W. J. LAUSTERER.

KEY JUSTIFYING AND ZERO SETTING MECHANISM FOR VOTING MACHINES.

APPLICATION FILED OCT. 14, 1913.

1,189,837. Patented July 4, 1916.

6 SHEETS—SHEET 1.

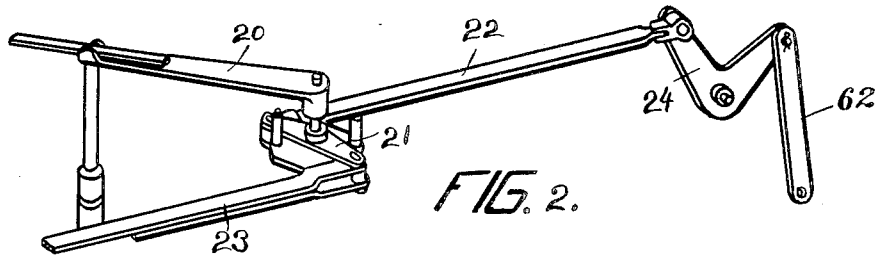


FIG. 2.

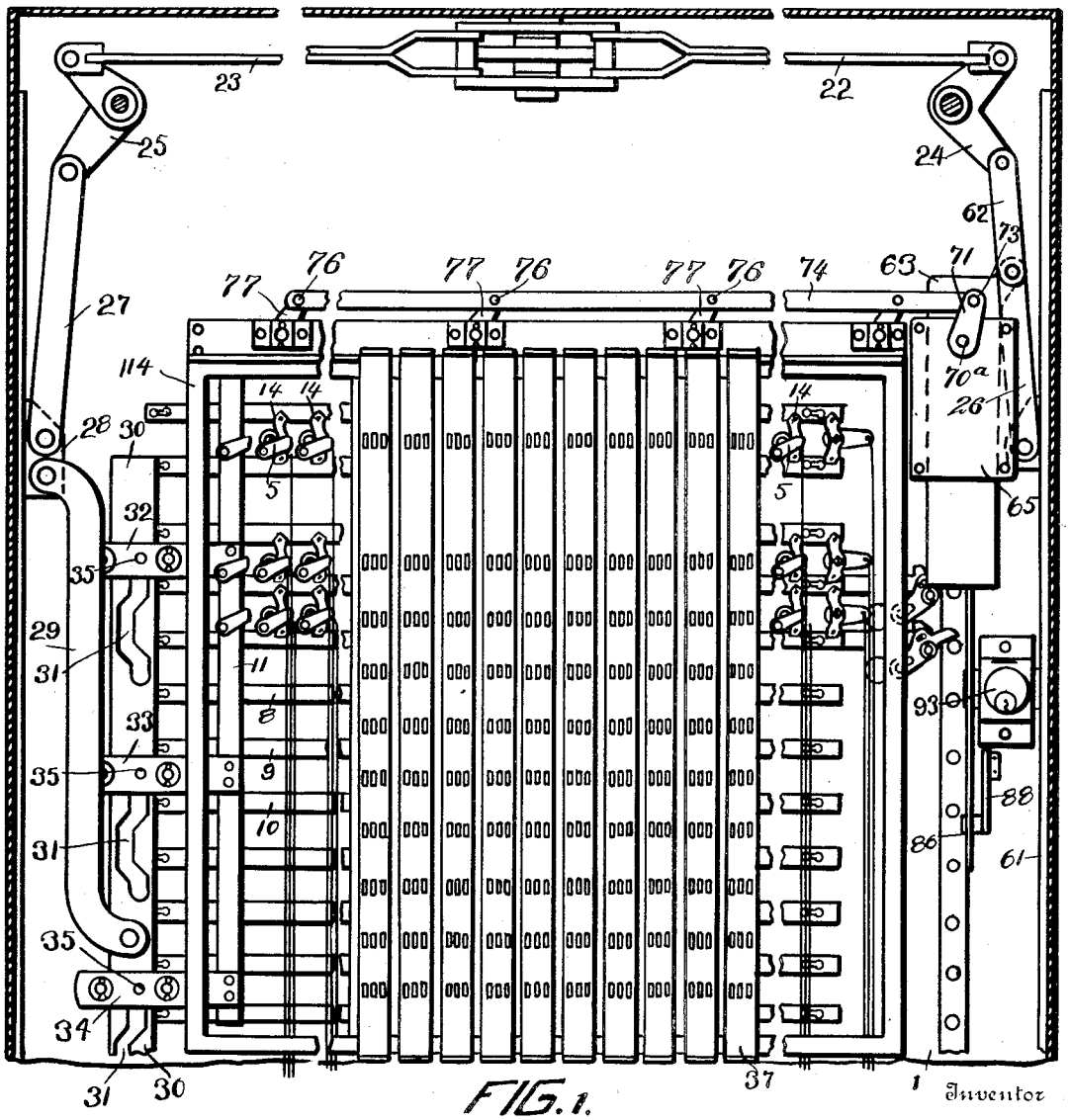


FIG. 1.

Witnesses
Eric Eschinger
Alice M. Johanne.

Inventor
William J. Lausterer
By Frank Kleifgen
Attorney

W. J. LAUSTERER.

KEY JUSTIFYING AND ZERO SETTING MECHANISM FOR VOTING MACHINES.

APPLICATION FILED OCT. 14, 1913.

1,189,837.

Patented July 4, 1916.

