Dec. 23, 1930. P. R. FORMAN 1,786,234

MAGNET VALVE CONSTRUCTION

Filed Sept. 24, 1927

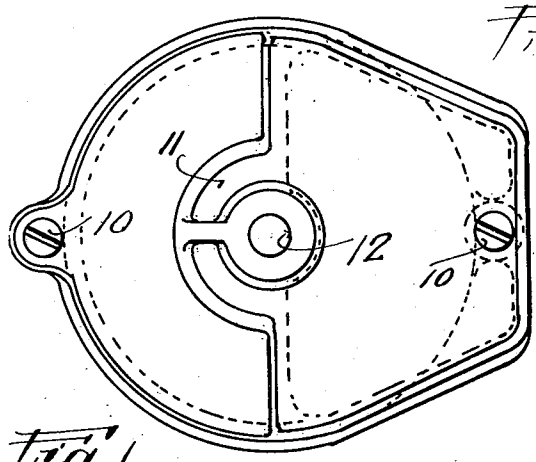


Fig. 1.

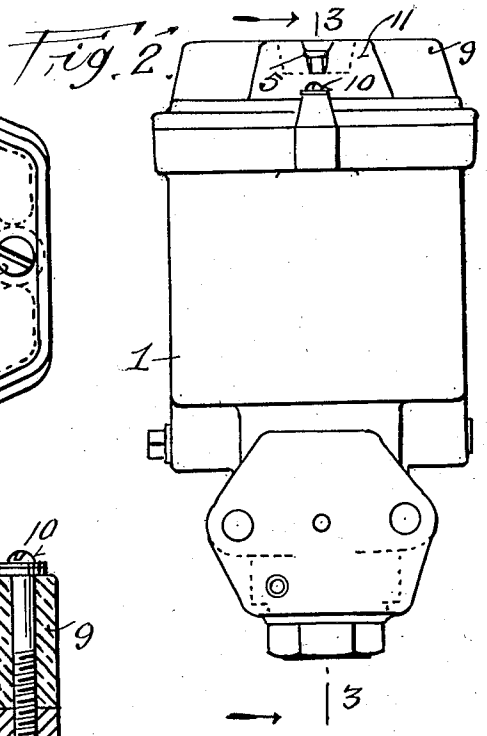


Fig. 2.

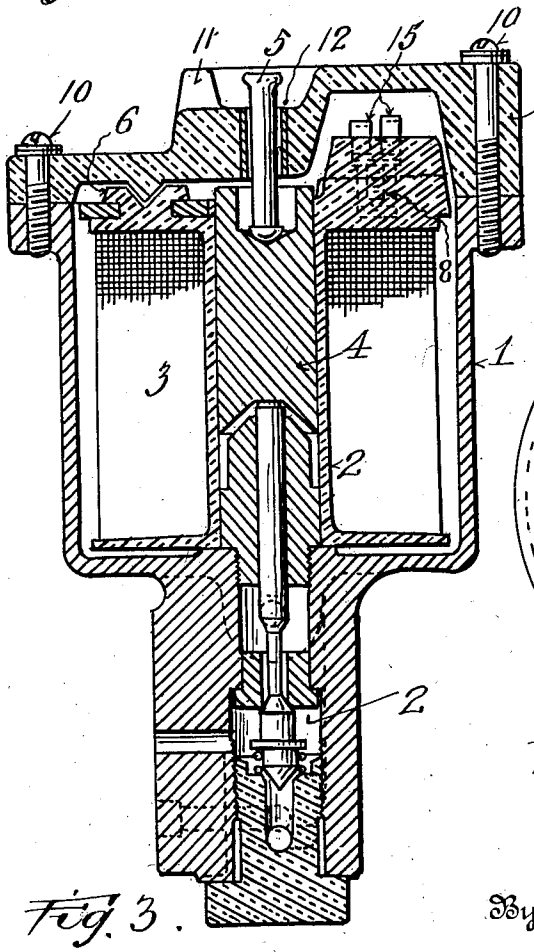


Fig. 3.

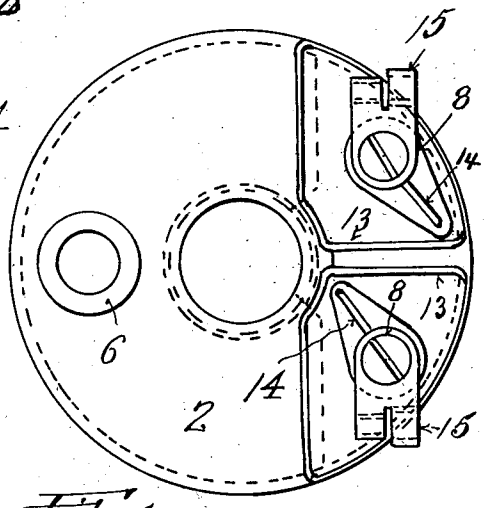


Fig. 4.

Inventor
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By his Attorneys Darby & Darby.

