E. E. GOLD.

MAGNETIC VALVE.

APPLICATION FILED APR. 1, 1915.

1,175,864. Patented Mar. 14, 1916.

Fig. 1.

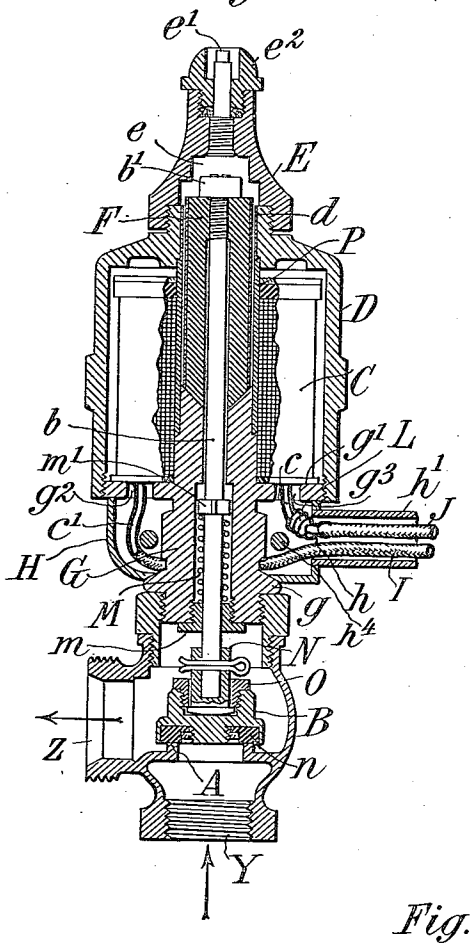


Fig. 2.

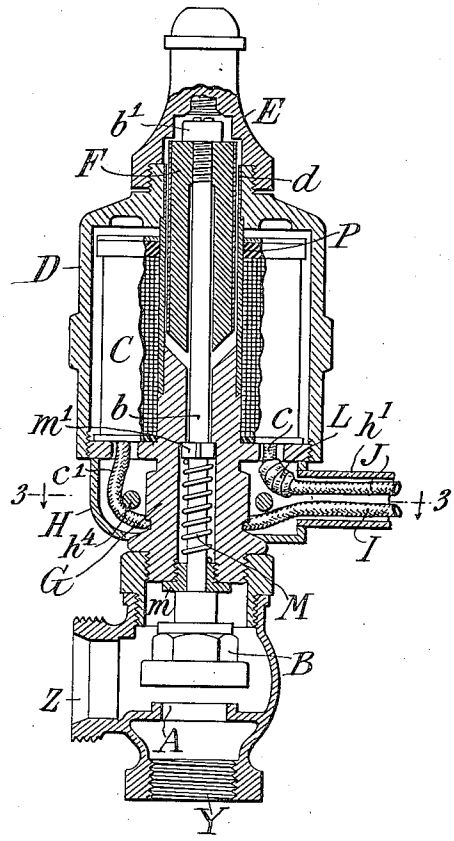
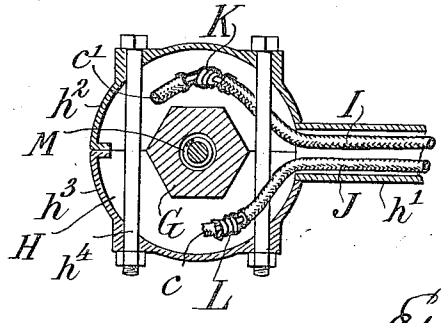


Fig. 3.



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UNITED STATES PATENT OFFICE.

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MAGNETIC VALVE.

1,175,864. Specification of Letters Patent. Patented Mar. 14, 1916.

Application filed April 1, 1915. Serial No. 18,532.

To all whom it may concern:

Be it known that I, EDWARD E. GOLD, a citizen of the United States of America, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Magnetic Valves, of which the following is a specification.

My invention relates to magnetic valves, and is particularly designed for use with steam valves.

The invention aims to provide desirable means for protecting the attachment between the electric wires, by which the automatic operation of the magnetic valve is obtained, and the terminals of the wire in the magnet coil.

The invention also provides a desirable construction of housing and pedestal for the magnet.

A desirable form in which my invention may be embodied is illustrated in the accompanying drawing, wherein,—

Figure 1 is a section of an apparatus containing my invention, illustrating the valve closed. Fig. 2 is a similar view illustrating the valve open, and Fig. 3 is a horizontal section taken on the line 3—3, Fig. 2.

My invention is illustrated as applied to a valve casing having inlet and outlet ports Y, Z, and a valve seat A which receives the valve disk B. The valve disk is operated by a magnet, and my invention resides in the construction of the housing and pedestal for the magnet, and in the provision of means for protecting the junction of the electric wires.

According to my invention, the coil C of the magnet is provided with a housing D in the form of a metal shell which completely surrounds the magnet on the sides, but is open at the bottom and at the top has a central opening *d*. This housing carries a bonnet E which is threaded steam-tight upon the housing, and has space therein at *e* for the movement of the armature F. A stop bolt *e'* is provided in the bonnet E which at the bottom has a head, the sides of which are coned, forming a valve which has a seat in the walls of the bonnet. A gland e^2 closes the passage in the bonnet through which the stop bolt *e'* passes. This stop bolt has a portion threaded in the bonnet, and it may be screwed down to hold the valve B shut, or it may be adjusted in position to provide for the proper movement of the valve and connected parts. A pedestal G is provided, the lower end of which has a shoulder at *g* which provides a stop when the pedestal is threaded into the valve casing. A horizontal outwardly extending flange *g'* is formed integral with the pedestal G, and is threaded into the lower walls of the housing D and closes the same. The said flange is perforated at g^2, g^3 for the passage of the wires *c*, *c'* forming the terminals of the coil.

