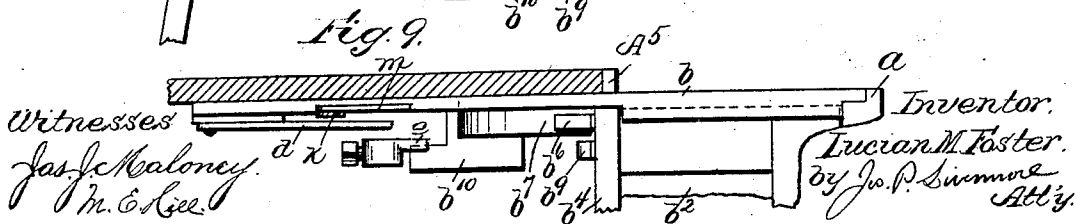
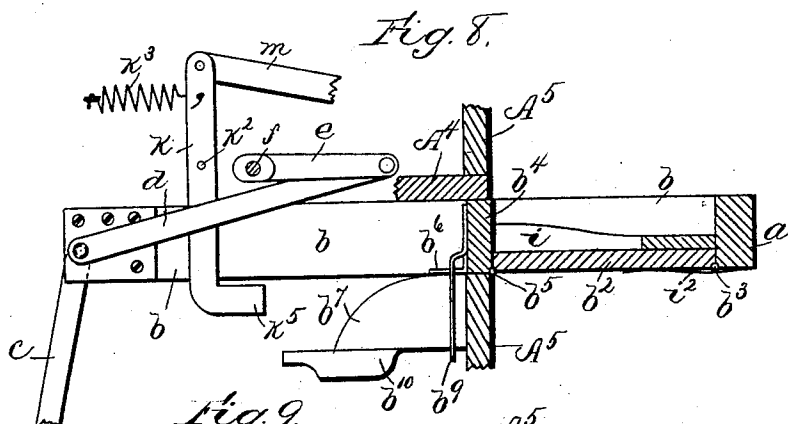
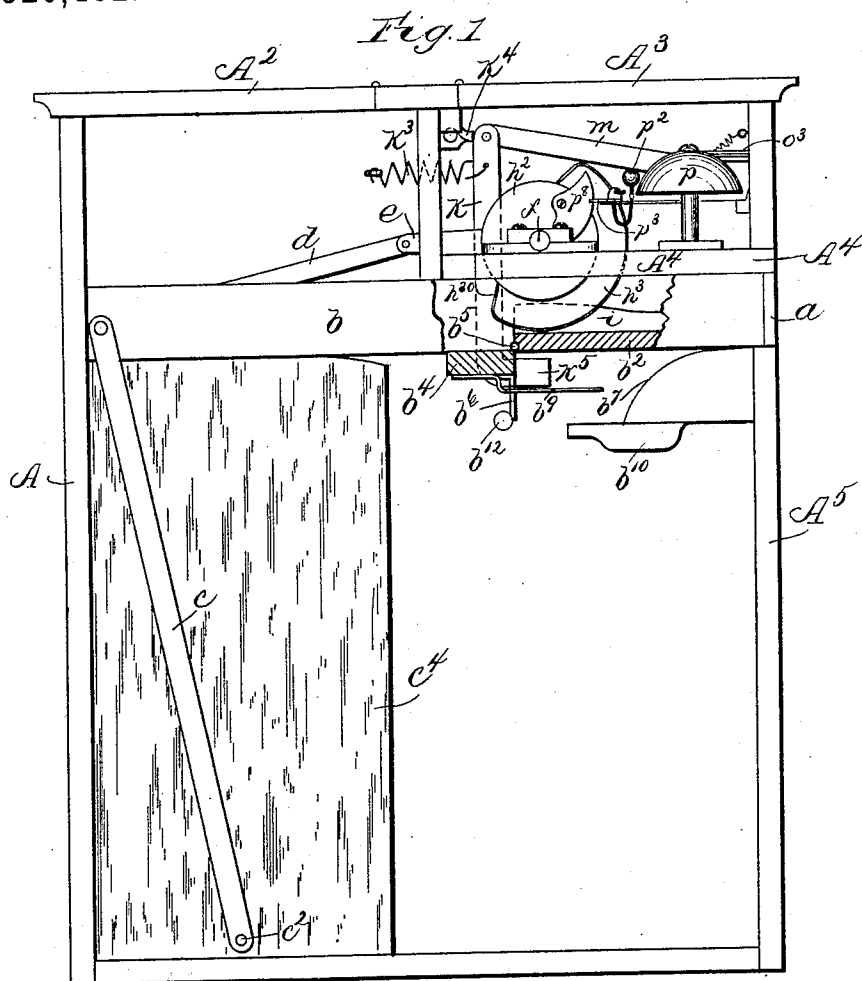


