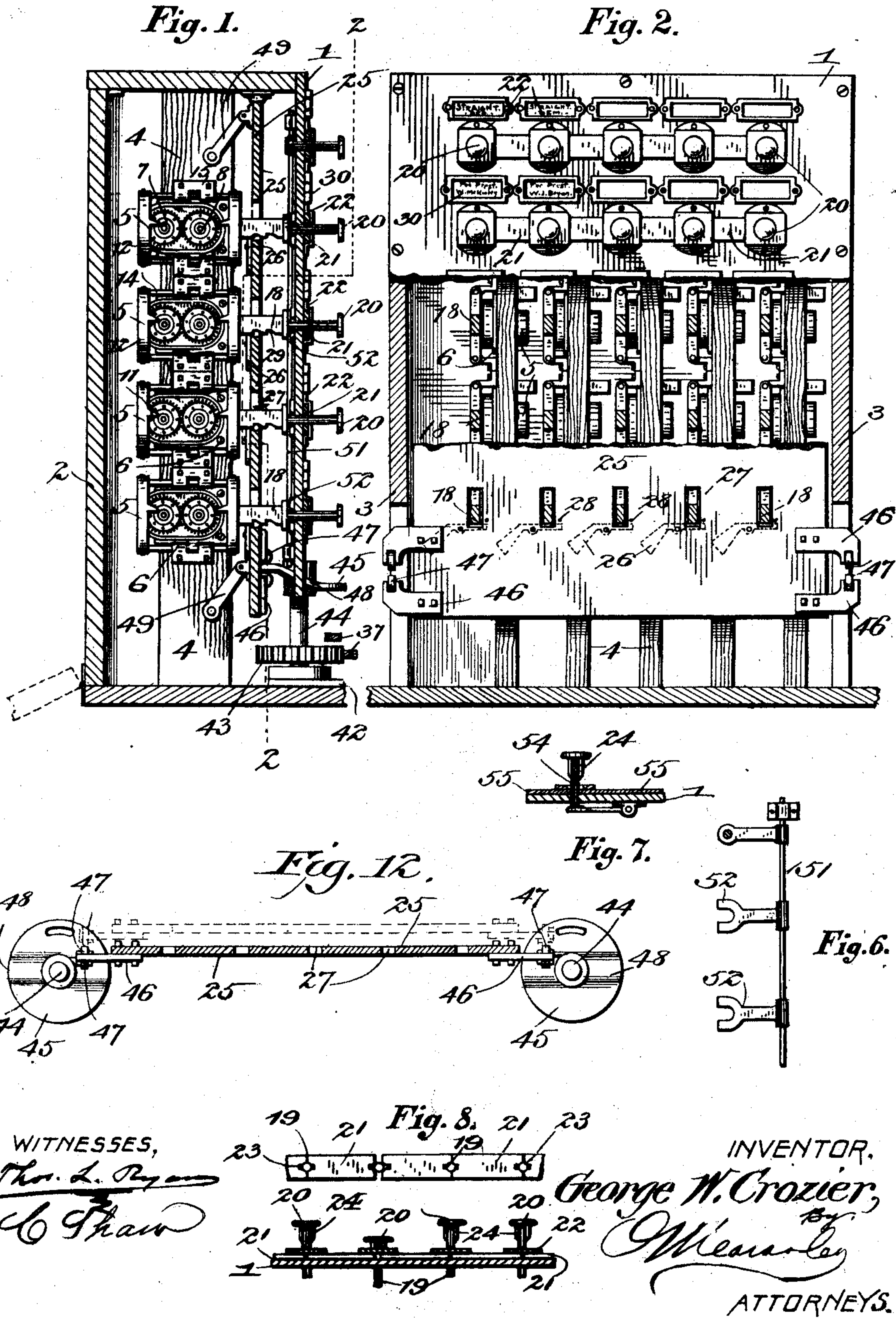


G. W. CROZIER.
VOTING MACHINE.

(Application filed May 1, 1900.)

(No Model.)

3 Sheets—Sheet 1.



No. 667,682.

Patented Feb. 12, 1901.

G. W. CROZIER.
VOTING MACHINE.

(Application filed May 1, 1900.)

(No Model.)

3 Sheets—Sheet 2.

Fig. 3.

