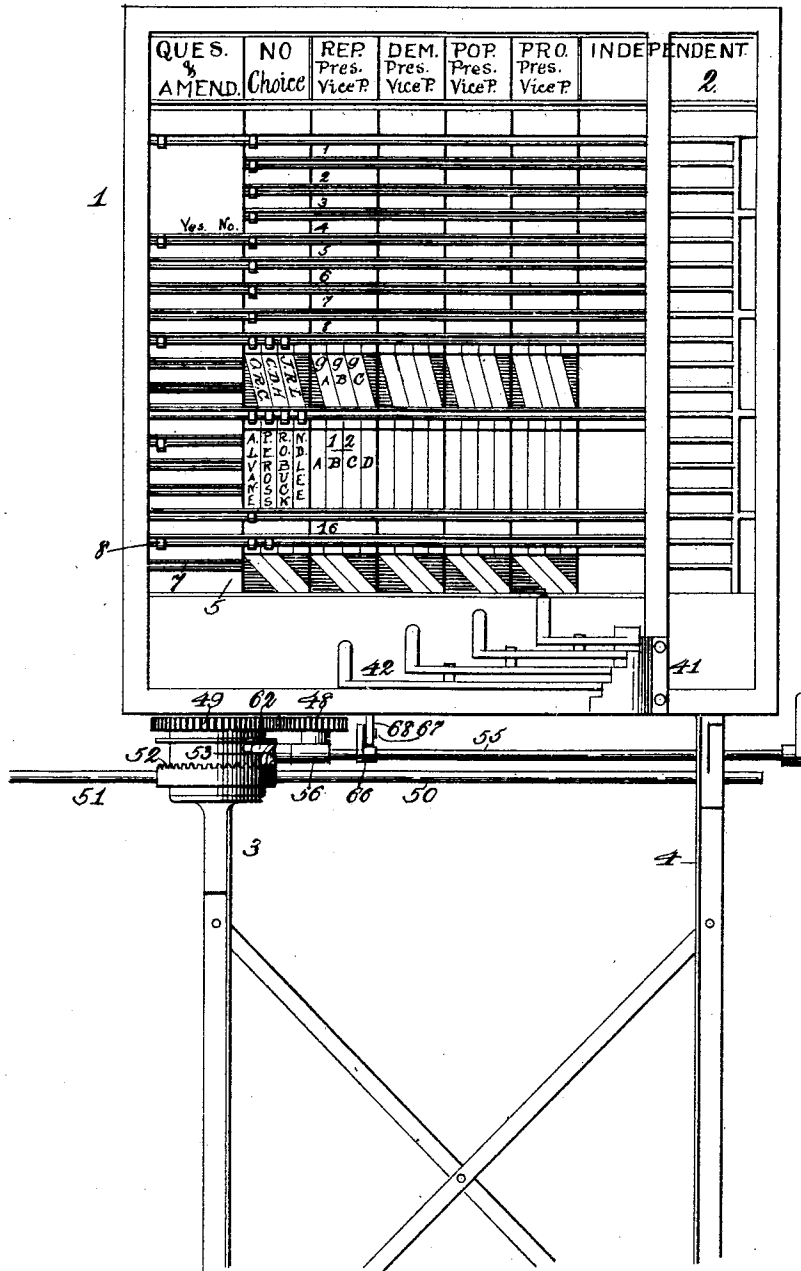


957,326.

Patented May 10, 1910.

6 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

G. L. Shulick
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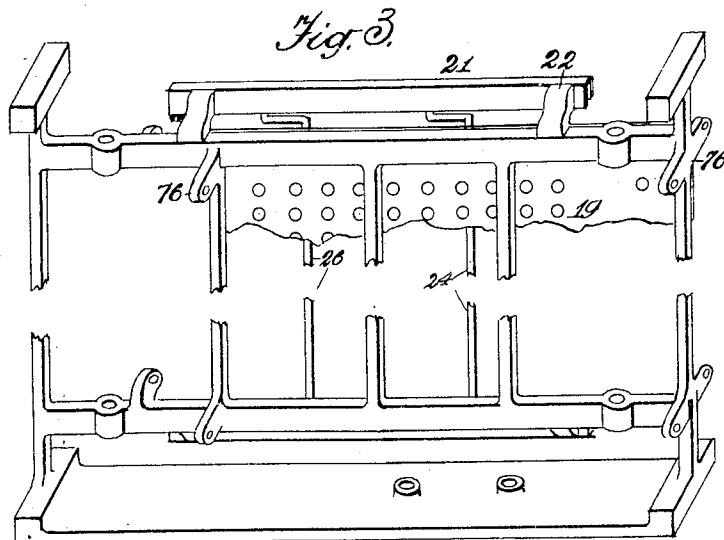
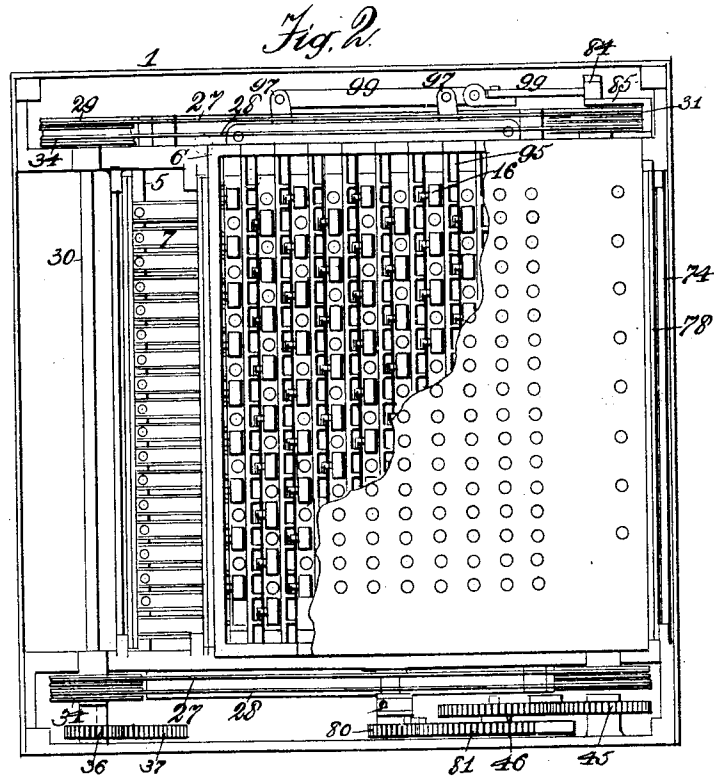
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W. GLENN.
VOTING MACHINE.
APPLICATION FILED MAR. 27, 1908.

