

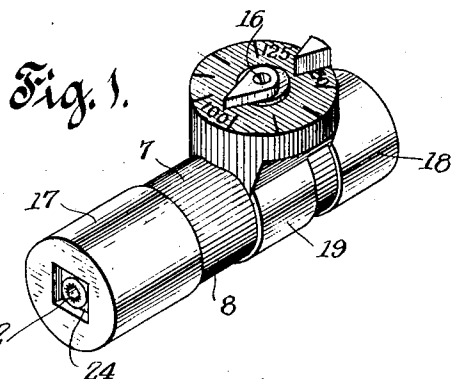
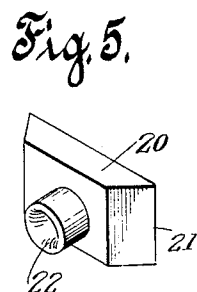
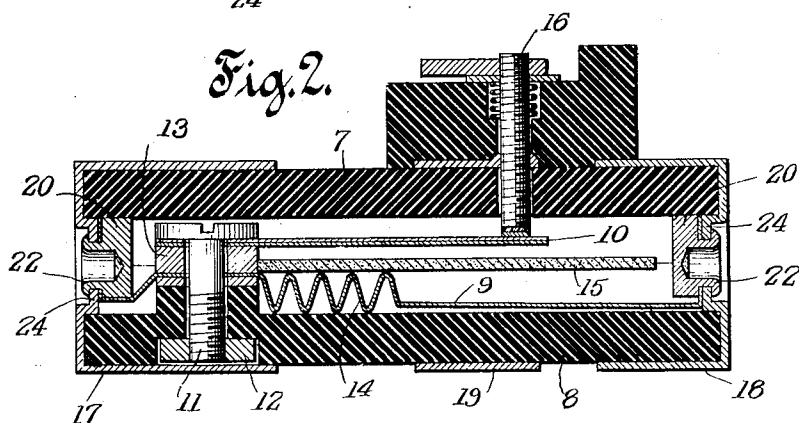
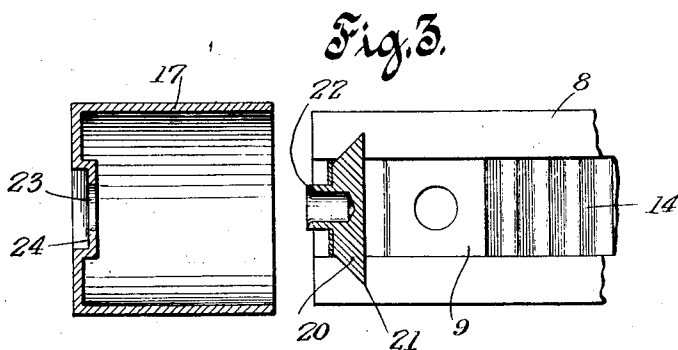
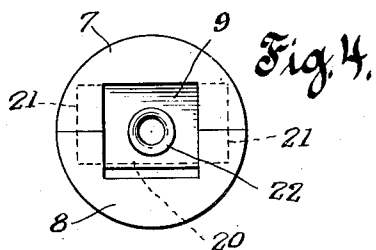
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B. E. GETCHELL

RELAY CONSTRUCTION

Filed March 10, 1923



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RELAY CONSTRUCTION.

Application filed March 10, 1923. Serial No. 624,142.

To all whom it may concern:

Be it known that I, BENJAMIN E. GETCHELL, a citizen of the United States of America, and residing at Plainville, in the county of Hartford and State of Connecticut, have invented new and useful Improvements in Relay Constructions, of which the following is a specification.

My invention relates to what is sometimes termed an overload relay construction, particularly of the cartridge type. Such constructions are generally provided with means for automatically opening a circuit in case of an overload.

The main object of my present invention is to simplify such constructions, reduce the cost of manufacture, facilitate assembling of the parts and insure a permanent and reliable operation. In accomplishing these general objects, I have secured the heater or thermostatic element to the end ferrules and the ferrules to the body of the relay by a special form of anchorage device.

Fig. 1 is a perspective view of one form of a construction embodying the improvements of my invention;

Fig. 2 is a longitudinal sectional view of the same on a larger scale;

Fig. 3 is a plan view and partial section showing one end cap or ferrule;

Fig. 4 is an end view of the body showing the anchorage device;

Fig. 5 is a perspective view of an anchorage device.

The body of the relay is preferably formed of insulating material in two halves, 7 and 8, with a groove or longitudinal channel along the center.

The heater element 9 is positioned in this channel and extends from one end to the other of the body. The bi-metallic thermostatic circuit breaking element 10 is secured in place by means of a screw or bolt 11 and nut 12.

