Jan. 28, 1947. A. H. GENTER 2,414,865

FUSED CABLE CONNECTOR

Filed Oct. 3, 1944

Fig. 1.

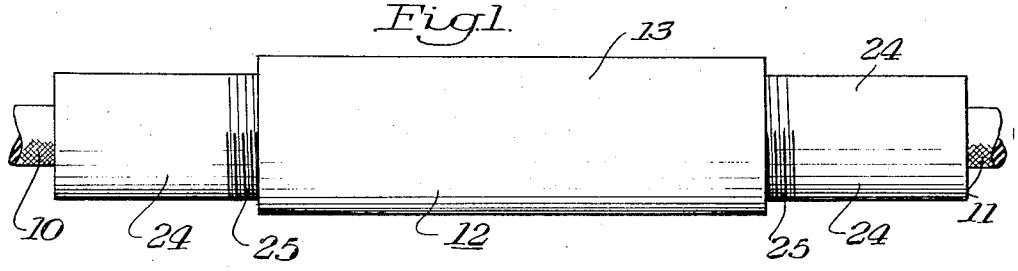


Fig. 2.

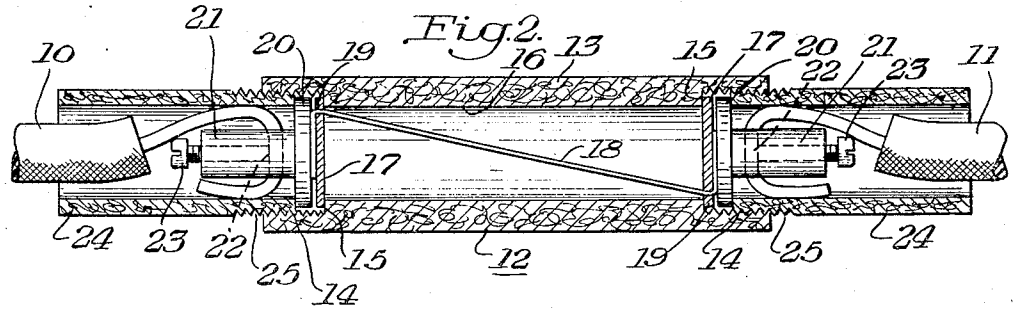
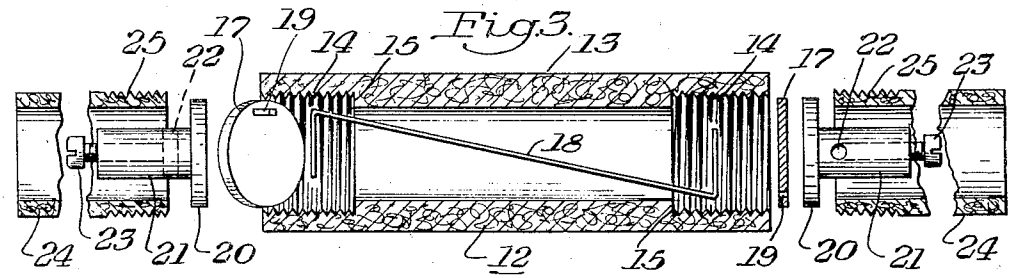


Fig. 3.



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Patented Jan. 28, 1947

2,414,865

UNITED STATES PATENT OFFICE

2,414,865

FUSED CABLE CONNECTOR

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Application October 3, 1944, Serial No. 556,929

5 Claims. (Cl. 200—115.5)

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This invention relates generally to an electrical protective device and more particularly to a fused cable connector arranged to be inserted in a cable that supplies electrical energy to the apparatus that is to be protected.

This fused cable connector is particularly advantageous for use with mobile mining machines and is adapted to be inserted between adjacent cable end sections preferably near the source of electrical supply in order to provide protection of the cable as well as the machine the cable serves. These mining cables are wound on reels carried by the cutting or loading machines that work adjacent the coal face which is remote of the main haul in the mine along which the power lines are permanently strung. The operator connects the end of one cable to the power line by means of a feeder tap or other similar device and a return cable is connected to the rail along the main haul. The mining machine then proceeds to the face of the mine unreeling the cable as the distance between these points require. This practice avoids the necessity of permanently supplying each room or cutting face with a trolley wire and a return circuit. Some mining machinery is equipped with pneumatic tires and does not run on rails which ordinarily provide the return current circuit. Cable supply circuits are therefore essential with this type of equipment.

The principal object of this invention is the provision of an enclosed fused cable connector that may be readily opened to permit the renewal of the fuse link.

Another object is the provision of an improved fused cable connector that may be readily opened by hand to renew or change the fuse link.

Another object is the provision of a light weight fused cable connector wherein the fuse link is easily replaceable by unskilled workmen without tools.

Another object is the provision of an enclosed fused cable connector that is sealed against dirt and other foreign matter.

Another object is the provision of a fused cable connector completely encased in insulating material that has matched reduced end portions which protect the cable ends and the protector.

