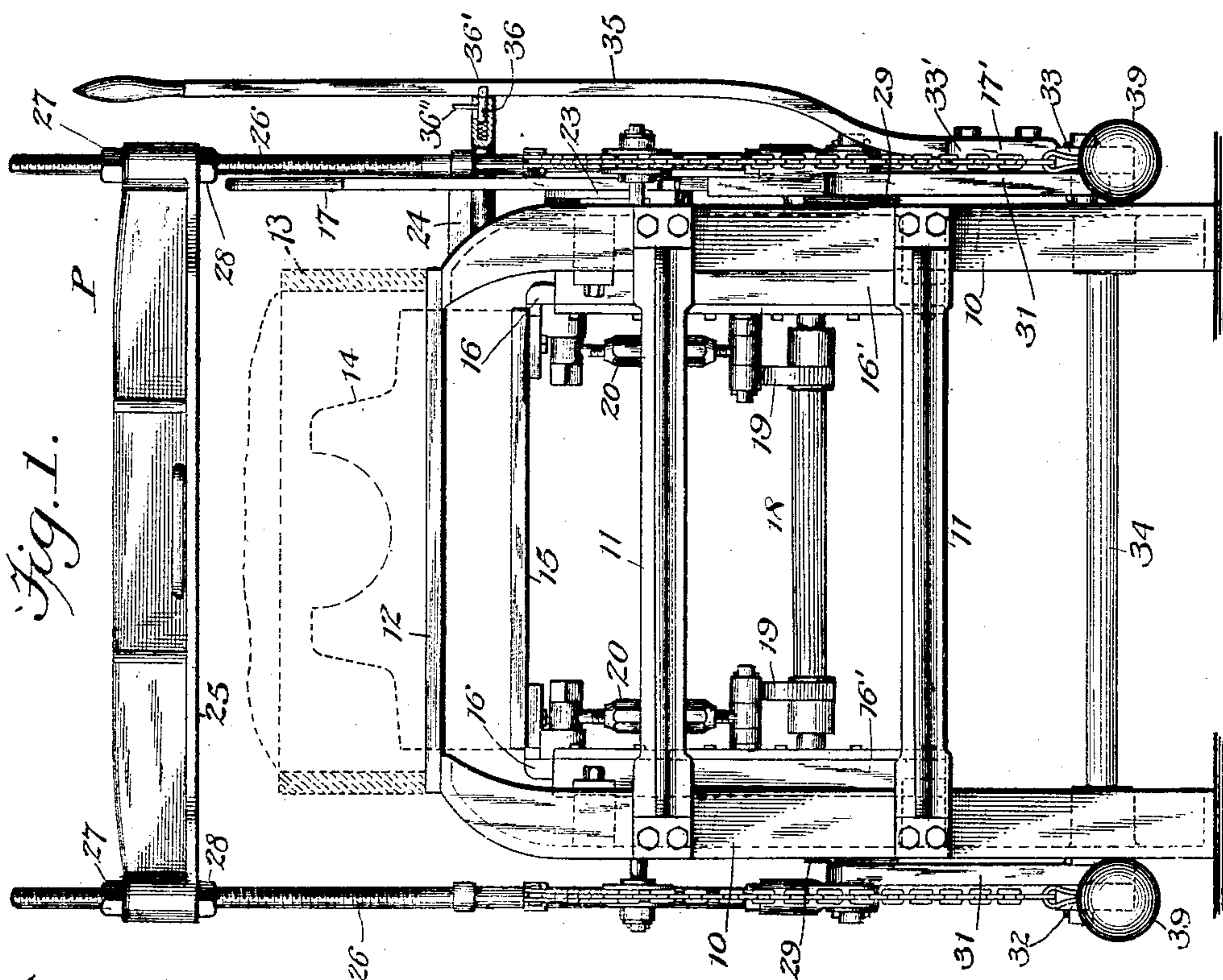
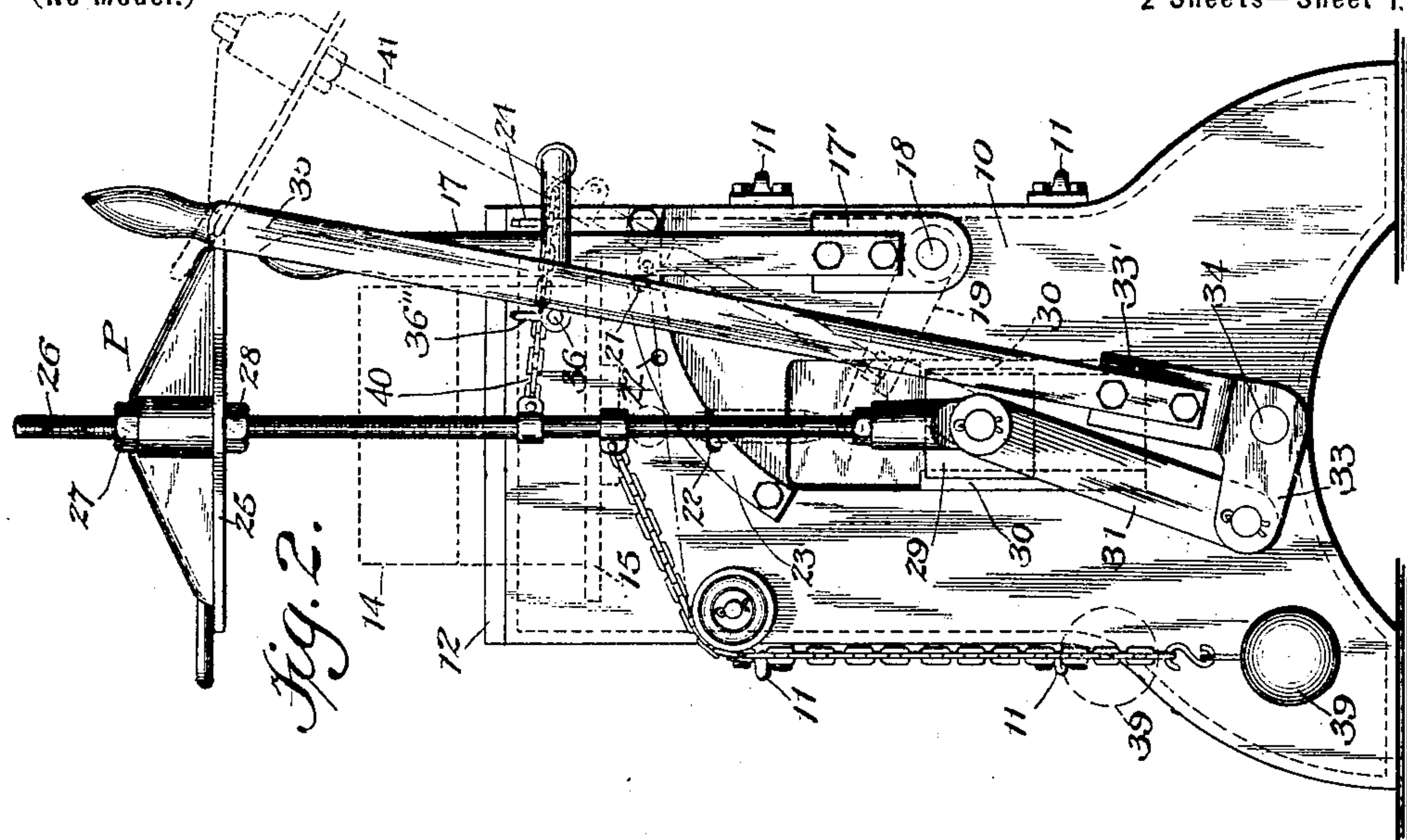


