June 24, 1930. C. K. DAVIS ET AL 1,766,430

THERMOSTATIC ELECTRIC SWITCH

Filed Aug. 29, 1927

Fig. 1.

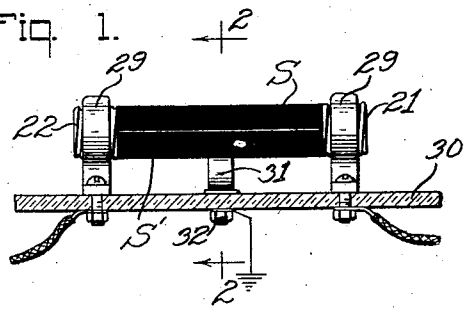


Fig. 2.

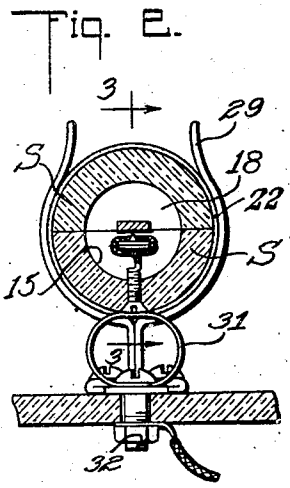


Fig. 4.

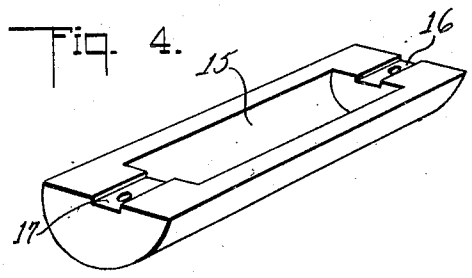


Fig. 3.

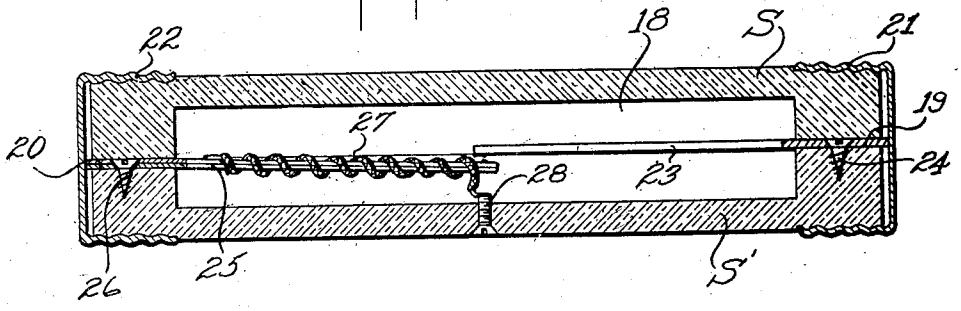
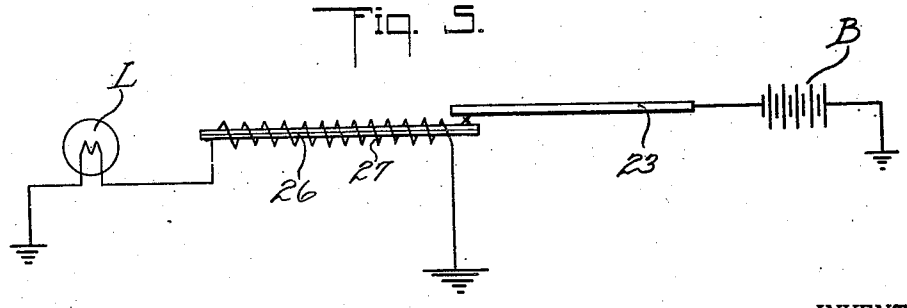


Fig. 5.



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UNITED STATES PATENT OFFICE

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THERMOSTATIC ELECTRIC SWITCH

Application filed August 29, 1927. Serial No. 216,268.

Our invention relates to thermostatic electric switches of that type which operates to intermittently close and open a circuit.

It is a purpose of our invention to provide a switch of the above character which is particularly designed, although not necessarily, for controlling the illumination of one or more incandescent lamps such as used in a direction signal for motor vehicles and in a manner to produce an automatic flashing of the lamp for the purpose of directing attention to the signal so that its indication will be observed and its intended function performed.

It is also a purpose of our invention to provide a switch which, in any use, is characterized by its structural simplicity, low cost of manufacture, and the ease with which it can be assembled and dissembled.

We will describe only one form of thermostatic switch embodying our invention, and one application thereof, and then point out the novel features thereof in claims.

In the accompanying drawings:

Fig. 1 is a view showing in side elevation one form of thermostatic switch embodying our invention in applied position upon a suitable support;

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1;

Fig. 3 is a vertical longitudinal sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a detail perspective view of one of the body sections of the switch shown in the preceding views; and

Fig. 5 is a diagrammatic view illustrating the switch connected in the circuit of a signal lamp.

