

(No Model.)

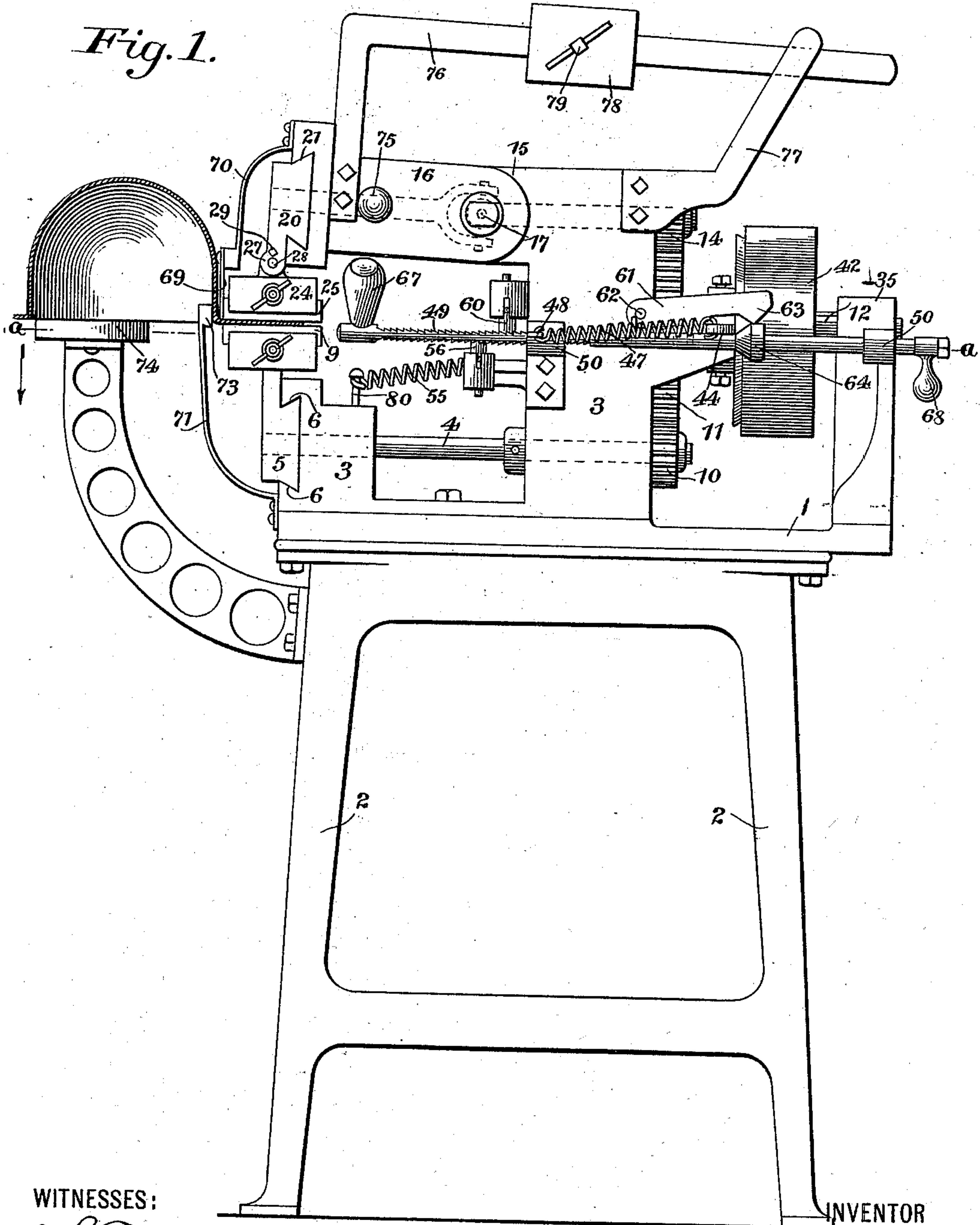
4 Sheets—Sheet 1.

G. E. BRUSH.
MACHINE FOR POUNCING BRIMS OF HATS.

No. 560,773.

Patented May 26, 1896.

Fig. 1.



WITNESSES:

