

No. 688,093.

Patented Dec. 3, 1901.

G. JOHNSON & J. E. HALLDIN.
VOTING MACHINE.

(Application filed July 17, 1901.)

(No Model.)

3 Sheets—Sheet 1.

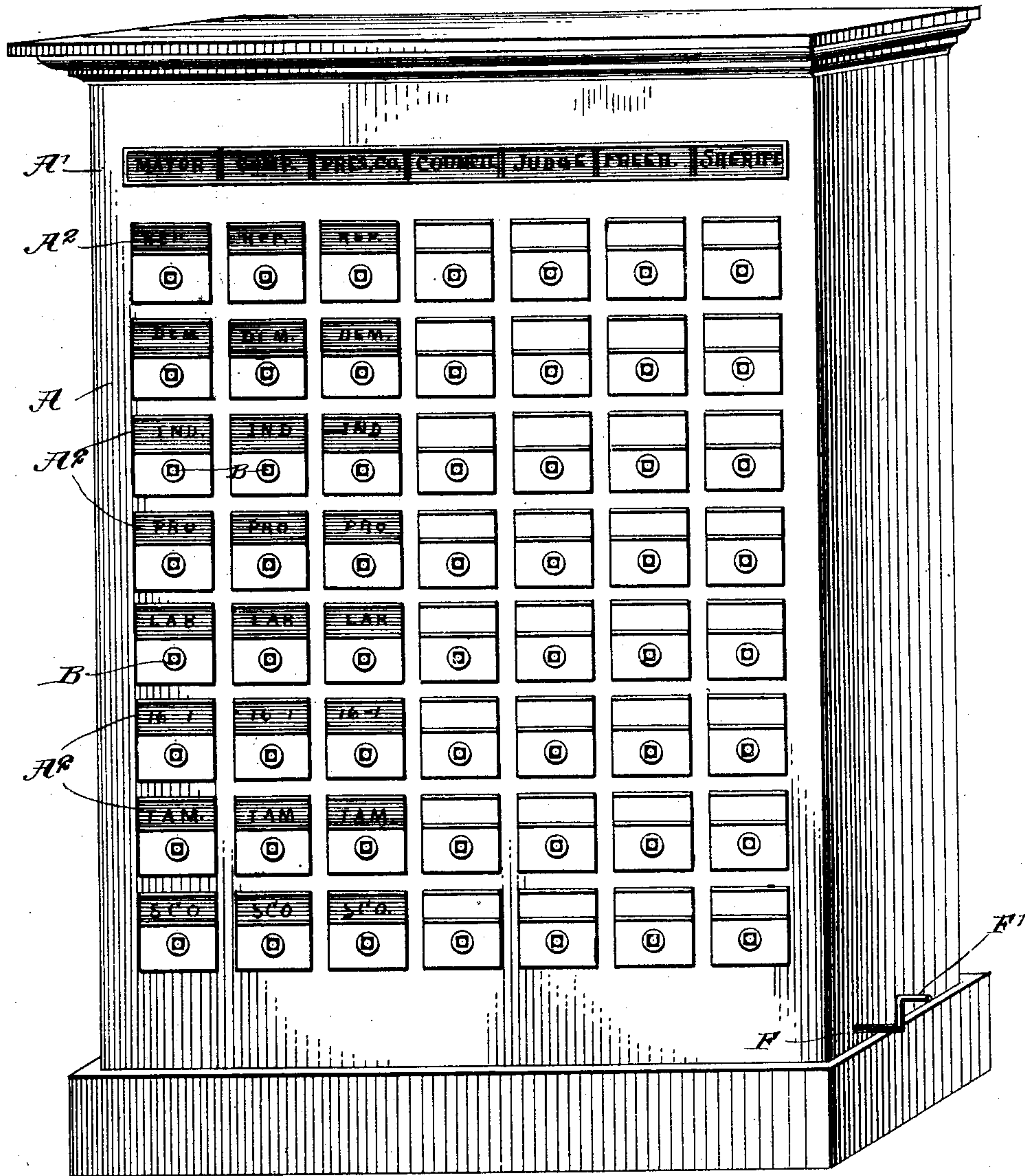


Fig. 1

