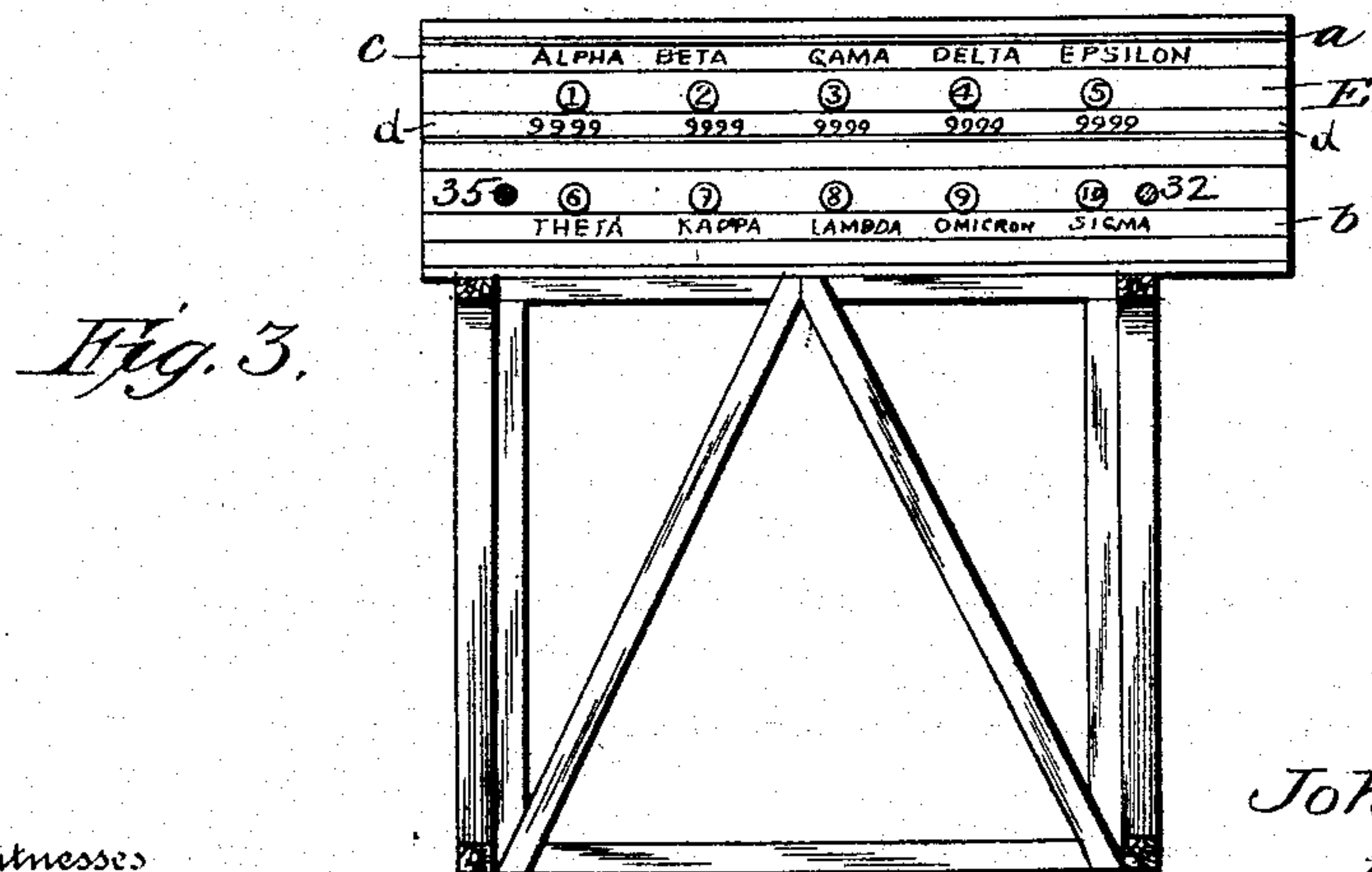
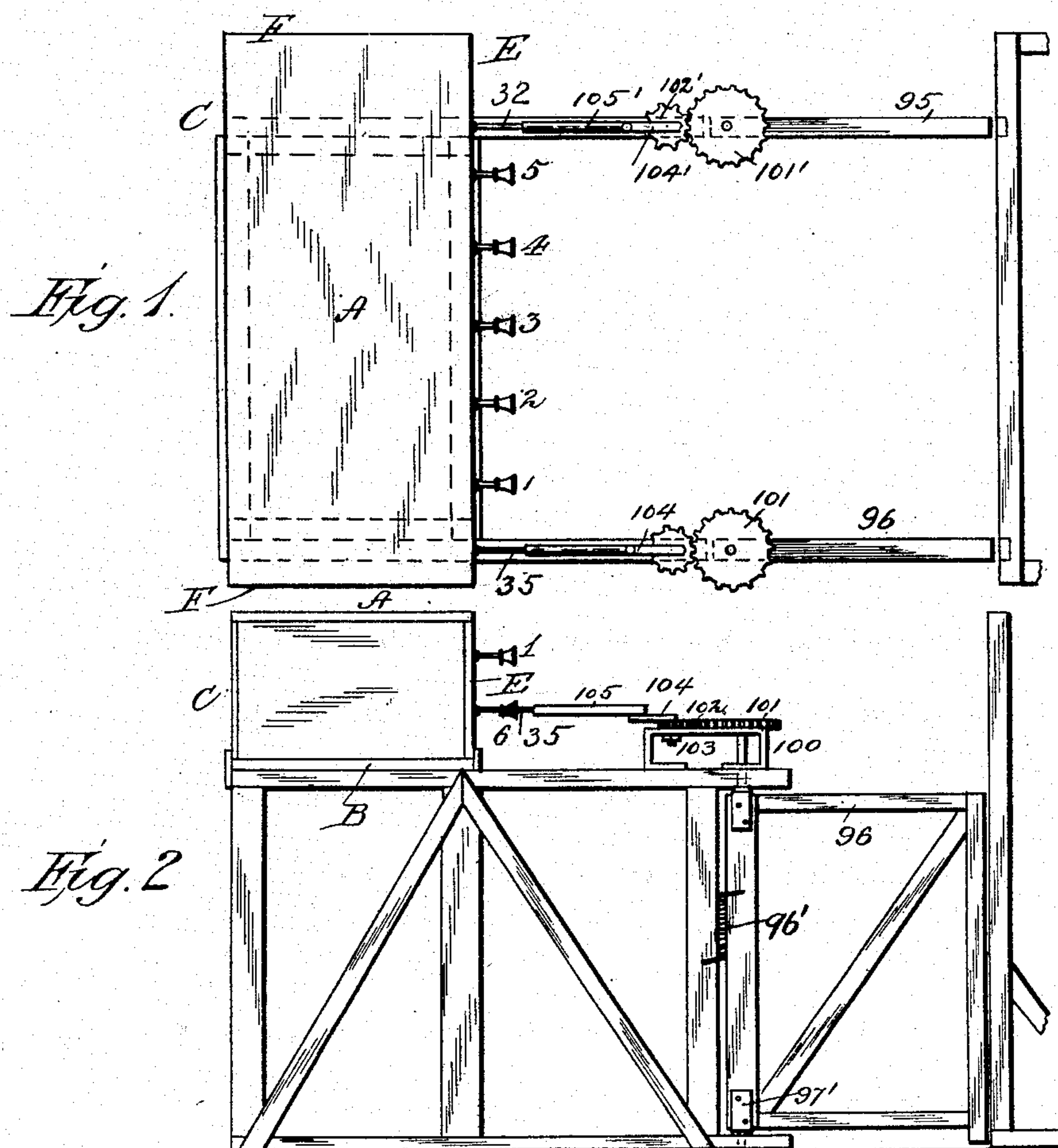


