

4 Sheets—Sheet 1.

Patented Dec. 29, 1896.

No. 574,040.

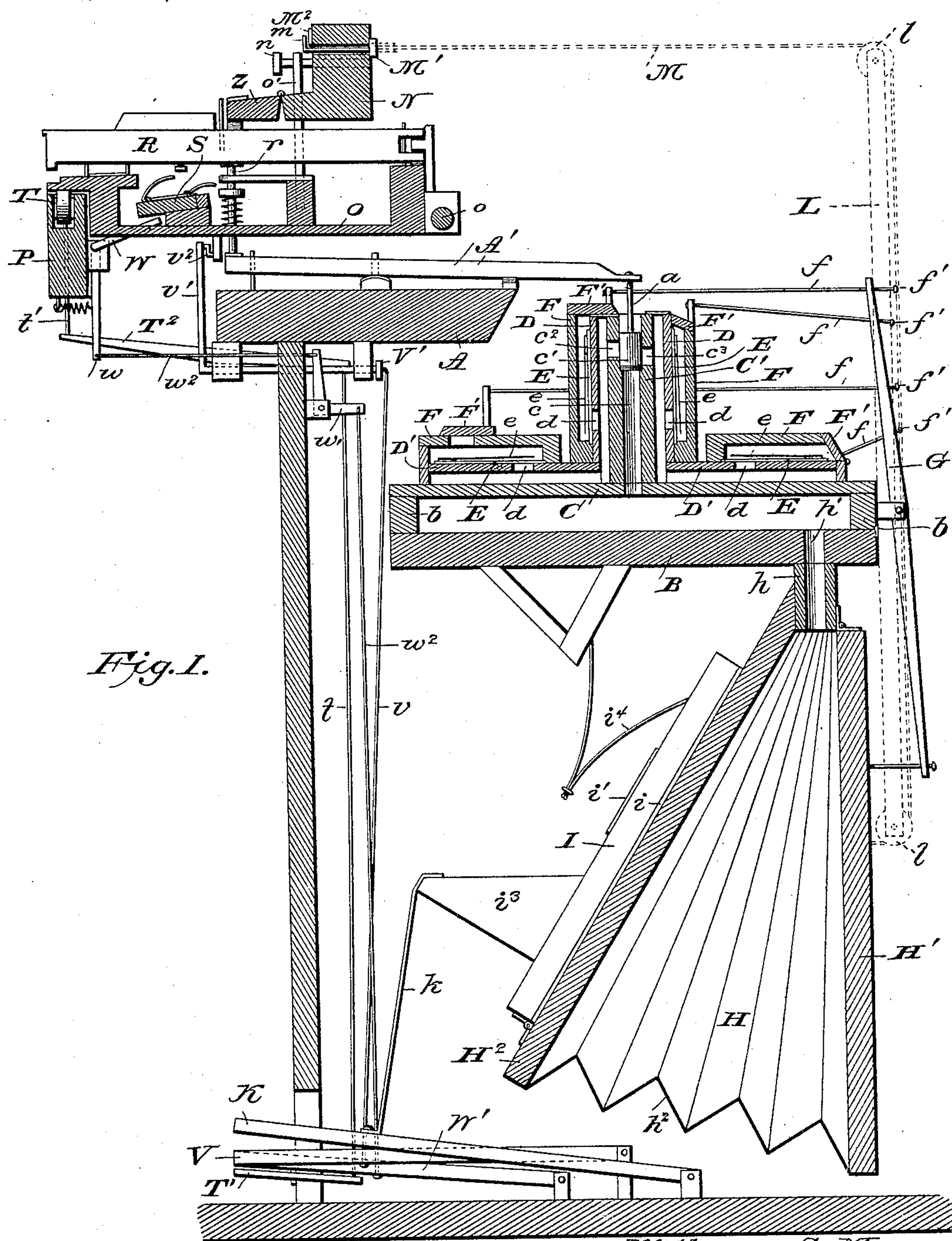



Fig. 1.

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WITNESSES

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M. Johnson

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by  Attorney

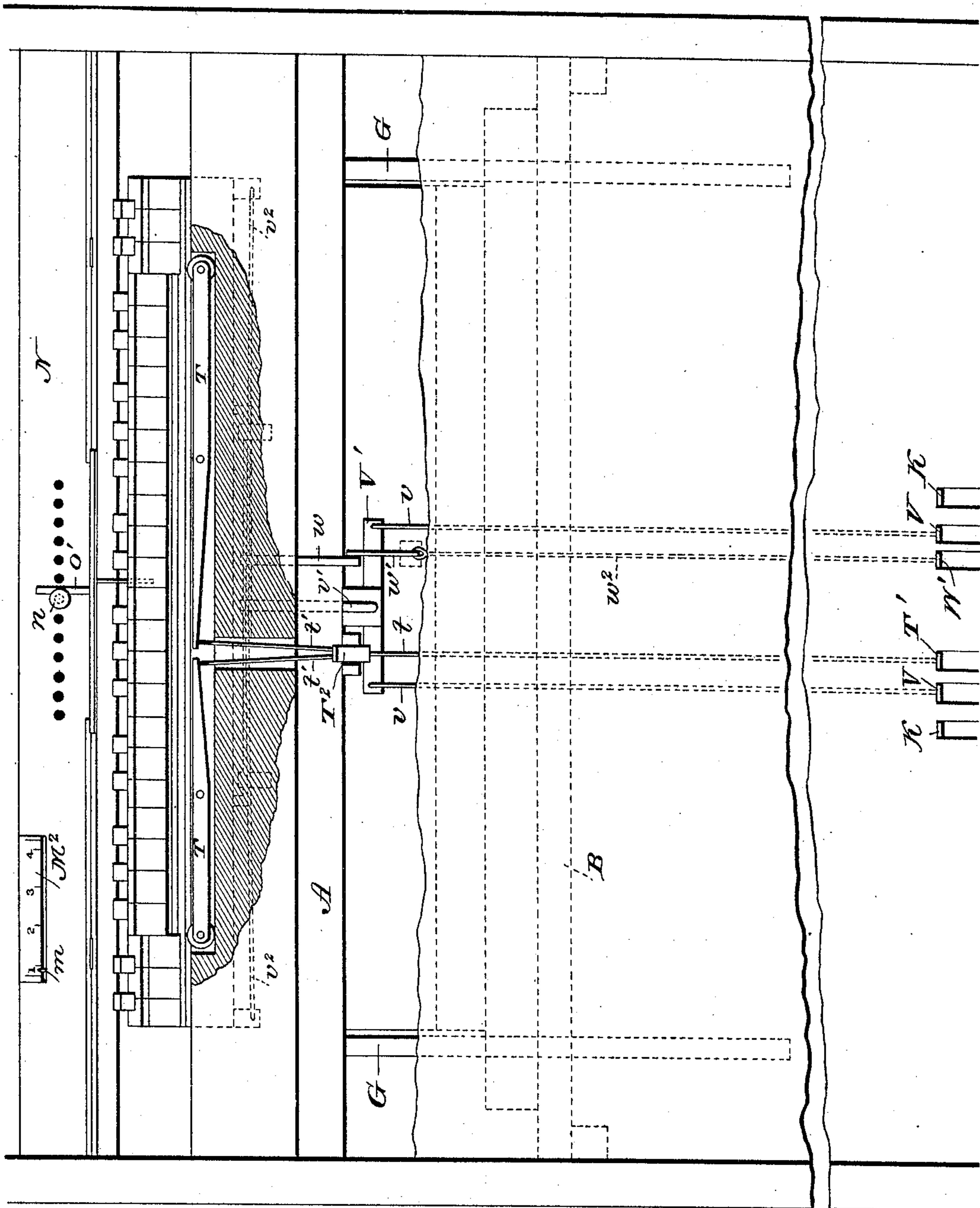
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4 Sheets—Sheet 2.

