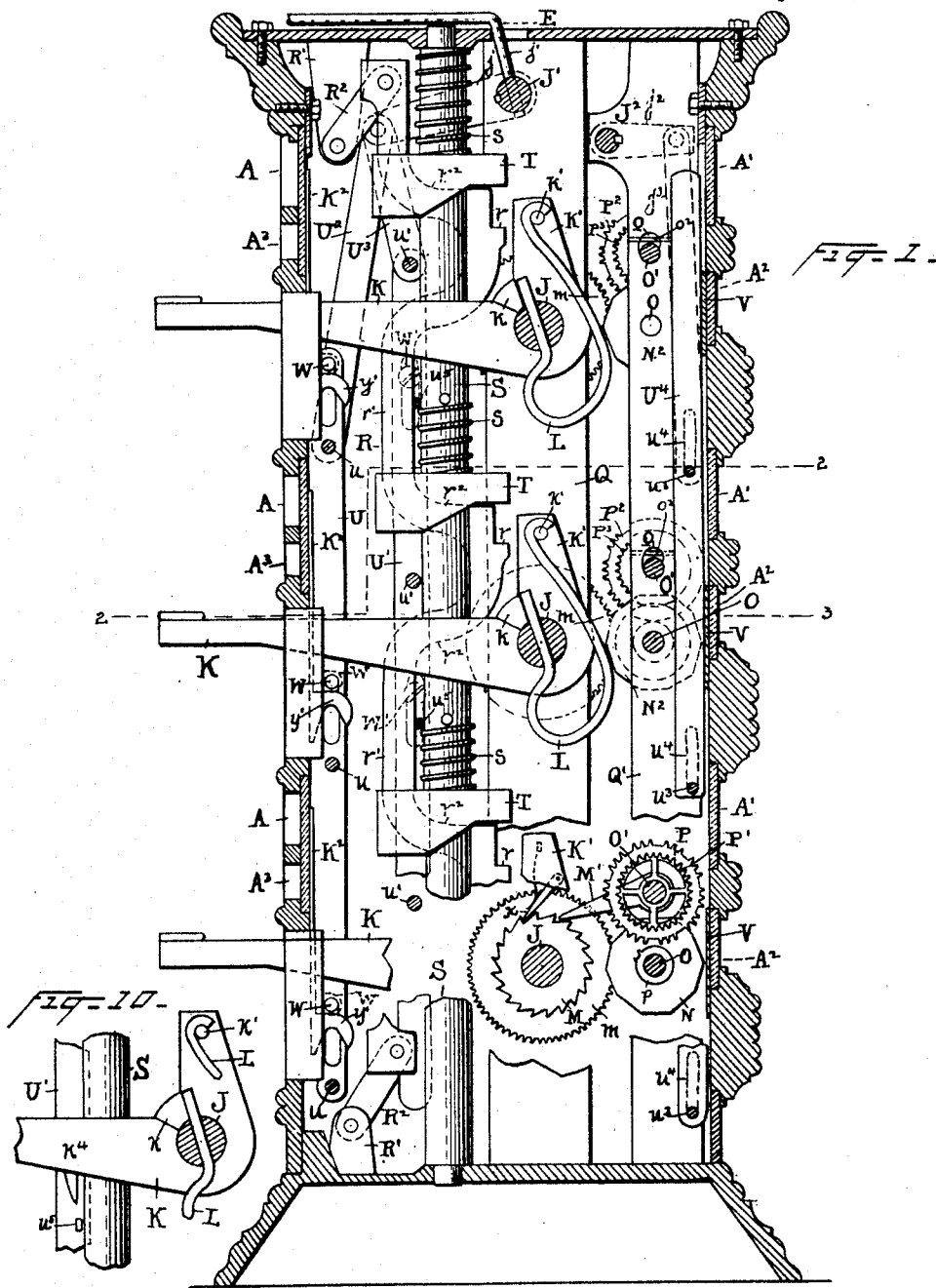


C. L. BANCROFT.
VOTING MACHINE.

No. 586,328.

Patented July 13, 1897.



