

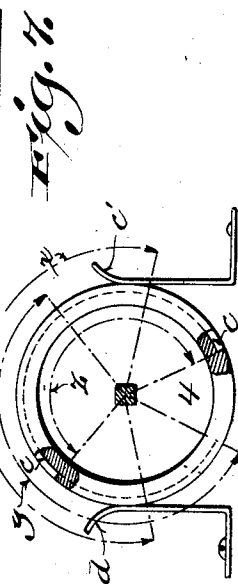
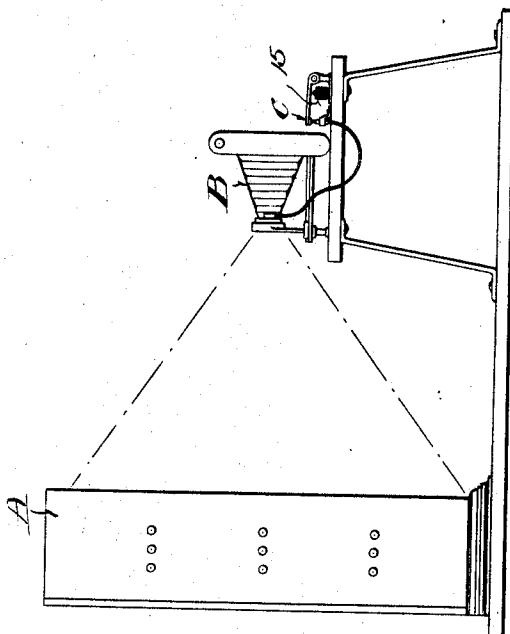
1,281,901.

B. L. BOBROFF.  
REGISTERING APPARATUS FOR VOTING OR THE LIKE.  
APPLICATION FILED FEB. 16, 1915.

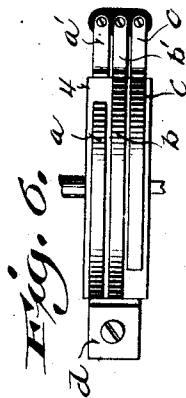
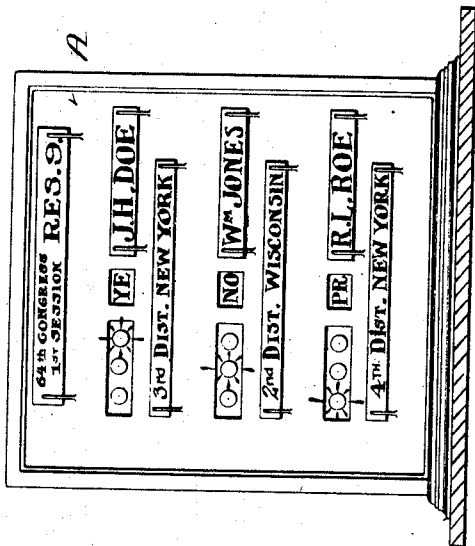
Patented Oct. 15, 1918.

3 SHEETS—SHEET 1.

*Fig. 2.*



*Fig. 1.*



*Inventor:*

*Bennett L. Bobroff*

*By [Signature] Attorneys.*

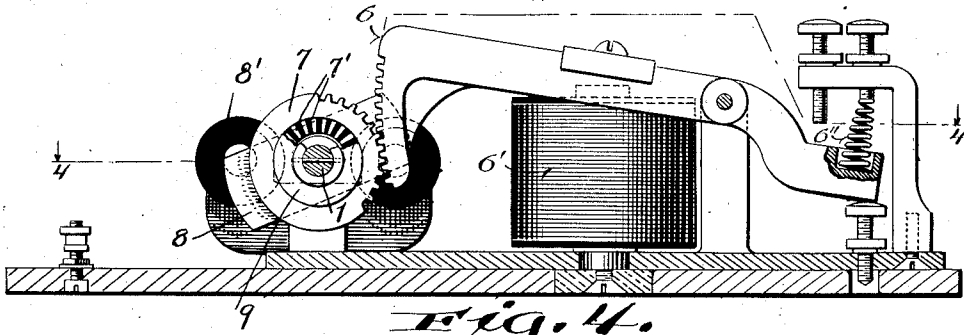
*Witnesses:  
C. A. [Signature]  
May Downey*