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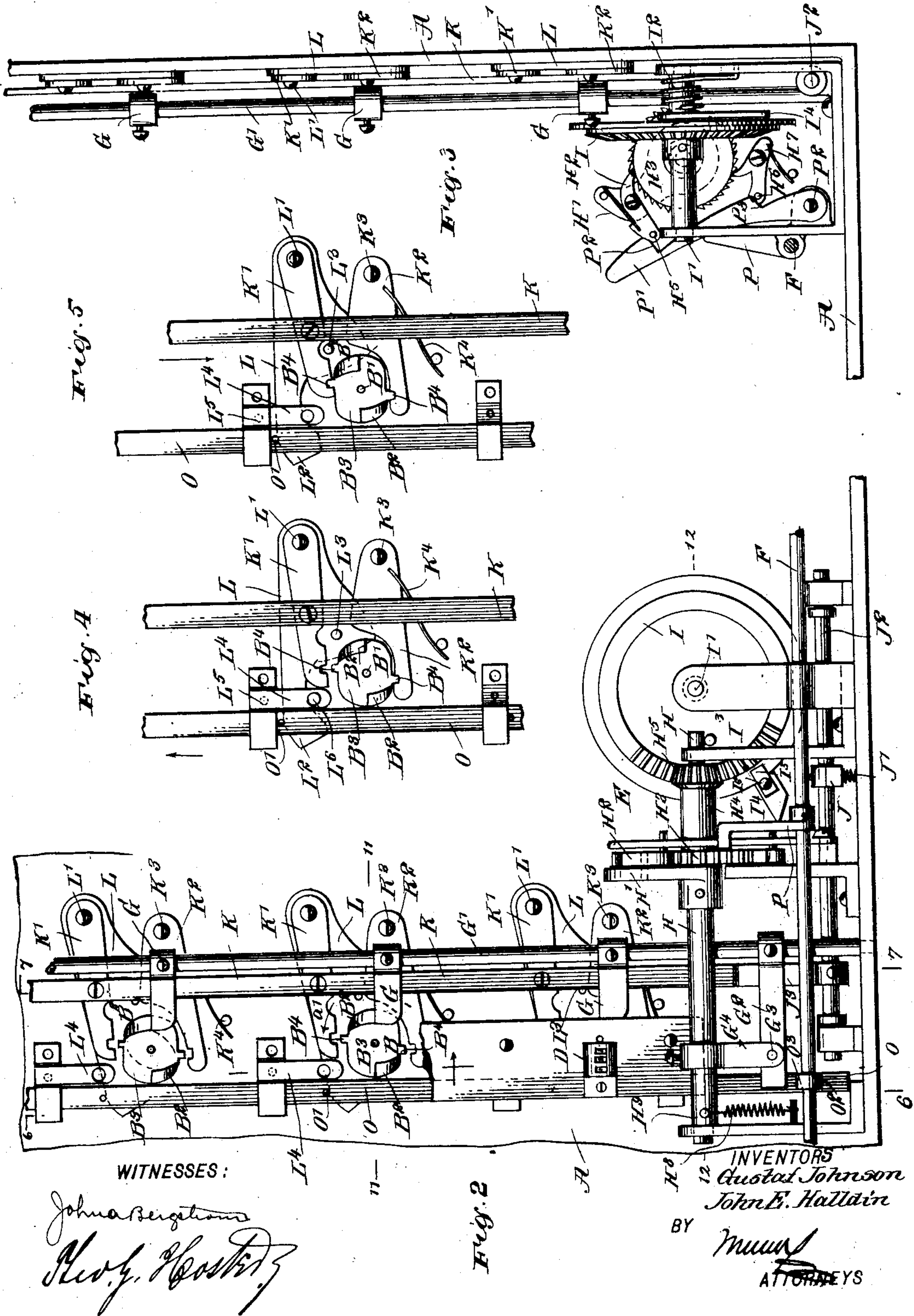
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

GUSTAF JOHNSON, OF PIGEONCOVE, AND JOHN ERIK HALLDIN, OF
SOUTH BOSTON, MASSACHUSETTS.

VOTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 688,093, dated December 3, 1901.

Application filed July 17, 1901. Serial No. 68,598. (No model.)

To all whom it may concern:

Be it known that we, GUSTAF JOHNSON, a resident of Pigeoncove, in the county of Essex, and JOHN ERIK HALLDIN, a resident of South Boston, in the county of Suffolk, State of Massachusetts, citizens of the United States, have invented new and useful Improvements in Voting-Machines, of which the following is a full, clear, and exact description.

10 The object of the invention is to provide a new and improved voting-machine arranged to enable each voter to readily manipulate the voting devices to properly cast the vote, to cause registration of the total votes cast for
15 each candidate, amendment, or the like, and to prevent fraudulent voting.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then
20 pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate cor-
25 responding parts in all the figures.

Figure 1 is a perspective view of the improvement. Fig. 2 is an enlarged rear elevation of the detail mechanism of the voting devices for one set of candidates. Fig. 3 is an enlarged end elevation of the same. Fig. 4
30 is a rear face view of the manually-controlled cam-wheel and adjacent parts. Fig. 5 is a like view of the same with the parts in a different position. Fig. 6 is a transverse section of the improvement on the line 6 6 of Fig. 2. Fig. 7 is a similar view of the same on the line 7 7 of Fig. 2. Fig. 8 is a rear sectional face view of the manually-controlled cam-wheel and adjacent parts, the section be-
40 ing on the line 8 8 of Fig. 9. Fig. 9 is a transverse section of the same on the line 9 9 of Fig. 8. Fig. 10 is a transverse section of the friction device for the segmental arm actuated by the manually-controlled cam-wheel and spindle. Fig. 11 is a sectional plan view
45 of the improvement on the line 11 11 of Fig. 2, and Fig. 12 is a similar view of the same on the line 12 12 of Fig. 2.

50 The voting-machine is mounted in a suitably-constructed closed casing A, provided at its front near the top with a heading A',

indicating the names of the offices to be filled, and below the heading A' are arranged vertical rows of spaced legends A², indicating the names of the candidates for the corre- 55
sponding offices named above in the heading A'. At each legend A² projects the forward end of a key-spindle B, adapted to be engaged by a key C (see dotted lines in Fig. 10) in the hands of a voter, the arrangement be- 60
ing such that the voter can turn in each vertical row as many spindles as there are persons to be elected for the corresponding offices—that is, in the row for comptroller, for instance, a single voter can only turn one of 65
the spindles, as only one comptroller is to be voted for. In case three councilmen are to be elected, the voter can turn any three key-spindles, but no more, in the row under the heading "Council." When the voter has 70
voted in the manner indicated, the attendant of the machine resets the same, so that the next voter can proceed in the same manner.

Each key-spindle B is mounted to turn in bearings in the front wall of the casing A, 75
(see Figs. 10 and 11,) and the rear or inner end B' of each spindle is connected with a registering device D (see Fig. 2) of any approved construction and arranged to register one vote for each half-turn given by a voter 80
with the key to the corresponding key-spindle B. Thus each key-spindle and the parts connected therewith form a single voting device presently to be described in detail, each voting device having the name of the candi- 85
date adjacent to the key-spindle, as will be readily understood by reference to Fig. 1, and the several voting devices in each vertical row being governed by a setting device E, arranged in the casing A, (see Figs. 2, 3, 6, 90
7, and 12,) and the several setting devices in the casing being adapted to be reset by the attendant of the voting-machine on the turning of a crank-arm F', (see Fig. 1,) secured on the outer end of the shaft F, extending 95
longitudinally in the casing A.

