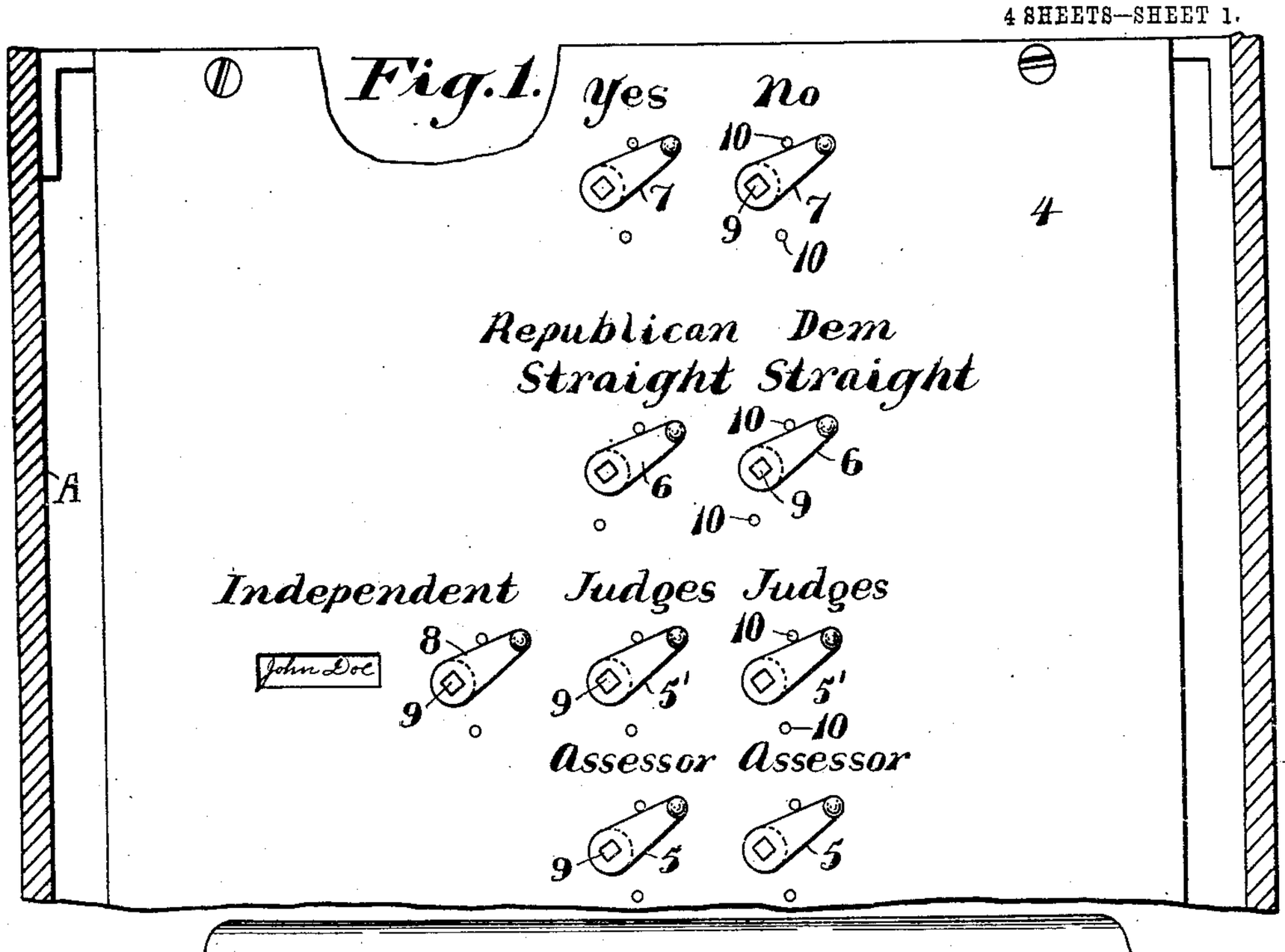
No. 862,866. PATENTED AUG. 6, 1907.

W. M. CUTTER & W. A. SUTFIN.

VOTING MACHINE.

APPLICATION FILED OCT. 15, 1906.

