No. 873,828. PATENTED DEC. 17, 1907.

C. C. ABBOTT.

INDEPENDENT SHUTTER LOCKING MECHANISM FOR VOTING MACHINES.

APPLICATION FILED JUNE 1, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

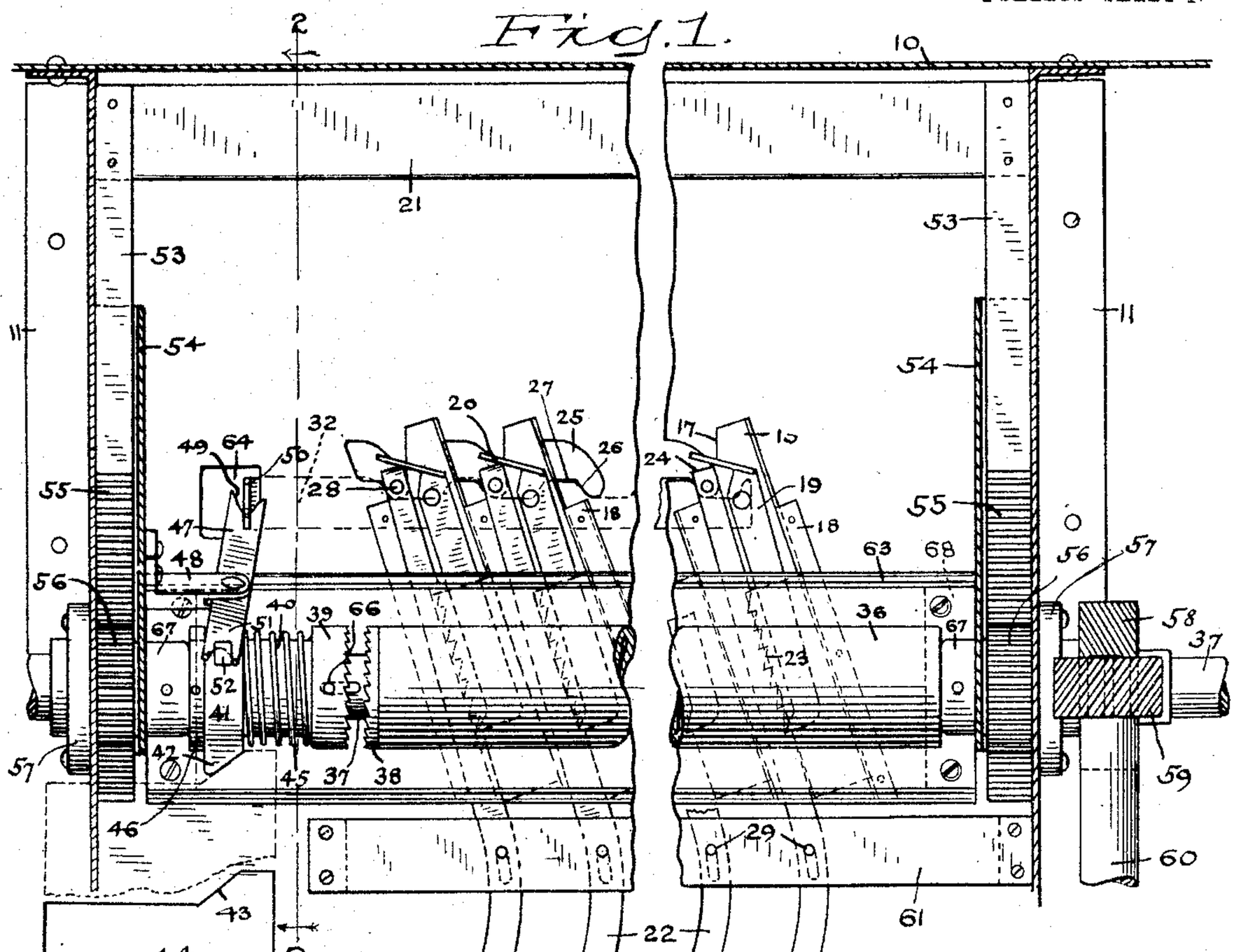
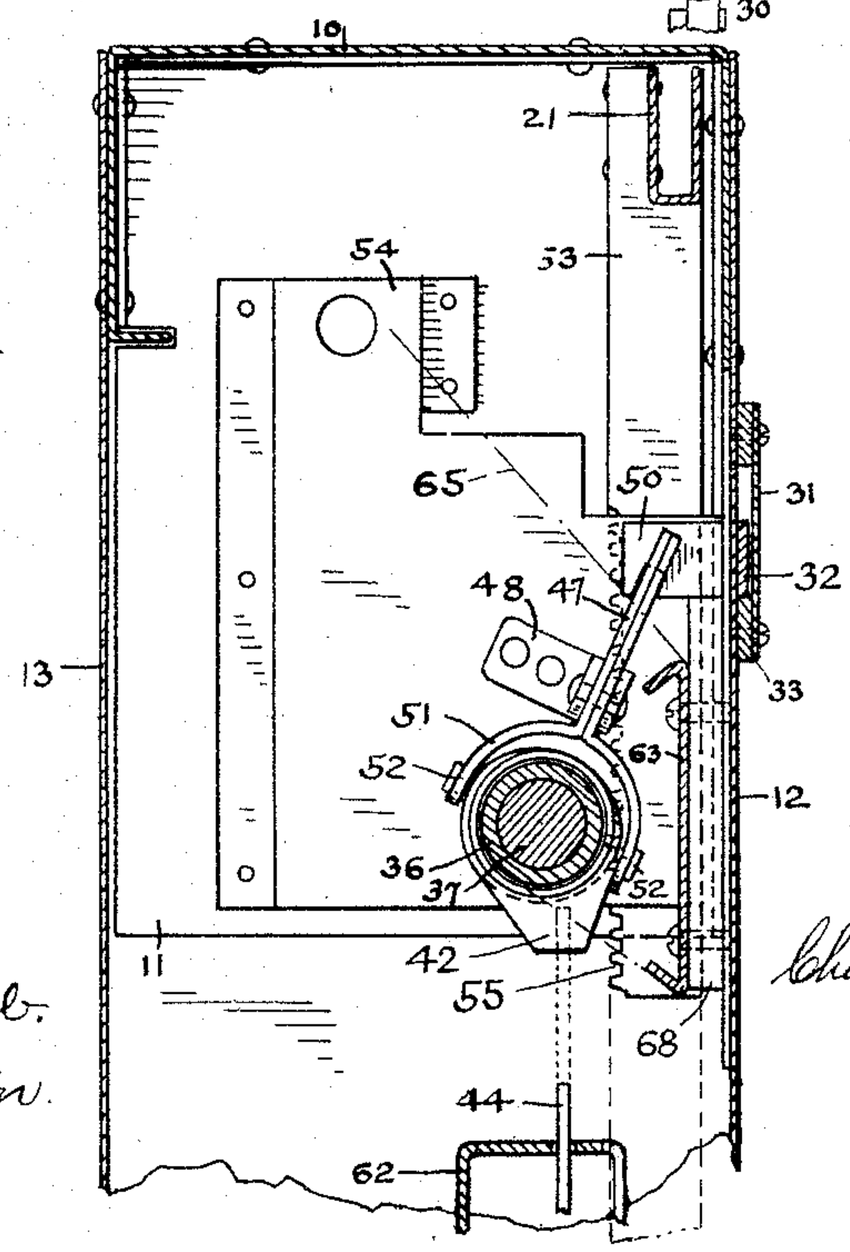


