

No. 704,712.

Patented July 15, 1902.

W. M. DUNCAN.
MOLDING MACHINE.

(Application filed July 3, 1901.)

(No Model.)

2 Sheets—Sheet 1.

Fig. I.

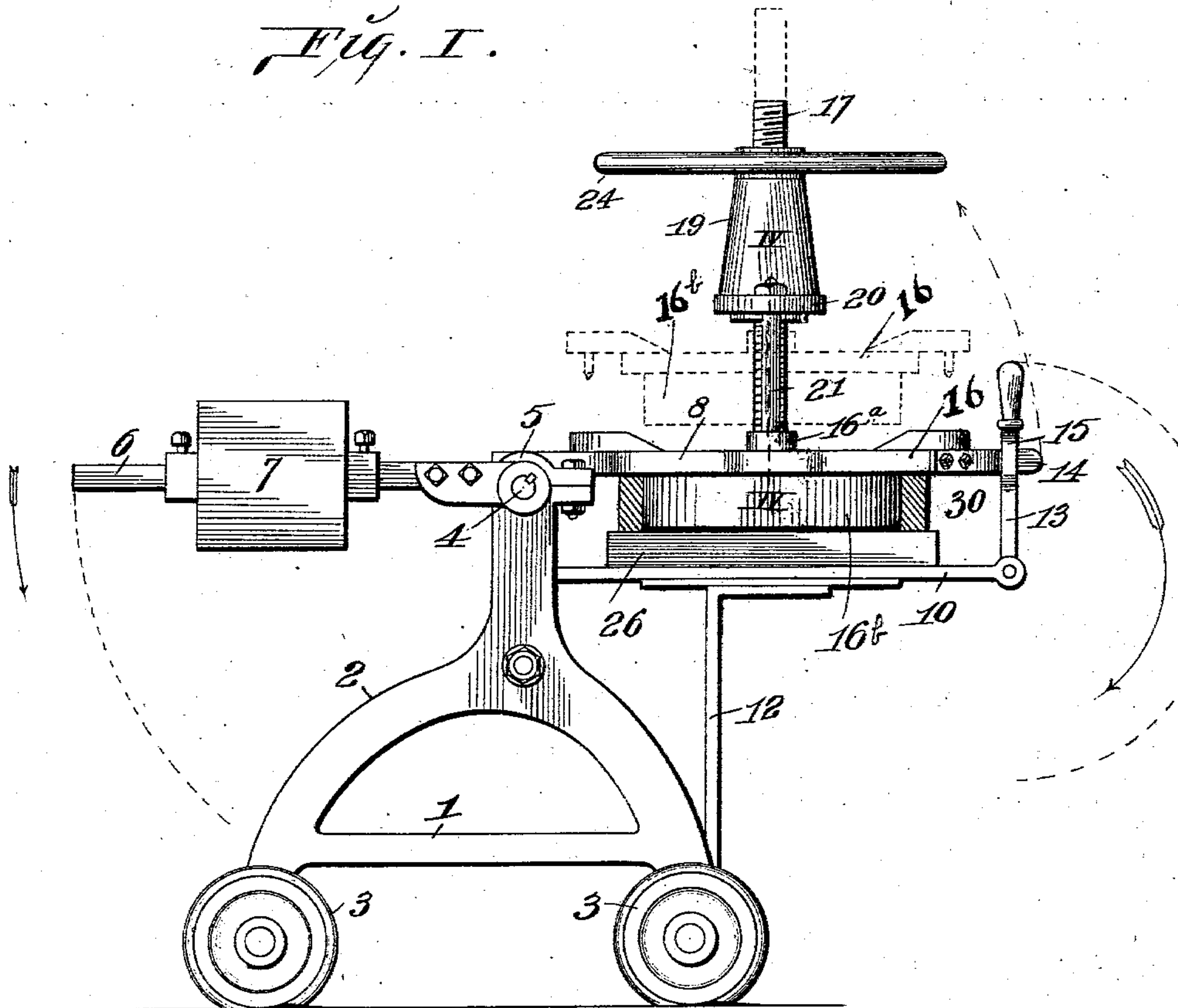
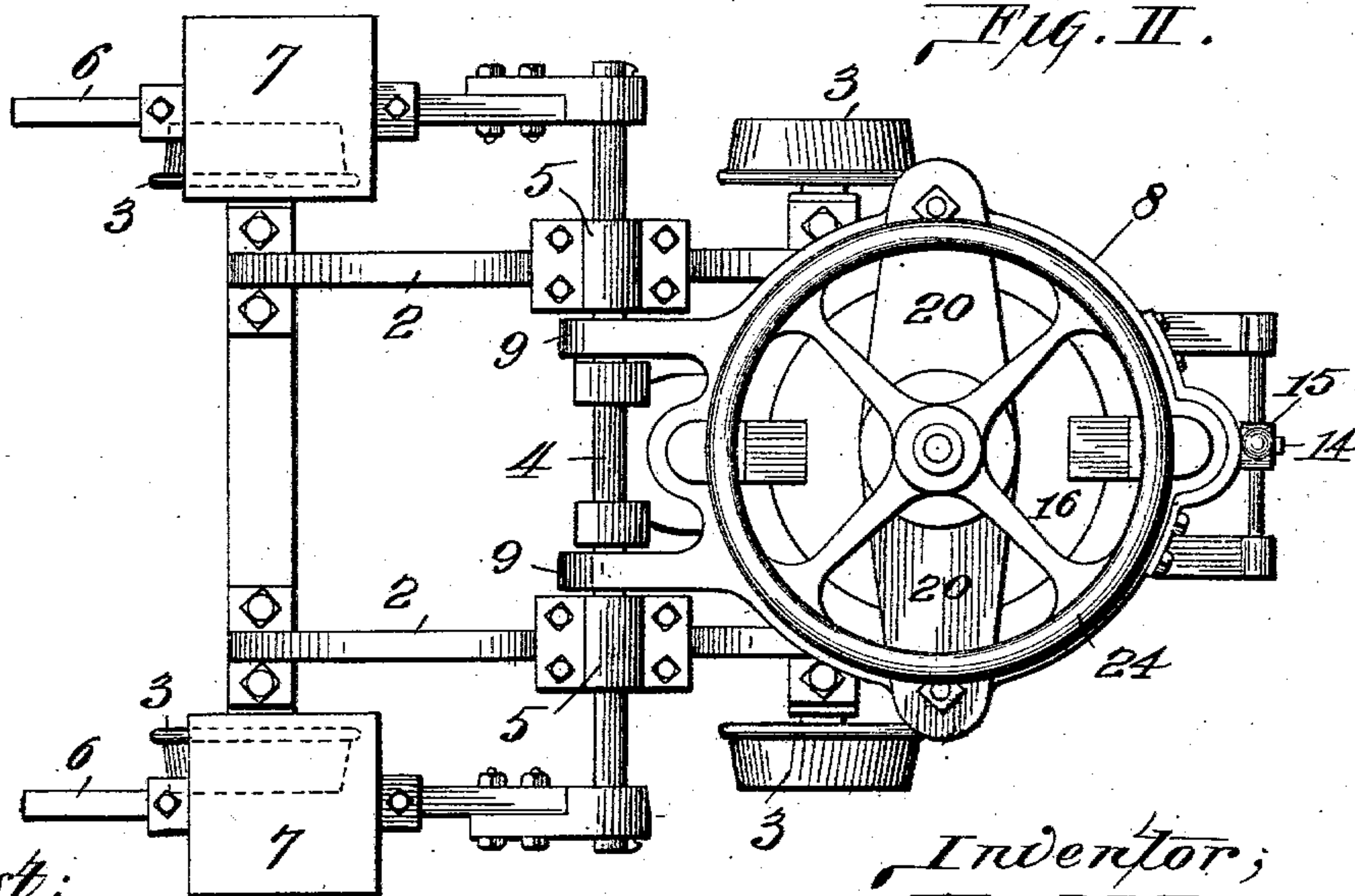


