

No. 812,820.

PATENTED FEB. 20, 1906.

C. J. CALEY.
MOLDING MACHINE.
APPLICATION FILED MAR. 24, 1905.

Fig. 1.

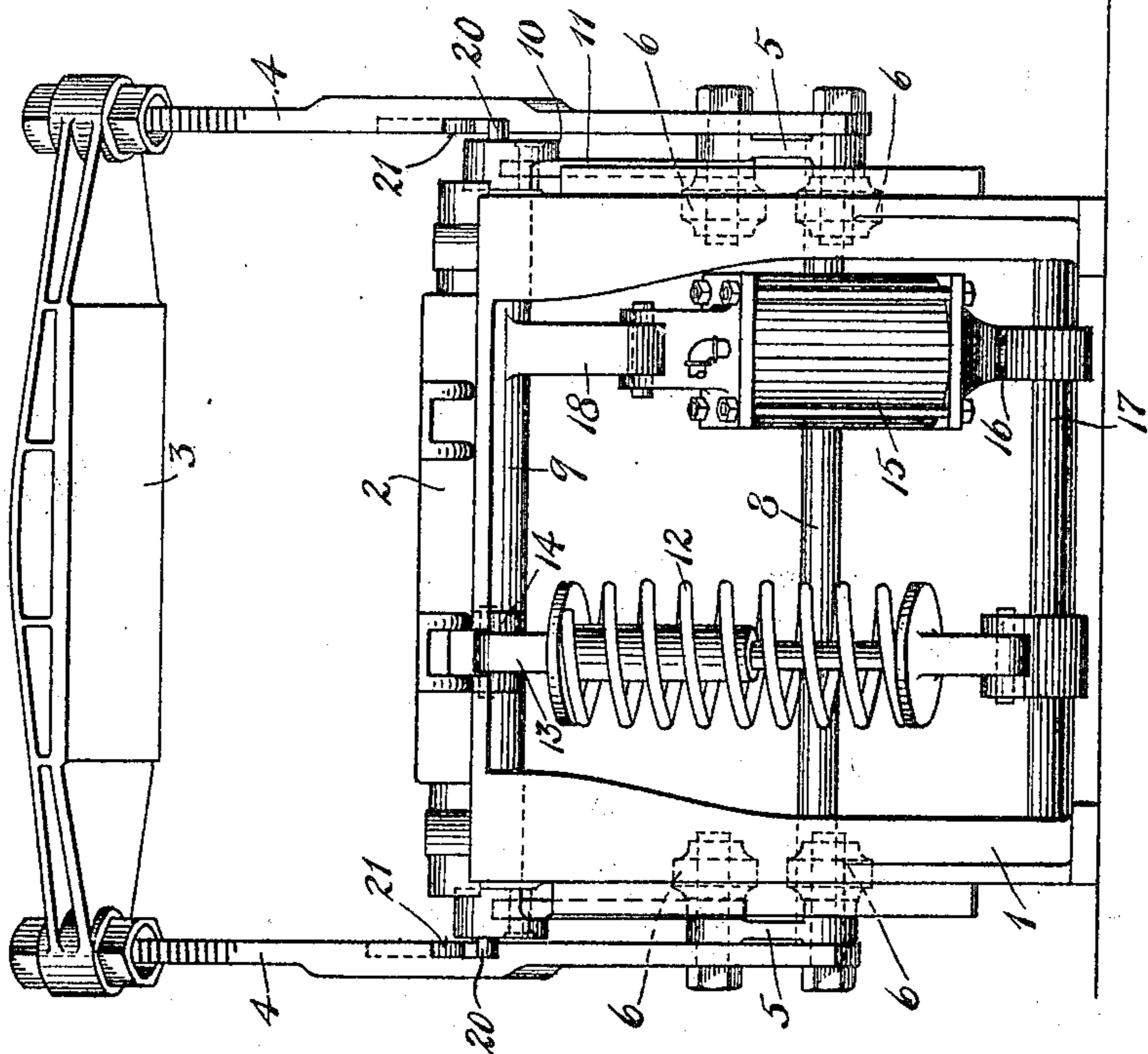


Fig. 2.

