

(No Model.)

6 Sheets—Sheet 1.

F. W. CROSBY.

TELLER AND RECORDER FOR LEGISLATIVE BODIES.

No. 250,788.

Patented Dec. 13, 1881.

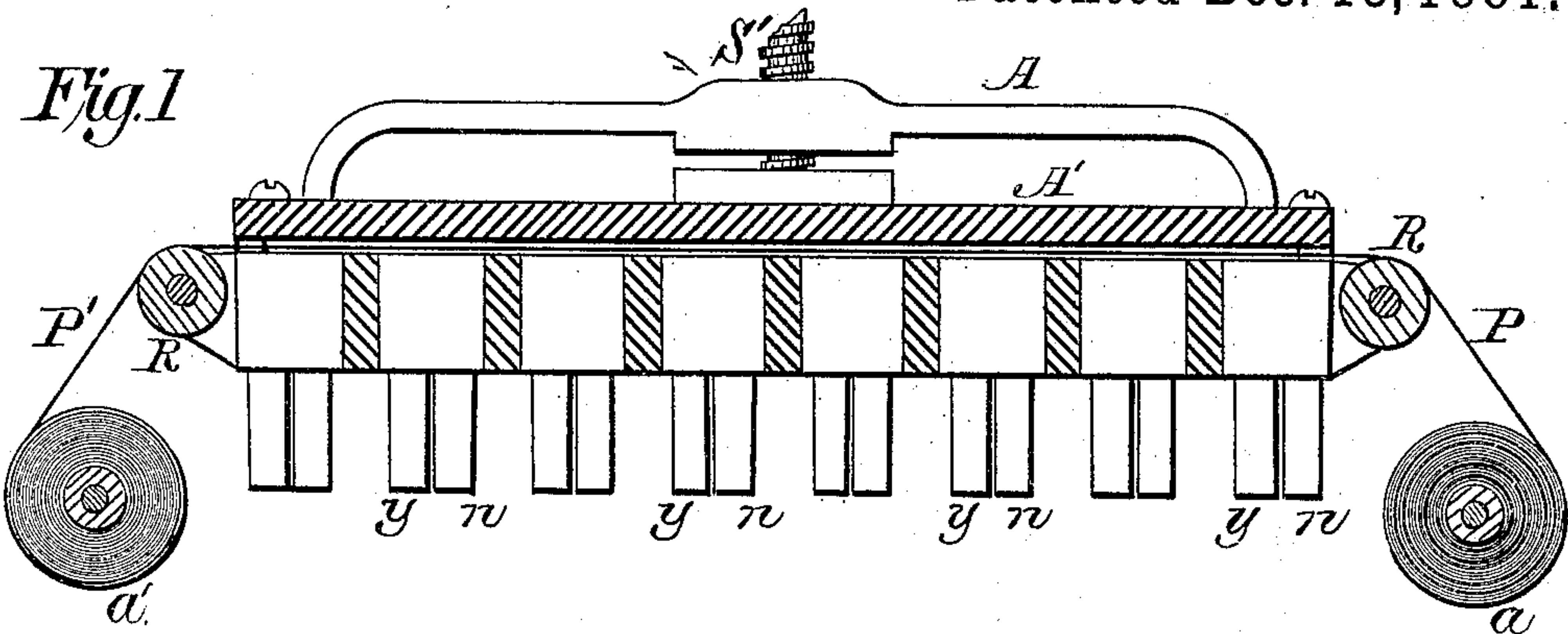
