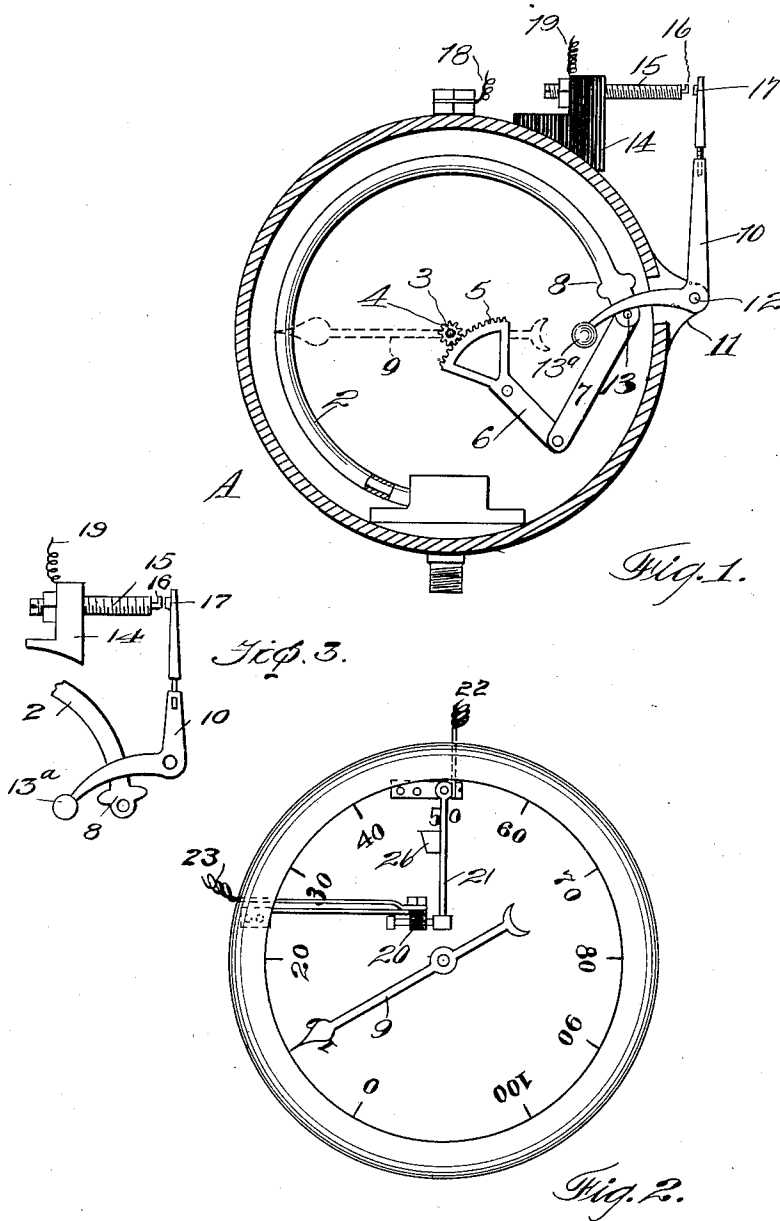


T. P. BACON & W. A. GWYNN.
PRESSURE CLOSED ELECTRIC SWITCH.
APPLICATION FILED APR. 26, 1910.

1,015,225.

Patented Jan. 16, 1912.



Witnesses,
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UNITED STATES PATENT OFFICE.

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PRESSURE-CLOSED ELECTRIC SWITCH.

1,015,225.

Specification of Letters Patent.

Patented Jan. 16, 1912.

Application filed April 26, 1910. Serial No. 557,814.

To all whom it may concern:

Be it known that we, THOMAS P. BACON and WILLIAM A. GWYNN, citizens of the United States, residing at Santa Rosa, in the county of Sonoma and State of California, have invented new and useful improvements in Pressure-Closed Electric Switches, of which the following is a specification.

Our invention relates to a pressure controlled electric switch gage, which may be used for limiting and regulating the amount of heat derived from an electric current.

It consists of the combination of parts and the details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a sectional view of the gage showing our invention. Fig. 2 is an outside view showing a modified form. Fig. 3 is a detail of the means for adjusting the pin 16 showing the lever 10 and a portion of the hollow segmental spring.

In many instances where an electric current is employed for heating purposes, it is necessary to limit and regulate the amount of heat to prevent damage or destruction to the material or apparatus which is to be so heated.

