

B. L. BOBROFF.
 ELECTRICALLY CONTROLLED VOTING MACHINE.
 APPLICATION FILED OCT. 2, 1916.

1,267,504.

Patented May 28, 1918.
 3 SHEETS—SHEET 1.

Fig. 1.

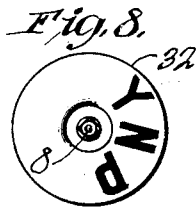
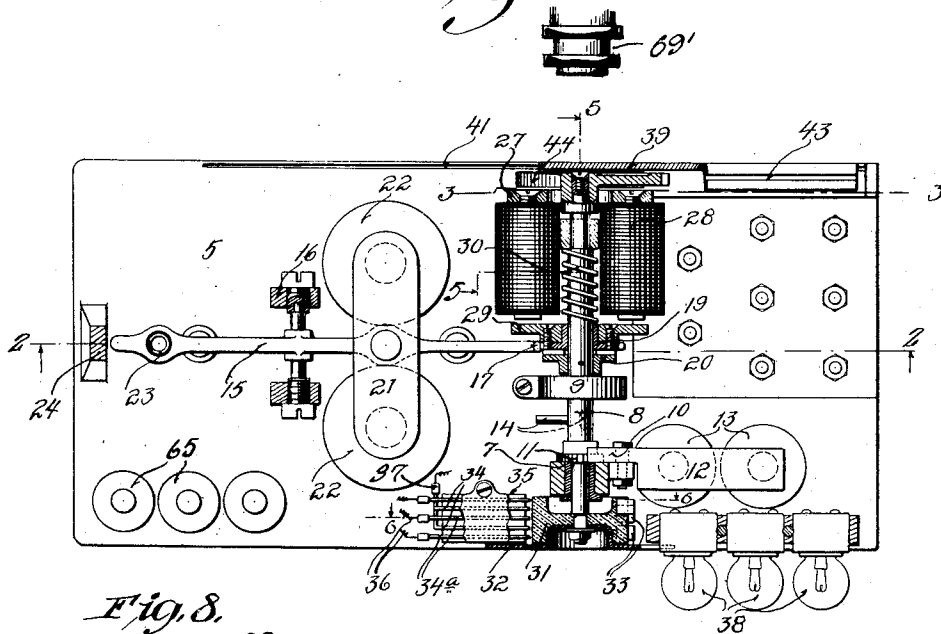
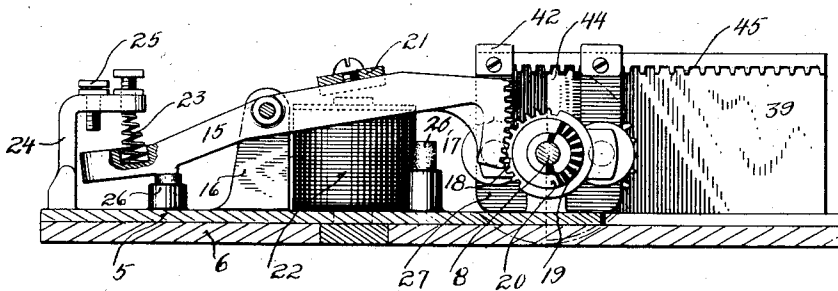


Fig. 2.



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Fig. 3.

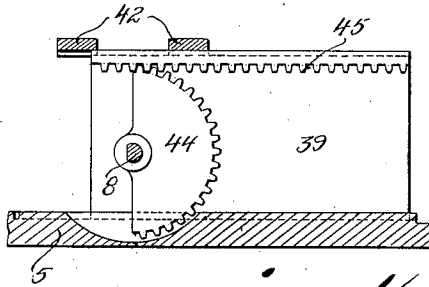


Fig. 4.

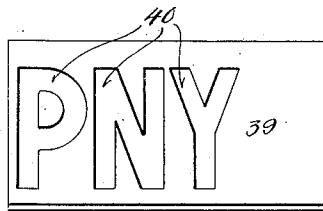


Fig. 5.

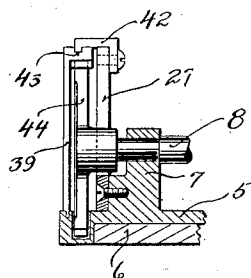
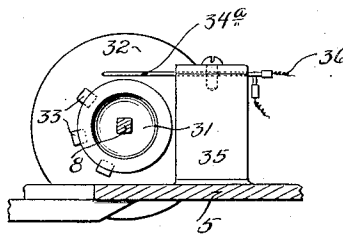


Fig. 6.



