2. Sheets. Sheet. 1.

A. Stein,

Fife Organ.

No. 106,884. Patented Aug. 30. 1870.

FIG 4

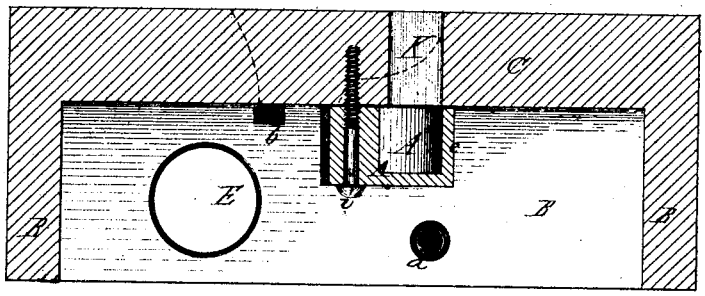


FIG. 3

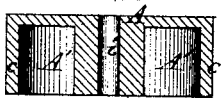


FIG 2

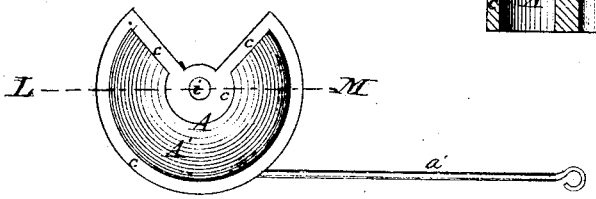
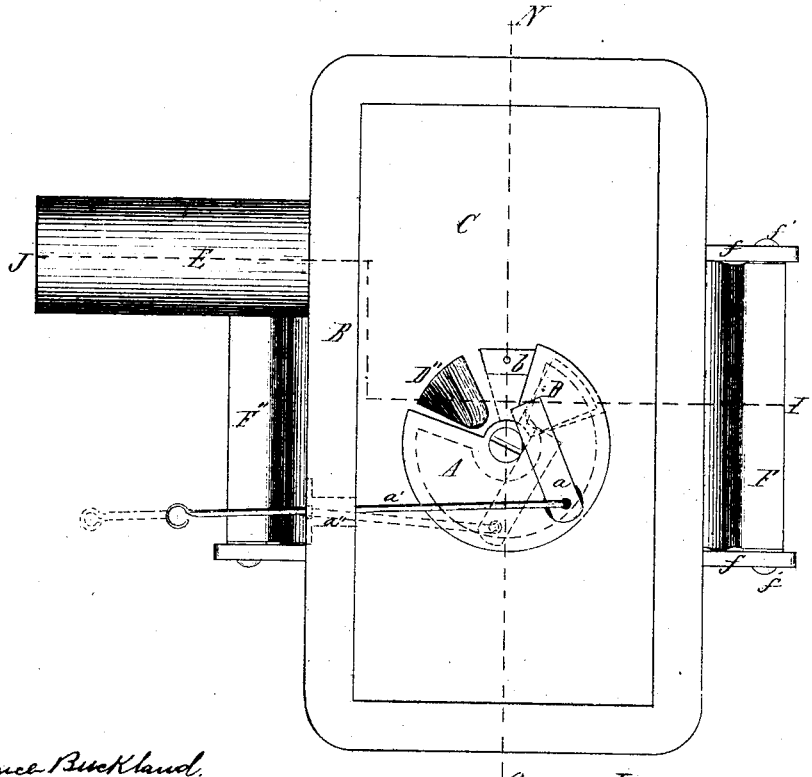


FIG 1



Witnesses,
Clarence Buckland.
M. L. Boynton

Inventor,
Adam Stein
By L. A. Curtis, his attorney.

