Dec. 5, 1950 S. E. KANE 2,532,454

ELECTRICAL CONNECTOR

Filed April 29, 1949

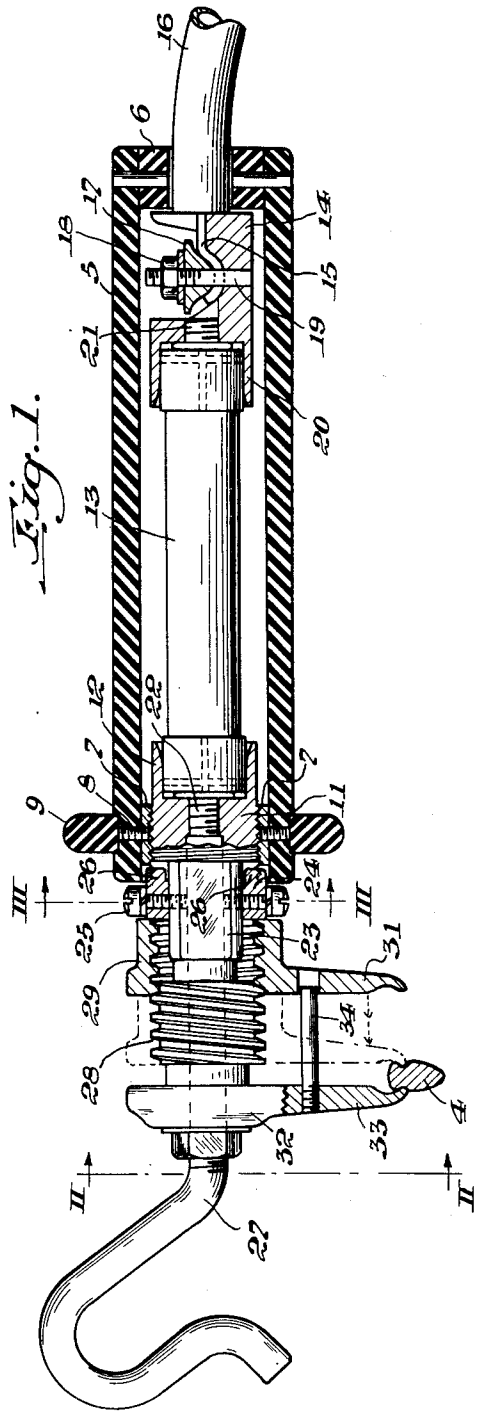


Fig. 1.

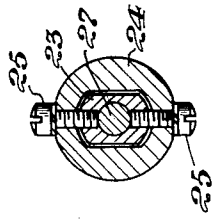


Fig. 3.

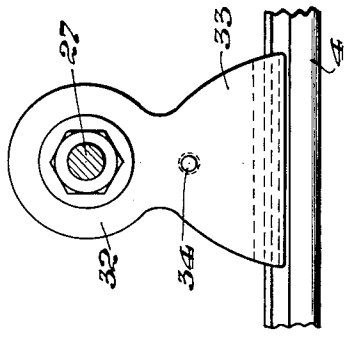


Fig. 2.

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ELECTRICAL CONNECTOR

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2 Claims. (Cl. 200—115.5)

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My invention relates to electrical connectors and more particularly to those of the feeder tap type such as are employed in temporarily tapping trolley wires or other electrical conductors, for the utilization of electrical current for motors, welding apparatus, etc. The connector as herein described is of the fuse type such as that shown in my co-pending application Serial No. 81,091, filed March 12, 1949, now abandoned.

One object of my present invention is to provide a fused feeder tap that can readily be placed into gripping or clamping engagement with an electrical conductor, simply by a twist of the operator's hand in which the connector is held.

Another object of my invention is to provide a connector of the type referred to which can be used on trolley wires that have grooves to which suspending hangers are connected, without interfering with the normal operation of trolley cars.

In the accompanying drawing, Figure 1 is a longitudinal sectional view of the connector; Fig. 2 is a view taken on the line II—II of Fig. 1, and Fig. 3 is a view taken on the line III—III of Fig. 1.

As here shown, the connector is employed to tap current from a trolley wire 4 of the form which has grooves in its sides for use in suspending it from hangers. The connector comprises a tubular body or case 5 of molded insulating material, partly closed at one end by a bushing 6. At its other end, the case contains a threaded bushing 7 anchored therein by screw-threaded studs 8. A collar 9 is firmly pressed on to the casing 5 and serves as a safety abutment to prevent a workman's hand from slipping off of the body 5 into engagement with exposed conductor members. A plug 11 is threaded into the bushing 7 and has a socket portion 12 for a metal cap of a fuse 13.

