

No. 647,437.

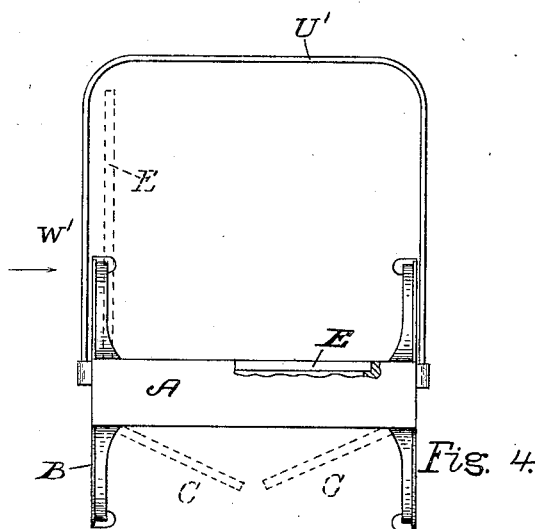
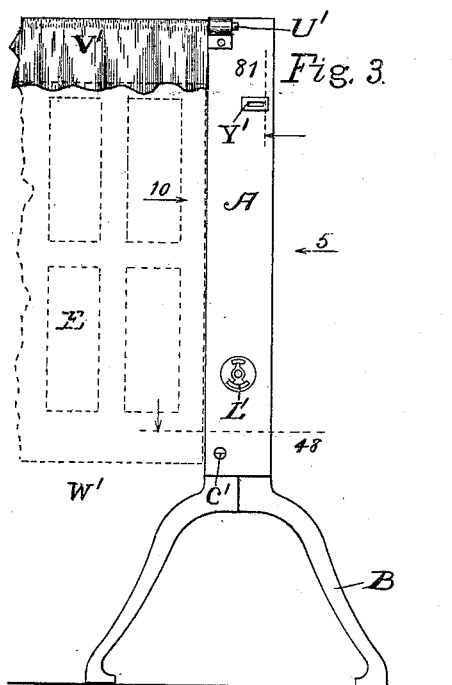
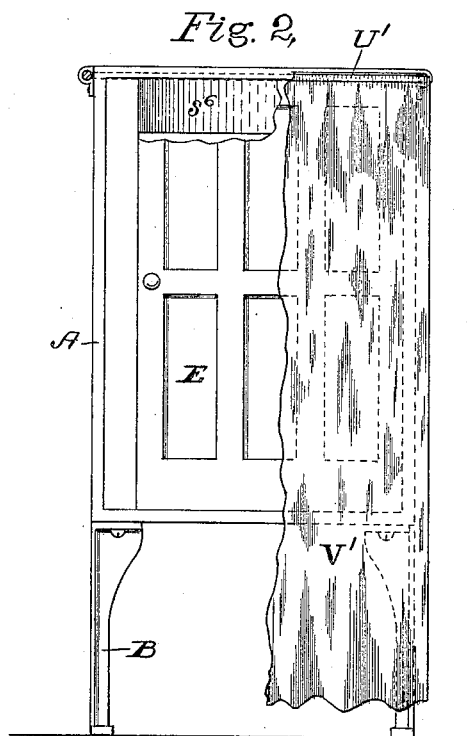
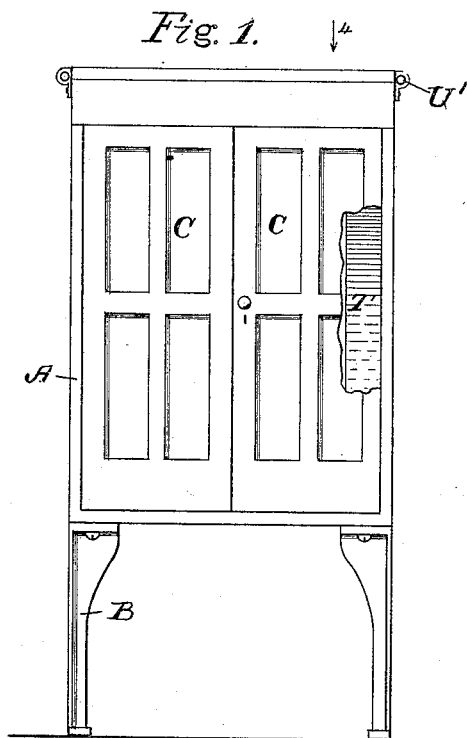
Patented Apr. 10, 1900.

J. BOMA.
VOTING MACHINE.

(No Model.)

(Application filed Mar. 11, 1899.)

15 Sheets—Sheet 1.



Attest:
M. L. Winston.
L. M. Shepard.

Inventor:
J. Boma,
By B. Whitmore,
Att'y

No. 647,437.

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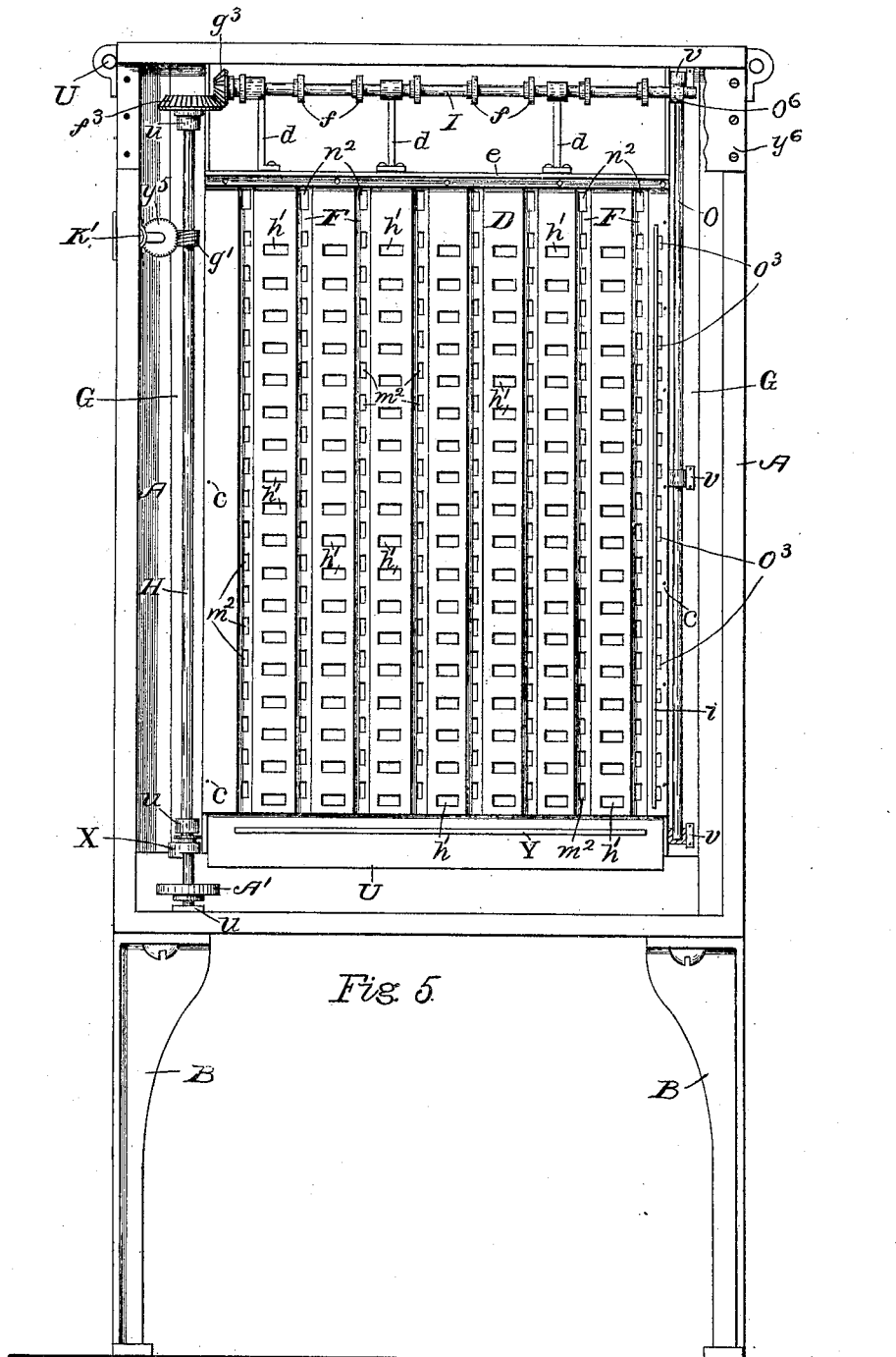
J. BOMA.

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15 Sheets—Sheet 2.



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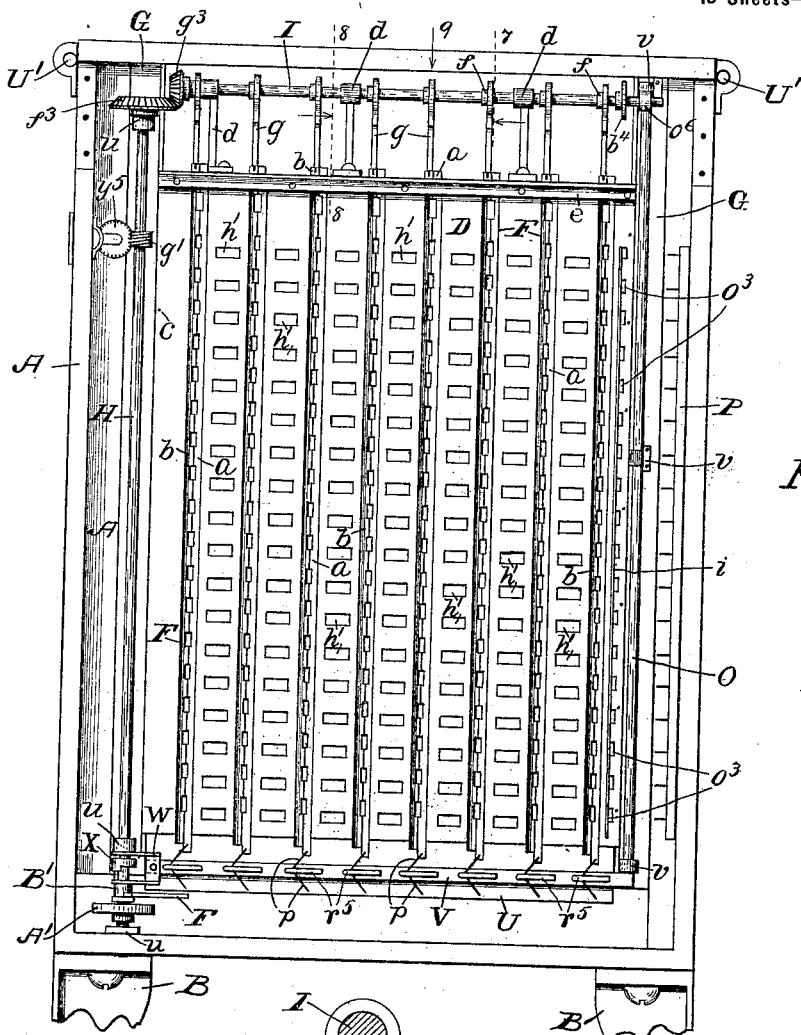


Fig. 6.

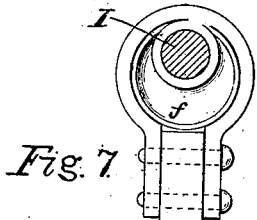


Fig. 7

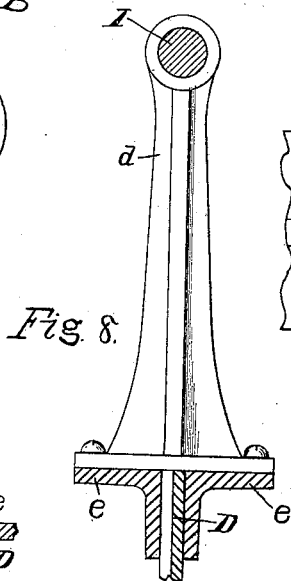


Fig. 8.

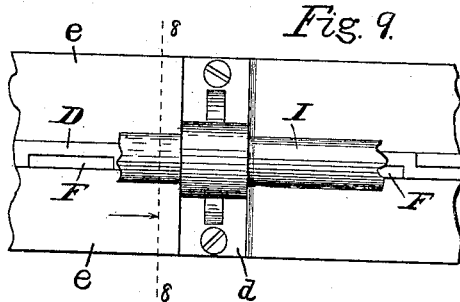


Fig. 9.

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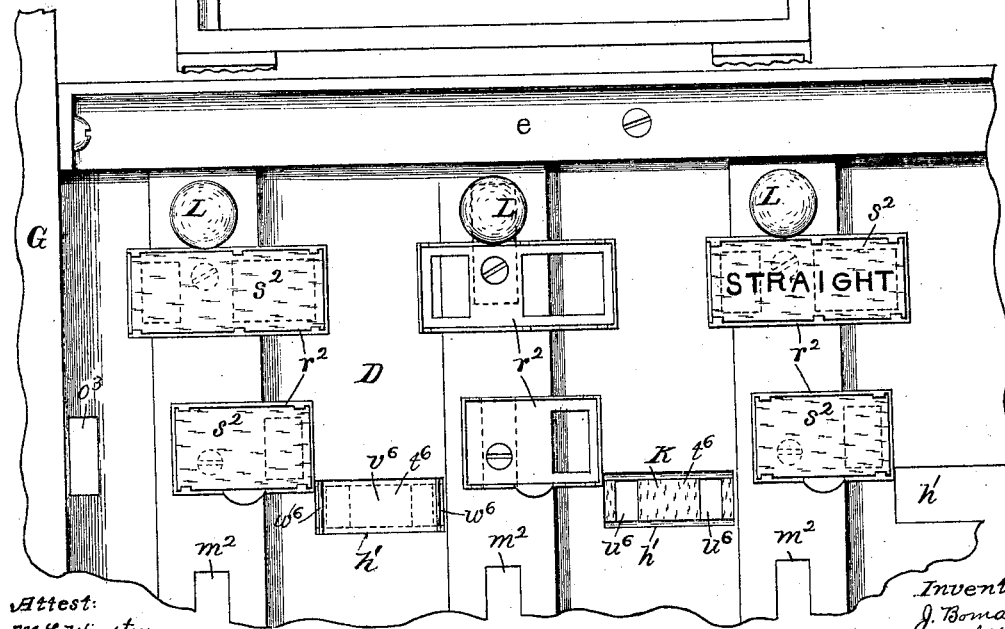
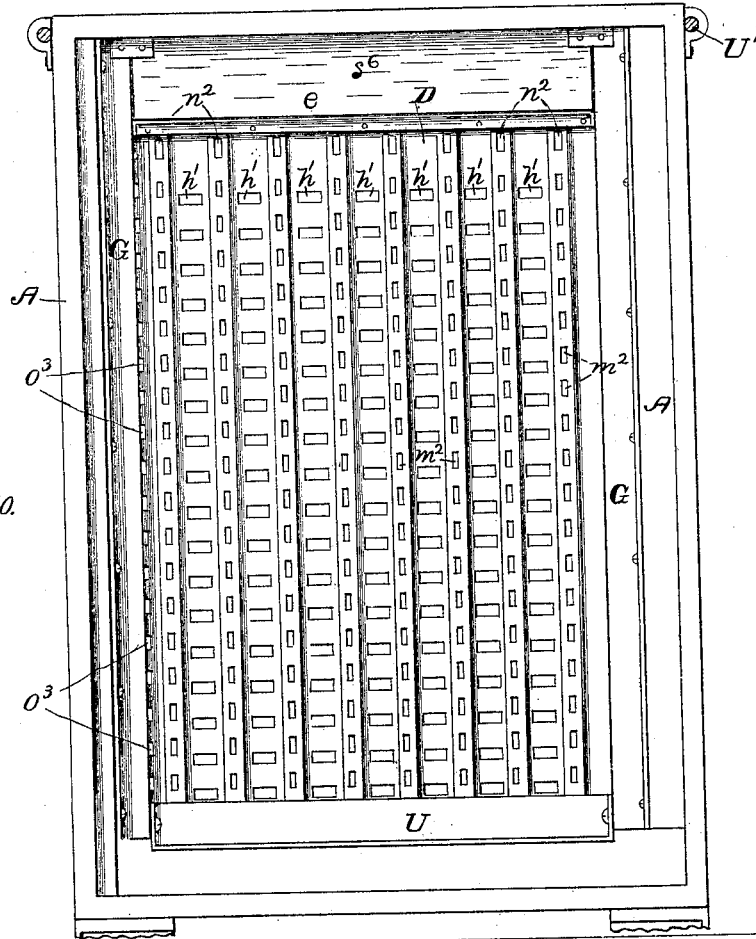
VOTING MACHINE.

