

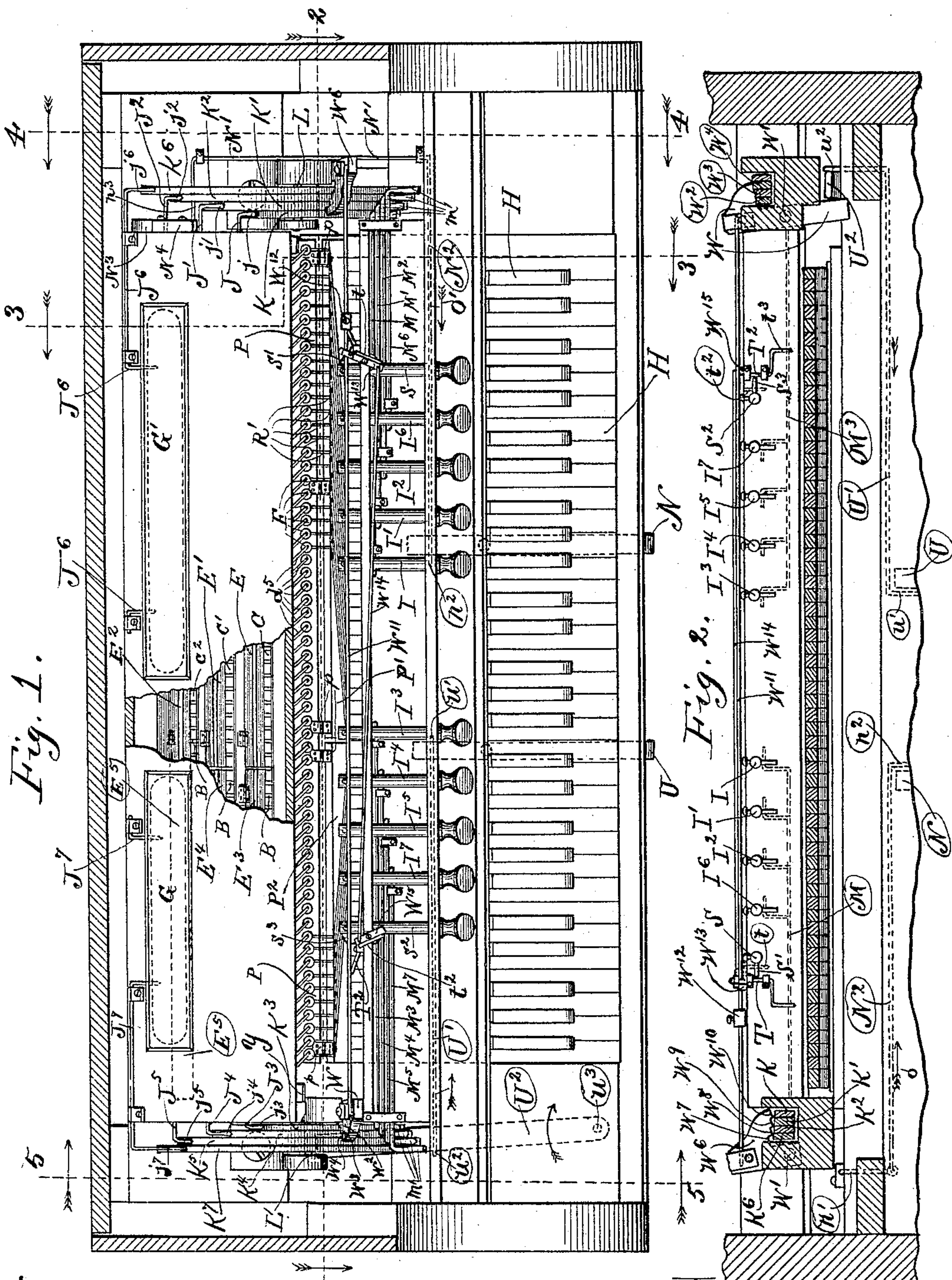
(No Model.)

3 Sheets—Sheet 1.

J. CHILLEEN.
ORGAN.

No. 487,716.

Patented Dec. 13, 1892.



Witnesses:
R. J. Jacker,
Flora L. Brown,

Inventor:
John Chilleen,
By Charles Turner Brown,
Atty.