Each voting device is locked automatically against a second turning after the voter has given the key-spindle a half-turn, and if only a single candidate is to be voted for in any particular voting-row then the setting device 100
for this row is so set that all the other voting

devices in this particular row are locked after the voter has given one-half turn to a key-spindle in this row. If, however, several candidates—say three—are to be voted for in a particular row, then the setting device E for this row is set to allow the voter to turn any three of the key-spindles located in this row, and when the voter has turned the last of the three key-spindles the remaining voting devices in this row are all locked. It is expressly understood that each voting device is locked after its key-spindle has been given a half-turn, so that a voter cannot vote three times for one candidate.

The voting devices are all alike in construction, and hence it suffices to describe but one in detail.

On each key-spindle B is formed or secured a wheel B³, having two oppositely-arranged cam-lugs B², projecting from the face of the wheel B³, and on the periphery of the latter are arranged locking-teeth B⁴, standing approximately opposite each other and at right angles to the lugs B². (See Figs. 2, 4, 5, and 11.) Next to the wheel B³ is secured or formed on the spindle a mutilated gear-wheel B⁵. The cam-lugs B² are adapted to engage and impart a swinging motion to an arm G, secured on a vertically-disposed shaft G', journaled in suitable bearings within the casing A, and on the lower end of the said shaft G is secured an arm G², adapted to engage a pin G³, projecting transversely from an arm G⁴, depending from and secured on a horizontally-extending shaft H, journaled in suitable bearings in the casing A. (See Figs. 2 and 12.)

On the shaft H is secured an arm H', carrying a spring-pressed pawl H², in mesh with a ratchet-wheel H³, having its hub H⁴ mounted to rotate loosely on the shaft H, the said hub H⁴ carrying a beveled pinion H⁵, in mesh with a beveled gear-wheel I, secured on a shaft I', journaled in suitable bearings carried by the main casing A. A spring I² is coiled on the shaft I', and one end of the spring is secured to the shaft and the other end to the bearing for the same, so that when the pawl H² releases the ratchet-wheel H³, as hereinafter more fully described, the shaft I' is turned in the reverse direction to bring a stop I³ on the face of the wheel I back against the projecting end of the shaft H. (See Fig. 2.)

On the shaft I' is loosely fulcrumed an arm I⁴, adapted to be secured to the wheel I by a clamping-plate I⁵, fastened by a set-screw I⁶ to the arm I⁴ near the free end thereof. The arm I⁴ is adapted to engage an arm J, pressed on by a spring J' and secured on a longitudinally-extending shaft J², journaled in suitable bearings in the casing A, and on the said shaft J² is secured an upwardly-extending arm J³, having a beveled end adapted to engage the lower end of a link K, pivotally connected with the several locking-arms K', adapted to engage the uppermost of the teeth B⁴ to lock the key-spindle against turning.

(See Fig. 5.) Each of the arms K' is fulcrumed on the pivot L' of a segmental gear-wheel L, adapted to be engaged by the mutilated gear-wheel B⁵, (see Fig. 8,) so that when the spindle B is given a half-turn the mutilated gear-wheel imparts an upward swinging motion to the segmental gear-wheel L.

The free end of the segmental gear-wheel L is formed with an extension-arm L², adapted to engage a pin O' in a bar O, mounted to slide vertically in suitable bearings on the inner face of the front of the casing A, as is plainly shown in Figs. 2, 6, and 7. The lower end of the bar O is formed with a slot O², engaged by the free end of an arm O³, fastened on the shaft F, so that when the latter is turned by the attendant of the machine turning the crank-arm F' then the arm O³ in swinging downward pulls the bar O back into a lowermost position, thereby causing the bar O to impart a downward swinging or return motion to the arm L² at the time the teeth of the mutilated gear-wheel B⁵ are out of mesh with the teeth of the segmental gear-wheel L.

