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FUSED ELECTRICAL CONNECTOR

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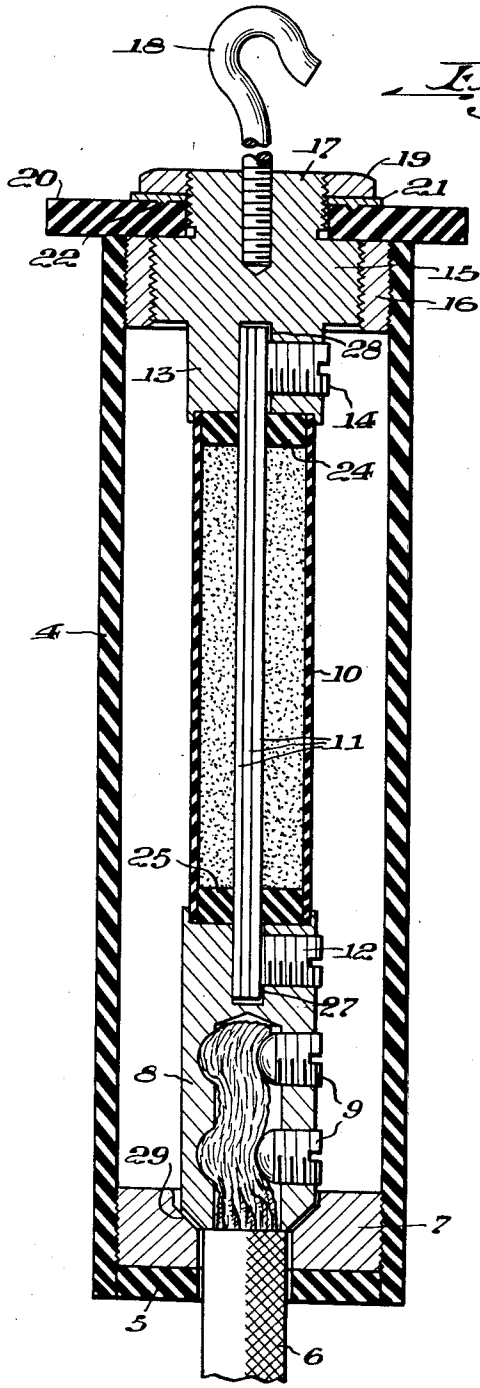


Fig. 1.

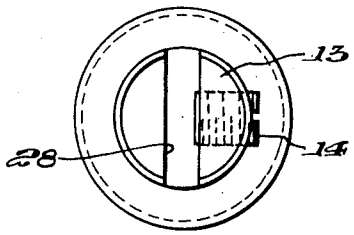


Fig. 2.

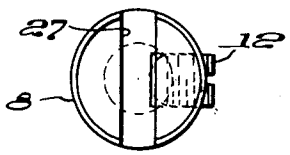


Fig. 3.

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UNITED STATES PATENT OFFICE

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FUSED ELECTRICAL CONNECTOR

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Application October 31, 1950, Serial No. 193,176

2 Claims. (Cl. 200—115.5)

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This invention relates to electrical connectors that are especially suitable for use in connection with taps for trolley wires or the like, and embodies improvements over the trolley wire tap shown in my Patent No. 2,475,352, issued July 5, 1949.

An important object of my invention is the provision of an electrical connector of the cartridge fused type, wherein the use is of such form as to facilitate mounting thereof in a tubular holder and its connection to conductors at the ends of the holder.

Another object of my invention is to provide a tap having an improved arrangement of insulating tubular holder for trolley tap connectors of the fused type, wherein the hand guard on the fuse holder is of the flexible disc type and is firmly and releasably held in place in a simplified and improved manner.

Still another object of my invention is to provide improved forms of mechanical and electrical connections between a cartridge type fuse and an electrical cable at one end and a trolley wire-engaging hook at its other end.

In the accompanying drawing, Figure 1 is a longitudinal sectional view through a connector of the trolley tap type, and Figs. 2 and 3 are inner end views of the two fuse socket members of Fig. 1.

The casing or holder 4 is of insulating material such as fibrous reinforced resin and has an insulating closure disc 5 pressed into one end thereof through which a sheathed cable 6 extends. A knurled block 7 of aluminum has tight fit in the casing 4, and the bared wires of the cable are clamped in a socket member 8, by set screws 9.

A fuse cartridge 10 filled with an inert powder contains fusible links or strips 11. The fuse links 11 at one end are clamped by a screw 12. The block 8 is slightly recessed at its inner end to form a socket for the cartridge shell 10.

At the other end of the casing, the cartridge shell fits into a socket in a block 13 and the fuse link or links are held by a screw 14. The block 13 has an enlarged threaded portion at 15 that screws into a brass bushing 16 which is knurled and has tight fit with the casing 4. The block 13 has a reduced interiorly and exteriorly-threaded extension 17 into which a trolley tap hook 18 is threaded. The exterior thread of the extension 17 has a clamping collar 19 which is screwed into place to grip a soft rubber guard disc 20. A toothed metal ring 21 is interposed between the clamping collar and the disc 20. The

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teeth 22 on the ring 21 are forced into the rubber guard 20 to prevent it being radially stretched or distorted out of its seat on the member 15.

The powder is retained in the cartridge 4 by bushings 24 and 25 of soft rubber or the like. Upon rupture of the fuse link or links 11, the pressure of the generated gases will flex the rings 24—25, and the gases will escape through open ends of a slot 27, in the socket 8 and the ends of a slot 28 of the socket 13. There is considerable expansion space within the holder 4 but excess pressures therein will escape along grooves 29 formed in one of the meeting surfaces of the members 7 and 8 and thence through the closure disc 5, past the cable 6 which has loose fit in the disc. The outer end of the member 8 and the seating surfaces of the block 7 are respectively of convex and concave form so that the cable and the cartridge 10 are guided into and kept in axial alinement with the holder 4.

When a fuse is disrupted, replacements may be made by holding the rubber guard disc 20 with one hand and unscrewing holder 4 with the other, the cable 6 is then shoved into the holder for a distance sufficient to expose the socket members and the cartridge, whereupon the screws 12 and 14 are loosened to permit withdrawal of the cartridge 10 and the insertion of another cartridge in position to have its fuse links 11 clamped by the screws 12 and 14. The socket members are then moved back into the case and fastened there, as shown in Fig. 1.

It will be understood that the device can be used simply as a fused joint or connection in a cable line, as in my application Serial No. 192,259, filed October 26, 1950, now Patent No. 2,614,190, dated October 14, 1952, by substituting another block 7 and the socket member 3 for the socket member 15, at the other end of the holder 4.

I claim as my invention:

1. An electrical connector comprising a holder having socket members removably supported in its opposite ends, means for connecting the socket members at their outer ends to electrical conductors, the sockets having slots in their inner ends, and being provided with lateral vent openings, a fuse cartridge whose ends extend into the sockets and having a fuse link extending therethrough and into the said slots, clamping screws extending through a wall of each recess, for securing the link ends tightly against the opposite walls of the respective slots, and flexible pressure-relief members in the ends of the cartridge, for exhaust of gases into the sockets.

2. An electrical connector comprising a holder having socket members removably supported in its opposite ends, means for connecting the socket members at their outer ends to electrical conductors, the sockets having radial slots in their ends, for the exhaust of gases therefrom, a fuse cartridge whose ends extend into the sockets in said members and which has a fuse link extending therethrough and into the said slots, and means carried by the sockets for releasably connecting the ends of the fuse link to the respective socket members, the fuse cartridges being closed at their ends by flexible members that will yield under internal pressures, for exhaust of gases to the slots.

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