957,326.

Patented May 10, 1910.

6 SHEETS—SHEET 2.



Witnesses
J. J. Chubick
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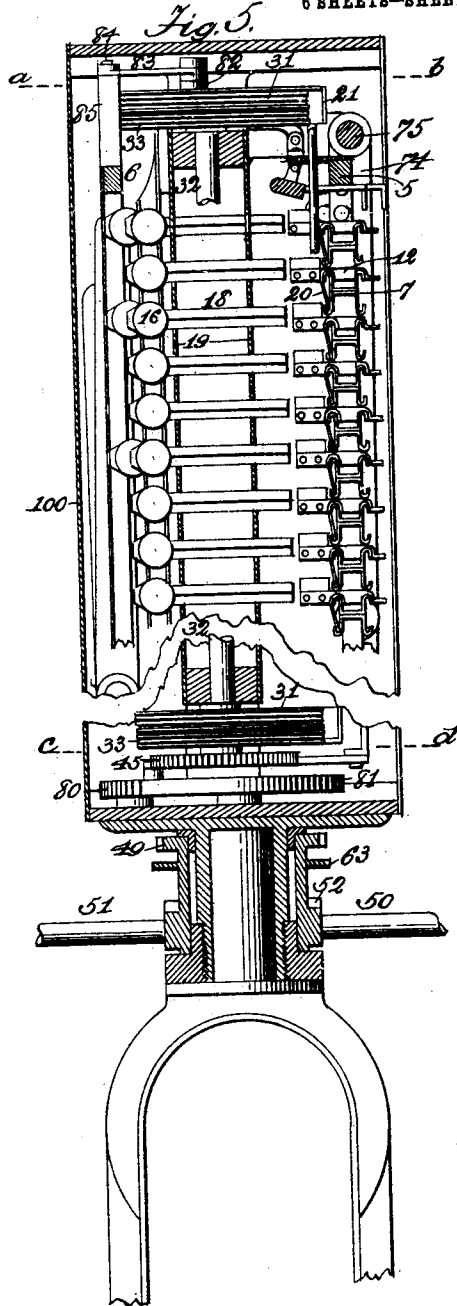
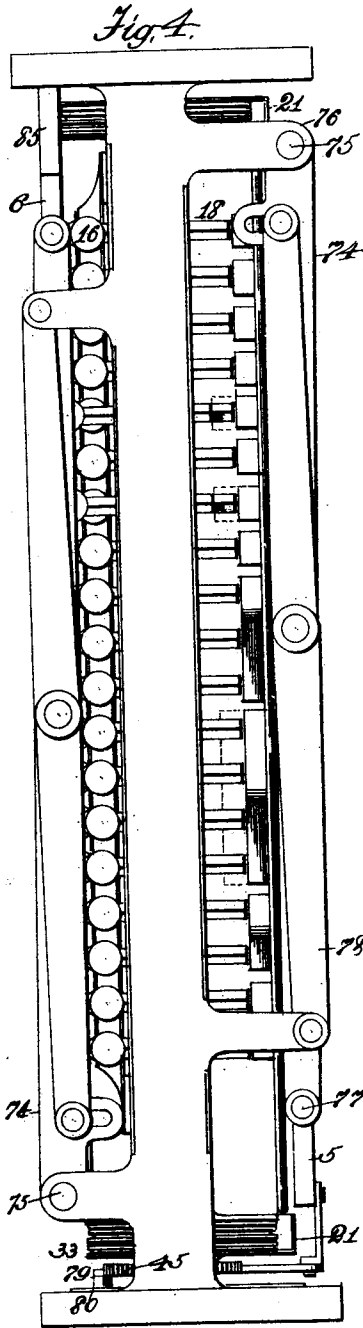
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APPLICATION FILED MAR. 27, 1908.

957,326.

Patented May 10, 1910.

6 SHEETS—SHEET 3.



Witnesses.
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APPLICATION FILED MAR. 27, 1906.

957,326.

Patented May 10, 1910.

6 SHEETS—SHEET 4.

Fig. 6.