J. F. Smith.
M. J. Longden

INVENTOR

G. E. Brush
BY *J. M. Smith*
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(No Model.)

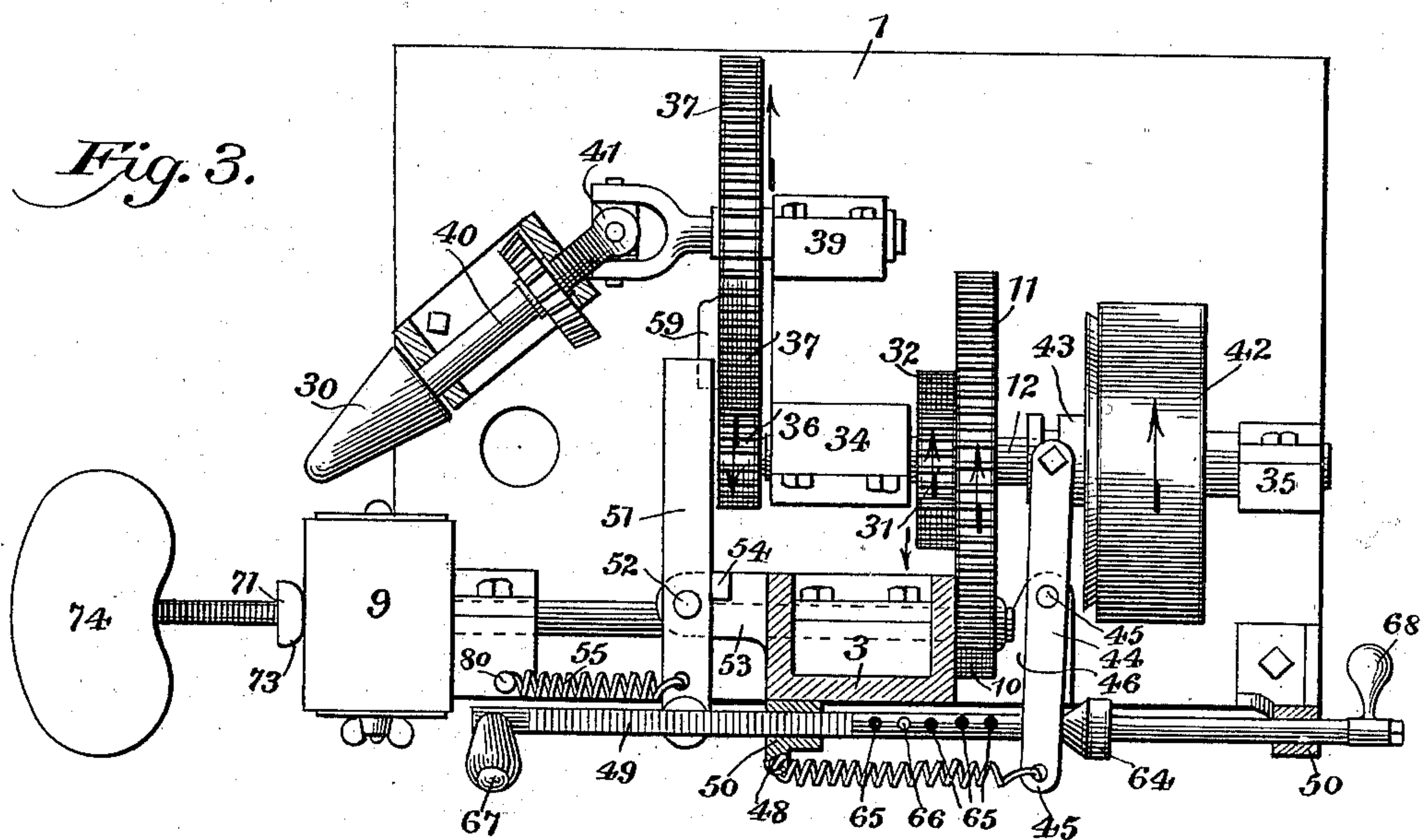
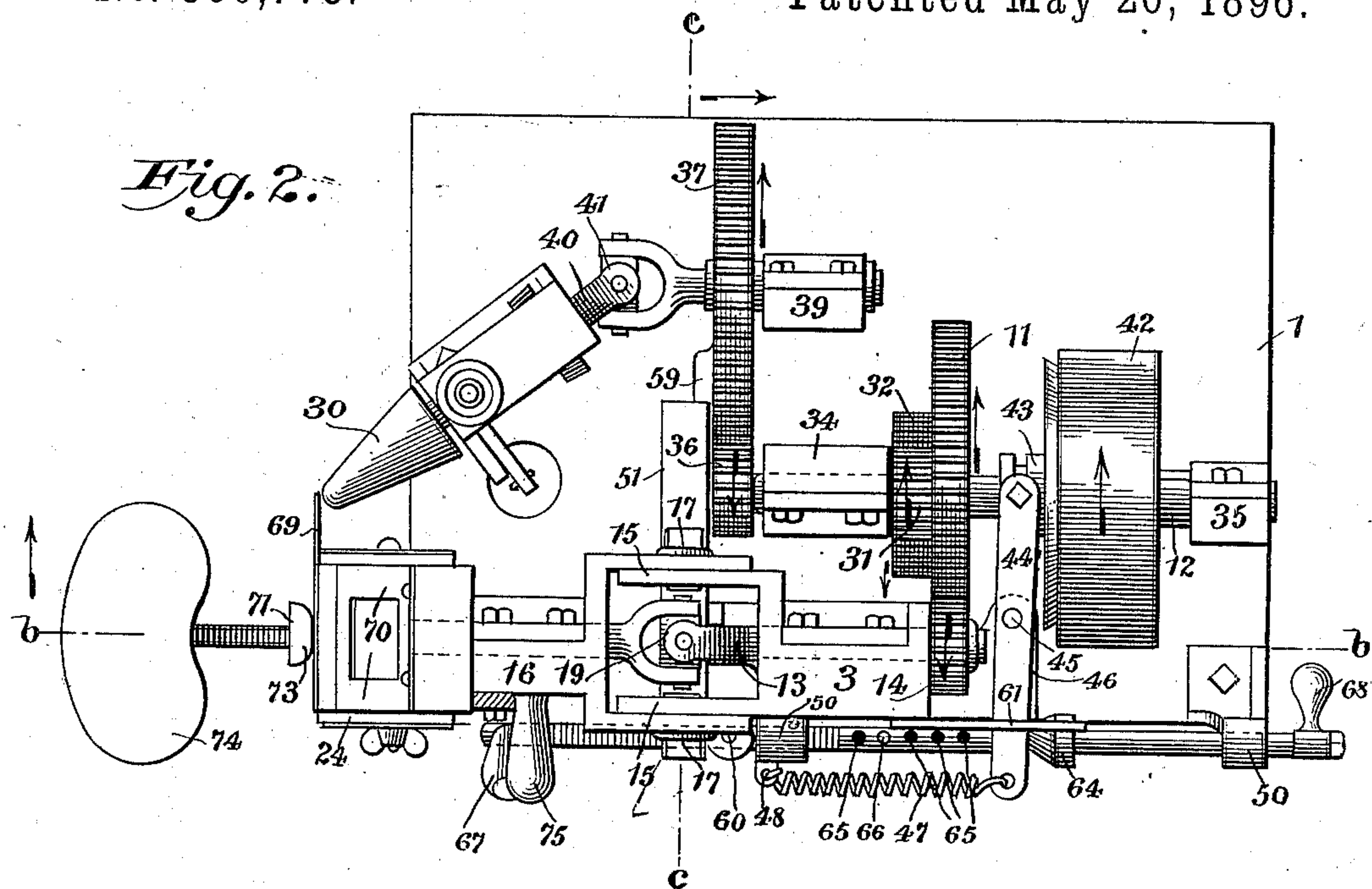
4 Sheets—Sheet 2.

G. E. BRUSH.

MACHINE FOR POUNCING BRIMS OF HATS.

No. 560,773.

Patented May 26, 1896.



WITNESSES:

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(No Model.)

4 Sheets—Sheet 3.

G. E. BRUSH.
MACHINE FOR POUNCING BRIMS OF HATS.

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Fig. 4.

