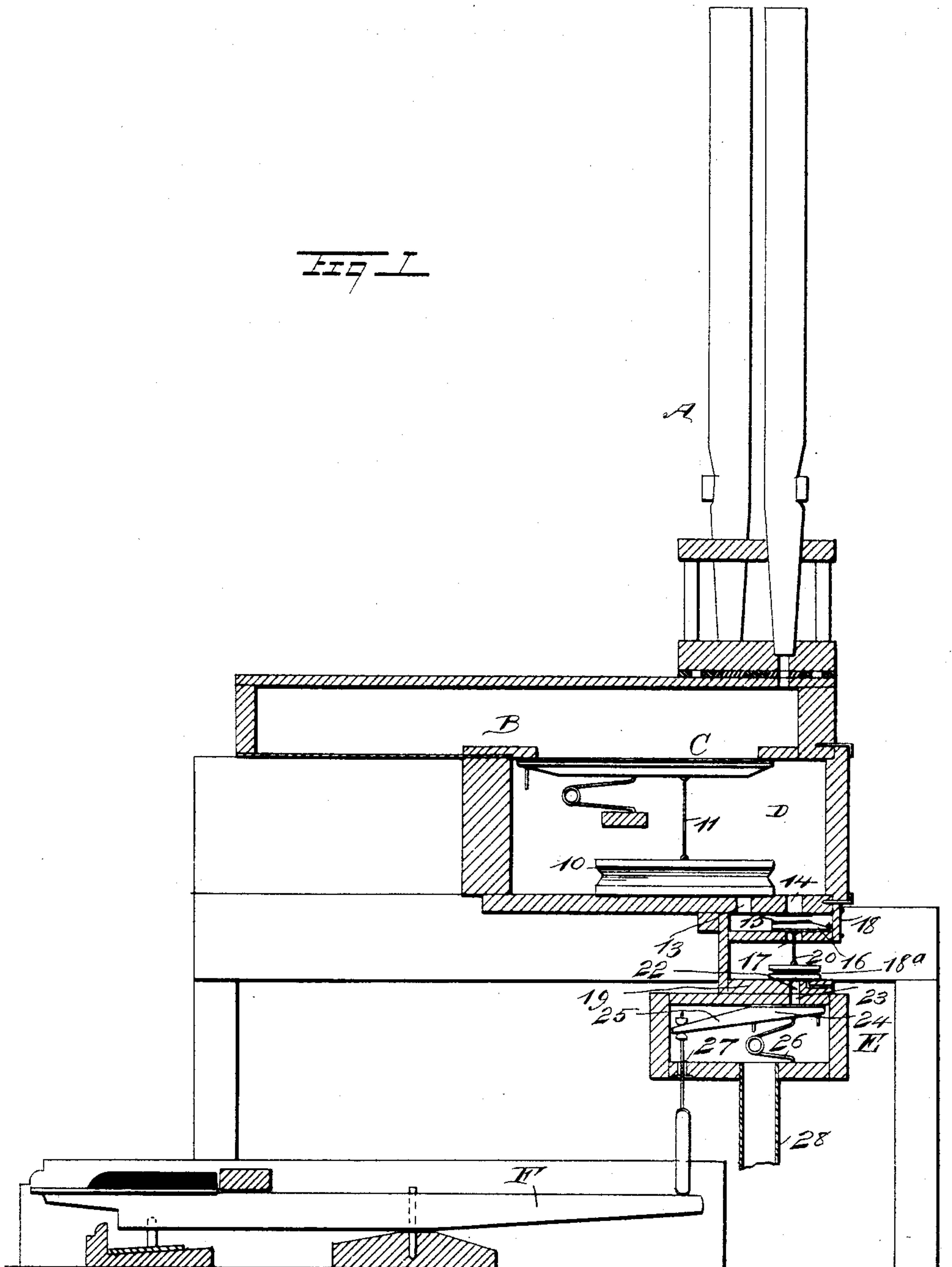


W. SCHWARZE.

MEANS FOR OPERATING PRESSURE BELLOWS OF ORGANS.

