

**No. 658,236.**

**Patented Sept. 18, 1900.**

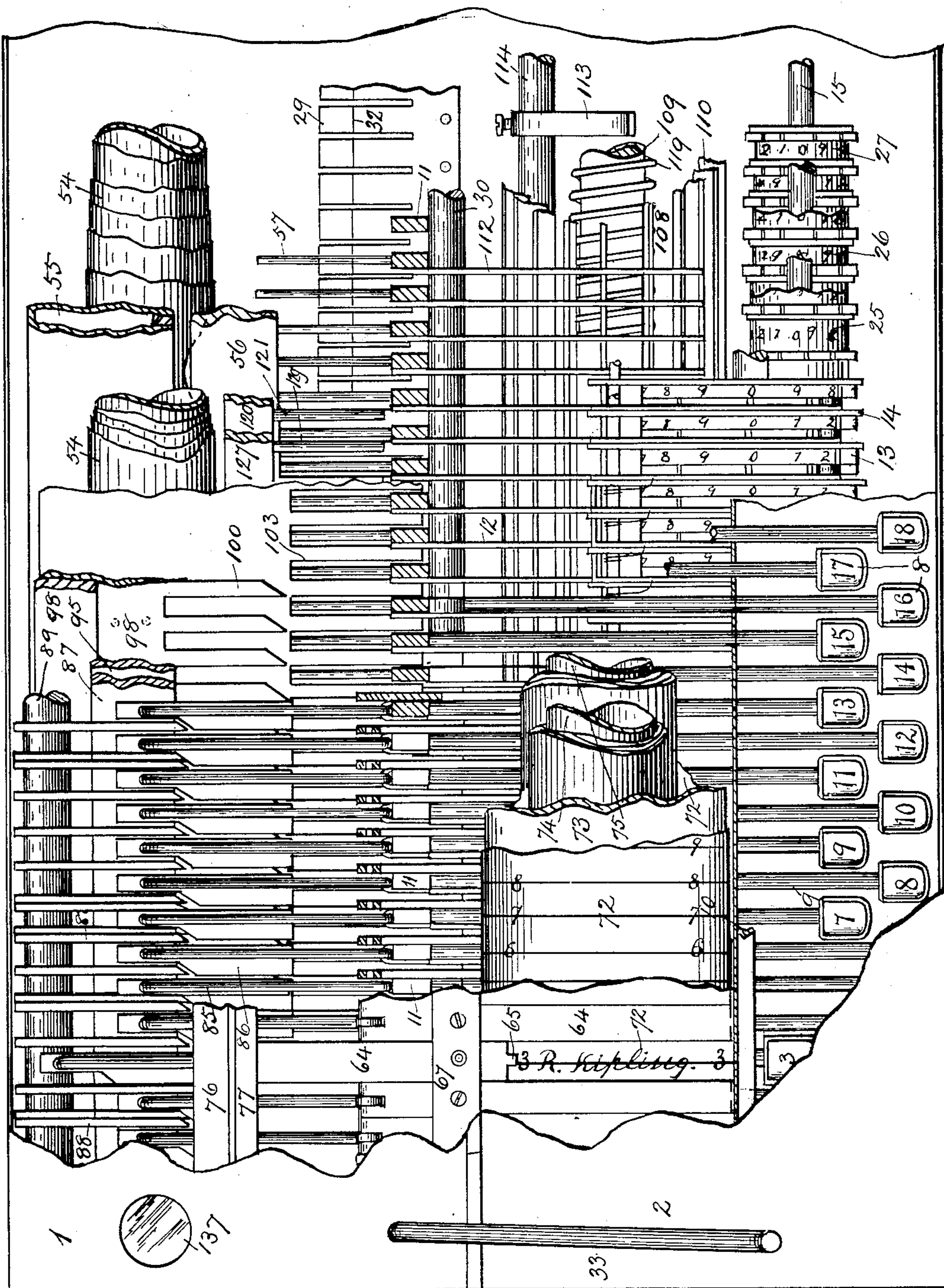
**H. A. CLIFFORD.**

# VOTE REGISTER AND RECORDER

(Application filed Jan. 23, 1900.)

(No Model.)

**5 Sheets--Sheet 1.**



WITNESSES:

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Fig. 1.

