

A. F. BARDWELL.
VOTING MACHINE.

APPLICATION FILED JUNE 6, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

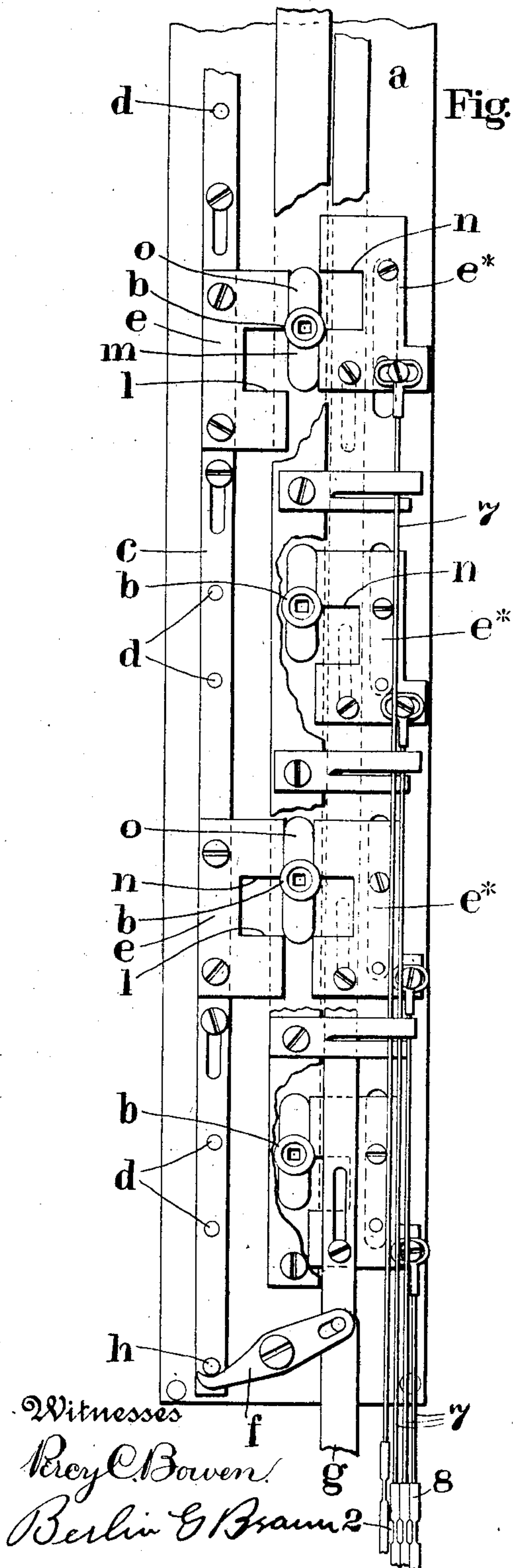
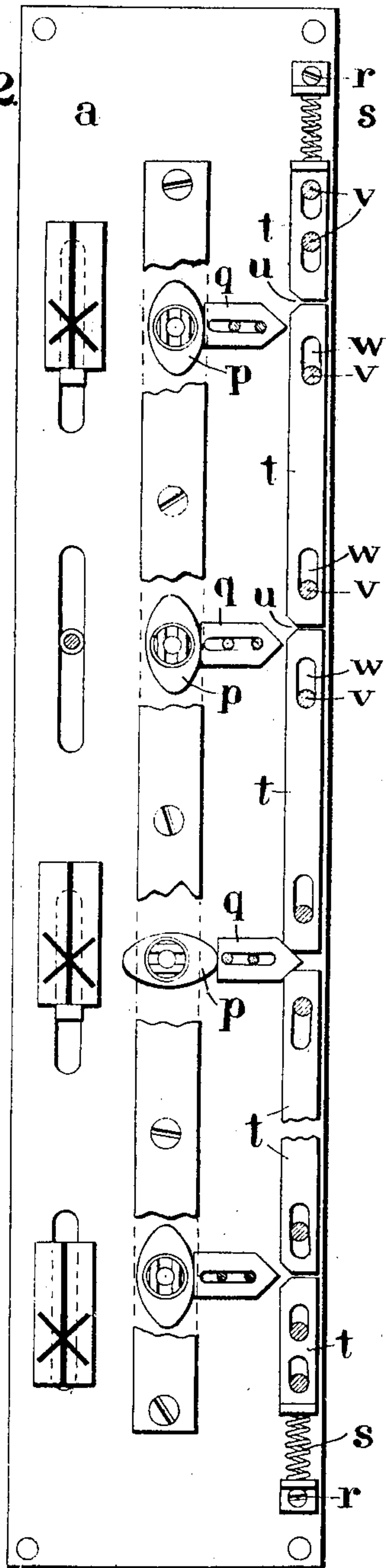


Fig 1.