A. Stein,

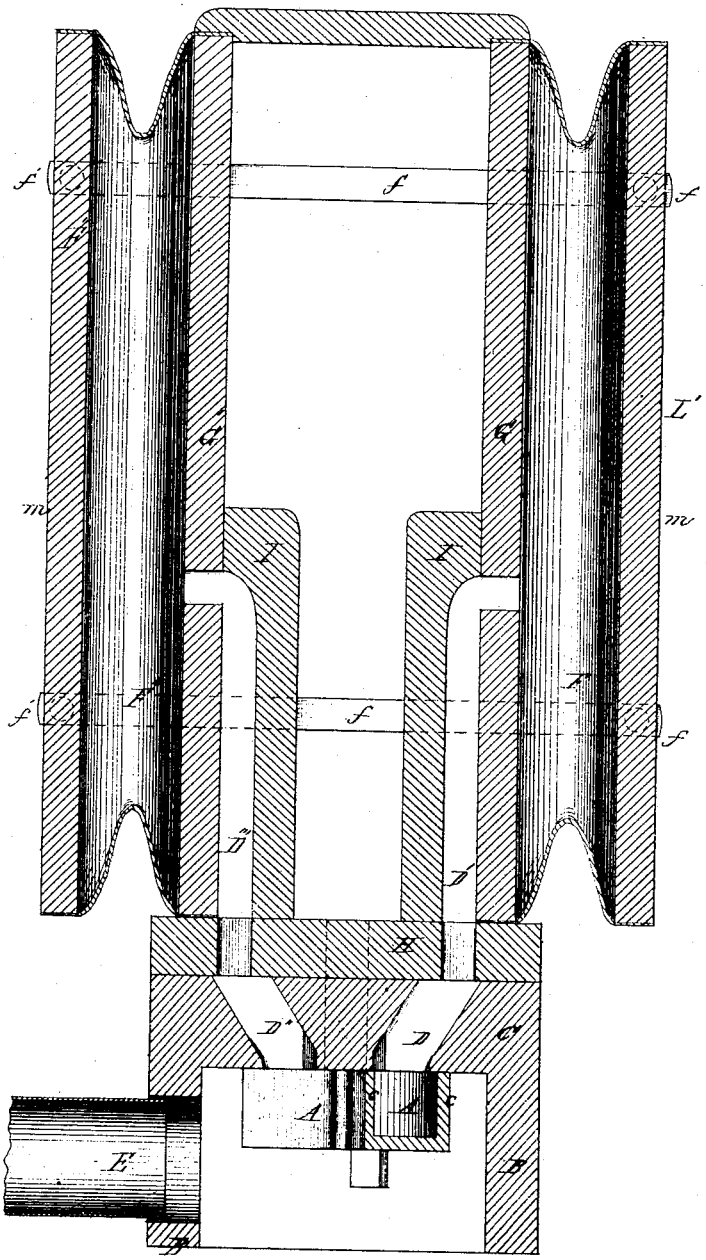
2. Sheets. Sheet 2.

Pipe Organ.

No. 106,884. Patented Aug. 30. 1870.

IMPROVED PNEUMATIC DRAW.

FIG 5



Witnesses,
Clarence Buckland.
M. L. Boynton.

Adam Stein Inventor.
By T. A. Curtis, his attorney.

UNITED STATES PATENT OFFICE.

ADAM STEIN, OF WESTFIELD, MASSACHUSETTS.

IMPROVED VALVE FOR PNEUMATIC DRAW IN ORGANS.

Specification forming part of Letters Patent No. **106,884**, dated August 30, 1870.

To all whom it may concern:

Be it known that I, ADAM STEIN, of Westfield, in the county of Hampden and State of Massachusetts, have invented a new and useful Improved Pneumatic Draw; and I do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description, and which said drawing constitutes part of this specification, and represents, in—

Figure 1, Plate 1, a plan view of the inside of the valve-box, with the bottom piece removed. Fig. 2 is a plan view of the valve. Fig. 3 is a vertical section of the same through line L M of Fig. 2. Fig. 4 is a longitudinal section of the valve-box through line N O of Fig. 1. Fig. 5, Plate 2, is a vertical section through line I J of Fig. 1.

My invention relates to a device to be used for drawing the slide in playing large organs, when it is desired to throw on or off different combinations of stops, by which device this matter of making quick or rapid changes in the combination is rendered quite easy, as it may be done by touch-knobs, and operated by the finger or thumb of the player; and it consists of any ordinary and convenient form of bellows, such as is commonly used, having a valve-box attached to the lower side, through the upper part of which box are made two ports or passages, communicating with ports or passages leading to the interior of said bellows.

Another passage is also made leading from the interior of the box out through the top, and to the upper side of the interior of said box is pivoted a valve, which may be of a circular form, of about three-fourths of a circle upon its plan; and the said ports or passages which open into the valve-box and lead into the interior of the bellows are so arranged that, when the valve is pivoted to its place in the box and covers one of the ports, the other port is open into the box, and when the valve is made to change its position and cover the open port, the one which was previously closed by the valve is then left open, so that in either position of the valve, one of the two ports is open and the other closed by the valve.