(Application filed Mar. 11, 1899.)

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Fig. 10.



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Fig. 11

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J. BOMA.
VOTING MACHINE.

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15 Sheets—Sheet 5.

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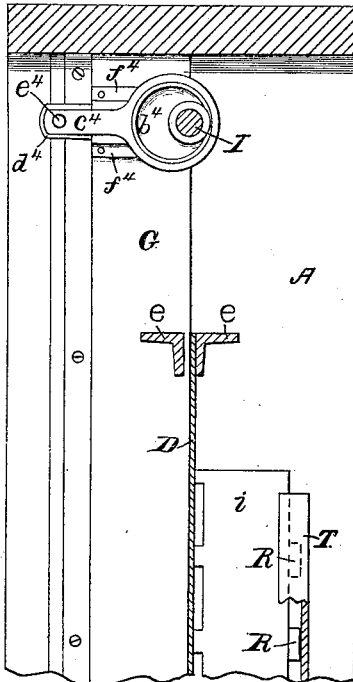


Fig. 13.

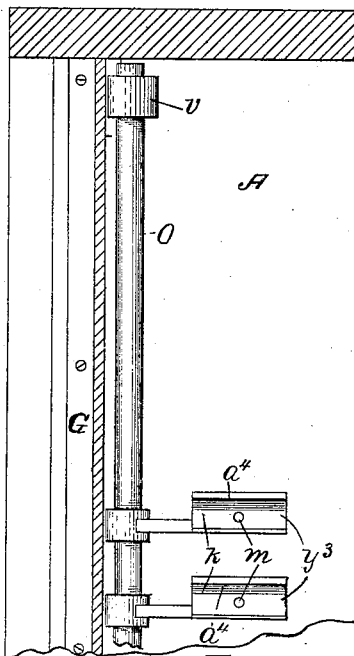


Fig. 14.

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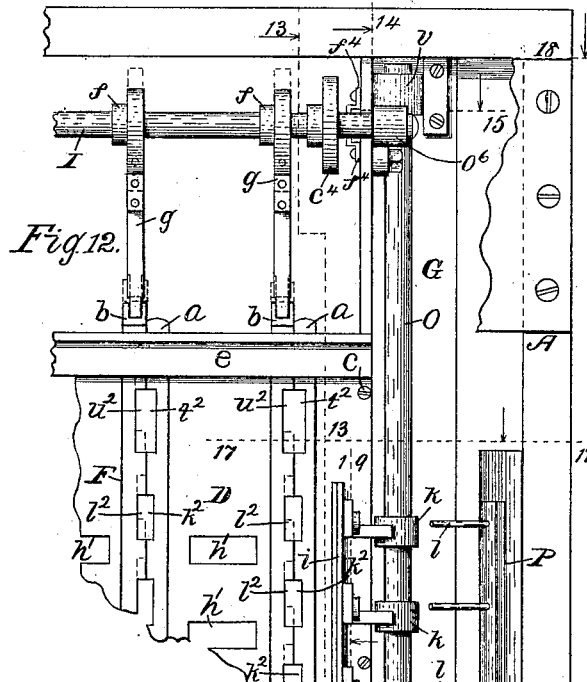


Fig. 12.

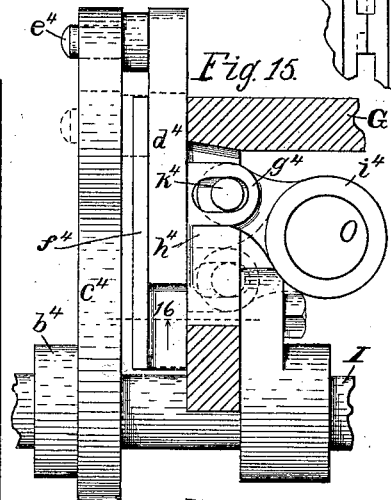


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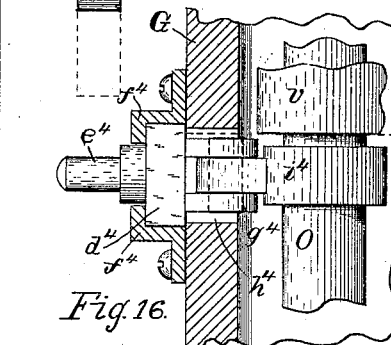


Fig. 16.

Inventor:
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VOTING MACHINE.

(Application filed Mar. 11, 1899.)

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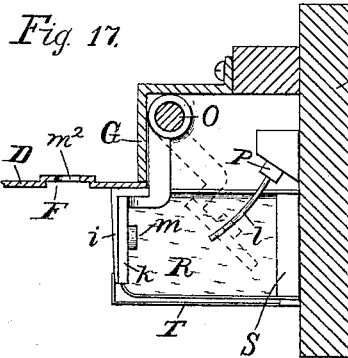


Fig. 17.

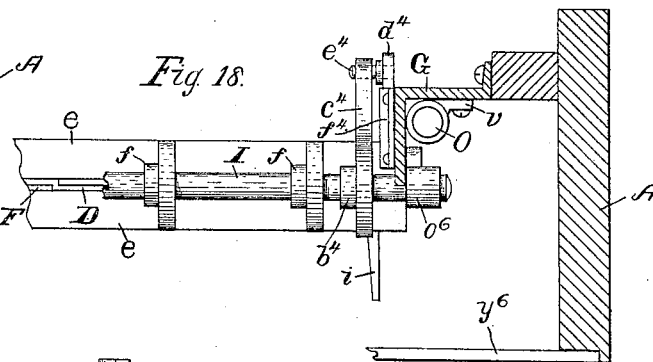


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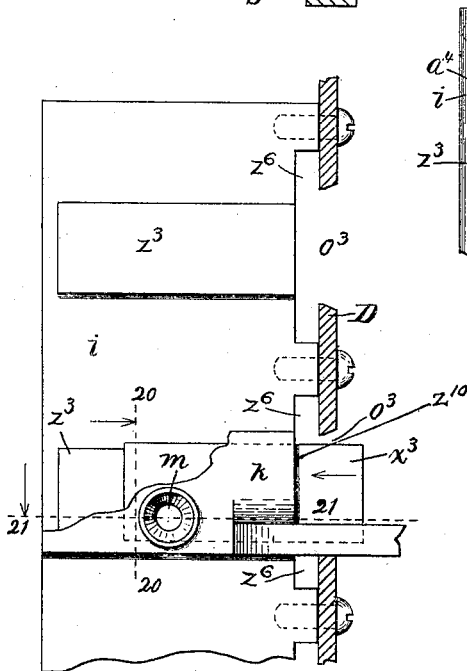


Fig. 19.

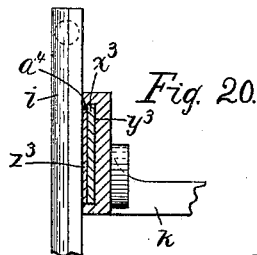


Fig. 20.

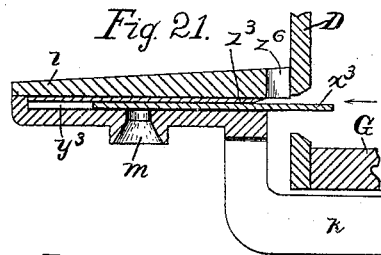


Fig. 21.

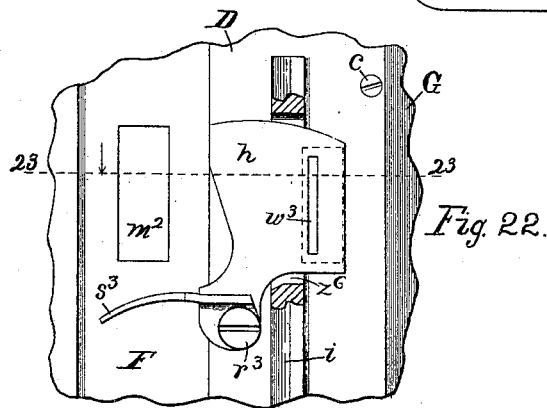


Fig. 22.

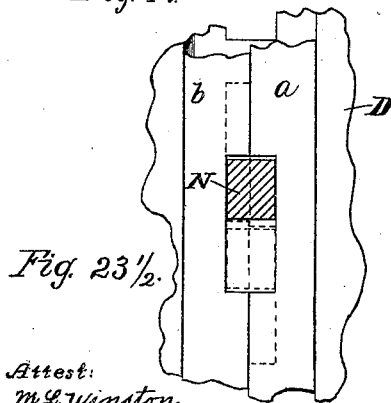


Fig. 23½.

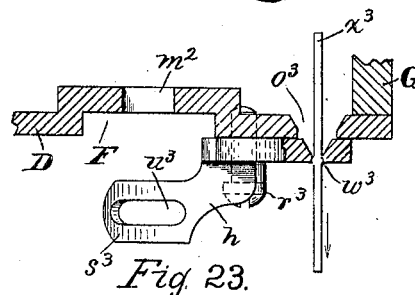


Fig. 23.

Attest:
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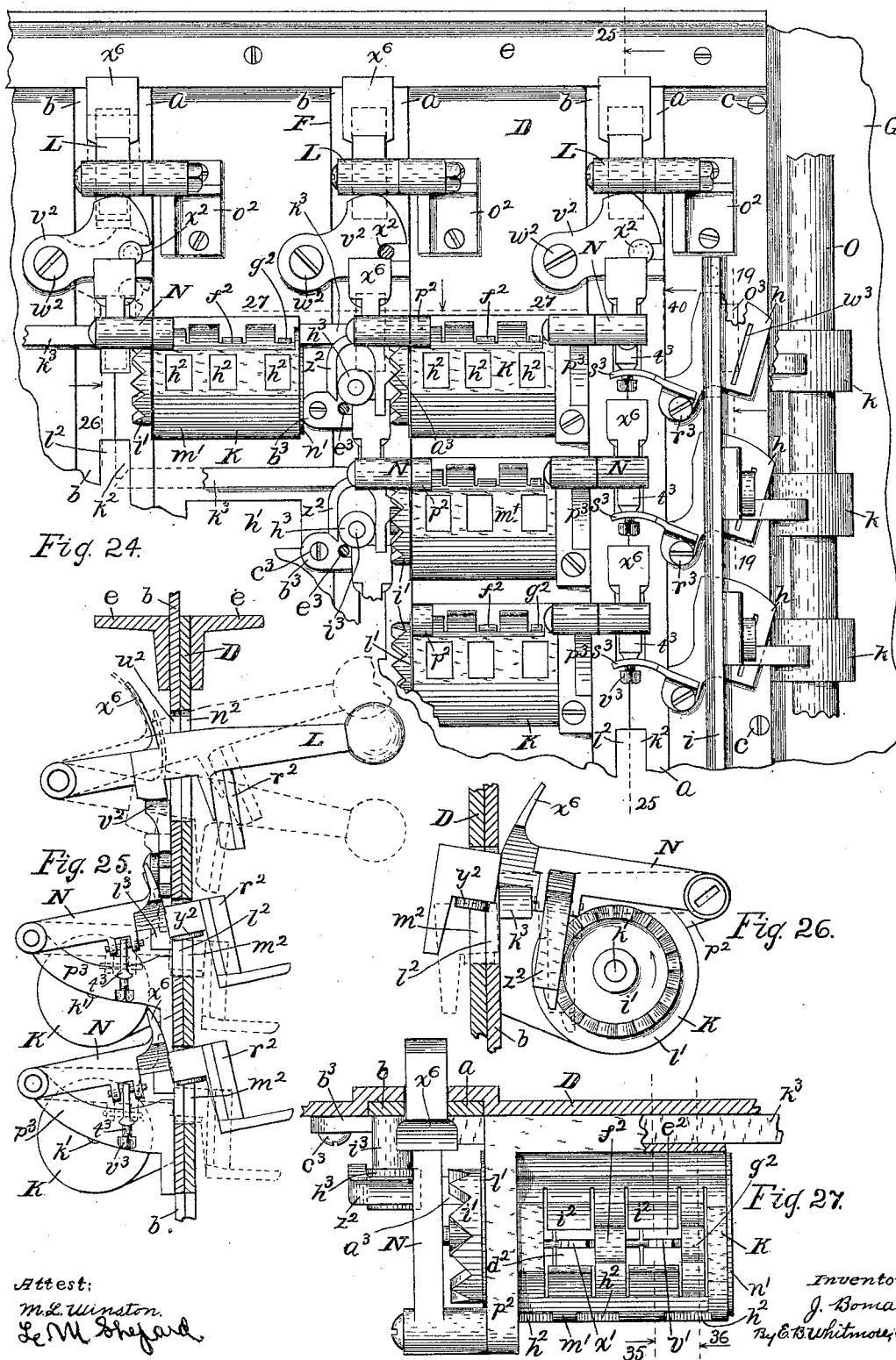
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(No Model.)

