

(No Model.)

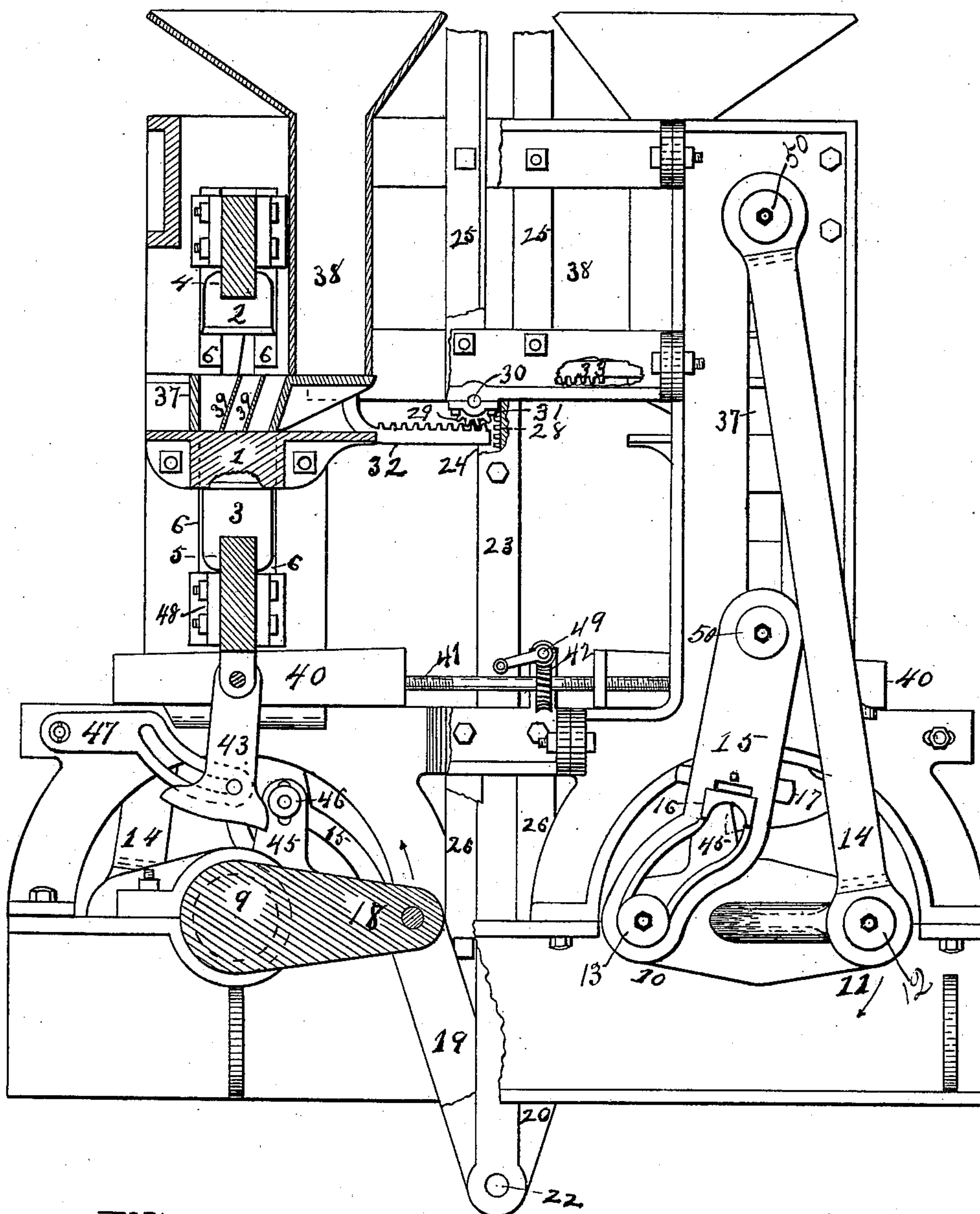
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B. J. WILSON.
BRICK MACHINE.

No. 359,655.

Patented Mar. 22, 1887.

Fig. I



Witnesses

A. P. Wood

C. A. Peck

Inventor

Benjamin J. Wilson

By Albert A. Wood Att'y.

(No Model.)