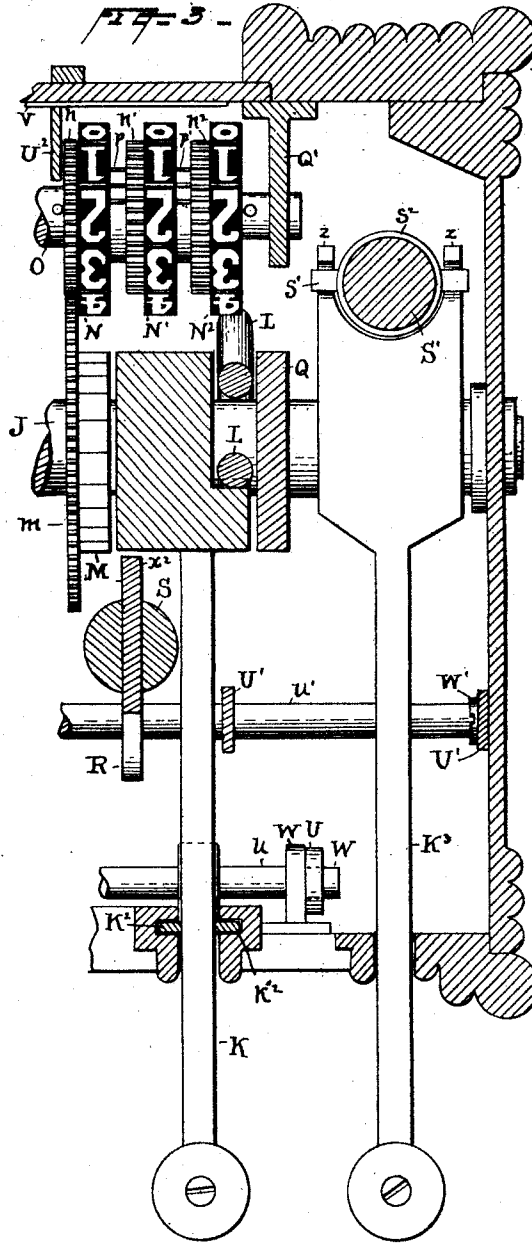
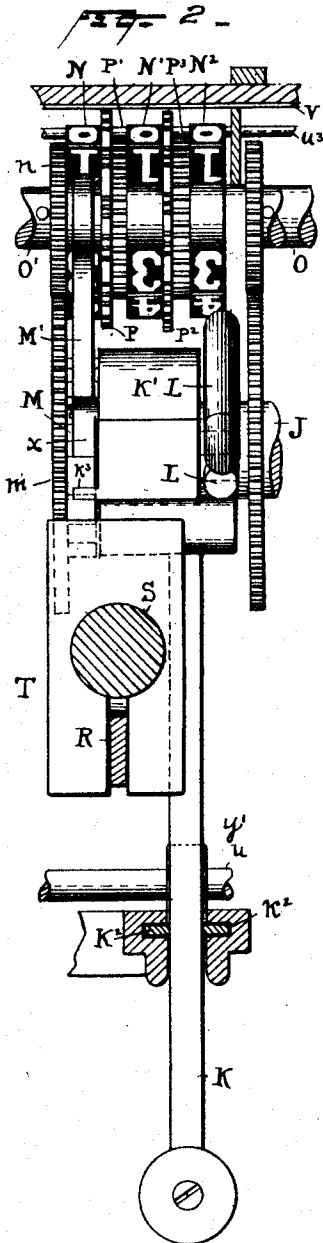
Witnesses
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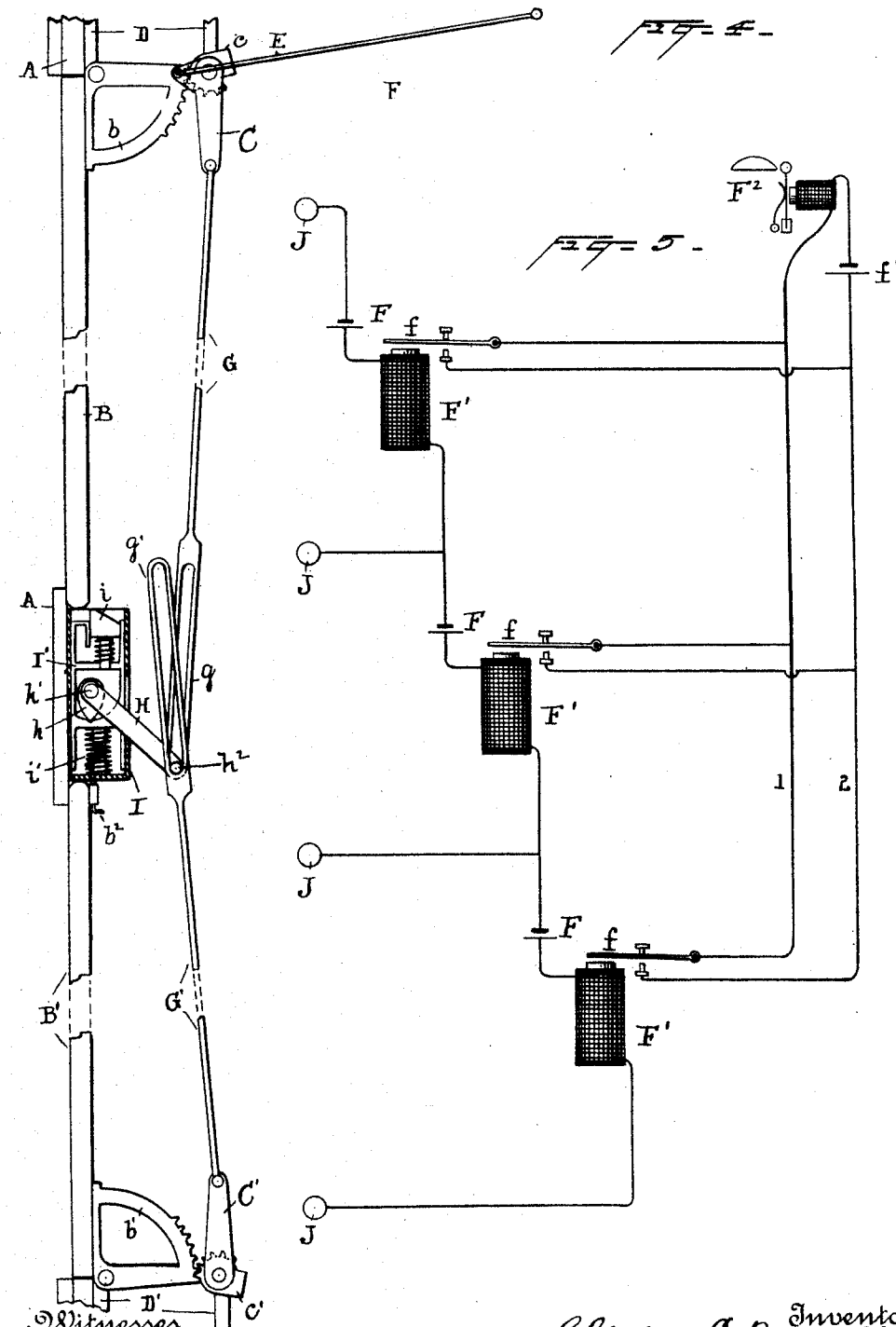
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(No Model.)

