B. L. BOBROFF.

INDICATING DEVICE.

APPLICATION FILED JUNE 16, 1917.

1,298,871.

Patented Apr. 1, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

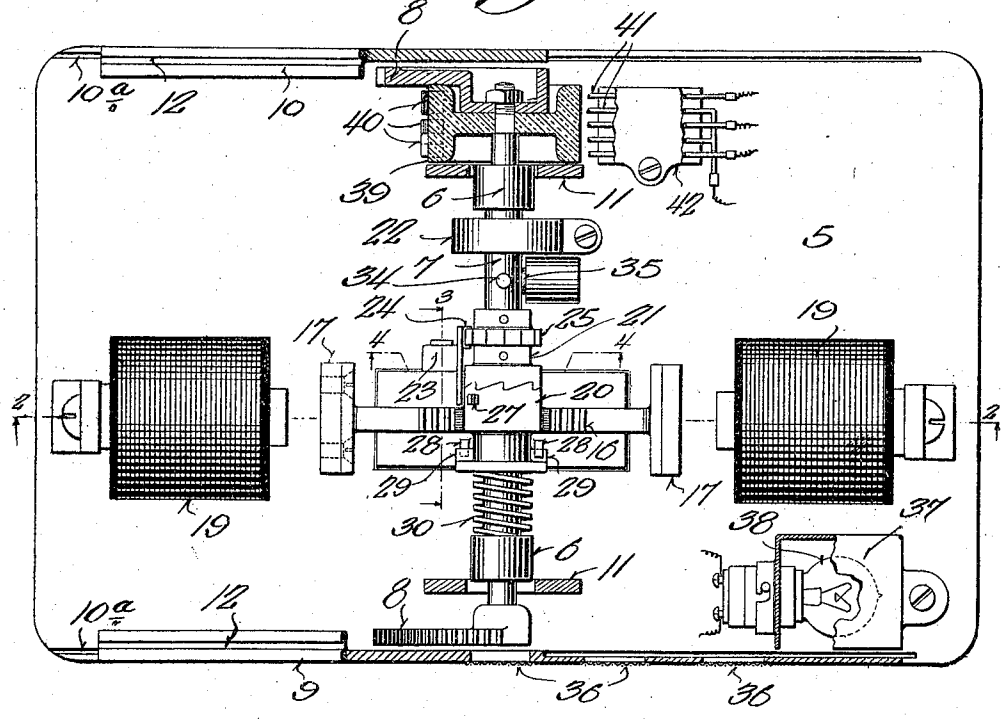
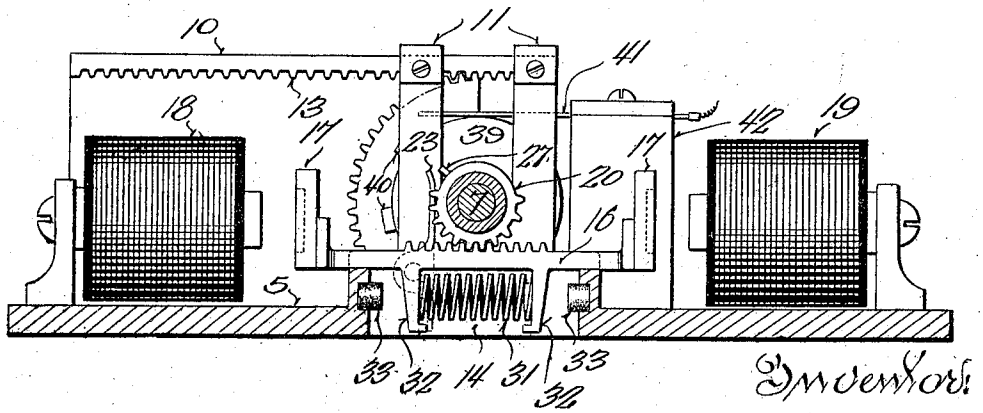


Fig. 2.



Witness:

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Inventor:

Barnett L. Bobroff

by Geo. W. Young

Attorney

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2 SHEETS—SHEET 2.

Fig. 3.

