

No. 884,215.

W. SCHOU & H. BUSSE.

PATENTED APR. 7, 1908.

MACHINE FOR PINNING LEATHER ON SOLES OF WOOD.

APPLICATION FILED JULY 2, 1904.

4 SHEETS—SHEET 1.

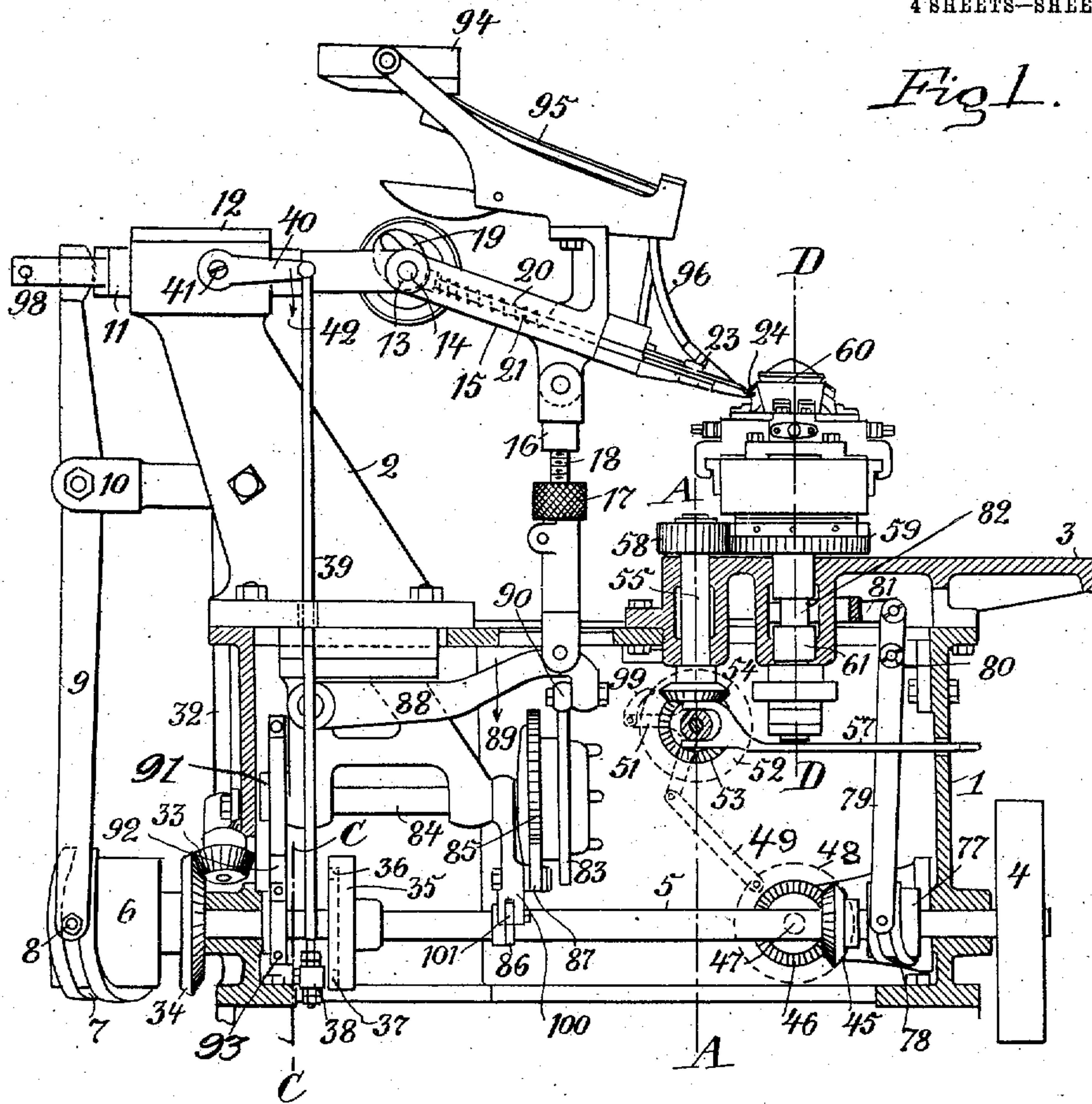
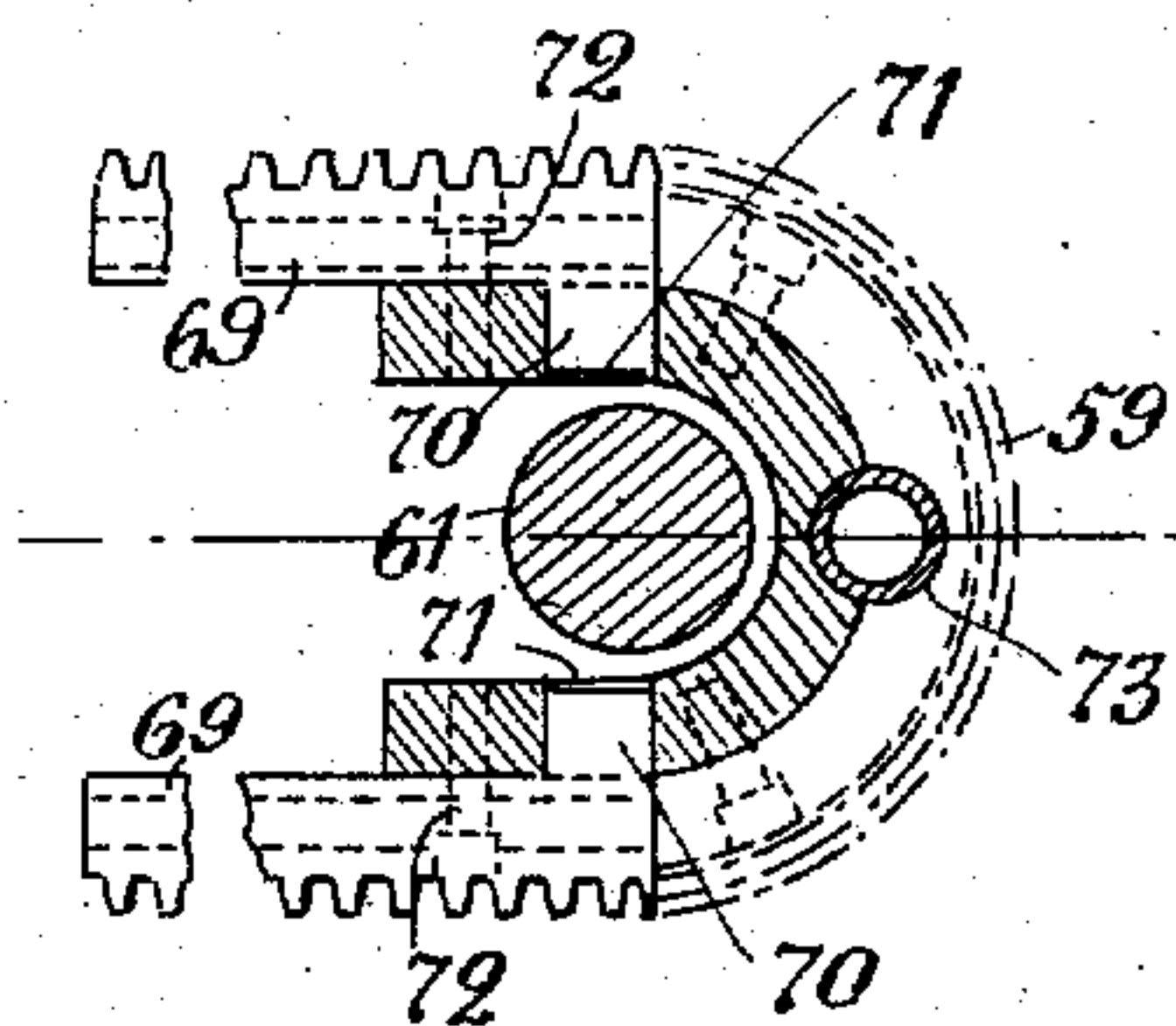


