

Nov. 22, 1927.

1,650,247

A. G. TURCK

ELECTRICAL VOTING APPARATUS

Filed Jan. 21, 1926

3 Sheets-Sheet 1

Fig. 1

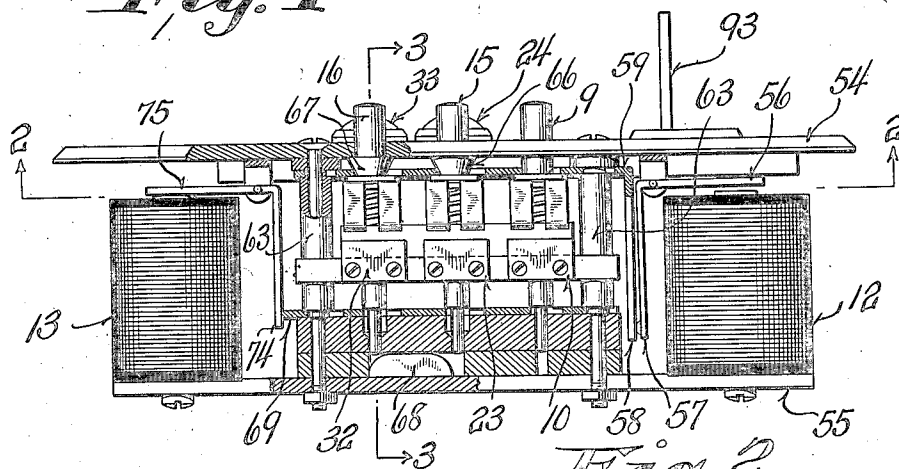


Fig. 2

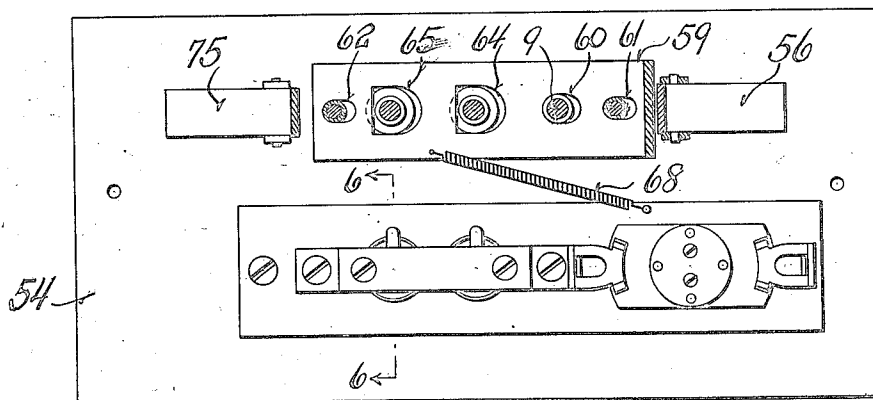
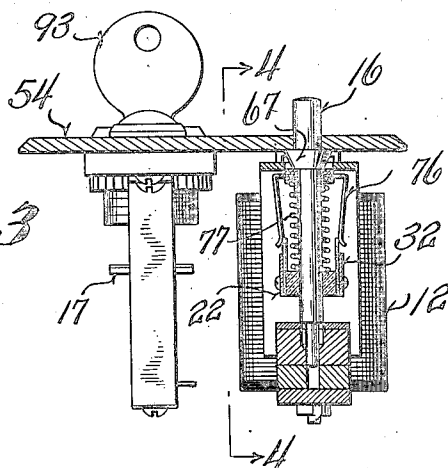


Fig. 3



Inventor
 Albert G. Turck
 By *[Signature]*
 Attorneys

Nov. 22, 1927.

