B. J. SMITH.

THERMOSTATIC SWITCH.

APPLICATION FILED APR. 5, 1911.

1,008,870. Patented Nov. 14, 1911.

Fig. 1.

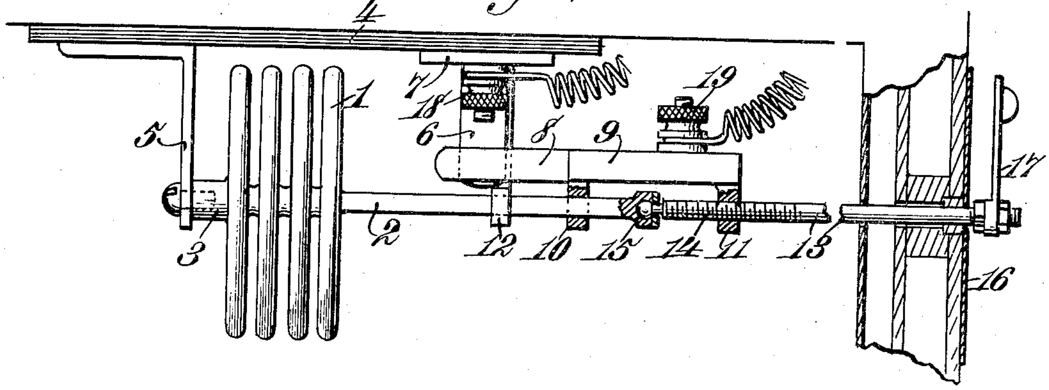


Fig. 2.

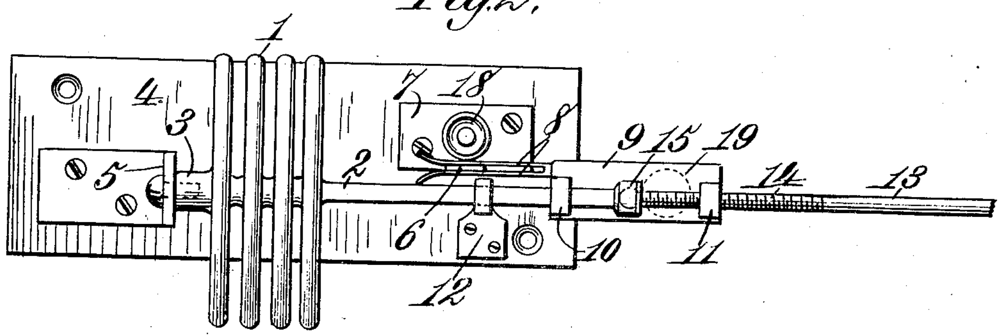


Fig. 3.

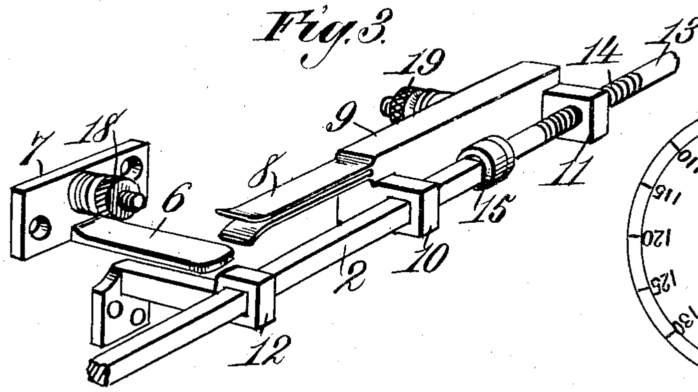
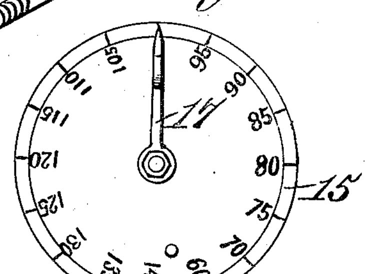


Fig. 4.



Witnesses.
Robert Everitt.

Inventor
Bert J. Smith.
By
Atty.

UNITED STATES PATENT OFFICE.

BERT J. SMITH, OF MODESTO, CALIFORNIA, ASSIGNOR TO HOME CONSTRUCTION COMPANY, OF MODESTO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

THERMOSTATIC SWITCH.

1,008,870. Specification of Letters Patent. **Patented Nov. 14, 1911.**

Application filed April 5, 1911. Serial No. 619,079.

To all whom it may concern:

Be it known that I, BERT J. SMITH, a citizen of the United States, residing at Modesto, in the county of Stanislaus and State of California, have invented new and useful Improvements in Thermostatic Switches, of which the following is a specification.

This invention relates to improvements in thermostatic switches for use more particularly in connection with incubators, electric ovens and other receptacles of like character.

The object of the invention is to provide a thermostatic switch of simple and novel character wherein provision is made for quickly and accurately adjusting the degree of temperature at which the switch will be opened by its thermostatic controlling means.

The invention includes the said means, the switch embodying adjustably related elements, and a means operatively connected to the thermostatic means for effecting the relative adjustments of the elements of the switch.

