

(No Model.)

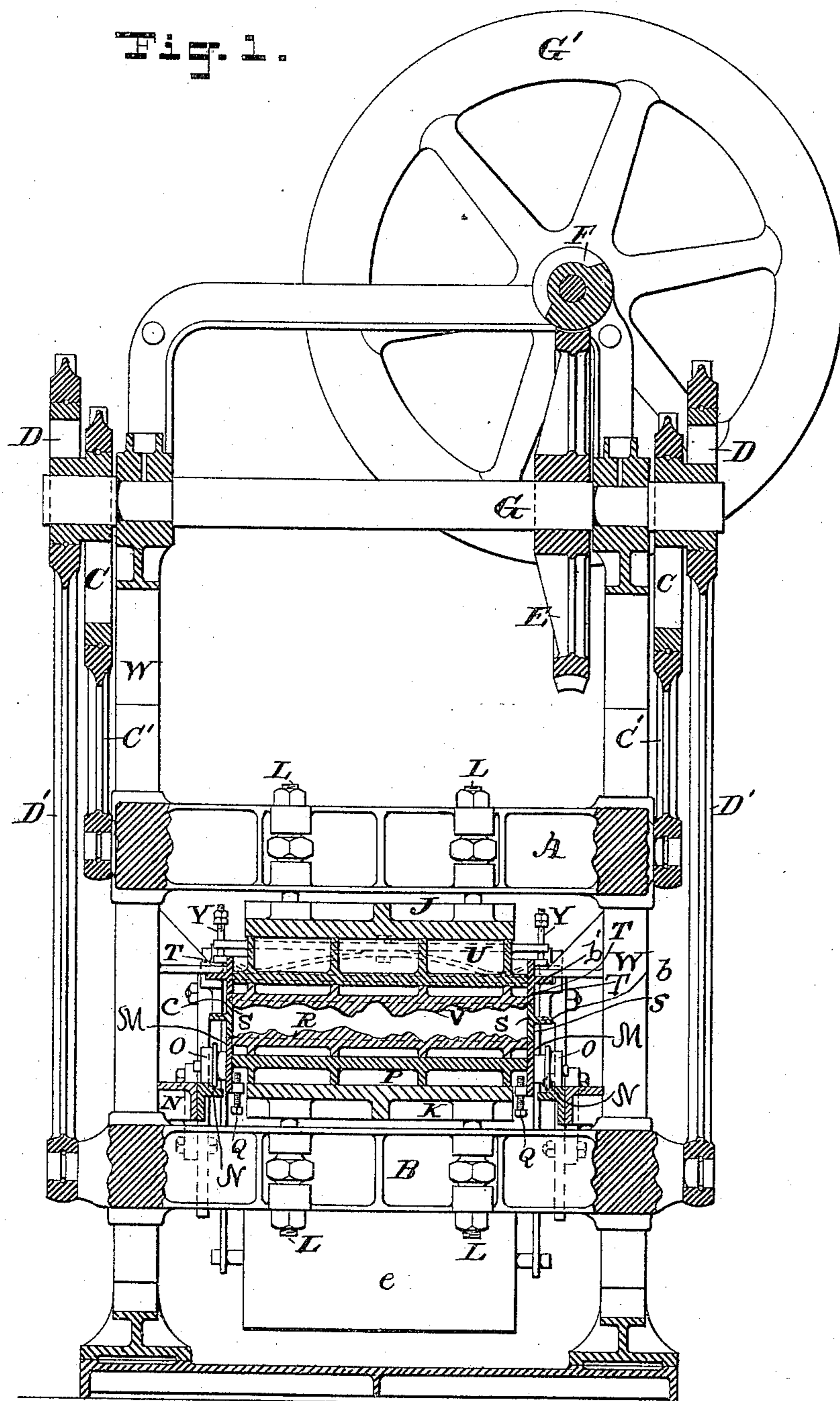
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J. DEMOGEOT.

MACHINE FOR MAKING OR PREPARING MOLDS FOR CASTING METAL.

No. 298,949.

Patented May 20, 1884.



WITNESSES:

Geo. H. Fraser.