Fig. 2.



WITNESSES.

H. A. Lamb.

S. W. Atherton.

INVENTOR

Charles C. Abbott

BY

A. M. Wooster

ATTORNEY

No. 873,828. PATENTED DEC. 17, 1907.

C. C. ABBOTT.

INDEPENDENT SHUTTER LOCKING MECHANISM FOR VOTING MACHINES.

APPLICATION FILED JUNE 1, 1907.

2 SHEETS—SHEET 2.

Fig. 3.

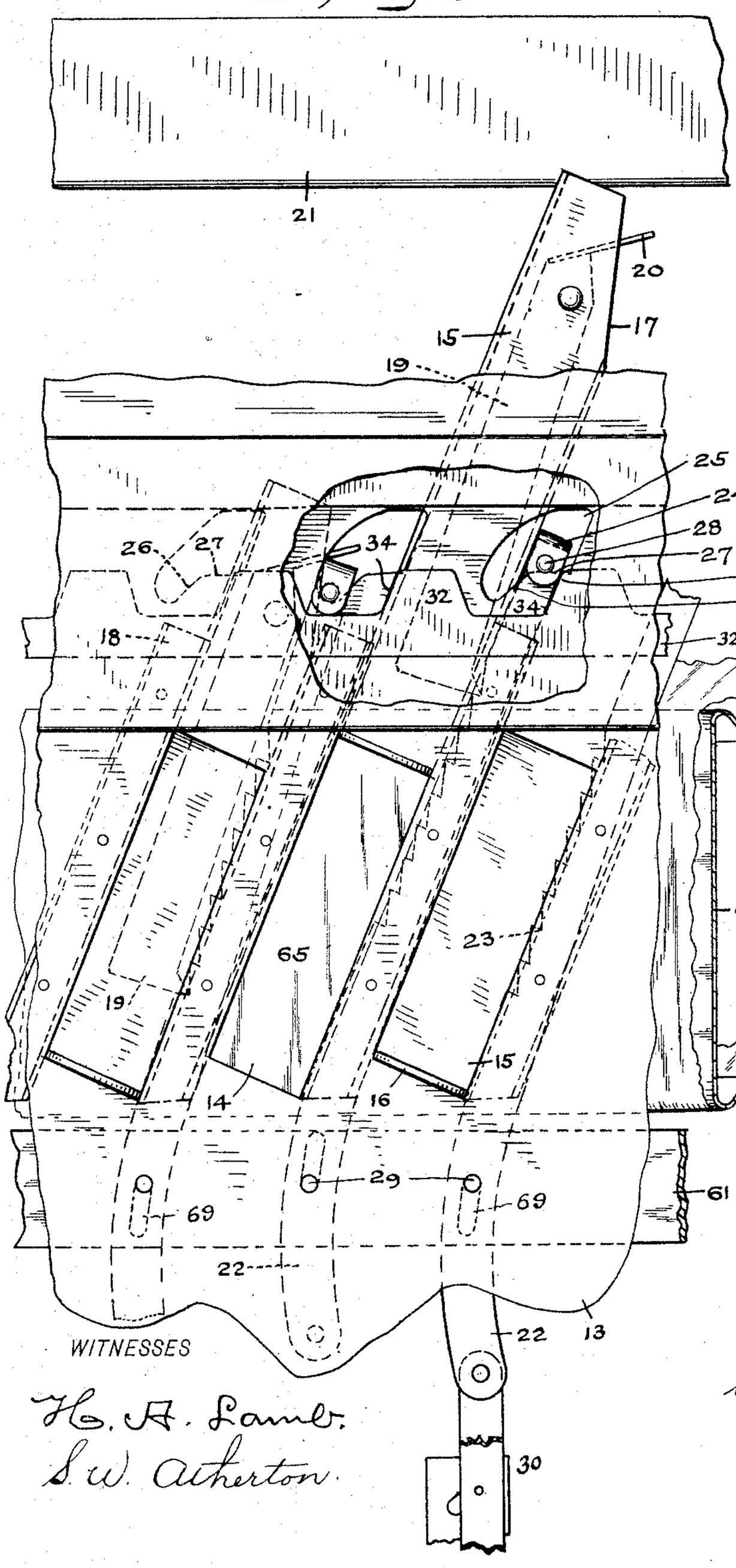
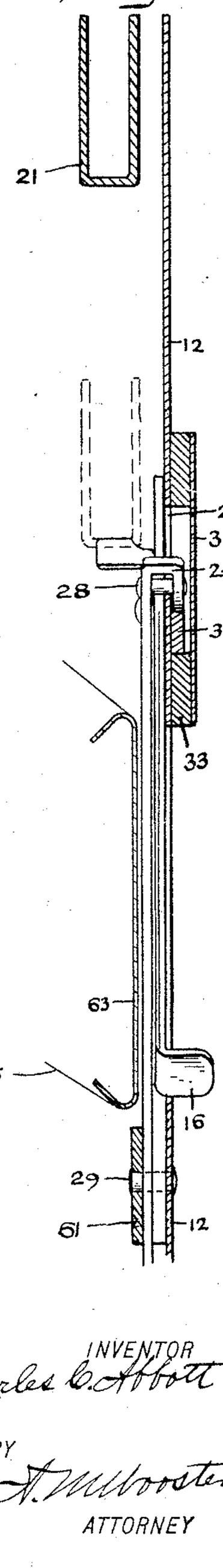


Fig. 4.



WITNESSES

H. A. Lamb.

S. W. Atherton.

INVENTOR

Charles C. Abbott

BY

A. Wilcoxster

ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES C. ABBOTT, OF PITTSFIELD, MASSACHUSETTS, ASSIGNOR TO TRIUMPH VOTING MACHINE COMPANY, OF PITTSFIELD, MASSACHUSETTS, A CORPORATION OF NEW JERSEY.

INDEPENDENT-SHUTTER-LOCKING MECHANISM FOR VOTING-MACHINES.

No. 873,828. Specification of Letters Patent. Patented Dec. 17, 1907.

Application filed June 1, 1907. Serial No. 376,754.

To all whom it may concern:

Be it known that I, CHARLES C. ABBOTT, a citizen of the United States, residing at Pittsfield, county of Berkshire, State of Massachusetts, have invented a new and useful Independent-Shutter-Locking Mechanism for Voting-Machines, of which the following is a specification.

This invention has for its object to provide simple, inexpensive and positive mechanism for locking independent voting shutters in voting machines and for actuating the paper feeding mechanism.

