

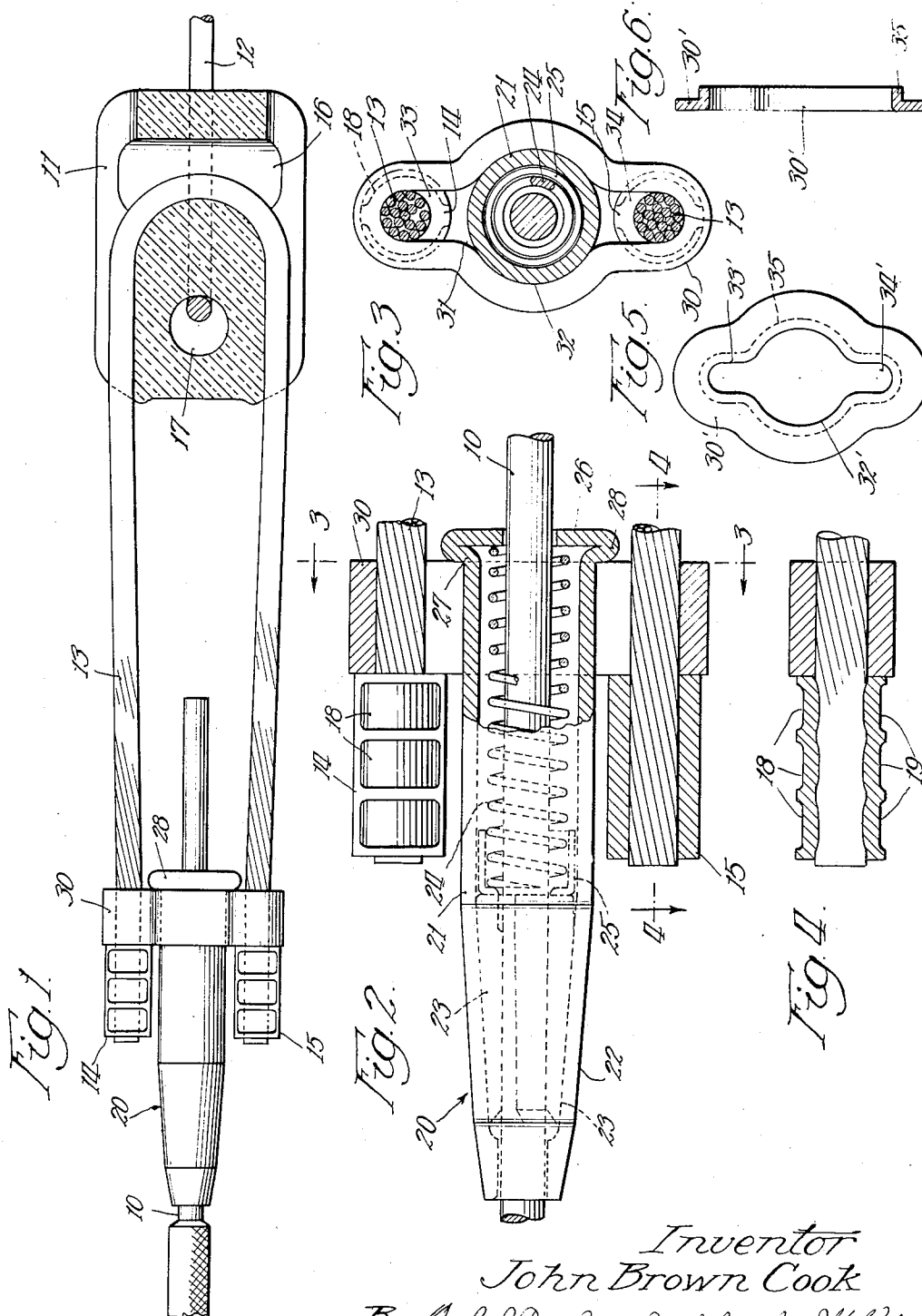
Nov. 21, 1939.

