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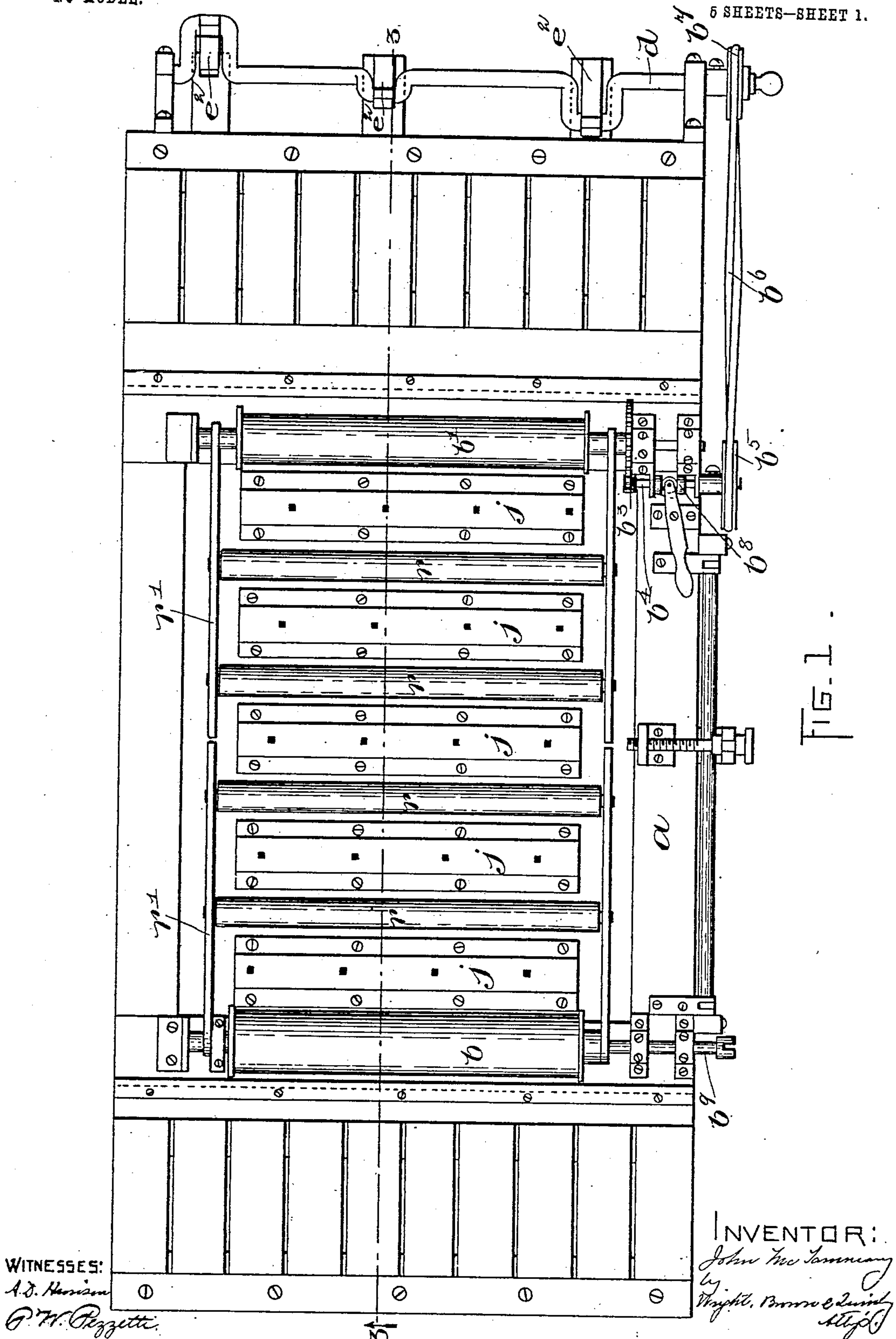
No. 749,446.

PATENTED JAN. 12, 1904.

J. MoTAMMANY.
VOTE COUNTING MACHINE.
APPLICATION FILED NOV. 18, 1897.

NO MODEL.

5 SHEETS—SHEET 1.



WITNESSES:
A. D. Harrison
P. W. Pezzetta.