4 Sheets—Sheet 4.

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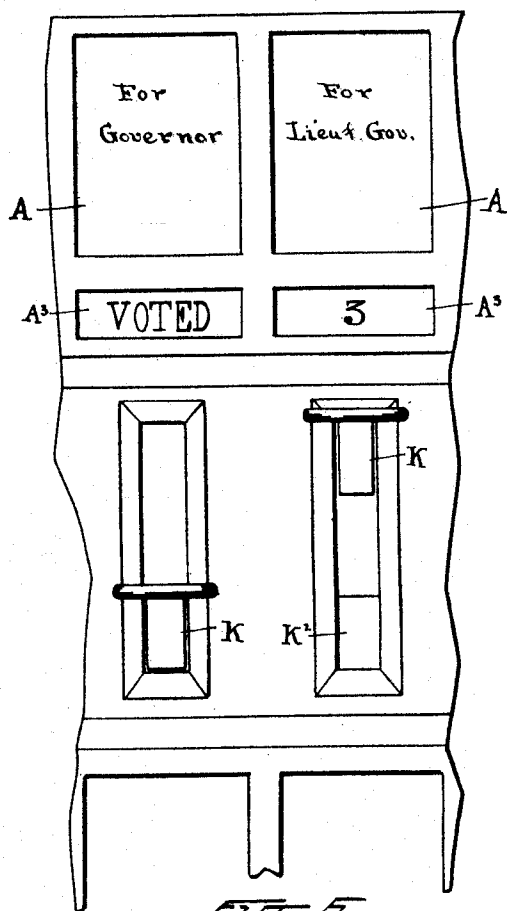


FIG. 5.

FIG. 6.

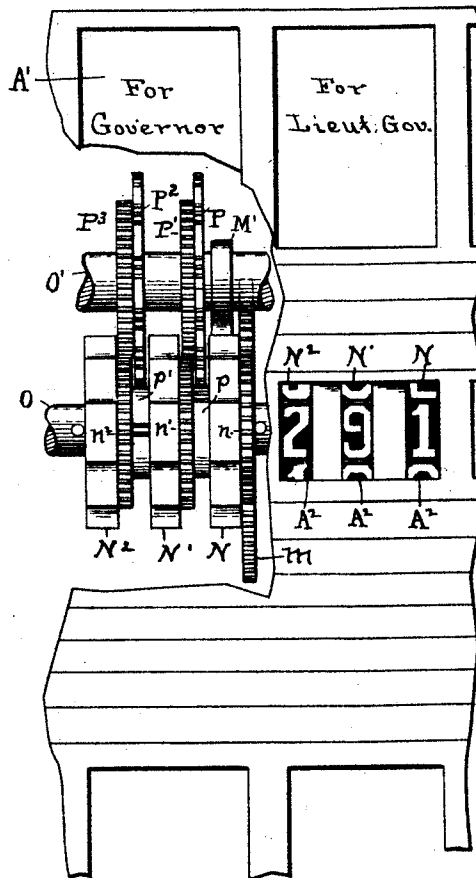
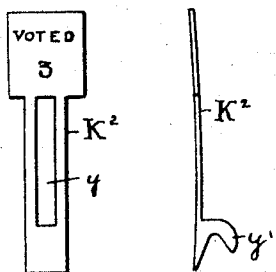
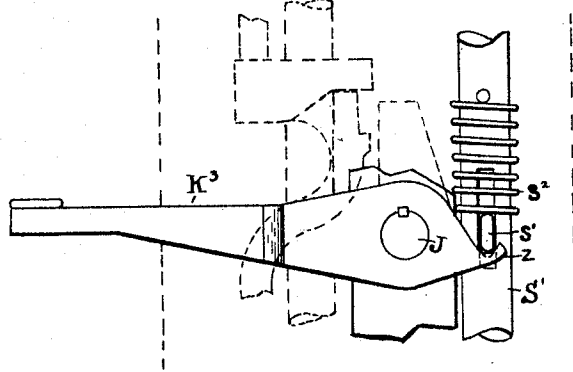


