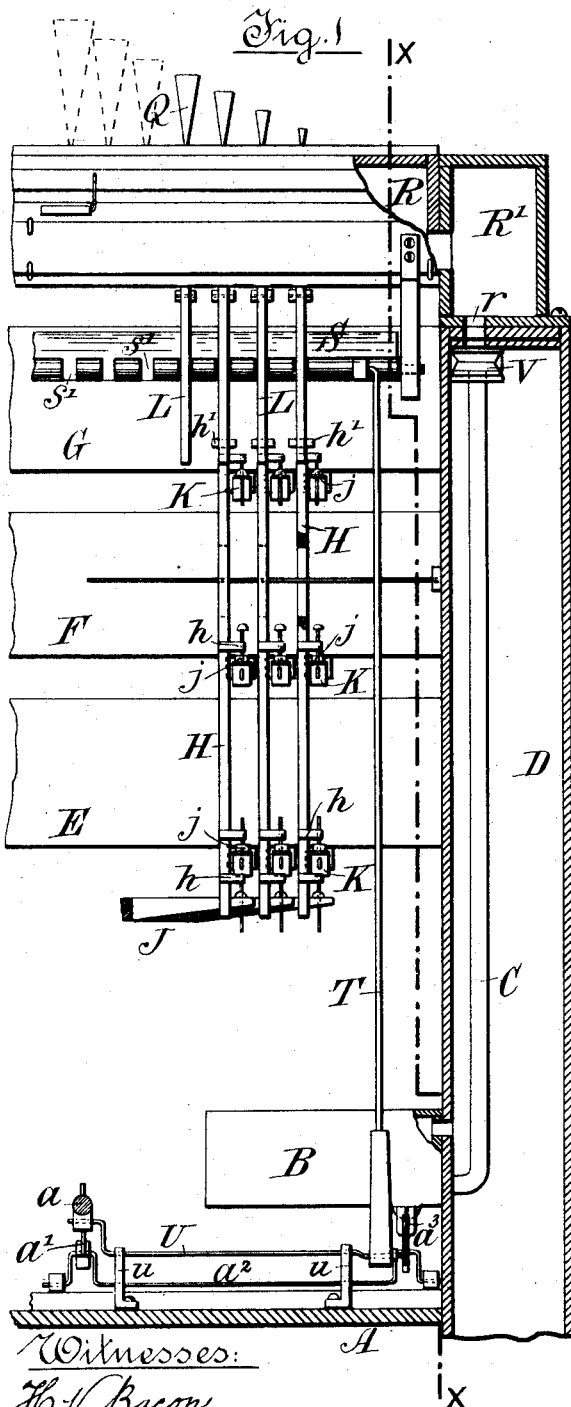


C. S. WARREN.

TUBE ATTACHMENT FOR REED ORGANS.

No. 421,997.

Patented Feb. 25, 1890.



Witnesses:
 H. V. Bacon
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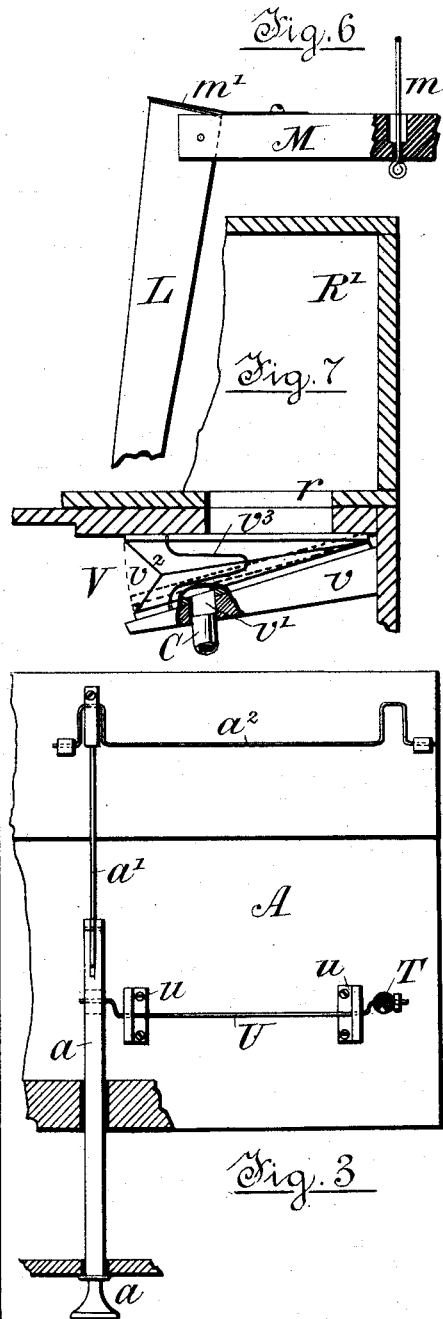