J. H. MANDER.
VOTE RECORDING MACHINE.

(Application filed Mar. 2, 1900.)

(No Model.)

6 Sheets—Sheet 1.



Witnesses
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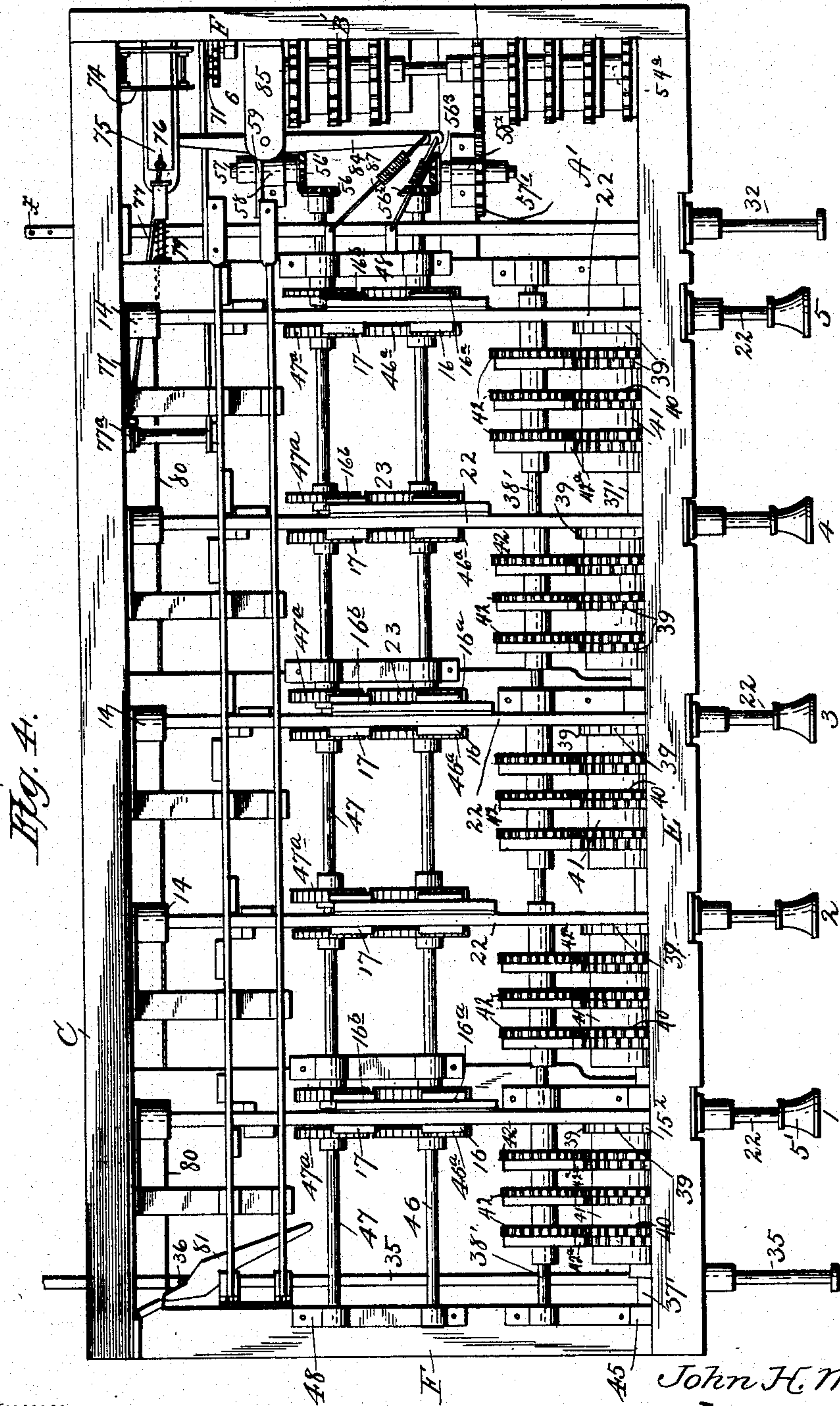
No. 674,869.

Patented May 28, 1901.

J. H. MANDER.
VOTE RECORDING MACHINE.
(Application filed Mar. 2, 1900.)

(No Model.)