INVENTOR:
John Motammany
by Wright, Brown & Smith

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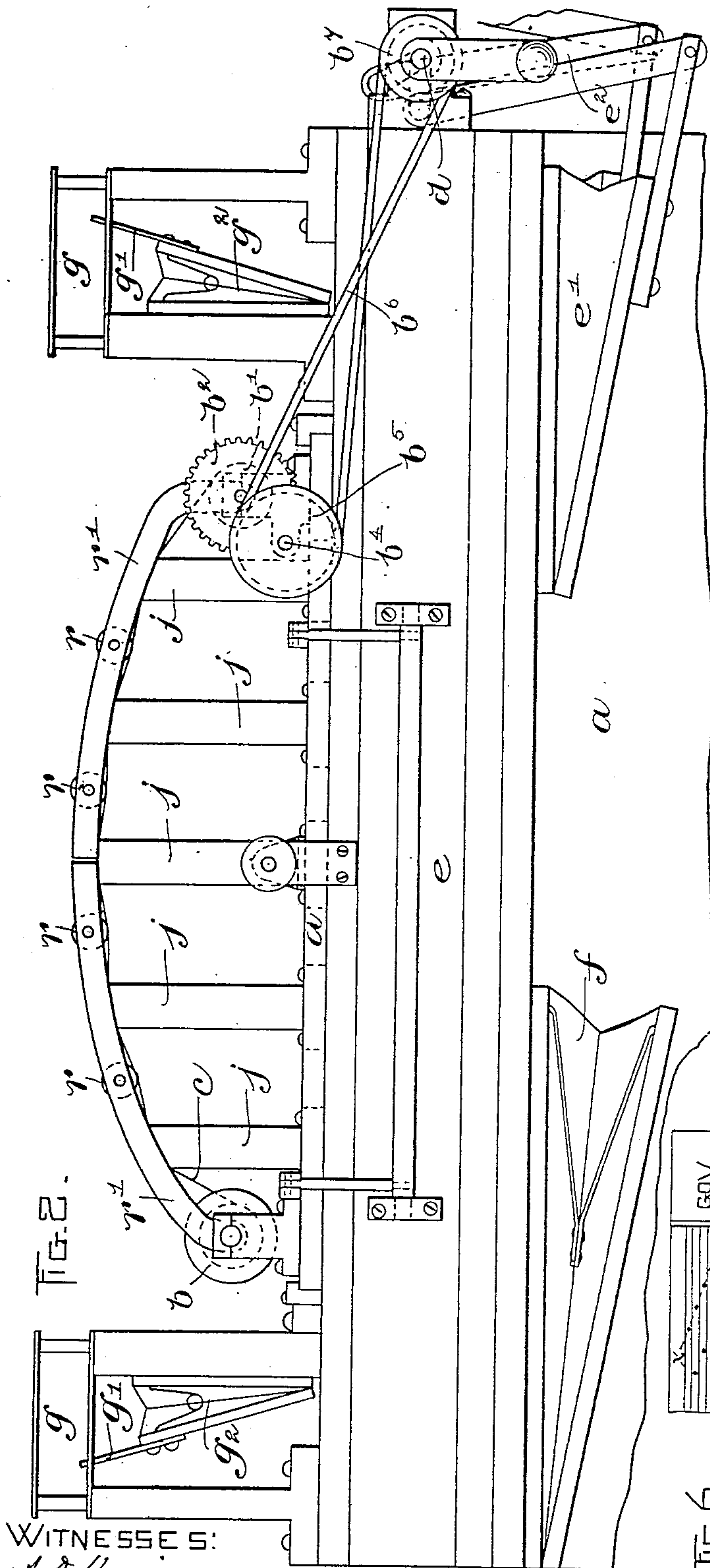
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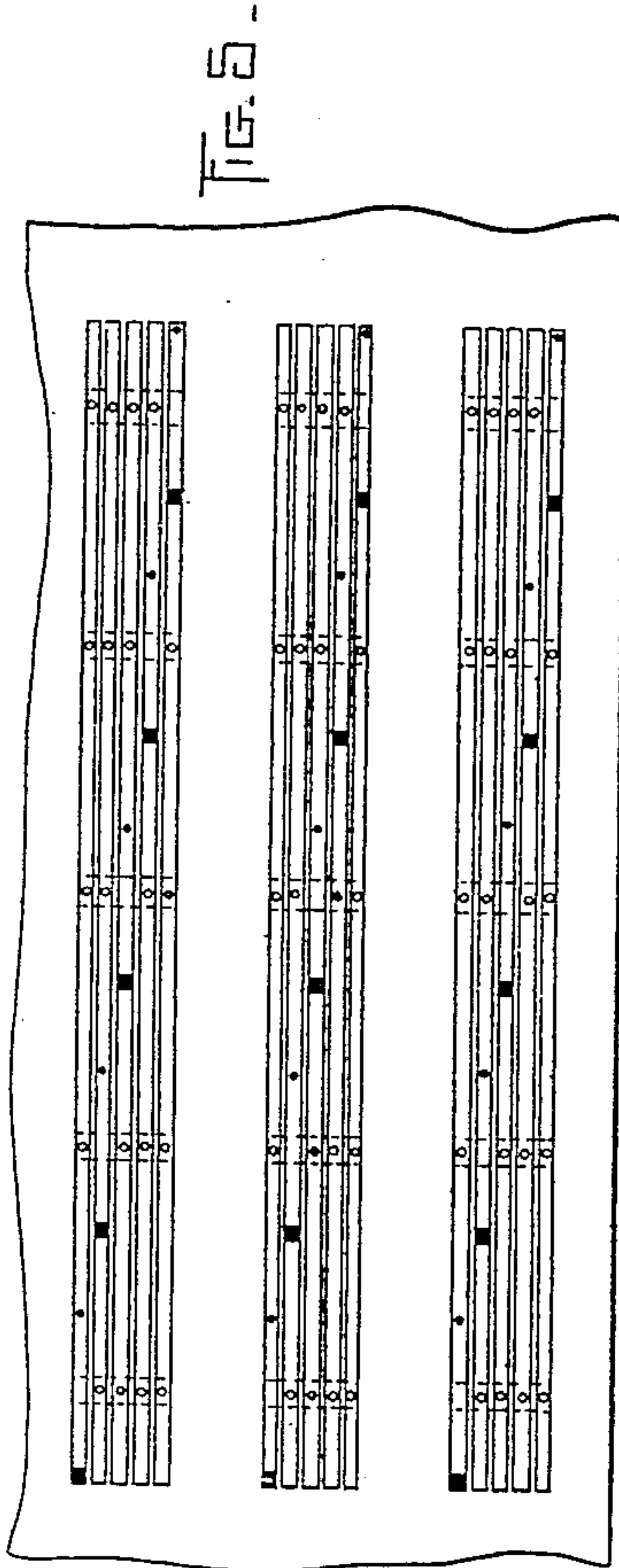


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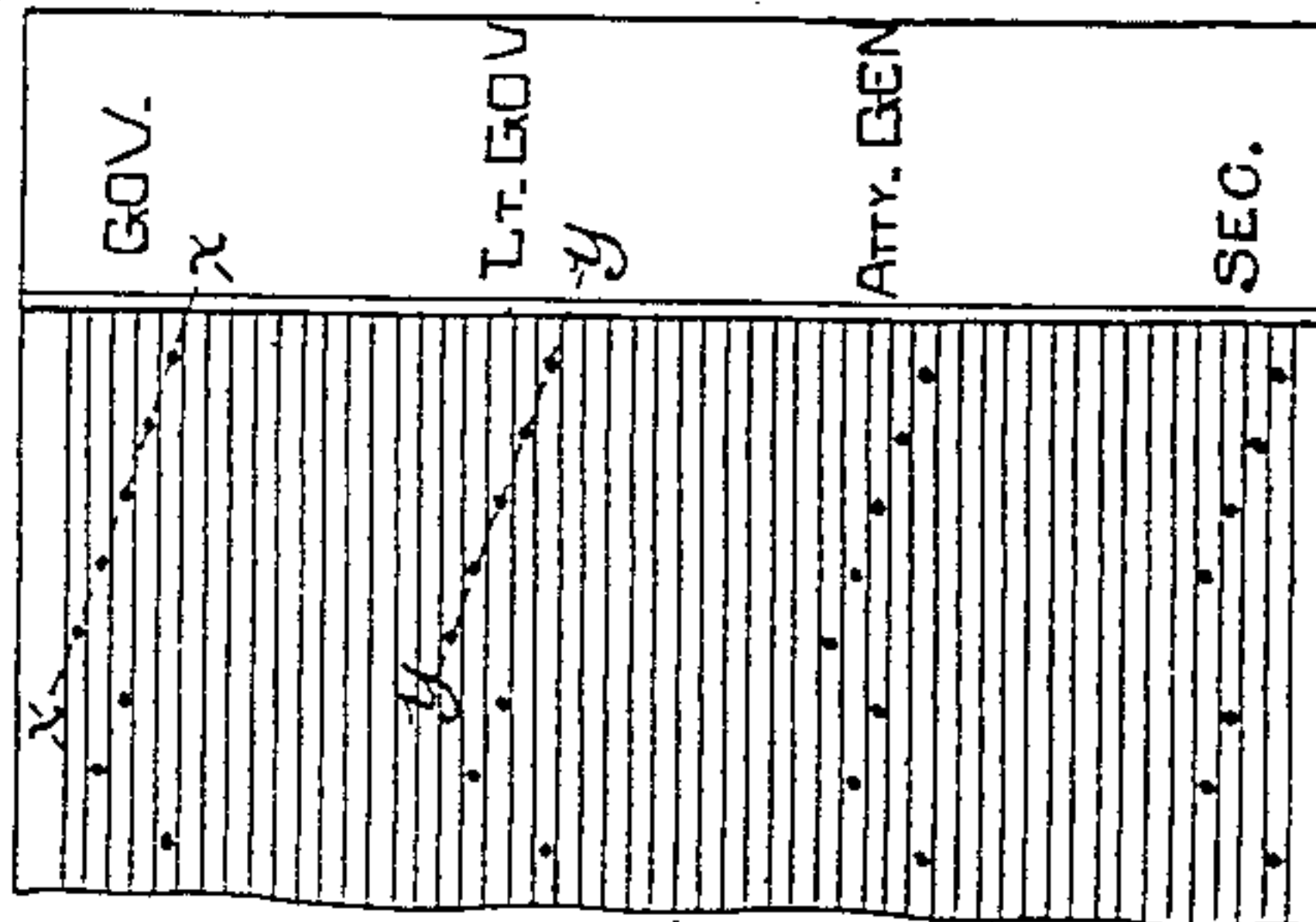
WITNESSES:

