

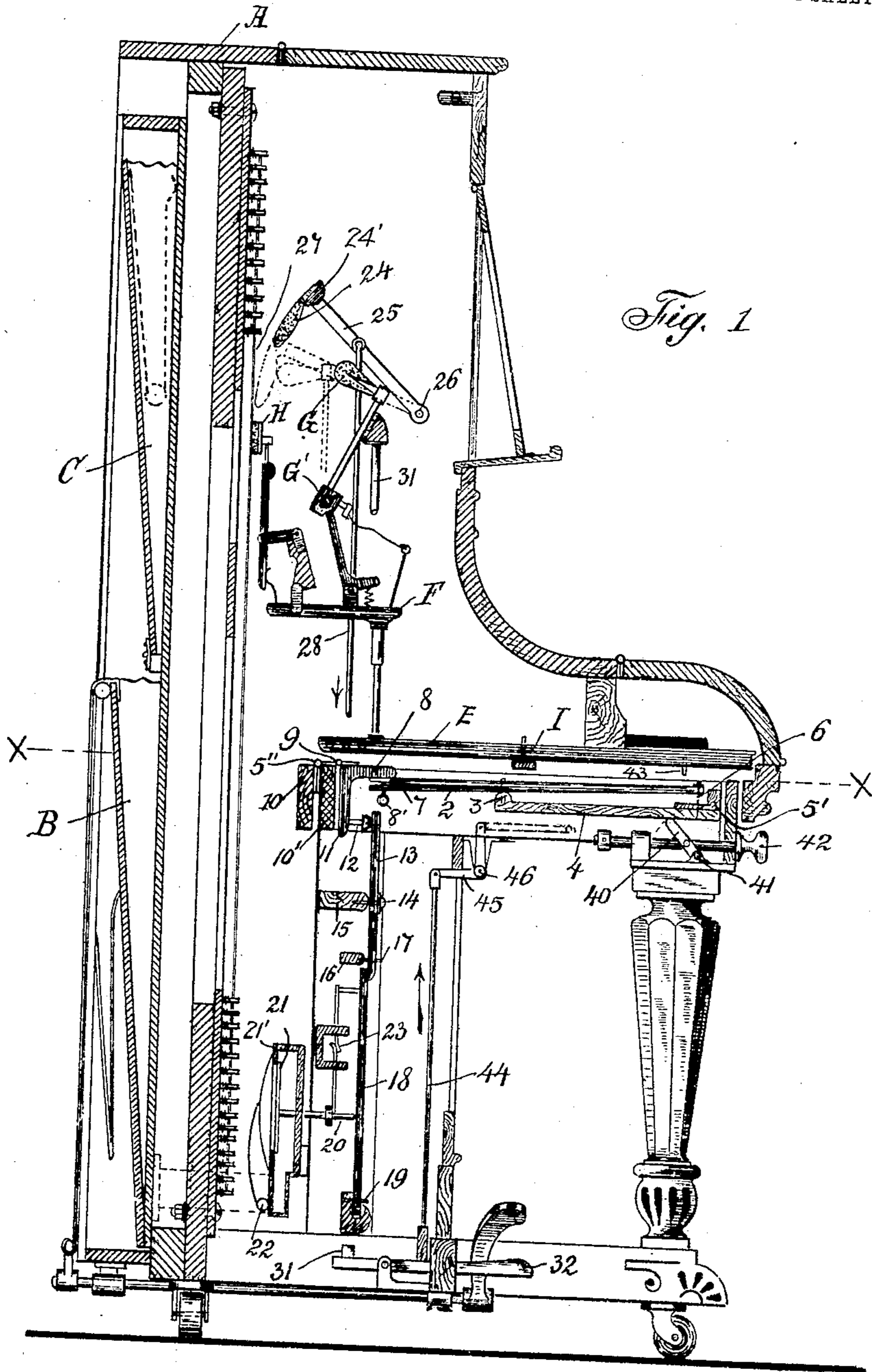
No. 815,854.

PATENTED MAR. 20, 1906.

EVERT VANDER MOLEN.  
MUSICAL INSTRUMENT.

APPLICATION FILED JAN. 23, 1905.

