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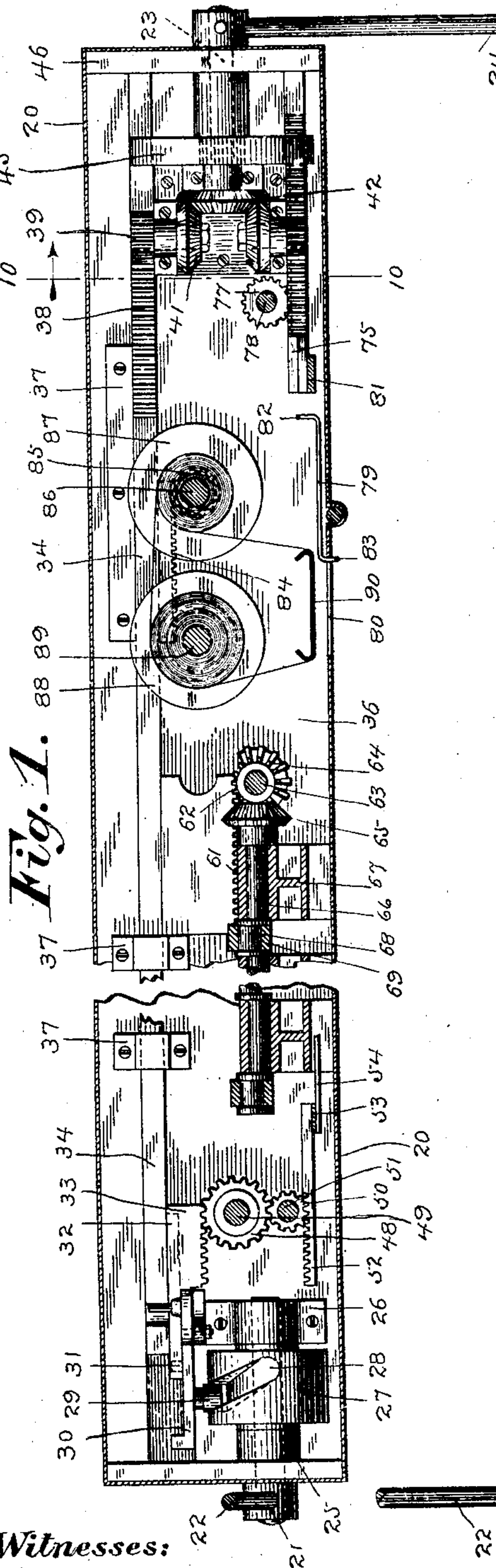
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C. G. BARNUM & J. N. SHEPARDSON.

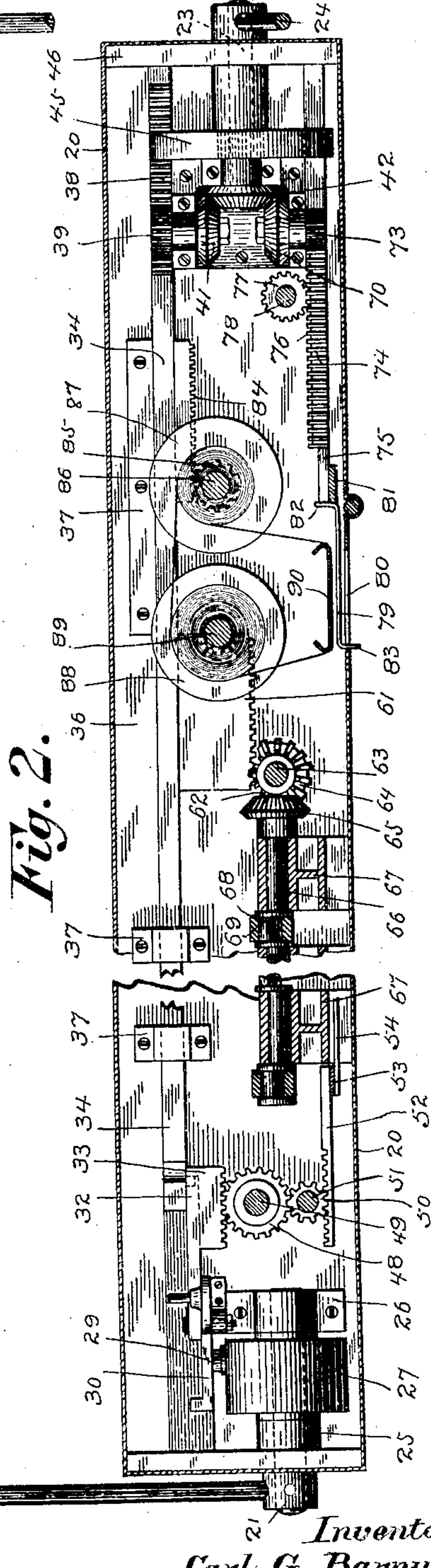
ENTRANCE AND EXIT ACTUATING MECHANISM FOR VOTING MACHINES.

