

No. 681,344.

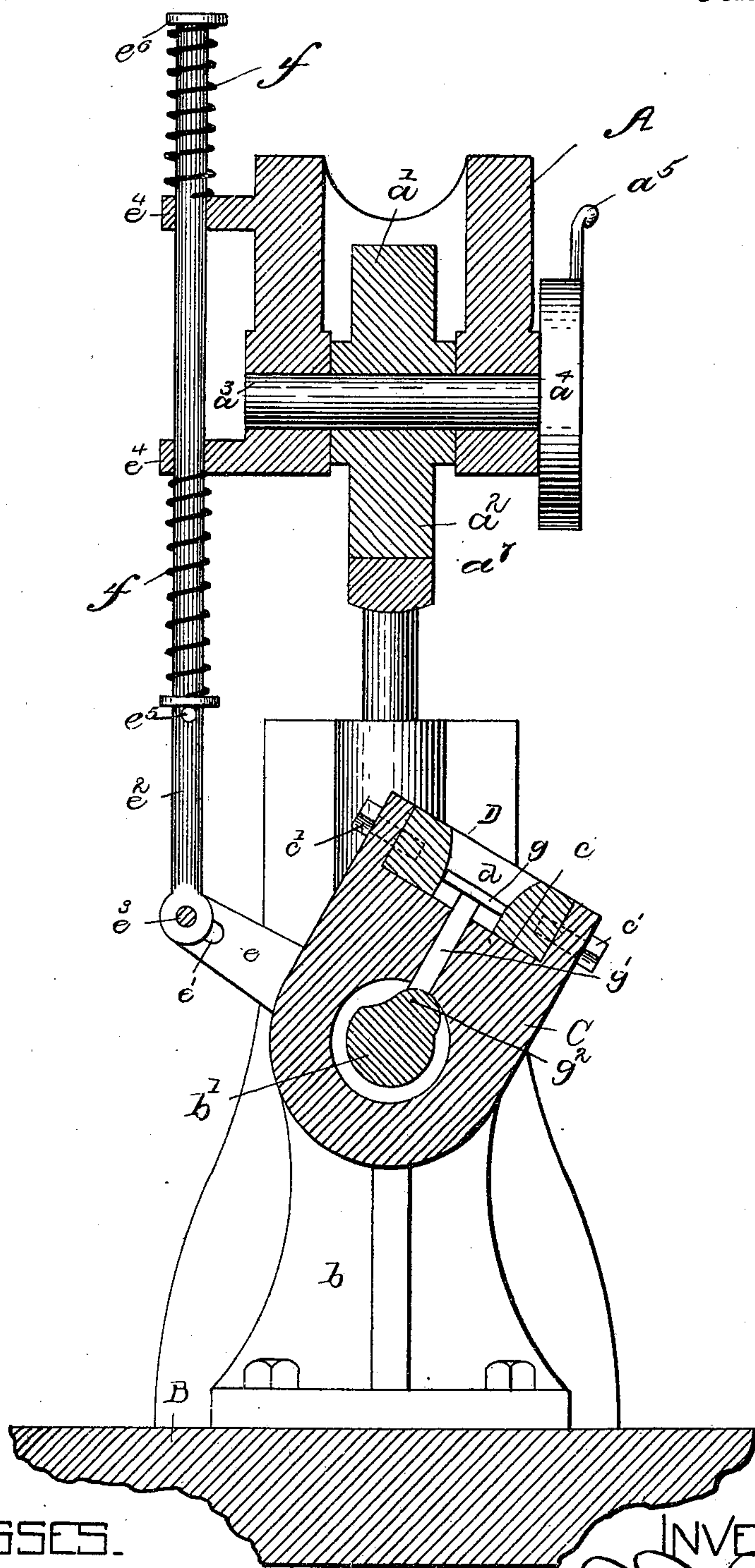
Patented Aug. 27, 1901.

F. F. RAYMOND, 2d.  
HEEL OR SOLE MOLDING MACHINE.

(Application filed Feb. 4, 1890.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.

