J. H. DEAN.

VOTING MACHINE.

APPLICATION FILED AUG. 11, 1910.

1,066,589.

Patented July 8, 1913.

3 SHEETS—SHEET 1.

Fig. 1.

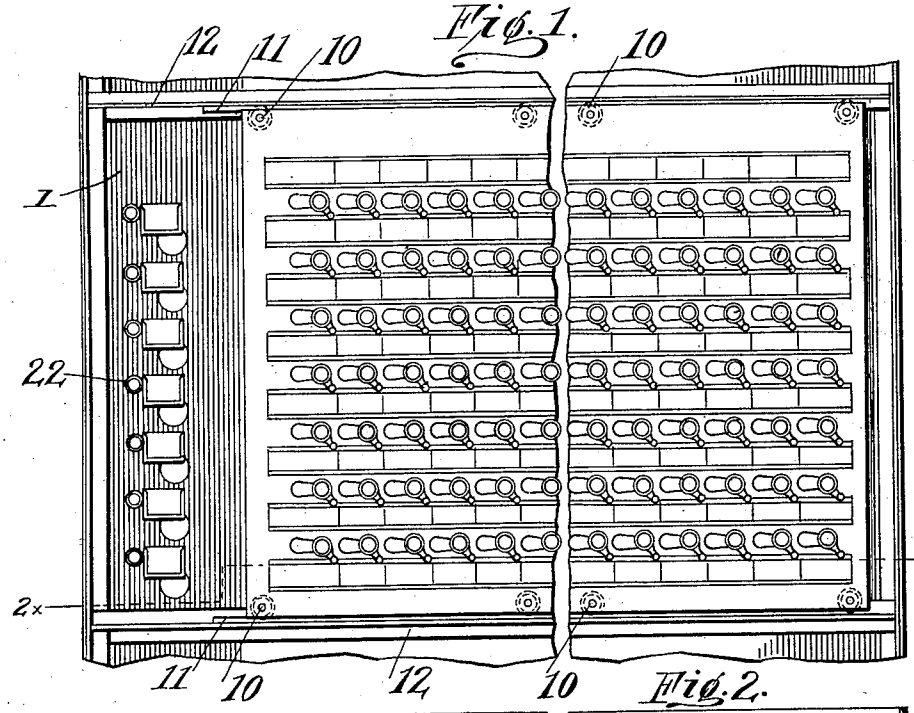


Fig. 2.

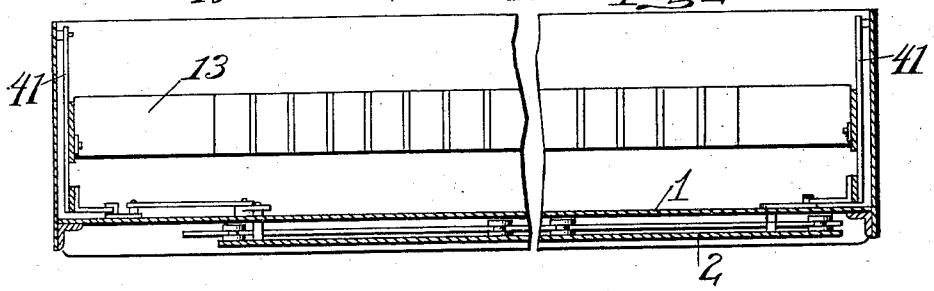


Fig 3

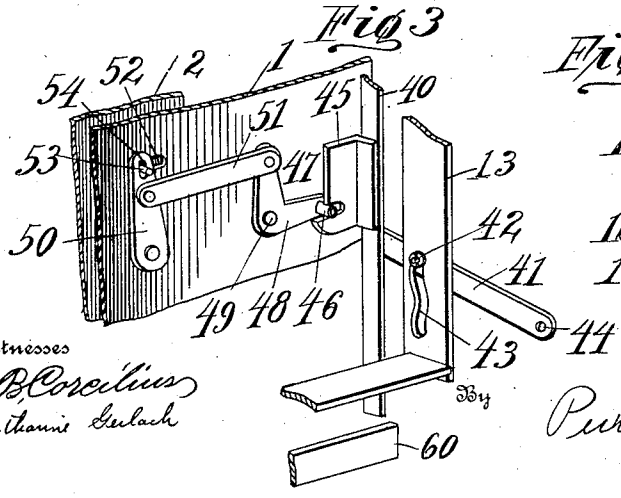
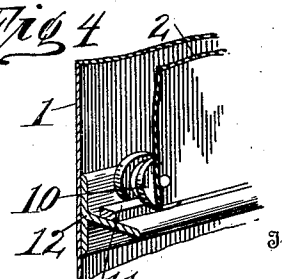


Fig 4



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3 SHEETS—SHEET 2.