4 SHEETS—SHEET 1.



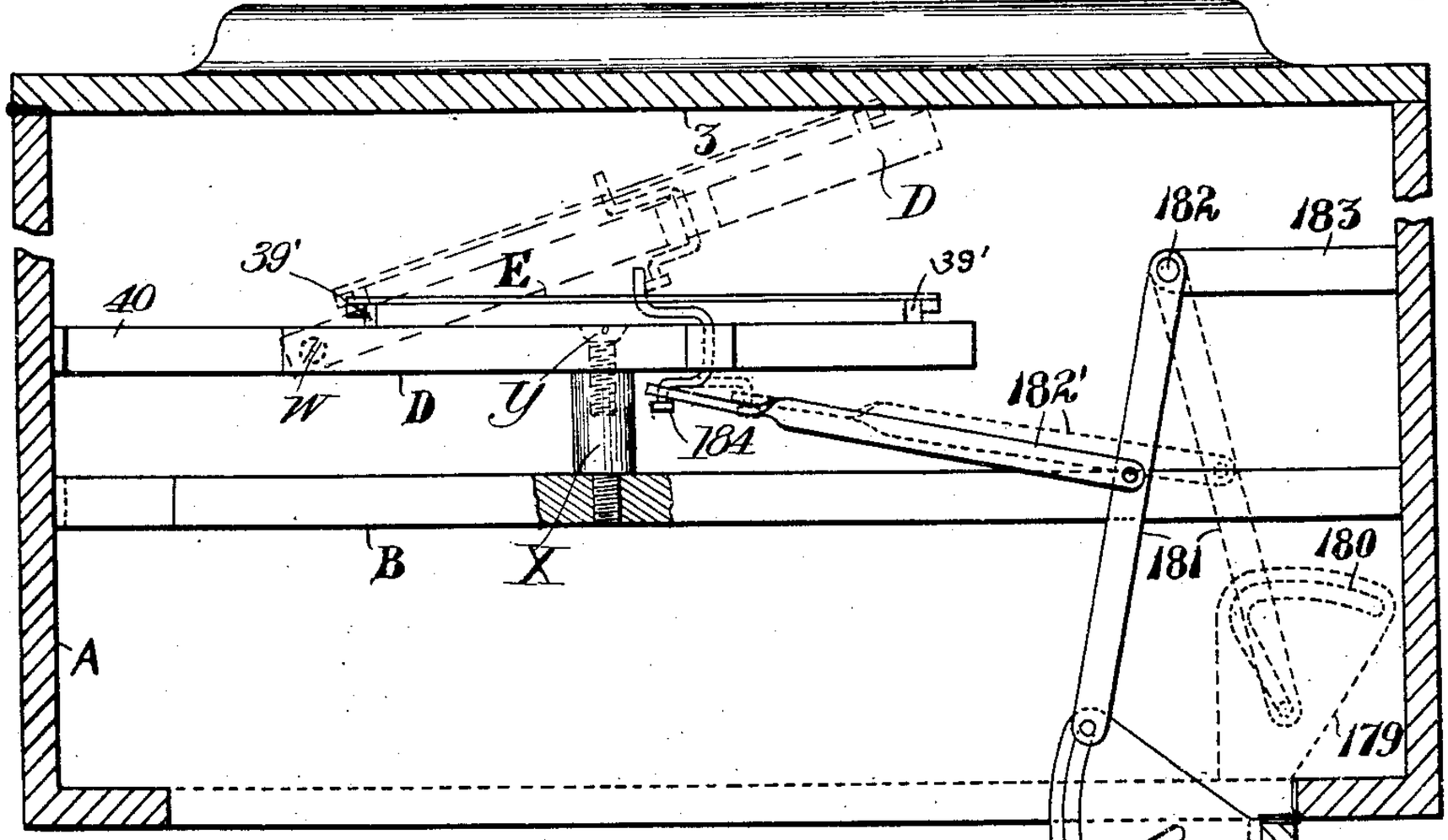


Fig. 2.