Fig 2.



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2 SHEETS SHEET 2.

Fig. 3.

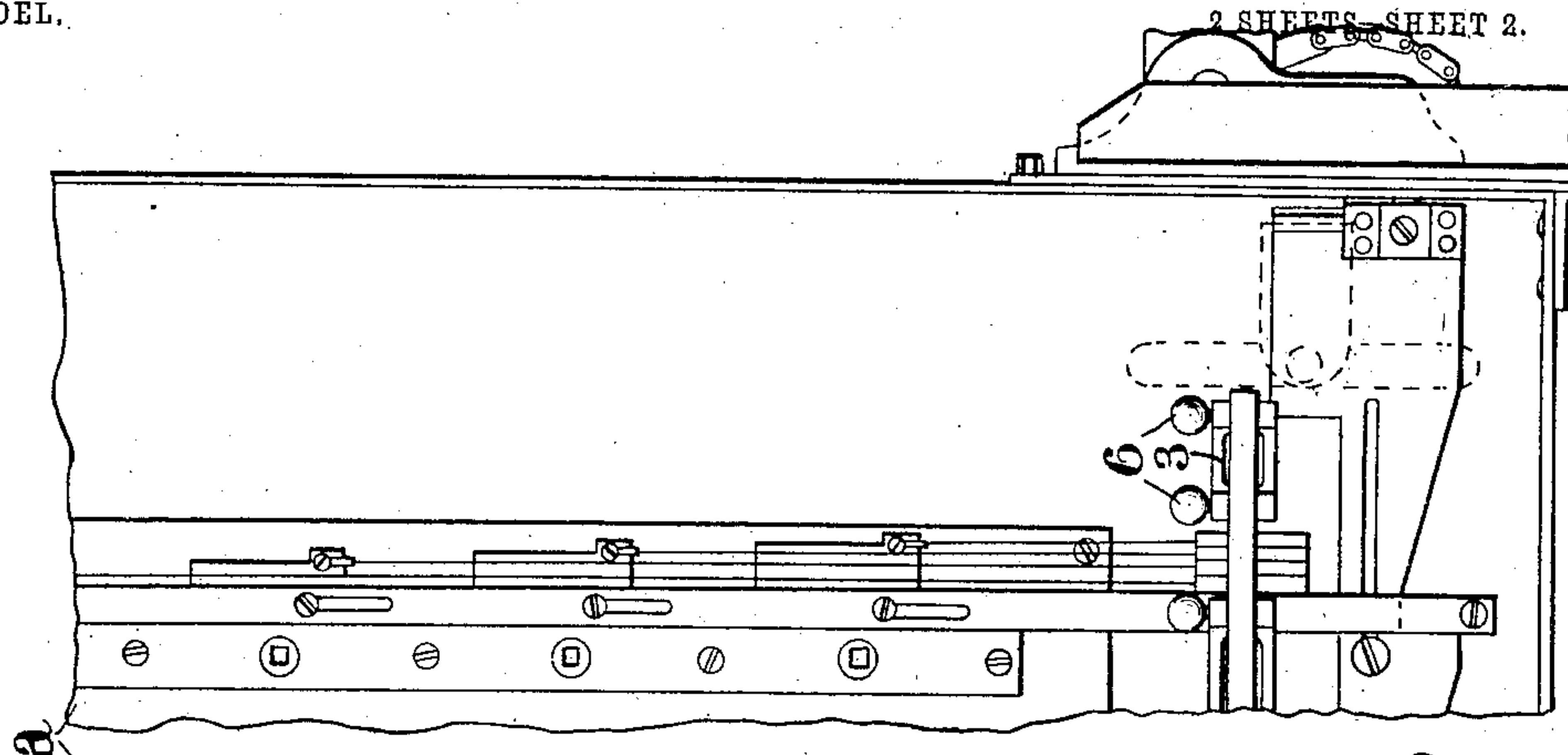


Fig. 4.