4 SHEETS—SHEET 1



WITNESSES

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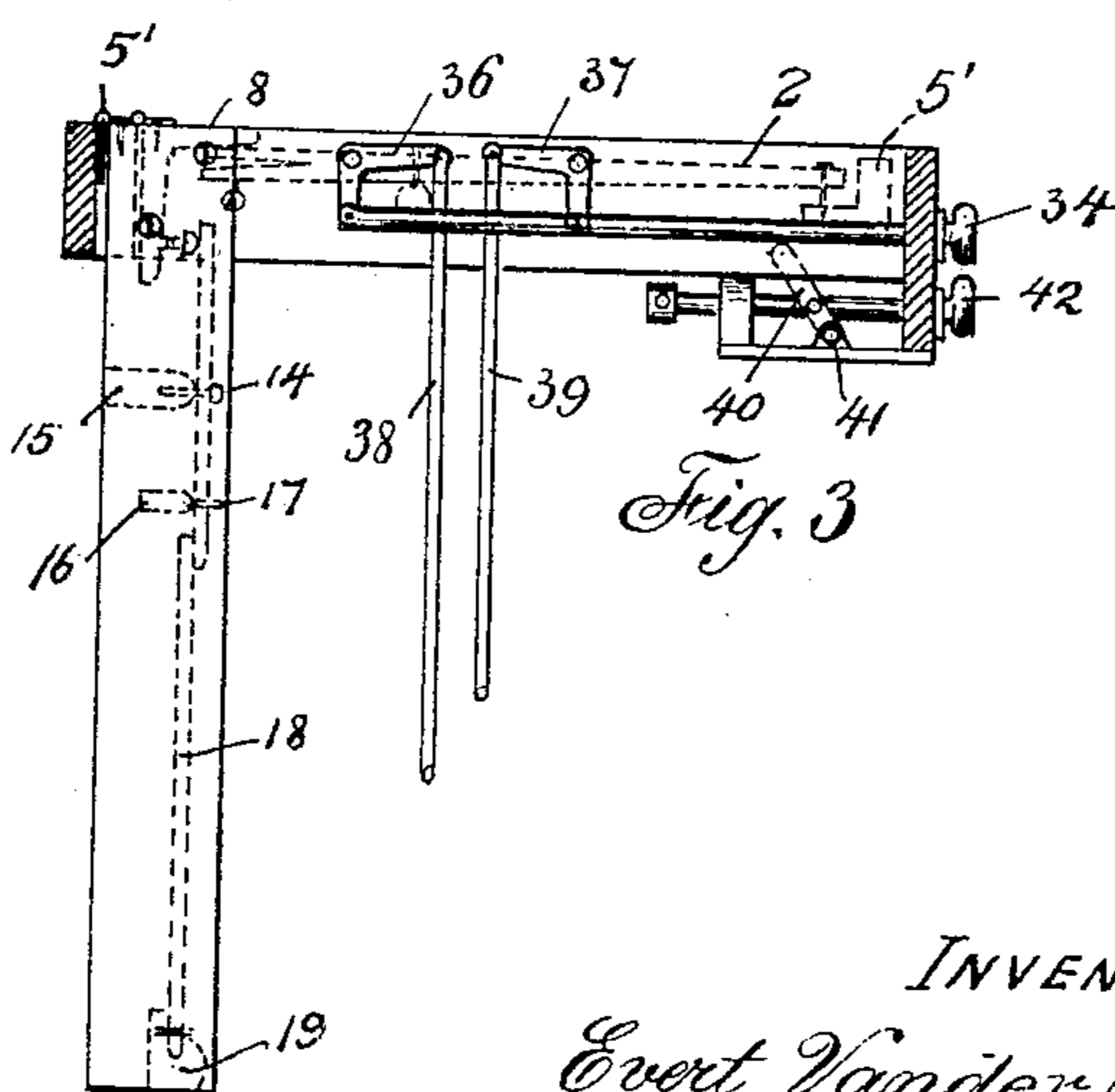
