

(Model.)

T. H. KNOLLIN.
PIPE ORGAN.

No. 273,369.

Patented Mar. 6, 1883.

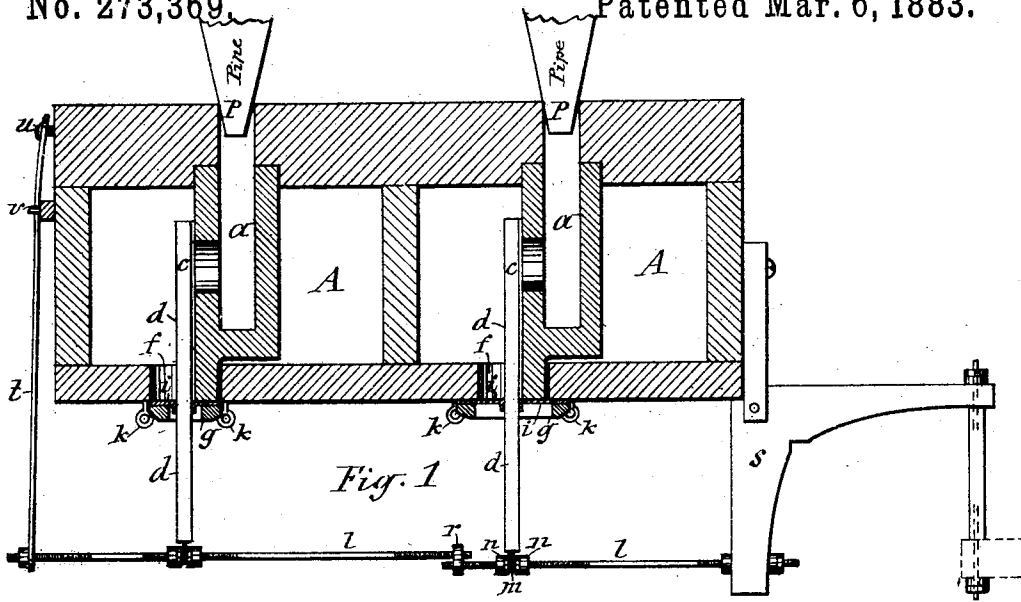


Fig. 1

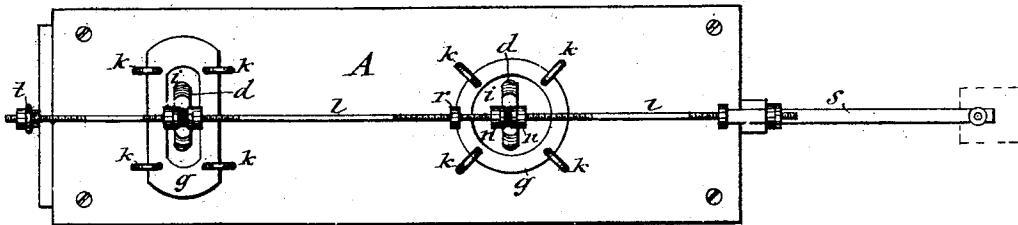


Fig. 2

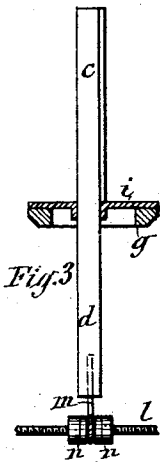


Fig. 3

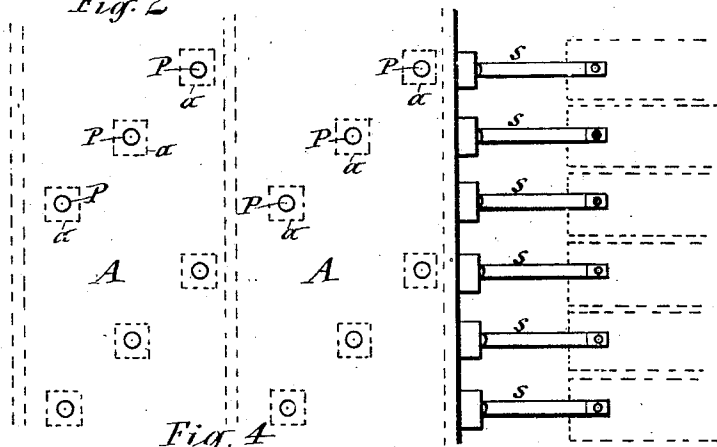


Fig. 4

WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS H. KNOLLIN, OF SYRACUSE, NEW YORK.