A. D. Harrison.

P. W. Pezzetti.



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INVENTOR:

John the Tannery
by Wright, Brown & Linder
Atty.

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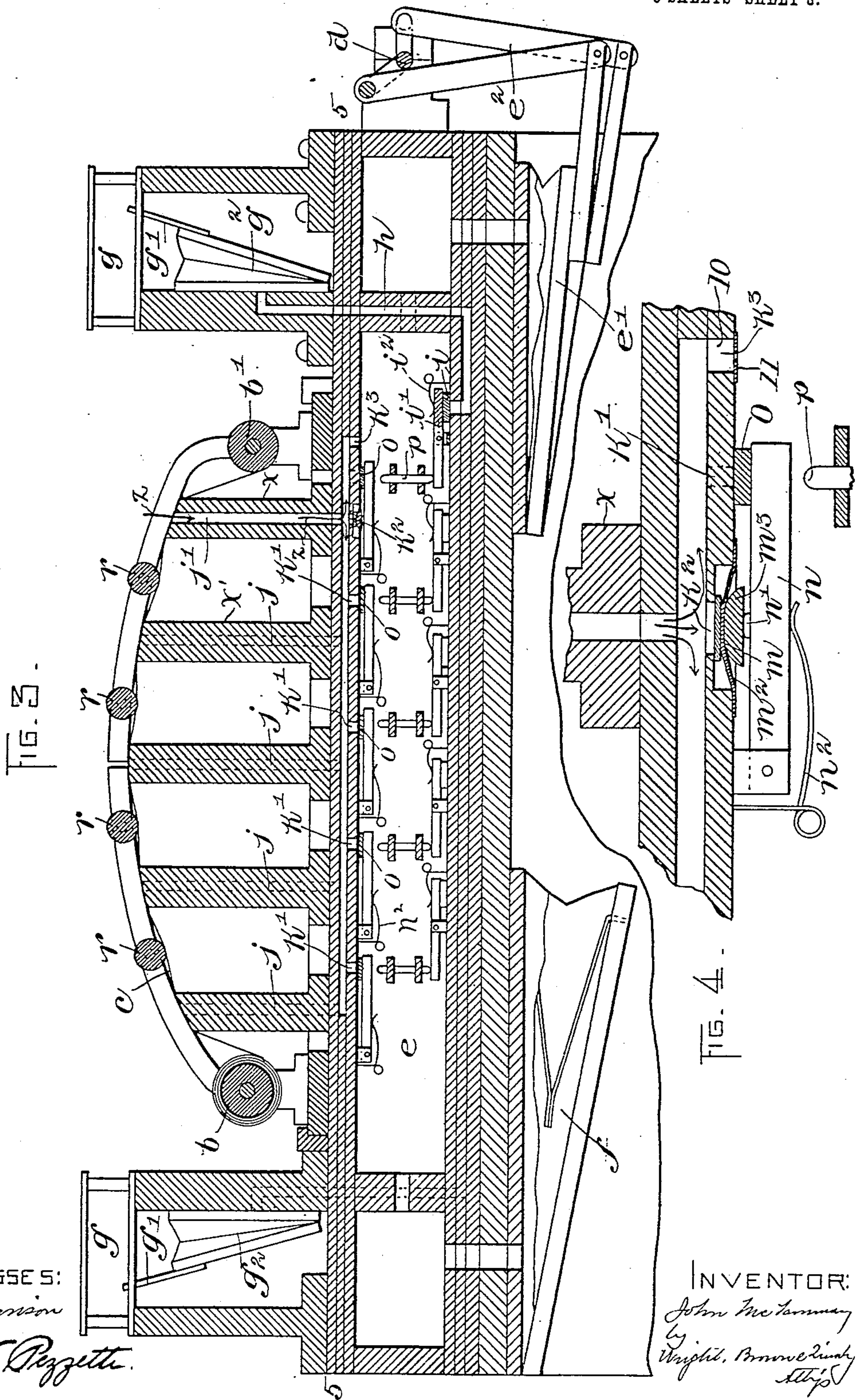
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6 SHEETS—SHEET 3.