E. E. PUNZELT.  
MOLDING MACHINE.

(Application filed Mar. 28, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:-

A. R. Appelman  
Chas. T. Schuch

Inventor;  
Edward E. Punzelt,  
By his Attorney  
F. H. Richards.

No. 711,072.

Patented Oct. 14, 1902.

E. E. PUNZELT.  
MOLDING MACHINE.

(Application filed Mar. 28, 1900.)

(No Model.)

2 Sheets—Sheet 2.

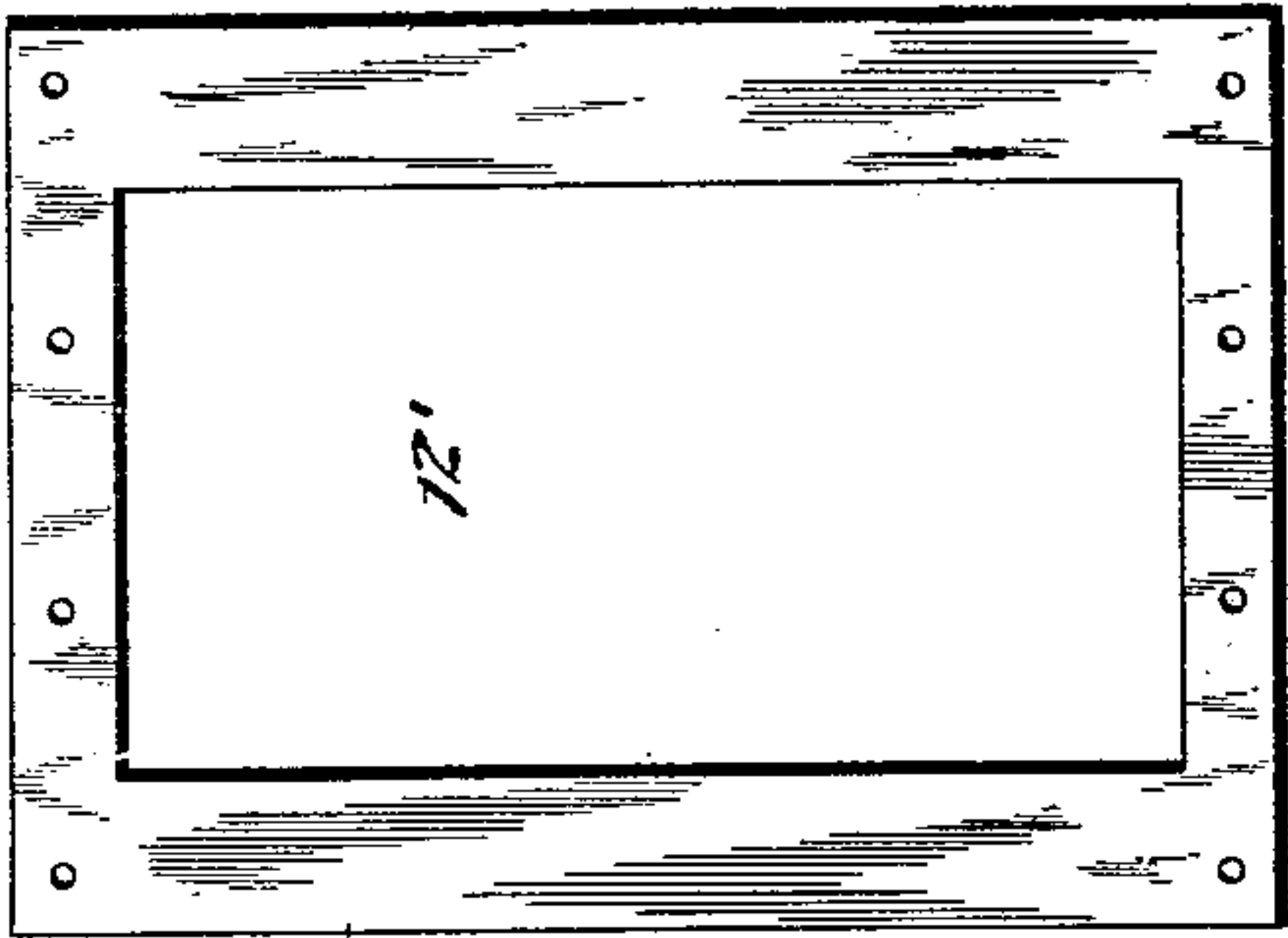


Fig. 6.