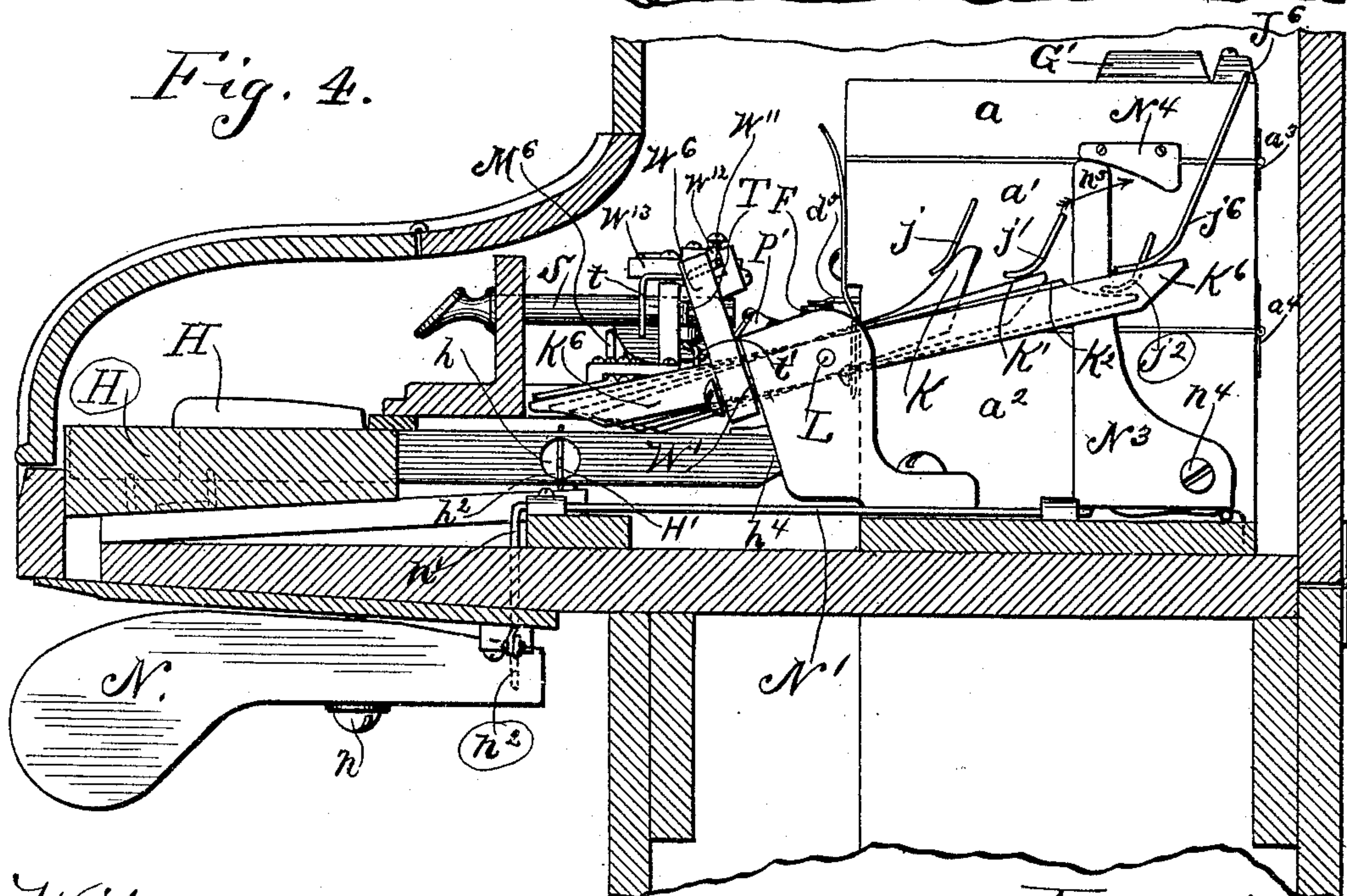
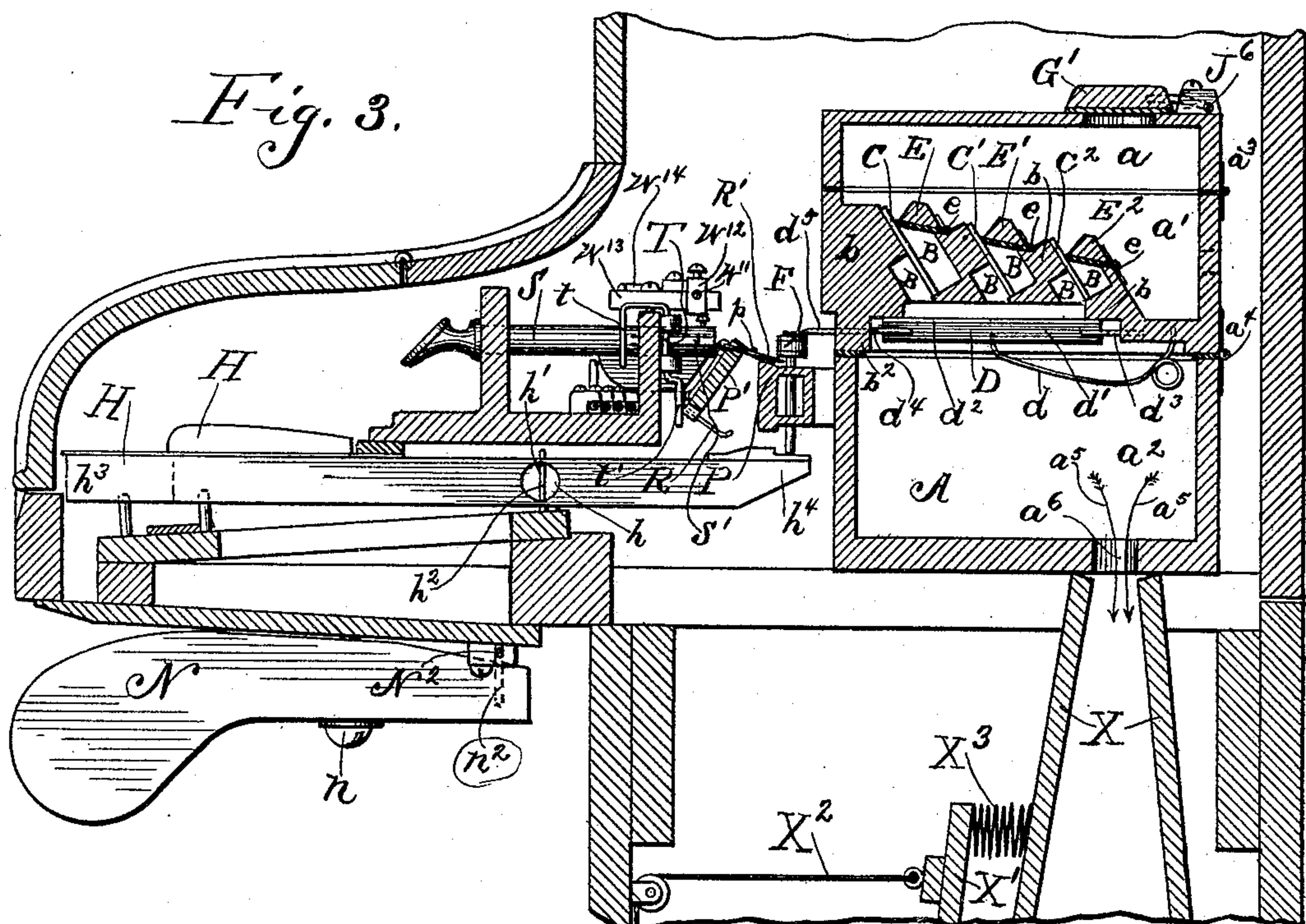
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