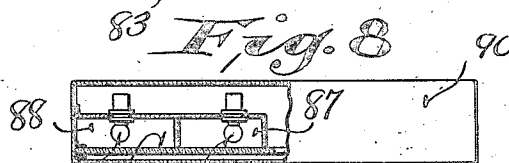
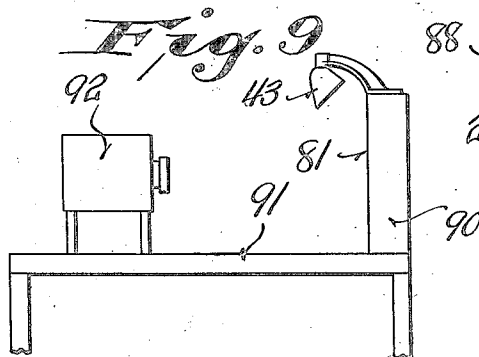
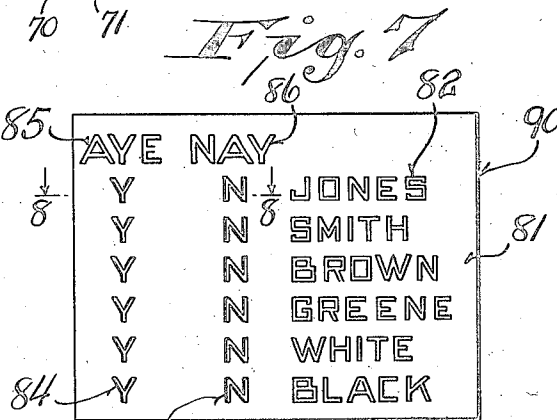
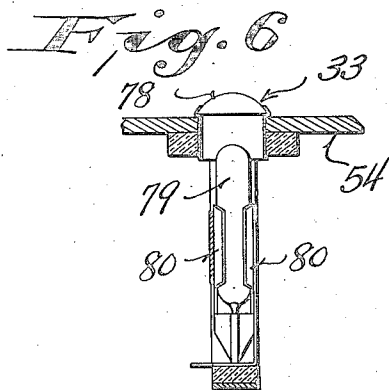
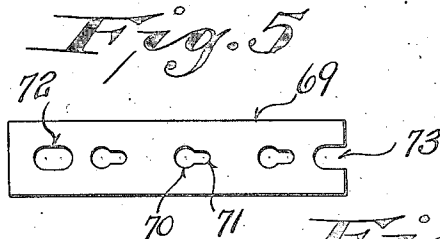
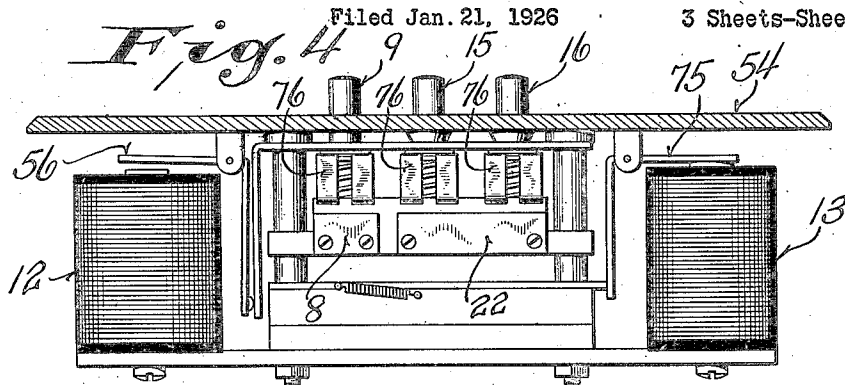
1,650,247

A. G. TURCK

ELECTRICAL VOTING APPARATUS

Filed Jan. 21, 1926

3 Sheets-Sheet 2



Inventor:
Albert G. Turck

By *[Signature]*
Attorney

Nov. 22, 1927.