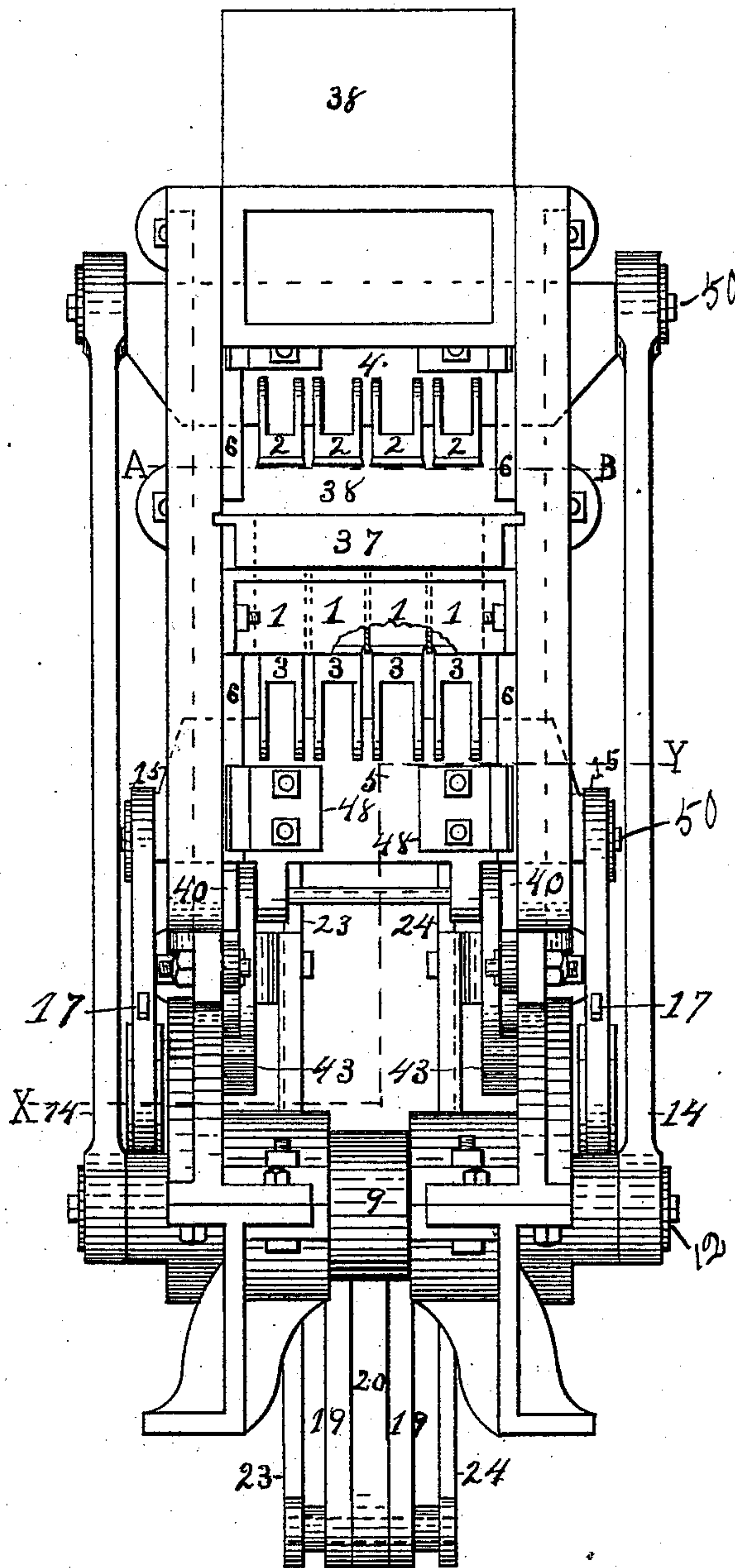
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Fig. II



