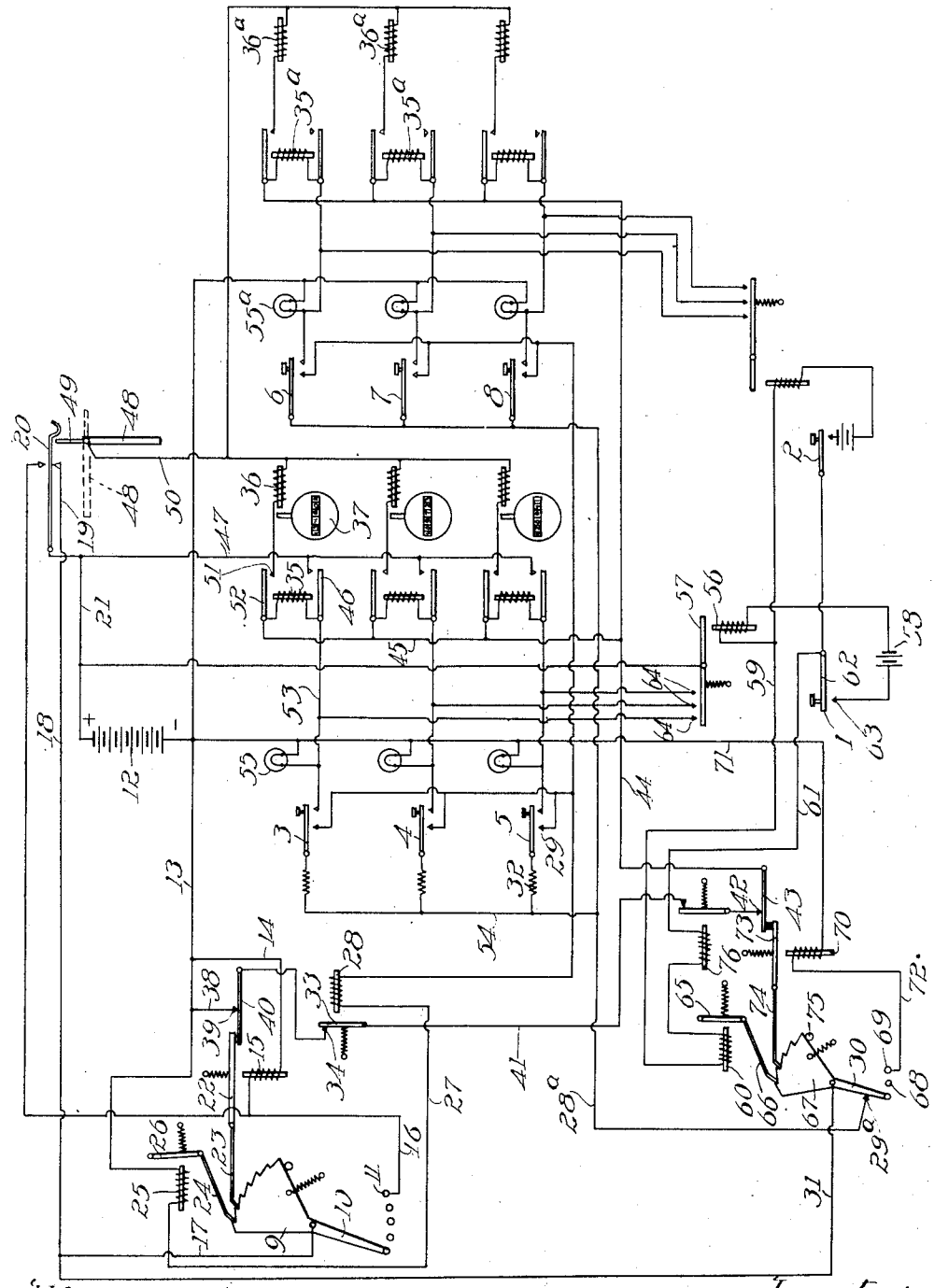
H. O. RUGH.