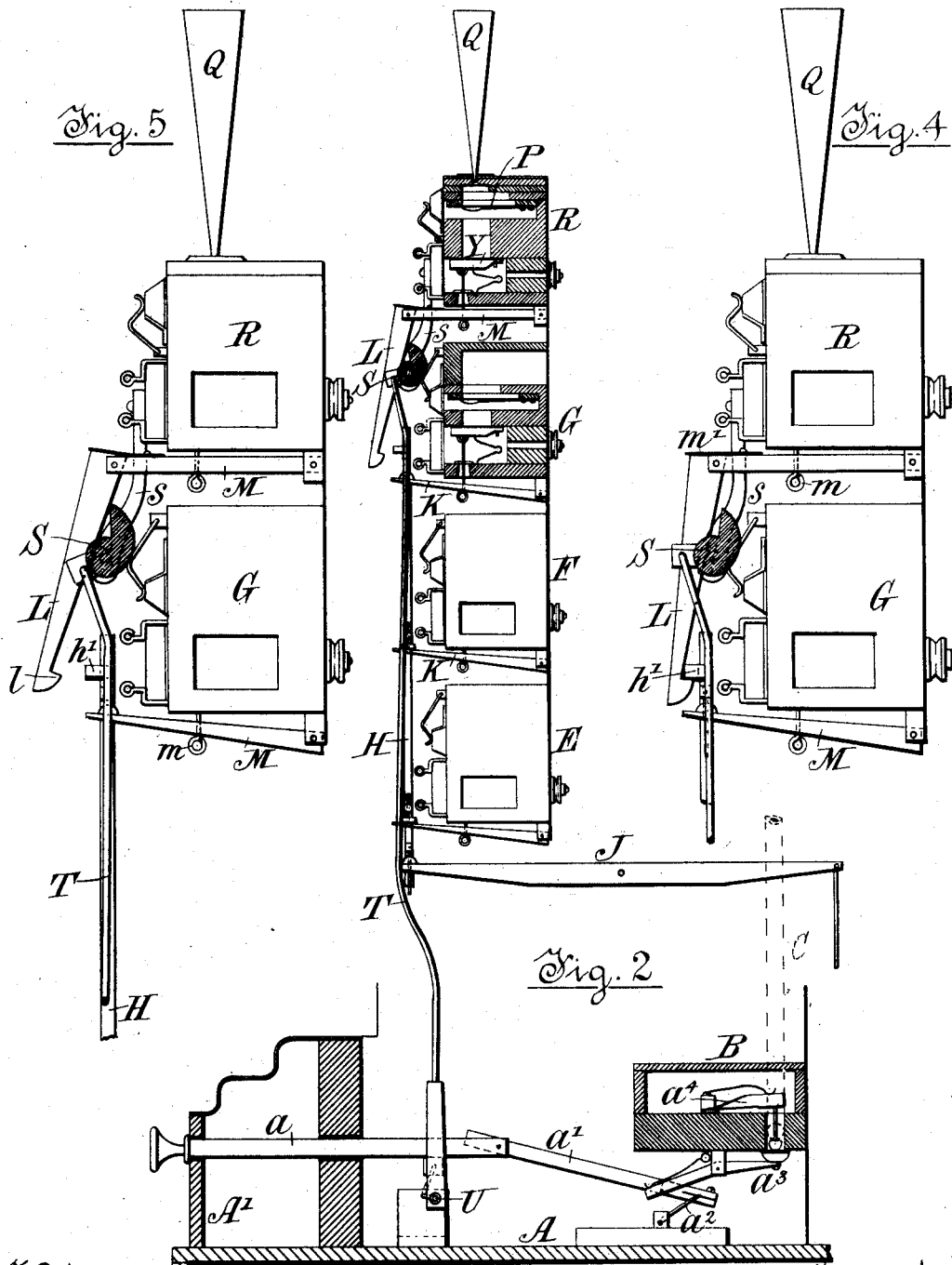
Fig. 3

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CHARLES SUMNER WARREN, OF TORONTO, ONTARIO, CANADA.