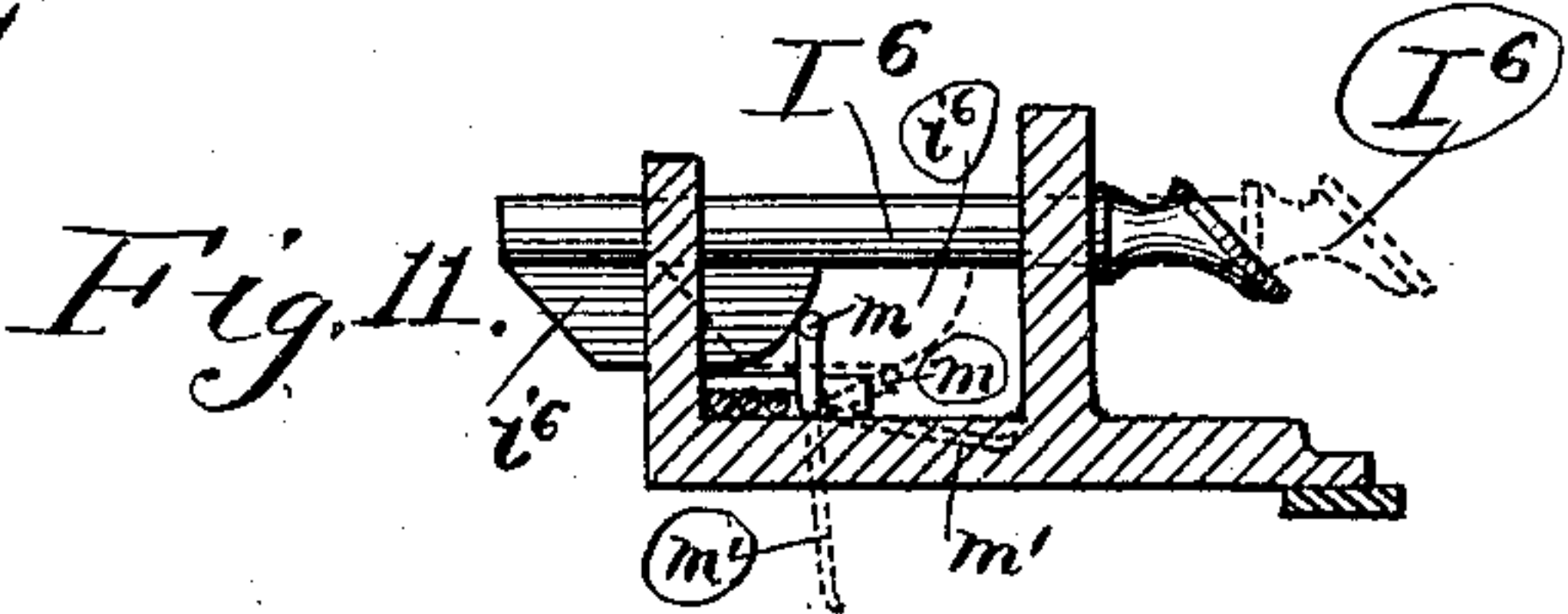
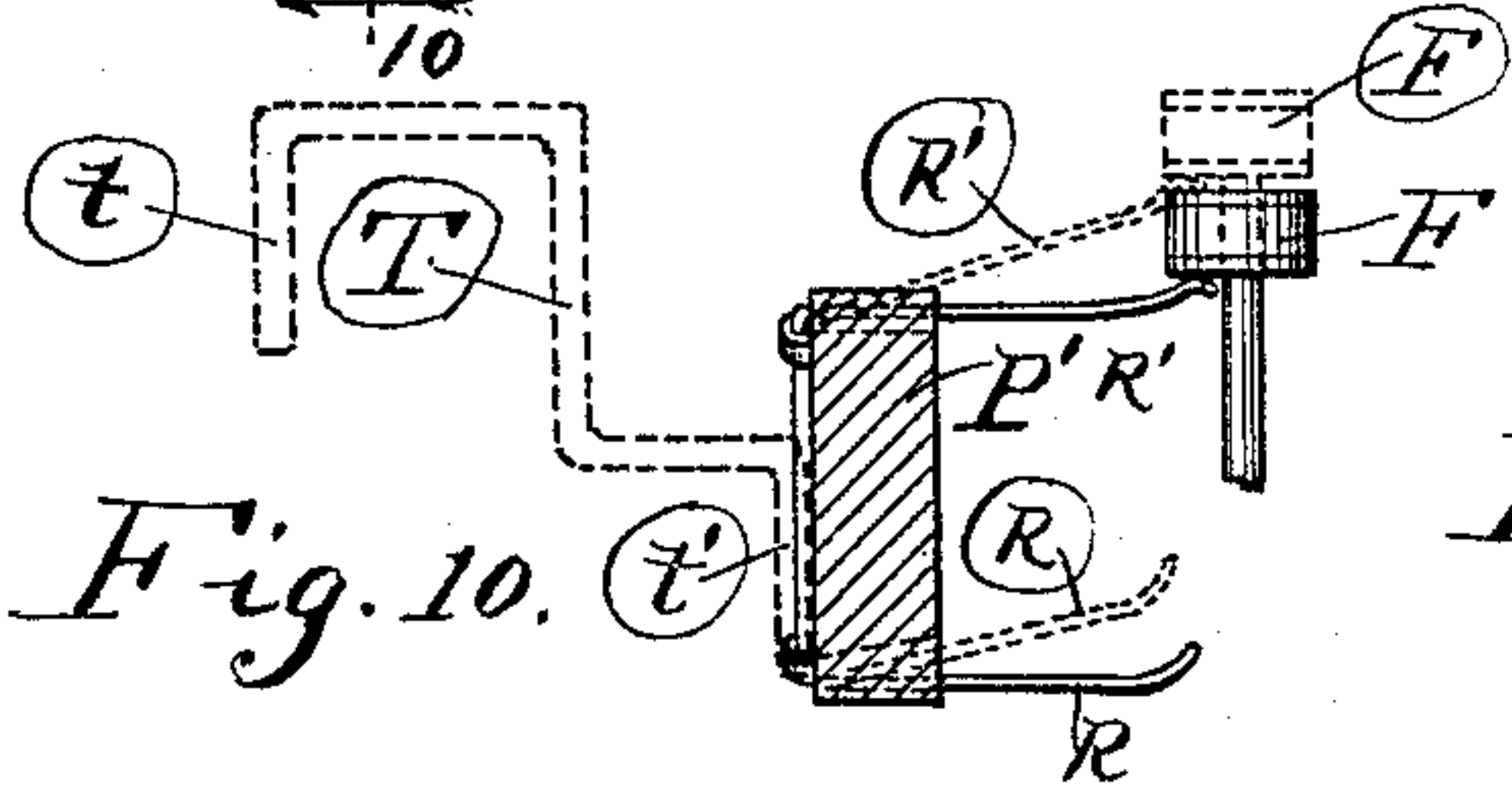
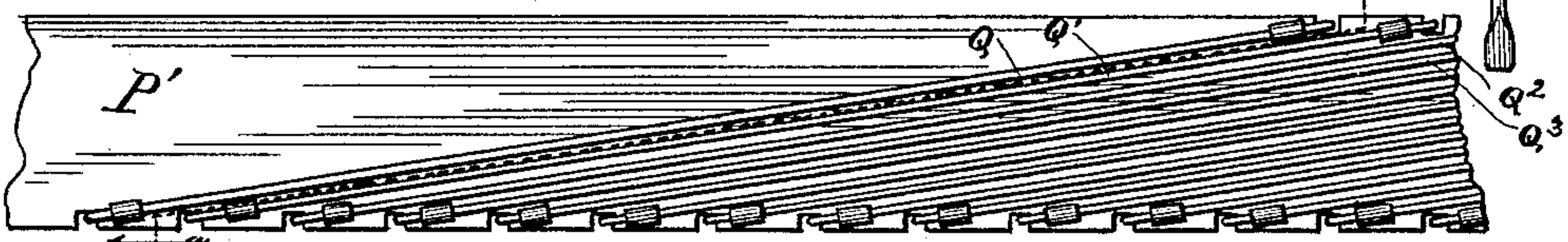