Fig. II.



attest;
M. Smith
E. Knight

Inventor;
Wm. M. Duncan.
By *Wright & Bro*
attys.

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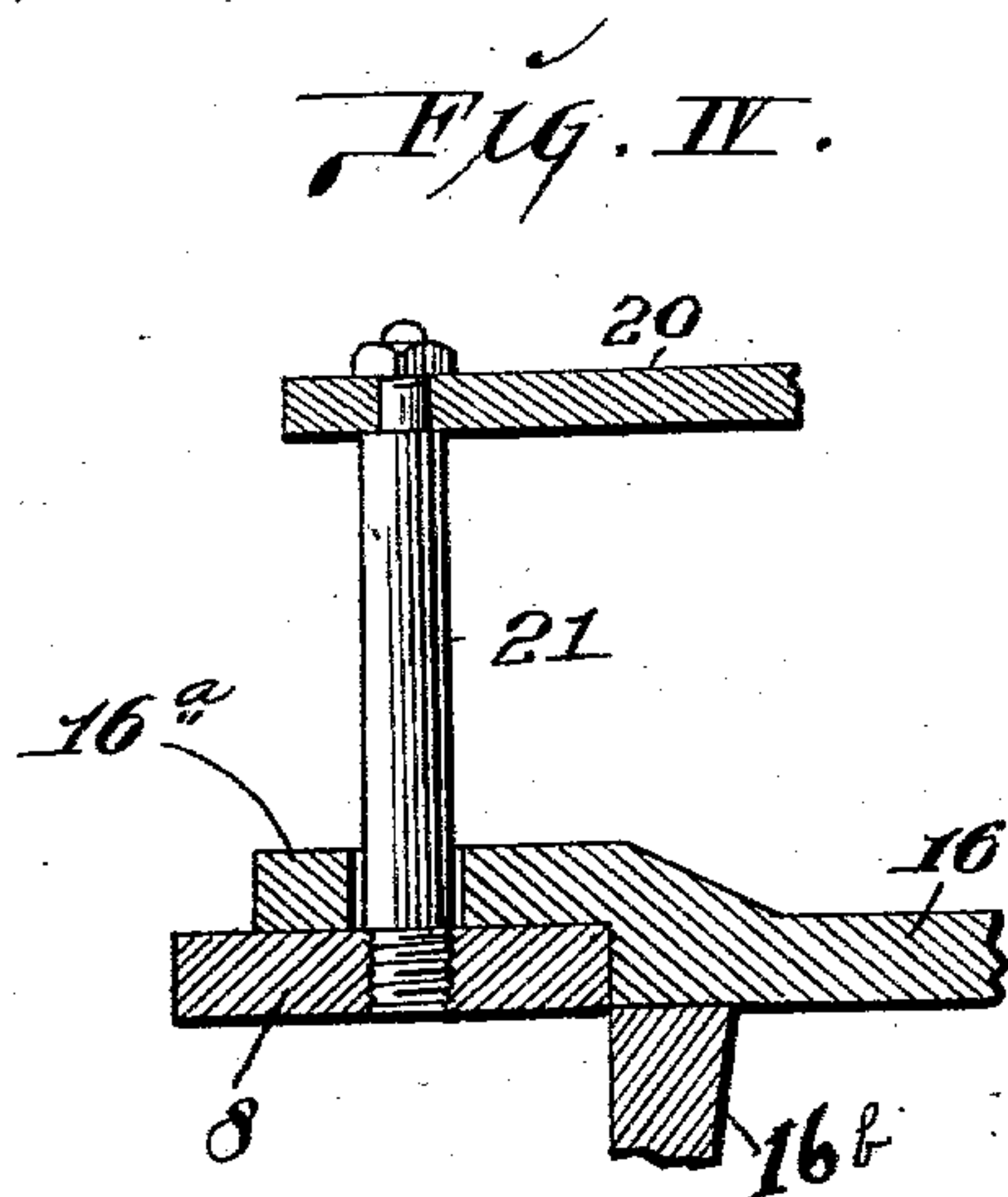
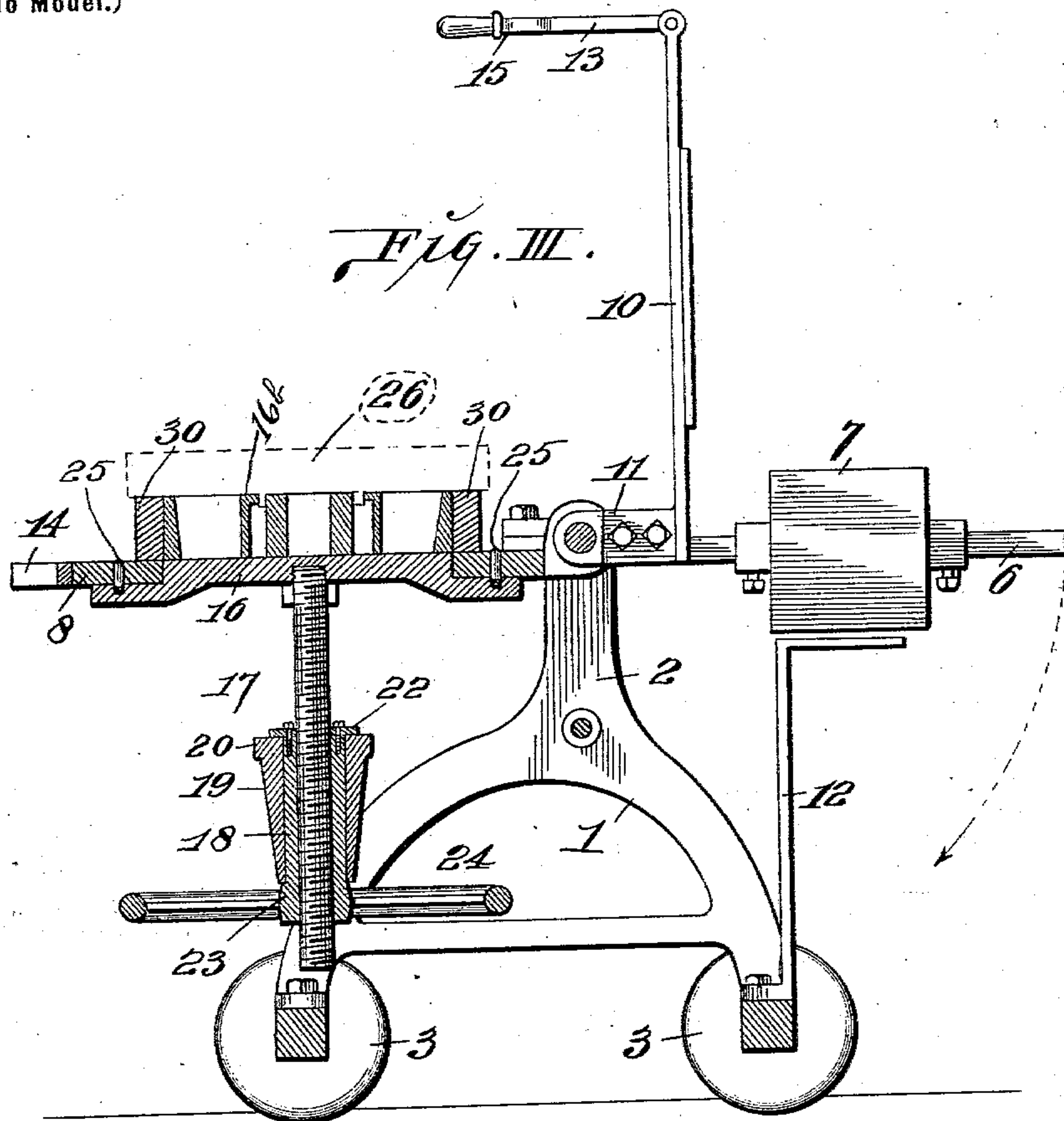
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attest:—
M. Smith
E. Knight