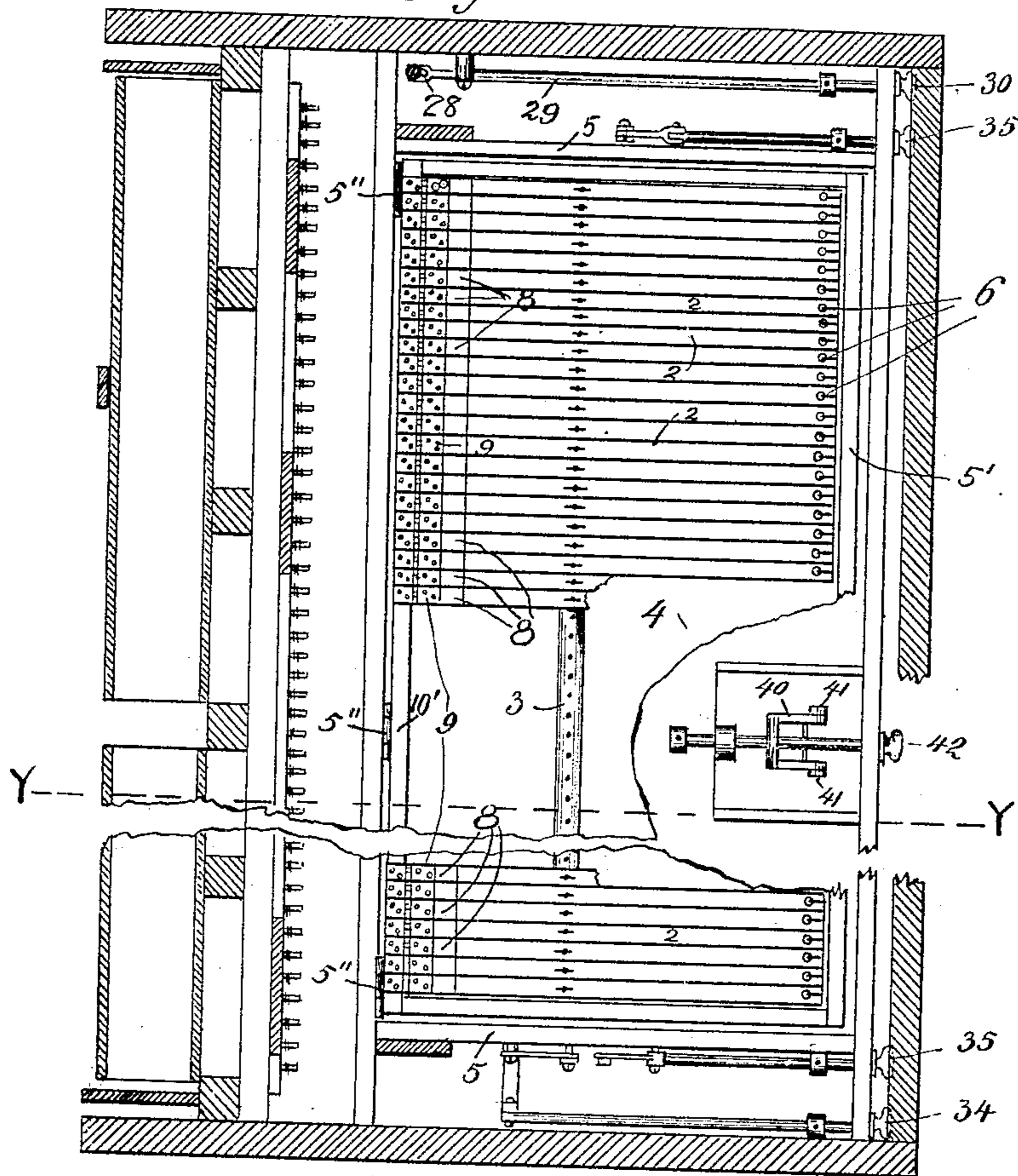
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4 SHEETS—SHEET 2.