6 Sheets—Sheet 2.



Witnesses
H. L. Osgood,
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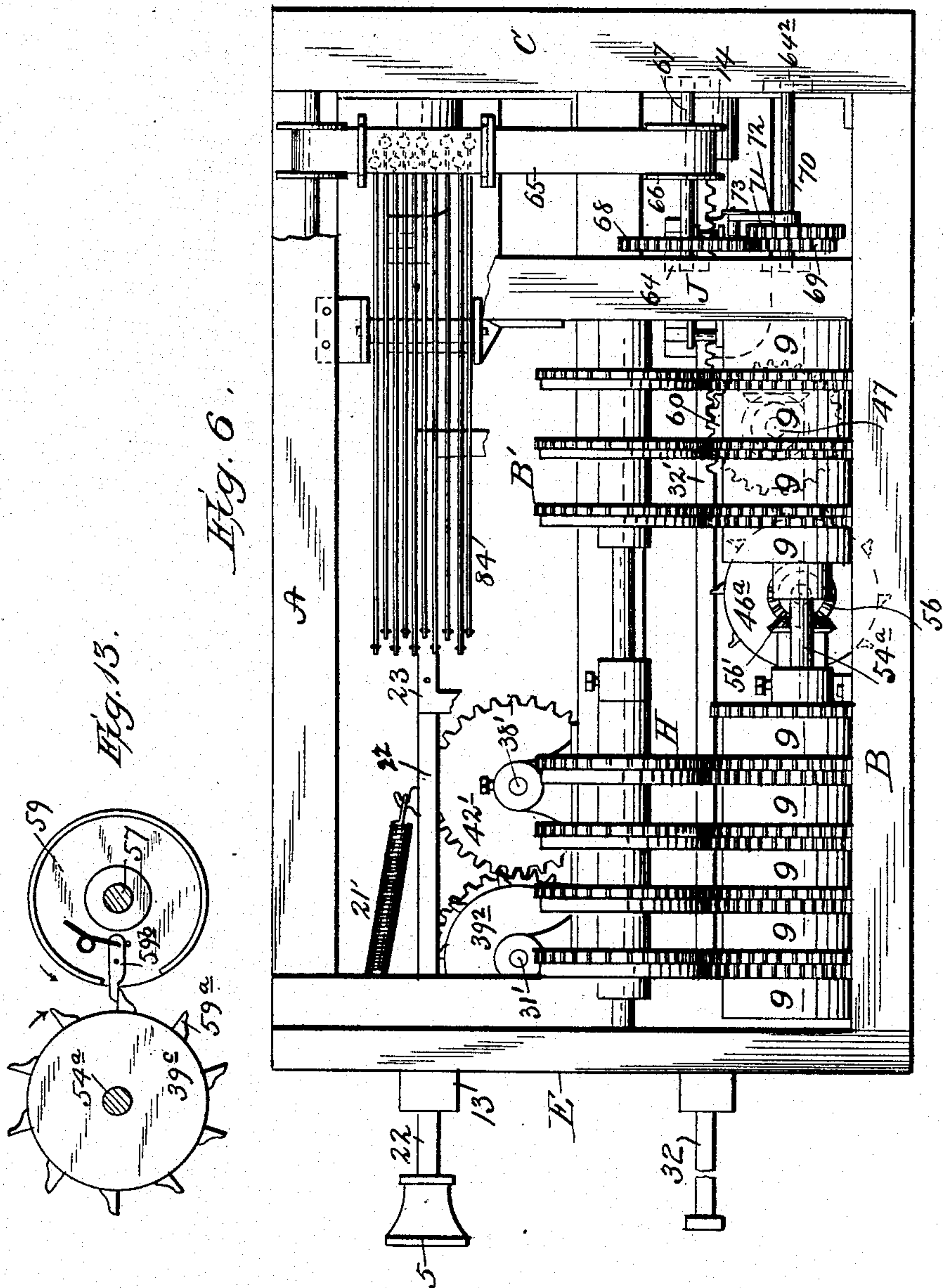
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J. H. MANDER.
VOTE RECORDING MACHINE.

(Application filed Mar. 2, 1900.)

(No Model.)

6 Sheets—Sheet 4.



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J. H. MANDER.

VOTE RECORDING MACHINE.

(Application filed Mar. 2, 1900.)

(No Model.)