TUBE ATTACHMENT FOR REED-ORGANS.

SPECIFICATION forming part of Letters Patent No. 421,997, dated February 25, 1890.

Application filed March 18, 1889. Serial No. 303,731. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SUMNER WARREN, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented a certain new and useful Improved Tube Attachment for Reed-Organs; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to reed-organs constructed upon the "pressure" system with one or more manuals, and is more especially designed for use in connection with that superior class of instrument where there are vertical end wind-trunks and a series of horizontal wind-chests and rows of reeds arranged one above the other, as in my former application, filed March 22, 1888, Serial No. 268,163, and in a second application for stop-actions bearing even date of execution herewith.

The special object I have in view is to increase the volume of sound and add to the general power and tone of the instrument; and to this end I superimpose upon the above-named style of instrument an extra wind-chest, to which (in addition to the line of reeds) are connected a number of standing pipes or tubes, this wind-chest being put into communication with the main wind-trunk by the drawing out of a stop.

My invention also embodies an arrangement whereby the same stop will throw the fingers or levers operating the valves in this extra wind-chest into connection with the action-rods, which open the valves controlling the reeds below as the keys of the organ are depressed, and thus cause the several reeds and tubes in the same vertical line to sound simultaneously.

Certain details of construction and combinations of parts are also included in my present improvements, for full comprehension of which reference must be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate like parts.

In said drawings, Figure 1 is a front elevation, with wind-trunk in section, of part of a reed-organ constructed according to my invention. Fig. 2 is a vertical sectional elevation taken on the line X X, Fig. 1. Fig. 3 is a detail plan illustrating stop-rod and its connections for operating my pipe or tube at-

tachment. Figs. 4 and 5 are side elevations, enlarged, showing fingers for operating the tube-valves in and out of connection, respectively, with the vertical action-rods. Fig. 6 is an enlarged detail of one of said levers. Fig. 7 is an enlarged sectional detail of pallet in position for controlling admission of wind to tube wind-chest.

A represents a horizontal part of the organ case or frame; A', the usual stop-jamb, through which the stop-rod *a* works in the same manner as the ordinary stops, *a'* being the connecting-rod pivoted to its inner end and actuating the crank rod or "roller" *a*², which in turn operates the two valves *a*³ and *a*⁴ of the valve-chamber B, and thus controls the wind entering the conductor C, which passes up through the main wind-trunk D to the collapsible pallet, the whole forming the pneumatic stop-action described and claimed in my application of even date of execution herewith.

E F G represent the several wind-chests, arranged one above the other and at right angles to the vertical wind-trunk, these having the reeds, valves, &c., arranged in the same manner as indicated in my two former applications.

The "pull-downs" or action-rods H H extend, as before, vertically in front of the wind-chests, and are arranged to lie or be turned between the several reed-chambers, small projections *h h* being preferably formed thereon to receive the wires which connect with the levers J and K, which connect with the keys and valves, respectively, adjusting-buttons *j* being mounted upon said wires so as to bear upon said levers, as shown. An extra lip or projection *h'* is formed upon the upper end of each of these action-rods, and with these engage hooked ends *l* of depending fingers or levers L L, pivoted to the horizontal levers M, which serve, through connection with the wires *m*, to pull down the valves Y, arranged under each reed P or pipe Q of the pipe or tube sounding wind-chest R, as seen clearly in Figs. 2, 4, and 5.

The fingers L are forced out of connection with the lips or projections *h'* of the action-rods by the partial rotation of a horizontal bar S, carried eccentrically in bearings *s*, fixed to the front of the tube wind-chest R, (or just

behind the fingers,) or this bar may be cam-shaped in whole or in part in such manner that one point or edge may be turned so as to impinge upon the inner sides of said fingers, as shown especially in Figs. 1, 4, and 5. I prefer the form therein shown, with vertical slots or recesses $s' s'$, in which the fingers may lie. To turn this horizontal bar S, I connect thereto, (or to a projection thereon,) near one end, the upper end of a vertical rod T, which latter extends down to and forms connection with a crank or bent horizontal rod U, carried in suitable brackets $u u$ on the board A. This crank-rod is also connected to the stop-rod a , as shown in Figs 1, 2, and 3, and the whole is arranged in such manner that as the stop is drawn out the rod T is raised and the bar S withdrawn from impact with the fingers L, when the latter fall inward and engage with the lips on the action-rods. Flat springs m' , fixed to the top of the levers M, bear upon the upper ends of the fingers, and thus give the necessary tension thereto in both positions.