W. S. MOSES.
REED ORGAN.

No. 574,040.

Patented Dec. 29, 1896.



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Fig. 2.

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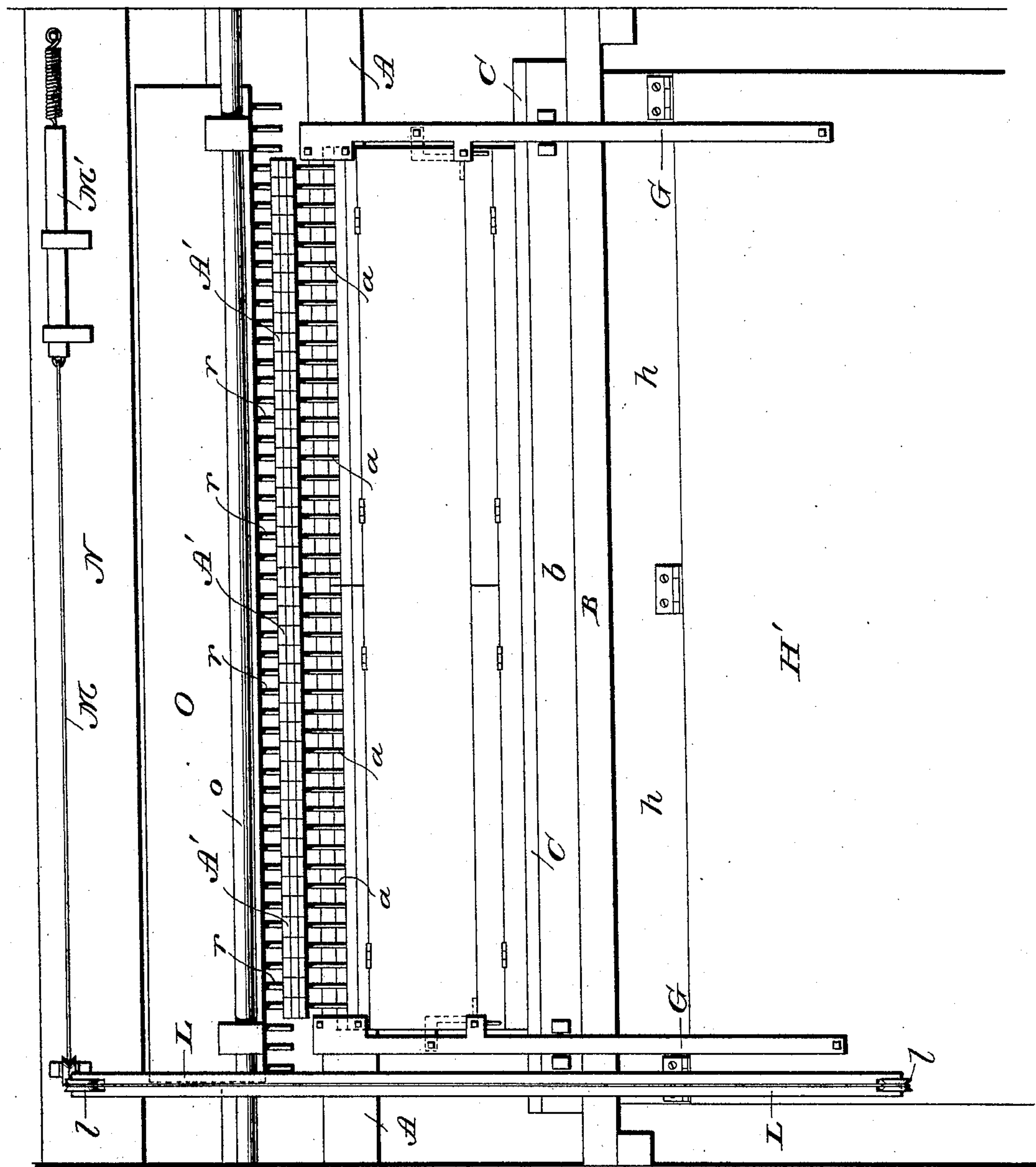
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4 Sheets—Sheet 3.

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Fig. 3.