L. M. FOSTER.
REGISTERING BALLOT BOX.

No. 520,482.

Patented May 29, 1894.



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Fig. 2.

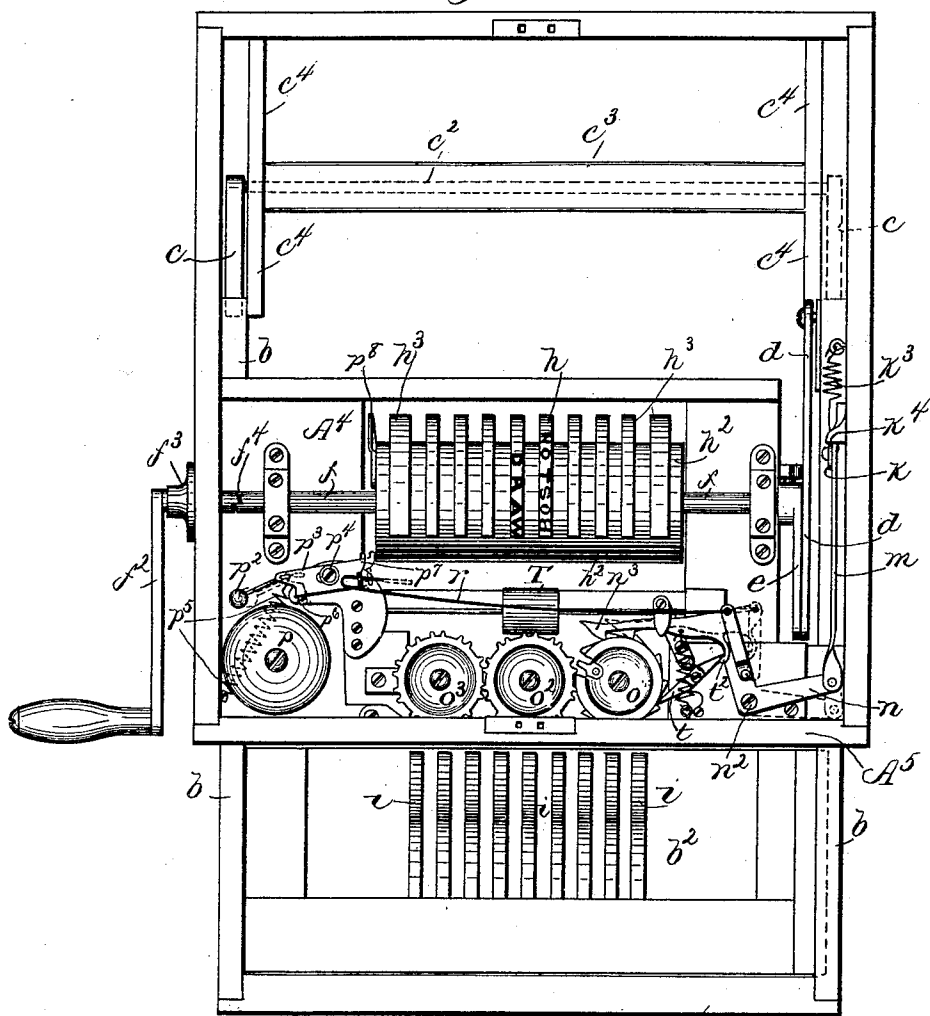
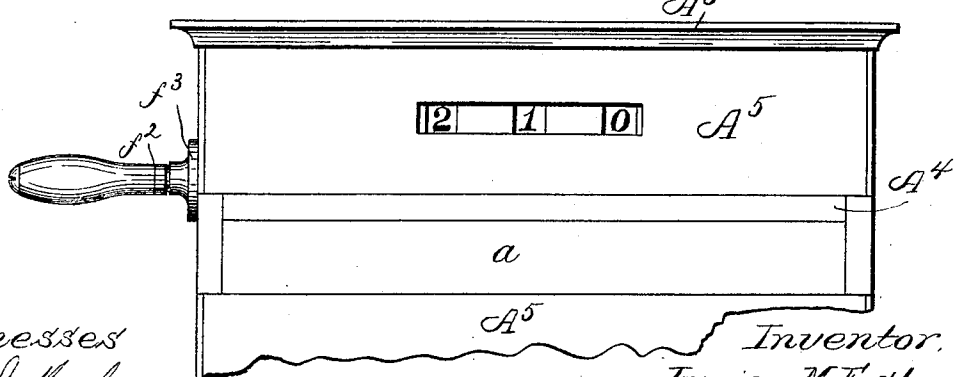