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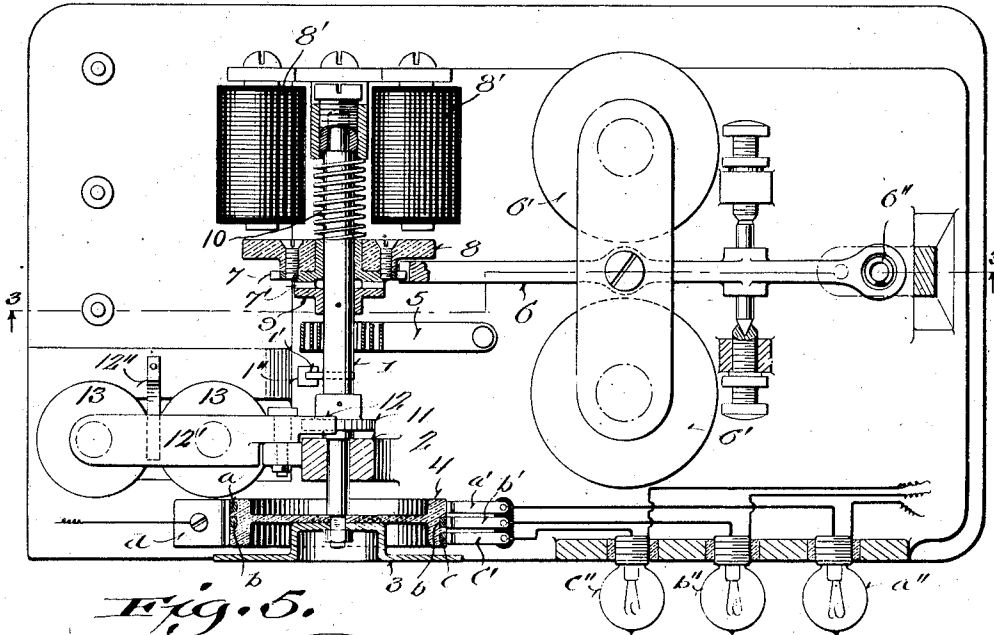
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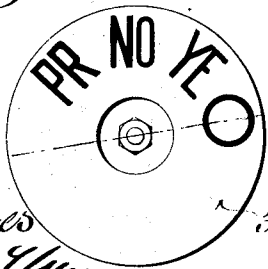
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

BORNETT L. BOBROFF, OF MILWAUKEE, WISCONSIN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO ALBERT BLATZ, JR., OF MILWAUKEE, WISCONSIN.

REGISTERING APPARATUS FOR VOTING OR THE LIKE.

1,281,901.

Specification of Letters Patent.

Patented Oct. 15, 1918.

Application filed February 16, 1915. Serial No. 8,639.

*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 Registering Apparatus for Voting or the like; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention refers to electrically controlled registering apparatus and is especially designed for registering the votes of legislative bodies and for roll call, the said apparatus being arranged to record and permanently register either the "yea" or "no" votes, each of which votes may be changed at the will of the individual voter prior to a time of permanent registration under manual control at a main station, there being individual sub-stations which are operated by the voters in such manner that the character of the vote is displayed at both sub-station and main station simultaneously.

With the above object in view the invention consists in certain peculiarities of construction and combination of parts as set forth hereinafter with reference to the accompanying drawings and subsequently claimed.

In the drawings—

Figure 1 represents a face view of an indicator board equipped with a series of shiftable indices and flash-signal mechanism opposite each voter's name;

Fig. 2, a side elevation of the same showing a photographic apparatus arranged to make a permanent record of the indicator board to show the temporarily registered votes of individuals;

Fig. 3, a sectional elevation of a dial operating mechanism, the section being indicated by line 3—3 of Fig. 4;

Fig. 4, a plan view of the same partly in section, as indicated by line 4—4 of Fig. 3;

Fig. 5, a face view of a shiftable dial showing a series of arbitrarily arranged indices thereon;

Fig. 6, a detailed plan view of an automatic circuit-closing drum employed in connection with the dial;

Fig. 7, a face view of the same with parts broken away and in section to more clearly show certain details of construction, and

Fig. 8, a diagrammatic view of the entire apparatus.

It will be understood that, while I have specifically mentioned that the apparatus is particularly designed for legislative bodies, it is apparent that said apparatus may be employed for registering and counting purposes in general from sub-stations to a main station.