Witnesses—

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Fig. III

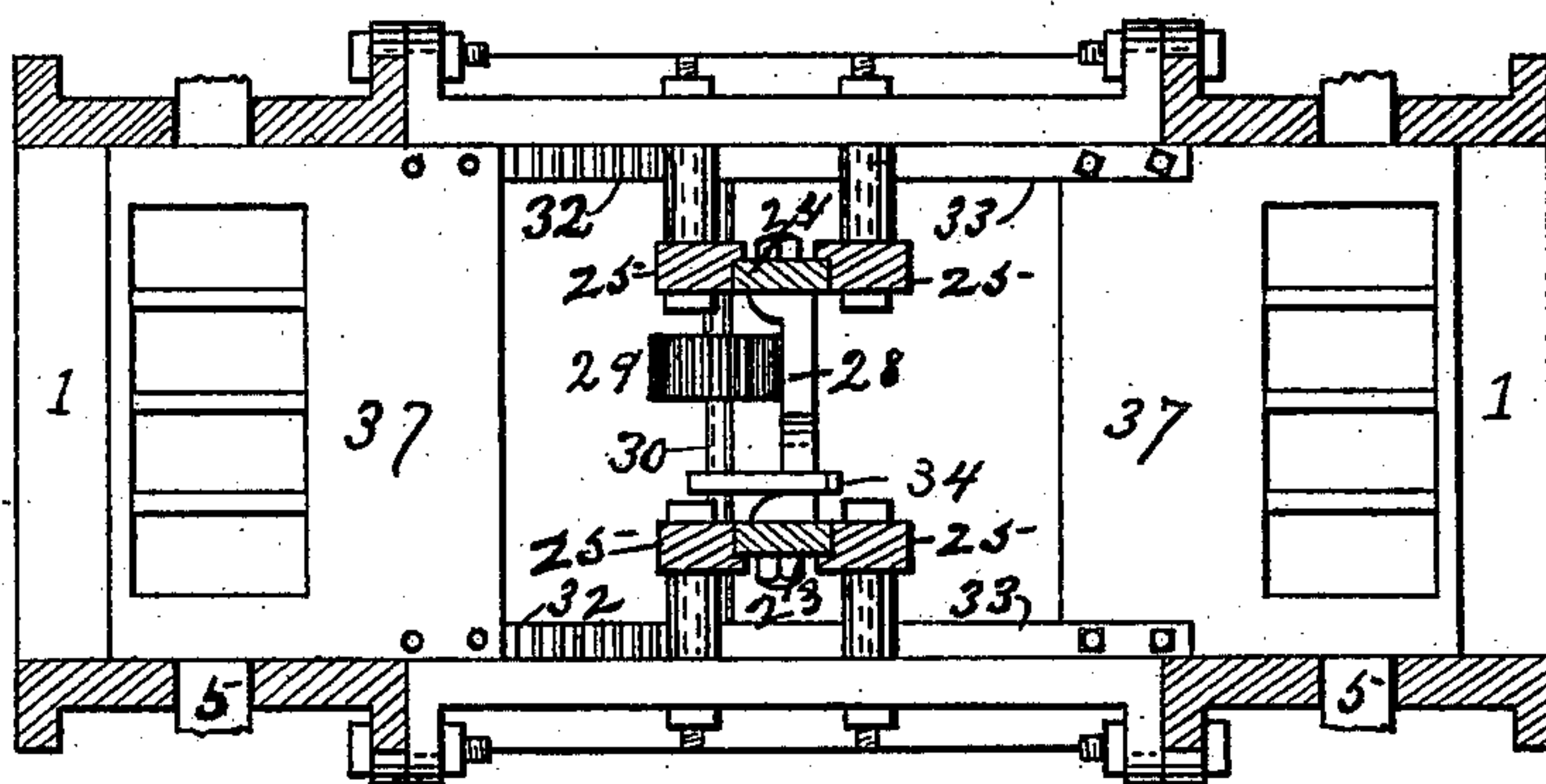
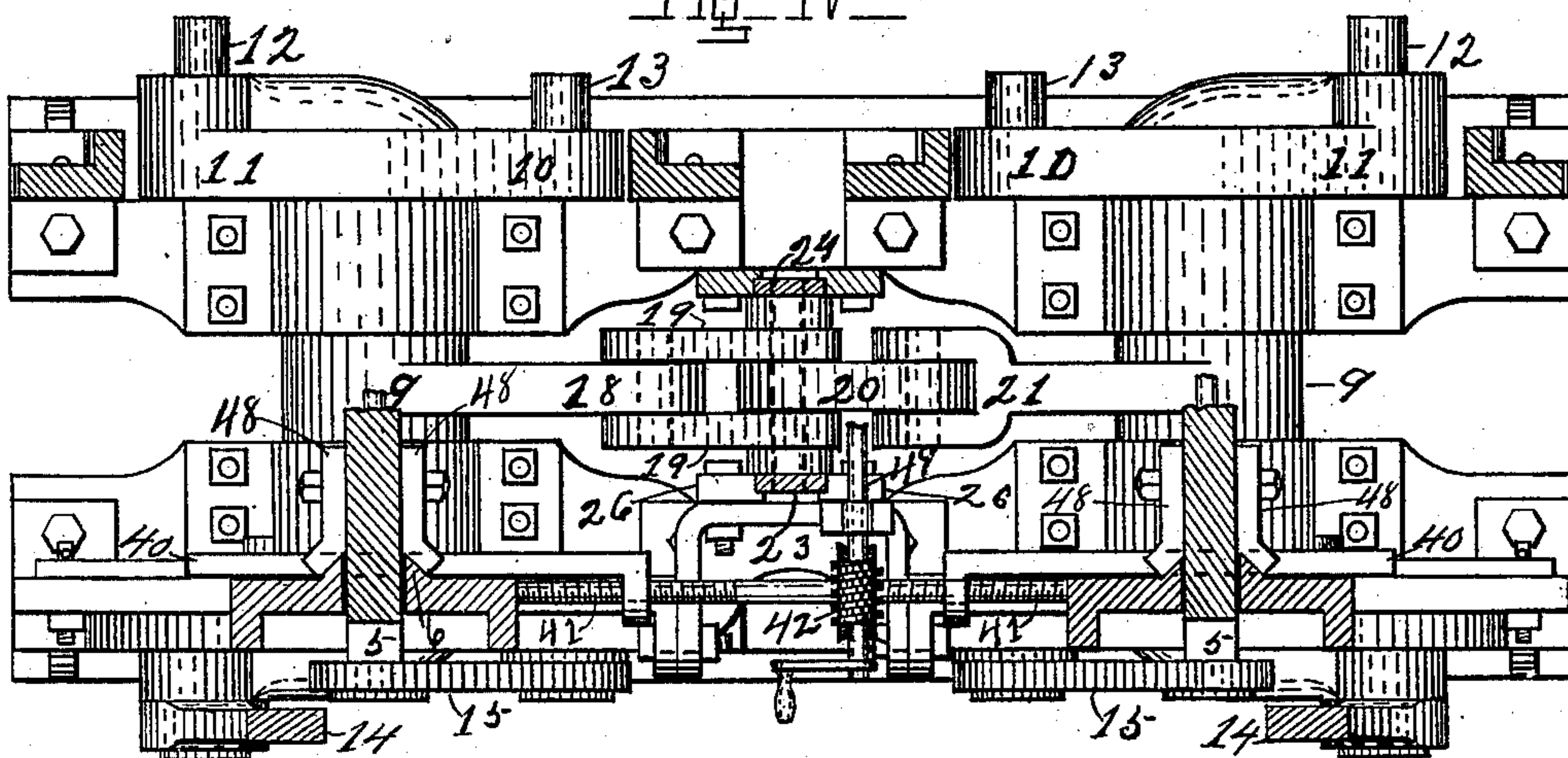