Fig. 3.



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Fig 4.

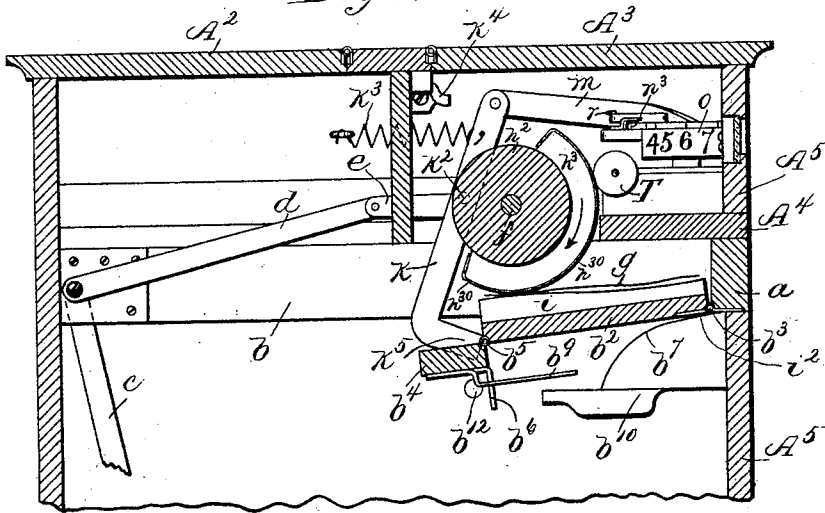


Fig 5.

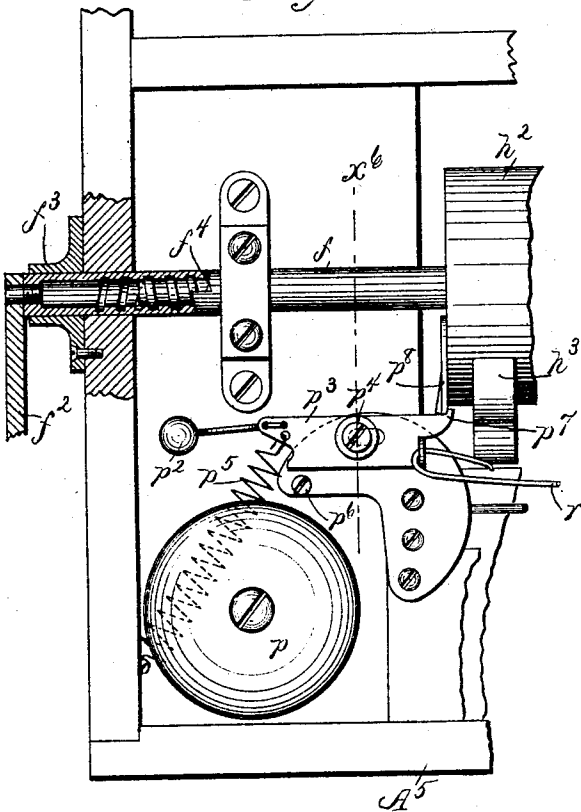


Fig 6.