Inventor:
Wm. M. Duncan;
By *Wright Bro*
attys

UNITED STATES PATENT OFFICE.

WILLIAM M. DUNCAN, OF ALTON, ILLINOIS, ASSIGNOR OF ONE-HALF TO
JAMES DUNCAN, OF ALTON, ILLINOIS.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 704,712, dated July 15, 1902.

Application filed July 3, 1901. Serial No. 66,945. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. DUNCAN, a citizen of the United States, residing at Alton, in the county of Madison and State of Illinois, have invented certain new and useful Improvements in Molding-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to produce a machine in which after the mold is formed it, together with the pattern, can be inverted and the pattern then withdrawn and moved back to its original position, so that another mold can be formed while the casting is being made in the first-mentioned mold.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a side view of my improved machine, showing the parts in the position that they occupy after a mold has been formed and, with the pattern, inverted by being transferred to the other side of the machine, the pattern being shown by dotted lines in its raised position. The chill-ring is shown in section. Fig. II is a top or plan view with the parts in the same position as shown in Fig. I. Fig. III is a vertical section showing the parts in position for forming a mold, the clamping-plate being shown in a vertical position as in the act of being reversed. Fig. IV is an enlarged detail vertical section taken on line IV IV, Fig. I.

Referring to the drawings, 1 represents a carriage consisting of a suitable framework 2, supported on wheels 3 to provide for the movement of the machine from one part of the molding-room to another.

Journaled in the upper part of the frame 2 is a shaft 4, connected to the frame by suitable boxes 5. Rigidly connected to the outer ends of the shaft are arms 6, that support adjustable counterbalance-weights 7.