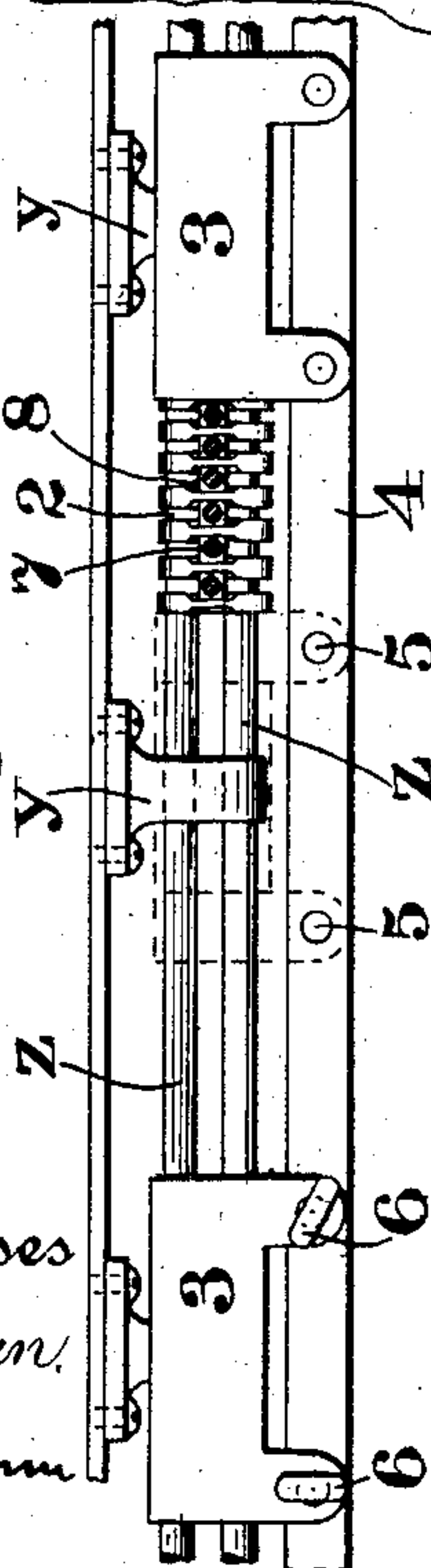


Fig. 6.

