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R. N. ROWE

2,077,587

ELECTRIC SWITCH

Filed Jan. 13, 1936

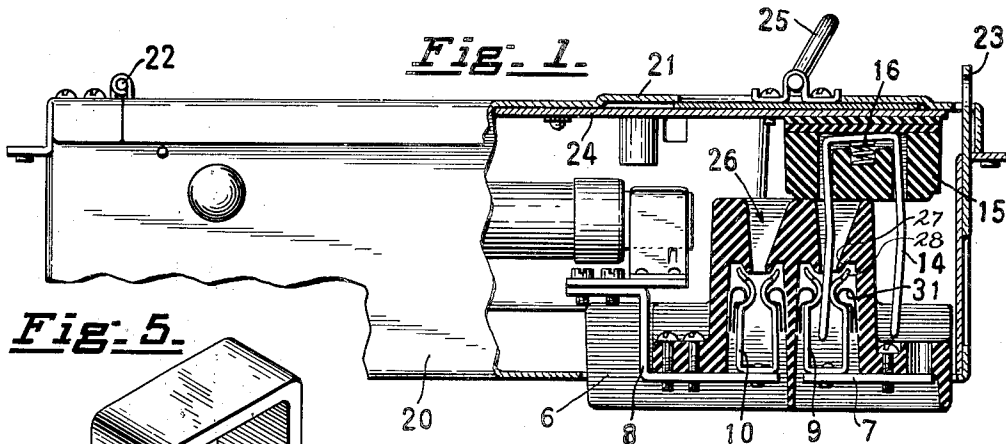


Fig. 5.

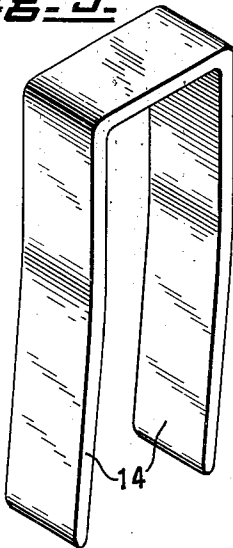


Fig. 4.

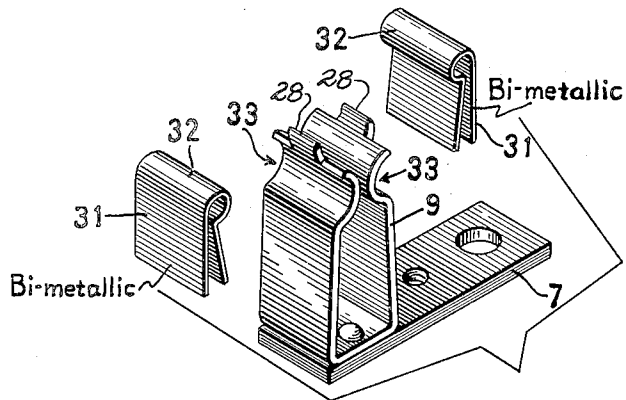


Fig. 2.

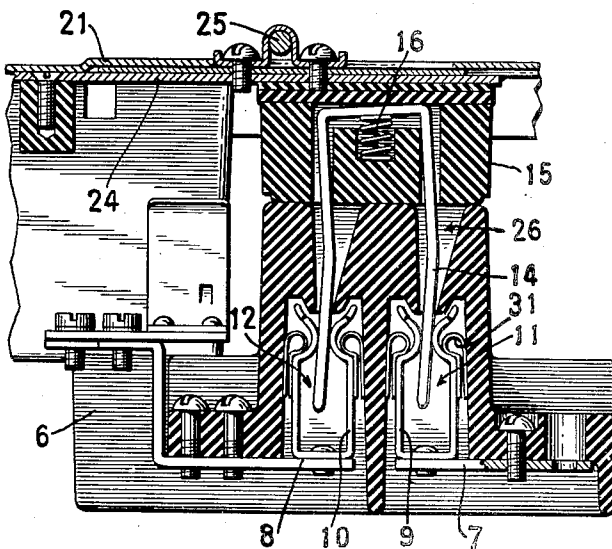
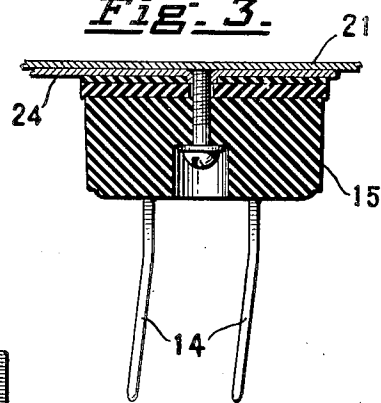


Fig. 3.



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2,077,587

ELECTRIC SWITCH

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Application January 13, 1936, Serial No. 58,840

5 Claims. (Cl. 200-134)

My invention relates to the contact mechanisms of electric devices such as switches and protective devices and has for its main object to maintain effective engagement between the contact members, even when they become heated or otherwise weakened.