Fig. 7



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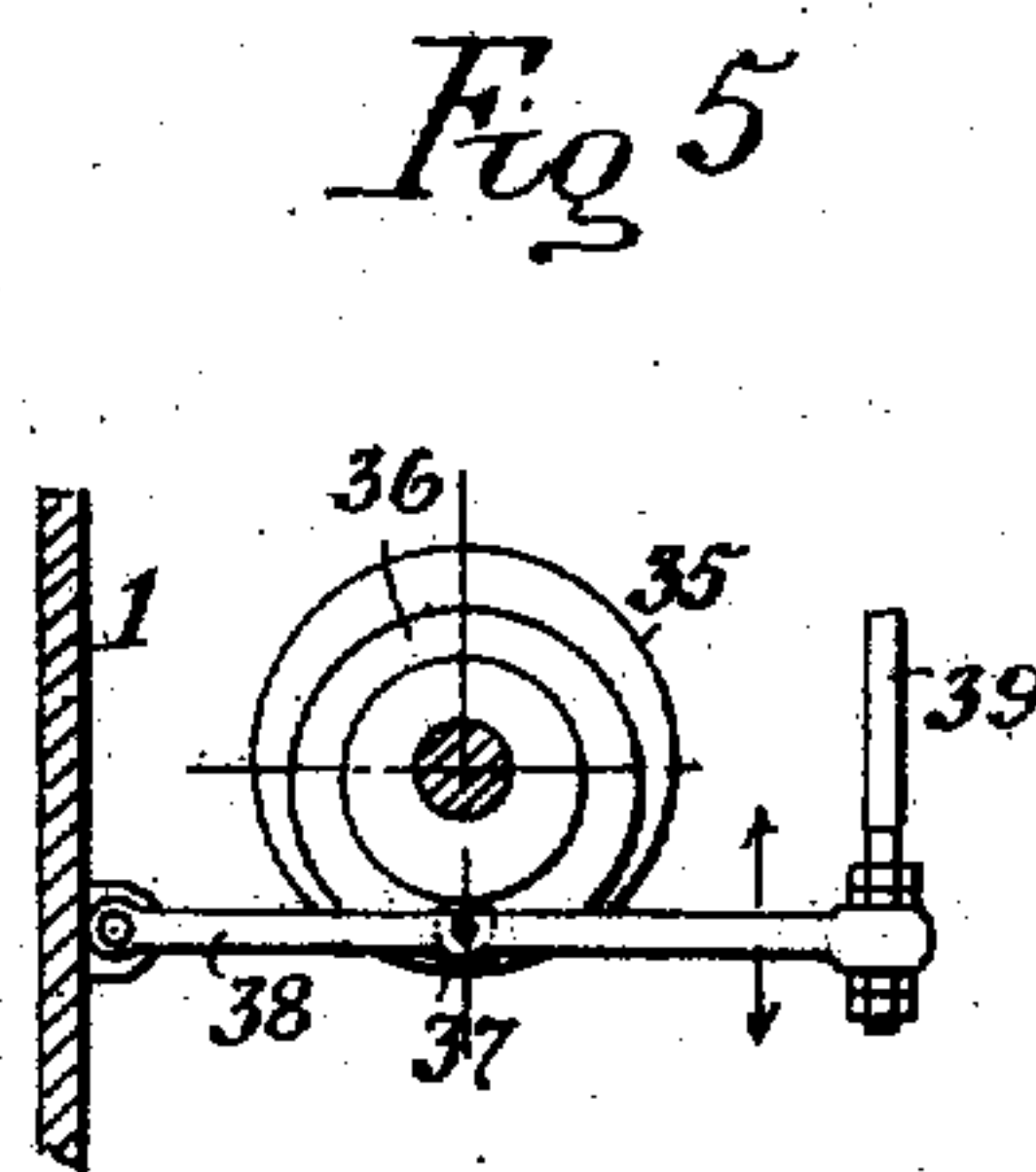
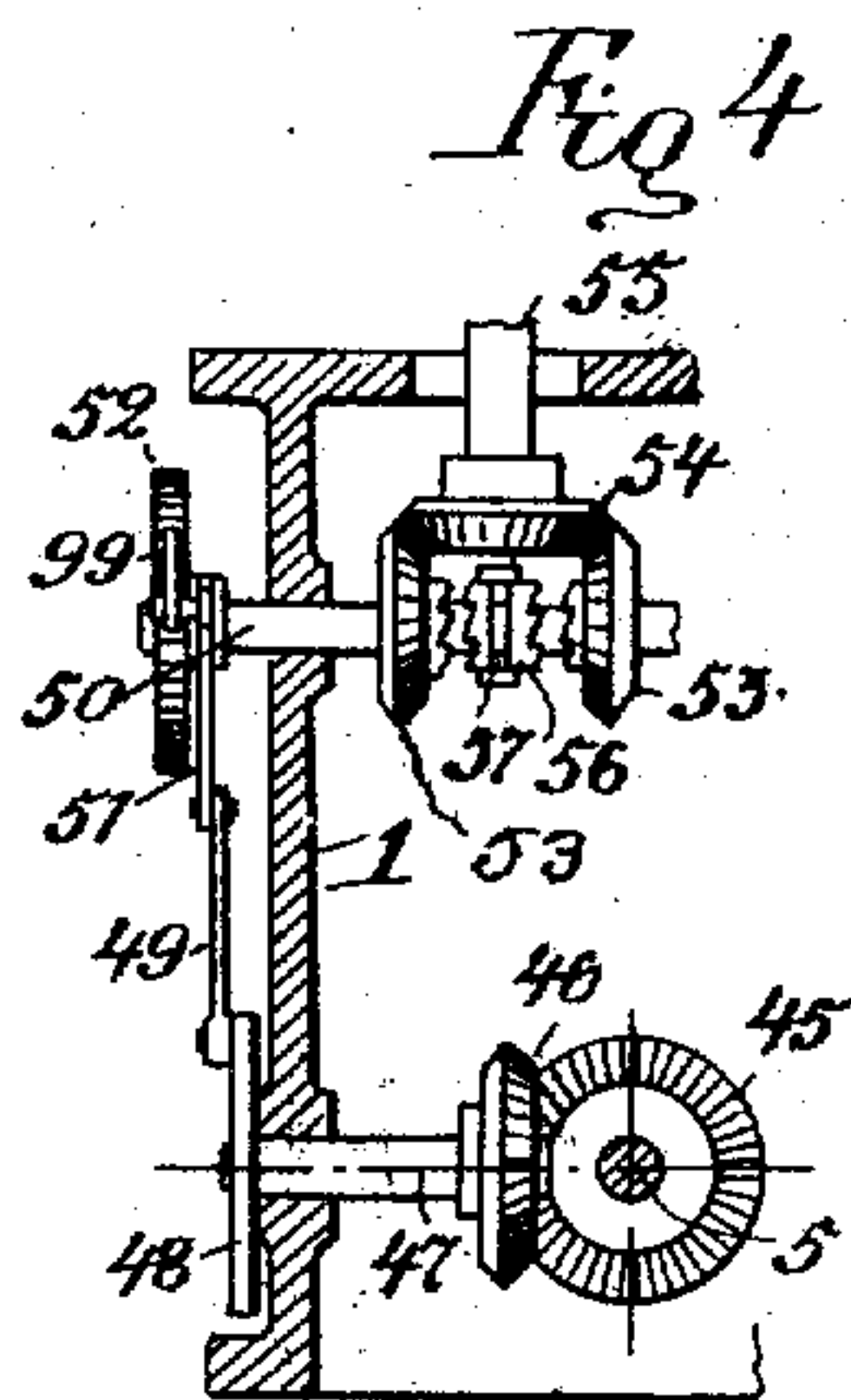