No. 539,308.

Patented May 14, 1895.



WITNESSES:

H. Walker
J. C. F. F. F.

INVENTOR

W. Schwarze

BY

Munn & Co

ATTORNEYS.

(No Model.)

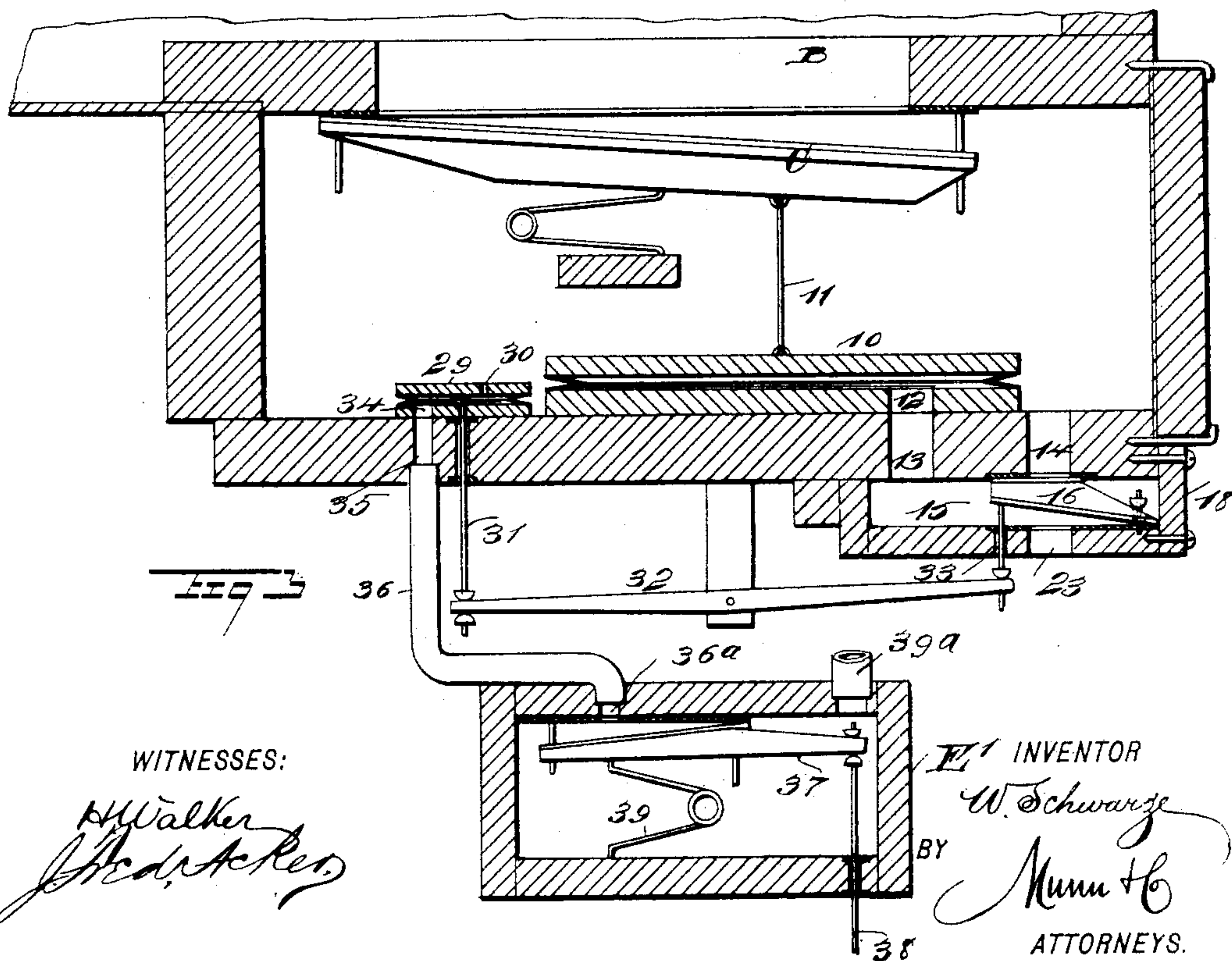
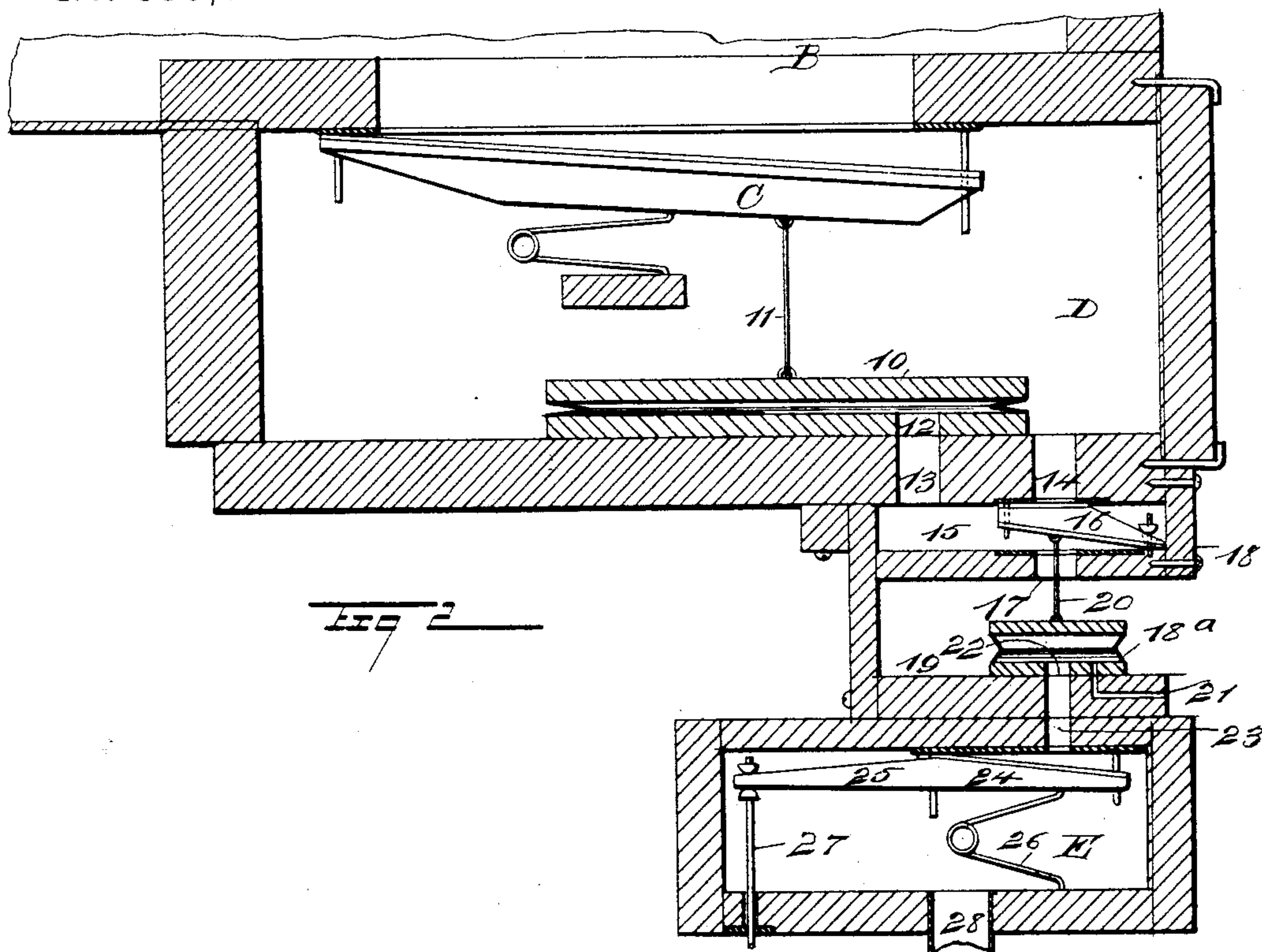
2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

WILLIAM SCHWARZE, OF BROOKLYN, NEW YORK.

