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DEAD-END BACK-TIE

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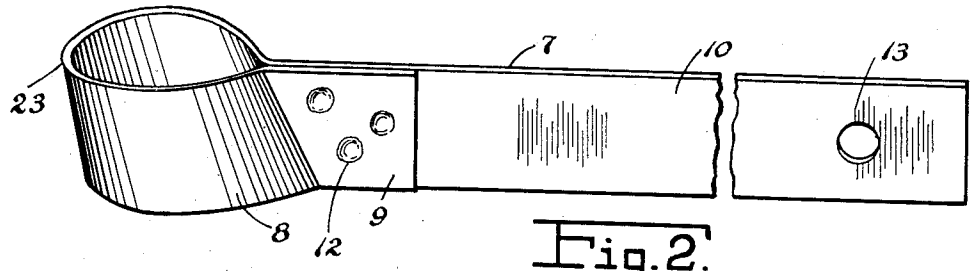


Fig. 2.

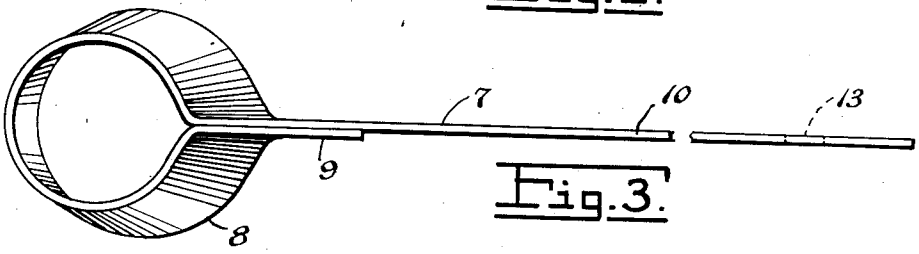


Fig. 3.

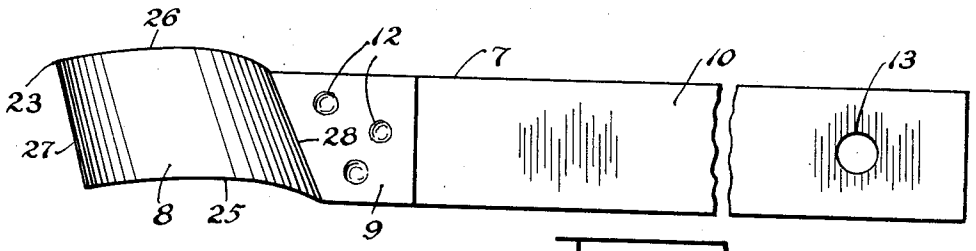


Fig. 4.

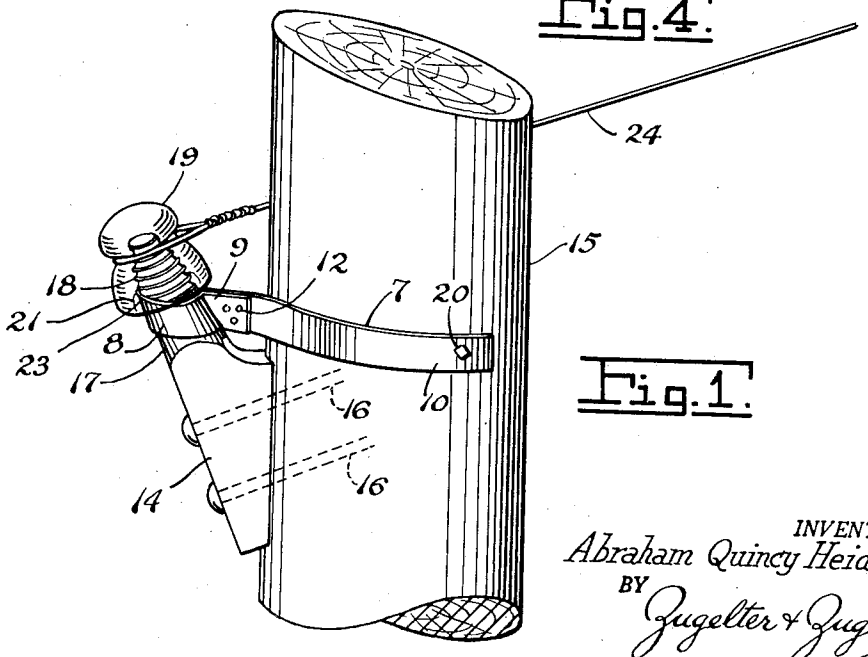


Fig. 1.