6 SHEETS—SHEET 2.

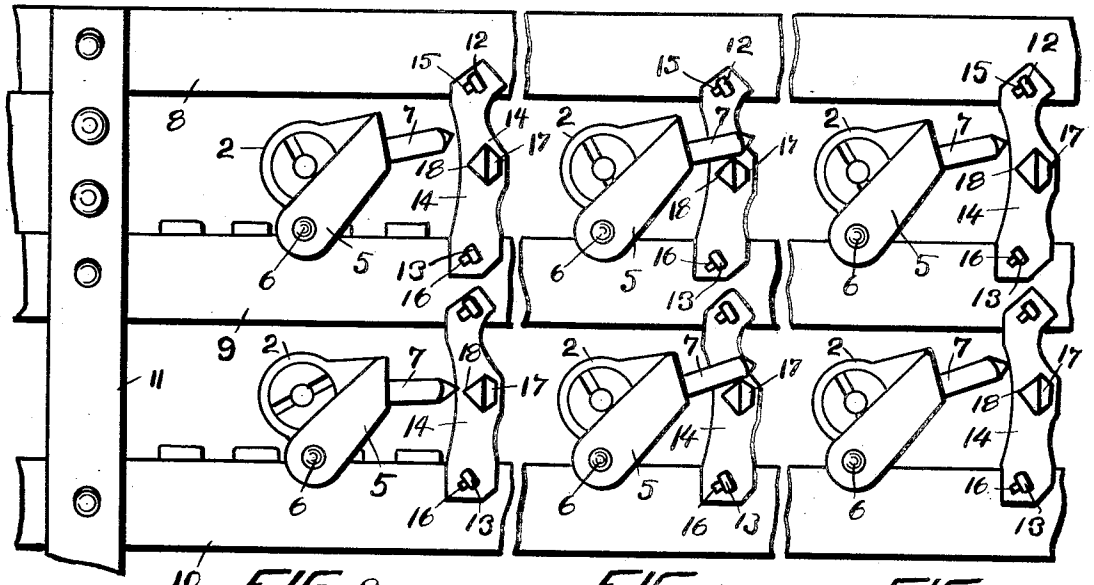


FIG. 3

FIG. 4.

FIG. 5.

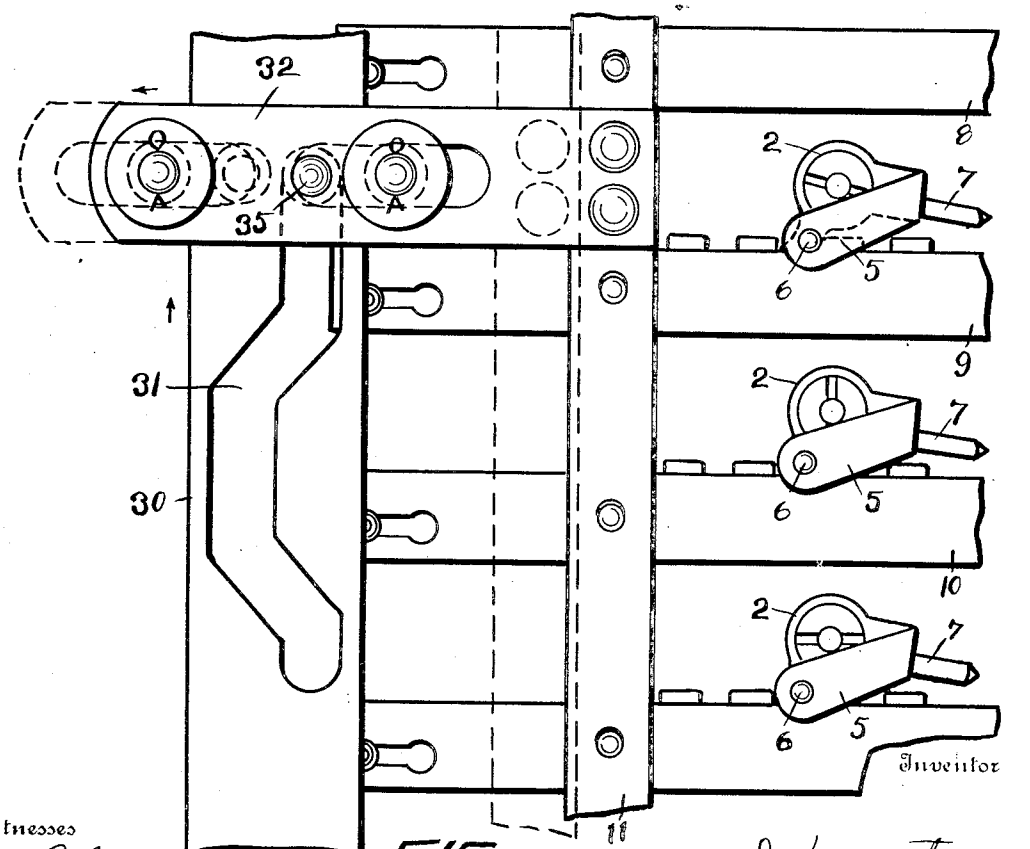


FIG. 6.

Witnesses
Eric Schinger
Alice M. Johanne

Inventor
William J. Lausterer
By Frank Reifer
Attorney

W. J. LAUSTERER.

KEY JUSTIFYING AND ZERO SETTING MECHANISM FOR VOTING MACHINES.

APPLICATION FILED OCT. 14, 1913.

1,189,837.

Patented July 4, 1916.

6 SHEETS—SHEET 3.

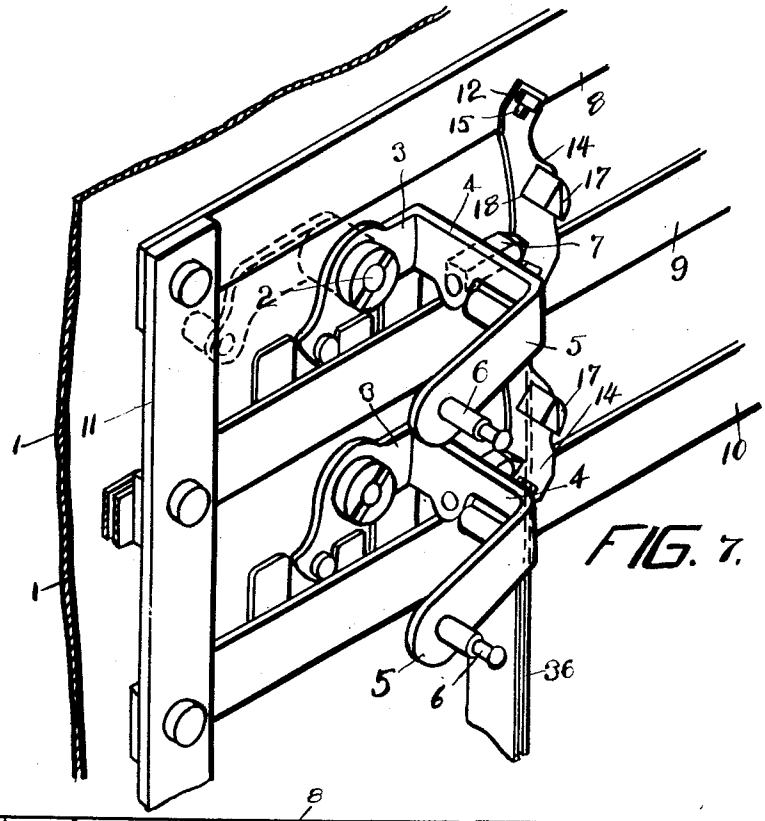


FIG. 7.