1,650,247

A. G. TURCK

ELECTRICAL VOTING APPARATUS

Filed Jan. 21, 1926

3 Sheets-Sheet 3

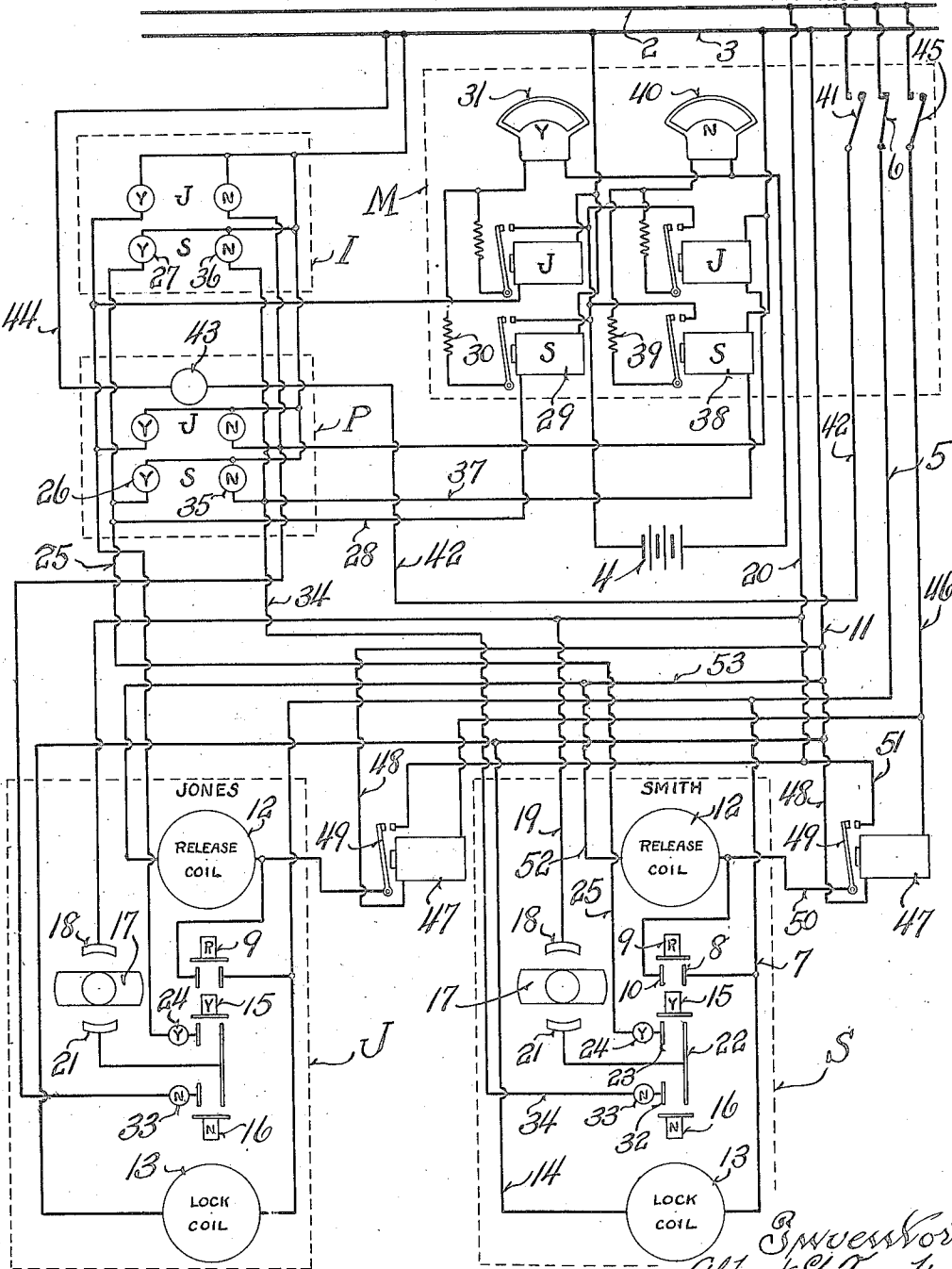


Fig. 10

Inventor:
Albert G. Turck
By *[Signature]*
Attorney

UNITED STATES PATENT OFFICE.

ALBERT G. TURCK, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO AMERICAN SIGNAL CORPORATION, OF WASHINGTON, DISTRICT OF COLUMBIA, A CORPORATION OF DELAWARE.