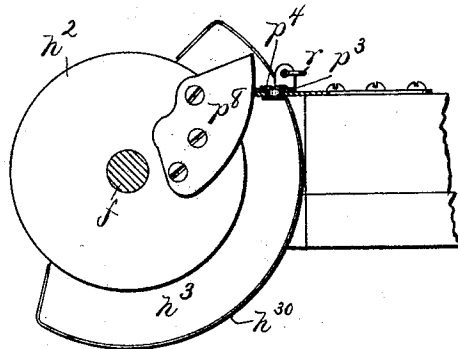
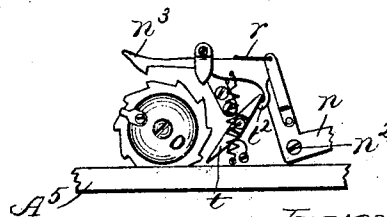


Fig 7.



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UNITED STATES PATENT OFFICE.

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REGISTERING BALLOT-BOX.

SPECIFICATION forming part of Letters Patent No. 520,482, dated May 29, 1894.

Application filed May 31, 1893. Serial No. 476,066. (No model.)

To all whom it may concern:

Be it known that I, LUCIAN M. FOSTER, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Ballot-Boxes, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention relates to a registering ballot box and is embodied in a ballot box of the kind commonly known as a drawer box having a drawer which is pushed forward or opened to receive the ballot and is then carried back with the ballot into the main box or receptacle in which the ballot is deposited after being properly marked or canceled.

The invention relates partly to the means for operating the drawer which is operatively connected with a feeding and canceling roll inside the box, the internal mechanism of which is actuated by a crank or handle at the outside, one rotation of which advances the drawer to receive the ballot and then retracts the drawer and deposits the ballot inside the box, at the same time imprinting the cancellation marks thereon and advancing the number register or counting devices one unit. The drawer is made with a movable bottom on which the ballot rests, which operates with the canceling device and counting mechanism in such manner that the counting mechanism is advanced only when a ballot is present in the drawer and is canceled and deposited in the box. An alarm or audible signal is also provided which is combined with the canceling and registering mechanism in such manner that it is sounded only when a ballot is present and canceled in the operation of the box.

Figure 1 is a sectional view showing the internal mechanism of the box mainly in elevation as it would be seen if one end of the main box or receptacle were removed, the parts being in the position occupied when the drawer is in the box but no ballot has been placed in the drawer; Fig. 2 a plan view of the box as seen with the top or covers removed and with the parts in the position occupied when the drawer is thrown open to receive the ballot; Fig. 3 a front elevation of the upper part of the box showing the num-

ber indicator; Fig. 4 a longitudinal vertical section showing the parts mainly in the position represented in Fig. 1, but with a ballot present and in proper condition for cancellation and deposit; Fig. 5 a detail showing in plan view on a larger scale than the other figures, a portion of the alarm operating mechanism, and also showing in section the connection between the main shaft and its operating handle; Fig. 6 a detail showing the same parts in elevation and partly in section on line x^x , Fig. 5; Fig. 7 a detail showing a portion of the mechanism of the counting devices, and Figs. 8 and 9 (Sheet 1) details showing in sectional elevation and plan, a portion of the drawer operating mechanism.

