

# Hoffman & Fordan,

## Making Rivets,

N<sup>o</sup> 13,175.

Patented July 3, 1855.

Fig. 2.

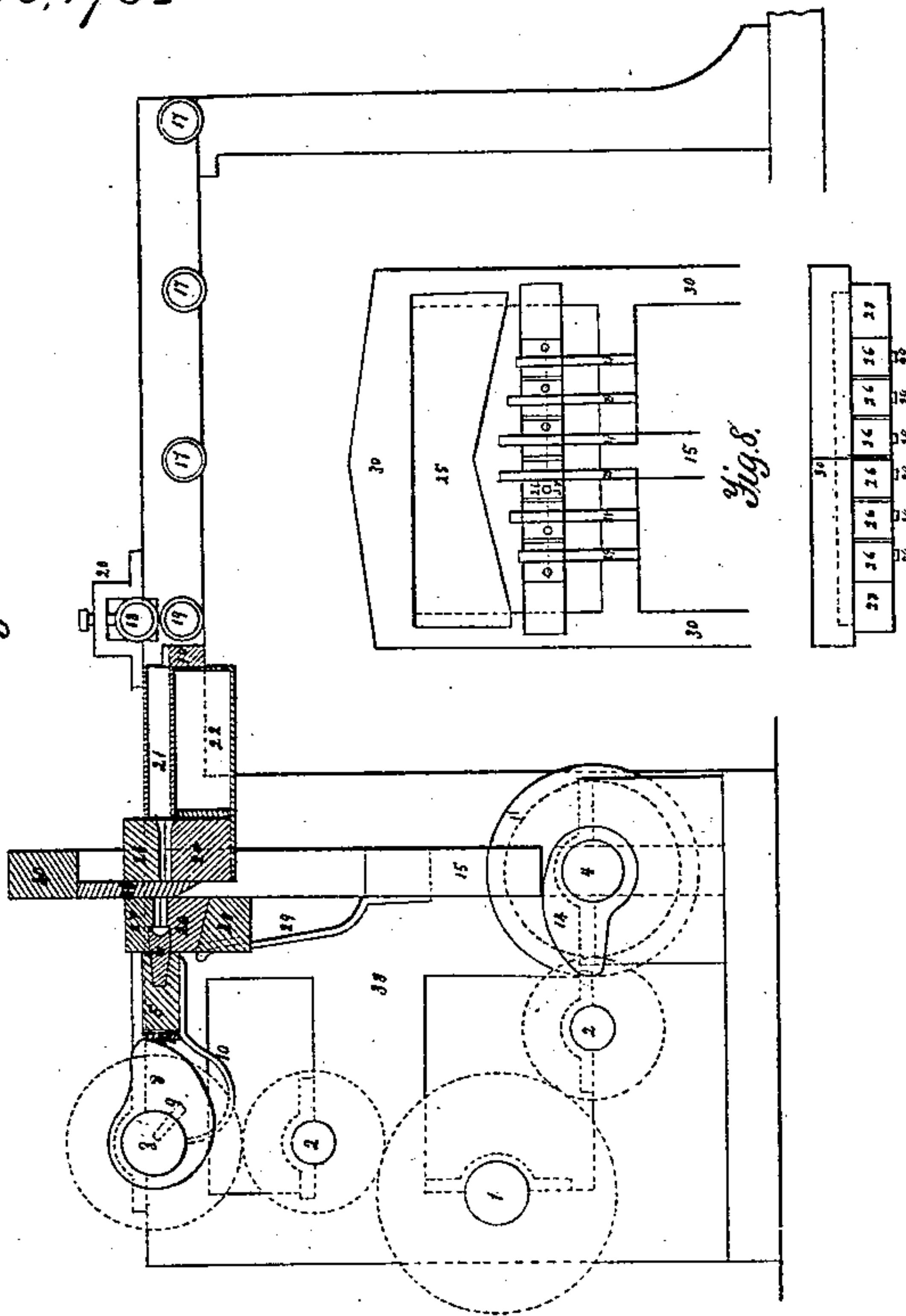


Fig. 1.