An important feature of my invention consists in the provision of the junction box H. This is illustrated as located below the magnet and between the same and the valve casing, but obviously the location of the junction box is a matter of convenience, depending upon the apparatus employed. The junction box is provided for the purpose of protecting the connection between the electric wires, as wires I, J, which usually lead to a thermostat or similar automatically operating apparatus by which the magnet is energized or deënergized, as the heat requirements of the apartment containing the apparatus, indicate. The junction box is provided with an opening *h*, illustrated as being in one side thereof for the passage of the said wires I, J, and I prefer to provide a conduit *h'* leading the said wires to said opening. The terminal wires of the magnet, after passing through the openings g^2, g^3 in the flange *g'*, are connected inside of the junction box to the electric wires I, J, as for instance, at the points K, L.

The junction box may well be formed in separate parts for the purposes of easy assembling, and I have illustrated the same as formed of the two halves h^2, h^3, and these are connected together in some suitable manner, as for instance, by bolts h^4 having nuts threaded thereon.

The valve disk B has a stem *b* connected thereto, and the said stem passes through a perforation in the pedestal G, and is threaded in the armature F and its end projects outside thereof and has a nut *b'* threaded thereon. The valve disk is normally maintained out of contact with its seat by a coil spring M which surrounds the stem inside of the pedestal, and at one end presses against a nut *m* through which the valve stem passes, and at the other end against a stop *m'* on the stem. The valve

stem is secured by a cotter pin to a plug N having a flange *n* which projects outwardly and under the end of a hollow nut O through which the plug N passes, and which is screwed into the valve disk B. By these means when the magnetic solenoid is de-energized the spring M will unseat the valve and move the armature F to its inoperative position, as shown in Fig. 2.

It will be apparent that the steam will be retarded from passage into the housing by the nut *m*, but what steam leaks past the said nut and valve stem into the chamber *e* of the bonnet E, will be prevented from escaping by the bolt *e'* and by the tight connection of the bonnet E with the top of the housing. A separating tube P surrounds the armature F and is tightly connected to the upper end of the pedestal G and to the inwardly turned top of the housing D, and prevents any steam which may leak into the interior of the pedestal from obtaining access to the coil.

I have illustrated the most desirable form of constructing my invention, now known to me, but this is not the only form which may be employed, as construction equivalent to those illustrated may advantageously be made use of in many cases, and such construction will be within my invention if within the limits of the appended claims.

What I claim is:—

1. Means for controlling a moving part comprising a magnet in operative relation to said part having a coil and an armature, said armature adapted for connection with the part to be controlled, a junction box adjacent said coil for connecting electric wires to the terminals of said coil, said junction box having an opening for electric wires, and openings being provided between said junction box and the coil for the end wires of said coil.

2. Means for controlling a moving part comprising a magnet in operative relation to said part having a coil and an armature, said armature adapted for connection with the part to be controlled, a junction box adjacent said coil for connecting electric wires to the terminals of said coil, said junction box having an opening for electric wires, and openings being provided between said junction box and the coil for the end wires of said coil, said junction box being formed of separable parts and means for holding said parts together.

3. Means for controlling a moving part comprising a magnet in operative relation to said part having a coil and an armature, said armature adapted for connection with the part to be controlled, a junction box between said coil and said controlled part for connecting electric wires to the terminals of said coil, said junction box having an opening for electric wires, and openings being provided between said junction box and the coil for the end wires of said coil.

4. Means for controlling a steam valve having a casing and a valve disk, comprising a magnet, an operating connection between the armature of the magnet and the valve disk and a junction box adjacent the coil of the magnet for connecting electric wires to the terminals of the coil, said junction box having openings for said electric wires and for the end wires of the coil.

5. Means for controlling a steam valve having a casing and a valve disk, comprising a magnet, an operating connection between the armature of the magnet and the valve disk and a junction box between the magnet and the valve for connecting electric wires to the terminals of the coil, said junction box having openings for said electric wires and for the end wires of the coil.

6. A valve having a casing and a disk therein, a magnet in operative relation thereto having a coil and an armature, a housing for said coil, a pedestal for said housing having its lower end attached to the valve casing and having a perforated flange underlying said coil and attached to said housing to support the same, a valve stem connecting said armature and valve disk and passing through an opening in said pedestal, and a junction box adjacent said flange and surrounding said pedestal and having an opening for electric wires.

7. A valve having a casing, a disk therein, a magnet in operative relation thereto having a coil and an armature, a one-piece housing for said coil adapted to inclose the same, said housing having an open bottom and an opening at the top for the armature, a bonnet secured steam-tight to the top and inclosing said opening, a one-piece pedestal attached to the valve casing and having a perforated flange for closing the bottom of the housing, a valve stem passing through a perforation in said pedestal and attached to the armature, and a junction box surrounding said pedestal below the said flange, having an opening for electric wires.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

EDWARD E. GOLD.

Witnesses:
HENRY M. TURK,
FRED WHITE.