Fig. IV



Witnesses—

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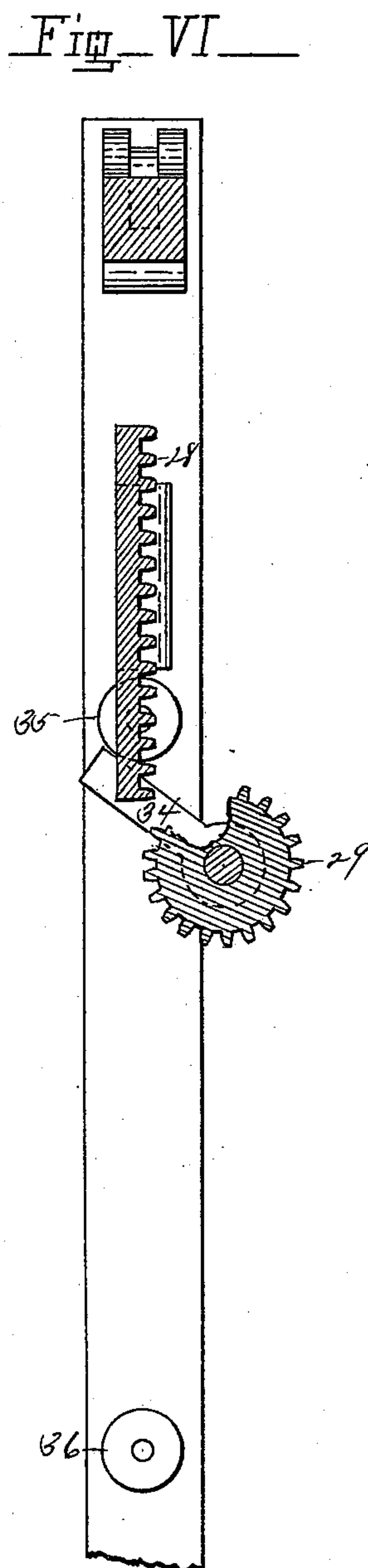
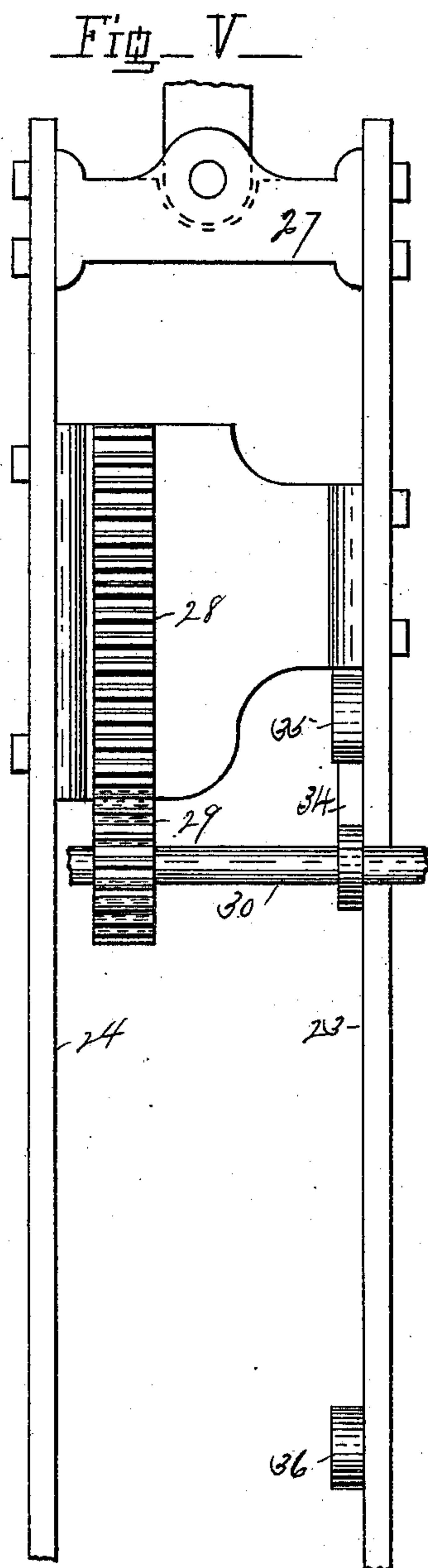
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Witnesses —
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UNITED STATES PATENT OFFICE.

BENJAMIN J. WILSON, OF ATLANTA, GEORGIA.

BRICK-MACHINE.

SPECIFICATION forming part of Letters Patent No. 359,655, dated March 22, 1887.

Application filed June 30, 1886. Serial No. 206,753. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN J. WILSON, a subject of Her Majesty the Queen of Great Britain, residing at Atlanta, in the county of Fulton and State of Georgia, have invented a new and useful Brick-Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to that class of brick-machines in which the bricks are molded from comparatively dry clay, cohesion being insured by pressure; and it consists in the automatic charging and discharging device, the ordinary molds and dies, and improved means of operating the same, as will be hereinafter fully described.

In the accompanying drawings, Figure I is a side view, partly in section, and in the position in which the clay in the charger is discharged into the molds. Fig. II is an end view in the same position. Fig. III is a horizontal section on the line A B, Fig. II, showing the charging and discharging device and means of operating the same. Fig. IV is a section on the line X Y, showing several details. Figs. V and VI show the means by which chargers are started and by which the rack on the slides is made to engage properly with the pinion.