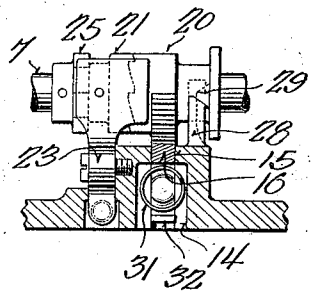


Fig. 4.

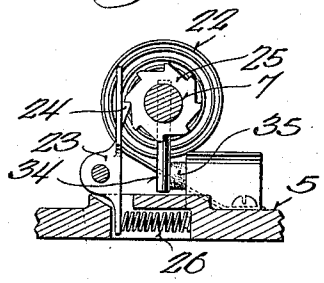


Fig. 5.

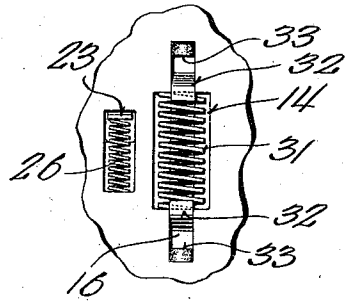
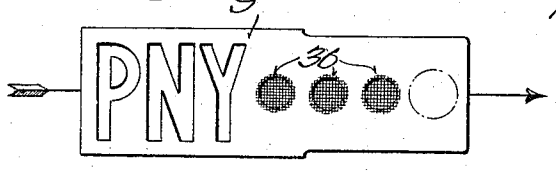


Fig. 6.



Witness:

Inventor:
Barnett L. Bobroff.
By Geo. D. Young,
Attorney

UNITED STATES PATENT OFFICE.

BORNETT L. BOBROFF, OF MILWAUKEE, WISCONSIN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO EDWARD DILLMANN AND HENRY J. TURCK, TRUSTEES, OF MILWAUKEE, WISCONSIN.

INDICATING DEVICE.

1,298,871. Specification of Letters Patent. Patented Apr. 1, 1919.

Application filed June 16, 1917. Serial No. 175,237.

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 Indicating Devices; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to new and useful improvements in electrically controlled indicating devices, more particularly of a type adapted for association with a voting machine, and including means for shifting a symbol carrying plate.

It is in general the object of my invention to simplify the structure and improve the efficiency of devices of this character.

More particularly, an important object resides in the provision of an exceedingly simple and positively operated mechanism for procuring a return actuation of the indicating device to a neutral or starting position.

A further object resides in the provision of a signaling device adapted to procure a plurality of differing indications and including a single lamp member for all of said indications, in contradistinction particularly to the arrangement embodied in my application for patent filed October 2, 1916, Serial No. 123271.

With the above and other objects and advantages in view, the invention resides more particularly in the novel combination, formation and arrangement of parts hereinafter described and pointed out in the appended claims.

In the drawings:

Figure 1 is a plan view of my improved indicating device adapted particularly for use in connection with a voting machine and providing for the display of corresponding indications at opposite sides of the device.

Fig. 2 is a longitudinal sectional view through the indicating device on the line 2—2 of Fig. 1.

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

Fig. 4 is a detail sectional view on the line 4—4 of Fig. 1, showing the holding pawl.

Fig. 5 is a fragmentary bottom plan view of the base plate of my device, showing the return springs for the main shaft and pawl.

Fig. 6 is an elevational view of the front indicating plate.

Referring now more particularly to the accompanying drawings, there is provided a base plate 5 and mounted in journal sleeves 6 carried on this base plate is a central transverse shaft 7, the ends of which carry gear segments 8 for coaction with front and rear indicating plates 9 and 10 respectively, which are each slidably mounted on the side edges of the plate by engagement of their lower edge portions in longitudinal grooves 10^a in the sides of the base plate and by engagement of bracket arms 11 upstanding on the base plate inwardly of said indicating plates, in grooves 12 formed in inwardly extending flanges at the upper edges of the base plates. These flanges are provided on their bottom faces with teeth 13 meshing with the teeth of the gear segments 8, and thus upon rotation of the shaft in successive steps, the front and rear indicating plates are simultaneously shifted.