Witness:
Edward Young

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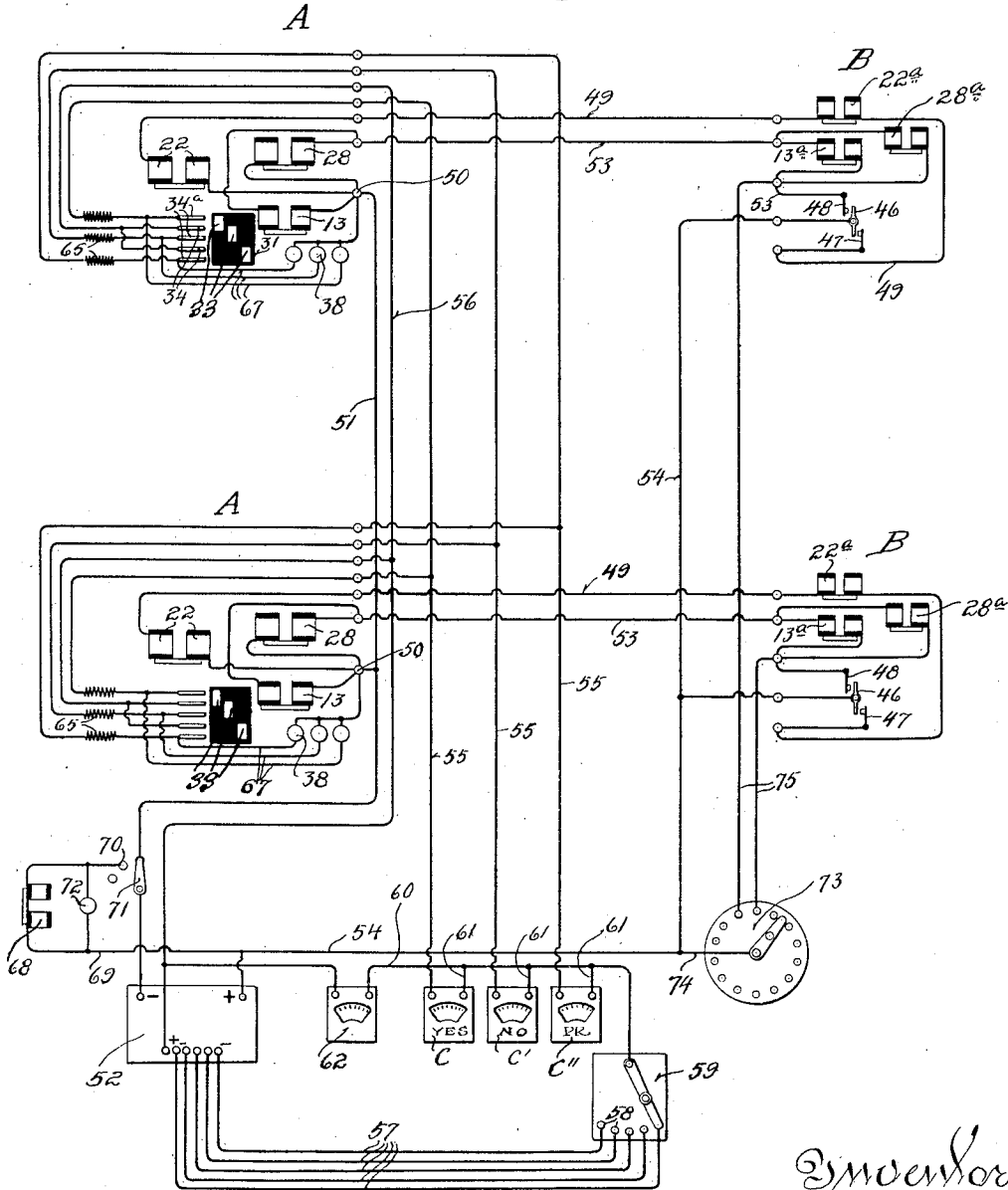
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3 SHEETS—SHEET 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

BORNETT L. BOBROFF, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO UNIVERSAL INDICATOR CO., OF MILWAUKEE, WISCONSIN.

ELECTRICALLY-CONTROLLED VOTING-MACHINE.

1,267,504.

Specification of Letters Patent. Patented May 28, 1918.

Application filed October 2, 1916. Serial No. 123,271.

To all whom it may concern:

Be it known that I, BORNETT L. BOBROFF, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Electrically-Controlled Voting-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof.