Geo. Dainton

INVENTOR:

Jules Demogot
By his Attorneys,
Burke, Fraser & Connell

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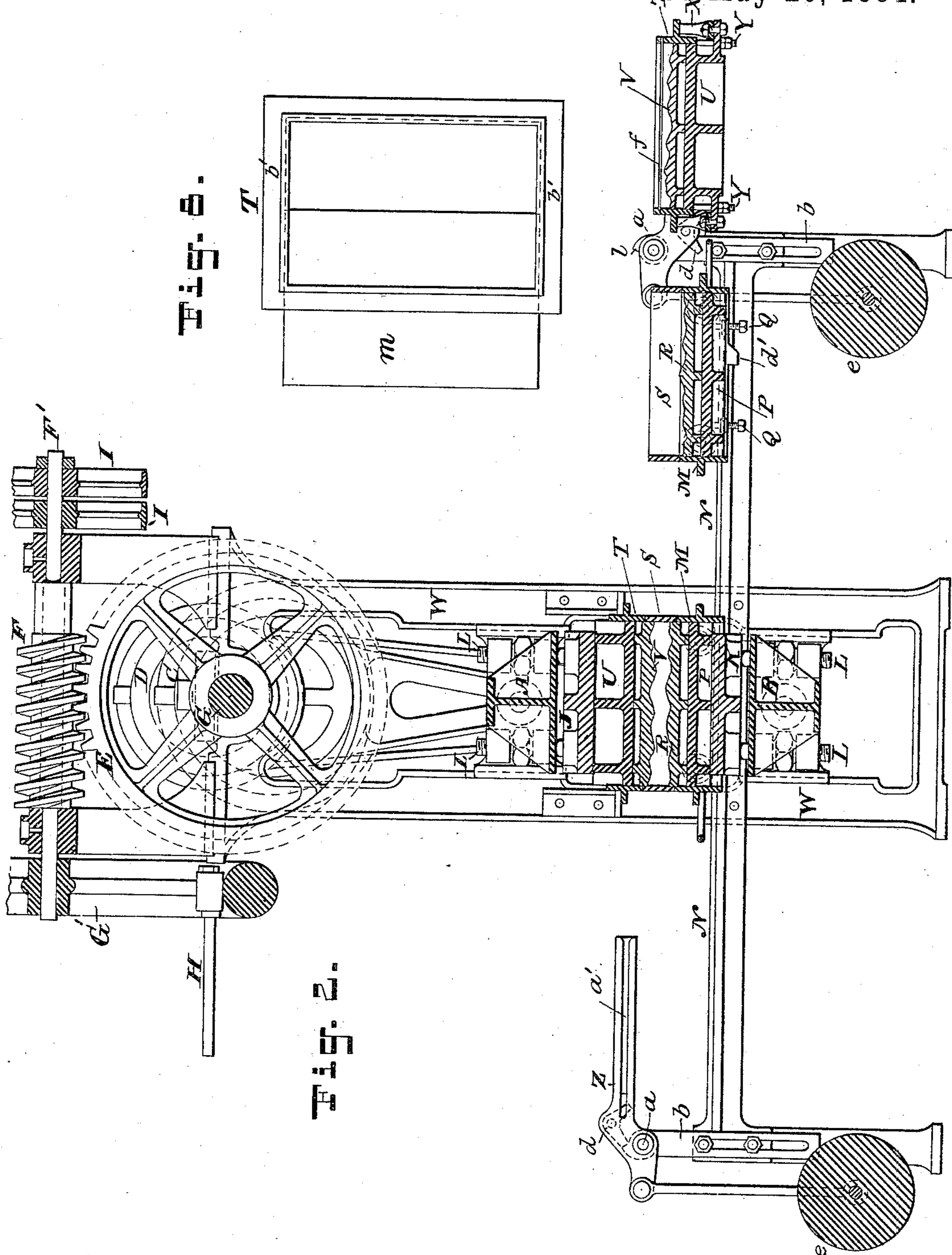