Referring by characters to the drawings with especial reference to Figs. 3 to 7 inclusive, 1 represents a shaft which is mounted within suitable bearings 2 that extend from a base-plate. Mounted upon one end of the shaft is a shiftable dial 3 in the form of a circular disk having indices spaced apart at equal distances representing zero, "Yea", "No" and "Pr", which latter index may indicate present or paired. When the dial is in its normal position the zero mark intersects a vertical line extending through its axis. Mounted upon the shaft to rotate with the dial is a drum 4 composed of suitable insulating material having inlaid therein, in this exemplification of my invention, three strips *a*, *b*, *c*, of approximately equal length but advanced with relation to each other from left to right with respect to a corresponding set of alined contact springs *a'*, *b'*, *c'*, there being a common ground spring *d* which is adapted to bridge the three contact strips, whereby the selective circuit through the make and break mechanism is effected. By this arrangement, for example, when the dial is moved one space from the zero point to bring the "Yea" to vision, a bridging contact is effected through the springs *a*, *a'*, by means of the drum strip *a* and so on the successive contacts are closed when their corresponding indices "No" or "Pr" are in position. The driving shaft of the dial is held in its normal zero position by a stop 1', which engages a post 1'' that projects from the base of the machine, the said stop being held in the above position by a motor in the form of a coiled spring 5, which is connected to the base and shaft, as best shown in Fig. 4. Hence it will be seen that the shaft is rotated in one direction to bring the dial to its zero position by some mechanical force. A step by step movement is imparted to the shaft in opposition to its motive force by a toothed sector 6, which constitutes an armature for a pair of magnets 6', the said armature being suitably pivoted under control of a spring 6'', whereby it is returned to its normal position in opposition to the electric

force applied thereto through the magnets. The teeth of the sector mesh with corresponding teeth of a drive-wheel 7, which drive-wheel is loosely mounted upon the shaft 1 and also carries an oscillatory armature 8 that is associated with a pair of magnets 8', which are suitably supported from the base. The wheel-supported armature is provided with clutch-teeth 7', which normally engage corresponding clutch-teeth of a clutch-disk 9 that is secured to the drive-shaft 1 and this connection between the clutch members is maintained by a coiled spring 10, which surrounds the shaft and is interposed between the armature 8 and one of the bearings of said shaft. In order to lock the dial in any one of its step by step forward feed movements, a ratchet-wheel 11 is secured to the drive-shaft 1 and is engaged by a pawl 12 constituting part of an armature 12', which is pivotally mounted upon an ear that extends from one of the shaft bearings 2, the said pawl being normally held in interlocking engagement with the ratchet-wheel by a spring 12'', which engages the armature. The said armature is controlled by a pair of magnets 13, which, when energized, effect disengagement of the pawl and ratchet locking mechanism. A series of resistance units  $a''$ ,  $b''$ ,  $c''$ , in the form of flash signals, are suitably mounted upon the base of the dial operating mechanism and electrically connected with the automatic circuit make and break device in a manner to be hereinafter more particularly described. These resistance units or signal lights correspond to the indices on each dial and globes for said lights may be in different colors, for example, the signal corresponding to "Yea" may be red, "No" green and "Pr" translucent white. Hence when an individual votes "yea" he may check up said vote from the distant main station by the color of the light flashed in connection with his particular voting unit. The dial-controlling mechanism just described is utilized as a voting unit for an individual and, as shown in Figs. 1 and 2 of the drawings, a series of such mechanisms are incased within a boxed indicator board A, one above the other, the board being arranged with slots whereby the flash signals are displayed in alinement with a display slot for the index of the related dial, the name of the individual voter being also affixed opposite the alined vote displaying elements. The board shown in Fig. 1, for example, shows that Doe has voted "yea", Jones "no" and that Roe is present but paired, and the flash signals which are illuminated show to the individual voting the character of his vote from the board which is at a distance from the individual station. In legislative bodies it is desirable to make a permanent record of this complete vote and

hence I provide a photographic apparatus B which is associated with the board, the shutter of which apparatus may be released by a button C, which button can be operated manually or from a distance by a magnet 15 that is connected by a switch to a suitable source of energy for producing the permanent record.

