

No. 672,161.

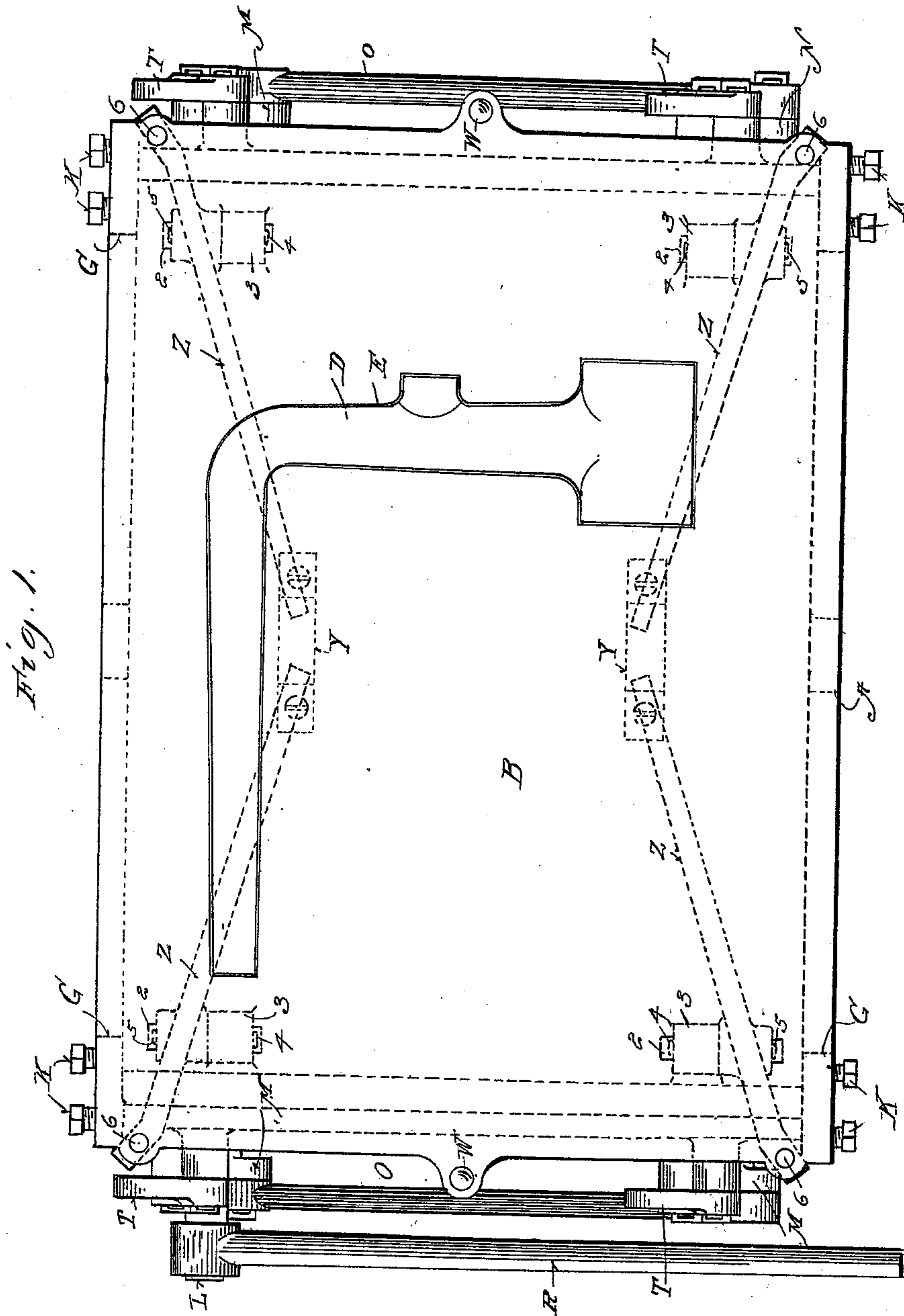
Patented Apr. 16, 1901.

L. BOGNER.
MOLDING MACHINE.

(Application filed June 25, 1900.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES:

J. P. Dawley,
G. W. Schaefer.

INVENTOR.