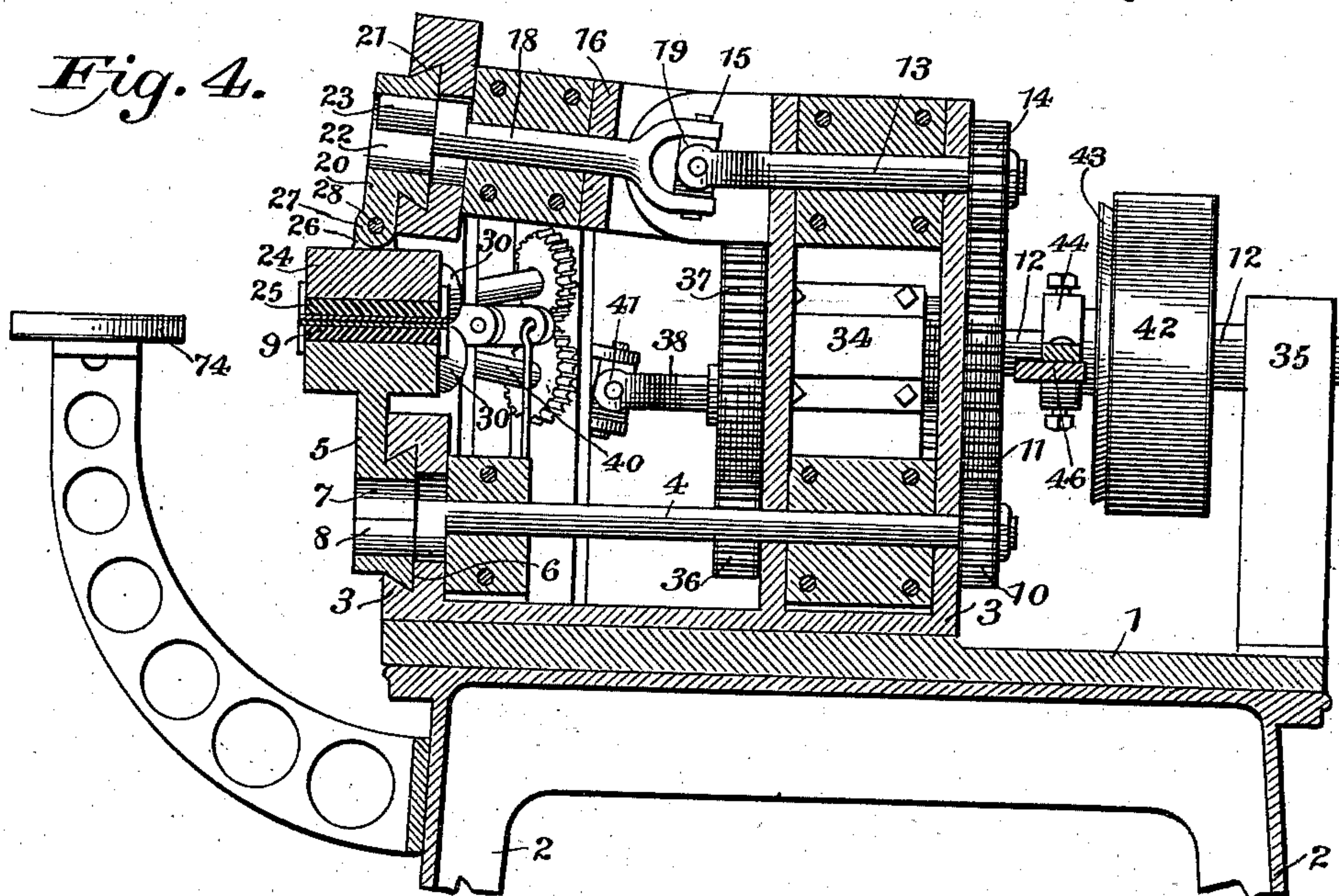
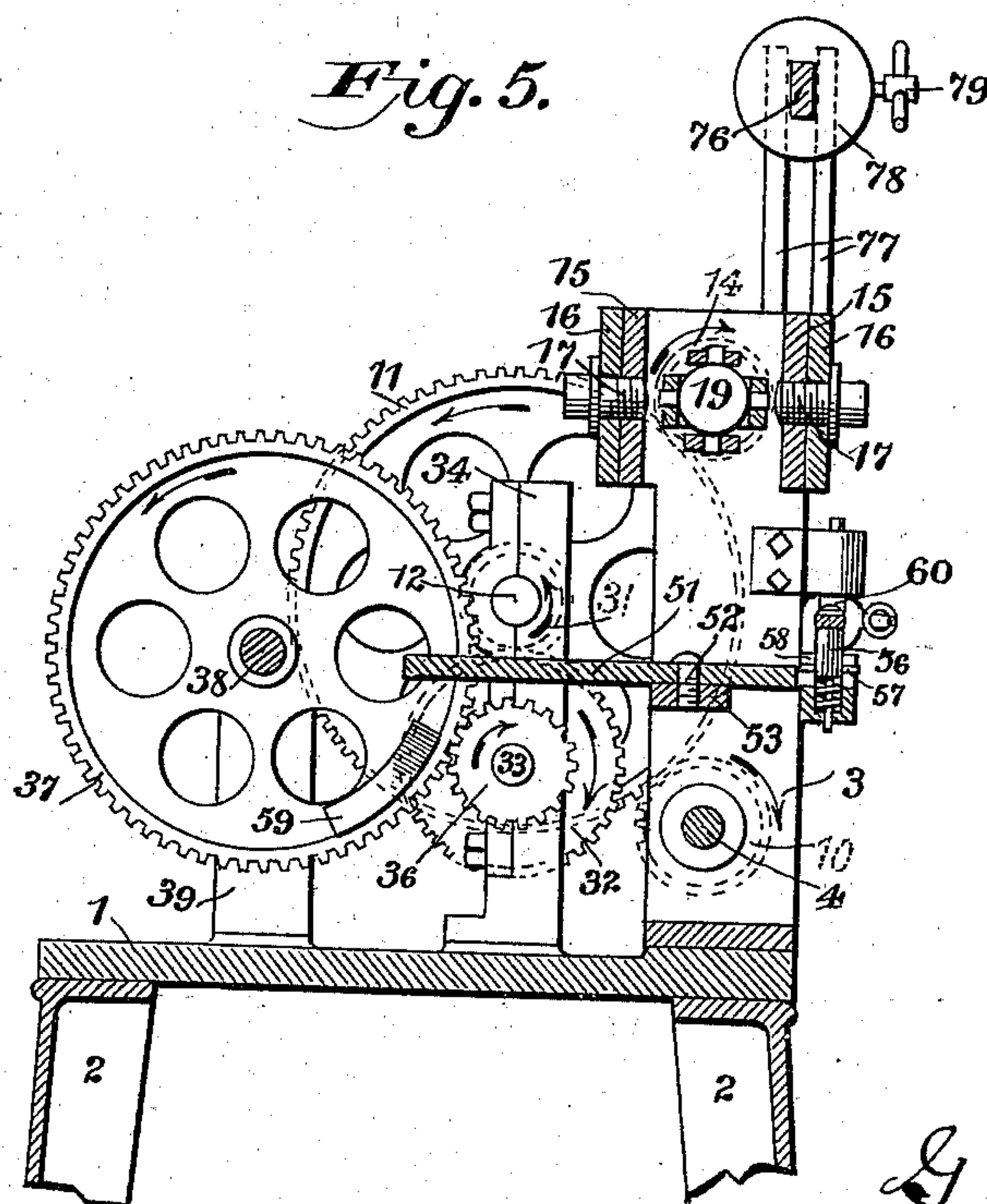


Fig. 5.



