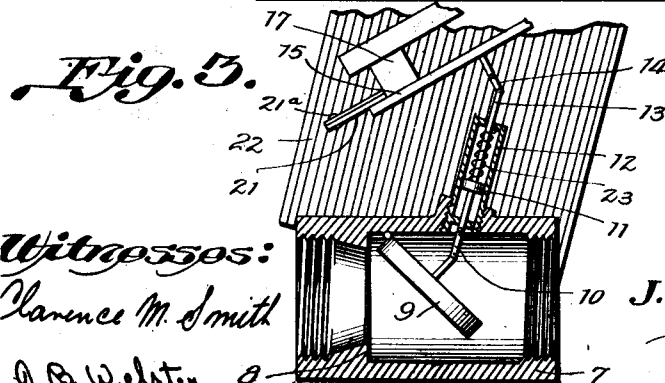
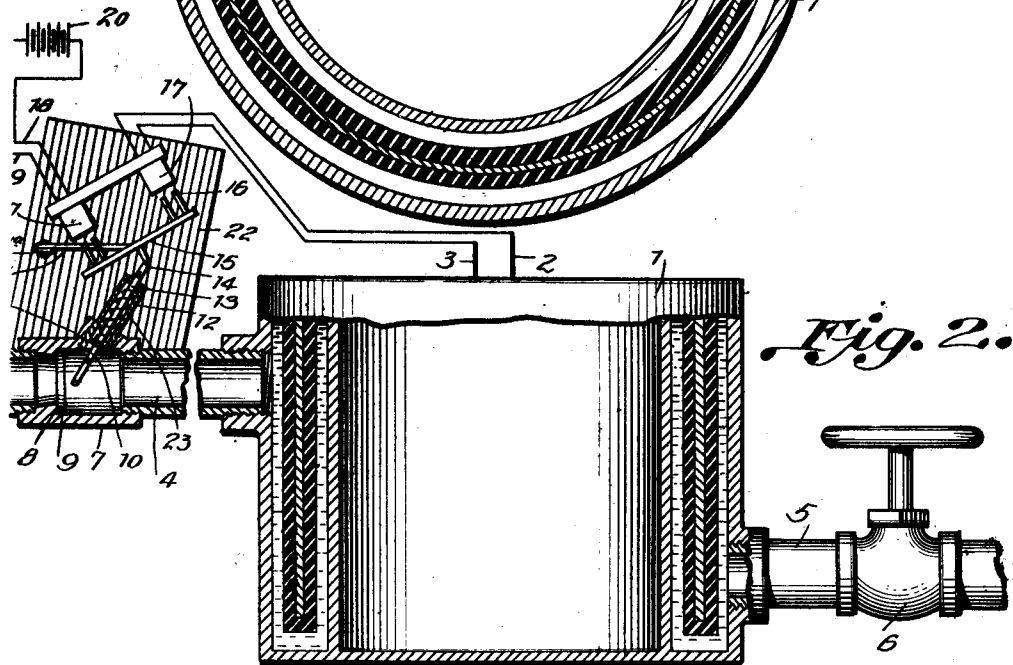
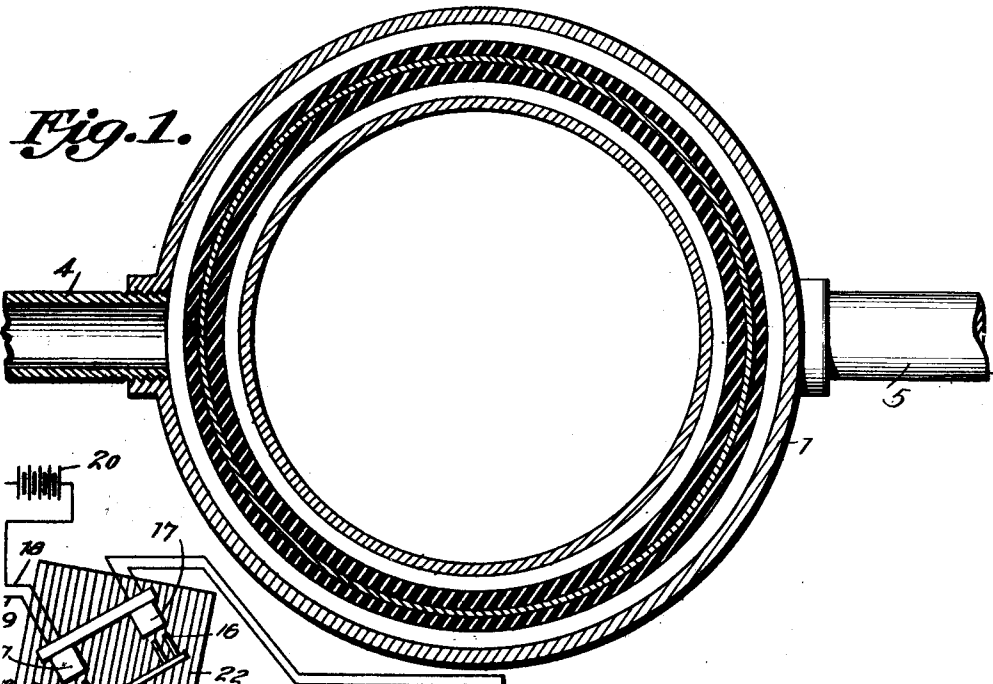


J. M. APPLETON.
 AUTOMATIC CONTROL VALVE FOR WATER HEATERS.
 APPLICATION FILED APR. 16, 1912.

1,051,979.