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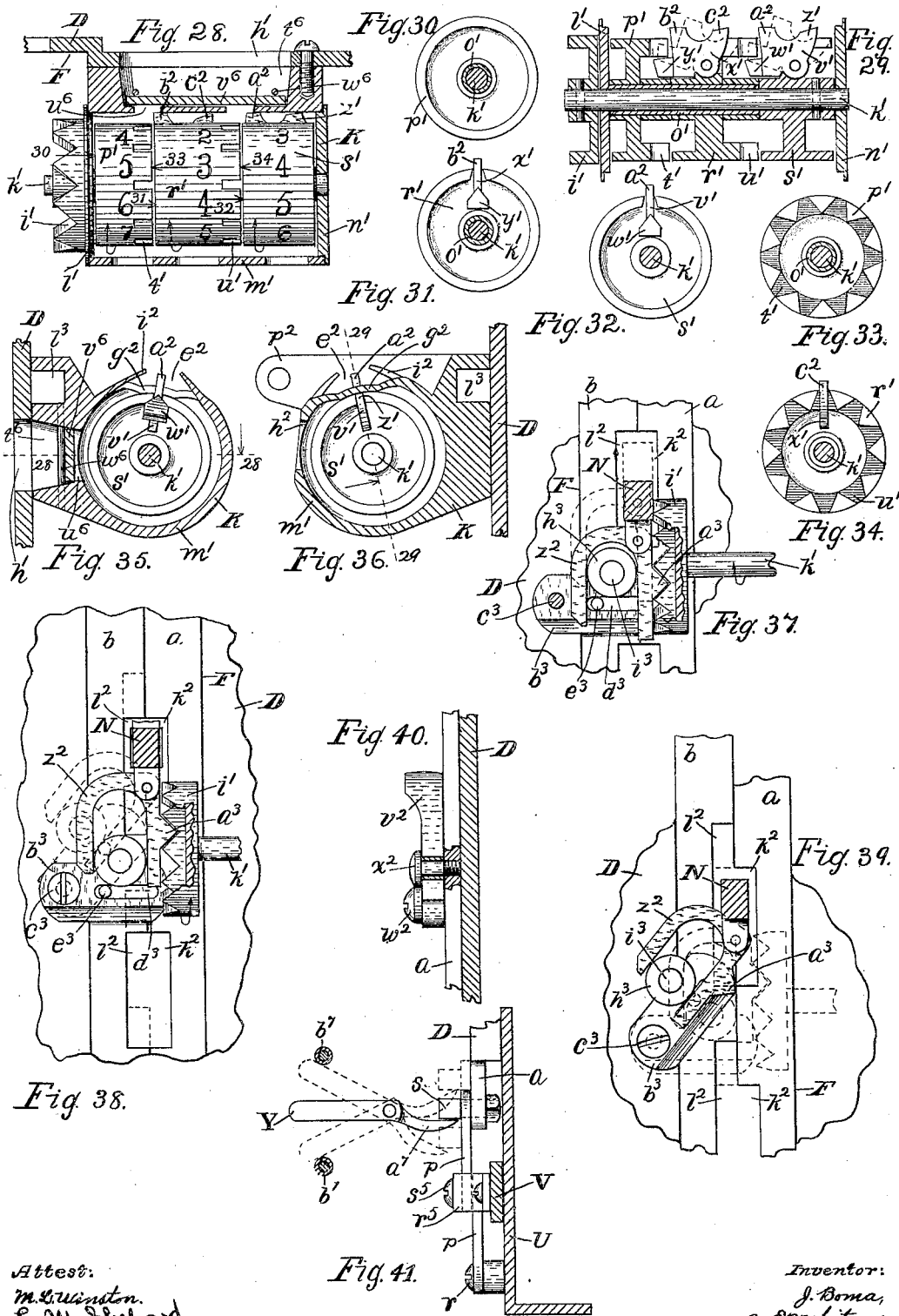
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J. BOMA.
VOTING MACHINE.

(Application filed Mar. 11, 1899.)

(No Model.)

15 Sheets—Sheet 8.



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No. 647,437.

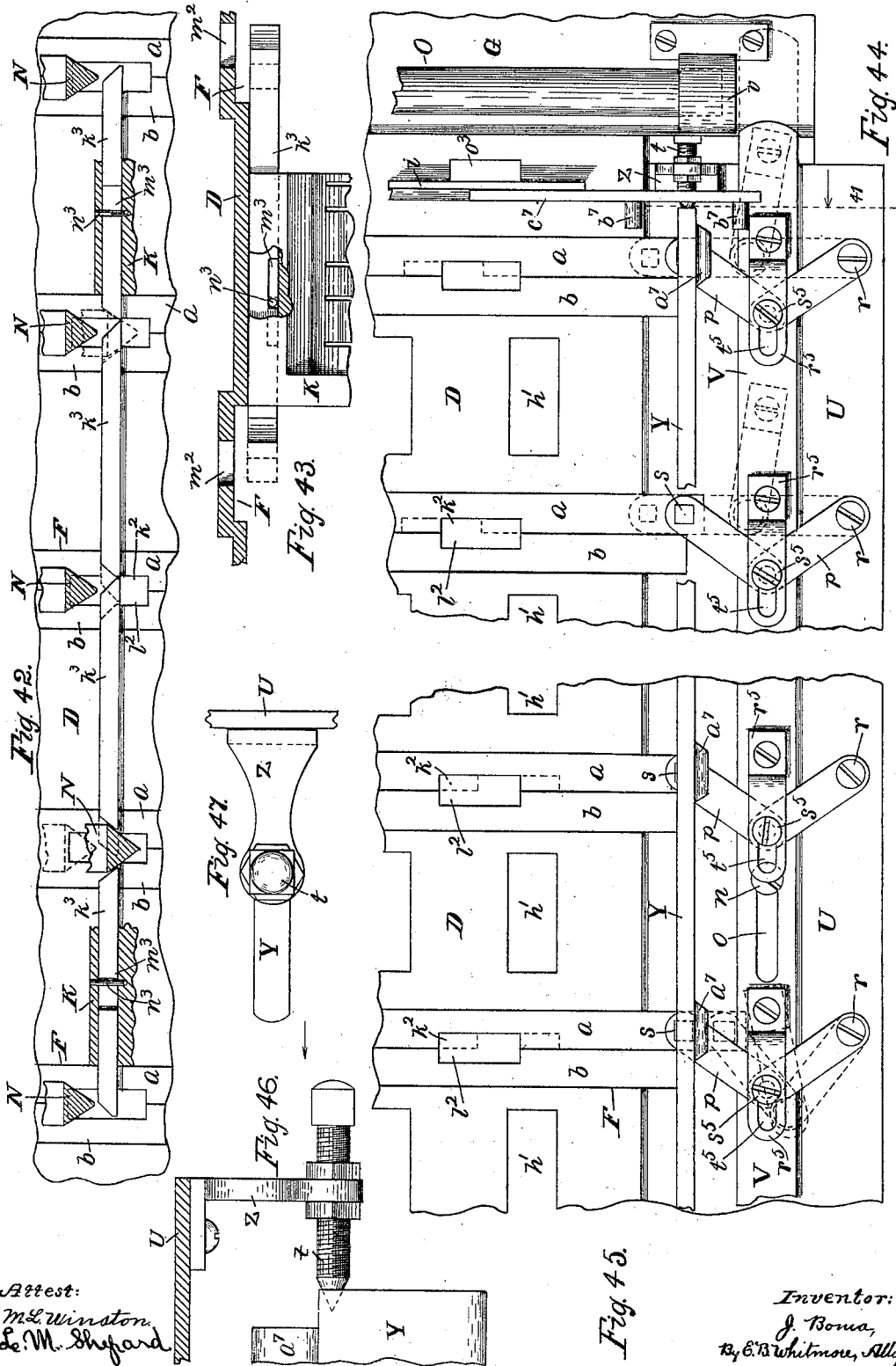
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VOTING MACHINE.

(Application filed Mar. 11, 1899.)

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Fig. 45.

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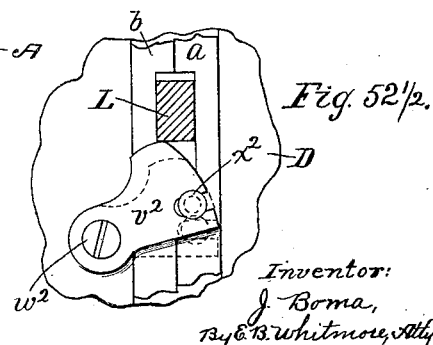
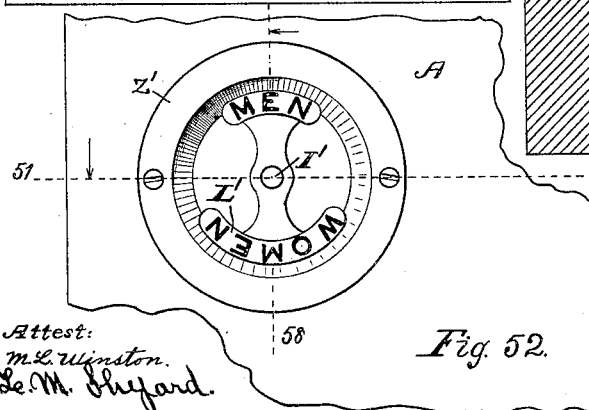
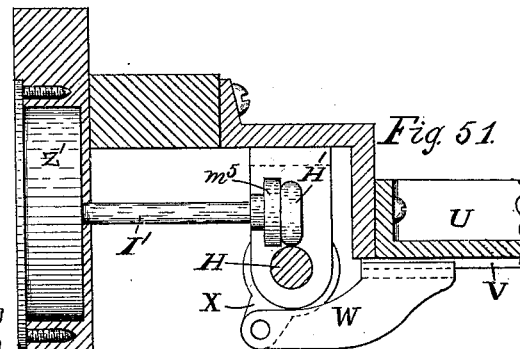
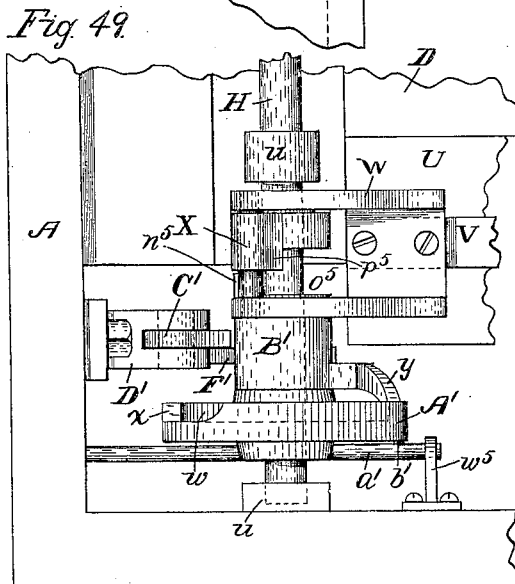
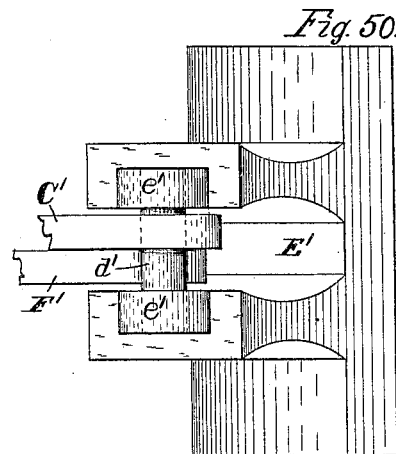
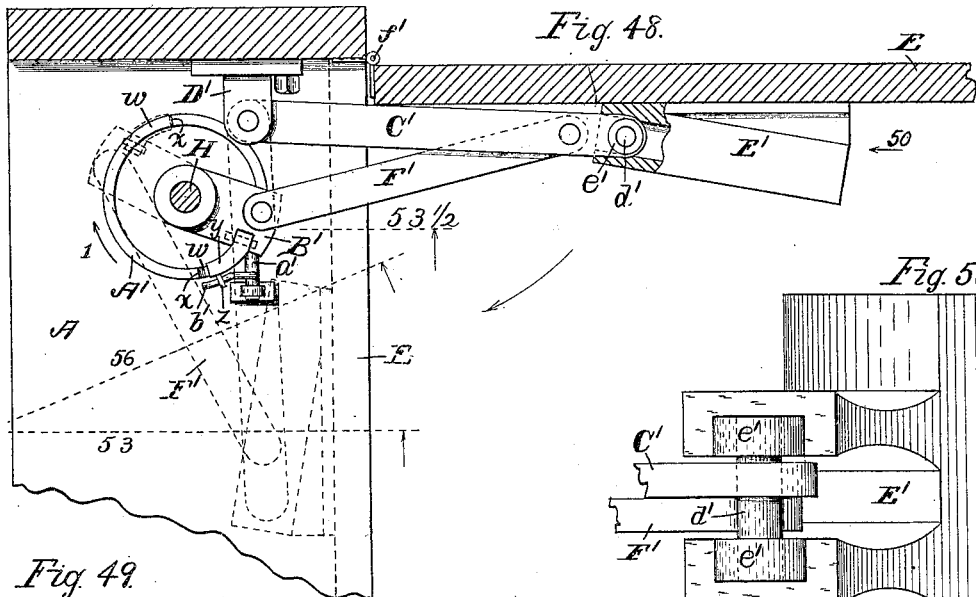
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(Application filed Mar. 11, 1899.)

(No Model.)

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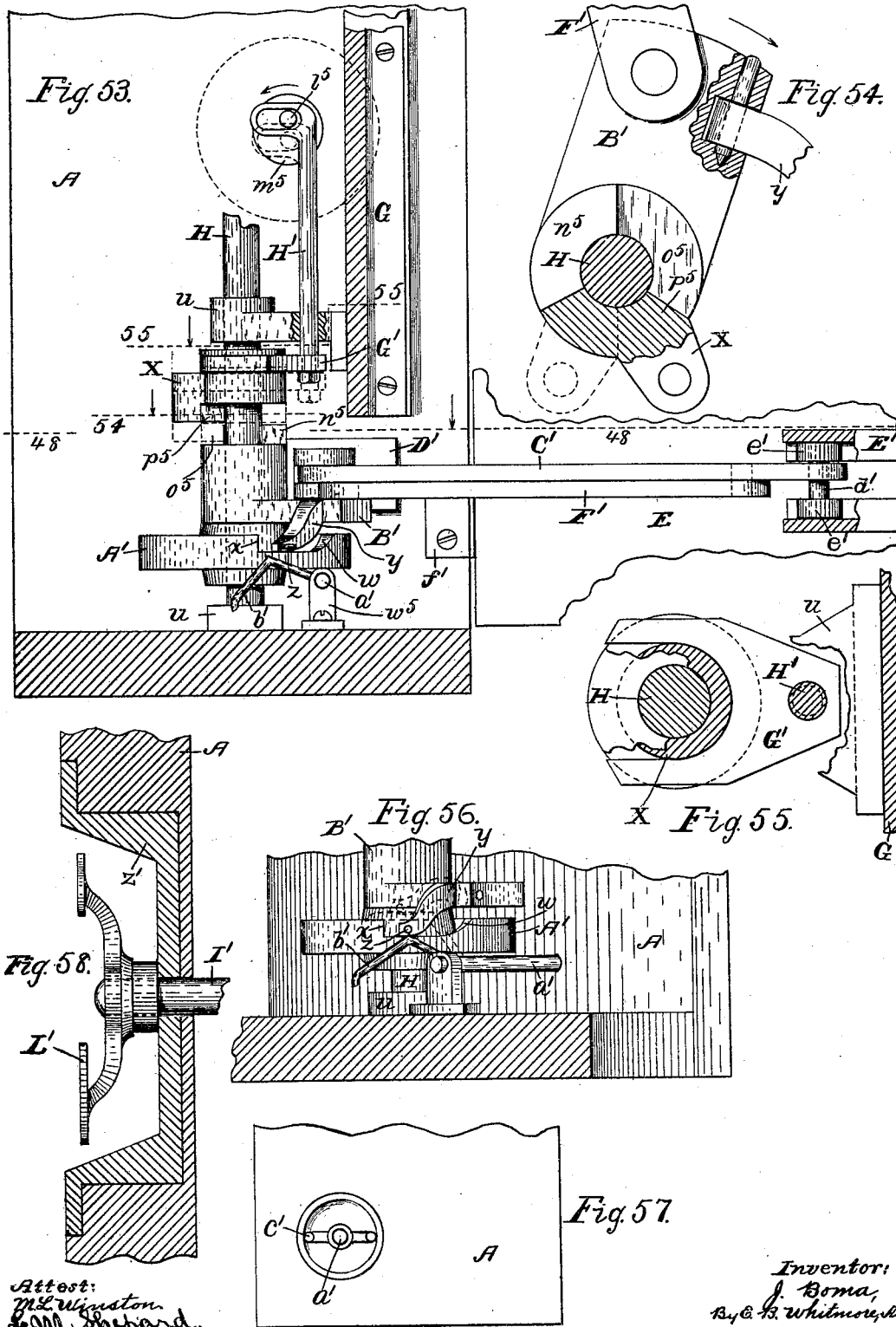
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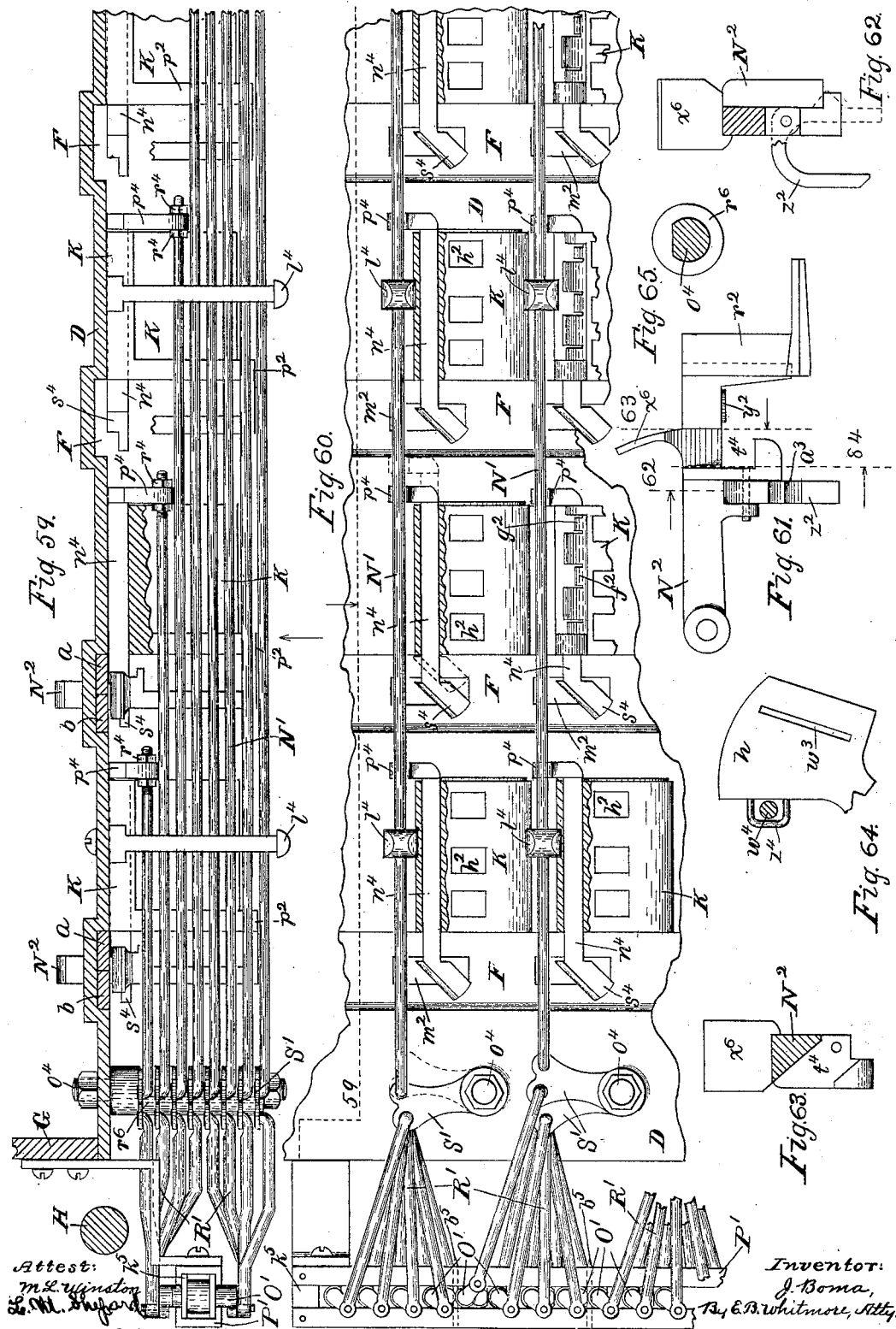
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VOTING MACHINE.

