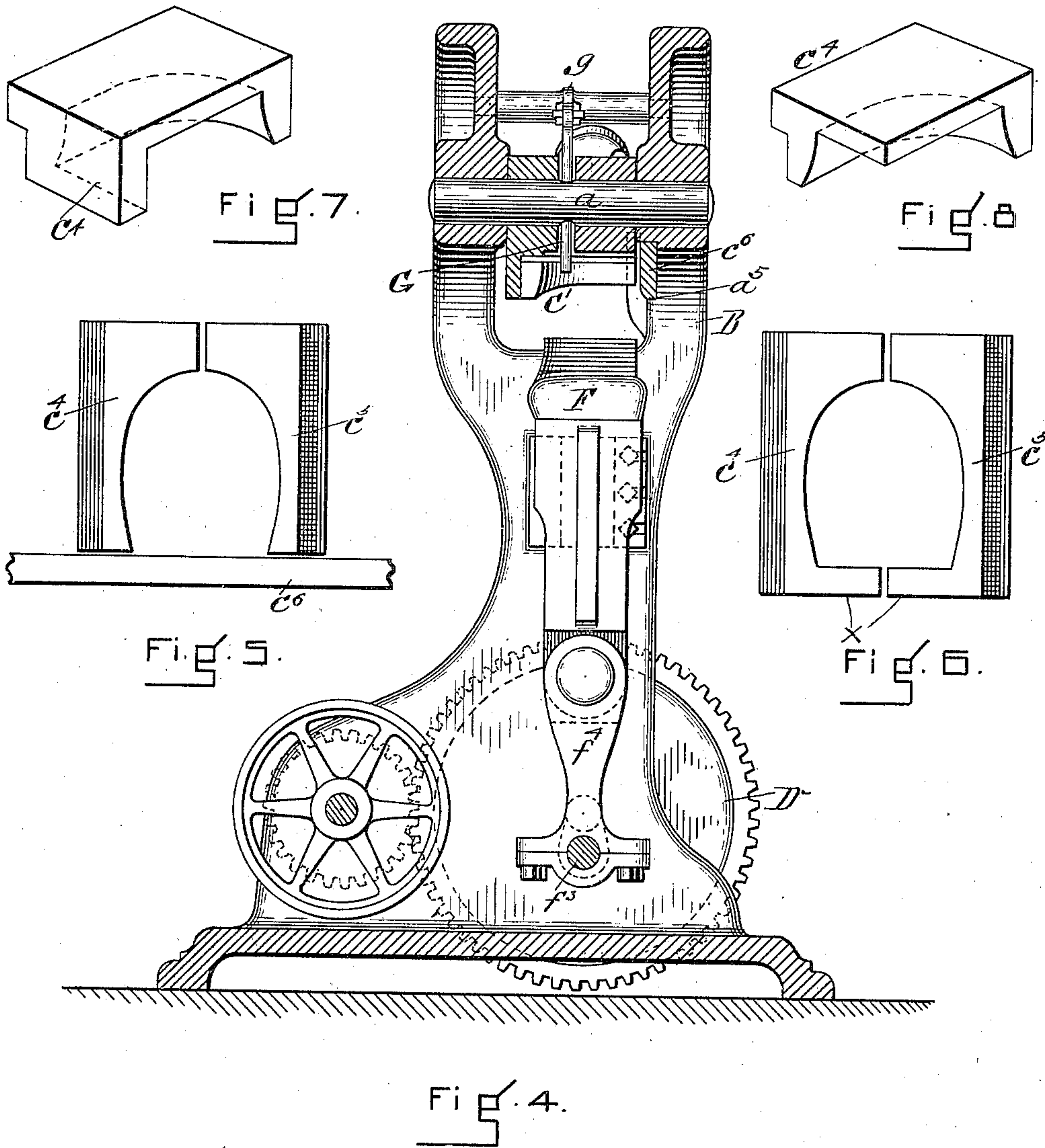
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UNITED STATES PATENT OFFICE.

FREEBORN F. RAYMOND, 2d, OF NEWTON, MASSACHUSETTS, ASSIGNOR, BY
DIRECT AND MESNE ASSIGNMENTS, TO THE MCKAY SHOE MACHINERY
COMPANY, OF PORTLAND, MAINE, AND BOSTON, MASSACHUSETTS.

HEEL-COMPRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 652,371, dated June 26, 1900.

Application filed March 20, 1899. Serial No. 709,718. (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 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 comprises a heel-compressing machine in which the side and tread-end forming dies are movable toward and from each other upon an arc the center of which is in line with the longitudinal center of the die from breast to tread, and which dies so movable are combined with a heel-seat former relatively movable toward and from each other.

In the drawings, Figure 1 is a view in elevation of my improved machine. Fig. 2 is a view in plan thereof. Fig. 3 is a view of the upper part of the machine in vertical central section and in elevation, also representing the position of the parts at the completion of the compressing action of the machine. Fig. 4 is a view of the machine, principally in vertical central section, taken from front to back. Fig. 5 is a view in plan, enlarged, of one type of die. Fig. 6 is a view, enlarged, of a modified form thereof. Figs. 7 and 8 represent in perspective other modifications of the die, to which reference is hereinafter made.