Other objects and advantages appear in the following description and claims.

A practical embodiment illustrating the principles of this invention is shown in the accompanying drawing wherein:

Fig. 1 is a side elevation of the fused cable connector.

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Fig. 2 is a sectional view of the fused cable connector.

Fig. 3 is an exploded sectional view of the fused cable connector parts.

Referring to the drawing, the fused cable connector is arranged to electrically join the end of the cable 10 to the end of the cable 11 with an intervening fuse member 12. The fuse member 12 is made up of the tubular body 13 of fiber, Micarta or other suitable insulating material. The ends of the tubular body are counterbored as indicated at 14 to produce the shoulder 15 at each end of the connecting bore 16. Each of these counterbores is internally threaded.

Any suitable bridge member, such as the washer 17, may be placed at the ends of the bore 16 for receiving the ends of the fuse clip 18. The washers 17 are smaller in diameter than the threaded counterbores 14 but are larger than the bore 16 and seat on shoulders 15. The washers may be made of any suitable material that is sufficiently strong to withstand pressure but it need not be metallic. Each washer is provided with a slot 19 on one side of the center thereof through which the ends of the fuse clips are threaded and then turned over as shown in Fig. 2.

A metallic cap or pressure plate 20 having a lug 21 extending axially from one side thereof is placed against the turned over portion of the fuse. This cap plate or pressure plate is substantially the same diameter but is preferably thicker than the washer to provide rigidity. The lug 21 is provided with a terminal opening 22 for receiving the bared end of the cable. A set screw 23 is arranged to enter the opening 22 to mechanically and electrically secure the cable to cap plate 20.

The cable ends are threaded through the tubular insulating sleeves 24 the exterior diameter of which is substantially equal to the diameter of the counterbore 14. One end of each sleeve is externally threaded as shown at 25 to mate with the internal threads of the counterbores 14. The perimetral surface of these sleeves may be knurled to provide a hand grip for screwing them into the counterbores 14 to frictionally engage the outer surface of the cap plates 20, forcing the inner faces of the latter against the turned over ends of the soft fuse clip 18. Since there is no stop for the ends of the insulating sleeves 24 except the cap plates, tight pressure contact between the cap plates and the fuse clip ends is insured when the sleeves are screwed in tight.

Owing to the fact that the diameter of the cap plates 20 is larger than the bore of the sleeves

24 the latter cannot be lost when the fuse clip 18 is replaced. This fused cable connector is easily installed and manipulated and the small pitch of the mating threads provide ample pressure to reduce the resistance between the cap plates and the fuse end.

I claim:

1. A fused cable connector comprising a tubular body with an internal thread at each end, a bridge member for each end of the tubular body and having limited inward movement therein, a fuse link having its ends turned over said bridge members, a pressure cap plate of conductive material in each end of the tubular body arranged to engage the turned over end portions of the fuse link, an outwardly extending stud integral with and axially of each of the pressure plates, each of said studs being provided with a diametrically disposed hole, to receive the bared and bent extremity of a cable section, and a threaded axial hole intersecting the diametric hole, a screw screwed into the axial hole to engage the extremity of the cable section and bind it to the stud, and an externally threaded sleeve threaded over the adjacent cable sections and arranged when screwed into the threaded ends of the tubular body member to force their respective cap plates into electrical engagement with the fuse ends.

2. A fused cable connector comprising a tubular body of insulating material, an enlarged bore at each end of the tubular body, a shoulder formed by each enlarged bore, threads in said enlarged bores, a bridge member seated on each shoulder, a fuse link having its ends turned over their respective bridge members, a plate of conductive material arranged for connection with each cable end and arranged to contact the turned over portions of the fuse link, and sleeves of insulating material threaded over said cables

and having threads arranged to mate with the threads in the enlarged bores and force the plates into tight contact with the fuse link, the cable sections extending inwardly through the sleeves.

3. The structure of claim 2 characterized in that each plate is provided with an axially disposed lug having a terminal socket and set screw for receiving and securing the cable to the plate.

4. A fused cable connector comprising a tubular body of insulating material, the end portions of the body being internally threaded and provided with an internal annular shoulder at the inner extremities of the threaded portions, a bridge member arranged to bear inwardly against each of said shoulders, a fuse link contained in the body having its extremities inserted through the bridge members and turned over against the outer surfaces of the latter, a pressure plate of conductive material inserted into each end of the body and bearing against the turned over extremity of the fuse link, the pressure plates being provided with integral studs disposed axially of said pressure plates and extending outwardly therefrom, said studs being provided with diametrically disposed holes, through which the bent end of a bared cable section is inserted, and axially extending threaded holes intersecting said diametric holes, binding screws mounted in the axial holes and bearing on the bared cable ends to bind them in place, and members screwed into the ends of the body to clamp the pressure plates into electrical engagement with the extremities of the fuse link.

5. The structure of claim 4 characterized by the said members being tubes of insulating material through which the cable sections are led into the connector.

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