Rigidly secured to the shaft 4, preferably between the boxes 5, is a frame 8, having extensions 9, through which the shaft passes and which are keyed to the shaft, so that the frame, the shaft, and the counterbalance-weights all turn together.

10 represents a clamping-plate loosely pivoted to the shaft 4 by means of right-angle extensions 11, through which the shaft passes. When in the position shown in Fig. I, this plate rests upon a stationary bracket 12, secured to the frame of the machine, and forms the support for the mold. The plate is adapted to be swung over to the other side of the machine, and when so moved it is positioned over the frame 8, (see Fig. III,) to which its outer end is made fast by means of a pivoted handle 13, adapted to fit over a projection 14 on the frame, the handle having a slot at 15, that receives the projection 14 and holds the plate to the frame.

16 indicates the pattern-supporting plate upon which the pattern 16^b is supported, which, together with the pattern 16^b, is adapted to fit in the frame 8, as seen in Fig. III, and which is supported by a threaded rod 17, surrounded by a threaded sleeve 18, loosely fitting within a hub 19. The hub has horizontally-extending arms 20, that are connected to the frame 8 by means of standards 21. The sleeve 18 is held from longitudinal movement within the hub 19 by means of a plate 22 on one end and an enlargement 23 on its other end.

24 represents a hand-wheel secured to the sleeve 18 and by means of which the sleeve can be turned to move the rod 17 and draw the pattern-supporting plate 16 and the pattern 16^b away from the frame 8.

The pattern-supporting plate is provided with dowel-pins 25, adapted to seat in holes formed in the frame 8 for the purpose of centering the pattern-supporting plate. The pattern-supporting plate (see Fig. IV) has perforated arms 16^a, that receive the standards 21, and the pattern-supporting plate is thus guided while being moved by the rod 17.

30 represents a chill-ring surrounding the pattern 16^b and between which and the mold the metal is poured when the pattern is removed.

The operation of the machine is as follows: When a mold is being formed, the parts are in the positions shown in Fig. III, except that the clamping-plate would not be moved up to the vertical position shown in Fig. III, but would rest down upon the bracket 12, as

shown in Fig. I. After the mold is formed the bottom-board 26 is placed on top of the mold and chill-ring, and the plate 10 is then swung over onto the bottom-board and the handle 13 caused to engage the frame 8 by fitting over the projection 14. The parts are then reversed by moving them to the position shown in Fig. I, after which the pattern 16^b is removed from the mold by turning the sleeve 18, the pattern-supporting plate and the pattern being thus moved into the position shown by dotted lines in Fig. I. As the pattern is removed the bottom-board, the chill-ring, and the mold remain resting on the plate 10. The next act is to release the frame 8 from the plate 10, which is done by swinging the handle 13 downwardly in the direction of the arrow in Fig. I. The frame 8 is next moved upwardly and with the pattern, and the parts that support the pattern are transferred back to the other side of the machine by the rotation of the shaft 4. The pattern and frame are now in position for another mold to be formed while the casting is being formed in the first-mentioned mold. The operation thus goes on continuously, and with the use of this machine the castings can be rapidly made and very much more quickly than when the mold is formed and the pattern withdrawn in the old way.

I claim as my invention—

1. In a molding-machine, the combination

of a support, a counterbalanced shaft journaled in said support, a frame keyed at one side to said shaft, a hub having horizontally-extending arms, standards connecting the arms of the hub to the frame, a pattern-supporting plate carrying a pattern movable in the frame, and provided with perforations that receive the standards, a threaded rod extending from the frame, a sleeve held against movement by the hub, surrounding the threaded rod, a hand-wheel secured to the sleeve, a clamping-plate having a right-angled extension which is loosely pivoted to the counterbalanced shaft, and a bracket secured to the support at one side of the counterbalanced shaft and adapted to support the mold.

2. In a molding-machine the combination with a counterbalanced shaft, a frame keyed to said shaft, a locking projection on said frame and a pattern-supporting plate carrying a pattern adapted to fit in said frame, of a clamping-plate pivotally connected to said shaft, and a locking-handle pivoted to the outer end of the clamping-plate and provided with a slot which is adapted to engage the said projection on the frame; said clamping-plate being adapted to be reversed with the pattern and frame.

WILLIAM M. DUNCAN.

In presence of—

N. N. NEUITT,
E. P. WADE.