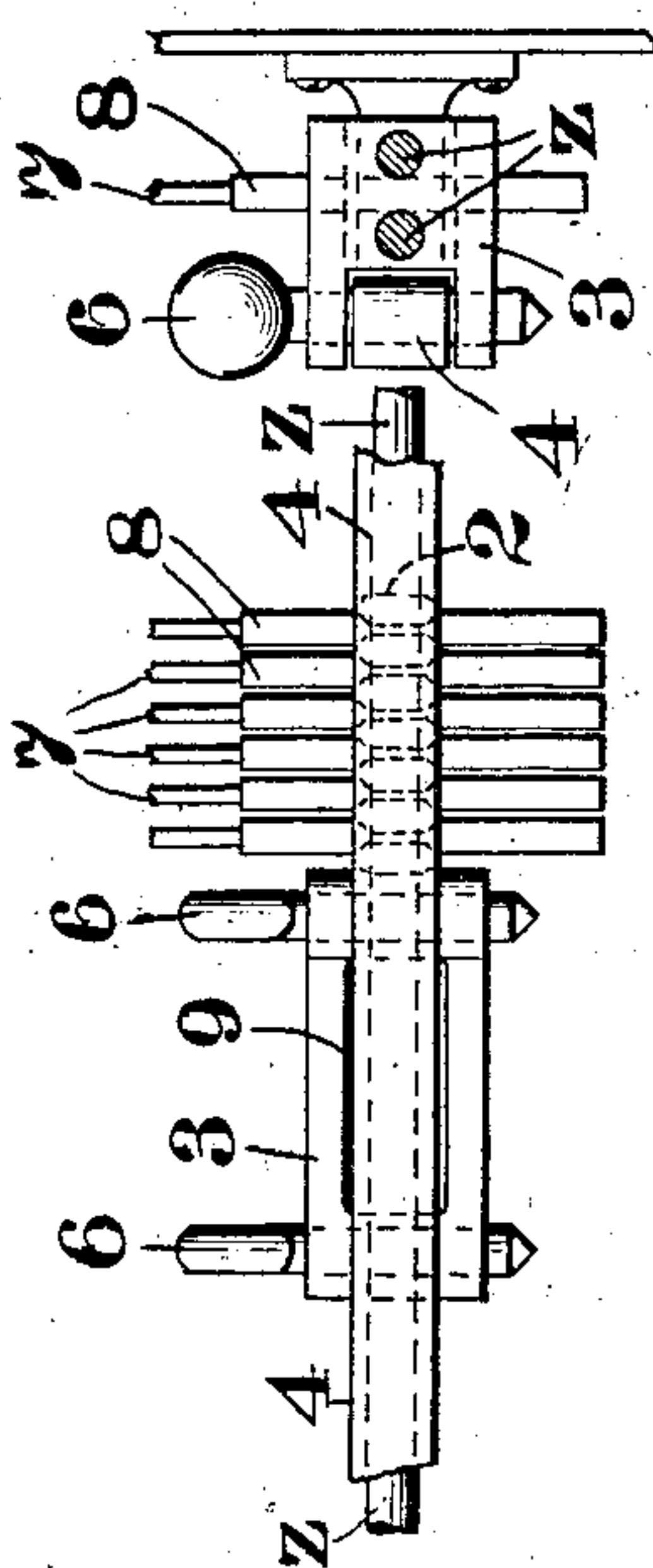
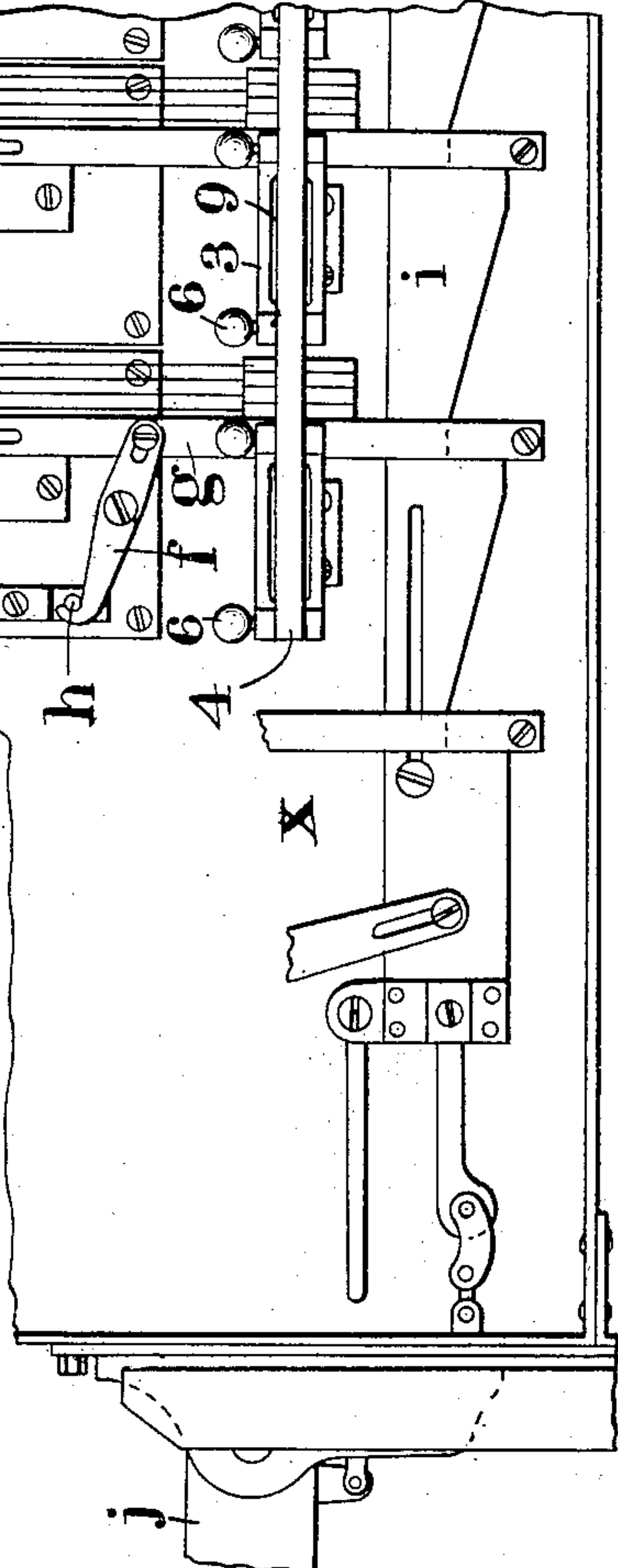


