May 4, 1937. K. W. DU BOIS 2,079,282

ELECTRIC SWITCH

Filed Nov. 4, 1935

Fig. 1.

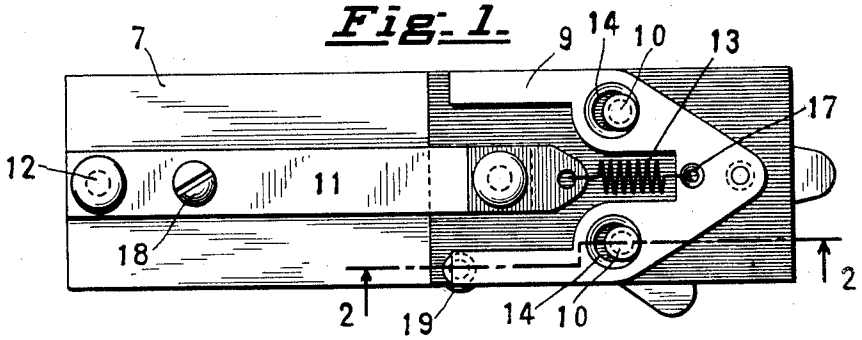


Fig. 2.

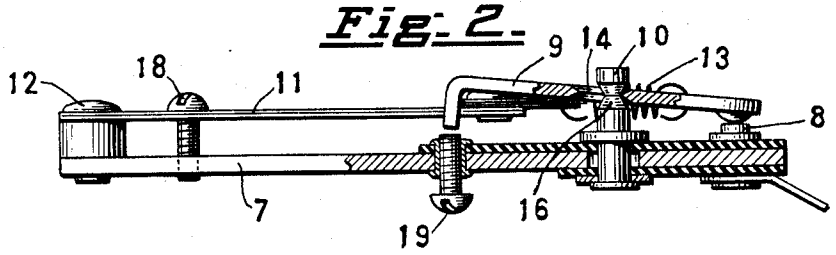


Fig. 3.

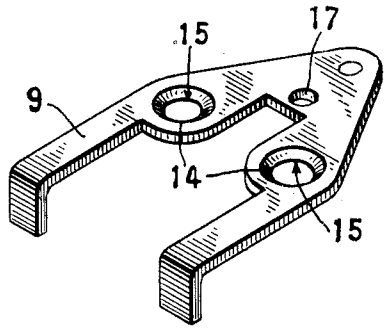
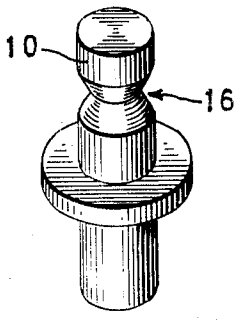


Fig. 4.



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ELECTRIC SWITCH

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Application November 4, 1935, Serial No. 48,107

4 Claims. (Cl. 200—139)

My invention relates to electric switches and particularly those which are actuated directly or indirectly by thermostatic changes.

The main object is to provide a simple but very reliable type of construction, the parts of which can be readily made and assembled.

I have especially sought to provide a construction in which the movable contact or switch member can be mounted and demounted without the use of tools.

Another object is to provide a construction in which the movable switch member is supported in effect by substantially knife edge portions which are readily made and yet are subject to but little wear.

Another object is to provide a thermostatically actuated switch which can be depended upon to operate without the likelihood of sticking.

The switch in its preferred form is of the toggle action type and the movable switch member is supported by two studs or posts. These studs are provided with grooves and the switch member per se is provided with openings adapted to receive the studs, and the openings have sharp knife edge-like portions which coact with the grooves in the studs.

The thermostatically actuated member is connected to the switch member by a spring which applies a substantially constant pressure or tension on the switch member not only for the purpose of effecting the necessary opening and closing movement but also to hold the switch member on its knife edge supports.

Fig. 1 is a plan view of a construction embodying one form of my invention.

Fig. 2 is an edge view and longitudinal section of the same on the plane of the line 2—2 of Fig. 1.

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

Fig. 4 is a perspective view on a larger scale showing one of the supporting studs.

The parts are mounted on a suitable base 7 which carries the stationary contact 8. This contact is preferably insulated from the support and provided with any suitable means of circuit connection.

The movable switch member 9 is supported on the studs 10, 10 which in turn are secured to the base member 7 in any suitable manner as, for instance, by riveting.

The actuator 11 may be moved in any suitable manner either directly or indirectly. For instance it may be formed of bimetallic or thermostatic metal which is supported on the post 12 and is itself adapted to warp upon changes in temperature. The movable end of this member 11 is connected by a tension spring 13 to the movable switch member 9 so as to maintain the typical toggle action for making and breaking the circuit.

The switch member is preferably formed of sheet metal and has perforations 14, 14 somewhat larger than the heads of the studs 10. The edges of the openings 14 are of knife edge construction at the points 15, 15 so as to be supported in the groove 16 on the studs. The spring 13 has one end connected to the movable end of the arm 11 and the other end connected in the hole 17 in the switch member 9 at a point beyond the studs 10.

The line of tension of the spring 13 is substantially midway between the supporting studs 10 so as to produce a substantially equalized pressure on the two bearings and maintain the movable switch member in its proper position.

The action of the switch may be adjusted by tightening or loosening the screw 18. The action may also be varied by adjustment of the stop screw 19.

One or both of the stationary studs may serve as a circuit terminal so as to connect the movable switch member in circuit, it being understood of course that at least one of the studs will be formed of metal and sufficient of the switch member will be formed of metal to carry current to or from the stationary contact.

In its preferred form the movable switch member is formed of sheet metal stamped to shape and provided with the perforations and bearings to receive the supporting pivot studs. The supporting base 7 may be formed of any suitable material but of course it will be understood that the connection to the stationary contact 8 and to the pivot studs 10 will be such as to provide the necessary insulation of the parts of opposite polarity.

It will be seen that the parts are very simple in construction and may be readily made and assembled. It has been found from practical experience that the switch can be so constructed and adjusted as to be very sensitive and yet that it will not become clogged or jammed after long exposure or use. In other words, although very sensitive it is reliable.

It will also be seen that the movable switch member 9 is readily removable and replaceable so that the contact points may be inspected, renewed or repaired as required.

I claim:

1. In a switch of the character described, a supporting base having a stationary contact and two spaced apart supporting studs provided with V-shaped grooves, a switch member having spaced apart knife edge portions detachably seated in said grooves and an actuator having a movable end resiliently connected with said switch member between said studs.

2. In a switch of the character described, a supporting base having a contact and two spaced apart supporting studs each provided with a groove having inclined sides being in a V-shape, a switch member having spaced apart knife edge portions seated in said grooves, an actuator having a movable end connected with said switch member between said studs and a stop for limiting the movement of the switch member away from the contact.

3. In a switch, a supporting base having a relatively stationary contact and two spaced apart supporting studs provided with peripheral grooves V-shaped in section, a switch member having spaced apart knife edge portions seated in said grooves, an actuator having a movable end and a spring resiliently connecting said switch member and said actuator between said studs.

4. A switch having a stationary contact and two supporting studs each provided with a V-shaped groove, a movable switch member provided with apertures to receive the ends of said studs, edges of said apertures being sharp and supported in said grooves and snap action mechanism including a thermostatic arm and a spring connected to said movable switch member between said studs.

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