

No. 863,592.

PATENTED AUG. 20, 1907.

J. W. DAVIS.
AUTOMATIC PIANO PLAYER.
APPLICATION FILED SEPT. 25, 1906.

2 SHEETS—SHEET 1.

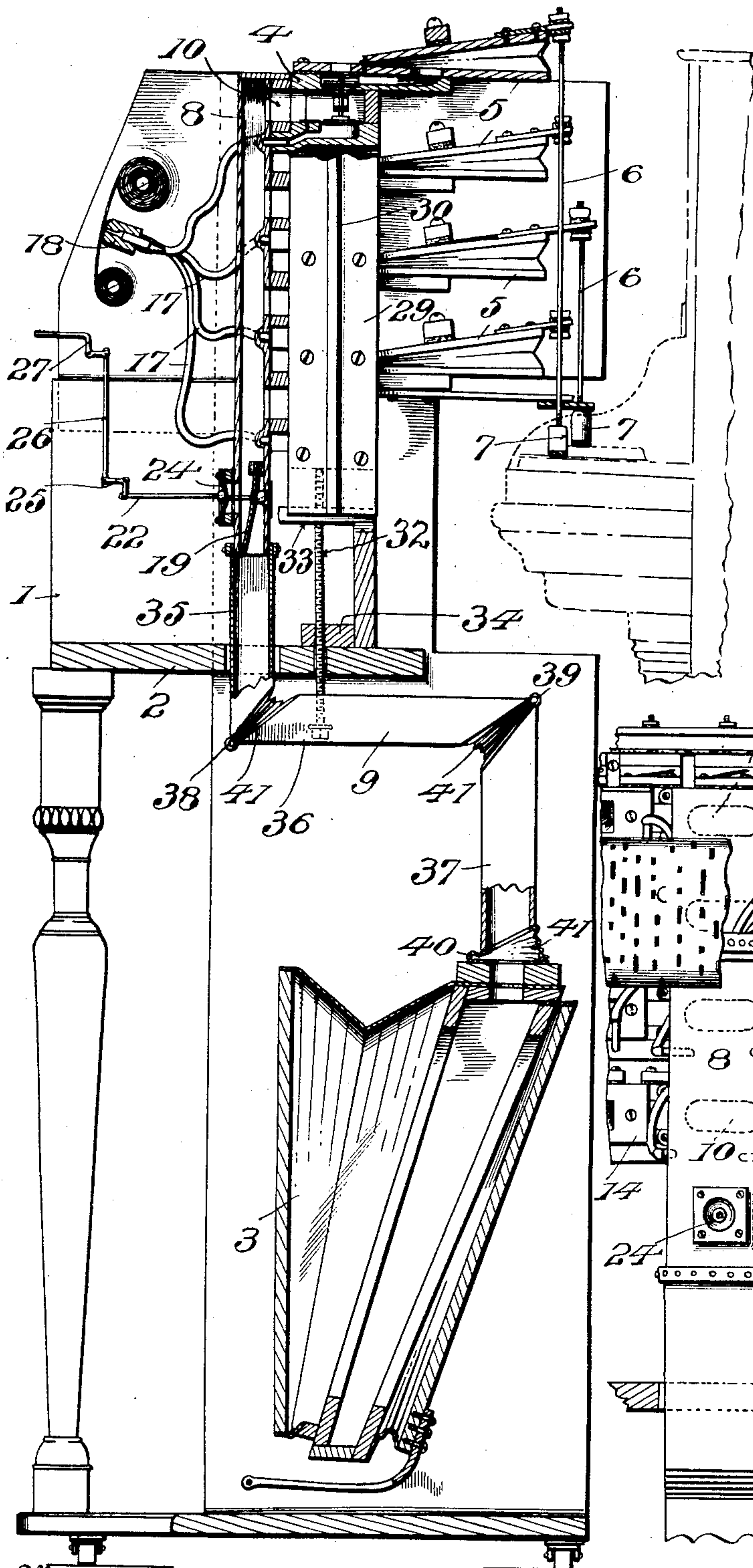


Fig. 1.