Fig. 5.

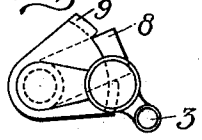

Fig. 6.

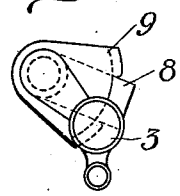

Fig. 7.

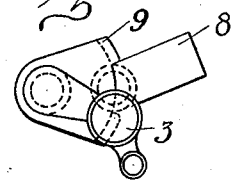

Fig. 8.

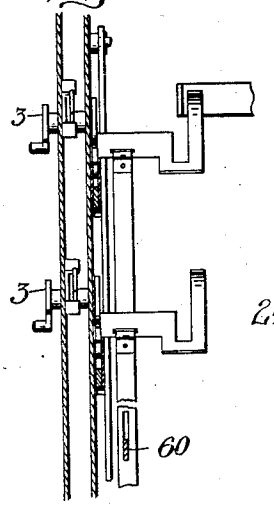

Fig. 9.

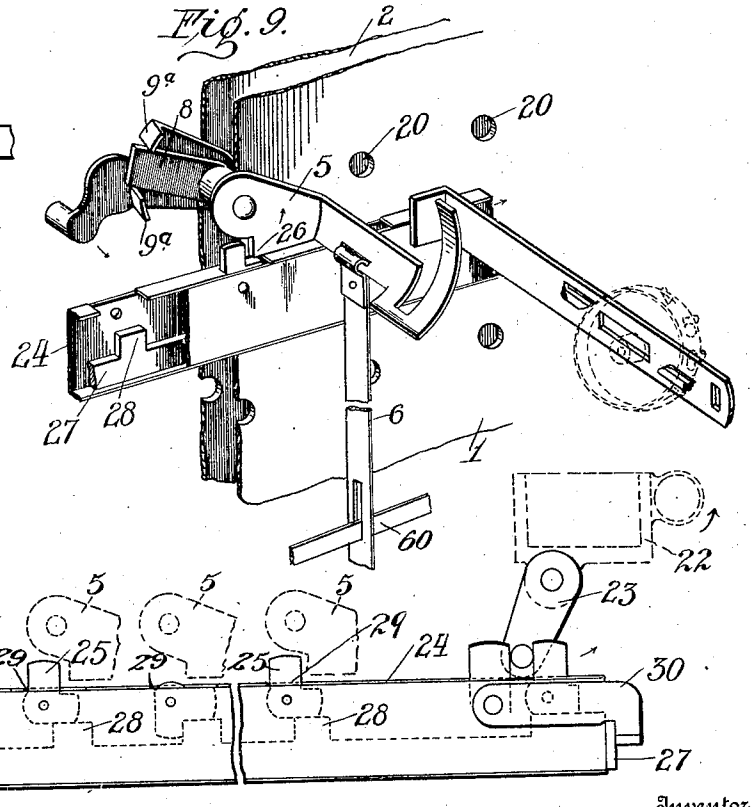

Fig. 10.

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3 SHEETS—SHEET 3.

Fig. 11.