VOTING MACHINE.

APPLICATION FILED MAR. 23, 1914.

**1,142,058.** Patented June 8, 1915.



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# UNITED STATES PATENT OFFICE.

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## VOTING-MACHINE.

1,142,058. Specification of Letters Patent. Patented June 8, 1915.

Application filed March 23, 1914. Serial No. 826,778.

*To all whom it may concern:*

Be it known that I, HARRY O. RUGH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Voting-Machines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to electric voting machines and has for its object the provision of an improved machine so arranged that individual candidates may be selected on different tickets (as for instance when these candidates belong to different parties), and in which at the same time the entire candidates of one party may be selected by the performance of a single actuation of a party selecting device. The machine is so arranged that the selection of candidates of one entire party, makes it impossible to vote for candidates of any other party.

My invention is particularly an amplification of the system set forth in my co-pending application Serial No. 826,777, filed Mar. 23, 1914.

I will explain my invention more in detail by referring to the accompanying drawing illustrating diagrammatically an electric system for the control of voting machines.

In the drawing I have two party keys 1 and 2. Under the same party designation as party key 1, there are a plurality of buttons 3, 4 and 5 which are individual to candidates under that party. As here shown they may represent three candidates for aldermen, of which three and no more than three may be voted for. In accordance with my co-pending application there will be three similar buttons to the buttons 3, 4 and 5, namely the buttons 6, 7 and 8, which represent the individual buttons for the candidates which may be as a plurality controlled by the party button 2. In accordance with my co-pending application the arrangement is such that but three of the candidates represented respectively by the buttons 3, 4, 5, 6, 7 and 8 may be voted for by one voter, and this is accomplished through the agency of a step-by-step element 9 which moves one notch with the depression of each key either 3, 4, 5, 6, 7 or 8.

Assuming then that the individual keys are used and not the party keys 1, and 2, if more than three keys are depressed, the step-by-step element 9 brings its arm 10 into engagement with the contact 11, thereby closing a circuit which can be traced from the negative terminal of the battery 12 by way of conductor 13, conductor 14, magnet 15, conductor 16, contact 11, arm 10, conductor 17, conductor 18, switch spring 19, switching spring 20, conductor 21, to the positive terminal of the battery 12. This attracts the slow acting electromagnet 15 and causes by the actuation of its armature 22 the withdrawal of the holding pawl 23, thereby to disengage the step up pawl 24 from the teeth of the ratchet wheel 9. The step up magnet 25 through its armature 26 and step up pawl 24 controls the step by step movement of the element 9. The circuit through this magnet 25 may be traced from the negative terminal of battery 12 by way of conductor 13, electromagnet 25, conductor 27, electromagnet 28, switch contact 29 provided for each key, switch lever 5, conductor $28^a$, back contact $29^a$, switch arm 30, conductor 31, conductor 18, contact elements 19 and 20, conductor 21, to the positive terminal of the battery 12. Thus each depression of one of the keys 3 to 8 moves the step-by-step element one notch, and no more than three candidates can be voted for.

If in order to defeat the purposes of the machine two buttons such as three and four are simultaneously depressed to avoid an impulse for each depression, then the relay 28 comes into play. This relay is of such a character that the depression of one key through a resistance 32 does not actuate it, but the depression of two keys establishing an additional parallel circuit causes the relay 28 to be actuated, thereby opening the circuit between its armature 33 and back contact 34, thereby withdrawing current from all of the register setting relays 35.

There is a register setting relay for each one of the keys 3 to 8 and these relays in accordance with my co-pending application partially establish a circuit to a register electromagnet 36, which electromagnet is then in position after the circuit is completed to add one unit upon the counter 37. These relays 35 when once actuated by their corresponding button 3, as stated in my co-pending application, receive their current from a circuit which may be traced from the negative terminal of the battery 12,

through conductor 13, conductor 38, back contact 39, switch spring 40, back contact 34, armature 33, conductor 41, back contact 42, switch spring 43, conductor 44, conductor 45, relay 35, switch spring 46, conductor 47, to the positive terminal of the battery 12. Thus the actuation of any one button locks the relay 35 to place the counter 37 in condition for registration when the voter leaves the booth.

