

L. R. WINSLOW.
GENERAL VOTING MACHINE.
APPLICATION FILED JULY 15, 1908.

920,101.

Patented Apr. 27, 1909.

8 SHEETS—SHEET 1.

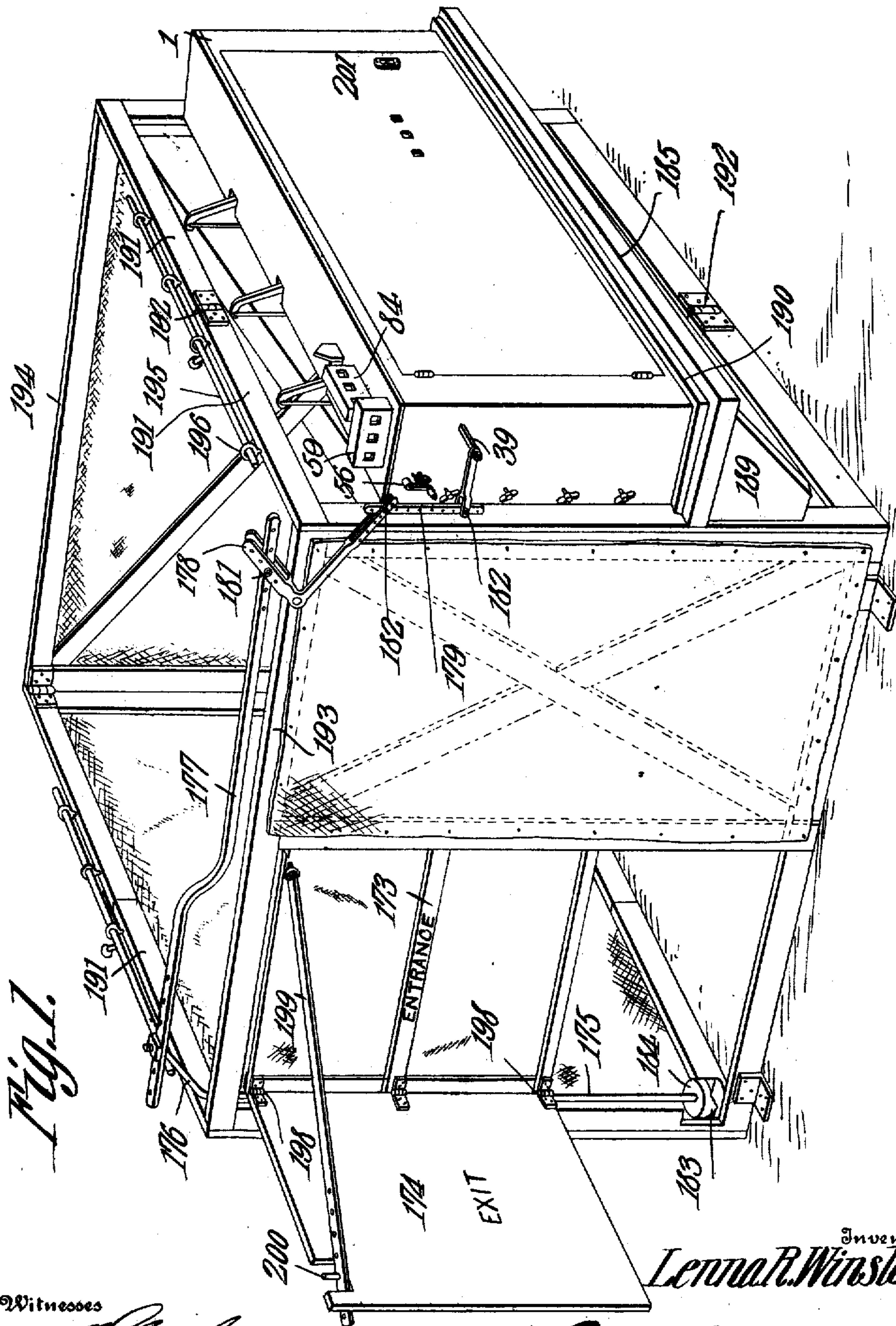


Fig. 1.

Witnesses

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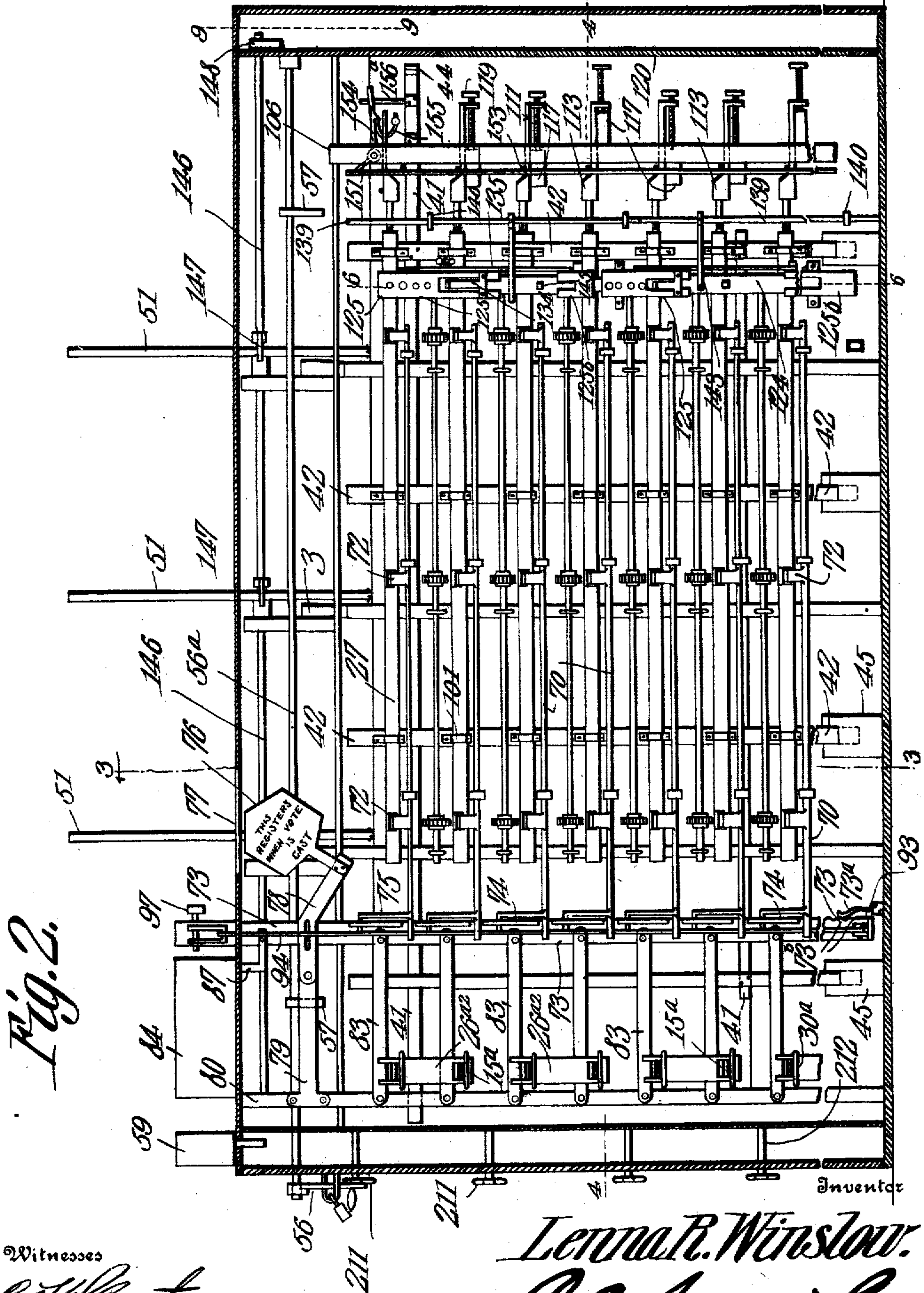
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Witnesses