MEANS FOR OPERATING PRESSURE-BELLOWS OF ORGANS.

SPECIFICATION forming part of Letters Patent No. 539,308, dated May 14, 1895.

Application filed May 23, 1894. Serial No. 512,160. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM SCHWARZE, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Means for Operating the Pressure-Bellows of Organs, of which the following is a full, clear, and exact description.

My invention relates to an improvement in organs, and it has for its object to provide an improvement upon the means for operating the pressure box bellows, shown and described in an application for Letters Patent filed of even date herewith, the prime object being to simplify the construction shown in the afore-
said application, and to provide for as quick a response between the pressure of a key and the speaking of an organ tube, the valve or pallet controlling the bellows being actuated either by pressure or exhaust.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical sectional view of a portion of an organ, illustrating the application thereto of the improvement. Fig. 2 is an enlarged vertical section taken through the wind-chest of the organ, the bellows, and valve, and likewise through the pressure-box and auxiliary or operating-bellows, illustrating the bellows in the wind-chest in position to open the pallet of the sounding-board; and Fig. 3 is a view similar to Fig. 2, illustrating, however, a slight modification in the means for operating the bellows of the wind-chest, the pressure-box being substituted by an exhaust-box and the position of the operating-bellows being changed.

The organ pipes A and the sounding board B are of the usual construction, and are connected in the usual manner, as are likewise the pallets C, belonging to the sounding board and serving to establish communication between the wind chest D and the organ pipes.

A pressure box E, is employed in one form of the improvement, and an exhaust box E' in a second or modified form, the said boxes be-

ing ordinarily adjacent to the wind chest and in such a position that the operative mechanism contained therein may be conveniently connected with a key of the organ.

The bottom board of the bellows 10 contained in the wind chest D, and connected through the medium of a link 11 or its equivalent with the pallet C of the sounding board, is secured in any approved manner to the bottom wall of the wind chest, and the bellows is provided with an opening 12 in its bottom board, communicating with a channel 13, produced in the bottom of the wind chest and extending through said bottom. The opening 12 and channel 13 are adapted not only to receive air for the purpose of inflating the bellows, but are also employed to exhaust the air therefrom. A second through opening 14, is produced in the bottom of the wind chest D, and both of these openings 12 and 14 are in communication with what I term a valve box 15, constructed below the bottom of the wind chest and provided with a flat valve 16, the valve being preferably square; and in the bottom of the valve box an opening 17 is formed, adapted as an exhaust opening, and the rear open side of the valve box is closed by a removable board or plate 18, in order that access may be had to the box for repairs, or for cleaning.

A bracket 19 of any approved construction is supported beneath the valve box, and upon this bracket the bottom board of a bellows 18^a is secured, the top board of the bellows being connected with the valve 16 through the medium of a link 20, or its equivalent. I denominate the bellows 18^a an operating bellows, since through its medium primarily the bellows contained in the wind chest is operated.

The operating bellows 18^a is provided with an exhaust aperture connected with an exhaust channel 21 in the bracket, and the said operating bellows has an opening 22 produced in its bottom board, communicating with a channel 23, which channel is in communication with a pressure box E in the form of the improvement shown in Figs. 1 and 2.

