Dec. 29, 1925. 1,567,190

W. H. REISNER

MAGNETIC VALVE FOR ORGANS AND THE LIKE

Filed April 17, 1925

Fig. 1.

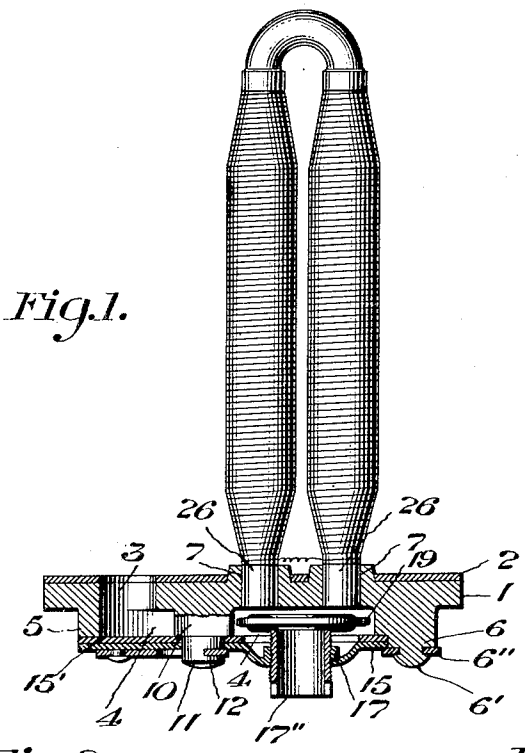


Fig. 2.

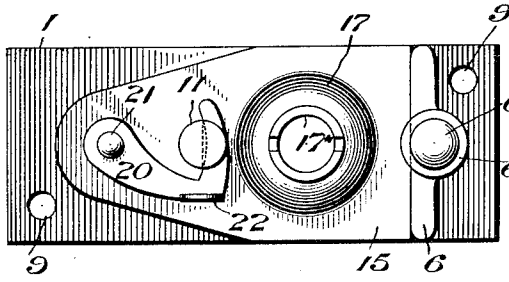


Fig. 3.

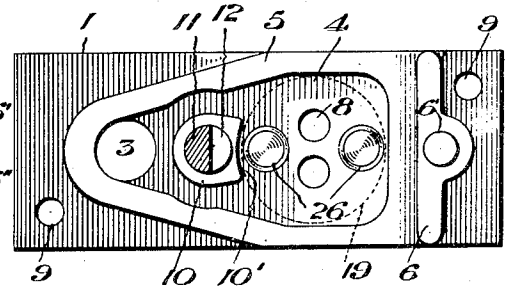


Fig. 4.

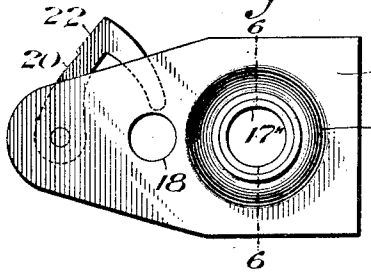


Fig. 5.

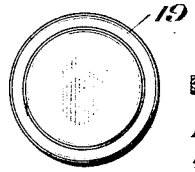
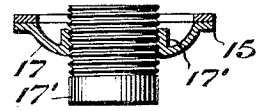


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. REISNER, OF HAGERSTOWN, MARYLAND, ASSIGNOR TO THE W. H. REISNER MFG. CO., INC., OF HAGERSTOWN, MARYLAND, A CORPORATION OF MARYLAND.

MAGNETIC VALVE FOR ORGANS AND THE LIKE.

Application filed April 17, 1925. Serial No. 23,890.

To all whom it may concern:

Be it known that I, WILLIAM H. REISNER, a citizen of the United States, residing at Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Magnetic Valves for Organs and the like; and I 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.

The invention relates to certain improvements in the type of electrically operated pneumatic valves for organs and other instruments as described in Patent No. 1,387,664 dated August 16, 1921, and has for its object to provide more efficient means for locking the cover plate to the base, a freer windway through the valve, associated with an adjustable ported valve seat to regulate the movement of the valve and the extent of the opening of the port and also to provide means for guiding and centering the valve in its movement toward and from its seat.

The invention is illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of the device, partly in section.

Fig. 2 is a bottom plan view thereof.

Fig. 3 is a similar view with the cover plate removed.

Fig. 4 is a plan view of the cover plate.

Fig. 5 is a plan view of the valve disk.

Fig. 6 is a section on the line 6—6 of Figure 4.

Referring to the drawings, 1 indicates a base or support, preferably formed as a casting of relatively soft metal or alloy, the casting being generally rectangular in plan and having on its lower face a recess 4, defined by a continuous flange 5, said recess or chamber 4 being provided with a port 3 extending upwardly through the top of the base 1. The top face of the base 1 is provided with the usual packing 2 of paper or similar material, which affords an air-tight joint between the base and the part to which the latter is attached, as described in the patent aforesaid.

As in the prior patented device, the base is pierced by two openings 7—7, through which extend the legs or poles 26—26 of an electromagnet, the joint between the magnet legs and the base 1 being reinforced and extended by boss-like projections on the plate, which surrounds the openings 7—7. One lateral edge of the flange 5 is extended in an abutment 6, which is provided with a stud-like member 6′ near its middle, over which is slipped a metal washer 6″ and the projecting end of the stud upset or riveted over the washer to secure the latter in place, so that a portion of the washer projects beyond the lateral edge of the abutment and forms an additional locking means for the cover plate 15.

