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H. E. BURTON

1,912,253

ORGAN VALVE

Filed Oct. 13, 1928

Fig. 1.

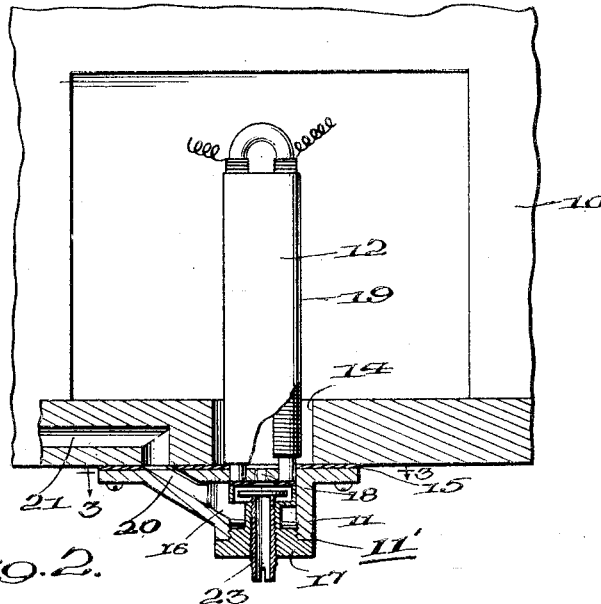


Fig. 2.

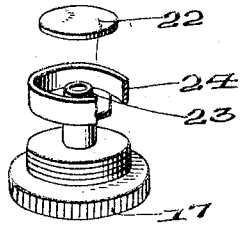
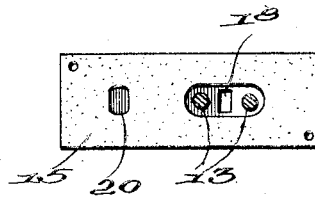


Fig. 3.



Inventor

Henry E. Burton,

By *Chas. M. Finkhauer*
Attorney

UNITED STATES PATENT OFFICE

HENRY E. BURTON, OF HAGERSTOWN, MARYLAND, ASSIGNOR TO M. P. MOLLER, INC., OF HAGERSTOWN, MARYLAND, A CORPORATION OF MARYLAND

ORGAN VALVE

Original application filed October 13, 1928, Serial No. 312,280. Divided and this application filed May 25, 1931. Serial No. 539,934.

This invention relates to electro-magnetic valves and more particularly to magnet valve units arranged to control the supply of air to the action box or other pneumatics associated with a pipe organ or similar device.

A magnet valve of this type is shown and described in my co-pending application Serial No. 312,280, filed October 13, 1928, of which this application is a division.

These valves are extremely delicate in action and frequently become clogged or otherwise impaired by particles of saw dust or other foreign matter that may be carried into the action box by the air flowing therein. In many organ installations these valves are frequently placed in inaccessible places about the organ structure, and when it becomes necessary to repair or adjust them for any reason, considerable difficulty has been experienced in properly adjusting or reassembling the valve parts.

The object of the present invention is to provide an improved electro-magnetic organ valve having a shield which shall minimize the possibility of any foreign matter entering the valve from the action box to which it may be attached.

Another object of the invention is to provide an organ valve of the character designated having a tubular shield which shall surround the entrance to the valve port and extend toward the interior of the action box, so that purer air shall be conducted to the valve.

A further object of the invention is to provide a magnet valve of the character designated which shall be rugged in construction and more efficient in operation than similar valves heretofore employed.

These and other objects of the invention will be more manifest from the following description and specifically set forth in the claims.

In the drawing:

Fig. 1 is a sectional view of an organ action box employing a magnet valve embodying the present invention.

Fig. 2 is a perspective view of the valve casing cover and valve parts, and

Fig. 3 is a sectional view on line 3—3 of Fig. 1.

Referring to Fig. 1 of the drawing, the numeral 10 indicates a wind or action box of a pipe organ having a magnet valve unit 11' attached to the outer wall thereof. A valve unit of this type comprises a valve casing 11 and an electro-magnet 12 having its pole pieces 13—13 mounted in the base wall thereof. This base wall serves as the supporting means for the valve unit and the unit may be readily detached from the action box whenever the same may be necessary for any reason. The valve unit connects with the action box by means of a large opening 14 which is of sufficient size to accommodate the electro-magnet. The connection between the valve casing and the opening 14 is sealed by a suitable gasket 15 as shown in Figs. 1 and 3.