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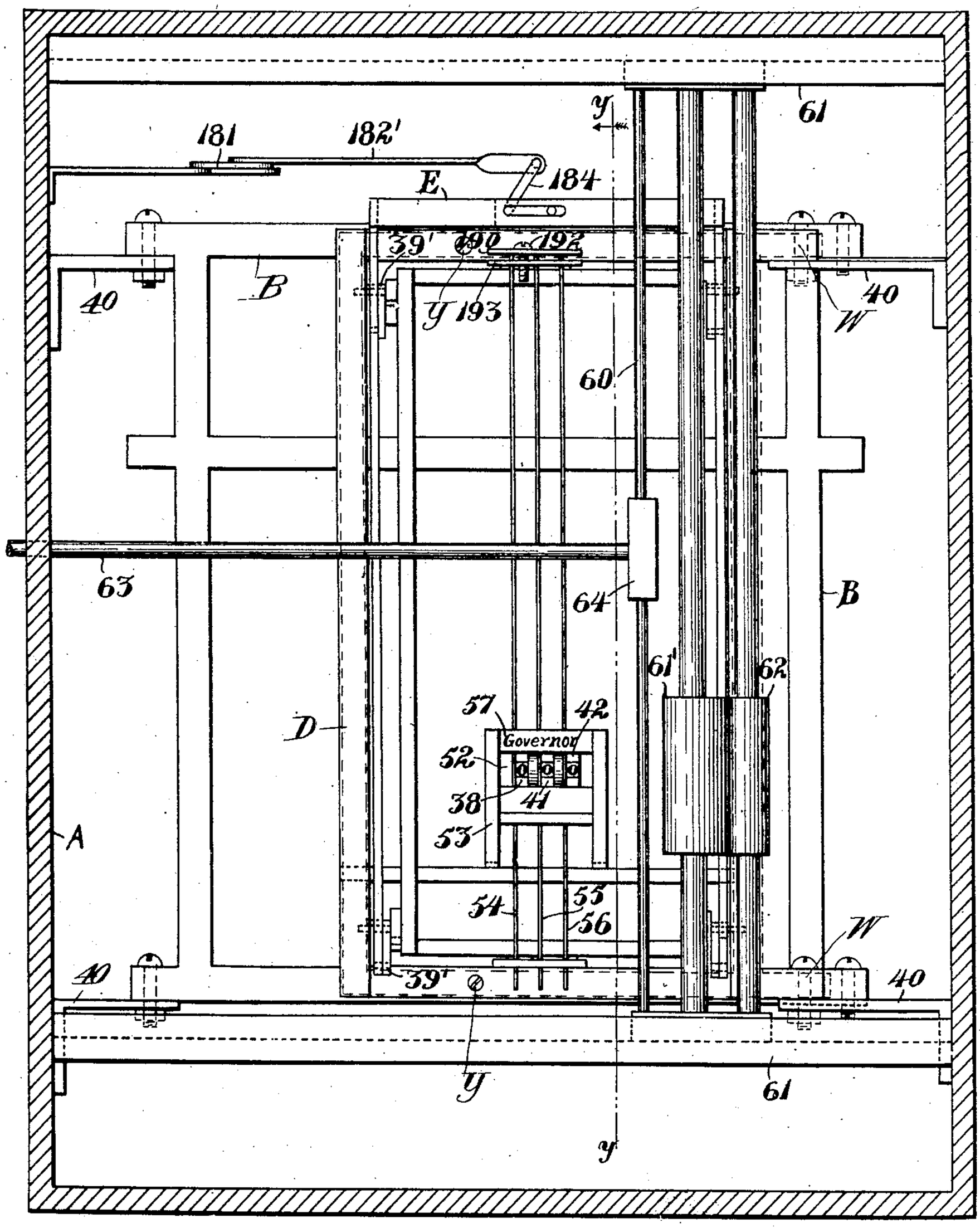
4 SHEETS—SHEET 2.

Fig. 3.



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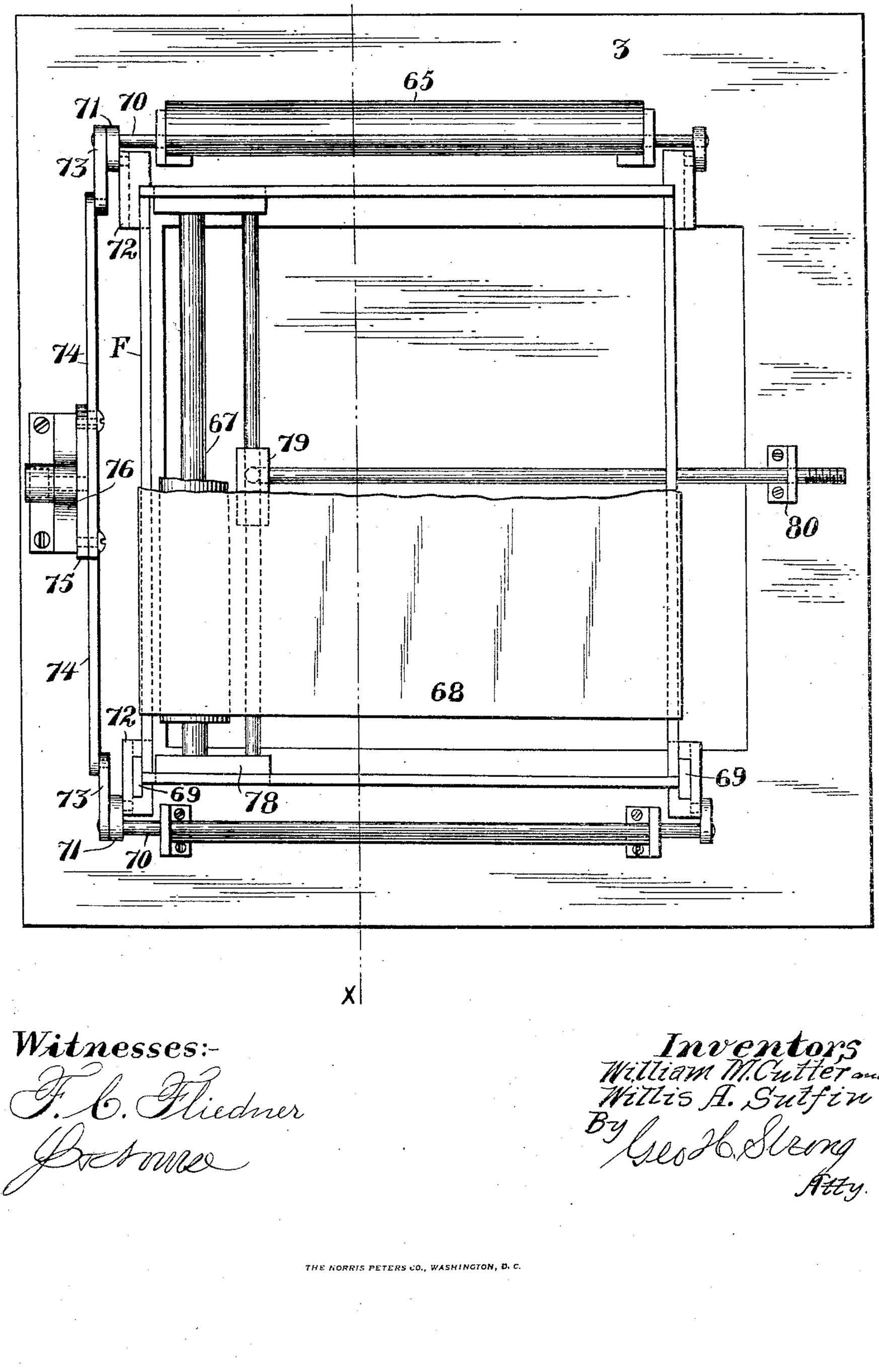
4 SHEETS—SHEET 3.

Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 5.

Fig. 6.

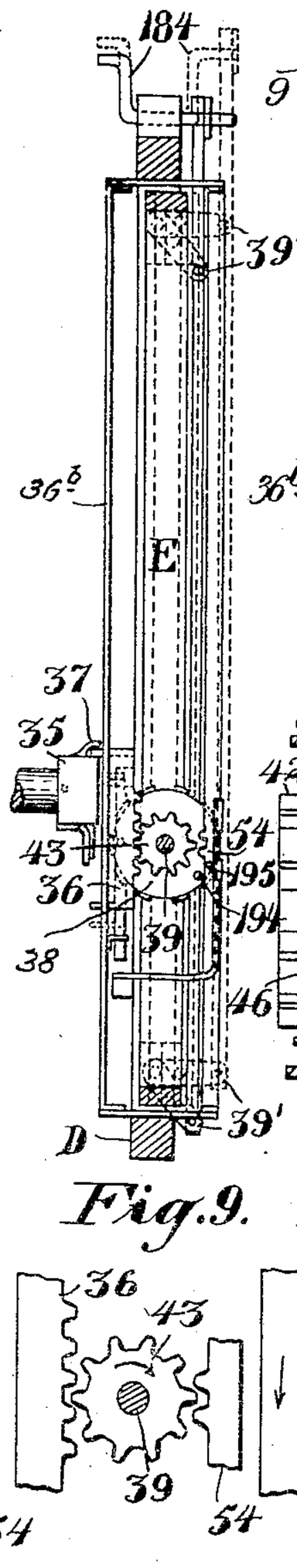


Fig. 12.

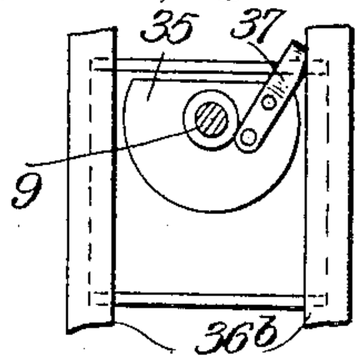


Fig. 13.

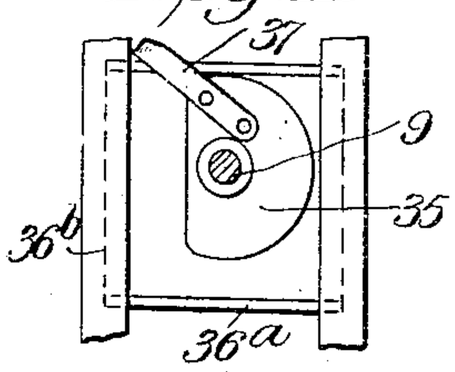


Fig. 7.

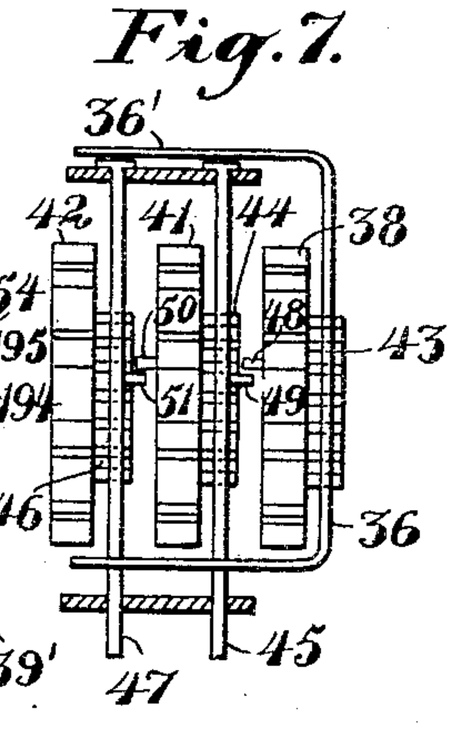


Fig. 8.