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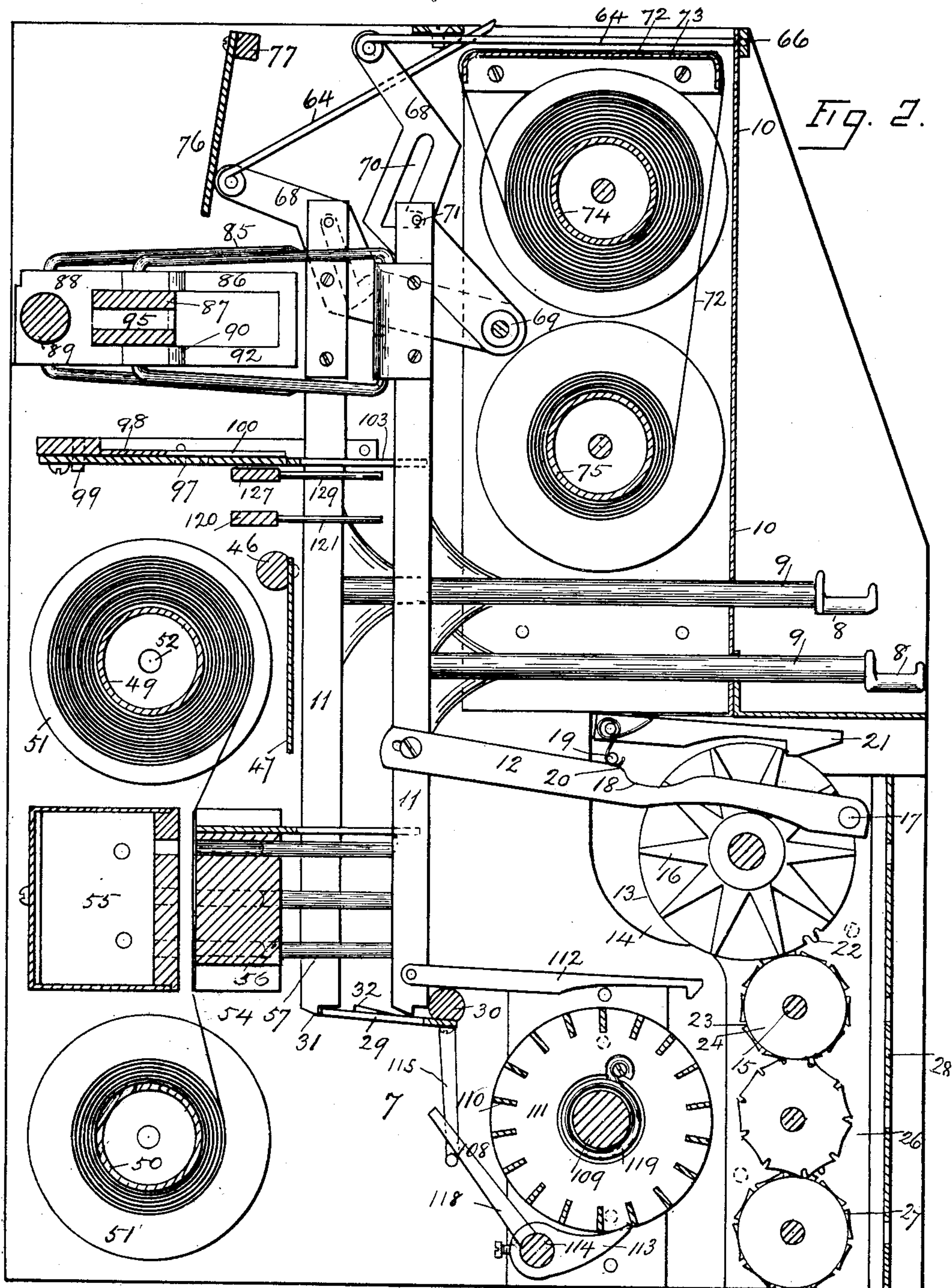
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(No Model.)

**5 Sheets—Sheet 2.**



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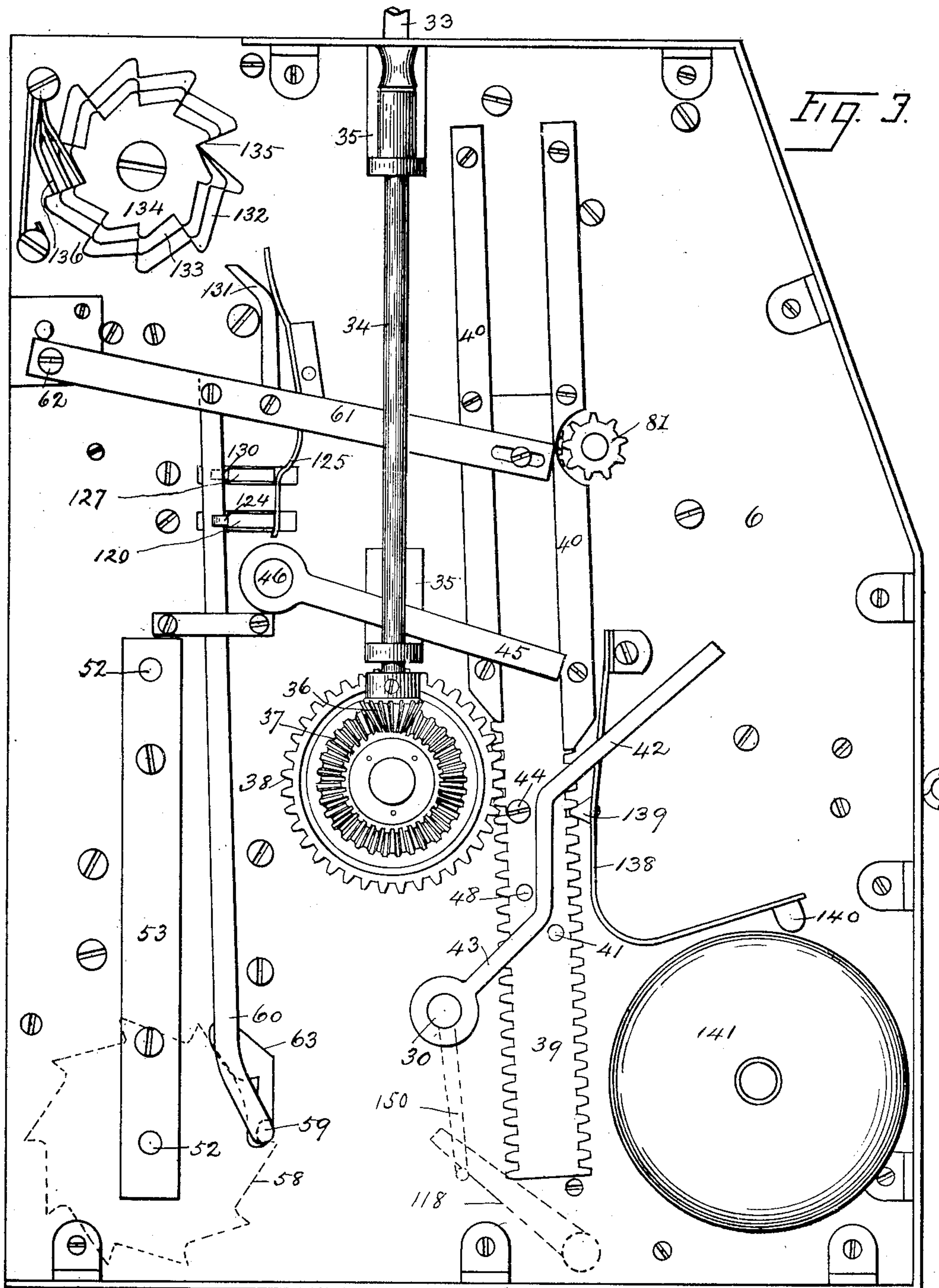
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(Application filed Jan. 23, 1900.)