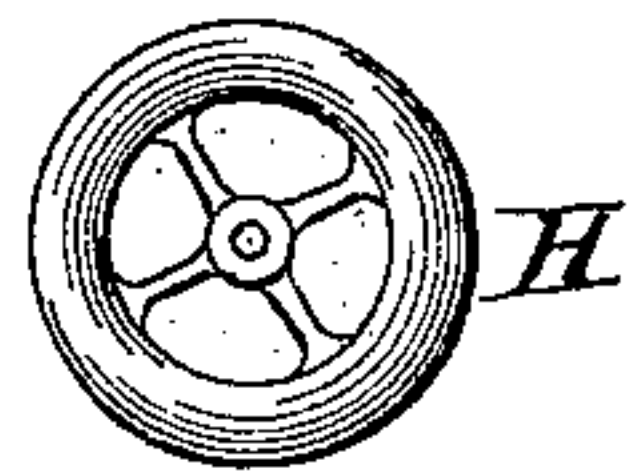
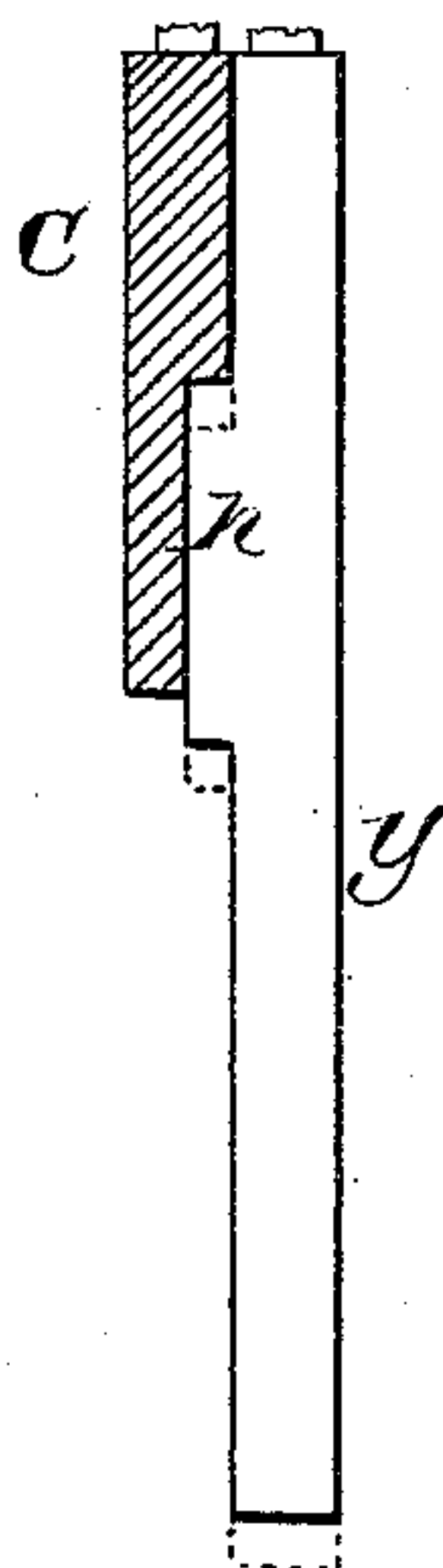
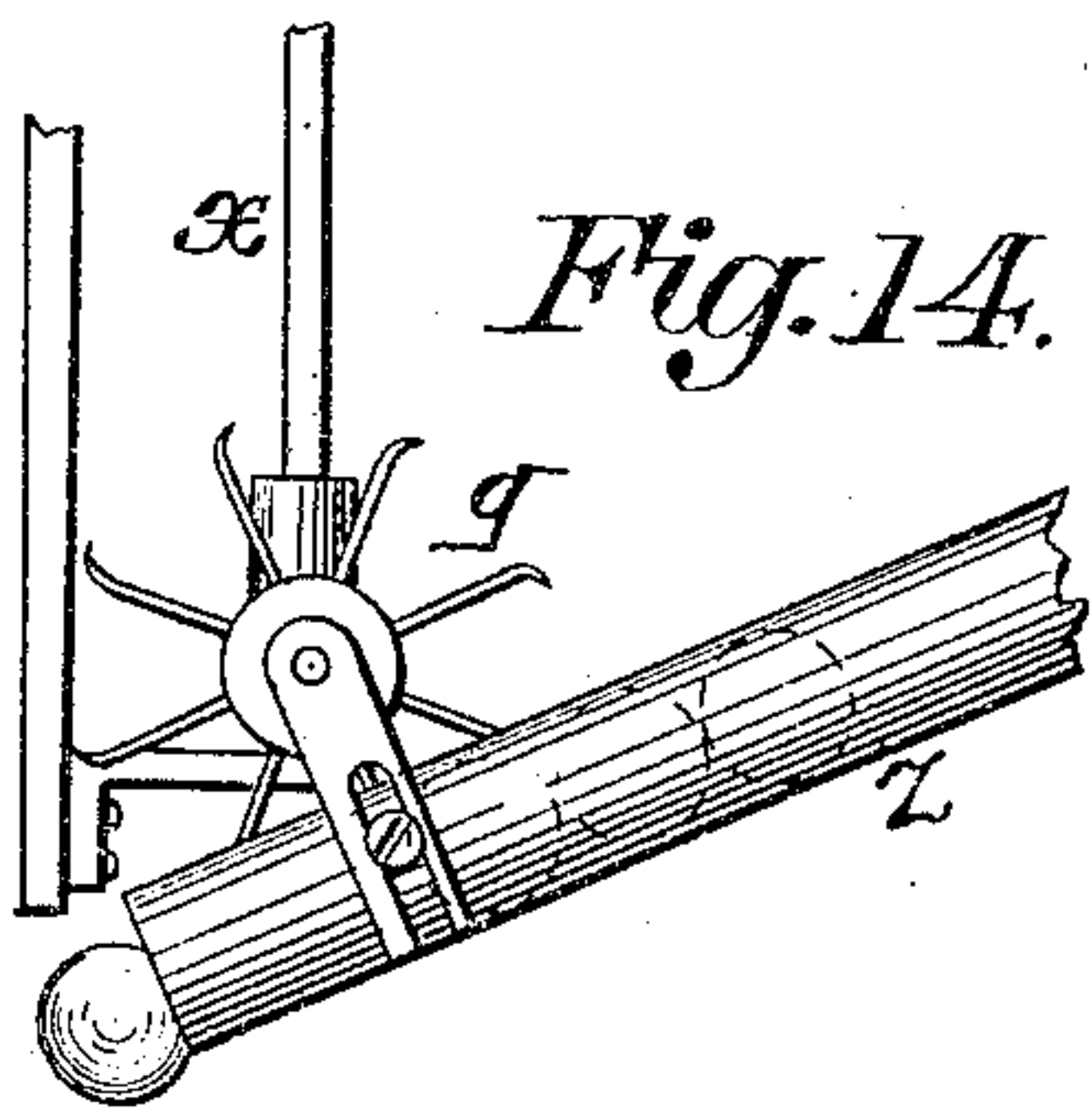
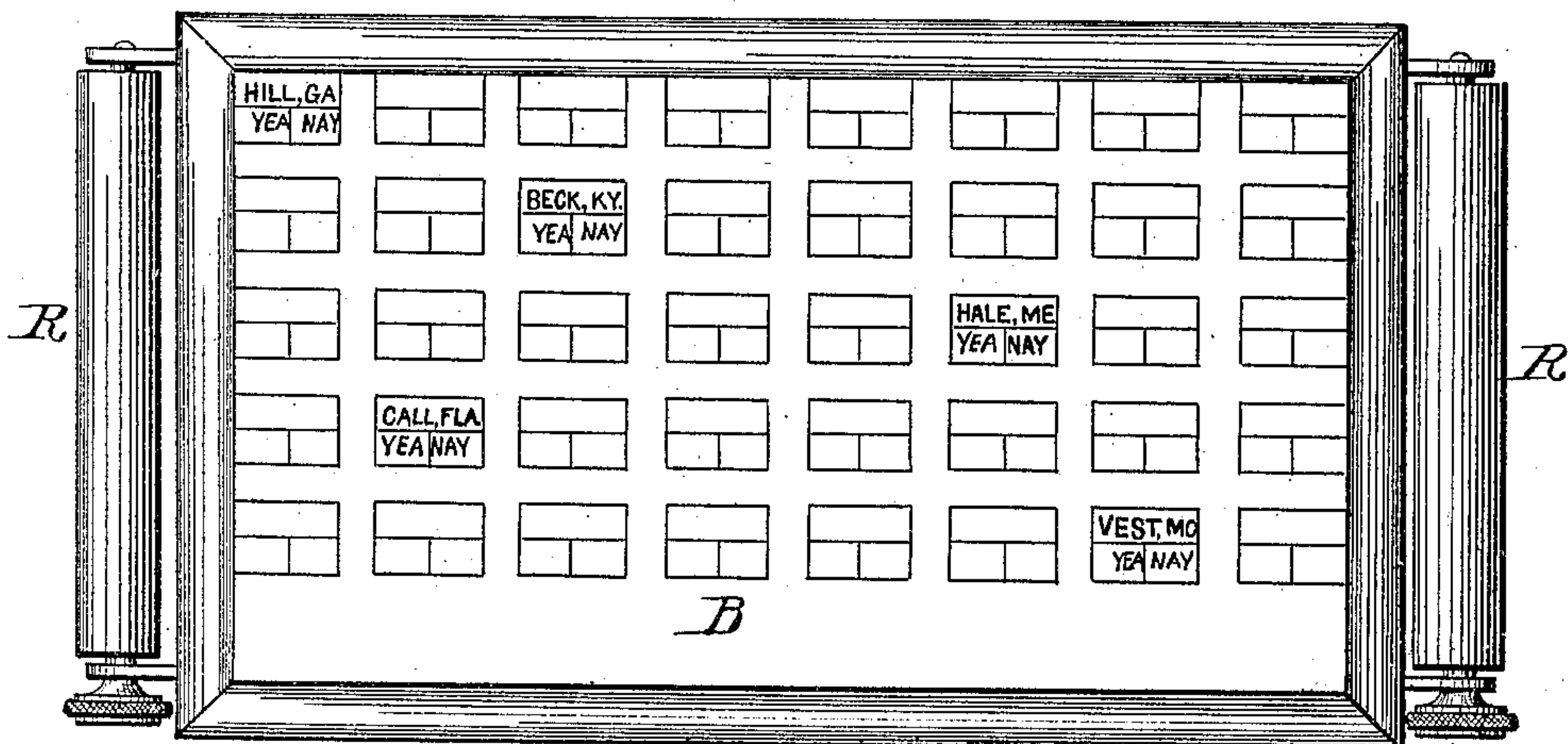