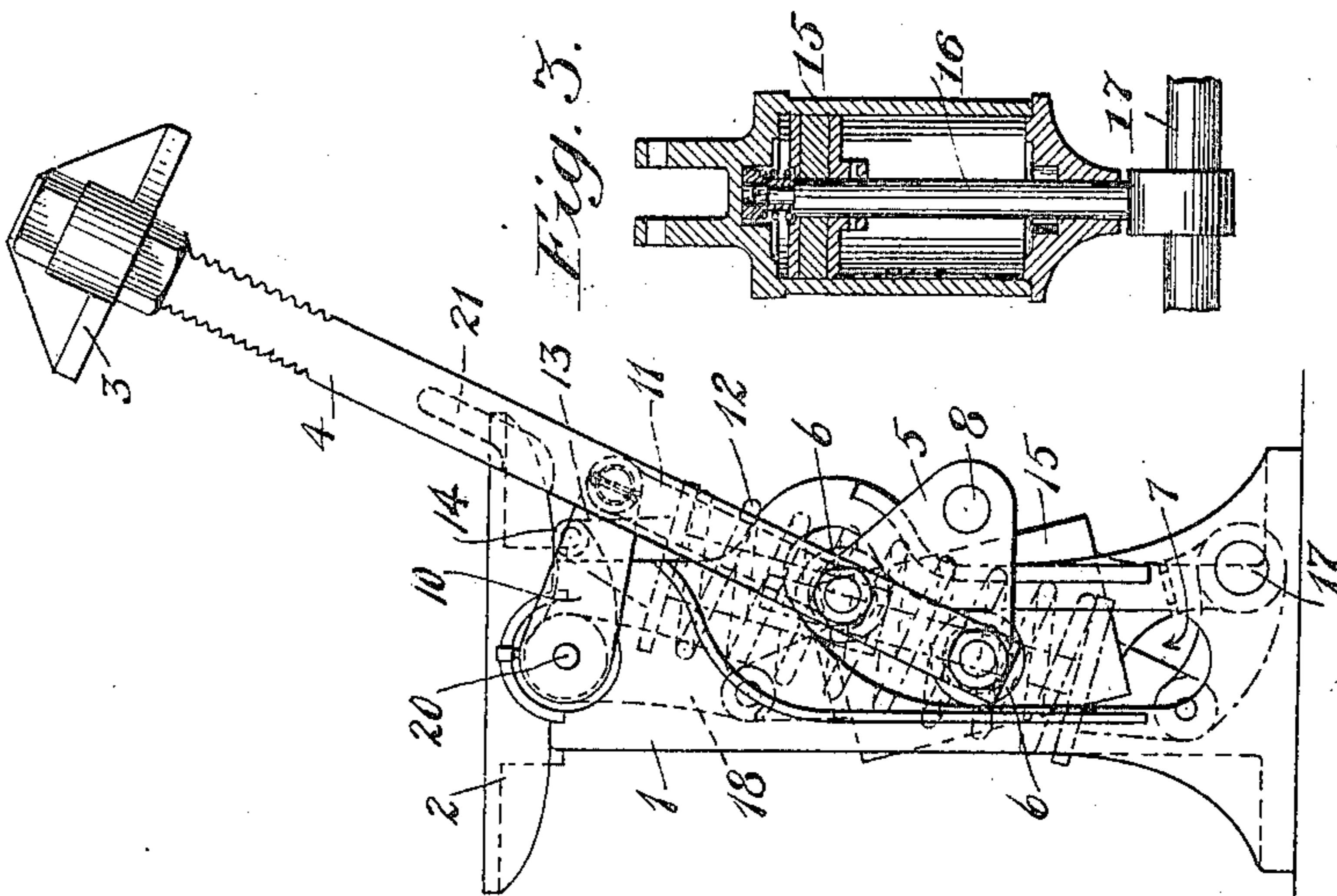