PIPE-ORGAN.

SPECIFICATION forming part of Letters Patent No. 273,369, dated March 6, 1883.

Application filed July 31, 1882. (Model.)

To all whom it may concern:

Be it known that I, THOMAS H. KNOLLIN, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Pipe-Organ Valves, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention consists, first, in the combination of a wind-chest provided with longitudinal partitions and with ports through its top intermediately between said partitions at varying distances therefrom, and wind-sockets situated in the wind-chest and connected with said ports.

The invention also consists in a novel, simple, and effective means for adjustably securing to the wind-chest the valve by which the ingress of air to the aforesaid socket is controlled, all as hereinafter more fully described, and specifically set forth in the claims.

The invention is fully illustrated in the annexed drawings, wherein Figure 1 is a transverse section through two of the passages of the wind-chest provided with my improvements. Fig. 2 is an inverted plan view, illustrating the means of connecting the valves with the wind-chest. Fig. 3 is an enlarged detail view of the connection of the valve and its actuating-rod; and Fig. 4 is a plan view, on a reduced scale, of a section of a wind-chest provided with my invention.

Similar letters of reference indicate corresponding parts.

A represents the wind-chest or air-chamber of a pipe-organ, of any ordinary or desired style, said wind-chest being provided with a series of parallel partitions, forming longitudinal channels, which are charged with wind from a bellows or suitable blower. The aforesaid wind-channels I tap at or near their center by holes bored vertically through the top plate of the wind-chest, the organ-pipes P being mounted on the wind-chest and having their tapered base fitted into the aforesaid holes. Inside of the wind-chest A, and intermediately between the partitions thereof, I place a series of sockets, *a*, one for each pipe, said sockets being separate and independent of the partitions, and consisting of ports arranged in the several channels of the wind-

chest directly under the holes bored through the top board and framed or boxed into the top and bottom boards, so as to fit air-tight therewith, said ports having internally a vertical channel, which is closed near the bottom, and has its upper end open and in range with the holes in the top board, and thus in direct communication with the pipes. It will be observed that the aforesaid communication between the socket *a* and organ-pipe P is of the simplest and cheapest construction, and offers less resistance to the passage of the wind than any device hitherto employed in pipe-organs. The described socket communicates with the wind-chest by a port or horizontal channel, *b*, bored into the side of the socket and intersecting the vertical channel thereof some distance from the bottom, so as to form at the base of the socket a dead-air space for the collection of the dust which may enter the socket through the pipe P.

By the before-described employment of the extra pockets *a* between the partitions of the wind-chest, I obtain greater range for the adjustment in the location of the pipes on top of the wind-chest than is afforded by the location of the sockets in the partitions as heretofore constructed, inasmuch as the sockets can be placed at different points in the width of the channel to accommodate different-sized pipes over them, and can also be turned to bring their valves or air-inlet ports in range with actuating-rods running diagonally or obliquely across the under side of the wind-chest, which latter arrangement is frequently desired.

The bottom board of the wind-chest A is provided with an aperture, *f*, in range with the side of the socket *a* which has the aforesaid horizontal channel or port. Through this aperture *f* is extended the shank or arm *d* of a clack-valve, *c*, which is formed in one piece with said shank and fitted over the port of the socket *a*, and hinged or flexibly connected to a collar or plate, *g*, which is secured to the under side of the wind-chest, said plate being provided with a central aperture, *p*, and has secured to its side adjacent to the wind-chest a leather or other flexible air-tight disk, *i*, through which the shank *d* of the valve passes, and to which it is connected air-tight by gluing the edges of the pierced portion of the disk onto the said