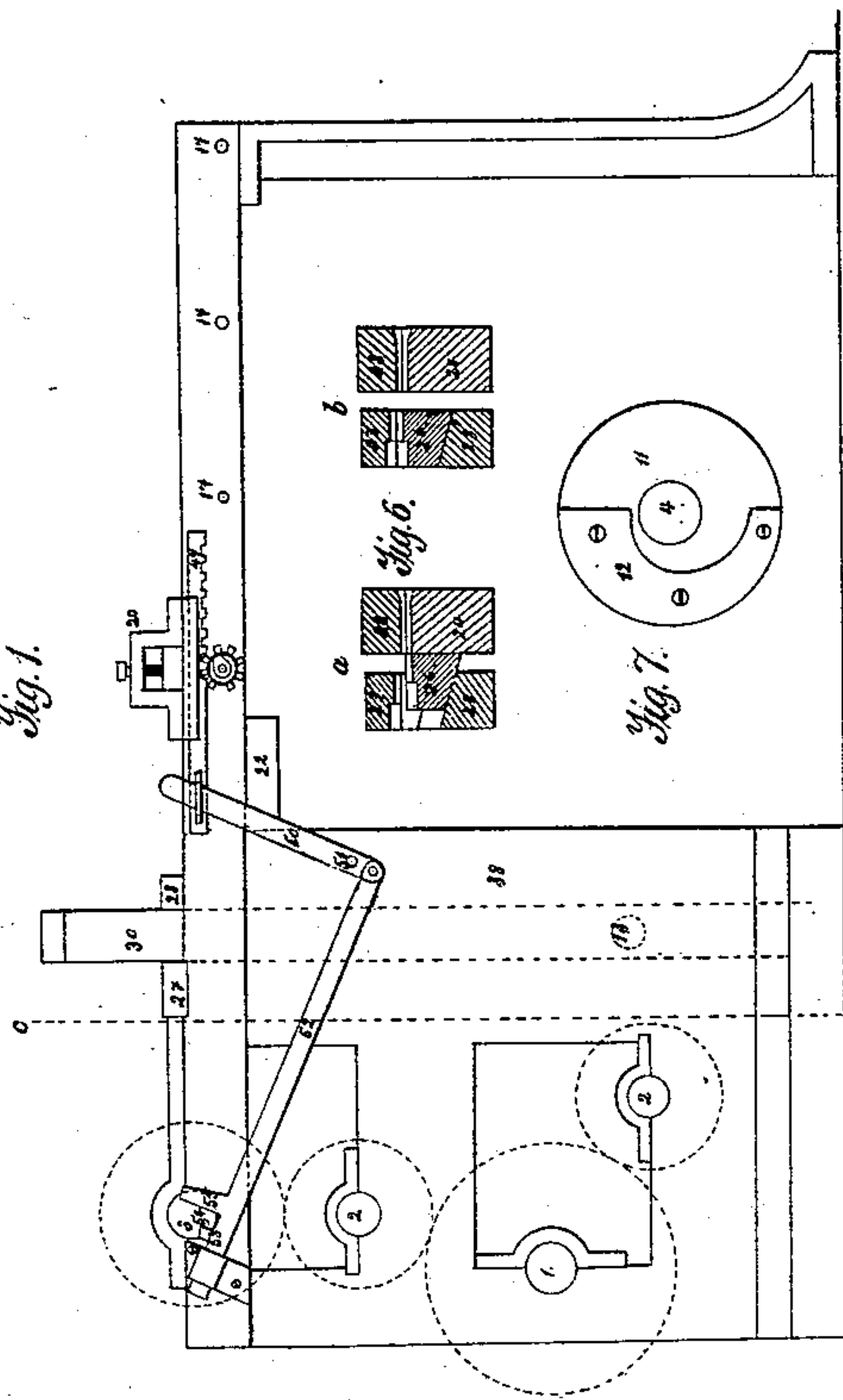


Fig. 4.