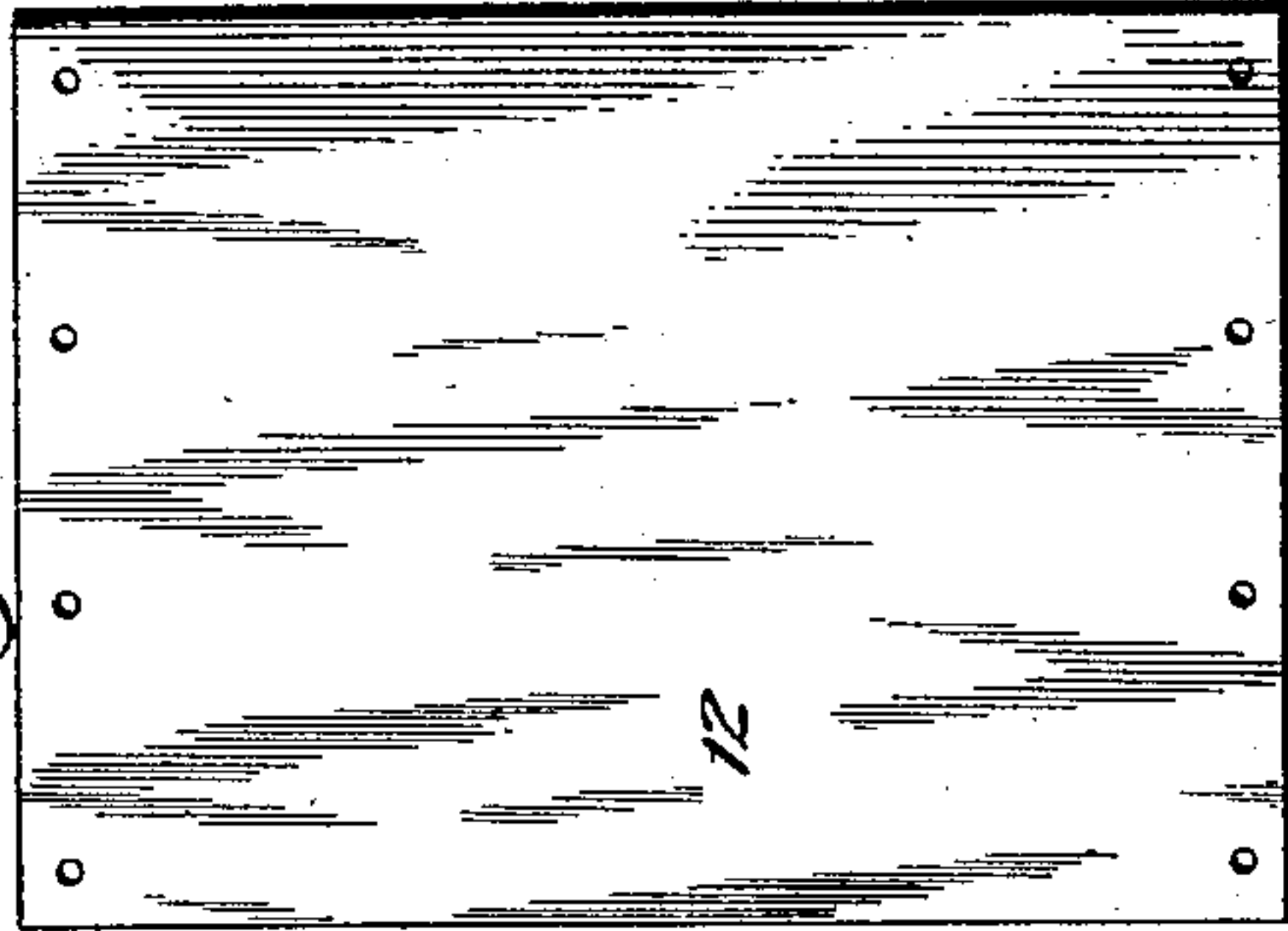


Fig. 7.