Fig. 2.



Witnesses:
Anna M. Fenton.
M. L. Hawley.

Inventor:
F. W. Crosby

(No Model.)

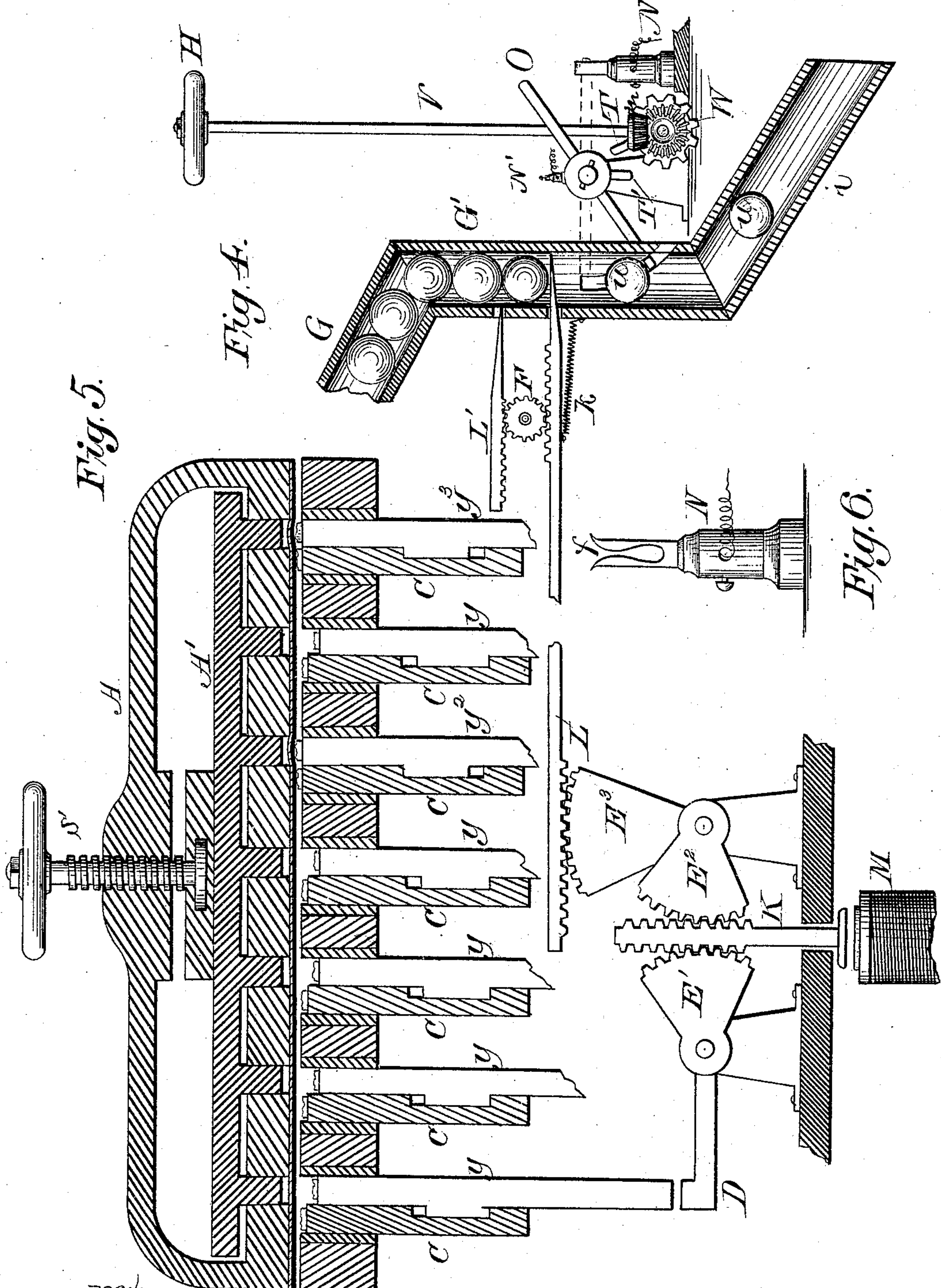
6 Sheets—Sheet 2.

F. W. CROSBY.

TELLER AND RECORDER FOR LEGISLATIVE BODIES.

No. 250,788.

Patented Dec. 13, 1881.



Witnesses:
Anna M. Barton.
M. L. Hawley.

Inventor:
F. W. Crosby

(No Model.)

6 Sheets—Sheet 3.

F. W. CROSBY.

TELLER AND RECORDER FOR LEGISLATIVE BODIES.

No. 250,788.

Patented Dec. 13, 1881.

Fig. 7.

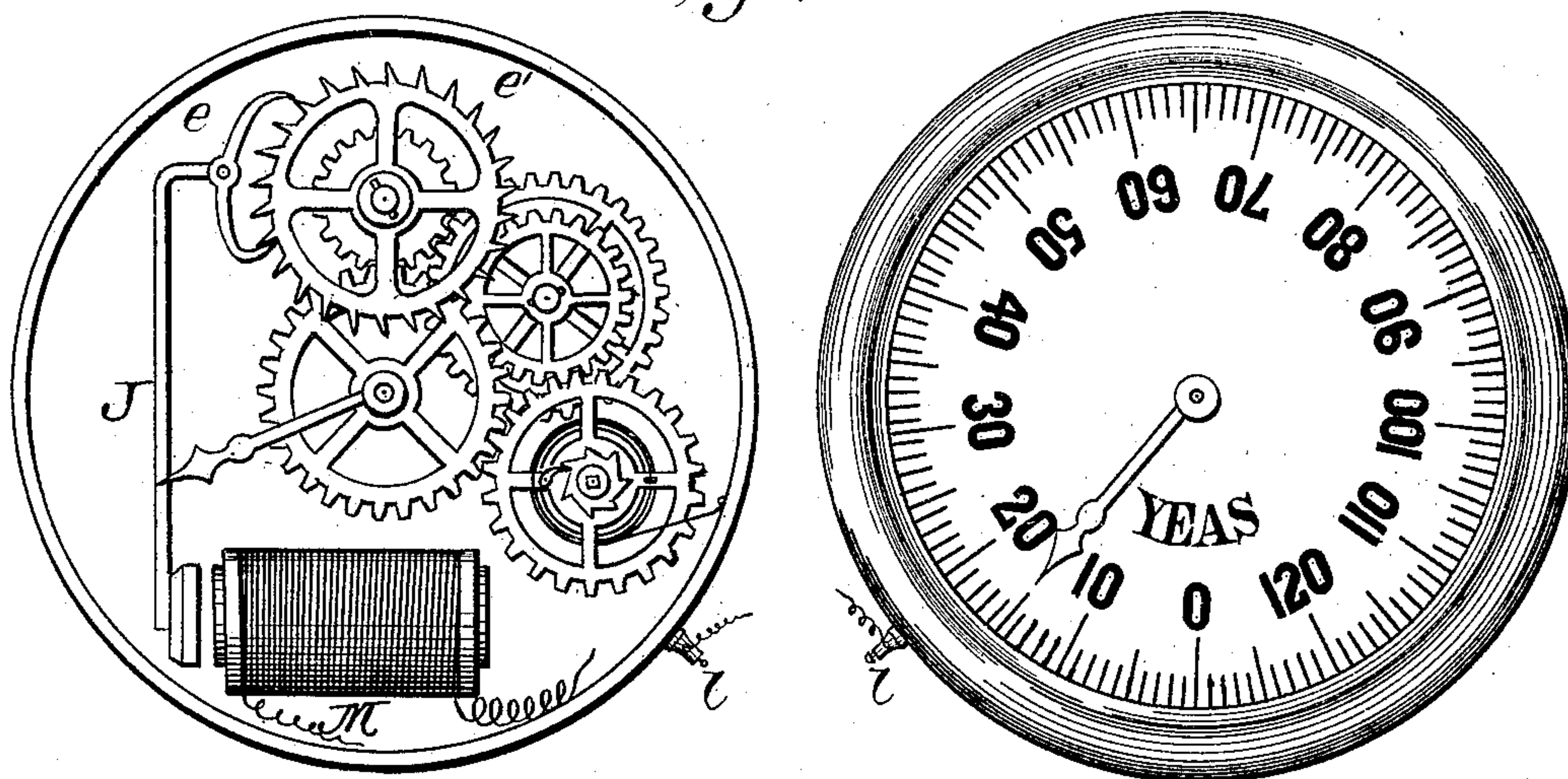


Fig. 8.