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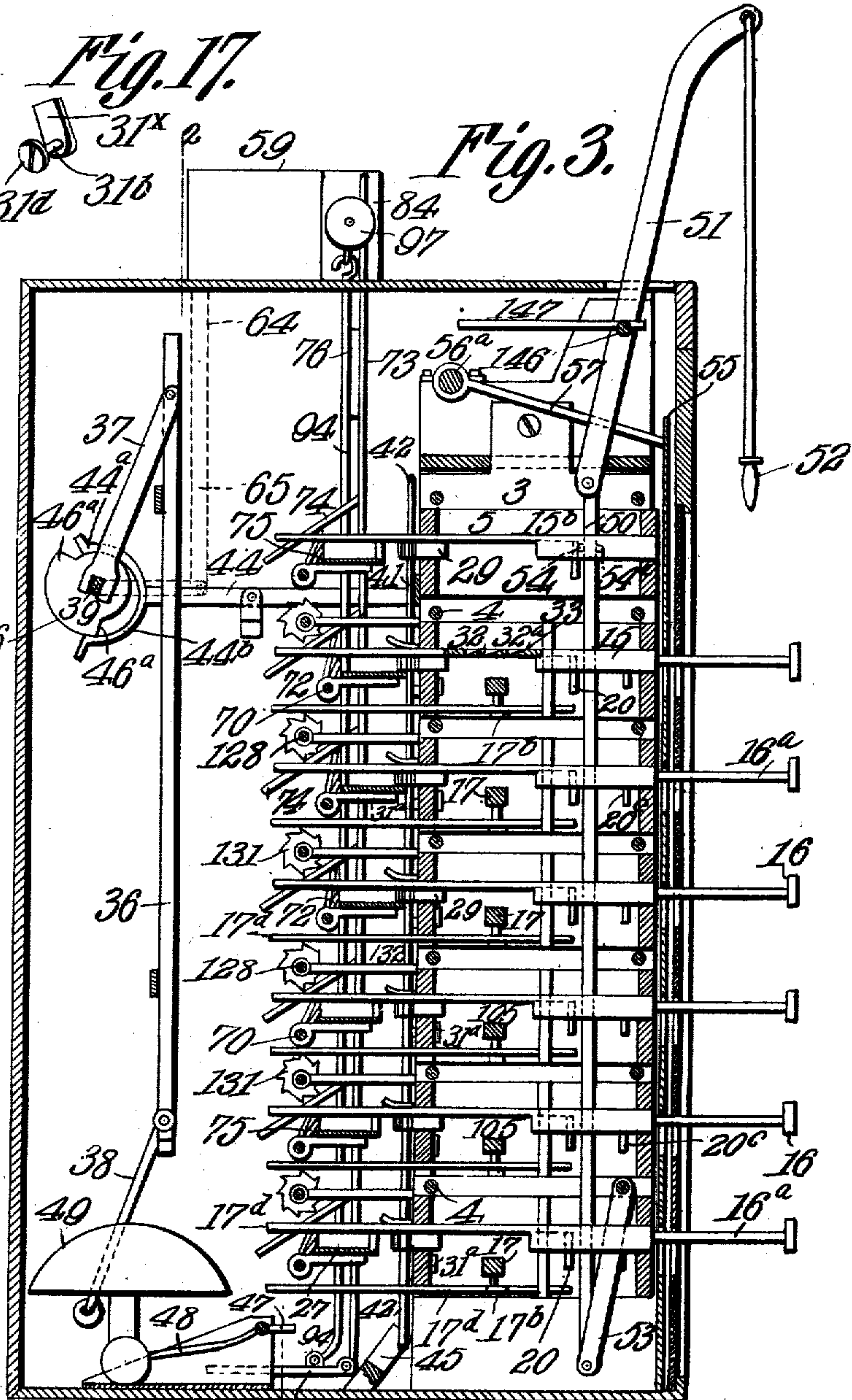
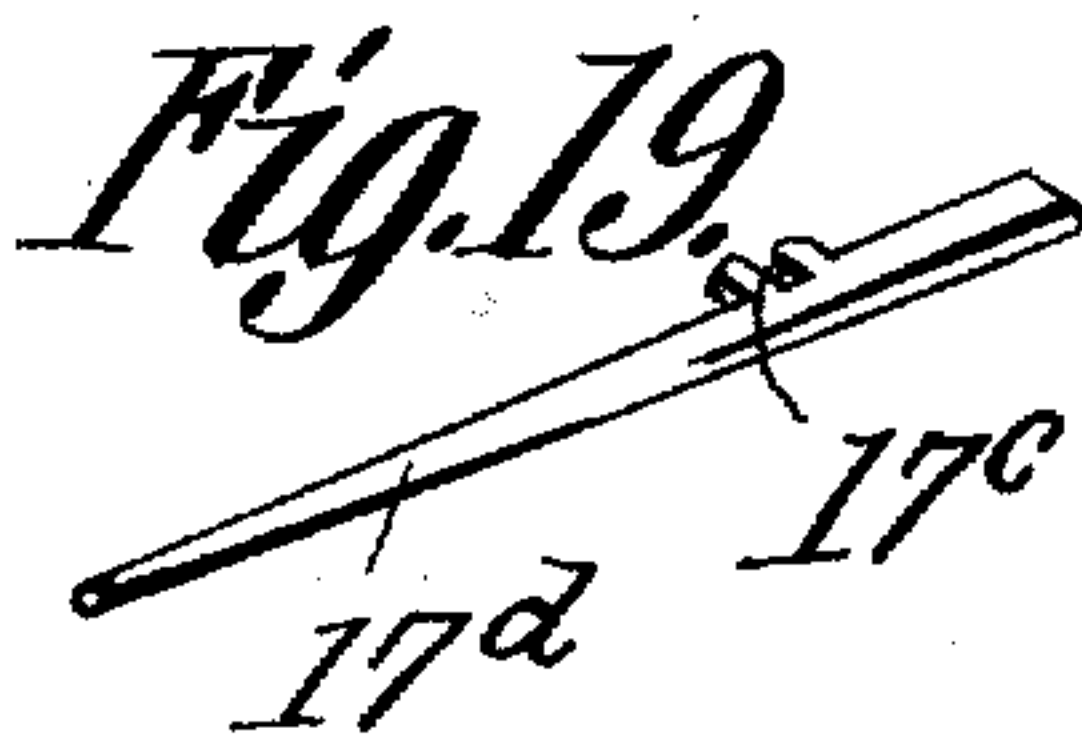
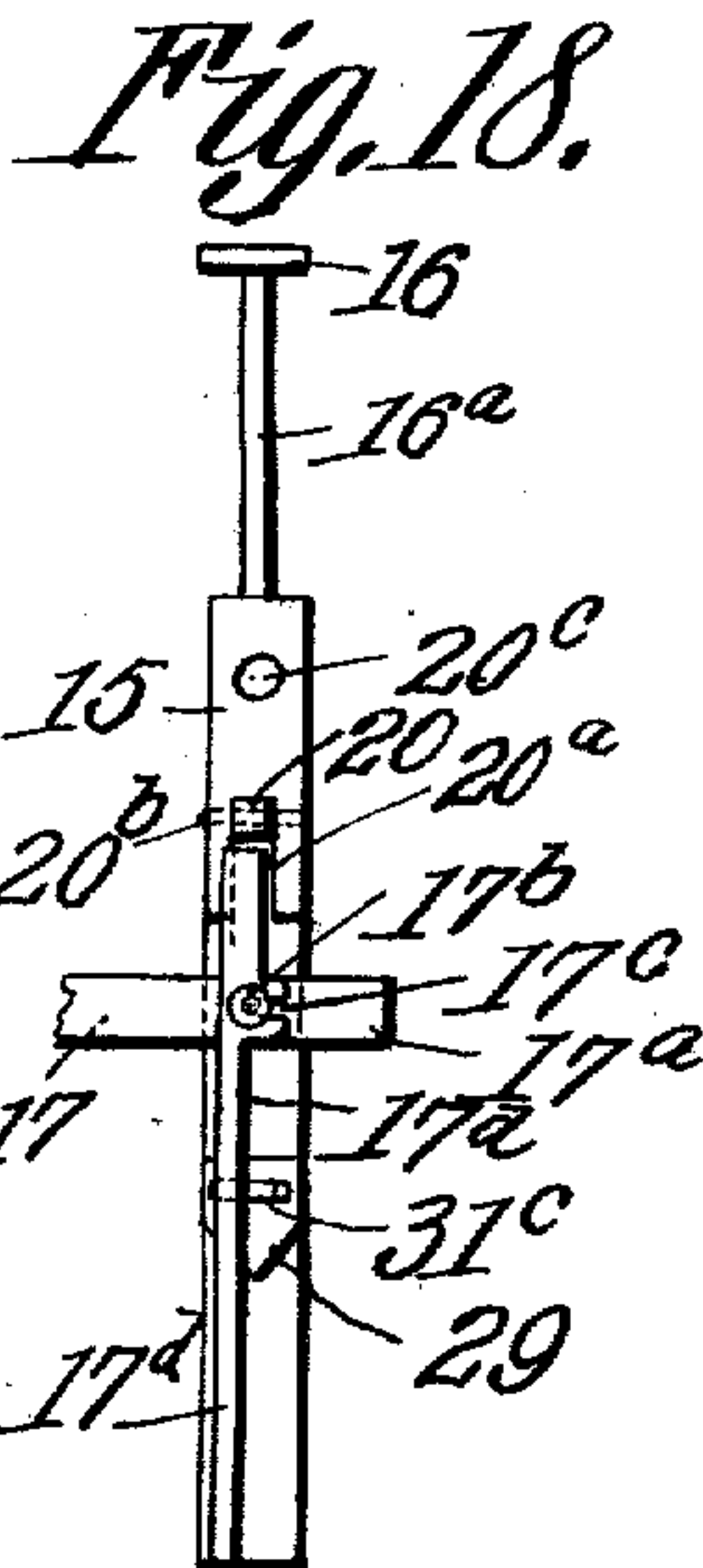
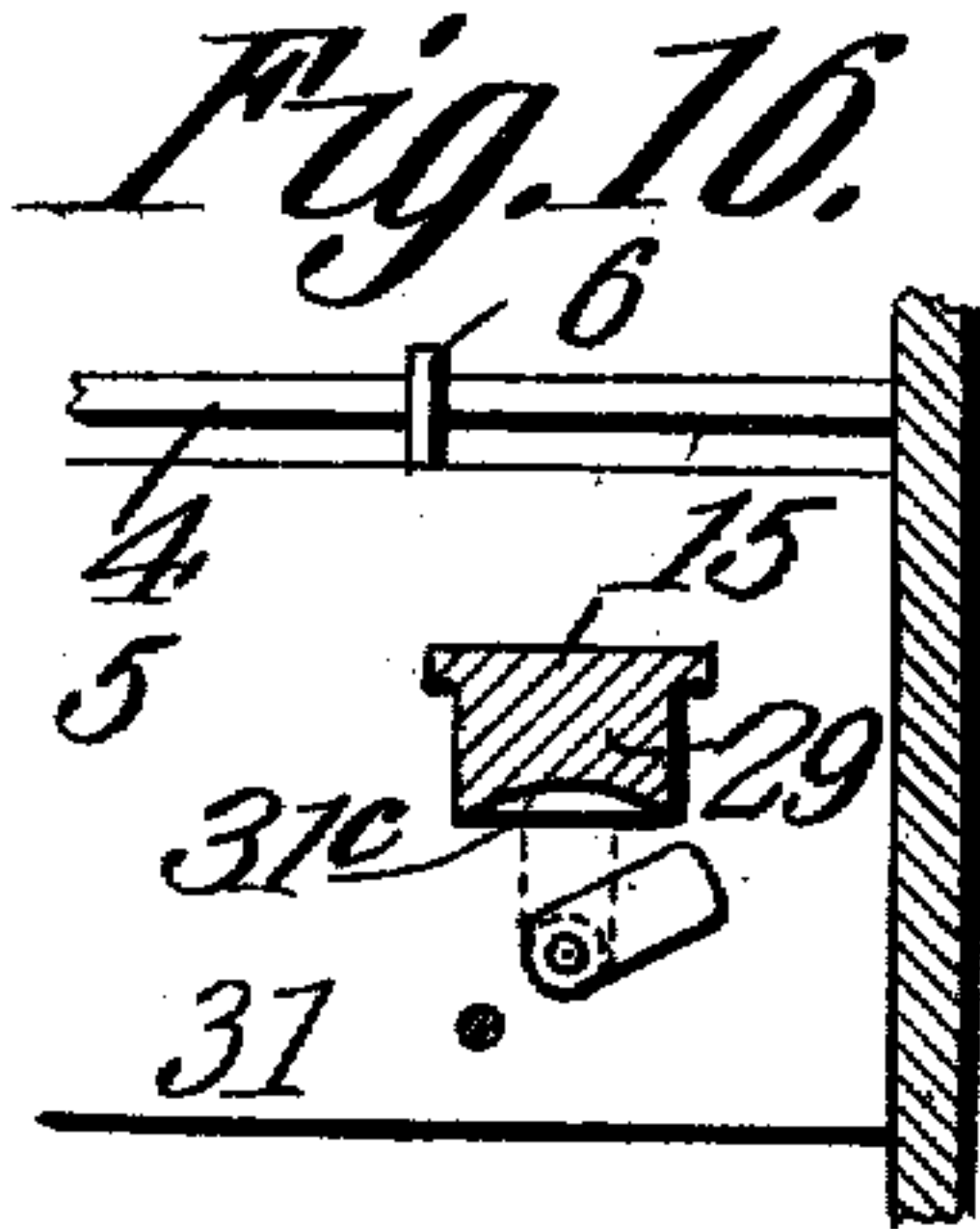
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8 SHEETS—SHEET 3.



Witnesses

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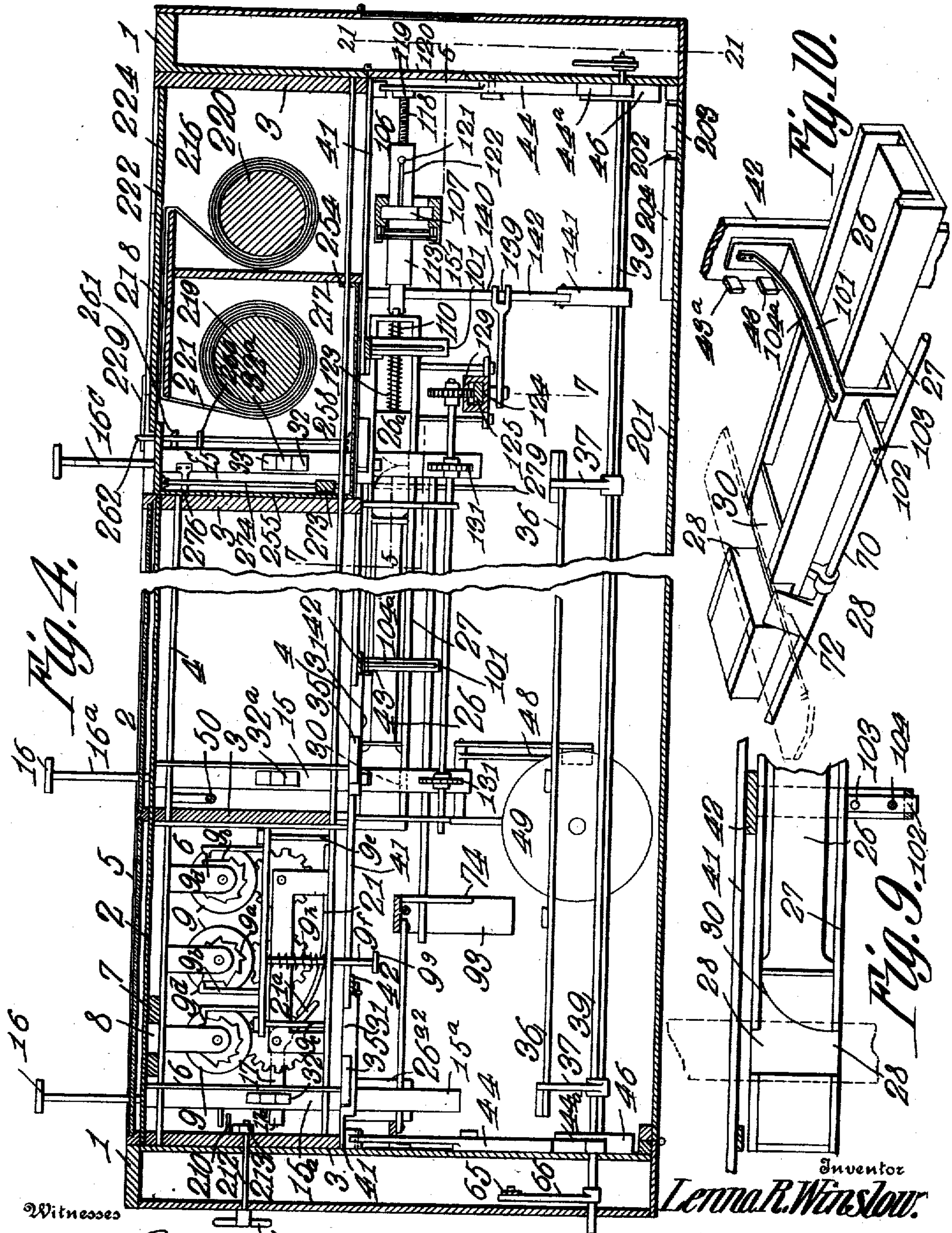
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8 SHEETS—SHEET 4.



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8 SHEETS--SHEET 6.

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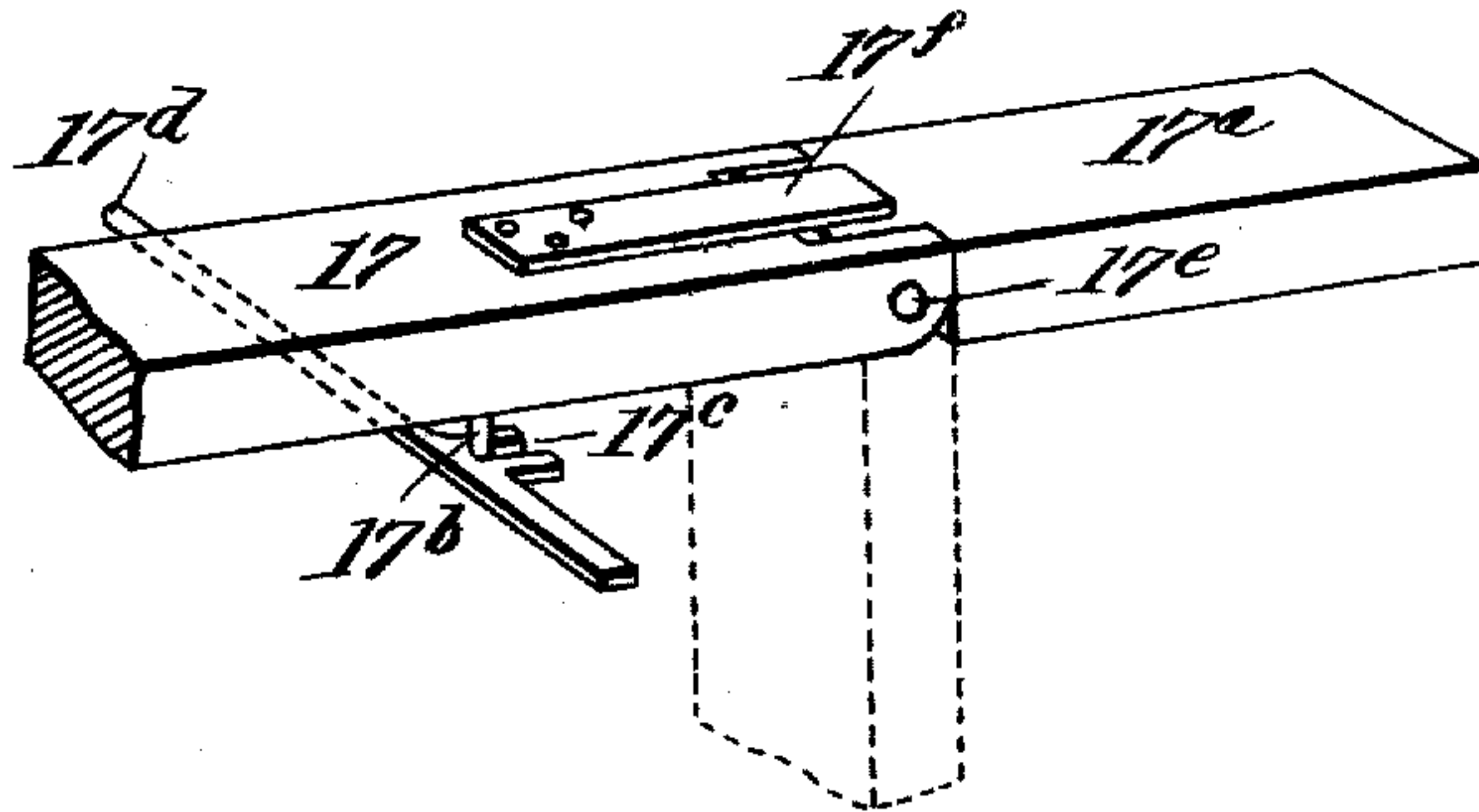


Fig. 20.

