

No. 671,731.

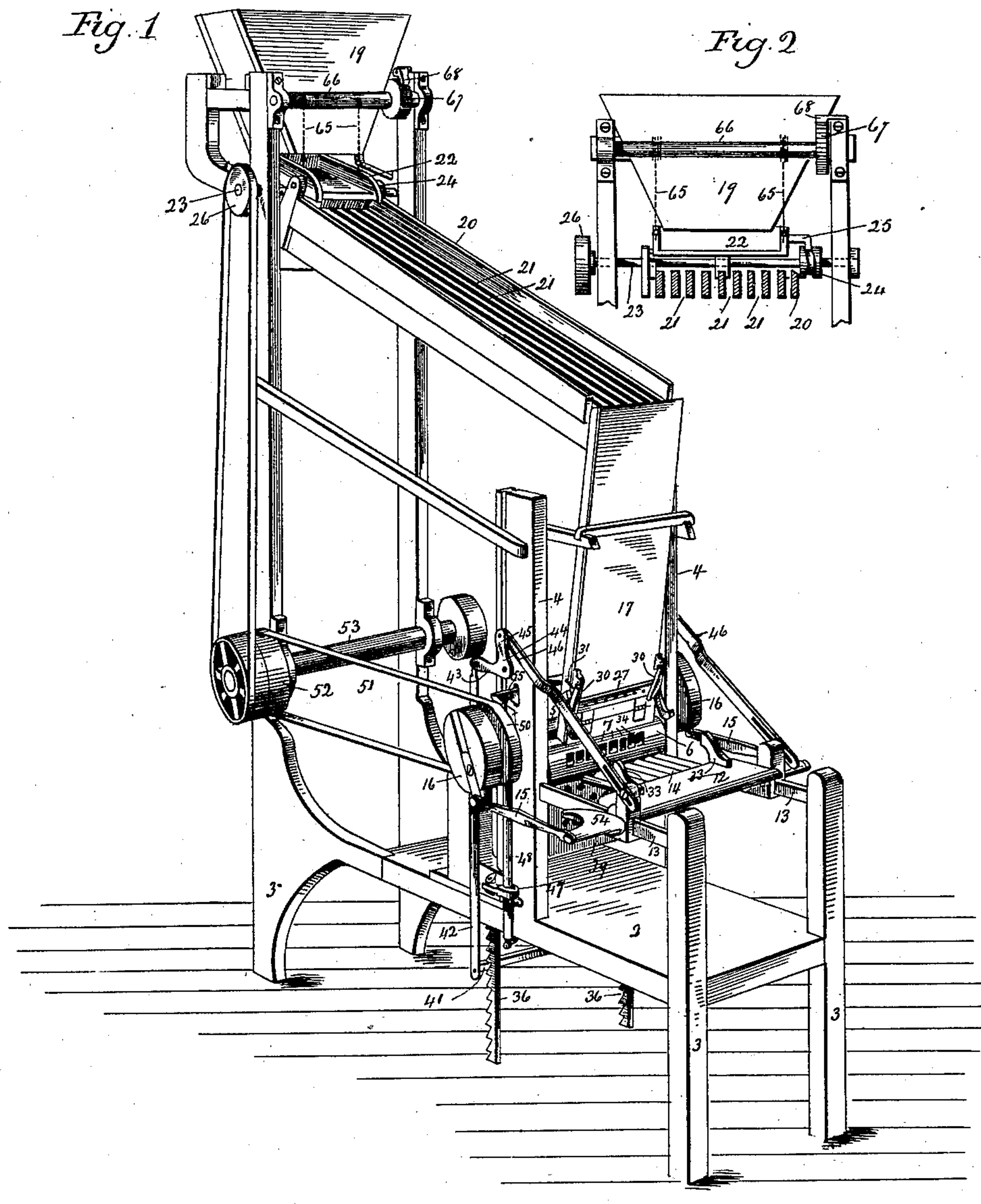
Patented Apr. 9, 1901.

M. A. MONTAMBAULT.
MACHINE FOR CHUCKING SCREWS FOR BUFFING.

(Application filed Jan. 28, 1901.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses
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John A. Hauff

Maxime Arthur Montambault.
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By Atty Seymour T. Carey

