May 10, 1932. L. V. LUCIA 1,857,923

THERMOSTATIC SWITCH DEVICE

Filed March 28. 1928

Fig. 1.

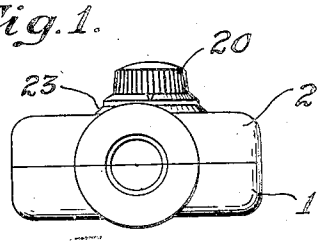


Fig. 3.

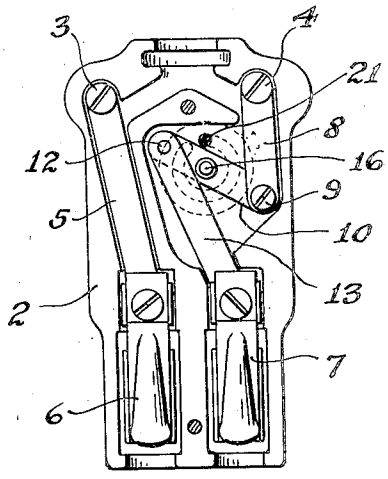


Fig. 2.

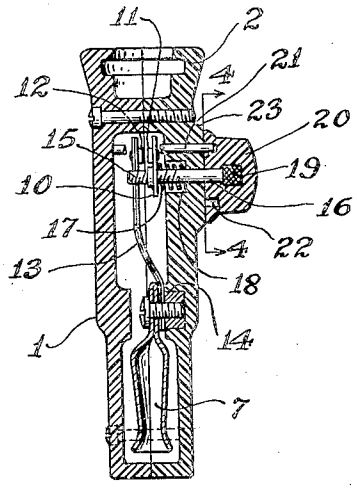


Fig. 4.

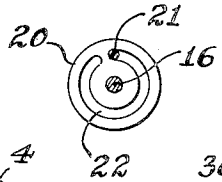


Fig. 6.

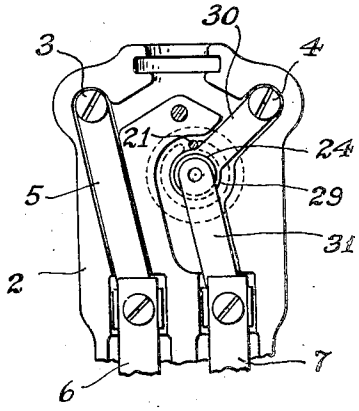
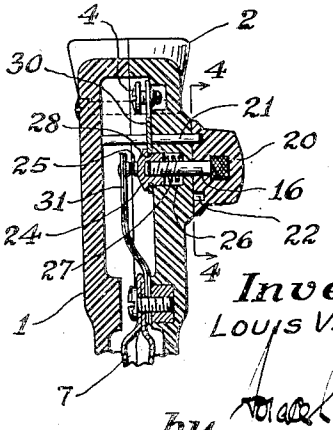


Fig. 5.



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by
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Patented May 10, 1932 1,857,923

UNITED STATES PATENT OFFICE

LOUIS V. LUCIA, OF HARTFORD, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE BEARDSLEY & WOLCOTT MFG. CO., A CORPORATION OF CONNECTICUT

THERMOSTATIC SWITCH DEVICE

Application filed March 28, 1928. Serial No. 265,459.

My invention relates to thermostatic switch devices.

It has for its object to provide an improved thermostatic switch wherein the operator is enabled to vary the point at which the thermostat automatically breaks the circuit. A further object of my invention is to provide an improved simple and inexpensive form of manually operated mechanism adapted to effect the desired adjustment. These and other objects and advantages of my improvement will, however, hereinafter more fully appear.

In the accompanying drawings I have shown for purposes of illustration two embodiments which my invention may assume in practice.

In these drawings,—

Figure 1 is an end elevation of a switch embodying one form of my improvement, showing the two sections of the switch casing in assembled relation;

Fig. 2 is a longitudinal sectional view of the switch.

Fig. 3 is a plan view of the inside of the right hand section shown in Fig. 2;

Fig. 4 is a sectional view on line 4—4 of Fig. 2;

Fig. 5 is a longitudinal sectional view showing a modified construction, and

Fig. 6 is a plan view of the inside of the right hand section shown in Fig. 5.

Considering first the embodiment shown in Figs. 1 to 4, it will be noted that I have shown suitable cooperating casing members 1 and 2 housing the switch mechanism between them, one of these sections 2 herein carrying binding posts 3 and 4 and one of these binding posts 3 being connected through a through connection 5 with a plug socket 6, while the other binding post 4 is connected to a similar socket 7 through improved manually adjustable thermostatic connections hereinafter described.