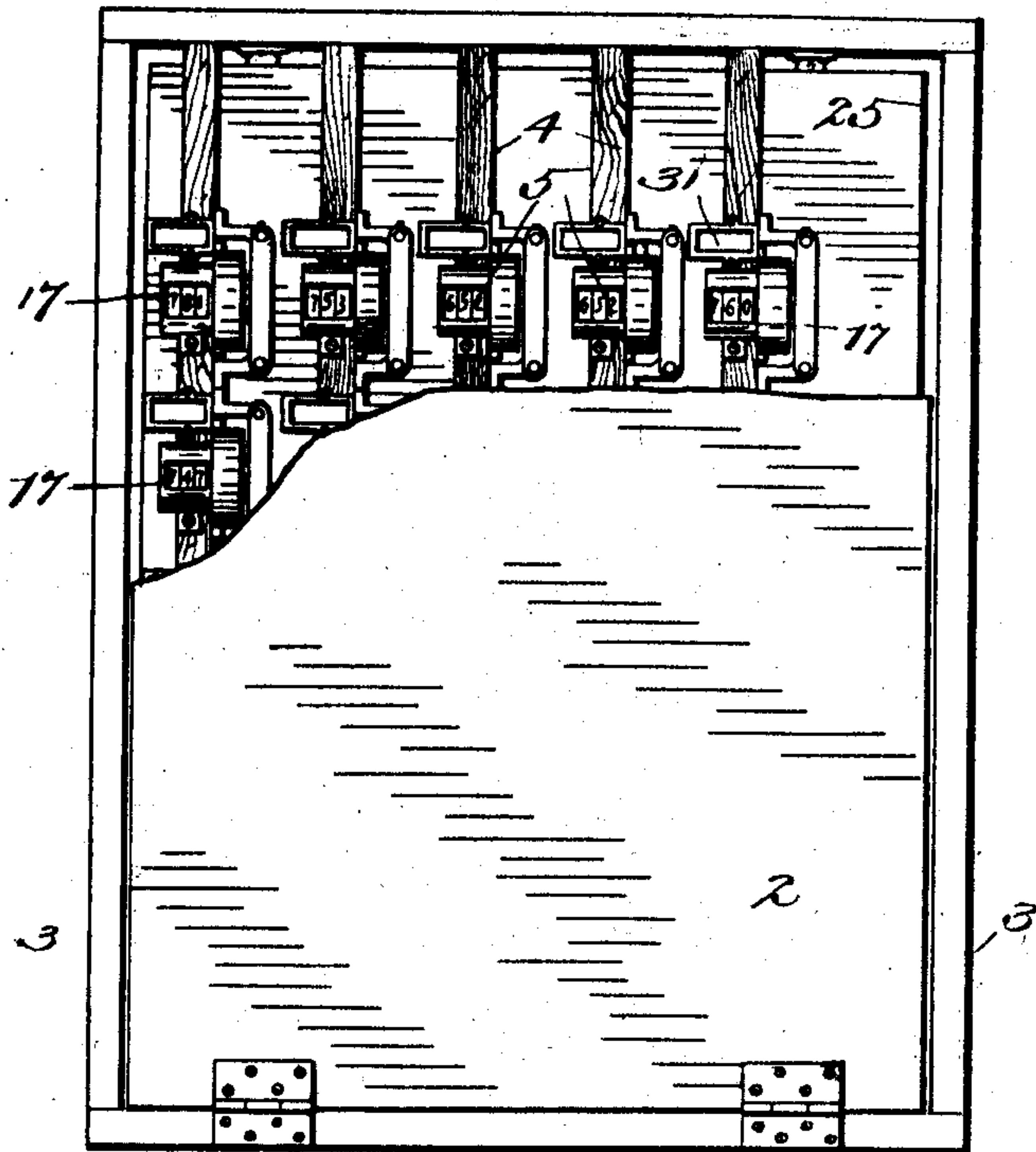


Fig. 5.

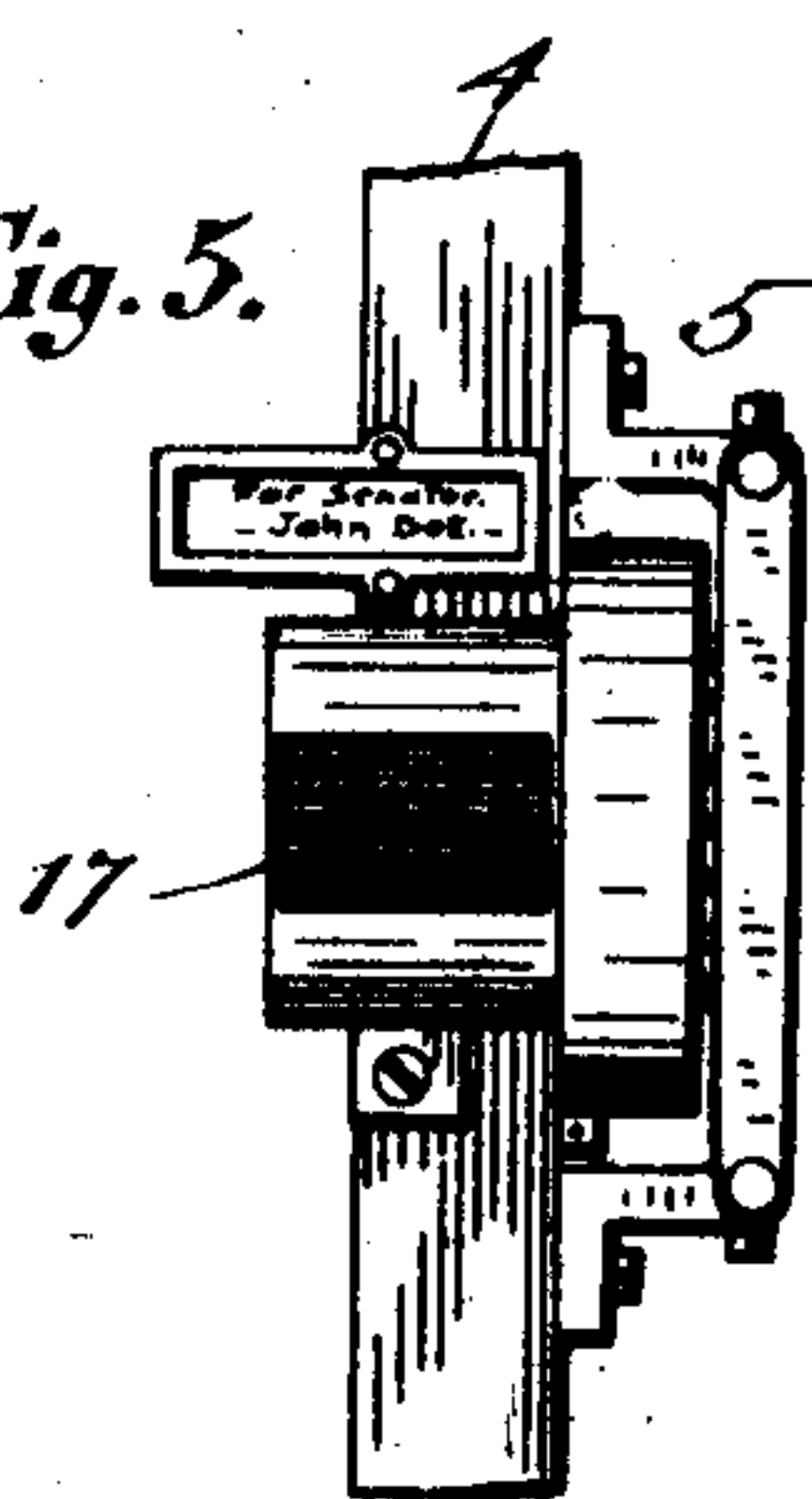


Fig. 4.