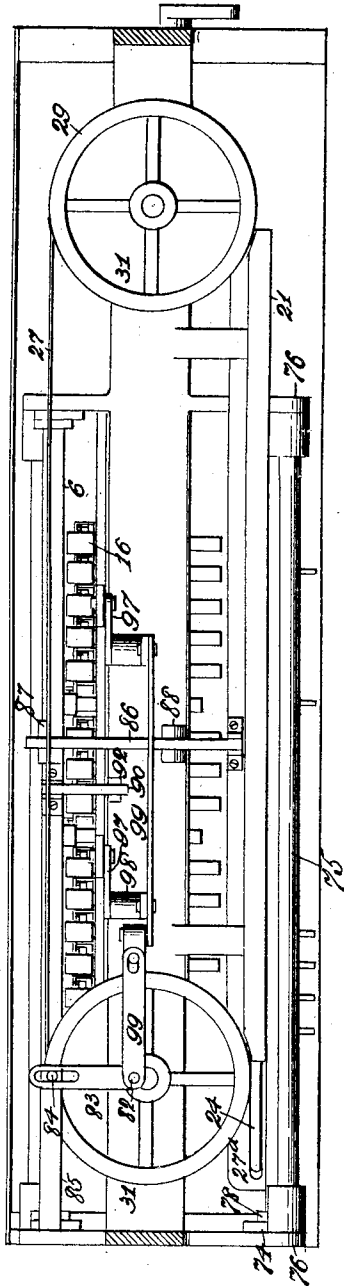
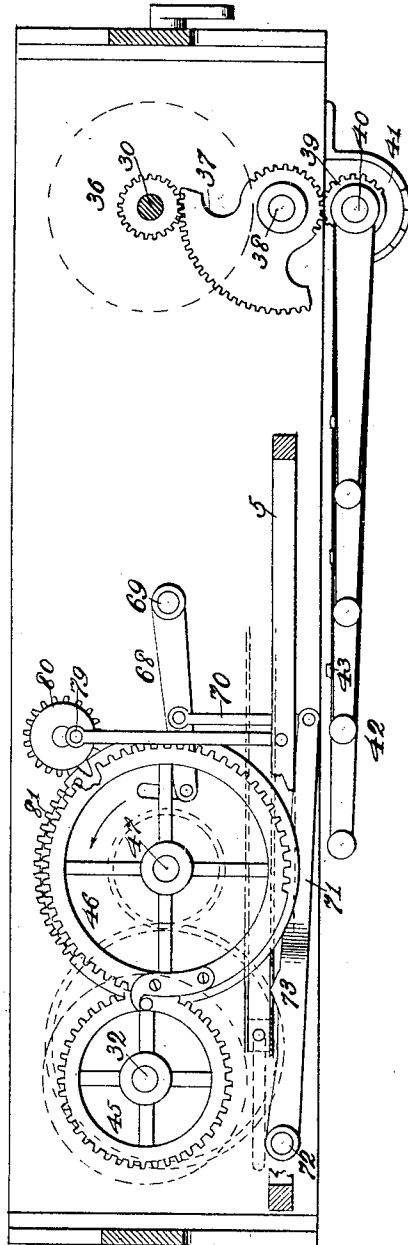


Fig. 7.



Witnesses.

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957,326.

Patented May 10, 1910.

6 SHEETS—SHEET 5.

Fig. 8.

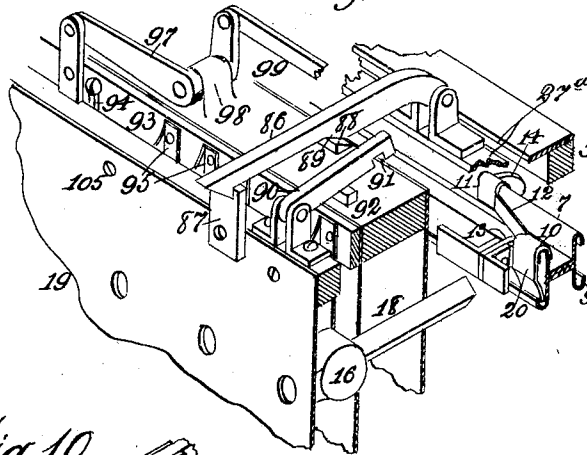


Fig. 14.

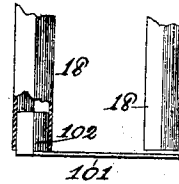


Fig. 10.

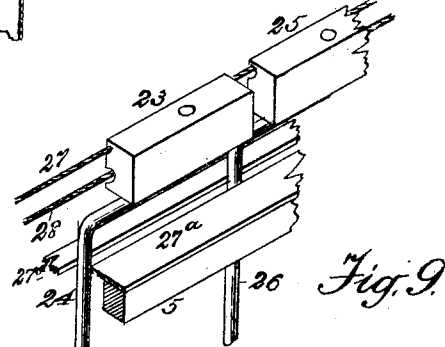
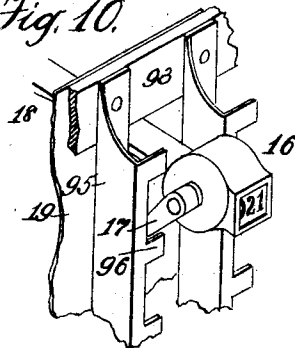


Fig. 9.