The apparatus is contained in a box A which serves as a frame work to support the working parts and also as a receptacle to receive the ballots as they are cast and contain the same until they are to be counted, the said box being shown as provided with hinged covers A^2 , A^3 , which may be secured by suitable locks, the former of which covers affords access to the interior of the box for the removal of the ballots, while the latter affords access to the canceling and counting mechanism which is mainly supported upon a horizontal shelf or partition A^4 in the front upper portion of the box. Just below the said partition A^4 is the drawer to receive the ballots, said drawer having a front wall a , side pieces b , which extend substantially the whole width of the main box A from front to back, a bottom piece b^2 , hinged at b^3 , see Fig. 4, to the front wall a , and a rear wall b^4 hinged at b^5 to the rear end of the bottom piece b^2 . In order to actuate the drawer in its inward and outward movements through the front wall A^5 of the box, and at the same time to support and guide the same, so that it will run freely without binding, the rear ends of the side pieces b are connected with arms c , extending to the bottom of the main receptacle and connected with a rock shaft c^2 extending across the bottom of the same from side to side, said arms thus guiding the rear ends of the sides b of the drawer while the front portion thereof is moved in and out through the opening in the front wall A^5 of the box, and causing both sides of the drawer

to move equally so that there is no danger of binding. The rock shaft c^2 is inclosed in a cover c^3 , see Fig. 2, at the bottom of the box and the arms c are protected by guard walls c^4 between which and the sides of the main box said arms operate, said guards and cover preventing the moving parts from injuring the ballots that are deposited in the box. The drawer is actuated by means of a link d , one end of which is pivotally connected with one of the side walls b of the drawer near the rear end thereof while the other end is connected with a crank e fastened to the main shaft f working in suitable bearings upon the shelf or partition A^4 and engaged with a handle or crank f^2 outside of the box. The said crank f^2 works in the tubular bearing f^3 in one end of the box (see Fig. 5) and is internally screw threaded to engage a corresponding thread on the shaft f which it also engages by a shoulder f^4 as the crank hub screws on to the shaft, after which engagement the shaft is caused to turn with the crank handle in its rotation in one direction, but rotation of the crank handle in the opposite direction merely unscrews it from the shaft without turning the latter or operating the mechanism of the box.

By the mechanism thus far described a half rotation of the main shaft f by the handle f^2 will cause the drawer to be thrown outward a distance substantially double the length of the crank e , that is, from the position shown in Figs. 1 and 4, to that shown in Fig. 2, thus causing the drawer to project from the front wall A^5 of the box, and the drawer when thus thrown forward affords a proper receptacle to receive the ballot properly folded, the length of which may be about equal to the length of the drawer from side to side, while the width of the folded ballot should be about equal to the width of the open drawer from front to back. When the drawer is thus thrown forward the hinged bottom b^2 thereof rides on the edge of the opening in the front wall A^5 of the box and is finally supported thereon when the drawer is fully opened and at the same time the rear wall b^4 of the drawer is turned up to vertical position so as to substantially close the opening in the front wall of the box as shown in Fig. 8, this latter result being accomplished by a projection b^6 connected with the rear wall b^4 of the drawer and a cam b^7 secured to the inner surface of one of the side walls of the box. Thus the walls of the drawer or receptacle to take the ballot are properly defined. If a ballot is now laid in the box, a further half turn of the shaft f by the handle f^2 will cause the drawer to be drawn back into the box and in this operation the ballot is canceled by the canceling device h on the shaft f which rolls over the surface of the ballot as shown in Fig. 4, where the ballot is indicated at g .

The canceling device h is represented as of proper construction to make an imprint on the upper side of the ballot and comprises

