Feb. 25, 1930. P. R. FORMAN 1,748,510

ELECTRIC HEATER FOR VALVES

Filed Jan. 9, 1929

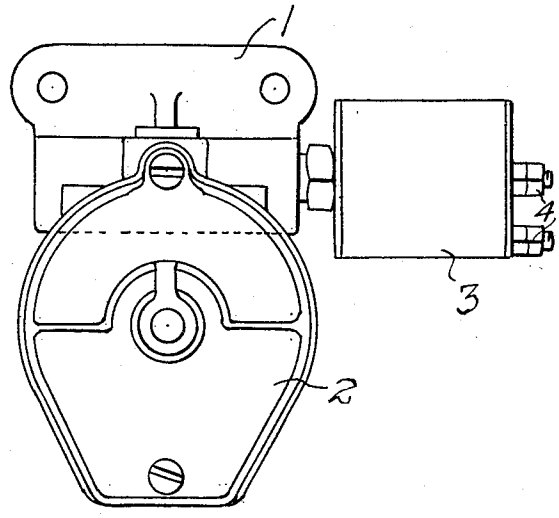


Fig. 1.

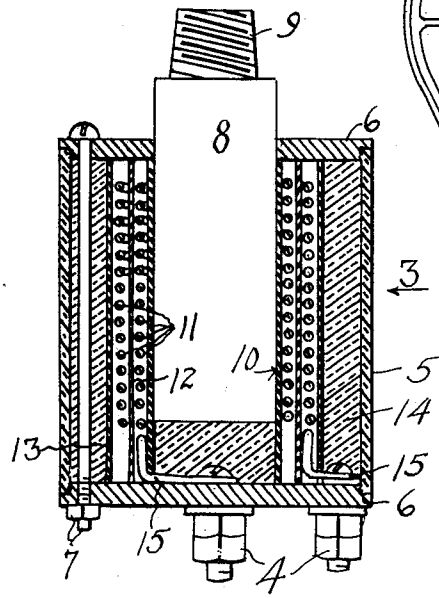


Fig. 2.

Inventor
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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

ELECTRIC HEATER FOR VALVES

Application filed January 9, 1929. Serial No. 331,247.

This invention relates in general to the combination of an electric heater and a valve by means of which the temperature of the valve is maintained above the freezing point.

One of the objects of this invention is the provision of an exceedingly simple electric heating element and a conducting member for uniting it with a valve by means of which the conducting member carries the heat to the valve to maintain its temperature above the freezing point.

A further object of this invention is the provision of a structure of this type which is exceedingly simple, easy to manufacture, and rugged and efficient in use.

These and other objects, as will appear from the following disclosure, are secured by means of this invention.

This invention resides substantially in the combination, construction, arrangement, and relative location of parts, all as will be set forth hereinafter.

Referring to the drawings—

Figure 1 is a top plan view of the device of this invention showing the association of the valve and heater; and

Fig. 2 is a longitudinal cross sectional view through the heater.

In pneumatic systems such as those used for operating doors, gates, windows, and the like by means of pneumatic motors difficulty often arises by reason of the fact that the water vapor contained in the compressed air when the device is used on street cars, subway trains, and the like, freezes under winter operating conditions. In compressing air for use in pneumatic systems the water vapor is condensed into small drops which often freeze and clog the system particularly at the control valves. The principle of this invention is to provide a device by means of which the control valves are maintained at a temperature where the water vapor cannot freeze.

The structure is clearly shown in Fig. 1 as comprising a support 1 by means of which the valve is secured, for instance to the pneumatic motor. The valve 2 is shown generally and is of the electro-magnetic type but, of course, is not necessarily limited to this form. The electric heater has been shown generally at 3 secured to the support. The parts 1, 2 and 3 are attached mechanically and being of metal provide a path for the heat.

The heater structure is shown comprising two spaced end members 6 for closing the cylindrical casing 5. These parts are held together by long bolts and nuts 7. Mounted within the casing is an iron core 8 having a reduced threaded portion 9. The core is encircled by a suitable insulator 10 against which lie a number of spaced turns of resistance wire 11. These turns are covered by another insulating layer 12 against which lies a second coil of spaced turns. This coil is also encased in the insulating layer 13 and all the parts are surrounded by the heat insulating material 14. The two layers of coils are in series and the two terminals 15 are connected to the binding posts 4. The support 1 is provided with a threaded hole into which the reduced end 9 of the core 8 is screwed.

When electric current is supplied to the heating coil 11 by connecting a current source to the binding post 4 the heat generated is conducted by core 8 and reduced portion 9 to the support 1 and to the valve body 2. Thus by this arrangement the temperature of the valve may be maintained above the point where the water vapor in the air controlled by the valve will freeze.

From the foregoing disclosure it will be apparent that I have embodied certain principles in a structure given for purposes of illustration but I do not desire to be limited to this structure since many changes in its details will occur to those skilled in the art without departing from those principles. I do not desire, therefore, to be limited except as required by the appended claim.

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

In a device of the type described, the combination comprising a compressed air valve, a heat conducting core detachably connected thereto, a heating coil encircling said core, and an insulated casing for said heating coil, the heat from said coil being conducted by said core to the valve to maintain its temperature above the freezing point.

In testimony whereof I have hereunto set my hand on this 4th day of January, A. D. 1929.

PARIS R. FORMAN.