

P. WUEST, JR.
VALVE MECHANISM FOR PIANO PLAYERS.
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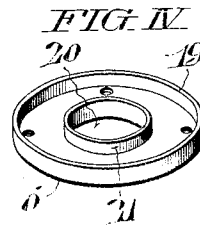
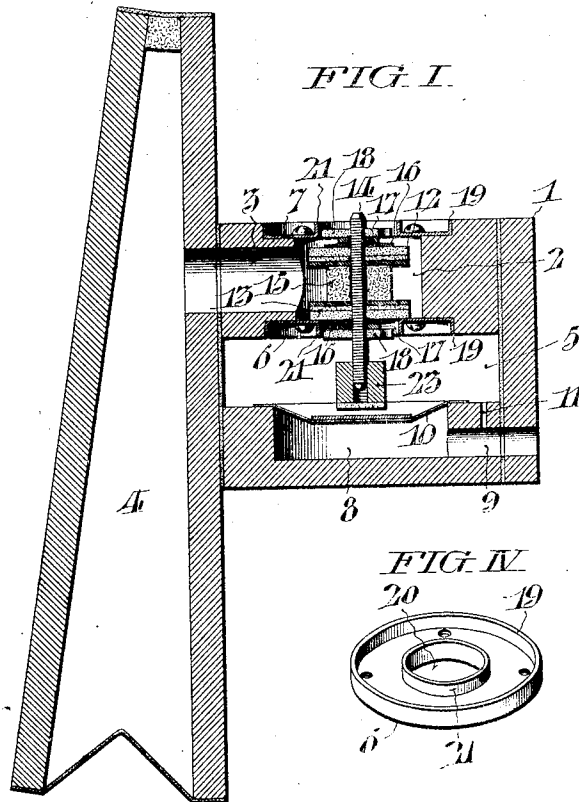


FIG. II

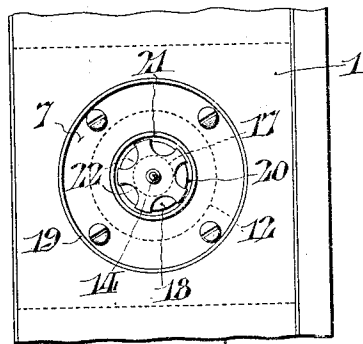
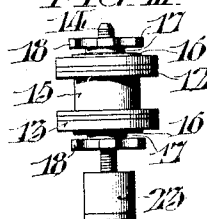


FIG. III



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VALVE MECHANISM FOR PIANO-PLAYERS.

1,041,219.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PHILIP WUEST, JR., of the city of Woodbury, county of Gloucester, and State of New Jersey, have invented certain new and useful Improvements in Valve Mechanism for Piano-Players, of which the following is a specification, reference being had to the accompanying drawings.

The invention relates more particularly to the construction of the valve seats and the manner of mounting and guiding the valve.

An object of the invention is to provide means whereby the valve may be mounted on a single stem and fixedly held in place after proper adjustment.

Another object of the invention is to provide means carried by the valve stem and cooperating with the valve seat, for guiding the valve so that it may be brought into proper engagement with the valve seat.

A further object of the invention is to provide a valve guiding disk which is so constructed as to allow a free passage of air and also to divide the current of air as it passes through the opening in the valve seat.

These and other objects will in part be obvious, and will in part be hereinafter more fully described.

In the drawings which show by way of illustration one embodiment of the invention, Figure I, is a sectional view through the valve box and bellows or pneumatic; Fig. II, is a plan view of the upper face of the valve box; Fig. III, is a side elevation of the entire valve; Fig. IV, is a perspective view of one of the valve seats.

The present invention is an improvement on the valve construction shown and described in my Patent No. 913,867, granted March 2nd, 1909. The general construction and manner of using the valve is fully described in said patent, and will not, therefore, be referred to in detail.

The valve box 1, as herein shown, is provided with a chamber 2, which is connected by a passage 3, to the pneumatic 4. This pneumatic 4, is of the usual bellows type, and is connected in the well known way to the corresponding key. Said valve box is formed with a second chamber 5, which leads to the usual exhaust. An opening between the chamber 2, and the chamber 5, is partly closed by a valve seat 6, and an open-

ing between the chamber 2, and the atmosphere, is partially closed by a second valve seat 7. The valve box is formed with a third chamber 8, which communicates by means of a passage 9, with a corresponding aperture in the tracker bar and the action of the valve is controlled in the well known manner by means of a perforated sheet.