type or any other suitable printing device carried by a cylinder h^2 on the shaft f said cylinder being provided with a number of annular ribs h^3 extending part way around its periphery. The bottom b^2 of the drawer is provided with a series of ribs or projections i arranged in line with the space between the ribs h^3 on the drum so that when the drawer is carried back into the box by the rotation of the shaft the ribs h^3 on the drum will fall between the ribs i on the bottom of the drawer as shown in Fig. 1, if there is no ballot present in the drawer, in which case the hinged bottom b^2 of the drawer will not be depressed being held up by a spring i^2 , but if a ballot be present as shown in Fig. 4, it will lie across the tops of the ribs i in the drawer bridging the spaces between them so that the ribs h^3 on the drum instead of falling between the ribs i as shown in Fig. 1, will rest on the paper of the ballot and will thus cause the bottom of the drawer b^2 to be depressed as shown in Fig. 4. The ribs or projections may be of any shape—it being essential only that one part, for example, the drawer bottom should have recesses (involving relatively projecting portions) and the other part, that is, the main shaft should have corresponding projections and recesses, so located that when there is nothing interposed between the two parts, the projections of each will fall into the recesses of the other, but when the ballot is interposed the projections of each part will bear against and be supported by the said interposed ballot. The downward movement of the bottom of the drawer on its hinges b^3 thus depending upon the presence of the ballot is employed to control the operation of the counting and alarm mechanism which is operated only when the bottom of the drawer is depressed as it enters the box as shown in Fig. 4.

The registering and alarm mechanism is actuated by a lever k best shown in Figs. 1 and 4, pivoted at k^2 and normally held in the position shown in Fig. 1, by the spring k^3 which holds the said lever against a stop k^4 . The lower end of the lever is provided with a foot or projection k^5 which is below the level of the bottom b^2 of the drawer when the latter is not depressed as shown in Fig. 1, so that when no ballot is present and the drawer is run into the box without having the bottom b depressed the latter passes above the projection k^5 of the lever k without engaging the same and therefore without causing operation of any of the parts that are actuated by the said lever. When on the other hand, a ballot is present so that the bottom of the drawer is depressed as soon as the rear edge of the ballot reaches the ribs h^3 the rear corner of the bottom of the drawer will engage the foot k^5 of the lever k and vibrate the latter on its fulcrum k^2 from the position shown in Fig. 1, to that shown in Fig. 4, which movement of the lever causes the counting and alarm mechanism to be operated, as follows:—The upper end of the said lever k is connect-

ed by a link m with one arm of an elbow lever n see Fig. 2, pivoted at n^2 and carrying on its other end a pawl n^3 that co-operates with ratchet teeth on the periphery of the first wheel o of the set o, o^2, o^3 , &c., of counting wheels connected by intermittent gearing in the usual manner, so that each succeeding wheel advances one space (one-tenth of a rotation) for each complete rotation of the preceding wheel of the set, and the set of three thus count up to one thousand as will be understood from Fig. 3, which shows the numbered peripheries of the three wheels through a suitable sight opening in the front A^5 of the box. The vibration of the elbow lever n as indicated by the full and dotted lines Fig. 2, thus advances the unit wheel one space or adds one to the count when the handle f^2 is turned and a ballot is present in the box drawer. This movement of the lever n also controls the alarm mechanism see Figs. 2, 5, and 6, comprising a bell p and a bell hammer p^2 carried by an arm p^3 having both a rocking and a slight sliding movement on the pivot p^4 which engages with a slot in said arm p^3 . A spring p^5 tends to pull the hammer p toward the bell and also to pull the arm p^3 lengthwise on the pivot p^4 toward the left in Figs. 2 and 5. The said arm p^3 is also connected by a link or wire r with an arm of the lever n so that when the latter is actuated as has been before described and moves to the dotted line position Fig. 2, the bell arm p^3 will be pulled slightly toward the right as indicated in dotted lines Fig. 2. This sliding movement of the arm p^3 along its pivot p^4 and while still resting against the stop p^6 brings the rear end p^7 of the lever in line with the cam p^8 see Figs. 5 and 6, on the end of the drum h^2 on the shaft f , so that when the bell arm p^3 has been shifted along its pivot by the operation of the lever n the portion p^7 of the bell arm will be engaged by the cam p^8 which will turn the arm p^3 on its pivot p^4 moving the hammer p^2 away from the bell against the stress of the spring p^5 and when in the further turning of the drum the bell arm slips off from the rear steep end of the cam p^8 the hammer p^2 will be thrown against the bell by the spring p^5 . If, however, no ballot was present when the handle f^2 was turned, the levers k and n would not be moved, and consequently the end p^7 of the bell arm would not be brought under the action of the cam p^8 and the bell would not be sounded, so that the turning of the handle f^2 produces no effect upon the mechanism of the box beyond the advancement and retraction of the drawer unless a ballot is deposited in the drawer.