The tube wind-chest R and the continuation R' of the wind-trunk are preferably made separate from the body of the instrument, so as to be readily put in place or removed therefrom, and the tubes Q are connected to this chest in the manner well-known to organ-builders. The opening r between the main wind-trunk D and its continuation R', leading to the chest R is controlled by a bellows-pallet V, (shown in Figs. 1 and 7,) which is of substantially the same construction as those shown in my last application—that is to say, it is made of a block v , fixed to the framing of the trunk and perforated at v' , where the conductor C enters, and the bellows proper v^2 and a spring v^3 to prevent sagging and insure the close fitting of the moving board against the opening r .

The operation of my invention will be understood from the foregoing and from the drawings; but I may further say that the drawing out of the stop-rod a , and consequent turning of the crank-rod U, raises the rod T and throws the eccentric-bar S back and out of impact with the fingers L, which latter, with the assistance of the springs m' , immediately fall into connection with the lips h' of the action-rods II, and thus into position for being pulled down by the depressing of a key, so as to open the valve Y (shown in Fig. 2) and cause the reed P and pipe or tube Q in the chest R to sound at the same time as its proper line of reeds below. Simultaneously with the above action the drawing out of the same stop-rod opens the valve a^3 , closes the valve a^4 in the valve-chest B, and allows the wind heretofore in the pallet V to escape through the conductor C and the valve-port in the chest B, and thus effect the collapse of the bellows-pallet and opening of the passage r , through which latter the wind now finds its way from the wind-trunk D into

the continuation R' and tube wind-chest R, past the open valve Y, and thus causing the reed P and pipe Q to sound. The return of the stop-rod causes the parts to reassume their first or normal position, which is as illustrated in Figs. 2 and 5.

It will be seen that by lifting the tube-chest R and its immediate connections up and away from the instrument proper, and by not using the stop a , an ordinary reed-organ of this class remains intact.

What I claim, and desire to secure by Letters Patent, is as follows:

1. In a reed-organ having a vertical wind-trunk and horizontal wind-chests and rows of reeds, the combination of a superimposed extra wind-chest having external pipes or tubes leading therefrom, and internal valves, and means for connecting said valves at will with the action-rods or pull-downs, so that the pressure of a key may cause the tubes to sound simultaneously with the reeds in the same vertical line, substantially as set forth.

2. In a reed-organ having a vertical wind-trunk and horizontal wind-chests and rows of reeds, the combination of a superimposed wind-chest having external pipes or tubes leading therefrom, and internal valves, and means whereby said valves are put in (or out of) connection with the general action-rods or pull-downs and wind admitted to said superimposed wind-chest (or cut-off) simultaneously by the movement of a single stop, substantially as and for the purposes specified.

3. In a reed-organ having a vertical wind-trunk and horizontal wind-chests and rows of reeds, and external action-rods controlling the valves thereof, the combination of a superimposed extra wind-chest adapted to be thrown into communication with the trunk, and having reeds or tubes and valves controlling same, levers in connection with said valves, and a device for throwing said levers into connection with said action-rods, whereby the reeds or tubes of the extra wind-chest may be caused to sound simultaneously with the reeds below on the depression of a key, substantially as described.

4. The combination, with the extra wind-chest and its valves, of levers for operating the latter, a cam or eccentric device arranged to move said levers in and out of connection with the general action-rods, and a rod connected to said eccentric device and leading to and operated by the movement of a stop, substantially as described.

5. The combination, with the wind-trunk and wind-chests E F G, the extra wind-chest and its valves, of the levers M and fingers L, pivoted thereto, a spring for imparting the necessary tension, eccentric-bar S, vertical rod T, connected to said bar, crank U, and stop-rod a , actuating said crank and vertical rod, substantially as and for the purpose specified.

6. The combination, with the wind-trunk,

wind-chests E F G, and the stop-rod *a*, of the
extra wind-chests having valves, the crank-
rod U, vertical rod T, connected thereto and
to devices for operating the valves in the ex-
5 tra wind-chest, connecting-rod *a'*, crank rod
or roller *a''*, and the valves and conductor for
operating the pallet controlling communica-

tion between the wind-trunk and extra wind-
chest, substantially as specified.

Toronto, 12th day of February, 1889.

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Witnesses:

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