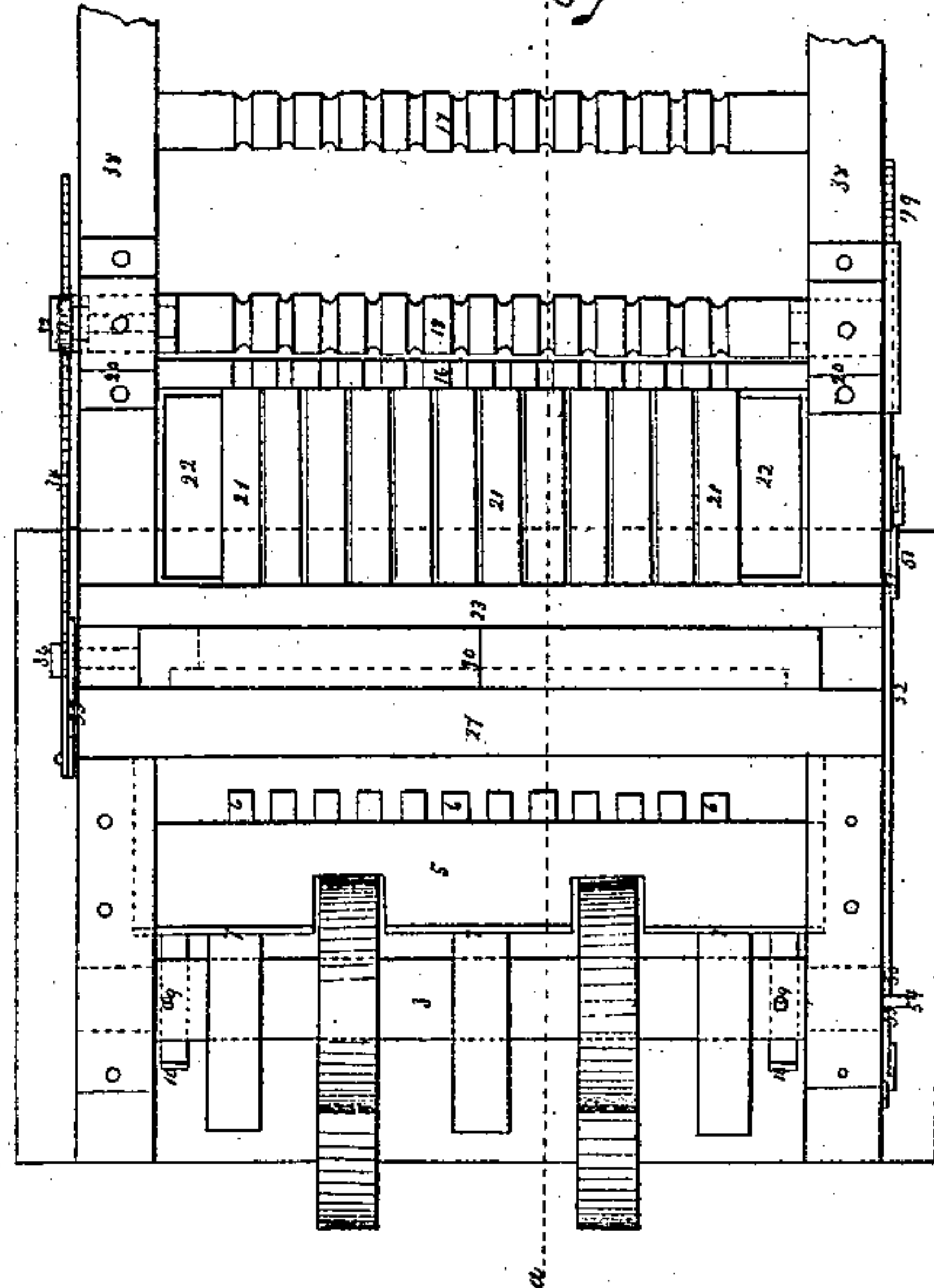


Fig. 5.