The printing or canceling device h may be disposed upon as many of the ribs h^3 as desired and is presented to an inking roll T (which may be of felt saturated with ink) as it rotates in the direction of the arrow Fig. 4, while the drawer is being carried into the box and it will be seen from Fig. 4, that at the time when the drawer is closed the bal-

lot is well engaged by the ribs h^3 but has not yet been carried into the main receptacle at the rear of the drawer.

The ribs h^3 are coated with rubber as indicated at h^{30} , Fig. 4, or otherwise made more adhesive than the ribs i on the bottom of the drawer, which are perfectly smooth, so that in the further rotation of the drum h^2 in the direction of the arrow Fig. 4, in order to advance the drawer to receive the next ballot, the ballot g that is already in the box will be fed rearward by the ribs h^3 and will drop over the rear of the drawer into the main body of the box below.

It has before been explained that the rear b^4 of the drawer is hinged at b^5 and is turned up to close the rear of the drawer when advanced, by the arm b^6 and the cam b^7 as best shown in Fig. 8. In the rearward movement of the drawer another arm or projection b^9 engages a projection b^{10} , at the side of the one b^7 and thus turns the back b^4 of the drawer rearward and downward which movement is finally completed by the arm b^6 engaging another projection b^{12} , as shown in Fig. 1. Thus by the conjoint action of the arms b^6 and b^9 connected with the rear piece b^4 of the drawer and the projections b^7, b^{10}, b^{12} , at the inner surface of the side of the main box, the said rear piece of the drawer is properly manipulated to close up or complete the rear side of the drawer when the latter is advanced, as best shown in Fig. 8, and is turned down to permit the discharge of the ballot through the rear of the drawer when the latter is inclosed in the box as shown in Fig. 4.

The set of counting wheels are prevented from backward rotation by a retaining pawl t co-operating with the actuating ratchet teeth of the wheel o of said set, the said pawl t remaining in engagement with the ratchet teeth and preventing backward movement thereof, while the pawl n^3 moves from the dotted to the full line position, Fig. 2, to engage with a new tooth of the ratchet wheel so as to advance the latter one tooth at the next movement from the full to the dotted line position. In the normal feeding operation of the pawl n^3 it does not engage with the retaining pawl t . If at any time it is desired to turn the number wheels backward for the purpose of setting the numbers at the beginning of the counting operation it is necessary to disengage both pawls n^3 and t from the ratchet of the wheel o and to facilitate this operation, the actuating pawl n^3 is provided with a finger t^2 properly located to engage with the retaining pawl t when the actuating pawl n^3 is lifted by the hand of the operator out of engagement with the ratchet teeth as shown in Fig. 7, to permit the wheel to be turned back. When the operator thus lifts the pawl n^3 out of engagement with the teeth as shown in Fig. 7, the finger t^2 thereof also throws back the retaining pawl t from the teeth of the ratchet which is thus left free so that the number wheels can be turned back to the zero point.

This connection between the actuating and retaining pawls greatly facilitates the operation of setting the counting wheels as the operator by merely throwing out the actuating pawl by the pressure of his finger also disengages the retaining pawl and leaves the wheels free to turn in either direction while if no such connection were provided between the actuating and retaining pawls, the operator would have to hold each one back by hand thus rendering it an awkward matter to both hold back the pawls by hand and also set the wheels by hand.

The ballot is not engaged by the ribs h^3 of the main shaft drum until the drawer is carried back so far into the box as to render it practically impossible to withdraw the ballot and the parts cannot be so manipulated as to cause the counting and alarm mechanism to be operated except when a ballot is deposited.