6 Sheets—Sheet 5.

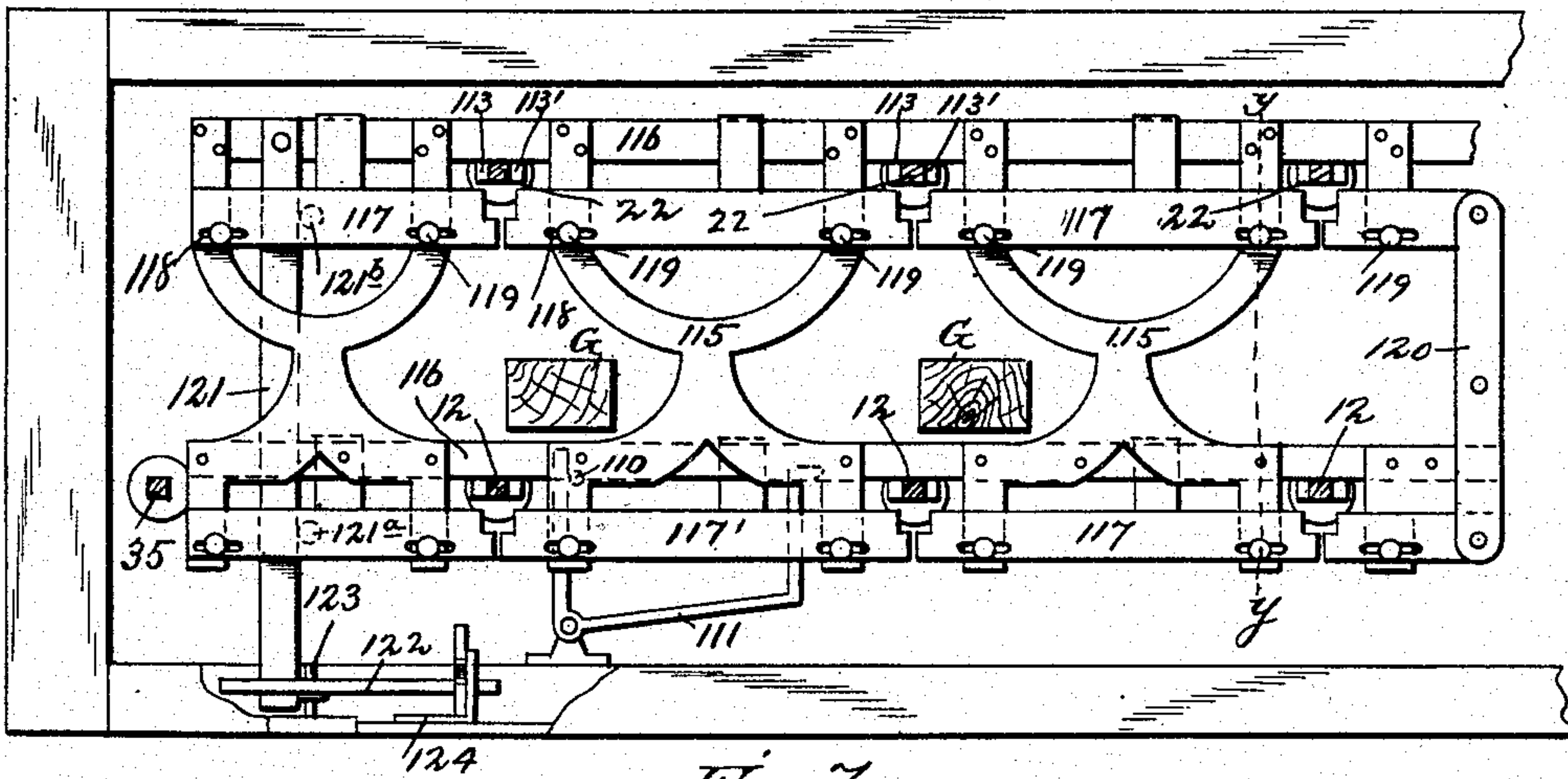
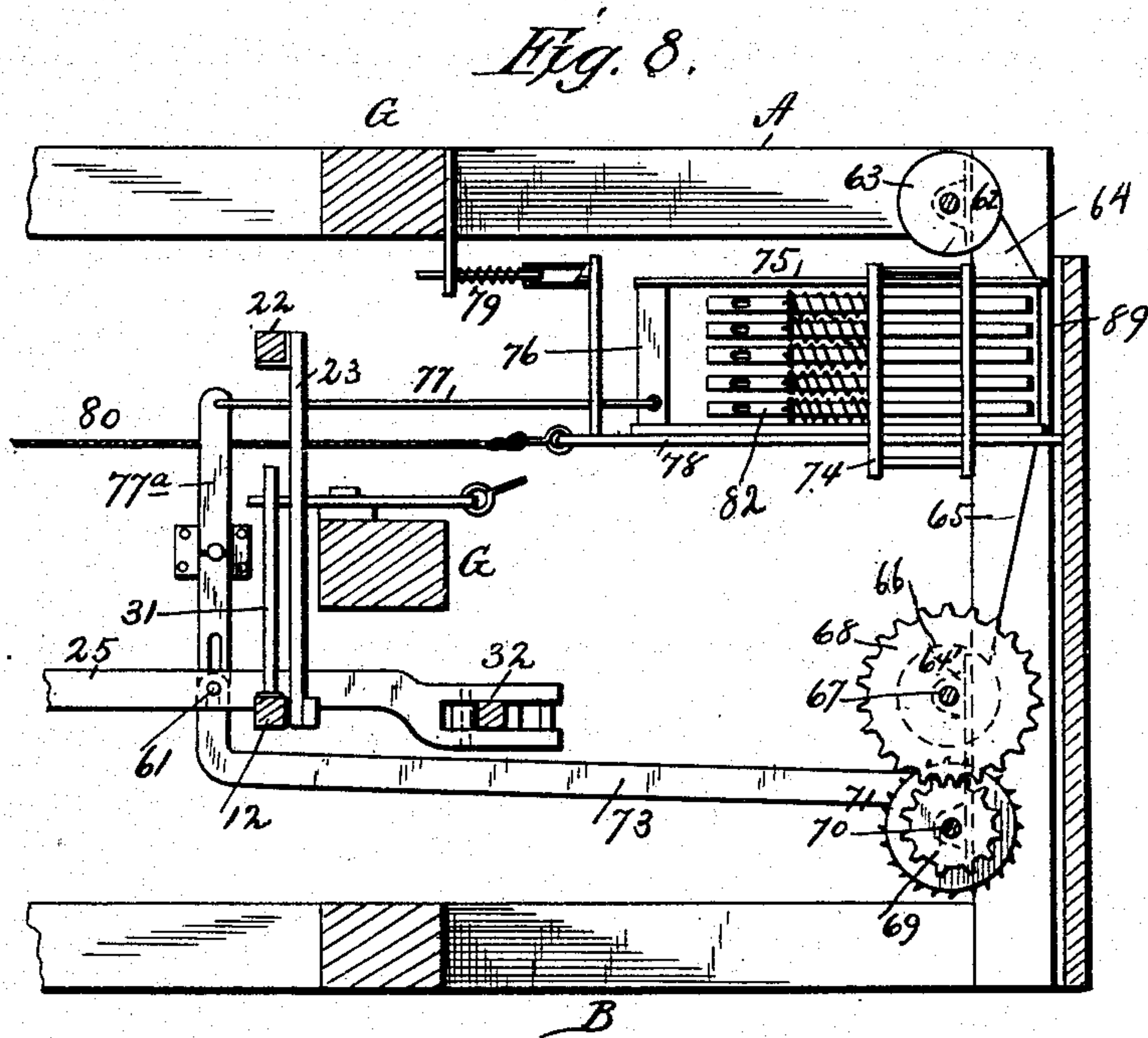


Fig. 7.