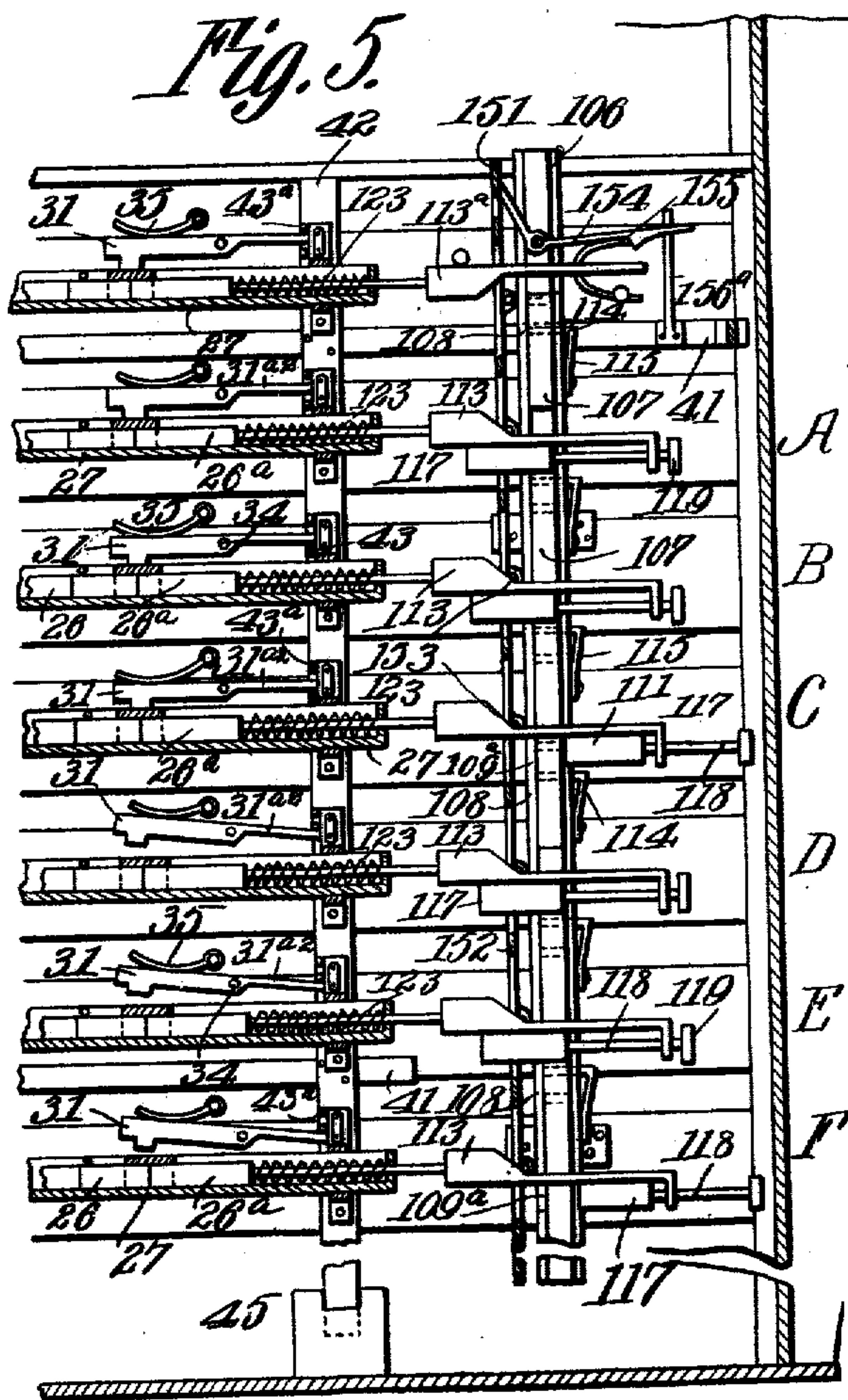


Fig. 5.

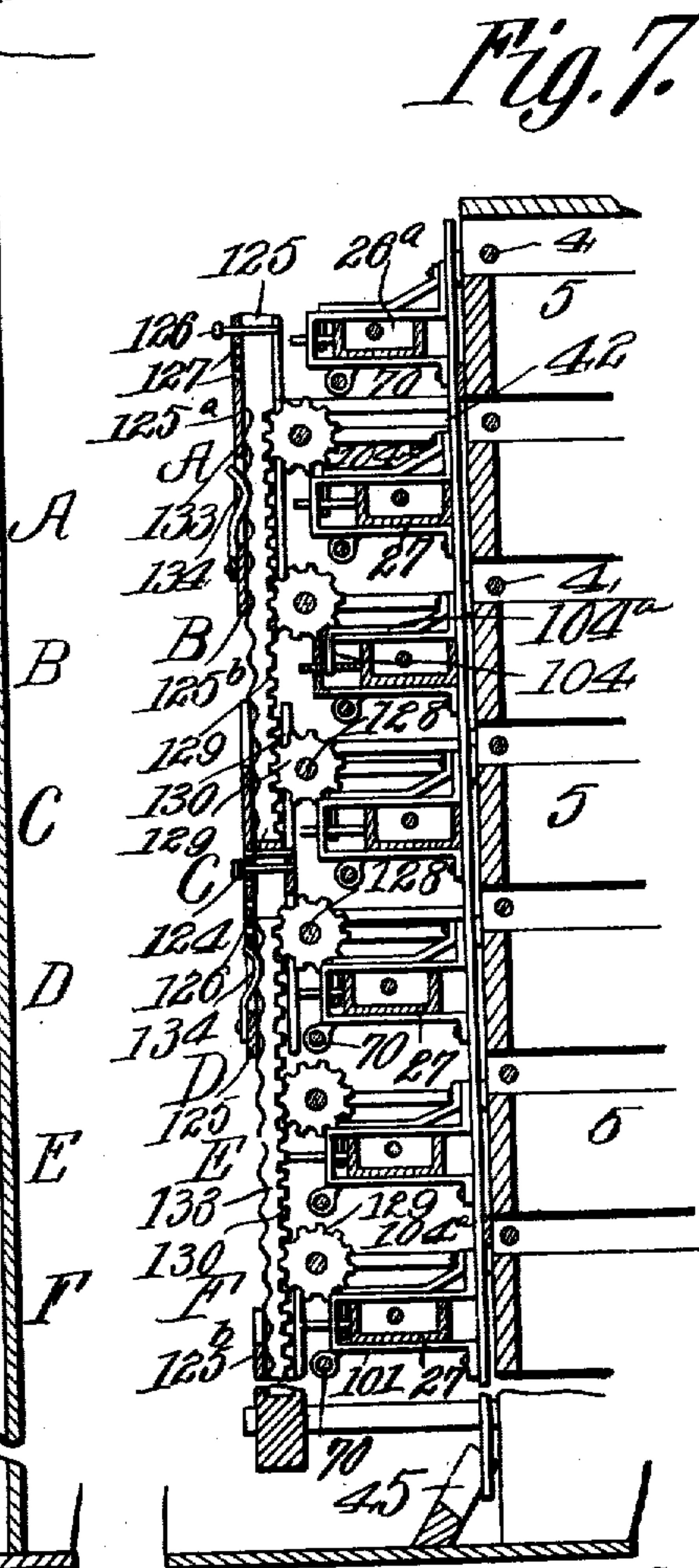


Fig. 7.

Witnesses

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8 SHEETS—SHEET 8.



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Patented Apr. 27, 1909.
8 SHEETS—SHEET 7.

