April 7, 1953 A. H. GENTER 2,634,349

TROLLEY WIRE FEEDER TAP

Filed Jan. 8, 1952

2 SHEETS—SHEET 1

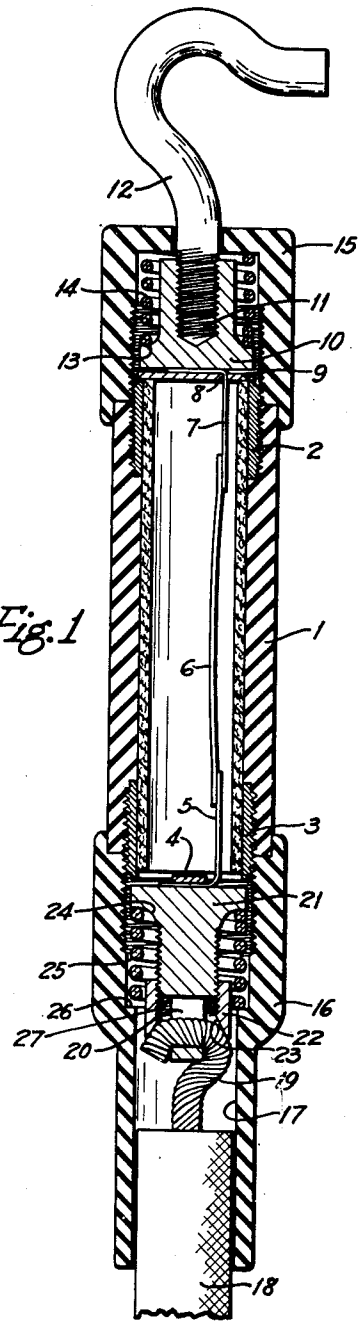


Fig. 1

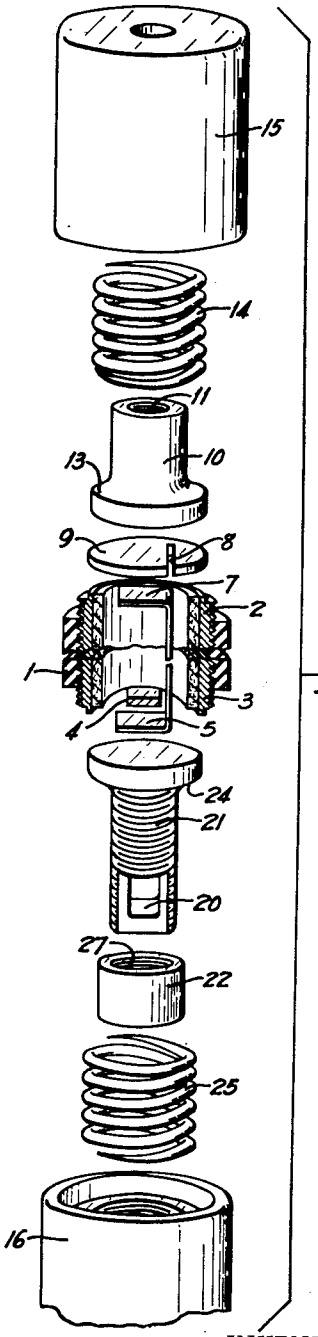


Fig. 2

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2 SHEETS—SHEET 2

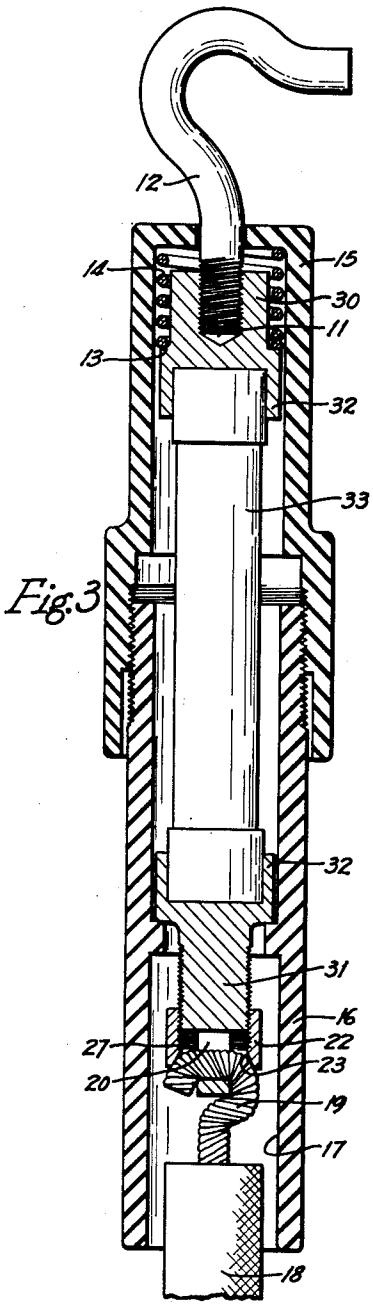


Fig. 3

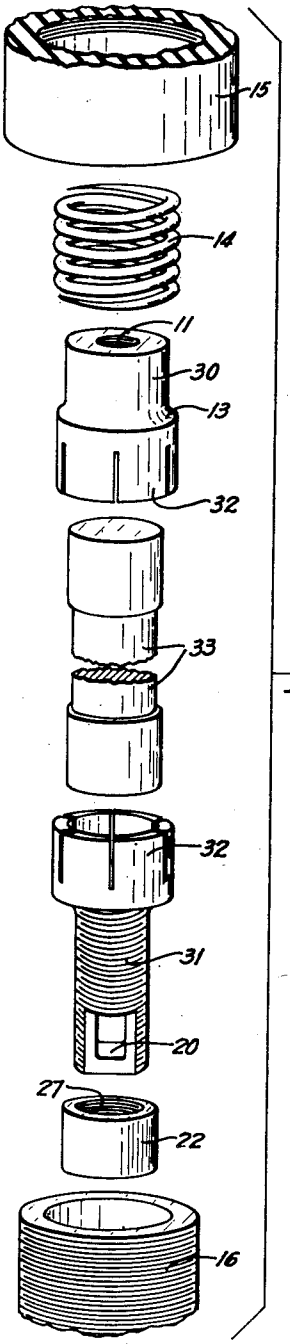


Fig. 4

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TROLLEY WIRE FEEDER TAP

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Application January 8, 1952, Serial No. 265,495

1 Claim. (Cl. 200—115.5)

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This invention relates generally to trolley wire feeder taps and more particularly to a fused trolley wire feeder tap wherein the fuse element is readily replaceable.

The principal object of this invention is the provision of a fused trolley wire feeder tap provided with a spring for constantly applying pressure against the ends of the fuse element by applying it on the terminals that connect the trolley wire hook and the cable without placing the spring in the electric circuit.

Another object is the provision of a fused trolley wire feeder tap provided with spring-biased terminals for insuring a constant electrical contact pressure on the ends of the fuse member within the tap.

Another object is the provision of a fused trolley wire feeder tap having a spring to apply pressure to the terminal to produce a wiping contact under pressure and against the electrical contacting surfaces of the fuse element when being assembled, and thereby insure a clean, low resistance contact owing to the wiping under pressure of the mating contact surfaces.

Other objects and advantages appear hereinafter in the following description and claim.

In the accompanying drawings a practical embodiment illustrating the principles of this invention is shown wherein:

Fig. 1 is a sectional view of a trolley wire feeder tap.

Figure 2 is a view of the structure shown in Fig. 1 with the parts exploded.

Figure 3 is a view similar to Fig. 1 illustrating a fused trolley wire feeder tap having a different character of fuse element.

Fig. 4 is an exploded view showing each of the parts as shown in the structure of Fig. 3.

Referring to Figs. 1 and 2 of the drawings the tubular sleeve 1 is made of insulating material and has embedded in each end thereof the externally threaded metallic sleeves 2 and 3 which extend slightly beyond the ends of the insulating sleeves as shown. This tube has a lining of insulating material made of asbestos to withstand the heat generated by the blowing fuse. The threaded sleeve 3 is provided with a cross-bridge member 4 across which one end of the terminal 5 of the fused member 6 extends. The other end 7 of the fused member 6 is turned over and extends through the slot 8 in the disc 9 that is arranged to rest on the end of the tubular member 1. A metallic terminal member 10 is provided at the trolley tap end of the fuse and comprises a metallic member having a threaded bore 11 arranged to receive the conductor 12 that is in