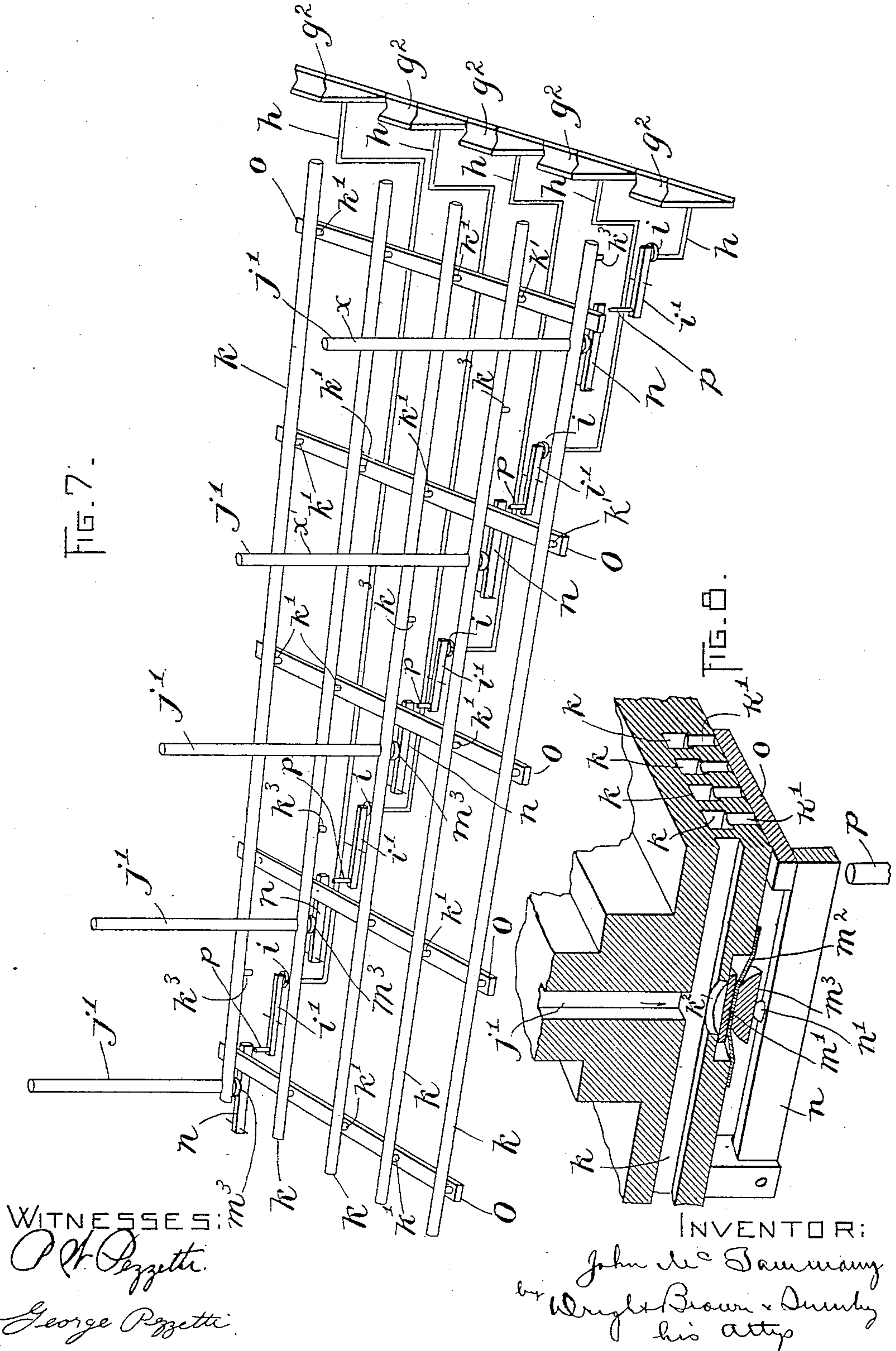
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5 SHEETS--SHEET 5.