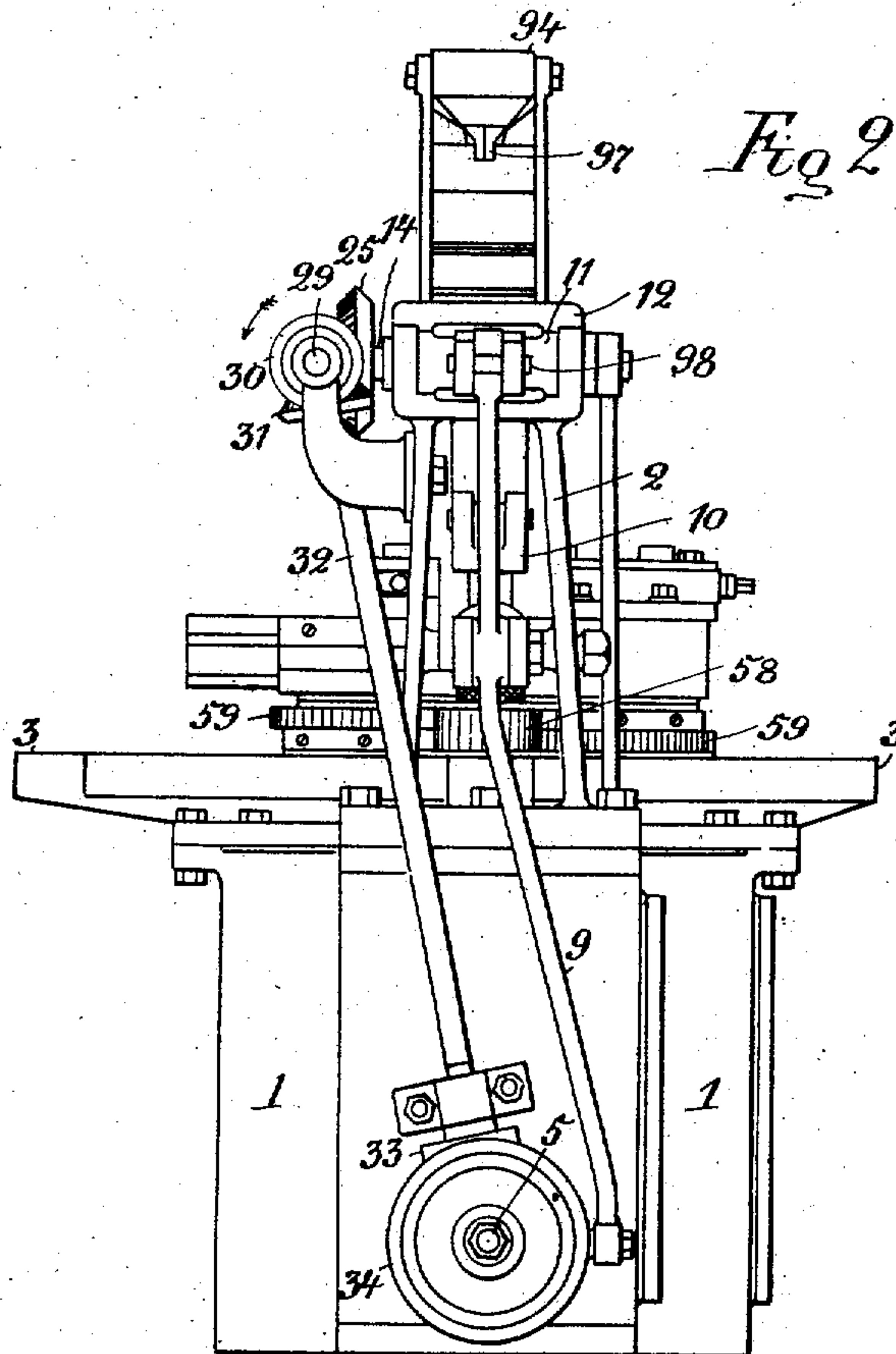
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4 SHEETS—SHEET 3.