APPLICATION FILED OCT. 29, 1906.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 3.

Fig. 7.

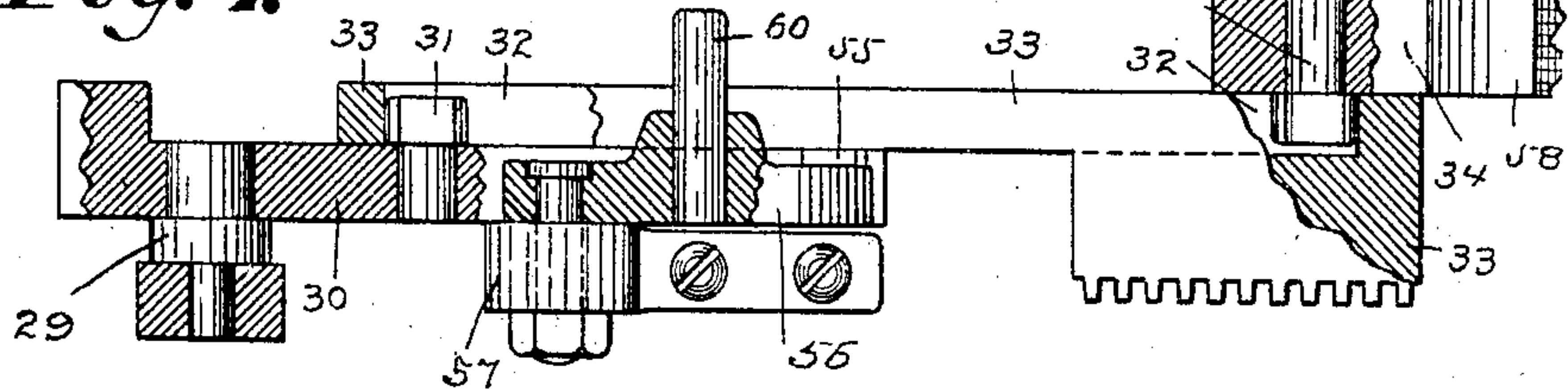


Fig. 8.

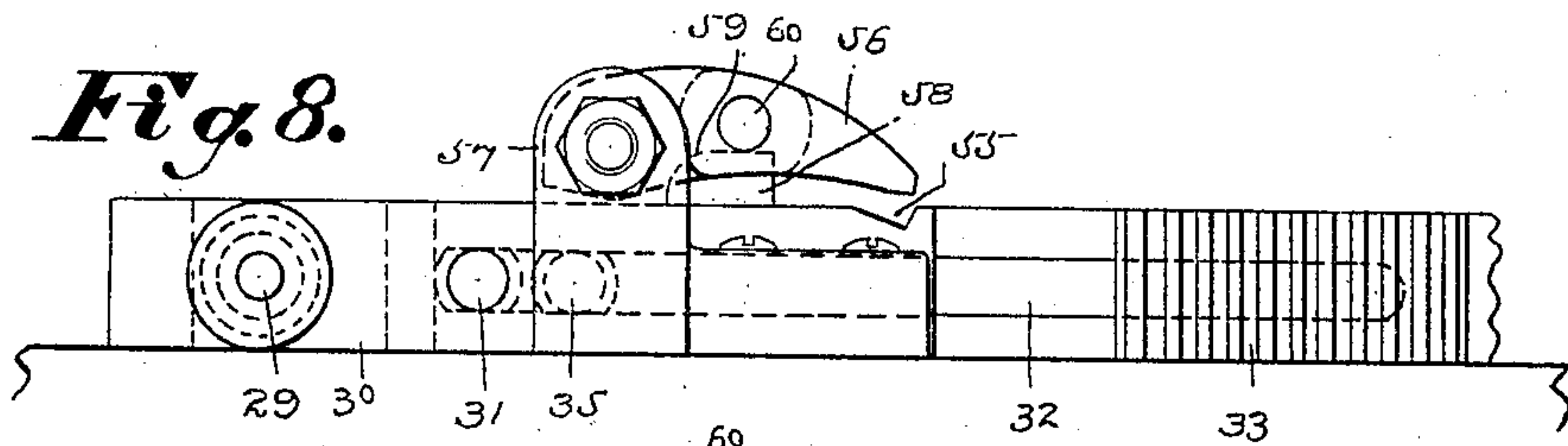


Fig. 9.

