

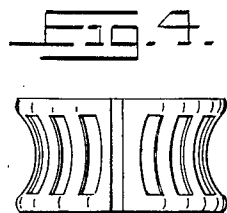
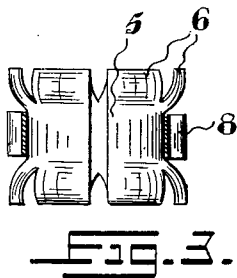
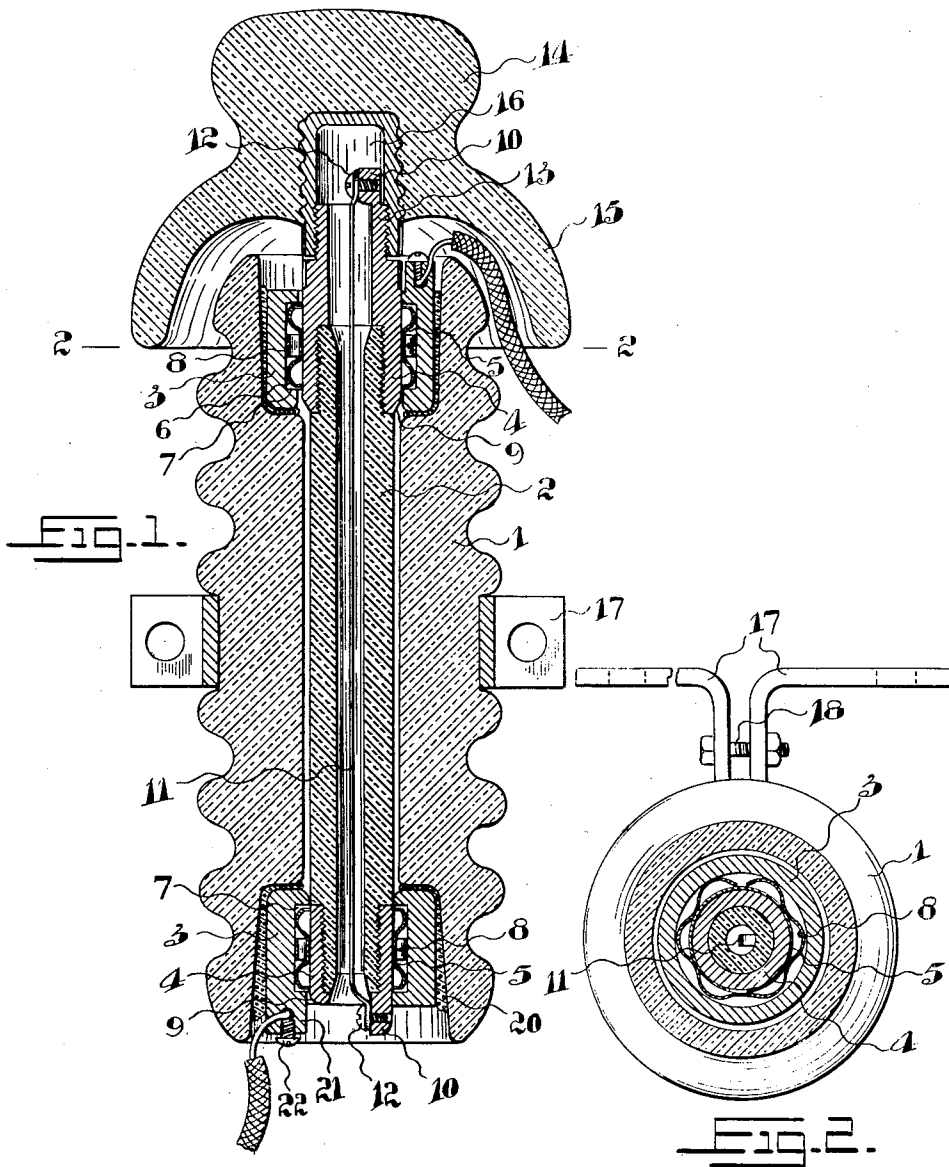
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COMBINED ELECTRIC FUSE AND SWITCH

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COMBINED ELECTRIC FUSE AND SWITCH.