In this particular form of construction, I provide a heat transmitting washer or nut 13 between the bi-metallic member 10 and the heater 9, this washer 13 being of such specific thermal conductivity and such dimensions as to provide the desired time lag element of heat transmission between the

heater element 9 and the movable member 10. Preferably the heater element 9 is provided with a corrugated or folded portion 14 for concentrating the heat due to electrical resistance close to the heat transmitting member 13 and to allow for changes in length due to heating. An insulating barrier 15, formed, for instance, of asbestos is preferably located between the body of the heater 9 and the movable end of the member 10. An adjusting screw 16 is also preferably provided in this type of device for varying the operative conditions of the relay.

The end caps or ferrules 17 and 18 serve to hold the two parts of the body together and to close the ends of the groove or channel which contains the heater and movable members. An intermediate ferrule or ring 19 also assists in holding the parts of the relay together and serves as a seat for the screw 16 which passes through it.

In each end of the relay I mount an anchorage member 20 preferably of brass set into grooves or recesses 21 in the opposite sides of the central channel. Each anchorage member has a central stud portion 22, which extends through the upturned end of the heater element 9, and through the hole 23 in the end of the terminal ferrule or cap. This stud member 22 may be tubular and after assembly of the parts, spun over or riveted into the end of the ferrule. The end cap is also preferably provided with a square shouldered portion 24, which fits in the end of the channel of the body portion so as to prevent the cap from rotating.

The end caps 17 and 18 and the central ferrule 19 serve as the electrical terminals of the relay.

It will be seen from the foregoing that this construction is simple, the heating element is securely held in contact with the ferrule members, the ferrule members are rigidly secured to the body of the relay, the ferrule members are secured against rotary and longitudinal movement, and the parts are easy to assemble in regular manner, so as to assure uniformity in the product. Furthermore, and an important feature is that the end caps are held in place without the use of screws or similar devices, and

thus the customers or others are prevented from taking the relay apart or tampering with it and then perhaps putting it together improperly.

5 I claim:

1. A two part insulating body having a longitudinal groove, a heater strip mounted in said groove, a thermostatic switch operated by the heat from said strip, anchor members mounted in said groove, end caps on said body having inwardly directed bosses extending into the ends of said groove, and means for securing said bosses to said anchor members, said strip being electrically connected to said end caps and an intermediate contact connected to said switch.

2. In a device of the character described, semi-cylindrical body and cover members having registering grooves and transverse shoulders adjacent the ends thereof, anchor members in said grooves abutting against said shoulders, a heater strip mounted in said groove, end caps enclosing the respective ends of said body and cover members, and means for securing said end caps and said anchor members to the opposite ends of said heater strip.

3. A two part enclosing body having a longitudinal groove with transverse notches, a strip mounted in said groove, an anchor mounted in said notches and an end cap secured to said anchor.

4. In a device of the character described, semi-cylindrical body and cover members having registering grooves and transverse shoulders adjacent the ends thereof, anchor members in said grooves abutting against said shoulders, a heater strip mounted in said groove, end caps enclosing the respective ends of said body and cover members, and means for securing said end caps and said anchor members to the opposite ends of said heater strip, said end caps having bosses fitting into the grooves in the opposite ends of said body and cover members to prevent turning of said cap members.

5. A body having a groove, a strip mounted in said groove, an end cap for said body

and an anchor mounted in said groove and having a shank extending through said strip and through said cap for permanently securing the parts together.

6. In a device of the character described, a housing, a heating strip mounted therein, an end cap for said housing, and an anchor uniting said housing, said strip and said cap.

7. In a device of the character described, a two-part body member having a longitudinal groove with transverse recesses in the outer ends, a heater strip and switch member secured in said body member, anchor members detachably secured in said recesses, caps securing the opposite ends of said body member together, and means for securing said end caps to said anchor members.

8. In a device of the character described, a two part body member having transverse grooves, an end cap enclosing one end of said body and having an opening, a securing member in said transverse grooves and having a portion extending through the opening in the end cap and riveted to secure the end cap to said body.

9. In a device of the character described, a two part body member having registering transverse grooves, an end cap enclosing the end of said body members, a securing member in said transverse grooves and engaged with said end cap to secure the body members in register and to secure the said parts together.

10. An automatic relay comprising a body member having a longitudinal groove, a heater strip mounted in said groove, a thermostatic strip, a bolt for securing said thermostatic strip and said heater strip to said body member, a relatively stationary contact coacting with said thermostatic member to form a switch, anchor members in opposite ends of said body member, end caps and means for permanently securing said end caps to said anchor members and electrically connecting said end caps with said heater strip.

BENJAMIN E. GETCHELL.