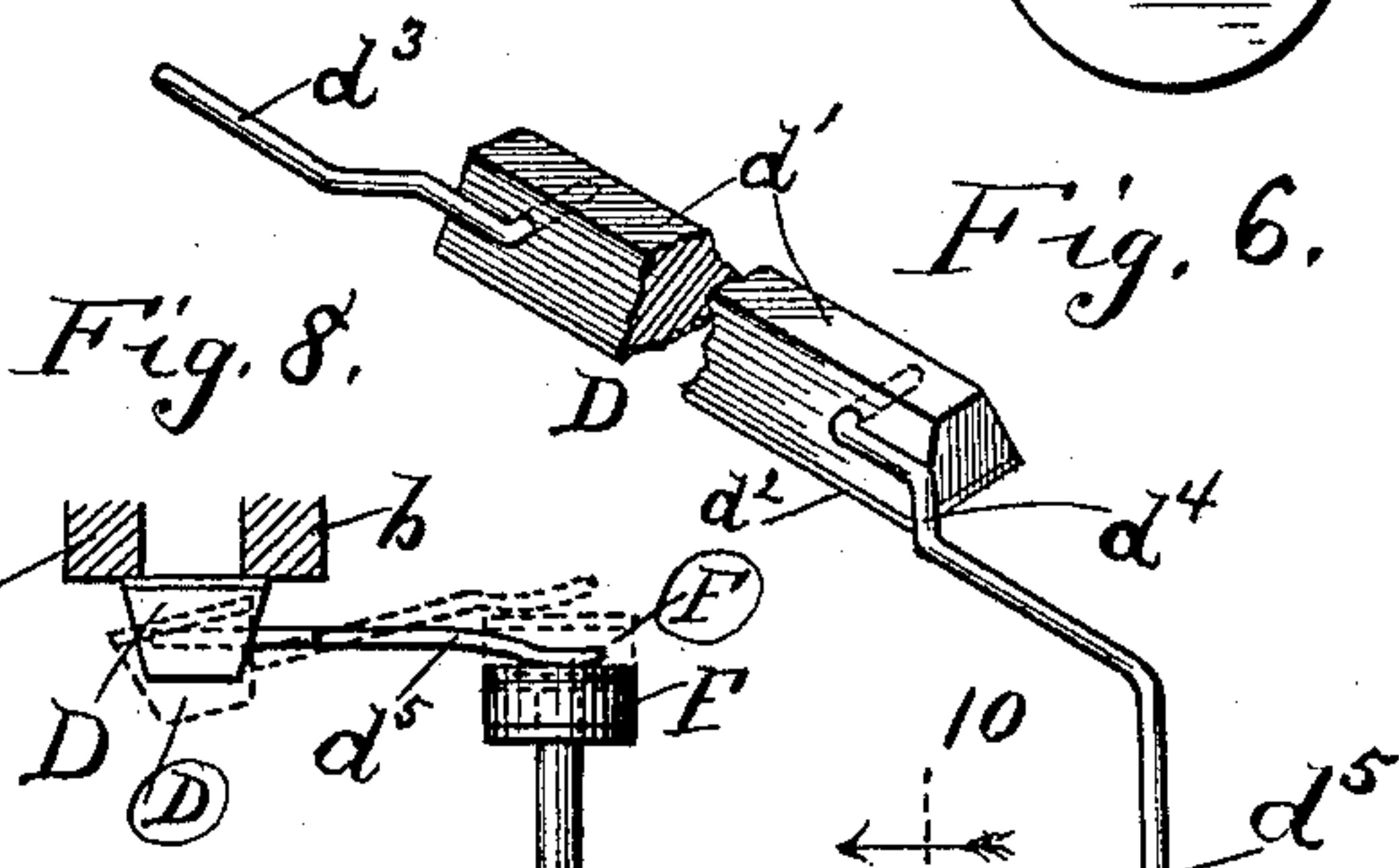
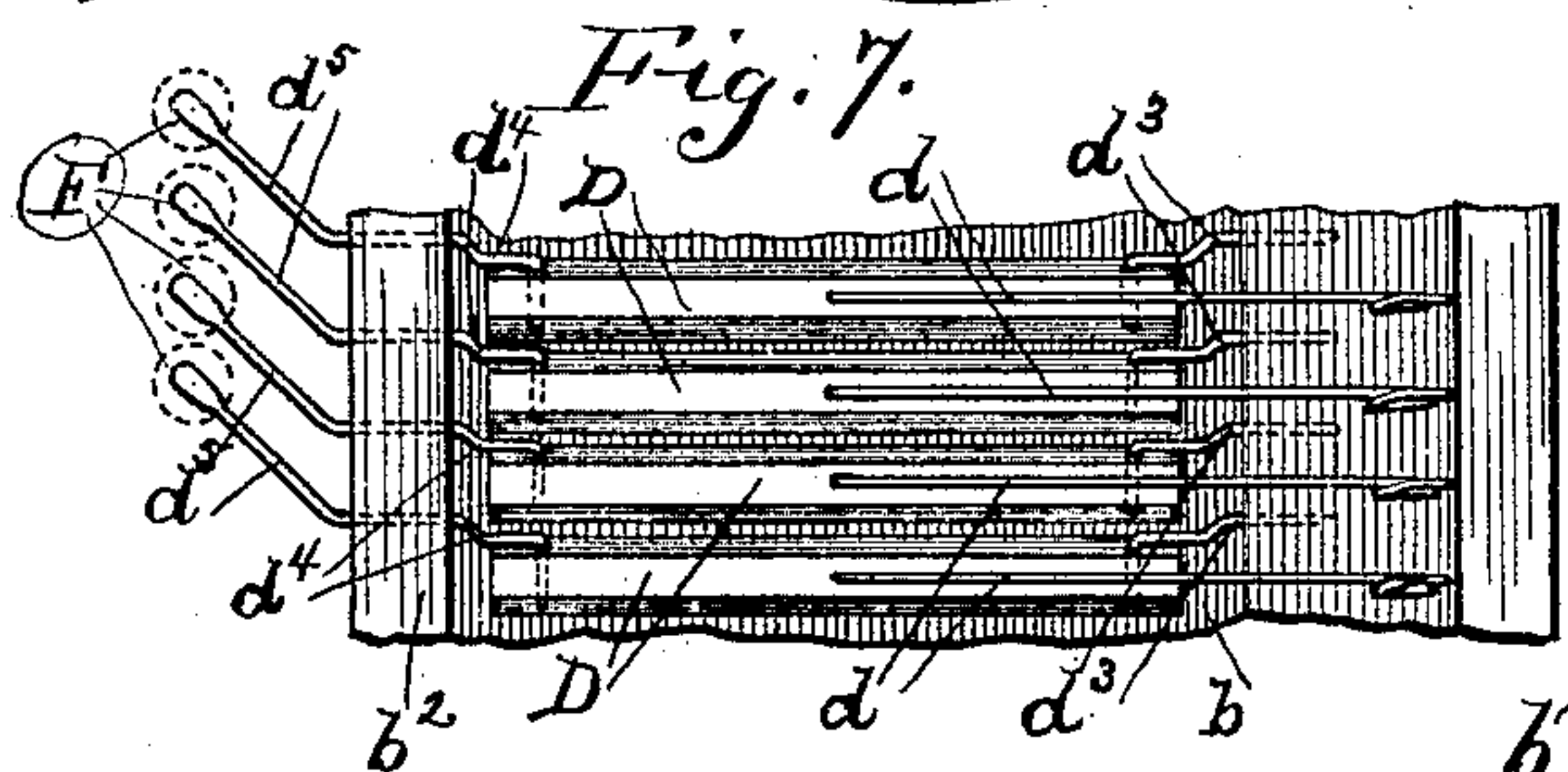
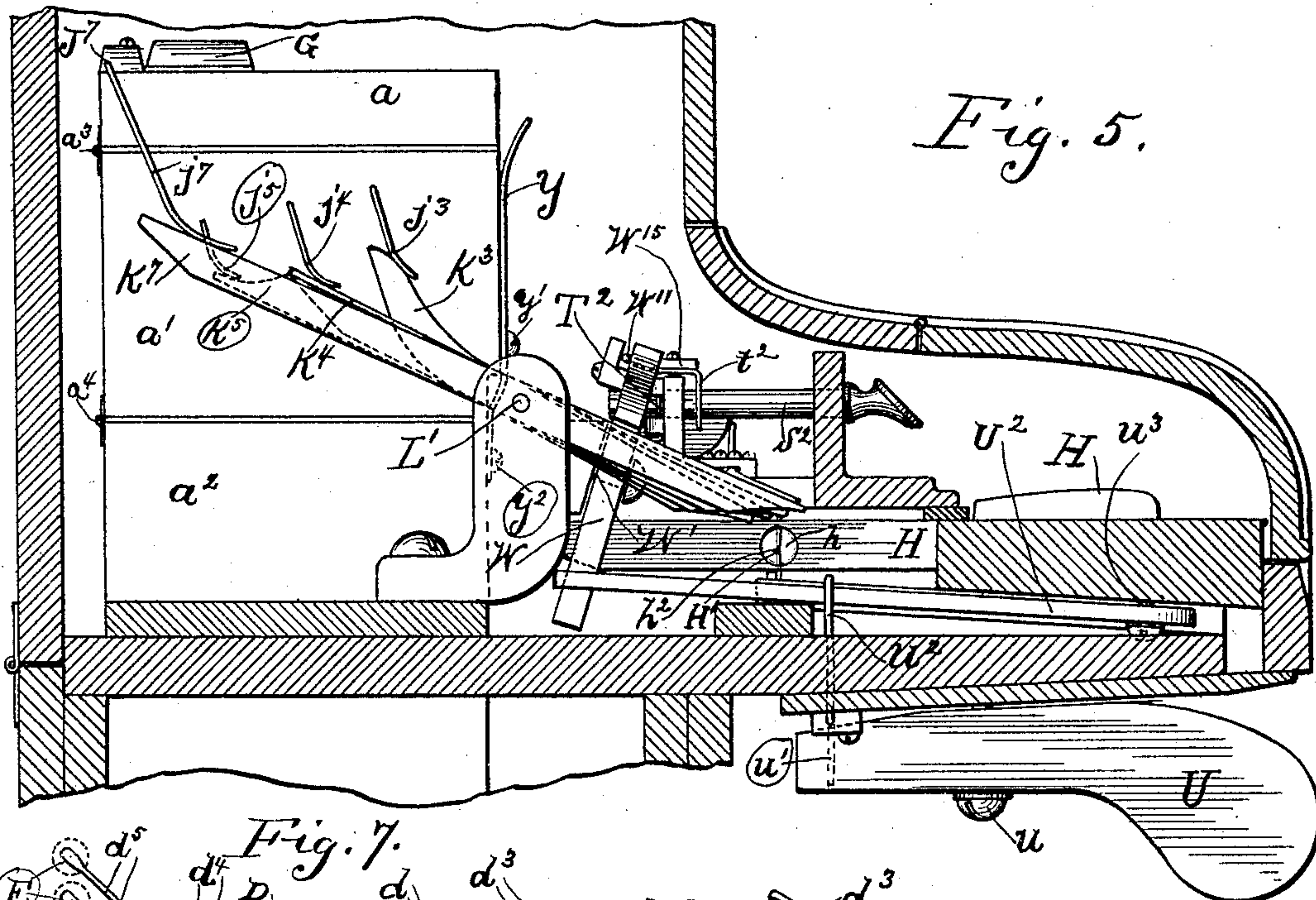
(No Model.)