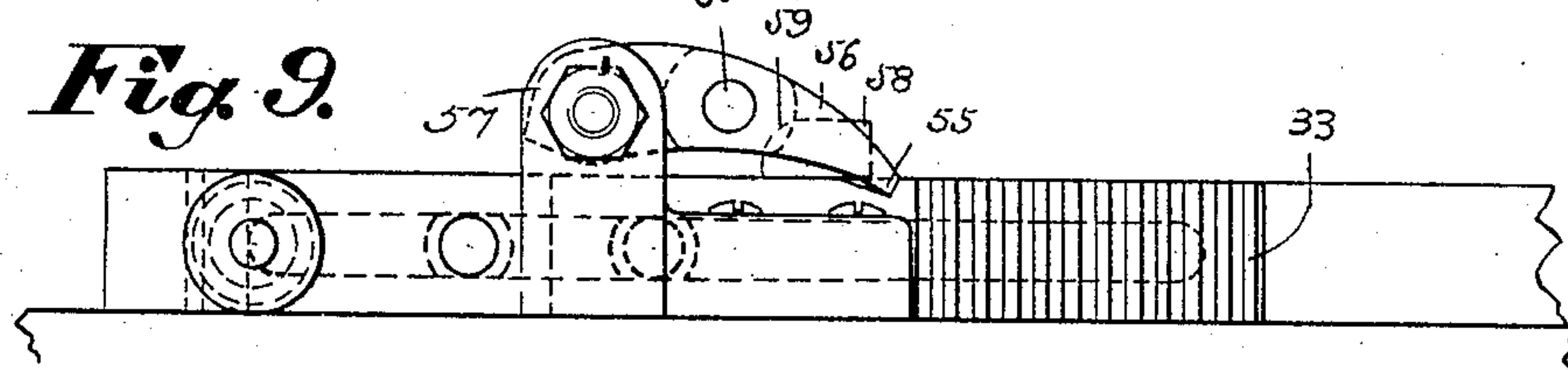
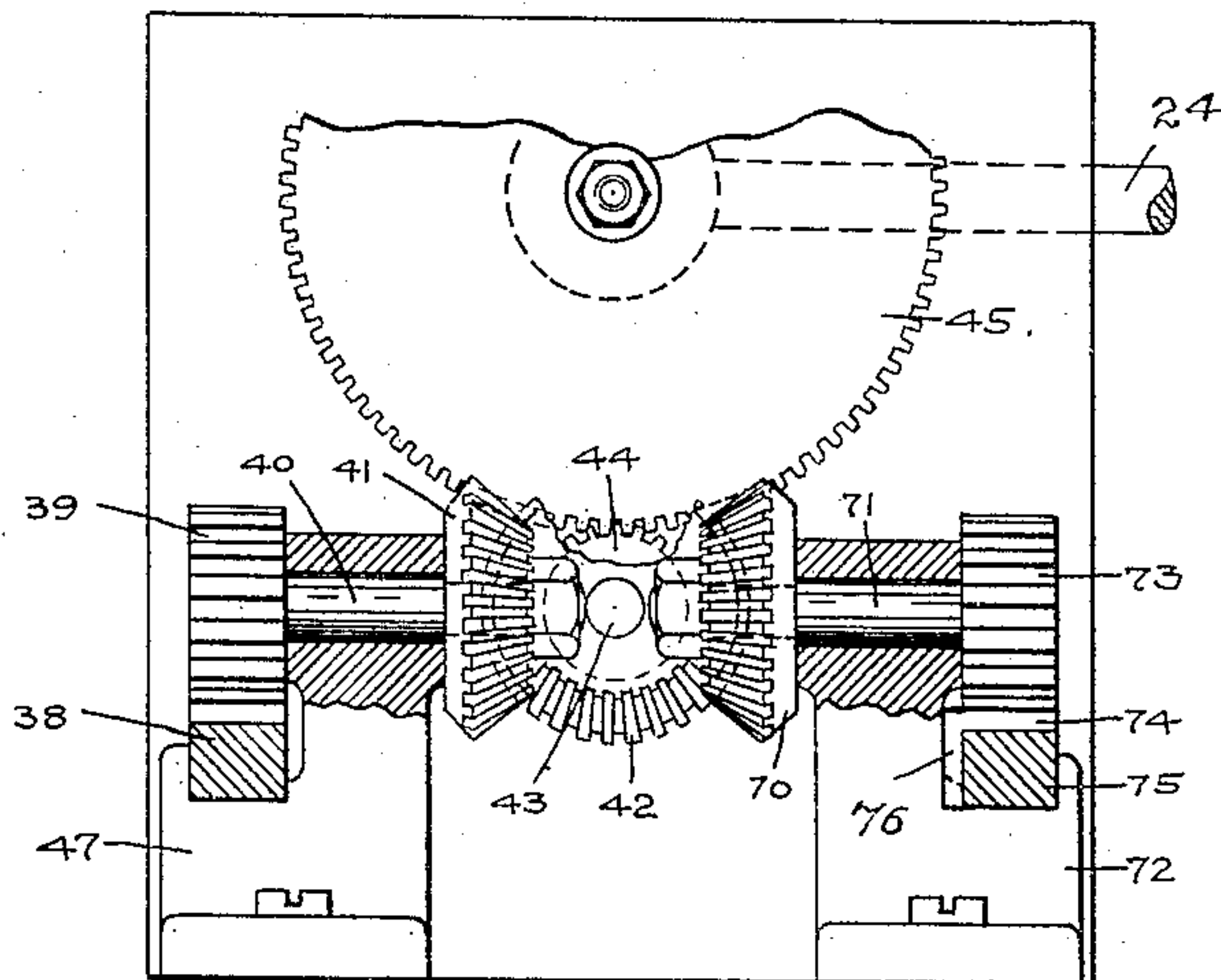