*Fig. 2*



*Fig. 3*

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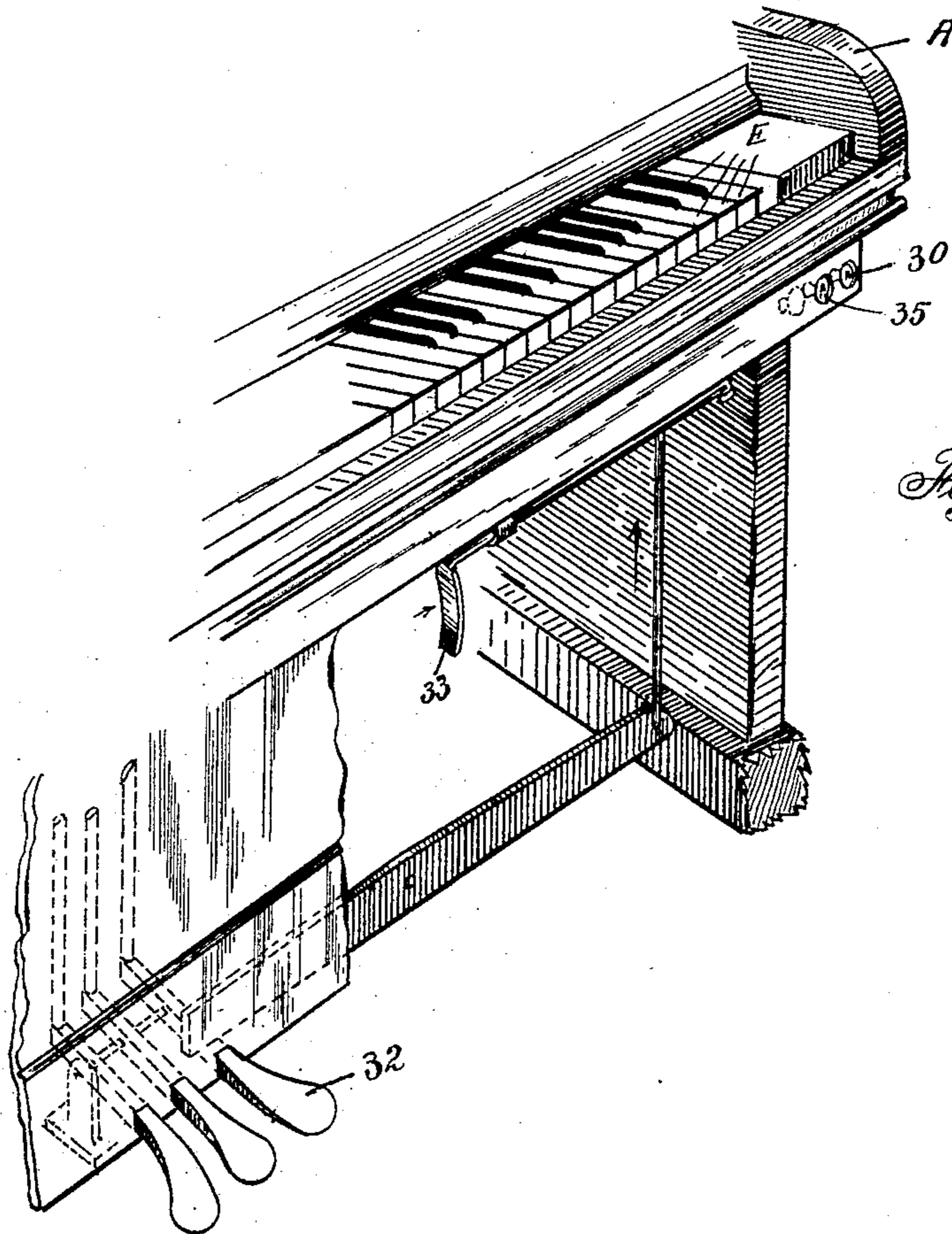
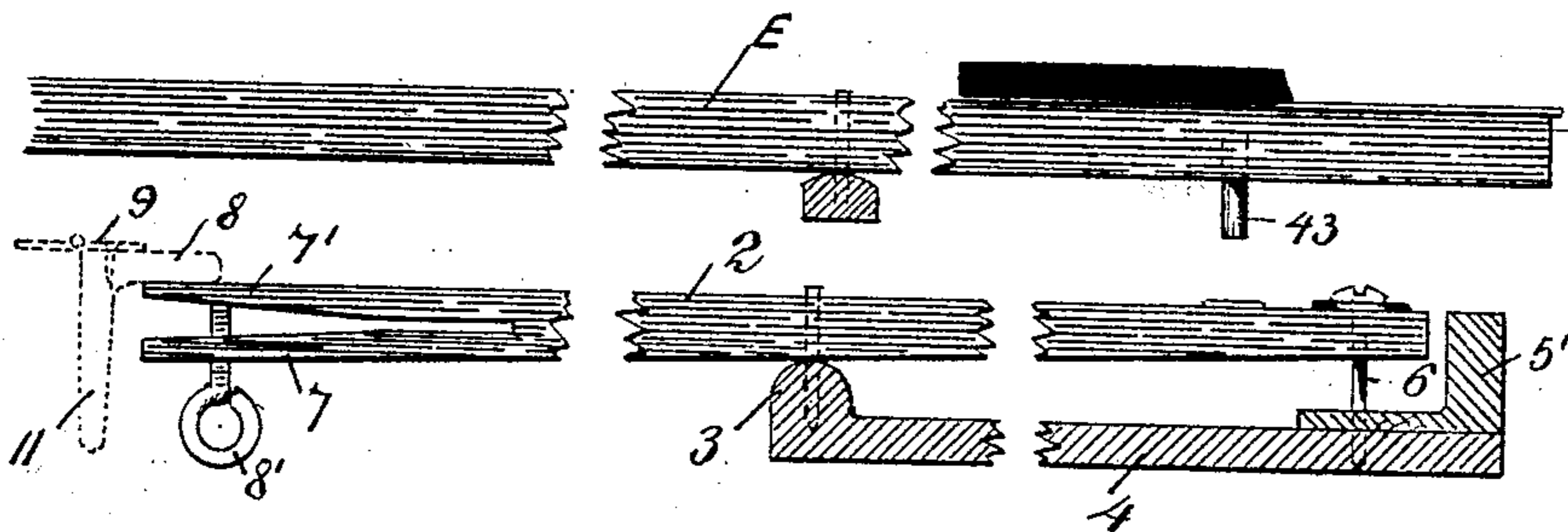