Fig. 5.



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UNITED STATES PATENT OFFICE.

ARTHUR FRANCIS BARDWELL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO
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VOTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 742,277, dated October 27, 1903.

Original application filed November 21, 1902, Serial No. 132,349. Divided and this application filed June 6, 1903. Serial No. 160,338. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR FRANCIS BARDWELL, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Voting-Machines, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in interlock devices for voting-machines, and this application is filed in compliance with a requirement for division made in the application, Serial No. 132,349, filed by me November 21, 1902.

In the drawings, Figure 1 is a rear elevation of a column in which provision is made for registering separately the vote of the several parties for an "indorsed" candidate. Fig. 2 illustrates in front elevation a novel mechanism for the prevention of the simultaneous operation of a plurality of register-actuators. Fig. 3 shows in rear elevation so much of my new voting-machine as is necessary to an understanding of my invention; and Figs. 4, 5, and 6 are detail views showing my new limiting mechanism in respectively plan, rear elevation, and end elevation.

In my new voting-machine the following means are provided whereby the vote cast for each party for an indorsed candidate in a multicandidate group may be registered on separate registers without providing devices connecting the limiting mechanisms of the register-actuators assigned to that candidate, Fig. 1: Along the rear face of the section-plate *a*, in which are mounted the actuators *b* assigned to the multicandidate group, extends and is slidably secured thereto a carrier-strip *c*, formed with screw-holes *d*, adapted to receive screws, by means of which twin-eared plates *e* may be secured to said carrier-strip adjacent to any of the register-actuators *b* of that column. Pivotaly secured to the lower end of the section-plate *a* is a lever *f*, one end of which is connected by a pin-and-slot connection with a resetting-strip *g* and the other end of which takes under a stud *h* on the lower end of the carrier-strip. By this arrangement of parts when the reset-

ting-strip is moved downward by the movement of the resetting-slide *i*, due to the raising of the exit-bar *j*, the lever *f* is so rocked as to push upward and restore to its initial position the carrier-strip *c*, provided the latter member has been previously moved downward by the forward turning of one of the register-actuators *b* assigned to the indorsed candidate, thus bringing its stud *h* against the free end of the lever *f*. In this construction as many register-actuators are assigned to the indorsed candidate as there are parties of which he is a candidate, and adjacent to the actuators so assigned are secured on the carrier-strip *c* twin-eared plates *e*, the number of which equals the number of register-actuators assigned to that candidate, said plates being disposed one adjacent to each of said actuators. When the voter turns one of the actuators assigned to the indorsed candidate, the upper ear of the actuator engages the lower ear *l* of the twin-eared plate *e* and pushes said plate and its carrier-strip downward, while the lower ear *m* of the actuator engages the upper ear *n* of the twin-eared slide *e** and moves said slide, its attached spreader-rod and spreader, and the resetting-strip *g* upward. The relative position of the parts after an actuator assigned to an indorsed candidate has been turned is shown in Fig. 1, in which the topmost actuator has been operated as described. By the downward movement of the carrier-strip *c* the upper ear *n* of the twin-eared plates *e* adjacent to the actuators assigned to the indorsed candidate, but not operated, are brought opposite the upper ear *o* of said actuators, and thereby prevent said actuators being turned. This is shown in Fig. 1, wherein the topmost actuator has been turned, thereby preventing the turning of the actuator third from the top, which is assigned to the same indorsed candidate. By turning the topmost actuator backward, as an inspection of figure will make it evident may be done by the voter, the parts may be restored to their initial position.

