

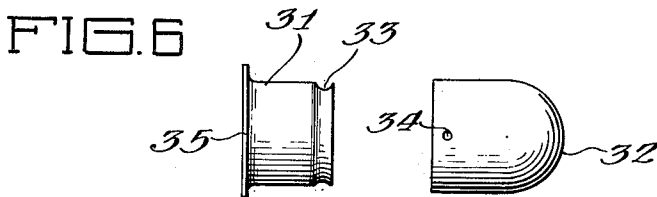
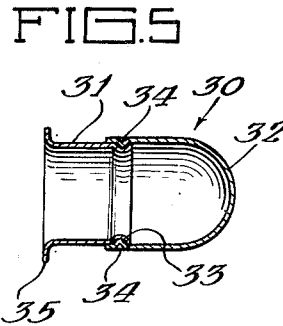
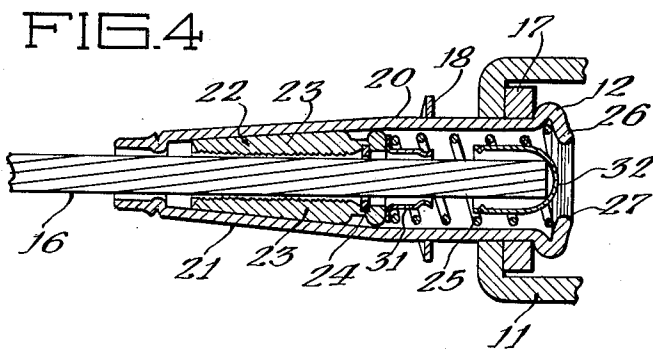
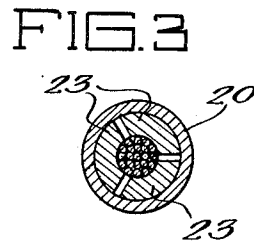
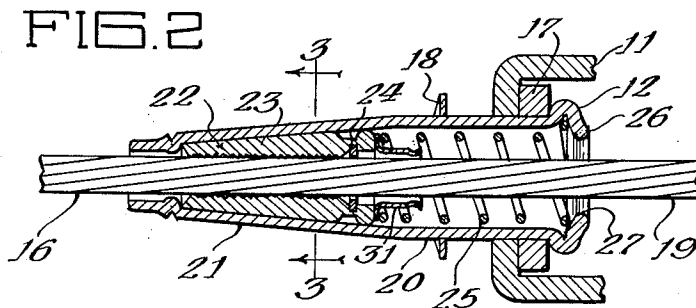
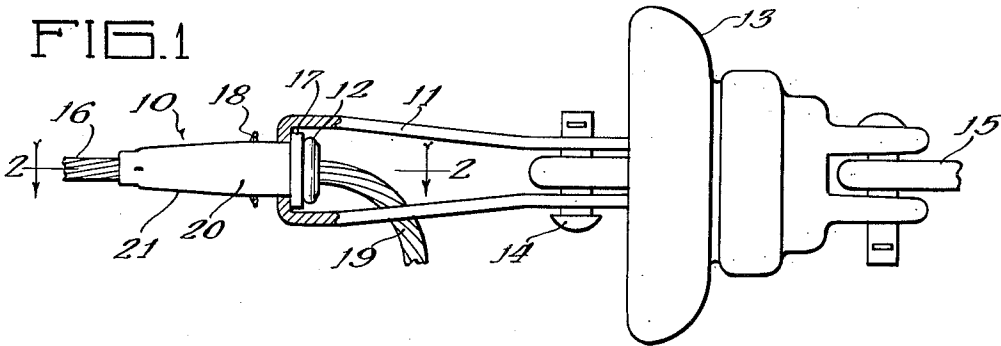
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3,098,275

DEADEND CARTRIDGE

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3,098,275

**DEADEND CARTRIDGE**

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5 Claims. (Cl. 24-126)

This invention relates to cartridge type deadends and in particular to an improved pilot device for use in connection therewith.

A cartridge type deadend is a wire gripping device of the general type shown in Cook Patent No. 2,180,977, November 21, 1939, and Jugle 2,288,138, June 30, 1942. It comprises a cartridge which is supported by means of a clevis. The cartridge comprises an elongate shell having openings at both ends, and within which is located an annular set of jaws. A conductor is threaded through the cartridge and gripped by the jaws.