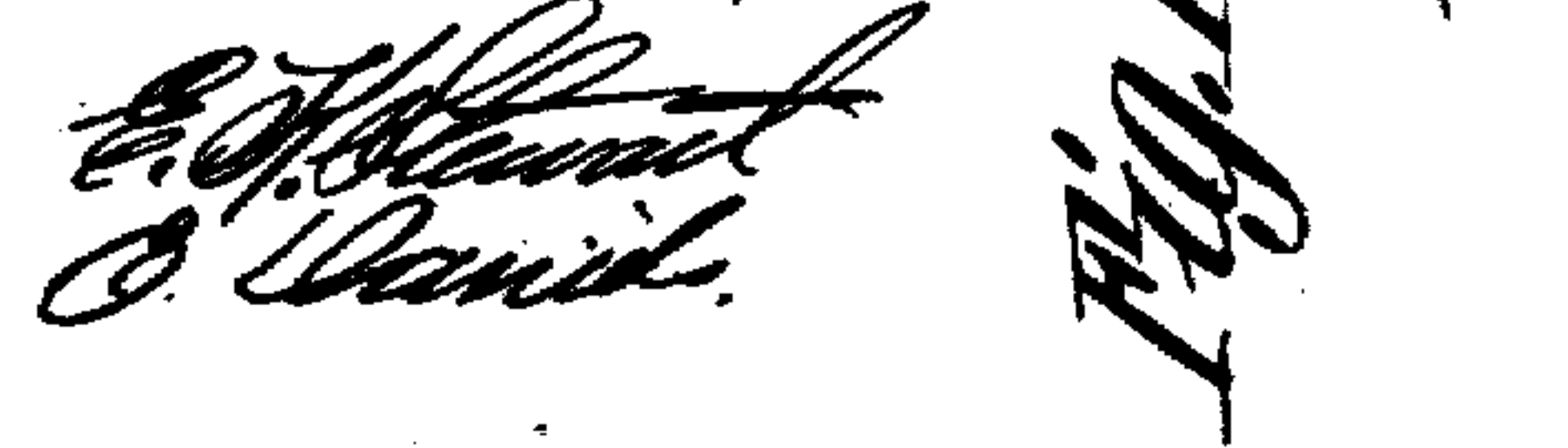
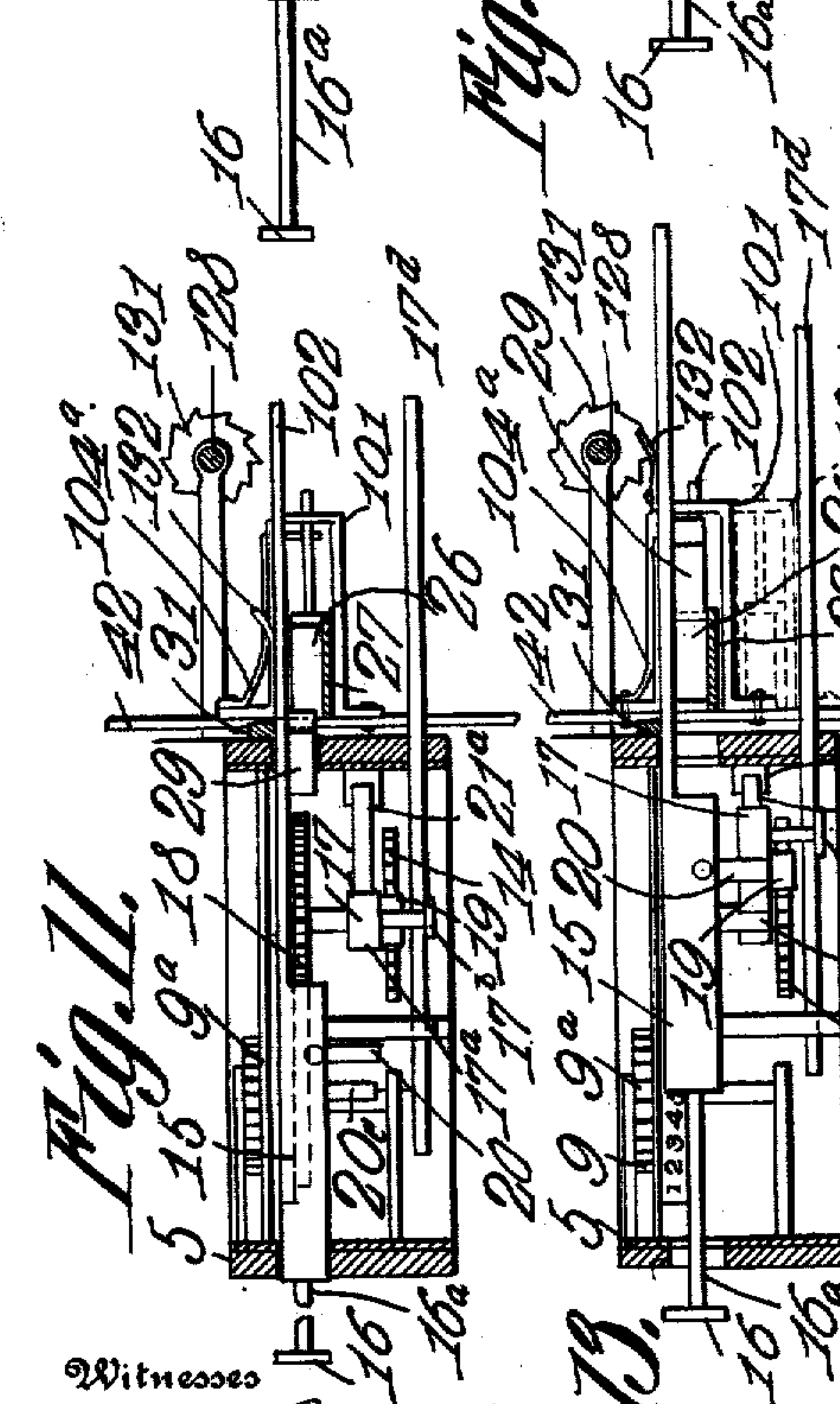
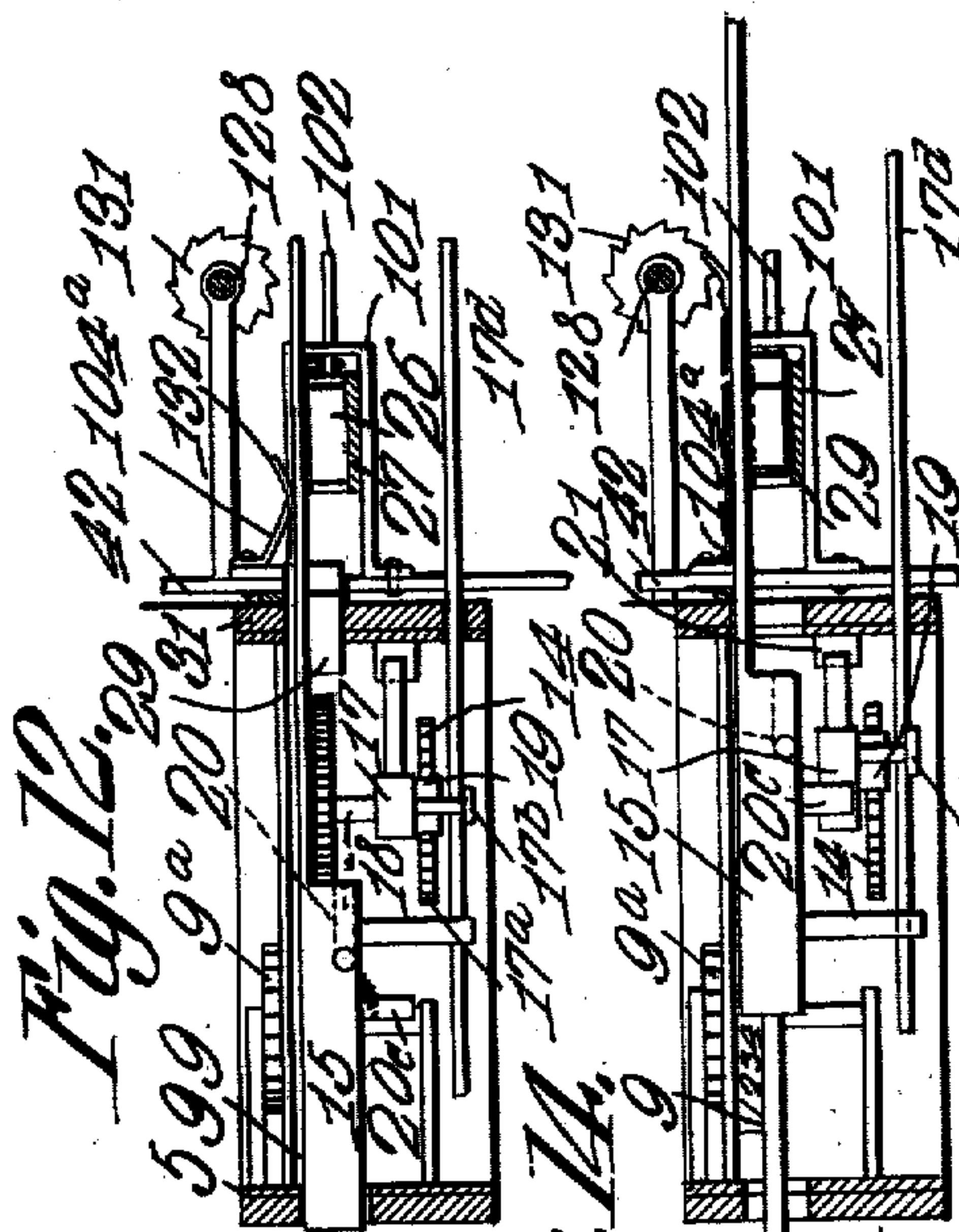
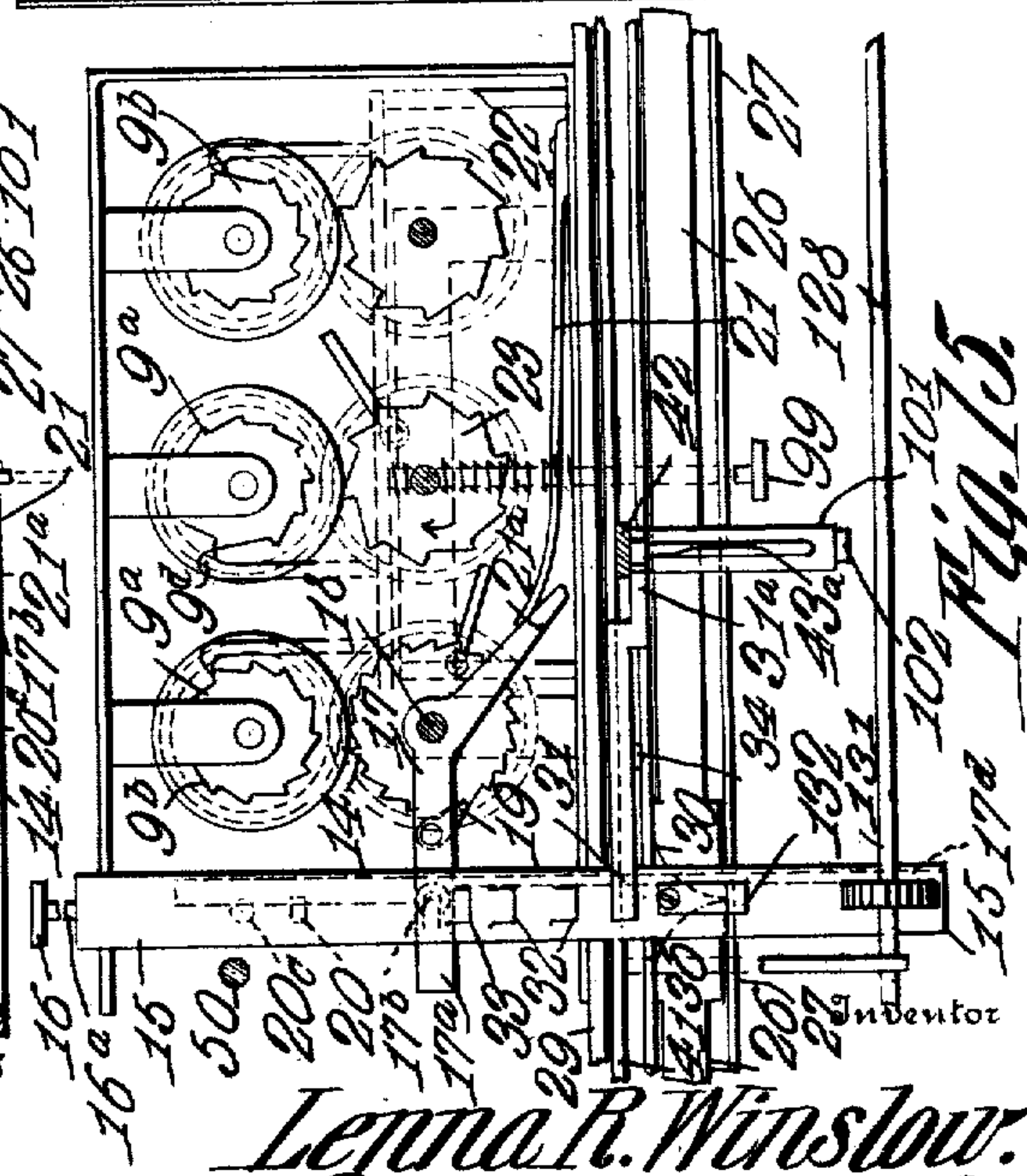


Fig. 8.

| | | | | | | | | |
|-------------|-----------------|----|----------------|----|-----------------|----|--------|----|
| INDEPENDENT | GOV. | 16 | MAYOR | 16 | SENATE | 16 | YES-NO | 16 |
| GOV. | GOV. John Doe | 16 | MAYOR John Doe | 16 | SENATE John Doe | 16 | | |
| | GOV. John Smith | 16 | MAYOR John Doe | 16 | SENATE John Doe | 16 | | |
| | GOV. John Doe | 16 | MAYOR John Doe | 16 | SENATE John Doe | 16 | | |
| | GOV. John Doe | 16 | MAYOR John Doe | 16 | SENATE John Doe | 16 | | |
| | GOV. John Doe | 16 | MAYOR John Doe | 16 | SENATE John Doe | 16 | | |
| | GOV. John Doe | 16 | MAYOR John Doe | 16 | SENATE John Doe | 16 | | |
| | GOV. John Doe | 16 | MAYOR John Doe | 16 | SENATE John Doe | 16 | | |
| | GOV. John Doe | 16 | MAYOR John Doe | 16 | SENATE John Doe | 16 | | |
| | GOV. John Doe | 16 | MAYOR John Doe | 16 | SENATE John Doe | 16 | | |



Witnesses
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Fig. 13.

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APPLICATION FILED JULY 15, 1908.

8 SHEETS—SHEET 8.

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UNITED STATES PATENT OFFICE.

LENNA RYLAND WINSLOW, OF CHICAGO, ILLINOIS.

GENERAL-VOTING MACHINE.

No. 920,101.

Specification of Letters Patent.

Patented April 27, 1909.

Original application filed September 22, 1898, Serial No. 691,621. Divided and this application filed July 15, 1908.
Serial No. 448,688.

To all whom it may concern:

Be it known that I, LENNA R. WINSLOW, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful General-Voting Machine, (Case C1,) of which the following is a specification.

My invention relates to voting machines, and particularly to tally or counter mechanism and related features of general voting mechanism disclosed in my co-pending application filed September 22, 1898, Serial No. 691,621, of which this is a division, the particular object of the invention being the improvement of vote-counting mechanism and the means for preventing fraudulent manipulation of the counter-actuating means in the operation of the machine.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims, it being understood that various changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

In the drawings—Figure 1 is a perspective view of a voting machine and booth constructed in accordance with the invention. Fig. 2 is a rear view of the voting mechanism showing the casing sectioned on the line 2—2 of Fig. 3. Fig. 3 is a vertical sectional view of the voting machine, proper, on line 3—3 of Fig. 2. Fig. 4 is a horizontal sectional view of the same, on line 4—4 of Fig. 2. Fig. 5 is a longitudinal vertical section viewed from the rear of one end of the voting machine. Fig. 6 is a perspective view also from the rear of the same. Fig. 7 is a vertical transverse section in the plane of the class interlocking bars on the plane indicated by the line 7—7 of Fig. 4. Fig. 8 is a front view in the nature of a diagram, of the voting machine casing. Fig. 9 is a plan view of a portion of a guide for interlocking blocks to show the relation between the blocks and the cams carried by the voting keys or elements. Fig. 10 is a perspective view of the same. Figs. 11, 12, 13 and 14 are vertical longitudinal sectional views of one of the counter or tally mechanisms showing different positions of the parts. Fig. 15 is a plan view of one of the counter

or tally mechanisms. Fig. 16 is a detail view of a portion of a counter box showing an independent slide or key-locking latch or button. Fig. 17 is a detail view in perspective of the slide locking latch or button detached. Fig. 18 is an inverted plan view of one of the voting keys or elements showing the returning or replacing rod and the adjacent portion of the counter-actuating pawl in their proper positions with relation to the voting key. Fig. 19 is a detail view of a portion of the replacing rod detached. Fig. 20 is a detail view of a portion of the counter-actuating pawl. Fig. 21 is a detail view of the connection between the straight ticket voting devices and the rock shaft of the resetting mechanism, the casing being sectioned on the line 21—21 of Fig. 4. Fig. 22 is a detail vertical section of one of the counter or tally mechanisms and the connections between the same and a voting key. Fig. 23 is a plan view of the unit-disk operating pawl applied in operative position to the counter or tally mechanism. Fig. 24 is a detail view of the amendment or proposition voting key locking devices. Fig. 25 is a detail view in perspective of the same. Fig. 26 is a detail view in perspective of a voting key inverted. Fig. 27 is a similar view of one of the spacers. Fig. 28 is a side view of one of the straight ticket slides. Fig. 29 is a detail view of a door locking device and counter or tally mechanism. Fig. 30 is a detail side view of a portion of the limiting devices.

Similar reference characters indicate corresponding parts in all of the figures of the drawings.

The casing 1 of the voting mechanism is provided in its front wall with a plurality of transparent panels 2, one for each party for which votes are to be cast, and in rear of this front wall is arranged a plurality of vertical partitions 3 connected by horizontal supporting rods 4. These rods support tally mechanisms or counters for registering the number of votes cast, respectively, for the several candidates for office. Therefore, it will be sufficient to explain that the box or shell 5 thereof is provided with perforated ears 6 to fit upon the horizontal supporting rods 4 between the contiguous partitions 3, and that this box or shell is provided in its front wall 7, for exposure through the transparent panels 2, with inspection openings 8,

through each of which may be seen a numeral or character of an index or dial 9. Any desired number of these dials may be employed to register a number of units, tens, hundreds, etc., the units dial being operatively connected with an operating or units ratchet 14, which, however, is provided with half-step teeth, or twenty teeth to the circumference, for a purpose explained hereinafter, and the dials of higher denomination being operatively connected successively with the units dial to provide for the proper communication of motion thereto.

The spindle of each of the dials 9 carries a mutilated or resetting ratchet 9^a having a toothless or plain portion 9^b, and in connection with said resetting ratchets is arranged a reciprocatory resetting frame 9^c carrying a plurality of toothed arms 9^d arranged respectively in operative relation with the ratchets 9^a, and of sufficiently yielding quality to adapt their toothed front ends to slip idly over the teeth of the ratchets 9^a when the frame 9^c is moved toward the front of the machine. This resetting frame is mounted upon parallel guide rods 9^e extending forwardly from the rear wall of the frame or casing of the tally mechanism, and is further provided with an operating stem 9^f terminating at its rear end in a head or button 9^g. Also, coiled upon the stem 9^f within the casing of the tally mechanism and adapted to normally and yieldingly hold the frame 9^c in its advanced or forward position, is a spring 9^h. This combination of devices constitutes a resetting mechanism, whereby, previous to an election the several indicating dials 9 may be disposed with their zero characters opposite the inspection slots or openings of the front wall of the casing. To accomplish this adjustment of the dials the operating stem 9^f of the resetting devices is drawn successively to the rear. At each rearward movement of the resetting frame, the pawls 9^d engage teeth, respectively, of the ratchets 9^a, and turn them through one step, or an interval equal to the distance between two contiguous teeth of said ratchet. When each resetting ratchet has reached a position with the toothless or plain portion thereof contiguous to the resetting arm or pawl 9^d, further operation of the resetting frame will not affect it, and when the ratchets are thus disposed, the dials 9 will expose the numerals 9 through the inspection openings. Therefore, after all of the tally mechanisms of the machine have been adjusted to expose the character 9 of each disk, a movement of the voting key will turn the units ratchet of each tally mechanism through one step, and will set all of the dials of that tally mechanism at zero. In practice this final movement of the members of the tally mechanism to set the dials at zero is accomplished

by means of a straight ticket voting device hereinafter fully described.