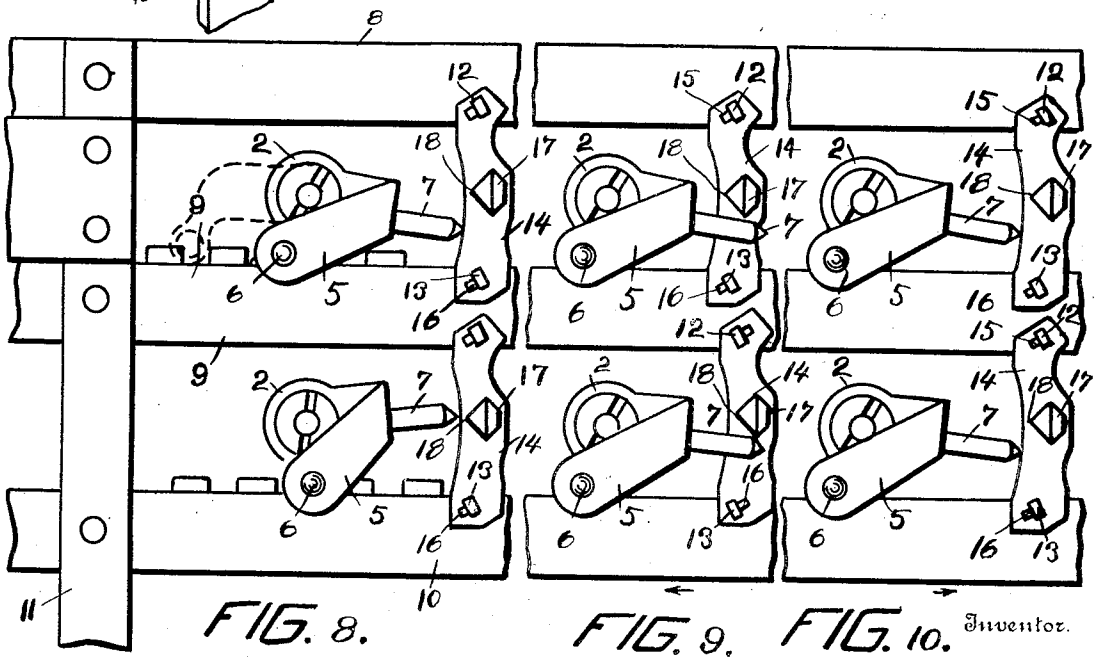


FIG. 8. FIG. 9. FIG. 10.

Witnesses
Eric Schinger
Alice M. Johanna

Inventor.
William J. Lausterer
By Frank Reifer
Attorney

W. J. LAUSTERER.

KEY JUSTIFYING AND ZERO SETTING MECHANISM FOR VOTING MACHINES.

APPLICATION FILED OCT. 14, 1913.

1,189,837.

Patented July 4, 1916.