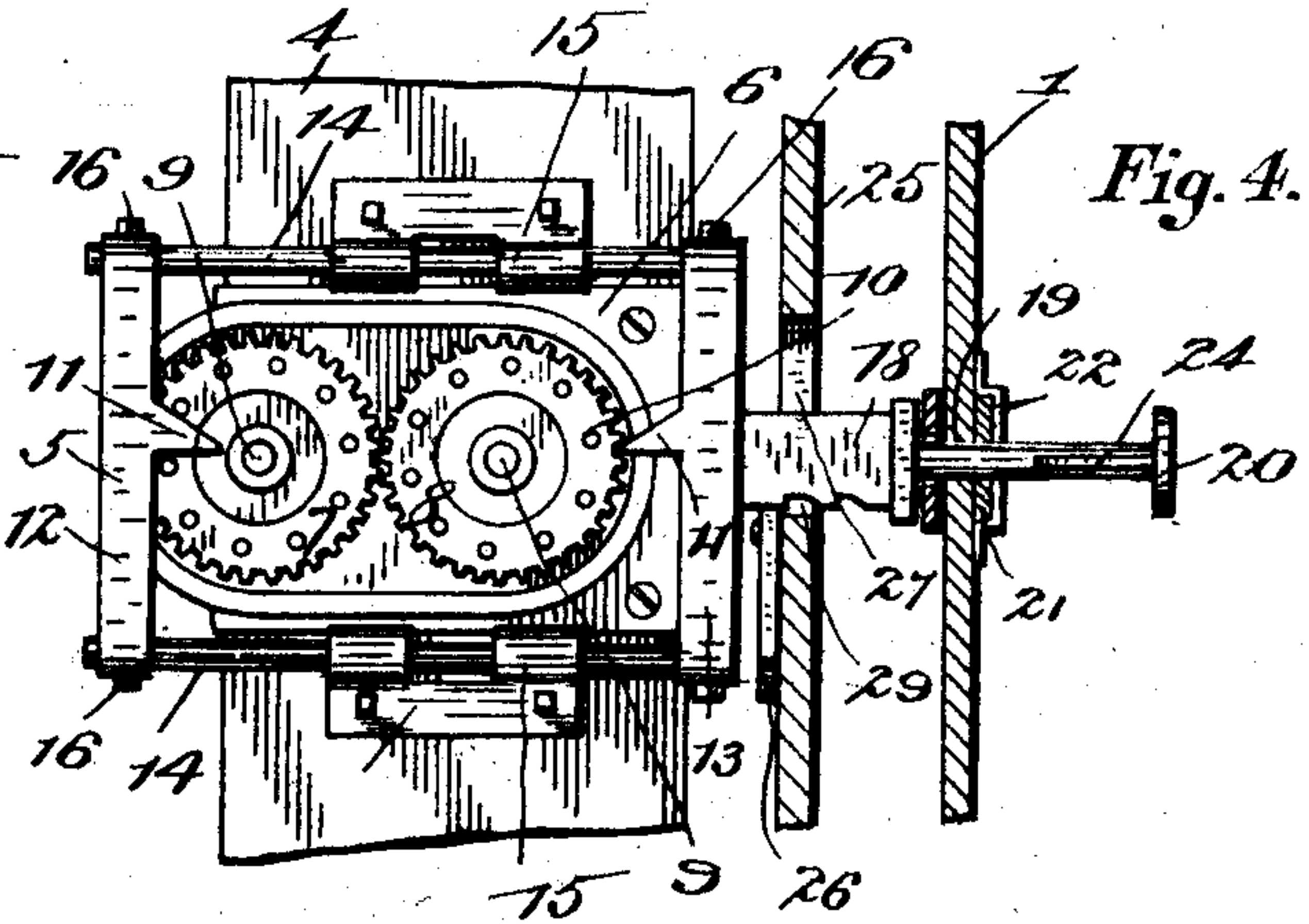
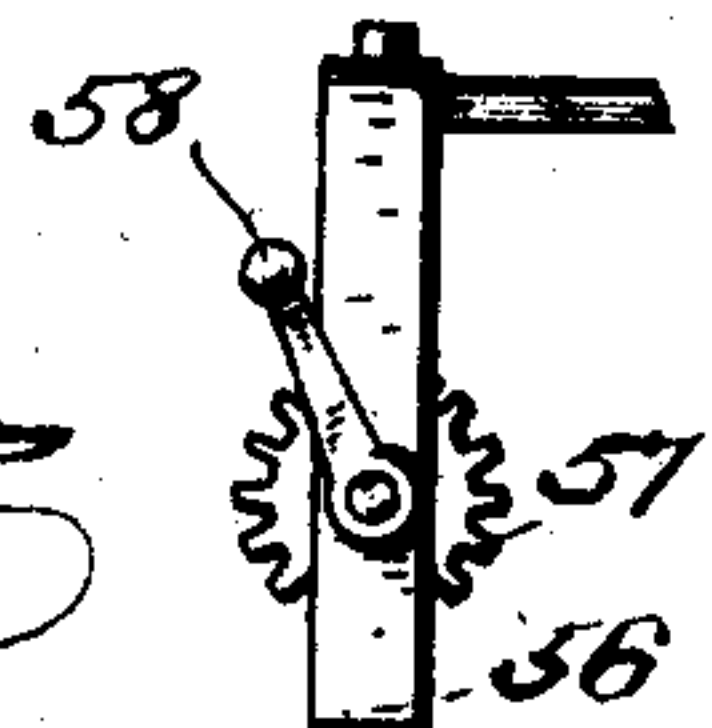


Fig. 9.