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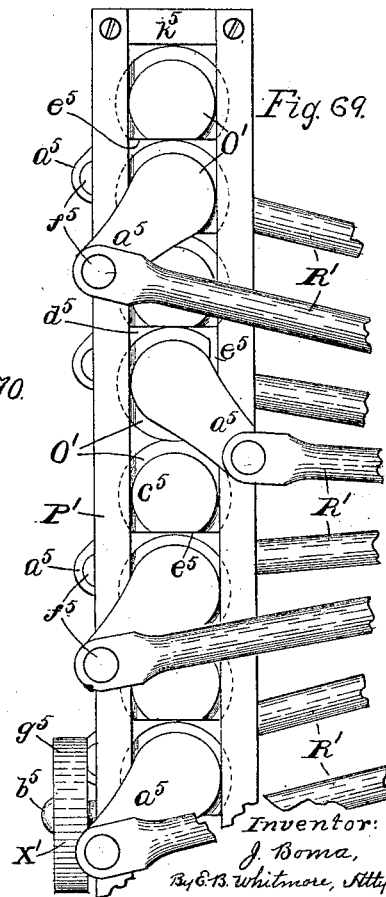
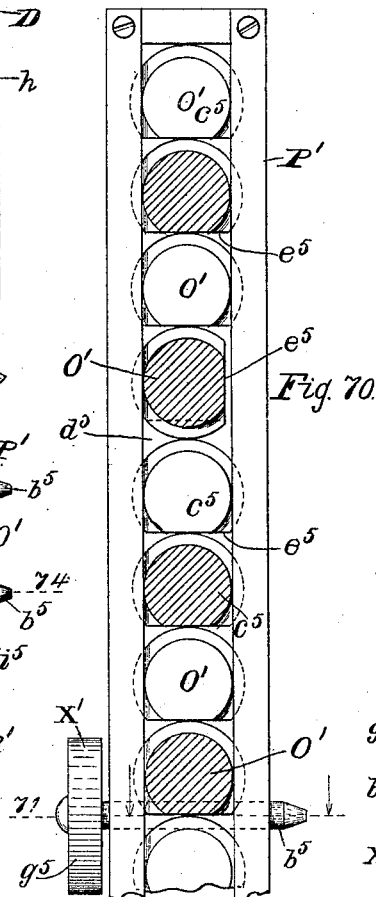
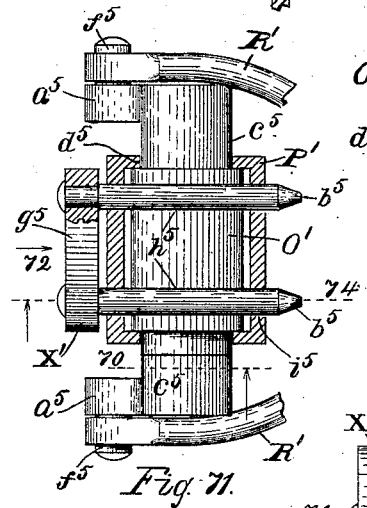
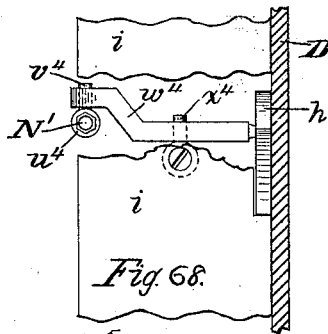
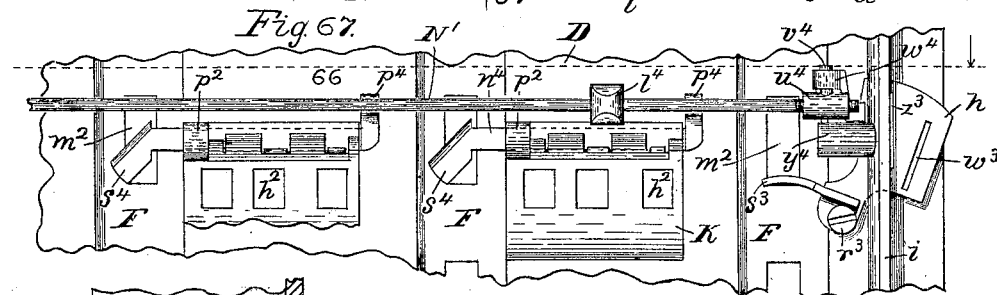
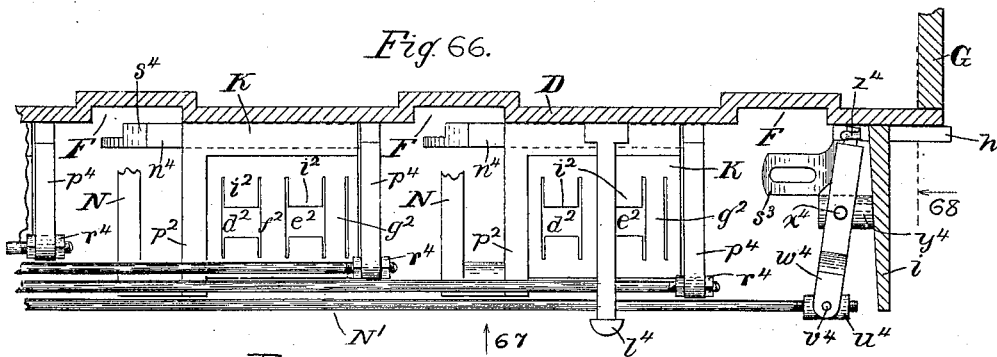
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VOTING MACHINE.

(No Model.)

(Application filed Mar. 11, 1899.)

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M. L. Winston,
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By E. B. Whitmore, Atty.

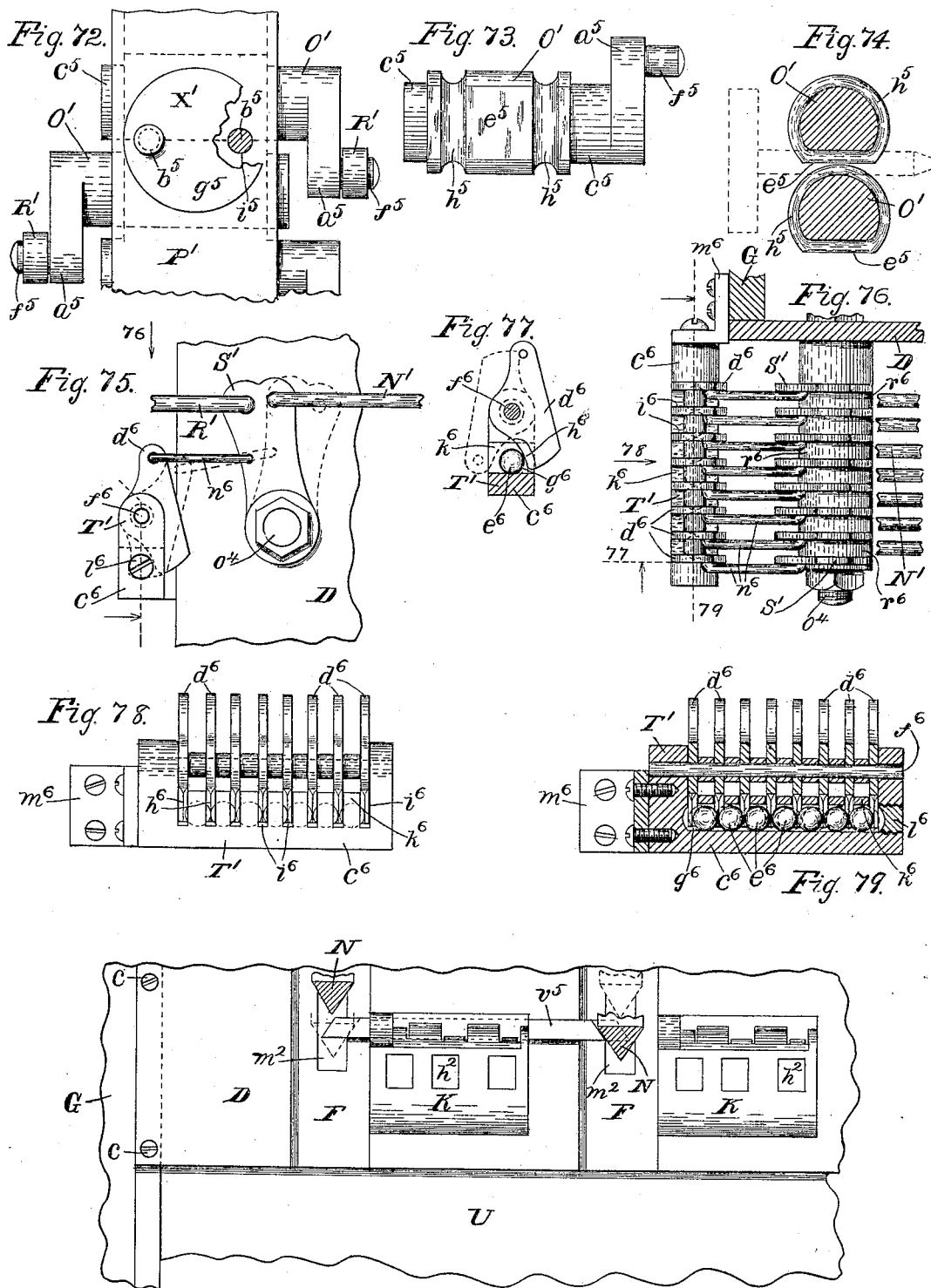
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VOTING MACHINE.

(Application filed Mar. 11, 1899.)

(No Model.)

15 Sheets—Sheet 14.



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Fig. 80

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J. BOMA.
VOTING MACHINE.

(Application filed Mar. 11, 1899.)

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(No Model.)

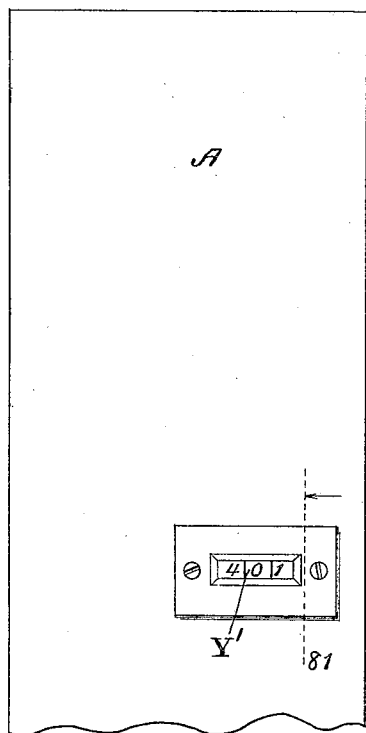


Fig. 83.

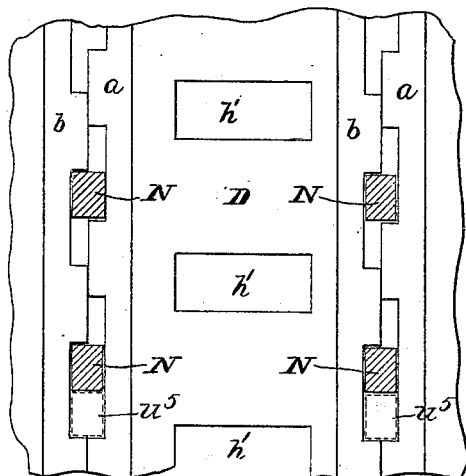


Fig. 85.

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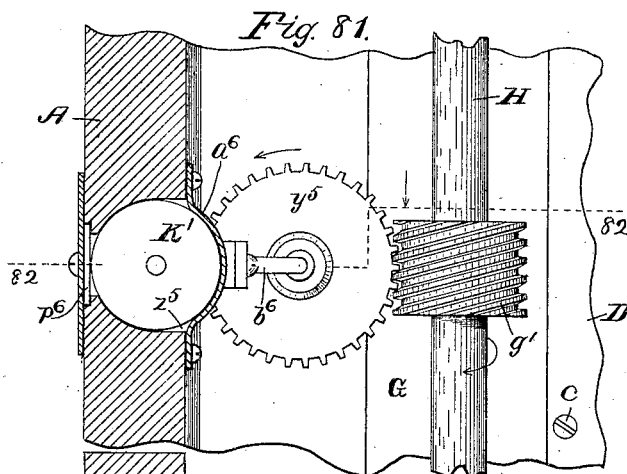


Fig. 81.