On the segmental gear-wheel L is arranged a pin or lug L³, adapted to engage a locking-arm K², fulcrumed at K³ on the casing and pressed in an upward direction by a spring K⁴ to normally hold the arm K² in locking engagement with the lowermost tooth B⁴ to prevent turning of the key-spindle. (See Fig. 5.) When the segmental gear-wheel L is swung upward by the turning of the key-spindle and the mutilated gear-wheel B⁵, then the pin L³ moves away from the arm K², and the free end thereof now rises on the peripheral face of the cam-wheel B³ until the half-turn of the spindle is completed, after which the arm K² snaps up into engagement with the tooth B⁴ now moving into a lowermost position. During the upward swinging of the segmental gear-wheel L the bar O is moved upward by the extension-arm L² pushing on the pin O'. The segmental gear-wheel, and by it the arm K², is held in a lowermost position by a friction-arm L⁴, (see Fig. 10,) pivoted at L⁵ on the adjacent bearing for the bar O, the said friction-arm being pressed in contact with the face of the segmental gear-wheel L by a spring L⁶, so that when the gear-wheel L is in a lowermost position and the pin L³ has swung the arm K² in a like position then these two parts—the segmental gear-wheel L and the arm K²—remain in this position even if the bar O should move upward when another key-spindle B in the same row is turned; but when the key-spindle is turned with the parts in the position described the mutilated gear-wheel B⁵ imparts an upward swinging motion to the arm L², and as soon as the pin L³ moves away from the arm K² the spring K⁴ swings the arm K² upward to engage it with the tooth B⁴, moving into a lowermost position, to prevent this key-spindle from being turned a second time by the same voter.

It is understood that the upper arms K' are

held normally out of engagement with the uppermost teeth B^4 , owing to the position of the arms J^3 relative to the link K ; but when the arm I^4 is carried around by the gear-wheel I to impart a downward swinging motion to the arm J against the tension of the spring J' the shaft J^2 is turned and the arm J^3 moves away from under the link K , so that the latter and the arms K' move downward by their own gravity to engage the arms K' with the uppermost teeth B^4 to lock all the spindles against turning. Now the arm I^4 is set on the wheel I in such a manner that, according to the number of candidates to be elected for office, the said arm will sooner or later swing the arm J downward to release the link K for the arms K' to engage the teeth B^4 , as above explained. Thus the arm I^4 is set on the wheel I to press the arm J downward as soon as a single key-spindle B has been given a half-turn and a corresponding cam-lug B^2 has turned the shaft G' , which by the intermediate mechanism above described turns the gear-wheel I the desired distance for the arm I^4 to press the arm J . The proportion of the parts is such that the wheel I is turned the distance between two teeth at each half-turn given to a key-spindle in the vertical row of voting devices.

If the voter is entitled to turn but one key-spindle in a vertical row, the arm I^4 is set so that it depresses the arm J as soon as a single key-spindle is given a half-turn; but if the voter is entitled to turn three key-spindles in one vertical row the arm I^4 is set on the wheel I so that after the third spindle is turned the arm I^4 will press the arm J to lock the several voting devices to prevent further turning of any key-spindle in the vertical row.

In order to reset the setting devices E and the voting devices, the shaft F is provided with an arm P , (see Figs. 2, 3, and 6,) adapted to engage a lever P' having two inclines $P^2 P^3$, of which the incline P^2 is adapted to engage a pin H^5 on the pawl H^2 , and the incline P^3 is adapted to engage a pin H^6 on the spring-pressed dog H^7 , normally holding the ratchet-wheel H^3 against return movement. Now when the attendant of the machine turns the shaft F the arm P imparts a swinging motion to the lever P' , so that the inclines P^2 and P^3 by engaging the pins H^5 and H^6 cause the pawl H^2 and the dog H^7 to swing out of mesh with the ratchet-wheel H^3 to allow the spring I^2 to turn the wheel I to the starting-point, with the pin I^3 abutting against the shaft H , as previously mentioned and shown in Fig. 2. During the return movement of the wheel I the arm I^4 moves upward away from the arm J , so that the spring J' thereof turns the shaft J^2 in the opposite direction, and the arm J^3 now pushes the link K upward to swing the locking-arms K' out of locking engagement with the uppermost teeth B^4 . The turning of the shaft F also causes the arm O^3 to impart a downward swinging motion to the bar O , so that the segmental gear-wheels L are swung downward

and the arms K^2 are moved out of engagement with the lowermost teeth B^4 . The machine is now reset for the next voter. A spring H^8 presses on an arm H^9 , held on the shaft H , to return the latter after the same is turned by the arm G^4 , as previously explained.