6 SHEETS—SHEET 4.

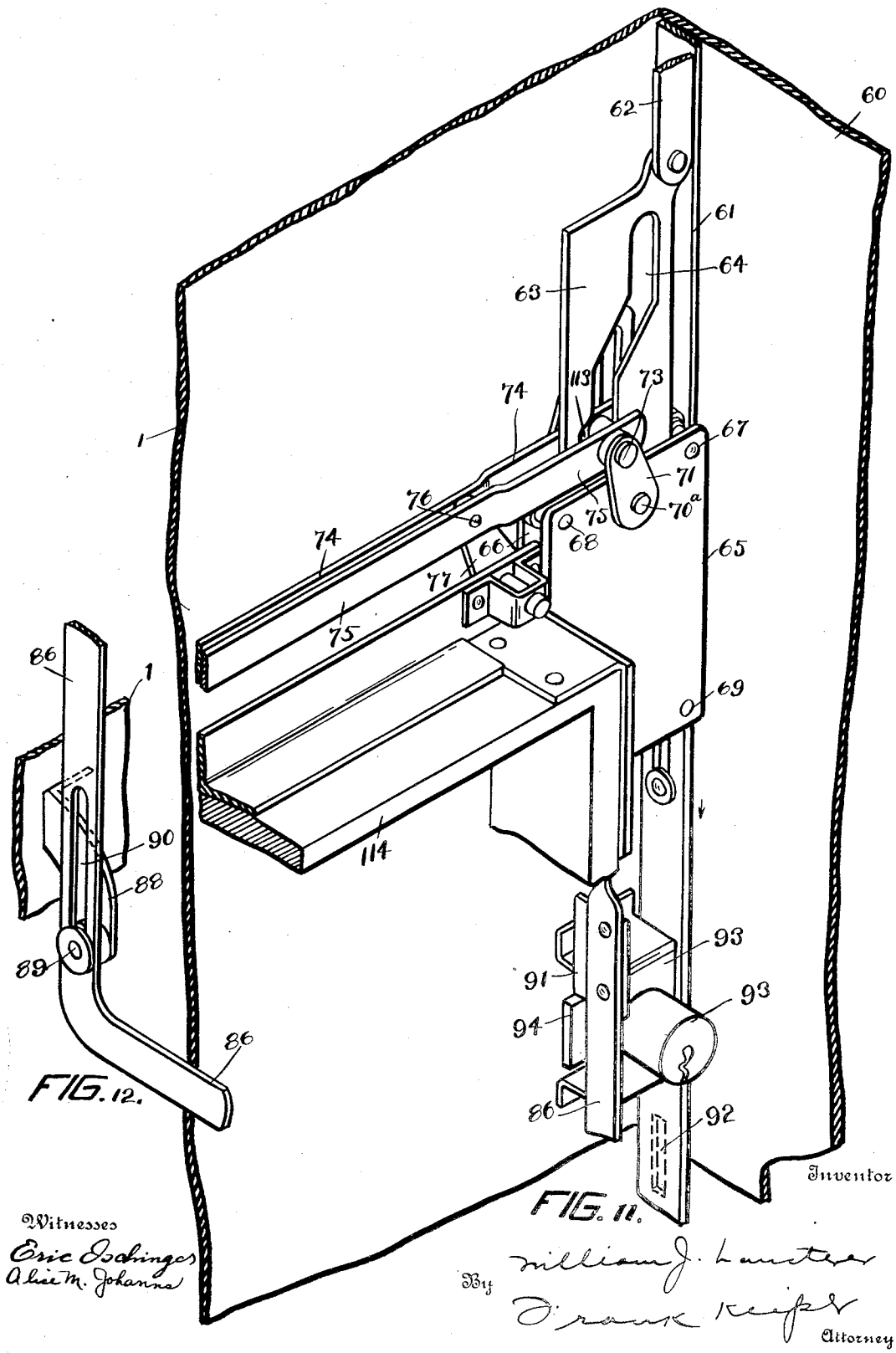


FIG. 12.

FIG. 11.

Witnesses
Eric Ochinger
Alice M. Johanna

Inventor
William J. Lausterer
By Frank Kuefler
Attorney

W. J. LAUSTERER.

KEY JUSTIFYING AND ZERO SETTING MECHANISM FOR VOTING MACHINES.

APPLICATION FILED OCT. 14, 1913.

1,189,837.

Patented July 4, 1916.

6 SHEETS—SHEET 5.

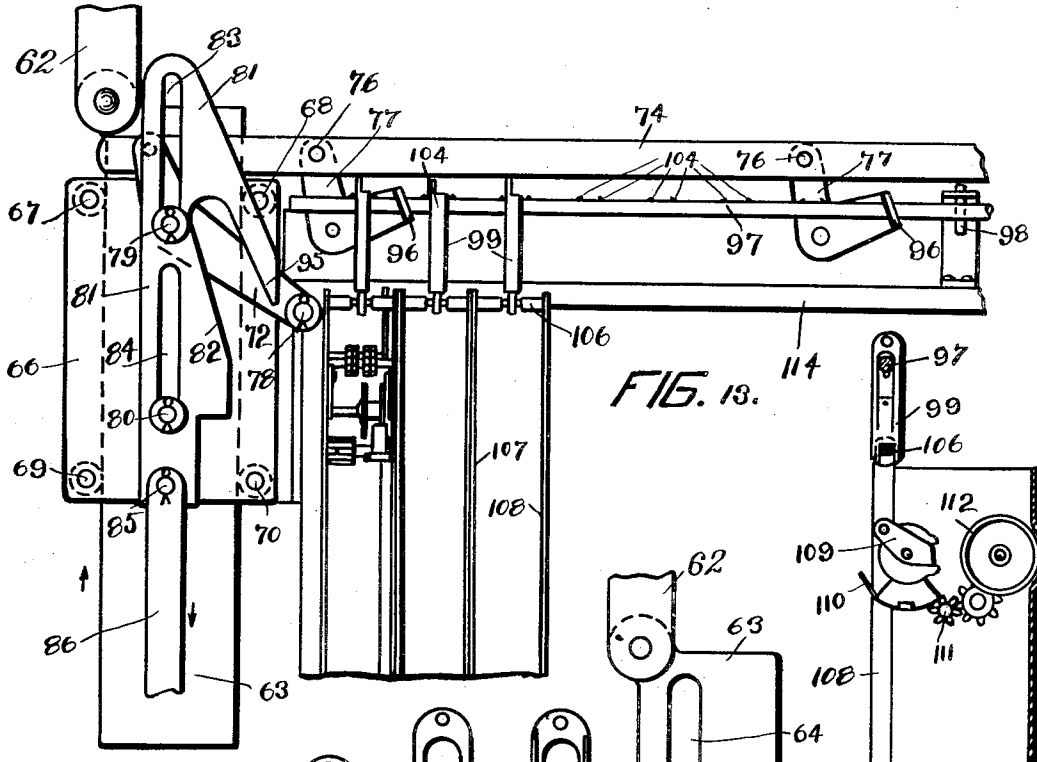


FIG. 13.

FIG. 16.

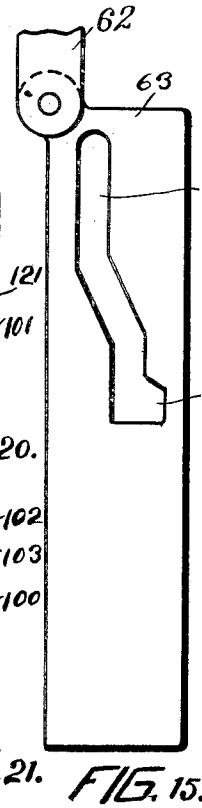


FIG. 15.

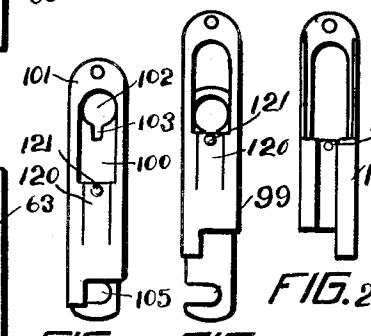


FIG. 18. FIG. 19. FIG. 20.

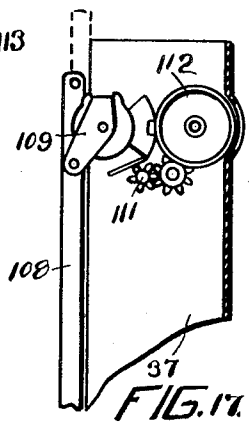


FIG. 17.