Fig 3

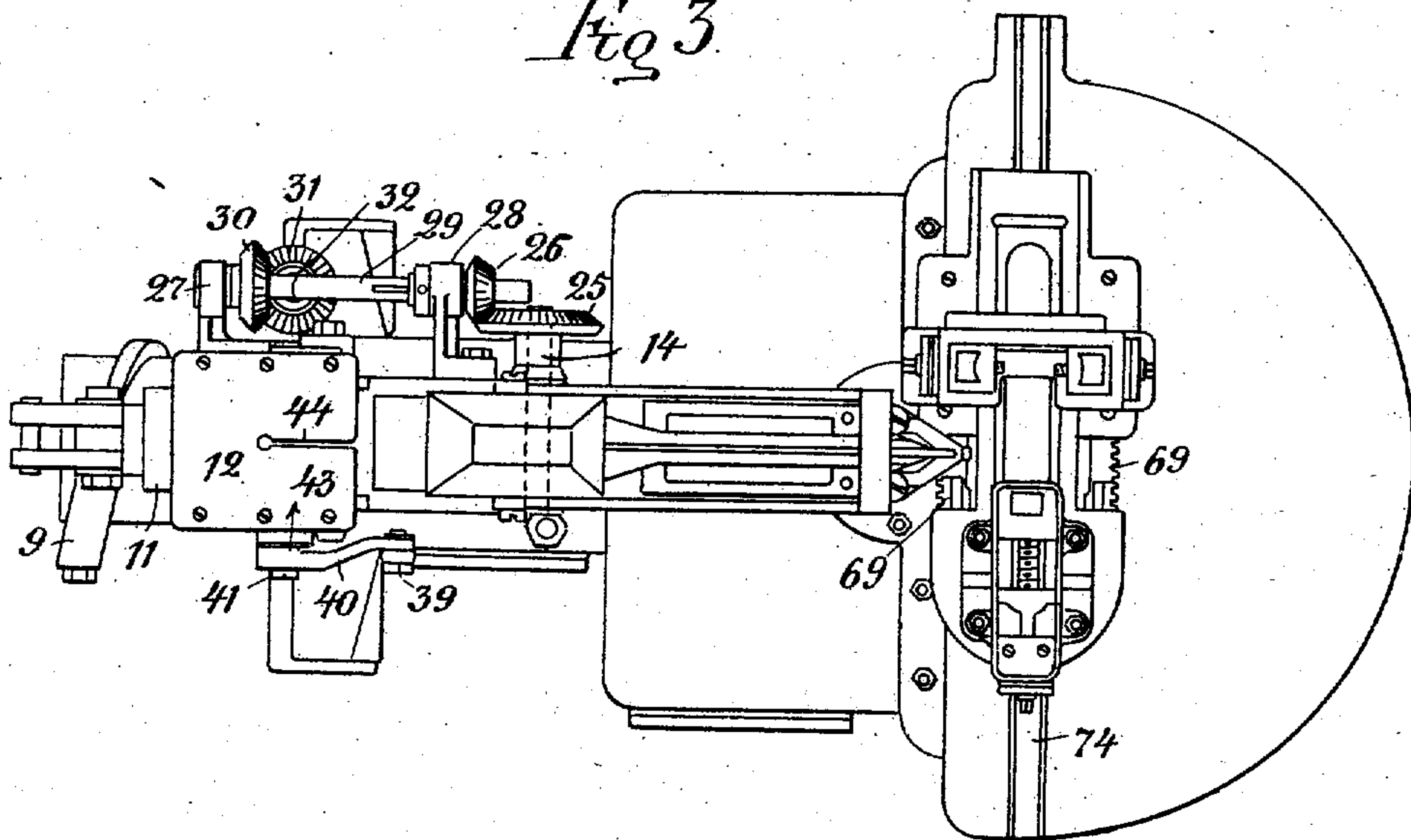
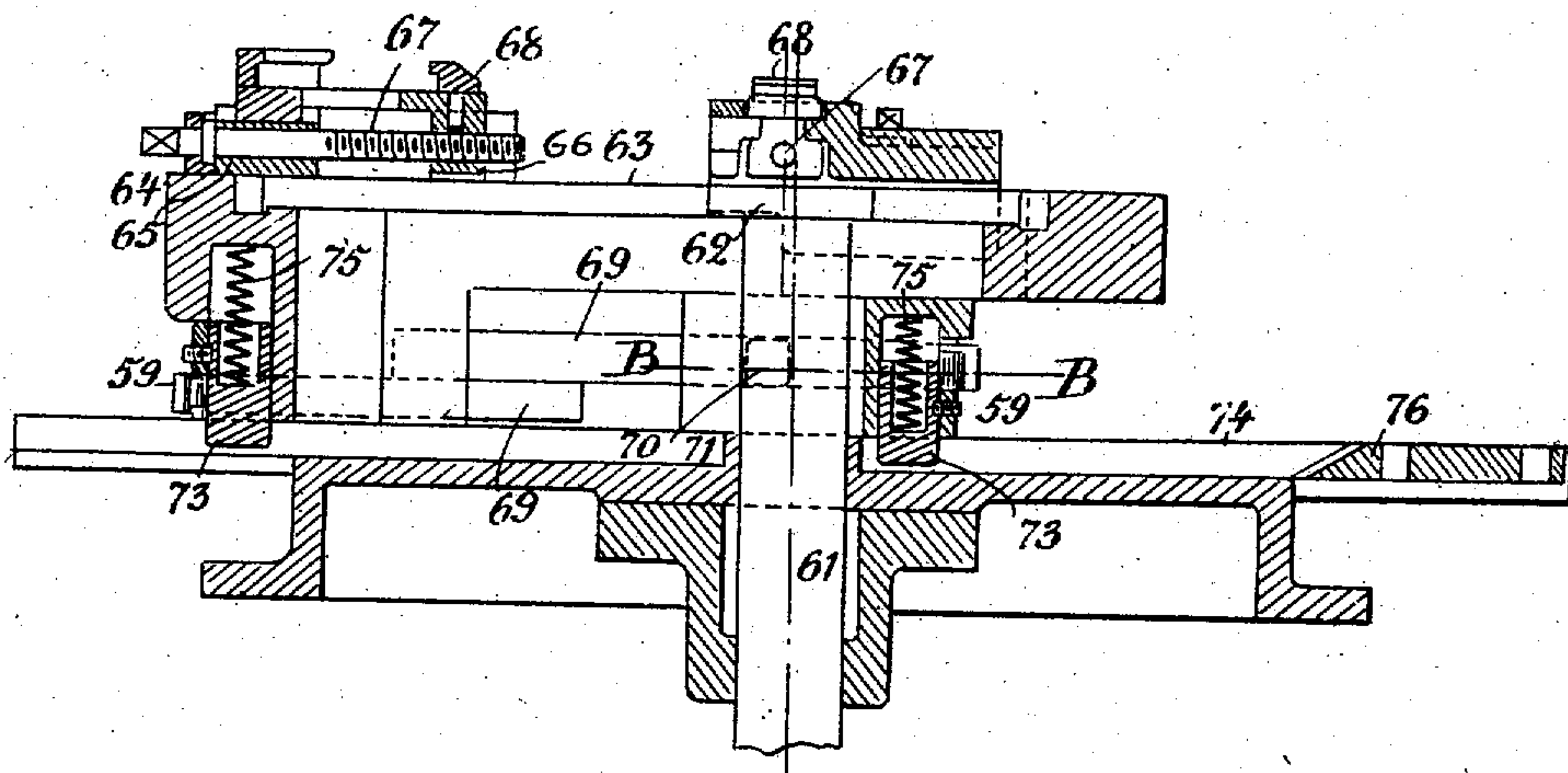


Fig 6



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4 SHEETS—SHEET 4.

