

T. WINANS.
Pneumatic Actions for Organs.

No. 154,359.

Patented Aug. 25, 1874.

Fig. 1.

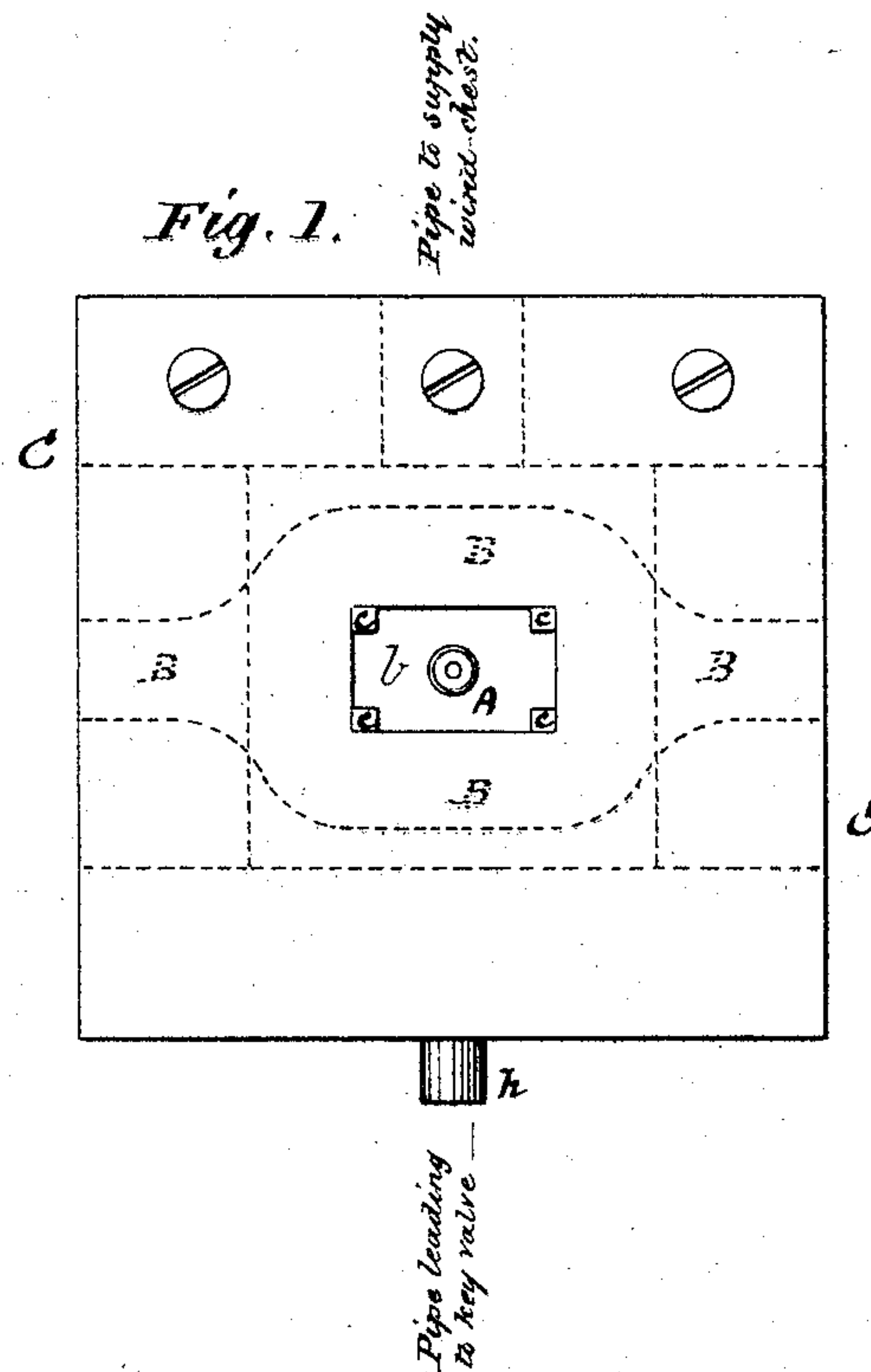
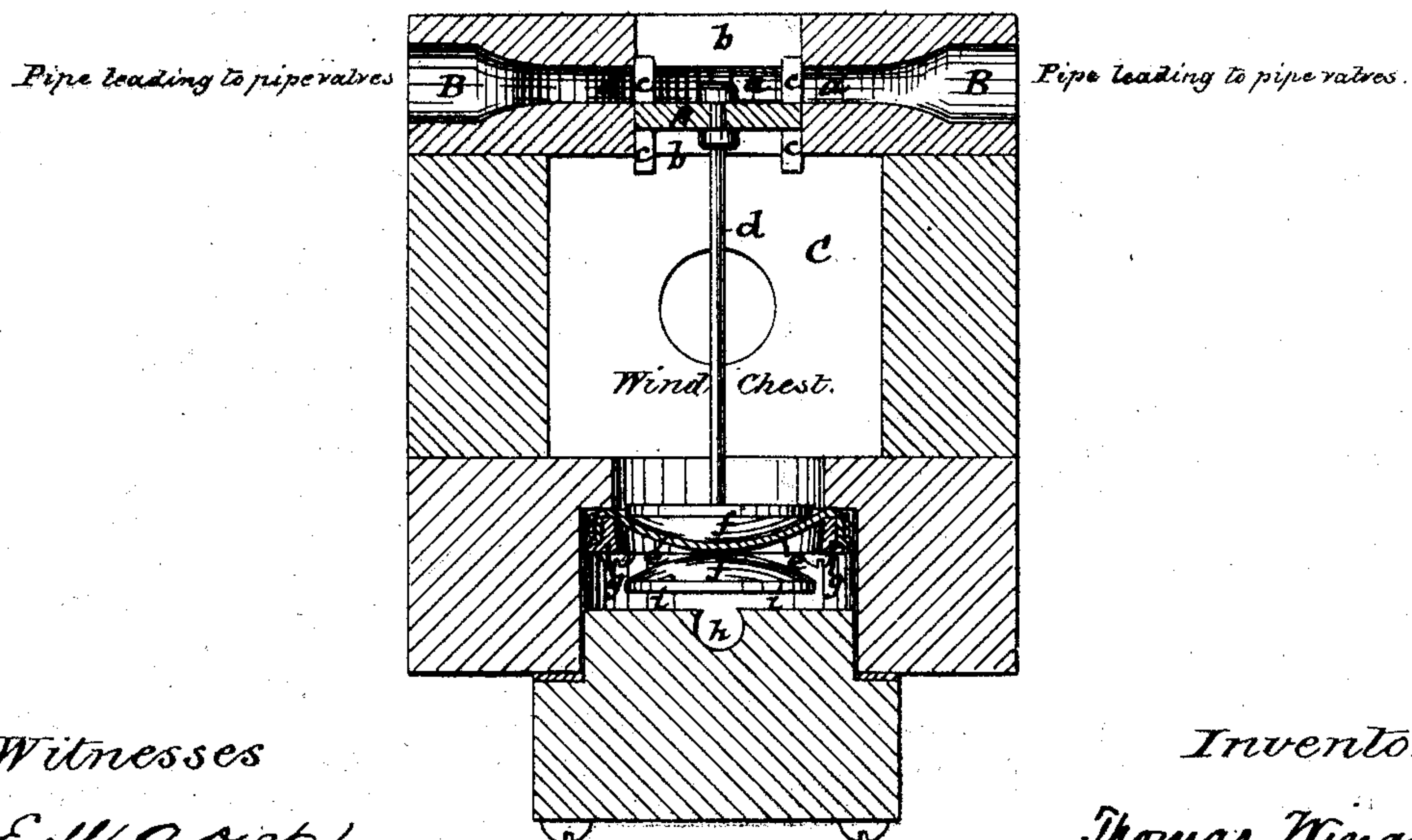