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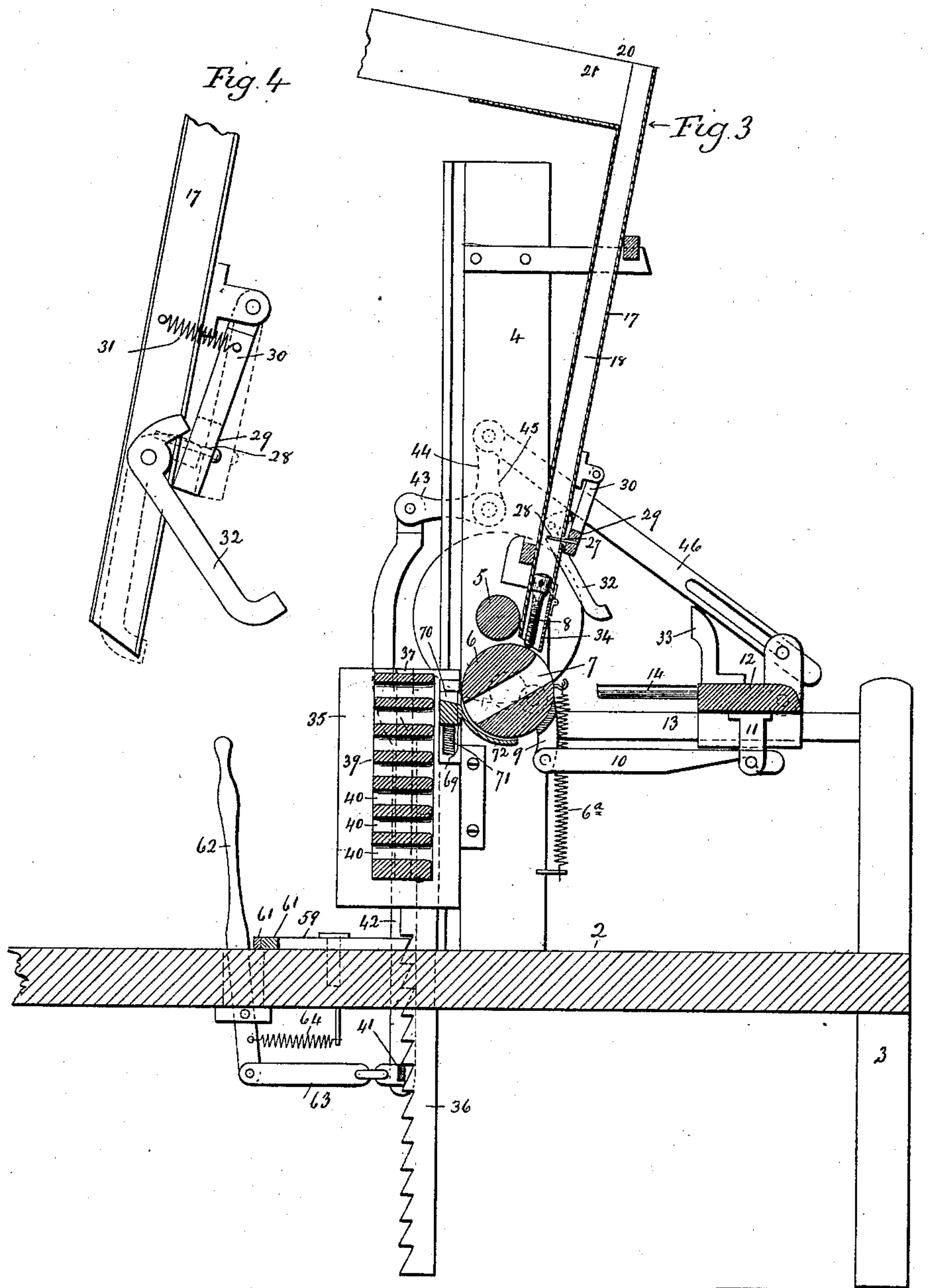
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