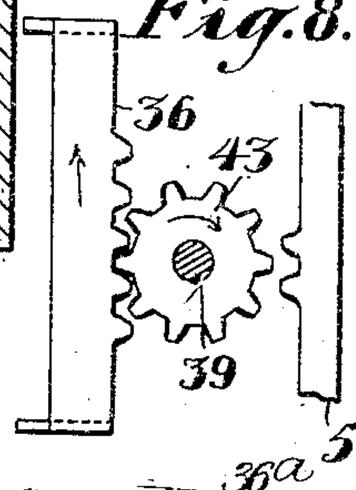


Fig. 9.

Fig. 10.

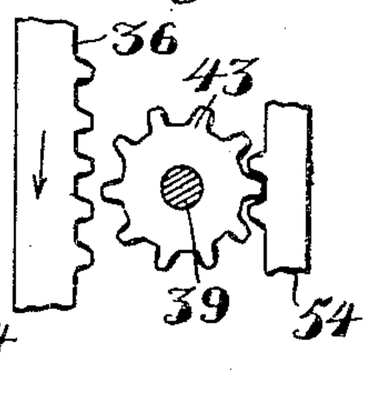
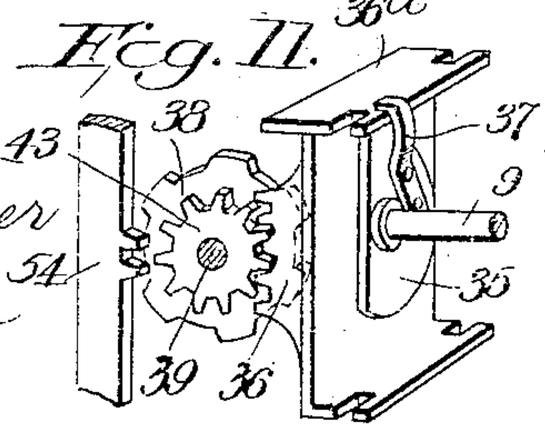


Fig. 11.



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UNITED STATES PATENT OFFICE.

WILLIAM M. CUTTER AND WILLIS A. SUTFIN, OF MARYSVILLE, CALIFORNIA; SAID SUTFIN ASSIGNOR OF ONE-HALF OF HIS RIGHT TO SAID CUTTER.

VOTING-MACHINE.

No. 862,866. Specification of Letters Patent. Patented Aug. 6, 1907.

Original application filed August 2, 1905, Serial No. 272,316. Divided and this application filed October 15, 1906. Serial No. 338,974.

To all whom it may concern:

Be it known that we, WILLIAM M. CUTTER and WILLIS A. SUTFIN, citizens of the United States, residing at Marysville, in the county of Yuba and State of California, have invented new and useful Improvements in Voting-Machines, of which the following is a specification.

Our invention relates to voting machines and especially to registering and printing mechanism therefor. Its object is to provide means whereby all the registers can be securely locked during the voting operation; which will allow all the registers to be reset at zero easily and quickly after an election; and which will enable an imprint or any number of imprints of the total vote and of the standing of the several candidates to be quickly taken at any time during the election or after the election without opening up the machine.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a front view of the machine with the front door open. Fig. 2 is a plan view in partial section showing connection with the front door for operating the voting register carrier. Fig. 3 is a rear view of the machine with the back door open. Fig. 4 is a view showing the paper holding and impression means. Fig. 5 is a section on line X—X of Fig. 4. Fig. 6 is a sectional view showing the register mechanism in elevation. Fig. 7 is a rear elevation in partial section of the register wheels. Figs. 8—9 & 10 show several positions of the register wheels in voting and in recording the vote. Figs. 11, 12 and 13 are details illustrating the cam projections on the key stem and co-acting parts

A represents a suitable cabinet or case containing the operating mechanism, and shown as provided with a front door 2 and a rear door 3. The latter is closed and locked during an election and is only opened to reset the registers after an election, or to give access to the printing mechanism or some other point of the machine needing attention, change or inspection, or for some other like purpose. The front door is closed after each voter has finished voting and operates to register each vote, tally the total and reset the machine ready for the next voter.

When the door 2 is opened there is exposed to view a vertical face plate 4, with series of voting keys 5—5′ arranged generally in appropriate columns corresponding to the different parties: Republican, Democratic, &c; a "straight ticket" key 6 for each column; and also one or more sets of two or more keys 7 designated herein as "question keys" for voting "yes" or "no" on constitutional amendments and other matters of referendum. There are also as many "independent" voting keys 8 as there are keys in a regular party column, although only one "independent" key 8 is here represented.

We have shown the machine, that is the keys and mechanisms operated by them, arranged in a single panel. The machine can be made with a plurality of panels, which will lessen the length of certain locking bars and other parts, not necessary here to be shown, and will render the machine more convenient to handle.

Each key has a stem 9 suitably supported to turn in a stationary skeleton frame B within the cabinet; and each key is adapted to be turned one way to indicate a vote, and capable of being turned back after such indication to change the vote and leave the voter free to vote for some one else for that office. The movement of any key is limited by suitable stops 10. Each key has in some way associated with it the name of the candidate and the name of the particular office for which he is standing.