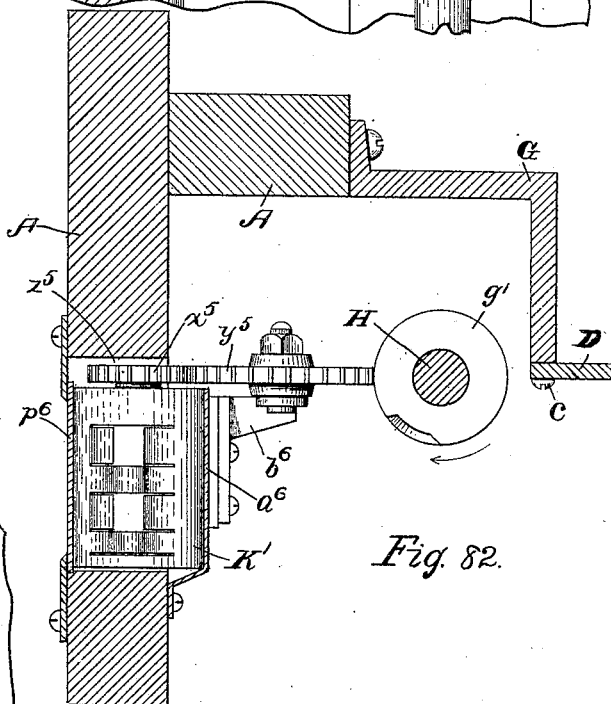


Fig. 82.

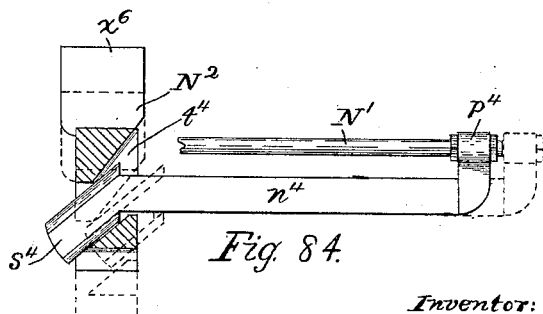


Fig. 84.

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R. E. B. Whitmore, Atty.

UNITED STATES PATENT OFFICE.

JOHN BOMA, OF ROCHESTER, NEW YORK, ASSIGNOR OF ONE-HALF TO
CHARLES A. WEBSTER, OF SAME PLACE.

VOTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 647,437, dated April 10, 1900.

Application filed March 11, 1899. Serial No. 708,691. (No model.)

To all whom it may concern:

Be it known that I, JOHN BOMA, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Voting-Machines, which improvement is fully set forth in the following specification and shown in the accompanying drawings.

My invention relates to voting-machines for use at polling-places during public elections; and it consists of parts and devices shown in the accompanying drawings, all hereinafter fully described, and particularly pointed out in the claims.

One of the main objects of the invention is to produce such a voting-machine in which the voting levers or parts manipulated by the voter are not locked out of action by the voting of any of them—that is to say, while the voter stands in front of the machine every lever or part to be operated is at his command, whether voted or not voted, for if any lever be voted it may be returned or unvoted either by the voting of another lever or for the purpose of voting such other lever.

A further object of the invention is to so construct the machine that a part of it may be used for women to vote, the remainder of the machine being rendered inactive.

A further object of the invention is to provide convenient and ample means for the casting of irregular or written ballots.

A further object of the invention is to provide for group voting, the mechanism involving a cut-out device to prevent illegal or double voting.

Other objects of the invention are to produce effects and results which will appear from the description of the machine here following.

Referring to the drawings, Figure 1 is a rear elevation of the machine with the rear doors closed and a part of one being broken away. Fig. 2 is a front elevation, the operating-door being closed and partly broken away and the inclosing curtain mainly omitted. Fig. 3 is a side view of the machine, seen as indicated by arrow in Fig. 4, showing the doorway through which the voter enters and the operating-door in dotted lines.

Fig. 4 is a view of the device from overhead, the doors being shown in various positions by full and dotted lines and the curtain omitted. Fig. 5 shows the rear side of the inclosing frame or cabinet and the metal perforated channel-plate and other associated parts indicated by arrow 5 in Fig. 3, the rear doors and most of the working parts being omitted. Fig. 6 shows the rear side of the channel-plate and inclosing frame with more of the working parts in place. Fig. 7 is a side view of an eccentric and bar connecting it with the upper end of a returning-bar, the cam-shaft being transversely sectioned on the dotted line 7 in Fig. 6. Fig. 8 is a side view of a standard holding the cam-shaft, the latter and some associated parts being transversely sectioned on the dotted line 8 8 in Figs. 6 and 9. Fig. 9 is a top view of a standard and some associated parts, indicated by arrow 9 in Fig. 6, further showing the form of the channel-plate and the relation of the cam-shaft thereto. Fig. 10 is a front view of the frame and channel-plate and some associated parts, seen as indicated by arrow 10 in Fig. 3. Fig. 11 is a front view of the upper left-hand corner of the channel-plate, showing some of the ticket-holders and other associated parts. Fig. 12 is a rear view of parts at the upper left-hand corner of the machine, showing the ballot-carrier shaft, ballot carriers, trays, and other associated parts. Fig. 13 is a vertical section of parts on the broken dotted line 13 13 in Fig. 12, showing the cam for actuating the ballot-carrier shaft, a part of the associated face-rail, and other parts. Fig. 14 is a vertical section on the dotted line 14 in Fig. 12, further showing the form of the ballot-carriers and other parts. Fig. 15 is a horizontal section of an angle-plate on the dotted lines 15 in Figs. 12 and 16, showing the mechanism for operating the ballot-carrier shaft, parts being shown in two positions by full and dotted lines. Fig. 16 further shows the parts for operating the ballot-carrier shaft, the section being on the dotted line 16 in Fig. 15. Fig. 17 is a horizontal section on the dotted line 17 17 in Fig. 12, further showing the form of the ballot-carriers and ballot trays and discharger, the ballot-carrier being shown in two positions by full and dotted lines. Fig. 18 is a horizontal

section on the dotted line 18, Fig. 12, further showing the parts associated with the ballot-carrier shaft. Fig. 19 is a side view of the upper part of the face-rail and associated parts, the upper ballot-carrier being partly broken away and the channel-plate vertically sectioned on the dotted lines 19 19 in Figs. 12 and 24. Fig. 20 is a vertical cross-section of a ballot-carrier and other parts on the dotted line 20 20 in Fig. 19. Fig. 21 is a horizontal section of the ballot-carrier, face-rail, and other parts on the dotted line 21 21, Fig. 19. Fig. 22 is a rear elevation of a part of the channel-plate, showing a ballot-guard in position for voting, a part of the face-rail being broken away. Fig. 23 is a horizontal section on the dotted line 23 23 in Fig. 22, further showing the form of the ballot-guard. Fig. 23½ shows the relation of a voting-lever with the associated channel-bars, parts being shown in various positions by full and dotted lines and the voting-lever cross-sectioned adjacent to said bars. Fig. 24 is a rear view of the upper left-hand corner of the channel-plate, showing ballot-guards, counters, voting-levers, and other parts in place thereon, parts at the left being shown in various positions by full and dotted lines. Fig. 25 is a vertical section of the channel-plate on the dotted line 25 25 in Fig. 24, further showing some of the voting-levers and associated parts, parts being shown in various positions by full and dotted lines. Fig. 26 shows the toothed end of a counter and connected voting-lever, the latter, with its pawl, being shown in two positions by full and dotted lines, the section being along the vertical dotted line 26 in Fig. 24. Fig. 27 is a plan of a counter and lever, the channel-plate and channel-bars being horizontally sectioned on the dotted line 27 27 in Fig. 24. Fig. 28 is a horizontal axial section of a counter-barrel and adjacent part of the channel-plate on the dotted line 28 28 in Fig. 35. Fig. 29 is an axial section of the digit-drums and associated parts of a counter on the dotted line 29 29 in Fig. 36, the dogs being shown in two positions by full and dotted lines. Fig. 30 is an outer end view of the hundreds-digit drum, seen as indicated by arrow 30 in Fig. 28. Fig. 31 is an end view of the tens-digit drum, indicated by arrow 31 in Fig. 28, showing the hundreds-carrying dog. Fig. 32 is an inner end view of the units-digit drum, showing the tens-carrying dog, seen as indicated by arrow 32 in Fig. 28. Fig. 33 is a view of the inner notched end of the hundreds-digit drum, indicated by arrow 33 in Fig. 28. Fig. 34 is a view of the notched end of the tens-digit drum, indicated by arrow 34 in Fig. 28, showing the hundreds-carrying dog. Fig. 35 is a cross-section of a counter on the dotted line 35 in Fig. 27, further showing the form of the barrel. Fig. 36 is a cross-section of a counter on the dotted line 36 in Fig. 27, serving to show the method of actuating a carrying-dog. Fig. 37 shows a forked pawl and associated parts after the lever is

voted. Fig. 38 shows the pawl and associated parts before the lever is voted, parts being shown in different positions by dotted lines. Fig. 39 shows the pawl thrown out of the toothed wheel by the action of the returning-bar, parts being shown in other positions by dotted lines. Fig. 40 is an end view of a button for operating a voting-bar, the channel-plate being vertically sectioned on the dotted line 40 in Fig. 24. Fig. 41 shows a pair of toggle-links for actuating a voting-bar and the counterbalance for the latter in several positions by full and dotted lines, the foot-plate or girth and toggle-bar being vertically sectioned, as on the dotted line 41 in Fig. 44. Fig. 42 shows a portion of the rear face of the channel-plate and a series of horizontal trip-bolts with the associated voting-levers in cross-section, parts being shown in different positions by dotted lines. Fig. 43 shows more fully the form of an end or extreme trip-bolt, the adjacent part of the channel-plate being in horizontal section just above the counter, the trip-bolt being shown in its two positions by full and dotted lines. Fig. 44 is a rear view of a part at the lower left-hand corner of the channel-plate, showing some of the toggle-links, toggle-bar, and other associated parts. Fig. 45 further shows the action of the toggle-links and connected voting-bar. Fig. 46 shows the manner of hanging the counterbalance, the girth being horizontally sectioned adjacent thereto. Fig. 47 shows the end of the counterbalance and hanger, seen as indicated by arrow in Fig. 46. Fig. 48 is a horizontal section of the inclosing frame and operating-door on the dotted lines 48 in Figs. 3 and 53, showing the mechanism for operating the vertical controlling-shaft, parts being shown in two positions by full and dotted lines. Fig. 49 is a rear elevation of parts at the foot of the controlling-shaft, further showing the connected mechanism. Fig. 50 is an end view of the guide for the swing-arm, indicated by arrow 50 in Fig. 48. Fig. 51 is a horizontal section of parts on the dotted line 51 in Fig. 52, showing the mechanism for throwing parts of the machine in and out of action. Fig. 52 is a view at the right of the inclosing frame, showing the sex-plate for throwing in and out of action. Fig. 52½ shows the elevated positions of a button and coacting master-lever, as when the machine is set for women to vote, the lever being in transverse section even with the button. Fig. 53 is a vertical section of the frame on the dotted line 53 in Fig. 48, further showing the mechanism at the foot of the controlling-shaft and the swing-arm, with associated parts, the adjacent angle-plate being similarly sectioned, as on the dotted line 53½ in said Fig. 48. Fig. 54 is a plan of the clutch-pawl carrier for turning the controlling-shaft, which latter, with the clutch, being horizontally sectioned on the dotted line 54 in Fig. 53. Fig. 55 shows the clutch-fork and some associated parts horizontally sectioned on the broken line 55 in

Fig. 53, a part of the clutch being broken away. Fig. 56 is a vertical cross-section of the frame on the dotted line 56 in Fig. 48, further showing the means for tripping the pawl. Fig. 57 is a view at the right of the inclosing frame, showing the handle for tripping the pawl. Fig. 58 shows more fully the form of the sex-plate and holder therefor, the section being on the vertical dotted line 58 in Fig. 52. Fig. 59 is a horizontal section of the channel-plate on the broken dotted line 59 in Fig. 60, showing the grouping mechanism, parts being broken away. Fig. 60 is a rear elevation of a part of the channel-plate with dependent parts, seen as indicated by arrow in Fig. 59, further showing the grouping mechanism, parts being broken away and omitted. Fig. 61 is a side elevation of a minor voting-lever employed with the grouping mechanism. Fig. 62 is a cross-section of the lever, taken on the dotted line 62 in Fig. 61. Fig. 63 is a cross-section taken on the dotted line 63 in Fig. 61. Fig. 64 is a rear face view of the ballot-guard used with the grouping mechanism, showing the loop thereon. Fig. 65 shows a spacing-washer for the rockers of the grouping mechanism. Fig. 66 further shows the grouping mechanism, it being practically a continuation to the right of Fig. 59, the section of the channel-plate and other parts being on the dotted line 66 in Fig. 67. Fig. 67 is a rear face view of parts indicated by arrow 67 in Fig. 66. Fig. 68 is a side view of a swivel-lever and connected parts indicated by arrow 68 in Fig. 66, parts being broken away and the channel-plate vertically sectioned on the dotted line at the point of the arrow. Fig. 69 is an end view of the grouping-tumblers at the upper end of the series with associated parts. Fig. 70 is a similar view of the tumblers, the alternate ones being vertically sectioned, as on the dotted line 70 in Fig. 71. Fig. 71 is a transverse section of the frame or cage holding the tumblers, taken on the dotted line 71 in Fig. 70, showing the divider. Fig. 72 is a side view of a part of the tumbler-cage and tumblers, indicated by arrow 72 in Fig. 71, a part of the head of the divider being broken out. Fig. 73 shows a tumbler detached. Fig. 74 is a transverse section of two adjacent tumblers through the grooves on the dotted line 74 in Fig. 71. Fig. 75 shows the end of the check mechanism or cut-out for limiting votes and its connection with the grouping-rockers, parts being shown in various positions by full and dotted lines. Fig. 76 is a plan of the cut-out and connected rockers, view indicated by arrow 76 in Fig. 75. Fig. 77 is a cross-section of the body of the cut-out mechanism on the dotted line 77 in Fig. 76, showing by dotted lines a blade inverted. Fig. 78 is a side view of the cut-out mechanism, seen as indicated by arrow 78 in Fig. 76. Fig. 79 is a longitudinal section on the dotted line 79 in Fig. 76, showing the balls in place in front of the

blades. Fig. 80 shows a pair of "yes" and "no" or for and against counters, the bolt and voting-levers being shown in various positions by full and dotted lines, parts being omitted and the levers in cross-section. Fig. 81 is a rear elevation showing the public counter and mechanism for operating the same, the inclosing frame and minor parts being vertically sectioned on the dotted lines 81 in Figs. 3 and 83. Fig. 82 is a plan of the public counter and mechanism for actuating it, the inclosing frame and other parts being horizontally sectioned on the broken dotted line 82 82 in Fig. 81. Fig. 83 is a view of the upper part of the inclosing frame at the right-hand side thereof, showing the opening through which the public counter is read. Fig. 84 further shows the form and relation of a voting-lever and coacting sliding bolt of the group mechanism, the lever being vertically sectioned and the parts shown in their two positions by full and dotted lines. Fig. 85 shows the elongated openings in the voting-bars for the use of women voters, the levers being transversely sectioned and the lower row shown in two positions by full and dotted lines.