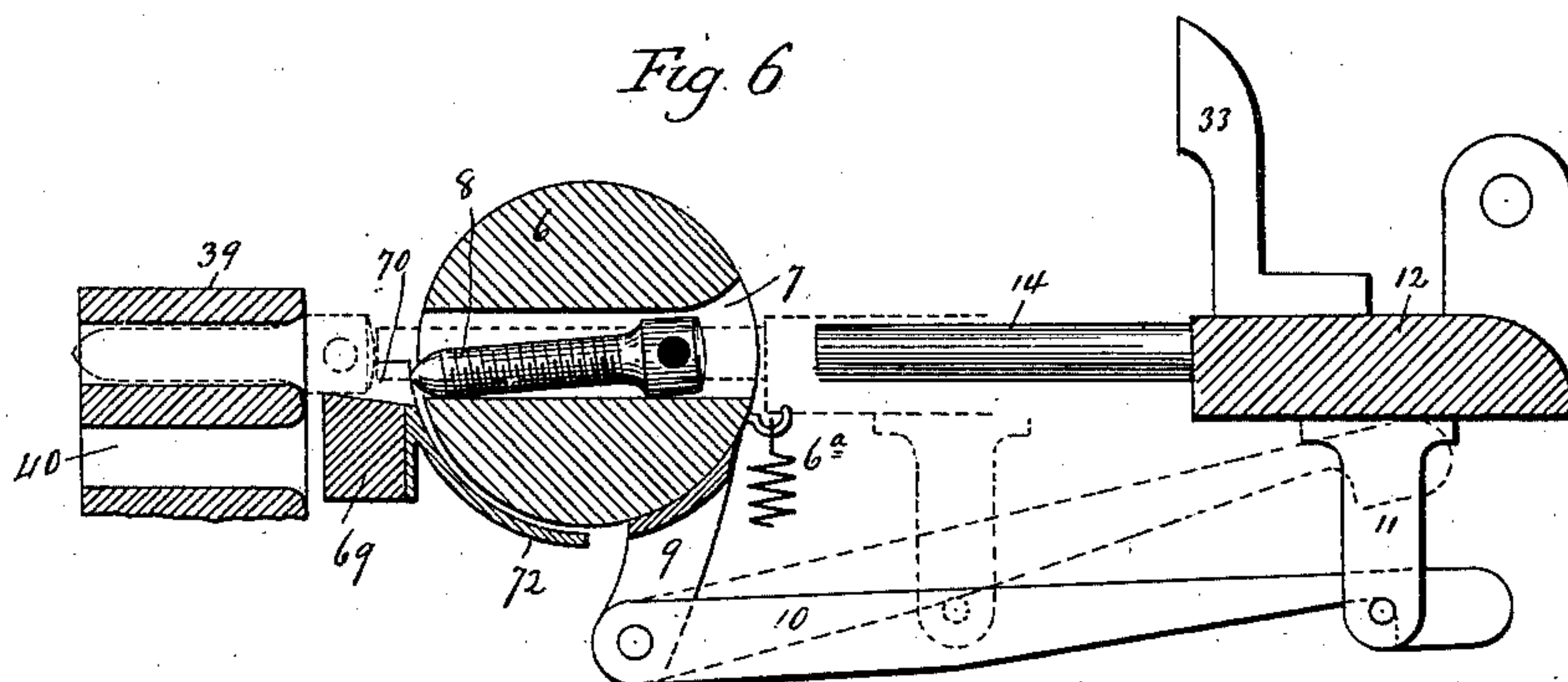
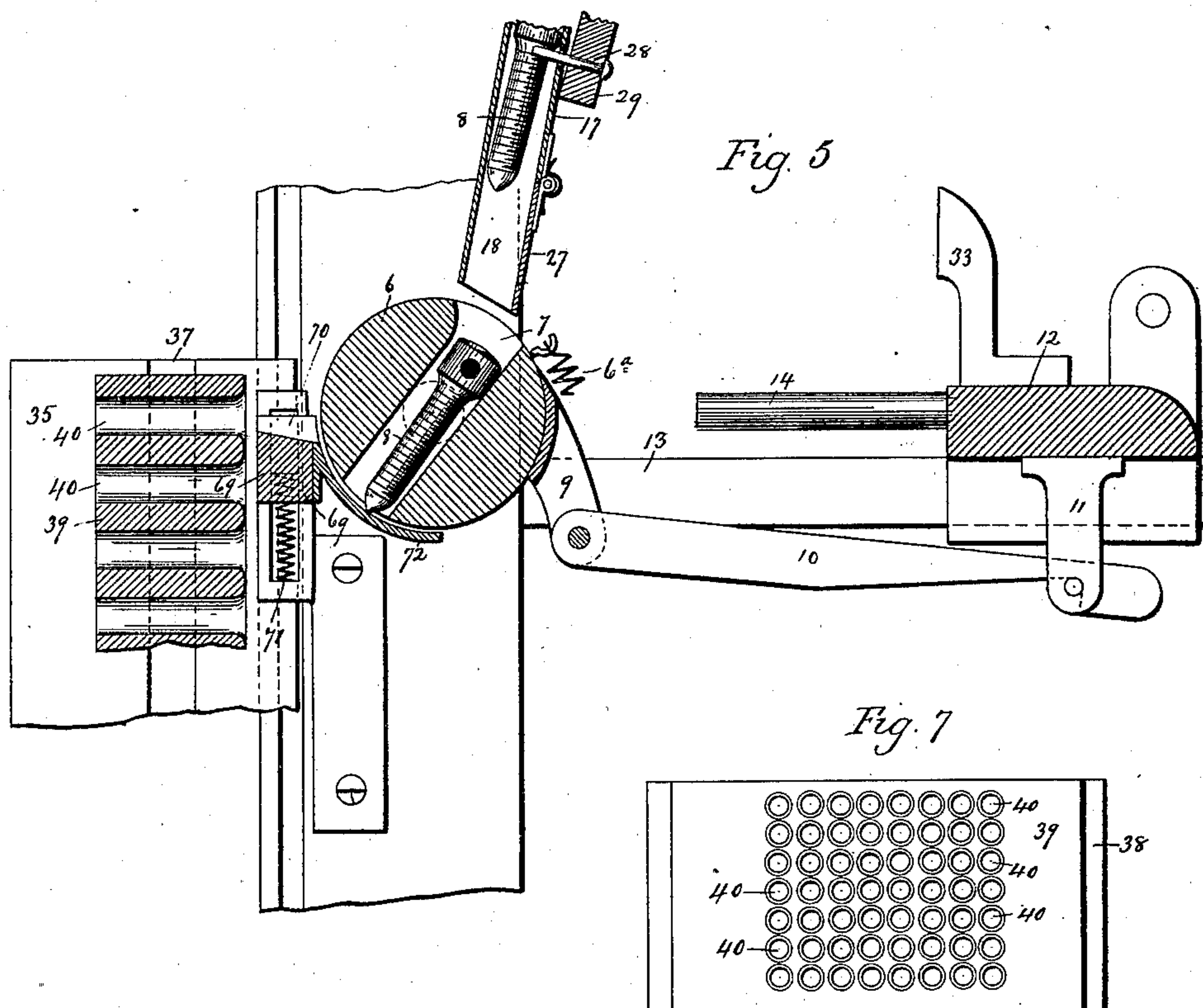
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4 Sheets—Sheet 3.