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DEAD-END BACK TIE

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6 Claims. (Cl. 174—158)

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This invention relates to a dead-end back-tie, or a back-tie for use on dead-end insulator brackets for outdoor or pole line construction.

An object of the invention is the provision of means for the prevention of sag in the dead end sections of power or communication lines.

Another object is to provide protection against breakage of wooden insulator brackets carrying dead-end lines or against loosening of the brackets from the poles.

A further object is to provide a device of the class described which is cheap of manufacture, durable of construction, and simple of application.

These and other objects and advantages are attained by the means described in the following specification and illustrated upon the accompanying drawings, in which:

Fig. 1 is a fragmentary view of a pole in perspective, showing a device of the present invention in use on the insulator bracket of a dead-end line.

Fig. 2 is a fragmentary perspective view of the dead-end back-tie.

Fig. 3 is a top plan view of the same.

Fig. 4 is a side elevational view of the same.

In common practice the terminus or dead-end of an electrical or communication transmission line is secured to a wooden insulator bracket nailed or bolted to an outdoor pole. At times great strain is placed on the brackets carrying dead-ends as for instance when the lines are coated with ice during a freezing rain or when extremely cold weather contracts the metal in the lines. In such cases the strain thus imposed upon the insulator brackets causes the brackets to pull loose from the poles thereby creating a sag in the lines, obviously an undesirable condition. In extreme cases the strain on dead-end lines may be so great as to cause the wooden insulator bracket to break off unless otherwise supported.

A simple, durable and low-priced support or back-tie obviating the foregoing objection is illustrated on the accompanying drawings, and its application is clearly shown in Fig. 1.

The back-tie 7 is fabricated preferably of an elongated strip of medium gauge sheet metal. A loop or collar 8 is formed by bending one end of the strip around and back, allowing a short end 9 at the end of the loop to meet the shank 10 in parallel abutment. The end 9 is rigidly secured to the shank 10 by means of spot welds 12, rivets, or the like. It will be noted that the loop 8 is substantially frusto-conical in shape

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having its axis extending upwardly and outwardly from the longitudinal axis of the shank 10. The function of the frustum shaped loop will be hereinafter disclosed. The shank is apertured as at 13 adjacent its free end for the purpose of fastening the back-tie to a pole by means of a nail or other anchoring device.

Referring to Fig. 1, it will be noted that a wooden bracket 14 is secured to a pole 15 by means of spikes or nails 16 driven through the body of the bracket. The bracket 14 is of a standard type in general use, having an outwardly and upwardly extending tapered portion 17 coarsely threaded at its upper end as indicated at 18, for the reception thereon of an interiorly threaded glass or porcelain insulator 19. For the purpose of clarifying the details of the bracket, a transparent glass insulator is shown on the drawing.

After the bracket 14 has been secured to the pole 15, the frustum shaped collar 8 of the back-tie 7 is slipped over the threaded portion 18 of the bracket and forced down until it fits snugly around the tapered portion or shoulder 17. The shank 10 of the back-tie 7 is then bent to follow the contour of the pole and fastened transversely thereto by means of a lag screw, nail or the like, as at 20, driven through the aperture 13 of the back-tie shank. When so fastened, the shank 10 will be disposed at a slight angle downward from the collar 8, thus preventing said collar from working up from the shoulder 17.

After the bracket and back-tie have been secured in their proper relative positions, the back-tie being fastened on the side of the pole opposite the direction from which the transmission line is to be received, the insulator 19 is threaded on the bracket. As will be noted on the drawing, a concavity 21 in the under part of the insulator permits the insulator to overlap the upper part of the outer end 23 of the back-tie collar. This feature is clearly indicated in Fig. 1. As will be understood, the taper of loop 8 corresponds with the taper of the bracket shoulder 17.