When a solid or stranded conductor is cut, the end of the conductor is oftentimes deformed, thus providing one or more burrs which will catch on the coil spring which is located within the cartridge and serves to urge the jaws into gripping engagement with the conductor. As a result, it is oftentimes impossible to thread a conductor through the cartridge unless a pilot device is used which shields the end of the conductor from the convolutions of the spring and from other parts of the cartridge.

Two types of pilot devices have been proposed, one being a pilot tube and the other a pilot cup, and both the tube and the cup have certain disadvantages, as outlined below.

The use of a tube is accompanied by a distinct possibility of failure of the gripping mechanism whereas the use of a pilot cup requires a larger diameter cartridge in order to accommodate the extra thickness of the cup.

The purpose of a pilot tube is to define a passageway for the conductor which prevents interference of the burr with the spring convolutions and with the spring abutment or the edge of the rear opening. Thus, the pilot tube extends from the jaws rearwardly to a point close to the rear opening of the shell. However, the operation of the device will cause rearward movement of both the jaws and the pilot tube with the result that the rear end of the pilot tube will extend beyond the shell. Bending of the slack portion of the conductor will therefore bend or deform the tube, causing it to bind in the rear opening with the result that the resilience of the spring is no longer transmitted to the jaws. Thus, the jaws can become loosened and release their grip on the wire.

In the cup type of pilot device, a cup is releasably mounted in the front opening of the cartridge which receives the cut end of the conductor and provides a rounded shield or nose for the conductor as it is pushed through the cartridge. This, too, prevents any interference between the burrs and the parts of the cartridge. However, since the shell diameter must be increased to accommodate the additional thickness of the pilot cup, it results in a more costly cartridge.

It is an object of the present invention to provide a pilot device which avoids the disadvantages of both the pilot tube and the pilot cup.

According to my invention, the pilot device is in the form of a two-part assembly located immediately to the rear of the jaws. One part is a cup, and the other part is a short tube or ring which serves as a mounting means for the cup. The two are releasably engaged with each other so that the pressure exerted on the cup when engaged by the conductor end, incident to the feeding through operation, will cause separation of the two parts, after which the cup functions as a shield or nose for the

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conductor end during the remainder of its passage through the cartridge.

Other objects, features and advantages will become apparent as the description proceeds.

With reference now to the drawings in which like reference numerals designate like parts:

FIG. 1 is a view of a deadend assembly;

FIG. 2 is a sectional view of the cartridge, taken along the line 2—2 of FIG. 1;

FIG. 3 is a section taken along line 3—3 of FIG. 2;

FIG. 4 is a view similar to FIG. 2 but showing the parts in a changed position;

FIG. 5 is a sectional view of the pilot device itself; and FIG. 6 is a view of the pilot device when separated.

With reference now to FIG. 1, the deadend assembly comprises a cartridge 10 which interlocks with a clevis 11, the latter being connected to a suspension insulator 13 by means of a connecting pin 14. The cartridge 10 is a conductor gripping device, and the interlocking engagement between the head 12 of the cartridge and the clevis 11 is facilitated by the use of a tight fitting clevis plate or washer 17. A retaining washer 18 is mounted on the cartridge 10 to prevent separation of the parts.

The suspension insulator 13 is suitably connected to a support or to other concatenated suspension insulators as indicated at 15.

A conductor 16 passes through the cartridge 10 and is gripped thereby so that the tension of the conductor is taken up by the deadend assembly as a whole. The slack end of the conductor is bent away as indicated at 19 to avoid contact with the suspension insulator 13. It is this bent portion 19 which causes the above mentioned binding when a pilot tube is used.

The construction of the cartridge is shown in FIGS. 2 and 3, and comprises a shell 20 having a tapered front portion 21 and an enlarged rear portion comprising the head 12. A tapered jaw assembly 22 is located within the shell 20 and comprises a plurality of jaws 23 which are associated with each other at one end by a connecting washer 24. There are preferably three jaws to the jaw assembly, and they are provided with suitable conductor gripping surfaces. When tension is applied to the conductor 16, the jaw assembly moves to the left, and the taper of each jaw cooperates with the taper 21 of the inner surface of the shell to urge the jaws into gripping engagement with the conductor 16. The washer 24 provides means for maintaining the relative longitudinal positions of the jaws without interfering with their radial movement, as more fully pointed out in the above mentioned patents.