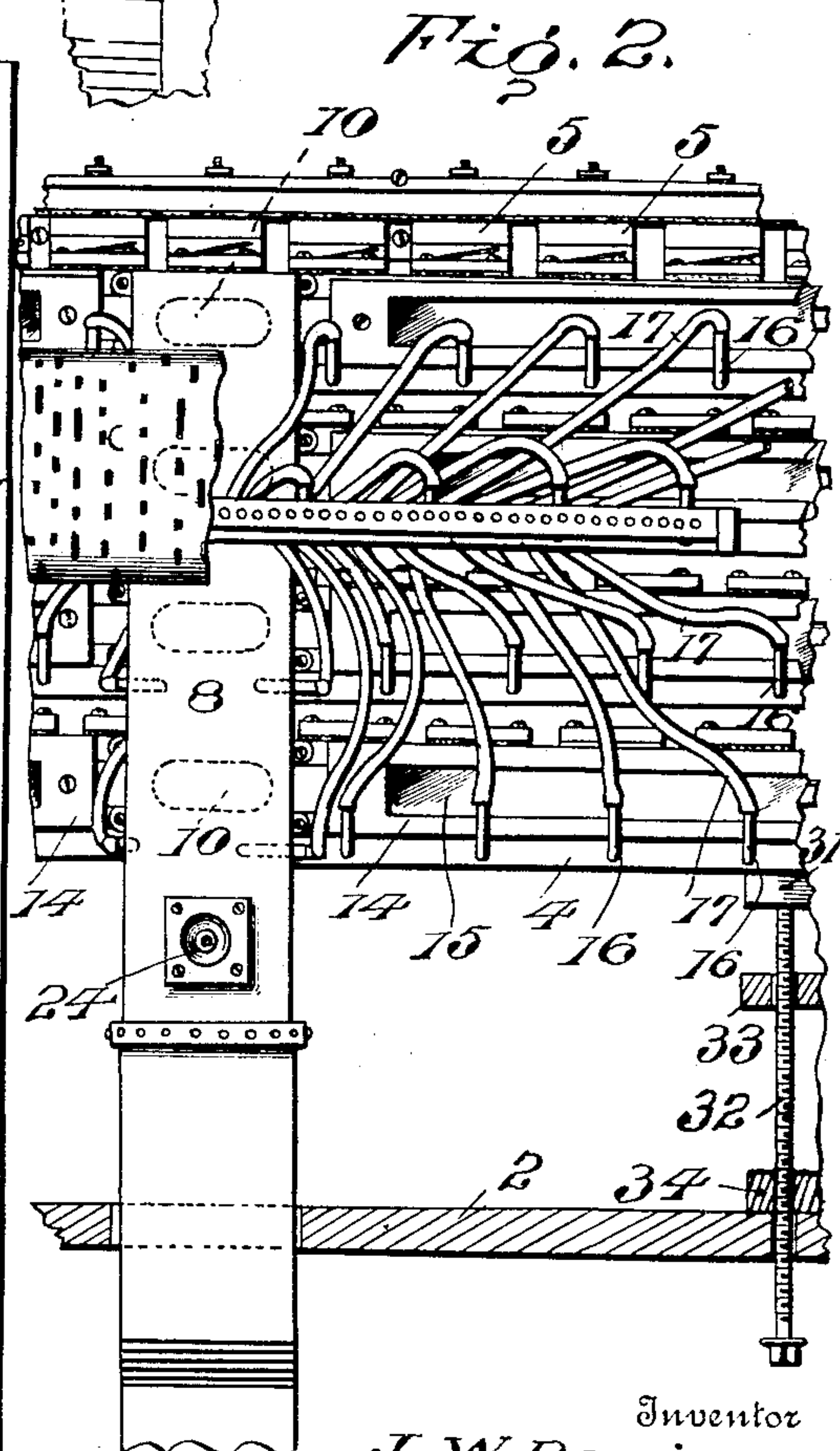


Fig. 2.