In order to prevent the simultaneous operation of two or more actuators in a given column, the construction shown in Fig. 2 is pro-

vided. Upon the shaft of each actuator *b* and in front of the front face of the section-plate *a* is mounted fast a cam *p*, and adjacent to each of the cams *p* is slidably mounted a slotted plunger *q*, which is flat at the end adjacent to the cam *p* and wedge-shaped at its other end. At the top and bottom of the section-plate *b* are mounted posts *r*, to each of which is secured a spiral spring *s*. Interposed between the spiral springs *s* are several slides *t*, the corners of which adjacent to the wedge-shaped plunger-points are beveled, as shown, thereby forming a notch *u* where the ends of two slides *t* meet or abut. In the initial position of the slides *t* one of these notches *u* is directly in line with or opposite to each plunger-point. In Fig. 2 three different positions of the actuators are shown, to wit: (a) the initial position, or that of the lowermost and of next to uppermost actuators; (b) the position in which the actuator has been turned so as to register a vote and the adjacent plunger has been restored to its initial position, or that of the uppermost actuator and its plunger, and (c) the position in which the actuator has been partially turned and the adjacent plunger has entered the notch *u* between the slides *t*, or that of the next to lowermost actuator and its plunger. When the plunger-point wedges the slides *t* apart, as shown by the next to lowermost plunger in Fig. 2, the notches *u* adjacent to the wedge-shaped ends of the other plungers of that column are displaced or moved out of line or register with said ends, as shown by the relative position of the pointed ends of the two uppermost plungers and their adjacent notches in Fig. 2. Hence no other plunger in that column can be moved (and therefore no other actuator of that column can be operated) so long as the entering plunger holds the slides *t* wedged apart in the position shown. As the actuator nears the end of its half-turn the springs *s* force the separated slides together, and thereby force the separating-plunger outwardly until only its point remains in the notch. When the separated slides are thus automatically brought together by the springs *s*, the notches *u* appear in their original position and are therefore in line again with the wedge-shaped ends of the adjacent plungers. Upon turning another actuator in that column the movement of the slides *t* caused thereby forces the wedge-shaped end of the plunger first operated out of its notch completely and its flat end against its adjacent cam or into the position of the uppermost plunger in Fig. 2.

The above construction prevents the simultaneous turning of two actuators in the same column. If two actuators of the same column be simultaneously started, it will be impossible to give them even a quarter-turn together, for although the wedge-shaped ends of the plungers will simultaneously enter the notches *u* respectively adjacent to them, yet no wedging action, and so no separation of the

slides *t*, is possible. This results from the facts (a) that the interval between any two plunger-points is fixed and equal to the interval between the securing-screws *v* in their respective slots *w* and (b) that the length of the slide or slides *t* between the same plunger-points is also equal to the same interval. Any attempt to turn simultaneously two actuators in the same column would result, therefore, in the casting of no vote and in nothing more than a tendency to buckle or bend the slides *t*, interposed between the points of the plungers adjacent to the actuators so operated. From this it follows that the above construction would frustrate any attempt to cast an illegal ballot by turning two register-actuators together. One use to which this construction may be put is the prevention of the simultaneous turning of two or more register-actuators assigned to the same or indorsed candidate. The twin-eared plates *e* on the carrier-strip *c* prevent the successive turning by the same voter of two or more actuators assigned to an indorsed candidate. Hence every mode of casting an illegal ballot for an indorsed candidate is anticipated and provided against by the construction just described, and the vote of the several parties for such a candidate may be kept separate and readily determinable without introducing any danger of the casting of an illegal ballot intentionally or otherwise.