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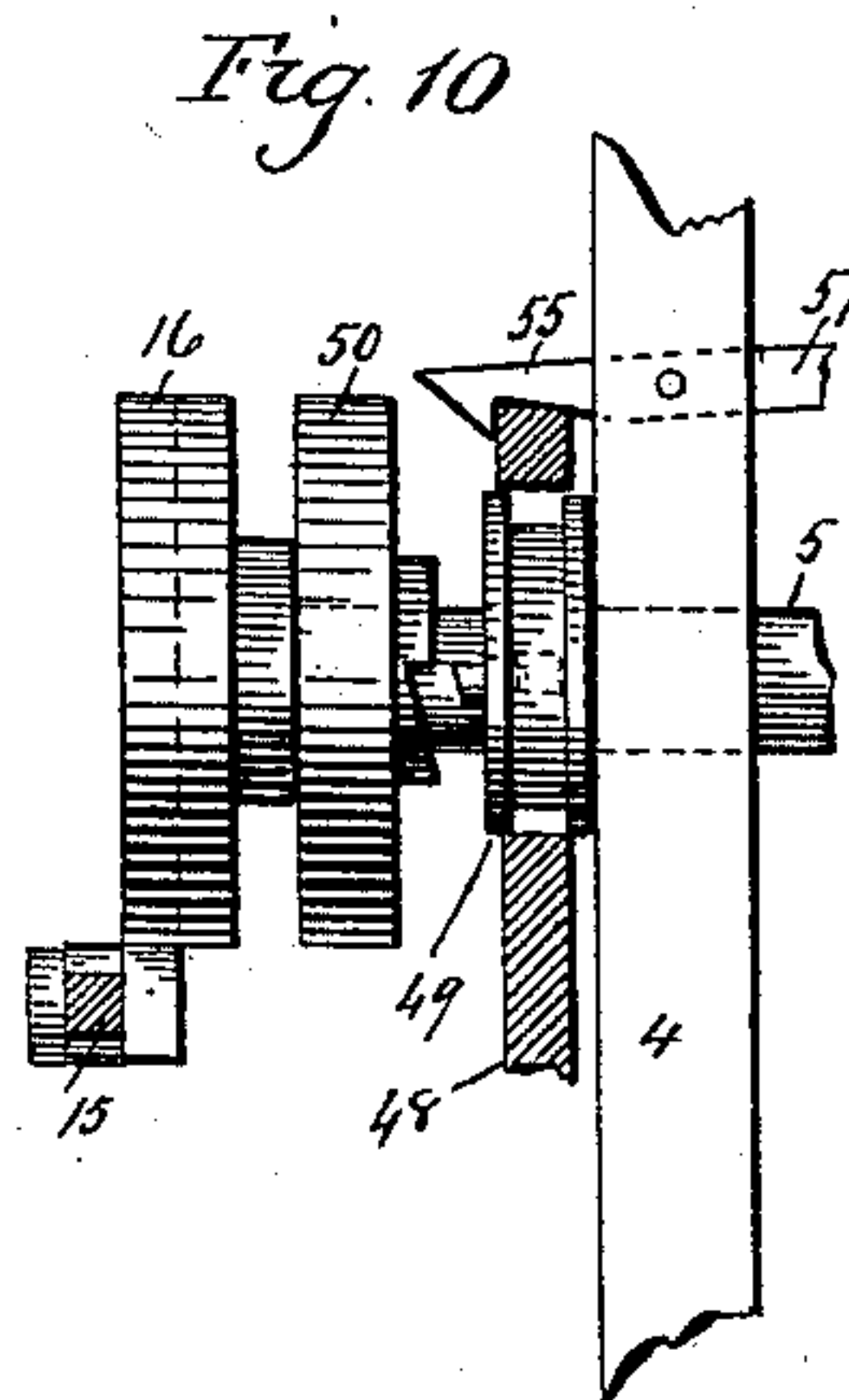
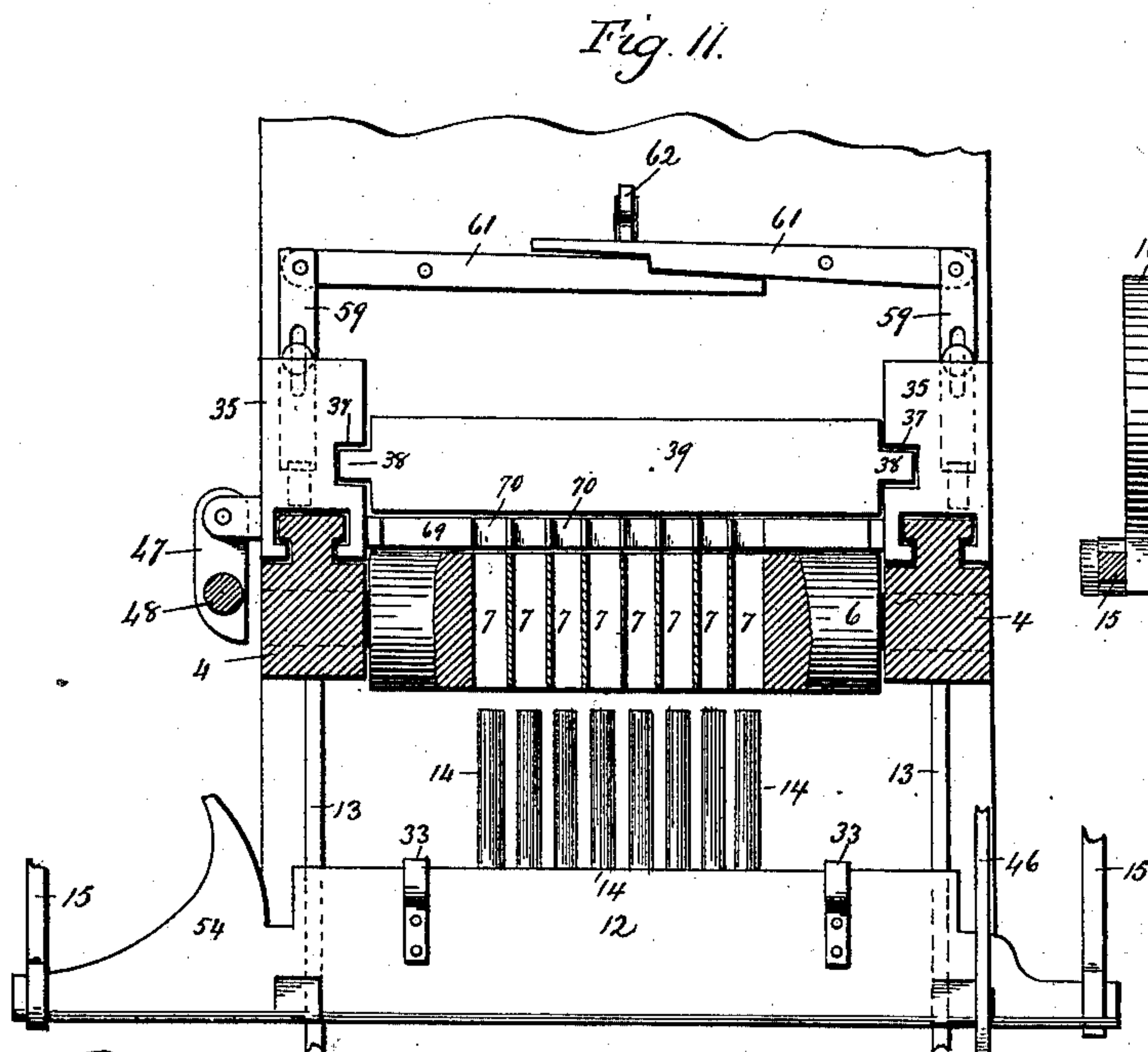