The operation is as follows: Before sealing the machine on election day the several arms I^4 of the setting device are adjusted on the wheels I according to the number of times a voter is entitled to vote for a corresponding number of candidates in a particular row for a certain office. Thus for the mayoralty contest the setting device E for the vertical row of voting devices pertaining to this setting device is set to cause the arm I^4 to press the arm J as soon as a single key-spindle has been turned half-way around by a voter. The setting device E for the voting devices under the heading "Council" is set so that the arm I^4 presses the arm J as soon as, say, three key-spindles have been turned half-way around, and in a similar manner the other setting devices are adjusted to conform to the conditions. Now when the machine is set and a voter turns a key-spindle half-way around in the direction of the arrow a' (see Fig. 2) by the use of a key C then the lowermost cam-lug B^2 engages the corresponding arm G to turn the shaft G' for imparting a turning motion to the wheel I to turn the latter the distance between two teeth. At the same time the mutilated gear-wheel B^5 engages the segmental gear-wheel L and swings the same upward to push the bar O in a like direction and to release the lock-arm K^2 . When the half-revolution of the spindle has been made, the lock-arm K^2 by its spring K^4 snaps in on the lowermost teeth B^4 to lock this key-spindle against further turning. If the voter is entitled to turn several key-spindles in this vertical row to which the first one belongs, then the same operation is repeated as above described—that is, the shaft G is again turned and likewise the gear-wheel I —and the second key-spindle is finally locked against further turning. If the voter is entitled to turn three spindles, he turns another one, and in doing so the wheel I is again turned; but this time the arm I^4 is moved into engagement with the arm J and presses the same downward, so that the arm J^3 has moved from under the link K , and the latter and the lock-arms K' are now free to move downward to engage all the lock-arms K' with the corresponding uppermost teeth B^4 of the several key-spindles of that particular row. Thus the voter cannot turn another spindle in this row. When the voter has finally actuated all the key-spindles he is entitled to in the several rows, then the attendant of the machine causes a turning of the shaft F , so that the arm P actuates the lever P' to allow the wheel I and arm I^4 to swing back to their former starting position. At the same time the arm J^3 moves back to its normal position, and in doing so it moves the link K upward,

so as to swing the locking-arms K' out of engagement with the uppermost teeth B⁴. The turning of the shaft F also causes the arms O³ to slide the bar O downward to swing the segmental gear-wheel L into a lowermost position, the said gear-wheels in doing so swinging the spring-pressed arms K² out of engagement with the lowermost teeth B⁴, so that the several parts are reset, as illustrated in Fig. 2.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A voting-machine, comprising a plurality of manually-controlled key-spindles, located one above the other, a registering device for each key-spindle and operated thereby, a vertical shaft, means for operating the vertical shaft from the key-spindles, a setting device, and mechanism for operating the setting device from the vertical shaft, as set forth.

2. A voting-machine, comprising a plurality of manually-controlled key-spindles, a registering device for each key-spindle and operated thereby, cams on the spindles, a vertical shaft provided with arms projecting into the path of the cams on the key-spindle, a setting device, and means for operating the setting device from the said shaft, as set forth.

3. A voting-machine comprising a plurality of manually-controlled key-spindles having cam-wheels located one above the other, a shaft having a plurality of arms, one for each cam-wheel, said arms being adapted to be engaged by the cam-wheels to turn the said shaft and a setting device actuated from the said shaft and controlling the locking and unlocking of the said cam-wheels, as set forth.

4. A voting-machine comprising a plurality of manually-controlled key-spindles having cam-wheels located one above the other, a shaft having a plurality of arms, one for each cam-wheel, a setting device actuated from the said shaft and controlling the locking and unlocking of the said cam-wheels, and a locking device controlled from said setting device to lock the cam-wheels against rotation, as set forth.