A diaphragm 10, separates the chamber 8, from the chamber 5, and the movement of this diaphragm when air is admitted through the corresponding perforation in the music sheet, causes a movement of the valve. A bleed aperture 11, serves to normally maintain equal pressure upon both sides of the diaphragm 10. The valve consists of two valve members 12, and 13. The valve member 12, is adapted to engage the valve seat 7, and the valve member 13, is adapted to engage the valve seat 6. These valve members are threaded upon a valve stem 14, which is threaded throughout its length. The valve members are spaced by a felt pad 15. Metallic washers 16, engage the outer faces respectively, of the valve members 12, and 13. Paper washers 17, rest against the outer faces of the metallic washers and notched disks 18, or star-shaped punchings are threaded on to the valve stem and engage the outer faces of the paper washers. By this threading of the valve members, and the notched disks on to a threaded stem, one member becomes in effect a nut lock for the other members, and by this construction, the various parts of the valve will be fixedly held in place on the threaded stem.

Each of the valve seats 6, and 7, is provided at its outer edge, with a laterally projecting flange 19, which serves to strengthen the valve seat. Each of the valve seats is also provided with a central opening 20, and around each opening is a laterally projecting flange 21, which as herein shown, is formed integral with the valve seat. This flange 21, forms a guide sleeve for the valve. It will be obvious that instead of forming said flange integral with the valve seat, it may be otherwise constructed, the essential feature being the central opening with the extended wall forming a guiding sleeve for the valve.

The notched disks 18, adjacent to each of the valve members are so disposed as to be located within these guide sleeves 21, on the

valve seats. These notched disks are slightly smaller in diameter than the sleeve, so as to have a free movement therein, and at the same time, to guide the valve in its vertical movements. It will readily be seen that these notched disks will allow the valve members the necessary lateral play so as to avoid any binding of the valve in its seat or guiding means, and at the same time to allow the valves to seat properly, even though not accurately mounted on the stem.

The notches 22, formed in the disks 18, are equally spaced as clearly shown in Fig. II, and, therefore, these notches will serve not only to allow a free passage of the air, but also to divide the current of air as it passes through the openings in the valve seats. The lower end of the valve stem is provided with an adjustable button 23, which is adapted to cooperate with the diaphragm 10.

In the operation of my device, when air is admitted to the passage 9, the diaphragm is lifted thus lifting the valve stem which carries the valve member 12, into contact with the valve seat 7. The notched disks operating in the sleeves carried by the valve seats, guide the vertical movement of the valve, and at the same time allow the valve member to properly seat. This movement of the valve which carries the valve member 12, into engagement with the valve seat 7, also carries the valve member 13, away from its seat 6, and opens passage between the chambers 2, and 5, thus connecting the pneumatic with the exhaust chamber 5, which operates the pneumatic and the key connected therewith.

When the air is cut off from the passage

9, the diaphragm 10, is relaxed and the valve stem dropping causes the opening between the chambers 2, and 6, and this movement of the valve stem carries the valve member 12, away from its seat 7, thus opening the chamber 2 to the atmosphere and the air will rush in, inflating the pneumatic or bellows 4.

It is obvious that minor changes in the details of construction and arrangement of parts may be made, without departing from the spirit of the invention, as set forth in the appended claims.

Having thus described my invention, I claim:

The combination of spaced valve seats each of which is provided with a central opening and a laterally projecting flange surrounding said opening and forming a guiding sleeve, a valve stem, valve members threaded on said stem and adapted to cooperate respectively with said valve seats, a spacing member between the valve members and engaging said valve members, disks threaded on said stem and having spaced notches formed in the outer edges thereof, said disks being disposed so as to cooperate respectively with the guiding sleeves on the valve seat for guiding said valve in its movements, and washers interposed between the notched disks and the valve members.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this twenty-seventh day of February 1912.

PHILIP WUEST, Jr.

Witnesses:

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JAMES H. BELL.