ELECTRICAL VOTING APPARATUS.

Application filed January 21, 1926. Serial No. 82,757.

This invention relates to a voting apparatus.

In voting apparatuses, as heretofore constructed, it has been a common custom to provide mechanically movable members for making a permanent record. This has necessitated elaborate and delicate mechanism for each voter, or in other words, for each substation operated by a voter.

Further, it has heretofore been customary to require each voter to remember the manner in which he has voted, without any individual indicating means at his substation for temporarily recording the manner in which he has voted.

This invention is designed to overcome the defects noted above, and objects of such invention are, therefore, to provide a novel form of voting apparatus in which the means for forming a permanent record does not require mechanically movable members, but is actuated through the medium of light in a manner to permit ready photographing of the record to thus secure a permanent record. A further main object is to provide a voting apparatus in which each substation is equipped with individual indicating means for temporarily recording the manner in which the voter has voted, so that he need not memorize his mode of voting, but may, by visible means, directly ascertain it from a glance at his substation.

More specifically, this invention is designed to provide a novel manner of forming a permanent photographic record of the individual votes by the use of lamps and without requiring any enunciator or mechanically movable or electro-magnetic mechanism.

Further objects are to provide a voting apparatus in which the operation of the individual substations is controlled from a main switch, in which the releasing or resetting of the several substation switches is controlled from a main switch while still permitting individual resetting of the substations up to the time that the locking mechanism operates.

Further objects are to provide a voting apparatus in which a main station is provided, for instance at the clerk's desk, with means for controlling the substations, and with means for indicating the total of the votes, and to provide such an apparatus with a general indicating board exposed to the view of the assembly, and with a permanent record board which may be located at a remote point and is equipped with means which both signals the operator of the permanent record apparatus and also prepares such apparatus for the making of the permanent record.

An embodiment of the invention is shown in the accompanying drawings, in which:—

Figure 1 is an elevation partly in section of the mechanism at one of the substations.

Figure 2 is a view looking at the top plate at the substation from its under side, such view corresponding to a section on the line 2—2 of Figure 1.

Figure 3 is a sectional view on the line 3—3 of Figure 1.

Figure 4 is a sectional view on the line 4—4 of Figure 3.

Figure 5 is a view of the locking slide.

Figure 6 is a detail sectional view showing one of the individual lamps employed at each substation.

Figure 7 is a face view of the permanent record board.

Figure 8 is a section on the line 8—8 of Figure 7.

Figure 9 is a side elevation of the permanent record apparatus.

Figure 10 is a diagrammatic view showing the wiring system employed in the entire voting apparatus.

Referring first to Figure 10, the general idea of the manner of operating the apparatus may be most readily had. From this figure, it will be seen that a main station M is provided preferably at the clerk's desk, and that a plurality of substations indicated by the reference characters S and J, and are provided for the individual voter, the drawing showing only two substations, although

it is intended that the requisite number for a complete voting body be provided. Further, it will be seen that a main indicating station I is provided, and it is intended that this station, which may be in the form of an indicating board, be displayed to the entire assembly and mounted in the assembly room.

Further, it will be seen that a permanent record station P is also provided, and this station may be located in a room remote from the assembly room.

The main portion of the apparatus is supplied from a pair of mains 2 and 3, a separate source of steady current being supplied by a battery 4 for a purpose hereinafter to appear. The mains 2 and 3 may be either direct or alternating current mains. From the supply mains, a main supply conductor 5 extends and is controlled by the locking switch 6 in the main station M. This main leads to the several substations, as indicated at S and J. For instance, the conductor 5 is connected by means of the conductor 7 with a contact 8 of the release switch 9, the other contact 10 of such release switch being connected to one side of the release coil 12 hereinafter described in detail. This release coil has its opposite side connected to the return conductor 11 by means of the conductor 53. Thus, when the release button or switch is depressed, the release coil is energized.

