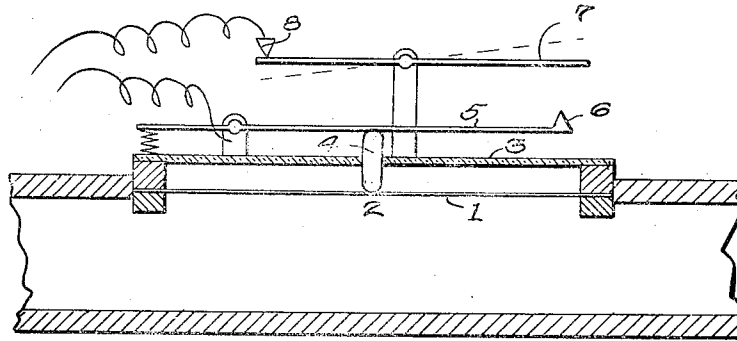


W. H. SMITH.
LIQUID OPERATED ELECTRIC SWITCH.
APPLICATION FILED DEC. 12, 1916.

1,340,086.

Patented May 11, 1920.



Inventor
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UNITED STATES PATENT OFFICE.

WILLIAM HOGG SMITH, OF FALKIRK, ENGLAND, ASSIGNOR TO THE FILBEAR ELECTRIC HEATER, LIMITED, OF LONDON, ENGLAND.

LIQUID-OPERATED ELECTRIC SWITCH.

1,340,086.

Specification of Letters Patent.

Patented May 11, 1920.

Application filed December 12, 1916. Serial No. 136,556.

To all whom it may concern:

Be it known that I, WILLIAM HOGG SMITH, of #7 Orchard street, Falkirk, Stirlingshire, England, merchant, have invented certain new and useful Improvements in Liquid-Operated Electric Switches, and do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement.

This invention relates to a liquid operated switch particularly suitable for controlling the supply of liquid to and the supply of electric current to electrical apparatus for heating liquid.

The present invention consists in a switch comprising a flexible diaphragm influenced by liquid pressure and cooperating with contacts arranged to close when a predetermined pressure of liquid is reached and maintained and to break when the pressure exceeds maximum or is reduced below minimum.

The invention is illustrated diagrammatically in the accompanying drawing in which the figure is a longitudinal section of a fluid conduit equipped in accordance with the invention.

As shown, the switch comprises a diaphragm 1 the side 2 of which is subject to liquid pressure controlled by a tap (not shown). Resting on the side remote from the liquid pressure side is a rod 4 of insulating material such as vulcanite, such rod 4 penetrating a plate 3 of insulating material and engaging a spring loaded rocker 5.

The rocker 5 is fitted with a contact 6 engageable with a spring arm 7, which, in

turn, contacts normally with a contact 8. The arrangement is such that when the diaphragm is bulged by liquid at the normal pressure, the rocker 5 is moved by the rod 4 until the contact 6 contacts with the arm 7 and the circuit through the elements 5, 6, 7, 8 is closed.

When the pressure is below normal, no contact is made between the contact 6 and the arm 7 and, when the maximum working pressure is exceeded, the arm is constrained to occupy a position such that the end remote from the contact 6 is out of contact with the contact 8 whereby the circuit is broken.

The contact 8 and the rocker 5 represent remote ends of an electrical circuit including a solenoid (not shown) which operates the main switch of the electrical apparatus for heating the liquid which influences the diaphragm 1.

I claim—

In a device of the type described, the combination of a conduit having a lateral diaphragm chamber, a diaphragm secured in the chamber and flexible by the water pressure in the conduit, a superposed plate extending across the diaphragm and formed with an aperture, a rod seating on the diaphragm and extending through the aperture of the plate to be guided thereby, a switch arm movable by the rod, a fixed contact, and a second switch arm normally engaging the contact and adapted to be engaged by the first switch arm and to be disengaged thereby from the contact.

The foregoing specification signed at Glasgow, this eighth day of January, 1917.
WILLIAM HOGG SMITH.