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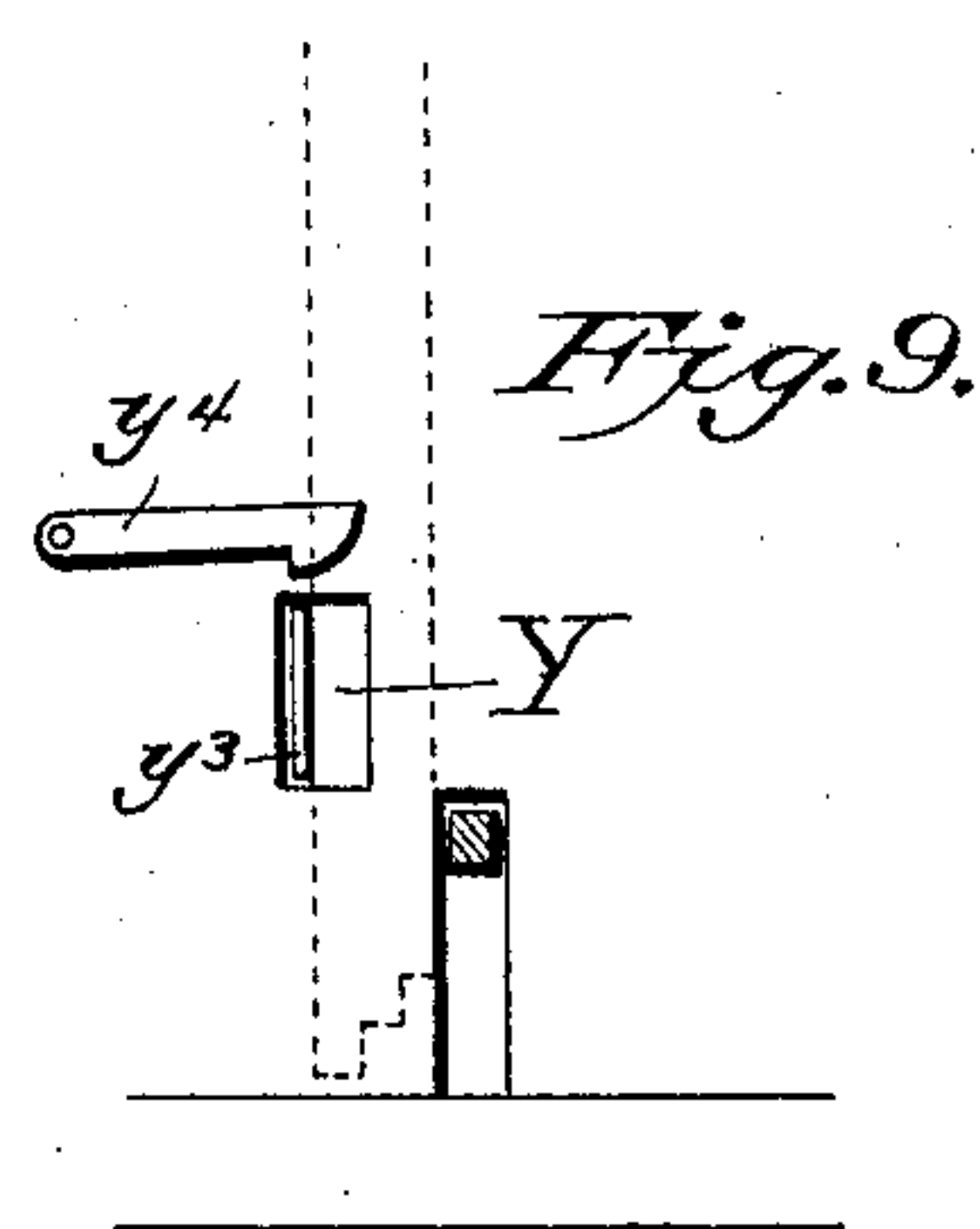