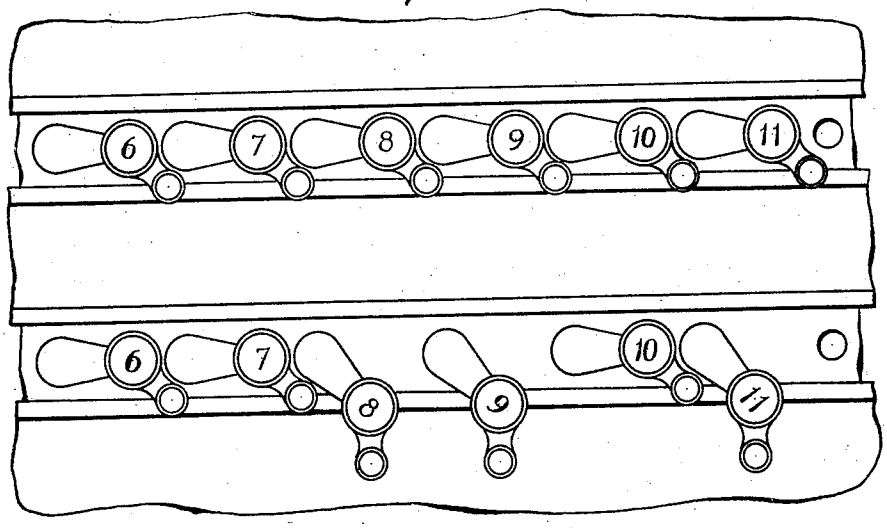
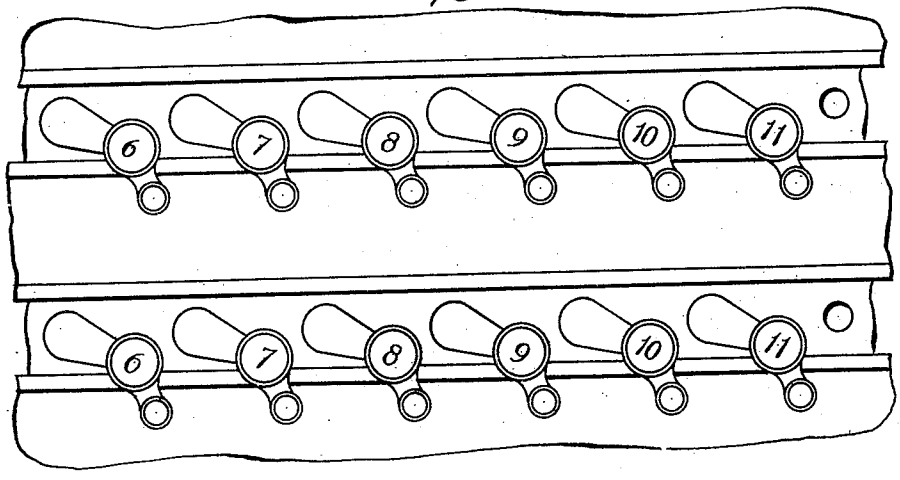


Fig. 12.



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VOTING-MACHINE.

1,066,589. Specification of Letters Patent. Patented July 8, 1913.

Application filed August 11, 1910. Serial No. 576,618.

To all whom it may concern:

Be it known that I, JAMES H. DEAN, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Voting-Machines, of which I do declare the following to be a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My present invention relates to improvements in voting machines, particularly of that type shown in Letters Patent No. 820,802, issued to W. J. Lausterer, May 15, 1906, and others, and has for its object to provide an improved straight ticket mechanism and an improved locking mechanism which prevents the operation of the keys during the operation of the counters, which mechanism also operates in connection with the resetting mechanism to bring all the keys back to uniform position, thus better preserving the secrecy of the ballot.

In the accompanying drawings, Figure 1 represents a front elevation of the machine, showing the keyboard. Fig. 2 represents a longitudinal cross section of the machine on the line 2^x, 2^x in Fig. 1. Fig. 3 represents a detail of the mechanism for sliding the movable front plate. Fig. 4 is a detail showing the fixed and the movable front plates and the support on which the movable front plate rests. Fig. 5 shows one of the keys and the part operated thereby in unvoted position. Fig. 6 shows one of the keys in voted position. Fig. 7 shows the position which the parts shown in Fig. 5 will take when the movable front plate has been moved the farthest from the normal position. Fig. 8 is a cross section through the two front plates, this section being taken parallel to one of the office lines of keys. Fig. 9 is a perspective view showing in detail the two front plates and one of the keys mounted thereon and the straight ticket voting mechanism. Fig. 10 is a side elevation of the straight ticket operating bar. Fig. 11 is a detail view of a portion of the keyboard showing three keys placed in voted position. Fig. 12 is a detail of the same portion of the keyboard showing the position in which all of the keys will be held during the operation of the counters of those keys which have been placed in voted position.