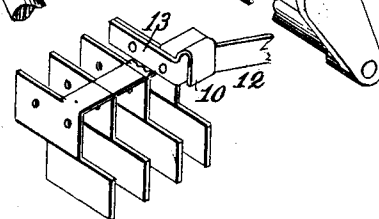
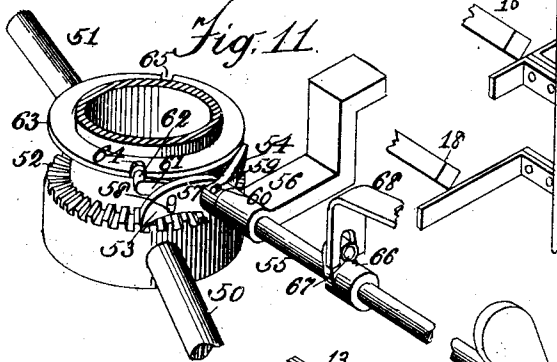


Fig. 12.

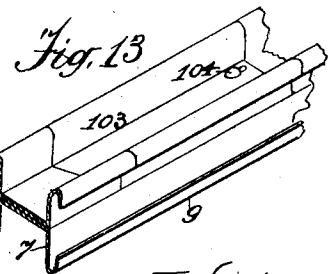


Fig. 13.

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957,326.

Patented May 10, 1910.

6 SHEETS—SHEET 6.

Fig. 15.

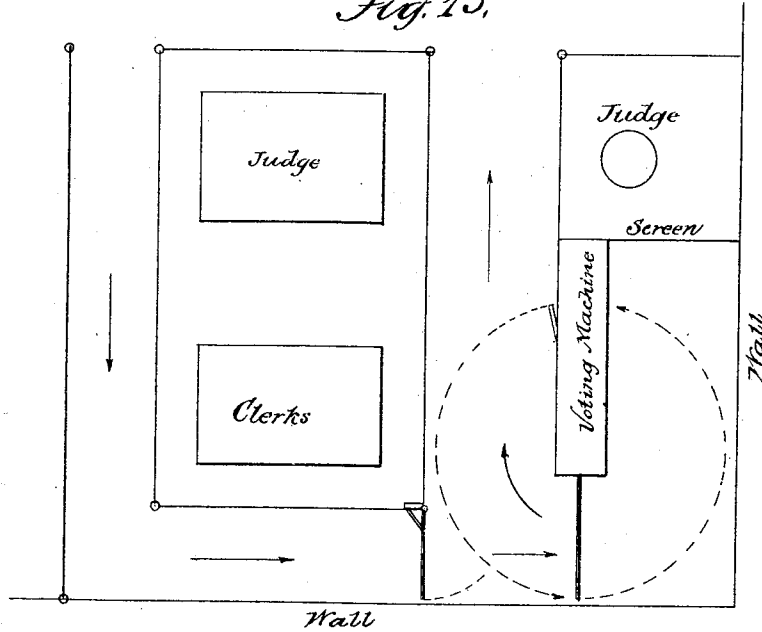


Fig. 16.

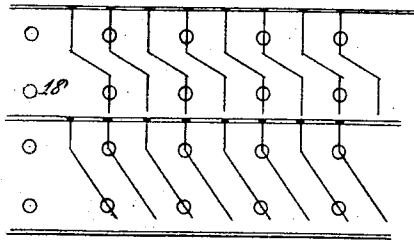


Fig. 17.

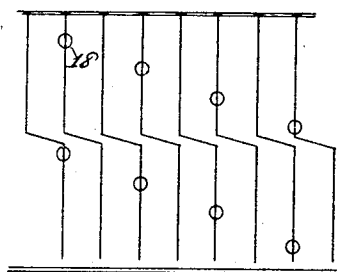


Fig. 18.

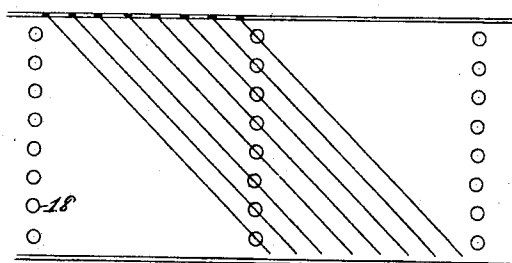


Fig. 19.

Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM GLENN, OF MOUNT VERNON, IOWA.

VOTING-MACHINE.

957,326.

Specification of Letters Patent. Patented May 10, 1910.

Application filed March 27, 1906. Serial No. 308,332.

To all whom it may concern:

Be it known that I, WILLIAM GLENN, a citizen of the United States, residing at Mount Vernon, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Voting-Machines, of which the following is a specification.

This invention relates to voting machines in which the number of vote indicators just equals the number of candidates to be elected, or questions to be decided, and the voting operation consists in moving one or more of these indicators into voting relation to selected candidates or questions, and in finally imparting an impulse by which the vote selected by said indicators is registered.

The nature of the invention will fully and clearly appear from the description and claims following, reference being had to the accompanying drawings, forming a part of the specification.