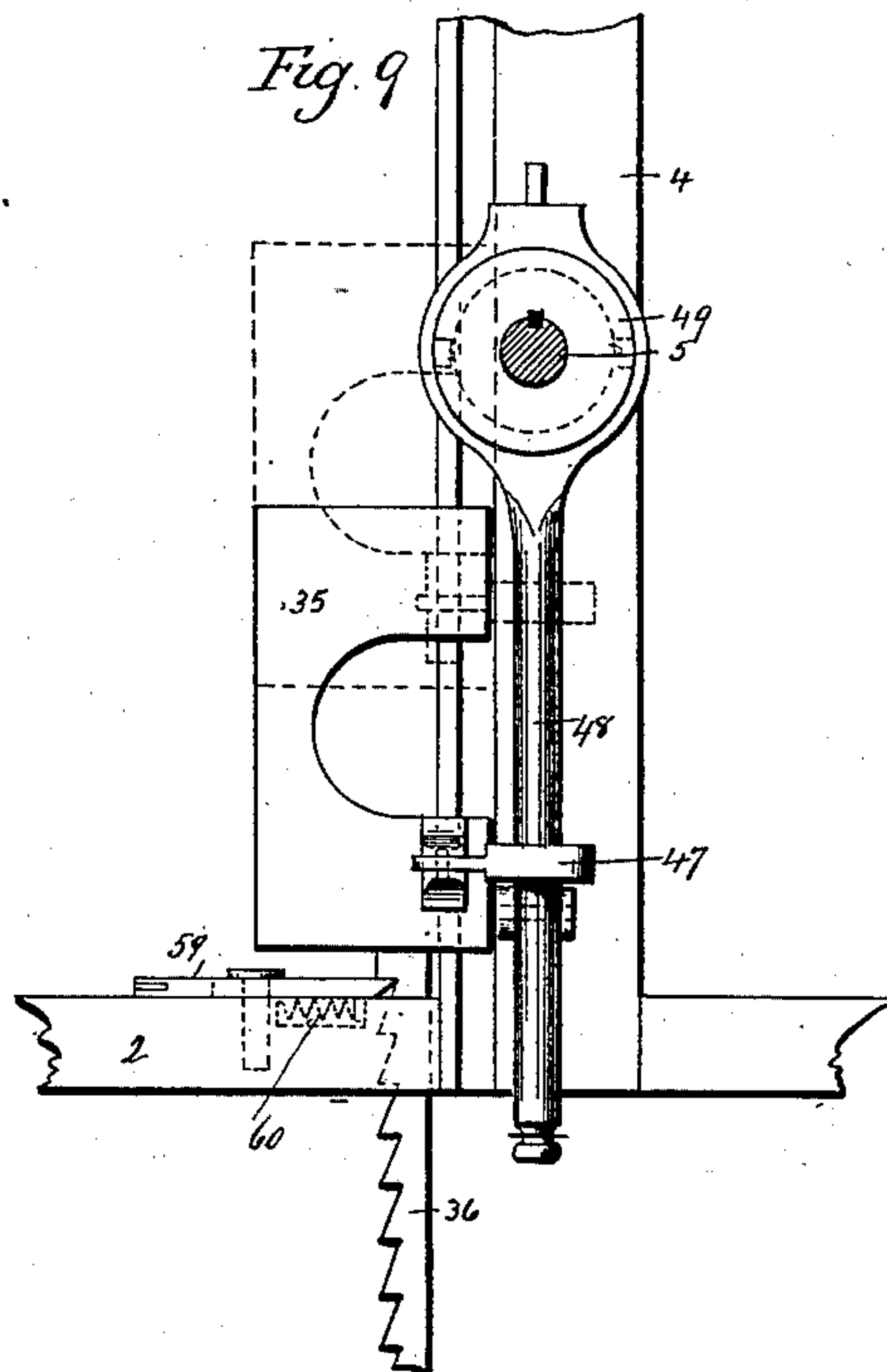
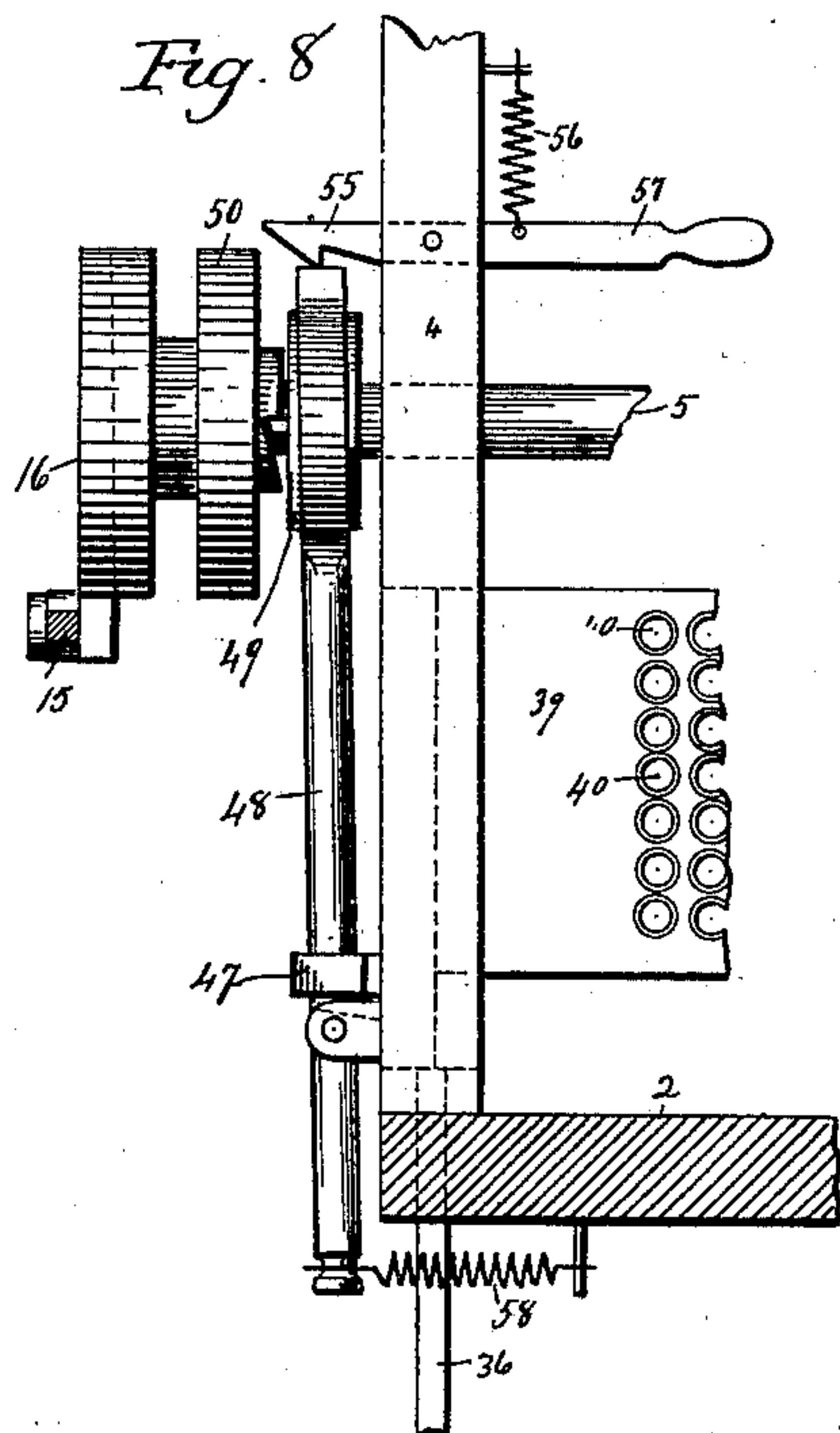
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(No Model.)