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the shape of a hook and is provided with a complementary threaded section that screws into the threaded bore or socket 11 and may be sweated therein, if the neck of the hook is sufficiently long. The terminal member 10 has a flange 13 that forms a shoulder against which rests the one end of the helical spring 14. The other end of the helical spring is compressed against the inner end of the insulating cap member 15. The insulating cap member is internally threaded to be received on the end of the externally threaded sleeve 2 for securing a terminal member 10 tightly against the end 7 of the fuse element 6. This thread may be on an inserted metal sleeve if desired. As these members are assembled the spring 14 must be compressed between the terminal 10 and the cap 15 in order to permit the threads of the cap member 15 to engage the threads of the sleeve member 2. This pressure is sufficient to increase the friction between these parts so that the metallic terminal member 10 will rotate with the cap and thus provide a relative movement on the end 7 of the fuse 6 to clean the same. This insures a good contact of low resistance between the terminal and the fuse element. It will also be noted that the spring 14 is not in the electrical circuit, since it engages the flange 13 of the terminal and its other end is in engagement with the inner surface of the insulated cap member 15. Thus it does not carry current for the circuit. The circuit is directly between the hook member 12 which may be sweated in place in the terminal and the cleaned surface between the face of the terminal 10 and the end 7 of the fuse member 6. Thus relative movement between these members insures a clean contact of low resistance between the fuse element and the hook, and pressure is present against the fuse element regardless of how tight the cap 15 is screwed on.

The opposite end of the feeder tap is provided with a cap member 16 of insulating material as indicated on the drawing which has a tubular bore 17 for receiving the insulated cable member 18, the wire 19 of the cable extends through the opening 20 in the metallic terminal 21, and an electrical connection is made therewith by means of the threaded conducting ferrule 22 which rides on the threaded portion of the terminal 21 and has an outwardly beveled portion 23 that engages the wire 19 and forms a good contact therewith. The terminal 21 is likewise provided with the shoulder 24 for receiving the end of the helical spring member 25, the other end of which is seated on the shoulder 26 of the insulating cap 16. The cap 16 is likewise internally threaded at 27 to engage

with the externally threaded metallic sleeve 3 that is embedded in the insulating sleeve 1. Thus the spring 25 likewise exerts a pressure on the terminal and must be compressed to thread the cap 16 on the sleeve 3 with the relative rotary movement between the terminal 21 and the fuse end 5. Threading the same into the cap 16 causes the relative rotary movement between the outer end 5 of the fused element 6 and the opposing face of the terminal 21. Here again the friction created by the spring pressure cleans the contacting surfaces to reduce the resistance of the circuit. It should be noted that the helical spring 25 being seated on the shoulder 26 of the insulating cap does not carry any current of the circuit, but keeps pressure on the fuse regardless of how tight the cap 16 is screwed in place.

Referring now to Figs. 3 and 4 the structure is somewhat similar. However, the terminal members 30 and 31 are each provided with the cap members 32 which are expandable to receive the metallic ends of the cartridge fuse member 33 which is independently supported within the tube 1, and therefore only the spring 14 need be provided in the insulating cap 15 and this spring functions to resiliently apply pressure to both ends of the independently supported fuse 33, since it is opposed by the terminal 31 seated on its shoulder in the long cap 16. In effect there are but two caps and no intermediate section.

The spring member between the insulating cap 15 and the terminal member insures a pressure against both ends of the fuse at all times, even though the insulating caps may not be tightly

screwed in place. Thus the spring insures a clean and good electrical contact between the terminals and the fuse, yet the spring is not in the electrical circuit as it engages the insulating cap member.

I claim:

A trolley wire feeder tap comprising an insulating tubular member provided with a bore to receive a fuse having outwardly facing end contacts, a pair of electrical terminal means for engagement with the end contacts of such fuse, a conductor securing means on each terminal means, a feeder tap hook-shaped conductor attached to one terminal means by its conductor securing means, spring means to press against the terminal means forcing it into contact to produce an electrical circuit therethrough, a second insulating tubular member removably connected to the first tubular member to enclose the terminal means with a fuse resiliently held therebetween and when separated to permit the end of the fuse to extend out of one of said tubular members.

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