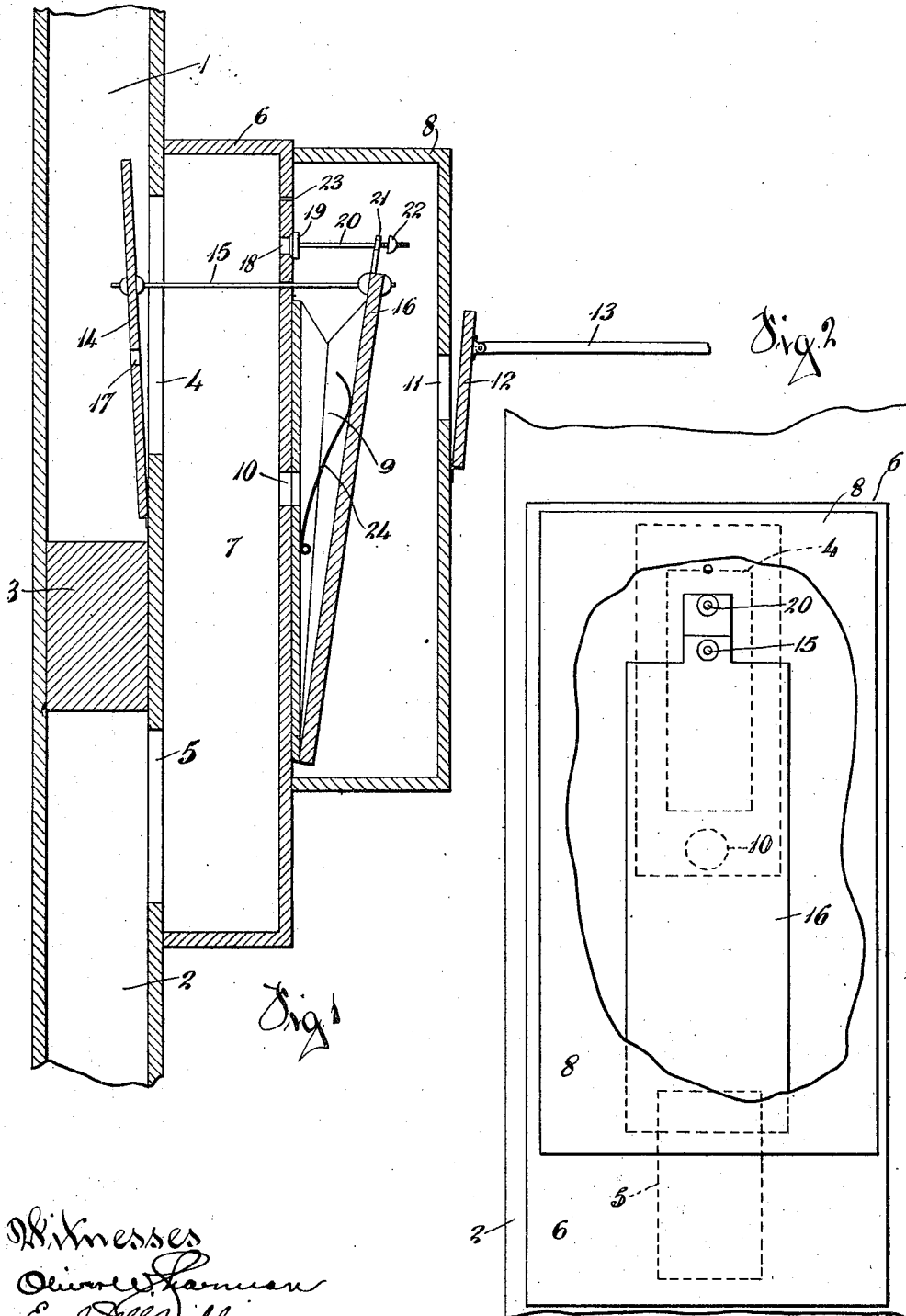


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PNEUMATIC PLAYER PIANO.
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PNEUMATIC PLAYER-PIANO.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH LEISCH, a citizen of the United States, and a resident of Tryon, in the county of Polk and State of North Carolina, have invented certain new and useful Improvements in Pneumatic Player-Pianos, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

The object of my invention is to provide a construction for the pneumatic action, whereby, at the will of the performer, a diminuendo effect may be produced which may be brought automatically into operation by the shifting of a key or lever.