A common type switch employs spring contact jaws between which a movable blade-like switch member or contact is inserted. Frequently these spring jaws become weakened by long continued heating or by repeated opening and closing of the circuit. The weakening of the contact pressure of course tends to increase the resistance and cause overheating of the switch.

I have sought to prevent or overcome this difficulty in a simple and inexpensive manner.

In carrying out the invention I mount the spring jaws in an insulating base and provide bimetallic springs which are constructed so as to press the jaws against the inserted switch blade and increase the contact pressure as the temperature rises. I have also provided a means to prevent the jaws from being pressed too closely together, making it possible to introduce the switch blade regardless of the amount that the thermal elements are flexed by heating.

Details of a preferred form of the invention are shown and described.

Fig. 1 is a sectional view of a switch embodying my invention with the parts in open circuit position.

Fig. 2 is a fragmentary sectional view on a larger scale showing the switch in closed circuit position.

Fig. 3 is a sectional view of the movable switch member.

Fig. 4 is a perspective view of the parts of a stationary contact.

Fig. 5 is a perspective view of the movable switch element.

The general construction of the particular switch shown is more fully described, shown and claimed in my companion application Serial Number 56,406 filed December 28th, 1935.

The insulating base 6 carries the terminal bars 7 and 8 and they in turn support the contact jaws 9 and 10 within the recesses 11 and 12.

The movable contact or switch member 14 is of U-shape and is carried by an insulating block 15. Preferably this switch member is loosely mounted and resiliently held in its proper position by a spring 16 so that it can better adapt itself to the spring jaws.

The invention is shown as embodied in an enclosed type switch having a box 20 with a

cover 21 hinged at 22 and provided with a latch or sealing device 23.

The block 15 and its switch member 14 are carried by a slide 24 which is supported in the cover and provided with an external handle 25 for moving the slide. In the position shown in Fig. 1 the circuit is open and in Fig. 2 it is closed. To break the circuit it is merely necessary to open the cover of the box. When the cover is open, the slide and contact 14 may be moved and the cover closed to the off position of Fig. 1. The entrance 26 to each contact recess is preferably tapered to facilitate insertion of the movable switch blade. The spring jaws are designed to grip the switch blades so as to provide an effective electrical connection.

When the contacts get overheated there is a tendency to weaken the spring effect and thus decrease the pressure and still further overheat. In fact, the jaws may become so weak and overheated as to destroy the switch.

To avoid this I provide supplemental spring members 31 which are inserted into the recesses 11 and 12 alongside of the contact jaws. For convenience these springs 31 may have bowed portions 32 which fit in pockets 33 in the jaws. These springs 31 are formed of bimetallic thermostatic material and so constructed that when the contacts heat up the springs expand and increase the pressure against the jaws.

This action enables the jaws to maintain effective contact pressure on the blades and prevents excessive heating. These auxiliary springs also serve to reenforce the spring jaws.

When the switch is opened and the thermal strips are heated, it might be possible for these bimetallic elements to press the jaws of the contacts together. This is undesirable because the switch blade could be inserted only with great difficulty if the jaws were too close. In order to prevent this, I have provided shoulders 27 in the upper portions of the recesses 11 and 12. These shoulders cooperate with extensions 28 on the ends of the contact jaws 9 and 10 to prevent the jaws from being pressed too closely together by the heated bimetallic spring members.

I claim:

1. In a switch, an insulating base having a recess with a tapered entrance, a spring jaw member mounted within said recess, a loosely carried blade mounted to be inserted into said entrance and into said jaw member and bimetallic spring reenforcing means biased between said jaw member and an adjacent wall of said recess.

2. In a switch, an insulating base having a

recess with an entrance leading to one end, a spring clip mounted in said recess with outwardly flaring tips near the entrance, said base having shoulders extending between said tips, thermostatic means in the recess for forcing the tips of the clip toward each other when the clip is heated and a switch blade insertable between the tips of the clip through the entrance to said recess.

10 3. In a switch, a base having a recess open at the back and with an entrance at the front and having shoulders in the recess at opposite sides of the entrance, a U-shaped spring jaw mounted
15 in the recess and having outwardly flaring tips arranged laterally of said shoulders, thermostatic members on opposite sides of the jaw in the

recess and a switch blade insertable into the entrance and between the tips of the jaw.

4. In a switch, an insulating base having a recess, a spring contact clip mounted within said recess, a switch blade movable into said contact
5 clip and thermostatic springs in said recess on opposite sides of said contact clip for pressing the contact members against the blade.

5. In a switch, an insulating base having a recess, a spring jaw member mounted within said
10 recess, a blade mounted to be inserted into said jaw member and thermostatic springs loosely mounted in the recess on opposite sides of the jaw member for increasing the pressure of said
15 jaw member against the blade when the jaw member is heated.

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