Similar reference numerals in the several figures indicate similar parts.

In Fig. 1 reference numeral 1 indicates the stationary plate heretofore used on the front of the machine, on which are pivoted the cranks 8. These cranks extend through the plate 1 and have the crank arms 5 connected thereto at the back of the plate. To the crank arms 5 are connected the interlocking straps 6 as shown in previous patents. See for example 995,424. Mounted in front of the stationary plate 1 is another plate 2 on which are pivoted the keys 3. The portions of the keys 3 which are carried on the front of the keyboard 2 are the same as those heretofore used. Behind the keyboard 2 the keys 3 have fastened thereon segments 9. These segments 9 maintain a sliding engagement with the crank arms 8 carried on the plate 1, as the plate 2 moves backward and forward in the operation of the machine, as will presently be described. The plate 2 carries anti-friction rollers 10, 10 thereon, which rollers engage with a track or guide 11 carried on the angle-irons 12, at the top and bottom of the stationary plate 1.

Mounted in the casing of the machine is the movable counter frame 13. This frame is reciprocated forward and back by the connecting bar 40, which bar is moved up and down by the curtain lever (not shown), substantially in the same manner as is shown in the prior Patent 820,802 referred to. Pivoted on the machine casing at 44 is the lever 41, having the stud 42 thereon engaged with the cam 43 in the counter frame 13, by which the counter frame is reciprocated. Mounted on the reciprocating bar 40 is the bracket 45 having a recess 46 therein, which bracket engages with the stud 47 carried on the bell crank 48. This bell crank 48 is pivoted on the stud 49 mounted on the stationary plate 1. Pivotally mounted on the plate 1 is also the lever 50, which lever is connected to the free end of the bell crank 48 by the link 51.

At 52 the plate 1 is slotted and through this slot projects the stud 53 mounted on the plate 2. With this stud 53 the lever 50 is loosely engaged by the slot 54 in the lever

50, so that by the rocking of the bell crank 48 and the intermediate parts connected thereto as above mentioned, the movable plate 2 is reciprocated by the curtain lever.

The parts are so proportioned that the counter frame will not begin to reciprocate to operate the two step counters carried therein until the front plate has moved far enough to lock the keys or indicators 3. This result is secured by making the cams 43 in the counter frame with a long idle portion which will be traversed by the stud 42 when the bar 40 begins to descend and during the time that the bracket 45 is operating the bell crank 48 and moving the plate 2. During the downward operation of the bell crank 48 the counter frame 13 remains practically idle. After the front plate 2 has been moved and the keys have been locked as will presently be described, the operation of the counter frame will begin, and after the counter frame has finished its reciprocation the bars 40 will operate on the resetting bar 60 and cause the resetting of the crank arms 5 through the interlocking straps 6. All the keys on the machine will then be held in the position shown in Fig. 12. When the curtain lever is moved in the reverse direction lifting the bars 40, the crank arms 5 of the keys will be held in inoperative position by the resetting bar 60 during the reciprocation of the counter frame, so that the counters cannot be affected by the keys and the keys 3 will also be held locked at the same time in the position shown in Figs. 12 and 7. After the reciprocation of the counter frame has been completed the farther upward travel of the bar 40 will engage the bell crank 48 with the bracket 45, and rock it upward, causing the movement of the plate 2 in the reverse direction. This will bring all the keys 3 back to the unvoted position shown in the upper line of keys of Fig. 11, and as is further shown in Fig. 5.