B

Witnesses
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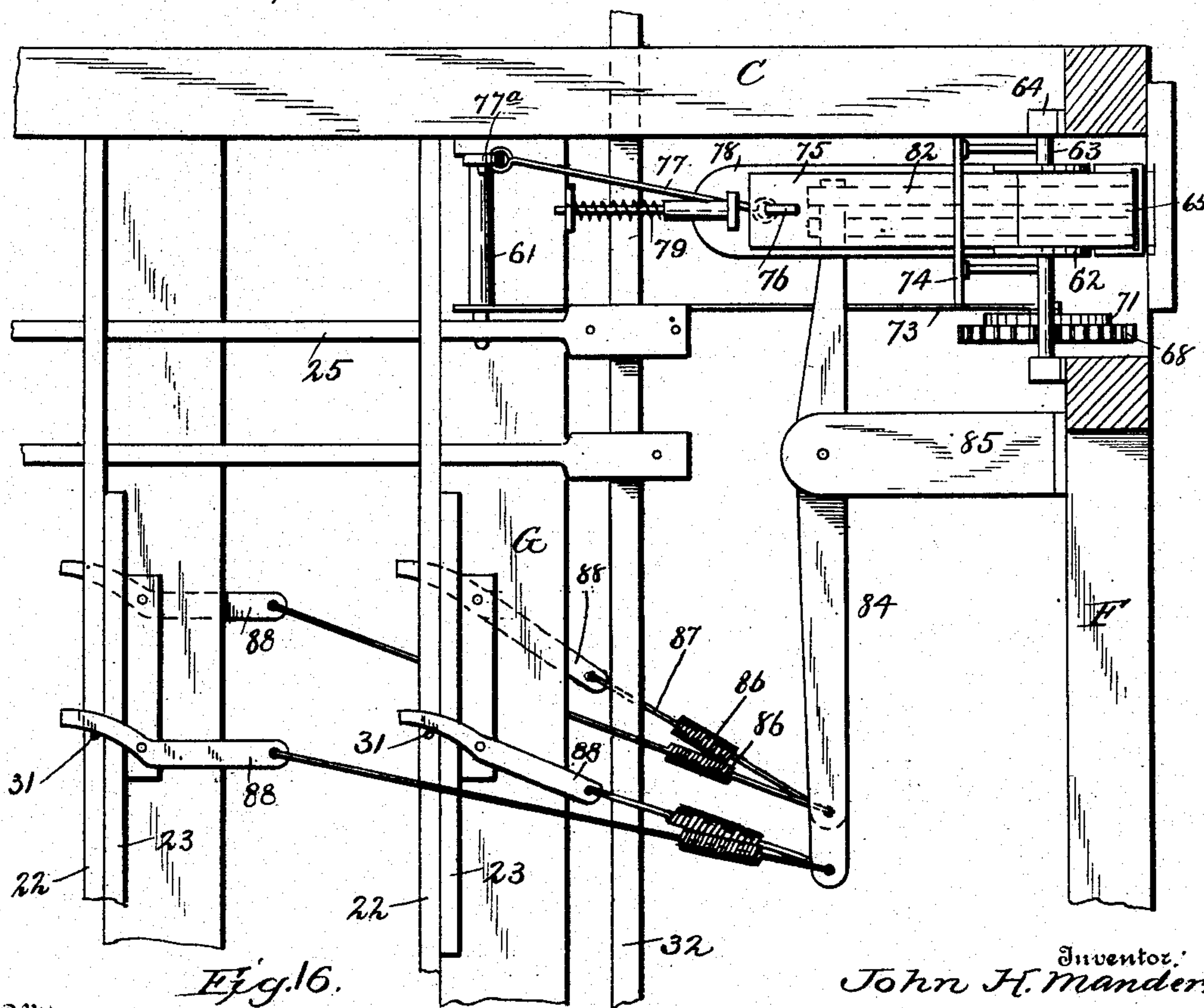
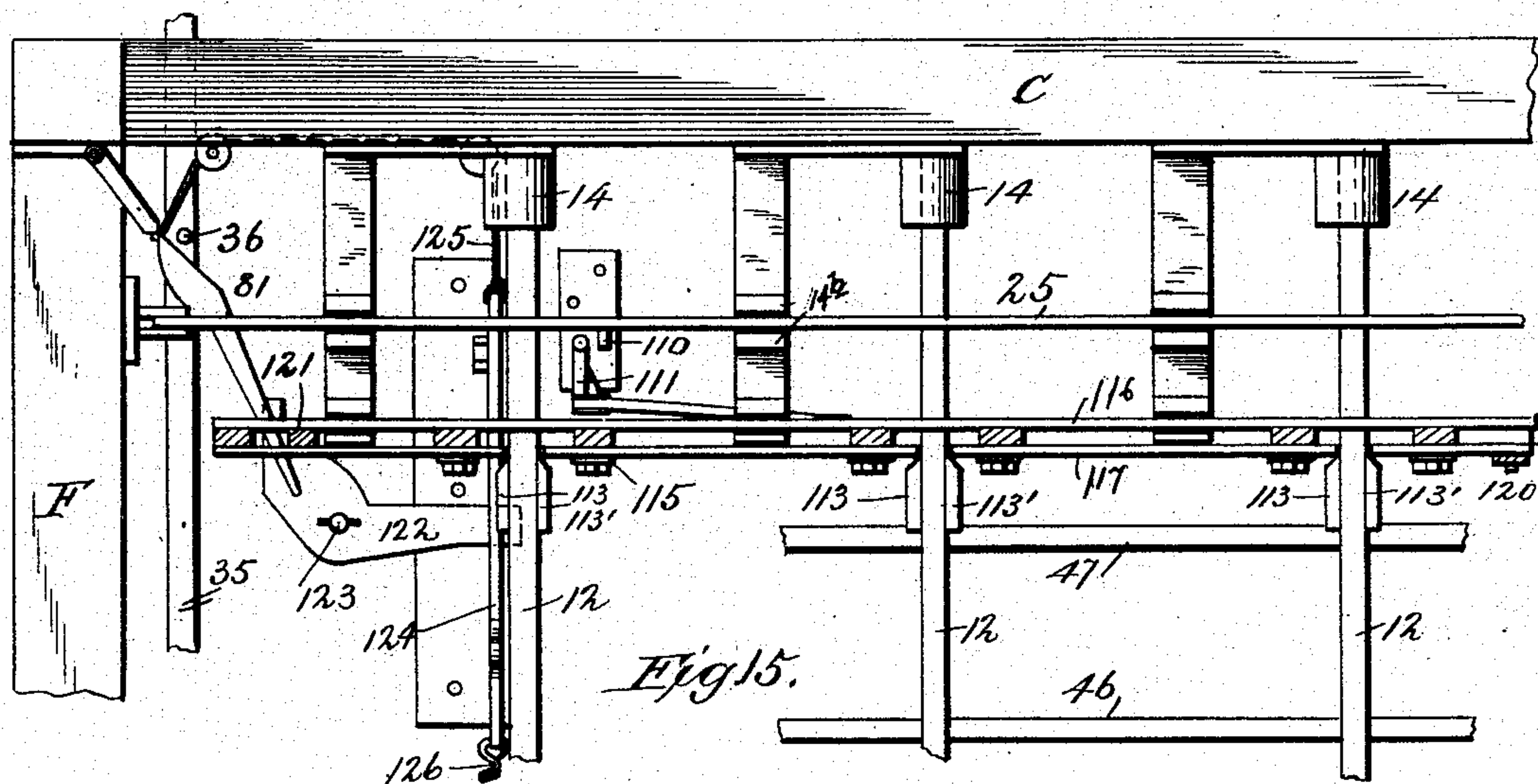
J. H. MANDER.

VOTE RECORDING MACHINE.

(Application filed Mar. 2, 1900.)

(No Model.)

6 Sheets—Sheet 6.



Witnesses

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64

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UNITED STATES PATENT OFFICE.

JOHN H. MANDER, OF CHRISTCHURCH, NEW ZEALAND.

VOTE-RECORDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 674,869, dated May 28, 1901.

Application filed March 2, 1900. Serial No. 7,079. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. MANDER, a subject of the Queen of Great Britain, residing at Christchurch, in the Colony of New Zealand, have invented certain new and useful Improvements in Vote-Recording Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved voting-booth; and the object is to provide means whereby a voter may deposit his ballot, also to record the number of voters entering the polling-booth, and to provide means for recording the total number of votes polled and also the number of votes cast for each candidate.