FIG. 7.

FIG. 8.



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UNITED STATES PATENT OFFICE.

CLINTON L. BANCROFT, OF BROWN'S, NEVADA.

VOTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 586,328, dated July 13, 1897.

Application filed March 21, 1896. Serial No. 584,279. (No model.)

To all whom it may concern:

Be it known that I, CLINTON L. BANCROFT, a citizen of the United States, residing at Brown's, in the county of Humboldt and State of Nevada, have invented a certain new and useful Improvement in Voting-Machines, of which the following is a specification.

My invention relates to voting-machines of the automatic type having separate sets of registers or counters for individual candidates, which are actuated by operating bars or keys for individual candidates or by a straight-ticket key, the counters being contained within an inclosing case through which the operating bars or keys project.

The object of my invention is to produce a machine which will be compact and simple in construction and one which will accurately register each operation of the operating bar or key and which is provided with effective means for preventing the improper operation of any one of the operating-keys, and in carrying my invention into effect I employ the novel devices and combinations of devices hereinafter more fully set forth, and pointed out in the claims.

In the accompanying drawings, which illustrate my invention, Figure 1 is a vertical cross-section of a voting-machine provided with registering mechanism for three sets of candidates or tickets. In this view part of the mechanism of the lowermost series of registering devices is broken away to show parts of the counters. Fig. 2 is a horizontal cross-section on the line 2 2 of Fig. 1. Fig. 3 is a horizontal cross-section on the line 2 3 of Fig. 1, showing the straight-ticket operating-key, which is preferably located at the right-hand end of each series of operating-keys, the wheels of the counting mechanism being shown in full. Fig. 4 is a plan view of the entrance and exit of the booth in which the voting-machine is to be located and also showing devices which are connected with the voting mechanism and actuated by the doors of the booth for operating the resetting mechanism of the voting-machine. Fig. 5 is a diagrammatic view showing the electrical connections for a telltale or bell indicating an attempt at improper voting. Fig. 6 is an elevation of a portion of the front of the machine. Fig. 7 is an elevation of part of the

rear of the machine with a portion of the casing broken away to expose one set of counters. Fig. 8 is a side view of the straight-ticket key and part of the mechanism actuated by it. Fig. 9 represents front and edge views of the vote-teller, and Fig. 10 illustrates a locking device for the key-levers.

The booth in which the voting-machine is located is provided with two doors B B', opening inward and preferably located at the side of the booth opposite to where the voting-machine is located. These doors are designed to be locked when the booth is occupied, and for this purpose the exit-door B' is provided with a spring-latch b^2 , which can only be opened from the inside of the booth, and for the entrance-door a lock I is provided, the bolt of which is adapted to be moved out of locking position by the opening of the exit-door, so that the entrance-door is free to be opened when the booth is unoccupied.

The opening of the entrance-door will shift the bolt of its lock, so that when a voter has entered the booth and closes the door both doors will be locked on the inside. For this purpose the body of the lock I', which carries a spring-bolt i , is arranged to slide in the lock-casing I. To shift the body of the lock I provide a cam h , carried by a vertical shaft h^1 , at the upper end of which is secured an arm H, having a pin h^2 , which works in the slotted ends g and g' of the rods G and G', and these rods are secured to arms C and C', respectively, which arms are respectively carried by pinions $c c'$, pivoted upon rigid frames D and D'. At the top of the doors B and B' are located quadrants b and b' , the teeth of which mesh with the pinions $c c'$, respectively. The pivots of these quadrants may form in conjunction with pivots at the bottom of the doors the means for hinging the doors, or ordinary hinges may be employed, in which case the center of the hinges will be in line with the pivots of the quadrants b and b' .