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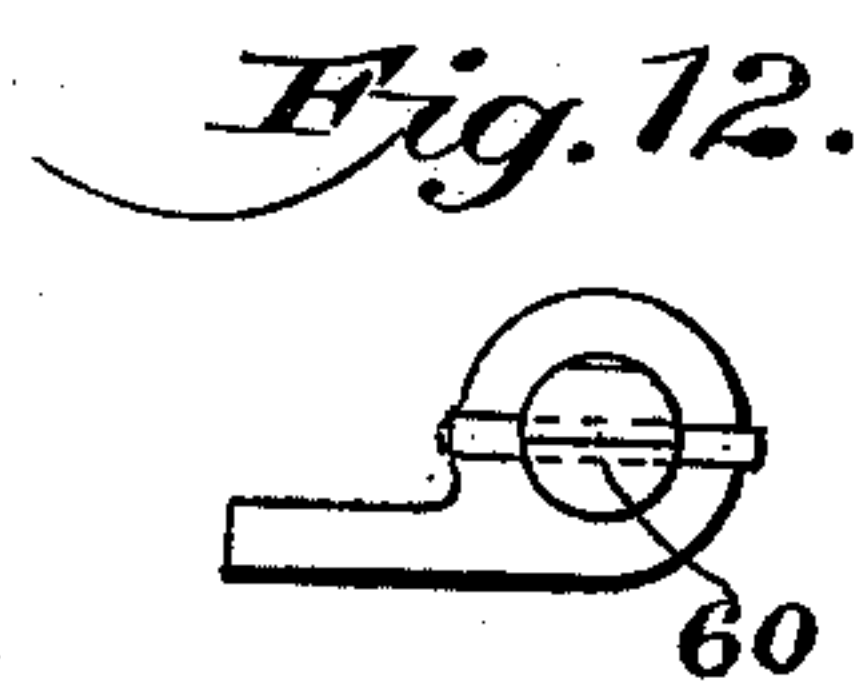
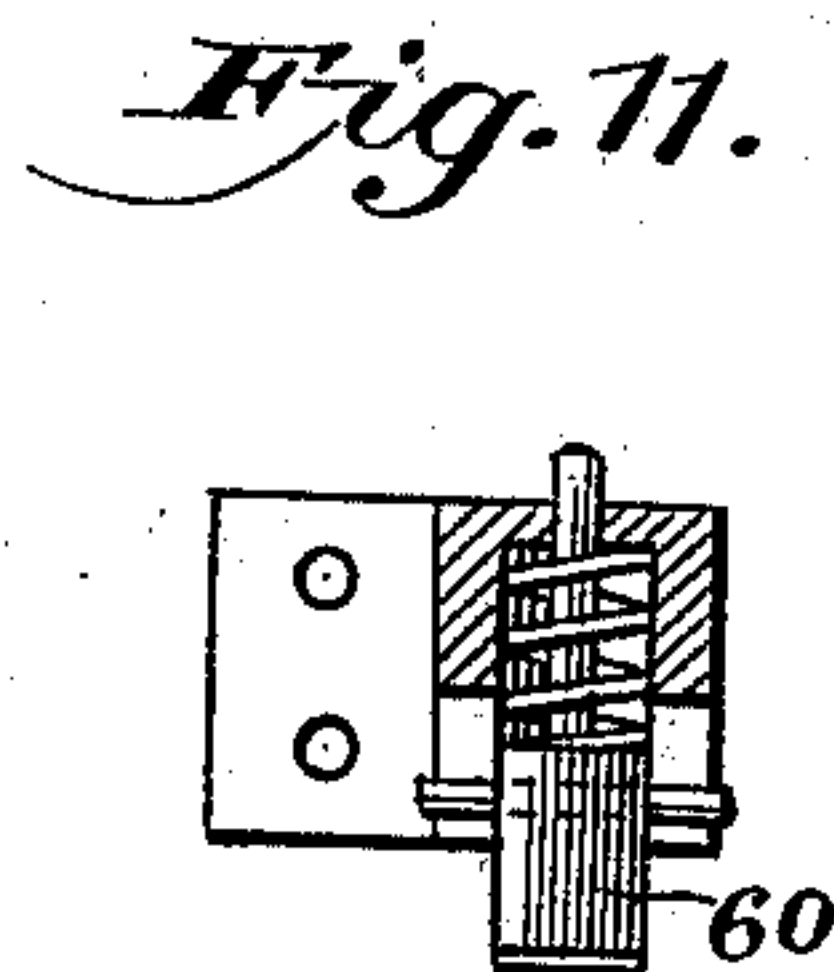
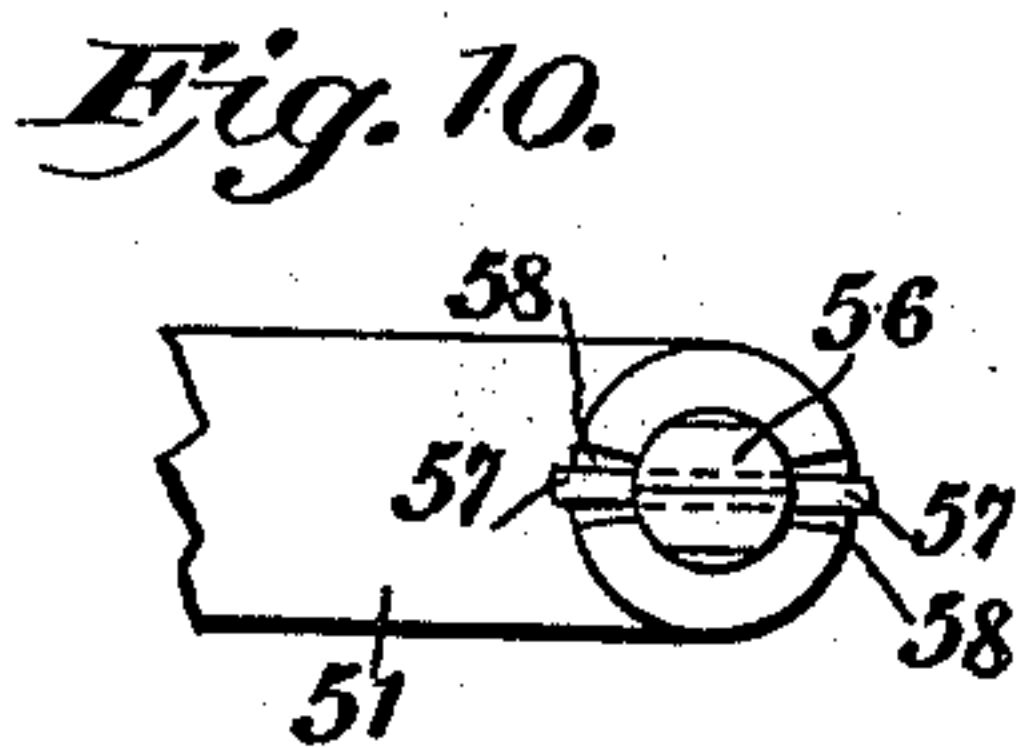