The units ratchet is adapted to receive a step-by-step rotary movement from a slide 15, mounted for forward and rearward movement in the box or shell of the tally mechanism, and extending through a suitable opening in the front wall of the casing to form a projection or button 16 having a reduced neck 16^a, said button and slide combining to form a voting key.

The means whereby motion is communicated from the slides of the voting keys to the units ratchet 14 consist, in the construction illustrated, of a pivotal pawl 17 fulcrumed upon the arbor 18 of the units ratchet and carrying a spring-pressed tooth 19 for engagement with the teeth of said ratchet. This pawl is arranged in the path of a pin 20 on the slide 15 whereby at the repression of each key the pawl is swung in the direction indicated by the arrow in Fig. 15, to turn the units ratchet through a distance equal to one full step, or the interval between alternate teeth thereof. The return of the pawl to its normal position, and hence engagement of the tooth 19 with a succeeding tooth of the ratchet, may be accomplished by means of a spring 21 which is detachably secured, as by fastening screws 22, to the wall or shell of the tally mechanism, and bears terminally against a tail or extension 21^a of the pawl 17. As above indicated, this return spring 21 may be used to yieldingly hold the pawl 17 in its normal position, and return it to such position after displacement by means of the voting slide, but, preferably, said spring is used only in connection with cumulative voting, as hereinafter more fully explained. I prefer for general voting, and other class voting therein the votes for each candidate need not be split, or where the operating ratchet of the units dial should be moved at each operation through a full step, to employ positive means for returning the pawl 17 to its normal position. Therefore, in the construction illustrated, I provide said pawl with a depending pin 17^b which is engaged with a slot 17^c of a replacing rod 17^a, the latter being disposed parallel with and below the plane of the voting slide, and being arranged at its rear end approximately in the vertical plane of the rear end of said voting slide, for engagement by a replacing frame hereinafter described. In operation this replacing rod is repressed rearwardly simultaneously with the voting slide, whereby the operating pawl 17 is returned to its normal position simultaneously with the slide, but, after the operation of the slide, remains in the advanced position until the slide is returned.

As above described, the voting slide is provided with a pin or projection 20 for en-

gagement with the pawl 17 to communicate motion to the ratchet which is in connection with the units dial, and which, for convenience in description, I will term the "units ratchet". This pin 20 is so disposed with relation to the length of the slide, and its path of movement, and also with relation to the position of the pawl 17, that the movement of the slide from its advanced or normal position to the limit of its rearward movement will advance the units ratchet through a full step, equal to the interval between alternate teeth of said ratchet. It is desirable, however, in certain classes of voting, particularly cumulative voting, to limit the movement which is imparted to the units ratchet to a half step, or the interval between two contiguous teeth of the ratchet. Therefore, I construct the pin 20 to fold into a recess or cavity 20^a formed in the underside of the slide, said pin being pivoted, as at 20^b, and also to provide an auxiliary pawl operating pin 20^c, arranged upon the slide in front of the pin 20. This auxiliary pin 20^c is so disposed with relation to the path of movement of the slide and the position of the pawl 17, that when the slide is moved rearwardly to the limit of its throw, the auxiliary pin will strike the pawl 17 and advance it through the distance only of a half step. The advantages of this construction and relative arrangement of parts will become apparent as my invention is further disclosed.

Each vertical series of tally mechanisms is designed for use in casting votes for the candidates of a particular party, or for a series of amendments or propositions, all of the tally mechanisms for the candidates for the same office in the several parties being arranged in a common horizontal series, or all of the tally mechanisms for the candidates, in the several parties, for the same office being arranged in common horizontal or single candidate series; and in order to prevent the slides belonging to the tally mechanisms in either of these single candidate series from being operated in plural, or to prevent more than one vote being cast for any particular office, I employ interlocking mechanism, whereby when one slide in a single candidate series is repressed to operate its respective tally mechanism, the remaining slides belonging to the tally mechanisms in the same series are locked against repression. This locking mechanism, which may be termed the main interlocking mechanism, includes locking members or blocks mounted in a guide 27 provided in its front and rear sides with openings 28 which register with the slides. Each slide is provided with a cam block 29 having a front wedge-shaped cam face adapted to cooperate with corresponding cam surfaces 30 on the contiguous ends of the blocks 26, and the lengths

of the blocks are so regulated that when a slide is repressed thereby separating the contiguous extremities of the adjacent blocks sufficiently to allow the cam 29 to pass therebetween, the remote ends of said adjacent blocks are disposed in the paths of the cams on the remaining slides of the same single candidate series. This relative arrangement of parts continues as long as the cam of the repressed slide remains between the contiguous ends of the separated blocks, and in order to prevent the withdrawal of an operated slide, and the subsequent operation of other slides, or a subsequent operation of the same slide, I have devised locking mechanism consisting of retaining pawls 31, one of which is arranged in operative relation with each slide, and ratchet teeth or shoulders 32, 32^a and 33 on the slide. The pawl is normally in rear of the rearmost tooth 32 of each slide, and as said teeth are beveled, the slide may be pushed rearwardly, by pressure applied to its front end, to cause said pawl to engage with the teeth successively, but subsequent withdrawal of the slide is prevented by this engagement until the pawl shall have been disengaged. This pawl is pivoted at an intermediate point, as shown at 34, thus providing an extension or tail 31^a, and the pawl is normally and yieldingly held in operative position with relation to the teeth of the slide by means of a spring 35. As a voting slide is pushed rearwardly, the first operation thereof is to separate the contiguous ends of the adjacent interlocking blocks whereupon the rearmost notch 32 is engaged by the locking pawl 31, thus cutting out all of the remaining slides in the same single candidate series, and at the same time preventing the withdrawal of the operated slide and the subsequent operation of another. A further repression of the said slide causes the advance of the units ratchet through one-half step, or the interval between contiguous teeth, to indicate a one-half vote, whereupon the second or intermediate notch 32^a of the slide is engaged by the locking pawl 31. A further repression of the slide, necessary to register a full vote, by moving the units ratchet through a full step, or the interval between alternate teeth of the ratchet wheel, will be followed by the engagement of the pawl 31 with the foremost tooth 33 of the slide.

When it is desired to lockout the slide for any reason, as when a candidate has not been nominated for a given office by a certain party, I employ an independent locking device consisting, in the construction illustrated, of a pivotal latch 31^x (see Figs. 16 and 17) pivoted to the rear wall of the tally mechanism box or shell by means of a spindle 31^b, and adapted to terminally engage a seat 31^c in the underside of the cam 29 of

the slide. Said latch is preferably pivoted in contact with the front or inner surface of the rear wall of the box or shell, and the spindle thereof projects through the wall to the rear side where it is fitted with a head having a transverse kerf or key-seat 31^a, with which a key may be engaged to turn the latch into or out of operation with the slide, as may be required by the conditions of the election.

After a voter has cast his votes for the several candidates, and before the following voter is allowed access to the machine, it is necessary to return the slides to their normal or extended positions, and in order to accomplish this I employ a replacer, consisting of a frame 36 having vertical bars which are adapted to bear against the projecting rear ends of the slides, and by movement toward the front of the machine, advance all of the slides simultaneously, this frame being supported by upper and lower swinging arms 37 and 38, of which the former are carried by a rock shaft 39 with which is connected operating means, hereinafter explained, for throwing the replacing frame. In order, however, to prepare the slides for this shifting or replacing movement, it is necessary to release them from the pawls 31, to attain which I provide a trip or releasing frame, comprising upper and lower horizontal bars 41 connecting a plurality of vertical or uprights bars 42, which carry pairs of spaced lugs 43 and 43^a between which the tails 31^a of the pawls 31 are adapted to be arranged. This trip frame is supported at its upper end by means of rocking levers 44, Fig. 3, while the lower extremities of the upright bars 42 are fitted in suitable fixed guides 45, see Figs. 3 and 4. The rear ends of the rocking levers are bifurcated to form upper and lower arms 44^a and 44^b between which are arranged cams 46 on the rock-shaft 39, whereby, as the rock-shaft is turned to actuate the replacing frame, the releasing frame is either elevated or depressed. Said cams are provided with upper cam faces 46^a and lower cam faces 46^b, and when the rock shaft is turned to depress the replacing frame, or swing it in the direction indicated by the arrow in Fig. 3 the upper cam surfaces 46^a engage the upper arm 44^a of the bifurcation, and, by elevating the rear ends of the rocking levers 44, depress the releasing frame to correspondingly depress the tails of the locking pawls 31 and remove their engaging extremities from contact with the ratchet teeth or shoulders of the slides; whereas when the rock shaft is turned in the opposite direction, to return the replacing frame to its normal position, the lower cam face 46^b comes in contact with the lower arm 44^b of the bifurcation, and depresses the rear end of the rocking lever to elevate the

releasing frame, and thereby return it to its normal position. The continued movement of the replacing frame, after the slides have been returned to their normal positions, brings the same into contact with an arm 47 on the knocker 48 of an alarm mechanism, which includes a gong 49, see Fig. 3.

The column of tally mechanisms at the right of the machine to the voter is designed for voting upon constitutional and other amendments, and upon propositions, etc., as indicated above, said mechanisms being arranged preferably in pairs, to provide for voting for and against an amendment, or for voting for contradictory or opposing amendments. Hence, it is necessary to provide locking devices for preventing the operation of more than one of a pair of tally mechanisms which relate to the same or opposing amendments, and as the tally mechanisms relating to the same proposition are arranged in a vertical plane, the slides 15^a thereof are preferably arranged in operative relation with a locking bolt 26^a and have upper and lower cam faces 29^a adapted to coact with shoulders 30^a on the bolt, to provide for locking one slide against repression when the companion slide has been operated.

In connection with the mechanism illustrated in the drawings, I have also shown straight ticket voting devices, consisting of an actuating rod 50, arranged contiguous to each vertical series of voting keys, and attached at its upper end to an operating lever 51 terminally provided with a loosely attached handle 52, and attached at its lower end to a link 53. Each operating pawl is provided with an extension 17^a, Fig. 20, projecting beyond the contiguous slide 15 in the path of the actuating rod 50, whereby, when said rod is actuated by the operation of the voting lever 51, all of the pawls 17, in the vertical series contiguous to said rod, are swung upon their fulcrums to advance the units ratchet one full step, but in order that one or more tally mechanisms of a vertical series may be disconnected from the straight ticket voting devices, for a purpose which will be understood as the invention is more fully disclosed, said extension is preferably of foldable or displaceable construction, or is foldably mounted upon the body portion of the pawl, as by a hinge 17^e to adapt it to be dropped out of, or removed from the path of, the actuating rod 50. The inner end of the foldable section or extension 17^a is flat-faced, with its sides arranged in perpendicular planes, and in operative relation with these faces is a holding spring 17^f, whereby the extension is held either in the normal extended position indicated in full lines in Fig. 20, or in the folded position, indicated in dotted lines in the same figure, said dotted line position indicating that in which the ex-

tension is arranged when out of the path of the operating rod of the straight ticket voting device.

The means for registering the number of straight tickets voted, consists of a slide 15^b, similar in construction to the slides 15 and 15^a, with the exception that it does not project beyond the face of the casing to form a key; and a tally mechanism or counter actuated by said slide and constructed as those which are used in connection with the slides hereinbefore described. This straight ticket slide is provided with a plurality of lateral pins 54, 54^a between which the actuating rod 50 is arranged, to provide for communicating rearward motion from the actuating rod to the slide 15^b. An opaque shield 55 is preferably arranged between the front faces of the tally boxes and the contiguous front wall or transparent panels of the casing, said shield being provided at intervals with openings 55^a spaced apart to suit the intervals between the tally boxes, and having their body portions normally arranged out of registration with the inspection openings thereof. These openings 55^a are of L-shape, with their long arms or body portions arranged horizontally, and of a length sufficient to expose all of the inspection openings in the front wall of a tally box, while the short upwardly extending arms of said openings in the shield extend a sufficient distance above the body portions or long arms thereof to permanently expose the inspection openings of the units dials of the several tally mechanisms. Thus, when the shield is in its depressed or normal position, all of the inspection openings, with the exception of those through which the units dials of the tally mechanisms are exposed, are concealed, while the units dials of the tally mechanisms are permanently visible to indicate to a voter, who has operated a key, that his vote has been tallied. When it is desired to expose all of the dials of the tally mechanisms, to show the whole number of votes cast for the different candidates, and thereby disclose the result of the election, this shield is shifted, to cause registration of the transverse or long arms of its openings with the openings in the tally boxes, by means of a shifting lever 56, exposed outside of the casing, and having its spindles 56^a provided with an arm 57 which is terminally attached to the shield.