The channel communicating between the pressure box and operating bellows is closed normally by a pallet 24, having a lever extension 25, the pallet being pressed in closed po-

sition by a spring 26; and the lever extension of the pallet is connected with a key F by a link 27, air being supplied to the pressure box from a suitable source through the pipe 28 leading into the box. Under this form of construction, when a key is pressed, the pallet in the pressure box E is opened, uncovering the channel 23, and the wind will pass from said box into the operating bellows, expanding that bellows and thereby causing the valve 16 in the valve box to close the opening 14 in the bottom of the wind chest. Therefore, the valve, which had been seated over the exhaust opening 17 in the valve box will uncover that opening, and the air contained in the bellows 10 in the wind chest will escape through the registering opening 12 in the bellows and 13 in the wind chest into the valve box and out through the exhaust opening 17 therein, the collapse of the bellows serving to draw down the sounding board pallet C to produce a sound from the tube. The moment the key is released the pallet in the pressure box closes the channel 23, the wind in the operating bellows will exhaust through the channel 21, and the square or flat valve 16 will seat itself over the exhaust opening 17 in the valve box, uncovering the opening 14 in the bottom of the wind chest, and the air from the wind chest will pass out therefrom through the opening 14 into the valve box and through the registering openings 12 and 13 into the bellows 10 in the wind chest, inflating the latter and causing a closure of the sounding board pallet and a consequent stoppage of the sound.

The operation is exceedingly quick, the sound from the tube responding almost simultaneously to the pressure of the proper key. The construction is simple, and the valve 16 is exceedingly useful and economic, when constructed as above set forth, namely, made square or flat.

In the form of the improvement shown in Fig. 3, the operating bellows is located in the wind chest, and is designated as 29, its bottom board being secured to the wind chest. The operating bellows is provided with an opening 30 in its top board, through the medium of which it is inflated, and the said board is connected by a stem or link 31 with a lever 32, fulcrumed at or near its center to a suitable support, the opposite end of the lever being connected by a link or rod 33 with the flat or square valve 16. The operating bellows in this instance operates upon the wind chest bellows when the air is exhausted from the operating bellows. Therefore, instead of a pressure box an exhaust box E' is used, and the operating bellows is provided with an exhaust opening 34, connecting with an exhaust channel 35 made in the bottom of the wind chest, the said channel being in communication with a pipe 36, communicating with the interior of the exhaust box through the medium of a port or channel 36^a, which

port or channel is normally closed through the medium of a pallet 37, connected by a stem or link 38 with a key F, and controlled by a spring 39. The exhaust box is connected with any exhaust mechanism and bellows, for example through the medium of a pipe 39^a or its equivalent. In the operation of this form of organ improvement, when the key is pressed the pallet 37 in the exhaust box is opened and the air contained in the operating bellows exhausts into said box, collapsing that bellows, depressing the end of the lever 32 with which the bellows is connected and elevating the end of the lever with which the cut off valve 16 is connected, whereupon the wind chest bellows will exhaust in the manner heretofore described. When the key is released the exhaust pipe 36 is closed at the end leading into the exhaust box by the valve 37, and the operating bellows 29 is inflated by air entering it from the wind chest through the opening 30, whereupon a reverse action of the lever 32 is obtained, and the cut-off valve 16 closes over the exhaust opening 23 in the valve box.

As has been previously stated, by making the cut-off valve square in plan view, the valve is rendered much more serviceable than other forms of valves, since it may be placed in a much smaller compass and in a much smaller receptacle, and may be utilized to open one port while closing another.

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

The combination with the sounding board B having outlets leading to the organ pipes, the wind chest D under the sounding board, the pallets C controlling communication between the chest and sounding board, and provided with an operating bellows 10 in the wind chest, of a valve box 15 under the rear portion of the wind chest bottom and provided with a removable rear wall 18, a channel 13 connecting the bellows 10 with the said valve box, a second channel 14 extending through the bottom of the wind chest into the top of the valve box, an exhaust 17 in the bottom of the valve box, a flat valve 16 hinged in the valve box to alternately open and close the channels 14, 17, a bracket 19 below the valve box, a bellows 18^a having its bottom board mounted on said bracket, a link 20 connecting the top board of the bellows 18^a with the valve 16 through channel 17, a pressure box E below the bracket, channels 22—23 connecting the pressure box with the bellows 18^a through its bottom board, a pallet 24 in the pressure box and means for operating the pallet from the organ key, substantially as described.

WILLIAM SCHWARZE.

Witnesses:

J. FRED. ACKER,
C. SEDGWICK.