

1,055,605.

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WITNESSES

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UNITED STATES PATENT OFFICE.

DAVID REDDIE CARSON AND GAVIN WALLACE RUSSELL, OF OTTAWA, ONTARIO, CANADA, ASSIGNORS OF ONE-THIRD TO FRANK L. ORME, OF OTTAWA, ONTARIO, CANADA.

PNEUMATIC PLAYER-ACTION.

1,055,605.

Specification of Letters Patent.

Patented Mar. 11, 1913.

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To all whom it may concern:

Be it known that we, DAVID REDDIE CARSON and GAVIN WALLACE RUSSELL, subjects of the King of Great Britain, both residing at 189 Sparks street, in the city of Ottawa, Province of Ontario, Dominion of Canada, have invented certain new and useful Improvements in Pneumatic Player-Actions, of which the following is a specification.

Our invention relates to improvements in pneumatic player actions and the objects of our invention are to generally improve and simplify the structure of the action and render the same more compact and less likely to become out of order.

Further objects are to enable access to be readily had to the interior parts of the action for repair purposes and to provide novel means for limiting the movement of the striking element.

Further objects still are generally to strengthen the structure and to better adapt the working parts to perform the function required of them; and the invention consists essentially of the improved construction and arrangement of parts hereinafter described in detail in the accompanying specification and drawings.

In the drawings: Figure 1 is a sectional perspective view through the action. Fig. 2 is a transverse section. Fig. 3 is a plan view of the suction member with the valve chamber removed. Fig. 4 is a sectional detail on the line 2—2, Fig. 2.

In the drawings like figures of reference indicate corresponding parts in each figure.

Referring to the drawings A represents the bellows element, whose general construction is similar to that at present used, and comprises a stationary element 10 and a movable element 11 hinged at one end of the same and connected along the sides thereto in the usual manner by the bellows fabric 12. In accordance with the present invention, the movable element 11 is of wood, while the stationary element 10 is of light metal, such as aluminum, and generally, it may be here stated, that it will be found desirable to construct all the stationary elements of the action of metal, whereby they will possess increased strength and will enable the parts to be made more compact in form. To enable the bellows fabric to be readily glued to the stationary element, inserts 13 of wood are provided, located in

dovetail grooves 14 formed in appropriate parts of the stationary element. The bellows element has a diaphragm chamber C formed therein, the top of which is closed by the diaphragm D of suitable flexible material which separates the bellows member from the suction element E; the two elements being detachably connected together as by screws extending through the suction element. The suction element is provided with a suction chamber 15 above the diaphragm, having an inlet port 16 communicating with a port 17 in a vacuum supply conduit F which is connected with a vacuum source in the usual way. The vacuum chamber has also an inlet port 18 which opens at the top thereof into a valve chamber G. The construction of this valve chamber forms one of the novel features of the present invention and is detachably engaged with the surface of the suction member. To this end the suction member is provided with a projection 19 of less width than the same, the top of which projection is provided with a flange 20 designed to fit on the inside of the side wall 21 of the valve chamber, the valve chamber being conveniently held in position by means of a screw 22 extending through the central portion of the top thereof into the top of the suction element. A valve member H of usual form is located in the valve chamber and adapted to be actuated by the diaphragm D, the valve chamber being provided with an air opening 23 above the valve member, which air opening, as illustrated, has a bridge piece 24 extending across the same and which serves as a guide for the stem 25 of the valve member.

A passageway 26 is provided in the suction member and bellows member, placing the valve in communication with the bellows. The diaphragm chamber is placed in communication with the tracker board through the means of a passageway 27 which leads to one corner of the suction member, and from the extremity of this passageway a vertically extending tubular member 28 leads and connects with a tube 29 leading to the tracker board. Following the present invention, the tubular member 28 is in the form of a screw which serves as a connecting means to retain the suction member and bellows member together. It will be seen that by using the screw as a con-

ducting means for this passageway, the action is made more compact in form and the tube leading to the tracker board is located in a most convenient place. The bleed passageway 30 is also provided extending from the suction chamber 15 to the passageway 27.

The suction element is provided with a stop 31 for the striker element I, which striker element is connected to the moving element 11 of the bellows element as by a projecting arm 32 having a recess 33 to receive the lower end of the striker element, said striker element being formed with a stop 34 adapted to engage the stop and so limit the movement of the element.

It will be noted that the flange 20 incloses both the passageway 27 and the port 18 and also forms a support for the wall of the valve member.

The action operates in the usual manner, and as the method of operation does not form part of the present invention, and does not differ from the usual action, it will be well known to those skilled in the art, and need not be herein described.

As many changes could be made in the above construction and many apparently widely different embodiment of my invention, within the scope of the claims, constructed without departing from the spirit or scope thereof, it is intended that all matter contained in the accompanying specification and drawings shall be interpreted as illustrative and not in a limiting sense.

What we claim as our invention is:

1. A pneumatic player action comprising a bellows element having a stationary element which is formed with a diaphragm chamber, a suction member formed with a suction chamber and having a port for the suction chamber and a passageway leading to the interior of the bellows element, a flange inclosing the passageway and port, a valve chamber having detachable engagement with the suction member, the walls of said valve chamber being adapted to fit on the outside of the flange on the suction chamber, a diaphragm between the bellows element and suction chamber, and a valve member adapted to be actuated thereby.

2. A pneumatic player action comprising a bellows element having a stationary element formed with a diaphragm chamber, a suction member formed with a suction chamber, a valve chamber having detachable engagement with the suction chamber, a screw extending through the central portion of the top of the valve chamber into the suc-

tion element and retaining the chamber and element together, a diaphragm between the bellows element and the suction member, and a valve member adapted to be actuated by the diaphragm.

3. A pneumatic player action comprising a bellows element having a stationary member formed with a diaphragm chamber, a suction member formed with a suction chamber and having a port and a passageway leading to the interior of the bellows element, both said port and passageway opening on the upper side of the member, a valve chamber adapted to fit on top of the suction member and having detachable engagement therewith, said valve chamber being provided with an air opening and an integral bridge piece extending across the same and adapted to serve as a guide for the stem of the valve member, a diaphragm between the bellows element and the suction member and a valve member adapted to be actuated by the diaphragm and having a stem adapted to fit the bridge piece.

4. A pneumatic player action comprising a bellows element having a stationary member formed with a diaphragm chamber, a suction member formed with a suction chamber, a diaphragm between the bellows element of the suction chamber, a valve member adapted to be actuated by the diaphragm and a plurality of screws connecting the bellows element and suction element, one of said screws being tubular and serving as a passageway for the air from the tracker board.

5. A pneumatic player action comprising a bellows element having metallic parts and inserts of wood therein, a bellows fabric attached to the wooden insert, said bellows element having a stationary member formed with a diaphragm chamber, a suction member formed with a suction chamber, a diaphragm between the bellows element of the suction chamber, a valve member adapted to be actuated by the diaphragm and a plurality of screws connecting the bellows element and suction element, one of said screws being tubular and serving as a passageway for the air from the tracker board.

In witness whereof we have hereunto set our hands in the presence of two witnesses.

DAVID REDDIE CARSON,
GAVIN WALLACE RUSSELL.

Witnesses:

RUSSEL S. SMART,
M. CULBERTSON.