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5 Sheets—Sheet 3.



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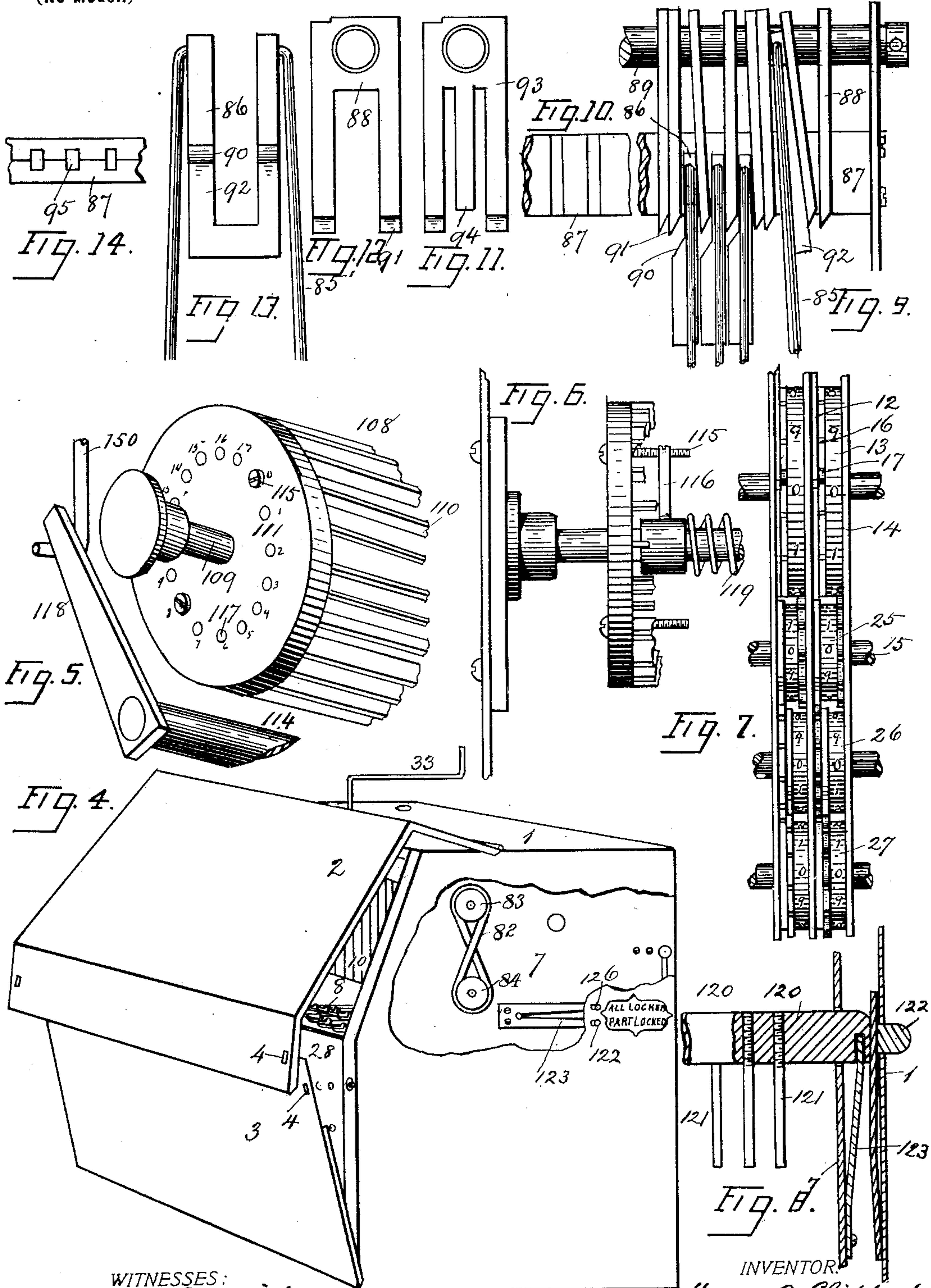
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(Application filed Jan. 23, 1900.)

(No Model.)