In the position of the locking mechanism illustrated in Fig. 4 the entrance-door B is unlocked. In entering the booth the opening of the door B, through its quadrant b , rotates the pinion c and arm C to the left, which shifts the rod G and consequently draws the arm H and its cam h toward the door B, which action permits the spring i to shift the body of the

lock in the same direction and places the locking-bolt i in position to lock the door B when closed after the entrance of a voter. In closing the door the bolt i is moved backward by the door against its spring, which throws the bolt forward again when the door is closed, as is well understood.

It will be understood that with the door B locked the arm II will be swung over toward that door, and in opening the exit-door the arm II will be shifted to the opposite position by the movement of rod G' , through the rotation of pinion c' , by quadrant b' , thus forcing the cam h against the lock-body and shifting it toward the door B', which brings the parts to the position illustrated in Fig. 4 and leaving the entrance-door B free to be opened again after the voter has retired from the booth. The arm C, carried by the pinion c , has a short arm, to which is connected a rod E, which extends to the top of the voting-machine and actuates a resetting mechanism each time the entrance-door is opened, as will be hereinafter more fully explained.

If it is desired to register the number of voters entering the booth in order that a comparison may be made with the counters of the voting-machine, any suitable form of registering device may be placed in position to be operated by the entrance or exit door, or both, as will be readily understood.

The front of the voting-machine (illustrated in Fig. 6) is provided with the necessary sets of operating-keys K, which are placed under the headings giving the names of the offices and the candidates for the same. These headings, with the names of candidates, will be printed on cards placed behind plates of glass placed over openings A. There will be provided as many horizontal rows of individual operating-keys as there are candidates for the different offices, as well as a straight-ticket key for each set of candidates, by the operation of which all the candidates on one ticket may be voted without the necessity of operating the individual keys. The rear of the machine, as illustrated in Fig. 7, is also provided with the series of cards with the names of the different offices and the names of the candidates, which are also placed behind glass plates over openings A', and under each heading is an aperture A², through which the counters may be seen and the total vote ascertained. These apertures are normally covered by shutters V, Fig. 1, as will be hereinafter explained. In addition to the headings, names of candidates, and the operating-keys on the front of the machine there is provided under each heading an aperture A³, Figs. 1 and 6, through which may be seen, before the operating-key is depressed, a number which may represent the number of the ticket on which the candidate is running, and when the key is depressed the proper distance the word "Voted" will appear in the aperture for the purpose of indicating that the vote for that candidate is registered. The word "Voted"

and the number are placed upon a plate K³, Fig. 9, which is operated by the operating-key K. This plate has a slot y , through which the key passes.

The operating-keys K are pivoted on shafts J, there being one of these shafts for each horizontal series of keys, and are supported by uprights Q at the ends of the casing and at as many intermediate points as may be found desirable. Each key (except the straight-ticket key) is provided with a short arm K', provided with a pin k' , against which bears a curved spring L and acts to return the key to its normal position when depressed. These springs are curved around under the shafts J, and their free ends are passed upward through slots in the shafts and engage with lugs k on the key-levers. Each of the arms K' of the individual key-levers carries a spring-pressed pawl w , Figs. 1 and 2, which engages with a ratchet-wheel M, secured to a driving-wheel m of the counter, Figs. 1, 2, and 3, and M are dogs pivoted on the shafts O' for preventing backward movement of the ratchet-wheels M.

When a key-lever is depressed, the arm K' strikes the rear of the curved portion r^2 of a vertical rod R, which is carried by links R², Fig. 1, pivoted to brackets R', which project from the upper and lower portions of the casing. When any one of a vertical series of keys K is depressed, the adjacent rod R is moved forward uniformly. These rods R are placed in front of vertical posts S, which are slotted at intervals, through which slots the curved portions r^2 of the rod project into the path of the short arms K' of the key-levers. This post S carries a series of locking-blocks T, one for each key-lever, which blocks are slotted at their forward ends, Figs. 2 and 3, through which slots the rod R passes. Above each block T is a spiral spring s , which tends to drive the block downward, and when the rod R is moved forward by the depression of a key-lever the spring s of the vertical series forces the blocks T downward (except the block adjacent to the depressed key) until they strike the shoulders r at the rear of the curved portions r^2 . The dropping of the blocks T, as will be readily seen, prevents any other key K of the same vertical series being depressed, since the arm K' will strike the rear end of a block. Each arm K' of the keys K is also provided with a laterally-projecting flange k^3 to afford a broader bearing-surface for arm K' against the locking-blocks T. The key K which is depressed will pass under its respective block T and prevent the same from being forced downward, as are the other blocks T of the same vertical series; but as soon as this key is released and its spring L returns the key to its normal position its block T will immediately be forced downward, since the rod R is still held in its forward position by the other blocks, and thus that key is prevented from being again operated, since the block T will now be in the path of its arm K'.

The blocks T will remain in their depressed positions until the resetting mechanism is operated by the entrance of the next voter.