3 Sheets—Sheet 3.

J. CHILLEEN.
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UNITED STATES PATENT OFFICE.

JOHN CHILLEEN, OF CHICAGO, ILLINOIS.

ORGAN.

SPECIFICATION forming part of Letters Patent No. 487,716, dated December 13, 1892.

Application filed August 11, 1892. Serial No. 442,787. (No model.)

To all whom it may concern:

Be it known that I, JOHN CHILLEEN, a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Organ, of which the following, when taken in connection with the drawings accompanying and forming a part hereof, is a full and complete description, sufficient to enable those skilled in the art to make and use the same.

My invention relates to musical instruments of the kind known as "organs," wherein pedals are actuated by the feet and a keyboard is actuated by the fingers in order to produce a current of air through determined reeds, thereby producing desired sounds, and in which are placed certain stops, by means of which a variation in the character of the sounds produced is obtained; and the objects of my invention are to obtain an organ wherein the reeds are readily exposed to view for the purpose of tuning the instrument or for substituting a new reed for a defective one and to obtain an instrument wherein in the operation thereof the movement of air passing through the reeds, where more than one reed is employed to produce a given note, shall be alike for each of such reeds—that is to say, where each reed forming one of a "bank," as it is termed, shall be acted upon in the same manner by a current of air as the other reeds in the bank when the instrument is in use, it being well known that as many as six reeds are placed in a bank in some organs.

A further object of my invention is to obtain an organ wherein all the several parts are or may readily be exposed to view whenever desired.

A still further object of my invention is to obtain an organ easy and responsive in the action thereof, durable and not liable to get out of repair, and economical in construction.

In the drawings referred to as forming part of this specification, Figure 1 is a plan view of the keyboard, of the several stops, and of the box containing the reeds, with a portion of the top of the box cut away, exposing to view the frame in which the reeds are placed; Fig. 2, a sectional view on line 2 2 of Fig. 1, viewed in the direction indicated by the arrows; Fig. 3, a cross-sectional view on line 3 3 of Fig. 1, viewed in the direction indicated

by the arrows; Fig. 4, a cross sectional view on line 4 4 of Fig. 1, viewed in the direction indicated by the arrows; Fig. 5, a cross-sectional view on line 5 5 of Fig. 1, viewed in the direction indicated by the arrows; Fig. 6, a perspective view on the under side thereof of a valve used in closing the several cells in which the reeds are placed against the passage of air therethrough; Fig. 7, a view of several (four) of these valves in position against the openings of the respective cells thereof, also viewed from the under side; Fig. 8, an end elevation of one of such valves in an upright position, the valves being illustrated as closed by the full lines and an open position being indicated by the dotted lines; Fig. 9, a front elevation of the couplers employed for obtaining automatic opening of the valve actuating notes an octave higher than the one actuated by the depression of a given key on the keyboard by the operator. The coupler illustrated in Fig. 9 is placed on the right-hand or the treble side of the organ and may be termed a "right-hand" coupler, and a left-hand coupler similar in construction, but the complement of the one illustrated in Fig. 9, is by me placed on the bass or left-hand end of the keyboard. Fig. 10 is a sectional view of the coupler illustrated in Fig. 9, on line 10 10 thereof, viewed in the direction indicated by the arrows. Fig. 11 is a cross-sectional view of the frame holding the stops, with a side elevation of one of the stops therein in a closed position in full lines and indicated in an open position by dotted lines.

The same letter of reference is used to indicate a given part where more than one view thereof is shown in the several figures of the drawings.

A is a box consisting of the three parts a , a' , and a^2 , connected together by the hinges a^3 a^4 , respectively, part a thereof constituting the sound-box, part a' the reed-chest, and part a^2 the wind-chest, of the organ.

X X X' are bellows-boards or pumps constructed in the ordinary manner—that is, the cord X² is attached at one end to bellows-board X' and at the other end to the pedals and board X' is connected to the left-hand one, Fig. 3, of boards X X by spring X³, so that movement to the left of board X' will cause movement to the left of the left-hand

one of boards X and a downward current of air, as indicated by the arrows lettered a^5 , through hole a^6 from wind-chest a^2 .

B B B are reed-cells, $b b b$ being the front and rear walls and the partitions of such cells.

C, C', and C², Figs. 1 and 3, are reeds arranged to form a bank of three thereof.

D is a valve yieldingly closing the opening at the lower end of the cells B B to prevent the passage of air into the wind-chest a^2 from above through such cells and adapted to be opened in a manner hereinafter described in the operation of the organ by manipulation of the keyboard thereof.

d is a spring tending to hold the valve D closed and to automatically close such valve when open.

E E' E² E³ E⁴ E⁵ are valves known in the art as "mutes," hinged, respectively, by hinges $e e$ to the walls $b b$ of cells B B.