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(No Model.)

3 Sheets—Sheet 3.

Fig. 10.

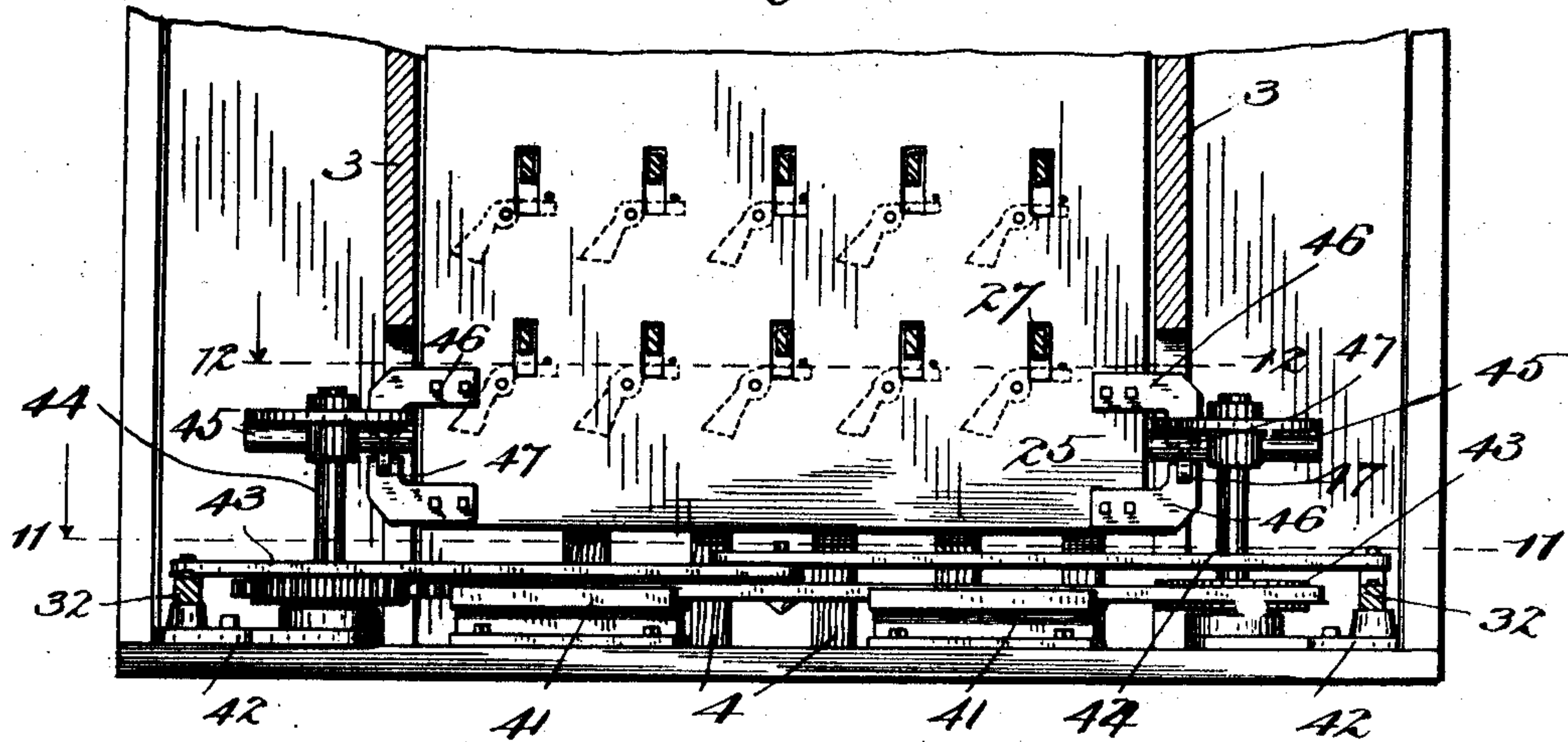
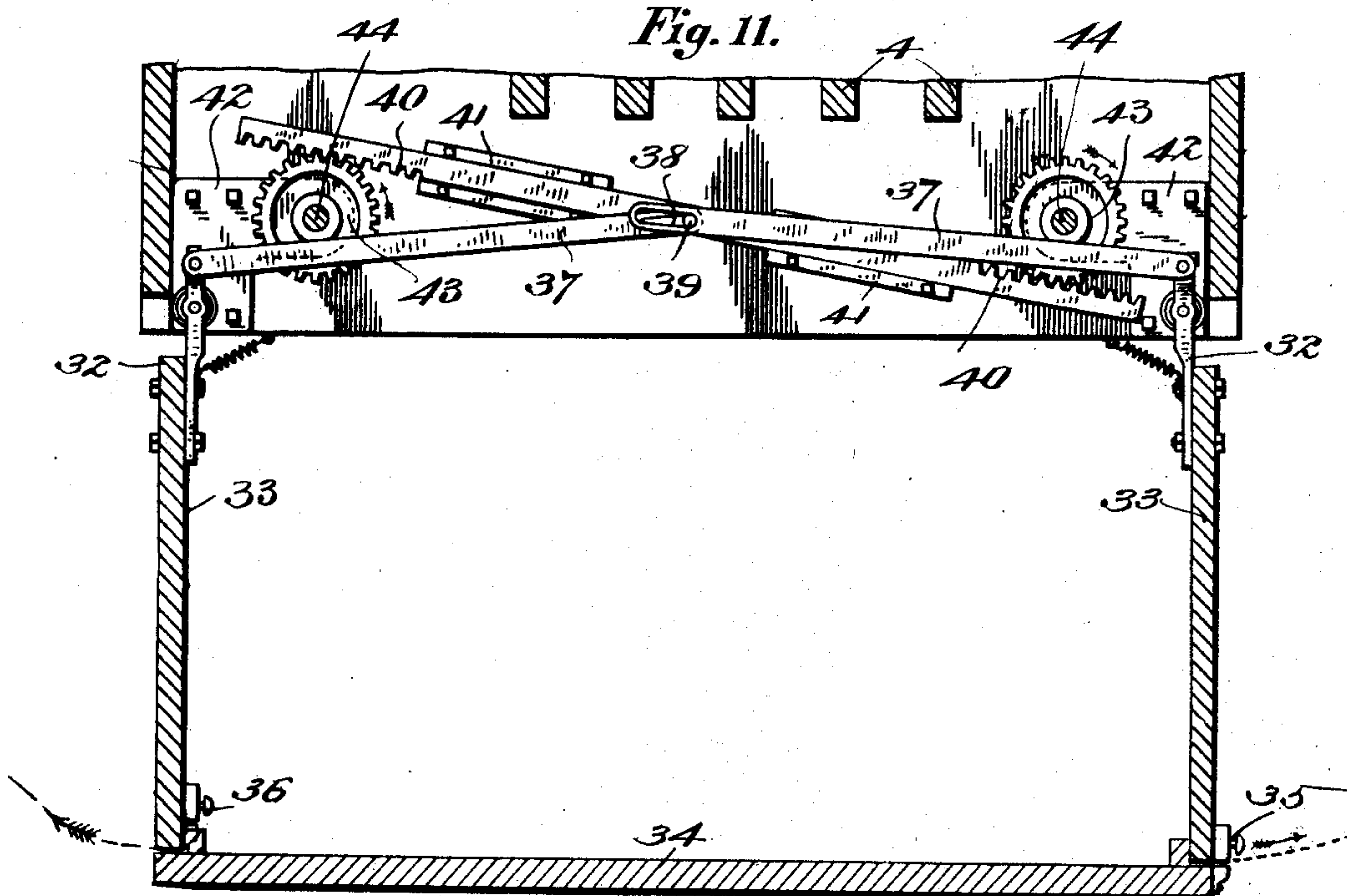