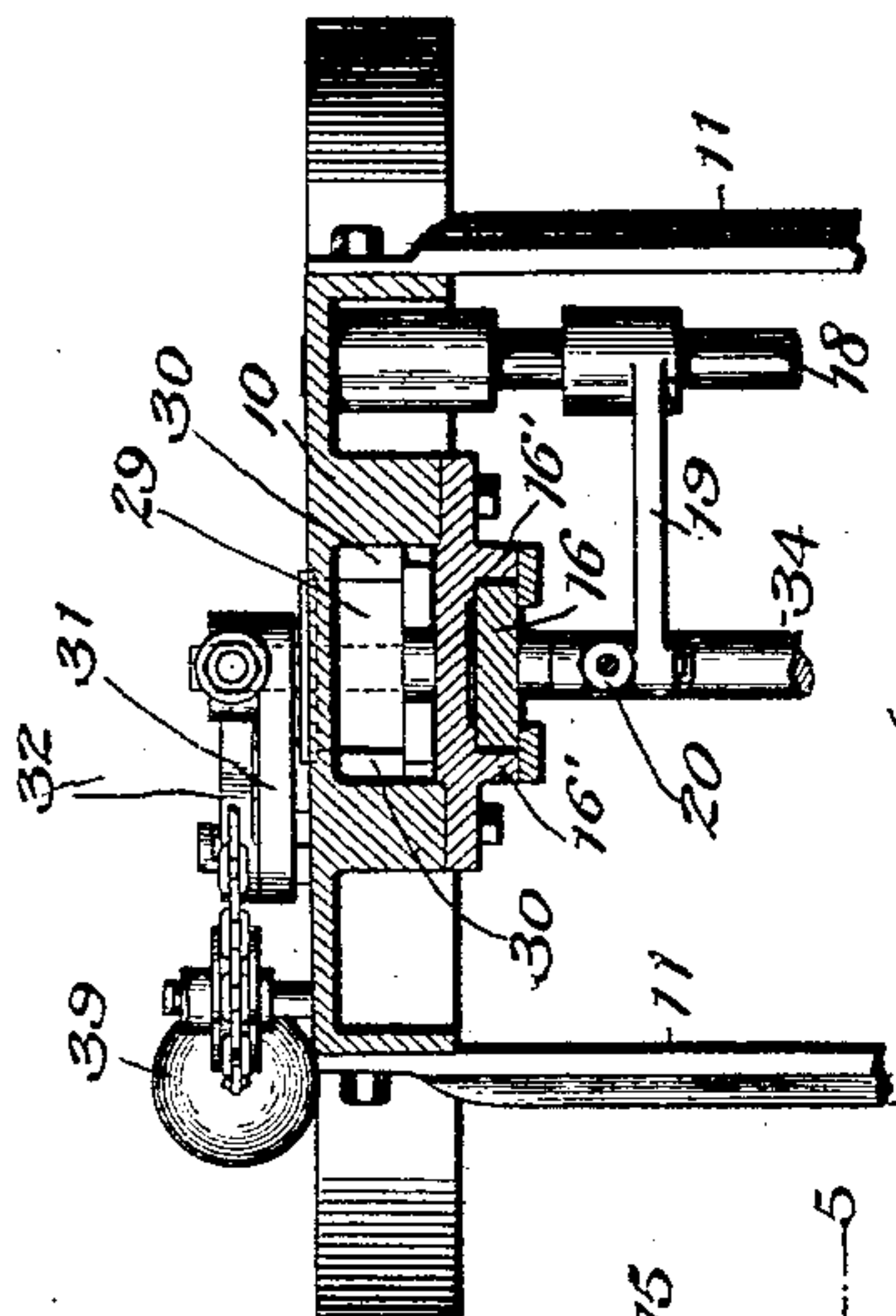


Fig. 5.