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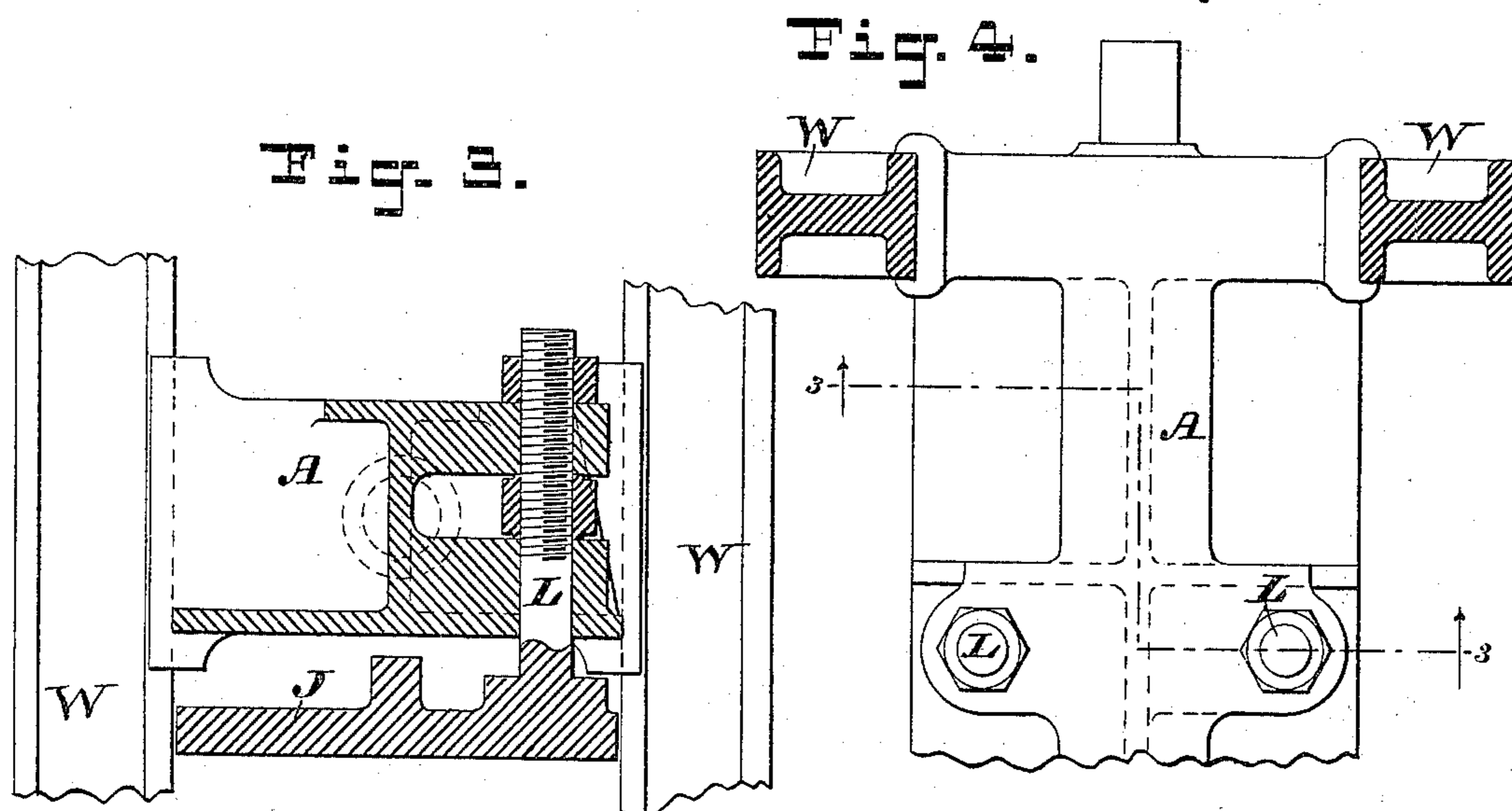
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J. DEMOGÉOT.