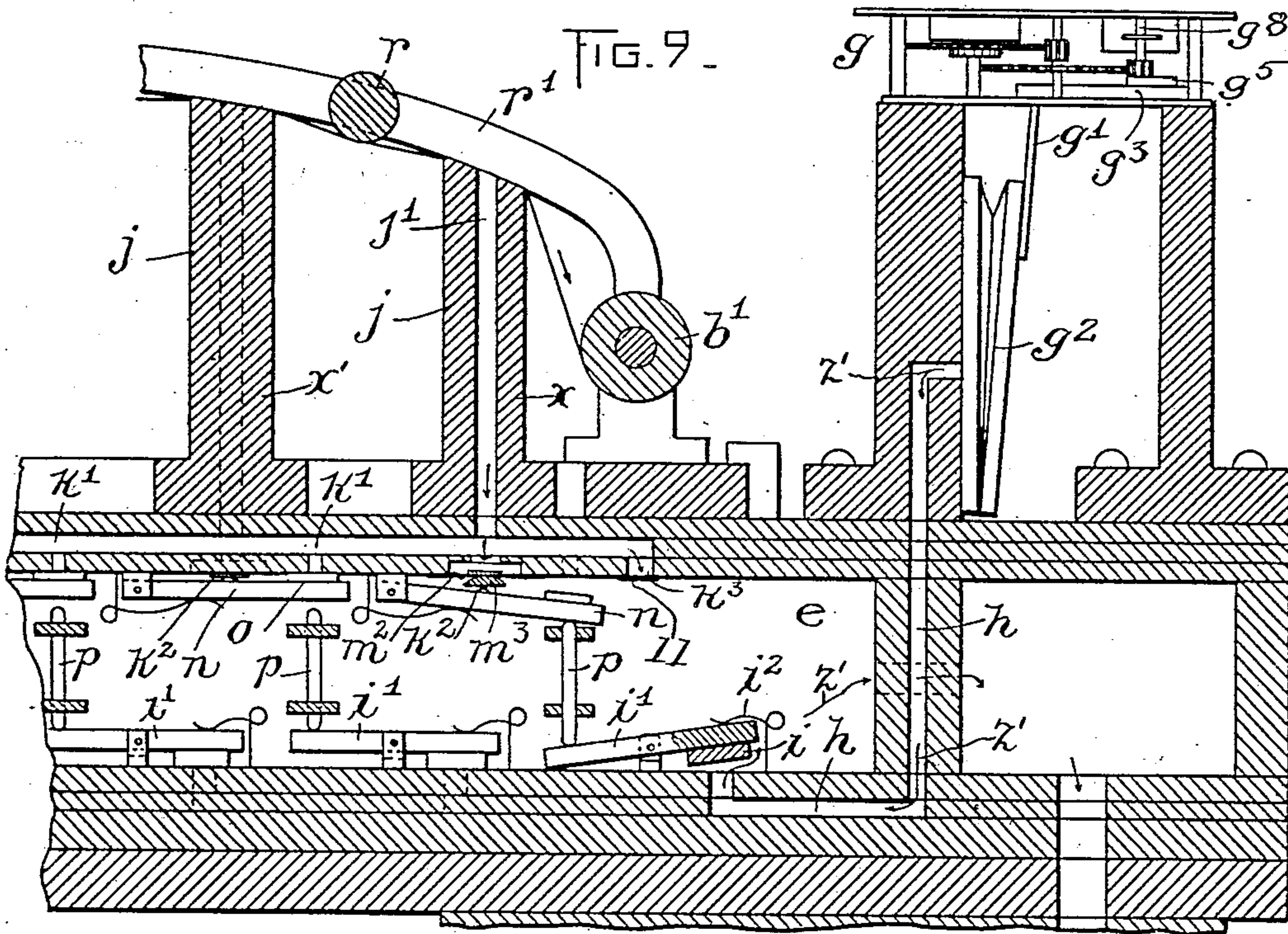
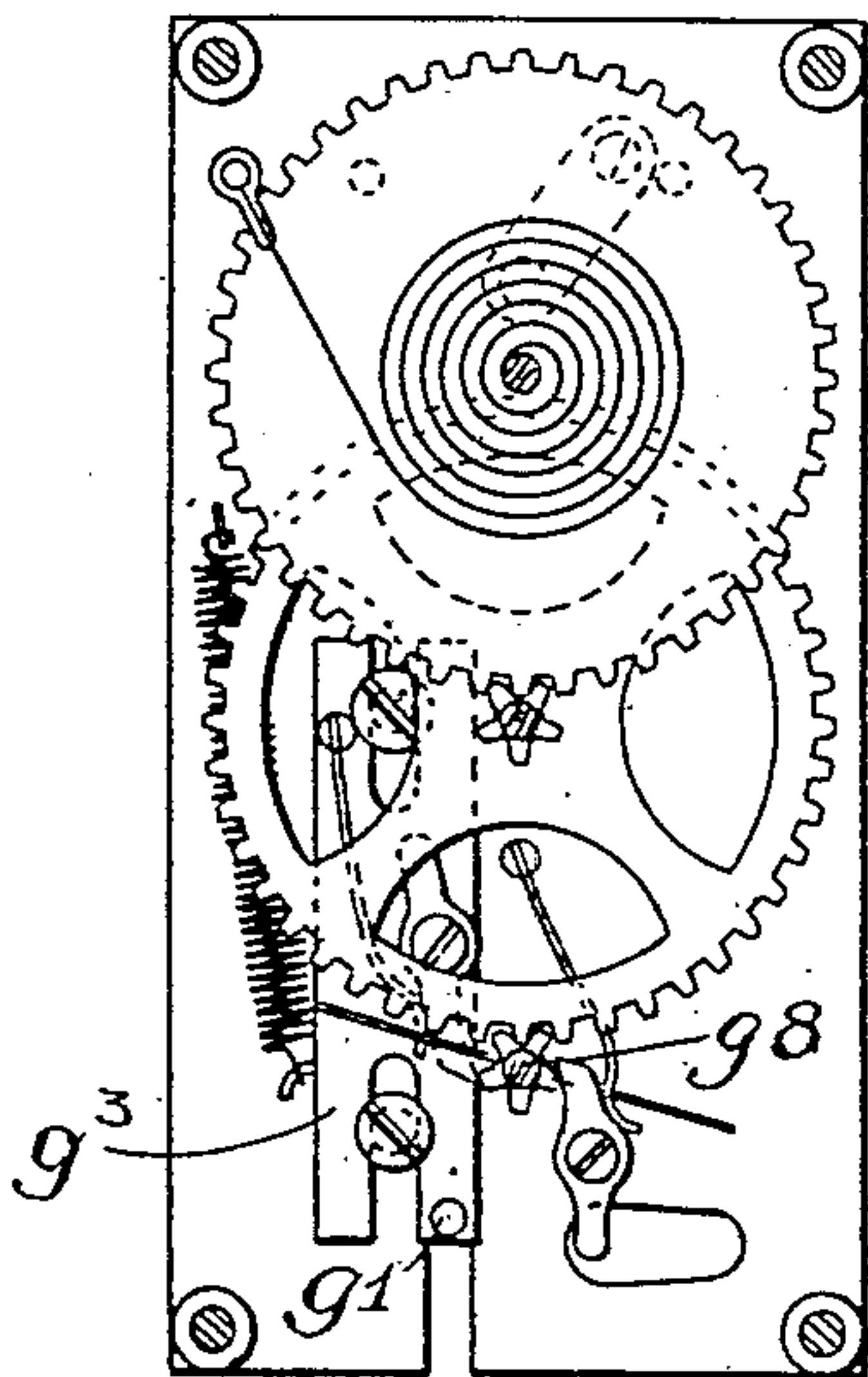
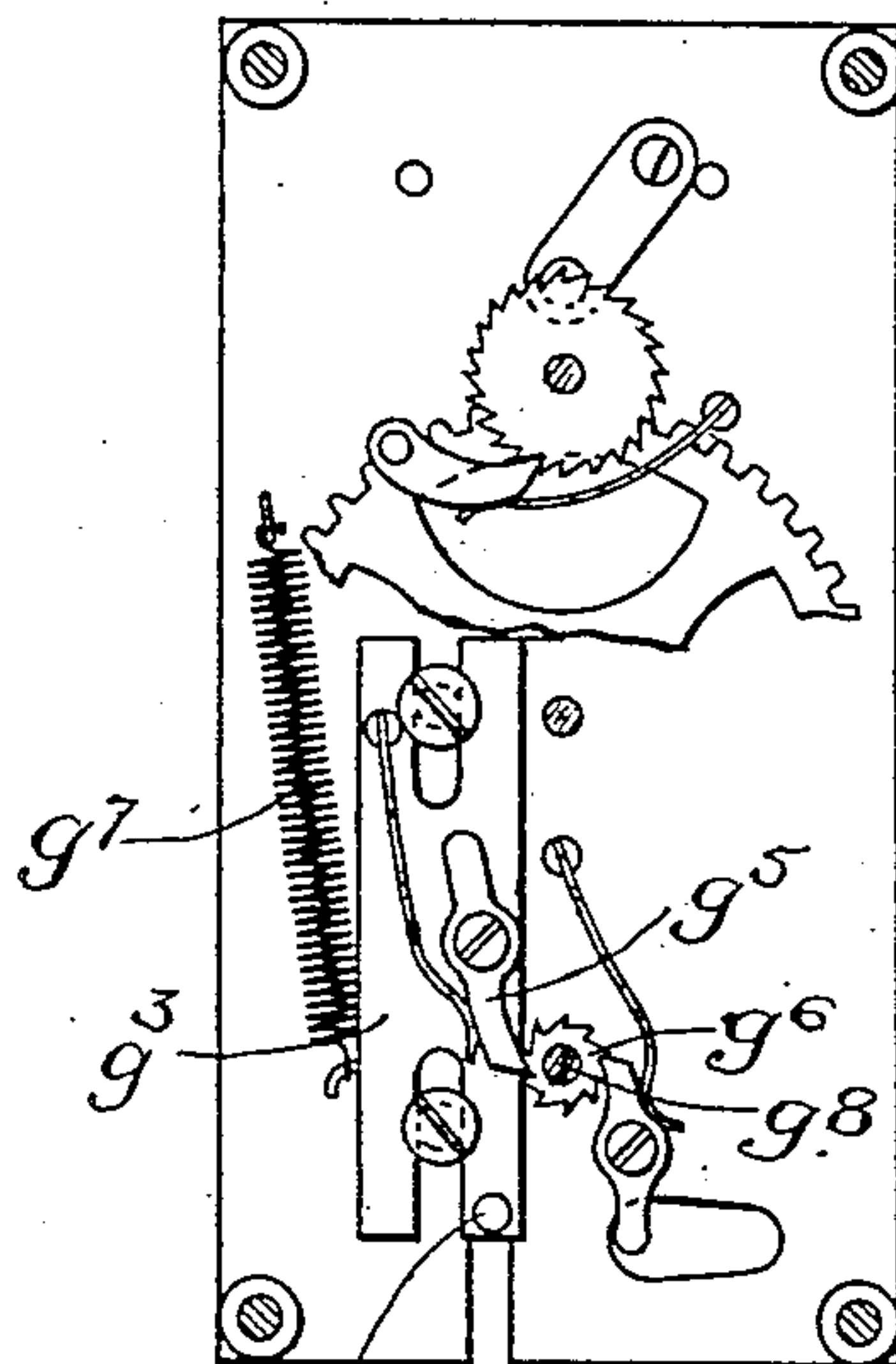


FIG. 10.