4 Sheets—Sheet 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

MAXIME ARTHUR MONTAMBAULT, OF WATERBURY, CONNECTICUT,
ASSIGNOR OF ONE-HALF TO JOSEPH ALPHONSE VALLÉE, OF SAME
PLACE.

MACHINE FOR CHUCKING SCREWS FOR BUFFING.

SPECIFICATION forming part of Letters Patent No. 671,731, dated April 9, 1901.

Application filed January 28, 1901. Serial No. 45,060. (No model.)

To all whom it may concern:

Be it known that I, MAXIME ARTHUR MONTAMBAULT, of Waterbury, in the county of New Haven and State of Connecticut, have
5 invented a new Improvement in Machines for Chucking Screws for Buffing; and I do hereby declare the following, when taken in connection with the accompanying drawings and the figures of reference marked thereon, to be a
10 full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view of a machine for chucking screws constructed in accordance with my invention; Fig. 2, a front view of the hopper, the pan, and upper end of the agitator; Fig. 3, a vertical central section through the chute and forward part of the machine; Fig. 4, an enlarged view of the
15 lower end of the chute, illustrating the operation of the gate; Fig. 5, a broken sectional view illustrating the roll turned in position to receive a screw from the chute; Fig. 6, a view of similar parts with the roll turned to present the screw in line with the holder and
20 in position to be inserted therein; Fig. 7, a plan view of one of the chucks or holders; Fig. 8, a front view, partially in section, illustrating the clutch mechanism; Fig. 9, a side view of the same; Fig. 10, a broken front view showing the clutch in its retired position; Fig. 11, a plan view, partially in section, of the forward part of the machine.

This invention relates to an improvement
35 in chucking screws for buffing—that is, for inserting the screws into a chuck or holder in which they may be conveniently presented to a buffing-wheel for buffing or polishing the heads—and although in illustrating the invention a “capstan-screw” is shown it will be
40 evident that various styles of screws or other devices may be inserted into a holder in the same way. At the present time it is customary to insert the screws or devices into a
45 holder by hand, and the time required for so doing is greater than the time required for buffing, and so that it materially adds to the cost of producing the screws.

The object of this invention is to produce

an automatic machine which will insert the
50 screws into a chuck or holder and stop when the holder is full, but be ready for immediate operation when the filled holder has been removed and replaced by an empty one; and it consists in the construction as hereinafter
55 described, and particularly recited in the claims.

In carrying out my invention I employ a bed 2, suitably supported by legs 3 or otherwise, and rising from this bed are guides 4, through
60 which a transverse shaft 5 extends. Below this shaft and parallel therewith and mounted between the said guides 4 is an oscillating roll 6, having transverse openings 7, adapted to receive screws 8 or other devices to be
65 chucked. Extending downward from the roll 6 is an arm 9, which is connected by a link 10 with an arm 11, depending from the under face of a slide 12, which is adapted to move toward or from the roll 6 on ways 13, and extending rearward from the slide are fingers
70 14, corresponding in number to and adapted to enter the openings 7 in the said roll 6. In order to assure the alinement of the openings in the roll with the said fingers, I connect the
75 roll with the frame by springs 6^a, which yield to permit the roll to turn. To the outer ends of the said slide, which project on opposite sides beyond the ways, links 15 extend rearward into connection with eccentrics 16,
80 mounted upon the shaft 5, and so that as the shaft rotates the slide will be moved back and forth, as will hereinafter appear.