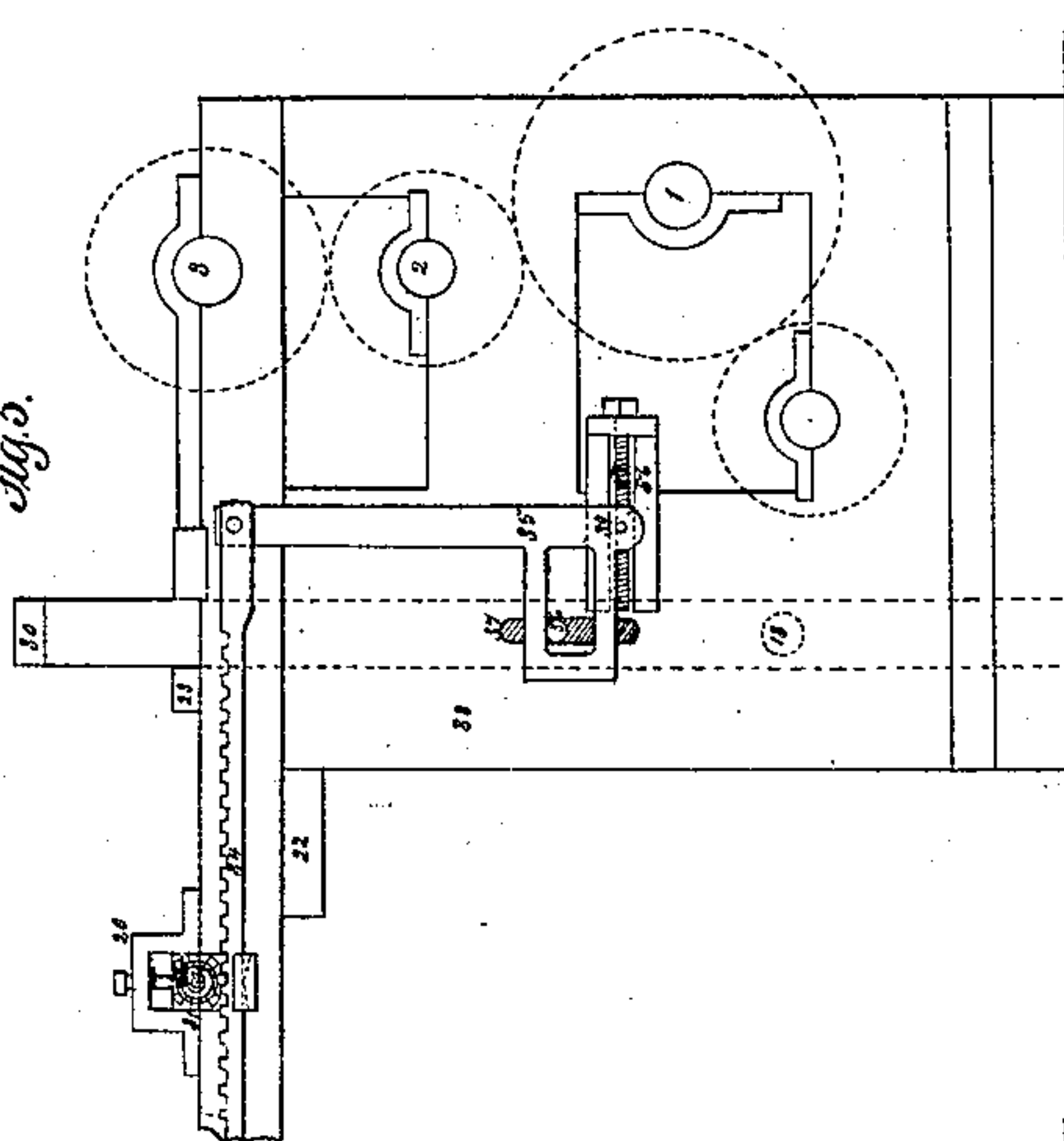