J. W. Dolan  
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Fig. 1.

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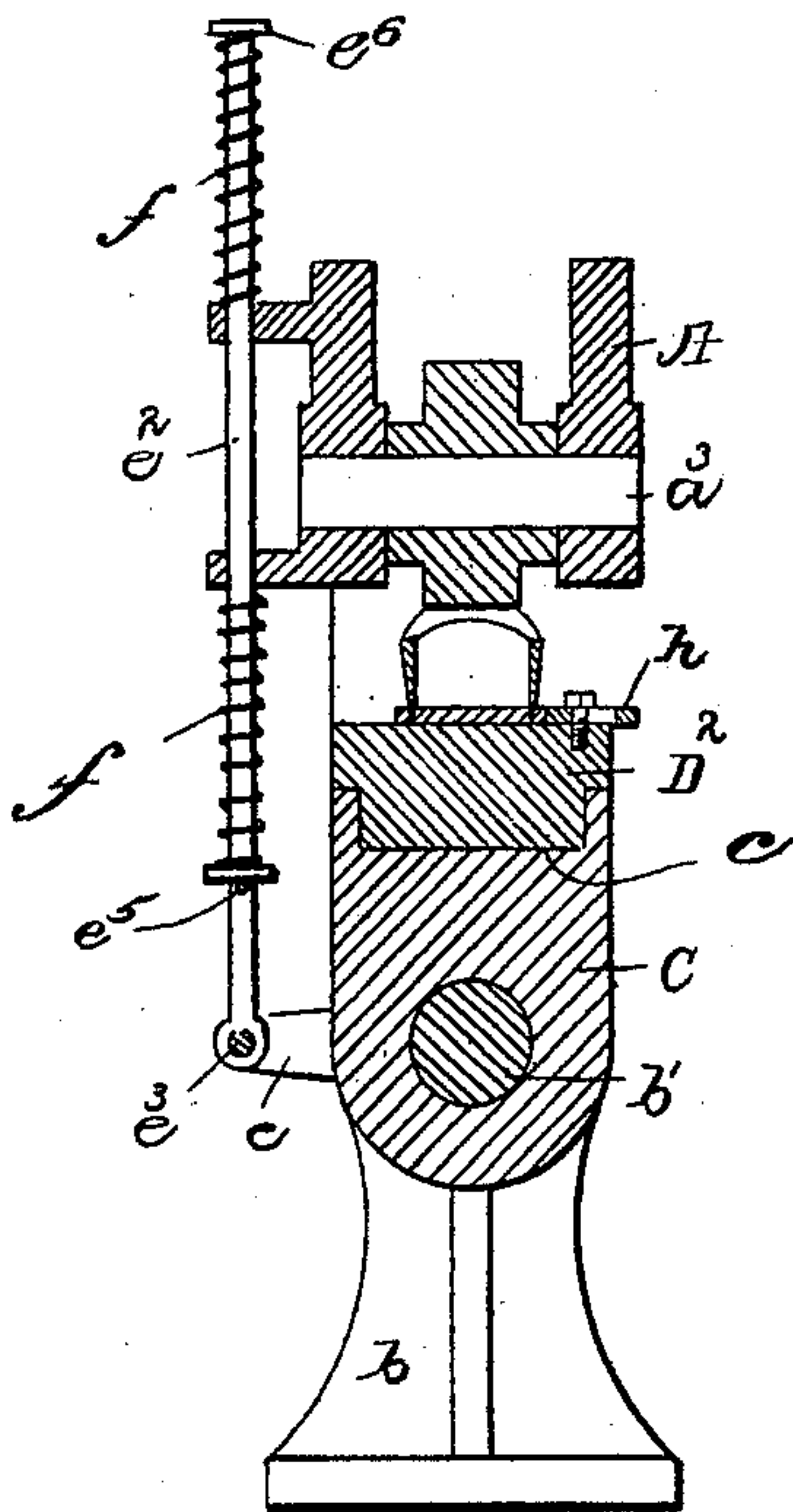


Fig. 2.