Mounted between the guides 4 is a chute 17, having grooves 18, corresponding in num-
85 ber to the number of openings in the roll 6 and extending from a hopper 19. Mounted at a point considerably above the upper end of the chute is a long inclined agitator 20, which is formed with grooves or channels 21, corre-
90 sponding to the grooves in the chute. The upper end of the agitator is pivotally connected to a pan 22, which stands below the mouth of the hopper 19 and which rests upon a shaft 23, upon which a cam 24 is mounted,
95 with which a finger 25, projecting from one side of the pan, engages, and so that as the shaft revolves the pan, and hence the agitator,

will be moved from side to side, which acts to cause the screws to fall point downward into the channels 21 and be carried down into the chute 17. This shaft may be provided
 5 at its outer end with a pulley 26. To change the inclination of the pan and so as to cause the screws to feed more or less rapidly, its outer end is adapted to be raised by means of chains 65, which extend around the shaft 66,
 10 mounted in the frame above the pan, and in order to hold this shaft against rotation it is provided with a ratchet-wheel 67, in position to be engaged by a pawl 68, also mounted in the frame, and so that by turning the shaft
 15 the outer end of the pan will be raised, so that the screws passing from the hopper into the pan will not fall so rapidly into the agitator, or by releasing the pawl and allowing the shaft to turn in the opposite direction the
 20 outer end of the pan will fall, giving greater inclination, and hence more rapid feeding.

In the front face of the chute 17, in each of the passages therein, is a small opening 27, into each of which a pin 28 extends, the said
 25 pins being mounted in a bar 29, which is carried by arms 30, extending upward into pivotal engagement with the face of the chute, these pins forming gates in the chute and are normally held in their closed position by a
 30 spring 31. Pivoted to the sides of the chute and in rear of the arms 30 are levers 32, the upper ends of which bear against the rear edges of the arms and the opposite ends extend downward into the path of fingers 33,
 35 carried by the slide 12, and so that when the slide moves forward the fingers 33 will strike the levers 32, which in turn throw the pins 27 outward, allowing another series of screws or articles to drop. To provide for the escape
 40 of the screws in case of misfeeding, the lower front face 34 of the chute is hinged so as to open outwardly, and thereby permit a screw to be removed from the bottom of the chute before it enters a roll 6.

Secured to the rear edge of each of the guides 4 and so as to be vertically movable thereon is a block 35, each carrying a downwardly-extending rack 36, and in the inner side walls of each block is a groove 37 to receive the
 50 tongues 38 of a chuck or holder 39, which is provided with holes 40 for the reception of the screws, the holes being arranged in rows, the number of openings in each row corresponding to the number of openings in the
 55 roll 6 and channels in the chute 17. Between the roll 6 and the face of the holder 39 is a guide 69, formed with notches 70, corresponding in position to the openings in the roll 6, and normally held up in alignment therewith
 60 by springs 71 at each end, and to this guide a lip 72 is secured, which is curved corresponding to the curvature of the roll 6, beneath which it partially extends, so as to close the openings therein when the roll is turned
 65 to present the openings in line with the channels in the chute.

Below the bed 2 of the machine is a bar 41,

adapted to engage with the teeth of the racks 36. The ends of this bar are connected with
 70 rods 42, which extend upward into engagement with an arm 43 of bell-crank levers 44, secured to the guides 4, the other arm 45 of the said levers extending upward and connected by links 46 with the slide 12, and so
 75 that as the slide moves it will turn the bell-crank levers, and hence lift the bar 41, and thereby raise the blocks 35 and the chuck or holder 39, carried thereby, the extent of each movement corresponding to the distance between the rows of openings in the holder. To
 80 hold the blocks in their raised position, dogs 59 are mounted upon the bed 2 of the machine in position to engage with the teeth of the racks and are normally held in engagement therewith by springs 60. To the rear
 85 ends of these dogs, which are adapted to slide longitudinally, are inwardly-extending levers 61, the inner ends of which pass each other in front of a lever 62, which extends downward through the bed 2 of the machine into
 90 engagement through a link 63 with the bar 41, which is normally held in engagement with the rack by a spring 64. One of the blocks also carries a lug 47, which surrounds a clutch-lever 48, which extends upward into
 95 engagement with the sliding clutch member 49 on the shaft 5, which member is adapted to engage with a pulley 50, loosely mounted on the said shaft, but constantly driven by a
 100 belt 51, extending over a pulley 52, mounted on a driving-shaft 53, which shaft also serves to drive the pulley 26. As the block 35 is raised the lug 47, rising with it, brings the said lug into line with a cam 54, carried by
 105 the slide 12, and so that the said lug is forced inward, which forces the clutch-lever 48 inward and throws the movable member 49 out of engagement with the pulley 50, and it is held out of engagement by a latch 55, extending through the guide 4, as shown in Fig. 11,
 110 the nose of the latch being normally held down by a spring 56, secured to the handle 57 and to the guide, while the clutch-lever 48 will when disengaged by the latch be thrown outward under the force of a spring 58 at its
 115 lower end. The movable member 49 of the clutch being engaged with the pulley 50 and the pulley 50 being driven will turn the shaft 5 and move the eccentrics 16, whereby the slide 12 is moved back and forth and at each
 120 forward movement will turn the bell-crank lever 44 and raise the bar 41, and hence gradually lift the blocks to their highest position and in position for the cam 54 to throw the clutch out of operation, and this takes place
 125 after the lowermost row of openings in the holder have been filled.