With these ends in view I have devised the novel mechanism of which the following description, in connection with the accompanying drawings, is a specification:

Figure 1 is an elevation as seen from the rear illustrating my novel independent voting mechanism, the top plate of the machine and the supports being in section; Fig. 2 a section on the line 2—2 in Fig. 1, looking in the direction of the arrows; Fig. 3 a detail elevation on an enlarged scale as seen from the front, illustrating the construction and mode of operation of the independent voting shutters; and Fig. 4 is an edge view as seen from the left in Fig. 3, the support and the shutter closing-bar being in vertical section.

10 denotes the top plate of the machine, 11 supports for the independent voting mechanism which are shown as made from sheet metal and as secured to the top plate, 12 the front plate and 13 the back plate.

It is sufficient for the purposes of this specification to state that in independent voting the voter casts his ballot for an independent candidate by writing the name of the candidate upon a sheet of paper called the "independent voting strip", which is disclosed by opening independent voting shutters in the front plate. In the present instance, I have shown the invention as applied to a horizontal machine, that is, to a machine in which the party nominations are placed in horizontal lines and the names of the several nominees for the offices to be voted for are placed in vertical columns.

14 denotes independent voting apertures in the front plate which for the convenience of voters are placed obliquely to the vertical plane. The voting apertures are closed by independent voting shutters 15, the edges of which are beveled and which slide in ways 18 on the inner side of the front plate.

The lower end of each shutter is provided with a finger-piece 16 projecting through the aperture for convenience in operation. In Fig. 3 the first and third of the shutters shown are in the closed position and the second shutter is in the open position ready for the casting of an independent vote. The shutters are made longer than the apertures and the upper end of each shutter is provided with an incline 17.

19 denotes a gravity pawl pivoted to the shutter near its upper end and provided with an upwardly and rearwardly projecting tail piece 20, which is adapted to be engaged by the shutter closing-bar 21 to close all open shutters, as will be more fully explained.

22 denotes links corresponding with the shutters, each link being provided with a rack 23 which is adapted to be engaged by the pawl of the corresponding shutter to lock the shutter in any raised position, whether wholly or partly opened. The upper ends of links 22 are provided with forwardly extending hooks 24 which project through apertures 25 in the front plate and extend downward and engage the outer face of the front plate. The lower wall of each aperture 25 comprises an incline 26 rising from left to right which runs into an approximately horizontal portion 27 extending toward the right. The hooks are provided with bearings 28, in the present instance cross pins, which engage the inclines and horizontal portions of the apertures in the front plate. The lower ends of links 22 are shown as curved for convenience in attachment to interlocking members 30 and as retained in position and their movement limited by guide-pins 29 which pass through slots 69 in the links and are anchored in front plate 12 and in a longitudinal strip 61 which is secured to the front plate, blocks 68 being interposed between said plate and strip.

It is sufficient for the purposes of this specification to say that the function of the interlocking members is to prevent the casting of a ballot for more than one candidate for any of the offices to be voted for, except, of course, in group voting which need not be considered for the present purpose. The interlocking members are set in practice so that one slack

only can be placed in any interlocking member.

When an independent voter opens an independent voting shutter the incline 17 upon the shutter will engage the bearing 28 of the hook 24 at the upper end of the corresponding link 22 and will cause said hook to ride up the incline 26 of the corresponding aperture 25 and out upon the horizontal portion 27. This raising of the link will take the slack out of the corresponding interlocking member so that when an independent voting shutter has been opened the interlocking member will render it impossible to cast a ballot for any of the candidates regularly in nomination for the corresponding office. It will be noted that as soon as the opening movement of an independent voting shutter is commenced, the incline 17 thereon will at once act upon the hook 24 of the link to force it up incline 26 of the corresponding aperture so that the slack will be taken out of the corresponding interlocking member during the first portion of the movement of the shutter. Furthermore, the gravity pawl, through its engagement with the rack on the link will lock the shutter against backward movement at all stages of the opening movement; in other words, having commenced to open a shutter the independent voter cannot move it backward to the closed position. As the slack is quickly taken out of the interlocking member, it is impossible to cast a vote for a regular nominee in that column after manipulation of the independent shutter. Link 22 is, of course, held against backward movement, as the bearing portion 28 of the hook, in the present instance the cross pin, will rest between incline 17 on the shutter and the incline 26 of aperture 25 during the first portion of the opening movement of the shutter, and after incline 17 has passed incline 26 said bearing portion will rest against the edge of the shutter and will be prevented thereby from passing backward down incline 26. The apertures 25 in the front plate are shown as covered by a housing 31 which is secured to the front plate.

