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 drawings in which:

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

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 18 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 thinner 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 perimetal 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 press-
ure to reduce the resistance between the cap
plates and the fuse end.

I claim:

1. A fused cable connector comprising a tu-
bular body with an internal thread at each end,
a bridge member for each end of the tubular
body and having limited inward movement there-
in, a fuse link having its ends turned over said
bridge members, a pressure cap plate of conduc-
tive 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 en-
gage 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 respect-
ive cap plates into electrical engagement with
the fuse ends.

2. A fused cable connector comprising a tu-
bular 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 con-
ductive 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 dis-
pensed lug having a terminal socket and set screw
for receiving and securing the cable to the plate.

4. A fused cable connector comprising a tu-
bular body of insulating material, the end portions
of the body being internally threaded and pro-
vided 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 ex-
tremity of the fuse link, the pressure plates be-
ing provided with integral studs disposed axially
of said pressure plates and extending outwardly
therefrom, said studs being provided with dia-
metrically disposed holes, through which the bent
end of a bared cable section is inserted, and ax-
ially 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 ex-
tremities of the fuse link.

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

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