The operation of the machine will be understood from the foregoing. Briefly, the screws or blanks are placed in the hopper 19, from
 130 which they fall into the pan 22, which is being moved from side to side, and onto the agitator 20. In this the screws fall point downward through the channels 21, which are nar-

rower than the diameter of the head, so that the screws are presented point downward to the chute 17, through which they pass, and so that one series will rest upon the face of the roll 6 and the second series be retained by the pins 28. The shaft 5 being rotated by the pulley 50 will turn the eccentrics 16 and move the slide 12, and as it moves forward the roll 6 will be turned so as to present its openings in line with the chute 17 and so that a series of screws will fall into the openings and rest upon the lip 72, as shown in Fig. 5. As the slide moves rearward the roll will be turned so as to present its openings into a horizontal line and so that the fingers 14 will strike the heads of the screws and force them through the roll, over the guide 69, and into the holder 39, the said guide 69 yielding to allow the heads to pass over it. Upon continued movement of the machine the forward movement of the slide, through the links 46, bell-crank lever 44, and rods 42, lifts the bar 41, and hence raises the blocks 35 one step, in which position they will be held by the dogs 59. This movement presents the next row of holes in the holder 39 in line with the roll 6. The forward movement of the slide causes the arms 33 to strike the levers 32 and force the pins outward, permitting another series of screws to drop, and on the next forward movement of the slide this second series of screws will be inserted into the holder, as before described. As the holder is raised to present the last row of openings the lug 47 will have been brought upward into line with the cam 54, so that the lug will be forced inward and the clutch-lever 48 caused to throw the movable member 49 inward and out of engagement with the pulley 50, in which retired position it will be held by the latch 55, and hence stop the operation of the machine. The holder 39 is then removed and an empty one inserted in its place, the lever 62 is then thrown to release the dogs 59, which permit the blocks 35 to drop to their lowermost position, and then upon depressing the inner end of the latch 55 the clutch-lever will be freed and under the action of its spring 58 throw the movable member 49 into engagement with the pulley 50, and the operation of the machine will be repeated. With this machine, therefore, the blocks may be filled as rapidly as the screws or articles can be buffed, and so that one operator can have his holder filled while he is buffing the screws in a second holder, and then by changing the holders the first one refilled while he is buffing the screws in the second, or, if driven rapidly, one machine can fill the holders for a number of buffers.

In the event of one of the screws failing to properly enter the recess in the roll 6 the turning of the roll will force the lower end 34 of the front face of the hopper outward and permit the screw to escape, and thus avoid stopping and breaking the machine.

It is apparent that various forms of hoppers

and agitators may be provided to deliver the screws to the chute. I therefore do not wish to be understood as limiting the invention to the chute. It is also apparent that various changes may be made in the details of construction of parts of the machine. I therefore do not wish to be understood as limiting the invention to the exact details shown; but,

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

1. In a machine for chucking screws, the combination with a roll having passages through it, a chute above said roll adapted to present screws to the roll, a slide in front of the roll carrying fingers adapted to pass into the roll, blocks for supporting a holder in rear of said rolls, and means for elevating the said block step by step and for moving the slide back and forth, whereby screws are transferred from the chute to the holder, substantially as described.

2. In a machine for chucking screws, the combination with a roll having passages through it, a chute above said roll adapted to present screws to the roll, a gate near the lower end of said chute, a slide in front of the roll and carrying fingers adapted to pass into the roll, blocks for supporting the holder in rear of said rolls, and means for elevating the said block step by step and for moving the slide back and forth, levers secured to said chute and adapted to open said gate, and arms carried by said slide and adapted to turn said levers to open said gate, substantially as described.

3. In a machine for chucking screws, the combination with a roll having transverse openings therein, a chute mounted above said roll and adapted to deliver screws into said openings, a gate at the lower end of said chute, levers pivoted to the chute and adapted to engage with said gate, a slide provided with fingers and adapted to move back and forth toward said roll, and carrying arms for engagement with the levers for opening the gate, blocks in rear of said roll and guided for vertical movement, racks extending down from said blocks, a bar in engagement with said racks, means for holding said racks as they are raised, connections between said bar and slide whereby movement of the slide acts to raise said racks, a shaft above said roll carrying eccentrics for moving said slide, a clutch-pulley on said shaft, and means carried by said block and slide for throwing the clutch mechanism out of operating position when the blocks are elevated to the desired extent, means for releasing the racks to permit the blocks to fall, and means for releasing the clutch mechanism to set the machine in motion, substantially as described.

4. In a machine for chucking screws, the combination with the frame and bed thereof, of vertical guides mounted thereon, a roll mounted between said guides, and provided with transverse openings, a chute arranged

above said roll and adapted to present screws
to the openings, a gate near the lower end of
said chute, a slide in front of said roll and
having rearwardly-extending fingers in line
5 with the openings in the roll through which
they may pass, a shaft above said roll carry-
ing eccentrics connected with said slide for
moving it back and forth, vertically-movable
blocks in rear of said guides, and means con-
10 nected with the slide for raising them step by
step, clutch mechanism on said shaft, and a
clutch-lever extending downward therefrom,
a cam, a lug carried by said block and adapted
to be moved by a cam carried by the slide for
15 throwing the clutch mechanism out of en-

gagement, and means for holding it in its re-
tired position, a guide in rear of said roll,
said guide having a forwardly-extending lip
extending beneath said roll, and means for
releasing the blocks after they have reached 20
their elevated position, substantially as de-
scribed.

In testimony whereof I have signed this
specification in the presence of two subscrib-
ing witnesses.

MAXIME ARTHUR MONTAMBAULT.

Witnesses:

FRED. C. EARLE,

GEORGE D. SEYMOUR.