Figure 1 of the drawings is an elevation of a machine embodying my invention as seen from the standpoint of the voter. Fig. 2 is a rear or opposite view of the same (without the legs and connected mechanism), the outer plate being removed, and a part of the resetter plate broken away to show the counters and related mechanism. Fig. 3 is a perspective view of a skeleton frame or grid, on and around which the various mechanisms are assembled. Fig. 4 is an end view of the machine as seen from the left of Fig. 1, the inclosing case being removed. Fig. 5 is a cross section of the same in planes central to the turnstile and also to one of the resetter shafts. Fig. 6 is a top view below the line *a b* of Fig. 5. Fig. 7 is a top view below the line *c d* of the same figure. Fig. 8 is a fragmentary perspective view, showing the arrangement of vote indicators, counters, actuators therefor, resetting plate, etc. Fig. 9 is a fragmentary perspective view showing indicators and their guides, resetter, and straight ticket sweep. Fig. 10 is a similar view of the counter and the rack which actuates it. Fig. 11 is a similar view of mechanism to insure complete movement of the turnstile. Fig. 12 is a similar view showing the feet of four indicators arranged for group voting. Fig. 13 is a similar view illustrating a cut-out, by means of which indicators may be removed from the ballot frame. Fig. 14 illustrates a construction by means of which the

voter may conveniently vote for candidates nominated by one party and indorsed by another. Fig. 15 is a diagram to illustrate a convenient arrangement of the machine and other furniture for an election. Fig. 16 illustrates one arrangement of counters, and two types of indicator feet adapted for them. Fig. 17 shows another arrangement of counters. Fig. 18 shows the counters in a horizontal row, with suitable indicator feet. Fig. 19 shows the counters in vertical rows, and diagonal indicator feet.

Referring now more particularly to Figs. 1, 2 and 3, the general features of the machine will be described. In this embodiment of my invention a part of the mechanism is inclosed in a rectangular case 1, having a panel 2 reserved for independent voting. The mechanism for such independent voting is, however, all omitted. A part of the mechanism for this machine is placed below the case, and in connection with its legs 3 and 4, respectively, as will be fully set forth presently.

The ballot frame 5 at the front, and the resetter frame 6 at the back may differ somewhat in size, but are practically similar, rectangular frames. To the former are connected horizontal guides 7, separated a little space, and forming raceways for vote indicators 8. They also serve as paper-strip holders, the ticket being preferably in the form of horizontal strips fitting under lips at the front of said guides. The preferred construction of these raceways or guides is best shown in Figs. 8, 9, and 13. Each guide is composed of a pair of similar, stirrup-shaped channels of sheet metal, with over-turned lips 9, and suitably fastened together at the cross-web, as by rivets. Resting on the upper, rounded edges of this channeled guide is the shank of the vote indicator. This comprises a pair of separated stirrups 10 and 11 connected by a diagonal strip 12, a stub 13, to which the indicator foot is attached, an outwardly projecting lobe 14 for the thumb and finger of the operator, and a downwardly projecting pointer 15 to denote the proper position for the indicator with respect to the name below. The construction is such as to give a long, rigid bearing for the indicator, whereby it moves freely and easily in the raceway, and adapted to steady the indicator when brought in contact with the counter, as will be explained later. One of these indicators is provided

for each person to be elected, and one for each question to be voted upon, and as the counters are arranged and spaced with relation to said indicators when placed in voting position respecting the candidates and questions, duplication is impossible, consequently no lockout mechanism is needed in general voting. This of course does not apply to a limited franchise, as in the case of women, but a classifier for a limited suffrage forms no part of this present invention. In the case of single candidate offices a single indicator is provided. In multicandidate offices the number of indicators just equals the number of persons to be elected in each case, the spacing on the name groups corresponding to the spacing of the indicators, as clearly shown in Fig. 1.

Back of some portion of the indicator foot when in voting position respecting any name lies a counter or register 16. A preferred type of counter is the one shown, which advances one number at each complete revolution by the turning of a finger 17 (see Fig. 10). The counter is provided with a stem 18, preferably angular to prevent turning on its axis, and mounted to slide a limited distance in bearing-plates 19 secured to the grid above referred to. In the final act of voting the ballot-frame is moved back a short distance, and the arranged indicators abut against these counter stems, pushing them back to registering position. Means for actuating the counters will be described presently. In one case the arrangement is very simple. This is illustrated in the diagram, Fig. 18. The counters may be in a single row paralleling the indicator raceway, the counter foot being preferably long laterally, so that no great nicety in placing the indicator is required. In the case of multicandidate offices, generally, however, it is desirable to arrange them otherwise, so as not to occupy too much space laterally. This is easily done by bringing a number of rows into the office groups and extending the indicator feet up or down in a way to catch a counter of one row and miss all the others. The method admits of unlimited variation in form and arrangement, but in practice I prefer the type illustrated in Fig. 16, the upper half of which shows one style of indicator feet and the lower half another. Here, as will be seen, eight candidates are grouped in a small space, considered both laterally and vertically, and yet with space enough between the indicators for the operator to use his fingers in moving them. The arrangement of candidates names may be such as convenience suggests, initials, numbers, or symbols being used in the grouping space, if limited, the full names appearing elsewhere on the ticket, as indicated in Fig. 1, where various methods are illustrated. It will be seen that as the indicators in Figs.

16, 17, or 19 are moved sidewise they will coincide successively, but at varying points of contact, with counters in their paths.

In Fig. 8 is shown a wing 20 of the indicator shank, which runs in the channel at the back of the raceway, as shown. The purpose of this is to prevent the long depending foot of the indicator from being tilted up by a downward pressure on the lobe 14, as might be the case if the raceway were loose enough to admit of such movement. Of course such a tilting, if very considerable, would disturb some of the counters, or interfere with the lateral movement of the indicators.