Fig. 8.

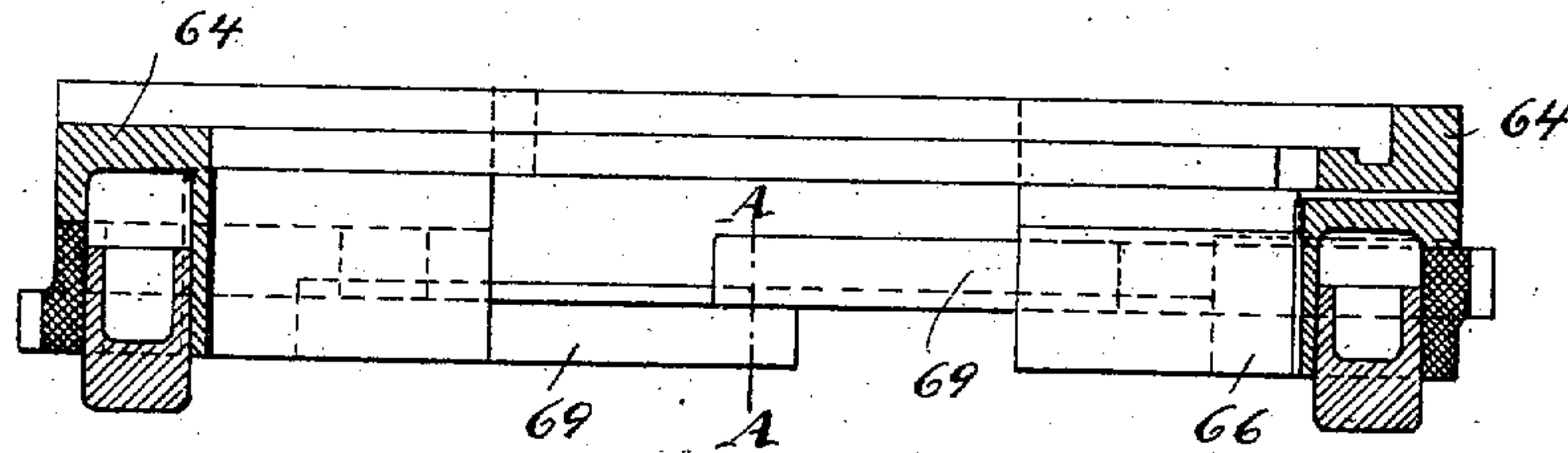


Fig. 9.

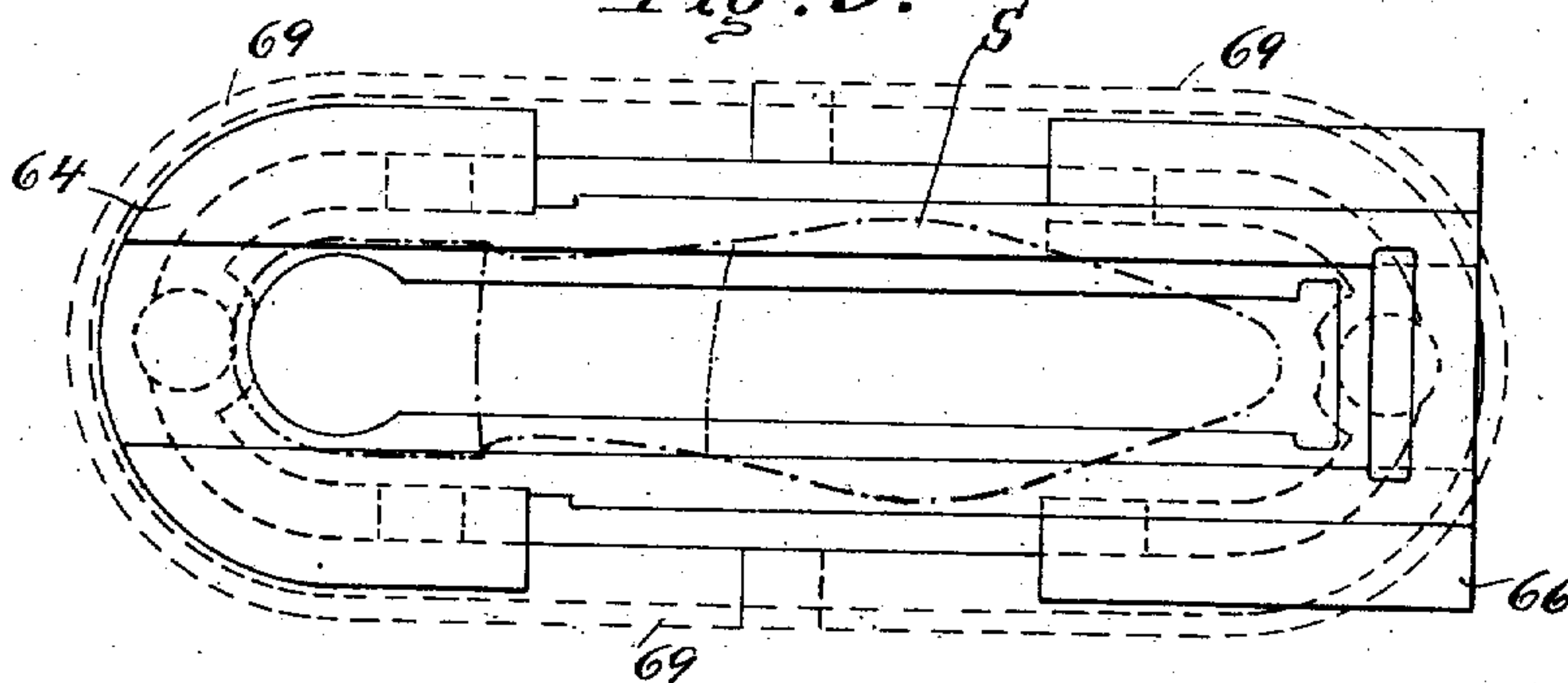


Fig. 10.