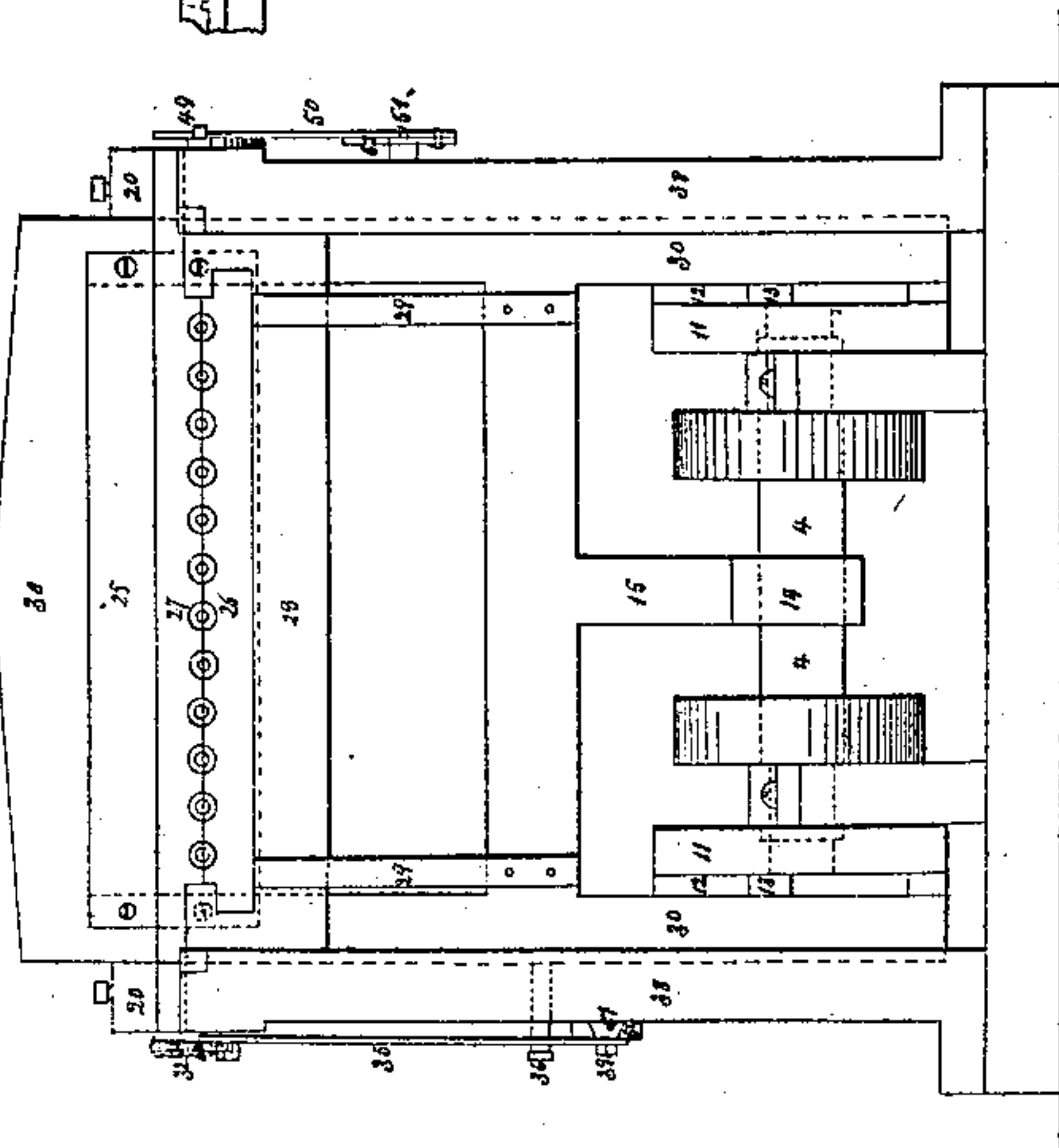


