March 29, 1927. 1,622,721

A. U. HOOK

ELECTRIC THERMOSTATIC SWITCH

Filed Dec. 7, 1925

Fig. 1

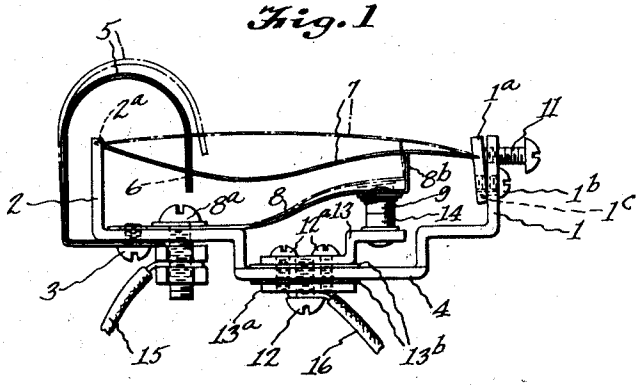


Fig. 2

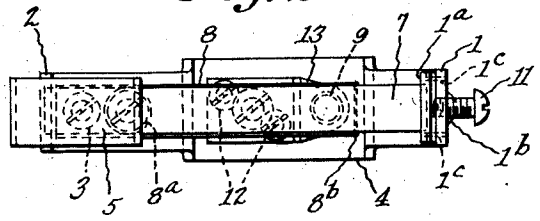


Fig. 4

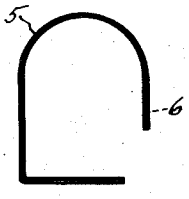


Fig. 3

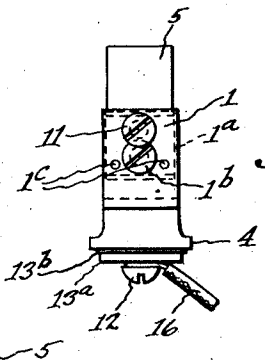
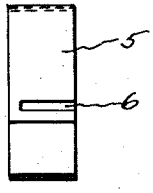


Fig. 5



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Patented Mar. 29, 1927. 1,622,721

UNITED STATES PATENT OFFICE.

ARLEY U. HOOK, OF NEW WASHINGTON, OHIO.

ELECTRIC THERMOSTATIC SWITCH.

Application filed December 7, 1925. Serial No. 73,833.

This invention relates to electric thermostatic switches, and will be found particularly useful in connection with electric sad irons, percolators and the like, although it may be used with any electrical apparatus where it is desired to break a circuit when a certain temperature is reached.

The object of the invention is to provide an improved thermostatic switch of simple construction and efficient operation.

The invention will be understood by an examination of the following description and the accompanying drawings, in which—

Figure 1 is a side elevation of the switch;

Figure 2 is a plan view;

Figure 3 is an end view;

Figure 4 is a side view of the thermostatic element; and

Figure 5 is an end view of the thermostatic element.

Referring specifically to the drawings, the switch comprises a frame 4 made of a single piece of material and having upstanding ends 1 and 2. Secured to this frame 4 by screw 3 is a curved compound thermostatic element 5, which has near the end thereof opposite the end secured to the frame a slot 6 adapted to receive a flat spring 7. One end of this spring 7 fits in a slot 2^a in the end 2 of the frame 4 and the other end fits in a supporting member 1^a which is adjustably secured by a screw 1^b and dowel pin 1^c to end 1 of the frame and which is adjustable by means of screw 11.

Secured by screw 8^a to frame 4 is another spring 8 which has an upwardly extending end 8^b engaging the lower surface of spring 7, and which carries near said end an electric contact member 9.

An insulated bracket 13 carrying an electric contact 14 is mounted on frame 4 by screws 12^a extending through the base thereof and through relatively larger holes in frame 4, screwing into a clamping plate 13^a on the opposite side. Plate 13^a and bracket 13 are insulated from frame 4 by intermediately disposed layers 13^b of insulating material such as mica. Extending through relatively larger holes in plate 13^a and frame 4 and screwing into the base of bracket 13 is a screw binding post 12 to which is connected a wire 16. Wire 15 is connected to screw 8^a.

It will be seen from the above description that when the switch is closed an electric current may enter the switch from wire 15 through screw 8^a to spring 8 and its contact member 9, thence to contact member 14, through bracket 13, screw 12, and out through wire 16.

Under ordinary conditions, thermostatic element 5 holds spring 7 against the end 8^b of spring 8, thus maintaining contact between contact members 9 and 14. Spring 7 is in the form of a compound curve as shown in Figure 1. When the temperature has reached a predetermined point, element 5, composed of two metals one more readily responsive to heat changes than the other, will expand and give spring 7 a slight upward pull, thus disturbing its equilibrium and enabling it to snap upwardly of its own accord into the form of a bow as shown by dotted lines in Figure 1. This movement of spring 7 will release the end 8^b of the spring 8, and the contact member 9 will be lifted by a spring 8 out of contact with contact member 14, and the circuit will be broken. When normal temperature is restored, the element 5 will contract and the parts will resume their original positions.

It will be obvious that the greater the tension in spring 7, the greater the force necessary to be exerted by element 5 to lift the spring. To make the instrument responsive to very small changes in temperature, the screw 11 may be retracted, which will reduce the tension in the spring. The spring 7 will then offer an exceedingly small resistance to the expansion of element 5, and the slightest expansion of the element will release spring 7 which will snap upwardly and release spring 8, which will at once separate contact members 9 and 14.

It will be seen from the foregoing that I have provided an instrument of simple parts which can be cheaply manufactured and which will efficiently perform the service for which it is made.

I claim:—

1. A thermostatic electric switch comprising a frame, a spring secured to the frame and carrying a movable contact member and tending to open the same, another contact member secured to the frame, another spring the ends of which are secured to the frame, an expansible thermostatic element secured to the frame and having a slot in one end through which the second-mentioned spring extends, the second-mentioned spring being supported independently of the first-mentioned spring and normally pressing against

the first-mentioned spring in opposition to its opening tendency, to hold the contact members together, the thermostatic element being adapted to expand and effect a release of said pressure, whereby the movable contact member is moved by the first-mentioned spring to open position.

2. A thermostatic electric switch comprising a frame, a contact member secured to the frame, another contact member supported by a spring biased to open the contacts, another spring independently secured to the frame and exerting pressure upon the second-mentioned contact member to hold the contact members together, a bowed expansible thermostatic element secured at one end to the frame and having a slot at the other end thru which the second spring extends, the second spring being under tension and being bowed one way when the thermostatic element is in its normal position, and bowed the opposite way when the thermostatic element is expanded, the second-mentioned contact member being opened by the first-mentioned spring when the second-mentioned spring assumes the latter form.

In testimony whereof, I affix my signature.

ARLEY U. HOOK.