The register mechanisms and everything but the keys themselves are hid behind the face-plate 4, and, except when the back door 3 is opened, securely housed within the cabinet.

No registration of a vote is made until the door 2 is closed, as will be seen later. Hence any amount of juggling may be attempted with the keys while the door is open and votes may be reversed or changed at random, yet when the door is closed there will be tallied only one vote for an office for which there can only be one incumbent; and only the right number of votes for group-candidates and only one vote for each candidate; and only one vote pro or contra for matters of referendum; and so on, but with which we are not here concerned.

We will next describe the recording device and show how it is that the simple turning of a key does not operate to complete the record, but allows one to "change his mind."

Referring to Figs. 6 to 13 inclusive, and especially Figs. 11—12—13, the key stem 9 carries a cam projection 35 behind frame B which is engageable with a sliding rack 36 on carriage 36^a to lift the latter when the stem is turned one way. The stem has another projection 37 to engage the rack-carriage 36^a to insure its downward movement when the stem is turned back. The rack carriage 36^a is slidable in suitable guides 36^b Fig. 6 on a hinged frame D hinged at W Figs. 2 and 3 and is designed for the purpose of actuating the unit register wheel 38. There are any desired number of register wheels mounted to rotate on shaft 39 which is supported on and movable with the register carrier E

which is supported on the frame D. A single shaft suffices for all the register wheels of all the registers for any one horizontal line of voting keys, and all the register wheels are carried by and movable with the carrier E. This carrier is here shown as rectangular and as supported at the corner on the hinged frame D by the links 39′. The frame D is shown as hinged to the cabinet at 40, but ordinarily (and generally at all times, except when it is desired or necessary to change a horizontal row of voting keys from a single-candidate plan to a multi-candidate plan as described later) the frame D lies parallel with and is rigidly connected to the main stationary frame B by the screw Y screwing into the stud X Fig. 2. In this Fig. 2 the register mechanism is omitted as that is shown in Figs. 6 to 13 inclusive. Fig. 2 is simply a diagrammatic plan view showing the connection between the front door and the register carrier E and the full lines indicating the normal voting position of the parts. When in this position the registers are in operative position with the voting keys. Associated with the unit wheel 38 of each register mechanism are two or more wheels as 41—42 &c., representing tens, hundreds, and so on. Each wheel has ten numbers from "0" to "9" on its periphery disposed in relief like unto, and acting as, printing type; and suitable means are provided to allow all the wheels to be set at zero; and as one wheel is turned step by step to bring it to "9", this wheel will, at the next movement move the succeeding wheel one step and so on, all in a manner common to counting registers. We employ, however, certain novel means to operate the wheels 41—42 synchronously with the unit or master wheel 38. The rack 36 is normally in engagement with a pinion 43 on wheel 38. Wheel 41 has a pinion 44 which is normally in mesh with an individual rack 45, and wheel 42 has a pinion 46 normally in mesh with an individual rack 47. The racks 45—47 are slidable in frame D and are capable of operation independently of each other and of rack 36; but rack 36 has a projection 36′ extending across the top of racks 45—47 to insure the racks 45—47 always being moved down to normal position when rack 36 is moved back to its normal position ready to be acted on by a key. The "tens" wheel 41 is turned one step when the "unit" wheel 38 has made one revolution by means of a pin 48 on wheel 38 engaging a pin 49 on rack 45 to lift the latter and turn the pinion 44 and wheel 41. Similarly when wheel 41 has made one complete revolution, a pin 50 on this wheel will engage a pin 51 on rack 47 and operate wheel 42, and so on. The limit of movement however of any one of the racks 36—45 or 47 is such as to turn their respective register-wheels 38—41 or 42 one step only. Thus turning a key to indicate a vote, lifts rack 36 and turns wheel 38 so as to cause a succeeding number to show through an opening 52 in a plate 53 disposed back of the printing and register wheels 38—41—42 and carried by frame D.

Normally frame E hangs down by gravity with all the pinions 43—44—46 in mesh with their respective racks 36—45—47. Turning a voting key causes rack 36, as just stated, to raise and turn wheel 38 one step. If the progression happens to be from "9" to "0" on the unit wheel, the projection 48 will catch under pin 49 on rack 45 lifting the latter and turning wheel 41 one step. If the voter wishes to change his vote on this candidate he turns back that key which causes projection 37 to pull down rack 45, and so both register-wheels 38—41 are turned to their original position. In order actually to record the vote, assuming the rack 36 to have been lifted to turn one or more of the register wheels in the manner described and left in lifted position, the frame E is moved to carry the pinions 43—44—46 out of engagement with racks 36—45—47 and out into engagement with other respective and ordinarily fixed racks 54—55—56. During the interim that the pinions 43—44—46 are disengaged from their respective actuating racks 36—45—47 and engaged in the stationary locking racks 54—55—56, the keys are all turned back to initial position by mechanism forming no part of the present invention but fully described in the parent application, Serial No. 272,316, filed by us August 2, 1905, and which mechanism is not necessary here to be shown. This turning of the keys back, it will be understood, acts positively through projections 37 and 36′ to depress all the actuating racks into initial position ready for the next voter, when the pinions are returned into engagement with these actuating racks. The racks 54—55—56 are not moved except when it is desired to reset all the register mechanism at zero as at the commencement of an election, as explained hereinafter.