The operation of the apparatus is as follows:—The attendant by a half turn of the handle f^2 , throws the drawer out from the front of the box as shown in Figs. 2 and 3. The voter then lays the ballot on the bottom of the box so that it rests lightly over the ribs i , and the attendant then gives a further half turn to the handle f^2 which causes the drawer to be entered into the box as shown in Fig. 4, the ballot coming into engagement with the ribs h^3 of the drum and thus causing the bottom of the drawer to be depressed so that it engages the actuating lever k and causes the counting mechanism to be advanced one count, and the alarm to be struck. The ballot is then within the box and beyond the power of withdrawal as shown in Fig. 4, and at the next operation of advancing the drawer to receive the next ballot the rotation of the drum h^2 in the direction of the arrow adjacent thereto Fig. 4, owing to the greater adhesiveness of the ribs h^3 than that of the ribs i will feed the ballot off over the rear end of the drawer so that it will drop into the receptacle below and at the rear of the drawer and in this operation the cancellation marks will be printed across the surface of the ballot. If two or more ballots were laid in the drawer at one time only one of them would be properly canceled. If no ballot were laid in the drawer the bottom of the drawer would not be depressed and the actuating lever k for the counting and alarm mechanism would not be operated and consequently there would be no objectionable result from the advance and retraction of the drawer.

I claim—

1. The combination of the box with the drawer working in an opening in the box, the arms c pivotally connected with the drawer at each side of the box, and the rock shaft rigidly connected with the said arms, and means for advancing and retracting the drawer under the guidance or control of the said arms, substantially as described.

2. The combination of the counting mechanism and actuator therefor with the drawer

and means for advancing and retracting the same, said drawer having its bottom portion movable with relation to the remainder of the drawer, and being operated in said movement by the contents of the drawer as set forth, into position to engage and cooperate with the said actuator, for the counting mechanism, substantially as and for the purpose described.

3. The combination of the box and drawer having a movable bottom provided with recesses; with the main shaft and connections between the same and drawer, said main shaft carrying projections cooperating with the recessed drawer bottom as set forth, whereby the latter is depressed when a ballot is interposed between it and the projection carried by the main shaft, substantially as described.

4. The combination with the box of the drawer and means for advancing and retracting the same, said drawer having a movable rear portion b^4 and actuating mechanism cooperating therewith, whereby the said rear portion is turned to the position substantially at right angles to the bottom when the drawer is advanced or opened, and is turned into line with the bottom when the drawer is retracted, substantially as and for the purpose described.

5. The combination of the alarm mechanism and actuator therefor with the drawer having a movable bottom and means for advancing and retracting said drawer and the main shaft cooperating with the movable drawer bottom as set forth, whereby the latter causes the alarm to be actuated only when a ballot is present for cancellation, substantially as described.

6. The combination of the set of counting wheels, the unit wheel of which is provided with a ratchet, with a retaining pawl to prevent backward rotation of said ratchet, and an actuating pawl provided with a finger engaged with said retaining pawl as described, whereby the retaining pawl is withdrawn from engagement with the ratchet when the actuating pawl is withdrawn from engagement therewith, substantially as described.

7. The combination of the counting and alarm mechanism and actuating lever k therefor, with the drawer having a movable bottom provided with ribs or projections, a canceling roll having ribs or projections corresponding to the recesses between those in the drawer bottom, and connections between the said roll and drawer whereby a rotary movement of the former is accompanied by an in and out movement of the latter, and the movable bottom portion of said drawer cooperating with the actuator for the counting and alarm mechanism only when the drawer bottom is depressed by a ballot interposed between it and the roll, substantially as described.

8. The main actuating shaft and cam p^8 actuated thereby combined with the alarm bell and hammer therefor, having a pivotal movement and longitudinal movement on

said pivot and normally held out of position
for engagement with said cam, and means
controlled by the introduction of the ballot
to the box for throwing said bell hammer into
5 engagement with said cam, substantially as
described.

In testimony whereof I have signed my

name to this specification in the presence of
two subscribing witnesses.

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