WITNESSES:
O. W. Pizzette
George Pizzette

FIG. 11.



9th INVENTOR:
John M^c Farmanay
by Wright Brown. Quincy
his Atty

UNITED STATES PATENT OFFICE.

JOHN McTAMMANY, OF SPENCER, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO McTAMMANY BALLOT COMPANY, OF PORTLAND, MAINE, A CORPORATION OF MAINE.

VOTE-COUNTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 749,446, dated January 12, 1904.

Application filed November 18, 1897. Serial No. 658,894. (No model.)

To all whom it may concern:

Be it known that I, JOHN McTAMMANY, a citizen of the United States, and a resident of Spencer, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Vote-Counting Machines, of which the following is a specification.

This invention has relation to counting-machines as is exemplified by those employed for counting the number of perforations in a tally-sheet, the perforations in said sheet having been previously formed by suitable voting mechanism under the control of a voter.

The object of the present invention is to provide certain improvements in counting-machines of the character mentioned whereby the simultaneous operation of certain counters are prevented, so that if the machine be used for counting votes and the record-sheet should contain two votes by the same voter for two or more candidates for the same office both votes would be nullified and his vote would not be counted.

The invention therefore consists in a counting-machine provided with means for disregarding and preventing the simultaneous actuation of certain counters, whereby two votes by a single voter for different candidates for the same office will not be counted. It further consists in the improvements which I have illustrated upon the drawings and shall now proceed to describe, and point out more particularly in the appended claims.

Of the drawings, Figure 1 represents in plan view a machine embodying my present invention. Fig. 2 represents a front elevation of the same. Fig. 3 represents a vertical longitudinal section through the same on the line 3 3 of Fig. 1. Fig. 4 represents in section a portion of the machine. Fig. 5 represents a partial section on the line 5 5 of Fig. 3. Fig. 6 represents a tally-sheet. Fig. 7 illustrates in perspective the air-ducts and the valve mechanism. Fig. 8 represents in perspective a portion of one of the channel-boards, the channel therein, and a portion of the operative mechanisms. Fig. 9 represents a portion of

Fig. 3 on a larger scale. Figs. 10 and 11 show one form of counter or tabulator which may be used.

Referring to the drawings, *a* represents a frame having bearings on which are journaled two rolls *b b'*, said rolls being parallel with each other and arranged so that a tally-sheet *c* wound upon one roll can be unwound therefrom and wound upon the other roll, a portion of the sheet being stretched between the two rolls for coöperation with the mechanism hereinafter described.

Means are provided for rotating one of the rolls *b b'* to unwind the sheet from it and wind it upon the other; the means shown consisting of a gear-wheel *b²* upon the shaft of the roll *b'*, which gear-wheel is driven by a pinion *b³* on a shaft *b⁴*, mounted in suitable bearings upon the frame *a*. The shaft is driven by a belt-wheel *b⁵*, from which a crossed belt *b⁶* extends to a belt-wheel *b⁷* on the crank-shaft *d*, to be hereinafter referred to. Clutch mechanism *b⁸* is placed upon the shaft *b⁴* to detach the belt-wheel from the shaft and permit the withdrawal of the tally-sheet from the roll *b'*, the shaft *b⁹* for the roll *b* being extended and provided at its end with means for receiving a crank by which the said roll *b* may be rotated to unwind the tally-sheet from the winding-roll *b'*.

The tally-sheet *c* contains a record of certain items, as the votes of a number of voters, the said record being made by perforating the sheet when the latter is in a voting or other machine having, for instance, a series of parallel rows of punches arranged to be moved by the voter. Each row of the punches is arranged to make a row of perforations across the tally-sheet and represents all the candidates of one political party. For example, the first row may represent the candidates of the Socialistic party, the next the candidates of the Populist party, and so on, there being as many rows as there are tickets or parties to be voted for, the number of tickets being five in the present case.

The voting-machine is provided with sheet-feeding mechanism which moves the sheet

lengthwise at right angles to the rows of punches after each voter has exercised his right, so that the perforations made by each voter are moved away from the punches before the next voter manipulates the punches. The punches of each row are arranged out of alinement with the punches of the other rows, so that if all the punches of the machine were pushed in by a voter the result would be the arrangement of holes shown in Fig. 6, each row representing all the candidates of one party, while the perforations at the upper ends of the rows form a row that extends obliquely of the sheet, as indicated by the line xx of Fig. 6, the next lower perforations forming an oblique line yy , and so on across the sheet. All of the perforations in each oblique line represent votes for the same office. For example, all the perforations on the line xx represent votes for the candidates of all of the parties for governor, the perforations on the line yy representing votes for the candidates of all the parties or tickets for lieutenant-governor, and so on, the arrangement being such that if the sheet has been removed endwise after a voter has finished his vote the next voter in repeating the same operation will make perforations along a line parallel with the lines xx or yy , but separated therefrom, so that all the perforations that can be made in the sheet are distinct from each other, it being impossible for two perforations to be run into each other at any part of the sheet.

A voting-machine adapted to be operated as above indicated is represented in my application for Letters Patent of the United States, filed July 11, 1896, Serial No. 598,863.

In case the voter votes properly—i. e., for only one candidate for each office—his record will not be as indicated in Fig. 6—that is to say, at no part of his record will there be two perforations in an oblique line. The presence of two or more perforations on one line indicates conclusively that a voter has voted for two candidates for one office, so that his vote, so far as that office is concerned, is void. The record made at the tally-sheet by a voter properly exercising his right would therefore never be as shown in Fig. 6 and would not show two perforations on any one of the lines there represented.

My invention is intended to count all of the votes or perforations that have been properly made and to throw out or nullify and not count either of the two votes that have been made by the same voter for two candidates for the same office after the tally-sheet has been removed from the voting-machine and applied to the rolls $b b'$.

e represents a suction box or chamber from which air is exhausted by a series of suction-bellows e' , which are operated by a crank-shaft d , before referred to, and connecting-rods e^2 . A regulating-bellows f is employed at the opposite end of the suction-box for

maintaining a substantially constant vacuum in the suction-chamber e .