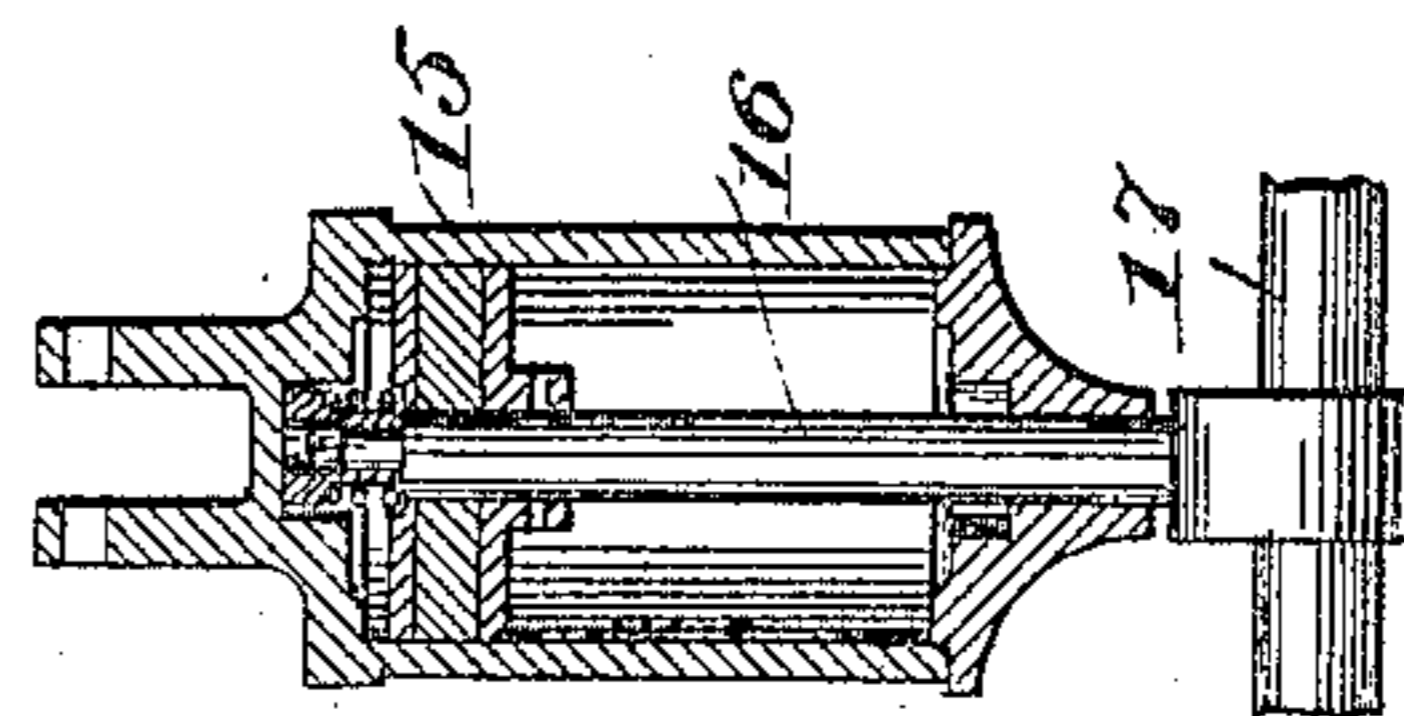


