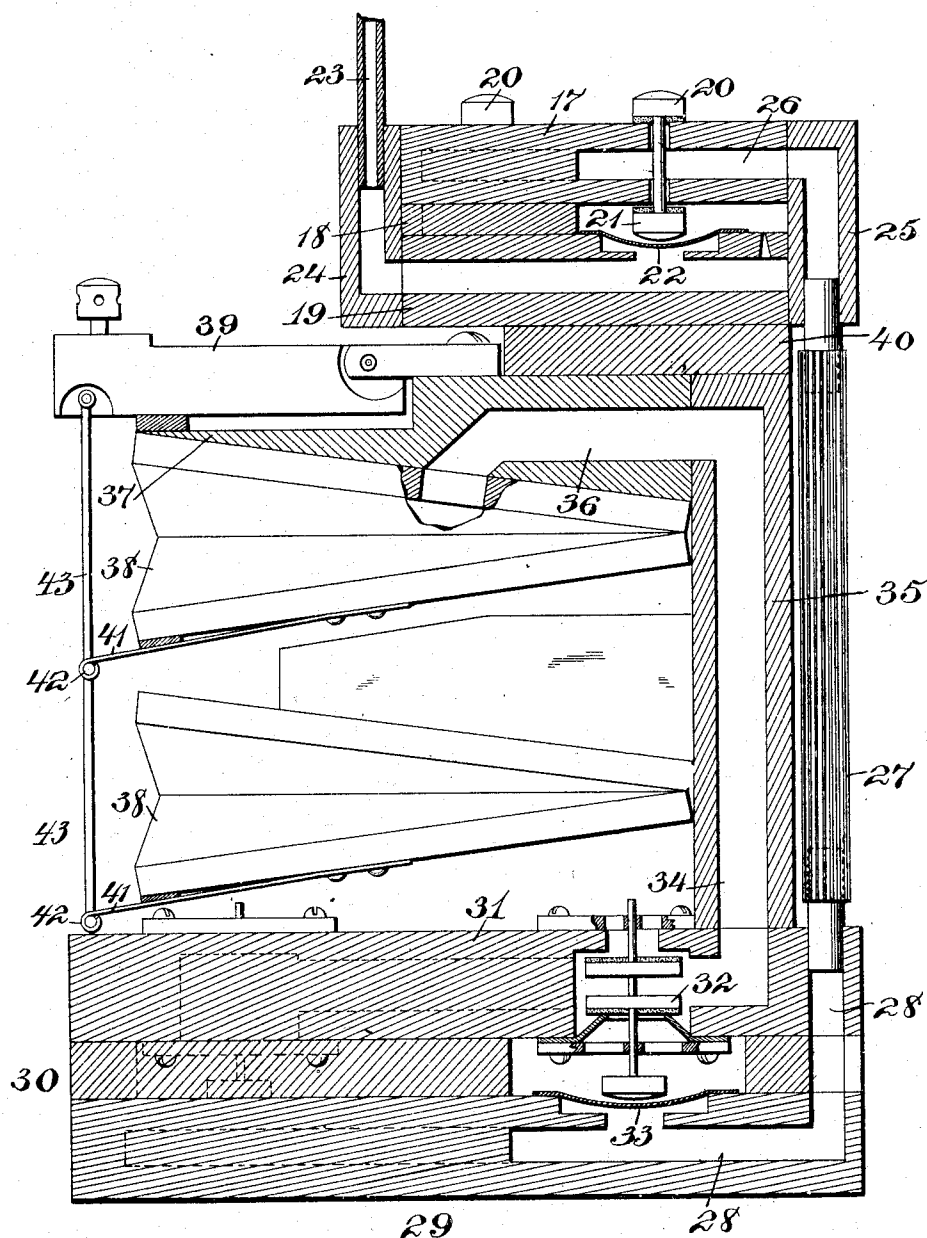


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 ACTION FOR PNEUMATIC PLAYER PIANOS.
 APPLICATION FILED MAY 6, 1909.

949,612.

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UNITED STATES PATENT OFFICE.

CARL BERGLUND, OF EAST ORANGE, AND WILLIAM C. WEBB, OF NEWARK, NEW JERSEY.

ACTION FOR PNEUMATIC PLAYER-PIANOS.

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To all whom it may concern:

Be it known that we, CARL BERGLUND and WILLIAM C. WEBB, citizens of the United States, residing at East Orange and Newark, respectively, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Actions for Pneumatic Player-Pianos; and we 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

This invention relates to an automatic piano action that is simple in structure, the simplicity of which insures its operation, and is also so constructed as to fit well up against the name-board of a piano and be very compact.

The invention is illustrated in the accompanying drawings, in which the figure is a section through the pneumatic action.