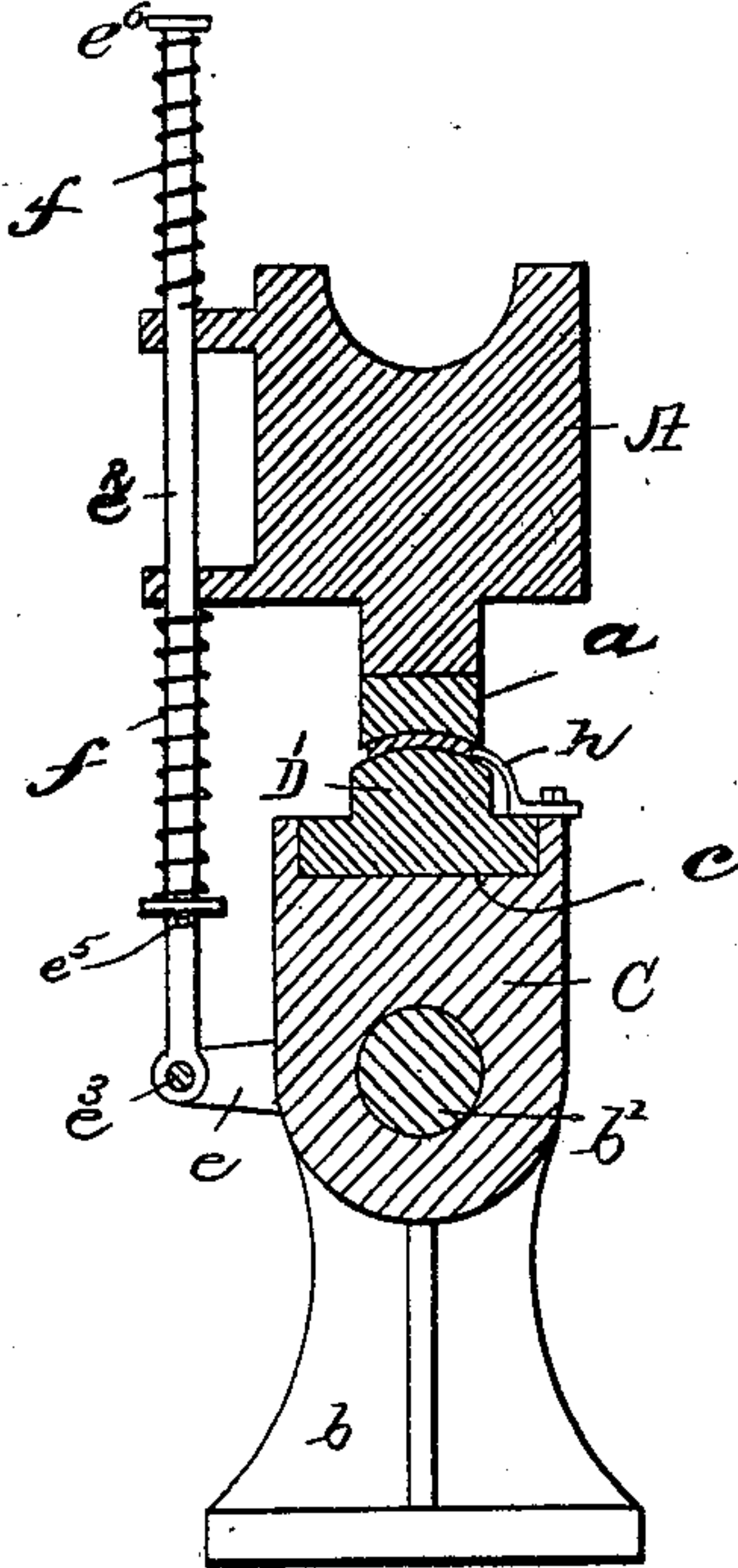
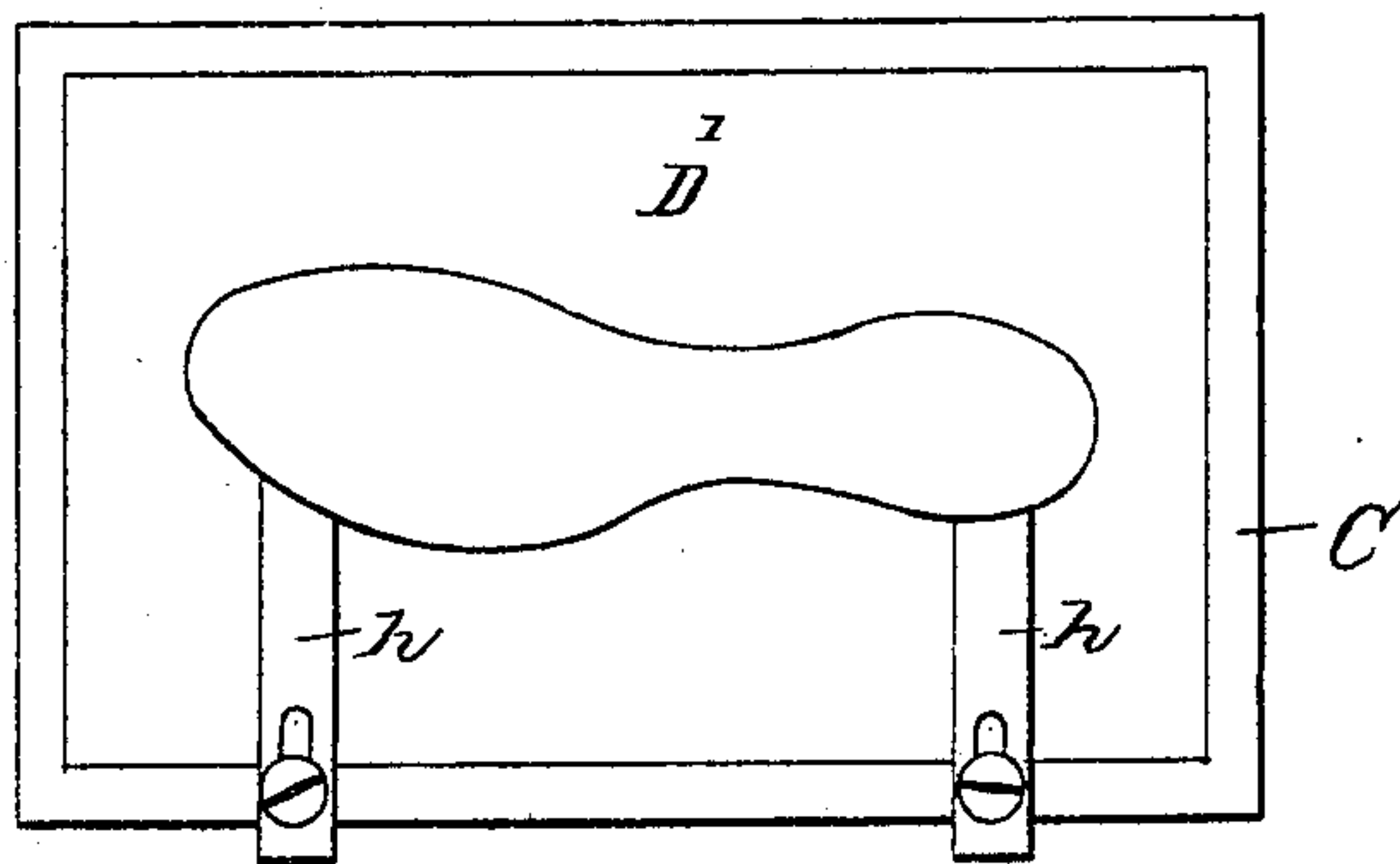