The valve D (illustrated in Figs. 3, 6, 7, and 8) consists of the top d' , having on the upper face thereof elastic covering d^2 , and also having pivotal wires d^3 and d^4 , respectively. Pivotal wire d^4 is bent into form to provide extension d^5 , adapted to rest upon push-pin F, Figs. 1, 3, and 8, the head of several of such push-pins F F being indicated by dotted lines in Fig. 7.

In order to readily understand the manner in which the valve D moves and works, it should be observed that the portions of the pivotal wires d^3 d^4 forming the pivot or fulcrum around which the body part d' of such valve D turns are journaled in perforations or holes extending through part b^2 and b^3 , respectively, of the partition between the reed-chest a' and the wind-chest a^2 of the instrument, as illustrated in Figs. 3 and 7 of the drawings.

G G', respectively, are "bass" and "treble" swells, as they are termed.

H H are the keys of the organ.

h is a hole extending through keys H H, the axis of such hole h being in a plane midway between the top and bottom of the key.

h' is a slot extending longitudinally on the key H from the upper face thereof into hole h , and h^2 , Figs. 3, 4, and 5 is a hole extending from the bottom face of the key H into hole h .

H' is a pin extending from the framework of the organ upward through holes h^2 h and slot h' and forms the pivotal point on which the keys are fulcrumed, so that the front end thereof can be depressed. This manner of fulcruming the keys H H by me is the ordinary way of arranging piano-board keys.

By the depression of the end h^3 of key H end h^4 , thereof Fig. 3 will be raised, and thereby the push-pin F will be raised from the position in which such pin is illustrated by the full lines in Figs. 3 and 8 into about the position indicated by the broken lines in Fig. 8, and thereby the valve D will be opened from the closed position in which it is illustrated by full lines in Figs. 3 and 8 into the

position indicated by the broken lines in Fig. 8, and thereby when either the sounding-chest a' or swells G G', with mutes E E' E² E³ E⁴ E⁵ or either of them, are opened air may pass through cells B B, the reeds in such cells, and into the wind-chest a^2 when the bellows of the organ are properly worked. In the manner just described air can be admitted to one or more of the reeds forming the bank desired to be operated by the depression of any one of the keys of the keyboard.

In order to actuate separately the mutes E, E', E², E³, E⁴, and E⁵, I provide stops I, I', I², I³, I⁴, and I⁵, Figs. 1 and 2 with intermediate mechanism, hereinafter described. Stop I, when drawn out, opens mute E. Stop I', when drawn out, opens mute E'; stop I², mute E²; stop I³, mute E³; stop I⁴, mute E⁴, and stop I⁵, mute E⁵. These several stops are duplicates of each other, one of such stops (lettered I) being illustrated in elevation in Fig. 11, and the connecting mechanism between the several stops and mutes actuated thereby is in each case the same. I will first particularly describe the mechanism connecting stop I and mute E. Secured to mute E is wire J, having crank-arm j , which crank-arm rests on pivoted lever K, (at the treble or right-hand end of the organ, Figs. 1 and 4.) Lever K is fulcrumed on pin L, and on the forward end of the lever rests crank-arm m' of rod or shaft M. At the other end of rod or shaft M is crank-arm m , extending underneath or in front of projection i on lever I. To mute E' wire J', having crank-arm j' , is secured, and to mutes E², E³, E⁴, and E⁵, respectively, are secured wires J² J³ J⁴ J⁵, with crank-arms j^2 j^3 j^4 j^5 , respectively. To connect each of the crank-arms j' , j^2 , j^3 , j^4 , and j^5 to the respective stops therefor, like mechanism, as just described, is employed. At the treble end of the organ are levers K' K², fulcrumed as is lever K on pivot L, and on one end of these levers rest, respectively, crank-arms j' j^2 , and at the bass end of the organ are fulcrumed levers K³ K⁴ K⁵ on pivot L'. On these levers K³ K⁴ K⁵ rest, respectively, crank-arms j^3 , j^4 , and j^5 . To communicate motion to levers K' K², wires M' M² are pivoted in the framework of the organ, such wires having thereon, respectively, the crank-arms m m' , (see Fig. 11,) the crank-arm m being underneath or in front of the projection i on the stop therefor and the arm m' thereof resting on one end of the levers K' K², respectively. Rod M' has crank-arm m thereof underneath or in front of a like projection on stop I', with crank-arm m' thereof resting on lever K'. M² has crank-arm m thereof underneath or in front of a like projection on stop I² and crank-arm m' thereof resting on one end of lever K². At the bass end of the organ rods M³ M⁴ M⁵, having thereon, respectively, crank-arms m m' , are arranged in like manner, so that the crank-arms m of each of such rods will come underneath or in front of like projections on

stops $I^3 I^4 I^5$, respectively, and crank-arm m' thereof will rest, respectively, on levers $J^3 J^4 J^5$. By this arrangement if any one of the stops $I' I^2 I^3 I^4 I^5$ be drawn out (see Fig. 11) into the position illustrated by the broken lines in said figure the crank-arm m of the rod actuated by such stop will be turned from the position illustrated in full lines into the position thereof illustrated by broken lines, and the crank-arm m' thereof, resting on the lever therefor, will be turned from the upper one of the two positions thereof indicated by dotted lines in such Fig. 11 into the lower one of such positions, and the lever on which such crank-arm rests will be slightly turned on the pivot thereof, thereby raising the crank-arm resting on the other end thereof, the rod whereof is attached to the proper one of the mutes, and such mute thereby opened. The operation of the other stops $I' I^2 I^3 I^4 I^5$ is the same as the operation of the stop I .

To open the swells $G G'$, respectively, the swells are pivoted to the top of part a of box A by pivotal rods J^6 and J^7 , respectively, one of the rods J^6 having at one end thereof crank-arm j^6 , resting on pivoted lever K^6 , such pivoted lever K^6 being fulcrumed on pin L, and one of the pivotal wires J^7 , having at one end thereof crank-arm j^7 , resting on pivoted lever K^7 , fulcrumed on pin L'. Stops $I^6 I^7$ are connected, respectively, by wires $M^6 M^7$ with levers K^6 and K^7 , respectively, in like manner as is stop I, connected by rod M, having crank-arms $m m'$ thereon, with lever J. By this mode of connection it will be observed that parts $a a'$ of box A can be raised on hinges a^4 and such crank-arms $j j' j^2 j^3 j^4 j^5 j^6 j^7$, respectively, raised from the levers $K K' K^2 K^3 K^4 K^5 K^6 K^7$, on which they rest, and, further, that part a of box A can be raised from part a' thereof on hinge a^3 , thereby raising crank-arms $j^6 j^7$ from off levers $K^6 K^7$, respectively. To raise such part a or the swell from part a' of box A, I provide the following-described mechanism (illustrated in Figs. 1, 2, and 4 of the drawings:) To the case of the organ is pivoted in position to be actuated by the knee in the ordinary manner the lever N on pivot n , and within the case is journaled the rod N' , having at one end thereof crank-arm n' , Figs. 2 and 4, and at the other end thereof crank-arm n^3 , such crank-arm n' pivotally connected at the lower end thereof with rod N^2 , having crank-arm n^2 thereon, so that when the lever N is turned by the knee on pivot n rod N^2 is drawn forward longitudinally in the direction indicated by the arrow o underneath such rod in Fig. 2 and the arrow lettered O' by the side of such rod in Fig. 1, and thereby the rod N' is partially turned or rotated by crank-arm n' thereof, and crank-arm n^3 at the inner end of the journaled rod N^2 , extending underneath bell-crank N^3 , is raised. Bell-crank N^3 is fulcrumed on pivot n^4 . The upper end of such bell-crank N^3 (lettered n^5) engages with stop N^4 , rigidly secured to swell a . The twisting or turning of the journaled rod N' in the

manner described by movement of lever N, producing an upward movement in the end of crank-arm n^3 , extending underneath the bell-crank N^3 , as stated, thereby moves the end n^5 of such bell-crank in the direction indicated by the arrow thereon against stop N^4 , thus opening the swell a .

