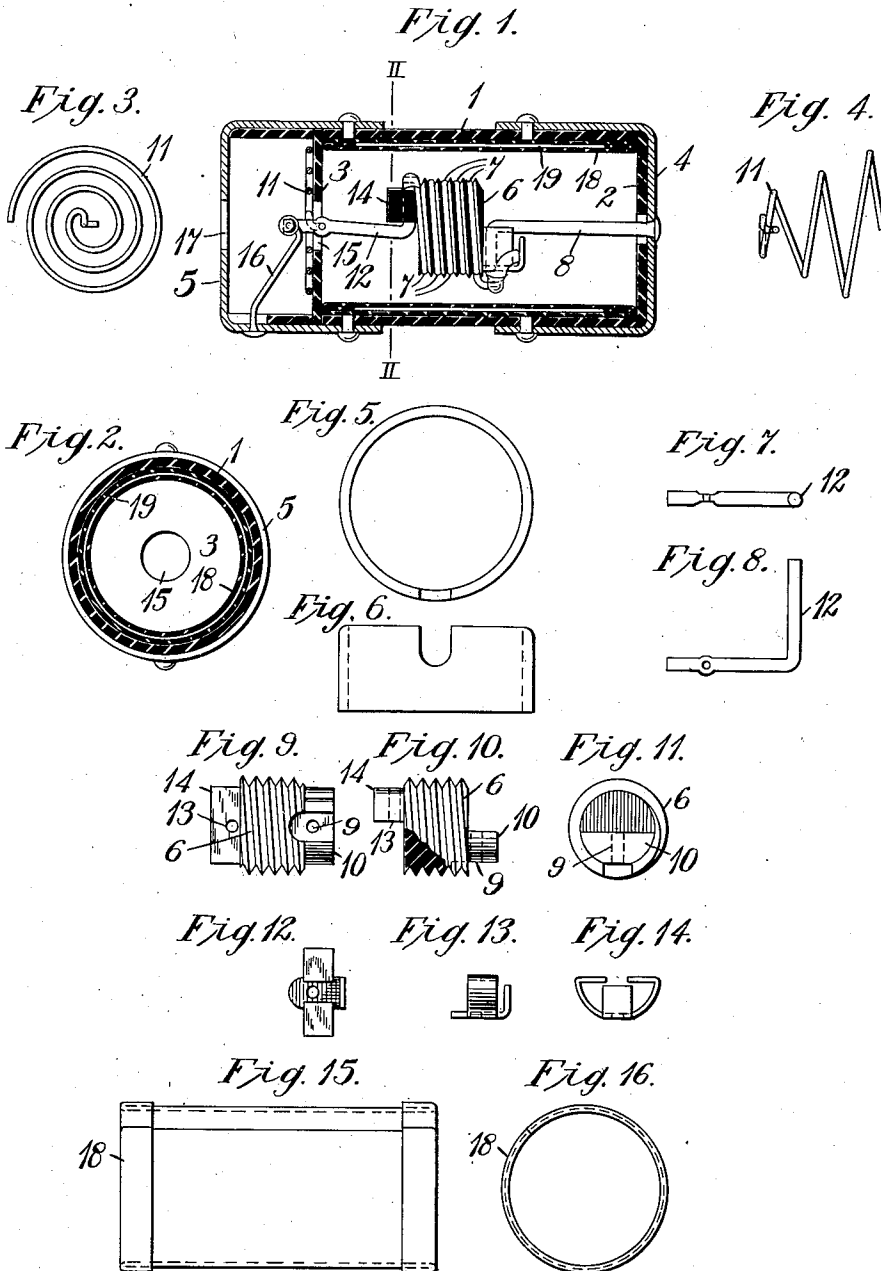


H. M. SCHEIBE.
ELECTRIC CIRCUIT CUT-OUT.
APPLICATION FILED JUNE 9, 1910.

1,056,220.

Patented Mar. 18, 1913.



WITNESSES:

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ELECTRIC-CIRCUIT CUT-OUT.

1,056,220.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed June 9, 1910. Serial No. 566,106.

To all whom it may concern:

Be it known that I, HAROLD M. SCHEIBE, a citizen of the United States, and a resident of Wilksburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Electric-Circuit Cut-Outs, of which the following is a specification.

My invention relates to automatic electric circuit interrupters or cut-outs of the fuse type and it has for its object to provide a device of this character in which a fusible member may be heated, both directly and indirectly, by the current traversing the electric circuit, for the purpose of preventing the unnecessary interruption of the circuit in case the current only temporarily exceeds a predetermined amount.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section, and Fig. 2 is a transverse section, on the line II—II of Fig. 1, of a device constructed in accordance therewith. Figs. 3 to 16, inclusive, are detail views of the structure shown in Figs. 1 and 2.