As before stated, the opening of the entrance-door shifts the rod E, and this rod is connected with the resetting mechanism. This mechanism comprises the vertical rods U and U', Fig. 1, which are provided with cross-rods *u* and *u'*, respectively. The cross-rods *u'* are placed in the path of the forward ends of the blocks T and are adapted to raise said blocks to their normal position when the vertical rods U' are elevated. The cross-rods *u* are placed in the path of the hooked ends *y'* of the plates K² and return said plates to their normal positions when the rods U are elevated. It may be here stated that the plates K² are slightly bent, as indicated in Fig. 9, so that they will move with sufficient friction in their retaining-slots *k*² in order that they will remain at whatever position to which they are shifted by the key or by the resetting mechanism.

There may be as many vertical rods U and U' as may be necessary to give the proper strength to the framework formed by these rods and the cross-rods and to give the proper rigidity to the cross-rods *u* and *u'*. Each of the rods U and U' at the extreme ends of the machine are provided with slots in which pins W and W', respectively, Fig. 1, project and guide the rods in a straight vertical line. The frames formed by the vertical rods U and U' and the cross-rods *u* and *u'* are reciprocated by the links U² and U³, which links are pivoted to an arm *j* on a rock-shaft J', extending across the upper part of the machine and having its bearings in the uprights Q of the framework of the machine. An arm *j'*, secured to the rock-shaft J', projects through the top of the machine-casing and is connected to the link E. When the link E is sufficiently flexible, it may be made integral with the arm *j'*, as shown in Fig. 1. Otherwise there should be a joint between these parts.

From the foregoing it will be seen that when the door B is opened and the rod E moved to the right by the short arm of the arm C, carried by the pinion *c*, Fig. 4, the arm *j'*, Fig. 1, will be tilted backward, or to the right, as seen in that figure, which movement rocks the shaft J' and raises the arm *j*, which, through the links U² and U³, lifts the frames U and U', carrying with them, as before explained, the vote-tellers K² and the blocks T. The closing of the door B moves the arm *j'* and the frames U and U' back to the position illustrated in Fig. 1, whereupon the voting mechanism is again free to be operated. Thus the operation of the devices just explained releases the operating mechanism for further operation. As a means for guarding against the operation of the machine while the entrance-door is open I provide cross-rods *w*⁵, carried by the upright rods U', and against which the keys will strike if said rods are not

returned to their lowermost position. Unless the door is closed these rods will be in position to be struck by the key-levers and prevent their moving the ratchet-wheel M a full step forward.

In Fig. 10 the downward movement of the key-levers is prevented by means of the shoulder *k*⁴ on the key-levers striking against the front of the rod *w*⁵. By this arrangement the key-lever cannot be depressed so long as the rod *w*⁵ is in the path of the shoulder *k*⁴, and this rod will be entirely removed from the path of *k*⁴ only when the entrance-door is entirely closed.

The straight-ticket keys K³ (illustrated in Figs. 3 and 8) are keyed to the shafts J. The movement of the straight-ticket key rocks its shaft J, and by reason of the springs L passing through these shafts and engaging with the lugs *k* each individual key K on the same rock-shaft with the straight-ticket key which is depressed will be actuated as though each individual key were separately operated, and the counting mechanism of each of those keys will be moved one step forward through the spring-pressed pawls *x*, carried by each of the individual keys K.

To return the straight-ticket keys to their normal position, they are provided with fingers *z*, which project under horizontal cross-pins *s'*, which are placed in slots in the upright post S'. These cross-pins are pressed downward by heavy spiral springs *s*². Thus when a key-lever K³ is depressed its cross-pin *s'* is raised by the fingers *z* against the pressure of its spring *s*², and when released the spring will force the key K³ back to its normal position. Each of the springs *s*² must have sufficient tension to bring all of the individual keys, as well as the straight-ticket key on the same shaft, back to their normal positions.

To prevent more than one key in a vertical series being depressed at the same time, (which action would result in the voting for more than one candidate for the same office,) I provide an electrically-operated telltale or alarm, which may be a bell, as illustrated in Fig. 5. For this purpose a battery F is connected between each of the rock-shafts J, and by bringing any two of the short arms K' of the key-levers of a vertical series against the vertical rod R the battery circuit or circuits will be completed. To permit the use of a single bell, I provide a relay F' in series with each battery, so that when the circuit between any two rock-shafts J is completed the relay will be energized, and by attracting its armature *f* will close the local circuit 1 2 to the bell F², the local circuit having a battery *f'*. The ringing of the bell will thus indicate to the officers in charge of the voting-booth that a voter has improperly voted or attempted to do so.

To prevent the short-circuiting of the circuits, the shafts J should be properly insulated at their bearings from the framework of the machine, and the ratchet-wheels M and

gear-wheels m should also be insulated from the shafts, and the key-levers and rods R should also be properly insulated from other parts of the apparatus, as will be readily understood.

If desired, some of the parts may be made of insulating material—for instance, the ratchet-wheels—and the driving-wheels m of the counters may be made of hard rubber.