Fig. 10.



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ENTRANCE AND EXIT ACTUATING MECHANISM FOR VOTING-MACHINES.

No. 843,431.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed October 29, 1906. Serial No. 340,984.

To all whom it may concern:

Be it known that we, CARL G. BARNUM and JEDEDIAH N. SHEPARDSON, citizens of the United States, residing at Pittsfield, county of Berkshire, State of Massachusetts, have invented a new and useful Entrance and Exit Actuating Mechanism for Voting-Machines, of which the following is a specification.

This invention relates to certain improvements in voting-machines.

It is one of the objects of the invention to provide simple, strong, durable, positive, and light-running mechanism for actuating the several mechanisms of a voting-machine that are required to be operated by the entrance and exit members.

A further object of the invention is to produce mechanism of this character comprising the fewest possible number of parts and in which the cost of construction shall be reduced to the minimum.

A further object of the invention is to provide mechanism of this character in which the entrance member shall be locked against movement at the commencement of the first movement of the exit member.

With these and other objects in view the invention consists in certain constructions and in certain parts, improvements, and combinations, which will be hereinafter described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings, forming a part of this specification, in which like characters of reference indicate the same parts, Figure 1 is a horizontal section of a voting-machine, showing the entrance and exit operating mechanism in plan, the connections for the voting and counting mechanisms being shown, but said mechanisms being omitted for the sake of clearness, the parts being in the position they occupy after the first movement of the entrance member, which has actuated the wedge-bar connections; Fig. 2, a similar view showing the position of the parts after the second movement of the entrance member, which has merely returned the entrance-cam and entrance-slide to their normal positions, and after the first movement of the exit member, which has locked the entrance member, so that a second voter

cannot have access to the voting mechanism until after the completion of the second movement of the exit member has returned the wedge-bar connections to their normal or non-voting position, has actuated the counting mechanism, has actuated the shutter-closing mechanism, and in case an independent vote has been cast has actuated the paper-feeding mechanism; Fig. 3, a detail view, on an enlarged scale, partly in horizontal section and partly in plan, showing the entrance-slide, the entrance-rack, and the driving-bar in the normal or non-voting position; Fig. 4, a similar view showing the position of the parts after the first movement of the entrance member, the position in this view corresponding with Fig. 1; Fig. 5, a similar view showing the position of the parts after the second movement of the entrance member; Fig. 6, a similar view showing the position of the parts just after the commencement of the first movement of the exit member; Fig. 7, a similar view showing the position of the parts after the completion of the first movement of the exit member, the position in this view corresponding with Fig. 2; Fig. 8, a detail elevation corresponding with Fig. 3; Fig. 9, a detail elevation corresponding with Fig. 6; and Fig. 10 is a transverse section, on an enlarged scale, on the line 10 10 in Fig. 1 looking in the direction of the arrow.

