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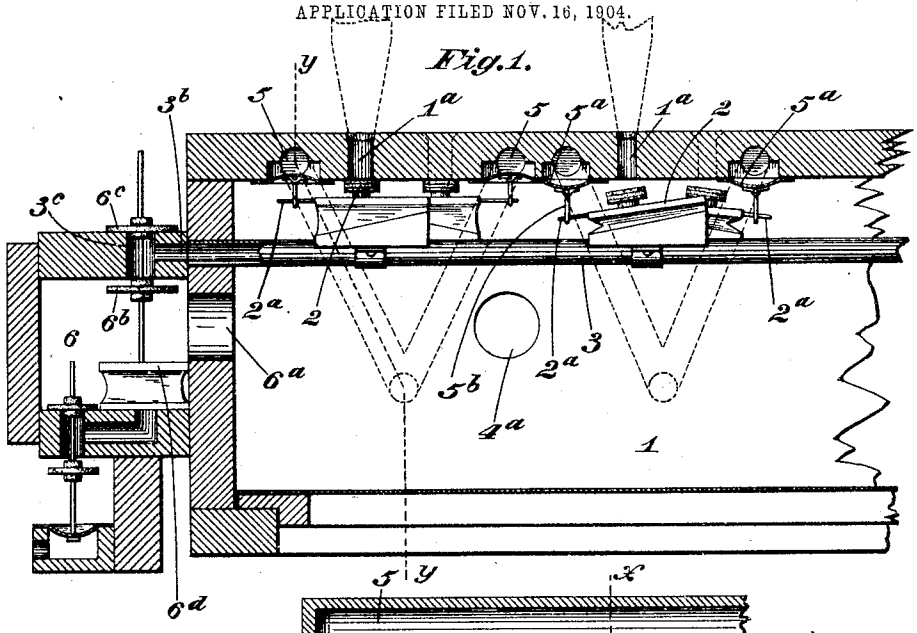
A. KLANN.

PNEUMATIC UNIVERSAL WIND CHEST WITH INDIVIDUALLY OPERATIVE VALVES.

APPLICATION FILED NOV. 16, 1904.

Fig. 1.



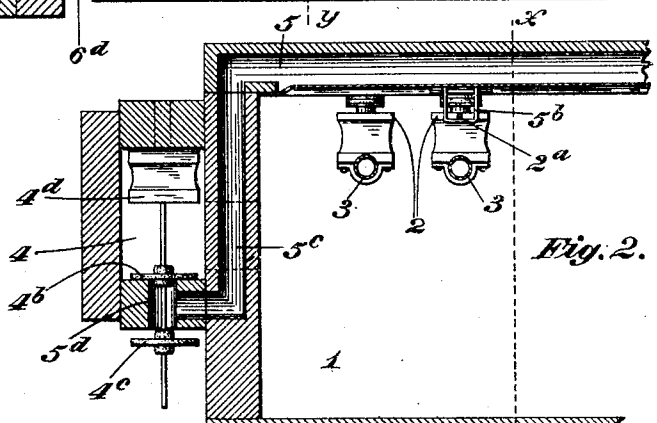


Fig. 2.

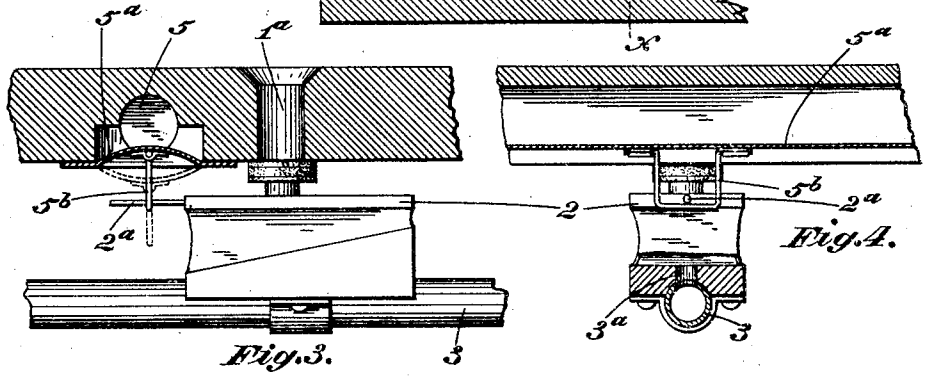


Fig. 4.

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

AUGUST KLANN, OF POMEROY, OHIO.

PNEUMATIC UNIVERSAL WIND-CHEST WITH INDIVIDUALLY-OPERATIVE VALVES.

SPECIFICATION forming part of Letters Patent No. 788,777, dated May 2, 1905.

Application filed November 16, 1904. Serial No. 233,009.

To all whom it may concern:

Be it known that I, AUGUST KLANN, a citizen of the United States, residing at Pomeroy, in the county of Meigs and State of Ohio, have invented certain new and useful Improvements in Pneumatic Universal Wind-Chests with Individually-Operative Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improved pneumatic organ mechanism in which the wind-chest is provided with pneumatic-valves for opening and closing the openings to the pipes, said valves being rendered operative or inoperative by the pressure of the air in the wind-chest and controlled by the stops and key-manual. In other words, it is the aim of the invention to provide an improved universal wind-chest with individually operative or selective valves.

The invention is embodied in the construction hereinafter described without being limited to the precise details of construction shown in the accompanying drawings or stated in the description.

In the said drawings, Figure 1 is a sectional view of the wind-chest, taken on line *x x*, Fig. 2. Fig. 2 is a sectional view of the same, taken on the line *y y*, Fig. 1. Fig. 3 is a detail side view, on a larger scale, of a pneumatic-valve. Fig. 4 is a sectional view of the same.