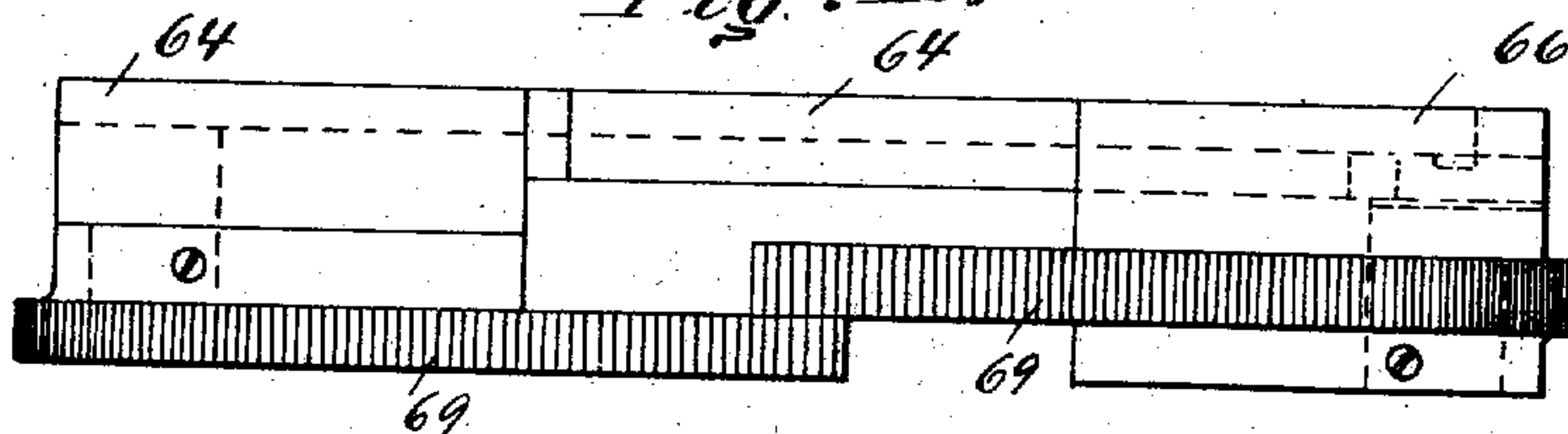


Fig. 11.

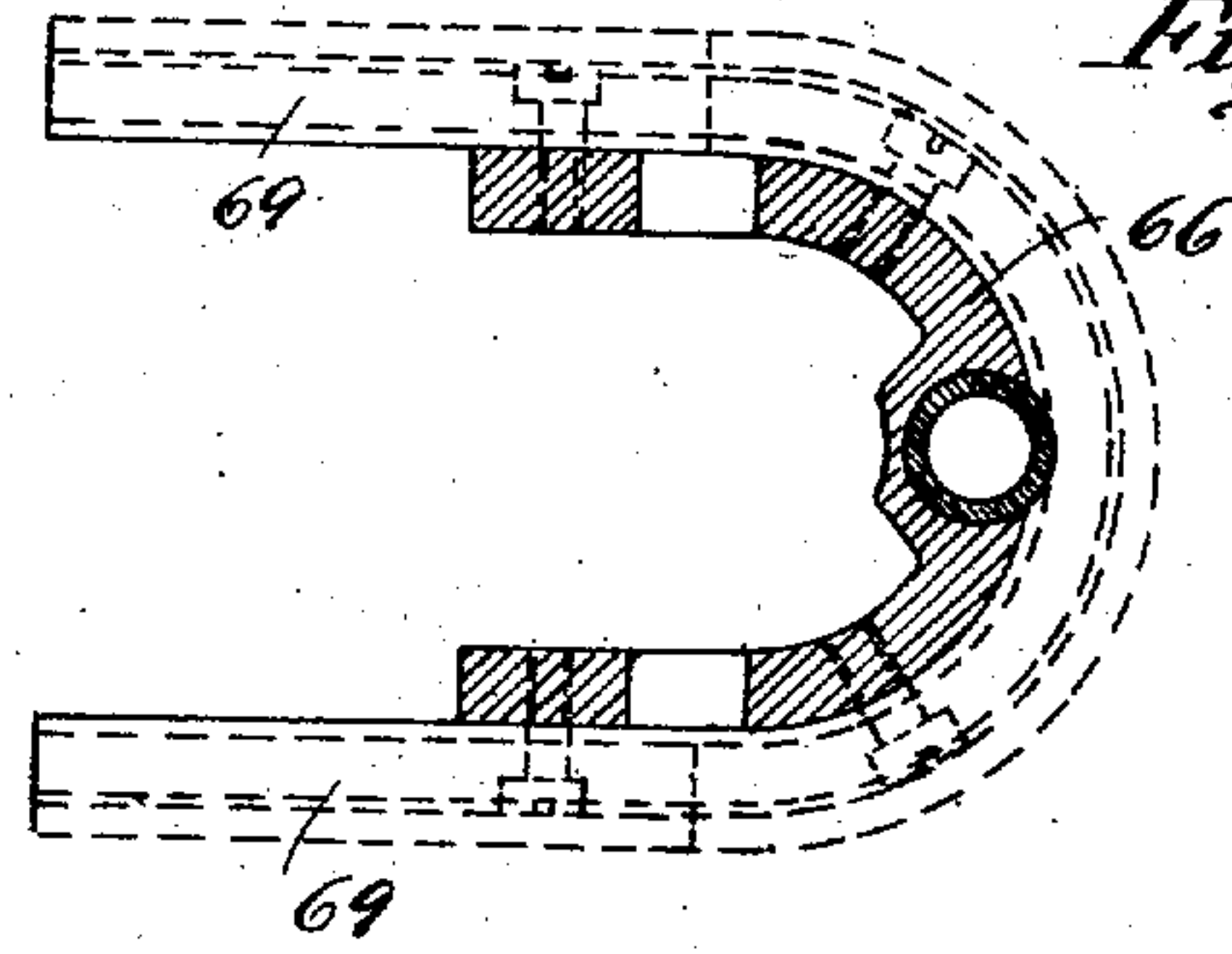
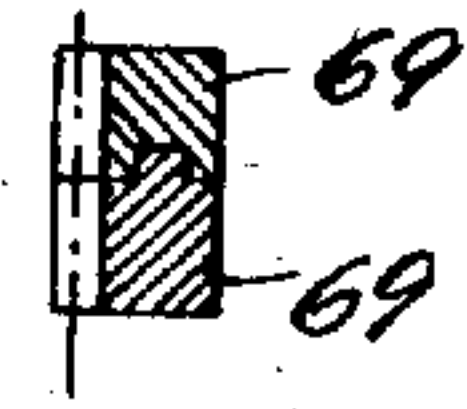


Fig. 12.