INVENTOR.
Ludwig Bogner,
BY
H. A. Gaudin
ATTORNEY.

No. 672,161.

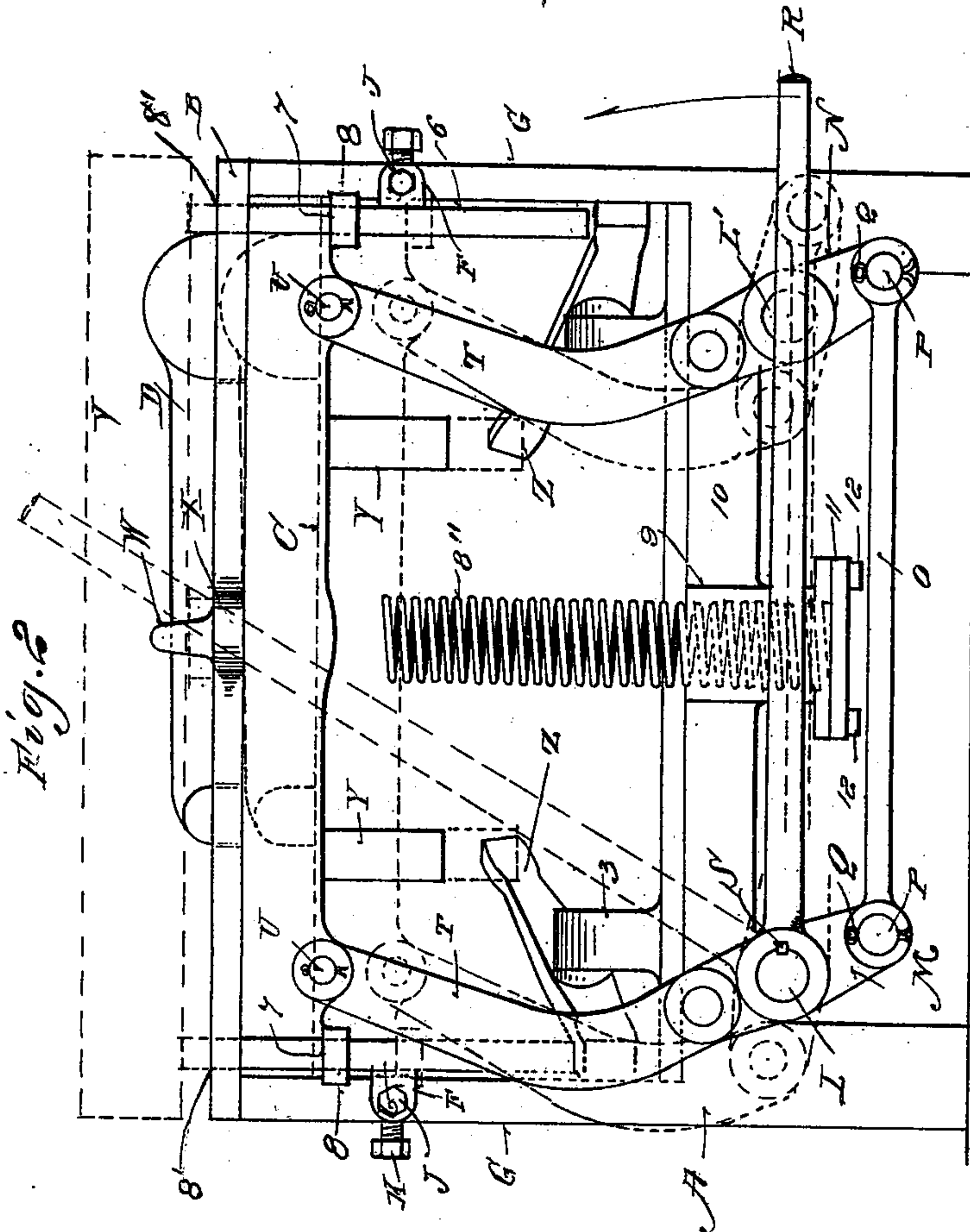
Patented Apr. 16, 1901.

L. BOGNER.
MOLDING MACHINE.

(Application filed June 25, 1900.)

(No Model.)