A A' represent the die-carrying levers. They are shown as pivoted to each other and to the frame B of the machine by a pivot α , and they are arranged or shaped to carry in opposed relation the removable die-sections C C', which provide the sides and bottom of the die, in such a manner as to bring the center upon which the levers move in line or substantially in line with the longitudinal center of the heel taken from heel-seat to breast and also close to said center. These die-levers are made heavy and strong, are of any desired length, and may be simultaneously closed and opened by any desirable means. I have represented as a convenient

one the cranks D D' on the gears D² D³ and the connecting-rods D⁴ D⁵, connecting the cranks D D' with the outer ends of the levers A A'. (See Fig. 1.) The gears D² D³ are mounted upon a common shaft D⁶ and are driven by pinions on a power or intermediate shaft. The power-shaft may be run continuously, or it may bear a clutch by which it is disconnected from its driving-wheel at the end of the compression of each heel.

The dies C C', I have represented in Fig. 1 as comprising the plates c c', which when their edges c² c³ are brought together form the inner end of the die or the part against which the tread end of the heel is compressed, the removable side-forming sections c⁴ c⁵, which when brought together by the levers form the sides and back of the complete die and shape the sides and back of the heel, and the breast-plate c⁶, which forms the front of the die. (See Fig. 5.)

The tread-end plates c c' and the breast-plate c⁶ may be common to all the various side sections c⁴ c⁵.

The side die-sections c⁴ c⁵ are represented as provided with shoulders c⁷ c⁸, respectively, which bear upon the shoulders a' a², respectively, of the levers A A', by which they are also made removable from the levers by being slid forward upon the removal of the breast-plate c⁶. The breast-plate is preferably stationary at all times and supported by the frame B, the said frame having arms a³ a⁴ in the shape of hooks, (see Figs. 2 and 4,) which form a support a⁵ for the plate and also a holder for holding the plate against the front faces of the side die-sections c⁴ c⁵ and top plates c c'. Upon the removal of the breast-plate c⁶ the side sections c⁴ c⁵ may be removed by being slid forward from their holders and others substituted.

In Fig. 6 each side die is represented as provided with a breast-section α , integral with it, and which breast-section takes the place of the breast-plate c⁶ of Fig. 5. While I prefer thus to make the die, yet it may be made either as represented in Fig. 7 or in Fig. 8. In Fig. 7 a side section in one piece is shown—that is, it comprises a section of

the tread end, a section of the breast, and one-half of the side and back. In Fig. 8 the die is represented as having the breast end integral with the side and back, while the breast plate or section is of the character shown in Fig. 5. The construction of the die and the manner of its attachment to the levers are, however, of minor consequence.

F is the heel-seat former. I have represented it as provided with movement toward and from the side dies, although it may be stationary and the side dies and their operating-levers given movements toward and from it. It is carried at the end of a pressure-head f , supported by suitable guides f' f'' upon the frame B, and this pressure-head is given a reciprocating movement from the shaft D^6 by means of a crank f^3 thereon and connecting-pitman f^4 or by any other suitable means. The movement of the former toward the die may be timed as desired, and by using a cam or an eccentric upon the shaft D^6 the time of its action may be still further varied.

In use the heel is placed upon the former and by the former lifted into the die-cavity while the side dies are closing, and the heel thus moved by the former is subjected to the pressure of the side dies and of the former. The principal pressure upon the heel will be delivered to it by the side dies, and this on account of the peculiar rolling in or closing of the dies and their relation to the pivotal point of the levers, and the power developed by the levers will be very great, and yet will not cause any severe strain to be brought upon the frame of the machine itself.

The compressed heel may be ejected from the die by an ejecting-pin G, which is forced downward upon the opening of the dies. This pin extends between the two tread-plates c c' through a hole in the pivot a and is actuated by the lever g , pivoted at g' to the frame B, and a link g^2 , connecting the lever with the die-lever A' . Upon the downward movement of the die-levers to close the dies the ejector-pin is raised in the die, and upon the

upward movement of the levers to open the die the ejector-pin is moved downward. Of course the ejector-pin may be operated to move a heel from the die by a spring, which shall force the pin downward when the dies release the compressed heel, and the pin will then be moved upward and the spring compressed by the heel during the act of compression.

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

1. In a heel-compressing machine a pair of heel-compressing dies adapted to squeeze the sides, rear and top of a heel-blank movable toward and from each other upon lines which shall cause the lower ends of the dies to be moved a greater distance than the upper ends with a heel-seat former, the dies and heel-seat former also being relatively movable in relation to each other.

2. In a heel-compressing machine, die-carrying levers pivoted to the frame of the machine above the tread end of the die and separable side dies mounted upon said levers below said pivot and a heel-seat former movable toward and from said dies and means connected to said levers whereby said dies may be operated.

3. In a heel-compressing machine the dies comprising the movable independent plates c , c' forming the tread end of the die, the removable side-forming sections c^4 , c^5 for forming the sides and back of the heel and the stationary breast-plate c^6 .

4. The combination in a heel-compressing machine of the movable die-sections c^4 , c^5 movable toward and from each other as specified means whereby they may be moved to compress a heel-blank with stationary breast-plate c^6 , as and for the purposes set forth.

FREEBORN F. RAYMOND, 2D.

In presence of—

J. M. DOLAN,
L. A. WALSH.