Figs. 1 to 4, inclusive, are drawn to a scale about one-sixteenth full size; Figs. 5, 6, and 10 to a scale about one-eighth full size; Figs. 12, 13, 14, 17, 18, 48, 57, and 83 to a scale about one-third size; Figs. 49, 51 to 53, and 56 to a scale about one-half size; Figs. 7, 8, 9, 11, 24, 25, 41, 42, 44, 45, 52½, 59, 60, 66, 67, 68, 80, 81, 82, and 85 to a scale about two-thirds size; Figs. 69 to 74, inclusive, to an exaggerated scale, and the remaining figures to a scale about full size.

Referring to the drawings, A, Figs. 1 to 6 and 10, is a rectangular frame, preferably of wood, for inclosing the working parts of the machine, the frame resting upon suitable legs or supports B.

C C are a pair of doors hung to the frame A for closing the rear side thereof. E, Figs. 2 and 4, is a single door hung to the frame for closing the front thereof.

D, Figs. 5, 6, and 10, is a perforated metal plate formed with vertical channels F, equally spaced for holding companion bars *a b*, Figs. 6, 12, and 24.

G G are a pair of similar vertical angle-plates for securing the channel-plate to the frame A, Figs. 5, 10, 12, 15, and 17, said channel-plate being held to place by screws *c*.

H, Figs. 5, 6, 48, and 49, is a vertical main or controlling shaft at the side of the channel-plate held in bearings *u*, rigid with the adjacent angle-plate G and the frame A, respectively.

I, Figs. 5, 6, 9, and 18, is a cam-shaft over the channel-plate, which, actuated by the controlling-shaft H, serves to return all parts of the machine to their normal positions after a voter has used them.

d d d, Figs. 5, 6, 8, and 9, are standards for

supporting the returning-shaft I, secured to horizontal angle-irons *ee* at the top of the channel-plate D.

f, Figs. 5 and 7, represents a series of eccentrics on the shaft I for operating the returning-bars *b*, joined to the latter by connectors *g*, Figs. 6, 7, and 12.

K, Figs. 24, 26, 27, and 60, represents a series of counters secured to the rear side of the channel-plate D to indicate the number of votes cast for different candidates.

L, Figs. 11, 24, and 25, represents a series of master voting-levers in horizontal row at the heads of the channels F in the channel-plate.

N, Figs. 24 to 27, represents a series of minor voting-levers arranged in both vertical and horizontal rows in the channel-plate, occupying the channels therein.

h, Figs. 22 to 24, 66, and 67, represents a vertical series of ballot-guards operated by connected voting-levers N.

O, Figs. 5, 6, 12 to 16, and 17, is a vertical reciprocating shaft held in bearings *vvv*, rigid with the adjacent angle-plate G, operated by the returning-shaft I.

k, Figs. 12, 14, and 17, represents a series of ballot-carriers on the shaft O for receiving through openings in the channel-plate paper ballots.

i, Figs. 6, 12, 13, 20, and 21, is a broad vertical bar or rail projecting at right angles from the rear side of the channel-plate facing the ballot-carriers *k* and coacting with them.

P, Figs. 6, 12, and 17, is a vertical bar rigid with the frame A, having tines *l* for discharging the ballots from the ballot-carriers *k*.

R, Figs. 12 and 17, is a series of trays for receiving the ballots as they drop from the carriers *k*, held by a bar S and closed by a door T. (See also Fig. 1.)

U, Figs. 5, 41, 44, and 51, is an angle foot-plate or girth at the lower end and in front of the channel-plate, secured at its ends to the respective angle-plates G G.

V, Figs. 6, 44, and 45, is a horizontal reciprocating bar held by the plate or girth U, provided with toggle-links *pp*, secured to the girth U and the voting-bars *a*, respectively.

W, Figs. 6, 49, and 51, is a bifurcated head on the bar V, engaged by a clutch-arm X on the shaft H.

Y, Figs. 5, 41, and 44 to 47, is a counter-balancing-bar for the weight of the voting-bars *a*, pivoted at its ends on points *t*.

A', Figs. 6, 48, 49, 53, and 56, is a notched wheel or disk rigid with the shaft H.

B' (see also Fig. 54) is a movable pawl-carrier on the shaft H over the notched disk, provided with a pawl *y* to engage said disk.

C', Figs. 48 to 50 and 54, is a swing-arm held at one end in a rest D', rigid with the frame A, with the other end held to traverse a guide E' on the door E.

F' is a link-bar connecting the swing-arm with the pawl-carrier B', so that the swinging of the door will turn the shaft H.

G', Figs. 53 and 55, is a fork engaging the clutch-arm X.

H' is a vertical rod for controlling the fork *G'*.

I', Figs. 51, 52, and 58, is a crank-shaft for actuating the rod *H'*.

g', Figs. 6, 81, and 82, is a worm on the shaft H for operating a public counter K'.

N', Figs. 59, 60, 66, and 67, represents a series of horizontal rods of the grouping mechanism.

O', Figs. 59, 60, and 69 to 74, represents a series of tumblers connected with the rods *N'* by connectors R' and rockers S'.

T', Figs. 75 to 79, is a cut-out device for limiting voting.

U', Figs. 2 to 4, is a bent horizontal rod secured to the top of the frame A for holding an inclosing curtain V' for concealing the voter.

The channel-plate D is pierced between the channels F with vertical rows of rectangular openings *h'*, Figs. 5 and 10, alike and uniformly spaced. Opposite or against each of these numerous openings on the rear side of the channel-plate is secured a counter K, Figs. 11, 28, and 35. These counters are formed with cavities *h'*, registering with the openings *h'*, at the bottoms of which cavities are formed orifices *w'*, through which the voter may observe the working parts of the counter while voting. A sheet of glass *v'* is placed to cover the openings *w'*, held to place by vertical pins *w'* in the counter.

Each counter comprises a notched wheel *l'* and spindle *k'*, Figs. 28 to 37, held to turn in heads *l' n'* of the inclosing barrel *m'* of the counter. The head *l'* is formed with a tube or sleeve *o'*, within which the spindle *k'* is adapted to turn, upon which sleeve are seated two drums *p' r'*, marked upon their respective peripheries with the digits from "0" to "9," consecutively, as shown. Upon the spindle at the end of the sleeve is secured a third drum *s'*, likewise provided with the digits in regular order. These three drums are of uniform diameter, the drums *p'* and *r'* being adapted to turn independently of the sleeve and of each other, all being provided with some simple tension common in such constructions for gently resisting motion. The drum *p'* is formed at its end next the adjacent drum with ten equally-spaced notches *u'*, and the drum *r'* is provided with similar notches *u'* next the drum *s'*. The drum *s'* is provided with a movable dog *v'*, having a part *w'* in position to enter the notches *u'* and engage said drum *r'*, and the drum *r'* has a similar dog *x'*, with a part *y'* to enter the notches *u'*, and so engage the drum *p'*. These dogs occupy longitudinal openings in the respective drums to which they are attached, having feet *z' a'* and *b' c'*, respectively, projecting outward against the inner surface of the counter-barrel *m'*, as shown.

The upper side of each barrel is formed with two openings *d' e'*, Figs. 27, 35, and 36,

and two bridges f^2 and g^2 , the bridges being transverse parts of the barrel bent inward close to the surfaces of the drums, as shown. Ordinarily the dogs are held out of the notches of the forward drums r' and p' , respectively, on account of their feet being in contact with the inner surface of the barrel; but upon arriving at the openings e^2 and d^2 the forward feet of the dogs are released and simultaneously the rear feet z' and c^2 are pushed inward by the depressed bridges, which serve to turn the dogs to the positions shown by dotted lines in Fig. 29 and cause them to temporarily engage and turn forward the adjacent drums r' and p' . The openings e^2 and d^2 and the adjacent bridges are so proportioned and arranged as to cause the dogs to move the respective drums each only one notch forward at each action and then release them, the dogs being thrown out of action as the drums advance on account of their forward feet gliding down under the inclined parts i^2 i^2 , Figs. 27, 35, and 36, at the sides of the openings e^2 and d^2 in the barrel—that is to say, when a drum s' is turned forward by the successive actions of the associated voting-lever the dog v' will at the tenth movement of the drum engage and move the tens-drum r' forward one notch, and likewise the tenth forward movement of the drum r' will advance the hundreds-drum p' one notch, thus forming in succession on these three drums all numbers from "0" to "999," inclusive, if the lever be voted so many times. At the close of the balloting in any given case the numbers on the different counters are read at the rear of the machine through openings h^2 , Figs. 24, 27, and 36, in the counter-barrels, the doors C C being open for the purpose.

In placing the counters upon the channel-plate D their axes are made horizontal, and the end of each barrel is placed even with one side of a channel F, the notched wheel v' overhanging the channel. In the channels F the channel-plate is formed with rows of vertical rectangular openings m^2 , Figs. 5, 10, 25, and 60, of uniform size and equally spaced, and a horizontal row of similar but larger openings n^2 at the heads of the channels.

The straight-ticket or master voting levers L are pivoted upon hangers o^2 , Fig. 24, projecting from the rear side of the channel-plate and extend through the openings n^2 to the front of the machine in positions to be manipulated by the voter. The minor voting-levers N are likewise pivoted upon arms or bearings p^2 of the respective counter-barrels and extend through the openings m^2 to the front of the machine convenient for the voter. These levers are each provided in front of the channel-plate with a removable ticket-holder r^2 , Figs. 11 and 25, for holding a slip of pasteboard s^2 , upon which to print the name of a political party or of a candidate or other words or characters for the guidance of a voter.

Normally the voting-levers are slightly ele-

vated at their forward ends, as appears in Fig. 25, and when voted they are pulled downward to the positions shown by dotted lines, the openings n^2 and m^2 in the channel-plate being of sufficient vertical length to admit of these motions of the levers. The levers are all formed with broad upwardly-projecting parts or shields x^6 , Figs. 24 to 27, closely in rear of the channel-bars a b to cover the openings through those bars and adjacent openings in the channel-plate.

The voting-bars a and returning-bars b stand side by side in pairs, each pair occupying and filling a channel F, as shown in Figs. 6, 24, and 59. The returning-bars are operated and controlled wholly by the eccentrics f on the returning-shaft I, the latter being connected with the controlling-shaft H by a pair of bevel-gears f^3 g^3 , Figs. 5 and 6, so proportioned that a half-revolution of the shaft H will turn the shaft I through a complete revolution. Normally the eccentrics and connections g stand at their lower positions, as appears in Figs. 6 and 7, and a revolution of the shaft I raises the bars and again quickly returns them to their normal positions. The bars a and b are each formed with rectangular notches k^2 and l^2 , respectively, Figs. 12, 44, and 45, in their adjacent edges, two of which notches together making a rectangular opening about the size of and registering with the openings m^2 in the channel-plate. The bars are further formed with notches l^2 and u^2 , respectively, together constituting openings corresponding with the openings n^2 in the channel-plate.

v^2 , Figs. 24 and 25, are a series of arms pivoted at v^2 to the channel-plate in positions to be encountered by the levers L and pressed downward by them, as indicated by dotted lines at the left in Fig. 24. These arms are slotted at their free ends, as shown, in which to receive studs x^2 , (see Fig. 40,) rigid with the respective voting-bars a , so that when a straight-ticket lever is depressed at any time the connected voting-bar will be also carried down. Normally the minor levers N stand at the top of the notches k^2 in the voting-bars a , so that when any of said bars is depressed by a straight-ticket lever, as stated, all the minor levers in the channel below the straight-ticket lever will also be depressed or voted, and as each vertical column of levers is devoted to the names of the candidates of one political party a depression of a straight-ticket lever will serve to cast a straight party vote. The emblems of the different political parties may be conveniently placed one over each vertical column of levers, as upon a headboard s^6 , Figs. 2 and 10, just above the channel-plate. This board also serves to close the opening through the frame A over the channel-plate and cover the upper parts of the machine, a similar board y^6 , Fig. 5, mostly broken away, being also preferably provided for similar purposes at the rear of the frame.

The parts of the minor levers N between

the bars *a* and *b* fill laterally both notches *k*² /², so that both bars may act to control said levers, and for a similar reason the returning-bars *b* may control the straight-ticket levers.

5 These actions of the bars upon the minor levers will be clearly understood by inspecting Fig. 23 $\frac{1}{2}$. If, for example, the voting-bar *a* be depressed by the connected straight-ticket-lever, as indicated by dotted lines, it will

10 carry the lever *N* down to the dotted position shown. If now the returning-bar *b* be lifted by the returning-shaft *I* to the position shown by dotted lines both the lever *N* and the voting-bar *a* will be raised and returned to their normal positions.

15 The minor levers are provided with yielding cushions *y*², Fig. 26, which when the levers are depressed encounter the bottoms of the notches *l*² and so prevent noise, to the end

20 that the voting of the levers may not be heard by persons near the machine. These levers are also provided with bifurcated pawls *z*², Figs. 26 and 37 to 39 to engage the notched wheels *i*¹ of the counters *K*, a tooth *a*³ of the

25 pawl entering a notch, as shown. Thus constructed whenever a minor lever is depressed or voted it will advance the connected counter one count. The pawls are drawn or swung out of the notches of the wheels *i*¹ by means

30 of lifters *b*³, Figs. 24 and 27 to 39, pivoted at *c*³ to the channel-plate *D* and normally crossing the bars *b* and *a* in horizontal positions, as shown. These lifters are formed with longitudinal slots *d*³, in which play pins *e*³, rigid

35 in the returning-bars *b*, and are further provided with spools *h*³, adapted to turn on studs *i*³ of the lifters, the spools occupying the spaces between the branches of the pawls, as shown. Normally each pawl stands suffi-

40 ciently above its spool, as appears in Fig. 38, to allow the lever to be depressed or voted without affecting the lifter, the position of the pawl when the lever is thus voted being shown in Fig. 37. Now when the returning-

45 bars are raised by the shaft *I* the lifters will be brought to the positions shown by full lines in Fig. 39, serving to swing the respective pawls away from the notched wheels *i*¹. This raising of the returning-bars also raises the

50 voting-levers, and the pawls of those that have been voted are carried up and then swung back by the lifters into the next notches above in the wheels *i*¹, when the returning-bars again descend, ready to be again voted.

55 These actions of the pawls, it will be understood, are positive, no use being made of either springs or gravity in their control or operations. In case of the levers that have not been voted, as appears in Fig. 38, the actions

60 of the returning-bars *b* and the lifters do not effect anything save to merely swing the pawls away from their counters and then back again into the same notches.

65 All the above-described actions of the various parts are effected by the swinging of the operating-door *E* through a one-fourth turn from the position shown by dotted lines to the

closed position shown by full lines in Fig. 4. Normally the door stands closed against the frame or cabinet *A*, as shown in full lines, the doorway *W* through the curtain being open for the voter to enter. Upon entering the voter swings the door back against the curtain, closing the doorway and opening the machine for his use. This backward swing-

70 ing of the door does not affect the working parts of the machine, (except as hereinafter described,) but only brings the pawl *y*, Fig. 48, into position to act when the door is again closed against the cabinet or frame, as stated.

75 The returning of the door to its closed position turns the controlling-shaft *II* half around and the cam-shaft *I* through a complete revolution, the proportion of the gears *f*³ and *g*³, Fig. 6, being two to one. This single revo-

80 lution of the shaft *I* first raises and then depresses all the returning-bars *b*, with the effects upon the connected parts above described.