3 Sheets—Sheet 2.



WITNESSES:
J. C. Dowley
W. Schaefer

INVENTOR.
Ludwig Bogner
BY *H. A. Paulmier*
ATTORNEY

No. 672,161.

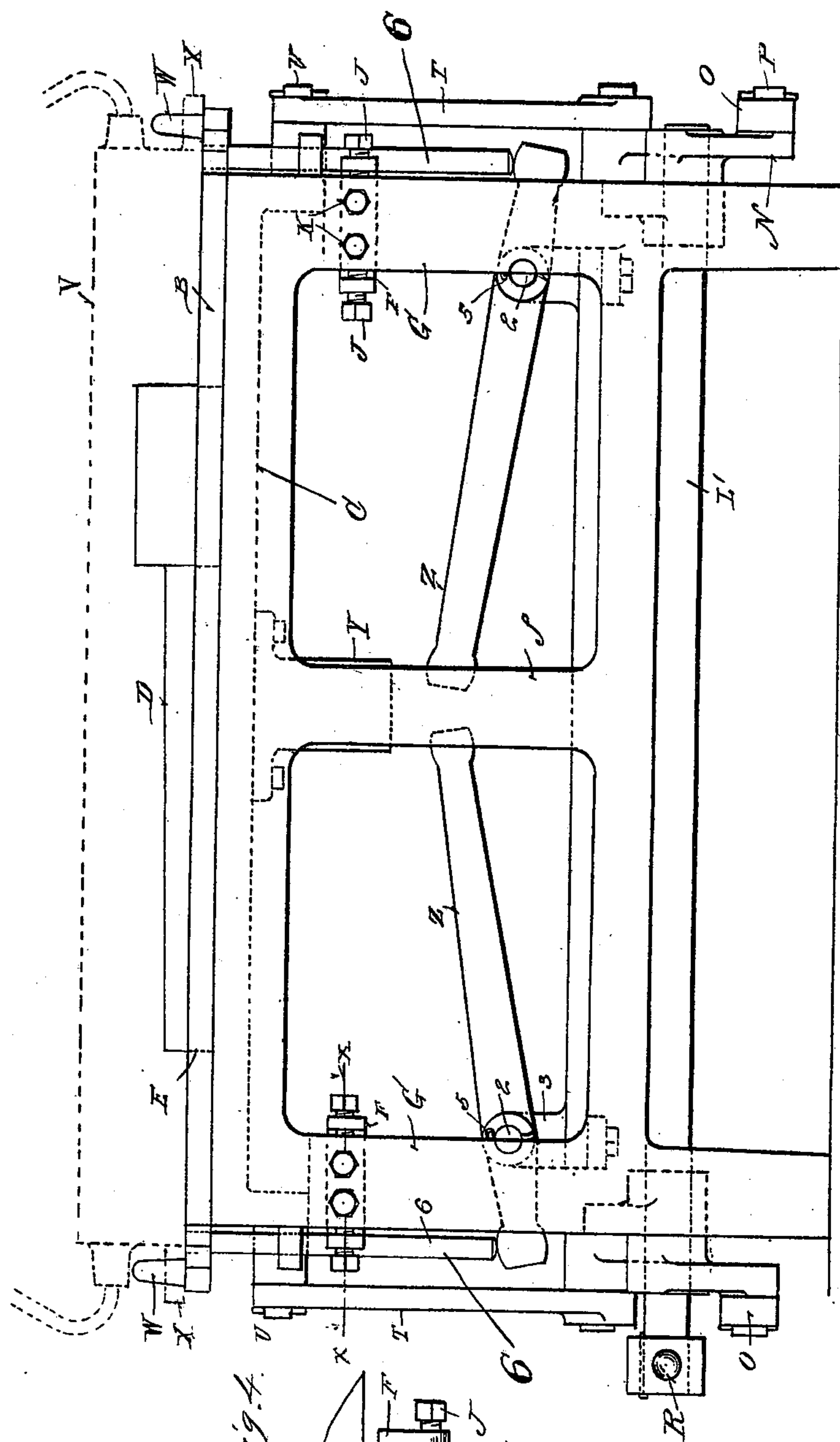
Patented Apr. 16, 1901.