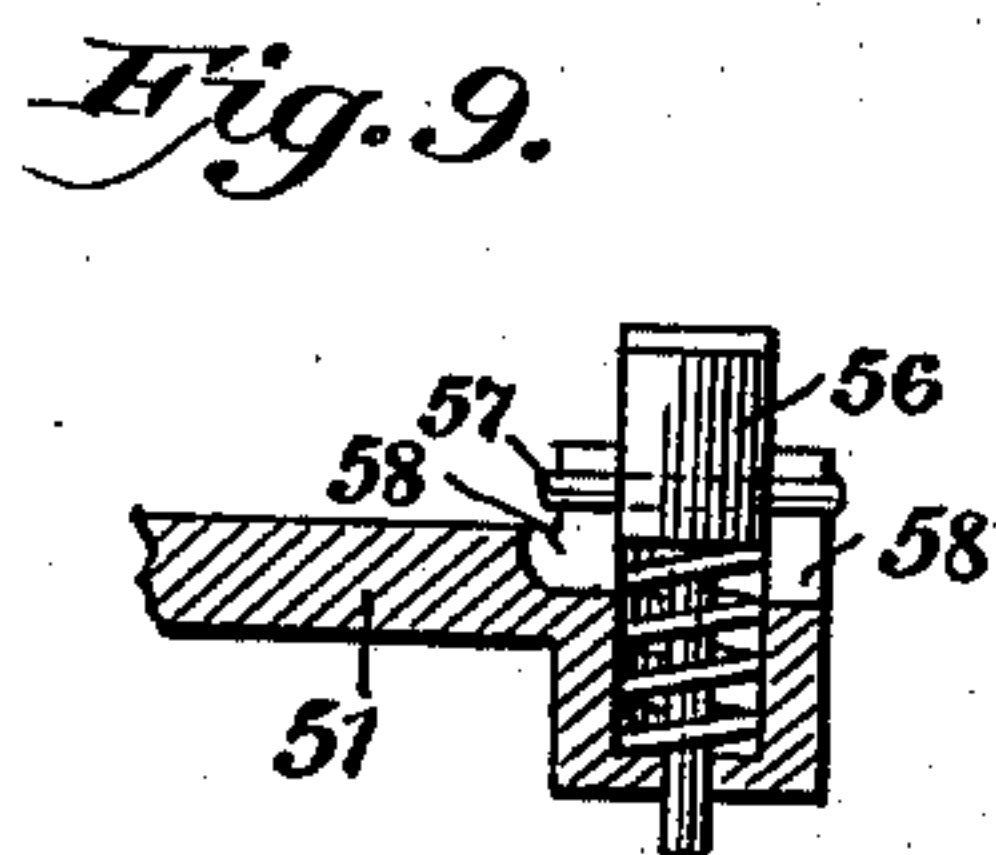
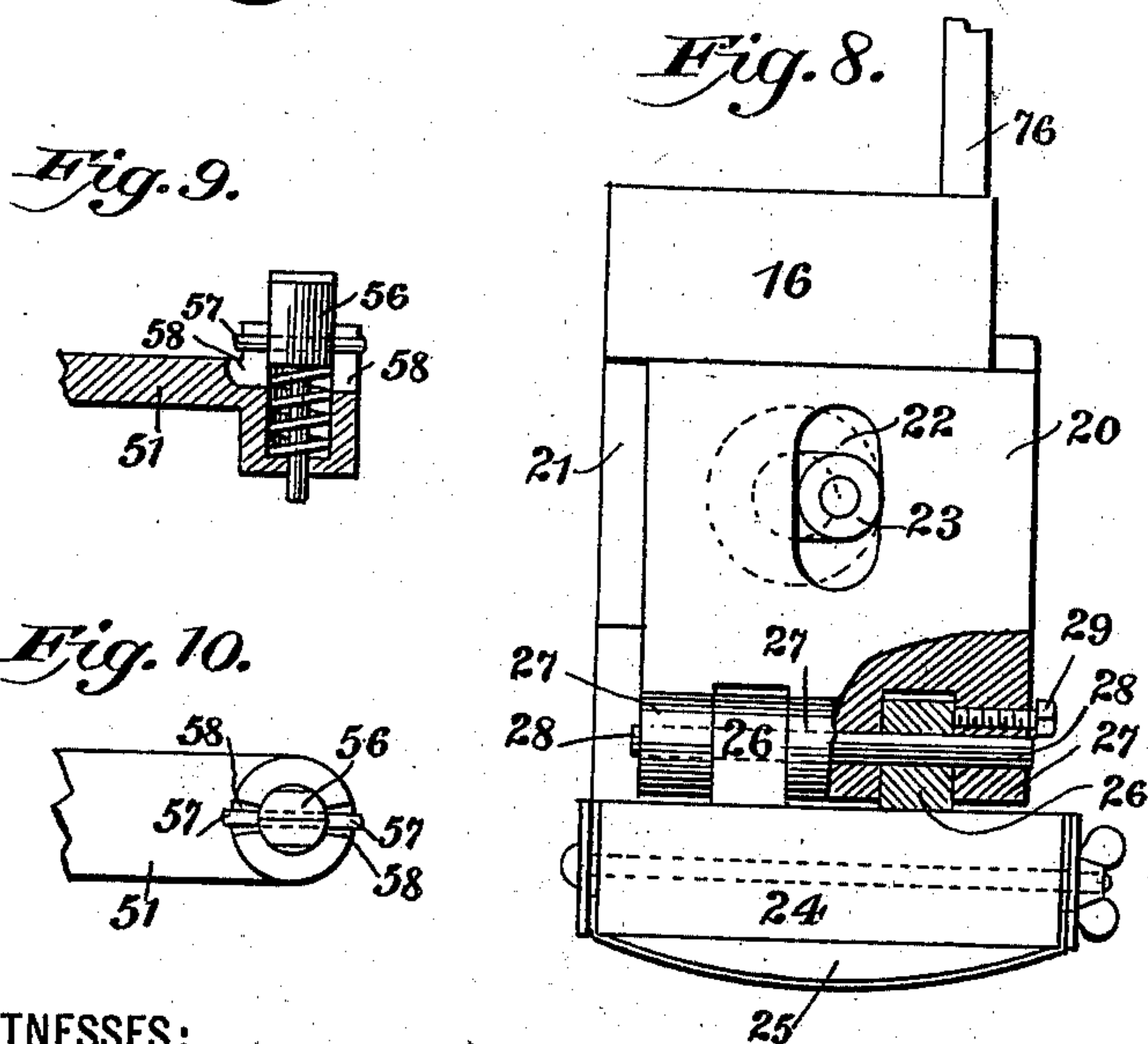
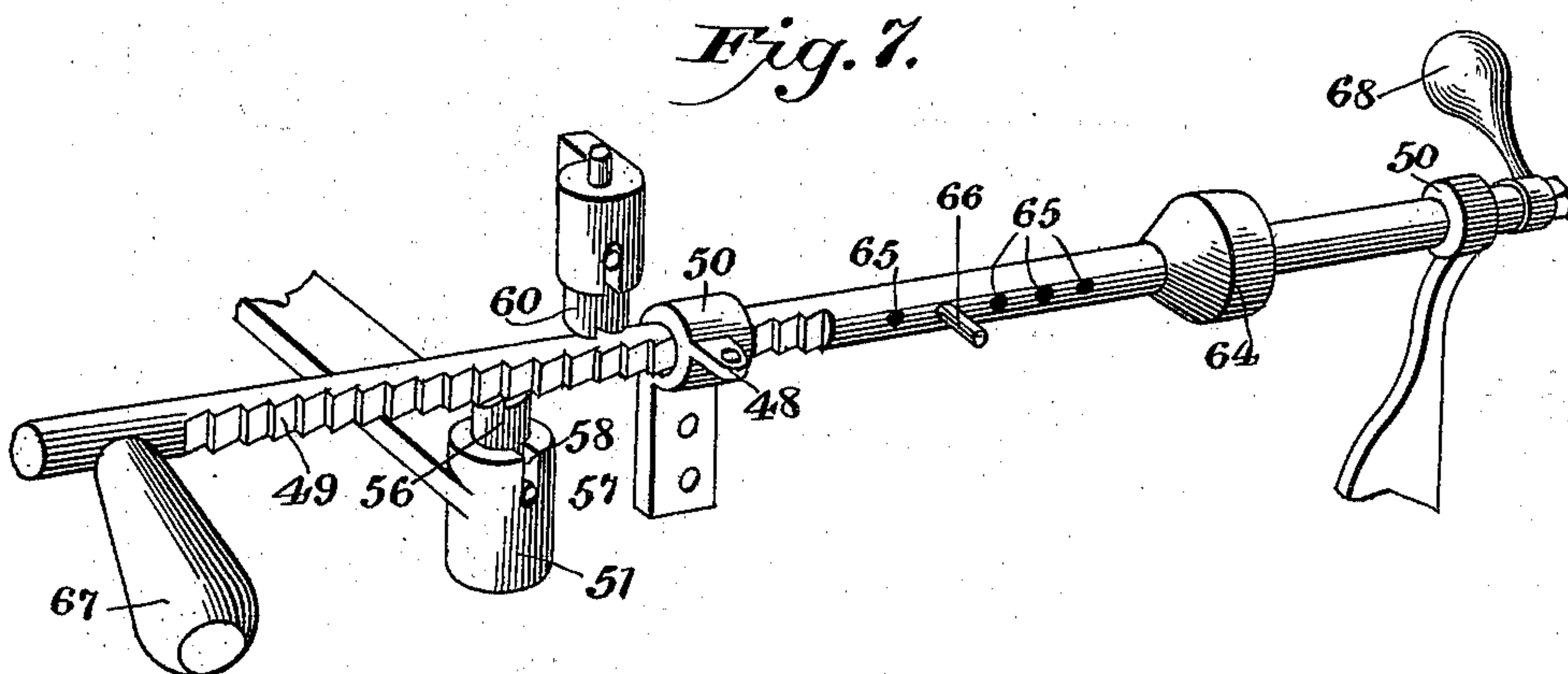
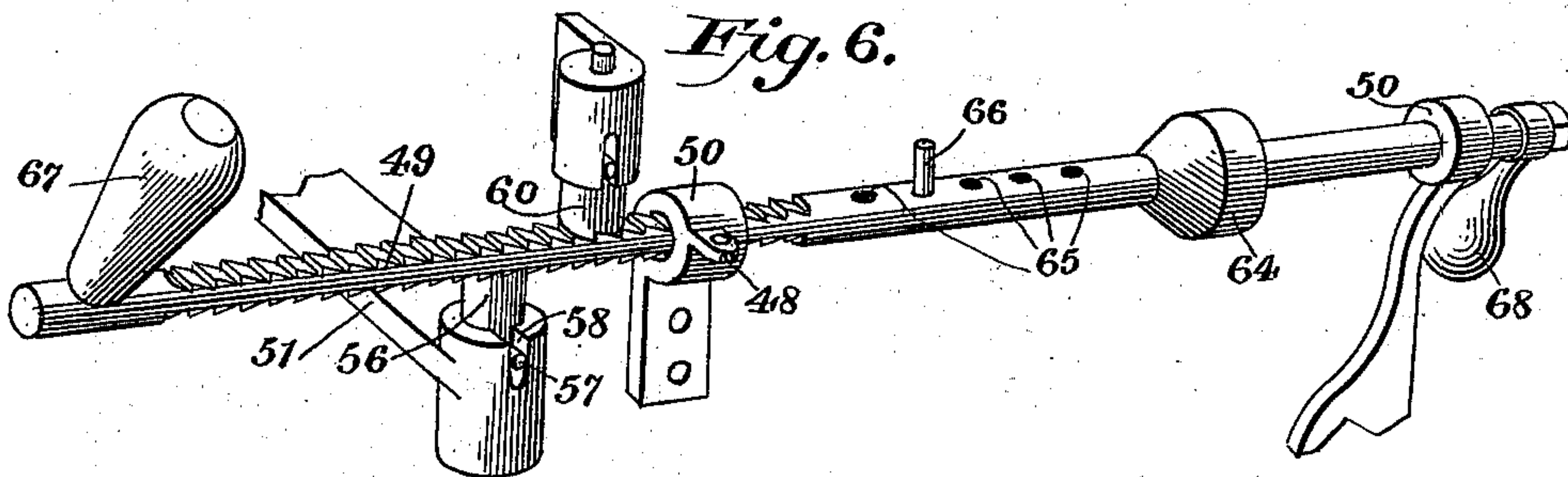
(No Model.)