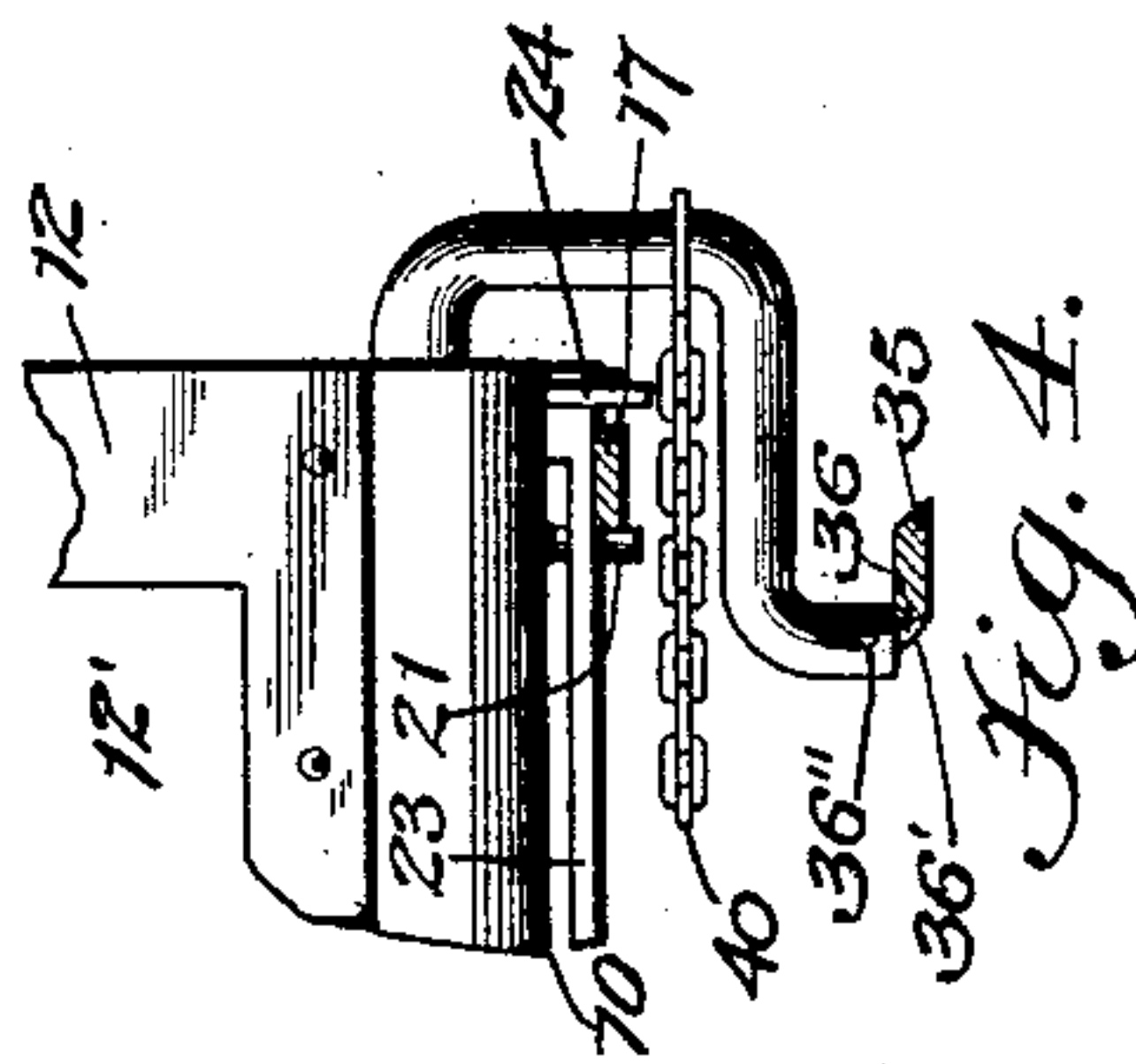


Fig. 4.