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UNITED STATES PATENT OFFICE.

WILLIAM SCHOU, OF COPENHAGEN, DENMARK, AND HERMANN BUSSE, OF BERLIN, GERMANY.

MACHINE FOR PINNING LEATHER ON SOLES OF WOOD.

No. 884,215.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed July 2, 1904. Serial No. 215,201.

To all whom it may concern:

Be it known that we, WILLIAM SCHOU, of Copenhagen, Denmark, Peder Skramsgade 3, wholesale merchant, and HERMANN BUSSE, of Berlin, Germany, Augsburgerstrasse 96, merchant, have invented new and useful Improvements in a Machine for Pinning Leather on Soles of Wood, of which the following is a specification.

10 The present invention relates to a machine for automatically pinning leather on wooden soles, or in other words, a machine for attaching uppers to the soles of wooden footwear by means of tacks. The tacking is
15 effected by means of a reciprocating hammer, the sole with the attached upper being supported on the sliding carriage which moves past the hammer. At the moment the tack is driven in, the sole remains stationary and is then moved only a certain distance farther while the hammer is carried
20 back. During the movement of the sole, the height of the hammer is adjusted so that it during the forward movement is constantly directed against the groove in the rim of the
25 sole, into which the tacks are to be driven.

A form of execution of the machine is shown in the drawing, in which the carriage and the sole are moved horizontally. It is
30 obvious, that the carriage instead of this, may be given a vertical motion without deviating from the principle.

Figure 1 is a side view of the machine partly in longitudinal section. Fig. 2 shows
35 the machine seen from the end. Fig. 3 is a top view. Fig. 4 is a sectional view along the line A—A in Fig. 1. Fig. 5 is a sectional view along the line C—C in Fig. 1. Fig. 6 is a sectional view along the line D—D in Fig.
40 1 and Fig. 7 is a sectional view along the line B—B in Fig. 6. Fig. 8 is a longitudinal section of Fig. 9. Fig. 9 is a plan view of the work support. Fig. 10 is a side view of the same. Fig. 11 is a detail of a part of the
45 work support, and Fig. 12 is a section A—A of Fig. 8.

The machine consists of a boxlike table onto which is screwed the upright 2 for the hammer and the tableplate 3 for the carriage.
50 The movement of the machine is effected by means of the pulley 4 on the shaft 5. The latter is provided with a curve-disk 6 having the groove 7 in which engages the roller 8 on the lever 9. This lever has its fulcrum in the
55 bracket 10. The upper end of the lever 9 engages the forked end of a sliding carriage 11,

this end being closed by the bolt 98. This carriage is caused to move backwards and forwards by means of the reciprocation of the lever 9. The carriage 11 slides in the up-
60 right 2 and the guides in which it slides are closed by the cover 12. In one end of the carriage 11 are bearings for a shaft 14 to which is fastened a guide 15 for the hammer, and this guide is supported by a rod 16.
65 This rod is provided with an adjusting-nut 17 screwed onto the thread 18. It will be seen, that by tightening or loosening the nut 17, the guide 15 may be raised or lowered. On the shaft 14 is found a peculiarly shaped
70 pulley 19 against which rests the hammer 21 actuated by the spring 20. The foremost and thinner part 22 of the hammer passes in between the jaws 23 for guiding the tack.

The shaft 14 is rotated by means of the
75 cog-wheels 25 and 26 Fig. 3, the former being fixed on the shaft 14 and the latter on the shaft 29 Fig. 3, which has its one bearing 27 in the upright 2 and the other 28 in the carriage 11. The motion of the carriage 11 con-
80 sequently makes the wheels 25 and 26 Fig. 3 as well as the bearing 28 move backwards and forwards guided by the shaft 29. The latter is provided with a cogwheel 30 meshing with a cogwheel 31 fixed on a shaft 32. This shaft
85 forms the connection with the driving shaft 5 by means of the cogwheels 33 and 34 Fig. 1.

In order to admit the carriage 11 of being stationary during the pinning process, a pulley 35, which on one side is provided with an
90 eccentrically formed groove 36 Fig. 5, is fixed on the shaft 5. In this groove slides a roller 37 attached to a lever 38 movably attached to the table 1 and having its free end connected to a rod 39. The latter is mov-
95 ably connected to a lever 40 turning on a bolt 41 fixed on the upright 2. The part of the bolt 41 supporting the lever 40 is threaded so that the lever 40, when it is turned in the direction indicated by the arrow 42 in
100 Fig. 1, will be displaced horizontally as shown by the arrow 43 in Fig. 3. As the upright 2 as well as the cover 12 are provided with a slot 44, and as one end of the bolt 41 is stationary the top part of the up-
105 right will be pressed together; that is, during the pinning process, it will take a firm hold of the carriage 11. The pulley 35 is attached to the shaft 5 in such a manner, that the motion of the carriage is stopped at the very
110 moment the hammer is pressing the tack home. The shaft 5 also actuates the carriage

with the rack holding the sole, and it is accomplished through the cogwheels 45 and 46. The former is attached to the shaft 5, while the latter is attached to a shaft 47 provided with a crank-pulley 48, the rod 49 of which makes the shaft 50 rotate. This is accomplished by the rod 49 being connected to a two armed lever 51 provided with a pawl 99 engaging a ratchet wheel 52 on the shaft 50, the latter thereby being rotated at intervals.

On the shaft 50 are mounted two bevel gears 53 meshing with a bevel gear 54 on the shaft 55, and one or the other of said bevel gears is adapted to be connected with the shaft 50 by means of a clutch coupling 56 actuated by a fork 57, the said coupling being slidably mounted on the shaft but compelled to rotate therewith. On the shaft 55 is also fixed a cogwheel 58, which engages the teeth 59, 69 of the carriage thereby causing this, together with the sole 60, to move to the right or the left into position for the hammer.