5 Sheets—Sheet 4.



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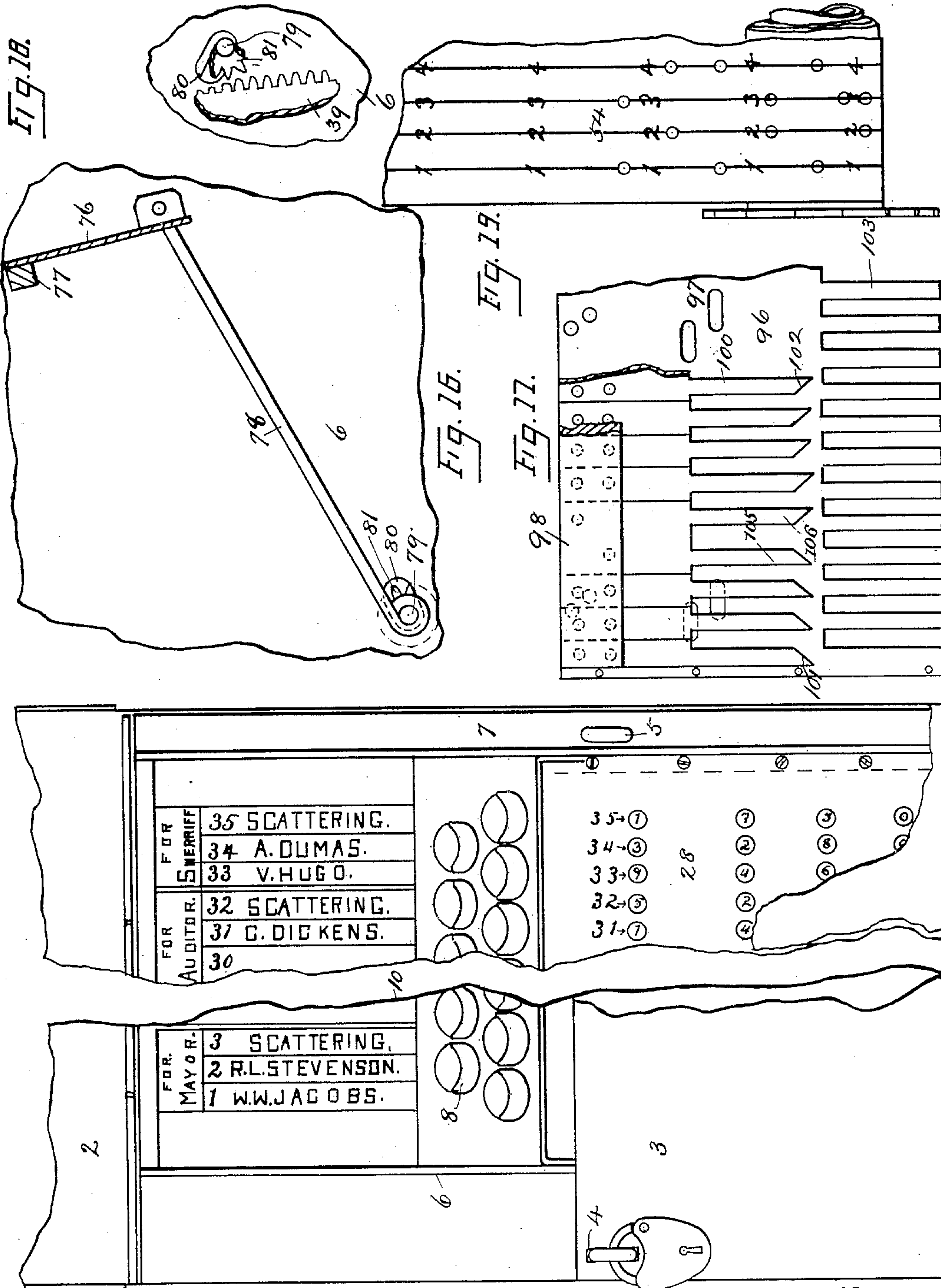


H. A. CLIFFORD.  
VOTE REGISTER AND RECORDER.

(Application filed Jan. 23, 1900.)

(No Model.)

5 Sheets—Sheet 5.





# UNITED STATES PATENT OFFICE.

HERSEY A. CLIFFORD, OF SAN FRANCISCO, CALIFORNIA.

## VOTE REGISTER AND RECORDER.

SPECIFICATION forming part of Letters Patent No. 658,236, dated September 18, 1900.

Application filed January 23, 1900. Serial No. 2,537. (No model.)

*To all whom it may concern:*

Be it known that I, HERSEY A. CLIFFORD, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Vote Registers and Recorders, of which the following is a specification.

My invention relates to improvements in voting registers and recorders, the objects of my invention being to provide an improved form of counter and counter-actuating mechanism for such machine, improved means for locking the key after it has been operated, for resetting the keys, for obtaining a check or guarantee of the accuracy of the counting mechanism, for registering votes for persons not nominated, for preventing the operation of more than the permissible number of keys, for voting a straight party ticket, for adjusting the machine to permit a partial vote only to be cast, for permitting cumulative or proportional voting, and for preventing fraudulent manipulation of the machine before or after the election.

My invention also resides in the novel construction, combination, and arrangement of parts for the above ends, hereinafter fully specified, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a top plan view of the machine, broken away at different levels thereof to show the construction of the interior. Fig. 2 is a vertical section on the line *aa* of Fig. 1. Fig. 3 is an end view of the frame of the machine, the casing being removed. Fig. 4 is a perspective of the machine on a reduced scale. Fig. 5 is a perspective of the end of the reel for the cumulative voting. Fig. 6 is a side elevation of the same. Fig. 7 is a front elevation of two of the counting mechanisms. Fig. 8 is a horizontal section through the line *bb* of Fig. 4. Fig. 9 is a plan of a portion of the interlocking mechanism, showing the same in operation. Fig. 10 is a broken horizontal section of the plate which supports the interlocking mechanism. Fig. 11 is a detail of a limiting-block. Fig. 12 is a detail of a spacing-block. Fig. 13 is a detail of a spreader. Fig. 14 is a broken rear view of the supporting-plate.

Fig. 15 is a broken front elevation of the machine as it appears when ready for voting. Fig. 16 is a detail of the means for bringing into operation the mechanism for rotating the roller for the scattering vote. Fig. 17 is a detail of the straight-ticket mechanism. Fig. 18 is a detail of the vertical rack; and Fig. 19 is a detail of the record-paper, showing the holes punched therein.

1 represents the casing of the machine, having on its front side two doors 2 3, the upper door 2 being hinged at the top of the frame and when opened resting on said top. Both of said doors have eyes 4 in their overlapping edges adapted to pass over staples 5, extending from the ends 6 7 of the frame of the machine, and said doors are then secured by padlocks through said staples or in any other suitable manner. One only or both of said doors may be thus secured, as necessary. Lifting open the upper door 2 permits access to the voting-keys, enabling the voter to vote, while the opening of the lower door 3 exposes the counting-wheels which exhibit the total vote cast for the several candidates. When the upper door has been thrown open and rests upon the top of the casing, as aforesaid, there are exposed to the view of the voter two rows of voting-keys 8, the keys of the two rows alternating with each other, as shown. Said keys are secured on the ends of horizontal stems 9, projecting through the front plate 10 of the frame of the machine. Said keys are preferably made cup-like in form, permitting pressure thereof by the end of the finger in either direction either to push the stems inward or to retract the same, the latter movement being used in connection with the mechanism hereinafter described for cumulative voting or for a minority representation. The keys of the lower row project beyond those of the upper row for convenience of manipulation.