An embodiment of the invention is illustrated by way of example in the accompanying drawings, wherein—

Figure 1 is a side elevation of a thermostatic switch conforming to the invention; Fig. 2 is a bottom plan view thereof; Fig. 3 is a perspective view of the elements of the switch and their appurtenances; and Fig. 4 is an elevation of the indicating dial by which the adjustments of the switch are determined.

Similar characters of reference designate corresponding parts throughout the several views.

The thermostat by which the operation of the switch is controlled is designated by the numeral 1 and is preferably of the hollow accordion-like diaphragm type, being provided at one end with an axial extension 2 and at its other end with an axial boss 3. The supporting means for the thermostat embodies a plate 4 of insulating material which is attached to an adjacent wall of the structure in connection with which the switch is employed and a bracket 5 which is attached to the said plate 4 and also to the said boss 3.

The switch comprises two contact parts, the one, 6, being fixed to the plate 4 and having at its upper end an angular extension 7 for this purpose, and the other, 8, being movable with relation to the contact 6 to close or open the circuit. The contact 6 embodies preferably a single finger which depends from the extension 7 and the contact 8 embodies a clip having resilient legs which are designed to straddle and to engage the contact 6. The contact 8 is rigidly associated with a member 9 and projects from the rear end of said member. The latter is provided with depending lugs 10 and 11. The extension 2 has a square cross section and passes through a bracket 12 secured to the plate 4 and through the lug 10. Said bracket and said lug are provided with square openings conforming to the square cross section of the extension 2 whereby the member 9 is prevented from having any turning movement as an incident of the operation of the switch adjusting means. The said adjusting means includes a stem 13 which is journaled in a wall of the structure in connection with which the switch is employed and which at its inner end has a threaded portion 14 that passes through the lug 11, the opening of the latter being also threaded. The stem 13 is also connected at its inner end by a swivel joint 15 to the adjacent end of the extension 2. The adjusting means also includes a dial 16 which is suitably calibrated and which is mounted on the wall of the structure in connection with which the switch is employed and the stem 13 passes through said dial and has fixed on its outer end a finger 17 which serves both as an operating lever and as an index pointer, and traverses the dial 16.

The extension 7 is provided with a binding post 18 and the member 9 is provided with a binding post 19.

The extent of range of the threads 14 is considerably greater than that which is necessary for the adjustment of the contact 8 with relation to the contact 6 and is selected to facilitate the convenient assemblage and the accurate relation of the parts.

The operation of the device should be apparent from the foregoing description. The diaphragm 1 is preferably filled with a suitable liquid for the purpose, such as alcohol, and when it expands it moves the contact 8 forwardly and if its expansion be sufficient ultimately causes said contact 8 to disengage

the contact 6. On the other hand a contraction of the diaphragm 1 will cause a rearward movement of the contact 8 and will close the circuit. When the diaphragm 1 expands or contracts the extension 2 and the stem 13 move axially as a unit, the member 9 partaking in the movement of said stem and producing the engagement or disengagement of the contact 8 with relation to the contact 6. The means for adjusting the contacts 6 and 8 with relation to one another is operative to determine the temperature at which the circuit will be broken by the thermostat 1. It is apparent that if the contact 8 have a greater range of movement before it can disengage the contact 6 a greater temperature will be necessary before said contact 8 can be moved through said range and before the circuit will be broken. If, on the other hand, the contact 8 have a smaller range of movement before it disengages the contact 6, its disengagement will take place at a lower degree of temperature. The function of the adjusting device is to determine the range of movement of the contact 8. To carry out this function the stem 13 is turned, the finger 17 being manipulated as a lever for this purpose and in accordance with the turning movement of the stem 13 the member 9 is moved forwardly or rearwardly, as the case may be, through a corresponding extent. The degree of turning movement of the stem 13 and consequently the degree of movement of the member 9 and the normal position of the contact 8, corresponds to the extent through which the finger 17 is moved with relation to the dial 16. The reading on the dial corresponding to the position that the finger 17 occupies when its movement is terminated indicates the degree of temperature at which the contact 8 will disengage the contact 6. Thus in Fig. 4 the finger 17 overlies the reading 100 and indication is thereby given that the contact 8 is so positioned with relation to the contact 6 that when a temperature of 100° is attained disengagement of said contacts will take place.

No specific description herein contained is intended to put any limitation upon the appended claims which does not inhere in the language thereof.

Having fully described my invention, I claim:

1. In a device of the type set forth, in combination, a switch embodying a fixed contact and a contact movable into and out of engagement with the fixed contact, a member carrying the movable contact and provided with depending lugs, one of which has a square aperture and the other a threaded aperture, a stem having a threaded portion engaged through the threaded aperture, a thermostat having an extension of square cross section engaged through the square aperture, a swivel connection between the extension and the stem, a manually operated finger fixed on the outer end of the stem, and a scale arranged to be traversed by the finger.

2. In a device of the type set forth, in combination, a thermostat having an extension, a rotatable threaded stem, a switch embodying a fixed contact and a movable contact, and a member carrying the movable contact and having a lug which surrounds and engages the stem, the stem being connected to the extension, the member also having a lug which is non-rotatably associated with the extension.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

BERT J. SMITH.

Witnesses:
A. E. WAKEFIELD,
L. L. DENNETT.