Fig. 3.

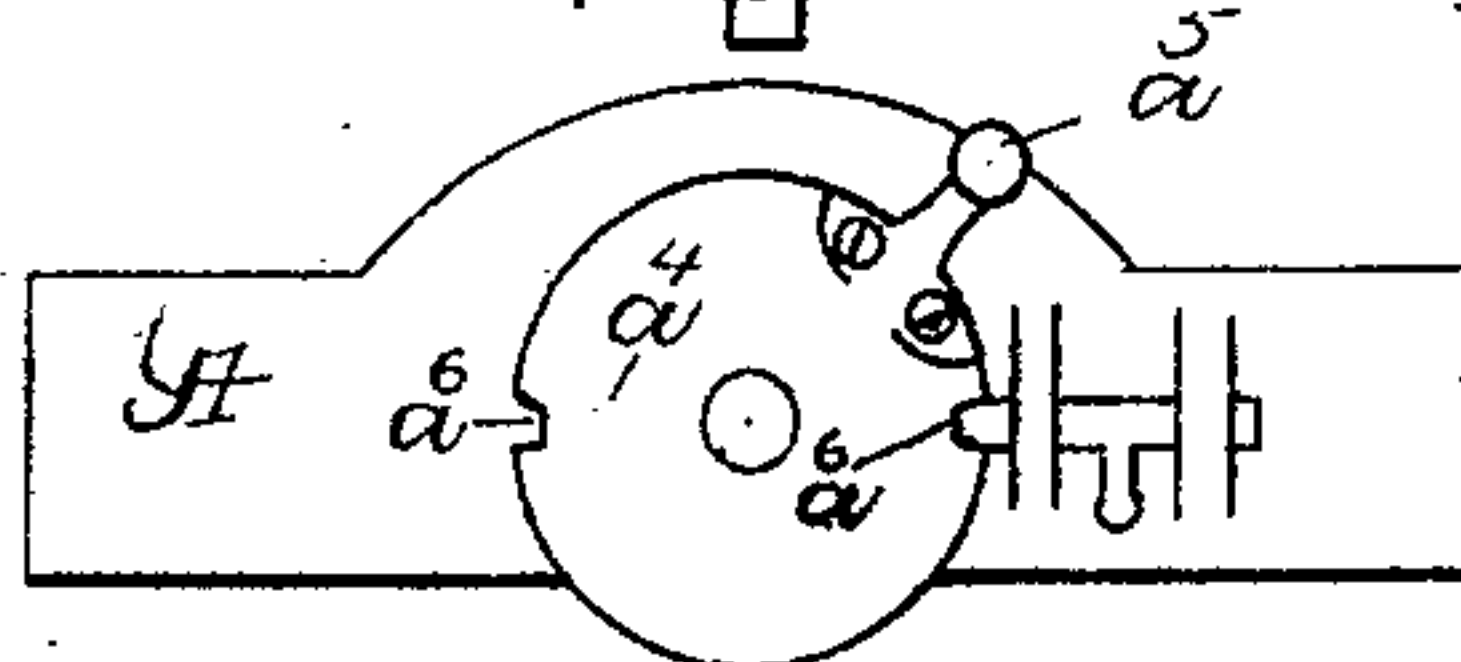
Fig. 4.