20 denotes the case of the machine, which may be of any ordinary or preferred construction. In the present instance we have illustrated the case of a Triumph voting-machine.

21 denotes the entrance member, in the present instance an oscillatory shaft operated by a lever 22, and 23 the exit member, in the present instance an oscillatory shaft operated by a lever 24. Shaft 21 is journaled in an end bracket 25 and a bracket 26, secured to the base, which is specifically indicated by 36, and carries an entrance-cam 27, having a cam-groove 28. This groove is engaged by a roller carried by a stud 29, which extends from entrance-slide 30.

31 denotes a pin extending from the opposite face of the entrance-slide, which lies in a slot 32 in entrance-rack 33.

34 denotes the driving-bar, which carries

a pin 35, which also lies in slot 32 in the entrance-rack. The entrance-slide, the entrance-rack, and the driving-bar reciprocate upon the base and are supported by suitable guides, as guides 37, other guides for said members being omitted for clearness, as specifically they form no part of the present invention. The driving-bar extends nearly the length of the machine and is provided at the exit end upon the upper side with a rack 38, which is engaged by a pinion 39 upon a short shaft 40, carrying a bevel-pinion 41, which meshes with a bevel-pinion 42 on a shaft 43, which also carries a pinion 44. Pinion 44 meshes with a gear-wheel 45 on a shaft which, in connection with its operating-lever, we have termed the "exit" member and have indicated by 23. The exit member is journaled in an end bracket 46, and shaft 40 is journaled in a bracket 47, secured to the base.

We will now describe the operating connections by which the several mechanisms of the machine are operated in sequence. In Fig. 3 we have illustrated the position of the operating mechanism at the entrance end of the machine in the normal or non-voting position. The complete operation of both the entrance member and the exit member is a movement of the member from the normal position to a stop and then a return to the starting position. For this reason we shall describe these movements as the first and second movements of the entrance and exit members, it being understood, of course, that the invention is not limited to any special arrangement of the parts or direction of movement of the entrance and exit members. The first act of a voter is to make the first movement of the entrance member. This shifts the parts at the entrance end of the machine from the position shown in Fig. 3 to the position shown in Figs. 1 and 4. The entrance-cam has moved entrance-slide 30 toward the right, and pin 31 on the entrance-slide, through its engagement with the right end of slot 32 in the entrance-rack, has moved said rack toward the right. The entrance-rack meshes with a pinion 48 on a vertical shaft 49, said pinion in turn meshing with a pinion 50 on another vertical shaft 51, and said pinion 50 in turn meshing with a wedge-bar rack 52. In practice a plurality of pinions 50 and wedge-bar racks are used, the racks being connected to a vertical bar 53, to which the wedge-bars or resetting-slides 54 are connected, one wedge-bar or resetting-slide only being shown.

The second movement of the entrance member follows the first movement immediately—in fact, the two movements comprise one reciprocation, although for the sake of clearness we prefer to describe them as two movements. The effect of the second movement of the entrance member is merely to

return entrance-slide 30 from the position shown in Fig. 4 to the position shown in Figs. 3 and 5, leaving entrance-rack 33 in the position shown in Figs. 4 and 5. The voter then passes around to the front of the machine and performs the voting operation, and then passes to the right along the front of the machine and performs the first operation of the exit member.

The operations performed by the exit member are the locking of the entrance member, so that a second voter cannot have access to the voting mechanism until after the completion of the second movement of said member, the operation of the wedge-bar connections to return the wedge-bars or resetting-slides to their normal position, the actuation of the counting mechanism, the actuation of the shutter-closing mechanism, and in case an independent vote has been cast the actuation of the paper-feeding mechanism.

The first movement of the exit member through the connections already described moves the driving-bar toward the right, from the position shown in Fig. 1 to the position shown in Fig. 2. The locking of the entrance member is effected by mechanism which we will now describe.