Fig. 11.



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UNITED STATES PATENT OFFICE.

GEORGE W. CROZIER, OF MUNCIE, INDIANA.

VOTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 667,682, dated February 12, 1901.

Application filed May 1, 1900. Serial No. 15,072. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. CROZIER, a citizen of the United States, residing at Muncie, in the county of Delaware and State of Indiana, have invented a new and useful Voting-Machine, of which the following is a specification.

My invention relates to voting-machines, and has for its object to produce a device of this kind which will be simple, cheap, and efficient and which will permit promiscuous or miscellaneous voting or which will enable a voter to vote what is known as a "straight" ticket. It will also register each and every vote as cast and will automatically lock all of the keys relating to the same office whenever the predetermined number of votes has been cast for that office.

With these objects in view my invention consists in the improved construction and novel arrangement of parts of a voting-machine, as will be hereinafter more fully set forth.

In the accompanying drawings, in which the same reference-numerals indicate corresponding parts in each of the views in which they occur, Figure 1 is a vertical sectional view of a voting-machine embodying my invention. Fig. 2 is a front view of the same on line 2 2 of Fig. 1, a portion of the front being broken away, and also with a portion of the apparatus for resetting the machine broken away. Fig. 3 is a rear elevation of my voting-machine with a portion of the rear door broken away, showing some of the registers. Fig. 4 is a broken detail view showing a portion of the registering apparatus in side elevation. Fig. 5 is a similar view showing the registering apparatus in end elevation. Fig. 6 is a detail view of a portion of the apparatus used for voting a straight ticket. Fig. 7 is a top plan view of the same, the front wall of the machine being shown in cross-section. Fig. 8 represents plan and side elevations of the unlocking mechanism. Fig. 9 is a detail view of the device for resetting the registering apparatus after the vote of the machine has been counted. Fig. 10 is a broken view showing the lower portion of my machine with the front removed, the mechanism used for restoring the voting mechanism to its normal position being shown in elevation. Fig. 11 is a transverse sectional view

looking downward, showing the mechanism for resetting the machine by the movement of the doors of the booth by the entrance or exit of a voter; and Fig. 12 is a transverse sectional view on the line 12 12 of Fig. 10 looking downward, showing the resetting-plate and the disks for operating the same.

Referring more particularly to the drawings, 1 indicates the front, 2 the rear door, and 3 the side and end walls, of my improved voting-machine, which may be of any suitable size and dimensions and formed from any suitable material, metal being preferred. Arranged vertically between the front and rear walls are a series of studs or posts 4, spaced at suitable distances apart, upon which are arranged the registering mechanisms 5. There can be as many registering mechanisms as desired, those for each ticket being preferably arranged vertically upon the same stud, there being as many studs as there are candidates for tickets to be voted. Each mechanism preferably consists of a plate 6, which is secured to the side of the stud or post in any desired manner, as by means of screws, and has two intermeshing wheels 7 and 8, journaled on suitable pins or spurs 9, projecting therefrom.

The outer face of each of the wheels is provided with ten equidistant-spaced pins or projections 10, which are adapted to be engaged by the inclined faces of longitudinally-movable pins or actuators 11. The actuators may be reciprocated in any desired manner, although I prefer to form them upon two bars 12 and 13, which are secured at their ends to two parallel rods 14, which are moved back and forth within suitable guides or ways 15. The lower faces of the actuators are preferably in alinement with each other and may be arranged virtually in alinement with the axes of the two wheels or a trifle above them, while the upper faces are inclined upward and away from the wheels. The points of the actuators are arranged in such relation to each other and to the pins upon the wheels that as one actuator moves out of engagement with the pins of one of the wheels the other actuator comes into engagement with one of the pins of the other wheel, thus locking the wheels against rotation except by the positive reciprocation of the actuators. To provide a positive and accurate adjustment

of the points of the actuators relatively to the pins on the wheels, I prefer to secure the bars to the rods by means of set-screws 16, which will permit of the necessary adjustment.