The pneumatic action consists of blocks 17, 18 and 19 which are channeled and have therein the primary pneumatics 20 which consist of valves having the usual button 21 adapted to be actuated by a diaphragm 22, these buttons being staggered or arranged so that they are alternate, the diaphragm 22 being operated by air passing in through the pipe 23 from the tracker-board through the channeled block 24 which has a channel at right-angles and is similar to the block 25 at the other end of the series of blocks containing the primary pneumatics. The admission of air, causing the diaphragm 22 to push up the button 21, permits air to enter in through the channel 26 and down through the flexible or other pipe connections 27 into the channel 28 which extends down into a block 29 which, with the blocks 30 and 31, contains the secondary valves 32. Each secondary valve 32 is opened by its pneumatic 33, and the channel 34 of the upright block 35 is placed under suction. The channel 34 connects with a channel 36 of a block 37, each channel communicating with a bellows 38, which bellows has operative connections with the wippen of the piano action to cause the sounding of a note. The lever 39 of each action is pivotally supported on top of the block 37, a space being provided therefor

by raising the blocks for the primary pneumatics on a strip 40. The bellows has a strip 41 of spring material, preferably of steel, which projects slightly beyond the bellows and has a connection 42 which in turn is connected with the end of the wippen. It is of course understood that the bellows and their rods are staggered so that they are fitted in opposite their respective strings, and the ordinary compactness as to the width of the action is arrived at.

By our arrangement the depth of the action is reduced, due to the front edges of the block 25, and the front edges of the lower blocks holding the secondary pneumatics being in line, and the block 35 set in from the edge far enough to permit the pipe connection 27 to be installed. The spring strip 41 on each bellows gives a slight spring to the movement of the wippen when the bellows is snapped together to strike its key against a string, and the spring action takes up the shock so that there is less jar to the whole action.

Having thus described our invention, what we claim is:—

1. A pneumatic action for pianos comprising primary valves, secondary valves, blocks having channels therein and adapted to form a casing for the primary valves, blocks having channels therein and forming a casing for the secondary valves, blocks having channels leading from the casing of the secondary valves, bellows secured on the last named blocks with their hinged ends abutting thereon, the casings of the primary and secondary valves projecting slightly beyond the blocks to which the bellows are secured and having the channels ending in the projecting portion, a pipe connection between the channel ends in the primary and secondary valve casings, and an operative connection on the free end of the bellows adapted to be connected to a piano action.

2. A pneumatic action for pianos comprising primary valves, secondary valves, blocks having channels therein and adapted to form a casing for the primary valves, blocks having channels therein and forming a casing for the secondary valves, blocks having channels leading from the casing of the secondary valves, bellows secured on the last named blocks with their hinged ends abutting thereon, the casings of the primary and secondary valves projecting slightly be-

yond the blocks to which the bellows are secured and having the channels ending in the projecting portion, a pipe connection between the channel ends in the primary and
 5 secondary valve casings, a strip of spring material projecting from the movable portion of each bellows, and an operative connection from the strip and adapted to be connected to a piano action.

10 3. A pneumatic action for pianos comprising primary valves, secondary valves, blocks having channels therein and adapted to form a casing for the primary valves, blocks having channels therein and forming
 15 a casing for the secondary valves, blocks having channels leading from the casing of the secondary valves, bellows secured on the last named blocks with their hinged ends abutting thereon, the casings of the primary
 20 and secondary valves projecting slightly beyond the blocks to which the bellows are secured and having the channels ending in the projecting portion, a pipe connection between the channel ends in the primary and
 25 secondary valve casings, a lever hinged between the casing of the primary valves and the bellows, and an operative connection between the bellows and the levers.

30 4. A pneumatic action for pianos comprising primary valves, secondary valves, blocks having channels therein and adapted to form a casing for the primary valves,

blocks having channels therein and forming a casing for the secondary valves, blocks
 35 having channels leading from the casing of the secondary valves, bellows secured on the last named blocks with their hinged ends abutting thereon, the casings of the primary
 40 and secondary valves projecting slightly beyond the blocks to which the bellows are secured and having the channels ending in the projecting portion, a pipe connection between the channel ends in the primary and
 45 secondary valve casings, a lever hinged between the casing of the primary valves and the bellows, a strip of spring material projecting from the movable portion of the bellows, and an operative connection between the strip and the lever.

5. In a piano action, a bellows, a strip of
 50 spring material secured to the movable portion of the bellows and projecting from its end, and means on the end of the strip of spring material for connecting it with a
 55 piano action.

In testimony, that we claim the foregoing, we have hereunto set our hands this 1st day of May 1909.

CARL BERGLUND.
 WILLIAM C. WEBB.

Witnesses:

WM. H. CAMFIELD,
 E. A. PELL.