Witnesses

J. W. Davis
W. N. Woodson

Inventor

J. W. Davis.

By

Pha. M. Ray

Attorneys

J. W. DAVIS.
AUTOMATIC PIANO PLAYER.
APPLICATION FILED SEPT. 25, 1906.

2 SHEETS—SHEET 2.

Fig. 3.

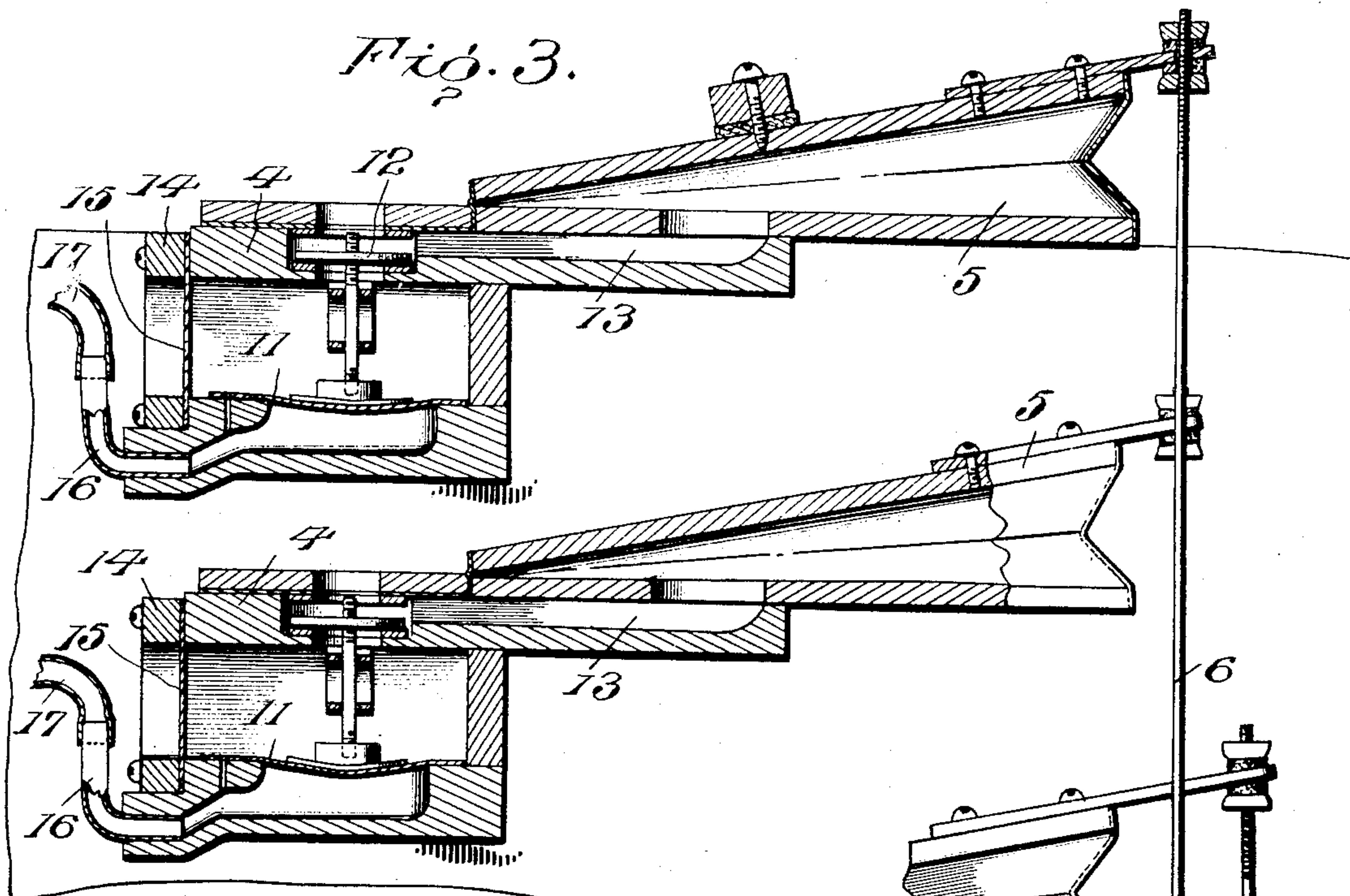


Fig. 4.