A register 17, of any suitable construction, is connected with one of the gear-wheels, preferably the rear one, in any suitable manner and is so arranged that whenever the actuators have made one full movement the register will be turned one number. If desired, the hub of said wheel can be utilized as a portion of said register by having the numbers from "0" to "9" engraved or otherwise formed thereon and providing each one of the wheels with ten pins. In this manner whenever the actuator has been forced inward the inclined point will engage with one of the teeth of the front wheel and move it forward as far as it will go, which can be determined by the point engaging with the hub of the axle or by the succeeding pin engaging with the straight surface of the point. The partial rotation thus caused by the inward movement of the actuator will be transmitted to the second wheel, which will carry one of its pins into such a position that when the actuator is moved outward as far as it will go the inclined surface of its point will engage with said pin and move it forward a sufficient distance to cause the next succeeding number to appear upon the register. At the same time the partial rotation of the rear wheel will be transmitted to the front wheel, and the succeeding pin upon its surface will be carried forward into a position to be engaged by the inclined surface of the actuator-point when the actuator is again forced inward.

Each of the actuators is provided with a shank or stem 18, having a reduced portion 19, which projects through an opening in the front of the casing and is provided with a head or button 20. The recording mechanisms are so arranged upon their studs or supports that the heads or buttons of the different registers for the same office will stand in horizontal rows, and longitudinally-movable locking plates or blocks 21 are arranged between the stems of the different actuators. These blocks may be secured to the outer face of the front of the machine in any suitable manner—as, for instance, by means of plates or escutcheons 22, which are perforated for the passage of the stems and are located at the contact ends of said plates. Each of the plates 22 is provided with a notch or recess 23 for the passage of the stem of the actuator and also for the entrance of the wedge-shaped fins or feathers 24 upon opposite sides of the stems of the actuators. When any stem is forced inward, its wedges are carried in between the adjacent ends of the locking-plates, upon each side thereof, and the plates are forced longitudinally a distance equal to the width of the wedges. This longitudinal movement of the plates will force the adjacent ends

of the plates at each one of the other stems into contact with each other and will thereby prevent any of said stems being forced inward.

Located between the plates 4 and the front wall of the casing is a perforated plate 25, upon which are pivotally mounted a series of gravity-latches 26, one for each opening 27 in the plate, the free end of the latch normally projecting a slight distance above the bottom of the opening and being held in that position by means of a stop 28. The openings in said plate are arranged to register with the stems of the actuators, and the lower surface of each stem is provided with shouldered notches 29. As the stems are forced inward the notches are caused to successively pass over the top of the stop, and after the stem has been forced in far enough for the latch to engage with either one of the notches it will be impossible for the stem to be returned until after it has been released from the latch. The parts are so arranged that when the stem has been pushed in far enough for the latch to enter the first notch the wedges will have forced the locking-plates laterally a sufficient distance to prevent the inward movement of any other stem in that line. The registering mechanism is so arranged that it will not be operated until after the stem has been forced inward its full length, at which time the latch will engage with the last recess in the stem and prevent its upward movement.

Secured to the front of the casing, preferably above each button, is a name-plate 30, which will enable the voter to vote for any candidate by pressing in the button adjacent to said name. A corresponding name-plate 31 is secured at the rear of the register, thereby preventing the possibility of fraud or mistake being perpetrated in copying the records from the machine.

As above described, a voter may enter a booth or voting-place provided with my improved machine and cast a ballot, record and vote for any one of the candidates whose name appears upon the front of the machine; but after he has used the machine it is necessary that the parts be restored to their normal position before the machine can be used by a succeeding voter. To accomplish this, I preferably provide the machine with two spring-actuated levers 32, which act as hinges and are provided at their outer ends with doors 33. The doors are of sufficient width and height to permit the passage of the voters to and from the machine and preferably engage with one side 34 of the booth or polling-place. One of the doors is provided with a lock 35, which can only be opened from the exterior, thereby permitting the voter to enter the booth, but preventing his return. The other door is provided with a lock 36, which can only be operated from the interior, thereby permitting the voter to leave the booth through that door. Two push-rods 37 are pivotally secured to the inner ends of

levers 32, the outside ends of which are each slotted, as shown at 38, to engage with the pin 39 on a cogged rack 40. The intermediate portion of the rack 40 is slidably mounted in bearings 41, secured to the bottom of the casing. The bearings 41 are arranged diagonally between two plates 42 on the bottom of the casing, in each of which is journaled a cog-wheel 43. The upper end of the shaft 44 of each wheel is provided with a two-plane disk 45, which works between two shoulders upon the plate 25 and moves the same vertically as the disks are rotated. I prefer to form these shoulders by means of two arms 46, which project laterally from each side of the plate, and provide the outer end of each arm with a roller 47, one above and one below the disk. The two planes of the disk are joined or united by an inclined portion 48, by means of which the shoulders or rollers on the plate 25 are forced from one plane of the disks to the other, each plane occupying a trifle less than half the area of the disk. The opposite sides of the ends of the rack are caused to engage with the cog-wheels upon opposite sides of their respective centers, so that the movement of the rack in one direction will rotate the disks in opposite directions.