For procuring this shifting movement, the base plate 5 has its central bottom portion upwardly offset transversely of the central portion of the shaft 7 to form a consequent open bottom chamber 14 and slidably mounted in a groove 15 in said upwardly offset plate portion is a rack bar 16 disposed thus transversely of and under the shaft 7, and carrying at its end upstanding armature plates 17 coacting with operating and release electromagnets 18 and 19 mounted on the base plate. Loosely mounted on the shaft above the rack bar 16 is a sleeve 20 having gear teeth meshing with the teeth of said rack bar, and fixed on the shaft at one side of the sleeve 20 is a second sleeve 21, both sleeves having coacting cam clutch teeth on their adjacent ends whereby upon actuation of the operating magnet 18 and consequent shifting movement of the rack bar, the shaft 7 will be rotated one step. The shaft is normally urged against such rotation by a spiral spring 22 secured thereto and to the base plate and to hold the shaft in successive rotative steps, an upstanding pawl plate 23 is pivoted to one side wall of the chamber 14 and carries a tooth 24 engageable with a ratchet wheel 25 fixed on the shaft 7 adjacent to sleeve 21, this pawl being normally urged to engaging position by a spring 26 disposed in a cutaway portion of the base plate, and bearing against the lower end of said pawl.

For releasing the shaft to permit return

of the indicating plates to the initial or neutral position by action of the spring 22, the pawl plate 23 is extended adjacent the sleeve 20 and said sleeve carries a lug 27 engageable with the pawl to rock it to releasing position upon rotation of the sleeve 20 in a reverse direction due to movement of the rack bar 16 by the releasing magnet 19. To simultaneously shift the sleeve 20 on the shaft to release its clutch engagement therewith through the fixed sleeve 21, a pair of upstanding fingers 28 are provided on the base plate at the sides of the sleeve and the upper ends of these fingers are provided with cam surfaces which coact with the cam surfaces of lugs 29 carried by the sleeve whereby to cam the sleeve outwardly, it being noted that these coacting cam members move apart in the actuating rotation of the sleeve 20, and that in such rotation the lug 27 moves away from the pawl. The sleeve 20 is normally urged to clutching engagement by a spring 30 bearing thereagainst and against the adjacent shaft bearing 6 and the rack bar 16 and consequently the sleeve by reason of the meshing engagement of its teeth therewith is normally urged to an initial position for actuation by either of the magnets, by a spring 31 disposed in the chamber 14 and engageable by depending arms 32 of the rack bar upon shifting movement of the rack bar, the chamber 14 being provided with reduced extensions into which arms 32 may move when not in compressing engagement with the spring, and said reductions forming consequent spring seating shoulders. Buffer pads 33 are also carried in said end extensions of the chamber to cushion the rack bar in its magnet caused movement.

When the shaft 7 is released by retracting the sleeve 20, its rotative movement under action of the spring 22 is limited by a lateral stop pin 34 thereon engageable with a buffer 35 carried on the base plate, to thus stop shifting movement of the plates in an initial or neutral position.

The present embodiment of my invention is particularly adapted as an indicating unit of a voting machine, and each of the indicating plates carry the symbols Y, N, and P, indicating the vote "yes," "no," or "paired." The rear indicating plate is adapted to be photographed in common with other indicating plates of the machine to form a permanent record of the votes, and the front indicating plate 9 in addition to the different symbols described is adapted to display light symbols corresponding to said different symbols. To accomplish this differential light symbol function with the aid of a single lamp which may be kept continuously lighted during the operation of the machine, the plate 9 is relatively elongated and is provided with a series of apertures covered by different colored light screens 36 corresponding to the different vote symbols. Carried on the base plate in such manner that its mouth is obscured when the indicating plate 9 is in initial position, is an open mouth hood 37 into which is disposed a lamp 38. Thus upon successive shifting movements of the plate 9, the apertures 36 thereof may be successively lighted by disposition before the mouth of the hood.

Although forming no part of my present invention, I have shown the usual total vote controlling switch associated with the present voting indicator embodiment of my invention, this switch comprising a drum 39 fixed on one end portion of the shaft 7 and carrying contact blocks 40 adapted to close circuits between pairs of contact fingers 41 carried on a block 42 upstanding on the base plate.

While I have shown and described a preferred embodiment of my invention, it is obvious that to adapt the invention for specific different uses, and for use under different conditions, various changes and modifications of structure may be resorted to without departing in any manner from the spirit of my invention.