The following connections between the door 2 and the carrier E are employed for the purpose of moving the carrier to transfer the register wheels of the several register mechanisms away from the racks 36—45—47 and into engagement with the racks 54—55—56: Referring to Figs. 2—3—6, the door 2 is provided adjacent to its back edge with a plate 179 having an irregular cam slot 180. A lever 181 has a pin projection at one end engaging in the slot 180, and is fulcrumed at the other end at 182 to a bracket 183 on the inside of the cabinet. The shape and arrangement of the plate 179 and the slot 180 are such that the door is permitted a considerable pivotal movement to open or close without affecting the lever 181, but just as the door is nearly closed the lever will be rocked to pull back on a link 182′ which is connected to it and to a crank 184 which is journaled on the frame D. Crank 184 has two arms, one of which is connected with the link 182′ and the other set at about right angles to the first arm, engages in a slot in the carrier E to raise and lower the latter. Thus closing the door operates the carrier E to disengage all the register wheels from the front sliding racks by throwing back the carrier in which all the register-wheels are contained and causing the register wheels instantly and before becoming wholly disengaged from the front racks to become engaged by the rigid racks 54—55—56 on the opposite or rear sides of the wheels; which engagement prevents said wheels from moving in any direction or from being tampered with and leaves them in such position that an imprint or impression can be taken from them. After making the impression the paper strip may be pulled down and torn off, showing the exact status of the vote at that time.

There is arranged above each opening 52 in the plate 53, certain type-face 57 indicating the name of the candidate and the name of the office for which the candidate stands. When the carrier E is moved rearward to carry the register wheels away from the influence of racks 36—45—47, a single line of type-numerals on the wheels 38—41—42, corresponding to the total vote

to that time for that particular candidate, is projected through the opening 52. If an inking roller is now passed over the exposed type surfaces 57 and the projected numerals, and a sheet of paper pressed against these printing surfaces, an impression will be obtained, which will give the name of the candidate, the office, and the vote at the particular time for that particular candidate.

It is understood that there is an opening 52 in the plate 53 for every candidate; that all the register mechanisms operate alike and tally simultaneously; and that an impression and tally can be taken of all the candidates at one time.

The means for printing the results of the election are as follows: The inking mechanism comprises a frame 60 reciprocal across plate 53 in guides 61 in the top and bottom of the cabinet and carrying an inking roller 61′ and a distributing roller 62. To reciprocate the frame 60, a rod 63 is inserted through a hole in the side of the cabinet and screwed into a screw-threaded socket-piece 64 in frame 60; by reciprocating rod 63 the roller 61 is made to pass over the type face on the plate 53 and on the register rollers to deposit sufficient ink to make a proper impression. The rear door 3 carries the means for making the impression and also supports a roll of paper 65. The end of the paper strip is drawn down over plate 53, but is ordinarily far enough away from the plate to allow the inking roller to be moved over the plate between the latter and strip without interfering with the strip. The strip passes out through a slot and may be drawn off the roll from the outside. Behind the paper and between it and door 3 is a movable frame F for carrying the sheet against the exposed and opposed printing sufaces; also a presser roller 67 and a protective flexible curtain or sheet 68. The frame F is supposed to move to and from door 3 and parallel with it on guides 69; and the movement of the frame is effected through the top and bottom rock shafts 70, which have arms 71 engaging slotted parts 72 on the frame. The shafts 70 are connected to rock in unison by means of the cranks 73 on the shafts, and the links 74 connected to the crank and to opposite ends of a bar 75. Bar 75 is fixed in the middle to a rockable key shaft 76 journaled in a support on door 3.

When the door 3 is closed, shaft 76 is brought into register with a hole in the cabinet to allow a key or other suitable instrument to be inserted to engage the keyway in shaft 76 and turn it. Doing this causes frame F to carry the paper inward against the plate 53. In order to make the impression, the roller 67, supported in a carriage 78 which is slidable in guides on frame F, is moved back and forth to press against the curtain 68 which lies against the back of the paper and protects the latter from being torn by the roller.

The carriage 78 is reciprocated by inserting a rod section through an opening, in the side of the cabinet and screwing it onto the threaded section 79 which is connected with the carriage and which is slidable in and supported by the guide 80 on the inside of the door 3.

With the front door closed tight an imprint or as many impressions as desired may be taken to show the status of the several sets of register wheels. The words "Total-vote", the questions, the name of officers and candidates, and all matter necessary or deemed proper are put in type on the back plate 53 and above the respective register wheels, correspondingly with the same on the front or voting part of the machine.