The voter on leaving the booth actuates a gate 48 which establishes a circuit that may be traced from the positive terminal of the battery 12 by way of conductor 21, switch spring 20, contact arm 49, conductor 50, relay 36, contact 51, armature 52, conductor 45, conductor 44, switch elements 43 and 42, conductor 41, switch elements 33 and 34, switch elements 40 and 39, conductor 38, conductor 13 to the negative terminal of the battery 12. When the key 3 is initially depressed the circuit to the magnet 35 is completed from the negative terminal of the battery 12 by way of conductor 13, conductor 38, contacts 39 and 40, contacts 34, 33, conductor 41, contacts 42, 43, conductor 44, conductor 45, relay 35, conductor 53, switch lever 3, conductor 54, conductor $28^a$, contacts $29^a$ and 30, conductor 31, conductor 18, switch elements 19, and 20, conductor 21, to the positive terminal of the battery 12. The actuation of either key also lights its corresponding designation lamp 55. What has been so far explained has been set forth in my said co-pending application.

Now should it be desired to vote for all of the candidates of a given party, then the button 1 is depressed which establishes a circuit similar to that established by the keys 3, 4 and 5 to all of the party relays 35, and this is done through the agency of the electromagnet 56, and its armature 57 which are energized whenever the key 1 is depressed through the agency of the battery 58. The circuit through the magnet 56 can be traced from the battery 58, through the magnet 56, conductor 59, magnet 60, conductor 61, switch lever 62, contact 63, to the battery 58. The actuation of the armature 57 closes circuit with all of the back contacts 64 of which there is one respectively for each relay 35. This circuit can be traced from the positive terminal of the battery 12 to the armature 57, contact 64, relay 35, conductor 45, conductor 44, switch elements 43, 42, conductor 41, switch elements 33, 34, switch elements 40, 39, conductor 38, conductor 13, to the negative terminal of the battery 12. Thus all of the relays 35 of a given party are set by the actuation of the associated party key 1. The locking of the relay 35 at the same time illuminates the corresponding designation lamps for each relay 35. Thus to vote a straight party ticket, but one key need be depressed and the actuation of the gate 48 registers a vote for each candidate selected. Similarly when button 2 is depressed its associated relays $35^a$ place its associated counters $36^a$ in condition for actuation. Each actuation of each key 1 or 2 at the same time sends an impulse through the magnet 60, thereby operating its armature 65 to actuate the step up pawl 66 so as to move the step-by-step element 67 one notch. It will be seen that moving the step-by-step element one notch opens the contacts between the elements 29 and 30, and this immediately disconnects the positive battery terminal which is associated with the conductor 31 from the conductor 28, withdrawing the necessary battery connection from all of the keys 3 to 8 inclusive so that thereafter none of these individual keys may be operated. It is likewise impossible to operate two party keys. For instance, after the party key 1 has been operated, the switch arm 30 is over the switch contact 68, and if another party key were actuated, say the party key 2, then the step-by-step element would move another notch namely to the contact 69 and thereupon a circuit would be established through the magnet 70 which can be traced from the negative terminal of battery 12, through the conductor 71, magnet 70, conductor 72, arm 30, conductor 31, conductor 18, switch elements 19, 20, conductor 21, to the positive terminal of the battery 12. The actuation of the magnet 70 attracts its armature 73, thereby withdrawing the holding pawl 74 from the teeth of the element 67 and also pushing out the step up pawl 66 so that the step-by-step element 67 can return to normal against its stop 75. At the same time the contact between the elements 42 and 43 is opened, thus withdrawing battery current from all of the relays 35 or $35^a$ which had previously been set and thus restoring the entire device to normal, which would be indicated to the voter by the extinguishing of all of the lamps 55, $55^a$ so he would know that he would have to reset that particular party button which he desired to use. A relay 76 is included in the conductor 61, which relay will not operate if but one key 1 is depessed, but will operate if additional current is supplied by the operation of a second key, simultaneously with the first so that the purposes of the machine may not be defeated by depressing two party keys at the same time. This relay 76 then opens the circuit of the conductor 41, thus withdrawing the supply of current to all of the relays 35.