This valve casing is preferably made of die-cast metal so that the base and side walls shall provide an oblong valve chamber 16. The transverse axis of this chamber is parallel to the base wall and thereby affords a valve chamber which shall be of sufficient size to amply control the flow of air. The depending side walls of the casing terminate in an annular opening which may be closed by any suitable member such as the threaded plate member 17. This closure member also carries or supports the valve elements as hereinafter described. The valve chamber 16 communicates with the action box 10 by means of a port or air passage 18 and it is to this port that a shield 19 embodying the present invention is applied. The valve casing is also provided with another air passage 20 which connects the valve chamber 16 with other pneumatics indicated by the conduit 21.

The flow of air through the casing is controlled by a disc valve element 22 located in the valve chamber and in operative relation to the magnet pole pieces 13—13. The valve element 22 together with its associated valve seat 23 and cup shaped guide 24 is supported by the removable closure as shown in Fig. 2. A gasket 24 is placed in the top portion of the valve chamber 16 and adjacent to the

pole pieces 13—13 so as to prevent any residual magnetism from affecting the operation of the valve disc.

In the operation of magnet valves such as that described above, any small particles of foreign matter that may happen to be carried into the action box naturally gravitate to the large opening 14 in the action box and soon enter the small port 18 in the valve casing and thus impair the operation of the valve. It frequently happens that large chips or particles of saw dust entirely clog this opening and cause similar difficulty and annoyance to the operator who is adjusting or repairing the organ.

By thus providing a shield which shall extend above the port 18, any danger of saw dust or particles of foreign matter entering the port is reduced to a minimum. This shield is preferably made of paper wrapped around and supported by the magnet pole pieces so as to form a conduit as illustrated in Fig. 1. This conduit receives air from the interior of the action box with the attendant result that only pure air is received into the valves. If desired this shield may be made of fine gauze and which ever type or kind of material is used, the lower edge shall engage the gasket 15 so as to provide an absolute barrier which shall effectively prevent any particles of foreign matter from entering or obstructing the entrance to the port 18.

While I have shown and described a preferred embodiment of my invention it is obvious that various changes may be made therein without departing from the scope of the invention as set forth in the appended claims.

What is claimed is:

1. In an electro-magnetic organ valve of the character described, a valve casing unit having an air chamber formed therein, an air port formed in one wall thereof and communicating with said chamber, and means for protecting the outside entrance to said port including wall members surrounding the port and extending above the plane of the outside casing wall.
2. In an electro-magnetic organ valve, a valve casing unit having an air valve port formed in one side wall thereof, magnet pole pieces mounted in said wall adjacent to said port opening, a shield surrounding the opening and engaging the outside casing walls adjacent to said opening, and means including the magnet pole pieces for supporting the shield in position relative to said opening.
3. In an electro-magnetic organ valve, a valve casing unit having an air chamber formed therein, an electro-magnet having its pole pieces mounted in one wall of said chamber, an air valve port also formed in said wall adjacent to said pole pieces and

communicating with the chamber, and a tubular shield positioned by the pole pieces and engaging the exterior wall of said chamber for preventing foreign matter gravitating to the entrance to said port.

4. In an electro-magnetic organ valve, a base support including a valve chamber, an air valve port formed in one wall of said chamber, and a shield of fibrous material for the entrance to said port comprising a vertically disposed member having its bottom edges engaging the outside wall of the base and surrounding the entrance to said port.

5. In an organ valve, the combination with a hollow base having an air chamber formed therein, of an electro-magnet having its pole pieces mounted in one side of said base, an air port also formed in said base and located between said electro-magnet pole pieces, and an annular shield of fibrous material surrounding the lower portion of the magnet and having its bottom edges engaging the outside wall of the casing, whereby foreign matter is prevented from gravitating to the entrance of said port.

In testimony whereof I affix my signature.

HENRY E. BURTON.