To these ends the invention consists in the construction, combination, and arrangement of the several elements of the device, as will be hereinafter fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a top plan view of the combined polling-booth and vote-recorder located within said booth. Fig. 2 is a side elevation of the same with the screen removed. Fig. 3 is a front elevation of the vote-recorder as it appears from the inside of the booth. Fig. 4 is a top plan view of the recorder with the cover-plate removed. Fig. 5 is an end elevation of the left-hand end of the machine with the side plate removed. Fig. 6 is a similar view of the right-hand end of the machine. Fig. 7 is a front elevation, partly in section, of three upper and three lower recording-bars and their locking mechanism. Fig. 8 is a side elevation of the ticket-numbering device. Fig. 9 is a top plan view of one of the upper tiers of vote-recording bars, showing the position of the pawls and their relation to the locking-bars, also the counter-wheels and the relation of said bars to said counter-wheels. Fig. 10 is a top plan view of one of the lower vote-recording bars, showing the position of the pawls and locking-bars. Fig. 11 is a transverse section through one of the bars on the line of the locking-bar to show the position of the locking-pawls when in position to prevent the recording-bar being pushed in in the act of recording a vote. Fig. 11^a is a similar view

showing the position of the pawls to prevent the return movement of the recording-bar. Fig. 12 shows a side elevation, bottom plan, and end views of the locking-pawls. Fig. 13 is a detail view of the connection between the regulating-bar and total-adder. Fig. 14 is a vertical section on the line *yy* of Fig. 7. Fig. 15 is a top plan view of the lower tier of recording-bars shown in Fig. 7, and Fig. 16 is a top plan view of the ticket-numbering device.

In the drawings the same reference characters indicate the same parts of the invention.

The recorder illustrated in the drawings is intended for ten candidates, and it can be so adjusted that any number of candidates up to ten can be voted for; but of course it will be understood that the machine can be made to correspond to any number.

When the machine is adjusted to a number of candidates below its normal capacity, only that number can be voted for, and, the proper number of candidates having been voted for, it is impossible to vote for more than that number, the machine being self-locking. In case of a less number of votes being recorded than the machine is adjusted for the machine is locked by the action of the voter leaving the booth through the exit-gate. The type-printing devices record the total number of votes polled, and the indicators, which are visible through a window, indicate the separate number of votes cast for each individual candidate.

Assuming that a ten-candidate recorder is in use and that there are ten candidates up for election, four only of whom are to be elected, the returning officer adjusts the regulating-bar so that any number of votes up to four may be registered by every voter having access to the recorder through the entrance-gate. The returning officer, who has a position on the outside of the booth contiguous to the entrance-gate, compares the voter's name with the registration-roll in the usual way, but instead of handing a printed ballot to the voter, as is customary, he simply checks off the voter's name and number on the voter's roll and writes the voter's roll-number on a card and inserts the same in the slot in the machine. The voter is now at liberty to pass through the entrance-gate.

The act of opening the entrance-gate draws out the regulating-bar to the limit previously gaged for four votes, or a total-adder of any desired construction may be used, and is therefore not necessary to be shown. Said adder may be of any well-known construction, and is therefore not necessary to be shown. As the voter passes through, the gate closes by spring-actuating mechanism.

Assuming that the voter wishes to cast a vote for each of the candidates represented by the numbers 1, 2, 3, and 4, (which numbers appear on the knobs attached to the recording-bars and which numbers are directly associated with the respective candidates' names, each of which prominently appears above the knob containing the candidate's number,) the voter presses in the four handles or knobs above noted with the following result: One vote is added to each candidate's total, which is concealed. The number on the knob of each recorder-bar so operated is stamped on the voter's card, which has been previously inserted in the machine by the returning officer prior to the voter entering the booth, and four votes (the total number cast by said voter) are added to the grand total, which, as before stated, faces the officer, but is concealed from view. These four knobs or handles having been pushed in, as above described, lock the remaining knobs, and provision is made, as will be hereinafter described, to prevent two or more knobs being pushed in simultaneously. Having recorded his four votes, the voter passes outward through the exit-gate, the opening of which leaves the machine ready for the next voter.

Should the voter, through design or accident, have registered a less number than the four votes to which he was entitled and for which the machine was set, the act of opening the exit-gate operates the regulating-bar and also releases the voter's card, which drops by gravity into a sealed receptacle and is available in case of scrutiny. On the voting being completed the total vote for each candidate, the grand total of votes cast for all the candidates, and the total number of voters passed through the booth are immediately obtainable by unlocking the shutters in front of the several counters and exposing their sums to view. The machine may now be reset for bringing the counter mechanism back to the unison or starting point, and the machine is now ready for use as in the first instance.

I will now proceed to more particularly describe the mechanism by which the above results are attained.

The vote-recorder consists of a suitable rectangular cabinet, of which A represents the top, B the bottom and E the front and C the back wall.

F F' designate the end walls, and G and H denote transverse vertical braces, which support contiguous parts of the mechanism.

1, 2, 3, 4, and 5 denote the knobs or han-

dles of the upper tier of vote-recording bars, and 6, 7, 8, 9, and 10 denote the knobs of the lower tier. Suitable guides *a* and *b* are also fixed to the face of the front wall E to receive the tablets *c*, on which appear the names of the several candidates, these names in the present instance being represented by the names of a corresponding number of the letters of the Greek alphabet, and *d d* represent the visual orifices or windows through which the counters representing the polled vote for each individual candidate are viewed.

A suitable screen or opaque slide (not shown) is attached to the front of the machine and secured by a suitable lock to conceal the total-result register and the individual-result registers for each candidate.

Each one of the knobs or handles is fixed on the forward end of a reciprocating vote-recording bar, and as each of these bars and its operating mechanism is identically the same a description of one will answer for all.

96 denotes the entrance-gate, which swings on the pintles 97 97', the pintle 97 extending vertically upward through a stationary bracket 100, fixed to the framework of the booth, and its upper end carries a spur-gear 101, which meshes with a pinion 102, fixed on the upper end of a short vertical shaft 103, also journaled in the bracket 101, and the upper face of this pinion carries a radial arm 104, to the outer end of which is pivoted a tubular rod 105 to receive the end of the reciprocating bar 32, which has a sliding engagement therewith so arranged that when the gate is opened the tubular rod will draw the reciprocating bar forward; but when the gate is released and closed by the action of the spring 96' the bar will remain stationary, while the tubular rod which encompasses it will slide back over it without affecting the bar.

95 denotes the exit-gate, and it carries a spur-gear 101', which meshes with a pinion 102', carrying a radial arm 104', to which is pivoted the tubular rod 105', which in like manner has a sliding engagement with the regulating-bar 32, so as to draw the bar forward when the gate is opened and permit the tubular rod to slide back over the regulating-bar without affecting it. The rear end of this regulating-bar 32 extends through a guide-socket 14, fixed to the rear wall of the case, and is provided on its outer end with holes for padlock or stop-pins *x*, spaced equal to three teeth lengths for regulating the number of votes for each voter. The front end is designed to connect with hollow shaft connected to pinion 102, connected with the entrance-gate. The lower face of the bar is formed with a toothed rack 32', which meshes with a spur-gear 60, fixed on the longitudinal shaft 47, journaled in suitable bearings 48 48, fixed to an upright of the casing.