When the key 3 is moved to voted position, the segment 9 moves with it. This segment engages with its lugs 9^a, the crank arm 8 by which the crank arm 5 is in turn moved to position to engage with the pallet bar of its counter. As shown in Figs. 5, 6, and 9 the bearings of the key 3 and the crank arm 8 are substantially concentric when the key 3 is in normal position. As shown in Fig. 9 the holes 20 in which the cranks 8 have their bearing in the plate 1 are substantially opposite to the corresponding holes in plate 2 when the keys 3 are in either of the positions shown in Fig. 11. When the curtain lever is operated, however, the sliding plate 2 travels to the right from its position shown in Fig. 9 as viewed from the rear, until the bearings of the keys 3 and the cranks 8 are out of line with each other to the extent shown in Fig. 7. In this position the lugs 9^a would, if the key were oscillated, travel in the arc of a circle that would substantially cut through the center of the bearing of the crank 8. Because of this when the parts are in the position shown in Fig. 7 the keys 3 are locked against operation and the position of the crank 8 cannot be disturbed by moving the key 3. As shown in Fig. 7 the crank 8 is left in the position in which the unvoted key 3 held it. If the key 3 had been placed in voted position as shown in Fig. 6 the crank 8 would remain in the voted position, while the key plate 2 and its keys were moved to the left as viewed from the front. Whether the crank 8 is in either the up or down position it will remain in such position when the key plate 2 is moved to the left, while the key 3 will be moved from either position to a mean position shown in Figs. 7 and 12, which position is positively fixed by the hubs of the cranks 8. The hubs of the cranks 8 cannot be moved either up or down, and while the plates 1 and 2 are in the position shown by Fig 7, the position of the cranks 8 cannot be disturbed by the keys 3.

If the frictional resistance against which the key 3 moves in its bearing is increased to a sufficient amount in excess of the friction against which the crank 8 moves in its bearing, the crank 8 will to some extent yield when the sliding contact takes place between the lugs 9^a and the crank 8. If the key 3 is made tight in its bearings to the extent indicated, and the key is moved far enough so that the crank 8 points exactly in or parallel to the direction that the plate 2 moves, there will be no reaction between the key 3 and the crank 8, and neither of them will tend to rotate the other about their centers. The parts will be placed in the machine so that this position of the crank 8 will be reached by placing the key 3 just half way between its extreme voted and unvoted position. This midway position of the key and its crank will hereafter be referred to as the center. If the movement of the key is stopped short of the center, the resistance of the key as it begins to slide along the crank 8 will tend to lift the crank back toward its unvoted position, and the extent to which the key will lift the crank will depend approximately on: 1st, the excess of friction in the bearing of the key over the friction in the bearing in the crank; 2nd, the extent to which the crank 8 is off center; 3rd, the ratio of the leverage through which the frictional resistance of the key 3 acts, which is a constant quality, to the leverage with which the frictional resistance of the crank 8 acts, which is a variable quantity, diminishing as the plate 2 moves to the right and carries the lugs 9^a toward the hub of the crank 8;

and 4th, the speed with which the plate 2 is moved by the curtain lever. If the key has been moved beyond its center, it will react on the crank 8 when the plate 2 moves to the right and tend to place it farther toward full voted position, for the same reasons and to the same extent that it would tend to reset the crank if moved to a position short of the center as above described. In this way an incomplete movement of the key and its crank will to some extent be helped so as to place the crank farther into voted position than it would otherwise be placed. The keys and their cranks will be brought back to unvoted position by the resetting mechanism of the machine, and when so returned the keys will reach a uniform position in each successive use of the machine. This resetting mechanism has been fully described in previous patents (see for example 995,424) and consists of the interlocking straps 6, 6, a resetting bar 60 that engages all the interlocking straps of the machine and the mechanism for operating the resetting bar.

In former machines of the type above referred to, it has been found that the voted and unvoted keys will not be fully and uniformly reset by the returning bar, and if all of the keys are first set back manually by the voter as far as they will go, and a vote is then cast on the machine leaving the machine to reset the voted key, the voted keys will be found to have been not fully reset, thus indicating by their position that they have been voted. By bringing all of the keys back from a partially voted position, this distinction between keys that have been fully reset manually, and those that are normally reset by the machine is eliminated.

In order to vote a straight ticket, I provide the straight ticket operating mechanism as shown in Figs. 8, 9, and 10. The party levers 22 are mounted on the front plate as shown in Fig. 1 and terminate on the rear of the plate 1 with a crank 23 (see Fig. 10) which crank engages the hollow sliding straight ticket bar 24 in which is mounted bell crank lugs 25, one for each key. One of these bars 24 is provided for each party row of keys. The crank arm 5 of each key is recessed so as to form a shoulder 26 thereon, by which the key is engaged by the bell crank lug 25 on the straight ticket bar. When the straight ticket bar 24 is drawn forward by the operation of the party lever, the lugs 25 engage with the shoulders on the cranks of their respective keys and move said keys to voted position.