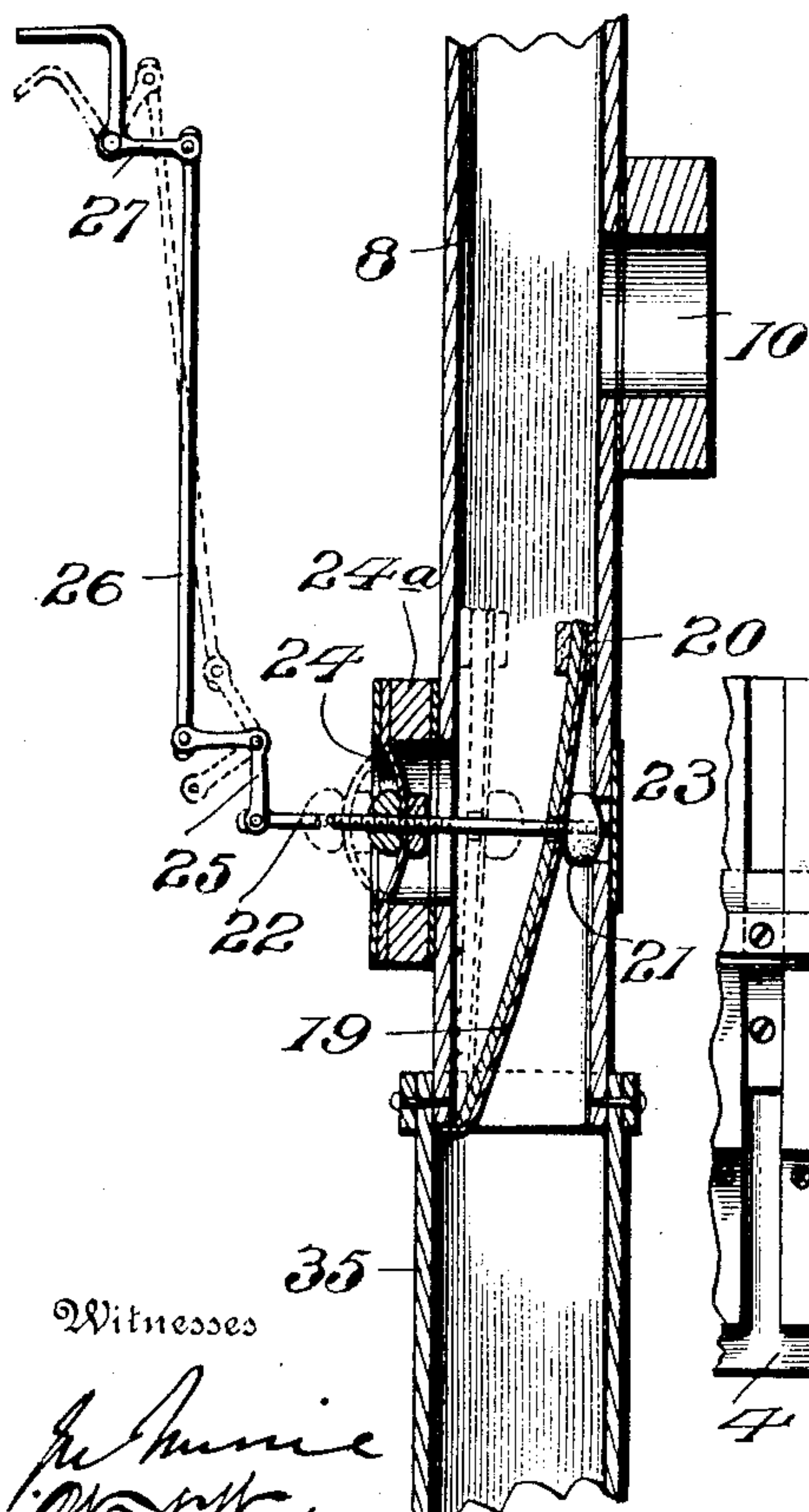