The mechanism by means of which the operator votes a straight ticket with a single movement, and the resetting mechanism are closely related and quite similar in construction. They are best illustrated in Figs. 2, 4, 5, 6 and 9. In stirrup-shaped guides 21 secured to arms 22 of the grid are mounted slides 23 for the straight ticket sweep 24, and 25 for the resetter 26. When these sweeps are nearest each other the ends of the slides touch, and the space between the sweeps is just wide enough to embrace all the indicators except those used for questions. As the ballot-frame has a movement in and out, the sweeps are cranked, so as to allow them to swing with the ballot frame, just back of which they run in a slotted guide 27^a. The slides are secured to pairs of cables or cords 27 and 28, respectively. The straight ticket cables make one or two turns around drums 29 and are secured thereto. These drums are secured to a vertical shaft 30 mounted in suitable bearings in the grid. The other loops of the same cables pass over sheaves 31 turning loosely on a shaft 32 near the other end of the machine. For the resetter this construction is reversed, the drums 33 for its cable 28 being secured to the shaft 32, and the idlers 34 turning on the shaft 30. Notches 35 in the slides permit the cables to run independently and parallel to each other. In the extreme movement of the sweeps the drums make a complete revolution, but this may of course be determined according to convenience in construction.

Referring to Figs. 1 and 7, the mechanism for actuating the straight ticket sweep is described as follows: To the lower end of the shaft 30 is attached a pinion 36, which meshes with a multiplying sector gear 37 mounted on a stud 38 attached to the base of the grid. The smaller radius engages a sector gear 39 secured to a short shaft 40 turning in a bracket 41. On this shaft is mounted a series of levers 42, which preferably extend so as to coincide successively with the party columns, as shown in Fig. 1. The shortest lever is secured to the shaft. The others turn freely on it, but each is

provided with a lug or shoulder 43 to engage a lever in advance of it. Thus the forward movement of the longest lever moves all the others; of the second, all but the longest, and so on. So also the backward movement of the shortest lever restores all to the initial position. The several levers are limited in their forward movement by steps 44 of the bracket. By this means the voter may move up to exact position, neither falling short nor overrunning the party column, all the indicators at once. If he does not wish to scratch his ticket, he need do nothing more, except to operate the turnstile in coming out, as will be explained presently, the action of the resetter serving to return the straight ticket sweep to initial position. If, however, he wishes to split his ticket, after having first moved up any one of the party levers, he may move any indicator to the right without obstruction. If he wishes to scratch toward the left he should first restore the sweep to initial position, as he may do by means of the short lever, and thus remove all obstruction to the movement of the indicators to the left. It is to be noted, however, that the resistance of the sweep and connected parts is not so great but that it is possible to move it bodily backward by means of an indicator alone. The resetter is operated in a similar manner by the turnstile through the medium of interrupted gearing, as will now be explained, reference being had more particularly to Figs. 1, 5 and 7. To the lower end of the shaft 32 is secured a gear 45 meshing with an interrupted gear 46, in a simple and well known way. In practice the former gear is still during about one-fourth of the revolution of the latter. The gear 46 is attached to a short vertical shaft 47 journaled in the grid base. To its lower end is attached a pinion 48 meshing with a gear 49 forming a part of the turnstile, which has two nearly opposite levers 50 and 51. The turnstile, as indicated in Fig. 15, sweeps through nearly a half circle, and as indicated by arrows to enter the booth. This movement carries the resetter clear over to the right, entirely out of the paths of the indicators. The reverse movement sweeps them all back to their normal position in the "No choice" column.

It is desirable that the turnstile complete its movement, in either direction, before it can be reversed, or any of the voting mechanism actuated. The mechanism for this is best shown in Figs. 1, 7 and 11. The hub of the turnstile is toothed at 52 to coact with a pair of opposite pawls 53 and 54 having a free limited movement on a shaft 55 mounted in suitable bearings 56 below the base. The outer end of this shaft is provided with a gravity crank to tilt each side of the center of gravity and so throw the pawls into alternative action. This is done by the judge of

election, to unlock the machine for the voter to enter, but the action is reversed by the voter after entering the booth, so that he may in due time pass out. The movement of one pawl is limited by a pin 57 in a slot 58, that of the other by a pin 59 in a slot 60, the latter pin or stud projecting from an arm 61 secured rigidly to the shaft. This arm has a lateral stud or shoulder 62 to run alternatively under and over a flange 63 forming a part of the turnstile. Notches at 64 and 65 permit the shaft to rock only at the completion of the turnstile's movement inwardly and outwardly, respectively. The effect of this is, in one position, to lock the machine against manipulation except by an election judge or by the voter, until he has arranged his vote and in the other position, to lock against all but the judge stationed at the end of the machine. To enable the voter to tilt the rock-shaft and unlock the machine, and, indeed, to compel him to do so before he can come out, the shaft is actuated by the straight ticket mechanism, as by a short lever 66 with a lateral stud 67 to engage a forked lever 68 pivoted at 69. This lever connects by a link 70 with a cam-lever 71 pivoted at 72. The cam 73 lies in the path of the straight ticket sweep when the rock-shaft is tilted to permit the voter to enter the booth. The first action of the voter is to move this sweep, and in so doing the rock-shaft is tilted back and the pawls reversed, so that he may pass out after having arranged his ballot.