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

THOMAS WINANS, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PNEUMATIC ACTIONS FOR ORGANS.

Specification forming part of Letters Patent No. **154,359**, dated August 25, 1874; application filed July 17, 1874.

To all whom it may concern:

Be it known that I, THOMAS WINANS, of Baltimore, Maryland, have invented certain new and useful Improvements in Pneumatic Actions for Organs, of which the following is a specification:

This invention relates to pneumatic actions of the kind described in my Letters Patent No. 143,602, dated October 14, 1873; and its object is to cause the pipes to speak more quickly and to answer more readily to the touch of the manual or key valves. In said patented action the pneumatic valves, or valves directly controlling admission of air to the pipes, are operated by differences in air-pressures above and below them, the air by which they are upheld against the valve-openings leading to the pipes being supplied through passages extending from said valves to the key or manual valves. In order to exhaust the air from beneath the pipe-valves of any one register this air must pass through the whole length of the passage between said valves and the key-valve by which said register is controlled. Oftentimes this passage is in length sixty or one hundred feet or more, and of necessity the exhaust takes place somewhat slowly, and the pipes consequently do not speak with the desired quickness. To remedy this difficulty I now interpose between the key-valves and the pipe-valves intermediate valves, one for each register, located at a point in close proximity to their respective registers, and operated by the key-valves through the medium of compressed air, to admit air to and exhaust it from the pipe-valves, according as said valves are required to close or open.