The bell crank lugs 25 are adjustable so as to be moved into and out of operated position as shown in Fig. 10. The straight ticket bar 24 is hollow and carries therein the sliding bar 27. At suitable intervals on the bar 27 are provided lugs 28, 28. By pulling out the bar 27 a suitable distance the bell cranks 25 are left free to be rotated so that both arms of the bell crank can be concealed within the straight ticket bar 24. (See dotted line position in Fig. 10.) In that position the rear surface of the lug 25 will be placed in a horizontal position flush with the upper edge of the bar 24. When the bar 27 is moved back to the position shown in Fig. 10, it will lock these bell cranks in their concealed position. When the bar 27 is moved forward a predetermined distance the cranks 25 will be released for readjustment. When the bar 27 is moved farther forward the lugs 28 will engage from behind the bell cranks 25 that have been placed in concealed position and raise them all to operative position. And when the bar 27 is pushed in again all the bell cranks 25 will be locked in operative position between the bar 27 below and the stops 29, which are formed on the top of the straight ticket bar 24 and in front of which the lugs 25 are pivoted. This makes it possible to lock any one or more of the bell cranks 25 in an exposed position, thus securing the operation of the corresponding keys by the party lever, while the remaining bell cranks 25 may be locked in concealed position, in which case they will remain idle and will not operate their corresponding keys when the party lever is operated.

The bar 27 has on the end thereof an upturned edge which engages with the straight ticket bar 24, which limits the extent to which it can be pushed into the straight ticket bar, thus bringing it into proper position to lock the bell cranks 25. The bar 27 can be held in this position by the latch 30 pivoted on the straight ticket bar 24, which latch can be turned down so as to engage with the upturned end of the bar 27. With the latch 30 in the position shown in Fig. 10, the bar 27 is firmly held between the straight ticket bar 24 and the latch 30, and thereby the bell cranks 25 are locked in the position in which they have been set.

The bell cranks 25 may be re-arranged for any condition that may be met without removing the straight ticket bar 24 from the machine as follows: The latch 30 can be raised and the bar 27 can be pulled forward, which will have the effect of placing in elevated position all of the bell cranks on the machine. The bar 27 can then be placed in its unlocking position, and the bar 24 can then be moved back until the bell cranks 25 each engage the key back of the one that they are intended regularly to operate. By pressing down the proper crank 5 and pushing back the bar 24, the bell crank 25 thereon can be depressed, thus making it possible to cut out one or more keys from the operation of the straight ticket key. In order

to depress the last bell crank 25, I provide the pawl 31 which can be used to depress the bell crank 25 instead of a key.

Having thus described my invention, what I claim as new and patentable is as follows:

1. The combination in a voting machine of a stationary front plate, voting devices pivotally mounted thereon, a sliding front plate, voting devices pivotally mounted thereon, the voting devices of the one plate having a sliding engagement with the voting devices of the other plate.

2. The combination in a voting machine of a stationary front plate, voting devices pivotally mounted thereon, a front plate mounted parallel to said stationary front plate and movable parallel thereto, voting devices pivotally mounted in each plate, each voting device in the stationary plate being mounted to maintain a sliding engagement with a corresponding voting device in the other plate.

3. The combination in a voting machine of a voting key comprising two parts, movable together to indicate a vote, said parts being movable longitudinally relatively to each other to cause one of said parts to lock the other part.

4. The combination in a voting machine of a key comprising two parts, one of said parts being capable of operating the other of said parts to indicate a vote, the first named part being capable of shifting longitudinally its engagement with the second named part, so as to be incapable of the operation thereof.

5. The combination in a voting machine of a key comprising two parts, each of which are mounted normally concentric to each other, one of said parts being engaged with the other of said parts and capable of the movement thereby, said parts being movable relative to each other out of the concentric relation whereby one of said parts is locked against operation.

6. The combination in a voting machine of a voting key comprising two cranks mounted concentric to each other, one of said cranks being engaged with and capable of moving the other crank, said cranks being capable of movement relative to each other out of concentric relation, whereby one of said cranks is locked against operation.

