

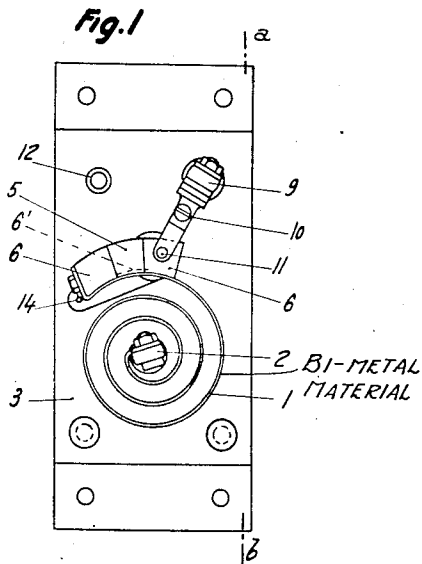
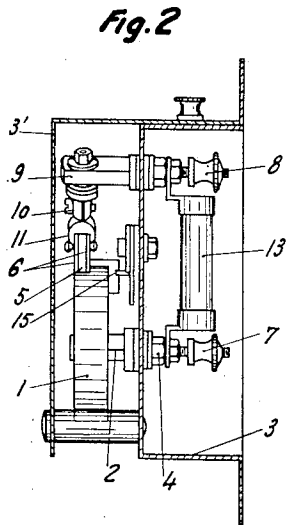
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THERMOSTATIC SWITCH

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THERMOSTATIC SWITCH

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The present invention relates to improvements in fire detectors, in their signal relays, and in the combinations of circuits. These improvements afford in all cases a most reliable operation, even in cases where the detector is subjected to disturbances such as shocks, sudden movements, or excessive inclinations, and always provide for a rapid, exact and well-defined signalling which is clearly shown and must obviously be seen. The detector according to the invention may also effect the automatic release of a device adapted for the control of a fire-extinguisher of any kind.

The accompanying drawing shows by way of example a general view and the details of embodiments of the invention, but obviously, the invention is by no means limited thereto, nor is it limited to the sizes or the combinations of the different shown elements which may be adapted for any definite result required by any particular case.

In the accompanying drawing:

Fig. 1 is a front view, with the protecting cover removed, of the fire detector embodying the said improvements.

Fig. 2 is a section on the line *a-b* of Fig. 1, projected on the left hand side and provided with the protecting cover.

According to the embodiment of Figures 1 and 2, the detector consists of a bimetal spiral 1 the inner end of which is secured to a central pin 2 which is insulated from the frame 3 and is adjustable by a nut 4 (Fig. 2). This adjustment may be effected in order to give the proper tension to the spiral according to the height of the predetermined temperature at which it is desired to obtain the operation of the relays.

The outer end of the spiral carries a sector 5 consisting of insulating material, which is provided at each end with two plates 6 which form contact-pieces and are connected together by a wire 6'. The set of plates 6 is comprised in a good conducting circuit with spiral 1, pin 2 and the terminal 7 which is placed beyond the said pin and may for instance be connected to the relay by an insulated conductor.

The second terminal 8, which in this case is connected to the source of current, is mounted on a pin 9 which is insulated from frame 3 by means of member 9^a. The said pin 9 carries at its end a small support 10 to which is secured a double fork-shaped friction device 11 whose two very flexible contact parts are slidable on the respective sides of sector 5.

It is evident that in the position shown in Figs. 1 and 2, the circuit is closed, and the current will

flow. If the temperature increases, spiral 1 expands by the heat, the sector 5 follows this movement, and hence the insulated part makes contact with friction members 11, thus opening the circuit and providing for the operation of the various indicating apparatus, or the like, actuated by the relay.

An aperture 12 which is pierced in frame 3, permits of removing pin 9 from the place where it has been shown in Fig. 1 and of placing it at 12, in order to adjust in the initial position the contact pieces 11 upon the insulated part. This transforms the detector, which will now operate by closing the circuit, and not, as in the first case, by opening the same.

In order to prevent sparking when breaking the circuit, the device comprises, between terminals 7 and 8, a resistance or a condenser 13, whatever be the arrangement employed.

Stops such as 14 (Fig. 1) and 15 (Fig. 2) serve to determine the limiting positions of spiral 1.

The several parts of the detector are protected by a perforated cover 3' (Fig. 2) which can be readily removed for the inspection of the interior.

Owing to the arrangement of fork-shaped friction device 11 which bears on either side of the said contact-plates, the vibrations or shocks are absorbed by reason of the flexibility of the said contact-pieces, thus affording an absolutely reliable operation, even in the most doubtful cases, for instance when the detector is used on aircraft, ships, vehicles or the like.

In like manner, and in order to obtain at least an equal safety for the relays, the contacts for the latter are constructed in accordance with the same principle.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A device for detecting fire and the like, chiefly adapted for use on movable apparatus and members, comprising a frame, at least one bimetallic strip having the form of a spiral, the inner end of which is secured in a preferably adjustable manner to said frame, a contact surface on the second free end of the spiral, comprising alternately disposed conducting and insulating regions, and electric contacts secured to said frame and cooperating with said alternative regions, said contacts being flexible and having the shape of a forked member bearing on both sides against said contact surface, said inner end of said spiral and said contacts secured to the frame being adapted to be inserted in an electric circuit.

2. A device for detecting fire and the like, chiefly adapted for use on movable apparatus and members, comprising a frame, at least one bimetallic strip having the form of a spiral, the inner end of which is secured in a preferably adjustable manner to said frame, a contact surface on the second free end of the spiral, consisting of a sector shaped element of insulating material having metallic plates secured on its both sides and at least on one of its ends, and comprising a central region of insulating material, these plates forming alternative regions of conducting and insulating material, and electric contacts secured to said frame and cooperating with said contact surface, said contacts being flexible and having the shape of a forked member bearing on both

sides against said contact surface, said inner end of said spiral and said contacts secured to the frame being adapted to be inserted in an electric circuit.

3. Device according to claim 2 with the further feature residing in that said electric contacts bear normally upon the metallic conducting region of said contact surface.

4. Device according to claim 2 with the further feature residing in that said electric contacts bear normally upon the insulating region of said contact surface.

5. Device according to claim 1 further comprising stops for limiting the movement of said contact surface.

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