Aug. 22, 1944. R. R. PITTMAN. 2,356,352

FUSE CONSTRUCTION

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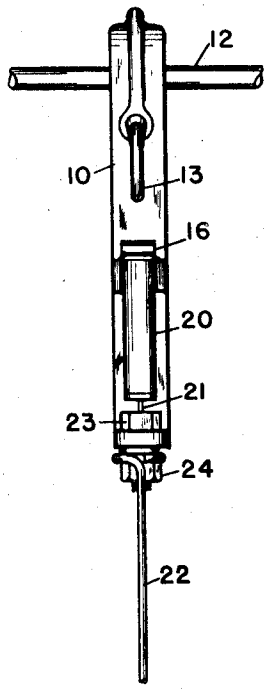


Fig. 2

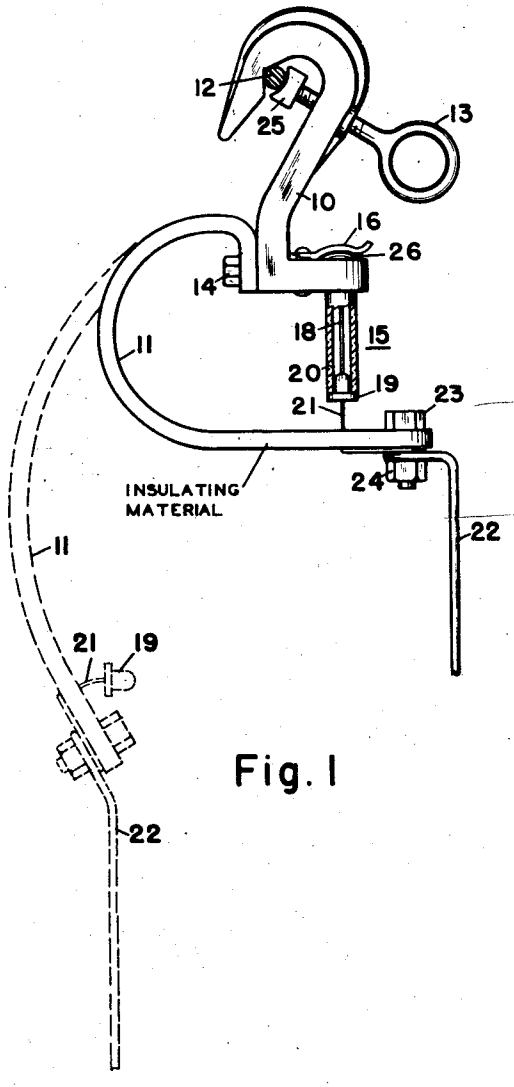


Fig. 1

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FUSE CONSTRUCTION

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7 Claims. (Cl. 200—115.5)

This invention relates generally to fuses; more particularly to fused conductor clamps.

One of the principal objects of the present invention is the provision of a simple and inexpensive fused device suitable for manipulation by means of "hot sticks" in the use of the device. Among the other objects is the provision of a construction in which a fuse link is normally tensioned by a resilient element of insulating material which also functions as an insulating support for a tap conductor after the fuse link is ruptured. Other objects will be apparent from the description.

The elements and combinations thereof, features of construction, and arrangement of parts comprising the invention will be exemplified in the following description of one embodiment of the invention, and the scope of the invention will be indicated in the accompanying claims.

The accompanying drawing illustrates one embodiment of the invention, Fig. 1 being a side elevational view of the construction, shown partly in section, and Fig. 2 a back elevational view.

At the numeral 12 is indicated a conducting member, which may be a line conductor, or any conductor which it is desired to tap through employment of the invention. A clamp of conducting material 10 forms one terminal of the device, the clamping shoe 25 thereof being arranged to move toward and away from the conductor 12 in response to suitable rotation of the attachment screw-eye 13, for the purpose of attaching the device to a conductor by clamping the latter within the upper hook-shaped portion of the clamp 10, or for bodily removing the device by lifting it from the conductor 10, such removal and application being made, if desired, with the use of an insulating tool or "hot stick."

At the lower end of the clamp 10 an outwardly extending integral portion thereof is provided with an inwardly extending slot into which the fuse link 15 is placed. A curved spring clip is arranged above the slot and fastened to the clamp 10 by the rivet 17, in such a manner that the lower surface of the spring clip 16 engages the button-head 26 of the fuse link, and thereby removably holds the latter in its downwardly extending position from the clamp 10.

A resilient strip of insulating material 11, which is preferably some weather resistant material, such as "Thiokol," "neoprene," or other non-tracking synthetic rubber, is fastened at one end to the lower portion of the clamp 10 by means of the cap screw 14, and is normally deformed into a curved shape which extends from the clamp 10 first upwardly, thence outwardly and downwardly, thence inwardly and downwardly so that its other end is near the lower end of the fuse link 15. The bolt 23 extends through the lower and movable end of the resilient member 11, to provide a swingably movable terminal spaced from the clamp 10.