The present invention relates to new and useful improvements in electrically operated voting apparatus of the type embodied in my co-pending application for patent filed February 16, 1915, Serial No. 8639, and including a plurality of main station mechanisms located at a desired central point, and a plurality of corresponding sub-station mechanisms located at the voters' desks, for procuring selective differing indications and actuations of the main station mechanisms, a single common photographing means being associated with the main station mechanisms for photographing their indications to permanently register the individual votes, and a non-interfering total vote indicating means being associated with each set of corresponding indications of the main station mechanisms, and comprising a circuit having an ammeter therein and adapted to selectively include said corresponding portions of the main station mechanisms.

It is in general the object of the present invention to simplify and otherwise improve the structure and efficiency of the apparatus of my said previous application, and with respect to the main station indicating mechanisms it is more particularly an object to provide an arrangement whereby said mechanisms have selectively differing indications operable at each side thereof, to adapt the mechanisms both for visual indications to the persons within the voting chamber, and for operation of the permanent record photographing means, which in the present instance comprises a photostat apparatus.

A further important object resides in the provision of an arrangement whereby a constant current is maintained in the total vote indicating circuits, whereby the operation of the totaling ammeters is exact.

With the above and other objects and advantages in view, the invention resides more particularly in the novel combination, arrangement and formation of parts more

particularly hereinafter described and particularly pointed out in the appended claims.

In the drawings

Figure 1 is a plan view of one of the main station indicator mechanisms of my voting apparatus, embodying the present invention and with portions thereof broken away to more clearly disclose structure.

Fig. 2 is a vertical sectional view taken longitudinally therethrough on the line 2—2 of Fig. 1.

Fig. 3 is a detail view on line 3—3 of Fig. 1, showing the mounting for the front indicating plate.

Fig. 4 is a front elevational view of said plate.

Fig. 5 is a transverse sectional view through the plate structure on the line 5—5 of Fig. 1.

Fig. 6 is a sectional view on the line 6—6 of Fig. 1, showing the contact fingers associated with the indicating drum.

Fig. 7 is a diagrammatic view of the entire apparatus embodying however, in the present instance but a pair of voting units, and

Fig. 8 is a plan view of the visual indicating plate.

Referring now more particularly to the Figs. 1 to 6 of the accompanying drawings, the main station mechanism shown therein comprises preferably an aluminum base plate 5 mounted on a wooden or fiber support 6 and transversely journaled in upstanding bearing arms 7 on the plate 5 is a spindle 8 corresponding to the spindle of the main station indicating mechanism of my said previous application, this spindle being urged to rotation in one direction by a spiral spring 9 disposed thereabout and secured to the plate 5, and being normally held against actuation by the spring by a pawl 10 intermediately pivoted to one of the bearing arms 7 and engageable at one end with a ratchet wheel 11 on the spindle, and being extended at its other end to form an armature 12 which is disposed over a pair of magnets 13 mounted on the bed plate, excessive movement of the spindle when released by the pawl being prevented by abutting stops 14 carried by the spindle and base plate. For actuating the spindle against the action of the spring a lever 15 is intermediately pivoted between upstanding arms 16

on the base plate, and extends laterally of the spindle and the adjacent end of this lever is formed in an arcuate gear rack segment 17 meshing with gear teeth 18 on a collar 19 longitudinally slidable on the spindle and having clutch teeth at one end engageable with clutch teeth 20 on the adjacent end of a collar fixed on the spindle. Between the arms 16 and the spindle the lever 15 carries a transversely extending armature 21 co-acting with a pair of magnets 22 disposed thereunder and the rear end of the lever is engaged for depressing movement by an expansile spring 23 carried by an angular arm 24 on the bed plate, this arm also carrying at its horizontal portion an adjusting screw 25 limiting the movement of the lever, both limits of movement of the lever being opposed by suitable cushions 26. Adjacent the rear end of the spindle 8, and embracing the same is provided a U-shaped block 27, the arms of which carry a pair of magnets 28 extending inwardly for co-action with an armature 29 carried by the gear sleeve 19, the gear sleeve being normally urged in clutch engagement with the fixed sleeve 20 by a spring 30 on the spindle between said sleeve 19 and the rear bearing arm 7.

Thus upon successive actuations of the magnets 22 the lever 15 will be swung to impart successive rotative steps to the spindle, the lever returning to initial position by reason of the clutch engagement of the sleeves 19 and 20. When it is desired to reset the spindle, the magnets 13 and 28 are simultaneously actuated, to retract the clutch sleeve 19 from engagement with the sleeve 20 and to release the pawl 10.