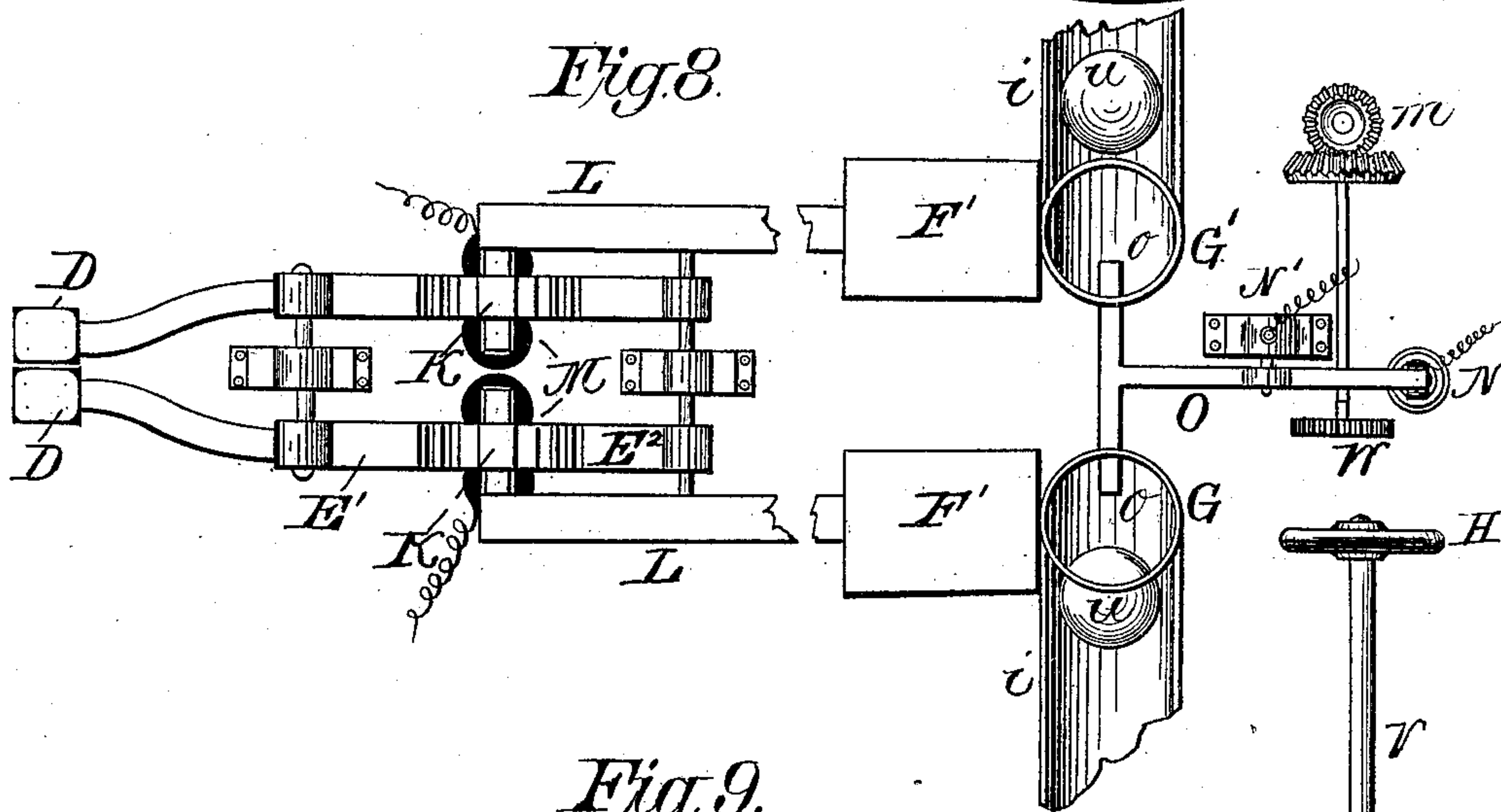
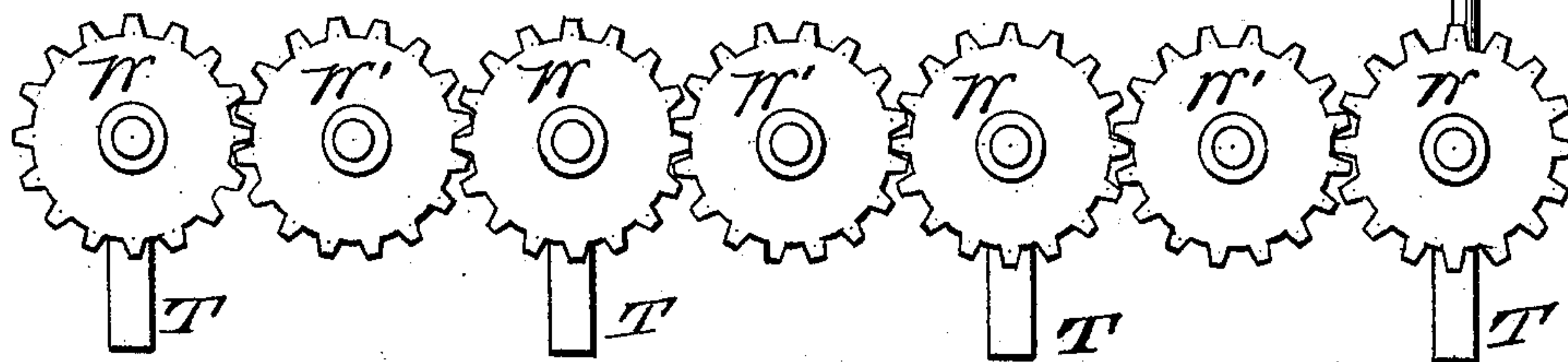


Fig. 9.



Witnesses:
Anna M. Fenton.
M. L. Hawley.

Inventor:
F W Crosby.

(No Model.)

6 Sheets—Sheet 4.

F. W. CROSBY.

TELLER AND RECORDER FOR LEGISLATIVE BODIES.

No. 250,788.

Patented Dec. 13, 1881.

CAMDEN, N.J. YEA	GROVER, ORE. YEA	INGALLS, KAN. YEA	PLUMB, KAN. YEA	SHERMAN, O. YEA	WILLIAMS, KY. YEA
ANTHONY, R. I. YEA	FRYE, ME. YEA	JONAS, LA. YEA	MAHONEY, VA. NAY		
BAYARD, DEL. NAY	FAIR, NEV. NAY	JONES, FLA. NAY	MAXEY, TEX. YEA	RANSOM, N. C. YEA	SLATER, ORE. NAY
BECK, KY. NAY	FARLEY, CAL. NAY	HARRIS, TENN. YEA	MILLER, CAL. NAY	TELLER, COL. YEA	
BLAIR, N. H. NAY	FERRY, MICH. YEA	KELLOGG, LA. NAY	MITCHELL, PA. YEA	VANCE, N. C. NAY	
BROWN, GA. YEA		LAMAR, MISS. YEA	MORGAN, ALA. NAY		
	GORMAN, MD. NAY	LOGAN, ILL. NAY	SAWYER, WIS. YEA	VEST, MD. NAY	
BUTLER, S. C. NAY	DAWES, MASS. NAY	HILL, COL. YEA	PENDLETON, O. NAY		
CALL, FLA. YEA	EDMUNDS, VT. YEA	HOAR, MASS. NAY	PLATT, CONN. YEA	SEWELL, N. J. NAY	WALKER, ARK. YEA

Witnesses:
Anna M. Denton.
M. L. Hawley.