In my new voting-machine I provide a novel mechanism by means of which the number of register-actuators which a voter may operate in a given section or combination of sections is limited, Figs. 3 to 6. On the web *x*, to which are secured the lower ends of the section-plates *a*, there are mounted bracket-supports *y*, through which pass two parallel rods *z*, upon which are threaded several groups of spreader-separators 2 and several group-separators 3. There is provided a group of spreader-separators 2 for each column of actuators *b* used, and these spreader-separators 2 and group-separators 3 are within limits free to slide along the rods *z*. Parallel with the rods *z* extends a connector-bar 4, provided with holes 5, adapted to receive the key-pins 6, by which the group-separators 3 are keyed to said connector-bar 4. Mounted upon the lower ends of the spreader-rods 7 and extending downwardly between the rods *z* are groups of spreaders 8, each separated from its neighbors and from group-separators 3 by a spreader-separator 2, as shown in Fig. 4. Each group-separator 3 is formed with a central longitudinal slot 9, into which projects one of the bracket-supports *y*, and the group-separators 3 are in this my new construction not adapted or designed ever to be stationary relatively to the fixed bracket-supports *y*, (and hence to the machine-frame,) but are all the time freely slidable thereon within the limits of the slot 9. The connector-bar 4 connects the group-separators 3, is supported by said group-separators, and is connected with no

other part or parts of the machine. Therefore it also is movable parallel to the rods z and relatively to the machine-frame and to the bracket-supports y . There is a group-separator 3 for each bracket-support y , and when it is desired to keep the actuators of each section or column separate and disconnected in action from those of its adjacent sections or columns all the group-separators 3 are keyed to the connector-bar 4. In this case the interval between the opposed ends of adjacent group-separators is taken up or the play between said ends is limited to such an extent by the group of spreader-separators 2 and of spreaders 8 interposed between said ends that only one spreader 8 of the group can be raised. The turning of an actuator raises a spreader 8 through its connection with the twin-eared slide e^* by the spreader-rod 7, and hence in the arrangement just described only one actuator in any given column can be turned by the same voter. Assuming the column to be assigned to voting for candidates for an office to which only one candidate can be elected (since there is only one vacancy to be filled, as in voting for governor, mayor, &c.,) or to voting a straight or party ticket, the voter is by the arrangement of parts just described limited to a legal ballot. When it is desired to bring into operative relation the actuators of a given column with those of one of its adjacent columns, (or to combine adjacent columns,) the group-separator 3 between the groups of spreaders 8 of the two columns is unkeyed from the connector-bar 4, thereby doubling the play between the opposed ends of the keyed group-separators 3 between which is interposed the group-separator 3 just unkeyed. Hence one actuator in each column or two and only two actuators in either column may when the parts are thus arranged be turned, thereby raising two spreaders 8 belonging to the groups of spreaders so combined. Similarly the actuators of any number of adjacent columns may be brought into operative relation with one another by simply unkeying from the connector-bar 4 the group-separators which lie between groups of spreaders 8 operatively connected with said actuators. This cannot fail to be understood from what has just been herein explained. Since the connector-bar 4 and the group-separators are freely movable parallel to the rods z irrespective of the keying of said group-separators 3, the spreader-rods 7 are free to adjust themselves, so as to avoid the lateral strain or binding so common in constructions in which the group-separators are keyed to stationary supports or brackets or abutments secured to the machine-frame or otherwise made rigid. One use to which the foregoing construction may be put is that of arranging two or more adjacent columns for so-called "multicandidate voting"—that is, voting for candidates for an office to which more than one candidate is to be elected—since more

than one vacancy exists in said office. In such voting as many columns are assigned to the office as there are vacancies to be filled therein, (or candidates elected thereto.) Instances of such voting are to be found in elections for school committeemen, aldermen-at-large, coroners, and like offices.

What I claim is—

1. In a voting-machine, the combination with a machine-frame; a plurality of series of vote-registering devices; actuators therefor; and devices which limit the number of said actuators that may without resetting be operated in the same series; of group-separators which separate the limiting devices of one series from those of the other series, said separators being supported by but always freely movable relatively to said machine-frame; and means for connecting said group-separators together.

2. In a voting-machine, the combination with a machine-frame; a plurality of series of vote-registering devices; actuators therefor; and devices which limit the number of said actuators that may without resetting be operated in the same series; of group-separators which separate the limiting devices of one series from those of the other series of said vote-registering devices, said separators being supported by, but always movable freely relatively to, said machine-frame; a connector-bar freely movable relatively to said machine-frame, said group-separators being adapted to be detached from and attached to said connector-bar to throw into and out of operative relation with each other the limiting devices separated by them.

3. In a voting-machine, the combination of a plurality of vote-registering devices; an actuator for each of said devices provided with a cam; and mechanism driven by said cam to limit the number of said actuators which may be simultaneously operated.