The carriage is kept and guided in its motion by a bolt 61 provided with a square head 62 at the top and sliding in a longitudinal slot 63 in the carriage 64. On the carriage is a fixed clamping jaw 65, and a movable jaw 66, for cooperating therewith, and movable towards and from the fixed jaw by means of the screws 67. The sole is secured by means of the grips 68, which are moved towards and from each other by the screws 67. Each of the parts 64 and 66 is provided with a rack consisting of the stationary segments 59 and the changeable rods 69 Fig. 7. The distance between the parts 64 and 66 differing according to the size of the soles, the small rods used for small sizes of footwear, must be exchanged for larger ones, when bigger sizes are worked on, but two sizes of rods will be sufficient to meet all requirements. The rods 69 are by their lugs 70 kept in the holes 71 in the parts 64 and 66 and are moreover secured by means of the screws 72. The parts 64 and 66 are held in a certain distance by the secured sole 60. The carriage device 64—66 is supported by the table 3, and in order to let it and the long side of the sole move into position in front of the hammer, it becomes necessary, after the heel and point of the sole have been tacked and the cogwheel 58 has been in gear with the rack portions 59, to displace the carriage device in its longitudinal direction, that is: parallel with the sole's longitudinal axis. This is made possible by means of the bolts 73 of which one is found in each of the two parts 64 and 66. These bolts are lying in a groove in the table 3, being pressed into this groove as soon as the longitudinal axis of the carriage coincides with the center line of the groove 74. The bolts may be raised out of the groove by means of an adjustable cam 76 having an inclined upper face as shown in

Fig. 6. If now a sole with the upper attached to it by tacks, is secured in the carriage and this has been adjusted so that the center of one of the toothed segments coincides with the center of the front part or point of the sole, and the center of the other segment coincides with the center of the heel, then through transmission of motion from cogwheel 58 to the teeth found on the carriage, the latter will be moved straight ahead in jumps equal to the space between two tacks, owing to the cogwheel moving at intervals. During this motion the carriage is guided by the bolts 73 catching into the groove 74 until the carriage has been moved so far forward that the axis of the bolt 61 coincides with the center of one of the toothed segments, at this moment one of the bolts 73 has moved along the beveled end of the cam 76, thereby admitting the carriage of turning 180° on the bolt 61, the other bolt 73 during this movement sliding in the groove 74 round the bolt 61. When the carriage has turned 180°, both bolts 73 are again above the groove 74 into which they catch and effect again the straight forward guiding, and the carriage moves now in a straight line until the axis of the bolt 61 coincides with the center of the other toothed segment and it then repeats turning 180°.

In order to hold the carriage firmly against the table 3 while the tack is driven, a wedge-shaped key 81, having a forked end is provided. The forked end of the key, receives therebetween the bolt 61, the said bolt being provided with an annular groove 82 fitting between the forks of the key. This key is pivoted to the upper end of a lever 79 pivoted to the frame at 80, and operated by a cam 77 upon the shaft 5, the said cam being provided with a cam groove 78 engaging the lower end of the lever. When the lower end of the lever 79 is moved to the right, the key is moved to the left and the wedge-shaped end of the key acting in the groove presses the carriage firmly down upon the table.

The distance between the tacks driven into the soles is determined by the distance the carriage 64 is moved forwards or by the distance the pawl-device 51 moves the ratchet wheel 52.

In order to make it possible for the hammer automatically to follow the groove in the rim of the sole in the height also, a curved disk 83 is introduced. The form of this disk corresponds to the sole concerned and may easily be fixed on and removed from a shaft 84. This shaft is turned periodically by means of a ratchet-wheel 85 and a pawl 87. The latter is fixed on a lever 100 whose roller is pressing against a cam 86 on the shaft 5. At each revolution made by the latter shaft, the ratchet-wheel 25 will be turned one tooth ahead. The lever 88, whose roller 90 rests

on the curve-disk 83 is connected to the rod 16, will therefore be moved up and down in the direction indicated by the arrows 89, according to the shape of the curve-disk, and in this manner it adjusts the hammer to the proper height corresponding to the curvature of the groove in the rim of the sole. By means of a brake-disk 91 on the shaft 84, the ratchet-wheel is prevented from turning too far forward when actuated by the pawl 87. The ribbon or hoop to this brake is fastened to the shaft 5, and is adjusted to the proper pressure by means of the screw 93. The tacks are placed in a box 94 and directed through a plate 95 provided with a slot 97 to a pipe 96 down into the position of the tack 24 shown in Fig. 1, from where it is driven into the sole by the hammer. The manner in which the tacks are directed from the box 94 to the sole 60 does not concern the present invention, and shall therefore not be described here.

What we claim as new and desire to secure by Letters Patent is:

1. A machine for fastening leather on soles of wood or the like, comprising a sliding carriage provided with means for holding the work, a tacking device, means for imparting to the carriage an intermittent progressive movement whereby to bring each part of the periphery of the work in turn to the tacking device, means for moving the tacking device vertically to correspond with the height of that part of the work operated upon at the end of each progressive movement of the carriage, and means for clamping the carriage during each operation of the tacking device.

2. A machine for fastening leather on soles of wood or the like, comprising a table, a sliding carriage upon the table and provided with means for holding the work, a tacking device, means for imparting to the carriage an intermittent progressive movement whereby to bring each part of the periphery of the work in turn to the tacking device, means for moving the tacking device vertically to correspond with the height of that part of the work operated upon at the end of each progressive movement of the carriage, and means for adjusting the initial height of the tacking device with respect to the carriage.

3. A machine for pinning leather on soles of wood or similar material, comprising a frame, a track upon the frame, a carriage movable upon the track and adapted to hold the work, a mechanism for driving pins into the work, means for traversing the carriage by regular intermittent movements longitudinally of the track a predetermined distance, and for reversing the carriage by reg-

ular intermittent movements at the ends of its traverse, means for actuating the pinning mechanism during each intermission, and means for clamping the carriage to the track during the operation of the pinning mechanism.

4. A machine for pinning leather on soles of wood or similar material, comprising a frame, a carriage movable longitudinally upon the frame and adapted to hold the work, a mechanism for driving pins into the work, means for traversing the carriage by regular intermittent movements longitudinally of the frame a predetermined distance, and for reversing the carriage by regular intermittent movements at the end of its traverse, means for actuating the pinning mechanism during each intermission, and means for clamping the carriage to the frame during the operation of the pinning mechanism.

5. A machine for pinning leather on soles of wood or similar material, comprising a frame, a carriage movable upon the frame and adapted to hold the work, mechanism for driving pins into the work, means for reciprocating the carriage by intermittent movements longitudinally of the frame, and for reversing the direction of length of the carriage by intermittent movements at the end of the longitudinal movement in each direction, means for actuating the pinning mechanism during each manipulation, and means for clamping the carriage to the frame during the operation of the pinning mechanism.

6. A machine for pinning leather on soles of wood or similar material, comprising a frame, a carriage movable upon the frame and adapted to hold the work, a mechanism for driving pins into the work, means for traversing the carriage by intermittent movements to bring the work into proper relation with respect to the pinning mechanism, means whereby to lift and depress the pinning mechanism toward and from the work, and means whereby to vary the extent of the said depression to correspond with the irregularities of the work.

Signed by me at Copenhagen, Denmark, May 1904.

WILLIAM SCHOU.

Witnesses:

W. I. BECKETT,
N. OTTOBERG.

Signed by HERMANN BUSSE at Berlin, Germany, this 20th day of May 1904, in presence of two subscribing witnesses.

HERMANN BUSSE.

Witnesses:

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WOLDEMAR HAUPT.