The plate 25 may be supported in any suitable manner, although I prefer to provide it with a series of links 49, preferably four in number, which are pivotally secured at their rear ends to the studs 4. The links are of such length that when the plate is in its lower position the links will stand substantially horizontal and will prevent the plate being moved into a vertical position by pressure upon it in front. At the same time the links will cause the plate to recede as it rises, thereby permitting the movement of the inclined portions 48 of the disks as they are passing between the rollers 47 to carry the plate both upward and rearward. In this manner the strain upon the parts as the plate is being returned to its upper position is reduced to a minimum, and there is less liability of breaking the parts than there would be with a machine not constructed in this manner.

With a machine arranged as above described the voter enters the booth by opening one of the doors 33 and presses in the stems or buttons for the candidates for which he wishes to vote. The opening of the door moves the plate 25 into its upper position, as shown in Fig. 1, which places each one of the latches in position to engage with and lock the different stems as they are forced inward by the voter. After casting his ballot the voter leaves the booth through the other door, the opening of which partially rotates the disk and permits the plate 25 to move downward and outward, thereby carrying all of the stems outward and disengaging the latches therefrom. Upon the entrance of the succeeding voter the opening of the door into the booth will complete the rotation of the disks, which

will cause the plate 25 to be returned into its normal position, which leaves all of the keys standing out ready and free to be pushed inward by the voter. Each one of the stems is provided with a collar or shoulder 50, which is located between the plate 25 and the front of the machine and which is adapted to stand adjacent to the plate when the stem has been pushed inward far enough to cause it to actuate the register. As the plate moves downward and forward it engages with the shoulders of the stems which have been operated and carries them outward into their operative position, thereby securing the return of the stems to their normal position without the use of springs or other complicated features.

To permit a voter to cast his votes for a straight ticket without requiring him to press in the different buttons for the different candidates, I provide a shaft 51, which is journaled upon the inner side of the front of the casing in any suitable manner, and at suitable distances apart upon the shaft I secure bifurcated arms 52. The forks or bifurcations of the arms are caused to straddle the different stems between the collar 50 and the front of the plate, so that by rotating the shaft all of the stems with which the arms are connected will be simultaneously forced inward and the register operated the same as though the voter had pushed in each one of the stems separately. The shaft is conveniently rotated by means of an arm 54, that projects through the casing in vertical alinement with the stems projecting adjacent to the names of the candidates for that ticket. The stem 54 is provided with wedges which actuate locking-blocks 55 between the straight-ticket stems in the same manner as the locking-blocks between the separate-candidate stems. After either one of the straight-ticket stems has been pressed in it will be impossible for the voter to press in any other stem for that ticket, thereby preventing the possibility of fraud. In case the voter should press in some of the stems for any one ticket and should then desire to vote the entire straight ticket he can press the head or straight-ticket stem which will operate all of the remaining stems for that ticket without affecting or operating the stems theretofore pressed in; but if he should press in the key for any candidate upon any of the tickets it will be impossible thereafter for him to vote a straight ticket for any other ticket except the ticket upon which that elector was a candidate.

The foregoing description relates to tickets upon which one candidate is to be voted for for each office; but if it should be desired to vote for more than one candidate for the same office—as, for instance, where a certain number of candidates are to be voted for out of any predetermined number—the locking-blocks can be so arranged that the keys for the candidates for that office will not be locked against operation until the desired number of stems have been pushed inward. It is also

evident that the different rows of blocks can be so interconnected as to permit of other forms or plans of voting; but it will be locked automatically against other manipulation of the machine when the desired number of votes in that series have been cast.

In using my machine it is preferably arranged upon a suitable stand or support (not shown) in the booth or other polling-place with the registers all arranged at zero. The voters enter successively and push in the keys as they may desire, the registers being operated by the manipulation of the keys. After a ballot has been cast the voter leaves the booth through the other door, the movement of which door causes the plate 25 to be carried downward and forward, thereby returning all of the stems or buttons to their normal position and preventing any one from knowing how said voter voted and also locking all of the keys against inward movement until after the plate has been restored to its upper position. In this manner the possibility of fraud is prevented even though the voter should try to render the lock of the exit-door inoperative and should come back into the booth after having left it and try to manipulate any of the keys the second time. The opening of the exit-door causes the heel of the slot 38 in push-rod 37 to engage with the pin 39 and carry the rack to the full limit of its movement, so as to rotate the disks 45 to permit of the downward movement of the plate 25. The length of the slot 38 is sufficient to permit the exit-door to close without the opposite end thereof coming in engagement with the pin, thereby leaving the rack and wheels in the position with the pin in engagement with the heel of the slot in the push-rod of the entrance-door, as shown in Fig. 11. As the succeeding voter opens the entrance-door to enter the booth the movement of the push-rod will carry the rack into its opposite position, which will cause a partial rotation of the disks, as heretofore described, which will return the plate 25 into its upper position, which will leave all of the stems projecting outward in position to be manipulated by the incoming voter. As he leaves the booth the opening of the exit-door forces the rack into the opposite position and locks the machine against further rotation until after the entrance-door has been again opened. The arrangement of the slots in the two push-rods is such that it will be impossible for both doors to be opened at the same time, although either one can be opened while the other one remains closed. After the election is closed the back door 2 is opened, as shown in dotted lines in Fig. 1, where it may be utilized as a desk lid or support for the papers when the figures upon the different registers are being copied opposite the names for which they were cast. If desired, the door can then be closed, which will preferably automatically lock the machine, and the registers can be retained in the position in

which they were left by the voters for future reference, and thus avoid any possible question or perpetration of fraud by changing the figures upon the tally-sheet after they have been made or to correct any errors which may have arisen during the process of copying. If it is not desired to leave the registers in this manner, each of them can be returned to the zero position by removing the outer actuating-bar 12 and inserting thereon a bar 56, upon which is journaled a wheel 57. The wheel will engage with the teeth of the wheels which actuate the register and can be turned by means of the crank 58 until the register has been returned to zero, after which the bar is removed and the actuating-bar returned to its original position.