7. The combination in a voting machine of a movable front plate, of a key pivoted thereon extending through said plate and having a crank fastened thereto behind said plate, a stationary plate parallel to said movable plate having a crank pivoted thereon passing through said plate, and having an arm fastened thereto behind said plate, lugs on said first mentioned crank by which said second mentioned crank is engaged, said plates being normally positioned with the hubs of the cranks concentric to each other, means for shifting said movable plate until the lugs of the first mentioned crank engage with the hub of the second mentioned crank.

8. The combination in a voting machine of a stationary plate, a movable front plate, a counter frame, and a resetting bar, an operating mechanism for said machine operating first to shift the movable front plate, next to reciprocate the counter frame, and thereafter to operate the resetting bar.

9. The combination in a voting machine of an operating mechanism therefor, a sliding front plate, connection between said operating mechanism and said sliding plate, whereby said operating mechanism first moves said sliding plate and then holds it locked during the further operation of said operating mechanism.

10. The combination in a voting machine of a stationary front plate, guides mounted adjacent thereto, a movable front plate carried in front of said seationary plate, and having rollers thereon engaging with said guides, voting devices carried on each of said plates, each voting device on one plate being engaged by a corresponding voting device on the other plate.

11. The combination in a voting machine of a stationary front plate, guides mounted adjacent thereto, a movable front plate carried in front of said stationary plate, and having rollers thereon engaging with said guides, means for reciprocating said movable plate, voting devices carried on each of said plates, each voting device on one plate being engaged by a corresponding voting device on the other plate.

12. The combination in a voting machine of a series of voting devices normally in unvoted position, said devices being movable separately into voted position, operating mechanism for the machine acting upon said voting devices to move them all to a uniform position between voted and unvoted position.

13. The combination in a voting machine of a series of voting devices normally in unvoted position, said devices being movable separately into voted position, operating mechanism for the machine acting upon said voting devices to move them all to a uniform position between voted and unvoted position, and means for moving all of said voting devices to the unvoted position.

14. The combination in a voting machine of a series of voting devices normally in unvoted position, said devices being movable separately into voted position, operating mechanism for the machine acting upon said voting devices to move them all to a uniform position between voted and unvoted position, said voting devices being held locked in said mid position.

15. The combination in a voting machine

of a voting device consisting of a key and a counter operating device, said key being capable of moving said counter operating device to partial voted position, means for moving said key to an inoperative position while the counter operating device is moved thereby farther to voted position.

16. The combination in a voting machine of a voting device consisting of a key and a couter operating device, said key being capable of moving said counter operating device toward voted position, means for moving said key longitudinally to an inoperative position while the counter operative device is moved thereby away from voted position.

17. The combination in a voting machine of a straight ticket bar, lugs pivotally mounted on said bar, stops thereon to hold said lugs in an upright position, a locking bar for locking said lugs in their upright position.

18. The combination in a voting machine of a straight ticket bar, lugs pivotally mounted thereon, stops on said bar for holding said lugs in an upright position, each of said lugs being independently movable to horizontal position, means for locking said lugs in either the upright or horizontal position.

19. The combination in a voting machine of a straight ticket bar, lugs pivotally mounted thereon, stops on said bar for holding said lugs in an upright position, each of said lugs being independently movable to horizontal position, means for locking said lugs in either the upright or horizontal position, said means being operable to move all of said lugs to their upright position.

20. The combination in a voting machine of a hollow straight ticket bar, lugs provided therein, stops on said bar to hold said lugs in an upright position, said lugs being movable independently to a horizontal position, a sliding bar carried within said straight ticket bar and having lugs thereon to engage with and lock said pivoted lugs in either a horizontal or an upright position.

21. The combination in a voting machine of a hollow straight ticket bar, lugs provided therein, stops on said bar to hold said lugs in an upright position, said lugs being movable independently to a horizontal position, a sliding bar carried within said straight ticket bar, and having lugs thereon to engage with and lock said pivoted lugs in either a horizontal or an upright position, a latch to hold said locking bar in locking position.

22. The combination in a voting machine of a voting device, movable freely into and out of voted position, said voting device comprising a key accessible to the voter and a counter operating device movable thereby to operating position, means for locking said key while the counter operating device remains in operating position.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."