Fig. 10.

Inventor:
F. W. Crosby

SENATE. 6095.

(No Model.)

6 Sheets—Sheet 5.

F. W. CROSBY.

TELLER AND RECORDER FOR LEGISLATIVE BODIES.

No. 250,788.

Patented Dec. 13, 1881.

Fig. 11.

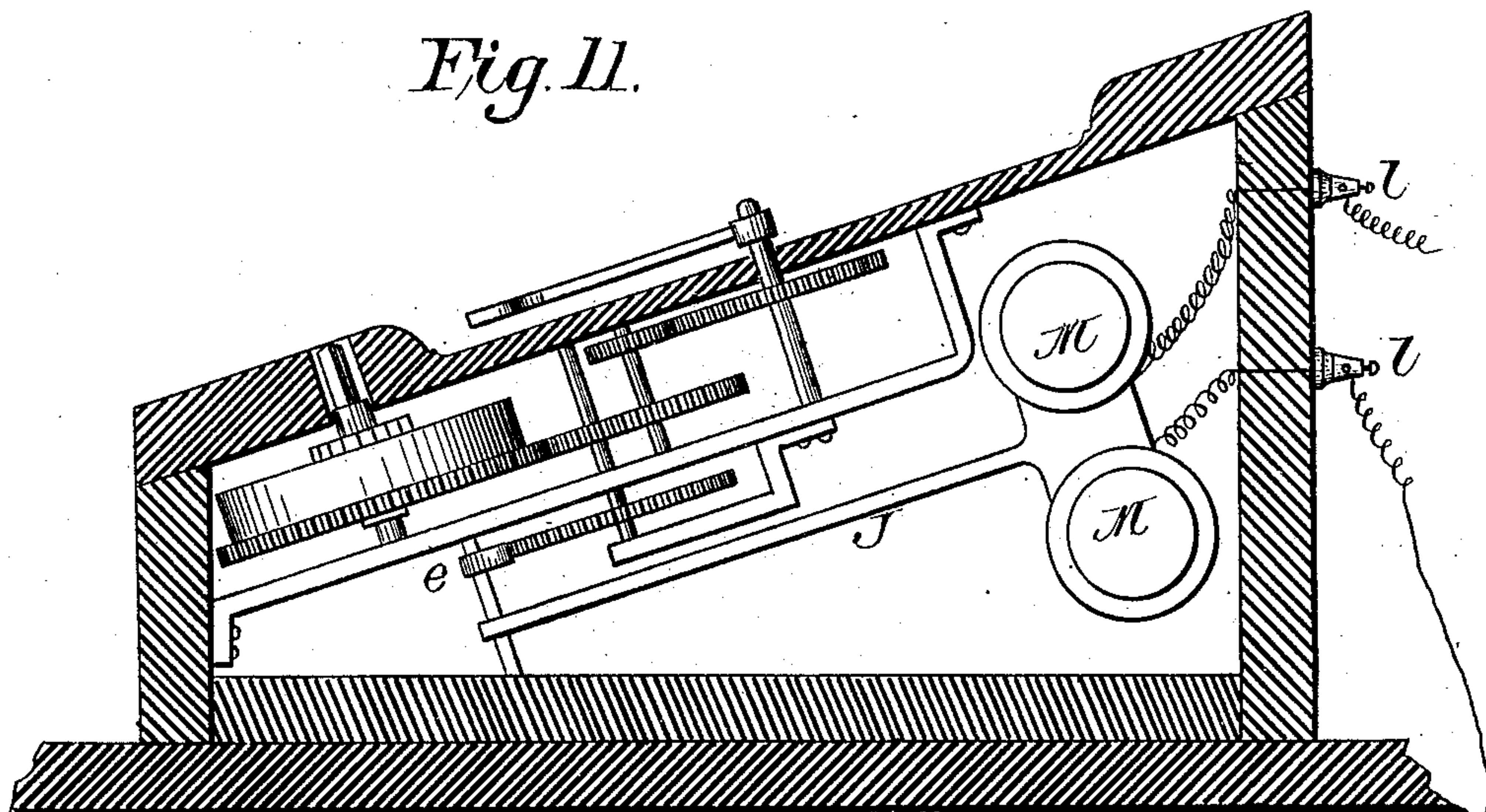


Fig. 12.

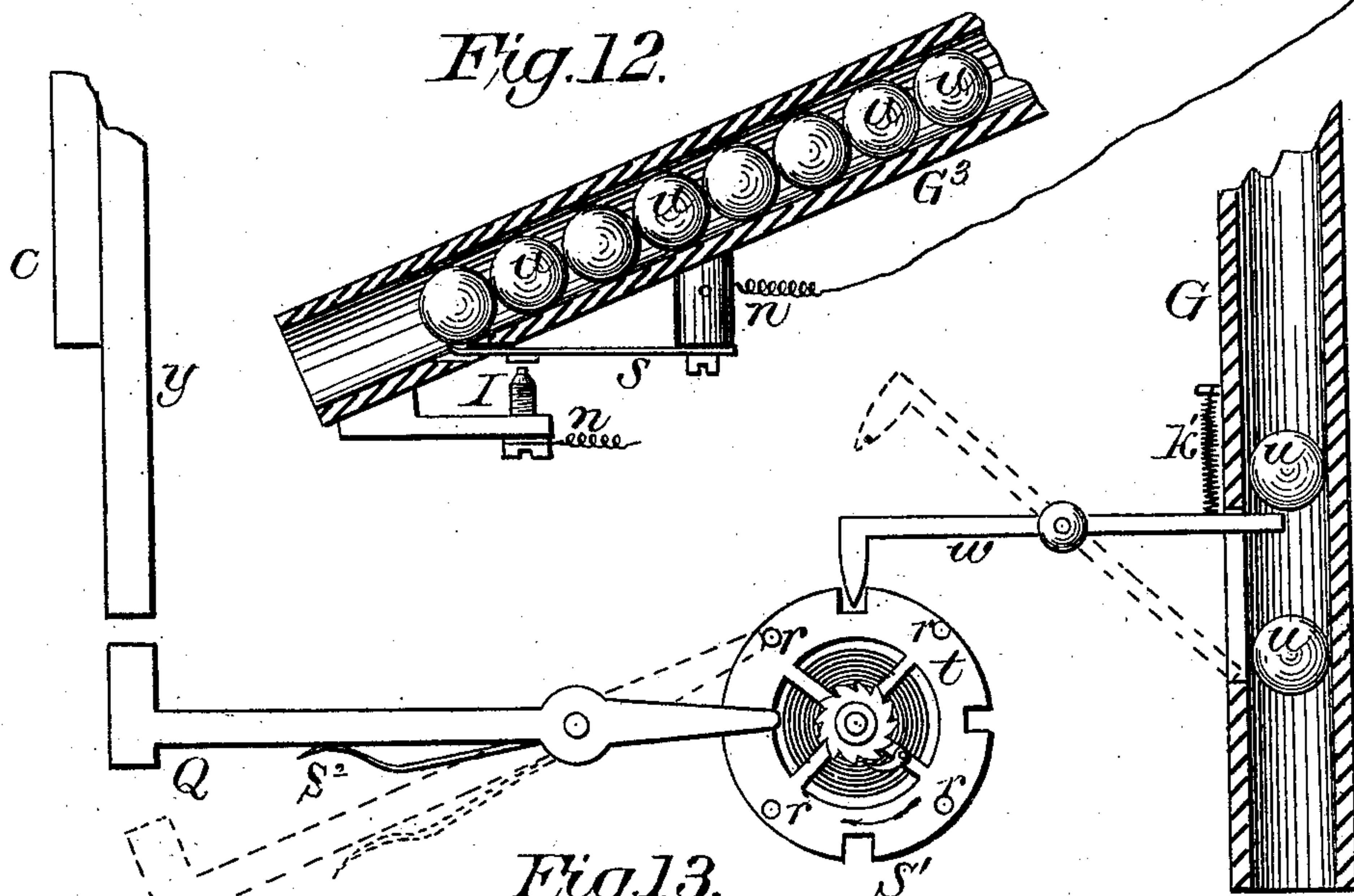


Fig. 13.