From what has been described the nature of my invention will be clear, and it will also be clear that within the scope of the appended claims it is capable of modification without departing from its spirit.

Having however thus described one form which my invention may take, what I claim

as new and desire to secure by Letters Patent is:

1. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and means whereby the operative control by a second master mechanism is prevented after actuation of the first master mechanism.

2. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and means including pawl and ratchet mechanism whereby the actuation of a second master mechanism nullifies the action of any previously actuated master mechanism.

3. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and means selectively responsive to strength of current to prevent operative control of said first aforesaid means by the simultaneous actuation of two master mechanisms.

4. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and means selectively responsive to strength of current to prevent operative control of said electromagnetically controlled means by the simultaneous actuation of two master mechanisms.

5. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and means whereby the operative control by a second master mechanism is prevented after actuation of the first master mechanism, said last aforesaid means including release mechanism for said electromagnetically controlled means.

6. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and step-by-step means whereby the operative control by a second master mechanism is prevented after actuation of the first master mechanism.

7. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and step-by-step means whereby the operative control by a second master mechanism is prevented after actuation of the first master mechanism, said last aforesaid means including release mechanism for said electromagnetically controlled means.

8. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and means including pawl and ratchet mechanism whereby the actuation of a second master mechanism nullifies the action of any previously actuated master mechanism, said last aforesaid means including release mechanism for said electromagnetically controlled means.

9. A voting machine of the character de-

scribed having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and means including pawl and ratchet mechanism whereby the actuation of a second master mechanism nullifies the action of any previously actuated master mechanism.

10. A voting machine of the character described having a plurality of individual electromagnetically controlled means for condidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and means including pawl and ratchet mechanism whereby the actuation of a second master mechanism nullifies the action of any previously actuated master mechanism, said last aforesaid means including release mechanism for said electromagnetically controlled means.

11. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and means to prevent operative control of said first aforesaid means by the simultaneous actuation of two master mechanisms, said last aforesaid means including release mechanism for said electromagnetically controlled means selectively responsive to strength of current.

12. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a different designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and electromagnetic selectively responsive means to prevent operative control of said first aforesaid means by the simultaneous actuation of two master mechanisms.

13. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and electromagnetic selectively responsive means to prevent operative control of said first aforesaid means by the simultaneous actuation of two master mechanisms, said last aforesaid means including release mechanism for said electromagnetically controlled means.

14. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and electromagnetic selectively responsive means to prevent operative control of said first aforesaid means by the simultaneous actuation of two master mechanisms, said last aforesaid means including release mechanism for said electromagnetically controlled means.

15. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and means whereby the operative actuation of a first master mechanism prevents operative actuation of the electromagnetically controlled means related to another master mechanism.

16. A voting machine of the character described having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and circuit controlling means whereby the operative actuation of a first master mechanism prevents operative actuation of the electromagnetically controlled means related to another master mechanism.

17. A voting machine of the character de-

scribed having a plurality of individual electromagnetically controlled means for candidates of a given designation, a second plurality of individual electromagnetically controlled means for the candidates of a different designation, master controlling mechanism for all of said means for candidates of one designation, master controlling mechanism for all of said means for the candidates of the different designation, and circuit controlling means whereby the operative actuation of a first master mechanism prevents operative actuation of the electromagnetically controlled means related to another master mechanism, said circuit controlling means controlling the source of current supply.

In witness whereof, I hereunto subscribe my name this 16th day of March, A. D., 1914.

HARRY O. RUGH.

Witnesses:
A. LYDA JONES,
HAZEL ANN JONES.