shank *d*, thus rendering the action of the valve perfectly noiseless. The disk *i* is so stretched across the plate or collar *g* as to prevent as much as possible a reciprocating or longitudinal movement of the valve *c*, which is designed only for a free oscillating motion in the openings in the collar *g* and bottom of the wind-chest, which openings are amply large for the purpose. The plate *g* and the valve *c*, connected thereto, are rendered detachable and adjustable in their position by means of eye-screws *K K*, inserted in the bottom of the wind-chest in proximity to the edge of the plate *g*, and engaging with their eyes the under side of said plate. By turning said screws so as to bring their eyes on a tangent to or parallel with the edge of the plate the latter becomes liberated, and can be removed together with the valve hinged thereon, as before described. The edges of the plate *g* are beveled so as to cause the eyes of the screws *K K* to crowd the plate away from them. Hence by turning the screws *K K* at one edge of the plate *g*, so as to carry the plane of the eye of said screws from a radial toward a tangential position in relation to the plate *g*, and then turning the screws on the opposite edge of said plate so as bring the plane of their eye to stand nearer in a radial position to the plate *g*, the eyes of the latter screws crowd the plate *g* laterally into the desired position without necessitating the removal of the screws, as is the case with common screw-fastenings.

I do not claim the employment of the described eye-screws simply for attaching the plates *g*, as I am fully aware that the mere substitution of one attaching-screw for another does not constitute invention; but it is the peculiar arrangement and adaptation of a particular form of screw-head, which by a mere partial turn is capable of shifting the plate on which the valve is hinged. This arrangement affords a very simple, convenient, and effective means of adjusting the valve in relation to the port of the socket, *a*.

The valve of one channel of the wind-chest is connected with the valve of the adjacent channel by a rod, *l*, extended along the under side of the wind-chest and connected with the shanks *d* of the respective valves. One end of the rod *l* is connected to a bell-crank or elbow lever, *s*, which is actuated by the keys of the organ in any of the well-known manners. The opposite end of the rod *l* is connected with a spring-rod, *t*, which draws said rod in that direction and normally holds the valves in a closed position. It is suspended from a set-screw, *u*, applied to the exterior of the wind-chest. Its suspended portion is strained over a fulcrum, *v*, in the form of a block secured to the exte-

prior of the wind-chest beneath the set screw *u*. By forcing the said screw more or less into the wind-chest the strain of the spring-rod over the fulcrum *v* is increased or diminished, and thus the draft on the rod *l* may be regulated. In order to facilitate the connection and disconnection of the valve, I connect the rod *l* with the shank *d* of the valve by means of an eye pin or staple, *m*, inserted into the end of the shank *d* longitudinally thereof, so as to allow it to be readily withdrawn therefrom when desired. The rod *l* passes through the eye of said pin or staple, and is confined in its position in the said eye by means of nuts *n n*, applied to the rod at opposite sides of the staple *m*, felt or cloth washers being interposed between the staple or nuts to render the action noiseless. The rod *l*, I render adjustable in length and removable in parts by forming it of sections, which I couple together by a duplex nut, *r*, in the form of a leather disk provided with a separate eye for each of the sections to be coupled.

A valve similar to but proportionately larger than that hereinbefore described may be applied to the wind-chest at the mouth or air-inlet thereof, and connected with the register or stop-knob, thereby rendering the action of the latter very easy and entirely free from liability of becoming bound and hard to draw. Also, a crescendo-pedal can be arranged very simply with this plan of the valve.

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

1. The combination of the wind-chest *A*, provided with longitudinal partitions and with ports through its top intermediately between said partitions at varying distances therefrom, and the sockets *a*, situated in the wind chest and connected with said ports, substantially in the manner shown and described.

2. In combination with the wind-chest *A*, provided with the aperture *f*, socket *a*, and valve *c*, the collar *g*, applied to the under side of the wind-chest and having connected to it the valve, and the eye-screws *K K*, inserted in the wind-chest outside of the collar *g*, and bearing with their eyes against the edges of the same, and serving to shift the said collar and adjust the valve to the port of the socket, substantially as specified and shown.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 28th day of July, 1882.

THOMAS H. KNOLLIN. [L. S.]

Witnesses:

C. H. DUELL,
WM. C. RAYMOND.