It is the object of our invention to provide a gage which is operated by the electrical current in conjunction with its action upon the heater so that when the pressure has reached the desired limit the current will be temporarily cut off from the heater.

The gage may be of any suitable form or construction. As shown in the drawings, it consists of a casing A, within which is contained a hollow segmental spring 2, of the character usually employed for steam gages, and which spring is so actuated as to be gradually expanded or straightened by the pressure and which pressure may be a boiler pressure or the pressure of water or other fluid in a confined reservoir.

3 is a shaft having fixed upon it a pinion 4, and this pinion is engaged by a toothed segment 5 fulcrumed within the case and having a lever-like arm extending beyond the fulcrum, as shown at 6. This arm is connected by a link 7 with the free movable end 8 of the expansible spring 2, so that as the spring expands, it acts through the train of gearing previously described to turn the shaft 3, and with it the pointer or indi-

cator 9, which is carried upon the end of the shaft which projects through the marked dial.

Any suitable resistance coil, not here shown, may serve to raise the temperature of the heater, of whatever character it may be, and the current passing through such coil is controlled in the following manner: 10 is a lever arm fulcrumed upon a bracket or equivalent support 11, as shown at 12. One end of this arm passes through the side of the case A, and extends with such relation to the free end 8 of the expansible spring 2 that it will be moved in one direction by the movement of the spring. Such a contact is shown at 13. 14 is an insulating support which may be fixed upon the case, through which passes a screw 15, the projection of which beyond the insulating support may be regulated by turning it in the block. The end of this screw carries a platinum or other suitable contact point 16, and a similar contact 17 is carried by the upper end of the arm 10. Wires 18 and 19 respectively connect with the metal of the case and with the screw 15.

The operation of the device will be as follows: The weight 13^a on the inner end of the lever arm 10 is sufficient to draw that portion of the arm down when the spring 2 is contracted and the pin 13 is withdrawn from below the weighted arm of lever 10, and thus move the other arm to bring the points 16 and 17 into contact, and the circuit is completed through the wire 19, screw 15, contact points 16 and 17, lever 10, case A, and wire 18, and by its connection the heating coil is continued in energized condition until the pressure has increased to the required point, which will be indicated on the dial by the hand or pointer. When this point has been reached, the spring 2 will have been expanded sufficiently to contact with the pin 13 and move the lever 10 and disconnect the points 16 and 17, thus breaking the circuit and cutting off the heating current. When the temperature has decreased sufficiently, the spring 2 will have contracted and have carried the pin 13 away from the lever arm and the weight 13^a will have caused the lever 10 to move until the points 16 and 17 are again in contact, thus automatically regulating the heater and preventing any overheating of the parts.

In Fig. 2 we have shown a form in which a fixed contact 20 is carried by an insulating block upon the face of the dial, and a swinging contact point is carried upon a lever 21 pivoted approximately in line above the contact point 20, so that the two points will be normally in contact. One of the wires 22 connects with this swinging arm, and the other wire 23 connects with the contact point 20. A lug or projection 26 is fixed to the swinging arm 21, and in the plane of movement of the pointer 9, so that when the pointer has moved to the degree of heat which is desired, it will strike the lug 26, and thus swing the arm 21 outwardly and break the circuit, and thus temporarily cut out the heating member. As soon as the pointer begins to recede, the arm 21 will swing back until contact is made with the point 20, and the circuit again completed.

Having thus described our invention, what we claim and desire to secure by Letters-Patent, is:

The combination in a gage, of a casing, having a dial, an expansible member within the casing, a pointer movable over the dial,

a shaft for said pointer, a pinion on the shaft, a lever fulcrumed within the casing having a segmental gear to engage said pinion, a link connecting said lever with one portion of said expansible member, a lever fulcrumed between its ends upon the casing, said lever having one arm provided with a contact, an insulated support on the casing and an electrical contact adjustably carried thereby and against which the first-named contact is closable, said lever having its other arm provided with a weight, and a pin carried by the expansible member and normally out of contact with the other arm of said lever, said other arm lying in the path of movement of said pin and operated thereby to open the electrical circuit.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

THOMAS P. BACON.
WILLIAM A. GWYNN.

Witnesses:

HENRY SILVERSHIELD,
PAUL J. COLVIN.