Referring to the diagrammatic view, Fig. 8, D, D' and D'' illustrate groups of dial-actuating mechanisms which are positioned at a main station and E, E', E'' illustrate equipment for sub-stations. The three sub-station equipments shown in the diagram which correspond to the main station equipment comprise dial mechanisms  $d'$ ,  $d''$ ,  $d'''$ , which are similar in every respect to the series of dial mechanism units employed at the main station, with the exception that the distant signals comprising the flashlights and automatic circuit make and break mechanism are eliminated. Each of the sub-stations is also equipped with a switch mechanism comprising a switch lever  $e$  and opposite contacts  $e'$ ,  $e''$ . The main station is also provided, in this exemplification of my invention, with three ammeters  $a'''$ ,  $b'''$ ,  $c'''$ , which carry the respective indices of the dials and constitute magnetically controlled registers, whereby the aggregate number of votes of each character will be displayed to the main operator. These magnetically controlled vote registers are provided with indicator hands 16, which move step by step in one direction, depending upon the number of individual circuits that are closed for the character of their individual votes. Hence if three individuals should vote "yea" the finger 16 will be moved three spaces and display upon a proper scale card a total of three votes and so on throughout the series of registers, the total number of pairs will be shown to the main operator as well as the total number of "yea" and "no" votes.

The entire apparatus is connected to a source of electrical energy X from which source conductor wires 17, 17', lead to form a main circuit, the said main circuit having interposed therein a main switch 18. One conductor 17 of the main circuit is connected to each contact spring  $d$  of the automatic make and break mechanism by branch conductors 18' and the three contact springs  $a'$ ,  $b'$ ,  $c'$ , of said make and break mechanism, are wired to their related flash signals  $a''$ ,  $b''$ ,  $c''$ , each of which sets of signals are connected by conductor wires 19, 19', 19'', to the magnetically controlled registers  $a'''$ ,  $b'''$ ,  $c'''$ , and these registers are, in turn, connected to the source of electrical energy X by a conductor wire 19''', which connection is made between the source of energy and the main switch 18. Each of the dial feed magnets 6' of the master appa-

ratus is connected by conductor wires 20, to the line wire 17' of the main circuit and also by a conductor wire 21 to the contact points *e'* of the individual switch mechanisms that are positioned at the sub-stations. The clutch release magnets 8' of each dial actuating mechanism are connected to the main line conductor 17' through the conductors 20 and 22. The circuit of each set of these magnets is completed by means of a wire connection 23 to its related contact point *e''* of the companion sub-station switch mechanism. The release magnet 13 of each master dial operating mechanism is also connected in circuit with the magnets 8' by conductor wires 24'. Hence when the clutch release magnets 8' are energized the lock release magnets 13 are simultaneously affected.

As shown in the diagram, each individual switch lever *c* is connected in the main circuit by a conductor wire 25 which leads to the main conductor wire 17. The individual dial mechanisms *d'*, *d''*, and *d'''* of the sub-stations shown, are connected by wires 21', 23', to the switch point circuit wires 21, 23, respectively and the circuit through said dial mechanisms is completed by a conductor wire 26 which is connected to the main circuit conductor wire 17', all of which connections are effected beyond the main switch 18.

In order that the main operator may control the circuits of the lock and release magnets 13 and 8' of the entire main station apparatus, I provide a rotatory switch-board *y*. The operating arm 27 of this switch-board is connected to the main conductor wire 17 by a conductor wire 27' and individual contacts of the switchboard are connected by wires 28 to the contact points *e''* of the individual switch mechanism. Hence the means for releasing all of the master dials is under control of the main operator as well as the individual voters.

In order to conveniently operate the camera B which is utilized to make a permanent record of a complete vote, as shown in the diagram, the magnet 15 of the photographing apparatus is placed in circuit with the source of energy X by wires 15', 15'', one of which wires is interrupted by a switch, whereby the operator may close or open the circuit at will. Presuming that the voter at station E wishes to vote "yea", the switch lever *e* will be thrown to close the main circuit through the contact point *e'*. Current will then pass from the main source of energy through the conductor wires 17, 25, 21, to the feed magnet 6' of the dial mechanism D at the main station. The circuit through the magnets 6' will be completed through conductor wires 20 to the return wire 17' of the main circuit. Thus it will be seen that one impulse will be imparted to the arma-