Fig. 5

Fig. 4



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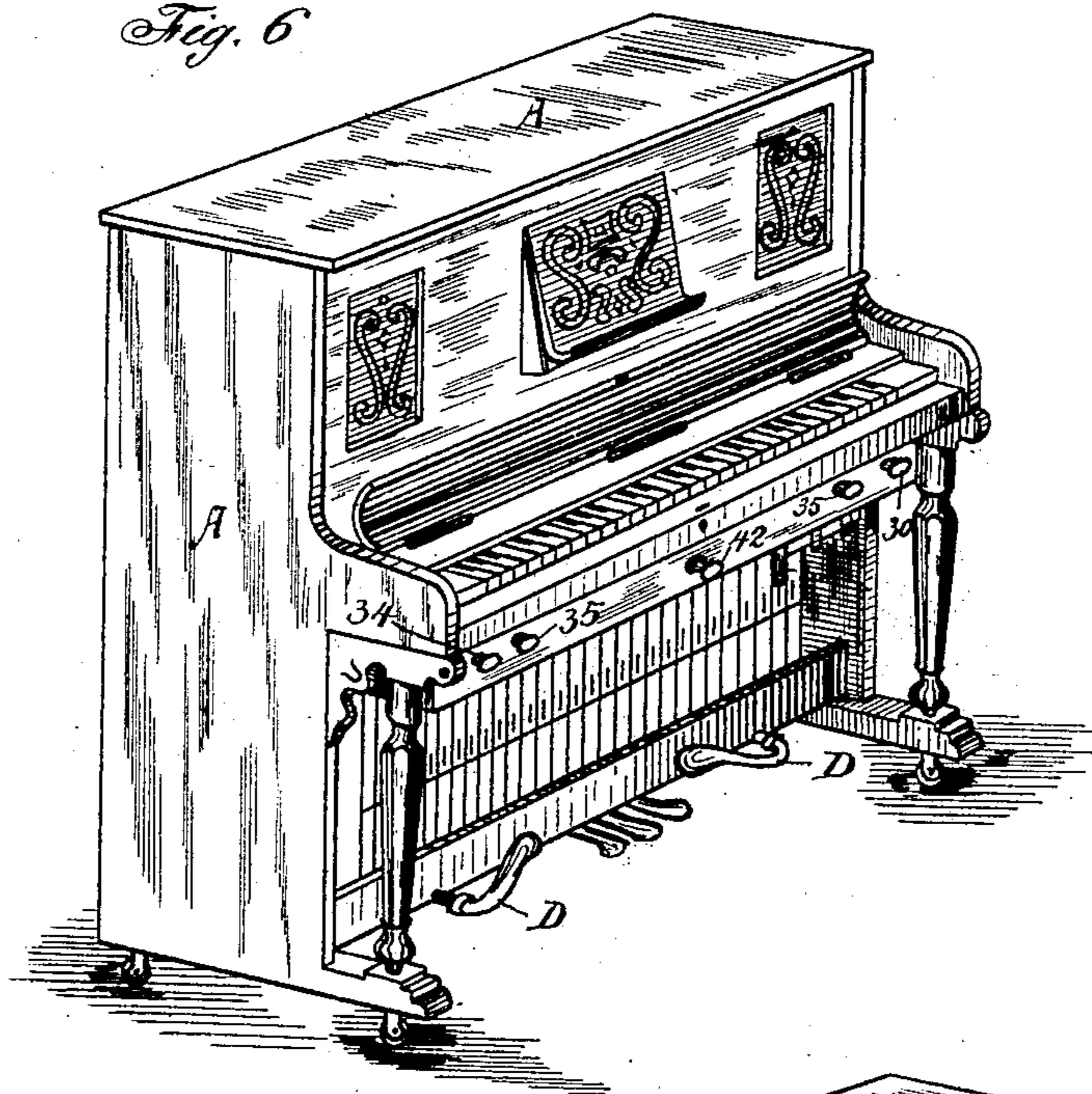
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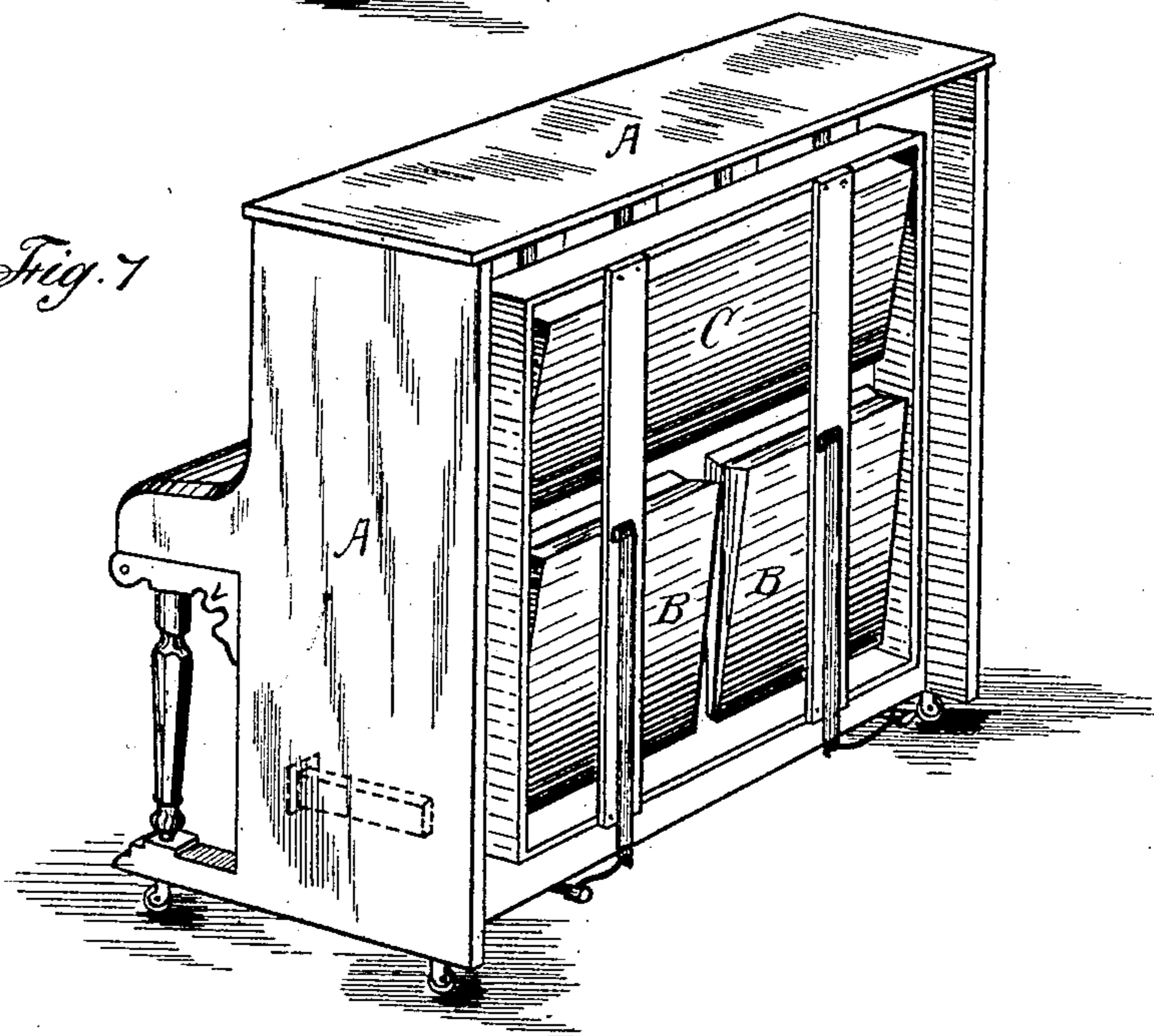
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4 SHEETS—SHEET 4.