In order to count the number of voters who have access to the voting machine, and who are supposed to have cast votes for candidates for the several offices, I employ a voter counting device including a suitable tally mechanism 59, not shown in detail in the drawings, which is placed in an exposed position at the top of the casing, where the number is permanently exposed, and actuated by the replacing devices, or those

means which are employed for returning the voting keys to their normal positions after each voter has left the booth. In the construction illustrated, connection is established between the tally mechanism 59 and the rock shaft 39 by means of a slide 64, which is connected by means of a link 65 with an arm 66 carried by the rock shaft. It will be seen that each operation of the replacing frame, necessary to rearrange the slides after each voter has left the machine, will be accompanied by the operation of the slide 64, and hence by corresponding adjustment of the tally mechanism 59, whether a voter, after gaining access to the machine, has cast a vote, or not. Furthermore, I have found in practice that it is necessary to employ means, which are independent of the replacing mechanism, for registering the number of actual voters, or, in other words, to provide means for registering the total number of first votes cast by parties having access to the machine, so that the officers of the election can tell from the outside whether a vote has been cast, or not. To accomplish this, I employ the voter counting and indicating devices described and shown in general features in my former patents #611,403, dated September 27, 1898 and #621,511, dated March 21, 1899, the latter remaining exposed throughout the time that the occupant of the booth is casting votes subsequent to the first one cast by him. It is unnecessary to describe and show in detail these devices, but in order that the operation of these parts in connection with the others forming the subject-matter of the present invention may be understood, it will be sufficient to explain that, contiguous to each horizontal series of movable parts or slides 15 is arranged a rock shaft 70 mounted in suitable bearings depending from the undersides of the guides 27, and each provided with a plurality of ears 72 which are arranged respectively in the paths of the slides 15, or the cam blocks 29 thereof, whereby the repression of a slide in either horizontal series, including that in which the straight ticket voting slides are arranged, will operate one of the rock shafts. Vertically disposed, contiguous to the vertical plane of the rock shafts, is a plunger 73 having projections 74 arranged in the paths of the crank arms 75 on the several shafts, whereby the movement of either rock shaft will cause its crank arm to apply upward pressure to the corresponding projection 74, and thus raise the plunger. Operatively connected with this plunger is a display plate 76 adapted to normally occupy a position within the casing, and adapted to be extended through a slot 77 in the top thereof. This display plate is carried by a lever 78 fulcrumed upon a stationary bracket 79 projecting from a fixed

bar 80, and having a sliding connection at an intermediate point with the plunger. Each elevation of the plunger causes the extension of the display plate, which, constituting a vote indicator, is displayed exteriorly of the casing, to the public, said indicator, however, being non-distinctive, in that it does not disclose for whom or for what office a vote has been cast. Connection is established between the amendment voting devices, and said display plate by means of swinging arms 83 pivoted to said fixed bar 80 and resting upon the upper sides of the slides 15^a, said arms 83 being also connected with the plunger 73. The cam faces at the upper sides of the amendment voting slides come in contact with and raise the swinging arms when the slides are repressed.

In certain classes of voting hereinafter described, wherein the voting slide is withdrawn after casting a vote, and hence cannot be relied on to hold the rock shaft 70 in that position necessary to maintain the plunger 73 in its elevated position, it is necessary to provide auxiliary means for holding said plunger, and in the construction illustrated, said means consist of a spring holding tongue 73^a arranged in operative engagement with a series of notches or seats 73^b formed in the plunger, preferably near its lower end. As the plunger is elevated, the tongue 73^a slips from one notch or seat to the other, and as the plunger and attachments are light, I have found that a device constructed as described will efficiently hold them in their adjusted positions.

The vote counting devices above referred to, include a counter or tally mechanism 84, which may be of any suitable construction, and which is connected with the plunger 73 by means of an arm 87, whereby said tally mechanism is actuated to cause an advance step of its ratchet for each elevation of the plunger, but receives no motion from the succeeding operations of voting keys repressed by a voter after the repression of the first key. The plunger is returned to its normal position, in preparation for a second operation under the conditions above mentioned, by the actuation of the replacing devices. The means whereby the return of the plunger is positively accomplished include a foot 93 on the lower end of the plunger, arranged in the path of the replacing frame, said foot being hinged, and being adapted to be withdrawn from the path of the replacing frame, when the mechanism connected with the plunger is not required, by means of a hand-wheel 97 connected with the foot by a wire or rod 94.

In the general ticket voting where each political party has a single candidate for a given office, the mechanism thus far described is adequate for ordinary purposes,

but it is well known that in class voting, or in voting for a number of candidates for a similar office, as for presidential electors, constables, and the like, each voter has the privilege of selecting from all of the parties, that is, of casting a specified number of votes, corresponding with the number of representatives, such as electors, or constables, and choosing one or more candidates from each of two or more party tickets. It is therefore necessary to provide means for varying the adjustment of the parts of the mechanism and limiting the number of votes which may be cast between two successive operations of the replacing mechanism. In the same way, it is desirable to provide means for controlling the number of votes cast in minority representation voting, where the number of candidates put in the field by each political party is in excess of the number of candidates to be elected, as when three candidates have been nominated, and but two are to receive office; and in addition to this it is desirable, and necessary in some States, to provide for casting a cumulative vote, wherein the voter is entitled to cast a certain number of votes, corresponding with the number of candidates in a given group, but is also entitled to cast the whole number of votes for a single candidate, or to split his vote, as he may elect, as, for instance, where three candidates have been nominated by each political party, and three are to be elected, thus allowing the voter to cast three votes, each voter is entitled to cast one vote for each of three candidates, or three votes for a single candidate, or one and a half votes for each of two candidates, or two votes for one candidate and one for another.

The means whereby votes may be cast and controlled under these several conditions from essential features of my invention as covered and claimed in the application filed and numbered as hereinabove recited, but to a full understanding of the operation of the general voting mechanism it is essential that a general description thereof should be included herein as follows:

The main interlocking block guides are carried by the releasing frame, comprising the uprights 42 and connecting bars 41, said guides being fitted to slide forwardly and rearwardly in ways 101 projecting rearwardly from the uprights 42, and, therefore, being capable of two positions, which will be referred to hereinafter as "front" and "rear". In order that the guides may be fixed in either of their adjusted positions I provide them with rearwardly extending tongues 102, each provided with front and rear perforations 103, for engagement by a spring actuated pin 104 of which the spring arm 104^a is attached to the releasing frame above the guide. Obviously, the engagement of said locking pin with the rear per-

foration of one of the tongues 102 will secure the guide in its "front" or forward position, while the engagement of said pin with the front perforation will secure the guide in its "rear" position. For general ticket voting, the guides are arranged in their rear positions, and under these circumstances, the repression of a voting key will cause the cam 29 to pass between the contiguous ends of the blocks 26 and separate them, said cam, however, remaining between the separated extremities of the block and thus locking all of the remaining slides in the same horizontal or single candidate series. Between said cam 29 and the contiguous body portion of the slide, however, is formed a space or recess 105, of a width approximately equal to the guide, and adapted to receive the contiguous ends of the locking blocks, and when the guides 27 are in their front positions, the repression of a voting key to the limit of its rearward movement, which is indicated by the engagement of the locking pawl 31 with the front notch 33, causes the alinement of the recess 105 with the locking blocks, and hence allows the endwise movement of the latter, and, therefore, the subsequent operation of another voting key in the same horizontal series. Obviously, however, the separation or spreading of the above-described locking blocks of the main interlocking mechanism by the cam of a repressed voting key will prevent the simultaneous operation of two keys in the same horizontal series, but it is also desirable to prevent the simultaneous operation of two voting keys in different horizontal series and in the same or different vertical series of a group and the means which I have devised for accomplishing this object consists of a secondary interlocking mechanism and includes a vertical guide 106 in which is arranged a series of secondary locking members, or blocks 107 for vertical sliding movement, said guide being provided at its opposite sides with aligned vertical slots 108 connected in series by reduced throats 109, at opposite sides of which are disposed stops or ears 109^a. Connected to the terminal main interlocking block 26^a, by means of a stem 110, is a spacer 111, which is pivoted to said stem for vertical swinging movement, and projects through one of the openings or slots 108 of the vertical guide 106 to normally rest upon the upper edges of the ears 109^a at the lower end of said slot. The spacer which rests for sliding movement upon the ears is thereby limited in downward swinging movement, and the superjacent locking block 107 rests upon and is supported by the spacer. Each spacer is provided with a cam-faced enlargement 113, normally arranged outside of the guide 106, but adapted, when the locking bolts are moved by the repression

of a voting key, to pass into said guide and thereby elevate the superjacent block 107. In connection with the locking block I arrange fastening devices for securing it in either a depressed or an elevated position, and, in the construction illustrated, said means include locking pins 114 carried by spring shanks 115 and adapted to engage either of a pair of upper and lower sockets 116 in the contiguous block. When the locking pin is engaged with the upper socket of a secondary interlocking block, thus preventing the upward movement of the latter, the series of locking main interlocking blocks in the corresponding single candidate series are locked against endwise movement, and hence the counters, which are arranged in operative relation with said single candidate series of main blocks, are cut out, or locked against operation. When it is undesirable to secure a secondary block in either its elevated or depressed position, the locking pin 114 may be turned to one side, as shown in Fig. 5, by reason of the pivotal connection of its spring shank with the guide, to occupy a position at the edge of the guide, and hence out of the path of the block.

Mounted for sliding adjustment upon each spacer is a filling block 117, actuated by a feed screw 118, of which the terminal head 119 projects into an end compartment of the casing, where it is accessible by opening a door 120 formed in the end wall of the casing. This filling block may be guided in any suitable manner upon the spacer, as by means of a pin 121, operated in a longitudinal slot 122, and by the operation of the feed-screw, which is terminally swiveled in the filling block, the latter may be adjusted to occupy a position above the upper end of the next lower secondary block of the series. Hence, in order to prevent the operation of two or more voting keys in the same or different vertical series, the uppermost secondary locking block is elevated and secured in that position by the engagement of the pin 114 with the lower socket 116, and the filling blocks, each of which is equal in thickness to the interval between the upper end of a locking block and the under surface of the superjacent spacer, are adjusted to arrange them within the guide. Each locking block when the fillers are displaced, or outside of the guide is capable of movement, independently of the superjacent spacer, equal to the thickness of a cam 113, but when the filling blocks are adjusted in the paths of the locking blocks, as above indicated, the only unfilled interval within the guide is that between the uppermost spacer and the lower end of the uppermost locking block. Hence, if endwise movement is imparted to the main interlocking blocks of the uppermost series, the cam 113 of that series will pass under the lower end of the upper-

most secondary interlocking block, thus entirely filling the guide and locking out the cams of all the other single candidate series in that group. In the same way, if the main locking blocks of a lower series receive endwise movement by the actuation of a voting key, the cam on the spacer of that series will pass into the vertical guide 106, and will elevate all of the secondary locking blocks above the plane of said operated spacer, with the exception of the uppermost locking block, which, as above described, is secured in position to limit the throw of the lower locking blocks. Obviously, this movement of the secondary locking blocks will cause an upward swinging movement of all the spacers above that which receives the endwise movement.

In connection with class voting, which will be explained more in detail hereinafter, it is necessary not only that voting keys in the same, but also in different single candidate series, shall be capable of successive operation, and in order that after the movement of a voting key, the spacer should receive a reverse endwise movement to withdraw the cam 113 thereof from the block guide 106, I employ yielding means, such as springs 123, for maintaining the terminal main locking blocks 26^a, and the spacer in their normal positions with the enlargements 113 outside of the guide. This spring is introduced between one end of the terminal locking block and the contiguous end wall of the guide 27. Assuming, for example, that it is desired to arrange the machine to vote for presidential electors, of which there are three to be designated, the locking block guides 27 in three horizontal series are adjusted to their front positions, whereby when a voting key is repressed its cam 29 will pass between and beyond the main locking blocks to release the latter for subsequent endwise movement by another voting key in the same horizontal series, thus enabling a voter to vote for electors of different political parties, and when the names of the selected electors are in the same horizontal plane or single candidate series. The operation of a key in any vertical or horizontal series, of the three horizontal series which are thus arranged in combination or grouped prevents the simultaneous operation of any other key in the combination, by reason of the main interlocking blocks and secondary interlocking blocks hereinbefore described, but after the complete repression of said key, any other key in the combination may be operated, as may be selected by the voter. Obviously, the same voting key cannot be operated a second time, for the reason that when repressed it is locked by means of the contiguous pawl 31. It is necessary, however, in this connection, to provide means for limiting the number of votes which may be

cast by each voter, and hence I employ limiting mechanism having a limiting bar 124 mounted to slide in a suitable guide 125, and a stop arranged in the path of the limiting bar, and preferably consisting of a pin 126 adapted for engagement with either of a series of openings 127 in the guide, the pin being preferably threaded into said openings, together with certain connections between the several voting keys in the horizontal series which are used in combination. The connection which is established between the voting keys and the limiting slide consists in the construction illustrated of a series of shafts 128, one for each single candidate series of voting keys, except the slides of the straight ticket devices, and mounted in suitable bearings upon the rear edges of the partitions 3, each shaft carrying a gear 129 meshing with rack teeth 130 on the front side of the bar or slide 124 and also having a ratchet wheel 131 for each voting key in that series. The voting keys are provided, in position to engage the ratchets 131, with spring pawls 132, and, as a voting key is repressed, the contiguous ratchet wheel receives movement through one step, equal to the distance between contiguous teeth, thus imparting a corresponding movement to the limiting bar, and as all of the shafts of the combined single candidate series of voting keys are connected with the same limiting bar, it will be seen that if the movement of the limiting bar is limited by the stop to three steps, only three voting keys can be operated before the limiting bar is brought into contact with the stop, and that subsequent to such contact, all of the voting keys in the said combined or grouped single candidate series will be locked against movement.

In addition to the rack 130 with which the limiting bar is provided, a corrugated or round-toothed holding rack 133 is employed, for engagement by a holding pawl or brake spring 134 carried by the guide, said pawl being adapted to slip from one depression to the next of the limiting bar, as the latter is advanced by the positive movement of the gears through which motion is communicated from the voting keys and frictionally hold said bar in its adjusted positions.

From the above description it will be seen that when votes are to be cast for presidential electors, constables, or other officers voted for under the same conditions, a number of single candidate series of voting keys and counters corresponding with the number of officers which are to be elected, and corresponding with the number of votes to which each voter is entitled, are connected or grouped by disposing the limiting bar 124 in engagement with the terminal gears 129 of said series, the number of series thus

connected being immaterial so far as the resulting operation of the mechanism is concerned. As this number varies, the length of the connecting means may be correspondingly varied, as by substituting other limiting bars. The guide 125 which I prefer to use in this connection, is preferably of sectional construction, with its separable aligned members 125^a and 125^b connected by an adjusting bar 135, see Fig. 7, attached to the lower section, and provided with a plurality of openings 136 for engagement with a stud 137 on the upper section, and held in place thereon by means of a thumb nut 138. If it is desired to connect the horizontal series A, B and C for combination or group voting, the guides 27 are arranged in their front position, as hereinbefore explained, a limiting bar 124 of the desired length is introduced for engagement with the gears 129, and the stop pin 126 is arranged in the third opening 127 of the guide or is arranged at such a point as to allow a movement of the limiting bar through three steps before coming in contact with the pin and the filling blocks of series A and B are adjusted into the guide 106. Therefore, a voter gaining access to the machine is enabled to operate any three voting keys in the three single candidate series arranged in the group or connected by the limiting bar, whether those keys are arranged in the same or different horizontal or vertical series, although he can operate only one key at a time. When the third key has been operated, the limiting bar will be in contact with the stop-pin, and all of the keys in said connected or combined horizontal series constituting a group will be locked against movement. In order to return the parts of the grouping devices to their normal positions, in preparation for a succeeding voter, I employ a plunger 139 mounted in suitable guides 140, and connected by an arm 141 and a link 142 with the rock shaft 39, said plunger carrying a shifting arm 143, preferably mounted for adjustment, and secured in place by means of a set screw 144, and being adapted to engage a stud 145 projecting from the limiting bar. Hence, when the rock shaft 39 is turned to actuate the releasing and replacing frame, the plunger 139 is depressed to bring its shifting arm 143 into contact with the stud 145, and thus correspondingly depress the limiting bar, after which the return movement of the rock shaft 39 replaces the plunger in its elevated position. Obviously, any desired number of connecting devices, consisting of the limiting bar and its attachments, may be used, to suit the different officers who are to be elected, and in Figs. 5 and 6 I have shown two sets of horizontal series connected for combination or group voting,

namely, the series A, B, C and the series D, E, F.