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Fig. 5.



INVENTOR  
F. F. Raymond



# UNITED STATES PATENT OFFICE.

FREEBORN F. RAYMOND, 2D, OF NEWTON, MASSACHUSETTS, ASSIGNOR, BY  
MESNE ASSIGNMENTS, TO THE UNITED SHOE MACHINERY COMPANY, OF  
NEW JERSEY.

## HEEL OR SOLE MOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 681,344, dated August 27, 1901.

Application filed February 4, 1890. Serial No. 339,165. (No model.)

*To all whom it may concern:*

Be it known that I, FREEBORN F. RAYMOND, 2d, a citizen of the United States, and a resident of Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Heel or Sole Molding Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification, in explaining its nature.

The object of the invention is to provide a simple and safe mechanism for molding, shaping, and forming heels and soles.

It comprises a reciprocating head having one or more operating dies or tools with a bed for supporting a die or companion tool and having oscillating movements imparted to it, whereby the die or tool which it carries is moved from a safe position to receive the heel, sole, or stock to be treated automatically into position in line with the reciprocating tool or die and held in such position during the operation of the tool or die upon the heel, sole, or stock and then returned upon the upward movement of the tool or die to its original position.

It further relates to various features of organization and details of construction, to which reference will hereinafter be made.

In the drawings, Figure 1 is a view in vertical central section, taken from front to rear, of the central and upper parts of the machine. Fig. 2 is a detail view, principally in vertical section, representing the relation which the parts bear to each other at the end of the downward movement of the tool. Fig. 3 represents a view on the same section, but with sole-molding dies or formers substituted for a pinking-die. Fig. 4 is a view in plan of a sole-molding die and gages for holding and locating the sole upon it. Fig. 5 is a detail view, in front elevation, of the cross-head fitted with a rotary head having two arms and shows especially the manner of turning the rotary head and locking it in operative position.

A is a reciprocating cross-head. It has mounted upon it a single die, tool, or former  $a$ , as represented in Fig. 3, or a rotary head  $a'$ , having two or more arms  $a^2$ , each of which

carries or supports a die, tool, or former  $a^7$ , and each of which is also adapted to be moved into or out of operative position preferably by means of a supporting-shaft  $a^3$  and latching-dial  $a^4$ , the said dial having a handle  $a^5$ , by which the shaft is turned, and having notches  $a^6$ , which receive a spring latch-bolt and whereby the revolving head is locked to the cross-head.