Further, it will be noted that the conductor 7 extends to one side of the locking coil 13. The other side of the locking coil is connected by means of the conductor 14 with the return lead 11. As will appear hereinafter, the release coil releases the "aye" button or switch indicated at 15, and the "nay" button or switch indicated at 16 whenever such release coil is energized. It is also to be understood that the locking coil 13 locks all the buttons 9, 15 and 16 against operation when the locking coil is deenergized as described in greater detail hereinafter.

Each substation is provided with a key controlled switch 17, one of whose contacts 18 is connected by means of the conductor 19 to a supply lead 20 extending to the main 2. The other contact 21 of the key controlled switch is connected to a plate 22 forming one of the contacts for each of the buttons 15 and 16. Thus, when the key controlled switch is closed by the key of the individual voter, the plate 22 is connected with the main 2. The "aye" button 15 is provided with a second contact 23 which is connected to an individual indicating lamp 24 in the substation, and thence is connected by means of the conductor 25 to the permanent record station, the indicating station, and to devices in the main station M. For example, in following the conductor 25 in Figure 10, it will be seen that it extends to the

lamp 26 of the permanent record station and thence to the main 3, and also extends to the lamp 27 of the indicating station and thence to the main 3. Further, a conductor 28 leads from the conductor 25 to one side of the coil of a relay 29 associated with the main station M, the other side of the coil of the relay being connected to the main 3. Thus, when the button 15 is depressed, the clamps 26 and 27 are lighted and the relay 29 is energized.

The relay 29 closes a circuit including the battery 4, a fixed resistance 30, and a milli-ammeter 31. The button 16 is adapted to connect the plate 22 with a stationary contact 32, such contact being connected to a lamp 33 at the individual substation and thence by means of a conductor 34 to the lamp 35 of the permanent record station and to a lamp 36 of the indicating station, the other side of the lamps 35 and 36 being connected to the main 3. Further, it will be seen that the conductor 34 is connected by means of a wire 37 to one side of the coil of a relay 38, the other side of such relay coil being connected to the main 3. The armature of this relay controls a local circuit including the battery 4, a fixed resistance 39 and a milli-ammeter 40.

From the description thus far given, it is apparent that the substations each control their individual lamps 26 or 35 indicating "aye" or "nay" at the permanent record station and their lamps 27 and 36 at the indicating station I, and also their relays 29 and 38 at the main station M.

It is clear, therefore, that for the closing of each switch 15, a certain fixed value of current is allowed to pass through the milli-ammeter 31, and that as the number of closed switches 15 increases, the corresponding number of additional indications will be given by the milli-ammeter 31, thus totaling the "aye" vote.

Each relay 29 cuts in parallel a fixed resistance 30 in the local circuit including the battery 4 and the milli-ammeter 31, so that the deflection of the ammeter accurately totals the vote for the "ayes". In a similar manner, the deflection of the ammeter 40 totals the "nay" votes.

In addition to this, the indicating station I has a definite number of lights 27 or 36 illuminated corresponding to the voting at the individual substations. Further, the permanent record station P has a definite number of lights 26 or 35 illuminated corresponding also to the voting at the individual sub-stations.

After the voting has been completed, the clerk opens the main switch 6 thus deenergizing all of the locking coils and locking the substations against any further voting or alteration of the votes made as will be hereinafter described. Thereafter, the clerk

closes the switch 41. This connects the main 2, through the medium of the conductor 42, with a flood light 43 in the permanent record station P. The other side of the flood light is connected by means of the conductor 44 with the main 3. This flood light illuminates a plate, hereinafter described, in the permanent record station and also is a signal to the operator at such station to make a permanent record. After the permanent record has been made, as will hereinafter appear, the clerk opens the switch 41 and closes the switch 45. The switch 45 connects the main 2 by means of the conductor 46 with one side of the coil of each of the relays 47. The other side of the coils of these relays are connected by means of the conductors 48 to the return lead 11. Thus the relays 47 are energized and their armatures individually close circuits including their corresponding release coils 12. For example, referring to station S in Figure 10, it will be seen that the armature 49 connects the conductor 50 from one side of the release coil 12 to the conductor 51, such latter conductor being connected to the lead 20 and thence to the main 2. The other side of the release coil 12 is connected by means of conductors 52 and 53 to the return lead 11, and such lead 11 connects in turn with the main 3. Thus each of the release coils is energized and the locking buttons or switches are restored to their initial position simultaneously by the closing of the switch 45, as will be hereinafter described.