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This invention relates to heavy duty fused switches for outdoor or indoor use, and my object is to combine a fuse and switch in such a manner that the device will be substantially weather proof, is easily and safely operable to open and close the circuit in which it is connected and in which the fusible element is easily replaceable.

I attain my object by means of the constructions hereinafter described and illustrated in the accompanying drawings in which

Fig. 1 is a longitudinal section of the device;

Fig. 2 a section on the line 2—2 in Fig. 1;

Fig. 3 a detail of the contact springs; and

Fig. 4 a side elevation of a modified form of spring.

In the drawings like numerals of reference indicate corresponding parts in the different figures.

1 is the body of the device, preferably made of porcelain, and preferably externally corrugated, as shown. Within the body a fuse cartridge 2 is adapted to slide so that it may be positioned to make or break the electric circuit in which the device is included. The body is recessed at each end to receive a contact ring 3 of metal, which rings are held in place by cement 20. Each ring is provided with a lug 21 having a hole therein to receive the end of a conductor. Set screws 22 are provided to hold the conductors in place. The fuse cartridge 2 is provided at each end with a contact plug 4 adapted to make contact with the rings, preferably through the medium of the contact springs 5. In the preferred form each contact spring is formed of a central ring having integrally formed bowed fingers 6 connected therewith. The contact springs are each set in a groove 7 formed in one of the contact rings, the fingers 6 engaging in the bottom of the groove while contact with the corresponding contact plug 4 is made with the central part of the spring. An auxiliary spring 8 of corrugated form is preferably placed between each spring 5 and the bottom of the groove to assist in pressing inwardly the central part of the spring 5. Each contact plug 4 is formed with a bevelled end 9 to facilitate its entrance within the corresponding contact spring.

The cartridge fuse is in essence of ordinary construction, and is provided with a hollow

fibre body, to the ends of which the contact plugs are secured, the latter being of ring form and therefore open ended. The upper contact plug 4 is preferably longer than the lower contact plug and, as its internal capacity is greater than that of the body of the cartridge, it forms an expansion chamber to provide room for the expansion of the heated gases formed when a fuse is blown.

Each contact plug is formed at its outer end with a lug 10, to which the ends of a fuse 11 are secured by means of the screws 12. The fuse is thus easily renewable. The outer end of the upper contact plug 4 is reduced in diameter, and the reduced portion 13 is threaded for the connection of a cap adapted to facilitate the moving of the fuse cartridge and to exclude rain or snow from the interior of the body. I preferably employ a porcelain cap 14 provided with a petticoat 15 adapted to extend over and around the upper end of the body. This porcelain cap has a recess formed therein into which is threaded, or otherwise secured, a metal cap 16 internally threaded to screw on the reduced portion 13 of the contact plug 4. The interior of this cap 16 forms an extension of the expansion chamber within the upper contact plug 4.

A metal hanger or clip 17, of known construction, is provided whereby the device may be secured to a suitable support. Usually, of course, the device will be supported in an upright position with the cap 14 uppermost.

The hanger or clip 17 may be formed in one or more parts and frictionally engages the porcelain 1. A bolt 18 is provided whereby the legs of the hanger may be opened up to allow the porcelain to be rotated relative to the hanger.

The operation of the device is as follows. Assuming the fuse cartridge to be assembled, the porcelain cap 14 is secured in position to the upper contact plug and the cartridge pushed into the body through the contact rings until the contact plugs contact with the springs of the latter. The device then appears as shown in the drawings.

If it is desired to break the circuit in which the fuse is connected, it will be merely necessary to grasp the porcelain cap and pull out the fuse cartridge.

Whenever it is necessary to renew the fuse, the cartridge may be withdrawn, as hereinbefore described, and the porcelain and metal

caps removed. When both the lugs 10 are exposed, a new fuse may be connected thereto.