B is the bed of the machine. It carries a pillow-block  $b$ , which supports a shaft  $b'$ . Upon this shaft is mounted the oscillating bed C. The upper surface  $c$  of this bed carries the tool or section of the die or auxiliary bed, which enables it to properly support the work to be presented to the former or other tool carried by the reciprocating head and to coact therewith. I have represented in Fig. 1 a solid heel-molding die-block D, having a die-cavity  $d$ , as secured to this bed by means of bolts  $c'$ , and in Fig. 3 I have represented a section of the sole-molding die  $D'$  as secured to it. In Fig. 2 I have represented an auxiliary bed  $D^2$ , of wood, as fastened to the said supporting-bed C. This bed C has an oscillating movement upon the shaft  $b'$  by means of the arm or lever  $e$ , fastened to it and having a slot or hole  $e'$  and a rod  $e^2$ , which is connected with the lever  $e$  by a pin  $e^3$ , extending into the slot or hole  $e'$  and which is also loosely connected with the cross-head A, such loose connection preferably being effected, as shown, by means of eye-guides  $e^4$ , through the holes of which it passes and in which it has a limited play or movement. This rod also carries the cross-pins  $e^5$   $e^6$  and springs  $f$ , and they serve, in connection with the eye-guides, to impart the proper movements to the bed C and the mold-die or auxiliary bed, which it supports, in the following manner: Upon the downward movement of the cross-head A, the bed C being of course out of operative position or inclined to the line of movement of the cross-head, the lower guide  $e^4$  comes in contact with spring  $f$ , which bears against the pin  $e^5$  or its washer, and thus causes the rod  $e^2$  to be moved forcibly downward and to act through the lever  $e$  to turn the bed C from its inclined to a vertical position. Upon the upward movement of



the cross-head a reverse movement is imparted to the rod, and the bed C is moved or turned outward to its original position. The coil-springs  $f$ , interposed between the eye-arms  $e^4$  on the cross-head A and the pins  $e^5$   $e^6$ , are of sufficient strength to impart the movements of the head A to said rod  $e^2$  when said head begins its reciprocations, so as to oscillate the said bed C into and out of position, but then to yield to permit further vertical movement of the cross-head, while the connecting-rod  $e^2$  remains stationary. This is especially for the purpose of permitting the bed C and the die which it supports or works to be moved into operative position slightly in advance of the downward movement of the reciprocating tool.

When the heel-molding die-block D is used, it is desirable to provide means for ejecting the molded heel from the die-cavity upon the outward movement of the bed C. This is accomplished by means of plate  $g$  at the bottom of the die-cavity  $d$ , the rod  $g'$ , which passes through the hole in the bed C, and the cam projection  $g^2$  on the shaft  $b'$ , upon which the end of the rod  $g'$  rides as the bed C is moved.

In Fig. 3 I have represented on the sole-molding die D' and in Fig. 2 upon the auxiliary bed D<sup>2</sup> adjustable gages  $h$ , against which the edge of the sole or other work may rest and be held during the movement of the die from its advanced position or that in which it receives and delivers its work to the reciprocating tool.

I would say that the cross-head may support one or more heel-formers, one or more sole-molding formers, or one or more heel-lift or other similar cutting dies, or other reciprocating tool or tools, and that the bed C may support a heel-molding die, heel-former, sole-forming die or cutting-bed, or other section of a tool or device for holding work to be submitted to the action of the tool carried by the cross-head.

In operation the work to be treated is placed in or upon the die, bed, or work-support when turned outward or away from the line of reciprocation of the tool to which it is to be submitted, and it is then by the action of the machine automatically moved into a position to bring it into a line with the movement of the tool and held in such position during the operation of the tool and is then moved backward to its original position. The action of the machine may be stopped at the end of this

movement or its action may be continuous, according to the work done and the speed at which the machine is run.

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

1. In a machine for forming soles heels, &c., the combination with a reciprocating former, of an oscillating work-support connected with said reciprocating head and operated directly thereby, said former and work-support being loosely connected so as to admit of a further movement of said former after the work-support has been brought to its operative position.

2. In a machine for forming soles, heels, &c., the combination with a reciprocating head, of forming-tools rotatably mounted thereon, a work-support oscillating in operative relation to said reciprocating head, and a yielding connection between said head and work-support whereby the latter may be rocked to and from an operative position when said head is reciprocated and further movement of said head is permitted after said work-support has been brought to an operative position.

3. In a machine for forming soles, heels, &c., the combination with a reciprocating head, of a rotary tool-carrier mounted thereon, a plurality of forming-tools on said head, an oscillating work-support mounted in operative relation to said head, and a yielding connection between said head and work-support whereby said work-support is rocked to and from an operative position when said head is reciprocated and further movement of said head and its forming-tools is permitted after the work-support has been brought to its operative position.

4. In a machine for forming soles, heels, &c., the combination with a reciprocating head A carrying one or more tools of the character specified, of a rock-shaft  $e'$ , a work-support D carried thereby, a rocker-arm  $e$  on said rock-shaft, a rod  $e^2$  connected with said rocker-arm, and a yielding connection between said reciprocating head and said rod, whereby said head A is reciprocated and further movement of said head A is permitted after the said work-support has been brought to its operative position.

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Witnesses:

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