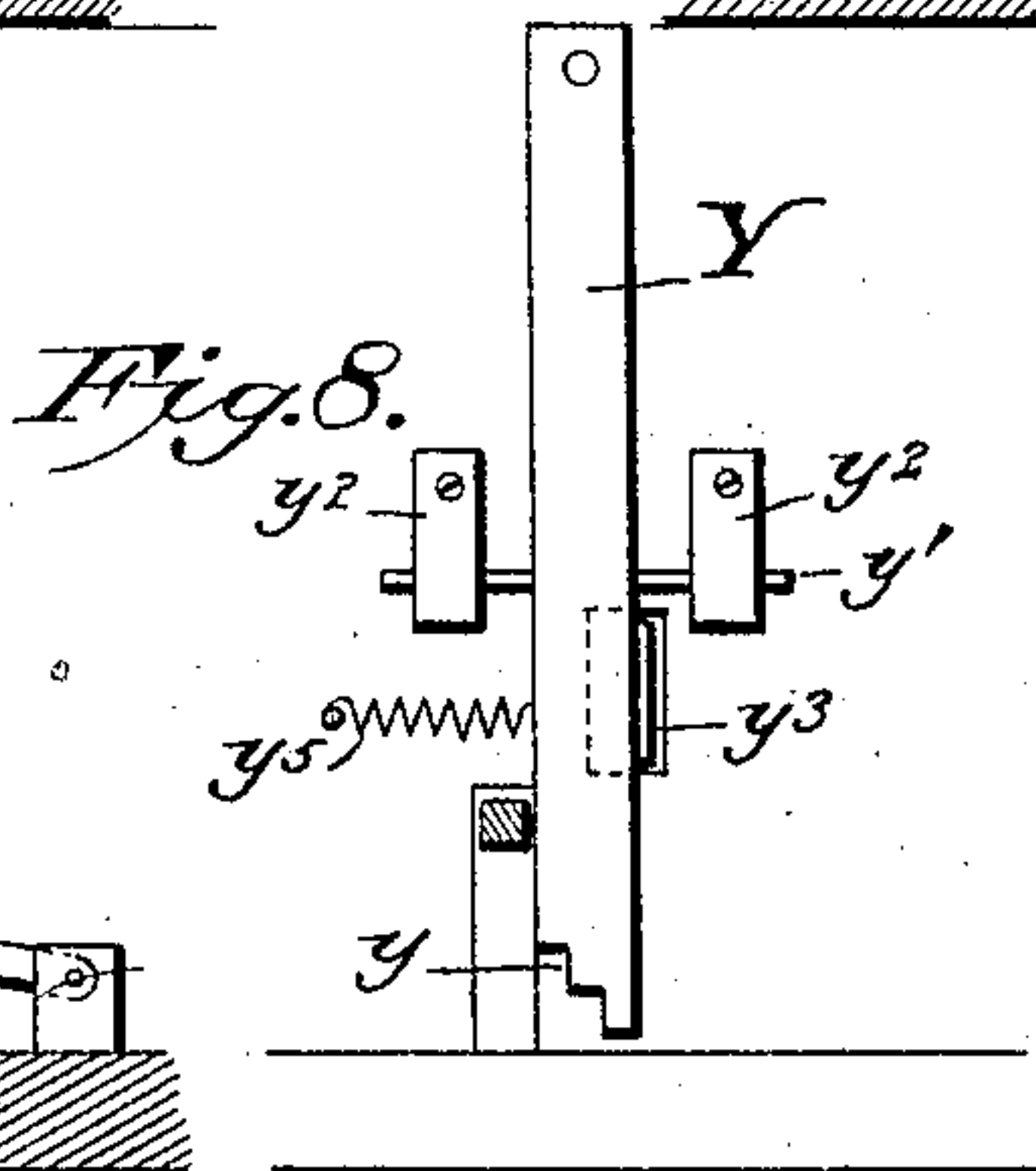
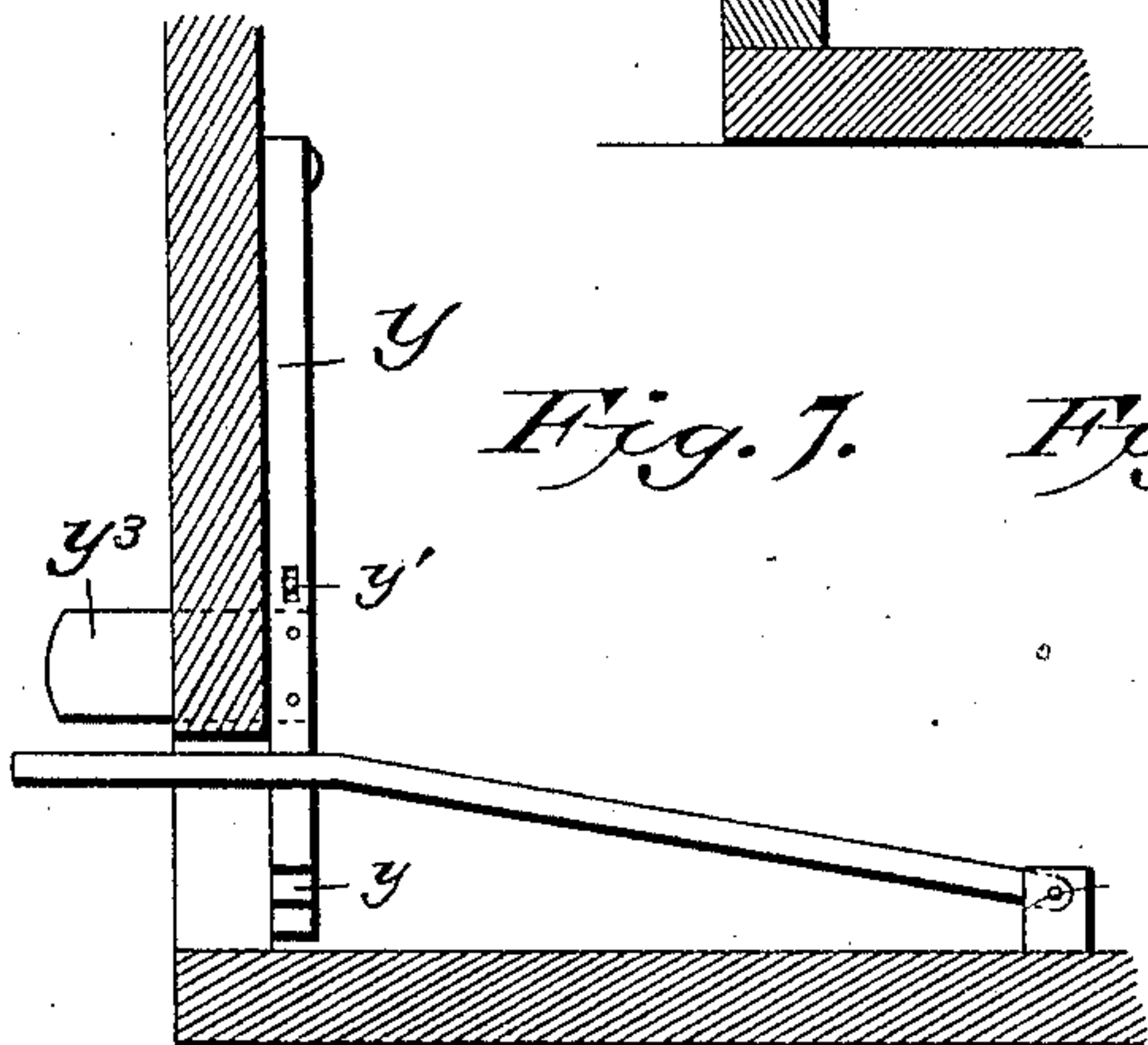
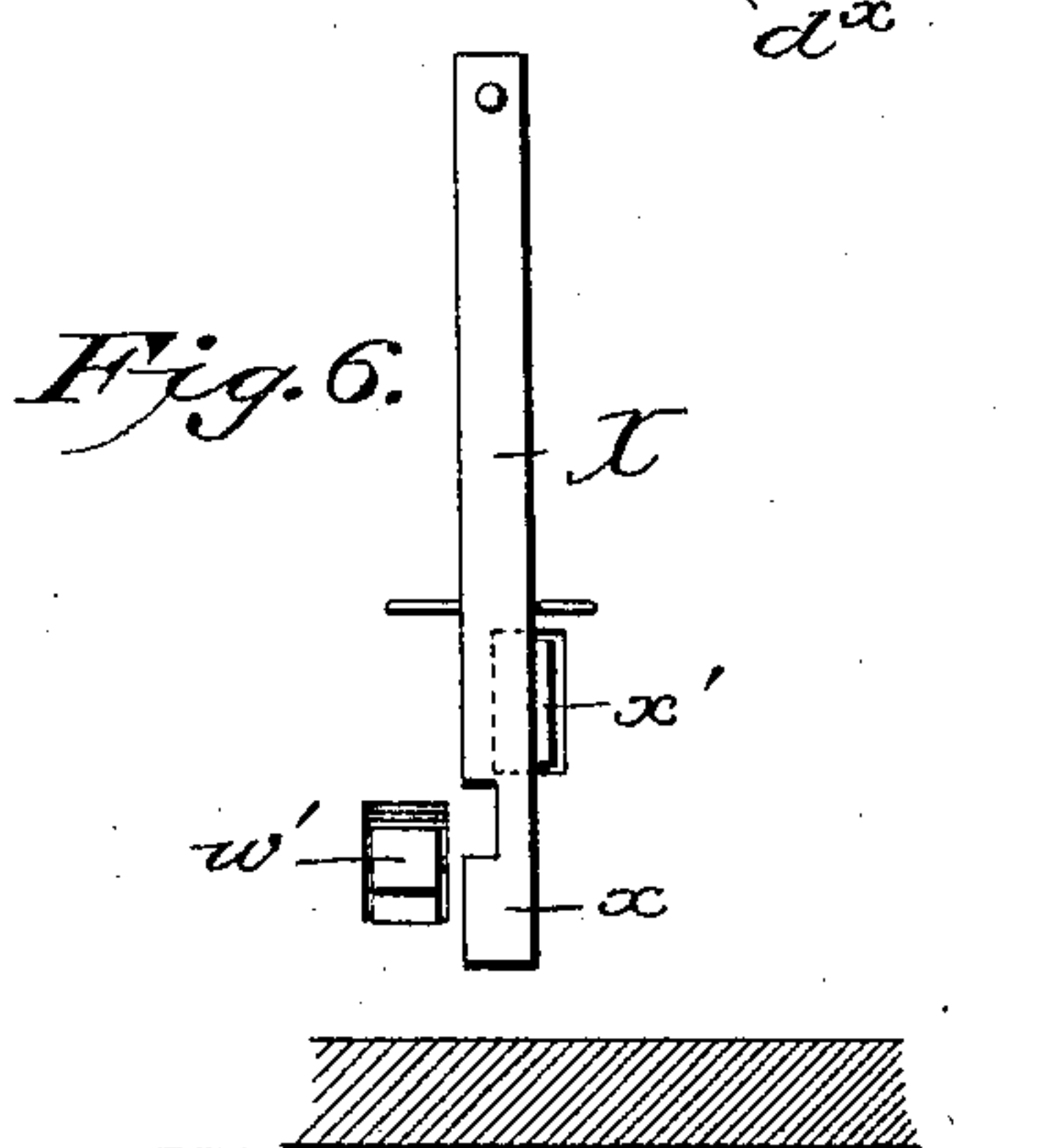