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

1. In a voting-machine, the combination, with a casing, of registers therein, an actuator for each register, the stem of which is shouldered and projects through the front of the casing, a perforated plate between the front of the machine and the registers, a gravity-latch pivotally secured adjacent to each of said openings, the free end of which is adapted to engage with the shoulders of the stem and lock it in its inward position, and means for moving said plate vertically and laterally, substantially as described.

2. In a voting-machine, the combination, with a casing, of registers therein, an actuator for each register, the stem of which is provided with shoulders and projects through the front of the casing, a collar on each stem, a perforated plate between said collars and the registers, a latch pivotally secured adjacent to each opening, the free end of which normally lies a trifle above the bottom of said openings, and means for moving said plate vertically and laterally, the plate being adapted to engage with the collars of the in-thrust stems and carry them forward and simultaneously engage with the collars, thereby locking all of the stems against inward movement, substantially as described.

3. In a voting-machine, the combination, with a casing, of registers therein, an actuator for each register, the stem of which is shouldered and projects through the casing, the outer end of each stem being provided with wedge-shaped shoulders, horizontally arranged, longitudinally-movable locking-blocks between said stems, in position to lock the remaining stems against movement after one of the stems in any row of blocks has been moved inward, and means for engaging with the shoulders of the stem and locking the stem inward, substantially as described.

4. In a voting-machine, the combination, with a casing, of registers therein, an actuator for each register, the stem of which projects through the front of the casing, a collar on each stem, a perforated plate between the collars and the registers provided with means

for engaging with and locking the keys in their intrust position, and means for moving said plate down toward the front and up toward the rear, substantially as described.

5 5. In a voting-machine, the combination, with a casing, of registers therein, an actuator for each register, the stem of which projects through the front of the casing, a perforated plate between the front of the casing
10 and the registers, two disks for moving said plate, each disk lying in two horizontal planes, and means for rotating said disks as the voter enters and leaves the voting-booth, substantially as described.

15 6. In a voting-machine, the combination, with a casing, of registers therein, an actuator for each register, the stem of which extends through the front of the machine, a perforated plate between the front of the machine and the registers provided with means
20 for engaging with said stems, two arms at each side of said disk, the free end of each of which is provided with a roller, a horizontally-arranged disk between each pair of rollers, said disk occupying two planes, and
25 means for rotating said disks and moving said plate by the movement of the doors of the voting-booth, substantially as described.

30 7. In a voting-machine, the combination, with a casing, of registers therein, an actuator for each register, the stem of which projects through the front of the casing, a perforated plate between the front of the machine and the registers, links for supporting
35 said plate and moving the same forward as it is moved downward, disks for moving said plate vertically, each of said disks occupying two planes and being so arranged relatively to the plate that when the plate is moving
40 from the front to the rear the operative portion of the incline between the lower and upper planes of the disk will be passing to the rear, and vice versa, substantially as described.

45 8. In a voting-machine, the combination, with a casing, of registers therein, an actuator for each register, the stem of which projects through the front of the casing, a plate between the front and the registers, provided
50 with means for engaging with the different stems, a shaft journaled at the bottom of the casing at each edge of the plate, a disk secured to the upper end of each shaft for moving the plate, said disk lying in two planes, a
55 cog-wheel at the lower end of each shaft, a rack for engaging with said wheels, push-rods for moving the rack, and a door connected with each push-rod, substantially as described.

60 9. In a voting-machine, the combination, with a casing, of registers therein, an actuator for each register, the stem of which projects through the front of the casing, a plate between the front of the casing and the registers provided with means for engaging with
65 the different stems, a shaft journaled at the bottom of the casing at each edge of the plate, the upper end of which is provided with a

disk for supporting the plate, said disk occupying two planes, a cog-wheel at the lower end of each shaft, two bearings between said
70 wheel, a rack in said bearings, the opposite sides of the ends of which engage with said cog-wheels and the intermediate portion is provided with a pin, two slotted push-rods
75 engaging with said pin, and a spring-actuated door connected with each of said rods, one of the doors being provided with means for opening it from the outside only and the other one provided with means for opening it from the
80 inside, substantially as described.

10. In a voting-machine, the combination, with a casing, of registers therein, each register being provided with two intermeshing wheels and a reciprocatory actuator provided with points for alternately engaging with said
85 wheels, and a stem for each actuator, the outer end of which projects through the front of the casing and is provided with a button, substantially as described.

11. In a voting-machine, the combination, with a casing, of registers therein, each register being provided with two intermeshing wheels, pins projecting from the outer face of each of said wheels, and a reciprocatory
90 actuator provided with two oppositely-disposed actuating-pins in position to alternately engage with the pins of the two wheels, a stem for the actuator, the outer end of which extends through the front of the casing and
95 is provided with a button, substantially as described.

12. In a voting-machine, the combination, with a casing, of a series of posts arranged therein, plates secured upon each of said
100 posts, two intermeshing wheels journaled upon said plates, the outer face of each of which is provided with pins, a bearing at each side of the plate, two rods in said bearings, and bars connecting said rods, each of which
110 is provided with a wedge-shaped point in position to alternately engage with the pins of the two wheels as the rods are reciprocated in their bearings, one of the bars being provided with a stem, the outer end of which
115 projects through the casing and is provided with a button, substantially as described.

13. In a voting-machine, the combination, with a casing, of registers therein, an actuator for each register, the stem of which projects through the front of the casing, a collar
120 upon the stem, a plate between the collars and the registers, means for moving said plate vertically and laterally, a shaft journaled between each vertical row of stems, bifurcated arms upon said shaft, the forked end of each
125 of which fits upon a stem between the collar and the front of the machine, arms secured to the upper end of the shaft, and a stem connected with said arm and projecting in front of the casing, substantially as described.

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