No. 789,029. PATENTED MAY 2, 1905.

L. U. JOBES.

PNEUMATIC MUSICAL INSTRUMENT PLAYER.

APPLICATION FILED FEB. 24, 1905.

Fig. 1.

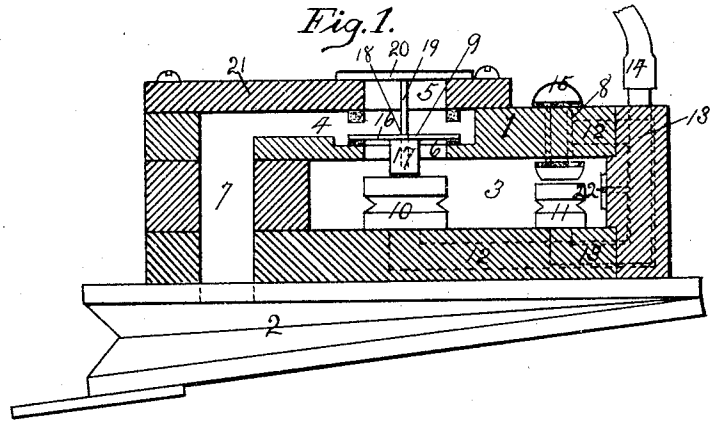


Fig. 2.

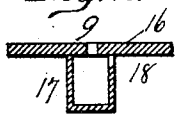
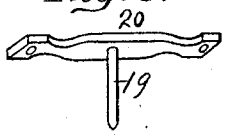


Fig. 3.



WITNESSES:

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No. 789,029. Patented May 2, 1905.

UNITED STATES PATENT OFFICE.

LAWRENCE U. JOBES, OF CINCINNATI, OHIO, ASSIGNOR TO THE BALDWIN COMPANY, OF CINCINNATI, OHIO.

PNEUMATIC-MUSICAL-INSTRUMENT PLAYER.

SPECIFICATION forming part of Letters Patent No. 789,029, dated May 2, 1905.

Application filed February 24, 1905. Serial No. 247,088.

To all whom it may concern:

Be it known that I, LAWRENCE U. JOBES, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Pneumatic-Musical-Instrument Players, of which the following is a full and clear description.

My invention relates to that class of musical-instrument players wherein the action thereof consists of a series of striking-pneumatics, a series of primary valves, and a series of puppet-valves, combined with an exhaust-bellows and operated by a perforated music-sheet.

My invention relates particularly to the puppet-valves; and my object is to improve and simplify the construction of such valves and at the same time render them more certain and sensitive in operation, as will be hereinafter fully described.

Referring to the drawings, Figure 1 is a sectional view of a valve-box, showing my improved valve in position. Fig. 2 shows my improved puppet-valve. Fig. 3 is my improved puppet-valve guide.

Similar numerals of reference indicate corresponding parts.

The valve-box 1 represents one of a series or plurality of valve-boxes adapted to be arranged one above the other, to the under side of which is attached a series of striking-pneumatics 2. The valve-boxes are framed together and connected with any approved form of exhaust by which a partial vacuum is maintained therein and upon which the action of the mechanism depends. A suitable music-controlling device, tracker-range, and connections are also necessary for the proper working of my valve. The valve-box is provided with a pneumatic-chamber 3; a series of valve-passages 4, having two opposing ports 5 and 6 communicating with the outer air and the pneumatic-chamber; a series of connecting-passages 7, connecting the valve-passages with the striking-pneumatics; a series of primary-valve passages 8, communicating with the outer air and the pneumatic-chamber; a series of puppet-valves 9, controlling the ports in the valve-passages; a series of primary valves 15, controlling the primary-valve passages; actuating-pneumatics 10 and 11, placed in the pneumatic-chamber under the puppet and primary valves for operating the same; pneumatic-passages 12, leading from the primary-valve passage to the puppet-valve pneumatics, and pneumatic-passages 13, leading from the pipes 14 to the primary-valve pneumatics.

The ports in the valve-passages 4 are controlled by my improved puppet-valve 9, consisting of a disk 16, preferably of metal, having a cylindrical extension 17 on one side, which extends through the port 6 and rests on the upper leaf of the valve-pneumatic 10. The center of the valve-disk is provided with an opening 18 for the guide-pin 19, which is attached to the plate 20 and suspended over the center of the port 5. The lower end of the cylinder 17 is closed, which prevents any escape of air around the pin 19. The outer wall 21 of the valve-passage 4 is made detachable for the purpose of placing the valve 9 in position. Around the inner surface of the ports 5 and 6 I place a washer of leather or other soft material which renders the action of the valve noiseless and prevents the passage of air when the ports are closed.

The operation of my improved valve is as follows: When the tracker-range is covered by the music-sheet, the pneumatics 10 and 11 are closed and the striking-pneumatics 2 are open. A perforation of the music-sheet coming in contact with an opening in the tracker-range allows the outside air to enter the pneumatic 11 through the passage 13 and pipe 14. This expands the pneumatic and raises the primary valve 15, which allows air to enter the puppet-valve pneumatic 10 through the passage 12. This expands the pneumatic 10 and raises the puppet-valve 9 from its seat, closing the port 5 to the outer air and opening the port 6. The partial vacuum in the valve-chamber 3 is thus extended through the valve-passage 4 and the connecting-passage 7 to the striking-pneumatic 2, which instantly collapses and imparts the energy of its motion by suitable connections to the key of the instrument. When the opening in the tracker-

range is closed, the air in the passage 13 is brought under the influence of the partial vacuum in the pneumatic-chamber through the vent 22, leading from the passage 13 to the pneumatic-chamber, and the primary pneumatic 11 collapses. The primary valve 15 resumes its normal position, and the outside air is cut off from the puppet-valve pneumatic 10. The valve 9 closes the port 6, and the striking-pneumatic 2 expands with air entering through the port 5, valve-passage 4, and connecting-passage 7.

The advantages of my improved valve are simplicity of construction, certainty of action, and the reduced size and compact form of the valve-box, due to the improved construction of the valve, which consists of a perforated disk with a cup-shaped cylinder attached to the center of one side. The valve is held in position by a guide-pin which passes through the perforated opening, which being smaller than the inside diameter of the cylinder allows the valve great freedom of movement on the pin, with the result that there is absolute certainty in its action, which guarantees it against any sluggishness in motion and allows it to be self-seating under all conditions.

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

1. In a pneumatic musical instrument a puppet-valve consisting of a disk perforated in the center and having a cylindrical extension on the center of one side thereof, the outer end of said extension being closed to prevent the passage of air, substantially as described.

2. In a pneumatic musical instrument, the combination of a puppet-valve consisting of a perforated disk having a cylindrical extension on one side thereof, the outer end of said extension being closed to prevent the passage of air, with a valve-guide consisting of a bar having a guide-pin extending at right angles from one side of the same, said guide-pin being adapted to enter the perforation in said valve-disk and hold the same freely in position, substantially as described.

3. The combination in a valve-box 1 of a pneumatic 10, with a puppet-valve 9 consisting of a perforated disk 16, having a cylindrical extension 17 on one side thereof, the outer end of said extension being closed to prevent the passage of air, said extension being adapted to rest on the upper leaf of said pneumatic; and a valve-guide 20 consisting of a bar having a pin 19 projecting at right angles from one side of the same; said guide-pin being adapted to enter the perforation 18 in said valve-disk and hold the same in position, substantially as described.

LAWRENCE U. JOBES.

Witnesses:
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