*Fig. 6*



*Fig. 7*



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# UNITED STATES PATENT OFFICE.

EVERT VANDER MOLEN, OF CHICAGO, ILLINOIS.

## MUSICAL INSTRUMENT.

No. 815,854.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed January 23, 1905. Serial No. 242,201.

*To all whom it may concern:*

Be it known that I, EVERT VANDER MOLEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Musical Instruments, of which the following is a specification.

This invention relates to musical instruments, and has particular reference to pianofortes and organs. The object of the invention is the combination of the mechanisms of a piano and an organ in such a manner that the case or body of an ordinary piano may be utilized as the case or body for an organ-action to the end that the ordinary piano-keys may play the piano and organ in concert or separately; and my invention consists in the novel construction and arrangement of parts adapted for installation in a piano without materially interfering with its usual construction or necessitating the construction of an entirely new instrument in order to attain the combined piano and organ action referred to, hereinafter described in detail, illustrated in the drawings, and incorporated in the claims.

In the drawings, Figure 1 is a transverse view, partly in section, taken substantially on line Y Y of Fig. 2, of an ordinary piano to which my invention has been applied. Fig. 2 is a horizontal section, partly broken away, taken substantially on line X X of Fig. 1. Fig. 3 is an enlarged detail view of a part of the organ stop-action. Fig. 4 is a greatly-enlarged detail view of a piano-key and the parts immediately associated therewith. Fig. 5 is a perspective view of the lower part of the instrument, showing the application of a knee-stop. Figs. 6 and 7 are perspective front and rear views, respectively, of the instrument as a whole.

Referring to the drawings, A represents an upright-piano cabinet of usual design and proportions. Back of the strings there is usually a vacant space adapted to receive all or a portion of the bellows B and wind-chest C of an organ. If the space back of the springs is not ample, the position nevertheless affords room for expansion, as shown in Fig. 7, by removing the back of the case, if one has been provided. Foot-pedals D are placed substantially in their usual positions and connected in any suitable manner to operate the bellows at the back of the case A.

I employ a full set of levers corresponding to the complete set of piano-keys and make

provision for supporting the levers immediately underneath the piano-keys and in such a manner as to take up a minimum of space or such space as may be made conveniently available underneath the piano-keys in an ordinary piano-case.

A description of the combination of one piano-key and one organ-lever and their associated parts will suffice for all.

Referring, briefly, to old and well-known parts, which are shown merely for the purpose of identifying as a whole an ordinary piano, E represents one of the piano-keys connected with action F, including the felted hammer G, pivoted upon a rod G'.

H is the usual damper or sound-muffler in its usual position.

I is the usual cross-bar, upon which the piano-keys are fulcrumed.

The space within a piano-case usually reserved for the above-mentioned parts is left unobstructed or unoccupied, with the exception of a muting-cushion, which will be referred to hereinafter and which is so proportioned and located as not to interfere with the usual clearness of the piano-tones.