The other port, which is made on a line between the two which communicate with the interior of the bellows, is always covered, at its opening into the valve-box, by the valve, and forms a passage of communication between the inside of the valve and the outside atmosphere.

A small stop is secured to the interior of the valve-box, and a small wire or rod is secured to the bottom of the valve, extending out through the side of the valve-box, so that by pushing this wire either in or out the valve is turned upon its pivot sufficiently to close either port and open the other, the valve being regulated in its movement by the said stop, which is attached to the box.

That others skilled in the art may be able to make and use my invention, I will now proceed to describe its construction and mode of operation.

In the drawing, B represents the sides of a rectangular-shaped box, and C represents the top, through which are made the two ports or passages, D and D″, and their position is shown in Fig. 1, the port D″ being shown in black lines, and the port D being shown in dotted lines, opposite the port D″. To the top of the said box is pivoted, by means of the screw *i′*, the valve A. This construction of the valve is shown more fully in Figs. 2 and 3, in which C is a vertical projection, extending around the entire circumference of the valve, and across the ends, and around the central hole *i*, to the same height all around. To the interior of the box, and midway between the two ports D and D″, is attached a stop, *b*, and so arranged that when one end of the valve is against the said stop, that end of the valve closes the port at that side of the stop, as shown in black lines in Fig. 1; and if the valve be turned upon its pivot, so that the other end of the valve is brought against the stop, then the port at that side of the stop will be covered by the valve, and the other left open, as shown in dotted lines in Fig. 1.

The valve may be moved by means of a wire or rod, *a′*, attached to the valve, and extending out through the side of the box.

The escape-port K may be made directly through the part C of the box, opening into said box immediately above the valve A, upon the opposite side of the screw *i* from the stop *b*, so that, whatever may be the position of

the valve, it always covers the opening to said port.

The port D is made through the part C, and communicates with the passage D′, which leads into the interior of the bellows F, and the port D″ communicates with the passage D‴, leading into the interior of the bellows F″, and the port K is made directly through the upper part, C, of the valve-box, and also through the piece H, Fig. 5.

Two pairs of bars, *f*, extend across the bellows, and are attached to the two outside pieces, F′ and L′, at *f*′, and a conducting air-pipe, E, extends from the wind-chest, opening into the box B. A bottom is attached to the box B, so that it shall be air-tight.

The operation of the device is as follows: If the valve A be in the position shown in black lines in Fig. 1, and air be forced in through the pipe E, it passes in through the port D″, up through the passage D‴, and into the bellows F″. The rods *f* by this movement draw the piece L′ in toward the piece G, closing the bellows F, forcing the air therein down through the passage D′ and out through the port D into the interior of the valve A, and thence out through the port K into the atmosphere outside the box.

If the rod *a*′ be drawn out, and the valve changed to the position shown in dotted lines in Fig. 1, the port D″ will be closed, and the air which is forced in through the pipe E will pass up, through the port D and passage D′, into the interior of the bellows F, forcing the pieces L′ and G apart, and, by means of the rods *f*, drawing the piece F′ in toward the piece G′, and forcing the air in the bellows F″ down through the passage D‴ and port D″ into the space A′ in the valve, and thence out through the port K, as before.

If the slide-bar be attached to the outside of either piece L′ or F′ at *m*, and the stop or register be attached to the outer end of the rod *a*′, the act of either pushing in or drawing out the stop or register and changing the position of the valve, which is very easy, causes the bellows F or F″ to operate the slide, and as this is quite difficult, as compared with the operation of drawing the register to change the position of the valve A, it will be seen that the wind of the large bellows of the organ, forcing the air into the pipe E, is used to perform the more difficult operation of drawing the slide, while the player can, with perfect ease, draw the register to change the position of the valve.

I am aware that pneumatic devices have been heretofore used to draw the slide, and I do not claim any device irrespective of my construction and arrangement; but

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

In a pneumatic draw for organs, a segmental valve having a recess, A′, therein, pivoted at *i*, in combination with the ports D D″ and K, constructed and operating substantially as described.

ADAM STEIN.

Witnesses:
T. A. CURTIS,
CLARENCE BUCKLAND.