5. A voting-machine comprising a plurality of manually-controlled key-spindles having cam-wheels located one above the other, a shaft having a plurality of arms, one for each cam-wheel, a setting device actuated from the said shaft and controlling the locking and unlocking of the said cam-wheels, a locking device controlled from said resetting device to lock the cam-wheels against rotation, and a resetting device under the control of the attendant and arranged to release the said locking device and the said setting device, as set forth.

6. A voting-machine comprising a manually-controlled mutilated gear-wheel mounted to turn, a segmental gear-wheel adapted to be engaged by the said mutilated gear-wheel to impart a swinging motion to the same, and a resetting-bar mounted to slide and adapted

to engage the free end of the said segmental gear-wheel to reset the latter for engagement by the mutilated gear-wheel at the next turning thereof, as set forth.

7. A voting-machine comprising a manually-controlled mutilated gear-wheel mounted to turn, a segmental gear-wheel adapted to be engaged by the said mutilated gear-wheel to impart a swinging motion to the same, a resetting-bar mounted to slide and adapted to engage the free end of the said segmental gear-wheel to reset the latter for engagement by the mutilated gear-wheel at the next turning thereof, and a spring-pressed locking-arm controlled by the said segmental gear-wheel and adapted to engage and lock the said segmental gear-wheel against turning, as set forth.

8. A voting-machine comprising a manually-controlled mutilated gear-wheel mounted to turn, a segmental gear-wheel adapted to be engaged by the said mutilated gear-wheel to impart a swinging motion to the same, a resetting-bar mounted to slide and adapted to engage the free end of the said segmental gear-wheel to reset the latter for engagement by the mutilated gear-wheel at the next turning thereof, a spring-pressed locking-arm controlled by the said segmental gear-wheel and adapted to engage and lock the said segmental gear-wheel against turning, and a friction device to hold the said segmental gear-wheel in either an uppermost or a lowermost position, as set forth.

9. A voting-machine comprising a plurality of manually-controlled cam-wheels mounted to turn, locking devices for the cam-wheels, a shaft carrying a plurality of arms, one for each cam-wheel, to turn the shaft on turning a cam-wheel, and a setting device adapted to be set to a given number of votes, the setting device controlling the said locking device to lock the cam-wheels, as set forth.

10. A voting-machine comprising a plurality of key-spindles, each formed with a mutilated gear-wheel, a locking and cam wheel, a shaft carrying a plurality of arms, one for each cam-wheel, a setting device actuated from the said shaft, locking-arms for engaging the locking-wheel, one of the locking-arms being controlled from the said setting device, segmental gear-wheels adapted to be engaged by the mutilated gear-wheels, each segmental gear-wheel controlling the other of the locking-arms, and a resetting-bar for resetting the said segmental gear-wheels and the locking-arms controlled thereby, and a resetting device under the control of the attendant for resetting the said setting device and the said bar, as set forth.

11. A voting-machine having a setting device comprising a gear-wheel adapted to be intermittently turned from the voting devices, an arm held adjustably on the said gear-wheel, and a device for resetting the voting devices and controlled by the said arm, as set forth.

12. In a voting-machine, the combination

with a key-spindle, and a mutilated gear-wheel thereon, of a segmental gear-wheel adapted to be engaged by the mutilated gear, a manually-operated shaft, and a connection
5 between the said shaft and the segmental gear-wheel, as set forth.

13. In a voting-machine, the combination with a key-spindle, and a mutilated gear-wheel thereon, of a segmental gear-wheel
10 adapted to be engaged by the mutilated gear, and provided with an extension, a sliding bar provided with a projection for engaging the extension of the segmental gear-wheel, a manually-operated shaft, and a connection be-
15 tween the shaft and the sliding bar, as set forth.