There is also a system of group voting, followed under certain circumstances, known as "minority representation" voting, wherein the number of officers to be elected is less than the number of candidates placed in the field by each political party, as when three candidates have been nominated and but two can be elected, each voter being entitled to cast only two votes for any selected two of these candidates. The mechanism above described, however, is adapted for controlling this operation, simply by arranging the stop-pin 126 so as to allow only a number of steps corresponding with the number of votes which each voter is entitled to cast, this pin being arranged in the path of the limiting bar by which the voting devices of the combined series are connected. For instance, if each political party has three candidates in the field for a certain office, and only two of those candidates can be elected, three of the single candidate series of voting devices are connected by a limiting bar 124, but the stop-pin 126 is arranged to allow only two steps of the bar. In addition to the above, the tally mechanism operating levers 17 must be disconnected, or thrown out of operative relation with the straight ticket voting rods 50 by breaking the joints of said pawls, or depressing the extensions 17^a thereof, as hereinbefore explained. This, obviously, does not interfere in any way with the operation of the straight ticket voting levers in the ordinary process of casting straight ticket votes for candidates for those offices wherefor only one candidate is nominated and which are not grouped, but after casting a straight ticket vote for those candidates which come under the general voting system it is necessary to select from the minority representation candidates those which are to receive the votes. In other words, in minority representation voting the operation can be accomplished only by the manual pressure of the individual voting keys. They cannot be included in a straight ticket vote.

The uppermost series of slides is that designed for registering the number of straight tickets, as in my former patents above mentioned. In this connection I use slides 15^b constructed precisely as the voting keys, including a cam-faced block 29^b, and with the exception that the projecting neck and button are omitted, whereby the front end of the slide is permanently located in rear of the front wall of the casing. The guide 27, which is used in connection with the straight ticket voting slides, remains permanently fixed in its rear position, irrespective of the particular adjustments of those guides belonging to the series having individual vot-

ing keys, for the obvious reason that after the operation of a straight voting lever, thus casting votes for all the nominated candidates of a party, no subsequent operation of any one of the remaining voting keys of the machine other than those relating to minority representation, is permissible.

The straight ticket voting levers 51 are loosely mounted upon a rock-shaft 146 with their rear or inner arms arranged in the planes of return arms 147 carried by said rock-shaft, the normal position of said returning arms being approximately horizontal, or at the end of the swinging movement of a voting lever. In the construction illustrated, no means are employed for yieldingly holding, or returning to its normal position, the voting lever, but in place thereof the returning arms 147 are arranged in such position as to practically limit the operative movement of a voting lever, and by means of an arm 148 on the rock shaft 146, a link 149, and an arm 150 on the rock shaft 39 motion is communicated from said rock shaft 39, at each operation of the replacing and releasing frames, to the rock shaft 146, to depress the returning arms 147 and consequently return the voting levers to their normal positions, illustrated in Fig. 6. It will be seen that in this, as in other parts of the apparatus, it has been my aim to employ positive means for returning the various parts of the mechanism to their normal positions, whereby if the returning means, after having moved the parts to said normal positions, are allowed to retain their adjusted positions, they will serve as locks to hold the various parts of the mechanism against operation until after the returning means have been replaced, as by the return of the rock shaft 39 to its normal position with the replacing frame 36 removed from contact with the rear ends of the voting keys. For instance, the return of the parts to their normal positions throughout the mechanism is accomplished by turning the rock shaft 39 in one direction, and if the rock shaft is allowed to remain in that position, wherein the replacing frame is in contact with the rear ends of the voting keys, the latter will be positively locked against repression, and at the same time the limiting bar 124 will be locked in its depressed position, and the voting levers 51 will be locked in their normal positions. The advantage of this arrangement will appear hereinafter. Obviously, the tally mechanisms which are arranged in connection with the slides 15^b of the straight ticket voting devices register the number of straight tickets which are voted. It is also desirable, in this connection, to provide means for preventing the operation of the straight ticket voting lever after any voting key has been operated, or to prevent the operation of a voting key after any straight ticket lever

has been actuated, except in minority representation voting, or where the number to be voted for is less than the number of candidates of each political party, and hence I provide a locking rack 151, preferably mounted contiguous to the guide 106, for cooperation with the cam-faced blocks 113 of the spacers, said rack, which consists of a frame having a plurality of openings 152 through which said blocks 113 are adapted to pass, being further provided with removable rest pins 153 for respective contact with the cam faces of the blocks 113. Hence, when a combination or group of horizontal series of voting keys has been established by the use of the limiting bar 124, as hereinbefore explained, and it is desired to allow a voter the privilege of operating all of the keys in a single vertical column or series of those which are arranged in combination by a single operation, or by the operation of the straight ticket voting lever, the pins 153 of the locking rack are inserted in operative relation with the cams belonging to the spacers of the combined horizontal series.

The cam 113^a of the uppermost series of slides, or that series employed in connection with the straight ticket tally mechanisms, is inverted, to arrange the cam-face on the lower side of the spacer, and hence if a straight ticket is voted by the operation of a voting lever, the main locking blocks of the straight ticket tally mechanisms receive a longitudinal impulse which causes the cam 113^a to pass over the uppermost transverse pin 153, and thus lock the rack 151 in its depressed position, and hence, with the remaining pins 153 thereof in such positions as to prevent the subsequent operation of the locking blocks of any of the combined horizontal series of devices. On the other hand, if any voting key is operated, the cam 113 belonging to that horizontal series of main locking blocks receives a longitudinal impulse which raises the locking rack and thereby brings its uppermost transverse pin 153 into the path of the cam block 113^a of the straight ticket voting mechanism, and thus prevents the subsequent operation of the straight ticket voting lever by preventing the longitudinal movement of the locking block of said straight ticket voting mechanisms. In order to maintain the locking rack in its elevated position after having been actuated by the operation of a voting key in one of the combined series, I employ a holding pawl 154 actuated by a spring 155 and adapted to engage a notch 156 in the locking slide or rack, the tendency of this pawl being such as to engage the notch of the rack when the latter is elevated sufficiently to allow one of the cams 113 to pass under the contiguous transverse pin 153. The release of the locking rack when the releasing and replacing frames are operated,

is accomplished by means of an arm 156^a carried by the uppermost horizontal bar 41 of the releasing frame. In order to prepare the mechanism for, or such of the series of
 5 voting devices as are to be used in connection with, minority representation voting, it is also necessary to remove from the locking rack those transverse pins 153 which are in operative relation with the main locking
 10 ing blocks of said series of voting devices. In other words, if three horizontal series of voting devices are to be used in minority representation voting, the pins 153, which are in operative relation with the voting
 15 keys of said series, must be displaced.

There is another class of group voting, known as "cumulative", wherein each voter is entitled to cast a certain number of votes, such as three, for either or all of the three
 20 candidates placed in the field by each party, the number of officers to be elected being the same as the number placed in the field by each party, or three, but the voter being entitled to cast one vote for each of three
 25 candidates, or all three votes for one candidate, or being entitled to split his vote by giving one and one half to each of two of these candidates. In order to adapt the mechanism for thus distributing three votes,
 30 or any other selected number, it is necessary to provide for successive operation of the same voting key. To accomplish this I employ the above described lower lugs 43 on the vertical bars 42 of the releasing frame,
 35 the tails of the locking pawls 31, belonging to the three horizontal series of voting devices, as D, E, F selected for voting under the cumulative system, being engaged under said lugs 43 and thereby held out of operative relation with the voting slides of
 40 those horizontal series. To prevent more than one of the slides in the series D, E, F, from being operated at one time, the uppermost secondary locking block 107 of said series is secured in its elevated position as
 45 shown in Fig. 5, the filling blocks 117 of series D and E being adjusted in the guide 106, and the guides 27 are arranged in their rear positions to prevent a plurality of slides
 50 in the same horizontal or single candidate series from being operated simultaneously, and also to prevent the expansion or return of the main locking blocks into the recesses 105 of the slides. The limiting slide,
 55 by which the three horizontal series selected for cumulative voting are connected, is then limited by means of the pin 126 to a movement of six steps, each step representing one-half vote, which, of course, will be understood, and may be suitably explained
 60 upon the face of the machine for the instruction of voters. With this arrangement a voting key in either of the three connected horizontal series may be repressed and withdrawn any desired number of times, limited
 65

to six, to enable the voter to cast six half votes, or three votes, for a single candidate, further operation being checked by the stopping of the limiting slide. On the other
 hand, each of three voting slides may be
 70 represented and withdrawn twice, to cast one whole vote for each of three candidates, or each of two voting keys may be operated three times to cast three half votes or one
 and one-half votes for each of two candi-
 75 dates. When the mechanism is adjusted for cumulative voting, the pawl-actuating springs 21 must be used, in order to return the pawl after each operation, to enable the voter to withdraw and again advance the
 80 voting key a number of times which is limited by the mechanism provided for that purpose; but under ordinary circumstances, these springs 21 should be placed in position
 only in connection with those parts of the
 85 apparatus which are designed to be used in cumulative voting. Otherwise, the spring should be omitted, and it will be understood that the detachable means whereby the
 90 springs are secured in place provides for their adjustment or removal with facility.

In the above description it has been set forth that the ways 101 in which the main block guides 27 are mounted for forward
 and rearward adjustment are carried by the
 95 releasing frame, and the object of this arrangement will be understood when it is explained that the longitudinal expansion or return movement of the locking blocks 26
 into the recesses 105 of the slides, when the
 100 guides 27 are arranged in their front positions, is such as to lock the slides against forward movement or retraction when encountered by the replacing frame, thus rendering it necessary to withdraw the locking
 105 block guides downwardly or transversely with relation to the paths of movement of the voting keys when it is desired to return the operative parts of the mechanism to their normal positions. Hence, when the
 110 releasing frame is depressed, by the operation of the rock shaft 39, to disengage the pawls 31 from the voting keys, the locking blocks 26 are simultaneously withdrawn
 115 from the planes of the keys to leave the latter free for movement by the replacing frame. In order that the movement of the voting keys may be smooth and uniform, I preferably extend the blades 157 thereof
 to form lateral flanges 158, which rest upon
 120 and slightly overlap the contiguous extremities of the blocks 26 as the cams 29 pass between said blocks. The blades 157 extend to the rear a sufficient distance to allow the replacing frame, while in contact there-
 125 with, to move forward a sufficient distance to replace all of the voting keys without coming in contact with contiguous portions of the machine.

From the foregoing description it will be 130

seen that I have provided interlocking grouping mechanism for use in connection with voting elements and counters arranged in single candidate series, said grouping mechanism being common to a plurality of single candidate series, and consisting of a series of movable members, preferably blocks, arranged for relative longitudinal movement, cams actuated by the voting elements for moving or separating the movable members, and movable group-defining means consisting of filling blocks, the positions of which determine the number of single candidate series which are to be arranged in a group. When these group-defining elements are displaced or removed or withdrawn from the guide or from the paths of movement of the movable members of the grouping mechanism the spaces between adjacent movable members are approximately equal to the depths of the cams on the spacers to permit free independent movement of the blocks or in other words when the filling block carried by a particular spacer, as, for instance, that belonging to the series C in Fig. 5 of the drawing is withdrawn or displaced from the paths of the blocks, the block which is operatively related, and may be said to belong, to series D is free to move vertically a distance equal to the depth of the cam of series D, whereby motion cannot be communicated by the block or series D to the movable members of the series thereabove; whereas when the filling block of a particular single candidate series is advanced or adjusted in the paths of the movable members so as to occupy a position in the guide, the space between the spacer which carries said block and the next lower block is fully occupied, and, therefore, any movement of the lower block will be communicated through the filling block and spacer to the movable block which rests on said spacer.

By adjusting a number of the filling blocks into the paths of the interlocking blocks, any desired number of the interlocking blocks may be combined to form a group and thus group the single candidate series for the purposes hereinbefore specifically set forth. In other words, to combine a series of interlocking blocks to form a group it is only necessary to adjust the filling blocks into the paths of the interlocking blocks, and to define or separate the groups it is only necessary to arrange the filling block of the lowermost or terminal spacer of a given group so as to occupy a position out of the paths of the interlocking block so as to permit the next lower interlocking block to operate without affecting the interlocking blocks arranged thereabove. This is true whether the interlocking block belonging to the uppermost single candidate series of a group is adjusted upward and locked in its

raised position as indicated in the series A and D of figure or not. Under any circumstances the above described arrangement prevents the simultaneous operation of two or more keys either in the same or different single candidate series which are grouped as above described, because the unoccupied space in the series of grouped secondary interlocking blocks is only sufficient to receive one cam. However, in order to prevent the further elevation of the uppermost interlocking block of a group, without depending upon the interlocking rack 151, I prefer, as indicated in Fig. 5, to lock the uppermost interlocking block of a group in its elevated position whereby this elevated and secured block forms a stop to prevent the introduction of more than one cam into the guide at one time.