On the front plate 10 are arranged vertically the names of the nominated candidates, the name of each candidate being in line with the key which is pushed in to vote for said candidate. The stem 9 of each key 8 carries behind the plate 10 a vertical bar 11, to which is attached a dog 12, extending to the unit-wheel 13 of the counter corresponding to said



key. Each counter comprises four wheels arranged vertically, the counters for the respective keys being separated by vertical partitions 14 and the wheels of the counters being mounted on shafts 15, extending from end to end of the machine. The units-wheel 13 of each counter is formed with ribs 16, radiating from the hub of the wheel, forming recesses in which works a stud 17 on the end of the dog 12, said stud when said dog moves backward as the key is pushed in engaging one of said ribs, and thereby moving the units-wheel through one-tenth of a revolution. The dog 12 is recessed in its upper edge, as shown at 18, to avoid a rod 19 on its forward movement, which rod 19 prevents the dog from jumping up by a too-sudden action, and thus prevents the stud 17 from leaving the recess; but on the return movement a shoulder 20 on said dog abutting against said rod depresses the stud 17 just as it has been moved over the end of the next rib, and thus constrains it to move into the next recess. Thus on the return of the voting-key to the original position the stud passes around and behind the next rib of the units-wheel. A catch 21 prevents any rearward movement of said wheel.

The wheel 13 has a tooth 22 which at each complete revolution of said wheel engages a notch 23 between two concave faces of a flange 24, extending from the tens-wheel 25, and thus advances said tens-wheel one-tenth of a revolution, said concave faces abutting against the remaining or circular portion of the circumference of the units-wheel, maintaining said tens-wheel stationary until said tooth 22 again comes into engagement with the next notch 23 on the tens-wheel. By a like construction the hundreds-wheel 26 is revolved from the tens-wheel and the thousands-wheel 27 from the hundreds-wheel.

At the close of the election the election officer will open the lower door 3, and the totals for the several candidates are then shown by figures on the edges of the counting-wheels appearing through openings in a plate 28.

The voting-keys when operated are locked against return movement by means of the spring teeth or plates 29, secured upon a shaft 30, the edges of which plates engage shoulders 31 on the lower ends of the bars 11 and arrest the return movement of said bars, and teeth 32 formed on the upper sides of said plates and about midway of their length, lock said bars even when they have been pushed only half-way in.

After the voter has pushed in the keys for the selected candidates he will close the cover 2 and the election officer will then apply a crank-handle 33 to the top of the vertical shaft 34, mounted in bearings 35 on the end 6 of the frame and will partially rotate said shaft. Said shaft carries at its lower end a bevel-pinion 36, meshing with a bevel-gear 37, also carrying on its rim the teeth 38, en-

gaging teeth on a rack 39, sliding vertically in bearings 40 on said frame end. Thus the partial rotation of said shaft 34 will raise said rack 39. As said rack rises a stud 41 carried thereon impinges against the oblique portion 42 of an arm 43 on the shaft 30 and rocks said shaft, thereby depressing the spring-plates 29 and releasing the shoulders 31 and the bars 11. Said rack 39 also carries a stud 44, which engages an arm 45 on a shaft 46, so that as said rack 39 is raised and after the locking-plates have released the bars 11, said shaft 46 is rocked, and thereby a plate 47, depending from said shaft 46, is rocked forward. The free edge of said plate abuts against the rear side of each of the bars 11 and thus the forward rocking of said shaft 46 serves to return to their normal position all of said bars which have been pushed back by the movement of the voting-keys voted. The election officer will give a forward-and-backward movement of the crank-handle 33, the first movement to return the bars and voting-keys to their normal position and the second or return movement to free the bars 11 from the edge of the plate 47, and also to raise the plates 29 to their operative position. This is accomplished by a stud 48 striking the upper edge of the oblique portion 42 of the arm 43 as the rack descends.

In order to insure absolute correctness of the returns from the voting, I provide the following mechanism to serve as a check on the action of the counting-wheels. In the rear portion of the machine are mounted two rollers 49 50, having wide flanges 51. Each roller is mounted on step-pivots 52, carried by bars 53, secured to the ends 6 7 of the frame of the machine. A sheet of paper 54 extends from one roller to the other in front of a box 55 and behind a block 56. Said block is apertured to form bearings for punches 57, one on each of the bars 11. Adjoining punches are arranged out of horizontal line with each other, and the whole of the punches are arranged in horizontal rows, of which there are preferably three. The object of this arrangement is to prevent identification of the vote by means of the holes punched in the sheet of paper. A hole is punched in said sheet every time one of the voting-keys is pressed in, and since these holes are exactly opposite to the keys which have been so pushed in their positions indicate what candidates have been voted for. The holes for any one candidate will appear in a single line parallel with the length of the sheet and numbered correspondingly to the number of voting-keys and may be afterward counted, and the total should tally with the number indicated by the counters. If not, there is an error in the counters. The holes punched by any one voter will not, however, appear in a horizontal or transverse line, because the punches extend at different heights on the bars. Hence some of the holes made by any



voter will be found on the same horizontal lines as holes made by the preceding and succeeding voters, and thus it will be impossible to determine from an inspection of said sheet how a voter has voted. The lower roller 50 carries a ratchet-wheel 58, with which engages a dog 59, formed by bending inwardly the end of the rod 60, extending down the outside of the end 6 of the frame and through an aperture in said end. When the shaft 34 is rotated to depress the rack 39, an arm 61, swinging on a pivot 62 and having a pin-and-slot connection with said rack 39, also descends. Said arm 61 is connected with the rod 60, and the descent of said arm depresses said dog 59 and advances the roller 49 and the sheet of paper a suitable distance. When the rack 39 is moved up again and with it the rod 60, the dog 59 abuts against a sloping shoulder 63 of the aperture in the end plate 6, through which said dog passes, and thus directs said dog onto the next tooth of the ratchet-wheel. The vertical distance between the rows of punches on the several keys is preferably made equal to the distance through which the sheet of paper is advanced, so that the holes punched by one of the rows of punches will on the succeeding vote be in the same horizontal line as the holes punched by the row of punches below it. The bits of paper punched out are received in the box 55. Thus by means of these holes there is provided a check on or guarantee of the accuracy of the registers.