32 denotes an actuating bar for the paper feed clutch which lies in housing 31 on the outer side of the front plate and rests upon a suitable support 33. This bar is provided with a series of inclines 34 which are engaged by the edge of the outer portion of hooks 24, the engaging portions of the hooks being specifically indicated by 35. When a link 22 is raised by the opening of a shutter and the hook thereon is forced toward the right, as seen in Fig. 3, by the coöperative action of inclines 17 and 26, the engaging portion 35 of the hook will engage the corresponding incline 34 upon actuating bar 32 and will move said bar toward the right. It will, of course, be understood that the first shutter opened will move the actuating bar toward the right, and that the opening of additional shutters will have no effect upon the actuating bar, it being required that the clutch operating mechanism be actuated even if but one independent vote be cast.

36 denotes the paper feed roll, which is mounted loosely on a shaft 37 which passes through housings 54 and supports 11 and is journaled in bearings 57 secured to the supports.

38 denotes a clutch member upon one end of roll 36, and 39 a corresponding clutch member on a sleeve 40 which is secured to shaft 37 by a pin and slot connection, as at 66, so that it may slide longitudinally thereon.

41 denotes a collar which is free to slide on sleeve 40 and is provided with a lug 42 which is engaged by an incline 43 on a cam-bar 44.

45 denotes a spring inclosing sleeve 40 and bearing against clutch member 39 and against collar 41, and serving as a cushion for clutch member 39 should the teeth meet end to end.

46 denotes a collar fixed on sleeve 40 which acts to limit the movement of collar 41 toward the left.

47 denotes a clutch lever fulcrumed in a bracket 48 secured to one of the housings 54, one end of which is engaged by actuating bar 32. I have shown the clutch lever as provided with a notch 49 which receives a slotted toe 50 at the end of the actuating bar, said toe extending inward through an aperture 64 in the front plate. The other end of the clutch lever is provided with a yoke 51 which partly incloses collar 41 and engages lugs 52 extending therefrom.

In the position of the parts illustrated in Fig. 1, the independent shutters are all closed. When a shutter is opened actuating bar 32 is moved from the position shown in Fig. 1 toward the left to the position shown in Fig. 3, the effect of which is to oscillate clutch lever 47 and move collar 41 toward the right and place clutch member 39 in engagement with clutch member 38. The parts remain in the position just described until cam-bar 44 is operated by the voter after the voting operation, as will be more fully explained.

Shutter closing-bar 21 is shown as formed to substantially U-shape and is carried by bars 53 which reciprocate in housings 54. Bars 53 are provided with racks 55 which are engaged by pinions 56 on shaft 37. Shaft 37 also carries a spiral gear 58 which meshes with a spiral pinion 59 on a shaft 60 which is operated by mechanism (not shown) actuated by the voter after the voting operation. Cam-bar 44 is shown as passing through a slot in a longitudinal brace 62 which serves as a guide and support therefor.

63 denotes a backing plate contiguous to the voting apertures, over which the independent voting strip, indicated by 65, passes. The backing plate is secured to the inner side of the front plate, blocks 68 being interposed

between said backing plate and front plate in order to provide sufficient space for the independent voting strip, the shutters and links 22.

The operation is as follows: It is sufficient for the purposes of this specification to state that after the voting operation the voter actuates operating mechanism (not shown), the functions of which, so far as the present invention is concerned, are to return all actuated parts to the normal or non-voting position ready for the next voter. One of the functions of the operating mechanism is, through intermediate connections (not shown), to impart rotation to shaft 60, which in turn rotates shaft 37 and by means of pinions 56 actuates bars 53 and moves shutter closing-bar 21 from the position shown in full lines in the drawings to the position shown in dotted lines in Fig. 4. As the shutter closing-bar moves downward it engages tail pieces 20 on the gravity pawls 19 of all opened shutters, disengages said pawls from the racks on links 22 and permits the shutters to drop to the closed position by gravity or carries them to the closed position by its continued movement. The shutter closing-bar also acts to lock the shutters in the closed position until it is again raised, as will be more fully explained. As soon as the opened shutters have dropped downward far enough so that inclines 17 upon the shutters come into alinement with the inclines 26 of apertures 25, the hooks 24 upon links 22 will be released and the weight of the interlocking members will ordinarily cause the links to drop to their normal position as at the right and left, respectively, in Fig. 3. Should the links for any reason fail to drop downward, however, when released, engaging portions 35 of the hooks will be engaged by inclines 34 on actuating bar 32 when said bar is moved toward the left from the position shown in Fig. 3, and said inclines will force hooks 24 toward the left and past the inclines 26 of apertures 25 and will cause links 22 to return to their normal or non-voting position.