Entrance-slide 30 is provided with a locking-recess 55, which is engaged by a pawl 56, pivoted to a bracket 57, secured to the base. The driving-bar is provided with an upwardly-extending dog 58, having an incline 59, and the pawl is provided with an outwardly-extending pin 60, which in the normal position of the parts, as in Figs. 3 and 8, rests upon the dog, thereby retaining the pawl out of engagement with the entrance-slide. The instant the first movement of the exit member commences and the driving-bar is moved toward the right from the position shown in Fig. 1 the dog will pass out from under pin 60, as shown in Fig. 6, and will permit the pawl to drop down into locking-recess 55, as shown in Fig. 9, thereby locking the entrance-slide and through the engagement of stud 29 with the entrance-cam locking the entrance member rigidly in its normal position, thus making it impossible for a second voter to pass around to the face of the machine and discover the vote of a previous voter before the voting members have been returned to the normal or non-voting position and locked there by the wedge-bars. The return movement of the wedge-bar connections is effected through the engagement of pin 35 on the driving-bar with the right end of slot 32 in the entrance-rack. The effect of this engagement is to move the entrance-rack from the position shown in Figs. 1, 4, 5, and 6 to the position shown in Figs. 2, 3, and 7. As the entrance-rack moves toward the right, it imparts rotary movement to pinions 48 and 50, which in turn

move the wedge-bar racks (one only being shown) from the position shown in Fig. 1 to that shown in Fig. 2.

The counting mechanism is operated by means of a counter-rack 61, carried by the driving-bar, which meshes with a pinion 62 (see dotted lines, Figs. 1 and 2) on a vertical shaft 63. This shaft carries bevel-pinions 64, one only being shown, which mesh with bevel-pinions 65 on horizontal shafts 66, one only being shown. These shafts are journaled in uprights 67 and carry eccentrics 68, upon which the counter-bars 69 are mounted. The operation of counting is effected by the first movement of the exit member, the second movement of said member, through the engagement of rack 61 with pinion 62, returning the counting mechanism to its normal position.

The shutter-closing mechanism is operated through connections which we will now describe. 70 denotes a bevel-pinion carried by a short shaft 71, journaled in a bracket 72, secured to the base. We have shown brackets 47 and 72 cast separately; but in practice we contemplate casting said brackets integral. Bevel-pinion 70 and shaft 71 receive motion from bevel-pinion 42 on shaft 43, which is actuated, as already explained, through pinion 44 and gear-wheel 45 on the shaft of exit member 23. Shaft 71 carries a pinion 73, which meshes with a rack 74 on a slide-bar 75, which reciprocates on the bed. Slide-bar 75 also carries a shutter-closing rack 76, which meshes with a pinion 77 on a vertical shaft 78. This shaft in practice carries another pinion 77, (not shown,) which meshes with another shutter-closing rack 76 on a similar slide-bar 75. (Not shown.) 79 denotes one of a series of independent-voting shutters, which normally close independent-voting apertures 80 in the case of the machine, the shutter being shown in the closed position in Fig. 2 and in the open position, as when an independent vote is being cast, in Fig. 1.

81 denotes the shutter-closing bar, which is carried by slide-bars 75, one only of which is shown. When there has been no independent voting, the operation of the shutter-closing bar by means of the shutter-closing connections just described performs no function; but when one or more of the independent-voting shutters has been moved to the open position for independent voting, as in Fig. 1, an ear 82 at the rear end of each open shutter is engaged by the shutter-closing bar and moved from the open position, as in Fig. 1, to the closed position, as in Fig. 2, by means of the exit member and the connections just described. The ears 83 at the forward ends of the shutters project through apertures 80 in the case in position to be grasped by the voter for convenience in opening the shutters.

The paper-feeding mechanism is actuated

by means of a rack 84, carried by the driving-bar. This rack meshes with a pinion 85, (see dotted lines, Figs. 1 and 2,) which is loose on a vertical paper-receiving shaft 86, which carries a disk 87; which supports the paper as it is wound on said shaft. The supply-roll of paper rests upon a disk 88, carried by a vertical shaft 89. The paper, as it is drawn from the supply-shaft to the receiving-shaft, passes over a rest 90 contiguous to apertures 80, in order that independent votes may be written thereon. Pinion 85 on receiving-shaft 86 is connected to said shaft by means of a clutch (not shown) which in turn is operated by connections (not shown) through the opening of an independent-voting shutter. Each time the exit member is operated rack 84 is moved from the position shown in Fig. 1 to the position shown in Fig. 2, and pinion 85 on the receiving-shaft is actuated thereby.