FIG. 14.

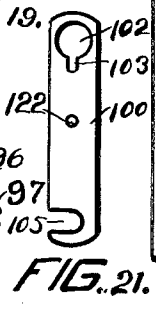


FIG. 21.

Witnesses
Essie Schinger
Alice M. Johnson

Inventor
William J. Lausterer
By Frank Kenfield
Attorney

W. J. LAUSTERER.

KEY JUSTIFYING AND ZERO SETTING MECHANISM FOR VOTING MACHINES.

APPLICATION FILED OCT. 14, 1913.

1,189,837.

Patented July 4, 1916.

6 SHEETS—SHEET 6.

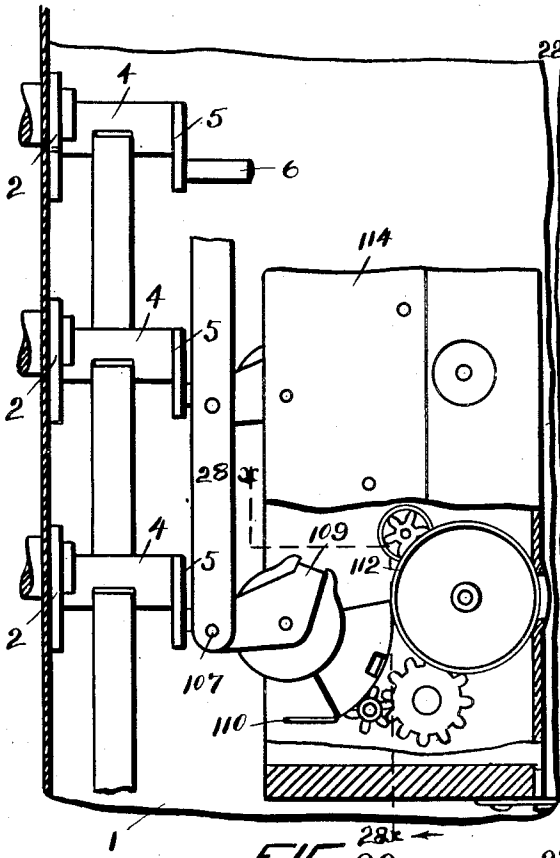


FIG. 22.

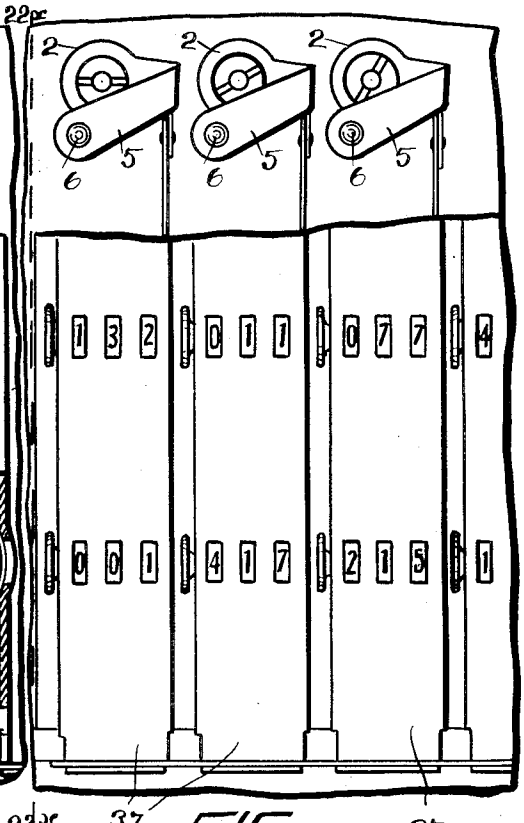


FIG. 23.

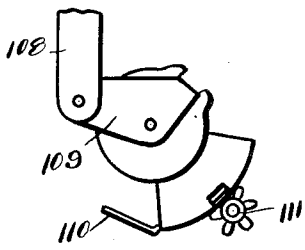


FIG. 24.

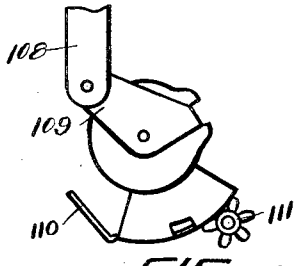


FIG. 25.

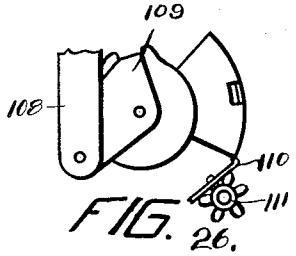


FIG. 26.

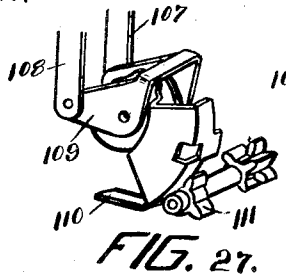


FIG. 27.

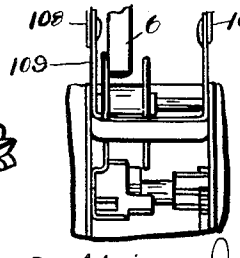


FIG. 28.

Witnesses
Eric Sahinger
Alice M. Johanns

Inventor
William J. Lausterer

By Frank Keiper
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM J. LAUSTERER, OF JAMESTOWN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AUTOMATIC REGISTERING MACHINE CORPORATION, A CORPORATION OF NEW YORK.

KEY-JUSTIFYING AND ZERO-SETTING MECHANISM FOR VOTING-MACHINES.

1,189,837. Specification of Letters Patent. Patented July 4, 1916.

Application filed October 14, 1913. Serial No. 795,053.

Be it known that I, WILLIAM J. LAUSTERER, a citizen of the United States, residing at Jamestown, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Key-Justifying and Zero-Setting Mechanism for Voting-Machines, of which the following is a specification.

The object of this invention is to provide a justifying mechanism that will operate the partially voted keys by moving them either into full voted position or restore them to unvoted position and prevent the improper operation of the keys after the operation of the counters has begun.

Another object of the invention is to make the justifying mechanism so that it cannot be dead centered.