For voting for a person not nominated provision is made in the following manner: At the top of the machine are a number of covers 64, each corresponding to one of the voting-keys, the free or front end of each cover having a small tongue or projection 65, which enters a recess 66 in the topmost edge of the plate 10. The rear end of the cover passes under a bar 67 and is pivoted to a lever 68, pivoted on a rod 69, running the length of the machine. Said lever extends by the side of the top of the adjacent bar 11 and is slotted, as shown at 70, thus allowing lost motion for one-third the stroke of the voting-key. This form of slot also prevents movement of the cover by hand when the key is not moved, and so serves to lock said cover. A stud 71, removably secured on the upper end of the bar 11, engages said slot, so that when the corresponding key has been actuated the lever 68 is vibrated rearwardly, and the cover 64 is likewise moved rearwardly under the bar 67. This uncovers a sheet of paper 72, which lies on a plate 73 and passes over two rollers 74 75, upon which sheet of paper the voter can write the name of any person for whom he desires to vote, and these names are read off at the end of the election. This paper is ruled lengthwise and numbered to correspond with the voting-keys. When the lever 68 is moved rearwardly, its end abuts against a swinging plate 76, pivoted on a shaft 77, and vibrates

said plate rearwardly, thereby also moving rearwardly a link 78, pivotally connected to said plate and to the shaft 79 of the lower roller 75, as shown in dotted lines in Fig. 16. One end of said shaft moves in a slot 80 in the end plate 6 and carries a pinion 81, so that when said link 78 is moved rearwardly the shaft 79 is moved up said slot and the pinion 81 is brought into mesh with the rack 39. In this case, when the voting officer raises the rack 39, as heretofore explained, the upward movement of the rack will also rotate the shaft 79 and will advance the roller 75 a sufficient distance to move the sheet of paper through at least the length of the opening covered by the cover 64, so that any name which has been written thereon will now have been carried out of sight of the incoming voter should he actuate the same key and raise the same cover as did the previous voter. In order to insure a sufficient tension to the sheet of paper, there is provided a coil-spring 82, which is coiled in a figure "8" around pulleys 83 84 on the shaft of the rollers 74 75, and thus act as a drag on said rollers, preventing the upper 74 advancing too fast, or a leather or rubber band may be used in a similar manner for a friction device.

It is understood that any one of the voting-keys may be used as a scattering-vote key by bringing into operative connection therewith the corresponding cover 68 by inserting the stud or screw 71 in the corresponding bar 11. If it is desired not to use the voting-key for voting scattering votes, this screw 71 is removed from the bar 11 and is used to secure the cover 64 to the bar 67, being inserted through registering holes 84 in said bar and cover.

The interlocking mechanism for preventing the operation of more than a certain number of a group of voting-keys is as follows: To each bar 11 is provided a rearwardly-extending link 85, the rear end of which is pivoted to the rear end of a spreader 86, sliding over a plate 87. The rear end of said spreader enters between adjacent spacing-blocks 88, which are forked to pass above and below the plate 87 and at the rear end slide on a locking-rod 89, said rod passing through holes in said blocks and being screwed into the end plates 6 7 of the frame of the machine, and thus locking said blocks. One side of each spreader 86 has a beveled or wedge-like shoulder 90, and the front edge of each spreading-block has a beveled shoulder 91. These shoulders, when the voting-key is so actuated, facilitate the entry of the thick part 92 of the spreader behind the shoulder 91 between the adjacent spreading-blocks. This entry tends to spread the spacing-blocks; but this spreading is limited by the immobility of two limiting-blocks 93, which resemble the blocks 88 generally, but have tongues 94 entering holes 95 in the rear edge of the plate 87, thus fixing the position



of said limiting-blocks. These limiting-blocks may be inserted in any position to replace the spacing-blocks, and when inserted the voting-keys whose spreaders are inclosed between  
 5 two such limiting-blocks form a group of keys, of which only a certain predetermined number can be operated. The number of such keys in a group that can be operated is varied by removing a suitable number of the spacing-blocks, thus providing a greater or less  
 10 space for these spreaders to enter. The pivotal connection of the link 85 with the bar 11 and spreader 86 permits said spreader to move laterally relatively to said bar 11 between  
 15 the limiting-blocks, as may be necessitated when other spreaders belonging to keys of the same group are pushed in. By attaching the links 85 to the rear end of the spreaders the result is obtained that said spreaders tend to  
 20 set themselves exactly at right angles to the rod 89 and the plate 87, on which they slide. If said spreaders were oblique to said rod and plate, their width, measured therealong, would be increased, which would give an inaccurate  
 25 result.

When it is desired to provide a straight-ticket mechanism in the machine, certain keys at the end of the row of keys are set apart for the respective parties by placing  
 30 above said end keys the names of the parties instead of the names of the candidates. A plate 96 extends the length of the machine at the rear thereof, and said plate has longitudinal slots 97 therein at suitable distances.  
 35 An interlocking plate 98 rests upon the plate 96, having pins 99 engaging said slots 97, so that said interlocking plate 98 can slide longitudinally on the plate 96. Said plate 98 has extending therefrom toward the front of  
 40 the machine teeth 100, the ends of which are beveled, those at one end of the plate 98 corresponding to the keys for voting straight tickets, being beveled in one direction, as shown at 101, and the remainder in the opposite  
 45 direction, as shown at 102.

The bars 11 in their rearward movement impinge upon these beveled ends, being guided thereto by teeth 103, extending from the stationary plate 98, between which teeth the bars  
 50 11 slide. When one of the straight-ticket keys is operated, its bar 11, impinging upon the beveled end 101 of the corresponding tooth, will move the plate 98 longitudinally, and will thus bring and maintain all the teeth  
 55 102 for single candidates opposite to the bars of the corresponding keys for said candidates, so that none of said keys can be actuated, and, conversely, if one of the single-candidate's keys is actuated all the straight-ticket  
 60 keys are locked in like manner. It is understood that the straight-ticket keys are interlocked among themselves by forming them into a group of keys and adjusting the interlocking mechanism before described.

65 When a straight-ticket mechanism is not required, the interlocking plate 98 is removed

from its operative position and rests on the back of the plate 96, the pins 99 entering holes in said plate 96, as shown in Figs. 2 and 11.