Another function of the operating mechanism and intermediate connections when operated by a voter after the voting operation is to move the cam-bar upward from the position shown in full lines in Fig. 1 to the dotted position in said figure, the effect of which is, through the engagement of incline 43 on the cam-bar with lug 42 on collar 41 and the engagement of collar 41 with fixed collar 46 in sleeve 40 to move said sleeve toward the left, as shown in Fig. 1 and disengage the clutch members. This movement of collar 41 to the position shown in Fig. 1 also oscillates clutch lever 47 and returns actuating bar 32 to its normal position. In the normal or non-voting position of the parts shutter closing-bar 21 is at the dotted position in Fig. 4 and the cam-bar is at the dotted position in Fig. 1, that is, the shutter closing-bar is lowered and the cam bar is raised, thereby locking the independent voting mechanism. The unlocking of the independent voting mechanism that is, the raising of the shutter closing-bar and the lowering of the cam-bar is effected by a movement of the operating mechanism and intermediate connections (not shown) prior to the voting operation. At the time the movement of shaft 37 which raises the shutter closing-bar takes place, the clutch members are necessarily disengaged and, although sleeve 40 and clutch member 39 are carried by the shaft, no movement is imparted to the paper feed roll. The downward movement of the cam-bar from the dotted to the full line position in Fig. 1 releases sliding collar 41 on sleeve 40 and permits the clutch members to be placed in engagement when a shutter is opened. If none of the shutters are opened no engagement of the clutch members will take place. Should a shutter be opened actuating bar 32 will be moved from the position shown in Fig. 1 toward the left and clutch member 39 will be moved into engagement with clutch member 38.

Still another function performed by the movement of the operating mechanism after the voting operation is to produce a rotary movement of shaft 60 which is transmitted to shaft 37. If none of the shutters have been actuated the clutch members will not be in engagement, and no movement of paper feed roll 36 will take place. If, however, a shutter has been opened actuating bar 32 will be moved toward the left from the position shown in Fig. 1, clutch member 39 will be placed in engagement with clutch member 38 on the paper feed roll, rotary movement will be imparted to the paper feed roll and the independent voting strip will be actuated thereby and a fresh portion of its surface will be placed in position on the backing plate for the next independent voter.

Having thus described my invention, I claim:

1. In a voting machine, the combination with a sliding shutter and a pawl pivoted thereto, of a link provided with a hook and having a rack engaged by the pawl and an actuating bar having an incline engaged by the hook, substantially as described, for the purpose specified.

2. In a voting machine, the combination with a front plate having a voting aperture, and an aperture 25, a sliding shutter adapted to close the voting aperture and a pawl pivoted to the shutter, of a link having a hook projecting through aperture 25 and a rack engaged by the pawl and an actuating bar having an incline engaged by the hook, substantially as described, for the purpose specified.

3. In a voting machine, the combination with a front plate having a voting aperture and an aperture 25 comprising an incline, a sliding shutter adapted to close the voting aperture and having an incline, and a pawl pivoted to the shutter, of a link having a hook projecting through aperture 25 and having a bearing and a rack engaged by the pawl, and an actuating bar having an incline engaged by the hook, the opening of the shutter causing the incline thereon to engage the bearing on the hook and cause said hook to ride up the incline of aperture 25 and the hook engaging the incline on the actuating bar and imparting movement to said bar.

4. In a voting machine, the combination with a front plate having a voting aperture and an aperture 25 comprising an incline 26 and a portion 27, a sliding shutter adapted to close the voting aperture and a pawl pivoted to the shutter, of a link having a hook projecting through aperture 25 and having a bearing 28, adapted to engage incline 26 and portion 27, a portion 35 and a rack engaged by the pawl, and a bar 32 having an incline 34 engaged by portion 35 of the hook to actuate the bar when the shutter is opened.

5. In a voting machine, the combination with a sliding shutter and a pawl pivoted thereto, of a link having a rack engaged by the pawl to lock the shutter against backward movement and means for disengaging the pawl and permitting the shutter to drop to the closed position.

6. In a voting machine, the combination with a sliding shutter and a pawl pivoted thereto, of a link having a rack engaged by the pawl, for the purpose set forth, and a shutter closing bar adapted to engage the pawl and disengage it from the rack and to move the shutter to the closed position.

7. In a voting machine, the combination with a sliding shutter and a pawl pivoted thereto and having a projecting tail piece, of a link having a rack engaged by the pawl, for the purpose set forth, and a shutter closing bar adapted to engage the tail piece, substantially as described, for the purpose specified.