Fig. 3.





# UNITED STATES PATENT OFFICE.

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## MACHINE FOR MAKING RIVETS.

Specification of Letters Patent No. 13,175, dated July 3, 1855.

*To all whom it may concern:*

Be it known that we, FRIEDRICH W. HOFFMANN and CH. W. GUSTAV FORDAN, residing in the city, county, and State of New York, have invented a new and useful Improvement in Machines for Making Rivets; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figures I and V are side views. Fig. II is a section through *a b* Fig. IV. Fig. III is a section through *c d* Fig. I. Fig. IV is a top view. Fig. VI *a*, is the view of the movable jaw, if the knife is up. *b*, is the view of the movable jaw, if the knife is down. Fig. VII, is the view of the plates with eccentric motions. Fig. VIII, is another form of the knife with the movable pieces.

The machine receives its motion by any power in connection with shaft 1, which shaft communicates the motion to the shafts 3 and 4 by means of cog wheels on said shaft. The slide 5, having socket holes, for receiving the stamps *b*, is moved forward by means of cams 8 on shafts 3; and backward, after the heads on the rivets have been finished, by the curved arms 10 attached to it, which arms receive their motion by the pins 9 on shaft 3. The plates 11, to which eccentrics 12 are attached, on shaft 4, move the knife frame downward, by means of pins 13 fixed in the frame. The latter is raised by a cam 14 on shaft 4, working on the projecting piece 15, attached to said frame. The iron bars, to be manufactured into rivets, are sliding upon rollers 17, and moved forward and backward by the rollers 18 and 19. The roller 18 can be raised or lowered by means of the pillow blocks 20.

By moving the bars toward the knife, they pass through the tubes 21 which are in contact with the fire and fastened in the furnace 22. These tubes are to give the bars an equal heat. But instead of the iron tubes for heating the bars, a draft furnace may be employed. The holes in the pieces 23 and 24 are a little wider on the side facing the furnace, for the purpose of keeping the bars straight and in their proper places. As soon as the required lengths of the iron have been cut off by the knife, the stamps finish the rivet heads. The die, holding the different bars of iron, consists of two separate jaws,

the upper one of which 27 is secured to the frame of the machine and stationary, while the lower one 26 slides on the inclined plane of the pieces 28. The downward motion of this lower jaw is produced by the arms 29, fixed on the knife frame 30. This movement of the lower jaws on an inclined plane is for the purpose of preventing the bars from bending during the process of cutting off, it being in the same plane with the piece 24 and quite near to it. It likewise allows the finished rivets easily to be pushed out of the die, and prevents the accumulation of cinders and other substances in the same. The chamfer on the knife forces this jaw 26, with the pieces of iron, just out off, up the inclined plane and against the upper jaw 27, both acting like a vise and keeping them in their proper places, during the process of making heads on them. We propose to make the rivets inside these jaws, and not on the outside of them; we therefore have corresponding spaces in the same, wherein the stamps fit. As soon as the rivet heads are finished, the arms 29 press the movable jaw down the inclined plane, the advancing bars pushing the finished rivets easily out of the jaw 26; other pieces of the bars are cut off and other rivets made in this same manner.

The roller 18 is provided with a catch 33, working on the ratchet wheel 32, running loose in connection with the cog wheel 31, on the axis of said roller. The wheel 31 is moved by a rack 34, which receives its motion from lever 35, this being moved by a pin 36, fixed in the knife frame, and sliding in the opening 37 of the machine frame. As soon as the lever is moved, the rack 34 will turn the wheel 31 and the ratchet wheel 32 either catching the catch 33 and by it move the roller, which is done, if the knife goes upward, or slide over the catch without moving it, which takes place when the knife goes downward.

To give the rack motion of different lengths the fulcrum 39 of the lever is changeable, thereby making shorter or longer rivets. The changing of the fulcrum 39 is done by the sliding frame 56 and the screw 57 moving this fulcrum forward or backward.

The roller 19 receives its motion in the same manner as the roller 18, but instead of moving the rack by a lever like that on the roller 18, there is a lever 30, turning on 51



and moved by a rod 52 with a shoulder 53, which is worked by a pin 54 fixed in the shaft 3. By this the rack and the roller have always the same movement and bring the bars back in the fire, for the purpose of keeping them hot, while the heads on the pieces are pressed. This back movement commences as soon as the pieces of the iron bars, necessary for a rivet, are cut off. To move this lever back again is another shoulder 35 on the rod 52, which is attached to the pin 54.

To make different kinds of rivets, the jaws 26 and 27, the stamps 6 and the cams 8 have to be changed. Instead of changing the cams 8, it is possible to make the pillow blocks of the shafts 3 movable. Springs 7, upon which the cams work, are employed for the purpose of regulating the pressure of the stamps. Another form of the knife is shown in Fig. VIII with the sliding jaws

26. By this form the knife cuts only two bars at the same time, but makes it necessary to make the jaws 26 cut off as many single pieces as is required for the whole number of rivets to be made, because the knife moves the jaw 26, before it cuts the bars in the middle of the jaw.

What we claim as our invention is—

The knife 25 so arranged in relation to the lower jaw or jaws and the header, that while it serves as a cutter it also moves up the inclined plane jaw and forms a solid support for the rear end of the blank during the making of the head as herein set forth.

New York 27 Febr. 1855.

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Witnesses:

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