The general arrangement heretofore described is shown in my said previous application, and it is also shown, though not in connection with a voting machine, in Patent No. 1157839 granted to me October 26, 1915. This structure has been described in detail in view of the intimate relation of its various parts to the subject matter of this present application.

Fixed on the forward end of the spindle 8 is a drum 31 and carried at the forward end of this drum is a symbol carrying indicating disk 32 similar to the disk of my previous structure and the drum of the present structure carries three contact blocks 33 which are disposed at regularly spaced intervals in stepped relation transversely of its periphery and which are selectively engageable with two of a series of five contact fingers carried by a block 35 upstanding at one side of the drum, the outer fingers and the center finger being connected with return wires 36 extending to the vote totaling means hereafter to be described, and the intermediate fingers communicating with a common supply wire 37, these fingers being

for later convenience termed positive fingers 34 and negative fingers 34^a.

By closing a circuit through a selective pair of fingers 34 and 34^a the corresponding total vote recording means will be actuated, and one of a plurality of lamps 38 mounted at the front of the mechanism will be actuated, these lamps being of different colors, to register the different kinds of votes, either "yes", "no" or "paired".

The dial 32 and lamps are adapted to indicate the individual votes to persons in the legislative chamber. To provide an indicating means for the photostat mechanism which is disposed at the rear of the bank or indicating mechanisms, a slidable plate 39 is provided having the vote symbols 40 on its outer face, this plate being slidably mounted by engagement of its lower edge portion in a longitudinal groove 41 in the rear side edge of the base plate 5, and by engagement of bracket arms 42 carried by the free ends of the magnet block 27, in a groove 43 formed in an inwardly upstanding flange at the upper edge of the said plate 39. This plate is slidably actuated to selectively expose one of its symbols 40, which symbols correspond to the symbols of the indicating disk 32, by means of a gear segment 44 fixed on the rear end of the spindle 8 and meshing with a rack series of gear teeth 45 on the under face of the said flange, it being understood that the symbols are selectively displayed through a suitable casing (not shown).

Referring now to Fig. 7, which shows a diagrammatic assemblage of the entire apparatus, A designates each of a pair of main station indicating mechanisms and B designates each of a pair of sub-stations which contains a switch adapted to actuate either the voting magnets 22 or the releasing magnets 13 and 28. This switch comprises an intermediate pivoted common contact bar 46 which is engageable selectively by voting and release contact members 47 and 48 respectively, the common contact member being movable, preferably by lock controlled means to a position in which it is not engageable by the other contact members, to thus prevent unauthorized tampering with the apparatus.

In each substation there is provided a duplicate of the main station indicating mechanism, with the exception of the circuit controlling drum 31, the rear plate 43 and associated structure, for the information of the individual voter, and the indicating and release magnets thereof are indicated in Fig. 7 at 22^a and 13^a and 28^a respectively. A new line 49 connects the voting contact member 47, the magnet 22^a, the magnet 22 and extends to a common supply point 50, from which a line 51 extends to the endmost of a series of batteries 52. A

line 53 extends from the release contact member 48 and is branched to include the magnets 28^a and 13^a and branched to include the magnets 28 and 13 and terminates at the common supply point 50. Extending from the other end of the battery 52 is a common return line 54 which is branched for extension to the contact members 46 of the sub-stations.

Thus upon pressing the voting contact member 47 into contact with the member 46 the current will pass from said member 46 thereto and through the line 49 to the magnet 22 thus imparting a rotative step to the drum 31 and closing the gap between one of the end contact fingers 34 and the adjacent finger, the circuit being completed through the common return line 51 the batteries 52 and the common supply line 54. To procure other voting indications the voting switch is closed a second or third time.

Taking up now the total vote means, there is provided three ammeters C, C' and C² and from each of these ammeters a line 55 extends to a respective negative contact finger 34^a. The positive contact fingers 34 are connected with the branched end of a supply line 56 which is attached to the positive pole of an intermediate one of the series of batteries 52. Extending from the negative poles of successive other batteries are a series of wires 57 terminating in contact points 58, of a multiple switch 59 and extending from the switch lever is a line 60 connected by the transverse wires 61 with the ammeters C, C' and C'' and connected with the common supply line 56, a volt meter 62 being disposed in this line 60 and consequently arranged in multiple with the ammeter circuits. Disposed in each wire 55 is a resistance coil 65 which imparts a definite unit of resistance to be registered in a corresponding ammeter, and thus each unit of resistance registers one vote in the ammeter. The switch 59 provides for maintaining a constant current through the ammeter circuits whereby their indications will be exact, and the volt meter 62 indicates a constant necessary voltage which must be maintained to effect proper indications of the ammeters.