The two adjoining teeth 105 106, which belong, respectively, to the straight-ticket group and the single-candidate group, are separated by a larger space than the other teeth, into which space enter the bars 11 of both the  
 75 keys corresponding to said teeth 105 106, and said teeth are made in one piece, which is removable and can be placed in another position on the plate 98 to conform to a change in the number of plates, said piece being  
 80 screwed on said plate by screws 107. For this purpose also some of the other teeth 101 102 are made removable and changeable in position in like manner.

The mechanism for cumulative voting or  
 85 proportional representation is as follows: The spring-teeth 29, which are on a single plate, are now removed from the shaft 30. This permits a voter to withdraw any voting-key and operate it a second time or any permissible number of times for the same candidate. In order to limit the number of votes that may be thus cast, first of all the interlocking mechanism previously described is  
 90 arranged so that only one of the whole group of keys thus permitted cumulative voting can be operated. There is then used a reel 108, pivotally mounted on a stationary shaft 109 and having bars 110 extending between the end rings 111 thereof. Each bar 11 carries a hook 112, which when moved rearwardly with the bar 11 advances said reel through a small angle of revolution, the return movement of the reel being prevented by a dog 113, mounted on a shaft 114. In  
 105 cumulative voting the voter will retract each key after operating it and will then repeat his vote on the same key or will actuate other keys, in each case retracting the last key pushed in before actuating another key.  
 110 Every time the voter pushes in a key the reel 108 will advance a corresponding angle, and the whole angle through which the reel advances is limited by a screw 115, extending from one of the said rings 111, abutting  
 115 against a pin 116 in a hub on the stationary shaft 109. The amount of the whole angle through which the reel advances is varied by adjusting the position of the screw 115, for which purpose the end ring is provided with  
 120 a number of screw-holes 117, arranged in a circle and suitably identified by numbers, into any one of which holes the screw 115 can be secured. When a voter has finished voting, the movement of the crank-handle 33 by  
 125 the election officer will rock the shaft 34, and thus by means of an arm 150 (shown in dotted lines in Figs. 2 and 3) on the shaft 30 engaging an arm 118 on the shaft 114 will remove the dog 113 from the reel 108 and release said  
 130 reel, which will immediately return to its initial position under the tension of a coil-



spring 119. When this mechanism for cumulative voting or proportional representation is not required, the reel 108 is lowered out of engagement with the hooks 112, so that said hooks reciprocate with the bars 11 without actuating the reel. Said reel is shown so lowered in Fig. 2. In this position the arm 150 will not engage the arm 118, but will avoid it, as shown by the dotted lines in Figs. 2 and 3.

When certain of the electors are qualified to vote for only a portion of the candidates or of the questions submitted, provision is made by means of a bar 120, which slides longitudinally of the machine and has strong pins 121 extending therefrom at intervals along its length toward the front of the machine. Normally these pins will not obstruct the action of any of the keys; but when a partially-qualified voter comes to vote the election officer will press a button 122, extending through the casing, as shown in Fig. 8, which button presses against the end of the bar 120 and moves it longitudinally, thus shifting the pins 121 into such a position that they will obstruct those of the voting-keys which the voter is not permitted to operate. The end of the bar 120 on which the button 122 presses is secured to a spring-plate 123, which normally withdraws the bar, and the other end of the bar at the opposite end of the machine passes through an aperture in the plate 6, as shown in Fig. 3, and carries a hook 124. A spring 125 presses said hooked end rearwardly, and thus when said bar has been moved longitudinally, as aforesaid, said hook 124 catches over the rod 60 and holds the bar and the pins 121, carried thereon, in their position, obstructing the movement of said keys. When the rod 60 is moved upward by the turning of the crank-handle by the election officer, its simultaneous rearward movement, heretofore pointed out, will cause it to pass beyond the point of the hook 124, so that said hook is released and the bar 120 is returned by its spring 123 to its original position.

The officer who prepares the machine for election will after making the necessary adjustments push in a button 126, which in precisely the same manner as the button 122 moves a bar 127, carried by a spring-plate 128 and having pins 129, which will then be moved to obstruct all the keys. The free end of the bar 127 carries a hook 130, which in like manner as the hook 124 engages the rod 60, said hook 130 being likewise pressed rearwardly by the spring 125. Said officer will also seal the opening in the top of the casing through which the crank-handle end is inserted to rock the shaft 34. This will prevent any tampering with the machine prior to the election. After the polls are closed the election officer will seal up and lock the machine in the same manner. The arm 61 carries a pawl 131, which is pressed rearwardly by an extension of the spring 125 against ratchet-wheels 132 133 134,

each wheel having ten teeth. One tooth in the units and tens wheels 132 133 is a deep tooth, as shown at 135, so that each reciprocation of the pawl 131 will advance the units-wheel 132 only until the tenth or deep tooth 135 is reached, and then the pawl will likewise advance the tens-wheel. In like manner the hundreds-wheel will advance through a tenth of its revolution for each revolution of the tens-wheel. Detents 136 prevent rearward movement of said wheels. The wheels have numbers marked on their peripheries, and thus indicate the total number of voters that have voted or the number of times the officers have used the crank-handle, said numbers showing through a small window 137 in the top of the casing. A spring-arm 138, vibrated by the rack 39 through a tooth 139 on said arm, causes a hammer 140 to strike against an alarm 141 and ring said alarm at each movement of the rack 39.

I claim—

1. In a register, the combination of a reciprocating bar, a counting-wheel having radiating ribs, a reciprocating link from said bar to said wheel, the end of the link having a projection entering a recess between two radiating ribs, and means for guiding said link in its reciprocation, whereby said projection passes over the end of a rib and into the recess between said rib and the next rib, substantially as described.

2. In a voting-machine, the combination of a series of voting-keys, slotted levers detachably connected therewith, a bar, covers sliding under said bar, each lever being attached to one end of the corresponding cover, a plate beneath said covers, a sheet of paper between said plate and covers, and suitable means for advancing said sheet, substantially as described.