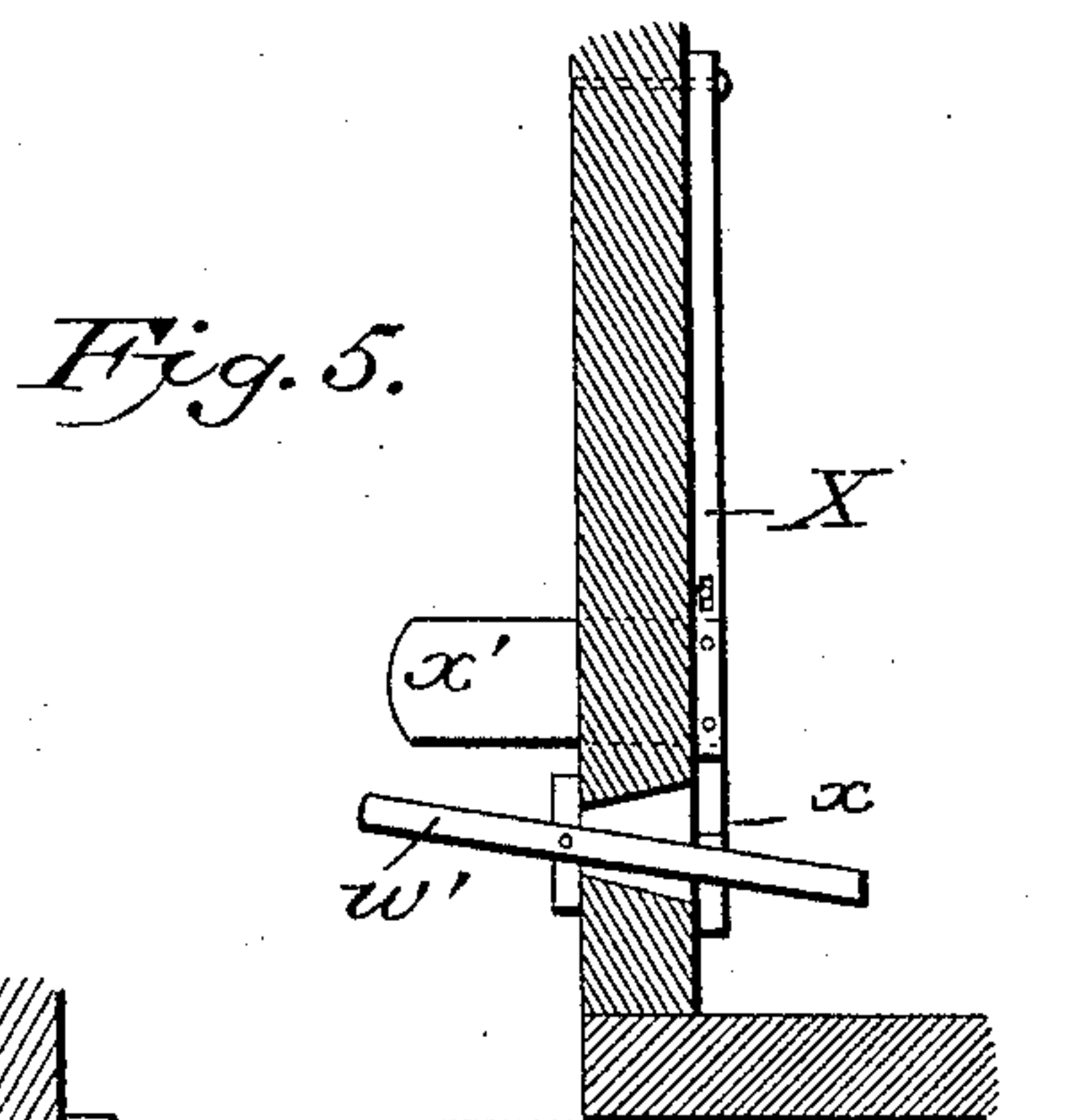
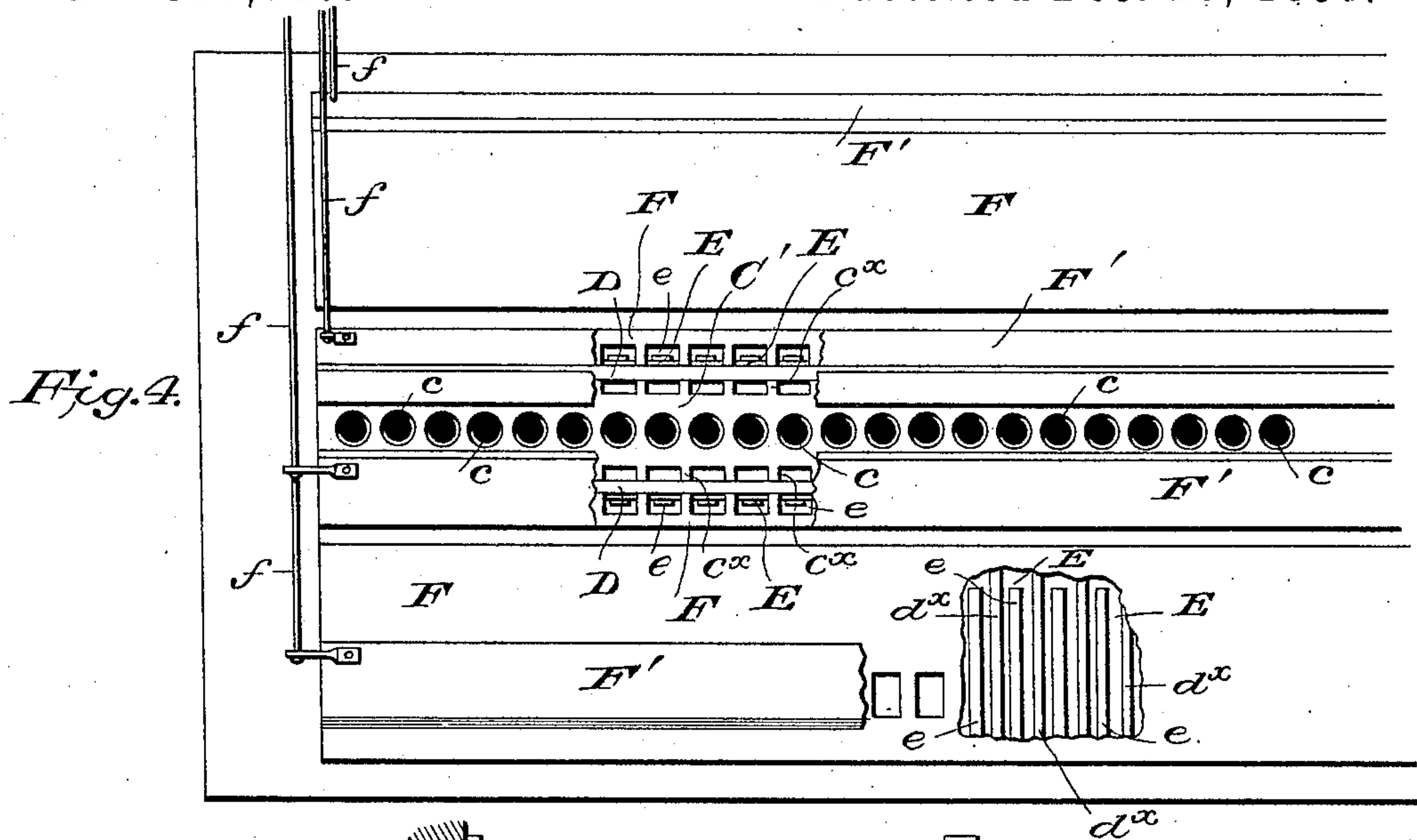
(No Model.)