Fig. 3.



Witnesses
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CHARLES J. CALEY, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE
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MOLDING-MACHINE.

No. 812,820.

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To all whom it may concern:

Be it known that I, CHARLES J. CALEY, a citizen of the United States, residing at New Britain, Hartford county, Connecticut, have invented certain new and useful Improvements in Molding-Machines, of which the following is a full, clear, and exact description.

My invention relates to molding-machines.

The object of my invention is to provide a machine for holding the parts of a flask, compacting the sand, and separating the parts so as to form a perfect and uniform mold.

My invention is particularly adapted to what is known as the "oscillating-yoke" type of machine, in which a stationary table supports a flask and an oscillating yoke or rammer compresses the sand. In such machines difficulty is often encountered in their operation by reason of vibration, which results in uneven molds and consequent irregular products.

Besides the mechanism for oscillating the rammer I have provided cooperating guide members, which are brought into play just as the rammer is in its operating position.

The principles of the invention are illustrated in the accompanying single sheet of drawings.

Figure 1 is a front elevation of a machine embodying the improvements of my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a detail sectional view of the operating cylinder and piston.

1 is the main frame or standard of the machine.

2 is the table or support on which the flask is rested.

3 is the rammer, carried by the arms 4 4, forming a yoke.

5 5 are blocks, to which the lower ends of the arms 4 4 are attached. 6 6 6 6 are rollers, which are carried by these blocks and guided in slots in opposite sides of the machine, as slot 7. These slots are vertical through part of their extent and then curved backwardly, so that the rammer-yoke is guided in its movement, being backwardly inclined when in its upper retracted position and being vertical when in its lower operating position. There is, however, at all times more or less play in order that the parts may work freely. To assist in keeping the two arms of the yoke and the two sets of rollers

in alinement, the two blocks 5 5 are connected by a rod or shaft 8 at the rear.

9 is a central shaft located below the table, which is capable of a partial rotation. 10 10 are arms secured to said shaft and connected by the rods 11 11 to the arms 4 4 on a line with the centers of the upper rollers 6 6.

12 is a spring which through the medium of its head 13 and the arm 14 tends to rotate the shaft 9, and thus hold the yoke in the backward retracted position, as shown.

15 is a cylinder longitudinally movable relative to the piston-rod 16, which is pivoted on the shaft 17.

18 is an arm projecting from the shaft 9 and connected to the head of the cylinder 15. This cylinder may be operated, for instance, by compressed air, pressure within the cylinder tending to rotate the shaft in a clockwise direction, as viewed in Fig. 2, and thus force the yoke downward. As the yoke is moved downward the two pairs of rollers operating in the slots 7 are guided so as to bring the rammer 3 directly over the table. The momentum of the parts, however, is such that the arms 4 4 sometimes continue to vibrate slightly even after the rollers 6 6 are in the vertical part of the slot 7, so as to jar the flask and cause irregular work.

20 20 are stationary projections carried adjacent to the arms 4 4.

21 21 are curved guideways in the arms 4 4, arranged so that as the arms are drawn downward and forward the entrance to the guideways will come immediately to the rear of the projections 20 20, and as the arms are further moved downward in a straight line the straight portions of the guideways are brought into cooperation with the projections, so as to cause the arms to move the rest of the way downward in a straight line. Vibration of the arms is thus reduced to a minimum, insuring perfect uniformity of the product of the machine. It will be obvious that the projections might be carried by the arms 4 4 and reverse guideways formed in a stationary part of the frame, so that the effect would be the same—namely, to steady the upper ends of the arms and insure proper results.

What I claim is—

1. In a molding-machine, a table, a rammer, a pair of side arms carrying said ram-

mer, a pivoted shaft, an arm-and-link connection from said shaft to said side arms, a curved guide, means carried by the lower end of said side arms for cooperating with said
 5 guide, means for operating said side arms, and means comprising cooperating projecting and grooved parts for holding and guiding the upper portions of said side arms in a straight line without vibration when said side
 10 arms are brought into a vertical position.

2. In a molding-machine, an oscillating yoke, means for moving it downward and forward, an interlocking rectilinear guide for said yoke consisting of a projecting male and
 15 an open-ended female part, one stationary and the other carried by the oscillating yoke, by which the yoke is guided rigidly during the effective part of its operating stroke.

3. In a molding-machine, the combination
 20 of a frame, a table, a pair of curved guides carried by said frame, a yoke, rollers carried by the lower ends of the arms thereof, cooperating with said guides, means for operating said yoke, and an interlocking rectilinear

guide for said yoke comprising a projecting 25 member and a grooved part adjacent the central portion of said yoke and brought into operation to prevent vibration during the effective portion of the ramming stroke.

4. In a molding-machine, a stationary 30 frame, projections at the opposite sides thereof, an oscillating yoke, means for operating the same, the arms of said yoke having guide-ways 21 opening laterally for cooperating
 with said projections for the purpose speci- 35 fied.

5. In a molding-machine of the oscillating-yoke type, an interlocking rectilinear guide consisting of a projecting male and an open-
 ended female part, the one on the oscillating 40 yoke, the other on the stationary or non-oscillating part of the machine, by which the ramming-yoke is guided rigidly during ramming.

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