The disk *A'*, Figs. 48 and 49, is formed with two diametrically-opposite notches *w w* and shoulders *x x*, and the pawl *y* of the carrier *B'* is in position to enter said notches and engage the teeth. The swing-arm *C'* is provided at its outer end with a pin *d'* and anti-friction-rollers *e' e'* to traverse the guide *E'*, the latter being slanted inward to give the swing-arm its proper motion. A turn of the door *E* through a one-fourth revolution will, by means of the link-bar *F'*, swing the carrier *B'* something more than one-half around, on account of which the pawl *y* will catch the shoulders *x x* of the disk alternately every time the door is swung shut, and so turn the shaft *II* through successive half-revolutions toward the left.

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It is sometimes necessary to swing the door *E* without affecting the shaft *II*, as, for instance, when a voter having entered the enclosure and swung the door back comes out again before voting for instruction as to the operation of the parts. To provide for this, the pawl *y* is provided with a pin *z*, Figs. 48, 53, and 56, and an adjacent shaft *a'* has an arm *b'* in position to engage the pin. By turning the shaft the arm will encounter the pin and lift the pawl out of the notch in the disk, as appears by dotted lines, rendering it inactive. The shaft *a'*, resting at its inner end in a bearing *w*⁵, passes out of the cabinet and is provided at its outer end with a handle *c'*, Fig. 57, by means of which the inspector or attendant may temporarily throw the pawl out, as stated, the shaft holding its place in either of its two positions by friction or by some simple tension device not involving invention.

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In the machine, as shown, the upper ten horizontal rows of voting-levers are for the names of candidates on State, county, or municipal tickets, or, as the case may be, the eleventh for women voters or for those offices for which women as well as men are entitled to vote, the six rows next below for grouping,

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and the bottom row for "Yes" or "No" in the matter of constitutional amendments, use of public funds, &c., eighteen rows in all. The number of rows in the device is not essential to the invention nor their arrangement or proportion, all these things being matters of convenience or necessity.

The counters in the first eleven rows from the top are each provided with a horizontal bolt h^3 , Figs. 24 to 27 and 42 and 43, resting in rectangular seats or cavities l^3 , Figs. 35 and 36, adjacent to the channel-plate D, in which seats they are adapted to move longitudinally. These bolts are in horizontal lines crossing the face of the channel-plate with their ends nearly in contact, as shown, so that if, to illustrate, either extreme bolt be moved endwise toward the others all the latter in the line will be correspondingly moved by it as if all were a single piece, or if any two adjacent bolts be pushed apart the others on either side will be correspondingly shifted endwise. The extreme bolts in each horizontal row are formed with vertical notches m^3 , Figs. 42 and 43, occupied by pins n^3 , rigid in the counters K, which pins serve to limit the motions of the bolts in either direction. At their ends these bolts are beveled on the upper side, the beveled parts being in positions to be encountered by the minor voting-levers N when they are depressed. The parts of the levers encountering the bolts are V-shaped in cross-section, as shown, so that when any lever is depressed or voted it will push the bolts endwise, as stated. Now, regarding Fig. 42, it will be observed that if the lever second from left, for instance, be depressed by a voter, as shown, the bolt h^3 to the left will be pushed against its associated pin n^3 , and those at the right will be likewise shifted toward the right, as shown, the extreme right bolt being against its pin n^3 . If now another lever, as the one second from right, for example, be depressed, as indicated by dotted lines, it will crowd the bolts left of it to the left again, as indicated, and so force the depressed lever at the left up again to its normal place. Likewise if any other lever in the row be depressed it will raise the one near the right—that is to say, if any lever in a row be voted it may be returned or unvoted by simply voting another one. When a lever is voted, it advances the connected counter one count, but, it will be understood, only conditionally, for if another lever in the row be voted it will return both the first lever voted and its counter to their original positions and so uncount the first vote, so that if the minor levers are toyed with or depressed indefinitely by a voter only the last one down in each horizontal row will count and be registered, all the rest being returned or unvoted. This effectually prevents repeating or fraudulent voting and is an essential part of the invention, as only one vote can be recorded in any horizontal row, except as hereinafter explained. In case a master-lever be depressed

and so vote all the minor levers below it the depressing of another minor lever at either side will raise the one in the same horizontal row depressed by the master-lever and with it the voting-bar and the master-lever. Thus a voter may vote a straight ticket by pulling down a master-lever and then split out any one or more of the candidates by voting minor levers in other party-columns, as he may wish.

The levers in the vertical column at the left in the machine (at the right as appearing in Fig. 24) have no counters, this column being for independent voting by means of written ballots, which are passed by the voter through openings o^3 , Figs. 6, 10, and 44, in the channel-plate. Opposite these openings and to cover them are placed a series of ballot-guards h , Figs. 22 to 24, each pivoted to the channel-plate r^3 , so as to turn in a vertical plane in openings z^6 , Figs. 19 and 22, in the face-rail i . These guards are formed with curved slotted arms s^3 , extending across the adjacent channel F, beneath the minor levers, to which they are respectively connected by pendent links l^3 . (Shown also in Fig. 25.) The links pass freely through the slots w^3 in the arms s^3 , having retaining-nuts v^3 at their ends. Normally the ballot-guards are inclined toward the right; but when a minor lever in that column is depressed the connected ballot-guard will be brought to the position shown in Fig. 22. The guards are formed with slits w^3 , which are vertical and opposite the openings o^3 when the levers are voted, through which the ballots may be passed by the voter, as appears in Fig. 23. The ballot-carriers k have pockets y^3 , Figs. 20 and 21, which normally stand in line with the slits in the ballot-guards, so that a ballot passed through a slit by a voter will enter a pocket in the carrier. The face-rail i is provided with thin metal strips z^3 , Figs. 19 to 21, entering the respective pockets and constituting temporary side walls therefor. At the upper edges of the pockets are formed narrow downwardly-projecting flanges a^4 , back of which the ballot passes, as shown, the flanges being in line with and of the same thickness as the strips z^3 . These flanges serve to hold the ballots in the carriers until the latter are swung back, as shown by dotted lines in Fig. 17, when the ballots are pushed out by the tines l of the discharger P entering flaring orifices m in the carriers. When the ballots are discharged from the carriers, they fall into the trays R, Figs. 12 and 17, which series of trays is removable from the machine.

The ballot-carrier shaft O is turned upon its axis through a one-eighth revolution to discharge the ballots and immediately returned to its normal position every time the operating-door E is swung to place against the cabinet A. This is effected by means of an eccentric b^4 , Figs. 6 and 13, on the returning-shaft I and intermediate parts. An ec-

centric-arm c^1 , Figs. 12, 13, 15, and 18, on the eccentric b^1 operates a horizontal sliding bar d^1 by means of a pin e^1 rigid in said bar. The sliding bar is held in rests f^1 , secured to the angle-plate G, and is provided with a slotted loop or arm g^1 , projecting horizontally toward the shaft O and occupying a horizontal opening h^1 in said angle-plate G. A short arm i^1 , rigid with the shaft O, is engaged by the loop g^1 , a pin k^1 , rigid in the arm i^1 , occupying the slots in said loop. Now when the shaft I, having an end bearing o^6 , makes a revolution it will slide the bar d^1 forward and then back again, causing the shaft O to turn and return, as and for the purpose above stated.

In the group-voting mechanism a series of parallel straight rods N', Figs. 59, 60, 66, and 67, are employed with each horizontal row of voting-levers, crossing the channel-plate just above said levers, as shown. The rods in each series are in a horizontal plane and passed through perforations in rests or hangers l^1 , rigid with the channel-plate on the rear side thereof. The counters K coacting with this system of rods are provided with sliding bolts n^1 , similar to the trip-bolts h^3 above described and similarly held by the counters, but of different forms at the terminals. Each rod of each series connects with and terminates at the right-hand end of a sliding bolt, as appears in Figs. 59 and 66, the rod nearest the channel-plate being short and the others increasing in length as they are more distant from said channel-plate. A series of equal rocking-plates or rockers S', held to turn upon a horizontal stud o^1 , rigid with the channel-plate, are joined, respectively, to the left-hand ends of the rods, as shown. These rockers are separated by spacing-washers r^6 , Figs. 59 and 65, each rocker being adapted to turn independently of all the rest. The sliding bolts n^1 are formed with offset horizontal projecting arms p^1 , increasing in length toward the right in viewing Figs. 59 and 66 for receiving the ends of the rods N', the latter being threaded and provided with set-nuts n^1 on either side of each arm. At the opposite ends these sliding bolts are formed with inclined heads s^1 , and the associated voting-levers N² are formed with similarly-inclined openings t^1 , Figs. 61, 63, and 84, in which to receive said heads, so that a downward motion of either lever will push its associated bolt to the right and an upward or return motion of the lever will draw the bolt to the left. With the exception of these inclined spaces t^1 in the levers N², the latter are similar to the levers N above described and are provided with the same form of pawls and similarly associated with other parts. The sliding bolts n^1 , however, do not trip the associated levers, as is the case with the trip-bolts h^3 , above described, the voting-levers N² being both depressed or raised by the hand of the voter, as may be required. The outside or longest rods of the series N' are threaded at their ends in

bodies w^1 , Figs. 66 to 68, each provided with an upwardly-projecting pin v^1 . This pin pierces the end of a short swivel-lever w^1 , held to turn upon the pin x^1 of a horizontal stud y^1 , rigid with the face-rail z . The opposite end of each swivel-lever is connected with a ballot-guard h by means of a loop x^1 , (see also Fig. 64,) by means of which the voting-lever actuating said ballot-guard operates the rod and the rocker of the series S' with which it is connected.

To control the number of voting-levers that may be depressed in any horizontal row of the grouping mechanism, a system of stops or checks is provided, consisting of a series of short horizontal cylindrical shafts or tumblers O', Figs. 59, 60, and 69 to 74, held to turn in a vertical cage P' at the left of the channel-plate. These tumblers are formed with reduced parts c^5 , projecting through two long vertical openings d^5 d^5 in opposite sides of the cage and provided with short crank-arms a^5 , alternated, as shown in Fig. 72. To the pins f^5 of the crank-arms are joined connecting-rods R', each being joined at its opposite end to a rocker S'. Then when a lever N² is voted either independently or by depressing a master-lever the connected tumbler will be turned in the cage through a one-fourth revolution, as indicated. The body of each tumbler is cut away or made flat at one side, as shown at e^5 , for the purpose of reducing its thickness through in one direction, and when the tumblers are piled in the cage their flat sides are turned down, the flat side of each resting directly upon the convex side of the one next below. Normally the crank-arms of the tumblers stand down and to the left, as shown in Figs. 60 and 69; but when a grouping-lever is voted the connected arm is swung toward the right, as in case of the tumbler fourth from top in Fig. 69. One tumbler is connected with each minor grouping-lever, eight being bunched together, four tumblers on either side of the cage being connected with the levers of a horizontal row. If, for example, there are six horizontal rows of levers devoted to group-voting, there will be forty-eight tumblers in vertical column in the cage divided into six groups of eight each. These groups are separated by removable dividers X', Figs. 70 to 72, each consisting of two parallel pins b^5 b^5 , held in a head g^5 . The two adjacent tumblers immediately separated by a divider are formed with transverse grooves h^5 h^5 , Figs. 73 and 74, in which to receive the pins, the latter being passed through holes i^5 , Fig. 72, in a side of the cage P'. The tumblers have no fixed bearings in the cage, but are adapted to move vertically therein through limited distances, and there is surplus space in each group to allow one to be turned upon its side, as shown fourth from the top in Figs. 70 and 71. This turning of the tumbler with its longer diameter vertical takes up the surplus space and prevents any other one from being turned in

the group—that is to say, when one grouping-lever is voted no other one in the same horizontal row can be voted unless the first one be unvoted. Should, however, it be necessary in any given case to arrange the machine so that two levers in a horizontal row may be voted, one divider X' is withdrawn to double the group of tumblers acting together and also the surplus space, which admits of two tumblers being turned in the cage. This will be clearly understood by observing Fig. 60. If, for example, the upper divider X' (shown by dotted lines) be removed, any two of the sixteen tumblers above the next divider below may be turned by voting any two levers in the two horizontal rows connected with those sixteen tumblers—that is to say, any two levers in either row may be voted, according to the wish of the voter. Likewise if the next divider below be also removed any three of the twenty-four tumblers down from the top of the column may be turned, admitting of any three levers in either of the upper three horizontal rows being voted or two in any one row and one in either of the remaining rows, and if all the dividers be removed any six of the forty-eight grouping-levers may be voted, as the elector may choose. Should a wrong lever be depressed through inadvertence, it may be raised again by the voter and so return the connected tumbler to its normal position and another lever voted.

When a woman wishes to vote, the machine is set for the purpose by the attendant turning the sex-plate L' , Figs. 52 and 58, half around in the cup or holder Z' , seated in the cabinet, or so the word "Woman" appears at the top. The shaft I' , holding said plate, has at its inner end a crank m^5 , Figs. 51 and 53, the pin l^5 of which occupies a slot in the rod H' . This rod passes through the hanger u of the controlling-shaft H and is made rigid in the fork G' , Fig. 55, engaging the clutch-arm X . Normally or when the machine is set for men to vote the pin l^5 is at its upper position, as shown, the clutch-arm being then clear above the coacting part B' ; but by turning the sex-plate half around, as stated, the clutch-arm will be depressed to engage the part B' , as appears by dotted lines in Fig. 53, the upper end of said part B' being formed as a clutch. As a result when the clutch-pawl carrier B' is turned one way and then the other by the swinging of the operating-door E the clutch-arm X will also be turned and cause the connected toggle-bar V , Figs. 44, 45, 49, and 51, to reciprocate upon its bearings n on the foot-plate or girth U , the longitudinal slot o permitting of these motions for said bar. The pawl-carrier is formed with a single upwardly-projecting clutch-tooth n^5 , Figs. 53 and 54, and adjoining space o^5 , and the clutch-arm with a correspondingly downwardly projecting clutch-tooth p^5 to occupy a part of said space o^5 when the two parts are in engagement.

The space is larger laterally than the tooth p^5 , causing relative lost motion for the pawl-carrier as it turns. So the clutch-arm moves through a less angular distance than the pawl-carrier, only turning part way with it in each direction—that is to say, while the pawl-carrier B' turns through a little more than a half-revolution alternately in each direction the clutch-arm only turns through a distance indicated by the two positions shown by full and dotted lines in Fig. 54.

Normally, or when the machine is set for men to vote, the toggle-bar V is at the left, as appears in Fig. 45, the links p of each pair forming an angle, in which positions the parts are idling. Slotted swivel-holders r^5 (see also Fig. 41) are secured to the bar V for holding and controlling the joined ends of the pairs of links, the connecting-screws s^5 for the links passing through the slots t^5 of said holders. If a man when voting depress, for example, the voting-bar a , (shown at the left in Fig. 45,) the connected links and swivel-holder will turn to the position shown by dotted lines without effecting anything, the connecting-screw s^5 merely sliding along the slot t^5 . When, however, the machine is set for women to vote, as above stated, and a woman enters the inclosure and swings the door E to close the entrance W' , Figs. 3 and 4, the bar V will be pushed to the right, as shown by dotted position in Fig. 44, bringing all the pairs of links p in vertical positions under the respective voting-bars a and pushing them upward out of use. This holds immovably all the voting-levers of the machine save those of the horizontal row for the use of women. In this row the notches l^2 in the voting-bars a are cut away at the bottom or made longer, as shown at w^5 , Fig. 85, so that the levers may yet be voted, as in other cases, the voted positions of two being shown at the lower part of said figure by dotted lines.

A returning of the sex-plate L' through a half-revolution, bringing the word "Men" at the top, lifts the clutch-arm X out of engagement with the pawl-carrier B' and again sets the whole machine for men to vote, including the levers for women's use. The pins b^7 serve to confine the bar v and keep it within limit.