J. B. COOK

2,180,977

DEAD END CLAMP

Filed Aug. 1, 1938



Inventor
John Brown Cook
By *Abel Carlson, Erlybaugh & Wells*
Attys

UNITED STATES PATENT OFFICE

2,180,977

DEAD END CLAMP

John Brown Cook, Chicago, Ill., assignor to Reliable Electric Company, Chicago, Ill., a corporation of Illinois

Application August 1, 1938, Serial No. 222,316

4 Claims. (Cl. 287—75)

The present invention relates to means for attaching a wire, such as an electrical conductor, to an anchoring device. It is particularly concerned with what is sometimes called in the trade a "flexible clevis dead end." Such a dead end clamp consists of a length or strand of wire adapted to be threaded through a strain insulator or similar anchoring device which is attached to a suitable support. The length of wire or rod is connected to a yoke which is provided with a central opening wherein a wire gripping element is mounted. The wire gripping element is desirably a tubular shell having therein a set of gripping jaws and having an inner tapered surface so that as the jaws are drawn toward the tapered end they will be forced to grip a wire between them. The gripping member usually includes a spring which urges the jaws toward the tapered end of the tubular shell. The other end of the shell preferably has an opening through which a conductor may be passed and is provided with a head which will seat on the yoke when the tubular shell is passed through the opening in the yoke. The head takes the strain of the pull on the wire held by the gripping member and transfers it to the yoke which, in turn, through its connection with the length of wire, transfers the strain to this length of wire and thus to the insulator or other support.

The purpose of the present invention is to provide an improved connecting yoke between the length of wire and the gripping member. It is desirable to have the yoke retaining length of wire readily releasable from the yoke for threading the same through the insulator or other support, and the present invention contemplates such a structure. It is also desirable to have the yoke, the gripping member, and the length of wire readily separable individually from each other and of such construction that they may be quickly assembled to complete a connector by which the wire can be attached to the anchoring device such as the strain insulator. More particularly, the preferred embodiment of the invention contemplates a yoke construction whereby a single opening in the yoke is provided and wherein the gripping member, when inserted, acts as a lock to secure the headed ends of the length of wire against removal from the yoke.

The features and advantages of the invention will appear more fully as the description proceeds, reference being had to the accompanying drawing wherein a preferred form of the invention is shown. It is to be understood, however, that the drawing and description are illustrative

only, and are not to be taken as limiting the invention except insofar as it is limited by the claims.

In the drawing, Fig. 1 is a view partly in side elevation and partly in section, illustrating a dead end clamp or connector embodying the present invention;

Fig. 2 is an enlarged fragmentary sectional view taken substantially on line 2—2 of Fig. 3;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 2;

Fig. 5 is a plan view of a slightly modified yoke construction, and

Fig. 6 is a longitudinal sectional view of said modified yoke construction.

Referring now in detail to the drawing, the present invention is directed toward a dead end clamp or connector by which an electrical conductor such as a wire 10 is connected to an anchoring device such as a strain insulator 11 which is fixed to a suitable support by a suitable wire or clevis, indicated at 12. In carrying out the present invention, I employ a flexible length of wire 13 which is provided with heads 14 and 15 at its opposite ends. The heads 14 and 15 are of such size that they may be readily threaded through the openings 16 and 17 that are provided in strain insulators such as that shown at 11.

The heads 14 and 15 may be provided on the length of wire 13 in any suitable fashion. In the present invention I have shown them as comprising tubes of metal which are compressed on the wire 13 by applying pressure to the opposite sides thereof at points 18 and 19 (Fig. 4) by which the metal of the tube is forced inwardly to deform the wire 13 and thus permanently unite the tubes 14 and 15 with the wire 13.

To receive and grip the wire 10 I provide a gripping member 20. This gripping member comprises a tubular shell 21 which is swaged or tapered at one end, as indicated at 22, to provide a tapering end to receive wedge shaped jaws 23. The details of these jaws 23 are known in the art, one form of such jaws being shown, for example, in my prior co-pending application Serial No. 205,435. The jaws 23 are urged toward the tapered end 22 of the shell 21 by a spring 24. A cup-shaped shoulder 25 may be interposed between the spring 24 and the jaws 23. To hold the spring 24 under compression, the other end of the tube 21 is flanged over to provide a wall 26 which acts as a stop for the spring 24. In flanging over the end of the tube 21 it is first bent

outwardly, as shown at 27, and then spun over upon itself so that an enlarged head 28 is provided on that end of the gripping member 20 which is opposite to the wire receiving end. The wall 26 may or may not be apertured for the passage of the wire 10, depending upon whether or not it is desired to have the wire 10 fed through the gripping member.