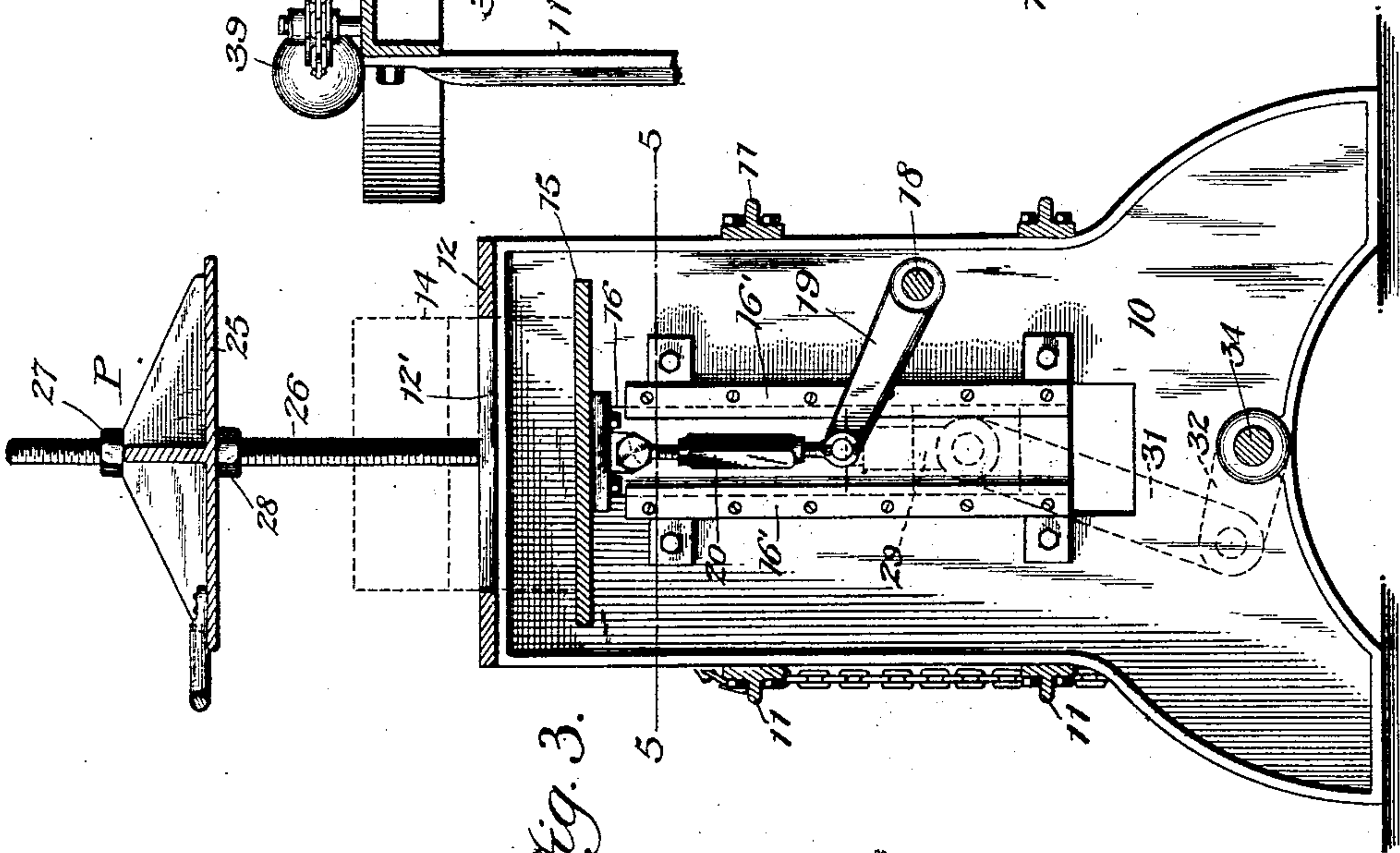


Fig. 3.

Witnesses:-

A. R. Applegate  
Chas. V. Schuch

Inventor,  
Edward E. Punzelt,  
By his Attorney,  
F. H. Rickard.



# UNITED STATES PATENT OFFICE.

EDWARD E. PUNZELT, OF ANSONIA, CONNECTICUT, ASSIGNOR TO WALTER PERRY, OF ANSONIA, CONNECTICUT.

## MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 711,072, dated October 14, 1902.

Application filed March 28, 1900. Serial No. 10,478. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD E. PUNZELT, a citizen of the United States, residing in Ansonia, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Molding-Machines, of which the following is a specification.

This invention relates to molding-machines for making molds for castings, and has for its object the provision of a machine of this character whereby molds may be accurately and rapidly produced in a systematic manner. Hence my invention includes means for supporting a flask and a table on which the pattern may be secured and which is vertically movable in order to bring the pattern to the required height above the surface of the flask-supporting means, while said table may be lowered in order to withdraw the pattern from the packed flask or mold, which latter may then be removed from the machine.

My invention furthermore includes a device for packing the sand or other mold-forming material in the flask, such device also being vertically movable and operable by hand-operated means, while said device may be tilted bodily rearward to leave the top of the flask free for access when the same is being filled with sand.

In the drawings accompanying and forming part of this specification, and in which similar characters denote similar parts, Figure 1 is a front view of my improved molding-machine, showing the pattern-table in its elevated position. Fig. 2 is an end view of the same. Fig. 3 is a central vertical cross-section thereof. Fig. 4 is a fragmentary view of one end of the machine. Fig. 5 is a horizontal section on line 5-5, Fig. 3. Fig. 6 illustrates in detail a top view of the flask-supporting means ordinarily employed in connection with the machine, and Fig. 7 is a modification of the same.

In the drawings, 10 10 denote a pair of end frames rigidly connected by ties or girders 11 and carrying at the top a plate 12, constituting means for supporting a flask, such as indicated by broken lines 13, Fig. 1. The plate 12 is preferably provided with an aperture 12', (see Fig. 6,) having a rectangular contour

corresponding to the base-line of the pattern to be molded, such a pattern being represented by dotted lines 14, Figs. 1, 2, and 3. The pattern may be secured to a table 15, which is secured near its end to slides 16, to which vertical movement in ways 16' may be imparted by means of a lever 17, secured to a hub 17', which is mounted on a horizontal rock-shaft 18. This shaft 18 carries near its ends arms, such as 19, the free ends of which are connected with the slides 16, above mentioned, by suitable links 20, which are preferably made adjustable in order to permit the proper vertical adjustment of the table relative to the flask-supporting plate 12 after the lever 17 has been set in proper position and locked—as, for instance, by a pin 21, adapted to be placed into any one of a series of apertures 22, provided therefor in a segment 23, which is suitably secured to one of the end frames 10 of the machine, while a stop 24 may serve to limit the rearward movement of the lever 17, and which adjustment of the links 20 adjusts the throw of the toggle-joints formed by the arms 19 and links 20, and consequently adjusts the length of draw of the pattern.

Means are provided for packing or compressing the sand or other mold-forming material in the flask, these means consisting, substantially, of a follower or packing device, (designated in the general way by P,) including a platen 25, supported near its end on vertical rods 26, which are screw-threaded at their upper ends and carry adjustable nuts 27 28, between which said platen 25 is clamped in place. The rods 26 are pivotally supported at their lower ends on slides 29, which are vertically movable in ways 30 and supported by links 31, the lower ends of which are attached to arms 32 33, securely held on a rock-shaft 34. One of said arms—as, for instance, that designated by 33—is preferably a bell-crank, the branch 33' of which is adapted to receive a hand-lever 35, which consists of the operating member of the rammer-actuating means just described, and whereby a rocking movement may be imparted to the shaft 34, as will be readily understood.

The organization of the packing device and its mechanism is such that the packer-platen



25 tends to operate by gravity. Hence means are provided for retaining said device in elevated position, these means consisting in the present instance of a spring-actuated detent, such as 36, (see Fig. 4,) suitably held on the frame. The forward end of said device 36 may be beveled, as shown at 36', to permit the detent to be forced back by the lever 35 during the last portion of the rearward movement of the latter. A thumb-piece 36" may be provided on the detent for retracting the latter to release the lever therefrom when the device is to be operated. The packing device is preferably of the "tiltable" type, the rods 26 being pivoted with their lower ends to the slides 29, above mentioned, to permit of its tilting, and a counterweight, such as 39, may be employed to maintain the device in vertical operating position, while a stop-chain 40 may serve to limit the forward tilting movement of the device. The packing device may be tilted rearward to permit free access to the flask when the same is being filled with sand or other mold-forming material, as shown by dotted lines 41, Fig. 2.