The second movement of the exit member returns the counter-actuating connections and the shutter-closing connections to their normal position, as in Fig. 1, and also unlocks the entrance member, so that another voter may pass to the front of the machine and perform the voting operation. This latter operation is effected near the end of the movement of the driving-bar toward the left through the engagement of incline 59 on dog 58 with pin 60 on pawl 56, as clearly shown in Figs. 3 and 8. As the driving-bar reaches the end of its movement toward the left the pin will ride up the incline and at the end of the movement will rest upon the top of the dog, thereby lifting the pawl out of engagement with locking-recess 55 in the entrance-slide and retaining said pawl in the unlocking position.

The operation of the mechanism as a whole has been so fully described in describing the construction and coöperation of the parts that no further description is thought to be required.

Having thus described our invention, we claim—

1. In a mechanism of the character described the combination with a driving-bar, an exit member and connections intermediate the driving-bar and the exit member, of an entrance member, connections intermediate the driving-bar and the entrance member and means controlled by the exit member for locking the entrance member as soon as the movement of the exit member commences.

2. In a mechanism of the character described the combination with a driving-bar, an exit member and connections intermediate the driving-bar and the exit member, of an entrance member, an entrance-slide actuated thereby and provided with a locking-recess, an entrance-rack lying intermediate the entrance-slide and the driving-bar, pins

extending from the entrance-slide and the driving-bar for moving the entrance-rack in opposite directions and a pawl adapted to engage the locking-recess to lock the entrance-slide and entrance member.

3. In a mechanism of the character described the combination with a driving-bar, an exit member and connections intermediate the driving-bar and the exit member, of an entrance member, an entrance-slide actuated thereby and provided with a locking-recess, an entrance-rack lying intermediate the entrance-slide and the driving-bar and provided with a longitudinal slot, pins extending from the entrance-slide and the driving-bar and engaging the ends of said slots respectively to move the entrance-rack in opposite directions, and a pawl adapted to engage the locking-recess.

4. In a mechanism of the character described the combination with a driving-bar provided with a dog, an exit member and connections intermediate the driving-bar and the exit member, of an entrance member, an entrance-slide actuated thereby and provided with a locking-recess, an entrance-rack lying intermediate the entrance-slide and the driving-bar and provided with a longitudinal slot, pins extending from the entrance-slide and the driving-bar and engaging the ends of said slot respectively to move the entrance-rack in opposite directions, a pawl adapted to engage the locking-recess to lock the entrance-slide and entrance member and a pin extending from the pawl which is engaged by the dog to lift the pawl and release the entrance-slide and entrance member near the end of the movement of the exit member.

5. In a mechanism of the character described the combination with a driving-bar provided with a dog, an exit member having rotary movement in opposite directions and connections intermediate the driving-bar and the exit member, of an entrance member having rotary movement in opposite directions, an entrance-slide actuated thereby and provided with a locking-recess, an entrance-rack lying intermediate the entrance-slide and the driving-bar and provided with a longitudinal slot, a pin extending from the entrance-slide and engaging one end of said slot to move the entrance-rack in one direction, a pin extending from the driving-bar and engaging the other end of said slot to move the entrance-rack in the opposite direction, and a pawl having a pin extending therefrom which is engaged by the dog, said pawl being released by the dog and engaging the locking-recess to lock the entrance-slide and entrance member at the beginning of the first movement of the exit member and being lifted by the dog and disengaged from said locking-recess near the end of the second movement of the exit member.

6. In a mechanism of the character described the combination with a driving-bar having a rack 38, a slide-bar having a rack 74, and an exit member carrying a gear-wheel, of shafts carrying pinions engaging said racks and at their opposite ends bevel-pinions, and a shaft at right angles to said shafts carrying a pinion engaging the gear-wheel and a bevel-pinion engaging the other bevel-pinions and acting to reciprocate the driving-bar and slide-bar when the exit member is actuated.

7. In a mechanism of the character described the combination with a driving-bar having a rack 38 and a paper-feed rack 84, paper-feeding mechanism actuated by rack 84 and a slide-bar having a rack 74, of an exit member carrying a gear-wheel, shafts carrying pinions engaging racks 38 and 74 and at their opposite ends bevel-pinions, and a shaft at right angles to said shafts carrying a pinion engaging the gear-wheel and a bevel-pinion engaging the other bevel-pinions and acting to reciprocate the driving-bar and slide-bar when the exit member is actuated.

8. In a mechanism of the character described the combination with a driving-bar having a rack 38, a slide-bar having racks 74 and 76, and shutter-closing mechanism actuated by rack 76, of an exit member carrying a gear-wheel, shafts carrying pinions engaging racks 38 and 74 and at their opposite ends bevel-pinions, and a shaft at right angles to said shafts carrying a pinion engaging the gear-wheel and a bevel-pinion engaging the other bevel-pinions and acting to reciprocate the driving-bar and slide-bar when the exit member is actuated.