The manner in which my invention is or may be carried into effect will be readily understood by reference to the accompanying drawing, in which—

Figure 1 is a plan, and Fig. 2 is a vertical central section, of so much of the pneumatic action as is needed to illustrate my invention.

I have deemed it here necessary to represent but one intermediate valve, which is shown at A. The arrangement indicated in the drawing supposes that the valve is located about in the center of its register, part of the pipe-valves being on the left and part on the right of said intermediate valve, air being sup-

plied to the under sides of the whole set of pipe-valves through a pipe, B, which corresponds to the pipe extending beneath the pipe-valves in my patented action, save that now, instead of leading to the key or manual valve, it leads to the intermediate valve. The pipe B widens and flattens in the neighborhood of the intermediate valve, so as to extend all around the same, as indicated by dotted lines in Fig. 1, with an opening on all four sides of the valve, as indicated at *a*, Fig. 2. This opening is in the sides of the rectangular or other suitably-shaped chamber *b*, in which the valve fits and plays, which chamber at top is open to the external atmosphere, and at bottom communicates with a wind-chest, C. The valve has such play that when elevated it will be above the opening *a*, thus closing the pipe B to the external atmosphere, and throwing it into communication with wind-chest C, and when depressed it will cut off communication between the wind-chest and pipe, and open the latter to the external atmosphere. In Fig. 2 the parts are shown in the position last named, in which position the compressed air in pipe B can readily exhaust into the external atmosphere. In the position first named the pipe is supplied with the requisite compressed air from the wind-chest C. Guides *c* attached to the valve may be used to assure it in position during its up-and-down movements.

The valve is operated in a manner similar to that in which the pneumatic valves are operated in my patented action. This is effected in the present instance as follows: The valve has a stem, *d*, which is mounted on a flexible diaphragm, *e*, of leather or other suitable material, which is between two convex-faced disks, *f*, on the lower end of the stem, and extends across an opening formed in the bottom of the wind-chest. The diaphragm, which is sufficiently slack to allow the necessary play to the valve which it carries, is fastened onto a flanged ring, *g*, which is fastened in a suitable seat in the bottom of the wind-chest by screws or suitable means.

The foregoing brief description of these parts will here suffice, inasmuch as I have made this special means of operating the valve, whether pipe, stop, or other valve, the subject

of Letters Patent, dated July 14, 1874, No. 153,143, in which the functions and advantages of the arrangement are set forth more at length.

Into the space or chamber *i*, below the diaphragm, opens the pipe *h* from the manual or key valve, which valve is arranged and operated to supply air to or exhaust it from said chamber *i*, in substantially the same manner as described in my Letters Patent of October 14, 1873. There are as many intermediate valves as there are registers. Each valve has its own chamber *i* and pipes *h* and *B*. The wind-chest *C*, however, may be common to all the valves. A spring may be placed in chamber *i*, beneath the valve, for the purpose of holding it up; or the air-pressures in the wind-chest and chamber *i* may be so proportioned that the valve will be upheld without requiring a spring. This is a matter discretionary with the maker.

Under the arrangement described it will be noted that the compressed air from the whole series of valves of any one register can be exhausted through a valve which is located under conditions most favorable to obtaining an instantaneous exhaust, the manual or key valve ceasing to have communication with the pipe-valves, and operating directly upon

the intermediate valve only, through the medium of which is effected the supply and exhaust of air needed to induce the proper movements of the key-valves.

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

1. In a pneumatic action for organs, the combination, with the pipe-valves and manual or key valves, of intermediate valves operated by the key-valves, to effect the supply and exhaust of air to and from said pipe-valves, substantially in the manner and for the purposes set forth.

2. The described combination of the intermediate valve, the pipe leading to the pipe-valves, the wind-chest, and the means, substantially as specified, for operating said intermediate valve to throw the pipe leading to the pipe-valves in communication either with said wind-chest or with the external atmosphere, for the purposes set forth.

In testimony whereof I have hereunto signed my name this 14th day of July, A. D. 1874.

THOMAS WINANS.

Witnesses:

IRA BROWN,
JOHN HENRY TILLEY.