In Fig. 4 is illustrated a modified form of contact spring. In this construction the strip of material is provided with a series of transverse slots, and the slotted portion is bent into concavo-convex form in cross section.

What I claim is:

1. A combined electrical fuse and switch comprising a hollow body of insulating material; metal contact members fitted therein at opposite ends of the bore of the body; a fuse cartridge slidable in the bore of the body and provided at each end with a contact plug adapted to make contact with the contact members or to be disengaged therefrom by the movement of the cartridge; and a cap threaded on the upper end of the upper contact plug having a chamber formed therein into which gases formed by the blowing of the fuse may expand, the cap being provided with a petticoat of insulating material adapted to surround the upper end of the body.

2. A combined electrical fuse and switch comprising a hollow body of insulating material metal; metal contact rings fitted therein at opposite ends of the bore of the body and grooved to receive spring contacts; spring contacts fitted in the grooves; a fuse cartridge slidable in the bore of the body; and a contact plug at each end of the cartridge adapted to make contact with the springs, each plug being formed with a bevelled portion to facilitate the engagement of the plugs with the springs when the cartridge is moved lengthwise of the body to make contact.

3. A combined electrical fuse and switch comprising a hollow body of insulating material; metal contact rings fitted therein at opposite ends of the bore of the body and grooved to receive spring contacts; spring contacts fitted in the grooves, said springs each comprising a ring, and spring fingers integral with the ring and bowed to engage the bottom of the groove; a fuse cartridge slidable in the bore of the body; and a contact plug at each end of the cartridge adapted to make contact with the springs.

4. A combined electrical fuse and switch comprising a hollow body of insulating material; metal contact rings fitted therein at opposite ends of the bore of the body and grooved to receive spring contacts; spring contacts fitted in the grooves, said springs each comprising a ring; and spring fingers integral with the ring and bowed to engage the bottom of the groove; a corrugated spring ring fitted between the bottom of the groove and the ring aforesaid; a fuse cartridge slidable in the bore of the body; and a contact plug at each end of the cartridge adapted to make contact with the springs.

5. A combined electrical fuse and switch comprising a hollow body of insulating material; metal contact members fitted therein at opposite ends of the bore of the body; a fuse cartridge slidable in the bore of the body and provided at each end with an open ended contact plug adapted to make contact with the contact members or to be disengaged therefrom by the movement of the cartridge; a projection on the outer end of each contact plug; a fusible member extending through said cartridge and contact plugs and having its ends attached to said projections; a metal cap threaded on the upper end of the upper contact plug; and a cap of insulating material secured over the metal cap and provided with a petticoat adapted to surround the upper end of the body.

6. A combined electrical fuse and switch comprising a hollow body of insulating material; metal contact members fitted therein at opposite ends of the bore of the body; a fuse cartridge slidable in the bore of the body and provided at each end with an open ended contact plug adapted to make contact with the contact members or to be disengaged therefrom by the movement of the cartridge; a projection on the outer end of each contact plug; a fusible member extending through said cartridge and contact plugs and having its ends attached to said projections; and a cap of insulating material detachably connected with said upper contact member, said cap being provided with a petticoat adapted to surround the upper end of the body.

7. A combined electrical fuse and switch comprising a hollow body member and a fuse cartridge member slidable in the bore of the body, each of said members having a pair of spaced metal contacts thereon adapted to be contacted with the contacts on the other member, the contacts on one member being formed as springs bowed in a direction longitudinally of the cartridge member and adapted to be deformed by engagement of the middle portion thereof with the contacts on the other member.

8. A combined electrical fuse and switch comprising a hollow body member and a fuse cartridge member slidable in the bore of the body, each of said members having a pair of spaced metal contacts thereon adapted to be contacted with the contacts on the other member, the contacts on one member being formed as springs extending longitudinally of the cartridge member, the end portions of said springs engaging the one member and the middle portions engaging the contacts on the other member.

Signed at Toronto this 24 day of March, 1927.

JAMES R. SMITH.