The operation of my improved molding-machine is as follows: The packing device P being in its raised and tilted position, an empty flask is placed on the table 12, and the table 15, having the pattern to be molded secured thereon, is elevated until said pattern projects into the flask to the desired extent. The flask is then filled with sand or other suitable mold-forming material, and the packing device is then tilted forward into its operating position. The detent 36 may now be withdrawn from engagement with the lever 35, which is then pulled forward, this action resulting in a downward movement of the packing device for packing and compressing the sand firmly around the pattern in the flask. The packing device may now be raised and more sand added and packed into the flask until the mold-forming material is tightly packed, after which the pin 21 may be withdrawn from engagement with the lever 17, which may then be pulled forward, and thus lower the pattern-supporting table and withdraw the pattern from the mold. The latter, being now completed, may be removed and another empty flask substituted therefor, when the operation is repeated, as above described. The length of draw which this organization affords admits of the pattern being stooled on the pattern-plate and also permits the use of a deep one-piece pattern.

Having described my invention, I claim—

60 1. In a molding-machine, the combination with a flask-support, of a platen, supports therefor pivoted to slides movable in ways, a pivoted lever, connections between the slides and lever, a weight connected to the platen-support above its pivotal point, and a stop-chain also connected to one of the supports.

2. A molding-machine comprising a frame,

a flask-supporting means supported on said frame, ways secured on the inside of said frame, slides movable in said ways, a pattern-table carried by said slides, a rock-shaft, arms carried by said shaft, adjustable links connecting said arms and said slides, a lever carried by said rock-shaft, means for securing said lever in different positions, ways mounted on the outside of said frame, slides movable in the outside ways, rods pivotally mounted on said outside slides and normally extending above said frame, a platen adjustably mounted on the upper end of said rods, a rock-shaft, bell-crank levers carried by said last-named rock-shaft, links connecting an arm of each bell-crank lever to each of the outside slides, a lever secured to the other arm of one of said bell-crank levers, ways connected to said platen-support above its pivotal point, and a stop-chain having a support.

3. In a molding-machine having a frame, the combination with a flask-support, of a pattern-table, ways on the inside of said frame, slides mounted in said ways, adjustable links connecting said pattern-table and said slides, a rock-shaft, arms and a lever carried by the rock-shaft, said arms connected with said slides, a platen normally above said flask, ways secured to the outside of said frame, slides movable in said outside ways, platen-supports pivoted to said outside slides, a rock-shaft provided at its ends with arms, ways in the form of a bell-crank lever, links connecting the outside slides and said arms, a lever secured to the other arm of the bell-crank lever, and a stop-chain also connected to one of the supports.

4. In a molding-machine, the combination with a frame, of a flask-support, ways on the inside of said frame, slides moving in said ways, a pattern-table mounted upon said table, rocking arms connected to said slides, a lever for rocking said arms, means for securing the lever in different positions, a platen normally above said flask-support, ways on the outside of said frame, slides movable in said outside ways, platen-supports pivoted to said outside slides, a rock-shaft, a lever for rocking said shaft, connections between the outside slides and said latter lever, ways connected to the platen-support above its pivotal point, and a stop-chain also connected to one of said supports.

5. In a molding-machine having a frame, the combination with a flask-support, of a pattern-table, ways on the inside of said frame, slides mounted in said ways, adjustable links connecting said pattern-table and said slides, a rocking shaft, arms and a lever carried by said rocking shaft, said arms connected with said slides, the platen normally above said flask, ways secured to the outside of said frame, slides movable in said outside ways, platen-supports pivoted to said outside slides, a rocking shaft provided at its ends with arms, one in the form of a bell-crank lever, links connecting the outside slides and



said arms, a lever secured to the other arm of the bell-crank lever, and a stop-chain also connected to one of the supports.

5 6. In a molding-machine, the combination with a rectangular flask-supporting member provided with an opening, of a pattern-table mounted thereupon; slides movable in ways on the inside of said frame and adapted to register within said opening, so as to bring  
10 the pattern above said supporting member; rocking arms connected to said slides; a lever for rocking said arms; means for securing the lever in different positions; a platen, supports therefor pivoted to slides in ways on the  
15 outside of said frame; a rock-shaft and a lever for rocking said shaft; connections between the outside slides and said latter lever; weights connected to said platen-support above its pivotal point; and a stop-chain also  
20 pivoted to one end of said supports.

7. In a molding-machine, the combination

with a flask-supporting member provided with an opening so that the pattern may be admitted to the flask from the under side of  
a vertical advanceable pattern-table; slides 25 mounted in ways on the inside of the frame of said machine; adjustable links connecting said pattern-table and said slides; a rock-shaft; arms and a link carried by said rock-shaft; said arms connected with said slides; 30 a platen; supports therefor pivoted to slides moving in ways secured to the outside of said frame; a rock-shaft and lever for rocking the said shaft; links connecting the outside slides and the latter lever; weights connected to 35 the platen-support above its pivotal point; and a stop-chain also connected to one of said supports.

EDWARD E. PUNZELT.

Witnesses:

C. E. BURTON,

L. K. BLACKMAN.