I claim:

1. An indicator of the class described comprising a pair of sliding members having similar indicating symbols thereon, means for simultaneously advancing the sliding members predetermined distances to selectively display the same symbols thereon, means independent of the advancing means for retaining both of said sliding members in any of their advanced positions, and means for returning the members to normal position.

2. An indicator of the class described comprising a supporting base, a shaft journaled in said supporting base, a symbol carrying member disposed adjacent one end of said shaft and movable transversely thereof, means mounted upon said shaft and engaging said movable member, and means engaging said shaft for advancing the movable member step by step whereby to display the desired symbol carried thereby.

3. A device of the character described comprising a supporting base having a shaft journaled therein, a sliding indicating member connected with one end of said shaft, magnetic means for partially rotating said shaft in one direction whereby to move the sliding members, means for retaining the shaft in its rotated position, and a second magnetic coil adapted to return said shaft to normal position.

4. A device of the class described comprising a supporting base, a stationary lamp on said base, an indicating member having a plurality of indicating symbols thereon, said member also having a plurality of openings therein, each of said openings corresponding

with one of said indicating symbols, and means for moving said member to selectively position any one of said openings in alinement with the stationary lamp and simultaneously display the corresponding indicating symbol.

5. A device of the class described comprising a supporting base, a shaft, a symbol carrying member connected with said shaft, a collar secured to the shaft and movable therewith, a loose collar rotatable and slidable on said shaft, co-acting clutch teeth on said collars, means engageable with the loose collar to rotate the same on the shaft when said clutch teeth are disengaged and to revolve the shaft in one direction when the teeth are interlocked, said symbol carrying member being movable by rotation of the shaft to selectively display the symbols thereon, means to automatically disengage said clutch teeth when the shaft has been revolved a predetermined distance in one direction, and means to return the shaft to its normal position.

6. A device of the class described comprising a supporting base, a shaft, a symbol carrying member connected with said shaft, a collar secured to the shaft and movable therewith, a loose collar rotatable and slidable on said shaft, co-acting clutch teeth on said collars, means engageable with the loose collar to rotate the same on the shaft when said clutch teeth are disengaged and to revolve the shaft in one direction when the teeth are interlocked, said symbol carrying member being movable by rotation of the shaft to selectively display the symbols thereon, a cam finger fixed to the base, a cam face on the loose collar, said cam face being engageable with the finger when the shaft has been rotated a predetermined distance in one direction whereby to automatically disengage said clutch teeth, and means to return said shaft to its normal position upon the disengagement of said clutch teeth.

7. A device of the class described comprising a supporting base, a shaft journally carried by said base, a symbol carrying member connected with said shaft, a series of ratchet teeth fixed to the shaft, a pawl normally engaged with said ratchet teeth, a collar secured to the shaft and rotatable therewith, a loose collar rotatable and slidable on said shaft, co-acting clutch teeth on said collars, means engageable with the loose collar to rotate the same and the shaft in one direction when said clutch teeth are interlocked, said pawl riding over said ratchet teeth when said shaft is moved in this direction, a lug on said loose collar, means for rotating said loose collar in the reverse direction to engage said lug with said pawl to move the same out of engagement with said ratchet teeth, and means for rotating the shaft to return it to its normal position when said pawl is out of engagement with said ratchet teeth.

8. A device of the class described comprising a supporting base, a shaft journally carried by said base, a symbol carrying member connected with said shaft, a series of ratchet teeth fixed to the shaft, a pawl normally engaged with said ratchet teeth, a collar secured to the shaft and rotatable therewith, a loose collar rotatable and slidable on said shaft, co-acting clutch teeth on said collars, means engageable with the loose collar to rotate the same and the shaft in one direction when said clutch teeth are interlocked, said pawl riding over said ratchet teeth when said shaft is moved in this direction, a lug on said loose collar, means for rotating said loose collar in the reverse direction to engage said lug with said pawl to move the same out of engagement with said ratchet teeth, means for rotating the shaft to return it to its normal position when said pawl is out of engagement with said ratchet teeth, and means to automatically disengage said lug from said pawl when said loose collar has been rotated a predetermined distance in said reverse direction.

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

BORNETT L. BOBROFF.