4 Sheets—Sheet 4.

G. E. BRUSH.
MACHINE FOR POUNCING BRIMS OF HATS.

No. 560,773.

Patented May 26, 1896.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR POUNCING BRIMS OF HATS.

SPECIFICATION forming part of Letters Patent No. 560,773, dated May 26, 1896.

Application filed August 22, 1895. Serial No. 560,080. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. BRUSH, a citizen of the United States, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Machines for Pouncing the Brims of Hats; 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.

My invention relates to certain new and useful improvements in machines for pouncing the brims of hats, and has for its object to improve upon the construction set forth in Letters Patent of the United States granted to me April 24, 1894, and numbered 518,661, and in addition to greatly simplifying the construction shown therein and rendering the same more effective a further object of my present invention is to provide an automatic trip mechanism whereby the hat-brim may be pounced to a greater or less degree, as the character and texture of the hat may demand.

Referring to the accompanying drawings, Figure 1 is a side elevation of my improved hat-pouncing machine; Fig. 2, a plan view; Fig. 3, a horizontal section taken on the line *a a* of Fig. 1; Fig. 4, a longitudinal vertical sectional elevation taken on the line *b b* of Fig. 2; Fig. 5, a cross-section taken on the line *c c* of Fig. 2; Fig. 6, a detail perspective view of the rack-bar for operating the clutch mechanism with the actuating and retaining pawls in engagement with the teeth on said rack-bar, the parts adjacent to said rack-bar being partly broken away; Fig. 7, a view similar to Fig. 6, but showing the rack-bar turned so as to disengage the actuating and retaining pawls; Fig. 8, a detail front elevation of the upper pouncing-head, partly in section, and showing the set-screw for adjusting the upper pouncing-pad; Fig. 9, a detail sectional view of the lever which actuates the rack-bar, showing the spring-actuated pawl within the end of the same; Fig. 10, a plan view of the device shown in Fig. 9; Fig. 11, a detail sectional view showing the construction of the retaining-pawl, and Fig. 12 a bottom view of such pawl.

Similar numerals of reference denote like parts in the several figures of the drawings.

1 is a table or bed-plate supported by the usual legs 2.

3 is a frame or upright bolted to the bed-plate, and 4 is a horizontal shaft suitably journaled in the lower portion of said frame.

5 is a horizontal slide adapted to work in a dovetail slideway 6 in the frame. 7 is a vertical slot in said slide, (see Fig. 4,) and 8 is a crank-pin or eccentric on the end of the shaft 4, which engages the walls of the slot 7, so that when the shaft 4 is rotated a reciprocatory movement will be imparted to said slide. 9 is the lower pouncing-pad, which is carried by said slide 5.

10 is a pinion tight on the end of the shaft 4, which meshes with a gear-wheel 11, rigid on the power-shaft 12, by means of which motion is transmitted from the power-shaft to the shaft 4.

13 is a short horizontal shaft suitably journaled in the upper part of the frame 3, and 14 is a pinion fast on this shaft and meshing with the gear 11, by which means motion is transmitted from the power-shaft to the shaft 13.

15 are ears extending from the upper part of the frame 3, and 16 is a bracket pivoted to said ears 15 at 17. Suitably journaled within the bracket 16 is a short shaft 18, which is connected to the shaft 13 by a gimbal-joint 19.

20 is a horizontal slide which works in a dovetail slideway 21 in the forward extremity of the bracket 16.

22 is a vertical slot in the slide 20, and 23 is a crank-pin or eccentric on the end of the shaft 18, which works in the slot 22, so that it will be seen that when the shaft 18 is rotated a reciprocatory movement will be imparted to the slide 20.

24 is the upper pouncing-pad frame to which the upper pouncing-pad 25 is secured. 26 are ears formed on said frame which are pivoted between ears 27, formed on the slide 20. 28 is a pintle which serves to pivot these two sets of ears together after the manner of a hinge.

29 is a set-screw which is tapped through one of the ears 27 on the reciprocatory slide, and the end of said screw bears against the

flat face of one of the ears 26 on the pouncing-pad frame. (See Fig. 8.)