9. In a mechanism of the character described the combination with a driving-bar having a rack 38 and a counter-rack 61, counter-operating mechanism actuated by rack 61 and a slide-bar having a rack 74, of an exit member carrying a gear-wheel, shafts carrying pinions engaging racks 38 and 74 and at their opposite ends bevel-pinions, and a shaft at right angles to said shafts carrying a pinion engaging the gear-wheel and a bevel-pinion engaging the other bevel-pinions and acting to reciprocate the driving-bar and slide-bar when the exit member is actuated.

10. In a mechanism of the character described the combination with a driving-bar having a rack 38, a slide-bar having a rack 74, a shutter-closing bar carried by the slide-bar and a shutter engaged by the shutter-closing bar, of an exit member carrying a gear-wheel, shafts carrying pinions engaging racks 38 and 74 and at their opposite ends bevel-pinions, and a shaft at right angles to said shafts carrying a pinion engaging the gear-wheel and a bevel-pinion engaging the other bevel-pinions and acting to reciprocate the driving-bar and slide-bar when the exit member is actuated.

11. In a mechanism of the character de-

scribed the combination with a driving-bar, an exit member and connections intermediate the driving-bar and the exit member, of an entrance member, an entrance-slide 5 actuated thereby and provided with a locking-recess, an entrance-rack lying intermediate the entrance-slide and the driving-bar, wedge-bar connections actuated by the entrance-rack, pins extending from the entrance-slide and the driving-bar for moving 10 the entrance-rack in opposite directions and a pawl adapted to engage the locking-recess to lock the entrance-slide and the entrance member.

12 In a mechanism of the character described the combination with a driving-bar provided with a dog and an exit member and connections intermediate the driving-bar and the exit member, of an entrance member, an entrance-slide actuated thereby and provided with a locking-recess, an entrance-rack lying intermediate the entrance-slide 20 and the driving-bar, wedge-bar connections actuated by the entrance-rack, pins extending from the entrance-slide and the driving-bar for moving the entrance-rack in opposite directions and a pawl adapted to engage the locking-recess to lock the entrance-slide and the entrance member and provided with 25 a pin which is engaged by the dog to lift the pawl and release the entrance-slide and entrance member.

13. In a mechanism of the character described the combination with a driving-bar 35 having a rack 38, an exit member carrying a gear-wheel, a shaft carrying a pinion engaging said rack and at its opposite ends a bevel-pinion and a shaft at right angles to said shaft and carrying a pinion engaging a gear-wheel and a bevel-pinion engaging the other 40 bevel-pinion, of an entrance member, an entrance-slide actuated thereby, an entrance-rack lying intermediate the entrance-slide and the driving-bar and pins extending 45 from the entrance-slide and the driving-bar

for moving the entrance-rack in opposite directions.

14. In a mechanism of the character described the combination with a driving-bar having a rack 38, an exit member carrying 50 a gear-wheel, a shaft carrying a pinion engaging said rack and at its opposite end a bevel-pinion and a shaft at right angles to said shaft and carrying a pinion engaging the gear-wheel and a bevel-pinion engaging the other 55 bevel-pinion, of an entrance member, an entrance-slide actuated thereby and provided with a locking-recess, an entrance-rack lying intermediate the entrance-slide and the driving-bar, pins extending from the entrance- 60 slide and the driving-bar for moving the entrance-slide in opposite directions and a pawl adapted to engage the locking-recess.

15. In a mechanism of the character described the combination with a driving-bar 65 provided with a dog and a rack 38, an exit member carrying a gear-wheel, a shaft carrying a pinion engaging said rack and at its opposite end a bevel-pinion and a shaft at right angles to said shaft carrying a pinion engaging 70 the gear-wheel and a bevel-pinion engaging the other bevel-pinion, of an entrance member, an entrance-slide actuated thereby and provided with a locking-recess, an entrance-rack lying intermediate the entrance- 75 slide and the driving-bar, pins extending from the entrance-slide and the driving-bar for moving the entrance-rack in opposite directions and a pawl adapted to engage the locking-recess, for the purpose set forth, and 80 provided with a pin which is engaged by the dog to lift the pawl.

In testimony whereof we affix our signatures in presence of two witnesses.

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