4 Sheets—Sheet 4.

W. S. MOSES.
REED ORGAN.

No. 574,040.

Patented Dec. 29, 1896.



WITNESSES
L. S. Elliott.
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UNITED STATES PATENT OFFICE.

WILLIAM S. MOSES, OF TRACY, MINNESOTA.

REED-ORGAN.

SPECIFICATION forming part of Letters Patent No. 574,040, dated December 29, 1896.

Application filed November 29, 1895, Serial No. 570,491. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. MOSES, a citizen of the United States of America, residing at Tracy, in the county of Lyon and State of Minnesota, have invented certain new and useful Improvements in Reed-Organs; and I do hereby 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide a reed-organ in which a plurality of reeds are employed for each tone, the reeds being positioned in independent reed-chambers which are provided with valves connected to levers operated by the bellows, so that said valves can be opened successively to increase the volume of sound.

The invention also embodies the application to such a reed-organ of an improved substituting and transposing keyboard.

The invention consists in providing a reed-organ with a plurality of reed-chambers the valves of which are connected to a lever operated by a swinging board forming a part of the bellows, the valves being connected to the lever so that they will be opened successively.

The invention further consists in connecting to the swinging board means for indicating the number of valves which are opened.

The invention further consists in the improved substituting and transposing keyboard, which is adapted to be used in connection with the reed-organ; and the invention further consists in the construction and combination of the parts, as will be hereinafter fully set forth.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical sectional view of a reed-organ constructed in accordance with my invention. Fig. 2 is a front elevation, parts being broken away to show the mechanism for shifting the substituting and transposing keyboard. Fig. 3 is a rear elevation. Fig. 4 is a detail plan view of the reed mechanism. Figs. 5 and 6 are detail views of the means employed for holding the coupler-boards in operative po-

sition, and Figs. 7, 8, and 9, detail views of the means for holding the substituting and transposing keyboard at different elevations.

The supporting-frame of the organ may be of any suitable or approved construction, and it is provided with a transverse board A, upon which the key-levers A' are pivoted in the usual manner. Above the forward ends of the key-levers A' is mounted the substituting and transposing keyboard hereinafter described.

B designates a transverse board which is secured at its ends to the side pieces of the frame of the organ and supports the reed mechanism. Upon the board B at its front and rear edges are secured strips b, to which the sounding-board C is attached, leaving an intervening space forming the sounding-chamber. Along the center of the sounding-board C is attached an upright strip C', which is provided with a series of vertical openings c, which communicate with the sounding-chamber through corresponding openings in the sounding-board C. The upper part of the openings c is enlarged, and within said enlarged portion of each opening c fits a piston c', the lower end of which is provided with a packing which abuts against the shoulder formed by the enlarged upper portion of the openings c when said piston is in its normal position. The pistons c' are connected to the rear end of the key-levers A' by rods a, so that by depressing the forward end of a key-lever the corresponding piston will be elevated for the purpose hereinafter mentioned.