Another object of the invention is to prevent interference with the normal operation of the counters of the machine.

Another object of the invention is to provide a mechanism for controlling the resetting of the counters.

Another object of the invention is to provide a construction by which the resetting of the counters will be controlled from a particular lock, which lock will not otherwise interfere with the operation of the machine.

These and other objects of the invention will be fully illustrated in the accompanying drawings and described in the specification and pointed out in the claims at the end thereof.

In the accompanying drawings Figure 1 is a rear elevation of a voting machine showing my improved justifying mechanism in place. Fig. 2 is a detail perspective view of the operating mechanism of the voting machine. Fig. 3 is a detail view showing keys in voted and partially voted positions. Fig. 4 is a detail view showing the same keys placed fully in voted position by the justifying mechanism. Fig. 5 is a detail view of the keys left in full voted position with the justifying mechanism withdrawn therefrom. Fig. 6 is a detail view of the frame and cam for operating the justifying mechanism. Fig. 7 is a perspective view of the keys and the justifying pawls. Fig. 8 is a detail view of the keys partially voted. Fig. 9 is a detail view of the same keys reset by the justifying mechanism. Fig. 10 is a detail view of the same keys left in reset position after the justifying mechanism has been withdrawn. Fig. 11 is a perspective view of the upper right hand corner of the machine showing a portion of the mechanism controlling the resetting of the counters. Fig. 12 is a handle used in connection with the mechanism shown in Fig. 1. Fig. 13 is an elevation of the mechanism in the upper right hand corner of the machine, the parts being shown from the side opposite to that in which they are shown in Fig. 2. Fig. 14 is a view of the parts shown in Fig. 3, the position of the parts being different. Fig. 15 is a detail view of the cam plate by which the operation of the counters is secured. Fig. 16 is an elevation of the counter actuators and operating bar, the counter being shown locked. Fig. 17 is an elevation of the counter actuators and operating bar, the counter being shown unlocked. Fig. 18 is a detail view of the link in closed position. Fig. 19 is a detail view of the link in open position. Fig. 20 is a detail view of the guard of the link. Fig. 21 is a detail view of the hook of the link. Fig. 22 is a vertical transverse section on the line $22^{\times}$—$22^{\times}$ of Fig. 23. Fig. 23 is a rear elevation of a portion of the counter channel, the channels being broken away in part to expose certain of the voting keys. Figs. 24, 25 and 26 are views of the actuator and driving pinion, showing the actuator in different positions. Fig. 27 is a perspective view of the actuator and its driving pinion. Fig. 28 is a section on the line $28^{\times}$—$28^{\times}$ of Fig. 22.

In the several figures of the drawings like reference numerals indicate like parts.

In the drawings reference numeral I indicates the front plate of the voting machine, on which are pivotally mounted the voting keys 2. Each of these keys has a crank 3 and a yoke 4 thereon terminating in crank 5 on which is carried a stud 6 for the purpose of shifting the actuator of the counter for the keys. Each of the keys is provided with a stud or pin 7 by which the key may be justified, that is moved from a partially voted position into either full voted position or reset position. For the purpose of justifying the keys I provide a frame which consists of a series of horizontal bars 8, 9 and 10, etc., which are connected at the ends by suitable cross bars 11. On these bars are provided suitable studs 12

and 13, between which are slidably mounted the plates 14. Each of these plates has an inclined slot 15 at its upper end and an inclined slot 16 at its lower end. The studs 12 and 13 engage with the plates in these slots. In the middle of the plate 14 is carried the stud 17 having the knife edge 18 thereon. The stud 7 on the key is finished preferably with a point. I provide mechanism by which the frame carrying the plates 14 may be moved first to the left and then to the right, the bars 8, 9 and 10 moving longitudinally. If the studs 17 were rigidly mounted with respect to the bars 8, 9 and 10 it might happen that when the studs 7 were left with their points directly in line with the line of movement of the knife edges 18 that a dead center would sometimes occur causing a breaking or a mutilation of the parts. If such relation of the parts should occur as is illustrated in the lower parts of Figs. 3 and 8 the plate 14 will rise on the studs 12 and 13 pulling the stud 17 up and moving its knife edge 18 out of line with the point on the stud 7, thus throwing the point of the stud 7 below the knife edge, causing it to move down before the stud advances forcing the key back to its resetting position. If, however, the point of the stud 7 is above the knife edge, the stud 7 will rise causing the key to move to a voted position thus securing the operation of the counter.

In Figs. 1, 2 and 6 I have shown details of the mechanism by which the justifying frame is operated. 20 indicates the operating lever of the machine which is connected to the double ended crank 21 which in turn is connected to the links 22 and 23. These links connect to the bell cranks 24 and 25 which in turn engage with the links 26, 62 and 27 by which links the operating parts of the machine are driven. Connected to the link 27 is the block 28 to which in turn is connected the link 29 which is in turn connected to the slotted bar 30 in which bar are the cams 31. On the bar 11 in the justifying frame are rigidly fastened straps 32, 33 and 34 each of which straps has a stud 35 therein which engages with the cams 31 in the bar 30. The bar 30 travels up with the link 27 as the operating lever moves in one direction, and travels down with the link 27 when the operating lever 20 moves in the reverse direction. It is this downward movement in the bar 30 which is utilized for the effective movement of the justifying frame, the other movements imparted to the justifying frame being idle. The cams 31 are cut so as to impart a quick forward and back movement to the justifying frame and this movement of the justifying frame serves to either pull into full voting position the keys that are partly voted or to reset such keys depending upon the extent to which the keys have been moved by the voter. The movement of the justifying frame is prolonged sufficiently to prevent the premature resetting of the voted keys by the voter in any way that will interfere with the proper operation of the counter and counter actuators and after the keys have been held in voted position sufficiently long to secure the operation of the counters or held out of voted position after the movement of the counter actuators has begun, the justifying frame is withdrawn and the keys are reset through their interlocking straps 36 in the manner shown for example in prior Patent No. 995,424, granted to A. J. Gillespie, June 13, 1911.