The mechanism of the counters for each of the operating-keys is carried by shafts O and O' , which are supported by uprights Q , secured at intervals to the rear casing of the machine. As illustrated in the drawings, the counters have three wheels—*i.e.*, a units-wheel N , a tens-wheel N' , and a hundreds-wheel N'' , Figs. 2, 3, and 7—and these wheels have rigidly attached to them gear-wheels n n' n'' , respectively. The gear-wheels n of the units-wheel mesh with the driving-wheels m , which are actuated by the keys. Rotating with each units-wheel and its gear-wheel n is a mutilated pinion p , Figs. 1 and 3, having two teeth which engage with three teeth (of which there are ten sets) of a mutilated gear-wheel P , secured to the gear-wheel P' , which drives the gear-wheel n' of the tens-wheel.

Rotating with the tens-wheel is a mutilated pinion p' , similar to the pinion p , which pinion p' is adapted to drive a mutilated gear-wheel P^2 , similar to the mutilated gear-wheel P . The mutilated gear-wheel P^2 is secured to a gear-wheel P^3 , which drives the gear-wheel n'' , attached to the hundreds-wheel. Thus it will be seen that for every complete revolution of the units-wheel the tens-wheel is moved forward one step or one-tenth of a revolution, and for every complete revolution of the tens-wheel the hundreds-wheels is moved forward one step or one-tenth of a revolution, as will be readily understood.

When the openings A^2 are closed and it is desired to expose to view the counters, the proper officer removes a seal placed over an opening through which access to the end of the shaft J^2 , Fig. 1, is obtained, and the end of this shaft (not shown) is squared to receive a key by which the same may be rotated. This shaft has an arm j^2 , which is connected by a link j^3 (shown in dotted lines in Fig. 1) to a sliding frame composed of vertical rods U^4 and cross-rods u^3 , which frame carries a necessary number of shutters V to close the sight-openings A^2 . The frame carrying the shutters is guided by the cross-rods u^3 , working in slots u^4 in the upright plates Q' of the framework of the machine. By turning the shaft J^2 so as to tilt the short arm j^2 upward the shutters V are removed from over the sight-openings and exposing the counters, as shown in Fig. 7.

It will be understood that before the polls are opened the counters will all be set to zero and the shutters V will be in position, closing the sight-openings. The opening through which the key to operate the shaft J^2 is inserted will be sealed by the proper officer.

To reset the counters to zero, I provide slotted bearings o for the shafts O' in the plates Q' , and by removing the pins o^2 the shafts O' may be raised, thus disengaging the ratchet-wheels of the counters and permitting of their being rotated to bring them to zero. When so adjusted, the shafts are again placed in their normal position and the pins o^2 are re-inserted.

To provide for the registration of votes on various questions that may be submitted to a public vote, an additional set of keys may be provided in the same machine with a counting mechanism attached, or such keys, with their counting mechanism, may be embodied in a separate machine.

To permit access to the interior of the machine for adjusting the counting mechanism and examining other parts of the apparatus, the front and rear parts of the casing will be arranged so as to be readily removable. Proper means for locking and sealing the same by the officers in charge will also be provided. In constructing the front and rear parts of the casing I prefer in practice to so locate and construct the working parts of the apparatus that in removing the front and rear parts of the casing parts of the mechanism supported thereby may be readily removed therewith without disturbing other parts of the apparatus.

What I claim is—

1. In a voting-booth, the combination with a single hinged entrance-door and an exit-door, of a lock for the entrance-door, means operated by the opening of the entrance-door for placing its lock in locking position whereby when said door is again closed it will be locked, and means operated by the exit-door for releasing the entrance-door, substantially as set forth.

2. In a voting-booth, the combination with an entrance and an exit door, of a lock for the entrance-door having a spring-actuated bolt, means for shifting said bolt out of locking position, a mechanical connection between the exit-door and said means for placing said bolt out of locking position, and a mechanical connection between said means and the entrance-door, upon the movement of which the spring-bolt is returned to its locking position, substantially as set forth.

3. In a voting-booth, the combination with a hinged entrance-door and an exit-door, of a lock for the entrance-door, means controlled by the opening of the entrance-door for placing its lock in locking position whereby when said door is again closed it will be locked, means operated by the exit-door for releasing the entrance-door, and means actuated by the entrance-door for resetting the locking mechanism of the voting-machine, substantially as set forth.

4. In a voting-booth, the combination with an entrance and an exit door, of a lock for the entrance-door, comprising a movable lock-body and a spring-actuated bolt therein, con-

nections between said lock-body and the entrance-door whereby the opening of the entrance-door will move the lock-body toward the same, and connections between said lock-body and the exit-door, whereby the opening of the exit-door will move the lock-body away from the entrance-door, substantially as set forth.