At the other end of the case 5, there is a terminal block 14 to which wires 15 of a cable 16 are connected by a clamping block 17 and a nut 18 which has screw-threaded engagement with a stud 19 that is fixedly mounted in the block 14. The block has a socket 20 to receive the other end of the fuse 13. The fuse cartridge caps have threaded studs 21 and 22 for connection to the block 14 and the plug 11 respectively. The parts as thus far described are similar in structure to the disclosure of my said application.

The plug 11 has a shank portion 23 which is welded or otherwise secured thereto and which is flattened for a portion of its length as shown more clearly in Fig. 3. A collar 24 is slidable on the said flattened portion but can be secured

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against movement thereon by set screws 25. The collar 24 has lugs or ears 26 that are engageable in notches in the outer end of the bushing 7 to releasably hold the plug against rotation relative to the bushing 7 and thereby serving as a clutch device.

The shank portion 23 of the plug is internally threaded for engagement with the stem of a hook 27 that can be placed over a trolley wire or other conductor for temporary withdrawal of current therefrom. The shank 23 has an external thread 28 of wide pitch, for engagement by a collar 29 that has a radial extension 31 which serves as a clamping arm or plate for engagement with the trolley wire 4 when the collar 29 is moved to the dotted line position shown in Fig. 1. A second collar 32 is rotatably supported on the shank 23 and has a clamping arm or plate 33 to grip the other side of the wire 4. A stud 34 is threaded into the clamping member 33 and extends loosely into and through the clamping member 31.

When the parts occupy the positions shown in Fig. 1, the operator, holding the fuse casing 5 in one hand, with the clamping member 33 somewhat snugly against the wire 4, will turn his hand to rotate the casing 5 and thereby cause the collar 29 and the clamping member 31 to move to their dotted line positions and thereby grip the wire 4. The stem 23 freely rotates in the member 33 at this time. This rotative movement of the casing rotates the plug so that its threaded portion 28 moves the clamping member 31 outwardly, the stud 34 serving to hold the clamping member and its collar 29 against rotation during this turning movement. Ordinarily, the clamping members 31 and 33 need not be opened so widely as in Fig. 1, and about a one-half turn of the fuse casing will be sufficient to effect a wire clamping operation.

If the member 31 instead of the member 33 is first placed against the wire and held there with sufficient force to prevent rotation, a like gripping action will be had through turning of the case 5.

When it is necessary to replace a fuse, the casing will be turned to move the collar 29 a little farther forwardly than shown in Fig. 1, to clear the collar 24. Thereupon, the screws 25 will be loosened to permit forward sliding of the collar 24 on the flattened portion of the shank 23 to disengage the studs 26 from the notches in the bushing 7. Thereupon, the plug 11 can be unscrewed from the bushing 7 and removed from the casing, together with the cartridge and the terminal block 14, the cable 16 being slidable

into the casing to permit of this withdrawal of the fuse and its sockets.

It will be seen that when the connector is applied to a trolley wire of the form shown in the drawing, there need be no interruption of trolley-car service. It will be obvious however that the connector can be used for connection to conductors of other forms.

I claim as my invention:

1. An electrical connector comprising a tubular insulating casing having a fuse socket and a conductor in one end thereof, a plug having screw-threaded connection with the other end of the casing, to serve as a removable closure therefor, a clutch element on this other end of the casing, a fuse socket on the inner end of the plug, a shank carried by and projecting outwardly from the plug, a clamping member rotatably carried by the shank, a second clamping member carried by the shank and threaded thereon in position to be moved toward or from the other clamping member, when the casing and the plug are rotated as a unit and the clamping members are held against rotation, and means for releasably locking the plug against rotative movement relative to the casing, during rotation of the casing to operate the clamping members, the last-named means comprising a clutch collar non-rotatable on the shank and slidable thereon into and out of locking engagement with the clutch element on the end of the case, whereby the casing can be unscrewed from the plug without operating the clamping members.

2. A connector as recited in the preceding claim, wherein one of the clamping members can be held against rotation with the shank by engagement of the member with a trolley conductor or the like, and there is a stud fixedly carried by one of the clamping members and having loose telescopic engagement with the other clamping member, to hold it against rotation with the shank.

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