8. In a voting machine, the combination with a front plate having a voting aperture and an aperture 25 comprising an incline, a sliding shutter adapted to close the voting aperture and a pawl pivoted to the shutter, of a link having a hook projecting through aperture 25 and a rack engaged by the pawl and an interlocking member attached to the link, the opening of the shutter forcing the hook up the incline of opening 25 thereby raising the link and taking the slack out of the interlocking member and the pawl preventing backward movement of the shutter.

9. In a voting machine, the combination with a front plate having a voting aperture, and an aperture 25 comprising an incline 26, a sliding shutter adapted to close the voting aperture and having an incline 17 and a pawl pivoted to the shutter, of a link having a hook projecting through aperture 25 and having a bearing and a rack engaged by the pawl, and an interlocking member attached to the link, the opening of the shutter causing incline 17 to engage the bearing and force it up incline 26 thereby raising the link and taking the slack out of the interlocking member, substantially as described, for the purpose specified.

10. In a voting machine, the combination with a front plate having a voting aperture, a sliding shutter adapted to close said aperture and a pawl pivoted to the shutter, of a link having a rack engaged by the pawl and an interlocking member attached to the link, substantially as described, for the purpose specified.

11. In a voting machine, the combination with a front plate having a voting aperture placed obliquely to a vertical line, for the purpose set forth, a sliding shutter adapted to close said aperture and a pawl pivoted to the shutter, of a link having a rack engaged by the pawl and an interlocking member attached to the link.

12. In a voting machine, the combination with a front plate having a voting aperture placed obliquely to a vertical line, a sliding shutter adapted to close said aperture and a pawl pivoted to the shutter, of a link having a rack engaged by the pawl, said link being curved at its lower end and provided with a slot, a guide pin in said slot, for the purpose set forth, and an interlocking member attached to the link.

13. In a voting machine, the combination with a front plate having a voting aperture and an aperture 25 comprising an incline 26, a sliding shutter adapted to close the voting aperture and having an incline 17 and a pawl pivoted to the shutter, of a link having a hook projecting through aperture 25 and having a bearing to engage the incline, a portion 35 and a rack engaged by the pawl, an interlocking member attached to the link and an actuating bar having an incline 34 which is engaged by portion 35 of the hook, the opening of the shutter raising the link and imparting movement to the actuating bar.

14. In a voting machine, the combination with a front plate having a voting aperture and an aperture 25, a sliding shutter adapted to close the voting apertures and a pawl pivoted to the shutter, of a link having a hook projecting through aperture 25 and a rack engaged by the pawl, an interlocking member attached to the link and an actuating bar having an incline which is engaged by the hook when the shutter is opened.

15. In a voting machine, the combination with a front plate having a voting aperture,

a sliding shutter adapted to close said aperture and a pawl pivoted to the shutter, of a link having a rack engaged by the pawl, for the purpose set forth, a backing plate contiguous to the voting aperture for an independent voting strip, a paper feed roll for drawing said strip over the backing plate, clutch mechanism on said feed roll and means actuated by the opening of the shutter for placing the clutch mechanism in engagement.

16. In a voting machine, the combination with a front plate having a voting aperture and an aperture 25, a sliding shutter adapted to close the voting aperture and a pawl pivoted to the shutter, of a link having a rack engaged by the pawl and a hook projecting through aperture 25 and engaged by the shutter, an actuating bar having an incline engaged by the hook when the shutter is opened, a paper feed roll, for the purpose set forth, clutch mechanism on said feed roll, and connections intermediate the clutch mechanism and the actuating bar whereby the clutch mechanism is placed in engagement.

17. In a voting machine, the combination with a front plate having a voting aperture, and an aperture 25 comprising an incline 26, a sliding shutter adapted to close the voting aperture and having an incline 17 and a pawl pivoted to the shutter, of a link having a rack engaged by the pawl and a hook projecting through aperture 25 and having a bearing engaged by incline 17 and a portion 35, an actuating bar having an incline 34 engaged by portion 35 when the shutter is opened, a paper feed roll, for the purpose set forth, clutch mechanism on said feed roll, and connections intermediate the clutch mechanism and the actuated bar.

18. In a voting machine, the combination with independent voting mechanism, a paper feed roll and a shaft on which said roll is loosely mounted, of a clutch member fixed to the paper feed roll, a sleeve keyed to the shaft and having longitudinal movement thereon, a clutch member carried by said sleeve, a collar sliding on said sleeve, a buffer spring between the clutch member and the sleeve, a lever engaging the collar for placing the clutch members in engagement and a bar actuated by the independent voting mechanism and engaging said lever.