5. In a voting-booth, the combination with an entrance and an exit door, of a lock for the entrance-door comprising a movable lock-body and a spring-actuated bolt therein, a slotted rod connecting said lock-body and the entrance-door, and a slotted rod connecting said lock-body and the exit-door, substantially as and for the purposes set forth.

6. In a voting-booth, the combination with an entrance and an exit door, of a lock for the entrance-door comprising a movable lock-body and a spring-actuated bolt therein, a cam for moving said lock-body toward and away from the entrance-door, a slotted rod connecting said cam and the entrance-door, and a slotted rod connecting said cam and the exit-door, substantially as and for the purposes set forth.

7. In a voting-machine, the combination of a series of operating-keys, a separate counter actuated by each of said keys, a spring-pressed locking device for each key and normally held out of engagement therewith, a common tripping device for holding all of said locking devices in their normal positions, and so arranged relatively to the keys that upon the operation of any one of said keys the locking devices of the other keys will be tripped so as to lock the same, while the operated key will engage beneath its locking device so as not to be locked by the same until the key is returned to its normal position, and a resetting mechanism for withdrawing said locking devices, substantially as set forth.

8. In a voting-machine, the combination of a pivoted key-lever formed with an arm thereon, a spring-pressed locking-block normally held out of engagement with said arm, a tripping device for holding said locking-block in its normal position, but adapted to be engaged by said arm after the latter has passed beneath said locking-block so as to trip the locking-block and allow the same to engage the top of said arm, whereby upon the return of the key-lever the said arm will be withdrawn from beneath the locking-block which will thereupon be projected in the path of said arm, and resetting mechanism for withdrawing said locking-block, substantially as set forth.

9. In a voting-machine, the combination of a series of vertically-arranged pivoted key-levers each provided with an arm thereon, a spring-pressed locking-block for each arm normally held out of engagement therewith, a common tripping device for holding said locking-blocks in their normal positions, but adapted to be engaged by any one of said arms after the latter was passed beneath its

locking-block so as to trip and project the other locking-blocks in the paths of the other arms and to trip the locking-block of the operated key-lever so as to allow the same to engage the top of the arm thereof, whereby upon the return of the operated key-lever its arm will be withdrawn from beneath its locking-block which will thereupon be projected in the path of said arm, and resetting mechanism for withdrawing said locking-blocks, substantially as set forth.

10. In a voting-machine, the combination of a movable shaft held normally stationary, a series of keys mounted on said shaft and movable with respect to the same, a counter actuated by each key, stops on said shaft engaging said keys, whereby movement of the shaft will operate all the keys thereon, and a straight-ticket key rigidly connected to said shaft for partially rotating the same, substantially as set forth.

11. In a voting-machine, the combination of a series of movable shafts held normally stationary, a series of keys mounted on each of said shafts, a counter actuated by each key, stops on each shaft engaging the keys thereon whereby movement of any one of said shafts will operate all the keys thereon, a straight-ticket key rigidly connected to each shaft for partially rotating the same, and interlocking mechanism between said keys, whereby the operation of the keys on one shaft will lock all the other keys, substantially as set forth.

12. In a voting-machine, the combination of a movable shaft J, normally held stationary, a series of keys K mounted on said shaft and movable with respect to the same, a counter actuated by each key, a spring L for keeping each key in its normal position, said springs extending through the shaft and the ends thereof forming stops, a pin k on each key with which the end of the corresponding spring engages, and a straight-ticket key rigidly connected to said shaft for partially rotating the same, substantially as set forth.

13. In a voting-machine, the combination with a series of counters for individual candidates, of a series of individual keys for operating said counters, a shaft on which said keys are loosely mounted, a straight-ticket key mounted on said shaft and adapted to turn the same, and means carried by said shaft for engaging the individual keys when the shaft is turned by the straight-ticket key, whereby all the individual keys will be caused to operate their counters when the straight-ticket key is operated, substantially as set forth.

14. In a voting-machine, the combination with a series of keys for actuating the counters of the various candidates for the same office, of an electric alarm or telltale for indicating when two or more of said operating-keys are actuated, substantially as set forth.

15. In a voting-machine, the combination with a series of keys for actuating the counters of the various candidates for the same of-

10 fice, a normally-inactive electric alarm or
telltale, and electric connections between said
keys and said alarm whereby the simultane-
ous operation of more than one key in a series
5 makes the alarm active, substantially as set
forth.

16. In a voting-machine, the combination
with a series of keys, for actuating the coun-
ters of the various candidates for the same of-
10 fice, a normally-inactive electric alarm or tell-
tale, and an electric circuit for controlling

said alarm extending through the said keys
whereby the simultaneous operation of more
than one key in a series makes the alarm
active, substantially as set forth. 15

This specification signed and witnessed this
4th day of March, 1896.

CLINTON L. BANCROFT.

Witnesses:

JERRY SHEEHAN,
H. I. CHARTER.