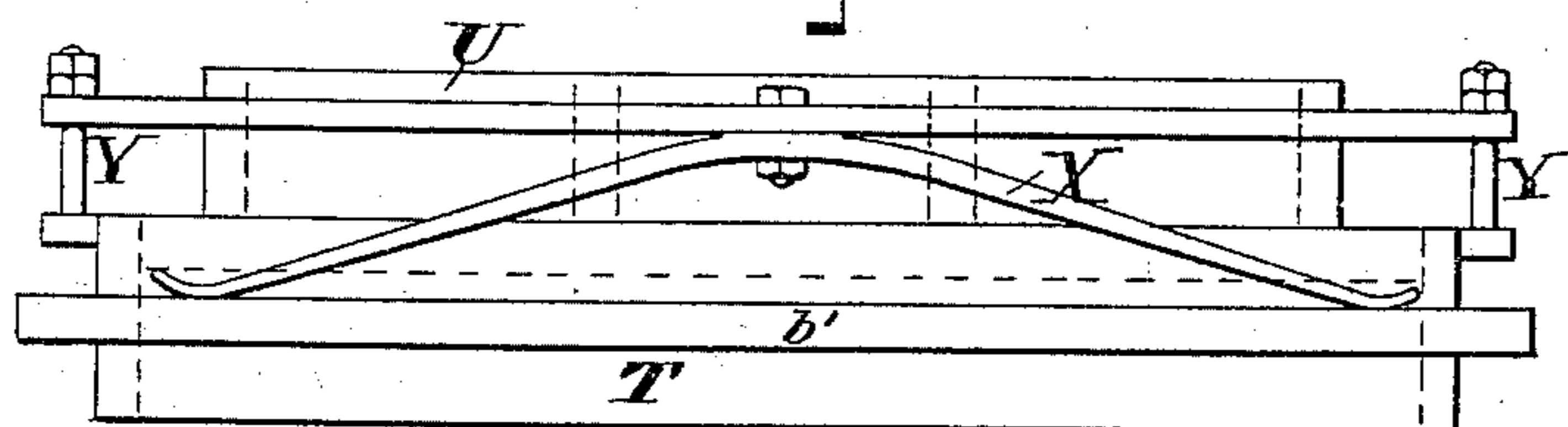
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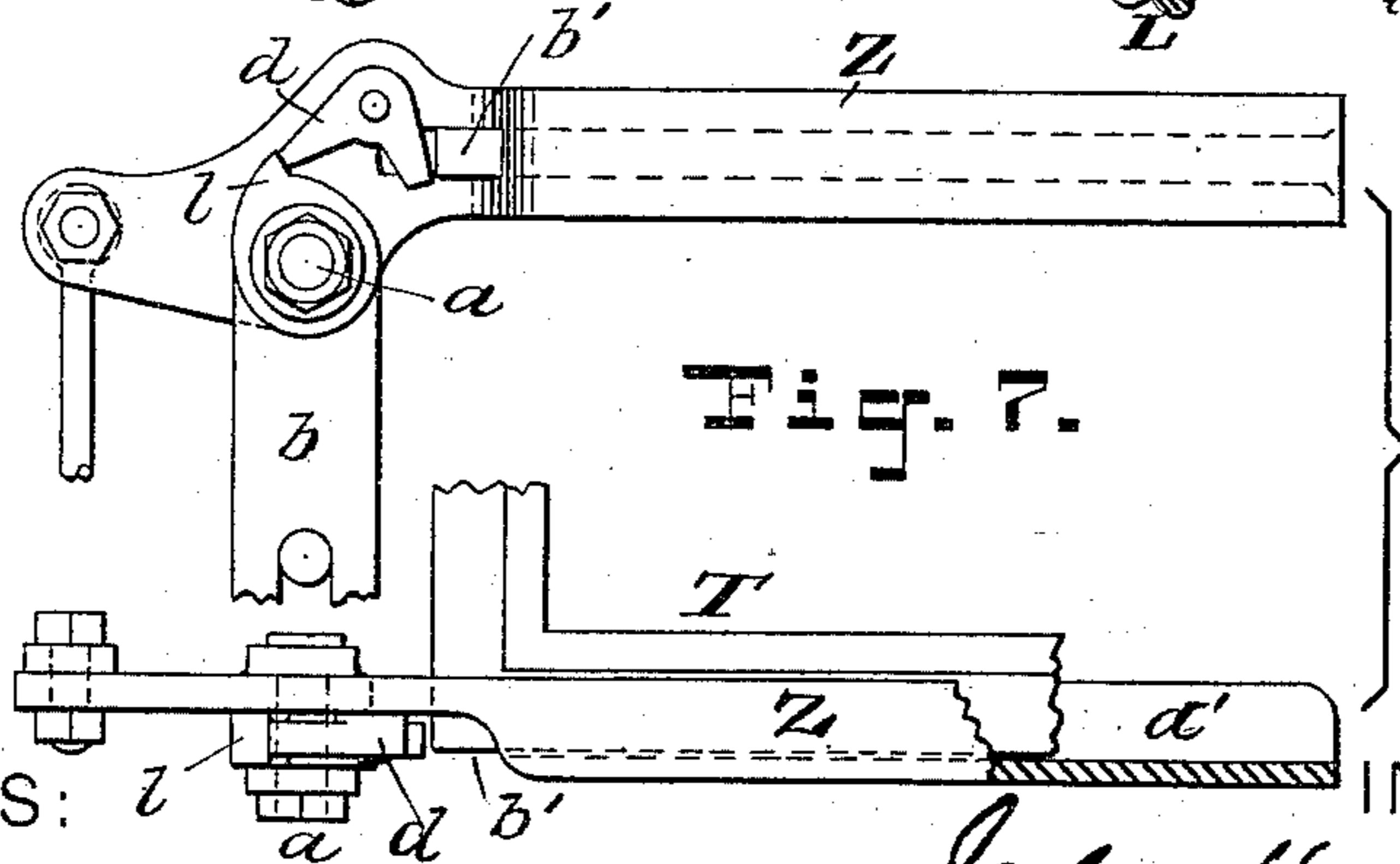