4. In a voting-machine, the combination of a plurality of voting mechanisms; an actuator for each of said mechanisms provided with a cam; and devices operated by said cam to limit the number of said actuators which may be simultaneously operated.

5. In a voting-machine, the combination with a plurality of voting mechanisms and an actuator for each of said mechanisms formed with a cam; of a device for limiting the number of said actuators which may be simultaneously operated, said device comprising a plunger for each actuator, said plunger being driven by said cam; and a plurality of spring-controlled slides between which said plunger is adapted to be forced to separate said slides.

6. The combination of a series of register-actuators, a plurality of which are assigned to the same candidate; limiting devices therefor; a plurality of devices equal in number to the number of actuators so assigned; said devices being disposed one adjacent to each of said actuators; and means for connecting

said devices whereby the operation of one of said devices moves the other to block its adjacent actuator.

7. The combination of a series of register-actuators, a plurality of which are assigned to the same candidate; limiting devices therefor; a plurality of devices equal in number to the number of actuators so assigned, said devices being disposed one adjacent to each of said actuators; means for connecting said devices whereby the operation of one of said devices moves the other to block its adjacent actuator; and a resetting mechanism.
8. The combination of a series of register-actuators, a plurality of which are assigned to the same candidate; limiting devices therefor; a plurality of devices equal in number to the number of actuators so assigned, said devices being disposed one adjacent to each of said actuators; a carrier-strip by which said devices are connected, whereby the operation of one of said devices by its adjacent actuator moves the other to block the actuator adjacent said other.
9. The combination of a series of register-actuators, a plurality of which are assigned to the same candidate; limiting devices therefor; a plurality of devices equal in number to the number of actuators so assigned, said devices being disposed one adjacent to each of said actuators; a carrier-strip to which said devices are connected whereby the operation of one of said devices by its adjacent actuator moves the other to block the actuator adjacent to said other; and resetting means.
10. In a multicandidate group, the combination of a plurality of actuators; means adapted to be engaged and operated thereby to limit the number of said actuators which may be operated without resetting; and connected devices adapted to be engaged and driven by either of a pair of said actuators, whereby the operation of either of said pair blocks the actuation of the other.
11. In a multicandidate group, the combination of a plurality of actuators; means adapted to be engaged and operated thereby to limit the number of said actuators which may be operated without resetting; connected devices adapted to be engaged and driven by either of a pair of said actuators, whereby the operation of either of said pair blocks the operation of the other; and a resetting mechanism.
12. In a multicandidate group, the combination of a series of actuators; a series of limiting devices one for each of said actuators;

and devices independent of said limiting devices and operable by either of a pair of said actuators, whereby the operation of either of said pair renders inoperable the other.

13. In a multicandidate group, the combination of a series of actuators; a series of slides adapted to be driven by said actuators; limiting devices connected to said slides; and devices adapted to be driven by either of a pair of said actuators and independent of said slides whereby the operation of either of said pair renders inoperable the other.

14. A device for preventing the simultaneous operation of a plurality of actuators belonging to the same series said device comprising the combination of a plurality of spring-controlled slides formed with slots into which project studs to limit the degree of movement thereof; said studs; a plurality of cam-controlled devices adapted to enter between said slides; and a plurality of actuators each provided with a cam.

15. The combination with a series of voting mechanisms of devices which limit the number of said mechanisms which may be simultaneously operated, said devices comprising a plurality of slides and plungers adapted to enter therebetween; and means whereby the operation of a voting mechanism restores to its original position the plunger driven by a voting mechanism previously operated.

16. In a voting-machine, the combination of a plurality of series of limiting devices; devices interposed between said series to separate adjacent series; fixed supports relative to which said devices are always freely movable; and means for connecting said separating devices.

17. In a voting-machine, the combination of a plurality of groups of limiting devices; separating means interposed between said groups; supports relative to which said means are always freely movable; and a connecting device to and from which said means are freely attachable and detachable.

18. In a voting-machine, the combination of a plurality of groups of limiting devices; means for separating the same; and a connector for said separating means; with supporting devices relative to which said limiting devices, separating means, and connector are freely movable.

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Witnesses:

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