Both the ballot frame and the resetter plate are moved bodily in and out in the operation of registering the vote. They are mounted in the same way, positions only being reversed, so a description of the mechanism for one will serve for both. A pair of arms 74 is connected rigidly by a rock-shaft 75 journaled in bearings 76. The free ends of the bail so formed are pivoted at 77 to the frame. Near the middle of each arm is pivoted another arm 78, one end of which is pivoted to the grid and the other to the frame. The effect of this is to give parallel motion to the frame. The ballot frame is actuated by a short crank 79 connecting with an interrupted pinion 80 cooperating with a companion gear 81 attached to the shaft 47. The pinion revolves during the first quarter of the outward movement of the turnstile. This movement of the ballot frame carries back such of the counters as abut against any indicators, and with them the resetter plate, which connects with its actuating mechanism by a slip connection, as shown in Fig. 6. The inward movement of the resetter plate is effected in a similar way by a crank 82 communicating by a slotted link 83 with a stud 84 on a gooseneck 85 attached to the resetter frame.

It is desirable that the resetter plate should

lie close to the counters when the voter is within the booth, as otherwise it might be possible for him to vote fraudulently by slipping some thin object through the ballot frame and so pushing back any number of counters. To guard against this illegality the resetter plate is locked close behind the counters while the voter is arranging his ballot. The device for this purpose is clearly shown in Fig. 8. To the ballot frame is pivoted a pawl 86 engaging a catch 87 on the resetter plate. At 88 the pawl has an incline to engage a corresponding incline 89 on the grid. The ballot frame is allowed a little movement before the indicators strike the counter stems, and in this interval the pawl lifts off the catch, and the ballot frame returns to its original position, as it must do before the resetter can return. Provision is also made for locking the resetter frame at its rearward position, so that the position of the counters cannot be disturbed while the counter finger is turned. This is a simple latch 90 with a straight notch 91 to take a lug 92 on the grid frame. This latch is lifted to release the resetter frame by the upward movement of the finger-turning rack, which immediately follows the backward movement of the resetter, or, to be more exact, is timed a little later than the resetter movement.

The counter-rack comprises horizontal bar 93, slotted at 94 to allow for vertical movement, and a series of vertical notched plates 95 whose nibs 96 engage the counter fingers and lift, push, depress, and draw them through a complete revolution of the counter axis. This will be readily understood by reference to Figs. 8 and 10. In the latter figure the counter has been pushed back. The rack now rises carrying the finger high enough to allow the nib in contact with the finger to pass over it as the counter is next moved forward. The rack finally descends, and the turn of the counter is complete. The counter-rack connects with a pair of bell-cranks 97 mounted in bearings 98, and connecting by links 99 with the crank 82 above referred to. It will thus be seen that by a peculiar construction a four motion action is produced by a single crank.

The back of the machine 100 is supposed to be removable at the end of the election so as to give access to the counters in canvassing the vote. The various numbers are read through the holes in the resetter-plate already mentioned.

In Fig. 14 is shown a simple device for extending the range of counter contact with respect to the indicator foot. This is desirable in such cases as the indorsement by one party of a candidate nominated by another party. The extension is simply a finger 101 with a stub 102 to enter the end of the tubular counter stem. The counter stem at the

right is supposed to be in another party column from that at the left, and is drawn to indicate relative position. In practice this counter would be removed, the one remaining counter serving for the indicator in both positions. In case the indorsed name is remote from the same name as a regular nominee the extension would needs be less simple than that shown, but the foregoing will serve to illustrate the invention, broadly considered.

In Fig. 13 is shown a device to permit the indicators being removed from the ballot frame, and replaced therein. A part of the raceway 103 is fitted in, hinged at 104, and by turning it to one side the indicators may be taken out and replaced at will, in adjusting the machine for the election.

The resetter plate is made removable, as by screws 105. When so removed, the counters may be slipped out or in at will, arranged in any desired order, and as few or many of them used as may be necessary to the election. This portability of the counters and indicators, and the unrestricted movement of the latter in their raceways, gives the machine great flexibility and adaptability to varying election conditions. Thus party columns may be expanded indefinitely, and rows may be grouped in any part of the ballot frame. In primary elections, for example, counters may be provided for all the counter holes, if necessary, whereas in general elections a much smaller number would serve. These changes would in some cases involve modifications in the form of indicator feet, which may of course be made in numbers and in variety to cover all conditions, but do not involve any structural change.

It will be noted that the counting mechanisms overlap each other, and in the use of the term "overlapping" I wish to be understood as including the counter supports in the counting mechanisms. The advantage of this part of the invention is that a greater number of the counting mechanisms can be inserted in a given distance along the paths of the indicators than is possible where they are set in a single row or line along the paths of the indicators.

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

1. In a voting machine, the combination of a movable indicator; a series of counter mechanisms overlapping with relation to the path of movement of the indicator, each of said counters being adapted to be controlled by said indicator to register a vote.

2. In a voting machine a group of movable indicators having the same path of movement; a group of counters, said counters overlapping with relation to the path of movement of said indicators.

3. In a voting machine, the combination of a group of movable indicators having the same path of movement; a ballot face in operative relation to said indicators, confining said indicators to a single office; and a corresponding group of counters overlapping with relation to path of movement of said indicators.

4. In a voting machine, the combination of a group of movable indicators for an office; counters for each candidate in said office controlled by said indicators, said counters overlapping with relation to the movement of the indicators.