56 denotes a bevel-gear fixed on the contiguous end of the shaft 47 and in mesh with a similar gear 56', fixed on a counter-shaft 57,

journaled in a bearing-box 58, and 59 denotes a disk fixed on said counter-shaft and carrying a radial spring-actuated pawl 59^b, (see Fig. 13,) which projects into the path of the teeth 59^a on the ten-toothed ratchet-wheel 39, fixed on the total-adder shaft 54^a, journaled in suitable bearings fixed in the casing.

The reciprocating bar 35, operated by the entrance-gate, also extends through the back wall of the casing, as in the case of the regulating-bar 32.

12 denotes the vote-recording-bar, which carries the knob or handle 5'. This bar passes through a guide-collar 13, fixed to the front end of the front wall, and the distance between the front face of said collar and the rear face of the knob or handle is the limit of movement, and when pressed inward each bar is retracted by a spiral spring 21, one end of which is attached to a hook on said bar and the other end to a similar hook fixed at a suitable point in the casing.

15 denotes the first pawl on the bar 12, and it is fulcrumed on the stud-screw 26, and the heel of this pawl abuts against the inner face of the front wall and serves to limit the outward movement of the bar. The free end of this pawl 15 rests upon a stud-pin 15', and its depending toe projects into the path of the teeth on the ten-toothed ratchet-wheel 39, mounted on the shaft 37, journaled in the bearings 45, fixed in the casing, and this pawl imparts a step-by-step movement to the said ratchet-wheel by moving it one tooth each time the bar is pressed inwardly. 39^a denotes the retaining-spring for the ratchet-wheel 39. A pawl 16 is also fulcrumed on the same side of the bar 22, and its heel is bifurcated to straddle the stud-pin 16', which serves to limit the play of the pawl, the free end of which projects into the path of the teeth on the ten-toothed ratchet-wheel 46^a, fixed on the shaft 46. A similar pawl 17 is also fulcrumed on the same side of the said bar, and its play is limited in a similar manner by the stud-pin 17', and the free end of the pawl projects into the path of the teeth on the ten-toothed ratchet-wheel 47^a, fixed on the shaft 47. The ratchet-wheel 39 carries a spur-gear 40, which meshes with a corresponding gear 42, loosely mounted on the fixed shaft 38.

22 denotes the vote-recording bar, which carries the knob or handle 1, and it carries a pawl 15², the heel of which abuts against the inner face of the front wall and serves to limit the outward movement of the bar when withdrawn by the spring 21', the forward movement being limited by the knob coming in contact with the guide-collar 13. The free end of the pawl 15² projects into the path of the teeth on the ten-toothed ratchet-wheel 39', loosely mounted on the stationary shaft 37', and 39^b denotes a retaining-spring to prevent the backward movement of said ratchet-wheel.

39² denotes a spur-gear carried by the

ratchet-wheel 39', loosely mounted on the fixed shaft 37', and it meshes with a similar gear 42', loosely mounted on the fixed shaft 38'.

23 denotes a rectangular skeleton frame depending from the opposite side of the bar 22, and on its lower end are pivoted the pawls 16^a and 16^b, which engage the ratchet-wheels 46^a and 47^a, respectively.

25 designates forked locking-bars of different lengths, (one for the lower and one for the upper handles,) which slide in slots 14^b. The fork is fitted with a roller to engage with the inclined plane of the regulating-bar 32, from which it receives a horizontal sliding movement. The other end of this bar is pivoted to a rocking bar 28. The top locking-bar is also pivoted to the rocking bar, whereby a horizontal movement in the opposite direction is effected. Tension-springs are provided to each of the bars to insure the return of the same.

The ratchet-wheel 39 has ten teeth and is keyed to boss on cog-wheel 40. 40 is a forty-toothed wheel, with boss made to carry ratchet, and is flanged to carry numbered barrel 41 and revolves loosely on spindle 37.

42 is a spur-pinion of forty teeth, running loosely on spindle 38, arranged to gear with 40, the flange of which engages with ratchet 39 to prevent the same from moving, but is provided with a finding-tooth 42^a and a recess 42^b to engage every tenth tooth of 39 and insure its engaging with finder-tooth. (See Figs. 5 and 9.)

The upper vote-recording rod is operatively connected to a similar counter through the medium of the ratchet-wheel 39' and the spur-gears 39² and 42, and there is a similar counter for each vote-recording rod.

The ratchet-wheels 46^a and 47^a are provided with retaining-springs 39^a 39^a, and these wheels receive their motion from the vote-recording bars 12 and 22, as hereinbefore described, and communicate it to the grand-total counters A' A' and B' B', as hereinbefore described.

The regulating-bar 32 at its rear end is provided with a series of limiting-holes *xx* to receive a stop-pin or a padlock to limit the forward movement of the bar when drawn out by the gate. These holes are spaced at intervals of three teeth (of the rack) each, the bar itself having sufficient horizontal movement to accommodate ten movements of three teeth each, and thus regulate the number of votes which each voter is permitted to cast.

113 113' represent beveled-face dogs fixed on each side of each recording-bar, and 115 denotes a series of brackets which support the front bars 116 116 and hold them equidistant, and they are also provided with stud-pins 119 to enter the slots 118 of the bars 117, which are divided at the line of the recording-bars, as shown, and when one of the bars is pushed in the beveled-face dogs 113 113' move the divided bar 117 laterally, thus bringing

the slide-bars 117 in contact with handles 12 and 22. Upon insertion of handles 12 and 22 wedges 113 and 113' expand the gap in slide-bars 117, and thus lock the remaining handle-bars against being pushed in.

120 denotes a vertical lever the free ends of which are pivoted to the bars 117 to communicate movement from one bar to the other. The back bar 25 is provided with a stud 110, which projects into the path of the vertical arm of the U-shaped lever 111, which throws the bar 116 into engagement with the wedges 113 and 113' for locking the same. 121^a denotes a similar stud-pin fixed on the locking-bar 117', and 121^b another stud-pin on the locking-bar 117, both of which project into the path of the pendulating lever 121, fulcrumed on the bar 116, and the lower free end of this lever 121 conveys the movement from the slide-bars 117 117' to the bell-crank lever 122, fulcrumed on the stud-post 123, fixed in the bottom of the casing. The longitudinal arm of said bell-crank lever 122 enters a slot 122' in the slide-plate 124, which is retracted by a spiral spring 126 and is formed with shoulders 124' and 124², which prevent the ratchet-wheels 46^a and 47^a being moved more than one tooth at a time.