Referring specifically to the drawings, our invention in its present embodiment comprises a body formed of suitable insulating material and made up of two companion sections S and S′, each of semicircular form so that when assembled they produce a body of circular form. As illustrated to advantage in Fig. 4, each section is provided on its flat side with a pocket 15 and with grooves 16 and 17 extending from the opposite ends of the pocket. As the two sections are identical in construction it will be clear that when they are assembled, as illustrated in Fig. 3, the pockets 15 coact to produce a chamber 18, while the grooves 16 and 17 register to form grooves 19 and 20, respectively, through which parts of the switch extend for engagement with screw caps 21 and 22 threaded on the ends of the body and formed of conducting material. These caps serve to secure the two parts of the body in body formation, and yet they may be readily removed to permit separation of the parts and hence access to the parts of the switch contained therein.

An elongated contact 23 is secured at one end within the groove 19 by means of a screw 24, it being noted, as illustrated in Fig. 3, that the outer end of the contact is in engagement with the adjacent screw cap 21. The inner end of the contact normally engages the inner end of a thermo-responsive element 25 formed of two strips of metal having different coefficients of expansion so that when heated it will flex from the position shown in Fig. 5 to that shown in Fig. 3. The outer end of the element 25 is secured within the groove 20 by means of a screw 26, the extreme end of the element having contact with the screw cap 22. Coiled about the element 25 is a wire 27 covered with insulating material and having one end soldered or otherwise secured to the element 25 while its opposite end is soldered to a screw 28 threaded in one of the sections of the body so that its head is exposed to the outer surface of the body. This wire 27 constitutes a heating coil for the element 25 and by which the element is flexed out of engagement with the contact 23.

As shown in Figs. 1 and 2, the body of the switch is supported within a pair of spring clips 29 constructed to resiliently embrace the caps 21 and 22. These clips in turn are secured upon any suitable support 30. This support may be formed of insulating material as shown or of conducting material. In the latter instance, the screws for securing the clips to the support can be insulated in any suitable manner from such support. A contact 31 in the form of a spring loop is secured to the support 30 by a screw bolt 32, and with the switch body in applied position to the

clips, the contact 31 will have engagement with the screw head 28, and by virtue of its resiliency the contact 31 will forcibly bear against the screw head to insure a good electrical contact.

In Fig. 5 we have illustrated diagrammatically the switch in applied position within a circuit for an incandescent lamp L. This lamp may constitute one of the lamps of a direction signal for motor vehicles. A battery B is provided for supplying current to illuminate the lamp L, one side of the lamp and one side of the battery being grounded. The other side of the battery is connected to the contact 23 through the corresponding clip 29 and screw cap 21. The other side of the lamp L is connected to the element 25 through the other clip 29 and the screw cap 22. The wire 27 is also connected to the lamp L through the element 25 at one end while the other end is grounded to the screw 28 and the member 31 as previously described.

In the operation of the switch the element 25 normally engages the contact 23 so that current from the battery B is supplied to both the lamp L and the wire 27. The wire 27 when energized acts as a resistance and consequently produces heat which causes the element 25 to flex to a position in which it is out of engagement with the contact 23, thereby disrupting the circuit and discontinuing the supply of current to both the wires and the lamp L. The circuit remains disrupted until the element 25 cools and thus returns to its normal position in which it again engages the contact 23. Thus the circuit for the lamp L is intermittently closed and opened to produce a flashing of the lamp so as to direct attention to the signal and thereby cause its indication to be observed.

Although we have herein shown and described only one form of thermostatic switch embodying our invention, and one application thereof, it is to be understood that various changes and modifications may be made herein without departing from the spirit of the invention and the spirit and scope of the appended claims.

We claim:

1. A switch of the character described comprising a two-part body of insulating material, the parts of said body having pockets in the confronting sides thereof coacting to form a chamber and grooves extending from the ends of the pockets and coacting to form axially disposed channels extending longitudinally of the body, caps on the ends of the body and embracing the sections to secure the latter to each other, a contact comprising a flat strip of conducting material secured at one end within one channel and extending into said chamber and longitudinally of the body, a thermo-responsive element secured at one end in the other channel and extending into said chamber and normally engaging said contact, the outer ends of said contacting elements having engagement with said caps, a coil of insulated wire electrically connected at one end to said element and surrounding the latter, and a conductor mounted in the body to extend exteriorly thereof and electrically connected to the other end of said wire.

2. A switch of the character described comprising a two-part body of insulating material, the parts of said body having pockets in the confronting sides thereof coacting to form a chamber and grooves extending from the ends of the pockets and coacting to form channels, caps on the ends of the body and embracing the sections to secure the latter to each other, a contact secured within one channel and extending into said chamber, a thermo-responsive element secured in the other channel and extending into said chamber and normally engaging said contact, the outer ends of said contact and element having engagement with said caps, a coil of insulated wire electrically connected at one end to said element and surrounding the latter, and a conductor mounted in the body to extend exteriorly thereof and electrically connected to the other end of said wire.

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