Witnesses:
Anna M. Norton.
M. L. Hawley.

Inventor:
F. W. Crosby

(No Model.)

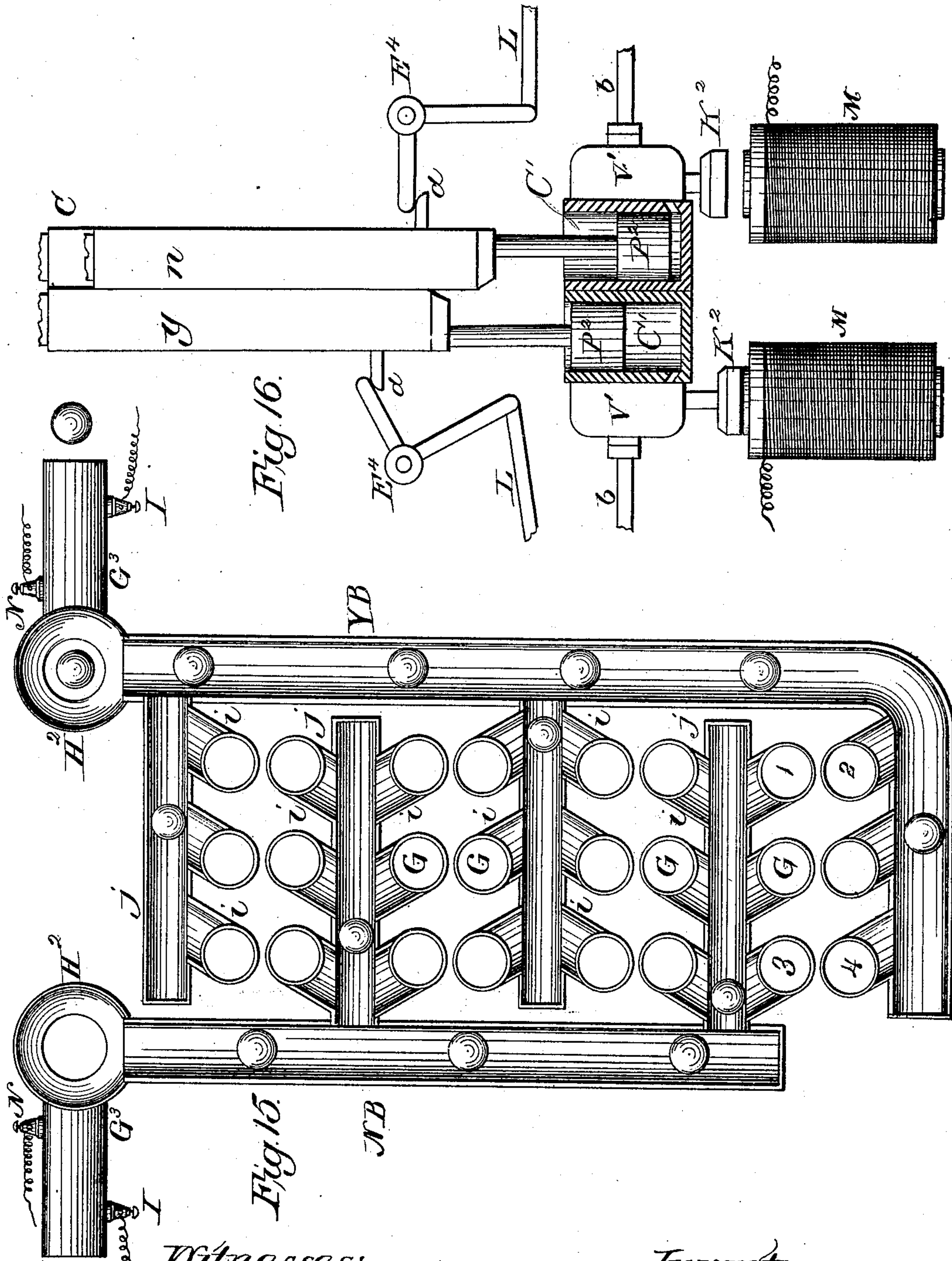
6 Sheets—Sheet 6.

F. W. CROSBY.

TELLER AND RECORDER FOR LEGISLATIVE BODIES.

No. 250,788.

Patented Dec. 13, 1881.



Witnesses:
Anna M. Barton.
M. L. Hawley.

Inventor:
F. W. Crosby

UNITED STATES PATENT OFFICE.

FRANCIS W. CROSBY, OF WASHINGTON, DISTRICT OF COLUMBIA.

TELLER AND RECORDER FOR LEGISLATIVE BODIES.

SPECIFICATION forming part of Letters Patent No. 250,788, dated December 13, 1881.

Application filed August 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS W. CROSBY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented a new and useful Apparatus for Taking, Determining, and Recording Votes in Legislative Bodies, of which the following is a specification.

My invention is designed to facilitate and expedite the business of calling the roll and voting in legislative or other deliberative assemblies.

The objects sought have been to devise, first, a method of calling the roll in such bodies, by which the number of members present and their names may be determined in a few seconds; second, to provide for the taking of the yeas and nays simultaneously and with perfect accuracy; third, to provide for the printing of the vote at the instant it is taken, and showing on a suitable tally-sheet the name of every member voting and how he voted; fourth, to have the vote counted, summed up, and the result laid before the presiding officer, and also before the legislative assembly; fifth, to provide against the possibility of a member's voting twice on the same call or motion; sixth, to furnish a method of calling the roll and printing the names and States or districts of members without printing the yeas or nays. I accomplish these results by the mechanism illustrated in the accompanying drawings, in which the parts of a legislative hall, desks, &c., have been omitted and the machinery only represented.

The direct operating agent is to be electricity generated by suitable galvanic batteries; but I also contemplate using compressed air or springs as auxiliary powers to operate certain parts of the machinery, as herein explained and set forth.

Each member's desk and the presiding officer's desk is to be connected to the printing and counting machinery by suitable wires laid under the floors or otherwise, as may be most convenient. Each desk will have two electric press-knobs and may have an independent battery, or several desks may use a more powerful battery in common. The galvanic batteries may be in any part of the building.

Figure 1 represents a vertical section of the

printing-machine, taken in a longitudinal direction, in which A A' are the principal parts of the platen. R R are guide-rolls. P and P' is the web of paper, and a a rolls of the same. y y n n are type-blocks, y y y having types set in the upper end to form the word "yea," and n n n having the word "nay."