5. In a voting machine, the combination of a movable indicator; counters controlled by said indicator arranged in a plurality of planes along the path of movement of the indicator, said indicator being adapted to operate counters in different planes.

6. In a voting machine, the combination of a movable vote indicator; a series of counters arranged in the plurality of planes along the path of movement of said indicator, said counters being arranged in rows perpendicular to the path of movement of the indicator; and actuating devices carried by the indicator inclined to the path of movement of the indicator to engage independently counters in different planes.

7. In a voting machine, the combination of a group of indicators for an office; a plurality of counters arranged in a plurality of planes along the path of movement of the indicators, said counters being arranged in rows perpendicular to the path of movement; actuating devices carried by the indicators and inclined to the path of the indicators to engage the counters of a perpendicular row independently.

8. In a voting machine, the combination of a plurality of race ways; a plurality of counter supports adjacent to said race ways and at different distances therefrom; an indicator movable in the race way; and actuating devices carried by the indicator adapted to independently control counters at different distances from the race way.

9. In a voting machine, the combination of a movable ballot frame; a counter mounted to move perpendicularly to the frame; and means on the ballot frame for moving selected counters as the ballot frame moves.

10. In a voting machine, the combination of a counter bearing frame; a series of counters slidably mounted therein; and a single means for locking a plurality of said counters in said frame.

11. In a voting machine, the combination of a counter bearing frame; counter actuating mechanisms for moving selected counters bodily in said frame, said counters being interchangeable and removable by move-

ment in the direction of their movement when actuated.

12. In a voting machine, the combination of a counter bearing frame; counter actuating mechanisms for moving selected counters bodily on said frame, said counter being interchangeable and removable by movement in the direction of their movement when actuated; and a single means for locking a plurality of said counters in said frame.

13. In a voting machine, the combination of a ballot frame having a series of noncommunicating race ways therein; and removal closures in said race ways for permitting the removal and insertion of an indicator.

14. In a voting machine, the combination of a ballot frame having party columns therein with a plurality of candidates in said column, said ballot frame having race ways at right angles to the columns; a plurality of indicators in said race ways and in the same party column; and a counter frame adapted to hold a plurality of counters in position to be actuated by a plurality of indicators in a party column and in a race way, said indicators being interchangeable, and said indicators being removable.

15. In a voting machine, a ballot-frame having a series of non communicating raceways, vote indicators adapted to run therein, and gaps in the raceways to permit the removal of the indicators from the frame.

16. In a voting machine, the combination of a series of vote indicators, a ballot frame having a series of raceways therefor, gaps in said raceways, and sections normally filling said gaps.

17. In a voting machine, the combination of movable counters, a movable ballot frame adapted to push back certain counters, and a similarly movable resetter to restore them to initial position.

18. In a voting machine, the combination of a vote indicator; a counter controlled by said indicator; devices actuating the counter and controlled by the indicator and extending to a plurality of voting positions of the indicator for the purpose described.

19. In a voting machine, the combination of movable counters, means for bodily pushing back certain counters as selected by the voter, means for restoring said counters to initial position, and a counter-turner cooperating with said restoring means to register the vote.

20. In a voting machine, the combination of movable counters, means for selecting and moving certain counters, a resetter therefor, and a transversely moving rack to engage said counter, and in conjunction with the resetter turn it one full revolution.

21. In a voting machine, the combination

of movable counters, means for selecting certain counters and moving them in registering the vote, a resetter adapted to hold them in normal position, and a lock to hold said resetter while the voter arranges his ballot.

22. In a voting machine, the combination of movable counters, means for selecting and moving certain counters, a resetter therefor, a counter-turning device, and means for locking the resetter back while the said turning device makes its initial stroke.

23. In a voting machine, the combination of movable counters, a resetter to hold them normally forward, a rack cooperating with the resetter to turn the counters, and a latch released by the counter rack, to hold the resetter in its rearward position.

24. In a voting machine, the combination of a ballot frame, a series of vote indicators freely movable across the same, a straight ticket sweep, means for actuating said sweep in arranging a straight ticket, and a limiting stop therefor to prevent over-movement of the indicators.

25. In a voting machine, the combination of a ballot-frame, a series of vote indicators freely movable across the same, a straight ticket sweep, a series of party levers cooperating therewith, and a differential stop for said levers, to correctly limit the movement of the sweep in party voting.

26. In a voting machine, the combination of a horizontally moving resetter, a vertically moving counter actuator, bell-cranks

connecting with the latter, and links connecting with said bell-cranks and with said resetter at practically right angles, whereby both are moved, but at different times by a single crank.

27. In a voting machine having vote arranging and registering mechanism, substantially as described, the combination of an entrance and exit turnstile, and interrupted gearing communicating with said mechanism and turnstile, whereby successive movement is imparted to said mechanism.

28. In a voting machine, the combination of a movable ballot frame; movable indicators on said frame; a resetter sweep; and means for moving said sweep along said frame to actuate said indicators.

29. In a voting machine, the combination of the vote registering mechanisms; an entrance and exit turnstile cooperating therewith; means for locking the turnstile against backward movement before the completion of the movement of the turnstile in the direction permitting an entrance; a straight ticket mechanism operable by the voter; and devices actuated by the straight ticket mechanism for releasing said means.

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

WILLIAM GLENN.

Witnesses:

G. F. RABUS,
J. M. ST. JOHN.