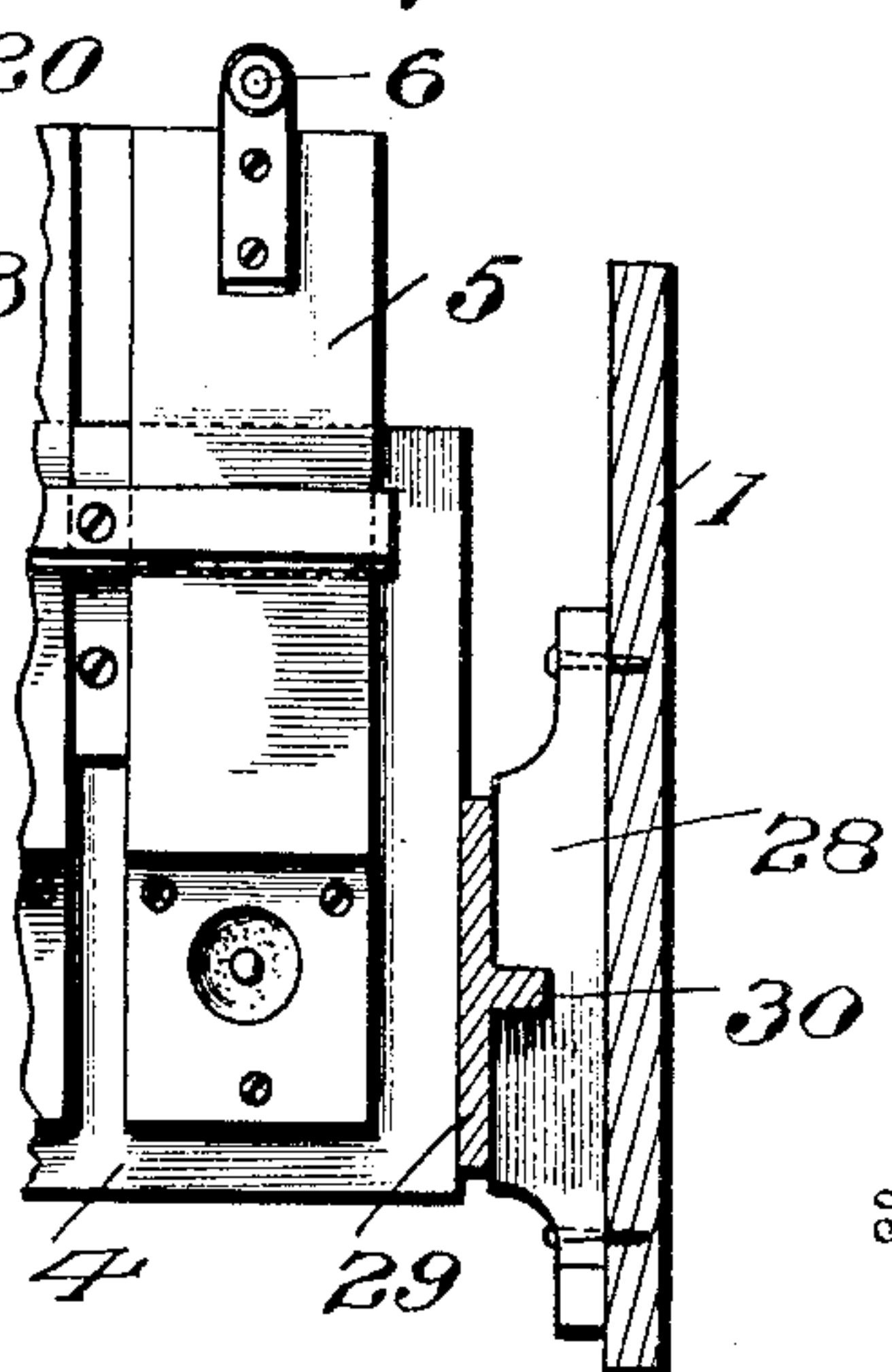