The invention consists of the introduction of a choker box between the bellows and the pneumatic chest, which upon the operation of the valve shall gradually shut off or choke down the intake passageway to the chest so as to gradually reduce to a minimum the vacuum pressure of the player.

In the drawing, Figure 1 is a cross section of my improved choker box construction. Fig. 2 is a plan view of the same.

Although this device is for application to a player piano having a pneumatic chest and a bellows or suction means, in view of the fact that these two parts are of universal use in this connection, I have only illustrated in the drawing the details of my improved choker box, with a portion of the passageway from the pneumatic chest to the intake bellows. In the drawing, the passageway above referred to, is divided into two parts numbered respectively 1 and 2. Ordinarily these passageways form a continuous passageway from the air chest to the bellows.

To apply my invention, I block off this passageway by a block 3 and provide openings 4, 5 through one of the walls of sufficient size for the maximum suction power of the instrument. These openings 4 and 5 are covered with a box 6, normally forming a closed passageway 7, connecting the openings 4 and 5. On this box I mount a box or casing 8, and in this box a power pneumatic 9 is secured, with opening 10 from the passageway 7 into the pneumatic. The pneumatic box 8 is provided with an opening 11, which is provided with a flap valve 12, suitably connected by a connecting rod 13, or in any other desired way, with an operative con-

nection in convenient position for the performer. The opening 4 is controlled by a flap valve 14, which is connected by rod 15 with the movable member 16 of the pneumatic 9.

The flap valve 14 is provided with a small opening 17 of minimum size for the suction of the bellows, and a passageway of similar size is provided from the chamber 7 into the box 8, and this opening 18 is closed by a valve 19, the stem 20 of which passes through a suitable opening in an extension 21 from the movable member 16 of the power pneumatic 9. The fixed head 22 is provided for this valve stem 20, so that with the full opening of the pneumatic 9, the valve 19 will be lifted from its seat. A bleed opening 23 is also provided between the boxes 6 and 8.

In its normal position, the valve 12 into the box 8 is open, and the passageways 1, 2 and 7 being under the vacuum pressure, the pneumatic 9 is depressed and the valve 14 is held wide open, with the valve 19 closing the aperture 18 under the air pressure.

Let us assume that it is desired to diminish gradually the tension of the vacuum. The operator closes the valve 12. Thereupon through the bleed opening 23, a partial vacuum is created in the box 8, and the spring 24 in the pneumatic 9 throws outwardly the movable member 16, closing the valve 14. This movement takes place gradually owing to the small diameter of the bleed opening 23. As the movable member 16 of the pneumatic rises, the valve 19 is lifted from its seat, thus more effectually opening up the box 8 to the vacuum tension, and as the valve 14 closes, the free passage through the parts 1 and 2 of the passageway is gradually choked off, and when the valve 14 is closed, the suction is choked down to the small aperture 17 in the valve 14. In this way, the vacuum created is gradually cut off until reduced to a minimum. The creation of the pianissimo thus obtained can also be regulated by the extent of opening of the valve 12. If the valve 12 is only partially closed at first, the creation of the pianissimo will be extended over a much longer period than will happen if the valve 12 is suddenly closed, although in either event the vacuum passageway to the bellows will be gradually

choked off. With the opening of the valve 12, the action is reversed, and the power pneumatic 9 is gradually operated to open up the valve 14 and allow a free passage-
5 way from the bellows.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a piano player, in combination with
10 the passageway from the means for creating the vacuum to the pneumatic chest, a valve to close said passageway, with a small opening therethrough, a pneumatic, a connection between said pneumatic and said
15 passageway and connections between said pneumatic and said valve to hold the same open, an air chamber in which said pneumatic is located, a bleed opening intermediate the passageway and said chamber, and
20 a valve to close the air chamber to subject the air chamber to the vacuum, whereby the

pneumatic will be released to close the choke valve.

2. In a piano player, in combination with the passageway from the means for creating
25 the vacuum to the pneumatic chest, a valve to close said passageway, with a small opening therethrough, a power pneumatic actuated from said passageway and connections with said valve to hold the same open, an
30 air chamber in which said pneumatic is located, a bleed opening to said air chamber with a valve closed opening intermediate the passageway and said air chamber, with
35 said valve connected with said pneumatic, and a valve for closing the air chamber to subject the same to the vacuum to release the pneumatic to close the choke valve.

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Attest:

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