14. In a voting-machine, the combination with a key-spindle, a toothed wheel on the key-spindle, and a mutilated gear-wheel also
20 on the said spindle, of a segmental gear-wheel adapted to be engaged by the mutilated gear and provided with a lateral projection, a manually-operated shaft, a connection between the shaft and the segmental gear-wheel for
25 operating the latter from the former, and a spring-pressed arm adapted to engage a tooth of the said wheel and engaged by the projection of the segmental gear to cause it to move downward in unison therewith, as set forth.

15. In a voting-machine, the combination with a key-spindle, a wheel mounted thereon and provided with oppositely-arranged teeth, and a mutilated gear-wheel also on the spindle, of a segmental gear-wheel adapted to be
30 engaged by the mutilated gear, means for swinging the segmental gear downward when the mutilated gear is out of mesh therewith, pivoted arms adapted to engage the teeth of the said wheel to lock the spindle, one of the
35 arms being spring-pressed and in engagement with the segmental gear-wheel, and means for operating the other arm to disengage it from said wheel, as set forth.

16. In a voting-machine, the combination
45 with a key-spindle, a wheel on the spindle and provided with oppositely-arranged teeth, and a mutilated gear-wheel also on the spindle, of a segmental gear-wheel adapted to be engaged by the mutilated gear and provided with a
50 laterally-projecting pin, means for swinging the segmental gear downward when the mutilated gear is out of mesh therewith, a pivoted arm adapted to engage a tooth of the said wheel, means for operating the arm to disen-
55 gage it from the said wheel, and a pivoted and spring-pressed arm also adapted to engage a tooth of the said wheel, said arm being engaged by the pin of the segmental gear, as set forth.

17. In a voting-machine, the combination with a key-spindle, a wheel on the spindle, and

provided with oppositely-arranged teeth, and a mutilated gear also on the spindle, of a segmental gear-wheel adapted to be engaged by the mutilated gear, a manually-operated shaft,
65 a connection between the shaft and the segmental gear-wheel for operating the latter from the former, pivoted arms adapted to engage the teeth of the said wheel, one of the arms being spring-pressed and in engagement
70 with the segmental gear-wheel, a setting device, means for operating one of the pivoted arms from the setting device, and means for operating the setting device from the key-spindle, as set forth.

18. In a voting-machine, the combination with a key-spindle, a vertical shaft, and means for operating the said shaft from the key-spindle, of a horizontal shaft, a connection be-
80 tween the horizontal and vertical shafts to operate the former from the latter, a ratchet-wheel loosely mounted on the horizontal shaft and carrying a bevel gear-wheel, a spring-pressed horizontal shaft provided with a bevel
85 gear-wheel meshing with the gear-wheel of the first horizontal shaft, an arm secured to the first horizontal shaft and carrying a pawl engaging the ratchet-wheel, and means for disengaging the pawl from the ratchet-wheel, as set forth.

19. In a voting-machine, the combination with a key-spindle, a toothed wheel thereon, and a pivoted arm for engaging the wheel to lock the spindle, of a shaft, means for oper-
90 ating it from the spindle, a rock-shaft operated from the first shaft, and means for operating the pivoted arm to disengage it from the said wheel from the rock-shaft, as set forth.

20. In a voting-machine, the combination with a key-spindle, a toothed wheel thereon,
100 and a pivoted arm for engaging the wheel to lock the spindle, of a horizontal shaft, means for operating it from the key-spindle, a ratchet-wheel loose on the shaft and carrying a bevel-
105 pinion, an arm secured to the shaft and carrying a pawl engaging the ratchet-wheel, a spring-pressed shaft carrying a bevel gear-wheel meshing with the said pinion, an arm adjustably secured to the gear-wheel, a rock-
110 shaft provided with an arm adapted to be engaged by the arm carried by the gear-wheel, and means for operating the arm that engages the toothed wheel of the spindle from the rock-shaft, as set forth.

In testimony whereof we have signed our
115 names to this specification in the presence of two subscribing witnesses.

GUSTAF JOHNSON.
JOHN ERIK HALLDIN.

Witnesses:

DAVID JOHNSON,
DENNIS J. MAHONEY.