More particularly, it will be noted that the contact 4 is connected through a short conducting strip 8 extending longitudinally of the section 2, which is in turn connected, as by a screw 9, to a second conducting strip 10 extending at an acute angle to the strip 8 toward the other side of the section 2. This conducting strip 10 herein forms the manually movable contact and is flexible. Thus, its other end may move vertically about its connection 9 and thereby adjust a contact button 11 into or out of contact with a cooperating contact button 12 on a thermostatic member 13. Herein, this member 13 is suitably attached at 14 to the contact 7 by the same means attaching the socket 7 to the casing. As shown, this member 13 is curved and at an acute angle relative to the member 10 but in substantial parallelism to the inner end thereof. Further, the member 10 is herein suitably adapted to be threaded, at a point substantially midway between its ends and at one side of the member 13, on threads 15 on the inner end of a rotating screw 16. As shown, this screw extends through the member 10 at a right angle thereto and has its opposite end extended through a suitable aperture in the top of the section 2. Herein it will be noted that a coiled spring 17, seated in a suitable aperture 18 in the section 2, coaxial with the screw 16 and encircling the screw 16, engages both the bottom of this aperture and the member 10 in such manner as to keep the screw 16 projected inwardly. It will also be noted that the outer end 19 of the screw 16 is fixed to a suitable manually rotatable knob 20 so that as this knob is rotated the screw threads 15 are rotated. Attention is also directed to the fact that a stationary pin 21 is seated in the section 2 at right angles to the plane of rotation of the knob, and that a groove 22, forming almost a complete circle, is provided in the surface of the knob 20 adjacent the section 2 and so disposed as to receive the end of this pin 21 which extends beyond the top of the section 2, the pin and groove thereby forming a rota-

tion limiting means. In a preferred construction, suitable graduations are provided on a raised surface 23 on the member 2 adjacent the base of the knob 20, and the latter is provided on its base with a suitable pointer (not shown).

In the operation of this form of my improvement, the operator, by simply turning the knob 20, may so adjust the contact button 11 relative to the contact button 12 carried by the thermostatic member 13 as to vary the point of release of the latter. More particularly, by rotating the knob 20, the screw 16 is caused to rotate and accordingly to feed the end of the contact 10 with its contact button 11 toward the thermostatic member 13 so that it takes a greater amount of heat to cause the member 13 to swing backward away from the contact member 10 and, carrying its contact button 12 out of contact with the contact button 11, break the circuit automatically. Further, it will be noted that through the screw means provided it is possible to vary the point of release of the thermostat within very fine limits, while through provision of the pin and groove stop means it is made impossible to rotate the screw to such an extent as to move the contact button 11 beyond a safe limit. It will also be noted that the spring serves the function of holding the knob against the adjacent surface of the section 2, and hence acts to position the parts in any desired adjustment.

Referring to the form of my invention shown in Figs. 5 and 6, it will be noted that the screw 16 has a tubular contact carrying member 24 threaded on its inner end, and that this member carries an axially located contact button 25 on its inner end, generally corresponding to the button 11 and adapted to engage a like button on a thermostatic member. Herein, the outer end of the member 24 is also seated in an aperture 26, generally corresponding to the spring aperture 18, the spring 27 in this construction acting at its opposite ends against the end of this aperture and the adjacent surface of the member 24. Attention is also directed to the fact that the member 24 is provided with a groove 28 receiving a ring-like portion 29 on a contact 30 connected to the binding post 4, the outer end of the contact carrying member 24 preferably acting to hold this ring-like portion 29 within the groove. Moreover, it will be observed that in this construction the contact 30 is extended directly from the axis of the member 24 and screw 16 to the binding post 4, and that a thermostatic member 31 is provided which, while generally similar to the member 13, is extended directly from the contact 7 to the same axis, while the pin 21 in this construction is disposed at one side of the members 30 and 31. In this construction the operation of the mechanism will obviously be substantially the same as that previously described, the member 24 being moved in or out on the screw 16 as the latter is rotated by rotation of the knob 20.

While I have herein specifically described two embodiments which my invention may assume in practice, it will be understood that these embodiments are chosen for purposes of illustration and that the invention may be modified and embodied in various other forms without departing from its spirit or the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. In a switch, a casing, a thermostatically controlled contact carrying member therein, a cooperating contact member therein, screw means for adjusting the latter including an operating member outside the casing, means for limiting the rotation of said operating member, and spring means normally holding said operating member in engagement with said casing.

2. In a switch, a casing, a thermostatically controlled contact carrying member therein, a cooperating contact member therein, screw means for adjusting the latter including an operating member outside the casing, pin and slot means for limiting the rotation of said operating member, and spring means normally holding said operating member in engagement with said casing.

3. In a switch, a binding post, a cooperating contact carrying flexible strip electrically connected thereto, a contact socket, thermostatically controlled contact carrying strip electrically connected to the latter and having an end disposed adjacent to one end of said first mentioned strip, and screw means for adjusting the end of the latter strip relative to said thermostatically controlled member, said screw means including a member threaded through said first mentioned strip.

4. In a switch, a binding post, a cooperating contact carrying flexible strip electrically connected thereto, a contact socket, a thermostatically controlled contact carrying strip electrically connected to the latter and having an end disposed adjacent to one end of said first mentioned strip, screw means for adjusting the end of the latter strip relative to said thermostatic member, said screw means including a member threaded through said first mentioned strip, and pin and slot means for limiting the rotation of said threaded member, one element of said means being rotatable with said threaded member while the other is stationary.

5. In a switch, a binding post, a flexible conducting contact carrying strip electrically connected thereto, a contact socket, a thermostatically controlled contact carrying strip electrically connected thereto and disposed at an angle to said first mentioned strip with one end overlapping the free end of the latter, said strips carrying their contacts on

their overlapping ends, and screw means for adjusting said first mentioned strip relative to said thermostatically controlled member.

6. In a thermostatic plug, a casing, a thermostatically-controlled contact-carrying member therein, a cooperating contact-carrying member therein, and stationary screw means engaging and passing through said cooperating contact-carrying member for adjusting the latter to vary the temperature at which the circuit will be broken.

In testimony whereof I affix my signature.

LOUIS V. LUCIA.