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1,786,234

UNITED STATES PATENT OFFICE

PARIS R. FORMAN, OF RAHWAY, NEW JERSEY, ASSIGNOR TO NATIONAL PNEUMATIC COMPANY, OF NEW YORK, N. Y., A CORPORATION OF WEST VIRGINIA

MAGNET-VALVE CONSTRUCTION

Application filed September 24, 1927. Serial No. 221,839.

This invention relates to novel improvements in electromagnetically operated valves.

One of the objects of this invention is the provision of a molded magnet spool having terminal posts embedded therein.

Another object of this invention is the provision of a molded cover for the magnet valve casing having means thereon for cooperation with the magnet spool to align the cover with the casing.

A further object of this invention is the provision of a molded cover having ridges thereon for protecting the rod by means of which the valve may be manually operated.

These and other objects are secured by means of the construction of this invention.

The following invention comprises the combination, construction, arrangement and relative location of parts as will appear more fully hereinafter.

Referring to the drawings,

Figure 1 is a top plan view of the device showing the molded cover.

Figure 2 is a side elevational view of the device.

Figure 3 is a vertical cross-sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a top plan view of the molded spool.

This invention relates to improvements in electromagnetically operated valve such as are employed in connection with fluid pressure operated devices such, as for example, door engines and the like. In every day commercial use of these devices they are subjected to the usual wear and tear and it has been found that in the usual form as now used there is a tendency to injure the terminals of the electric circuit attached to the valve. It is also necessary to make repairs from time to time on these devices and this arrangement has been devised to permit of ready access to the interior of the device. By the arrangement disclosed it is also possible to isolate electrically the circuit terminals of the winding.

Referring to the drawings, the usual magnet valve casing is shown at 1 with which is integrally formed the fluid pressure valve portion shown generally at 2 which forms no part of this invention. Mounted within the casing is a molded magnet winding spool shown at 2′ having a central longitudinal bore which provides a solenoid magnet in connection with the winding 3. The plunger core 4 slides in this bore and may be manually operated by means of the short rod 5. The top of the molded spool is provided with a projection 6 having a depression therein as shown. One portion of the spool is raised at 13 to form protecting ridges around the terminal posts 8 which are embedded in the molded composition of the spool. A cover for the casing is shown at 9 and is also of molded construction and secured thereto by means of machine screws 10. This cover is provided with a projecting ridge 11 which encircles the hole 12 therein through which the pin 5 extends. The length of the pin 5 and the height of the ridge 11 are so related as to provide protection for the end of the pin. As shown in Figure 4 the ends 14 of the winding 3 extend up through the top of the spool and are soldered or otherwise secured to the terminal posts 8. Terminal clips 15 to which the external circuit wires may be connected for completing the circuit to the winding are secured to the terminal posts by means of machine screws. The cover 9 is provided with a conical projection which fits into the depression in the projection 6 of the molded spool to provide means for rapidly aligning the cover with the case. This arrangement is clearly shown in Figure 3.

From the foregoing disclosure the features of my invention are clear to those skilled in the art. The molded portions may be constructed of any suitable material such as molded rubber, a molded phenolytic condensation product or, in fact, any molded material suitable for this purpose. It is, of course, true that changes in the details of construction and relative location of parts will be apparent to those skilled in this art and I do not, therefore, desire to be limited exactly to my disclosure but rather to the field of invention defined in the appended claims.

What I seek to secure by United States Letters Patent is:

1. In a magnet valve construction the combination with a casing having a magnetically operated valve therein of a molded spool therein having a winding thereon and a molded cover for said casing having means thereon for cooperation with said spool for aligning said cover with said casing.

2. In a magnet valve construction the combination with a casing having a magnetically operated valve therein of a molded spool therein having a winding thereon, terminal posts embedded in said spool and projecting upon the top thereof and attached to said winding and a molded cover for said casing having a recess arranged to overlie and to protect said posts.

3. In a magnet valve construction the combination with a casing having a magnetically operated valve therein of a molded spool therein having a winding thereon, terminal posts embedded in said spool and attached to said winding, a projection on said spool, and a molded cover for said casing having means thereon for cooperation with said projection for aligning the cover on said casing.

4. In a magnet valve construction the combination with a casing having a magnetically operated valve therein of a molded spool therein having a winding thereon, terminal posts embedded in said spool and attached to the ends of said winding, a molded cover for said casing having a hole therethrough and a raised pin around said hole, a pin projecting through said hole and lying below the upper edge of the rim for manually operating the valve, and means on said spool and cover for aligning the cover with the casing.

5. In a magnet valve construction the combination with a casing having a magnetically operated valve therein of a molded spool therein having a winding thereon, terminal posts embedded in said spool and attached to the ends of said winding, molded ridges on said spool for protecting said terminals, means on said terminals for connecting the external wires thereto, a plunger for operating said valve having a short manual operating projection thereon, a molded cover for said casing having a hole therein and a molded ridge therearound, said operating projection extending through the hole in the cover and means on said spool and cover for aligning the cover with the casing.

In testimony whereof I have hereunto set my hand on this 19th day of September A. D., 1927.

PARIS R. FORMAN.