ture lever associated with these magnets, whereby the dial will display "Yea" at the indicator board and the flash signal or resistance unit will also be illuminated in order that the voter may ascertain that the apparatus has properly registered his vote at the main station, closure of the flash signal circuit being automatically effected by movement of the drum 4, whereby the contact strip *a* thereof will engage the contact spring *a'*. The registration of a single vote will cause the finger 16 of the total vote recorder mechanism to move one space due to the fact that the automatic circuit closing mechanism has operated simultaneously with movement of its associated dial. It is apparent that if other individual voters operate their push buttons in a similar manner, the total recording mechanism *a'''* will operate to show a corresponding number of total "yea" votes due to the fact that the circuit is loaded with the several flash signals or resistance units. If the individual voter wishes to vote "no", it follows that the switch lever *e* should be again caused to engage the contact point *e'*, it being understood that the lever *e* assumes a central position after each movement, whereby it is clear from either contact point. Hence, a second closure of the circuit will cause energization of the magnets 6', whereby the dial will be fed another step forward to display the index "No". This second movement will cause the previously closed signal circuit which is connected to the recorder displaying "Yea" to be broken due to the fact that the strip *a* passes beyond its contact with the spring *d*. The signal circuit, in this instance, however, will be closed by the strip *b* bridging the contact springs *b'*, *d*, whereby the flash signal or resistance unit corresponding to "no" will be illuminated and simultaneously the total recording device so marked will indicate one vote by a movement of its finger 16. Hence it follows that if the individual voting desires to register upon the roll or to be paired, the switch arm *e* would be moved to come in contact with the contact member *e'* three times, whereby three impulses through the feed magnets 6', will cause the master dial to move to a position displaying the index "Pr" at the main board. The vote will not only be shown by the index and flash signal at the main board, but the operator can check up his vote by the dial mechanism at his sub-station which will operate in synchrony with the corresponding dial at the main station. If the individual voter desires to change his vote from "no" to "yea" the switch arm *e* is moved to effect engagement with the contact point *e''*, and the main circuit will now be closed through said contact, whereby the clutch release magnets 8' and the lock release magnets 13 will be ener-

gized to cause the individual dial-actuating mechanism D at the main station to return to zero through the action of the motor spring 5. Hence it will be observed that both the dial operating mechanism D at the main station and the corresponding mechanism *d'* at the sub-station will return to their normal positions of rest. The mechanism is thereby cleared, together with the total vote registering mechanism and by closing the connections between the switch lever *e* and contact point *e'*, the single impulse will cause the associated dials to move one step to display "Yea" simultaneously with movement of one step of the finger 16 of the "yea" total vote register.

Presuming that time has expired for making corrections and that the total vote is now displayed upon the main indicator board, the operator breaks the main circuit by manipulating the switch 18 and simultaneously closes the switch whereby the photographic apparatus is operated to make a permanent record of the display upon the main indicator board. In breaking the main circuit it will be observed that the individual voters thereafter cannot manipulate their individual switches, whereby the vote could be changed. This breaking of the main circuit will not affect the total vote registers and the operator makes a notation of the various totals for his report. Owing to the fact that the main circuit has been broken the individual operators have no further control over the voting mechanism from their various switches and hence after proper records have been made of the vote, the main operator, by manipulating the switchboard Y causes a successive series of impulses to be imparted to the lock and release magnets, whereby all of the dial operating mechanisms at the main station and sub-stations are returned to their normal zero positions. Thus the procedure in voting is completed and the board, together with the entire apparatus, is now ready for a second operation.

It is obvious from the foregoing description that much time and labor is eliminated in taking a vote of a large body and that all individuals have control of the entire apparatus, whereby they may vote and make corrections or changes for a certain period of time to be predeterminedly decided upon and thereafter, by breaking the main circuit, which is under control of the main operator, no further manipulation of the voting apparatus can be effected by the individuals.

While I have shown and described a specific mechanism for carrying out the general result desired to be obtained, it is manifest that I may, without departing from the spirit of my invention, vary the mechanical elements for operating the voting apparatus without departing from the spirit of my invention.

#### I claim:

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, and a current meter associated with each of said circuits and adapted to indicate the number of like indicating portions actuated.

2. A voting machine comprising a main station including a plurality of indicating mechanisms operable for procuring certain differing indications, a plurality of substations each including means for operating a respective indicating mechanism, and means for automatically indicating the number of indicating mechanisms having corresponding indications.

3. A voting machine comprising a main station including a plurality of indicating mechanisms operable by step by step movements for procuring certain differing indications, a plurality of substations each including means for procuring said step by step movements of a respective indicating mechanism, a plurality of circuits each including respective portions of all of the indicating mechanisms in parallel, and each circuit corresponding to a respective indication, said indicating mechanisms being adapted upon actuation in respective steps to close respective circuits therethrough and a current meter in each circuit.