The dead-end of the electric or communication transmission line 24, secured to the insulator 19, is thus rigidly supported by the back-tie 7 against sag, since the collar of the back-tie is positioned on the bracket at the point where the strain is the greatest. The danger of the bracket's breaking or pulling loose from the pole is also eliminated by the use of the device of the present invention.

In forming up the device from a simple straight-edged strip of flexible metal or other

suitable material, the lower periphery **25** of the loop is made longer than the upper periphery **26**, thereby establishing the desired conical shape of the loop and tilting the loop axis at an obtuse angle to the shank **10**. The axis of the loop intersects the axis of the shank, making the device substantially symmetrical in form. The forward portion **27** of the loop, as well as the axis and the rear portion **28** thereof, is disposed at an obtuse angle to the shank axis as clearly indicated upon Fig. 4, and this shaping of the loop curves the upper and lower edges **26** and **25** of the loop formation. The resulting complex configuration adds to the strength and serviceability of the device.

It is to be understood that various structural modifications and changes in structural details may be made, within the scope of the appended claims without departing from the spirit of the invention.

What is claimed is:

1. A dead-end back-tie adapted for attachment to an insulator bracket in supporting relationship therewith, comprising an elongated shank portion having opposed ends, one of the ends including an aperture for the reception therethrough of fastening means, and a loop portion on the shank extending from the end opposite the apertured end, said loop portion being substantially frusto-conical in shape, the axis of the loop extending upwardly and outwardly from the longitudinal axis of the shank.

2. In a dead-end terminus for a wire, the combination of an insulator bracket having a tapered shank and a back-tie, said back-tie comprising an initially straight-edged elongated metallic strip flexible in character and bent at one end to loop formation, the opposite end of the strip being adapted for securement to a pole, said loop being frusto-conical in substantial correspondency with the taper of the insulator bracket shank and having its axis disposed at an acute angle to the major axis of the metallic strip.

3. In a dead-end terminus for a wire, the combination of an insulator bracket having a tapered shank and a back-tie, said back-tie comprising an initially straight-edged elongated metallic strip flexible in character and bent at one end to loop formation, the opposite end of the strip being adapted for securement to a pole, said loop being frusto-conical in substantial correspondency with the taper of the insulator bracket shank and having its axis disposed at an acute angle to the major axis of the metallic strip, the loop having a forward portion and a rear portion both at an obtuse angle to said strip axis.

4. In a dead-end terminus for a wire, the combination of an insulator bracket having a tapered shank and a back-tie, said back-tie comprising an elongated initially straight-edge metallic strip flexible in character, a loop formed on one end of the strip, leaving a plain substantially straight shank at the opposite end thereof, said loop being frusto-conical in substantial correspondency with the taper of the insulator bracket shank, with the axis of the loop disposed at an acute angle to the axis of the strip shank, and upper and lower peripheral edges on the loop defining the height thereof, said peripheral edges being curved both transversely and longitudinally of the strip shank axis.

5. A dead-end terminus for overhead transmission wires, comprising an upright pole, a bracket fixed to the pole including an obliquely disposed tapered shank having an upper free end, a hollow-base insulator capping the free end of said tapered bracket shank, a tensioned wire fixed to said insulator, and a back-tie for the bracket comprising a metallic flexible strip having an elongated shank end fixed to the pole, and a frusto-conical loop on the opposite end of the strip encircling the tapered shank of the bracket, beneath the insulator, said loop having an axis oblique to the axis of the strip shank for directing the strip shank at a downward inclination relative to the pole.

6. A dead-end terminus for overhead transmission wires, comprising an upright pole, a bracket fixed to the pole including an obliquely disposed tapered shank having an upper free end, a hollow-base insulator capping the free end of said tapered bracket shank, a tensioned wire fixed to said insulator, and a back-tie for the bracket comprising a metallic flexible strip having an elongated shank end fixed to the pole, and a frusto-conical loop on the opposite end of the strip encircling the tapered shank of the bracket and entering the hollow base beneath the insulator, said loop having an axis oblique to the axis of the strip shank for directing the strip shank at a downward inclination relative to the pole.

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