L. BOGNER.
MOLDING MACHINE.

(Application filed June 25, 1900.)

(No Model.)

3 Sheets—Sheet 3.



WITNESSES:

WITNESSES:
J. C. Dawley.
A. M. Schaefer.

Ludwig Dörmner, INVENTOR.
BY H. A. Seubert, ATTORNEY.

UNITED STATES PATENT OFFICE.

LUDWIG BOGNER, OF SPRINGFIELD, OHIO, ASSIGNOR TO THE WARDER,
BUSHNELL AND GLESSNER COMPANY, OF SAME PLACE.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 672,161, dated April 16, 1901.

Application filed June 25, 1900. Serial No. 21,402. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG BOGNER, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Molding-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in molding-machines.

More specifically the present invention relates to that type of molding-machines in which a vertically-movable pattern-plate carrying the necessary pattern or patterns is employed in conjunction with a fixed stripper-plate having an opening through which the pattern protrudes when the pattern-plate is raised; and the particular object of the present invention is to provide means for the adjustment of the pattern-plate in a horizontal plane, so as to insure the proper registry or coincidence of the pattern with the pattern-opening in the stripper-plate.

In the accompanying drawings, on which like reference characters indicate corresponding parts, Figure 1 is a plan view of a molding-machine, showing my improvements applied thereto; Fig. 2, an end elevation of the same; Fig. 3, a side elevation, and Fig. 4 a detail view, partly in section, illustrating the manner in which the pattern-plate is adjusted, the section being taken on the line *xx* of Fig. 3.

The letter A represents a suitable frame structure, upon which is mounted the usual stripper-plate B. Within the frame structure and beneath the stripper-plate is mounted a pattern-plate C, which is adapted to be raised and lowered in a manner hereinafter appearing. This pattern-plate carries a pattern, such as shown at D. The stripper-plate is cut out, as shown at E, so as to permit the pattern to be elevated through such cut-out portion. This cut-out portion is only slightly larger than the pattern, and consequently the pattern must be adjusted to pass through the opening without binding. This is accomplished by means of U-shaped clips F, one for each of the corner-posts G of the machine-frame. These clips each have a V-shaped extension H, which project into similar notches I in the pattern-plate C near each of its cor-

ners. The clip F is adjustable either longitudinally or horizontally from the leg G to which it is attached. Thus if the pattern fails to properly pass up through the opening in the stripper-plate in a longitudinal direction each of the clips F is adjusted by means of set-screws J so as to move the pattern-plate to the proper position in a longitudinal direction. As soon as it occupies the proper position the set-screws are turned up to prevent any further movement of the clips, yet at the same time permit the plate to be elevated and lowered in a manner presently to be described. Should the pattern-plate be found to require adjustment in a lateral direction or across the machine, the set-screws K in each leg are manipulated to adjust the clip F to or away from the legs. When the plate has been properly adjusted for the pattern to pass through the stripper-plate in such lateral direction, the set-screws K hold it from a further longitudinal movement. Thus with this arrangement for adjusting the pattern-plate the pattern may be made to pass up through the opening in the stripper-plate centrally, the clips acting as guides when the plate is once adjusted.

I will now refer to the means for elevating and lowering the pattern-plate, such plate when descending also acting to raise a flask above the stripper-plate after having first removed the pattern from such flask. A pair of shafts L and L' pass through the machine in a longitudinal direction. Upon each end of each of the shafts, outside of the frame structure, is mounted a pair of levers M and N, respectively, which are keyed or otherwise secured thereto. The lower ends of each pair of levers M and N are connected with each other by means of connecting-rods O, which are held in place upon studs P by means of cotter-pins Q or in any other suitable manner. To the shaft L is rigidly connected a hand-lever R by means of a key S. As the hand-lever is moved the shaft L will be partially rotated and the levers M and N will be rocked. To the upper end of each of these levers is attached one end of a link T, while the other end of each link is mounted on a stud U, projecting outward from near each end of the pattern-plate. Thus as the lever R is manipulated the pattern-plate

may be raised or lowered, according to in which direction the lever is thrown—that is, to its normal position, as illustrated in Fig. 2, or to the position indicated by dotted lines in Fig. 2. Upon the stripper-plate or top of the machine is mounted a flask V, which is held in position by means of studs W, projecting through holes in ears or lugs X, extending from each end of the flask. This flask is of any ordinary construction.