The counters used in connection with this mechanism are such as are shown in application No. 576,620. These counters have actuators that have a rocking movement around the shaft and sliding movement along the shaft. All the counters of a party row are assembled in a channel set as is illustrated at 37 in Fig. 1. All the actuators of an office line are connected together by one or more universal bars the upper ends of which bars are connected to links 99 which links are swung from bar 97 and are spaced apart thereon to correspond to the distance between the centers of the counter channel. This bar has the upset lugs 104 thereon arranged in pairs between which the links 99 are held in place. The links 99 are perforated each with a round hole 102 having a slotted extension 103 which enables the link to pass the lug on the bar 97 when the link is in inverted position by which the link is locked in position when it is turned half way around on the shaft.

On the right of the machine as shown in Fig. 11 is placed the operating bar 61, which bar is driven from the bell crank 24 by the long link 26 shown in Fig. 1, also connected to the crank 24 is the short link 62 by which the cam plate 63 is driven. The cam plate 63 has the cam 64 cut therein. Connected to the link 62 is the cam plate 63 which plate has the cam 64 cut therein. This cam plate is mounted to reciprocate between the guide plates 65 and 66. To guide the cam plate 63 therein plates 65 and 66 are fastened together at the four corners with studs 67, 68, 69 and 70, which studs are provided with anti-friction rollers against which the cam plate 63 has its bearing and by which the cam plate is held to a right line movement. Mounted in the plate 65 is the stud 70^a on which is pivotally mounted the crank 71. Mounted on the plate 66 is the stud 79 on which the bell crank 72 is pivotally mounted. At the upper ends of the cranks 71 and 72 is carried a stud 73 to which are fastened the bars or links 74 and 75. Between these bars at regular intervals are carried the studs 76 which pass through the upper end of the

bell cranks 77 which bell cranks are rocked by the reciprocation of the bars 74 and 75. The bell crank 72 carries on its lower end a stud 78. Mounted on the plate 66 is the stud 80. Mounted to slide on the studs 79 and 80 is the cam plate 81, which has the cam 82 cut therein, which cam is adapted to engage with the stud 78 when the bar 74 is at the right from the position shown in Fig. 13. The travel of the cam plate 81 is limited by the length of the slots 83 and 84 therein. At the bottom of the cam plate 81 is the stud 85 to which is fastened the link 86, which link is given a quarter turn as appears in Fig. 11, the bottom of which link 86 is shown in Fig. 12. Mounted on the front plate 1 is a bracket 88 having a stud 89 therein which engages with a slot 90 in the link 86 by which the link is guided in its up and down movement. Fastened to the link in any suitable manner is the plate 91. The bar 61 is provided with a slot 92 as shown in dotted lines at the bottom of Fig. 11. Between the link 86 and the bar 61 is placed the lock 93, which lock is fastened to the case of the machine and carries a bolt 94 therein, which bolt can be thrown in either direction by the key in the lock. In the position shown in Fig. 11 the bolt 94 engages under the plate 91 and prevents the downward movement of the bar 86. In this position the bolt 94 does not engage with the slot 92 and the bar 61 is therefore left free to travel up and down. When the bar 61 is raised so that the slot 92 registers with the bolt 94 of the lock, the key can be turned in the lock throwing the bolt 94 forward into engagement with the slot 92 thereby locking the bar 61 in its elevated position and releasing the link 86 for downward movement. With the bar 61 in its elevated position the cam plate 63 will also be elevated.

With the bar 61 and plate 63 in the position shown in Fig. 11 the slot 92 will be in line with the bolt 94. With the bar 61 in its lowest position the slot 92 will be in the position shown in dotted lines in Fig. 11, in which position the bar 61 will prevent the movement of the bolt 94 from the position shown in Fig. 11. When the cam plate 63 and the bar 61 are elevated the key can be turned in the lock 93 throwing the bolt 94 forward after which the bar 86 can be drawn down carrying with it the cam plate 81. With the bar 61 elevated, the crank 72 shown in Fig. 13 is rocked to the left at the bottom so that the hook 95 on the plate 81 can engage with the stud 78 causing the crank 72 to rock still farther to the right at the top carrying with it the bars 74 and 75. The free ends of the bell crank 77 are upset or turned sidewise at 96 and are perforated to receive the bar 97, which bar is moved up and down by the rocking of the bell cranks. This bar at its outer end carries a pin 98 which engages with a suitable bracket on the register frame by which it is held to a strictly up and down movement and is prevented from moving either endwise or rotating. Pivoted on this bar are the links 99. These links are in two pieces, the hook 100 and the guard 101, shown in Fig. 20 and 21 respectively. The guard 101 is provided with the spring 120 struck up therein which spring is indented at 121 to engage with the opening 122 in the hook 100 by which the parts may be held in locked engagement.

The bell cranks 77 need not be set in their bearing shown in Fig. 11 until both the bell cranks and the links have been fully assembled on the bar 97. Thereafter the bell cranks may be set in their bearing and fastened therein by cotter pin or otherwise upon which the assembling of the parts will be completed. By moving up the guard 101 the hook 105 will be exposed, upon which the cross bars 106 may be engaged therewith, after which the guard may be moved down closing the hook 105 and holding the cross bar securely in place therein. To this cross bar are fastened the universal bars 107 and 108, which universal bars engage with and operate the counter actuators 109. These counter actuators are such as described in the application No. 576,620. They have a spring 110 attached thereto which spring bears against any two of the three teeth shown at the left of the pinion 111 in Fig. 27 and holds the operating pinion 111 in proper position so that it will not be dead centered on the actuators when the actuators are thrown to engaging position with the pinion after the counters have been reset. When the cam 81 is drawn down the actuators are all thrown to the position shown in Fig. 17 and when the cam 81 is raised the bars 74 and 75 are moved to the position shown in Fig. 13, the actuators occupying position shown in Fig. 16. While the actuators are in the position shown in Fig. 17 the counters can be separately reset. The spring 110 will yield as the teeth of the pinion 111 pass under it when the counter wheels have been fully reset to show 000 the space between the 0 and 9 will show in the sight opening and the three wheels will be held in this position by the spring 110 bearing on the pinion 111 and when the plate 81 is raised the counter wheels will all be brought to normal position showing 000 full in the sight openings in which position they will be locked by the actuators. After the actuators have been returned to the position shown in Fig. 16 or the intermediate positions between Figs. 16 and 17 the counters cannot be turned except by the operation of the keys in voting.