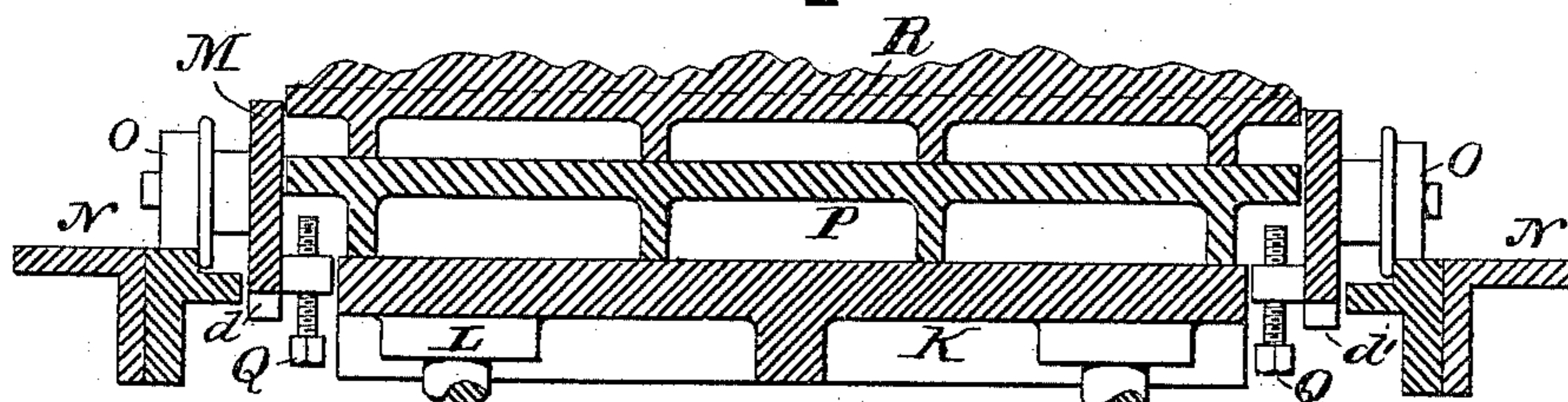
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UNITED STATES PATENT OFFICE.