The organ-lever 2 is fulcrumed upon a ridge or bead 3 upon the rear edge of a platform or board 4 common to all of the organ-levers. The platform 4 is mounted within a frame of rectangular form, which comprises end rails 5 5, front rail 5', and rear rail 10'. The platform 4 extends substantially up to and is secured to the end rails 5 5 and front rail 5', but between the rear edge or bead 3 of said platform and the rear rail 10' of the frame within which said platform is held there is a gap or open space, the frame being about one-third wider than the platform, as clearly shown in Fig. 1, for the purpose of eliminating weight and economizing space, as will appear hereinafter. The rear rail 10' of the frame is pivoted to a bar 10 by means of hinges 5'', and said hinges are the center of pivotal movement for the frame and the platform 4, which it supports. In the forward end of the organ-lever 2 is a vertical hole or eye which engages a pin 6, projecting from the platform 4 or the forward rail 5' of the platform-frame. The pin 6 supports the lever 2 against horizontal lateral movement. The rear end of the organ-lever 2 is in the form of a spring-fork 7, the lower member of which has threaded engagement with a screw 8'. The tip of this screw bears against the upper member 7' of the fork and serves to ad-

just the lever 2 relatively to an elbow-lever 8, pivoted to the rear rail 10' by means of a hinge 9. The downwardly-projecting or vertical wing or arm 11 of the elbow-lever 8 carries a screw 12, which engages the upper or power end of a lever 13, pivoted at 14 to a horizontal bar 15. By adjusting the screw 12 or turning it on its threads its projection or contact with the lever 13 may be varied in order to secure the proper extent of movement in said lever. A horizontal rail 16 carries a pin 17, which engages an eye or opening in the lever 13 and prevents lateral movement out of alinement with next succeeding lever in the series—namely, lever 18. The latter is in contact with and is moved by the lower end of lever 13. The lever 18 is in contact with a longitudinally-movable pin 20, arranged to open and close the usual valve 21, controlling the admission of wind from the sounding-board 21' to the organ-reed controlled by the organ-lever 2 and its connecting-levers. The details of the valve mechanism, sounding-board, &c., of an organ are not shown, it being sufficient for the purpose of illustrating my invention to show the positions of the several parts and the combination of keys and levers through which the organ-action may be operated economically through the ordinary piano-keys and within the ordinary piano-case.

22 represents the spring which holds the reed-valve 21 normally closed or forces back the pin 20 and lever 18 after each depression of the organ-lever 2.

23 represents the usual coupler for connecting several octaves.

In the upper part of the piano-case, previously referred to as reserved almost exclusively for the ordinary piano-action, are two pivoted arms 25, one at each side or end of the case A. Fig. 1 shows one of these arms pivoted to the end of the case at 26, and as the other arm is substantially identical it is not shown in the drawings. Between the two arms 25 and at right angles thereto is a rail 24', to which is secured a muting-cushion 24. The rail 24' and muting-cushion 24 extend across and in front of all of the piano-strings 27 and normally above and out of the way of the hammers G. The cushion 24 is rotatable about the axis 26 into the position shown by dotted lines in Fig. 1, or, in other words, so as to be interposed between the hammers G and the strings 27 and effectually prevent said hammers G from striking or even slightly vibrating the strings 27, so as to produce tones when the keys E are depressed. The arms 25 and muting-cushion are moved by means of a rod 28, pivoted to one of the arms 25. A rod 28 for each arm may be provided if deemed necessary; but the operation of one arm is ordinarily sufficient to impart corresponding movement in the other arm 25 through the rail 24', which connects the

two arms rigidly enough for that purpose. A horizontal rod 29 is shown in Fig. 2, and this is connected by means of a bell-crank lever or other suitable device, so as to change the horizontal longitudinal movement of the rod 29 into vertical longitudinal movement in the rod 28. The rod 29 terminates at the front of the case in a stop-knob 30. 31 in Fig. 1 represents the usual device for varying the length of the hammer-stroke. Only the upper and lower ends of the rod 31 are shown as forming a part of said device. The lower end is shown connected with a pedal 32, and in Fig. 5 is shown a knee-stop 33 in its usual position for operating the rod or device 31. The knee-stop may be connected with the soft pedal 32 by means of the usual series of rods and bell-crank levers, such as rod 44, Fig. 1, pivoted to lever 45, fulcrumed at 46, all well-known constructions shown in connection with the stops 34 35, the levers 36 37, and the operating-rods 38 and 39 for the purpose of connecting the latter with the usual devices which modify or change the tone of the instrument. These parts are shown merely to more fully identify the usual arrangements in connection with my invention.

The platform 4 and its frame 5, 5', and 10' is raised and lowered pivotally on the hinges 5'' by means of a lever of the third class fulcrumed at 41 and operated by a stop 42. When this lever is moved from its inclined position (shown in Fig. 1) to a vertical position, the upper end of said lever pries or forces up the platform 4, so that the organ-levers thereon are brought into operative proximity to the piano-keyboard. Each of the keys in the latter is provided with a contact-pin 43. When the organ-levers are lowered, or in position shown in Fig. 1, the contact-pins 43 do not reach the organ-levers during operation of the keys E of the piano-keyboard.