The fuse link 15 is arranged with its tail 21 fastened to the unfixed end of the resilient strip 11 by means of the bolt 23 and the nut 24; also similarly fastened at the same location is the downwardly extending tap conductor 22, which may extend to connect some apparatus, not shown, at a point below the clamp 10.

From the arrangement just described, it will appear that the fuse link 15 is normally tensioned by the resilient strip of insulating material 11, and is electrically in parallel circuit relationship therewith. It may also be noted that the conductor 22 is supported at its upper end from the outer end of the resilient strip 11.

The fuse link 15 comprises the tube 20, of insulating material, into the lower end of which is loosely fitted the guide 19, arranged for slidable movement therein. The guide 19 is normally held in the tube 20 by means of the fusible element 18, which is fastened at its upper end to button-head 26, and at its lower end to the guide 19.

When the current passing through the fusible element 18 exceeds the current carrying capacity thereof, the fusible element 18 fuses, and the guide 19 is pulled out of the tube 20 under the bias of the resilient strip of insulating material 11 as the latter moves quickly from the normally deformed position shown by the solid lines of the drawing to the relaxed position indicated by the broken lines. In so doing, the terminal 23 swings away from the clamp 10 to facilitate extinguishment of any attendant arc at the same time continuing to support the tap conductor 22 to prevent the possible falling thereof across live conductors located below the device.

It may be observed that the resilient element of insulating material 11, in its cooperation with the other elements of the device, performs three distinct functions; namely, that of tensioning the fuse link; that of supporting the tap conductor; and that of insulating the tap conductor from the conducting member 10 when the fuse link is ruptured.

It is intended that the description of the embodiment of the invention here presented will be regarded as illustrative rather than limiting.

I claim as my invention:

1. In a fuse construction, a member of conducting material, a resilient member of insulating material joined thereto and extending therefrom, a swingably movable terminal carried at the outer end of said member of insulating material and urged thereby for movement in a direction away from said member of conducting material, and a fuse link electrically connecting said terminal to said member of conducting material and restraining said movement.

2. In a fuse construction, a member of conducting material, a resilient member of insulating material joined thereto and extending therefrom, a swingably movable terminal carried at the outer end of said member of insulating material and urged thereby for movement in a direction away from said member of conducting material, and a fuse link supported by said member of conducting material and extending downwardly therefrom, said fuse link engaging at its respective ends said member of conducting material and said terminal to thereby electrically connect said terminal to the conducting member and mechanically hold said terminal against movement.

3. In a fuse construction, a member of conducting material, a swingably movable terminal spaced below said member, a resilient strip of insulating material mechanically joining said terminal to said member and concurrently urging said terminal for movement away from said member, and a fuse link supported by said member and extending downwardly therefrom, said fuse link electrically connecting said terminal to said member and restraining movement of said terminal when said fuse link is unfused.

4. In a fuse construction, a member of conducting material, a strip of insulating material fastened at only one end to said member, the other end of said strip extending to a point below said member, a terminal carried by said strip adjacent the unfastened end thereof, said terminal being normally biased for movement with respect to said member, and a fuse link supported by said member and extending downwardly therefrom to engagement with said terminal to thereby electrically connect and mechanically join said terminal to said member.

5. In a fuse construction, a member of conducting material, a resilient strip of insulating material fastened at only one end to said member, the other end of said strip extending to a point spaced from said member, a terminal carried by said strip adjacent the unfastened end thereof, said terminal being normally biased for movement with respect to said member, and a fuse link normally fastening the unfastened end of said strip to said member to thereby normally restrain movement of said terminal when said fuse link is unfused, said fuse link electrically connecting said member to said terminal, the arrangement being such that said terminal moves away from said member when said fuse link fuses.

6. A fused conductor clamp adapted to removably engage a conducting member and to be supported thereby, comprising a clamping member of conducting material, a conductor support of resilient insulating material fastened adjacent only one end thereof to said clamping member and the unfastened end thereof extending in spaced relation with said clamping member, said conductor support having a terminal adjacent the unfastened end thereof for attaching thereto a conductor, and a fuse link electrically connecting said clamping member and said terminal, said conductor support being resiliently deformed and providing means for normally tensioning said fuse link.

7. A fused conductor clamp adapted to removably engage a conducting member and to be supported thereby, comprising a clamping member of conducting material, a conductor support of resilient insulating material extending outwardly and downwardly and thence inwardly and downwardly in spaced relationship with said clamping member, means fastening only the upper end of said conductor support to said clamping member, a fuse link extending downwardly from said clamping member, means fastening only the upper end of said fuse link to said clamping member, a terminal carried by the unfastened end of said conductor support for attaching thereto a downwardly extending conductor, and means for attaching the lower and unfastened end of said fuse link to the unfastened end of said conductor support while the latter is resiliently deformed whereby said fuse link is tensioned.

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