Fig. 5.



Witnesses

J. W. Davis
W. H. Woodson

Inventor
J. W. Davis.
By *Ph. A. Mary*
Attorneys

UNITED STATES PATENT OFFICE.

JOHN W. DAVIS, OF PULASKI, TENNESSEE, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE DAVIS PIANO PLAYER COMPANY, OF PULASKI, TENNESSEE, A CORPORATION OF TENNESSEE.

AUTOMATIC PIANO-PLAYER.

No. 863,592.

Specification of Letters Patent.

Patented Aug. 20, 1907.

Application filed September 25, 1906. Serial No. 336,161.

To all whom it may concern:

Be it known that I, JOHN W. DAVIS, a citizen of the United States, residing at Pulaski, in the county of Giles and State of Tennessee, have invented certain new and useful Improvements in Automatic Piano-Players, of which the following is a specification.

This invention contemplates certain improvements, hereinafter specifically set forth, in that type of automatic piano players that are embodied in a separate attachment designed to be placed in front of the keyboard of a piano or similar musical instrument, to automatically play the same by means of hammers or fingers acting directly upon the keys.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a vertical sectional view, with parts in side elevation; of an automatic piano player embodying the improvements of my invention; Fig. 2 is a fragmentary front view thereof, illustrating a portion of the wind chest and its related parts; Fig. 3 is an enlarged vertical sectional view through the wind chest and some of its pneumatics. Fig. 4 is an enlarged detail sectional view of a portion of the expression box of the automatic player and the means for varying the expanse of air passage provided by said box, for effecting changes in the volume of sound; and Fig. 5 is a detail top plan view illustrating a portion of the frame of the automatic player and the adjustable connection of the wind sheet therewith, which provides that the wind chest may be raised and lowered, as will be hereinafter described.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings, by the same reference characters.

In the accompanying drawings, the reference numeral 1 designates the sides of the frame or case of the automatic piano player, 2 the bed plate thereof, 3 the bellows which may be actuated by pedals (not shown) in any of the customary ways, and 4 designates the wind chest with which the pneumatics 5 are connected, each of the pneumatics carrying a depresser rod 6 which is provided at its lower end with a felt covered knob or finger 7 designed to press upon a key, to secure the usual effects.

Secured to the front of the wind chest 4 and preferably at about the middle thereof, is the expression box 8 which is in the form of a vertically extending rectangular casing provided with branch passages 10 for the respective superposed chambers of the wind chest. This expression box is connected to the bellows 3 by

the wind box 9, the specific construction of which will be referred to later. The pneumatic bellows 5 communicates with the different chambers of the wind chest 4 through passageways 13 in which are valves 12 controlled by the primary diaphragm pneumatics 11, the action being effected in the customary manner, by maintaining through the instrumentality of the bellows 3, a partial vacuum within the chambers of the wind chest and by admitting atmospheric air underneath the diaphragm pneumatics 11 by means of tubes 16, flexible tubes 17 of the air ducts, and the tracker board 18. For the purpose of viewing at all times, the interior of the wind chest or the superposed chambers thereof, I provide the front of the wind chest at each chamber with an air tight cover 14 embodying a transparent panel 15 of mica, gelatin or other suitable material, and by this means, as these panels are at the front of the wind chest, the operator may determine at a glance by actual test, which one or more of the valves and pallets are out of order, should the occasion arise.

It is to be understood that the air is exhausted by the bellows 3 from the chambers of the wind chest, through the expression box 8, and in order to vary the expression, the box 8 is provided, preferably at its lower end with a hinged flap 19, preferably formed of comparatively stiff fabric braced at its free edge 20. This flap is secured to one wall of the expression box 8 and extends from side to side of the box, and by varying the inclination of the flap with respect to the wall to which it is secured, the flap may be caused to extend more or less across the passage way provided by the box and thereby obstruct the flow of air through the box to a greater or less extent. To effect the movement of this flap, it bears against a nut 21, preferably of rawhide or leather, secured on one end of a rod 22, the rod being limited in its movement to strike against a knob or similar pad 23 surrounding an opening in the rear wall of the box, so that the striking of the rod at the limit of its inward movement will not be accompanied by any appreciable sound. The rod 22 passes through the diaphragm 24 secured in an air tight manner to the frame 24^a of the box 8, the rod being secured to the diaphragm by jam nuts as shown best in Fig. 4. A bell crank 25 has one arm secured to the outer end of the rod 22 and the other arm of said bell crank is connected by means of a link 26 to another bell crank 27, one arm of which is extended to form a handle within convenient reach of the operator, so that by pulling the handle out or pushing it in, the flap may be moved to obstruct more or less the passage provided by the sound box 8.