JULES DEMOGEOT, OF DUNKIRK, ASSIGNOR TO THE SOCIÉTÉ L. DENONVILLIERS ET FILS, OF PARIS, FRANCE.

MACHINE FOR MAKING OR PREPARING MOLDS FOR CASTING METAL.

SPECIFICATION forming part of Letters Patent No. 298,949, dated May 20, 1884.

Application filed January 16, 1884. (No model.) Patented in France April 14, 1880, No. 136,124, and January 9, 1882, No. 146,766, and January 11, 1882, No. 146,795, and in England March 26, 1881, No. 1,354.

To all whom it may concern:

Be it known that I, JULES DEMOGEOT, a citizen of the French Republic, and a resident of Dunkirk, France, have invented certain
5 Improvements in Machines for Making or Preparing Molds for Casting Metals, of which the following is a specification.

My machine is distinguished from all others of its class by several essential peculiarities, all of which will be set forth hereinafter.

In order that my invention may be the better understood, reference may be had to the accompanying drawings, wherein—

Figure 1 is a transverse vertical section of my improved machine, taken substantially in the axis of shaft G. Fig. 2 is a longitudinal vertical section of the same. Figs. 3, 4, 5, 6, and 7 are detached detail views, on a larger scale, which will be referred to more particularly hereinafter. Fig. 8 is a plan view of the
20 box T, showing its temporary sliding cover.

The press portion of the machine is composed of a suitable frame, W, in which are arranged to slide vertically two plates or followers, A and B. At the top of this frame is rotatively mounted a shaft, G, on which are secured eccentrics C C and D D. The eccentrics C are set with their "throws" opposite to the throws of eccentrics D. The eccentrics C are coupled to the upper follower, A, by connecting-rods C', and the eccentrics D to the lower follower, B, by connecting-rods D'. Rotation of shaft G imparts a vertical reciprocating movement to followers A and B toward and from each other; but they always move in opposite directions simultaneously. Rotation is imparted to the shaft G through a worm-wheel, E, thereon, a worm or screw, F, on a cross-shaft, F', above, and a crank-wheel, G', on F', provided with a handle, H. The shaft F' may also be provided with tight and loose pulleys I for the same purpose. In order to adjust the faces of the followers toward or from each other, I provide the lower face of follower A with a plate, J, and the upper face of follower B with a plate, K, and these are connected to their respective followers by adjusting-screws L. This is best shown in Figs. 1, 3, and 4.

N is a track or tramway, on which is mounted 50 a box, M, provided with track-wheels O. In box M is arranged a plate, P, which rests on four adjusting-screws, Q, in M. On this plate rests one of the patterns R. These patterns may be constructed similar to those usually 55 employed in molding-machines—that is, each pattern bears one face or half of the article to be reproduced. I may make these of metal, plaster, or other suitable materials.

On the box M is placed the section of the 60 flask S, to receive the sand. This is or may be an ordinary flask with bars across its middle, and it may be made in two parts, separable one from the other. On the flask S is placed the upper box, T, similar to M, in 65 which is arranged a plate, U, (corresponding to P,) bearing the pattern V for the other face or article to be reproduced. The plate U rests on springs X, which take under and are secured to projecting parts on U and bear on 70 the external flange, U', on T. This construction is best illustrated in Fig. 5, which is a side elevation of T and U, showing the spring at one side. The upward movement of U is limited by nuts on the bolts or rods Y, which 75 are secured in lugs on T and pass through lugs on U.

Fig. 1 shows the several parts of the machine when the mold is finished and still under the maximum pressure—that is to say, 80 the sand in the flask S has had the patterns R and V pressed into its upper and lower faces. The rotation of the shaft G now causes the follower A to rise and the follower B to descend. The upper pattern, V, is lifted by 85 springs X till it is free from the sand, and the pattern R and plate P follow the downward movement of follower B, by reason of their weight, until they rest upon the screws Q in lugs on M. These screws serve as stops to 90 limit the downward movement of the pattern, and they are best shown in Fig. 6, which is a longitudinal section of the box M, plate K, plate P, and pattern R. This construction permits the springs X to yield as the follower 95 A rises, and thus allow the pattern to be lifted from the sand gently. It also gives a yielding elastic pressure to the pattern as it enters

the sand. When the followers have moved out of the way, the workman rolls the two boxes, M and T, the parts U V R P, and the flask S, out on track N (see to the right in Fig. 2) to the end of same, where a tilting mechanism is provided, that I will now describe.