Patented Feb. 4, 1913.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOSEPH M. APPLETON, OF LODI, CALIFORNIA.

AUTOMATIC CONTROL-VALVE FOR WATER-HEATERS.

1,051,979.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed April 16, 1912. Serial No. 691,250.

To all whom it may concern:

Be it known that I, JOSEPH M. APPLETON, a citizen of the United States, residing at Lodi, in the county of San Joaquin, State of California, have invented certain new and useful Improvements in Automatic Control-Valves for Water-Heaters; and I do declare the following to be a clear, full, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this application.

This invention relates to improvements in a control means for electrical heaters used for heating water or other liquids, the object of the invention being to produce an intermediate valve disposed in the pipe line carrying the liquid, which valve will automatically open as the liquid flows through said pipe line, which operation will connect an electric current with the electric heater. Vice-versa when the flow of the liquid through the pipe line is disconnected, the invention provides a means to automatically close said valve and disconnect the electrical connecting means.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purposes for which it is designed.

These objects, I accomplish by means of such structure and relative arrangement of the parts as will fully appear by a perusal of the following specification and claim.

In the drawings similar characters of reference indicate corresponding parts in the several views.

Figure 1 is a sectional view of an electric heater showing the pipe line entering and leaving the same. Fig. 2 is a sectional view showing the heater and my automatic control valve. Fig. 3 is a detached view in section of the automatic control valve.

Referring now more particularly to the characters of reference on the drawings, the numeral 1 designates an electric heater of any desired type provided with suitable circuit wires 2 and 3.

The numeral 4 designates the pipe line entering the heater 1 and the numeral 5 designates the pipe line leaving the heater

and provided with an ordinary draw-off valve 6.

In applying my improved structure, I provide the pipe 4 with a coupling 7 provided with an inner shoulder 8. I then provide a flat valve 9 suitably hinged within the member 7 and adapted to close against or move away from the shoulder 8 according as the liquid is stationary in the pipe 4 or flows therethrough upon opening the valve 6. When the valve 6 is opened and the water flows through the pipe 4 it opens such valve 9 which causes said valve to push against a rod 10 having a piston 11 movable in a cylinder 12. Such cylinder 11 is provided with another outwardly projecting rod 13 connected by suitable links 14 with a plate 15 provided with contact points 16 adapted to engage sockets 17 to connect the wires 2 and 3 with other wires 18 and 19 leading to the source of electrical energy 20. When this is done it causes the electricity to pass through the wires 18 and 19 to the wires 2 and 3 to heat the member 1 and hence the water then passing through such pipe 4, heater 1, pipe 5 and valve 6 will be heated.

The necessary insulations and electrical connections for the members 16 and 17 are not shown herein for the reason that they comprise no necessary part of the invention as claimed and any desired form of switch with any desired insulations found necessary can be used, the principle of the invention resting in the automatic control valve. In order to guide the points 16 directly into the plugs 17, I provide an arm 21 pivotally mounted on the plate 22 carrying the apparatus and also pivotally mounted in the plate 15. As will be seen this arm 21 being pivotal at the point 21^a and also being pivotally connected to the member 15 it acts as a guide to move the member 15 and incidentally the plugs 16 in a fixed line of travel in order that they will at all times under all conditions move directly into place in the sockets 17 when the valve 9 opens.

From the foregoing description it will be readily seen that when the valve 6 opens the flow of the water opens the valve 9 with the result set forth. Now when the valve 6 is closed and the water in the pipe 4 is stationary a spring 23 interposed between the top of the cylinder 12 and the piston 11

forces said piston downwardly and closes the valve 9 and incidentally pulls the points 16 out of the plugs 17 breaking the electrical circuit of the heater 1 and thus ceases to heat the water.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfils the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such details may be resorted to as do not form a departure from the spirit of the invention.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:—

A device of the character described comprising the combination of an electric heater, an inlet pipe connected with said heater, an outlet pipe connected with said heater, a

valve in said outlet pipe, a hinged valve in said inlet pipe, a cylinder connected with the casing of said hinged valve, a piston movable in said cylinder, a rod connected with said piston and projecting through the ends of said cylinder, one end of said rod being flexibly connected with said hinged valve, a plate flexibly connected with the outer end of said rod and carrying contact plugs, contact sockets disposed normally independent of said contact plugs, circuit wires connecting said electric heater with one of said plugs, and wires connecting the other of said plugs with a source of electrical energy, as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH M. APPLETON.

Witnesses:

STEPHEN N. BLEWETT,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."