Fig. 2 is a view of the upper side of Fig. 1 after the platen A A' and paper P have been removed, and shows how the type-blocks are arranged. B is an open space not covered by the platen, so as to allow the title of a bill or motion to be written on the blank margin.

Fig. 3 is a view edgewise of one set of the type-holders. A set consists of three pieces, C, holding a member's name and State or district, and y and n, containing the words "yea" and "nay." The yea and nay pieces have each a lug, h, or projection, as shown in Fig. 3, and C has a corresponding offset, and when the upper ends are even the block C rests on the lug h. These three parts are each balanced by small springs, (not shown in the drawings,) and are made so as to slide freely for about one-fourth of an inch. Their weight being lifted by the springs, or nearly so, a very slight impulse will raise them. It will be seen that if y or n be raised C will also be carried up by the lug h.

Fig. 4 represents a part of the machinery for counting the votes, to be explained hereinafter.

Fig. 5 represents a transverse vertical section of the entire printing machinery, in which A A' are the parts of the platen, C y C y are the type-holders, and S' is a strong screw, attached to A' by means of the collar on the lower end. M is a magnet, and K a double-toothed rack fastened to its armature. E' and E² are cogged segments geared to K. D is a cam or hammer for lifting the type-block y. E³ is another toothed segment working into the rack L, which, being extended, has a rack on its upper side geared into the pinion F, and giving consequently a reverse motion to L'. Both of these racks have thin knife-blade-shaped ends, and as they move back and forth they pass in and out of the tube G' through two slots in its side. G is a tube leading to a magazine of small balls. i is a conduit for carrying the balls to the collector, Fig. 15. O represents a device for breaking the circuit at the instant that a member votes. It is a small lever, that when

in a horizontal position, as shown by the dotted lines, forms part of the member's circuit by the wires $N N'$. The act of voting releases the ball u , which, in falling, strikes an arm of the lever O , as shown in the drawings, and forcing it downward breaks the circuit. H, V, T, W , and W' are parts of the device for restoring the broken circuits.

Fig. 6 is another view of N in Fig. 4, and it will be seen that a contact is made by the lever O being pressed into the fork f .

Fig. 7 represents a face view of the yea and nay indicators, the nay instrument having the dial-plate removed and showing the interior construction.

Fig. 8 is a top view of Figs. 4 and 5 after the removal of the printing-machine. $D D$ are the two hammers for lifting the yea and nay type-blocks. E' and E'' are the cogged segments. $L L$ are the racks. $F' F'$ are the cases containing the pinions $F F$, one of which is shown in Fig. 4. $G' G'$ are the two tubes into which slide the thin ends of the racks $L L$, and in the lower part of which are the arms of the circuit-breaking lever O . $i i$ are spouts, one to carry the yea-balls to the yea-ball collector, Fig. 15, and the other to convey the nay-balls of a member to a like common nay-ball collector. m is a set of bevel-gear wheels forming part of the machinery for closing the broken circuits, and Fig. 9 is also a representation of a side view of the same. Its operation is as follows: Every member, in voting, breaks his circuit by releasing a ball from the magazine-tube G , Fig. 4, which, falling on one or the other of the arms of O , displaces it. The broken circuits are again closed by a turn of the hand-wheel H , Figs. 2, 4, and 9, for H , by means of the shaft V , turns the bevel-gears m , and on the shaft of m W are pins T , Figs. 4 and 9, that, engaging with the short arm of the lever $O T'$, will bring that back to its place, as shown in the dotted lines, Fig. 4.

Fig. 9 shows a series of the spur-wheels W W , Figs. 4 and 8, with the intermediate wheels, $W' W' W'$. For a legislative body, say, of eighty members, there would be required ten sets of these gears with eight pins $T T$ on each. It will be seen that the spur-wheels $W W W$ all rotate in the same direction, and it is to be understood that a lever, O , Fig. 4, with its short arm T' , is placed so that as W is turned by the hand-wheel H every pin T engages with an arm T' , bringing all the levers O into place.

Fig. 10 represents one of the printed records as it might appear if taken in the present Senate of the United States.

Fig. 11 is a section through the indicator, Fig. 7, in which $M M$ are the magnets, and J is a lever attached to the armature, and also to the escapement e ; and the arrangement is such that whenever the magnet acts the lever J is moved just far enough to allow one tooth of the verge-wheel to escape. This machine is wound up like a clock, and has a dial-plate that is divided into as many parts as there are mem-

bers in the legislative body. Electric connection is made at the screw-cups $l l$.

Fig. 12 represents a machine which may be termed the "enumerator," in which G^3 is a tube leading from either the yea or nay ballot collector, there being a machine like this attached to each. $u u u$ are the balls to be counted. S is a sensitive spring that is depressed by the balls in passing. I is an insulated point connected with the battery, and also with the magnet M of the indicator, Fig. 11, whenever the spring S is depressed so as to form a contact. The manner in which it operates will be easily understood. Every ball, in its passage, presses the spring S , so as to make a contact with I , and the magnet M , Fig. 11, acting on the escapement e by means of the lever J , releases one tooth, and the hand on the dial moves over one space—in other words, counts one.

Fig. 13 represents another device for operating the printing-machine, in which the power required to work the hammer Q is generated by the spring-actuated wheel S' , and it is made to act as each member votes by the ball which he releases, as shown in Fig. 4, falling on the end of the lever w , which is thereby displaced, and the wheel, with its four pins, $r r r r$, revolves in the direction of the arrow, and one of the pins, meeting the short end of Q , carries it up, as shown in the dotted lines. Just as the hammer is released the wheel is caught by the dog on the lever w , its motions being accelerated by the coil-spring k' . The hammer is thrown upward by the spring S'' . For every vote that is printed the plate-wheel, with its pins $r r r r$, makes a quarter-revolution.

Fig. 14 is a device for operating the clock-work of the indicator, Fig. 7, and counting the ballots by a mechanical arrangement without the agency of electricity. Z is a tube leading from either the yea or nay ballot collectors. As the ballot-balls roll through the tube they strike the arms of the light wheel q , which pass into the tube through a slot. The rotation of q gives motion by means of bevel-gear to x , which communicates with the clock-work of the indicators, Fig. 7.

Fig. 15 represents a plan of the yea and nay ballot collectors, in which $G G$ are the ballot-discharging tubes, as shown in Figs. 4 and 8.

$Y B$ is the yea-ballot collector, and $N B$ the nay-ballot collector. $i i i$ are short spouts for conveying the ballot-balls from G to leading-troughs, that conduct them into the ballot-collectors $Y B, N B$. $H^2 H^2$ are hoppers to receive the ballot-balls, and are connected directly with the enumerators, Fig. 12. It will be noticed that the tubes $G G$ are arranged in pairs, so that one tube of each pair shall discharge into the yea-collector and one into the nay-collector, as shown in the pairs 1 and 2 and 3 and 4. As before stated, one pair of these forms a part of each member's voting apparatus.

Fig. 16 is a device for operating the printing and balloting machinery by the use of compressed air, steam, or other vapor or gas

under pressure, in which C C' are the cylinders, and P² P² are the pistons. V' V' are the valve-boxes, and b b are pipes leading to reservoirs of compressed air or other motor used.

5 M M are magnets connected by leading wires to a member's desk. K² K² are the armatures, and are connected directly with the valves n y. C are the type-blocks. E⁴ and the cam d are for operating the balloting-machine by the rack-bar L, as shown in Figs. 4 and 8. The manner in which it operates will be readily understood.