I have illustrated in the drawing an organ of five octaves, and in such an organ the notes of the two upper octaves are each coupled with the notes of the next lower octave, respectively. In a six-octave organ it is usual to couple the three upper octaves each with the next lower octave, and such coupling can be done by putting in additional ones of the several connections. To part P, Fig. 3, of the frame of the organ is attached by hinge P coupler-board P' , (see Fig. 9,) and on this coupler-board there are arranged series of wires $Q Q' Q^2 Q^3$, and so on, one of such wires being provided for each one of the keys of the octave and extending from such key to the same key in the next octave. On each of these wires $Q Q' Q^2 Q^3$ there are the crank-arms $R R'$. When the coupler-board P' is forced into a nearly-perpendicular position by means about to be described—that is, into about the position illustrated in Fig. 10—arm R of each of the coupler-wires $Q Q' Q^2 Q^3$ rests upon, or nearly so, the upper and inner end of the keys $H H$, and if any one of such keys H be depressed the consequent elevation of the inner end thereof will raise the crank-arm R from the position in which it is illustrated by the full lines in Fig. 10 to about the position thereof indicated by broken lines in said figure, and consequently the crank-arm R' will be raised from the position in which it is illustrated by the full lines in Fig. 10 into about the position by which it is indicated by the dotted lines in said figure. Crank-arm R' of a given note extends underneath the head of the push-pin F , as illustrated in Fig. 3, and the raising of such crank-arm R' , as described, will raise such push-pin and actuate the valve resting thereon.

The mechanism by which the coupler-board P' is forced into a perpendicular, or nearly so, position is illustrated in Figs. 1, 2, and 3, and consists of the stop S , having thereon projection S' on one side thereof, and pivoted wire T , having arm t at one end thereof, one adapted to come in contact with the projection S' on stop S and be thereby partially turned, and crank-arm t' at the other end thereof, such crank-arm t' pressing against the back of the coupler-board P' , as illustrated in Fig. 10. A like coupler-board (lettered P^2 , Fig. 1) is actuated by stop S^2 through pivoted wire T^2 , having thereon crank-arms t^2 and t^3 , respectively. Stop S^2 has projection S^3 thereon, coming in contact with arm t^2 of wire T^2 , and arm t^3 of such wire T^2 presses against the back of coupler P^2 .

In order to obtain what is known as the "grand organ," I provide a second knee-swell—that is, a knee-swell actuated by the

knee of the left leg, the movement of which swell will open all of the mutes $E E' E^2 E^3 E^4 E^5$ and also force into perpendicular or operative position the coupler-boards $P' P^2$. The mechanism by which such mutes and coupler-boards are operated is extremely simple, and consists of the following parts: pivoted lever U , turning on fulcrum u , secured to the frame of the organ, longitudinally-moving rod U' , having at one end thereof crank-arm u' , extending downward to one side of the inner end of pivoted lever U , and crank-arm u^2 at the other end thereof, extending upward and engaging with pivoted lever U^2 , so that longitudinal movement of such rod U' in the direction indicated by the arrow in Fig. 1 will turn lever U^2 a slight distance around its fulcrum u^3 in the direction indicated by the arrow on such lever in said Fig. 1, and, Figs. 1, 2, and 5, lever W , fulcrumed on pivot W' , such pivot being secured in the frame of the organ in such manner that the described movement of the inner end of lever U^2 will turn this lever W on its fulcrum. Lever W has thereon stops W^2, W^3 , and W^4 , adapted to come in contact with and actuate pivoted levers K^3, K^4 , and K^5 , respectively, and so actuate the mutes E^3, E^4 , and E^5 through rods J^3, J^4 , and J^5 , having the crank-arms thereof resting on such levers K^3, K^4 , and K^5 , as hereinbefore described. At the other end of the organ is pivoted the lever W^6 , having thereon stops W^7, W^8, W^9 , and W^{10} , coming, respectively, over levers K, K', K^2 , and K^7 , respectively—that is, stop W^{10} coming over lever K , stop W^9 over lever K' , stop W^8 over lever K^2 , and stop W^7 over lever K^6 . Lever W is connected to lever W by rod W' , so that movement of lever W is communicated to lever W^7 . The movement of the lever W^7 will open mutes $E E' E^2$ by movement of the levers $K K' K^2$, respectively, and will open swell G' by movement of the lever K^6 . The stops W^7 may be cut away so as to open swell G' very slightly, if desired, and I have, in fact, so built the organ embodying my invention, while each of the several stops $W^8 W^9 W^{10}$ are by me so made as to fully open the mutes $E E' E^2$. To actuate the coupler-boards $P' P^2$ by the movement of the lever U , I place on the connecting-rod W^{11} stop W^{12} , (see Fig. 1,) which is adjusted so as to come in contact with the inner end of pivoted lever W^{13} in the longitudinal movement of the rod W^{11} . To the other end of the lever W^{13} is secured one end of connecting-rod W^{14} , extending to the inner end of the pivoted lever W^{15} . The outer end of the pivoted lever W^{13} , it will be observed by inspection of Fig. 1, is adjacent to crank-arm t of pivoted wire T , and pivotal movement of such lever will actuate the pivoted wire T in the same manner as such wire T is actuated by stop S , as hereinbefore described, and so force the coupler-board P' into operative position. In the same way bend t^2 of lever T^2 , Figs. 1, 2, and 5, is adjacent to the pivotal

lever W^{15} , and the pivotal lever W^{15} will turn lever T^2 and force coupler-board P^2 into operative position.

It will be observed that the several reeds are inclined at an angle of about forty-five degrees and the ends thereof are exposed to view. Such reeds can therefore readily be drawn upward and outward whenever desired. In order to secure part $a a'$ to part a^2 of box A , I provide fasteners Y , pivoted to part a' on pivot Y' and engaging at the lower end thereof with an abutment on part a^2 , such abutment being by me illustrated in Fig. 5 as consisting of screw y^2 .

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

1. In an organ, a three-part box forming the wind-chest, the reed-chest, and the grand swell of the organ, the part forming the reed-chest being hinged to the part forming the wind-chest and the part forming the grand swell being hinged to the part forming the reed-chest, with a partition dividing the reed-chest from the wind-chest, such partition having passage-ways therethrough and reeds extending diagonally thereinto across such passage-ways, respectively, substantially as described.

2. In an organ, a valve adapted to be placed on the under side of the partition between the reed-chest and the wind-chest of such organ and to normally close a passage-way extending through such partition, such valve consisting of a body part and wires attached to such body part, the wires having a portion thereof forming the pivotal supports of the valve, the axial line of such pivotal portion of the wires being outside of the body of the valve, but in a plane extending longitudinally through such body of the valve, with an extension on one of such wires to one side of the axial line of the pivotal part thereof, whereby the valve may be actuated when the free end of such extension is raised, substantially as described.