Referring to the drawings, the device comprises a hollow cylinder or tube 1 of insulating material having an insulating plate 2 at one end, a transverse insulating plate 3 near the other end and metal caps 4 and 5 which are fitted over the respective ends of the tube.

An insulating block or spool 6, constructed of refractory material, is located within the tube 1, between the transverse plates 2 and 3. The spool 6, which is shown in bottom plan in Fig. 9, and in side elevation in Fig. 10, is screw-threaded or grooved to receive a plurality of convolutions of conducting wire 7, which constitutes a heating coil and is connected in series circuit relation with a fusible strip or wire 8 that is soldered, or otherwise electrically connected, at one end, to the cap 4 and is joined, at the other end, to one terminal of the coil 7. The fusible wire 8 projects through a hole 9 in an end lug 10 of the spool 6 and is held under tension by means of a spiral spring 11 which is coiled about a supporting finger 12 that is bent at one end to project through a hole 13 in an end lug 14 which corresponds to the end lug 9. The finger 12 extends through a hole 15 in the transverse plate 3, and spiral spring 11 which rests against the

outer surface of this plate and tends to assume the shape shown in Fig. 4, thus maintaining a sufficient tensile strain upon the parts 12, 6 and 8 to hold the spool substantially in the center of the tube 1. The finger 12 is electrically connected to one terminal of the coil 7 and the electric circuit is completed from the outer end of the finger through a flexible conductor 13 to the cap 5, the caps 4 and 5 constituting the respective terminals of the cut-out. The tube or shell 1 is provided with an insulating lining 18, the edges of which are folded over to space it from the tube and to form an air cell 19 which constitutes an excellent heat insulator for the device.

The operation of the device is as follows: The electric heating coil 7 and the fuse 8 are so proportioned relative to the normal current traversing the circuit that a relatively slight increase in current, if maintained for a considerable length of time, produces sufficient heat in the coil 7 to melt the fusible strip 8, but, on the other hand, a considerable increase in current may take place for a short length of time without fusing the wire 8. When the fuse is softened, the pull exerted by the spring 11 ruptures it and so interrupts the electric circuit. When the circuit is interrupted, the finger 12 assumes such position that its outer end extends through a hole 17 in the cap 5 without destroying or rupturing the flexible conductor 16. By this means, the condition of the interrupter is exteriorly indicated and it is only necessary to replace the short length of fuse wire in order to again put the device into service condition.

The cut-out may be made of such size and shape as to correspond to a standard inclosed fuse, so that it may replace a fuse of this character without necessitating any change in the usual stationary contact members.

It is evident that the material employed for the heating coil and fusible member and the structural details of the device may be varied within the spirit and scope of my invention.

I claim as my invention:

1. A cut-out for electric circuits comprising an insulating block, a heater element surrounding said block, a fusible wire or strip in series circuit relation, and resilient means for holding the fusible wire or strip under tension and cooperating therewith to

suspend the block and the heater element out of engagement with adjacent bodies.

2. A cut-out for electric circuits comprising a helically grooved insulating block, a heating coil located in the grooves of said block, a fusible strip in series circuit relation with said coil, and means for holding the fusible strip under tension.

3. A cut-out for electric circuits comprising a chamber, an insulating block, a heating coil surrounding said block, a fusible strip located in said chamber and having its respective ends fastened to said block and to a wall of said chamber, and means for holding said strip under tension to suspend the heating coil and its block in the chamber, the current traversing the cut-out being adapted to influence the fusible strip by means of heat generated in said coil.

4. A cut-out for electric circuits comprising a refractory spool or block, a heating coil wound thereon, a pair of conducting members respectively connected to the terminals of the heating coil and a spring for holding the parts under tension, one of said conducting members being fusible at relatively low temperatures.

5. A cut-out for electric circuits comprising an inclosing casing having end caps of conducting material, a spool of insulating material, a heating coil wound on the spool,

two conductors mechanically joined to the ends of the spool and electrically connected to the terminals of the heating coil and a spring for holding the conductors and the spool under tension, one of said conductors being fusible and connected to one conducting cap, and the other conducting member being yieldingly connected to the opposite cap and responsive to the action of the spring upon the rupture of the other member.

6. A cut-out for electric circuits comprising a tube or shell, an insulating lining having outwardly folded ends to space it from the tube or shell, a heating coil and a fusible strip located therein under tension.

7. A cut-out for electric circuits comprising a tube or shell, an insulating lining having annular projections between it and the inner peripheral wall of the tube or shell, a heating coil, a fusible strip located therein, and a spring for holding the parts under tension, one of said conducting members being fusible at relatively low temperatures.

In testimony whereof, I have hereunto subscribed my name this 31st day of May, 1910.

HAROLD M. SCHEIBF.

Witnesses:

JOHN A. WOLFE,
B. B. HINES.