At $g g$ are indicated counters for tabulating the number of votes for each candidate for each office, each particular counter being actuated by a rod g' on a suction-bellows g^2 , communicating with a windway h , in turn communicating with the suction-box e . There are as many of these windways as there are offices and candidates for office. One of the counters is shown in position in Fig. 9 and is illustrated in Figs. 10 and 11. It may be briefly described as follows, though no claim is herein made thereto. g^3 indicates a slide to which is attached the retracting-spring g^7 . The slide has a pin g^4 , adapted to be engaged by the finger g' on the bellows g^2 and moved to cause the pawl g^5 to rotate the ratchet g^6 on the arbor g^8 one step. On the arbor is an index to coact with a graduated scale, neither of which is shown. The orifice leading from the bottom of the suction-duct into each of the windways h is closed by a valve i , placed normally upon a centrally-pivoted lever i' , and is held downward to close the said duct by a spring i^2 . There being five candidates for each office, as governor, there are five of these valves closing five windways h . Placed upon the top of the suction-box between the rolls $b b'$ are mounted a series of five channel-boards $j j'$, each containing a series of wind channels or ducts j'' , which correspond in number and arrangement to the perforations on the tally-sheet represented in Fig. 6. The upper edges of the channel-boards are arranged to support a portion of the tally-sheet between the rolls $b b'$, the sheet being guided so that if punched, as represented in Fig. 6, and drawn over the channel-boards all the perforations on the sheet will coincide simultaneously with the channels j'' and air will be drawn simultaneously through all the channels to the suction-box e by the bellows e' , the channels j'' being connected with horizontal connecting-channels k , formed in the top of the suction-box e , and each of the channels k being connected with the suction-box by four ports k' . The horizontal channels $k k$ are parallel and each one communicates by a vent k^3 with the suction-chamber e . The vent k^3 is preferably formed by covering the opening 10 with a diaphragm 11 and perforating the same with an opening of minimum size, such as would be made with the finest needle, whereby said vent acts as a "bleeder" for the channel k . Any air which may leak into channel k is exhausted through bleeder k^3 into suction-box e , and as a result a substantial vacuum is normally maintained in said channel k , as well as in the suction-box. Rolls $r r$ are mounted in swinging frame-bars $r' r'$ and operate to hold the tally-sheets against the edges of the channel-boards. Placed in a duct k^2 directly below each channel j'' in each of the ducts k is an operating device m , consisting of a disk m' , of suitable

material, adequate in cross-diameter to close the duct k^2 , and a diaphragm m^2 , of leather, upon which the said disk is supported. A lever n is fulcrumed to the top of the suction-box and is provided with a pin n' , pressed against a button m^3 , secured to the under side of a diaphragm m^2 . On the end of the lever n is a valve o , which closes the port k' k' k' and the three ducts in alinement therewith. A spring n^2 serves to hold the valve o normally against its seat. A vertical pin p , mounted in suitable guides, rests upon the end of the lever i' , before described, and projects against the free ends of the lever n , so that if the said lever n be depressed by the valve m it will raise the valve i and allow the air from the bellows g^2 to rush into the suction-box and move the finger g' to actuate the counter. The arrangement of channels and ducts in the top of the suction-box is clearly shown in Fig. 5, by which it will be seen that each channel k is provided with four ports k' , leading into the suction-box, and a fifth duct k^2 , arranged substantially below the channel j' , and also a vent k^3 .

In practice there is a substantial vacuum maintained at all times in the suction-box e by the exhausting devices, the vents or bleeders k^3 serving as exhausts for the channels k and the inlet-channels j' , whereby the tally-sheet is held closely against the top edges of the latter by the suction, the sheet being guided by the rollers r . During the transit of the tally-sheet when a perforation thereof comes into alinement with one of the channels j' (for example, that one indicated by x) the atmospheric air will rush therein and from thence into the corresponding passage k , as indicated by the arrows z , Fig. 3. The vent k^3 being too small to carry off a substantial portion of the incoming air, the latter passes through port k^2 and exerts a pressure upon valve m' and diaphragm m^2 , inflating the latter, and thereby causing the depression of lever n , as illustrated in Fig. 9. This action is due to the fact that there is a vacuum beneath said diaphragm and atmospheric pressure above the same. In moving to the limit of its action lever n depresses pin p , and the latter being in engagement with the lever i' moves the latter so as to raise valve i from the passage h , allowing the air from the bellows g^2 to exhaust into the suction-box, as indicated by the arrows z' , Fig. 9. The entire operation just described is almost instantaneous, and as soon as the passage j' is closed by the perforation of the tally-sheet leaving the same the levers n and i' are returned to their normal positions by springs n^2 and i^2 , respectively, while the bellows g^2 being open to the atmosphere will become inflated through the usual air-inlet with which it is provided. The area of the diaphragm m^2 is large as compared to the area of each of the ports k' , and hence said diaphragm, being in direct line with the inlet,

is depressed and engages pin p , raising the valve i , whereby air enters the suction-box and temporarily destroys the vacuum therein. This operation is instantaneous and takes place before any pressure from the air-entering passage j' can exert itself on the top faces of the valves o along channel k . Hence it will be readily seen that the pressure of springs n^2 is quite sufficient to hold levers n in place against the pressure of air through ports k' and will only allow said levers to yield under the expansion of their respective diaphragms. It will also be noted that the tally-sheet in its movement will almost immediately close the inlet to channel x , and any air that remains in channel k after the operation of the counting mechanism will be exhausted through the bleeder k^3 , whereby the vacuum in said channel k will be again established; but if a voter should have inadvertently or maliciously voted for two candidates for the same office the tally-sheet will cause two perforations to come simultaneously opposite two of the channels j' —for example, those indicated by x and x' , Fig. 7. As the air simultaneously rushes into both of these channels j' in the manner heretofore described, the diaphragms m^2 beneath each of said channels are inflated and their respective levers n depressed. The depression of the lever n of the channel x causes valve o to uncover the port k' of the channel k , connected with the inlet x' , and simultaneously therewith the port k' of inlet x is uncovered in the same manner. The effect of uncovering both of said ports is to open the two channels k to the vacuum of the suction-box, thus immediately exhausting the air from said channels k and equalizing the pressure on both diaphragms m^2 , whereupon the springs n^2 will return levers n to their normal positions. It will be observed that levers n are free to move a certain extent before engaging pins p . The slightest movement, however, of each lever uncovers the ports k' of the other adjacent channels k , with the result that said levers are returned to their normal positions, as just described, said return being accomplished before they can engage the pins p . Under these circumstances the valve i is not opened, and hence the counters will not be operated.

In the description which I have given of the machine I have referred to only one group of counters and one group of channels in the boards j' in order to more clearly explain the operation of the machine, and in view of the fact that the great political parties in the United States are five in number I have described each group of channels as being numerically equal thereto, or one channel for each candidate for the same office, as governor, lieutenant-governor, &c.; but it will be understood that there are as many groups of channels as there are parties to be voted for, and hence each group is entirely independent of the oth-

ers. The first channels in the boards constitute the first group, and the pneumatically-actuated counters which correspond thereto are automatically prevented from operating when any
 5 two of the channels are simultaneously opened. The second channels in the respective boards constitute the second group, and their counters are unaffected by the mechanism which prevents the actuation of the counters of the
 10 first group, there being of course an independent similar mechanism for said second group. The other groups are similarly constituted, and consequently the counters of the several groups may be simultaneously actuated, al-
 15 though those of each group are prevented from so doing. Therefore when the tally-sheet is drawn through the machine the votes for all the candidates for different offices are counted, and the result can be ascertained im-
 20 mediately from the counters.