In these figures, 1 represents the molds, and 2 the upper, and 3 the lower, dies. The upper dies project downwardly from the follower 4 sufficiently to enter the molds as far as necessary, and those on the follower 5 project upwardly for the same purpose. The ends of the followers pass through slots in the sides of the frame, which is provided on its inner side with beveled guiding-faces 6, against which the adjustable pieces 48, Fig. IV, which are bolted to the followers and govern their position horizontally, slide. On the outer ends of the followers 4 and 5 are journals or wrists 50. Journaled on the sills of the frame are the shafts 9, on either end of which are oppositely-projecting cranks 10 and 11, which are pro-

vided with wrists 12 and 13. The wrists 12 are connected by the pitmen 14 to the wrists 50 on the followers 4, and the wrists 13 are connected by rolling fulcrums 15 to the wrists 50 on the followers 5, the rolling fulcrums 15 being provided with boxes 16, which slide in the slots and are adjustable by the tapering keys 17.

The shafts 9 are rock-shafts, and have on their central parts the arms 18 and 21, to which are hinged, as shown, one end of each of the links marked 19 and 20, the outer ends being brought together and pivoted by the pin 22. The pin 22 also passes through the slides 23 and 24. The slides pass through an upper and lower pair of guides, 25 and 26. Between and pivoted to the upper end of these slides is the cross-head 27, to which is attached the piston or connecting rod by which the machine is driven, by imparting to these slides a vertical reciprocating motion. Between the slides and attached to them is the rack 28, which engages with the gear 29 on the shaft 30, and which, by means of the gears 31 on the same shaft and the racks 32 and 33, which are attached to the chargers, gives the necessary reciprocating motion to the chargers. It being necessary to give this motion to the chargers at the time when the dies 2 are out of the mold and will permit it, the rack-28 is made so short as to only engage with the gear 29 but a portion of each stroke. As, therefore, the rack 28 is disengaged during a part of each stroke the arm or lever 34 is attached to the shaft 30 for the purpose of starting the chargers with an easier motion and to insure that the teeth on rack and pinion will engage properly. On the slide 23 is a roller, 35, which, on the slide descending, will come in contact with the arm or lever 34 and start the chargers with an easy motion and insure a proper engagement of the rack 28 and the gear 29. As the upward movement of the rack will not bring this arm or lever to its proper position the roller 36 is provided for that purpose.

The chargers 37 are drawn inwardly by the upward movement of the rack 28 and receive a supply of clay from the chutes 38. The molds 1 are provided with a table which extends under and forms a bottom for the charg-

ers while receiving clay from the chutes. The chargers have box-shaped interiors, preferably with one sloping side, as shown. They are also provided with sloping partitions 39, for a purpose which will be explained hereinafter. Each of the chargers has a table extending under the chute to prevent the escape of clay from the chute while discharging into the mold.

The wedges 40 act as bearers for the followers 5, and by longitudinal movement adjust the height at which the followers will stop in order to allow the molds to retain the amount of clay required. The wedges are moved by means of the right and left hand screws 41, which abut at both ends against the frame to prevent longitudinal motion, and are actuated by the worm-gears 42, a pair of worm-gears being on each side of the machine.

The shaft 49, carrying the worms, extends across the machine and is provided with a crank in order that the changing condition of the clay may be readily furnished with more or less room, as required. The rolling fulcrums 15 are slotted to allow the followers to stop at the desired point, and each has an adjustable box to regulate the height to which they will carry the follower, which will govern the thickness of the brick.

Pivoted to and depending from lugs on the bottom of the followers 5 are the rolling fulcrums 43. On the rock-shafts 9 are arms 45, which carry the rollers 46. These rollers, as the rock-shafts carry the arms outwardly, engage with the bottom ends of the rolling fulcrums 43, by reason of which the followers 5 are raised forcing the dies 3 to the top of the molds and carrying the brick to the position where they may be pushed out of the mold by the front ends of the chargers, the follower 5 being held at the highest position by reason of the bottom ends of the fulcrum 43 having a circular form for a sufficient distance, the radius being the same as that of the roller 46. The rolling fulcrums 43 are prevented from following the rollers beyond the desired points by the slotted links 47 and the pin in fulcrum 43, thus forcing the rollers to run off the lower ends of the fulcrums and allow the followers and the dies to drop until stopped by the wedge-shaped bearers. The rollers 46 run on studs which are radially adjustable in the slots in the arms on the rock-shafts for the purpose of regulating the height to which the dies will go in forcing the bricks out of the molds, and the links being on studs passing through the frame are longitudinally adjustable to regulate the point at which the rollers will be forced to leave the ends of the rolling fulcrums.