3. In an organ, a valve adapted to be placed on the under side of the partition between the reed-chest and the wind-chest of such organ and to yieldingly close a passage-way extending through such partition, such valve consisting of a body part and wires attached to such body part, such wires having a portion thereof forming the pivotal supports of the valve, the axial line of such pivotal portion of the wires being outside of the body of the valve, but in a plane extending longitudinally through such body of the valve, with an extension on one of such wires to one side of the axial line of the pivotal part thereof, whereby the valve may be actuated, in combination with a vertical movable push-pin, on the upper face whereof such extension of the wire normally rests and by the upward movement whereof the valve is actuated, substantially as described.

4. In an organ, a series of mutes adapted to close a given number of passage-ways extend-

ing through the partition between the reed-chest and wind-chest of such organ, wires connected, respectively, to such mutes, each of such wires extending through the end wall
 5 of the reed-chest and having a crank-arm thereon outside thereof, a series of levers fulcrumed on a common pivot, and a series of wires adapted to partially rotate in the bearings thereof, respectively, each of
 10 such wires having at one end thereof a crank-arm engaging with one end of one of the series of levers and at the other end a crank-arm engaging with a projection extending out from a longitudinally-movable stop and
 15 adapted to be partially rotated by the longitudinal movement of such stop, substantially as described.

5. In an organ, a coupling-board hinged to the frame of the organ, a series of coupling-
 20 rods journaled on the front face of such board, each one thereof extending diagonally from the lower to the upper edge thereof, with a crank-arm on the lower end resting on one of the keys of the organ and a crank-arm on the
 25 upper end extending underneath the one of the push-pins of the organ an octave higher than the first-named key, and a vertically-journaled wire secured in the frame of the organ, in combination with a crank-arm at one end
 30 of such wire, adapted to come in contact with the forward face of the coupling-board, and a crank-arm at the other end adapted to come in contact with and be actuated by a projection extending outward from a longitudinally-
 35 movable stop when such stop is drawn outward, substantially as described.

6. In an organ, a series of vertically-movable push-pins, the combination of a series of keys, the lower end of each one of the series
 40 of vertical pins resting upon the inner end of one of the series of keys, and a coupling-board hinged to the frame of the organ, such coupling-board having a series of diagonally-extending rods journaled on one side thereof,
 45 each one of such diagonally-extending rods having crank-arms at the ends thereof, the lower one of such crank-arms extending under the under edge of such board and adapted to be brought by the movement of the board on its
 50 hinge over one of the keys of the series and be actuated thereby and the upper one of such crank-arms extending over the upper edge of such board and under the head of that one of the series of push-pins which is
 55 an octave higher than the key over which the first-named crank-arm of such rod extends, substantially as described.

7. In an organ, a grand swell consisting of a cover hinged to the reed-chest of the organ,
 60 a stop on such cover at one end thereof, and a lever fulcrumed on a horizontal pivot and movable in a vertical plane, the upper end of such lever extending under the stop and the lower end thereof having thereunder the crank-arm
 65 of a horizontally-journaled rod, in combination with such horizontally-journaled rod having crank-arms at each end thereof, one

of such crank-arms extending horizontally underneath the pivoted lever and the other
 70 extending vertically through the case of the organ, a lever forming a knee-swell, pivoted underneath the keyboard of the organ, and a longitudinally-movable rod one end whereof is attached to the inner end of the knee-swell
 75 and the other end whereof is attached to the lower end of the crank-arm extending through the frame of the organ, whereby side movement of the knee-swell will produce longitudinal movement in the rod attached thereto and a consequent partial turning of the
 80 horizontally-journaled rod, whereof the crank-arm at one end extends under and is in connection with the lever movable on its horizontal point and in contact at its upper end with the stop placed on the end of the grand
 85 swell, and such lever can be thereby moved against such stop and the grand swell opened, substantially as described.

8. In an organ, a swell adapted to normally close an opening through the cover forming
 90 the grand swell of the organ, wires by which such swell is hinged to such grand swell, a crank-arm at one end of one of such wires, a lever fulcrumed on a pivot in the frame of the organ, on the inner end of which lever
 95 the crank-arm on the hinging-rod rests, a rod secured in the frame of the organ, having crank-arms at each end thereof, one of such crank-arms extending over the outer end of the pivoted lever and the other of such crank-
 100 arms extending underneath and in front of a projection on a longitudinally-movable stop, and a longitudinal stop having a projection thereon adapted to engage with the last-named crank-arm, substantially as described. 105

9. In an organ, the combination of a lever pivoted on the under side of the keyboard of the organ and adapted to be actuated by the left leg of the person operating the organ, a
 110 longitudinally-movable rod having a crank-arm at one end thereof engaging with such lever, and a crank-arm at the other end thereof engaging with the outer end of a second horizontally-movable pivoted lever, in combination with a vertically-movable pivoted lever
 115 the lower end whereof is in front of the inner end of the horizontally-movable pivoted lever and adapted to be actuated thereby and the upper end whereof extends over a series of levers having a common fulcrum, each of
 120 such last-named levers actuating one of the bass-mutes of the organ, substantially as described.

10. In an organ, the combination of a lever pivoted on the under side of the keyboard of
 125 the organ and adapted to be actuated by the left leg of the person operating the organ, a longitudinally-movable rod having a crank-arm at one end thereof engaging with such lever, and a crank-arm at the other end thereof
 130 engaging with the outer end of a second horizontally-movable pivoted lever, in combination with a vertically-movable pivoted lever the lower end whereof is in front of the

inner end of the horizontally-movable pivoted lever and adapted to be actuated thereby and the upper end whereof extends over a series of levers having a common fulcrum, each of such last-named levers actuating one of the bass-mutes of the organ, and a wire extending from the upper end of such vertically-movable pivoted lever to the upper end of a like vertically-movable pivoted lever at the other end of the organ, such last-named lever extending over a series of levers actuating the treble-mutes of the organ, substantially as described.

11. In an organ, the combination of a lever pivoted on the under side of the keyboard of the organ and adapted to be actuated by the left leg of the person operating the organ, a longitudinally-movable rod having a crank-arm at one end thereof engaging with such lever, and a crank-arm at the other end thereof engaging with the outer end of a second horizontally-movable pivoted lever, in combination with a vertically-movable pivoted lever the lower end whereof is in front of the inner end of the horizontally-movable pivoted lever and adapted to be actuated thereby and the upper end whereof extends over a series

of levers having a common fulcrum, each of such last-named levers actuating one of the bass-mutes of the organ, and a wire extending from the upper end of such vertically-movable pivoted lever to the upper end of a like vertically-movable pivoted lever at the other end of the organ, such last-named lever extending over a series of levers actuating the treble-mutes of the organ, and a stop on such rod adapted to come in contact with one end of a horizontally-movable arm, a second longitudinally-movable rod attached at one end thereof to the other end of the last-named horizontally-movable arm and at the other end to one end of a second like horizontally-movable arm, a hinged treble coupling-board, and a hinged bass coupling-board, and vertically-journaled wires having crank-arms at the lower end thereof in contact with such coupling-boards, respectively, and crank-arms at the upper end thereof in contact with such horizontally-movable arms, respectively, substantially as described.

JOHN CHILLEEN.

Witnesses:

CHARLES TURNER BROWN,
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