Tracing now one of the ammeter circuits, the current passes from a positive contact finger 34 to the corresponding negative finger 34^a through the contact block 33 of the drum 31 and then passes through the line 55 with its resistance coil 65 to the corresponding ammeter. From the ammeter the current passes through the wire 61 to the line 60 and thence through the switch 59 and a selective one of the wires 57 to the batteries, from which it passes by the line 56 to the positive contact fingers 34.

The vote indicating lamps 38 of the indicating mechanism are disposed in lines 67 connecting the common return line 51 of

the system and corresponding lines 55 between the resistance coil 65 and the contact fingers 34^a. Thus a circuit for one of the lamps is traced from the batteries through the common supply line 56 to a positive contact finger 34, through a drum contact 33 to a negative contact finger 34^a and thence through the lines 67 and the lamps and the common return line 51 back to the battery.

In Fig. 7, 68 designates a pair of magnets for electrically operating the photostat mechanism 69, to procure a permanent record of the indications displayed by the slidable plates 39 at the rear of the indicating mechanisms. These magnets are disposed in a line 69 branched from the main supply line 54 of the entire system and terminating in a contact member 70 adapted to be engaged by the lever of a switch 71 disposed in the main return line 51 which, when opened, renders the sub-station switches inoperative, to thus suspend the voting while taking a permanent record. To provide a sufficient light for actuating the photostat mechanism, a lamp 72 is connected in multiple in the magnet circuit and is lighted upon actuation thereof.

73 designates a multiple switch, the lever of which is connected with a branch 74 of the main supply line, and the various stationary contact portions of which are connected by wires 75 with the lines 53 at the substations in advance of the reset magnets 13^a and 28^a whereby a main station means is provided for resetting all of the indicating mechanisms.

What is claimed is:

1. A voting machine comprising a main station including a plurality of indicating mechanisms, each provided with a plurality of differing indicating portions, a plurality of substations each including means for actuating the portions of a respective indicating mechanism, a plurality of circuits each including like portions of the indicating mechanisms in parallel, a current meter associated with each of said circuits, and adapted to indicate the number of like indicating portions actuated, said circuits including a plurality of batteries, a common return wire, a multiple switch connected with said return wire, and wires extending from the switch to the batteries whereby a constant current may be maintained for each current meter circuit.

2. In a voting machine an indicating mechanism including a journaled shaft, a drum on the shaft, a series of contact fingers extending across the drum, a series of contact members on the drum selectively engageable each with a pair of contact fingers, wires extending from alternate fingers, a common wire connected with the other fingers and vote indicating means in said first wires.

3. In a voting machine, a plurality of indicating mechanisms each including a series of signal lamps at the front thereof, a slide member at the rear thereof having a series
 5 of symbols thereon corresponding with the signal lamps, said slide member providing for a permanent display for the symbol carried thereby, and means for simultaneously displaying one of the lights and corresponding
 10 symbols on the slide member.

4. In a voting machine, a plurality of indicating mechanisms each including a series of signal lamps at the front thereof, a dial member at the front thereof and having a
 15 series of symbols thereon corresponding with the signal lights, a slide member at the rear thereof having a series of symbols thereon corresponding with the symbols of the dial member and the signal lights, and
 20 means for simultaneously displaying one of the lights and corresponding symbols on the dial and slide members.

5. In a voting machine, the combination with a driven shaft and means for advancing the same in progressive steps, of a plu-
 25 rality of indicating mechanisms including a dial member carried by the forward end of said shaft, a slide member at the rear thereof and operated by said shaft, a series of
 30 signal lamps at the front thereof, said dial and slide members each having a series of

symbols thereon corresponding with the signal lights, and means for operating said shaft to simultaneously display one of the lights and corresponding symbols on the dial and slide members substantially as described.

6. In a voting machine, a plurality of indicating mechanisms each including a series of signal lamps at the front thereof, a dial member at the rear thereof, said dial and slide members each having a series of symbols thereon corresponding with the signal lamps, a journaled shaft, said dial member being carried by one end of said journaled shaft, a gear and gear rack connection between the other end of said shaft and said slide member, and means for rotating said shaft to simultaneously display one of
 40 the lights and corresponding symbols on the slide member and dial member, substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee,
 55 in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

BORNETT L. BOBROFF.

Witnesses:

FRANK S. RATCLIFFE,
 MILDRED McCONIGHEN.