Motion being imparted to the slides they would be raised from the position shown in Fig. I, revolving the rock-shafts in the direction indicated by the arrow and bringing the wrists on the rock-shafts 10 and 11 about in line with the wrists on the followers 4 and 5, which would cause the follower 4 to descend and the follower 5 to ascend and press the clay

in the molds. The guides 26 keep the slides in a proper position to insure a uniform motion in each end of the machine. In the beginning of the upward movement of the slides the chargers would be withdrawn to a position under the chutes where they would be refilled with clay, and the rolling fulcrums would be swung outwardly by the rollers, being allowed by the slots in the links to do so until they could pass, after which they would fall back to the position shown by gravity.

The reverse or downward movement of the slides will bring the dies to their former position, the slot in the rolling fulcrums 15 allowing the followers 5 to stop on the bearers 40, which should be adjusted to make the molds hold the proper amount of clay. This reverse motion will carry the rollers 46 against the bottom ends of the rolling fulcrums 43 and raise the follower 5 sufficiently to force the brick out of the molds, when the brick will be, by the outward movement of the chargers, as hereinbefore described, pushed off of the mold, after which the follower will drop back on the bearers by reason of the rollers having passed from under the fulcrums. The last of this downward motion will, after the chargers shall have been slowly started by the contact of the roller 35 with the arm or lever 34, and, by the engagement of the rack 28 and pinion 29, force the chargers with the clay that they contain to a position directly over the molds.

In charging the molds of brick-machines with reciprocating chargers, as heretofore done, one end of the brick is softer than the other, from the fact that it does not receive as much clay, the tendency being to deposit the clay in a more dense form in the end of the mold over which the charger is moving for the greatest length of time. This trouble is entirely obviated by the sloping partitions 39, as shown in section, Fig. I. It will be seen that when the charger is removed from its position under the chute to that under the molds the clay will be pressed by its inertia as well as by the friction of the table and the dies against the sloping faces, having a tendency to lift it and relieve the friction, and thereby prevent the packing of the clay against the back side of the charger, which packing would cause it to discharge into the mold in a condition of uneven density. The sloping partitions also provide a receptacle for a greater quantity of clay in that part of the charger which in returning passes over the entire length of the mold, by reason of which any surplus clay in the charger, or the greater portion of it, will be carried the entire length of the mold and have a uniform effect on the clay in the mold.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a brick-machine, the combination of the molds and upper and lower dies attached to followers 4 and 5, the pitmen 14, the rolling fulcrums 15, the rock-shafts 9, having oppositely-projecting cranks 10 and 11 and arms

18 and 21, the slides 23 and 24, and the links 19 and 20, substantially as shown, and for the purpose specified.

2. In a brick-machine, as a means of regulating the holding capacity of the molds, the combination of the molds and the die-carrying followers 5 with the wedges 40, the right and left hand screw-shaft 41, and the worm-gear 42 on a crank-shaft, 49, constructed as shown, to operate the wedges simultaneously on both sides of the machine, substantially as described.

3. In a brick-machine, to govern the thickness of the brick, the combination of the molds, the upper and lower die-carrying followers, the pitmen 14, the rock-shaft 9, having oppositely-projecting cranks 10 and 11, and the slotted rolling fulcrum 15, provided with the journal-box 16 and adjusting-wedge 17, substantially as shown.

4. In a brick-machine, to force the pressed

brick from the molds, the combination of the molds and the dies 3 and followers 5 with the rolling fulcrums 43 and the rock-shaft 9, having arm 45 and roller 46 and the links 47.

5. In a reciprocating charger for brick-molds, having a box-shaped interior, the sloping partitions 39, substantially as shown, and for the purpose specified.

6. As a means of operating the reciprocating chargers of a brick-machine, the racks 32, attached to the charger and engaging with the pinions 31, in combination with the pinion 29 and arm 34 on the same, and rack 28 and rollers 35 and 36, attached to the reciprocating slides.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN J. WILSON.

Witnesses:

A. P. WOOD,

W. W. TURNER.