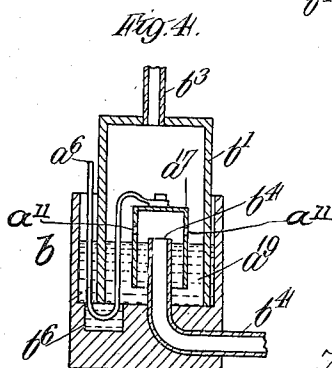
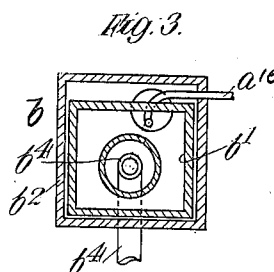
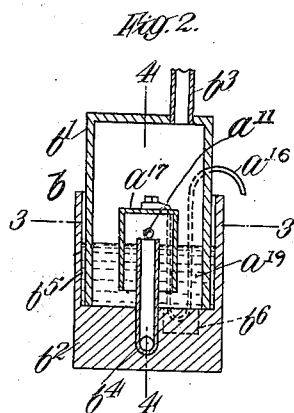
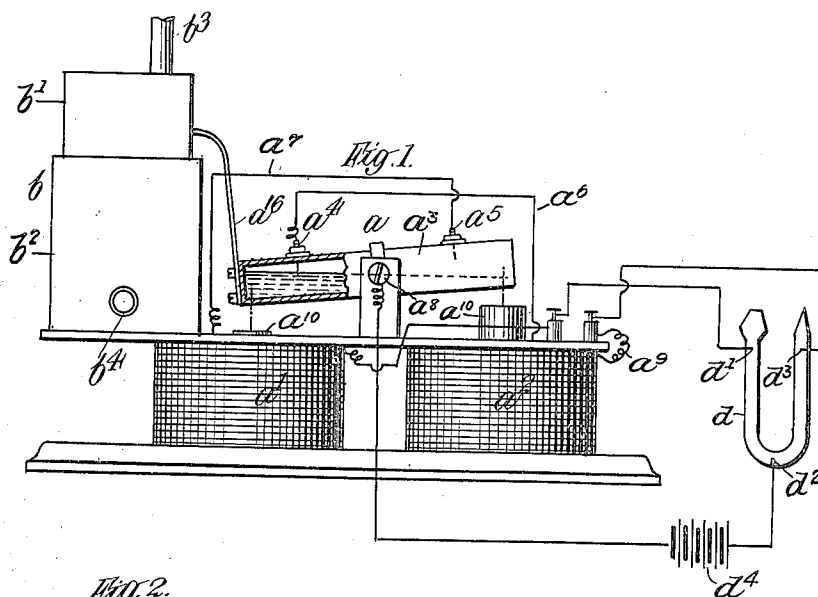


T. J. & E. RORKE.
VALVE OR CONTROLLING DEVICE.
APPLICATION FILED APR. 7, 1910.

1,060,028.

Patented Apr. 29, 1913.



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UNITED STATES PATENT OFFICE.

THOMAS J. RORKE AND EDWIN RORKE, OF BARNES, ENGLAND.

VALVE OR CONTROLLING DEVICE.

1,060,028.

Specification of Letters Patent.

Patented Apr. 29, 1913.

Application filed April 7, 1910. Serial No. 553,981.

To all whom it may concern:

Be it known that we, THOMAS JOSEPH RORKE and EDWIN RORKE, both subjects of the King of Great Britain, residing at 5 Thames Bank Electrical Works, Barnes, in the county of Surrey, England, have invented a certain new and useful Valve or Controlling Device, of which the following is a specification.

10 This invention relates to apparatus for controlling the flow or supply of fluids particularly gas for use in heating, lighting or other purposes, and consists essentially of controlling apparatus adapted for being 15 actuated by means of an electrically operated switch in conjunction with thermostatic or other suitable means either from a distance or otherwise as desired.

According to the present invention, the 20 apparatus comprises an electromagnetically controlled switch having a rocking arm which is provided with a member or members adapted to act in conjunction with a liquid seal or seals whereby the desired control is effected upon the actuation of the 25 said switch.

In order that the said invention may be clearly understood and readily carried into effect we will proceed to describe the same 30 more fully with reference to the accompanying drawings, in which:—

Figure 1 is an elevation partly in section of the improved apparatus. Fig. 2 is a 35 view in section, showing the inlet and outlet passages for the gas; the section being taken through the liquid seal. Fig. 3 is a section taken along the line 3—3 in Fig. 2, and Fig. 4 is a section taken along the line 4—4 in Fig. 2.