The principal features of novelty of the present invention reside in the combination of a yoke 30 with the length of wire 13 and the gripping member 20. This yoke, in the form shown, consists of a heavy metal body which has one opening 31 therein. The opening 31 has a central portion 32 which is of such diameter as to just snugly receive the body of the gripping member 20, this diameter being larger than the heads 14 and 15 on the length of wire 13. The opening 31 is further provided with two oppositely disposed extensions 33 and 34, the width of which is just slightly greater than the diameter of the wire 13. The extensions 33 and 34 are too narrow to permit passage of the heads 14 and 15 through them.

In the assembly of the gripping member 20 with the length of wire 13 and the yoke 30, the length of wire is first threaded on the strain insulator 11 and then the heads 14 and 15 are passed through enlarged portion 32 of the opening 31. When this is done, the tubular shell 21 is placed in the opening 32 with the head 22 thereof on the side of the yoke 30 opposite the heads 14 and 15. The tube 21 then holds the two opposite ends of the wire 13 in the extensions or slots 33 and 34 which extend in opposite directions away from the central portion 32 of the opening in the yoke. When the parts are assembled in this fashion the connector is ready to receive the wire 10 which is inserted from the end 22 of the tube 21, as will be readily understood.

In the form of the yoke shown in Figs. 5 and 6, the yoke 30' is made up from a flat sheet of metal which is provided with a turned up flange 35 to give the necessary rigidity and strength to the yoke. The yoke 30', like the yoke shown in the main form, has a single opening therein, the central portion 32' of which is of sufficient size to receive the tubular shell 21, and oppositely directed slots 33' and 34' are provided to receive the opposite ends of the wire 13. It will be readily apparent that this yoke functions in the same manner as the yoke already described in connection with the main form of the invention.

It will be readily apparent from the foregoing description that I have provided a simple, economical and convenient connector of the character described. The simple yoke construction whereby the opening for the gripping member is utilized in assembling the length of wire 13 with the yoke eliminates any special notches or recesses for detachably mounting one end of the wire 13 and the extra re-enforcement this entails. Once assembled with the gripping member 20, the yoke 30 and the wire 13 cannot be separated until the gripping member is removed.

From the above description it is believed that the features and advantages of the present device will be apparent to those skilled in this art.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A connector of the character described for securing a line wire to an anchoring device, said connector comprising a tension element having enlarged heads at both ends, a tubular wire gripping member having means therein to grip a wire inserted into it from one end thereof, and a yoke through which both ends of said tension element extend, said yoke having an enlarged central opening adapted to receive the tubular gripping member and having slots extending outwardly from said central opening to receive the portions of the tension element adjacent to said heads, said slots being too small for said heads to pass through them, said gripping member when inserted in said central opening retaining the said portions of the tension element in said slots.

2. A connector for connecting a wire to an anchoring device comprising in combination, a tubular shell having wire gripping means therein, a yoke having an opening in which said shell is mounted, said opening including a narrow slot adapted to receive a tension element and a tension element having the ends thereof attached to said yoke, at least one end of said tension element being extended through the yoke and provided with a head portion that bears upon the yoke to transmit the strain on said tension element to the yoke, the portion of said element which passes through the yoke being held against removal from the yoke by said tubular shell.

3. A connector of the character described comprising a yoke having an opening therethrough which includes an enlarged part and a smaller slot opening upon said enlarged part, a tension element comprising a length of wire having the ends thereof connected to said yoke, one end of said wire being extended through the slot and provided with a head portion that bears upon the yoke to transmit the strain on said tension element to the yoke, a second tension element extending through said enlarged part of the opening in the yoke and having a head thereon bearing on the opposite side of said yoke from the head on said length of wire and holding the wire in said slot.

4. A connector of the character described comprising a yoke having an opening therethrough which includes an enlarged part and a smaller slot opening upon said enlarged part, a tension element comprising a length of wire having the ends thereof connected to said yoke, one end of said wire being extended through the slot and provided with a head portion that bears upon the yoke to transmit the strain on said tension element to the yoke, a second tension element extending through said enlarged part of the opening in the yoke and having a head thereon bearing on the opposite side of said yoke from the head on said length of wire and holding the wire in said slot, said second tension element comprising a tubular shell having wire gripping means therein adapted to hold a wire inserted into it from one end thereof.

JOHN BROWN COOK.