In the views, 1 designates the wind-chest proper, that receives compressed air from the bellows, as usual. Set in rows of openings 1^a in the upper board of the wind-chest are the usual reed-pipes for producing the tone in different pitch and qualities, as dulciana, clarion, &c. Each of the openings to the pipes is provided with a pneumatically-operative valve 2, sometimes called a "pneumatic."

The pneumatics are mounted on tubes 3, perforated, as seen at 3^a, Fig. 4, to communicate with the interior of the pneumatic.

4 designates an auxiliary frame constituting the stop-chest, that communicates with the main chest 1 through an opening 4^a. In the upper board of the main chest are grooves 5, having their under sides closed with flexible strips 5^a, on which are secured metallic loops 5^b. On the pneumatics 2 are stiff pins 2^a, that project horizontally through the loops 5^b, so that when the grooves are inflated with compressed air, as hereinafter described, the pneumatics are free to operate and open the air-passages to the pipes; but when the grooves are deflated of compressed air or pressed upward by the compressed air of the wind-chest the loops by engaging the pins 2^a preclude the operation of the pneumatics. Pneumatic-valves in open position are seen in the right-hand portion of Fig. 1, and similar valves in closed position are seen in the left-hand portion of that view.

The grooves 5 communicate through a passage 5^c in the vertical wall of the wind-chest 1 and lower wall of the auxiliary chest 4 and terminate in a cross-passage 5^d, that opens at one end in the auxiliary chest 4 and at the other end into the atmosphere. The opposite ends of the cross-passage 5^d are opened and closed by valves 4^b and 4^c, controlled by a pneumatic 4^d, operated by the organ-stops in a well-understood manner. By opening the valve 4^b and admitting the compressed air of the wind-chest through the passages 5^d and 5^c to the groove 5 a particular series of pneumatics 2 belonging to a register or stop of pipes becomes operative, and by closing the valve 4^b (thereby reducing the pressure in the grrove 5 to atmospheric only) the loops 5^b are thrown and held upward and the pneumatics 2 rendered inoperative.

6 designates a supplemental chamber or frame constituting the manual-chest, which, like the auxiliary chamber 4, communicates with the main chest 1 through an opening 6^a. The pipe 3 communicates through an opening 3^b and a cross-opening 3^c with the atmosphere and with the interior of the chamber 6; but the terminals of the cross-opening 3^c are controlled by valves 6^b and 6^c, operated by a pneumatic 6^d. The pneumatic 6^d is operated in any well-known manner by the key of the organ-manual or its equivalent. When the valve 6^b closes the inner terminal

of the cross-opening 3^c and the outer terminal is opened, the pressure in the pipe 3 is reduced to atmospheric. Hence the preponderating pressure in the wind-chest will operate those pneumatics 2 that are rendered operative by the pressure in the grooves 5; but those pneumatics 2 that are engaged by loops 5^b will not operate. Hence only those tones with the qualities desired and permitted by the operation of the stops will be produced. From the construction shown and described, therefore, it will be observed that the wind-chest may be characterized as "universal with individually-operative valves."

What I claim, and desire to secure by Letters Patent, is—

1. In an organ, the combination of a universal wind-chest, a plurality of series of stop-pipes connecting therewith, valves for opening and closing said stop-pipes, an air-pressure passage 5 for each of said series of stop-pipes, a flexible strip 5^a forming a side of said passage and adapted to be operated by variation of the pressure in said passage, means on said flexible strip for preventing or permititng the operation of said valves, the pressure in said air-passages being controlled by the organ-stops.

2. In an organ, the combination of a universal wind-chest, a plurality of series of stop-pipes connecting therewith, pneumatically-operative valves for opening and closing said stop-pipes, an air-pressure passage 5 for each of said series of stop-pipes, flexible strips 5^a forming a side of said passage and adapted to be operated by variation of pressure in said passage, means on said flexible strips for preventing or permitting the operation of said valves, an air tube or passage 3 on which said valves are mounted and with which the pneumatics of the valves communicate, and means operated by the keys of the key-manual for controlling the pressure in said tubes or passages 3.

3. In an organ, the combination of a universal wind-chest, a plurality of series of stop-pipes connecting therewith, valves for opening and closing said stop-pipes, an air-pressure passage 5 for each of said series of stop-pipes, flexible strips 5^a forming a side of said passage, means on said flexible strip for preventing or permitting the operation of said valves, and means operated by the organ-stops for admitting and cutting off the pressure of the wind-chest to said passages 5.

4. In an organ, the combination of a universal wind-chest, a plurality of series of stop-pipes connecting therewith, tubes 3 transverse said stop-pipes and within said wind-chest, a pneumatic-valve for each of said stop-pipes mounted on said tubes and communicating therewith and to be operated by the pressure in the wind-chest to close said stop-pipes and by reduction of pressure in said tube 3 to open said stop-pipes, and devices operated by the pressure of the wind-chest for preventing or permitting the operation of said pneumatic-valves and means for operating said last-named devices.

5. In an organ, the combination of a universal wind-chest, a plurality of series of stop-pipes connecting therewith, pneumatic-valves for opening and closing said stop-pipes, an air-pressure passage 5 for each of said series of stop-pipes, flexible strips 5^a forming a side of said passage, means on said flexible strip for preventing or permitting the operation of said valves, means operated by the organ-stops for admitting and cutting off the pressure of the wind-chest to said passage 5, tubes or passages 3 transverse the series of stop-pipes on which said pneumatic-valves are mounted and connected to be operated by variation of air-pressure therein, and means operated by the keys of the key-manual of the organ for admitting to and cutting off air-pressure of the wind-chest to said pipes or passages 3.

In testimony whereof I affix my signature in presence of two witnesses.

AUGUST KLANN.

Witnesses:
C. A. IHLE,
C. IHLE.