19. In a voting machine, the combination with independent voting mechanism, a paper feed roll and a shaft on which said roll is loosely mounted, of a clutch member fixed to the paper feed roll, a sleeve keyed to the shaft and having longitudinal movement thereon, a clutch member carried by said sleeve, a collar 41 sliding on said sleeve and provided with a lug 42, a buffer spring between said collar and the clutch member, a collar 46 secured to the sleeve to limit the movement of collar 41, a lever engaging collar 41 for placing the clutch members in engagement, a cam-bar having an incline adapted to engage lug 42 to move the sliding clutch member out of engagement, and a bar actuated by the independent voting mechanism and engaging the lever for moving the sliding clutch member into engagement.

20. In a voting machine, the combination with independent voting mechanism, a paper feed roll and a shaft on which said roll is loosely mounted, of a clutch member fixed to the paper feed roll, a sleeve keyed to the shaft and having longitudinal movement thereon, a clutch member carried by said sleeve, a collar sliding on said sleeve, a buffer spring between said collar and the clutch member and a bar actuated by the independent voting mechanism and engaging the lever.

21. In a voting machine, the combination with independent voting mechanism, a paper feed roll and a shaft on which said roll is loosely mounted, of a clutch member fixed to the paper feed roll, a sleeve keyed to the shaft and having longitudinal movement thereon, a clutch member carried by said sleeve, a collar sliding on said sleeve and provided with a lug, a buffer spring between said collar and the clutch member, an actuating bar and lever controlled by the independent voting mechanism and operating on said collar to place the clutch members in engagement and means operating on said lug to disengage the clutch members.

22. In a voting machine, the combination with sliding shutters, pawls pivoted thereto and links having racks engaged by the pawls, of a shutter closing-bar adapted to engage the pawls, rack bars by which the shutter closing-bar is carried, a shaft carrying pinions engaging the racks, a paper feed roll loosely mounted on said shaft, clutch mechanism intermediate said roll and shaft, and means actuated by the opening of a shutter for connecting the clutch members.

23. In a voting machine, the combination with sliding shutters, pawls pivoted thereto and links provided with hooks and having racks engaged by the pawls, of an actuating bar having inclines engaged by the hooks, a shutter closing-bar, rack bars by which the shutter closing-bar is carried, a shaft carrying pinions engaging the racks, a paper feed roll loosely mounted on said shaft, clutch mechanism and connections intermediate the clutch mechanism and the actuating bar, the opening of a shutter placing the clutch members in engagement and movement of the shaft carrying the paper feed roll and causing the shutter closing-bar to engage the pawls of opened shutters and return said shutters to the closed position.

24. In a voting machine, the combination

with sliding shutters carrying pawls and links having racks engaged by the pawls and hooks, of a shutter closing bar adapted to engage the pawls and an actuating bar engaged by the hooks.

25. In a voting machine, the combination with sliding shutters carrying pawls and links having racks engaged by the pawls and hooks, of a shutter closing-bar adapted to engage the pawls, an actuating bar engaged by the hooks, a shaft 37 and connections for actuating the shutter closing-bar, a paper feed roll carried by said shaft, clutch mechanism and connecting mechanism intermediate the actuating bar and the clutch mechanism.

26. In a voting machine, the combination with sliding shutters carrying pawls and links having racks engaged by the pawls and hooks, of a shutter closing-bar adapted to engage the pawls, an actuating bar engaged by the hooks, a shaft 37 and connections for actuating the shutter closing-bar, a paper feed roll carried by said shaft, clutch mechanism intermediate the actuating bar and the clutch mechanism for connecting the clutch members and means for disconnecting the clutch members.

27. In a voting machine, the combination with a front plate having voting apertures and apertures 25, sliding shutters carrying pawls and links having racks engaged by the pawls and hooks projecting through apertures 25, of a housing covering apertures 25 and an actuating bar within the housing adapted to be engaged by the hooks.

28. In a voting machine, the combination with a front plate having voting apertures at an angle to a vertical line, sliding shutters carrying pawls and links having racks engaged by the pawls, of a shutter closing-bar for disengaging the pawls of opened shutters from the racks.

29. In a voting machine, the combination with a front plate having voting apertures and sliding shutters carrying pawls, of links having racks engaged by the pawls and bearings engaged by the shutters.

30. In a voting machine, the combination with sliding shutters and pawls pivoted thereto, of links having racks engaged by the pawls and bearings engaged by the shutters.

31. In a voting machine, the combination with sliding shutters and pawls pivoted thereto, of links having racks engaged by the pawls and bearings engaged by the shutters and interlocking members attached to the links.

32. In a voting machine, the combination with sliding shutters, pawls pivoted thereto and an actuating bar, of links having racks engaged by the pawls and hooks on the links which are engaged by the shutters and engage the actuating bar.

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

CHARLES C. ABBOTT.

Witnesses:
GEO. O. B. HAWLEY,
CHARLES H. PITNEY.