At the end of the track N are fixed, adjustably, posts *b*, and at the tops of these, at 10 *a*, are fulcrumed levers Z. To the short arms of these levers are suspended a heavy counterbalance-weight, *e*, and the longer arms of the levers are provided with slots or grooves *a'*. A pawl or dog, *d*, on the lever Z, engages a 15 shoulder or tooth, *l*, on post *b*, whereby the weight *e* is held suspended, while the long arms of levers Z are held horizontal. On the box T is a projecting flange or rib, *b'*, which is on the same level as the groove *a'* in lever 20 Z, and when the parts are run out, as before stated, this flange on T enters the grooves in the levers, and, striking dog *d*, frees it from the shoulder on *b*. The weight *e* now counterbalances T and the parts connected there- 25 with, and these are supported in levers Z, by reason of the engagement of the ribs on T with the grooves in said levers. The construction of the levers Z and the retaining-pawl *d* is best shown in Fig. 7, which presents one of 30 said levers and its attachments in plan and elevation. The groove *a'* becomes a slot near the point where the pawl is hung, and as the flange on T passes along the groove it finally comes in contact with a tail on the pawl or 35 some part of same and trips the latter, as above stated. The workman now turns T over, so as to invert it, as shown in Fig. 2. He then lifts off the flask S containing the sand mold and deposits it in the place where 40 he wishes to make the pile of molds. Another empty flask S is now placed on box M and filled with sand. He then places sand on the face of pattern V in T until the latter is nearly full, and in order to prevent this sand 45 from falling out in turning T back to its place he slips a plate, *m*, of sheet metal into the grooves *f* in T. This is best illustrated in Fig. 8, wherein plate *m*, which passes through a narrow slot in the side of T, is shown as 50 partly inserted, in the manner of a sliding cover for a box. The box T is now turned back on the flask S and the plate of sheet metal removed, when the whole is run under the follower A to be pressed, as before de- 55 scribed.

In order that the box M may be stopped at the proper point, the latter is provided with a block or stop-piece, *d'*, on its bottom to engage a similar stop-piece placed at the proper 60 point on the track.

In order to better illustrate the construction of the attachment of the plates J and K to their respective followers, I have shown a part of follower A in plan and detached in Fig. 4, and 65 a section of the same in Fig. 3, on line 3 3 in Fig. 4.

It will be observed that each face of the

sand in S contains the mold of one face or half of the article to be reproduced. I pile these flasks S one on top of the other, securing them 70 by dowels or clamps, or both, making a vertical pile of from ten to twenty molds, and cast them all at one time.

In Fig. 2 I have shown the track or tramway N as extending out on opposite sides of the 75 press, and two tilting devices. This construction enables me to employ two sets of workmen—one engaged in pressing while the other is removing their flask and refilling.

Instead of employing a flask like that de- 80 scribed, and making a mold of one-half the article in each face, the flask S may be divisible horizontally at the middle, and the sand in them be separated by a plate or otherwise. In this case the two parts of the flask, called 85 the "drag" and "cope," will be back-to-back when subjected to pressure, and they may be afterward separated and put together, face to face, as will be well understood; or it may be feasible to make the flask in halves by a trans- 90 verse cut, so that when the sand mold is laid down the halves of the flask can be disengaged carefully therefrom and sent back to the machine. In this case, however, the sand mold 95 should be protected in some way by a wooden or other casing to prevent it from bursting when the metal is poured in.

The advantages which my machine offer to the moulder are: The rapidity with which the molds are made, both faces or halves of the 100 article being molded at one operation and in one machine; the convenience with which molds from my machine may be stacked or piled and the whole cast at one heat; the patterns last longer than when used by hand; the 105 cleanness and smoothness of the molds, owing to the gentle and steady withdrawal of the patterns therefrom; economy in casting, owing to there being but one "git" or "sinking head" for many molds. 110

My machine may be employed for making molds for casting in all metals, no matter how large or how small the castings may be, or for what purpose they are designed.

I do not claim a molding-machine wherein 115 the followers are arranged to move in opposite directions simultaneously; nor do I claim a track or tramway arranged in connection with the press for shifting the flask. These have been before proposed. 120

Having thus described my invention, I claim—

1. The combination, in a machine for making sand molds for castings, of the boxes M and T, the flask S, the plates U and P, and 125 the patterns V and R, all arranged substantially as set forth.

2. The combination, to form a mechanism for tilting the box T, of the post *b*, provided with a shoulder or projection, *l*, the slotted 130 or grooved lever Z, bearing a pawl, *d*, and the weight *e*, all arranged to operate substantially as set forth.

3. The combination with the box M, provided

with wheels O, and four screws, Q, of the plate P, mounted or resting on said screws, and the pattern R, resting on plate P, all substantially as herein set forth.

- 5 4. The combination, with the box T, provided with a flange, b', and rods Y, of the plate U, springs X, and pattern V, all constructed and arranged substantially as and for the purposes set forth.

In witness whereof I have hereunto signed to my name in the presence of two subscribing witnesses.

JULES DEMOGEOT.

Witnesses:

ADETTI,

L. VANDENBORED.