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1,980,756

THERMALLY CONTROLLED SWITCH

Filed Oct. 15, 1931

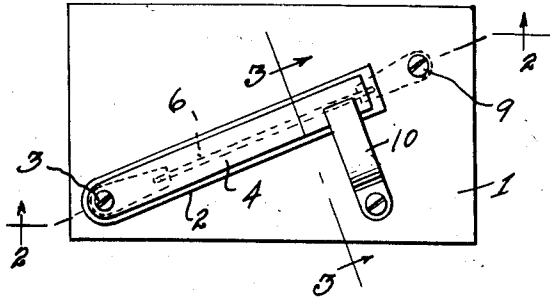


Fig. 1

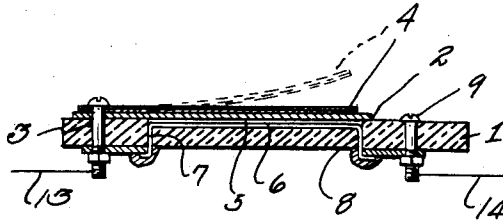


Fig. 2

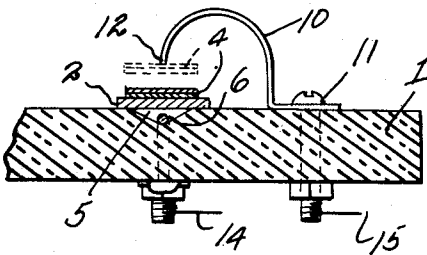


Fig. 3

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THERMALLY CONTROLLED SWITCH

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3 Claims. (Cl. 200—122)

This invention relates to thermally controlled means for delaying the closing or opening of an electric circuit.

It is an object of the invention to provide a device in which a thermostatic element is arranged in close proximity to a heating element so that when current is applied to a heating element in one circuit the same will cause the thermostatic element to close or open a second circuit.

Another object of the invention is in the provision of a thermally controlled device in which the time element for opening or closing a circuit may be varied as desired.

Another object of the invention is in the provision of a thermally controlled device which may be used in conjunction with a plurality of electric lights or the like so designed as to flash the lights on in progression.

A still further object of the invention is in the provision of a device which will delay the closing of an electric circuit, which is extremely inexpensive to manufacture and assemble and which will not easily get out of order in operation.

Another object of the invention is in the provision of a cheap and efficient device which may be used in conjunction with a "flasher" sign, the device being so constructed that the thermostatic element will close the circuit to the electric light in the flasher when in its cold or heated position and which will break the circuit when moving from one position to the other.

These objects and the several novel features of the invention are hereinafter more fully described and claimed and the preferred form of construction by which these objects are attained is shown in the accompanying drawing in which—

Fig. 1 is an enlarged plan view of my improved thermally controlled device.

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

Fig. 3 is an enlarged sectional view taken on line 3—3 of Fig. 1.

Referring to the drawing, the insulating block 1 has the heat absorbing metal strip 2 positioned on one face thereof and secured thereto by means of the bolt 3 extending through the insulating block. A thermostatic element 4 is positioned on the upper face of the metal strip 2 and is likewise held in place by means of the bolt 3. The face of the insulating block 1 adjacent the metal strip 2 is provided with the groove or recess 5 in which is in-

serted the resistance wire 6 the same being provided with the downturned ends 7 and 8 extending through suitable apertures provided in the insulating block 1.

The end 7 of the wire 6 connects to the bolt 3 and likewise to the thermostatic element 4 as is more clearly shown in Fig. 2. The end 8 of the resistance wire 6 connects to the bolt 9 extending through the insulating block 1. A metal contact member 10 is likewise secured to the insulating block 1 by means of the bolt 11 and is provided with a contact end 12 positioned above the thermostatic element 4 and in spaced relation therewith as is shown in Fig. 3 but is adapted to contact with the thermostatic element when the same is sufficiently heated, thereby closing an electric circuit through the member 10 as will be more fully described. It will be further noted that since the strip 2 is positioned between the wire 6 and the thermostatic element that the same will delay the heating of the element 4 so that the time element in which the thermostatic metal 4 is caused to move after the circuit is closed through the resistance wire 6, may be varied by changing the thickness of the heat absorbing metal strip 2. In other words, when current is applied to the bolt 3 through the wire 13 current will flow through the resistance wire 6 to the bolt 9 and then through the wire 14 making a continuous circuit.

The wire 6 will become heated and will heat the plate 2 which will in turn heat the thermostatic element 4 and at a predetermined time governed by the thickness of the plate 2 the thermostatic element 4 will be caused to move to the position shown by dotted lines in Figs. 2 and 3 whereupon it will close a second circuit in which the current flow is from the bolt 3 to the bolt 11 and thence through the wire 15 to any desired point.

From the foregoing description it becomes evident that I have provided an extremely cheap and simple device in which the closing of one circuit may be timed relative to the closing of another circuit as desired and likewise that the device is capable of a variety of uses and which will not easily get out of order in operation.

Having thus fully described my invention, its utility and mode of operation, what I claim and desire to secure by Letters Patent of the United States is—

1. A device of the character described comprising an insulating block having a recess opening through one face thereof, a pair of electrical con-

tacts therein, an electrical resistance element connected to the contacts, the major portion of the same positioned in the recess below the face of the insulating block through which the recess opens, a thermostatic bimetal element positioned adjacent and in spaced relation to the major portion of the resistance element, one end of the same connected to one of the contacts, and a third electrical contact positioned adjacent and in spaced relation to the movable part of the thermostatic bimetal element.

2. A device of the character described comprising an insulating block having a recess opening through one face thereof, a pair of electrical contacts therein, an electrical resistance element connected to the contacts, the major portion of the same positioned in the recess below the face of the insulating block through which the recess opens, a thermostatic bimetal element positioned adjacent and in spaced relation to the major portion of the resistance element, one end of the same connected to one of the contacts, a third electrical contact positioned adjacent and in spaced relation to the movable part of the thermostatic bimetal element, and means be-

tween the resistance element and the thermostatic element for determining the time of movement of the thermostatic element.

3. A device of the character described comprising a block of insulating material, a pair of electrical contacts mounted thereon for connecting the device in an electrical circuit including a switch for closing the same, an electrical resistance element connected at opposite ends to the respective electrical contacts, an electrically conductive thermostatic element positioned closely adjacent to and in spaced relation with the resistance element and connected with one of the said pair of contacts, a third electrical contact supported by the block adjacent the free end of the thermostatic element and directly connected to the circuit in such manner that upon the closing of the circuit by the said switch the heat generated in the resistance element affects the thermostatic element causing the same to flex and engage the third electrical contact thereby shorting out the resistance element and closing the circuit through the thermostatic element.

JOSEPH C. HOOVER. 10

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