To reset the register wheels after the machine has been used and to put it in readiness for the next election, the front door must be closed and the back door opened; opening the back door carries the frame F and its attachments out of the way, giving access to the racks 54—55—56. These racks while stationary and rigid at all times during the use of the machine at the polls, are capable of being raised to carry their racking surfaces entirely free of their respective pinions on the register wheels for the purpose of allowing the register wheels to be turned back to zero. Accordingly, the racks 54—55—56 are connected at their upper end to a cross-head 190, while the racks are supported to slide in suitable guides on the frame D. A jack-screw 192, arranged in line with a suitable opening in the top of the cabinet passes through the cross-head and a bracket 193 on frame D; by inserting a screw-driver or other suitable instrument through this hole in the top of the cabinet to engage the jack-screw, the latter may be turned which will raise the racks 54—55—56 into a position so as to get at the register wheels; then by means of a brush, or by drawing the fingers downward over the face of the register wheels, the latter will freely roll around until a pin 194 set laterally in each register wheel comes in contact with a corresponding stop 195 on each rack bar. These pins and stops are so disposed relative to each other, that when all the register wheels are prevented from further turning by means of the stops 195, each register wheel will stand at "9". By turning screw 192 then in the other direction, and lowering the racks to normal position, rolls the wheels one unit space, so that zero will show on each of the register wheels through the opening in the plate 53.

This application is a division of our original application for voting machines, filed August 2, 1905, No. 272,316.

Having thus described our invention, what we claim and desire to secure by Letters Patent is—

1. In a voting machine, the combination of a voting key and a register mechanism operated thereby, said register mechanism comprising a register wheel, a sliding rack engageable with the wheel, connections between the voting-key and rack to rotate the register wheel, a second rack between which and the first-named rack the said register-wheel is movable, means for moving the register-wheel into and out of engagement with said racks, type-face on said register-wheel, and means for taking an impression of said type-face when said register wheel is in engagement with the second mentioned rack.

2. The combination with a register-wheel and its shaft, of a pinion on the shaft, a rack on each side of said pinion, means to engage the pinion successively with said racks, means including a voting-key to move one of said racks to actuate the wheel, type-face on said register-wheel, and means for taking an impression of said type-face when said register-wheel is in engagement with one of said racks.

3. In a voting machine, a voting-key and a register mechanism operatable thereby, said mechanism including two spaced opposed racks and an intermediate pinion, a hinged carriage for said register mechanism to move the mechanism into and out of operative position with respect to the key, type-face on said register wheel, and means for taking an impression of said type-face when said register-wheel is in engagement with one of said racks.

4. In a voting-machine the combination of a register-wheel, means including a movable rack-member to rotate the wheel in one direction, means including a second rack-member to lock the wheel against rotation in the opposite direction when disengaged from said first-mentioned rack-member, means to move the wheel into engagement with said racks alternately, and means for taking an impression of the type-face when said wheel is engaged with said locking-rack-member.

5. The combination in a voting machine of a cabinet, a closure therefor, a voting-key contained in the cabinet, a register mechanism operatable by the key, said voting mechanism including two opposed racks, one of which is operatable by the key, a pinion between the racks and means connected with the closure of the cabinet to move the pinion out of engagement with one rack and into engagement with the other rack, a register-wheel having type-face on its periphery connected with said pinion and movable therewith, and means for taking an impression of said type-face when the pinion is engaged with one of said racks.

6. In a vote-register mechanism, a sliding rack and a normally stationary rack, a pinion between the racks, means to move the pinion into engagement with said racks alternately, said racks positioned to insure the engagement of the pinion with one rack before it is disengaged from the other rack, a key to operate the sliding rack, a register-wheel having type-face on its periphery connected to and movable with the pinion, and means for taking an impression of said type-face when the pinion is engaged with said normally stationary rack.

7. In a voting-machine, the combination of a cabinet having a door, a voting-key, a sliding rack actuated by said key, a register-wheel operatable by said rack, a carriage for said register-wheel, connections between said carriage and the door to move the carriage and carry the register wheel out of engagement with the rack when the door is closed, said register-wheel having type-face on its periphery, and means for taking an impression of said type-face when the door is closed.

8. In a voting-machine, the combination of a cabinet having a door, a voting-key, a sliding rack actuated by said key, a register-wheel operatable by said rack, a carriage for said register-wheel, connections between said carriage and the door to move the carriage and carry the register-wheel out of engagement with the rack when the door is closed, means including a second rack parallel with and facing said first-named rack to lock the wheel against movement when said door is closed, and printing mechanism operable to take an imprint of the status of the register mechanism only when said door is closed.

9. In a voting machine, a voting-key and a register mechanism operable thereby, said voting-key comprising a rotatable part, said register mechanism including a sliding rack engageable by said rotatable part and a registering device operable by the rack, a hinged carriage supporting the register mechanism and movable into and out of operative position with respect to the key, means to lock said carriage in fixed operative position with respect to the key, and printing mechanism connected with the register mechanism and operable when said register-mechanism is out of operative position with respect to the key.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

WILLIAM M. CUTTER.
WILLIS A. SUTFIN.

Witnesses:
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ALVIN LONG.