The machine may be run at a high speed, and the votes which were properly cast will be counted, while those that are void will be automatically rejected.

25 It is evident that the machine as described may be varied greatly without departing from the spirit and scope of the invention. The valves and the pneumatic actuators may be replaced by others of different construction, and they may be augmented by secondary
 30 pneumatic actuators, as shown in my Patent No. 550,054, dated November 19, 1895.

Having thus explained the nature of the invention and described a way of construct-
 35 ing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. A vote-counting machine having pneu-
 40 matic provisions for automatically preventing the counting of two or more votes cast by the same voter for different candidates for the same office.

2. A vote-counting machine provided with
 45 automatic pneumatic mechanism for preventing the counting of two or more votes cast by the same voter for different candidates for the same office.

3. A vote-counting machine having mech-
 50 anism for tabulating the votes, and pneumatic mechanism for rendering the first said mechanism temporarily inoperative when two votes are presented, cast by the same voter for different candidates for the same office.

4. A pneumatic vote-counting machine hav-
 55 ing vote-tabulating pneumatic mechanism operated once for each vote, and mechanism for rendering the first said mechanism inoperative when two or more votes are simultane-
 60 ously presented.

5. A vote-counting machine having count-
 ing mechanism, a pneumatic device for oper-
 ating said mechanism once for each vote, and pneumatically-operated means for pre-
 65 venting the operation of said pneumatic de-

vice when two votes are simultaneously presented.

6. A counting-machine having counting mechanism, pneumatically-actuated devices for actuating said mechanism, and provisions
 70 for automatically preventing the simultaneous operation of more than one of said devices.

7. A counting-machine, having a plurality of counting mechanism, an actuator for each
 75 mechanism, and pneumatic devices for automatically preventing the simultaneous operation of more than one of said counting mechanisms.

8. A counting-machine having mechanism
 80 for successively and continuously counting a plurality of votes or other items, and means for automatically preventing the simultaneous counting of two or more votes or items with-
 out stopping the machine. 85

9. A counting-machine having means for feeding a sheet having the votes or items indicated thereon, a plurality of counters for successively counting said votes or items, and means for automatically rendering any two or
 90 more of said counters inoperative to prevent the simultaneous count of certain votes or items without interrupting the feeding of the sheet.

10. A counting-machine having means for
 95 feeding a perforated sheet, a plurality of pneumatically-actuated counters controlled by the perforations in the sheet, and mechanism for automatically preventing the simultaneous operation of two or more of said counters. 100

11. A counting-machine having means for feeding a perforated sheet, a plurality of pneumatically-actuated counters controlled by the perforations in the sheet, and mechanism for
 105 automatically preventing the simultaneous operation of two or more of said counters, said mechanism being independent of said sheet-feeding means.

12. A counting-machine having a series of counters, a series of air-ducts, normally closed
 110 by a perforated sheet except when a perforation therein is in alinement with one of the said ducts, a suction-chamber, a series of air-operated devices, each adapted to actuate one of the counters when its corresponding air-
 115 duct is open, and means for destroying the vacuum in the suction-chamber when two of the said ducts are simultaneously open.

13. A counting-machine having a series of air-ducts, each normally closed by a perforated
 120 sheet, except when a perforation in the latter registers therewith, a series of air-operated counters, one for each air-duct, and means for preventing the operation of said counters when
 125 two or more of said ducts are open.

14. A counting-machine having a suction-chamber, a series of counters, pneumatically-operated devices each communicating by an air-duct with said suction-chamber for actu-
 130 ating one of said counters, a valve for closing

each duct, a series of air-channels normally closed by the tally-sheet and air-operated devices between each channel and the suction-chamber and arranged to each operate one of the aforesaid valves, and means for preventing the said devices from operating the said valves when two or more of said air-channels are open.

15. A counting-machine comprising a mechanism for counting the votes, and automatic mechanism operating without stopping the machine to prevent the tabulating of two or more votes cast by the same voter for different candidates for the same office.

16. A counting-machine comprising a plurality of pneumatically-actuated counters, a duct leading to each of said counters, a channel-board having a channel corresponding to each duct, a wind-chamber between the ducts and the channels, a valve interposed between each duct and the wind-chamber, and means operable by the passage of air through one channel for opening the valve for the corresponding duct, and simultaneously connecting the other channels with the wind-chamber.

17. A counting-machine comprising a plurality of pneumatically-actuated counters, a duct leading to each of said counters, a channel-board having a channel corresponding to each duct, a wind-chamber between the ducts and the channels a valve interposed between each duct and the wind-chamber, a pneumatic actuator in each channel, a valve between each channel and the wind-chamber, and means whereby the passage of air through one channel opens the valve for the corresponding duct, and also opens the valves for the other channels.

18. A counting-machine having a plurality of pneumatically-actuated counters, a plurality of channel-boards having channels corresponding to said counters, said channel-boards being graduated in height with the tallest in the center, and means for drawing a perforated sheet over the edges of the said boards.

19. A counting-machine having a plurality of pneumatically-actuated counters, a plurality of channel-boards having channels corresponding to said counters, said channel-boards being graduated in height with the tallest in the center, means for drawing a perforated sheet over the edges of the said boards, and means for holding the sheet against the said boards.

20. A counting-machine, comprising counters pneumatic devices for actuating said counters, bellows, sheet-feeding means, power devices for actuating said bellows, and sheet-feeding means, and mechanism for automatically preventing the simultaneous actuation of two or more counters.

21. A counting-machine having a plurality of pneumatically-actuated counters, a plurality of channel-boards having channels corresponding to said counters, means for passing a sheet over said boards, and a frame for holding said sheet against said boards.

22. A counting-machine having a plurality of pneumatically-actuated counters, a plurality of channel-boards having channels corresponding to said counters, means for passing a sheet over said boards, and hinged frames carrying rolls for holding said sheet against said boards.

23. A counting-machine comprising a plurality of groups of counters, each group representing all the candidates for one office, or a set of items, a group of actuators for each group of counters, whereby counters in the several groups may be operated simultaneously, and mechanism for each group of counters for preventing the simultaneous actuation of more than one counter therein.

24. A counting-machine comprising a plurality of groups of counters, each group representing all the candidates for one office, or a set of items, a group of actuators for each group of counters, whereby counters in the several groups may be operated simultaneously, and mechanism for each group of counters for preventing the simultaneous actuation of more than one counter therein, in combination with means for feeding a sheet in operative relation to said actuators, said sheet having perforations for the several groups thereof.

25. A vote-counting machine having means for automatically preventing the counting of two or more votes cast by the same voter for different candidates for the same office, said means being entirely pneumatic in principle.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 27th day of October, A. D. 1897.

JOHN McTAMMANY.

Witnesses:

MARCUS B. MAY,
C. F. BROWN.