The manner of using my invention in a legislative assembly is as follows: Every member's desk, as before stated, will have two ordinary electric press-knobs provided with lock and key. In this description the right-hand one will be termed the "yea" knob and the left-hand the "nay." These press-knobs are 20 suitably connected to the batteries and to the voting machinery. The printing-machine may form part of the clerk's desk, or be on a separate desk, or even in another room. On the presiding officer's desk I place the indicator, 25 Fig. 11. This has two dials, as shown in Fig. 7. It is operated by an independent battery. On the wall behind the presiding officer, or in some other conspicuous place in the chamber, I place another indicator similar in its construction to the one on the presiding officer's desk, except as to the shape of the case, but 30 very much larger, so that the figures may be read from the farthest part of the hall. A motion being before the assembly, the presiding officer calls for the yeas and nays. Every 35 member who desires to vote for the motion will press the right-hand knob on his desk, and every member opposed to the motion will press the left-hand knob on his desk. Now, in Fig. 40 5, the magnet M being made to act in consequence of the connection made by a member's pressing, say, the yea-knob on his desk, K will be drawn forcibly down, throwing the hammer D against the type-block y. This, in 45 going up, as already explained, carries C with it, and both being nearly balanced by springs, a light blow is sufficient to leave the imprint of the types they carry on the paper that lies between the form and the platen. The inking may be done, as in a type-writer, by the 50 use of blackened cloth or paper laid either above or below the paper P, Fig. 1. The same motion of K, Fig. 5, downward carries the rack L in a horizontal direction to the left, and L' is moved by the pinion F to the right, 55 or in a reverse direction. It will be readily understood that the result of these motions will be to release one of the balls in the tube G and intercept the one immediately 60 above it; that then the coiled spring k, acting in conjunction with the hammer D, will return L to its place. L' will make a reverse movement, and the next ball will rest on L, ready for the next vote. The released 65 ball or ballot, on falling, strikes an arm of the

the dotted lines, and by forcing it down the electric circuit is broken, and that member cannot vote again until his circuit is closed. It will be understood that when O is in a horizontal position it is pressed gently between the 70 spring-connections of N, a view of which is shown in Fig. 6. The released ballot, having broken the electric circuit, is carried by the short spout i to the ballot-collectors Y B or N 75 B, as shown in Fig. 15, and thence through the hoppers H² H² to the enumerating-machines, Fig. 12, and as the ballot-ball passes through the tube G³ it strikes the end of the spring S, and, depressing it, closes the electric circuit I 80 n, and by this act, as before explained, the hand on the indicator, Fig. 7, will be carried forward over one division on the dial-plate, and if, say, forty members voted in the affirmative, the pointer of the yea-indicator would 85 move rapidly around to the figure 40 on the dial, and the negative vote would be shown in the same manner at the same instant by the nay-indicator, and in this manner the result of any vote is obtained in a few seconds with absolute accuracy, and a printed record also 90 made, Fig. 10, ready for the reporter and printer, giving the names and States and showing how each member voted. The record-sheet also shows by the blank spaces what members 95 are not voting, as a member's name always occupies the same place in the form. When the day's session is ended the printed roll is ready for the printer.

Instead of the spool a', I may put in a folding-machine and fold the sheets, and, securing them with a clamp or by sewing, cut the leaves, and thus render it easy to examine them and to designate such as are to be printed. 100

In making the equivalent of a roll-call—that is, determining the number of those present 105 and their names—with my invention, the proceeding is just the same as for voting, excepting that the yeas and nays are not taken and all of the members use the yea press-knob. To 110 avoid printing the yeas and nays on a roll-call, the clerk or his assistant, by a half-turn of the screw S³, Fig. 5, raises the inner platen, A', about one-eighth of an inch. These parts 115 of the platen are those immediately over the yea and nay type-blocks, as shown in Fig. 5. Then, as the members answer to their names by pressing a knob, the types act precisely as in voting; but, the platen being raised over the yeas and nays, those types merely bend the felt 120 and paper upward, as shown at y² and y³, Fig. 5, but leave no impression, while the member's name and State are printed, as in voting; and as all the members use the yea press-knob, the yea-indicator will give the whole number 125 present.

I am aware that prior to my invention there have been voting-machines and legislative tellers and recorders designed, although I know of no instance where they have ever been practically used; and I am also aware that types 130 in blocks, balls as ballots, and indicators for

giving the results have been heretofore invented. I therefore do not claim such a combination, broadly.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a legislative voting and recording apparatus, of the triple type-block $U y n$, so constructed as that the block U shall print whenever either the blocks y or n are acted upon, substantially as set forth in the above specifications.

2. The combination, in a voting and recording machine, of the magnet M with the hammers D and the rack-bar L , for the purpose of operating the printing and balloting machinery, substantially as herein specified.

3. In a legislative voting and recording apparatus, the combination of the rack-bar L , the pinion F , the rack L' , and the tube G , Fig. 4, as a device for balloting, substantially as herein described.

4. The combination, in a voting and recording machine, of the lever O and its cross-heads $o o$ and short arm T' , and the connections $N N'$, so constructed as that the released ballot shall break the electric circuit, substantially as herein set forth.

5. In a legislative voting and recording apparatus, the combination of the hand-wheel H , the bevel-gears m , in connection with the arms $T T$ and T' , and the spur-wheels $W W$ and $W' W'$ as a circuit-closing apparatus, substantially as herein specified.

6. The combination, in a voting-machine, of the collecting-troughs $Y B$ and $N B$ with the auxiliary troughs $j j i i$ and the balloting-machines attached to the tubes $G G G$, for the purpose of collecting and delivering the yea and nay ballots to the hoppers $H^2 H^2$ of the enumerators, substantially as above specified.

7. In a voting-machine, the combination of the spring S and the tube G^3 and the connections $n n'$, so constructed that the ballot-balls shall depress the spring and form a contact at l , for the purposes herein mentioned, and substantially as described.

8. The combination, in a voting and record-

ing apparatus, of yea and nay dial-faced indicators, operated electrically, electric contacts and action being caused by ballot-balls released by the voter, substantially as herein specified.

9. The combination, in a voting and recording apparatus, of a yea and nay indicator, adapted for the use of the speaker of a legislative body, consisting of the dials arranged in a movable case, having an inclined top, and containing operating mechanism actuated by electrical connections from the desk of each member, substantially as described.

10. The combination, in a voting and recording apparatus, of a fixed mortised platen, A , and the movable platen A' , with its tenon-blocks, which exactly fill the mortises in the platen A , and which are placed directly over the yea and nay type-blocks, and are adapted to be raised when a roll-call is to be made, substantially as specified.

11. In a voting and recording apparatus, the platen of the printing mechanism, having an open slot immediately over the margin of the record-sheet, by means of which the titles of the bills or motions may be indorsed thereon at the time that a vote is being taken, substantially as herein described.

12. The combination, in a voting and recording apparatus for legislative bodies, of mechanism actuated by electrical connections from the desk of each member to release a ball-ballot, intermediate mechanism set in operation by the gravity of such ball to actuate one or more indicators, and a printing device whereby a permanent record of individual members is made, substantially as described.

13. In a voting and recording apparatus, the combination of mechanism actuated by electrical connections from the desk of each member, to release a ball-ballot, one or more indicators, and intermediate mechanism to actuate a printing device, whereby the presence or absence of members and their yea and nay votes are recorded, substantially as herein described.

FRANCIS W. CROSBY.

Witnesses:

WM. HELMICK,
G. Y. ATLEE.