By reference to Figs. 1, 4, and 6, it will be readily understood that the upper pouncing-pad may be adjusted to any desired angle and securely held at such angle by means of the set-screw 29, and a further description of these devices is deemed unnecessary.

The feed-rolls which I employ for drawing the hat-brim between the pouncing-pads are of ordinary construction, such as is shown and described in my patent aforesaid, and I shall only hereinafter incidentally refer to them.

The pinions 10 14 on the shafts 4 13, respectively, are of equal diameter, and as both these pinions intermesh with the teeth of the gear 11 it follows that the shafts 4 13 must be revolved at exactly the same speed.

The crank-pins or eccentrics 8 23, which are operated by the shafts 4 13, are likewise of equal diameter and throw, so that the two pouncing-pads are reciprocated at precisely the same speed, and said crank-pins are so arranged with respect to each other that the pouncing-pads will be caused to always move in opposite directions. By this arrangement of the pouncing-pads the draft on the hat-brim between the feed-rolls and said pads is at all times the same, so that the action of said pads on all parts of the hat-brim is uniform.

Hat-brims when in condition for pouncing operations are already stiffened, and it is important that the brim-surface be pounced to a uniform depth throughout its area in order that the uniform effect of the stiffening may not be impaired. It is true that hat-brims are not of a uniform thickness and that at the point of junction with the crowns or at their extreme outer edges they are frequently thicker than at other portions; but it is the fault of most pouncing-machines that the irregularities in the brims—that is to say, the thick portions—are shaved off by the pouncing devices, so as to leave the entire brim of a uniform thickness, thus entirely removing the stiffening agent from those portions of the brims that are of unusual thickness, the result of this being that the hat becomes drawn and warped when subjected to use. It is highly important that the pouncing devices so operate upon the brims that the surface of the latter will be removed only to a uniform depth whether the brims be of the same thickness throughout or not, and I have therefore mounted one of my pouncing-pads in such a manner, as previously described, that the operator may easily and quickly adjust the same to any desired angle with respect to the brim of the hat, so that the pouncing will be uniform throughout the entire area of the hat-brim.

The feed-rolls 30 are operated from the power-shaft 12 through the medium of a train of speed-gears, which I will now describe.

31 is a pinion on the power-shaft 12, which

meshes with a gear 32 on an intermediate shaft 33.

34 35 are standards within which the ends of the power-shaft are journaled. The intermediate shaft 33 is also journaled in the standard 34.

36 is a pinion on the opposite end of the intermediate shaft 33, which meshes with a large gear 37 on a short shaft 38. The shaft 38 is journaled in an upright 39, which rises from the bed-plate.

40 is a shaft of one of the feed-rolls, preferably the lower one, and 41 is a gimbal-joint which connects the said shaft 40 with the shaft 38, so that the revolving movement of shaft 38 will be communicated to the feed-rolls.

The direction in which the several gears just described rotate is indicated by arrows in the drawings, and the operation of said gears is too well known to require further description.

I will now describe the automatic trip mechanism whereby the hat-brim is subjected to a greater or less amount of pouncing, as the character of the said brim may demand.

42 is a belt-pulley loose on the power-shaft 12, and 43 is an ordinary friction-clutch which is adapted to engage said pulley.

44 is a clutch-lever pivoted at 45 to an ear 46, extending from the frame 3.

47 is a coil-spring, one end of which is connected to the outer end of the lever 44, while the other end is connected to an ear 48, rigid with the frame, the function of said spring being to keep the friction-clutch in engagement with the belt-pulley.

49 is a rack-bar which is round in cross-section and is supported in rigid bearings in such manner as to be capable of both a sliding and oscillating movement.

51 is a rock-lever pivoted at 52 to the ear 53, extending from the frame.

54 is a stop formed on the ear 53, which limits the backward movement of said rock-lever. (See Fig. 3.)

55 is a coil-spring, one end of which is fastened to the forward end of the rock-lever 51, while the other end is secured to a pin 80, rigid with the frame, the function of said spring being to return said rock-lever to normal position.

56 is a spring-actuated pawl which is seated in the forward end of the rock-lever 51 in such manner as to be capable of a slight rotary movement, and the teeth on said pawl are adapted to engage the teeth on the under side of the rack-bar 49. The pin 57, (see Figs. 9 and 10,) which passes transversely through this pawl, is guided within notches 58 on opposite sides of the housing which surrounds said pawl and limits the rotary movement of the latter. The reason for permitting a slight rotary movement of the pawl 56 is to allow the teeth on the upper end of said pawl to perfectly accommodate themselves to the teeth on the under side of the

rack-bar 49 when the end of the rock-lever 51, on which said pawl is carried, is swung through an arc described from the pivotal point of said rock-lever. As the teeth on the rack-bar are parallel and do not radiate toward the pivotal point of the rock-lever 51, it is essential that this pawl 56 be so arranged that the teeth of the latter can readily accommodate themselves to the teeth on the under side of the rack-bar. The rear end of the rock-lever 51 extends in close proximity to the side of the gear-wheel 37, and 59 is a cam formed on the side of said gear-wheel 37 and adapted to engage the rear end of said rock-lever to rock the same.

60 is a spring-actuated retaining-pawl which engages the teeth on the upper side of the rack-bar 49.

61 is a notched gravity-pawl pivoted at 62 to the frame and having a beveled nose 63. The said gravity-pawl 61 overhangs the end of the clutch-lever 44 and is adapted to hold the friction-clutch out of engagement with the belt-pulley when said pawl is in operative engagement with said lever.

64 is a conical-shaped trip-cam on the rack-bar 49, which, when said rack-bar is drawn forward by the operator, strikes against the beveled nose 63 of the gravity-pawl 61 and raises said pawl out of engagement with the clutch-lever 44 and permits the friction-clutch to engage the belt-pulley, which operation effects the starting of the machine.

65 is a series of holes in the upper side of the rack-bar, within any one of which a pin 66 may be inserted. As the rack-bar 49 is moved along by the action of the rock-lever 51 the pin 66 will finally strike against the clutch-lever 44 and shift the latter against the resiliency of the spring 47, and at the same time the gravity-pawl 61 will drop in behind said clutch-lever and hold the friction-clutch out of engagement with the belt-pulley. This operation will cause the machine to be stopped. Of course the farther away the pin 66 is placed from the clutch-lever the greater number of revolutions will the machine make before said pin will effect the disengagement of the friction-clutch, and therefore if said pin be placed in the first hole in the rack-bar from the clutch-lever the hat-brim will receive less pouncing than if said pin be placed in the last hole away from said clutch-lever. The rock-lever 51 is operated by the cam 59 to advance the rack-bar 49 one tooth at each revolution of the feed-rolls, and hence the number of times that the hat-brim is rotated and drawn between the pouncing-surfaces may be regulated by the operator to cause said brim to be more or less pounced, as the character of the work desired may demand, by simply placing the pin 66 in the proper hole in the upper side of said rack-bar.

67 is a handle on the forward end of the rack-bar, and 68 is a counterpoise for said handle at the other end of said rack-bar.