For voting "yes" or "no"—that is to say, for or against any question—the voting-levers and connected counters in the bottom horizontal row are arranged to operate in pairs, as shown in Fig. 80. In this case but one of the counters in each pair holds a trip or sliding bolt v^5 , and if, for example, the right-hand lever be voted, as shown in full lines, it will move the sliding bolt to the left in the way of the other lever, so that should the latter be depressed it would push the bolt back again to the right and raise or unvote the first lever and its counter. Likewise if the lever at the left be first voted for "yes" it will not prevent the other being subsequently voted if the voter first made a mistake or after voting "yes" changed his mind; and this prin-

ciple of having every lever of the machine under all circumstances at the command of the voter enables him to have them all just as he wishes before leaving them and closing the door E to register his vote.

It has been already stated that the pulling down of a minor lever in any vertical column will serve to raise the voting-bar and its master-lever of another column should these have been previously depressed. This throws considerable weight upon said minor lever, and to relieve it the metal counterbalancing-bar Y, Figs. 5, 41, and 44 to 47, is employed. This bar is held to turn on pivot-points *t*, one at either end, held in projecting standards *z*, rigid with the girth U, and has parts *a'* extending under the heads of the studs *s*, connecting the upper links *p* with the voting-bars *a*. The preponderance of the weight of the bar Y is outside its bearings *t t*, which causes it to exert an upward pressure against the studs *s* and so balance a part of the weight of any voting-bar *a* and its master-lever that may be depressed. The depressing of any one of the master-levers will cause the bar Y to be tilted upward, as shown by dotted lines in Fig. 41, and the upward pressure of said counterbalancing-bar will be exerted wholly to raise said lever and the connected voting-bar. Covered stop-pins *b'*, Figs. 41 and 44, are employed at one end of the bar Y, one above and the other below said bar, as shown, these pins being rigid in a strip of metal or holder *c'*, secured, as a matter of convenience, to the face-rail *i*. The stop-pins are covered with some soft material, as india-rubber, to deaden the sound which would otherwise occur as the bar Y encountered said pins when tilted by the action of one of the master-levers upward or by the toggle-bar V downward when forcing the voting-bars upward, as already described.

The group-voting mechanism, it is understood, is for the purpose of enabling electors to vote for two or more candidates for the same office, as judges, coroners, &c. This mechanism is also employed for the purpose of indorsing candidates by two or more parties at an election. If, for example, two or more political parties support Doe for the same office, his name will appear in each party-column and in the same horizontal row and will be voted as in other cases; but if, as sometimes occurs, there is grouping of candidates, as well as or in addition to indorsing them, the tumblers are arranged so that two or more levers in the same horizontal row may be voted, as already described, from which it will appear that the name "Doe" may be voted two or more times instead of only once, as is intended. To guard against this plurality of voting, I provide a cut-out device to coact with the other parts of the group mechanism. This device consists of a body *c'*, Figs. 75 to 79, holding upon a horizontal axial shaft *f'* a series of equal blades *l'*, adapted to turn on said shaft. The lower ends of these blades occupy vertical transverse kerfs *i'*, between

which upwardly project solid parts of the body or tongues *h'*. The body is formed with a longitudinal bore or cavity *g'*, closed with a screw-plug *l'*, in which are placed a series of balls *e'*, the lower ends of the blades being in position to cross said cavity when turned upon their axes. The blades are formed with knife-edges *h'* at their lower ends adjacent to the balls, and if the upper end of any blade be turned to the right, as shown by dotted lines in Fig. 75, its lower end will displace the balls to the right or to the left, or both ways, according to which blade is turned. Now it will be understood that if the balls be thus displaced by any blade they will be thereby pushed in front of all the remaining blades, so that none of the latter can be turned. The body *c'* is secured to the adjacent angle-plate G by a holder *m'* in position to have the blades stand opposite the rockers *s'*, as shown in Fig. 76, the spacing of the blades and the rockers being equal. The tops of the blades are perforated to receive short tie-rods *n'*, joining the blades with the rockers, so that the turning of any rocker by depressing a voting-lever will cause the connected blade to displace the balls, as stated, and so prevent another lever being depressed unless, as in other cases, the first one be first unvoted. One of these cut-out devices is provided for each set of rockers in the vertical series, and in the case of grouping above pictured, where the name "Doe" appears on two or more levers in a horizontal row, such levers and only such are connected with blades of the cut-out. This being the case, notwithstanding the fact that the tumblers are arranged to admit of two or more levers in the row being voted only one lever bearing the name "Doe" can be voted, while the name of one or more other candidates in that horizontal row may yet be voted, the tumblers are arranged to admit of this. As shown in Fig. 76, all the blades of one cut-out device are connected with the associated rockers by tie-rods *n'* to represent that all may be thus connected; but, as stated, only those are connected which belong with the particular levers bearing the same name of candidate. As for the other blades, the tie-rods are removed from them, and the blades are turned out of use by being inverted, as appears by dotted lines in Fig. 77.

The public-counter K', Figs. 81 and 82, has no notched wheel *i'* like the other counters; but otherwise it is substantially the same. In lieu of said notched wheel a pinion *x'* is employed, actuated by a gear *y'*, in turn actuated by the worm *g'* on the shaft II. The counter is set in a cavity *x'* in the cabinet and held to place by a cap or band *a'*, secured to the cabinet, which band holds a stud *b'*, upon which the gear *y'* turns. The counter is advanced one count every time the shaft II is turned half around by the pawl *y*, as above described, in swinging the operating-door shut against the cabinet, thus showing the whole number of votes for all parties registered by the machine. This public-counter is read at

Y', Figs. 3 and 83, on the outside of the cabinet through a protecting glass plate *p*⁶.

What I claim as my invention is—

1. A voting-machine having a system of similar movable parts to be used by the voter any of which may be voted and then unvoted and another one voted instead, right-angled shafts for returning them to their normal position, and positive gearing for actuating said shafts, as set forth.

2. A voting-machine having a system of similar movable parts to be manipulated by the voter, the voting of any one of which being conditional and not final, a cam-shaft at one end of said parts and connected directly to each of them separately, and a shaft at right angles to said shaft and geared directly therewith, as set forth.

3. A voting-machine having a system of movable voting parts arranged in rows, and counters adapted to be actuated by said movable parts, and means whereby when one counter is advanced by a voting part the advancing of another counter by similar means will return the first counter to its original position, substantially as described.

4. A voting-machine having a series of voting parts arranged in a row, in combination with a series of bolts in positions to be actuated by said voting parts and by each other, the voting of any of said voting parts serving to move or shift the bolts in positions to be again moved or shifted by the voting of another of the moving parts, substantially as described.

5. A voting-machine having a series of voting parts, as levers, arranged in a row, and counters coacting with said voting parts, in combination with a series of bolts actuated by the voting parts, the voting of any of said voting parts or levers serving to advance its associated counter and shift the bolts in positions to be again shifted by another voting part or lever, a second shifting of the bolts acting to unvote the lever first voted and return its counter, substantially as specified.

6. In a voting-machine, the combination of a voting-lever having a pawl, with a counter consisting of a barrel and figured drums held to turn therein, a notched wheel actuated by the pawl to turn the drums, dogs carried by the drums to engage adjacent drums, the barrel being formed with depressed parts and openings to control the dogs, substantially as shown and described.

7. In a voting-machine a series of voting parts as levers, in combination with a series of counters coacting with the levers, having toothed wheels, the levers having bifurcated pawls for engaging the toothed wheels and turning the counters forward or backward accordingly as the levers are moved one way or the other, substantially as specified.

8. A voting-machine having a channeled supporting-plate, a movable bar held in a channel of said plate, and means for moving said bar, in combination with a voting-lever

and coacting counter held by said supporting-plate, the lever having a pawl to engage the counter, and a lifter held by said plate and actuated by said movable bar to control the pawl, substantially as shown and described.

9. A voting-machine having a channeled plate, a pair of independently-movable bars in a channel in said plate, a controlling-lever for one of said bars, and means for operating the other bar of the pair, in combination with a series of subordinate levers in positions to be actuated by the lever-controlled bar whereby when said controlling-lever is moved the subordinate levers will be correspondingly shifted and the moving of the other bar serving to return all the levers to their normal positions, substantially as specified.

10. The combination in a voting-machine having a main supporting-plate formed with channels and openings therein through the plate, of a pair of independently-movable bars in a channel in the plate, the adjacent edges of the bars having coacting recesses constituting rectangular openings through the bars corresponding with the openings through the plate, a rotatory shaft connected with one bar of the pair and a controlling-lever held by said plate to operate the other bar of the pair, and a series of minor levers in the openings in the plate and in the bars, the moving of the bars by the controlling-lever and the shaft serving to shift and control said minor levers, substantially as and for the purpose specified.

11. The combination in a voting-machine having a main supporting-plate formed with channels and openings in the channels through the plate, of independently-movable bars in pairs occupying each of said channels, the adjacent edges of the bars having coacting recesses constituting rectangular openings through the bars corresponding with the openings in the plate, a system of voting-levers occupying said openings in the supporting-plate and the bars, the levers being adapted to move within said respective openings, and formed with projecting shields or broad parts to cover said openings, substantially as shown and described.

12. A voting-machine having a pair of independently-movable contiguous bars formed at their adjacent edges with recesses two of which together constituting a rectangular opening through said bars, a voting-lever occupying said opening and adapted to move from end to end thereof, and a cushion or buffer on the lever substantially as and for the purpose specified.

13. In a voting-machine a main supporting-plate formed with a channel and an opening in said channel through the supporting-plate, and a bar in said channel and a lever occupying said opening in the supporting-plate, in combination with an arm pivoted to the supporting-plate in position to be pressed by the lever, the arm having a bearing on said bar, substantially as shown and described.

14. A voting-machine having a channel-plate formed with a series of openings for the voting of ballots, and a series of voting parts supported by the channel-plate adjacent to said openings, in combination with a series of closers held by the channel-plate to cover and control said openings and provided with slitted arms extending beneath the minor levers, and connectors for said closers and the voting parts respectively whereby the former are actuated by the voting parts, substantially as set forth.

15. A voting-machine having a channel-plate formed with a series of openings for the voting of ballots, and a face-rail on the channel-plate with openings and a series of voting parts, as levers, held by the channel-plate adjacent to said openings, in combination with a series of slitted closers for said openings operated respectively by the voting-levers and movable through the openings in the face-rail, the voting of a lever serving to bring the slit of the associated closer opposite or in line with the adjacent opening in the channel-plate, substantially as shown and described.

16. In a voting-machine a supporting-plate having openings through it, a series of slitted closers for said openings, and a series of voting parts to control said closers, in combination with a series of pockets coacting with the slitted closers, said pockets being open at one side, and a face-rail or abutting part held by the supporting-plate to cover or close the open sides of the pockets, substantially as specified.

17. In a voting-machine a supporting-plate formed with a series of openings, a series of slitted closers for said openings, and a series of voting parts or levers to control said closers, in combination with a series of pockets coacting with the closers, open at one side, and a face-rail or abutting part to cover or close the open sides of the pockets, provided with plates or parts to occupy the space of said pockets, substantially as and for the purpose set forth.

18. The combination in a voting-machine, of a supporting-plate having openings therein, a series of slitted closers for said openings, and a series of voting-levers to control the closers, a series of open pockets coacting with the closers, and an abutting part to close the pockets, the latter being each formed with an overhanging flange, substantially as and for the purpose specified.

19. The combination in a voting-machine, of a supporting-plate having openings therein, a series of slitted closers for said openings, and a series of voting-levers to operate the closers, a series of open pockets coacting with the closers, and an abutting part to close the pockets, the latter being formed with overhanging flanges, the pockets being movable away from the abutting part, and a discharger for said pockets, substantially as specified.

20. The combination in a voting-machine of a supporting-plate having openings therein, a series of closers for the openings, voting-levers to operate the closers, and a series of pockets coacting with the closers and adapted to move away from the closers and formed with orifices, and a discharger for the pockets having tines adapted to enter said orifices, substantially as set forth.

21. The combination in a voting-machine of a perforated supporting-plate, a series of closers for the perforations, voting-levers to operate the closers, and pockets coacting with the closers, adapted to move away therefrom, a discharger for the pockets and holding trays or tills coacting with the pockets, substantially as and for the purpose specified.

22. A voting-machine having an inclosing frame or cabinet provided with a door, a guide-rail on the door, a shaft having a disk, and a pawl-carrier and pawl to act against the disk, in combination with a swing-arm controlled at one end by the cabinet and at the opposite end by the door, and a link-bar connecting the swing-arm and the pawl-carrier, whereby the swinging of the door one-fourth around will turn the shaft through one-half a revolution, substantially as and for the purpose set forth.

23. A voting-machine formed with an inclosing frame or cabinet, provided with a door, a shaft having a disk, and a pawl-carrier and pawl to act against the disk, in combination with a swing arm or bar having one end controlled by the cabinet and the other end controlled by the door, a link-bar connecting the swing-arm and the pawl-carrier, and means for throwing the pawl out of action, substantially as and for the purpose set forth.

24. A voting-machine formed with an inclosing frame or cabinet provided with a door, a controlling-shaft having a disk, and a pawl-carrier and pawl to act against the disk, in combination with a swing arm or bar having one end controlled by the cabinet and the other end controlled by the door, a link-bar connecting the swing-arm and the pawl-carrier, a returning-shaft actuated by the controlling-shaft, a system of voting parts, as levers, and mechanism connecting said returning-shaft and the voting parts whereby the swinging of the door through a one-fourth revolution will return the voting parts to their normal positions, substantially as described.

25. In a voting-machine, a lever and a sliding bolt adapted to be actuated thereby, and a tumbler or shiftable body connected with the sliding bolt, combined with a shiftable strip or blade adapted to be actuated by the lever, and a shiftable body, as a ball, adapted to be moved by said blade, as set forth.

26. In a voting-machine, the combination of a series of voting-levers, a series of bolts each adapted to be actuated by one of the said levers, a series of coacting tumblers

connected respectively with said bolts, a series of strips or blades connected with said respective levers and a series of movable bodies adapted to be shifted by any of the
5 said blades, the shifting of the said bodies by any one blade of the series serving to place them in the path of the remaining blades of the series, as set forth.

10 27. The combination in a voting-machine, of a series of voting-bars, a series of levers to operate the same, and a counterbalancing-bar having its point arranged in the path of a stud carried by one of said voting-bars to actuate said voting-bars, as set forth.

15 28. In a voting-machine, the combination of a series of voting-bars, an operating-bar for said voting-bars, a holding-plate or support for said operating-bar, a series of links joined in pairs controlled by said operating-
20 bar, the links of each pair being connected respectively with said sliding bars and the holding-plate, and means to reciprocate the operating-bar, as set forth.

29. In a voting-machine, the combination

of a series of voting-bars, an operating-bar 25 therefor, a holding-plate or support for the operating-bar, links or connectors for said holding-plate and the respective bars controlled by said operating-bar, an arm joined to said operating-bar, and means to turn the
30 arm one way and the other, as set forth.

30. In a voting-machine, the combination of a movable plate inscribed with the names of the sexes, a door, a clutch-arm controlled by the plate, a clutch controlled by the door, 35 the turning of the plate serving to throw the clutch-arm into or out of engagement with the clutch, and a controlling-bar for the voting parts of the machine connected with the clutch-arm, substantially as specified. 40

In witness whereof I have hereunto set my hand, this 9th day of March, 1899, in the presence of two subscribing witnesses.

JOHN BOMA.

Witnesses:

ENOS B. WHITMORE,
M. L. WINSTON.