4. A voting machine comprising a main station including a plurality of indicating mechanisms each adapted for a neutral indication and operable for procuring certain differing indications, reset means for procuring neutral indications of the respective indicating mechanism, a plurality of substations each including means for operating a respective indicating mechanism, and a substation means for actuating the respective reset means, a main station means for simultaneously actuating all of the reset means and main station means for rendering all of the substation means inoperative.

5. A voting machine comprising a main station including a plurality of indicating mechanisms, individual control means for the indicator mechanisms, a common means for rendering said control means inoperative and means governed by said common means for photographing said indicating mechanism.

6. In a voting machine, a plurality of indicating mechanisms each including a shaft, an indicator plate on the shaft, symbols carried on the plate, and means for rotating the shaft in successive steps, a plurality of circuits, a current meter in each circuit and

means associated with each of the indicator mechanism shafts for selectively closing respective circuits corresponding to certain symbols in desired positions of said symbols.

5 7. In a voting machine, an indicating mechanism comprising a shaft, an indicator plate on the shaft, symbols carried on the plate, a drum on the shaft, contact strips arranged longitudinally on the periphery of  
10 the drum in successively advanced relative relation, a common brush member for engagement with the strips, individual brush members for engagement with the strips, a plurality of counting circuits each including  
15 the common brush member and an individual brush member, means for rotating the shaft in successive steps, and the contact strips being so arranged with relation to respective symbols as to close respective circuits upon the corresponding symbols assuming a desired position.

8. A voting machine comprising a main station including a plurality of indicating mechanisms, individual control means for  
25 the indicator mechanisms, a common electric circuit controlling the individual control means, a photographing means, an electric circuit controlling the photographing means, and a common switch in both circuits.

30 9. A voting machine comprising a main station including a plurality of indicating mechanisms operable for procuring certain differing indications, a plurality of substations each including means for operating a  
35 respective indicating mechanism, and means for automatically indicating the number of indicating mechanisms having corresponding indications, said last means being operable simultaneously with the operation of the  
40 substation actuating means.

10. A voting machine comprising a main station including a plurality of indicating mechanisms operable for procuring certain differing indications, a plurality of substations each including means for operating a  
45 respective indicating mechanism, and means for indicating the number of indicating mechanisms having corresponding indications, said last means being operable simultaneously with and incidental to operation of  
50 the substation actuating means.

11. A voting machine comprising a main station including a plurality of indicating mechanisms, individual control means for  
55 the indicator mechanisms, a common means for rendering said control means inoperative and means governed by said common means for procuring a permanent record of said indicating mechanisms.

60 12. A voting machine comprising a main station including a plurality of indicating mechanisms, individual control means for

the indicating mechanisms, a common electric circuit controlling the individual control means, a means for procuring a permanent record of the indicating mechanisms,  
65 an electric circuit controlling said permanent record means and a common switch in both circuits.

13. In combination, a series of voting stations, aye and nay switches at each station, separate electrical circuits extending from each of said switches and adapted to be opened and closed by said switches, said circuits leading to an individual vote-registering board, lamps on said board for illuminating the aye and nay spaces corresponding to each voting station, each lamp being connected with the circuit extending from its corresponding switch at its corresponding voting station, all of said circuits extending from the aye switches leading their current into and through an aye ammeter adapted to register the total aye vote and all the said circuits extending from the nay switches  
85 leading their current into and through a nay ammeter adapted to register the total nay vote.

14. The combination with a camera and a vote registering apparatus, of a controlling switch adapted to be electrically connected to both the camera and the vote registering apparatus so that upon movement of said controlling switch in one direction, the vote registering apparatus will be set into  
95 operative connection and upon movement in the other direction the camera will be operated to photographically take the record on said vote registering apparatus.

15. The combination with a camera and a vote registering apparatus, of a controlling switch adapted to be electrically connected to both the camera and the vote registering apparatus, said controlling switch having a lever and two independent points of electric contact, one point of contact for the camera and the other for the vote registering apparatus, both arranged in the path of movement of said controlling switch so that upon movement of the lever in one direction the vote registering apparatus will be operatively connected and upon movement in the other direction the camera will be operated to take the record on said vote registering apparatus.  
115

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

BORNETT L. BOBROFF.

Witnesses:

GEO. W. YOUNG,  
M. E. DOWNEY.