When it is desired to start the machine af-

ter the hat-brim has been inserted between the feed-rolls and pouncing-surfaces, the operator grasps the handle 67 and rotates the rack-bar to the position shown at Fig. 7. This will cause both the actuating-pawl 56 and retaining-pawl 60 to be disengaged from the teeth of said rack-bar, and said pawl will only bear against the round smooth surface of said bar. The rack-bar is then drawn forward until the trip-cam 64 thereon strikes the beveled nose of the gravity-pawl 61 and raises said pawl to release the clutch-lever and cause the friction-clutch to engage the belt-pulley. The rack-bar is then turned to its normal position, as shown clearly in Figs. 1, 3, and 6, and no further attention to the machine is now required, for as soon as the brim has been sufficiently pounced (the amount of pouncing desired having been previously determined, as hereinbefore described) the machine will be automatically stopped.

Heretofore in machines of this description it has been necessary for the operator to hold the hat between the pouncing-surfaces by pressing with his hand against the inside of the crown, so that no part of said brim would escape the action of the pouncing-surfaces, and owing to this fact the constant attention and attendance of the operator was required for the successful operation of one machine. This disadvantage I have successfully overcome, and when the hat has once been placed in proper position between the feed-rolls and pouncing-surfaces the attention of the operator is no longer required, and owing to this fact several machines may be operated by him at the same time.

Referring particularly to Fig. 1, 69 is a guard-plate which is attached to the lower extremity of a resilient arm 70, which latter is secured to the pivoted bracket 16.

In pouncing-machines as heretofore constructed great difficulty has been experienced in keeping the hat up to the pouncing-surfaces—that is to say, in causing the brim to pass throughout its entire width at all times beneath the pouncing-surfaces. In many instances it has been necessary for the operator to keep the hat pressed by hand toward the pouncing-surfaces, so that as the ovoidal crown of the hat revolves the brim will not be dragged away from the pouncing devices. Of course an oval lathe provided with a block on which to secure the hat might be employed in connection with the pouncing devices; but this would be very expensive, and would also add materially to the complications of a hat-pouncing machine. I have succeeded in overcoming this difficulty by a very simple contrivance, which latter consists of a presser-finger 71, secured to the frame 3 and extending up within the crown of the hat, the upper extremity of this finger being slightly enlarged and rounded, as shown at 73, (see also Figs. 2 and 3,) in order to afford a smooth firm bearing against the inside of the hat-crown. As the hat is turned around by the

action of the feed-rolls the portions of the crown which are successively brought opposite the pouncing devices will always be tangential to the same vertical cross-plane—that is to say, these portions will always be the same distance from the pouncing devices—thus insuring the proper delivery of the brim throughout its entire area and width to the pouncing devices.

The guard-plate 69, which is interposed between the exterior of the hat-crown and the lateral edges of the pouncing devices, prevents accidental injury to the crown of the hat, either by the sandpaper carried by the pouncing devices or by any jamming against the latter themselves.

74 is a small table bolted to the legs or framework, and on which the hat is supported during the pouncing.

75 is a handle rigid with the pivoted bracket 16, by means of which said bracket may be conveniently lifted for the purpose of inserting a brim between the pouncing-surfaces.

76 is an L-shaped lever bolted to the pivoted bracket 16, whose rear end passes through a bifurcated guide 77, bolted to the upper part of the frame 3, the object of which guide is to steady the lever in its movements.

78 is a weight which may be moved along the lever 76 in order to increase or diminish the pressure of the pouncing-surfaces on the hat, as the exigencies of the case may require, and 79 is a set-screw by means of which said weight may be secured at any desired point along the lever 76. Of course instead of this weight I can use the spring such as is shown in my patent above referred to; but I prefer the weight, since it insures a positive and uniform bearing.

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

1. The combination of the bed, the frame mounted thereon, the horizontal shafts 4, 13, journaled in said frame, the power-shaft carrying a gear which meshes with pinions on the ends of the horizontal shafts, whereby rotation is imparted to the latter, a bracket pivoted to the upper part of the frame, the shaft 18 journaled in said bracket, the gimbal-joint whereby said shafts 13, 18, are caused to move together, the upper and lower slides on which the pouncing-pads are carried, connections between said slides and the shafts 4, 13, whereby said slides are caused to reciprocate in opposite directions, feed-rolls for causing the hat-brim to be drawn between the pouncing-surfaces, and suitable connections between said feed-rolls and the power-shaft, substantially as described.

2. The combination of the frame, the slide carrying the lower pouncing-pad suitably mounted thereon, the bracket attached to the frame and capable of an independent upward and downward movement, the slide mounted on the forward extremity of said bracket, instrumentalities for reciprocating said slides

in opposite directions, the upper pouncing-pad hinged to the slide by which it is carried, and means for independently adjusting said upper pad to any desired angle, substantially as set forth.

3. The combination of the power-shaft, a loose belt-pulley thereon, a spring-actuated friction-clutch adapted to engage said pulley, the clutch-lever pivoted to the frame, the gravity-pawl which overhangs said lever and is adapted to keep said friction-clutch out of engagement with said pulley, the rack-bar supported in suitable bearings, the trip-cam carried by said rack-bar for disengaging the gravity-pawl from the clutch-lever, the rock-lever pivoted to the frame and carrying a spring-actuated pawl which engages the teeth of the rack-bar, the spring-actuated detent adapted to engage the teeth on said rack-bar, the rotary cam which engages the rear end of the rock-lever, and a pin carried by said rack-bar and adapted to strike the clutch-lever and cause the friction-clutch to be disengaged, substantially as and for the purpose set forth.

4. In a machine for pouncing the upper and lower surfaces of hat-brims, the combination of the power-shaft, the loose belt-pulley thereon, a friction-clutch, a spring-actuated lever whereby said clutch is normally engaged with said pulley, a rack-bar capable of a free sliding movement and carrying an adjustable pin which is carried by the rack-bar against said lever to release the clutch from said pulley, a gravity-pawl capable of engaging with said lever to hold the same when the clutch is out of engagement with the pulley, a trip carried by the rack-bar for disengaging said pawl from said lever, a pivoted rock-lever carrying a pawl which engages with the teeth in the rack-bar, and a rotary cam which operates said rock-lever, substantially as set forth.

5. In a hat-pouncing machine, the lower horizontal shaft and a crank-arm thereon, a slide in engagement with said crank-arm and carrying a pad, the upper shaft having a universal joint and a crank-arm, the bracket pivoted to the frame of the machine, the slide supported within guideways in said bracket and engaged by the crank-arm on the upper shaft, the pouncing-pad pivotally connected to the upper slide, and means for driving said shafts and for feeding the hat-brim between said pads, all combined substantially as described.

6. In a hat-pouncing machine, the upper and lower horizontal shafts having crank-arms thereon, the horizontal slides having slot engagement with said crank-arms, and supported by horizontal slideways on the frame, pouncing-pads carried by said horizontal slides, one of said pads being pivotally connected to its slide, all combined with means for driving said shafts and for feeding the hat, substantially as described.

7. In a hat-pouncing machine, the clutch-gear and means for driving it, the sliding

rack-bar having cylindrical portions movable
in bearings conforming thereto, the reciprocating pawl having engagement with the rack-teeth of said bar, and means by which the
5 rack-bar may be turned on its axis to disconnect its teeth from the pawl, all combined substantially as described.

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

GEORGE E. BRUSH.

Witnesses:

JABEZ AMSBURY,
GEORGE H. WILLIAMS.