Let it be supposed that the flask is in the position indicated in dotted lines in Fig. 3 and that the pattern is elevated through the stripper-plate, as also indicated in the drawings. The sand is then thrown into the flask and packed around the pattern therein. As soon as the sand has been sufficiently packed the lever R is elevated and the plate C is depressed through the links T and levers M and N, above referred to. The next step in the operation of the machine is to elevate the flask so that it may be readily removed from the pins or studs W, it being understood that such studs are slightly tapered in order that the higher the flask is elevated upon them the more readily it may be removed, either by hand or by an air-hoist commonly employed in molding heavy castings.

The letter Y represents a pair of studs or projections which extend downward from the pattern-plate C. These studs are adapted to engage with four levers Z, which are pivotally supported by pins 2, projecting through lugs 3, carried by the frame structure. The pins 2 are held in place in the lugs 3 by cotter-pins 4, while the levers are held upon the pins by cotter-pins 5. One arm of each lever extends beneath and acts as a support for a pin 6, which is mounted in a hole or opening 7 in a projection 8 at each end of the pattern-plate and in a hole 8' in the stripper-plate, such holes constituting guides for the pins. When the flask is in position upon the top of the machine, the pins are underneath its edges near each corner. As the operating-lever R is partially rotated, thereby partially rotating the shafts L and L' to withdraw the pattern from the flask, the studs Y will be brought into contact with the levers Z, so that the pins 6 will be elevated, thereby raising the flask above the top of the machine in order that such flask may be readily removed without injuring the mold, as is frequently the case where the flask is removed from the top of the machine by hand. In such cases one molder may raise one end of the flask faster than the other and the flask will become fast upon the studs W, so that the operator at the opposite end must necessarily exert a greater force in order to raise his end, and this produces a jarring effect upon the sand sufficient in many instances to totally ruin the mold. With the present invention the flask is elevated evenly

at each side and end, and the mold is preserved intact.

To assist the operator in elevating the pattern-plate, springs 8'' are provided at each end of the machine. These springs fit into a hole 9 in the cross-rails 10 of the frame structure down upon a bearing-plate 11, held in position by screws 12. As the pattern-plate C descends it contacts with the springs 8'', such springs yielding sufficiently to permit the lugs or projections Y to engage with the levers Z when the hand-lever R is manipulated. As soon, therefore, as the hand-lever is released the pattern-plate C is elevated, so that the pins 6 may again resume their normal position, as illustrated in the drawings.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a molding-machine, the combination with a frame structure carrying a fixed stripper-plate, a vertically-movable pattern-plate mounted in said frame structure, and carrying a pattern, said stripper-plate having an opening through which said pattern may project, and means for adjusting said pattern-plate and pattern in a horizontal plane relatively to the opening in said stripper-plate, all substantially as shown and described.

2. In a molding-machine, the combination with a frame structure having a stripper-plate rigidly mounted thereon, said stripper-plate having a pattern-receiving opening therein, a pattern-plate slidably mounted in said frame structure and carrying a pattern, means for adjusting said pattern-plate in a longitudinal direction, whereby said pattern may be centered longitudinally with respect to said stripper-plate opening, and means to adjust said pattern-plate laterally whereby such pattern may be centered in a lateral direction with respect to said stripper-plate opening, all substantially as shown and described.

3. In a molding-machine, the combination with a frame structure having a stripper-plate with a pattern-receiving opening therein, a pattern-plate slidably mounted in said frame structure beneath said stripper-plate, said pattern-plate having a notch near each corner, a clip for fitting about each of the legs of said frame structure, a pair of set-screws in each of said clips, one at each side of said legs, a pair of set-screws in each of said legs for impinging against said clips, and a V-shaped projection extending from said clips into the notches in said pattern-plate, all substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

LUDWIG BOGNER.

Witnesses:

THOMAS GALLEY,
CHAS. L. BAUER.