The counters 112 are carried in channels 37 which are supported by the counter

frame 114. To permit the extra movement of the bars 74 and 75 due to the operation of the bar 86 the lower end of the cam 64 is provided with an enlargement 113 which permits the stud 73 and the bars 74 and 75 to have an abnormal movement when the cam plate 63 is at the top of its movement and this abnormal movement is secured by the rocking of the bell crank 72 by the downward movement of the cam plate 81.

I claim:

1. In a voting machine, the combination of a key movable to an abnormal position between voted and unvoted positions, and justifying means for moving said key from an intermediate to extreme position, said justifying means having provision for yielding laterally in its movement.

2. In a voting machine, the combination of a key movable to an abnormal position between voted and unvoted positions, and a device movable with relation to said key to move said key to either end of its movement when the key is left in an intermediate position, said device comprising relatively movable parts, one of which is controlled in its movement by said key.

3. In a voting machine, the combination of a key movable to an abnormal position between voted and unvoted positions, justifying means, and connections between said justifying means and said key for at all times moving said key to extreme position from any abnormal intermediate position.

4. In a voting machine, the combination of a key movable to an abnormal position between voted and unvoted positions, and justifying means for moving said key from an intermediate to extreme position, said justifying means comprising a member controlled in its movement by said key.

5. In a voting machine the combination of a key movable to an abnormal position between voted and unvoted positions, and a device movable transversely of said key to move it to either end of its movement when the key is left in an intermediate position, said device comprising a pawl for engaging said key, said pawl being movable at an acute angle to the line of movement of said device.

6. In a voting machine, the combination of keys arranged in parallel party rows, a justifying mechanism comprising a frame including a plurality of parallel bars, and plates mounted between adjacent bars and engaging said keys.

7. In a voting machine, the combination of keys arranged in parallel party rows, a justifying mechanism comprising a frame including a plurality of parallel bars, plates mounted between adjacent bars and engaging said keys, said plates being adapted to move at an acute angle to said bars.

8. In a voting machine the combination of keys arranged in parallel party rows, bars on each side of each of said rows, plates mounted between adjacent bars, said plates being adapted to move at an acute angle to said bars, and a stud carried on each of said plates, said stud being adapted to engage with a portion of the key and move the key transversely of the stud.

9. In a voting machine the combination of keys arranged in parallel party rows, bars on each side of each of said rows, plates mounted between adjacent bars, said plates being adapted to move at an acute angle to said bars, a stud carried on each of said plates, said stud being adapted to engage with a portion of the key and move the key transversely of the stud, and means for collectively moving said bars to justify the keys and hold them locked in their reset or voted position.

10. In a voting machine the combination of keys arranged in parallel party rows, bars on each side of each of said rows, plates mounted between adjacent bars, said plates being adapted to move at an acute angle to said bars, a stud carried on each of said plates, said stud being adapted to engage with a portion of the key and move the key transversely of the stud, and means for collectively reciprocating said bars to justify the keys and hold them locked in their reset or voted position and then release the voted keys to permit the resetting thereof.

11. In a voting machine the combination of keys arranged in parallel party rows, bars on each side of each of said rows, plates mounted between adjacent bars, said plates being adapted to move at an acute angle to said bars, a stud carried on each of said plates, said stud being adapted to engage with a portion of the key and move the key transversely of the stud, a cam bar moving transversely to said bars and connections between said bar and the cams of the cam bar for moving said bars on the movement of the cam bar.

12. In a voting machine the combination of keys arranged in parallel party rows, bars on each side of each of said rows, plates mounted between adjacent bars, said plates being adapted to move at an acute angle to said bars, a stud carried on each of said plates, said stud being adapted to engage with a portion of the key and move the key transversely of the stud, a counter for each of said keys, actuators for driving each of said counters, said actuators being controlled by said keys, and means for driving all of said actuators while the keys are held locked by said bars.

13. In a voting machine the combination of keys arranged in parallel party rows, bars on each side of each of said rows, plates mounted between adjacent bars, said plates being adapted to move at an acute

angle to said bars, a stud carried on each of said plates, said stud being adapted to engage with a portion of the key and move the key transversely of the stud, a counter for each of said keys, actuators for driving each of said counters, said actuators being controlled by said keys, and means for operating the counters of the voted keys, said means operating while the voted keys are held locked by said bars.

14. In a voting machine the combination of keys arranged in parallel party rows, bars on each side of each of said rows, plates mounted between adjacent bars, said plates being adapted to move at an acute angle to said bars, a stud carried on each of said plates, said stud being adapted to engage with a portion of the key and move the key transversely of the stud, a counter for each of said keys, actuators for driving each of said counters, said actuators being controlled by said keys, and means for operating the counters of the voted keys, said means operating while the voted keys are held locked by said bars, said bars moving after the operation of the counters to release the voted keys for the resetting movement.

15. In a voting machine the combination of counters, and actuators for driving said counters having fixed centers, each of said actuators being capable of rocking on its center to an abnormal position to release its counter for resetting, but said actuator normally holding said counter in locked engagement.

16. In a voting machine the combination of counters, and actuators for driving said counters having fixed centers, each of said actuators being capable of rocking on its center to an abnormal position to release its counter for resetting, but said actuator normally holding said counter in locked engagement, means for controlling the movement of said actuator to the abnormal position.

17. In a voting machine the combination of counters, and actuators for driving said counters having fixed centers, each of said actuators being capable of rocking on its center to an abnormal position to release its counter for resetting, but said actuator normally holding its counter in locked engagement, means for controlling the movement of said actuator to the abnormal position, and means for holding each counter and its gearing in position so that it can be readily reëngaged by its actuator in the movement of the actuator to normal position.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM J. LAUSTERER.

Witnesses:
ETHEL C. MILLER,
MOLLIE H. SHANAHAN.