In the strip C', on opposite sides of each opening c and at different distances above the shoulder therein, are ports c² and c³, which connect the openings c with independent air-passages formed on each side of the strip C' by the vertical reed-boards D and the vertical projections c^x of said strip, a continuation of the air-passages on each side of the strip C' being formed by the horizontal reed-boards D', which are supported at a suitable distance above the sounding-board C by means of projections d^x, corresponding with the projections c^x. Through the reed-boards D and D' extend openings d, over which the reed-plates E are placed, so that the free ends of the tongues e of the reeds will be on a line with

said openings. On the outer side of the reed-boards D and D' are secured strips F to form reed-chambers through which the air passes to vibrate the tongues *e*, as hereinafter described. The strips F are provided with openings which communicate with the reed-chambers, said openings being covered by valves F', which are operated by levers G G, pivoted to supports carried by the rear strip *b* and connected to a swinging board forming part of the bellows, as hereinafter described. The rods *f*, which connect the valves F' to the levers G, extend through apertures in said levers and are provided on their outer ends with adjustable heads or stops *f'*, against which the levers strike for drawing upon said rods. It will be noted that the rear ends of the rods *f* extend beyond the levers G at different distances, and by this arrangement, when but a slight movement of the levers is made, but a single valve or pair of valves will be opened, while a complete movement of said levers will open all the valves or mutes successively.

To the under side of the transverse board B, near its rear edge, is secured a strip *h*, from which the bellows II is supported, the sounding-chamber above the board B communicating with the bellows by openings *h'*, which extend through the board B and strip *h*. The rear board II' of the bellows is hinged to the strip *h* and depends therefrom, while the front board II² thereof is at an inclination, as shown in Fig. 1, and is rigidly secured to the strip *h* and to the side pieces of the organ-frame, the boards II' and II² being connected at their sides and lower ends by a flexible fabric or folded leather *h*². Upon the board II² of the bellows II is a supplemental bellows, the object of which is to exhaust the air from the bellows or chamber II. The supplemental bellows consists of a board I, which is hinged at its lower end to the board II² and is provided with the usual folded leather *i* and with a clap-valve *i'*. The supplemental bellows communicates with the main bellows by an opening through the board II², which is covered by a clap-valve, and said supplemental bellows is operated by pedals K K, which extend through the front board of the organ-frame and are connected to the board I by flexible connections *k*, the board being provided with projections *i*², to which the connections *k* are attached. The supplemental bellows is held normally closed by a spring *i*¹, and it will be noted that though I have described but a single supplemental bellows there are two employed, which are operated by the independent pedals K.

L designates a vertical bar or support, which is rigidly secured to the rear edge of the board B and is provided at its upper and lower ends with guide-rollers *l*, over which passes a cord M, which is attached at one end to the hinged board II' and at its other end to a sliding indicator M', having a pointer *m*, which extends through a slot in the upper front board N of

the organ-frame and travels over an indicator-plate M², Fig. 2. By this arrangement the pointer *m* will indicate the number of valves or mutes F' of the reed-chambers which are opened, as the levers which operate the valves and the cord that operates the indicator are all connected to the hinged board II' of the bellows II.

The operation of so much of my invention as hereinbefore described is as follows: When the forward end of one of the key-levers A' is depressed, it will raise the corresponding piston *c'* above the ports *c*² and *c*³, and the extent to which the bellows have been operated to exhaust the air in the chamber II will determine the volume of sound, or rather the number of tongues *e* which are vibrated to produce the desired tone. The air being drawn into the reed-chamber vibrates the tongue *e* by passing through the opening *d*, from which it goes to the sounding-chamber through the port *c*² or *c*³ and vertical opening *c*. Thus it will be noted that the reeds are played by the suction of air caused by the bellows II, and the performer is advised of the number of valves or mutes that are opened by glancing at the indicator or pointer *m*. By locating the ports *c*² and *c*³ one above the other a partial depression of a key-lever will open but one of the ports, and consequently allow but two sets of reeds to be operated upon.

The keyboard which I employ for operating the key-levers A' is constructed somewhat similar to that shown in my Patent No. 542,272, dated July 9, 1895, certain changes being embodied to adapt it for this use.

The board O is supported at its rear end upon a cross-bar *o* and at its forward end rests upon a cross-piece P, said board carrying the keys R, tracker-pins *r*, and coupler-boards S, as well as an upwardly-projecting bar *o'*, which passes through a slot in the board N and engages a stop-pin *n*, let into one of a series of holes in the board N, these parts being constructed and arranged as shown and described in the patent above referred to. The forward end of the board O is tilted upward by a pair of levers T T, which are operated from the pedal T' through the interposition of a lever T² and connecting-rods *t* and *t'*. When the forward end of the board O is raised, it can be slid to either the right or left by the pedals V V, which are connected to a cross-piece V' by rods *v v*, the cross-piece having an elbow-lever *v'*, which is connected at its upper end to rods *v*² *v*², which extend from each end of the board O, being attached to depending lugs thereon. By this arrangement when the board is tilted it can be slid to the right by depressing the foot-pedal V on the right and to the left by depressing the pedal on the left, the movement rocking the cross-piece V', which will oscillate the arm *v'*.

The coupler-boards S are raised into an operative position by a rock-shaft W, having inwardly-projecting arms which bear against

the underside of the coupler-boards, the rock-shaft being operated by a pedal W' , which is connected to a depending arm w of the rock-shaft by the interposition of a bell-crank lever w' and connecting-rods w^2 . In order to hold the coupler-boards in an operative position and thus permit the performer to use his feet to pedal the bellows, I pivot upon the inner side of the front board of the organ-frame a swinging bar or latch Y , having notches y at its lower end which engage the pedal W' and hold it depressed. This latch is provided with a transverse slot through which a cross-bar y' passes for guiding the latch, said cross-bar being supported by lugs or brackets y^2 . The latch is provided with a forwardly-projecting operating-arm y^3 , which extends through an opening in the front board of the organ-frame, and to the outer side of said front board is pivoted a catch y^4 , which is adapted to engage the arm y^3 and hold the latch Y against the action of a spring y^5 , connected thereto. A swinging bar or latch X is also provided for supporting the substituting and transposing keyboard at different elevations, and as the pedal which tilts the keyboard is pivoted to the front board of the organ-frame said latch is provided with a head x , which engages the under edge of the pedal to hold the rear portion thereof elevated. The swinging bar or latch X is provided with a forwardly-projecting arm x' , that extends through an opening in the front board of the organ-frame, and by means of this arm the latch can be operated to disengage it from the pedal. By this arrangement the forward end of the keyboard can be held in a tilted position, so that when the keys are operated upon they will depress the key-levers to a certain distance and thus raise the pistons c' to a limited extent to uncover as much of the ports c^2 c^3 as desired. When the parts are arranged so that the operation of the keys will uncover only the ports c^3 , but two reeds will be acted upon to produce a tone.