In order that the operation of the rock shaft 39 may be controlled automatically to replace the parts of the mechanism after the conclusion of the operations of each voter, I have found it desirable to employ a booth which, however, forms the subject-matter of another copending application filed of even date herewith, and numbered 288,735, but of which a brief description will be necessary to a full comprehension of the present invention. The booth is provided with an entrance and exit opening fitted with a turn-stile or double door having an open-work entrance leaf 173 and an exit leaf 174 of closed construction, said leaves being arranged approximately perpendicular to each other and being adapted to swing simultaneously and in a common direction as the voter enters or leaves the booth. As he enters he carries the entrance leaf with him and closes the exit leaf behind him, thus concealing his operations from the outside. On the other hand, when the voter leaves the booth he carries the exit leaf outwardly and thereby closes the entrance leaf to give the spectators an unobstructed view of the interior of the booth. The connected leaves are mounted upon a spindle 175 having an upper crank arm 176 connected by a pitman 177 with a bell crank lever 178, which in turn is connected by the link 179 with an arm 180 on the rock shaft 39.

As there is a liability of an attempt being made to tamper with the tally mechanisms of a voting machine between the times of the election and the official counting, I have devised means, in connection with the rear door 201 of the voting machine casing, for detecting such an attempt. This means consists of the connection between a lock bolt 202, arranged in a suitable casing 203 which is riveted to the inner surface of the door 201, and a tally mechanism 204, preferably having a plurality of dials, from four up, whereby, at each retraction of the lock-bolt, the units dial of the tally mechanism will be

advanced one step. In the preferred construction of lock a spring actuated tumbler 205 is shown, the same being provided with a stud 206 for arrangement in the path of a
 5 corresponding ear or stud 207 on the lock bolt, this tumbler being held in its normal position by a spring 208. When a key is inserted, and the tumbler is raised, the bolt may be repressed, to release the door of the
 10 casing, and in so doing a pawl 209, carried by an extension of the bolt, engages the ratchet teeth of the units dial. With this device it is necessary, only, to observe, at the completion of an election, the number
 15 indicated by the tally mechanism of the lock, and if, before taking of the official count, an attempt should be made to change the adjustment of any of the voting tally mechanisms, an effort to unlock the door 201
 20 will change the combination shown by the tally mechanism 204, and thus apprise the judges of the election of the attempt, and enable them to act in accordance with the law governing the tampering with votes or
 25 ballots in an election district.

In connection with the voting devices for amendments, propositions, etc., I use means whereby the voting keys relating to any given question may be locked to prevent the
 30 operation of either of them by the occupant of the booth, when, by reason of some technicality, said occupant is not entitled to a vote in connection with said question. The means illustrated in the drawings for accomplishing this object consist of a stop-bar
 35 210, preferably one for each pair of amendment voting keys, and provided with exterior means of adjustment, such as a handle 211 having its spindle 212 provided with a segment or mutilated gear 213 meshing with
 40 a rack on said bar. This bar is provided with a plurality of ears 214 corresponding with the number of slides with which it is to cooperate, and adapted to be arranged in the path of stop-pins 215 carried by the
 45 slides. It will be seen that the stop-bar may be elevated to allow these stop pins to pass freely, and thereby allow operation of the slides, or may be adjusted to dispose the
 50 ears 214 in the paths of the stop pins, and thus prevent the occupant of the booth from manipulating either of the slides.

In connection with the straight ticket voting devices, as hereinbefore described, it will
 55 be observed that in addition to the rear pins 54, carried by the straight ticket voting slides 15^b, to enable the rods 50 to repress said straight ticket voting slides, the slides named are provided with the front pins 54^a
 60 arranged in front of the rods 50, and serving to prevent the return movement of a rod when, a slide 15^b having been repressed, the slide locking pawl has engaged the first notch thereof. In other words, the pins 54^a
 65 serve to maintain the rods 50 in a definite

position with relation to the operating pins 54, and hence prevent the subsequent movement by the same voter of the same straight ticket voting devices. The release of the
 parts is accomplished, as hereinbefore fully
 70 explained in connection with other features of the apparatus, by the operation of the replacing devices. In this connection it should be noted that it may be desirable to allow a voter the privilege of operating all of the
 75 tally mechanisms in a single vertical series, including those tally mechanisms which are arranged in combined series, and, in accordance with the system of combination voting hereinbefore described, such movement of the tally mechanisms may be accomplished by a single operation, or by the operation of a straight ticket voting lever, but to prevent subsequent operation of voting
 80 keys in a voted or other series, the pins 153 of the locking rack are inserted in operative relation with the cams belonging to the spacers of each horizontal series. Obviously, these pins should be omitted from those series of voting devices which are devoted to
 85 minority representation voting. Thus, all of the operating pawls 17 in a single vertical column or series, with the exception of those devoted to minority representation voting, may be operated by a single movement of a
 90 straight ticket voting lever, while all other voting keys are locked by such operation. Furthermore, it should be observed that the operation of locking out the voting keys in other series, as hereinbefore explained, takes
 95 place prior to the communication of motion by the simultaneously operated slides or keys to the tally mechanisms. In other words, when a straight ticket voting lever is operated, the main locking blocks of the
 100 several tally mechanisms in the series which is in connection with said lever, receive a longitudinal impulse, causing the cam 113^a to pass over the uppermost pin 153, prior to the engagement of said straight ticket
 105 voting lever with the extensions 17^a of the pawls 17. Or when any voting key is operated, the locking bolts of such horizontal series, combined or otherwise, with the exception of the minority representation series, receive a longitudinal impulse, causing the
 110 cam 113 to pass under the pin 153 and elevate the rack 151, and lock the straight ticket series of locking blocks prior to the engagement of the pawl operating pin 20 of
 115 such voting key with the pawl 17 of the tally mechanism, or simultaneously with the engagement of the notch 32 by the pawl 31. As the rack 151 receives its motion from the several horizontal series of locking blocks
 120 and the locking blocks receive their motion from the first repression, when that repression is sufficient to cause the pawl 31 to engage the notch 32, it is obvious that the complete operation of the rack 151 is attained
 125 130

simultaneously with the spreading of the locking blocks and prior to the engagement of the operating pawls 17 by the pawls operating pins 20, or by the straight ticket rods 50.

When the mechanism is adjusted for cumulative voting the pin 20 must be folded out of operative relation with the pawl 17, thereby causing the pawl 18 to receive its motion from the pin 20^c, which will accomplish a movement of the pawl 17 only sufficient to register a one-half vote for each operation of the voting slide. But should a straight ticket be voted, the rod 50 when operated, will swing the pawl 17 a sufficient distance to record one whole vote, or two half votes, as in the other series. Therefore, it is obvious that with this construction the voter may split his vote, as before explained, or, by operating the straight ticket rod 50, the lawful number of votes is distributed in the cumulative series, equally between the several candidates on any one ticket, as where there are three candidates in each political party, and the voter is entitled to cast six half votes among the three candidates, or may, by operating the straight ticket rod, cast one full vote for each of the three candidates.

Having thus described the invention, what I claim is:—

1. In a voting machine, the combination with tally mechanisms including units ratchets, of operating pawls having yielding teeth for communicating motion to said ratchets, voting slides having interchangeably operative pins for engagement with said pawls to impart registering motion thereto, means for returning each operating pawl to its normal position, and locking devices for securing the slides against retraction.

2. In a voting machine, the combination with tally mechanisms including units ratchets, of operating pawls having yielding teeth for communicating motion to said ratchets, voting slides having interchangeably operative pins for engagement with said pawls to impart registering motion thereto, means for returning each operating pawl to its normal position, and locking devices for securing the slides against retraction, prior to the completion of an operative stroke thereof.

3. In a voting machine, the combination with tally mechanisms including units ratchets, of operating pawls fulcrumed on the arbors of said ratchets and carrying spring pressed teeth to engage the latter, voting slides having hinged pins projecting therefrom for engagement with said pawls to impart forward motion thereto, means for returning each operating pawl to its normal position, and gravitating pawls within the

voting machine to drop on the upper portions of the slides for preventing a withdrawal of the several slides before a complete inward pressure thereof has been effected.

4. In a voting machine, the combination with tally mechanisms, of voting slides, operating pawls actuated by the slides for communicating half and whole step movement to the tally mechanisms, and locking devices for securing a voting slide against backward movement in its half and whole step positions respectively.

5. In a voting machine, the combination with tally mechanisms having units ratchets, voting slides, and replacing devices for returning the voting slides to their normal positions, of operating pawls mounted in operative relation with said units ratchets for engagement with the teeth thereof, and replacing-pins operatively associated with said pawls for actuation by said replacing devices and simultaneously with the voting slides to return the pawls to their normal positions.

6. In a voting machine, the combination with tally mechanisms having units ratchets, voting slides, and a replacing frame for returning the voting slides to their normal positions, of operating pawls mounted in operative relation with said units ratchets for engagement with the teeth thereof, and replacing-pins parallel with the voting slides and operatively connected with said pawls and terminally arranged in the path of said replacing frame.

7. In a voting machine, the combination with tally mechanisms having units ratchets, voting slides, and a replacing frame for returning the voting slides to their normal positions, of operating-pawls mounted in operative relation with said units ratchets for engagement with the teeth thereof and replacing pins mounted to slide in fixed guides and having a sliding connection with the operating pawls, and terminally arranged in the path of members of said replacing frame.

8. In a voting machine, the combination with tally mechanisms having units ratchets and operating pawls for operating said ratchets, of voting slides, and operating pins foldably mounted upon the voting slides, and adapted when extended to engage and communicate motion to said operating pawls.

9. In a voting machine, the combination with tally mechanisms having units ratchets and operating pawls for actuating said ratchets, of voting slides provided with cavities, and operating pins pivotally mounted in said cavities and adapted, when extended, to engage and communicate motion to said operating pawls.

10. In a voting machine, the combination with tally mechanisms having units ratchets and operating pawls for actuating said ratchets, of voting slides provided with a plurality of operating pins adapted for engagement with said operating pawl, one of said pins being movable relatively to the slide by which it is carried, whereby it may be removed from operative relation with the operating pawl.

11. In a voting machine, the combination of tally mechanisms having units ratchets provided with half-step teeth, voting slides having limited paths of movement, operating pawls arranged in operative relation with the teeth of the units ratchets, and main and auxiliary operating pins located at different points on the voting slides for contact with the operating pawl to communicate motion thereto through paths of different extents, one of said pins being movable to adapt it to be withdrawn from operative relation with the operating pawl.

12. In a voting machine, the combination of tally mechanisms having units ratchets provided with half-step teeth, an operating pawl arranged in operative relation with the teeth of a units ratchet, a voting slide having a limited movement, and relatively fixed and movable pins carried by the slide for contact with said operating pawl.

13. In a voting machine, the combination of tally mechanisms having units ratchets capable of whole and half-step movements, a voting slide, and interchangeable main and auxiliary means carried by the voting slide for communicating, respectively, whole and half-step movements to said ratchet.

14. In a voting machine, the combination with tally mechanisms having units ratchets, of voting slides, operatively connected with said units ratchets for communicating a step-by-step movement to the same, and disconnected locking devices for respectively securing the voting slides against movement, each including a latch 31^a having its spindle provided with a key-seat, said latch being adapted to engage a shoulder of a voting slide.

15. In a voting machine, the combination with tally mechanisms having units ratchets, and voting slides, of operating pawls arranged in operative relation with said units ratchets in the paths of projections carried by the slides, said pawls being provided with movable sections, and straight-ticket voting devices having means for engaging said movable sections when in operative positions.

16. In a voting machine, the combination with tally mechanisms having units ratchets, and voting slides, of pawls arranged in operative relation with the teeth of said ratchets, and disposed in the paths of pro-

jections on the slides, said pawls being provided with hinged extensions 17^a, and straight-ticket voting devices having rods for engagement with said extensions of the pawls.

17. In a voting machine, the combination with tally mechanisms having units ratchets, and voting slides, of operating pawls arranged in operative relation with said units ratchets, and in the paths of projections carried by the slides, said pawls being provided with hinged extensions 17^a, and with holding springs for contact with cam faces on said extensions, and straight-ticket voting devices having means for engaging said extensions.

18. In a voting machine, the combination with voting slides, and tally mechanisms, of straight-ticket voting devices having rods movable parallel with the voting slides, and including voting levers connected with said rods, independent returning arms fulcrumed concentrically with said levers and having projections arranged in the paths thereof, and means for actuating the returning arms to move the levers to their normal positions.

19. In a voting machine, the combination with voting slides, and tally mechanisms, and locking devices for securing said slides in their repressed positions, of a releasing frame mounted for movement perpendicular to the voting slides and operatively connected with said locking devices, replacing levers operatively connected with the releasing frame and having bifurcated extremities, and cams carried by a rock shaft and arranged in the bifurcations of said levers, said cams having opposite cam faces 46^a and 46^b for moving the levers in opposite directions.

20. In a voting machine, the combination with a counter or tally mechanism capable of whole or fractional vote movements, of a voting key having means operable on a single stroke for imparting either a whole or fractional vote movement to said counter or tally mechanism.

21. In a voting machine, the combination with a counter or tally mechanism arranged to register both whole and fractional votes, of a voting key having means operable on each single stroke for imparting either a whole or a fractional vote movement to said counter or tally mechanism, and means for limiting the number of voting operations of said key.

22. In a voting machine, the combination with a counter or tally mechanism capable of whole or fractional vote movements, of a voting key having a plurality of means for registering, respectively, on said counter or tally mechanism a whole vote and a fractional vote.

23. In a voting machine, the combination

with a counter or tally mechanism, of a movable member for actuating the same, and a plurality of means in connection with said member for imparting to the counter or tally mechanism a movement equal to or more or less than a single vote.

24. In a voting mechanism, the combination with a series of vote registering elements, and means for simultaneously operating them in straight ticket voting, of other vote registering elements capable of whole and fractional vote registering movements at a single operation, and mechanism controlling the operation of the second named vote registering elements.

25. In a voting machine, the combination with tally mechanisms having units ratchets, of a pawl arranged for engagement with each ratchet, a pawl actuating slide, and interchangeable devices carried by the slide and arranged to engage said pawl, whereby

the slide has a constant stroke and the pawl a variable stroke.

26. The combination with a voting slide having a uniform stroke, of a tally mechanism including a units ratchet arranged to be advanced one or more teeth for each stroke of the slide, a pawl arranged to engage said ratchet, and interchangeable pawl engaging members carried by said slide and disposed at different points in the length of the latter to thereby vary the extent of movement imparted to the pawl on a full stroke of the slide.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

LENNA RYLAND WINSLOW.

Witnesses:

WM. C. LEWIS,

EMILIE WINSLOW.