The cover plate 15 is generally similar to that shown in the patent aforesaid and comprises a stamped metal plate, conforming generally to the configuration of the flange 5 and overlying the latter, an air-tight joint between the cover plate and the flange 4 being effected by means of a sheet of paper, or the like, 15′ cemented to the inner face of the cover plate. The plate 15 is locked in position on the base and any movement of the said plate relative to the base is prevented by means of the latch 20 secured by pivot 21 to the base, which latch is adapted to engage a notch 12 in the reduced end 11 of a stud 10 formed on the base, the end 11 of said stud projecting through an opening 18 in the plate, which arrangement is generally similar to that shown in the patent aforesaid. Cooperating with the latch and stud aforesaid to securely lock the plate to the base is the washer member 6″, which overlies the edge of the plate, which is in engagement with the abutment 6, as illustrated in Figs. 1 and 2. This double locking engagement between the plate 15 and the base 1 prevents any accidental displacement of the plate relatively to the base and insures an effective sealing of the chamber 4 by the plate 15.

The cover plate 15 is provided with an air port in alignment with the longitudinal axis of the electromagnet, which port is formed in a convexly extruded portion 17 of the plate, formed when the plate is stamped or otherwise fabricated, said convex extrusion having a central opening bounded by a reentrant flange 17′, which is screw threaded on its interior. Adjustably mounted in the threaded opening of the boss-like member 17 is an externally threaded thimble or nipple 17″, the upper edge of which constitutes the seat for a disk valve 19, both faces of which

valve are preferably provided with a covering of paper, or similar material, to effect an air-tight seal between the valve and its seat and also to prevent the valve sticking to the poles of the magnet. The valve element 19 is preferably of the type shown in the application of John H. Hankey, filed of even date herewith, and includes a disk of soft iron, the faces of which are covered by disks of paper, the several disks being secured together by means of a rim of copper, or the like, spun over the edges of the disks. The provision of the extruded boss-like element 17 with the adjustable ported valve seat formed by the nipple 17″, affords a larger and freer windway in the valve structure and also permits the opening and closing movements of the valve to be accurately regulated by adjusting the nipple 17″, as will be understood.

In order to center and guide the valve disk 19 in its opening and closing movements, one lateral face of the stud 10 is convexed, as at 10′, to conform generally to the periphery of the disk valve, so that the latter is held in its proper relation to the valve seat on the upper edge of the nipple 17″ by the vertical walls of the flange 15 and the concave face 10′ of the stud 10, as shown in Fig. 1 and as indicated in dotted lines in Fig. 3.

The mode of applying the valve to its intended location and use is the same as that described in the prior patent aforesaid, and, when so applied, the cover is securely locked to the base against any accidental displacement and effects the sealing of the chamber 4 by the packing 15′, which is firmly pressed and held in engagement with the bottom face of the flange 5 at all points by the conjoint action of the latch 20, the abutment 6 and the washer 6″, under the projecting edge of which washer the lateral edge of plate 15 is forced. As heretofore indicated, the provision of the outwardly convexed boss 7 furnishes a windway of larger volume in the immediate valve chamber, and the adjustable nipple 17″ provides means for accurately regulating the extent of movement of the valve 19 and also the extent of the opening of the valve port.

What I claim is:

1. A valve for organs and the like, comprising a base having a recess therein and a port therethrough communicating with said recess, a transverse abutment on said plate adjacent one edge of said recess, a stud on said abutment, a washer secured to said stud and projecting over the edge of said abutment, an electromagnet supported by said base with its poles adjacent said recess, a plate overlying and covering said recess having an edge cooperating with said abutment and underlying said washer, said plate also having a ported valve seat and an opening therein, a valve in said recess cooperating with said valve seat and actuated by said magnet, a stud on said base engaging the opening in said plate, and means cooperating with said stud for locking the plate to the base.

2. A valve for organs and the like, comprising a base having a recess therein and a port therethrough communicating with said recess, a transverse abutment on said plate adjacent one edge of said recess, a stud on said abutment, a washer secured to said stud and projecting over the edge of said abutment, an electromagnet supported by said base with its poles adjacent said recess, a plate overlying and covering said recess having an edge cooperating with said abutment and underlying said washer, said plate also having a ported valve seat and an opening therein, a valve in said recess cooperating with said valve seat and actuated by said magnet, a stud on said base having a concave vertical face to guide and center the valve and a reduced outer end engaging the opening in said plate, and means cooperating with said stud for locking the plate to the base.

3. A valve for organs and the like, comprising a base having a recess therein and a port therethrough communicating with said recess, an electromagnet supported by said base with its poles adjacent said recess, a plate overlying and covering said recess, said plate having an outwardly convexed section with an inwardly extending nipple forming a ported valve seat, a disk valve in said recess cooperating with said valve seat and actuated by said magnet, and means for locking said plate to the base.

4. A valve for organs and the like, comprising a base having a recess therein and a port therethrough communicating with said recess, an electromagnet supported by said base with its poles adjacent said recess, a plate overlying and covering said recess, said plate having an outwardly convexed section provided with a central threaded opening, an externally threaded nipple engaging said opening and constituting an adjustable valve seat, a disk valve in said recess cooperating with said valve seat and actuated by said magnet, and means for locking said plate to the base.

In testimony whereof I affix my signature.

WILLIAM H. REISNER.