To the upper part of the frame of the organ is hinged a transverse strip Z , which overlies the keys and is padded on its under edge to receive the force of the returning keys and arrest them by the inertia of the strip. This strip also provides for holding the keys on the same horizontal plane.

The reed-organ hereinbefore described provides an instrument in which the volume of sound can be increased and diminished at the will of the performer, and the parts are so constructed and arranged that they are operated by pedals.

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

1. The combination in a reed-organ, of air-exhaust mechanism having a movable board, the board being connected to a plurality of valves covering the reed-chambers, whereby

the movement of the board will open the valves successively.

2. In a reed-organ, the combination, of air-exhaust mechanism communicating with a sounding-chamber, a plurality of reed-chambers having valves, and means substantially as shown connected to the air-exhaust mechanism for operating the valves successively.

3. In a reed-organ, the combination, of air-exhaust mechanism communicating with the sounding-chamber, the air-exhaust mechanism having a swinging board, a plurality of reed-chambers and passages connecting said reed-chambers with the sounding-chamber, valves covering openings in the reed-chambers, and a lever, or levers, connected to the swinging board and to the valves, substantially as shown and described.

4. In a reed-organ, the combination, of air-exhaust mechanism, a sounding-chamber communicating therewith, and a plurality of reed-chambers connected to the sounding-chamber and provided with valves; together with means connected to the valves and to a board of the air-exhaust mechanism for opening the valves successively as said board is moved, and an indicator or slide for indicating the number of valves that are opened.

5. In a reed-organ, the combination, of air-exhaust mechanism, a sounding-chamber communicating therewith, a strip having a series of vertical openings and ports which lead to the reed-chambers, valves covering openings in the reed-chambers, and means connected to the valves and to a swinging board of the air-exhaust mechanism, substantially as shown and described.

6. The combination in a reed-organ, of a sounding-chamber connected with means for exhausting the air therein, a strip having a series of openings communicating with the sounding-chamber and ports at different heights or distances apart which lead to the reeds, and pistons located in the openings and adapted to uncover the ports successively, substantially as shown and for the purpose set forth.

7. The combination in a reed-organ, of a sounding-chamber connected with means for exhausting the air therein, a strip having a series of openings or passages communicating with the sounding-chamber and ports at different heights or distances apart which lead from said passages to the reeds, pistons located in the openings and adapted to uncover the ports successively, and means for operating the pistons, substantially as shown and for the purpose set forth.

8. The combination in a reed-organ, of a sounding-chamber, a strip having a series of openings communicating with the sounding-chamber and ports which lead to the reeds, valves covering openings in the reed-chambers; together with mechanism for exhausting the air in the sounding-chamber, and

means connected to the air-exhaust mechanism and to the valves of the reed-chambers for opening said valves successively, substantially as shown and for the purpose set forth.

9. The combination in a reed-organ having a series of reed-chambers and a sounding-chamber communicating with each other by passages and ports, the ports being located at different heights, substantially as shown; of pistons located in the air-passages and adapted to be moved over the ports; key-levers for operating the pistons, and mechanism for exhausting the air in the sounding-chamber, substantially as shown and for the purpose set forth.

10. The combination in a reed-organ having a series of reed-chambers and a sounding-chamber communicating with each other by passages and ports, substantially as shown; of pistons located in the air-passages and connected to operating-levers for uncovering the ports; valves covering openings in the reed-chambers; together with mechanism for exhausting the air in the sounding-chamber, and means connected to the air-exhaust mechanism and to the valves for opening said valves successively, for the purpose set forth.

11. The combination in a reed-organ having a series of reed-chambers and a sounding-chamber communicating with each other by passages and ports, substantially as shown; of pistons located in the air-passages and connected to operating-levers for uncovering the ports; valves covering openings in the reed-chambers; bellows for exhausting the air in the sounding-chamber, said bellows having a swinging board, and means connected to the swinging board and to the valves for operating the valves by exhausting the air in the bellows, substantially as shown and for the purpose set forth.

12. The combination in a reed-organ having a series of reed-chambers and a sounding-chamber communicating with each other by passages and ports, substantially as shown; of pistons located in the air-passages and connected to operating-levers for uncovering the ports; valves covering openings in the reed-chambers; together with a bellows or chamber located below the sounding-chamber and communicating therewith, said bellows or chamber having a swinging board and supplemental bellows for exhausting the air therein; and means connecting the swinging board with the valves of the reed-chambers, substantially as shown and for the purpose set forth.

13. The combination in a reed-organ having a series of reed-chambers and a sounding-

chamber communicating with each other by passages and ports, substantially as shown; of pistons located in the air-passages and connected to operating-levers for uncovering the ports; valves covering openings in the reed-chambers; bellows for exhausting air from the sounding-chamber, said bellows having a swinging board which is connected to the valves of the reed-chambers for opening them successively; and an indicator located at the front of the organ-frame and connected to the swinging board for indicating the number of valves that are open.

14. The combination in a reed-organ having a series of reeds located on opposite sides of passages which communicate with the sounding-chamber, ports connecting the passages with the reed-chambers and located at different planes, pistons located in the passages and connected to operating-keys, said pistons being adapted to cover and uncover the ports; together with means for exhausting the air in the sounding-chamber, substantially as shown and for the purpose set forth.

15. The combination in a reed-organ having a series of reeds located on opposite sides of passages which communicate with the sounding-chamber, ports connecting said reeds with said passages, and pistons located in the passages and operated to uncover the ports successively; of a substituting and transposing keyboard having keys which are connected to the pistons for operating the same; and means for tilting the forward end of the keyboard, substantially as shown and for the purpose set forth.

16. The combination in a reed-organ, of a substituting and transposing keyboard supported at its rear end upon a bar; levers pivoted to the organ-frame so that they will engage the under side of the keyboard; a pedal connected to the levers substantially as shown; a pivoted latch having notches which engage the pedal and a slot through which a guide-bar passes, a spring for throwing the latch in engagement with the pedal, and a catch for holding the latch against the action of the spring, substantially as shown and described.

17. In a reed-organ, the combination, of a transverse strip Z hinged to the frame so as to overlie the keys, the under edge of the strip being provided with a pad, substantially as shown and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM S. MOSES.

Witnesses:

W. H. JESSUP,

HELEN E. JESSUP.