Therefore, the clerk in the main station M opens the switch 45 and closes the switch 6. The apparatus is now in condition for another cycle of operation.

The details of construction of the parts will now be described. The construction of the substation mechanism is shown in Figures 1 to 5. This mechanism comprises a top plate 54 which may be mounted at the voter's desk, for instance. This top plate carries a frame provided with a base member 55 upon which the locking coil 13 and release coil 12 are mounted. These coils or magnets are each provided with armatures shaped like a bell crank lever. For instance, the release coil 12 has an armature 56 extending over its upper end and provided with a downwardly extending arm 57. This downwardly extending arm contacts with a downwardly extending arm 58 of a slide 59. This slide 59 is apertured or slotted, as indicated at 60 to accommodate the button 9. It is also slotted, as indicated at 61 and 62 to receive the reduced portions of the spacing sleeves 63. Further, this slide 59 is provided with enlarged apertures 64 and 65 which are equipped with flat rear faces, as shown in Figure 2. These flat faces normally work against the conical portions 66 and 67 of the buttons 15 and 16 and retain them

in elevated position. However, when one of the buttons is depressed, the conical portion slides through the appropriate aperture and the slide 59 snaps forwardly under the action of the spring 68 to thus temporarily hold the button depressed. If, however, the other button is depressed, the conical portion thereof slides the slide 59 rearwardly and thus releases the first button. Further, the releasing coil 12, when energized, causes the arm 57 to urge the arm 58 and consequently the slide 59 rearwardly. This releases the depressed button.

The lower end of each of the buttons 9, 15 and 16 is provided with a shouldered portion, as shown in Figure 1, and such shouldered portion is adapted to normally pass through the enlarged portion of apertures formed in the locking slide 69. This locking slide is shown in greater detail in Figure 5 from which it will be seen that the apertures are formed with an enlarged portion 70 and with a restricted portion 71. Further, this slide is guided by means of slots 72 and 73 adjacent the ends which receive the lower reduced portions of the spacing sleeves 63. This slide is urged towards locking position by means of a spring or other suitable member. It is moved to unlocking position by means of the arm 74 of the armature 75 of the locking coil or magnet 13.

Referring to the buttons or switches 9, 15 and 16, it will be seen from reference to Figure 3, that they are provided with a U-shaped contact member 76 which engages the stationary contact members. Further, it will be seen that a spring 77 is provided for urging the buttons upwardly.

Referring to the individual signal lamps, indicated generally by the reference characters 24 and 33 in Figures 1, 10 and 6, with particular reference to Figure 6, it will be seen that such lamps are formed by means of a transparent member 78, for example, a disk of colored glass which is mounted above the top plate 54. Beneath this transparent member a small lamp proper, as indicated by the reference character 79, is positioned. This lamp may be of the usual switch board type of lamp provided with contacts 80 on its cylindrical sides which engage suitable retaining and contacting clips.

The permanent record apparatus consists of an opaque plate 81, as shown in Figures 7 and 8. This opaque plate is preferably either black or of a neutral color. Upon the plate, names, such as indicated by the reference character 82 in Figure 7, are printed or otherwise formed. These names are preferably white or other contrasting color to that of the body of the plate. Further, the plate 81 is provided with insignia such as the letters N and Y cut therethrough. These letters are indicated by reference characters

83 and 84. Above the cut letters are the titles "Aye" and "Nay" indicated by the reference characters 85 and 86, such legends being printed or otherwise formed upon the outer face of the opaque plate.