125 denotes a flexible wire cord extending from the plate 124 over suitable guide-pulleys to the hinged lever 81 to retract the latter from the path of the stud 36 on the bar 35 to release the latter when the gate is opened.

The type-printing gear, which prints the numbers of the recording-bars that are used in voting on the voter's ticket, consists of a series of ten spring-retracted rods 82, the faces of which carry the types from "1" to "0" and which are adapted to be projected into the card-slot 89.

78 represents the slide or valve upon which the lower edge of the voter's card rests.

81 is a hinged lever secured to the frame, having a cord 80 attached to card-stop 78 and a stud 36 in bar 35, which, coming in contact therewith, gives a tension to said cord and sustains the same until the return of bar 35, which is connected to and operated by the exit-gate, and drops the voter's card into a locked receptacle. (Not shown.)

84 84 denote the type-actuating levers, fulcrumed in the brackets 85, and their free ends are connected by the tension-springs 86 to the wire rods 87, which in turn are connected to the bell-crank levers 88, the free ends of which project into the path of the vertical studs 31 on the correspondingly-numbered recording-bars 1 to 10, so that when a particular handle-bar is pressed in to record an individual vote the corresponding number is stamped on the voter's ticket.

62 represents a spool on a shaft 63, journaled in the bracket 64, and 65 denotes the ink-ribbon, which is first wound on the spool and thence passes across the faces of the type-bars 82, which are provided with com-

pression-springs 83, and thence onto a spool 66, mounted on a shaft 67, journaled in the bracket 64', and 68 denotes a spur gear-wheel fixed on the shaft 67 and in mesh with a similar though smaller gear 69, fixed on a counter-shaft 70, journaled in the bracket 64². A ratchet-wheel 71 is also fixed on said counter-shaft, and a lever 72 is fulcrumed on said shaft, and its free end carries a pawl 72', which meshes with said ratchet-wheel, and from this lever 72 a bar 73 extends to a stud 61 on the locking-bar 25, whereby a step-by-step movement is imparted to the type-ribbon spool 66 every time the bar 25 is actuated. 79 represents the compression-spring, which returns the cord-slide 78 to place after the cord 80 has been released.

74 74 denote the guide-plates for the type-printing bars, and 75 75 denote the parallel pressure-plates, secured in position by the connecting-bar 76, from which a rod 77 runs to the rocking lever 77^a, the opposite end of which is pivoted to the stud 61 on the locking-bar 25, which imparts a sliding movement to the plates 75 75.

The operation of pressing in one of the vote-recording bars to register a vote is the same with all the rest, and if the machine is adjusted to receive only three votes from every voter, as before stated, by adjusting the padlock or stop-pin in the corresponding orifice x in the regulating-bar the opening of the entrance-gate draws this bar forward to the three-vote limit for which it was set, and the voter's ticket after being numbered with the voter's roll-number is dropped in the ticket-slot 89, where it rests upon the slide 78. The voter now enters the booth through the entrance-gate, which sets the regulating-bar to the three-vote limit, and when the voter presses in the handle-bar 12 the regulating-bar drops back a distance equivalent to three teeth, and at the same time the appropriate mechanism, heretofore described in detail, registers one vote on the individual counter, one vote on the total-results counter, and also actuates the corresponding type-bar to imprint the candidate's number on the back of the voter's ticket.

It will be noted that when one handle-bar is pushed in the beveled-face dogs 113 113' on that particular bar separate the meeting ends of the bars 117 or 117' laterally, so as to prevent the pressing in of a second bar while the first is in, and likewise the attempt to press in two handle-bars simultaneously would result in a like crowding of the said bars 117 or 117', and thus prevent either being forced in.

In practice each of the handle-bars may be provided with a lateral pin which projects into the path of a bell-hammer, which, reacting on a gong, will sound an alarm and notify the returning officer that a vote has been recorded.

Of course it will be understood that while

I have illustrated my invention in the best form now known to me many changes in the details might be made within the skill of a good mechanic without departing from the spirit of my invention as set forth in the claims at the end of this specification.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

10 1. The combination with a voting-booth, a gate leading thereto, and an operating-bar connected to said gate, of a vote-register adapted to record individual votes, an auxiliary register forming a part of said vote-register, a rack-bar adapted to operate the units-wheel of said auxiliary register, a shaft, a gear-wheel fixed to said shaft, the gear-wheel being in mesh with said rack-bar, and means whereby the movements of the gate will be communicated to said gear-wheel and thence to the units-wheel of said auxiliary register at each movement of the same, substantially as and for the purpose set forth.

25 2. In combination, a vote-register, a booth encompassing said register, and a gate leading from said booth, a series of type-printing bars, a ticket-support arranged contiguous to said type-printing bars, and means substantially as described for actuating said ticket-support through the medium of said gate.

30 3. In combination, a vote-register provided with a series of vote-recording bars, and means for registering the movement of said bars, a gate leading from said register, a regulating-bar operatively connected to said gate and adapted to limit the number of said bars which may be operated, a printing device operated by said vote-recording bars, and a ticket-support operated by said regulating-bar, substantially as shown and described.

45 4. In combination, a vote-register provided with a series of vote-recording bars arranged in tiers, a set of locking-bars for each tier, an individual register for each bar, and a total-

result register common to all of said bars, substantially as and for the purpose specified.

5 5. In combination, a vote-register provided with a series of vote-recording bars, and individual register for each bar, a series of type-printing bars independently connected to said vote-recording bars, and means for simultaneously operating one of said vote-recording bars, its individual register and the corresponding type-printing bar, substantially as and for the purpose set forth.

6. In combination, a vote-register provided with a series of vote-recording bars, an individual counter for each bar, and a total-result counter common to all the bars, a series of type-printing bars corresponding to said vote-recording bars, and means for simultaneously operating said type-printing bars, substantially as and for the purpose set forth.

7. In combination, a vote-register provided with a series of vote-recording bars, a counter common to all of said bars, a series of type-printing bars corresponding to said vote-recording bars, and means for simultaneously operating said counter and one of said type-printing bars through the medium of one of said vote-recording bars, substantially as and for the purpose set forth.

8. In combination, a vote-recording register provided with a series of vote-recording bars arranged in tiers, a series of type-printing bars corresponding to said vote-recording bars, an individual register for each bar, and means whereby the movements of one vote-recording bar will be communicated to its corresponding type-printing bar, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

J. H. MANDER.

Witnesses:

THOS. WALLACE,
GEO. STEVENSON.