The operation of my invention is as follows: In Fig. 1 the organ-levers are shown lowered out of reach of the pins 43 at the ends of their downward movements, and the muting-cushion 24 is shown raised out of the way of hammers G. The parts are therefore in positions which leave only the regular piano-action operable by the keys E. If the operator now desires to play the organ part only, the cushion 24 is interposed between the hammers G and the piano-strings 27, which is accomplished by manipulating stop 30. The interposed cushion thus prevents the hammers G from striking the strings, and the piano is made silent even when its keys E are depressed. By pulling out the stop 42 the organ-levers are raised into contact with the piano-keyboard through the pins 43, and when keys E are depressed the levers 2 are also depressed and the motion of the latter is transferred through the elbow-lever 8 and compound levers 13 and 18 to the reed-valve

pin 20. When the operator desires to play the piano and organ together, all that is necessary is to pull out stops 30 and 42 to raise the cushion 24 out of the way of the hammers G and raise the organ-levers into contact with the piano-keys.

I am aware that it is not new broadly to combine several musical instruments in one; but the combination has usually been accomplished only by constructing an entirely new instrument or reconstructing a piano or organ throughout, whereas my invention has made provision for installing the less expensive portion, the organ-action, in a piano of standard construction, thereby making possible a combined piano and organ at a greatly-reduced cost and making it also possible for those who already possess a piano to avail themselves of the combination without going to the expense of purchasing a separate instrument. Such an instrument when arranged throughout with reference to the combination as a whole is apt to sacrifice a portion of the musical qualities of each instrument.

By means of the screws 8' and 12 the movement of the compound levers 13 and 18 may be adjusted delicately, accurately, and in the most simple and convenient manner. Moreover, these parts are so arranged as to be made accessible by simply removing the usual lower front of the case.

The screw 8' may be employed whether the organ-lever 2 is modified at the rear end to provide a fork or not by simply permitting the point of the screw to bear directly against the horizontal wing of the lever 8.

The arrangement of the organ-action in the lower and rear portions of the piano-case not only removes any obstruction that would otherwise be interposed to the sound-waves issuing from the usual upper door of the piano-case, but leaves the upper ends of the piano-strings accessible to the tuning-key. At the same time the parts of the organ-action are made readily accessible by the relatively adjustable compound levers, which are aligned parallel with the lower part of the vertical front of the case.

What I claim is—

1. The combination, with a piano, of an organ-action including a set of levers, one beneath each key of the piano, said organ-action arranged within the piano-case so as not to interfere with the usual tone-producing qualities of the piano, said arrangement including the disposition of the organ-bellows and wind-chest back of the piano-strings and the disposition of the organ-reeds and sound-board in the lower part of the piano-case; a series of compound levers interposed between the organ-levers 2 and reed-valves of the organ-action, said compound levers arranged below the horizontal plane of the keys

and organ-levers and in the front part of the case; means for raising and lowering the organ-levers into and out of operative contact with the piano-keys, and means for muting the piano-strings.

2. The combination, within a piano-case, of a complete organ-action and a complete piano-action, the former having an independent set of levers and the latter having a keyboard; said levers and keyboard being relatively adjustable into coöperative contact; said organ-action having its bellows and wind-chest disposed in the rear of said case behind the piano-strings, and having its reeds and sound-board disposed in the lower part of said case; said organ-action including a system of compound levers which substantially parallel the piano-strings below the horizontal plane of the keys, whereby the organ-action is accessible from the lower front of the case while the piano-strings are left unobstructed and accessible at the upper front of the case, and means for muting the piano-action.

3. The combination, within a piano-case, of a complete organ-action and a complete piano-action, the former having a lever arranged below each key of the piano-keyboard, said levers and keyboard being relatively adjustable into coöperative contact to play the piano and organ in concert, with means for muting the piano-strings; said organ-action having its bellows disposed in the rear portion of said case and behind the piano-strings and having its reeds disposed in the lower front portion of the case in front of the piano-strings; said organ-action including a system of substantially parallel compound levers for transmitting the movements of the organ-levers to the reed-valves; said system of compound levers including the elbow-levers having thereon the adjustable contact-screws 12 for varying the extent of movements imparted to the reed-valves by the keys.

4. The combination, of a complete organ-action and a complete piano-action, with a case common to both, said actions having, respectively, a set of levers and a keyboard which are relatively adjustable into coöperative contact; means for muting the piano-strings; said organ-action having its bellows disposed in the rear of the piano-strings and its reeds disposed in front of the lower ends of the piano-strings; said organ-action including compound levers 13, 18 and 8, the latter provided with adjustable contacts 12 and the organ-levers provided with adjustment-screws 8', for the purpose set forth.

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

EVERT VANDER MOLEN.

Witnesses:

RICHARD C. TESMER,  
A. KOETSCHALL, Jr.