3. In a voting-machine, the combination of a sheet of paper, a cover therefor, a slotted lever for moving the cover, a voting-key, and a stud carried thereby engaging said slot, said slot being suitably conformed to lock said lever when said key is not operated, substantially as described.

4. In a voting-machine, the combination of a sheet of paper, a cover therefor, a slotted lever for moving the cover, a voting-key, and a stud carried thereby engaging said slot, said slot having its first portion, along which the stud moves, parallel with the direction of movement of said stud, whereby no motion is imparted to said lever during said first movement, substantially as described.

5. In a voting-machine, the combination of a sheet of paper, rollers therefor, voting-keys, means for resetting the same, a normally-inoperative train of mechanism between said resetting means and one of the rollers, covers for said paper, levers operated by the keys to remove the covers, a swinging plate against which the levers abut when so operated, and a connection from said plate to the shaft of



one of the rollers whereby said train of mechanism is rendered operative and the operation of the resetting means then also advances the paper, substantially as described.

5 6. In a voting-machine, the combination of a sheet of paper, rollers therefor, the shaft of one of said rollers carrying a pinion, voting-  
10 keys, a shaft, and a rack driven thereby to reset the voting-keys, said rack being normally disconnected from said pinion, covers  
15 for said paper, levers operated by said keys to remove the covers, a swinging plate against which the levers abut when so operated, and a link from said plate to said roller-shaft to  
15 bring the pinion into mesh with the rack, substantially as described.

7. In a voting-machine, the combination of a sheet of paper, covers therefor, voting-keys  
20 operatively connected with the covers to remove the same, a bar under which said covers pass, and studs forming part of said connection and removable therefrom and adapted  
25 to be inserted through said bar and covers to secure the latter in position, substantially as described.

8. In a voting-machine, the combination of sliding spacing-blocks, a guide for the same, voting-keys, spreaders movable between said  
30 blocks to spread the same, and links pivotally connected to said keys and extending above and below said spreaders and pivotally  
connected thereto, substantially as described.

9. In a voting-machine, the combination of sliding spacing-blocks, a guide for the same,  
35 voting-keys, and spreaders pivotally connected thereto, said spreaders being forked to pass above and below said guide, substantially as described.

10. In a voting-machine, the combination of sliding spacing-blocks, a guide for the same,  
40 said blocks being forked to pass above and below said guide, voting-keys and spreaders connected thereto, the latter being movable with said keys between said blocks to spread  
45 the same, substantially as described.

11. In a voting-machine, the combination of sliding spacing-blocks, a guide for the same, said blocks being forked to pass above and  
50 below said guide, a rod retaining on said guide all such blocks, voting-keys and spreaders connected thereto, the latter being movable with said keys between said blocks to  
spread the same, substantially as described.

12. In a voting-machine, the combination of spacing-blocks, a guide for the same having  
55 recesses, limiting-blocks having tongues entering said recesses, a rod locking in position all of said blocks, voting-keys, and spreaders connected thereto, the latter being movable  
60 between said blocks to spread the same, substantially as described.

13. In a voting-machine, the combination of a plate extending lengthwise of the machine, an interlocking plate longitudinally sliding  
65 thereon having teeth with beveled ends, the ends of teeth at one end of the plate being

beveled in one direction and those at the other end in the opposite direction and voting-keys having parts movable against said  
70 beveled ends to shift the interlocking plate longitudinally, substantially as described.

14. In a voting-machine, the combination of a plate extending lengthwise of the machine, an interlocking plate longitudinally sliding  
75 thereon having two sets of teeth, one set having their ends beveled in one direction and the other set in the opposite direction, said teeth being changeable in position on said  
80 plate, and voting-keys having parts abutting against the beveled ends of the teeth, substantially as described.

15. In a voting-machine, the combination of voting-keys and a shifting mechanism comprising two sets of devices each rigidly attached to the remainder of the shifting mechanism,  
85 each device corresponding to a voting-key, and each device when moved by said key shifting the mechanism to oppose all the devices of the other set to their respective keys,  
90 substantially as described.

16. In a voting-machine, the combination of a row of voting-keys, counters, a bar movable parallel with the row of keys and having obstructions one for each of certain keys, which  
95 when said bar is so moved, assume a position to obstruct said keys, each of the keys of the row being movable independent of said bar, means for moving said bar longitudinally independently of any of the keys of the row  
100 and means for simultaneously resetting those of the remaining keys which have been actuated, and returning said bar to its original position, substantially as described.

17. In a voting-machine, the combination of a row of voting-keys, counters, a bar movable parallel with the row of keys and having obstructions, one for each of certain keys, which,  
105 when said bar is so moved, assume a position to obstruct said keys, each of the keys of the row being movable independently of said bar, means for moving said bar longitudinally independently of any of the keys of the row a  
110 spring for retracting said bar, a catch automatically holding said bar when so moved, and means for simultaneously releasing said catch and resetting all actuated keys, substantially as described.

18. In a voting-machine, the combination of a row of voting-keys, a revoluble reel, having its axis parallel and coextensive with said row,  
120 a row of hooks, one for each key and moved thereby to engage said reel and advance the same, and means for limiting the angle of advance, substantially as described.

19. In a voting-machine, the combination of a row of voting-keys, a revoluble reel, parallel and coextensive with said row and having parallel peripheral bars, a device moved by  
125 each key engaging one of the bars and causing said reel to move through an angle of revolution, and means for limiting the angle of advance, substantially as described.



20. In a voting-machine, the combination of  
a row of voting-keys, a revoluble reel paral-  
lel and coextensive with said row and having  
parallel peripheral bars, a spring retracting  
5 the same, a device moved by each key en-  
gaging one of the bars to advance the reel,  
means for limiting the angle of advance,  
means for preventing rearward movement of  
the reel and a device for simultaneously re-  
10 leasing the reel from the latter means and re-

setting all actuated keys, substantially as de-  
scribed.

In witness whereof I have hereunto set my  
hand in the presence of two subscribing wit-  
nesses.

H. A. CLIFFORD.

Witnesses:

FRANCES M. WRIGHT,  
M. R. DANIELS.