As shown in Figure 8, behind each of the letters 83 and 84 are positioned compartments 87 and 88 within which the lamps 35 and 26 are mounted. Further, it will be seen from Figure 8 that a ground glass plate 89 is mounted within the cabinet 90 and is spaced rearwardly a slight distance from the opaque plate 81. This causes the cut letters to appear black or neutral when the lamps 35 and 26 are not lighted. However, when these lamps are lighted they cause the cut letters 83 and 84 to be brilliantly illuminated and to be thus susceptible of photographing by ordinary means.

The cabinet 90 is mounted upon any suitable stand, such as indicated by the reference character 91 in Figure 9, and a camera or photostatic apparatus 92 is mounted upon such stand and faces the plate 81.

When the flood light 43 is lighted, it is a signal for the operator in the permanent record station to photograph the plate 81. This flood light also illuminates the plate and causes the printed names and the legends "Aye" and "Nay" to stand out. Further, the letters 83 and 84, cut through the plate, are illuminated in accordance with the voting by means of the lamps 35 and 26, the unilluminated letters appearing black or neutral and failing to register in the print made by the photographic apparatus.

The detailed operation of the device has been given above and it is not believed necessary to repeat this description in connection with the specific elements described above. However, it may be briefly stated that the procedure in voting is as follows: The clerk at the main station M closes the switch 6 and thus energizes and releases the locking magnets or coils, and releases the locking devices at the several substations. The voters are each provided with separate keys, such as indicated at 93 in Figure 3, and they insert their respective keys in the locks of their substations and thus close the key controlled switches. Thereafter, the individual voter depresses the appropriate key 15 or 16, corresponding to his vote. If a mistake has been made prior to the final registering of the vote, it may be rectified by pressing the release key 9 at the substation. After the voting is complete, the clerk opens the switch 6 and closes the switch 41. This locks all of the substations against further voting and, at the same time, illuminates the flood light in the permanent substation P signalling to the operator at such station that the vote is complete. The permanent record operator then takes a picture of the

plate 81, thus providing a permanent record.

Further, the indicating board or station I indicates to the general assembly the individual votes of the several members by the illumination of the appropriate lamps. In addition to this, the milli-ammeters 31 and 40 indicate to the clerk at the main station the totals of the vote so that he is apprized of the way the vote is going at all stages of the voting.

After the permanent record has been made, the operator opens the switch 41 and closes the switch 45. This switch, through the medium of the relays 47, permits the energization of the release coils which reset all of the keys at the several substations.

Thereafter, the operator opens the switch 45 and closes the switch 6, thus placing the apparatus in condition for a subsequent cycle of voting.

Although the invention has been described in considerable detail, such description is intended as illustrative rather than limiting as the invention may be variously embodied and as the scope of such invention is to be determined as claimed.

I claim:

1. In a voting apparatus, the combination of a permanent record station having an opaque plate with insignia cut therethrough with lamps back of said plate and photographic means in front of said plate, said plate having names thereon corresponding to said insignia, said permanent record station having a flood light adapted to illuminate said plate, a plurality of substations each having a plurality of locking switches controlling said indicating means and the said lamps, said substations each having electromagnetic means for releasing said locking switches and for resetting said switches, and main switches for controlling said electromagnetic means and said flood light.

2. In a voting apparatus, the combination of an indicating station having a plurality of indicating means, a plurality of substations each having a plurality of locking switches controlling said indicating means, said substations having an electromagnetically operated releasing device for releasing said switches and having an electromagnetically operated locking means for locking said switches, a main switch controlling said electromagnetic locking means, a relay associated with each of said electromagnetic releasing means and controlling such means, and a main switch for controlling said relays.

3. In a voting apparatus, the combination of an indicating station having a plurality of indicating means, a plurality of substations each having a plurality of locking switches controlling said indicating means,

said substations having an electromagnetically operated releasing device for releasing said switches and having an electromagnetically operated locking means for locking said switches, a main switch controlling said electromagnetic locking means, and a releasing switch at each substation for independently controlling the releasing coil at such substation.

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

ALBERT G. TURCK.