40 a is the electromagnetically controlled switch, a^1 a^2 are the electromagnets and a^3 the rocking member or tube containing a moving mass of mercury which serves in conjunction with the insulated contacts 45 a^4 , a^5 to control the energization of the said electromagnets. The rocking member has two iron plungers or armatures a^{10} suspended thereon, and which are drawn into the corresponding electromagnets when 50 these latter are energized. The contacts a^4 , a^5 are connected to the windings of the electromagnets a^2 , a^1 by means of the leads a^6 , a^7 and when the rocking member a^3 is displaced the mercury in said member will 55 connect one or other of the contacts a^4 , a^5 with the pivot a^8 thereof. When the appa-

ratus is in the position shown in Fig. 1 and it is desired to actuate the same, current is applied and will flow from one of the mains through the lead a^6 , electromagnet a^2 , lead 60 a^8 , contact a^4 through the mercury to the pivot a^8 and from thence back to the source of current. The magnet a^2 will thus be energized and the member a^3 rocked to the opposite side. This move- 65 ment of the member a^3 will cause the mercury to move and break the circuit of the electromagnet a^2 and render the circuit of the other electromagnet a^1 in condition for operating the switch when the current 70 is again supplied. One or both ends of the rocking member a^3 is or are provided with a bent extension or arm a^{16} . This arm carries a bell or hollow member a^{17} which acts in conjunction with the outlet pipe b^4 to close 75 the same and form a liquid seal for the gas. The liquid seal a^{19} is formed in the lower chamber b^5 of the apparatus b , which comprises two members b^1 , b^2 fitting one within the other, the former member carrying the 80 inlet pipe b^3 for the gas and the latter member the outlet pipe b^4 . The outlet pipe b^4 projects upwardly within the outer vessel b^2 and the bell or hollow member a^{17} which is carried by the rocking member a^3 of the 85 switch is adapted to cover the same, so that the flow of gas is interrupted by the liquid a^{19} around the outlet pipe into which liquid the bell or hollow member a^{17} projects when 90 the bent extension or arm is lowered upon the actuation of the switch a , as in Fig. 1. The outer vessel b^2 is formed with a well b^6 which allows of the depression of the bent extension or arm a^{16} whereby the desired 95 movement of the member a^{17} is effected without disturbing or displacing the inner member b^1 of the gas chamber b .

It will be observed that the arm a^{16} is formed with two bends, the upper bend being arranged adjacent to the upper edge of 100 the outer member b^2 of the gas chamber and the lower bend adjacent to the lower edge of the inner member b^1 of the said chamber so as to enter the well b^6 . The arrangement of the gas chamber b allows of the ready 105 examination of the liquid seal as the member b^1 can be removed to expose the interior of the said chamber.

The gas enters the chamber b by way of the pipe b^3 and when the member a^{17} is 110 raised out of the liquid a^{19} the gas flows through the outlet pipe b^4 to the place where

it is required for use. In order to avoid danger of explosion by the leakage of gas the member a^{17} may be provided with an opening or openings a^{11} at its upper end to restrict the flow and allow a small quantity of gas to pass, so as to insure the ignition of the larger volume which passes when the member a^{17} is raised out of the liquid seal so as to allow the full or unrestricted flow to take place. If desired the member a^{17} may be provided with a series of openings a^{11} so that the flow of gas may be adjusted by varying the degree of immersion of said member in the liquid a^{19} .

When the apparatus is used in connection with a heating system, the flow of gas may be regulated automatically by providing a thermostatic arrangement for controlling the circuits of the actuating electromagnets, so as to render the same operative at a maximum and a minimum temperature. The arrangement comprises a maximum and minimum thermometer d which is provided with contacts d^1, d^2, d^3 which are connected to the switch as shown in Fig. 1. The thermostat is adapted to be operated at two temperatures corresponding to the contacts d^1, d^3 , so as to turn on or cut off the supply of gas or the like from the heating device by leading the current from the source of current d^4 to one or other of the electromagnets a^1, a^2 .

The arm a^{16} may be provided with a number of branches each adapted to control the flow of gas from a gas chamber in the manner above described.

What we claim and desire to secure by Letters Patent of the United States is:—

1. In apparatus for controlling the flow or supply of gas or other fluid, the combination of a bi-part chamber, a liquid sealing device therein, a hollow rocking member connected directly to said sealing device, a plurality of contacts in said hollow member, two electromagnets, for directly actuating the said hollow rocking member and a body

of conducting fluid adapted to traverse the hollow rocking member and act in conjunction with the contacts therein to break the circuit of one electromagnet and render the circuit of the other electromagnet in condition for being closed to operate the rocking member in the opposite direction.

2. In an apparatus for controlling the flow or supply of gas or other fluid, the combination of a bi-part chamber, a body of liquid in said chamber, an inlet branch and an outlet branch on said chamber, a hollow member adapted to pass over the open end of said inlet branch, a rocking member connected directly to said hollow member, electromagnets for actuating said rocking member and means for controlling the circuits of the actuating electromagnets.

3. In an apparatus for controlling the flow or supply of gas or other fluid, the combination of a bi-part chamber, a body of liquid in said chamber, an inlet branch and an outlet branch on said chamber the former of which opens above the level of the said liquid, a bell adapted to pass over the open end of said inlet branch and effect a liquid seal, a hollow rocking member connected directly to said bell, a plurality of contacts in said hollow member, two electromagnets for actuating the same and a body of conducting fluid adapted to traverse the hollow member and act in conjunction with the contacts therein to break the circuit of one electromagnet and render the circuit of the other electromagnet in condition for being closed to operate the rocking member in the opposite direction.

In testimony whereof we affix our signatures in presence of two witnesses.

THOMAS J. RORKE.
EDWIN RORKE.

Witnesses:

T. SELBY WARDLE,
WALTER J. SKERTEN.