As is well known, difficulty has been experienced with automatic players of this character, owing to the

fact that the key-boards of different makes of pianos and different types or styles are at different elevations from the floor and therefore some means should be provided for accommodating the automatic player to this variation in the elevation of different key-boards so that the one device may be used to greater advantage with different instruments, with its playing fingers properly positioned above the keys.

One feature of my invention resides in providing an improved means for adjusting the device for variations in the heights of different key-boards, reference being particularly had to Fig. 5. By reference to this view of the drawings, it will be understood that each of the side bars 1 of the frame or case of the automatic player is provided with a vertically grooved cleat 28 and that the wind chest 4 at its ends (see Fig. 1) is provided with a corresponding cleat or board 29 formed with a vertical tongue 30 fitting within the groove of the cleat 28. Thus the entire wind chest with its pneumatics, its depressing rods 6 and fingers 7, and its sound box 8 may be raised and lowered, and to thus adjust these parts, the wind chest 4 is provided at its ends with blocks 31 against which screws 32 impinge, said screws being mounted to work through blocks 33 and 34 held stationary within the case or frame of the automatic player. By adjusting the screws 32 up or down, it is manifest that the fingers 7 may be brought to properly contact with the keys of the piano or other instrument which the device is intended to play.

As the expression box 8 is rigidly secured to the wind chest, it will be raised and lowered with the latter, and therefore, I have provided an adjustable connection between the expression box and the bellows 3 which is stationary.

Referring particularly to Fig. 1, it will be seen that this adjustable connection is constituted by a wind box constructed in three sections 35, 36 and 37, the upper section 35 being secured to the lower end of the expression box in any desired manner and passing through the bed plate 2. The section 36 extends hori-

zontally and rearwardly from the section 35 underneath the bed plate, and the section 37 extends downwardly from the intermediate section 36 and is secured to the upper end of the immovable portion of the bellows 3. The intermediate section 36 of the wind box is hinged at diagonally opposite corners, as indicated at 38 and 39 to the sections 35 and 37, respectively, the adjacent or meeting ends of the sections being connected by flexible tubes 41 of bellows formation and the section 37 is, as indicated at 40, hinged to the bellows 3 in a similar manner. Hence as the expression box is raised or lowered with the wind chest, it is obvious that the sectional and hinged wind box will automatically accommodate itself to the different elevations of the expression box, without the necessity of adjusting any of the parts except by adjusting screws 32, as has been above described.

Having thus described the invention, what is claimed as new is:

1. An automatic piano player, comprising a case provided with pneumatics and key depressing fingers carried thereby, a wind chest, means for raising and lowering said wind chest, a relatively fixed bellows designed to exhaust the wind from the wind chest, and a connection between the said bellows and the wind chest, said connection including a wind box constructed in several sections hinged together and angularly disposed with reference to each other.

2. In an automatic piano player, a case, a wind chest mounted to move vertically in said case, means for raising and lowering said wind chest, a bellows mounted in the case in a relatively fixed manner, and a connection between the bellows and the wind chest, said connection including a wind box constructed in several sections, namely, an intermediate section, and two end sections, the end sections being hinged to the other two sections at diagonally opposite points, and the ends of the said intermediate section and the other sections having a flexible connection of bellows-like formation.

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

JOHN W. DAVIS. [L. S.]

Witnesses:

EUNICE C. FREEMAN,
BEN CHILDERS.