The jaw assembly 22 is urged to the left and into conductor gripping position by means of a coil spring 25 which is confined between the rear end of the jaw assembly 22 and a spring abutment 26 in the form of an inwardly directed flange formed integrally with the shell 20. The spring abutment 26 defines the rear opening 27 of the shell through which the slack end 19 of the conductor extends.

The pilot device 30 is a two-part assembly comprising a short tubular mounting ring 31 and a pilot cup 32 which are releasably connected to each other by any suitable means, frictional or otherwise. As shown in FIGS. 5 and 6, the releasable connection comprises a shallow groove 33 formed in the ring 31, and stamped projections 34 formed in the cup 32. Thus, the parts may readily be separated by the application of an axially directed force.

In a commercial embodiment of my invention, the parts release when the spring has been compressed about half way. The groove and projection type of connection has been found to be especially suitable because the re-

lease point can be controlled by regulating the depth of the projections 34 during the stamping operation.

The cup is mounted externally of the ring so as to avoid a forwardly facing shoulder upon which the burr would catch.

The pilot tube 31 is flared at the front end to provide a flange 35 which extends between the front end of the spring 25 and the rear end of the jaw assembly 22. Thus, the pilot device 30 is maintained in a position in which it will be engaged by the conductor end as it is being threaded through the cartridge, and the movement of the conductor will develop the slight amount of pressure required to disengage the pilot cup 32 from the pilot sleeve 31, as shown in FIG. 4.

It will thus be seen that in the present arrangement, the mounting ring 31 is so short that under no conditions will it project through the opening 27, and thus, flexure of the slack end 19 can in no manner interfere with the action of the spring 25.

Also, by avoiding the use of a pilot cup which is initially mounted in the front end of the shell, I am enabled to use a shell of a diameter which is sufficient only to accommodate the conductor, thus resulting in a less costly construction.

Although only a preferred embodiment of my invention is shown and described herein it will be understood that various modifications and changes may be made in the construction shown without departing from the spirit of my invention as pointed out in the appended claims.

I claim:

1. In a deadend cartridge having a shell, and a tapered jaw assembly and spring located within said shell, said shell being tapered at one end for cooperation with said tapered jaw assembly and having at the other end a spring abutment, the combination of a pilot device surrounded by said spring and comprising a mounting ring and a cup releasably secured to each other, said ring having a portion which is received between the rear end of said jaw assembly and the front end of said spring for maintaining said pilot device in a position where it will be engaged by the leading end of a conductor as it is being threaded through said cartridge, the engagement of said cup by said conductor end serving to separate said cup from said ring so that said cup will move longitudinally

with said conductor and serve as a shield for the leading end thereof as said conductor is pushed through said cartridge.

2. A deadend cartridge as claimed in claim 1 in which said ring is provided with an annular groove and in which said cup is provided with a plurality of projections extending into said groove to provide a releasable connection between said ring and said cup.

3. A deadend cartridge as claimed in claim 1 in which said ring includes a short tubular portion, said cup fitting over said tubular portion.

4. In a deadend cartridge having a shell, and a tapered jaw assembly and spring located within said shell, said shell being tapered at one end for cooperation with said tapered jaw assembly and having at the other end a spring abutment, the combination of a pilot device surrounded by said spring and comprising a short tubular member, a cup, and means releasably securing said tubular member and said cup to each other, said tubular member having a flared end providing a flange which is received between the rear end of said jaw assembly and the front end of said spring for maintaining said pilot device in a position adjacent the rear end of said jaw assembly.

5. A deadend cartridge having a shell, a tapered jaw assembly located within said shell, said shell being tapered at the front end for cooperation with said tapered jaw assembly and having at the rear end an annular abutment, a spring confined between said jaw assembly and said annular abutment for urging said jaw assembly forwardly, a pilot cup surrounded by said spring and mounted rearwardly of said jaw assembly for slidable movement in a rearward direction when engaged by the leading end of a conductor, and releasable means for maintaining said pilot cup in an initial position in which it completely shields said leading end from the convolutions of said spring.

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