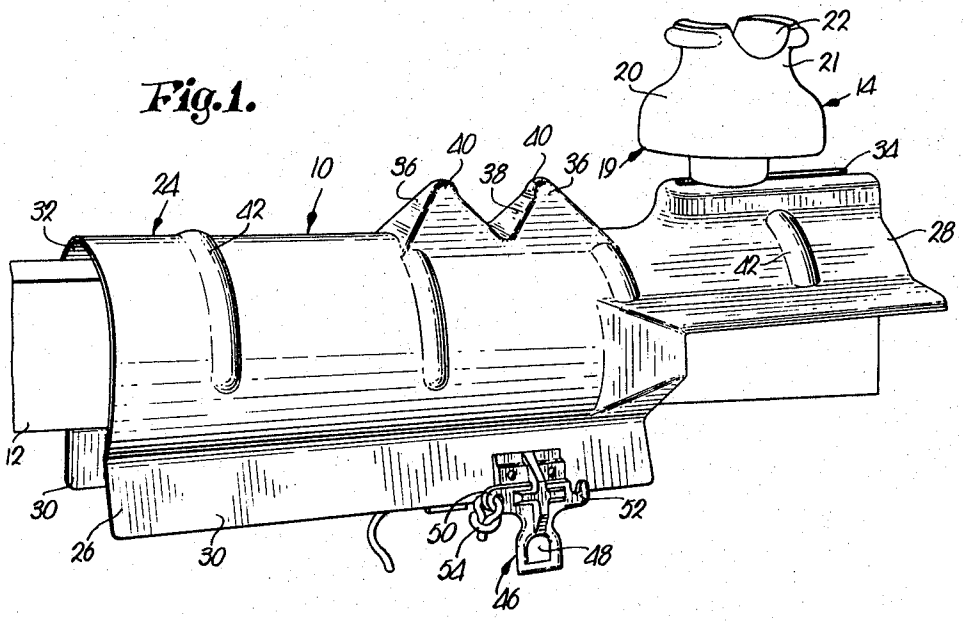
June 27, 1967 C. C. CAGLE ET AL. 3,328,511

CROSSARM COVER

Original Filed Sept. 9, 1965

Fig.1.



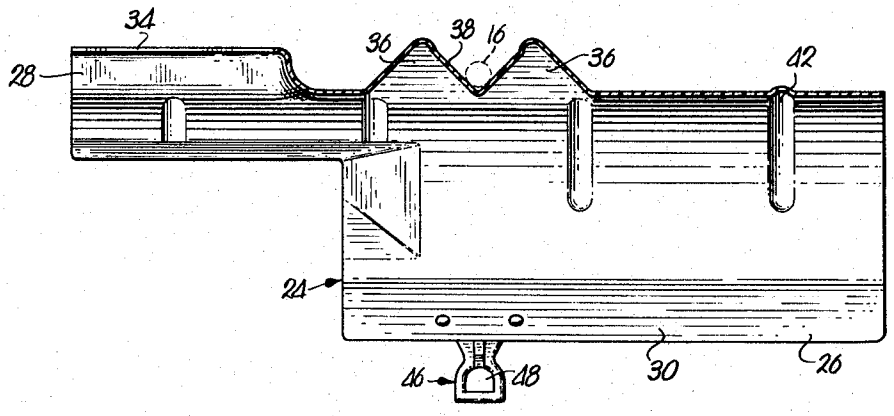




Fig.3.

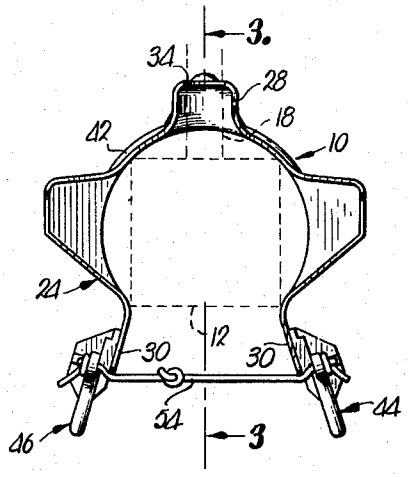



Fig.2.

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# 3,328,511
# CROSSARM COVER

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Continuation of application Ser. No. 486,046, Sept. 9, 1965. This application Nov. 23, 1966, Ser. No. 596,728
2 Claims. (Cl. 174—45)

This application is a continuation of application Ser. No. 486,046 filed Sept. 9, 1965, and now abandoned.

This invention relates to utility pole crossarm covers and, more particularly, to a safety cover for receiving and maintaining an electrical conductor in spaced relationship from its normal position to allow access to the insulator assembly which normally supports the conductor.

It is the primary object of this invention to provide a crossarm cover which is positionable on the crossarm of a utility pole in proximal relationship to an insulator assembly thereon and which is adapted for temporarily supporting the electrical conductor normally tied to the insulator assembly, whereby the conductor is precluded from movement toward and away from the insulator assembly while a workman replaces the assembly with a new unit. More specifically, the cover includes a projection or the like on the upper surface thereof adapted to hold the conductor after it has been removed from the insulator assembly. As is well known in the electrical transmission field, utility poles generally carry a plurality of electrical conductors, each normally carried by a pin supported by a crossarm. It is often necessary to replace or repair these insulator assemblies, and to this end, the conductor must be removed not only from the support pin but also the working area and placed at an adjacent but safe location. This must all be accomplished without the necessity of interrupting flow of current through the line. Many alternative methods have been employed for safely performing this operation but have required a rather extensive amount of tools and rigging.

One prior method of relatively safely transferring a conductor from the insulator support assembly therefor has been to employ insulated tools adapted for use with energized lines. One example of a tool of this type is known as an auxiliary side arm which is designed to be mounted on the side of a line pole and secured thereto by a chain tightener. The side arm tool carries slidable, adjustable "forks" or conductor holders, one of which may be positioned to support the conductor after it has been removed from the groove of the insulator. To install this tool, a lineman must either climb the pole or maneuver an aerial bucket into a position for tool installation. The conductor may then be transferred to the auxiliary arm. However, underbuild on the pole often prohibits use of an aerial bucket for this method.

A second method heretofore used involved two linemen who mounted two elongated wire tongs on the side of the pole, engaged the conductor, untied it, and moved the conductor upward or outwardly away from the insulator assembly. This procedure however was a slower, more cumbersome and more costly method than the utilization of the above-mentioned auxiliary side arm.

A third method previously used was to clamp or install an insulator midway between two adjacent conductors to which the desired conductor could be moved. In this instance, the conductor which was moved was of necessity actually tied to the temporary insulator. In addition to being time-consuming, considerable care had to be exercised in installing the temporary insulator between the two closely spaced conductors (often only 18 inches apart) and in tying the moved conductor. Most utility companies forbid this practice for safety reasons.



Because of the time or safety objections in the above-mentioned alternative methods, linemen have frequently resorted to the procedure of untying a conductor, covering it and the adjacent conductor with line hose and simply placing the covered line conductor on the bare crossarm. The location of the conductor is not fixed in this instance and an undesirable hazard is presented from a safety standpoint. Even if the conductor is satisfactorily placed, there is a possibility that it could be moved accidentally to create an unsafe position with respect to the second conductor or the lineman. There have been instances where moisture in or on the crossarms permitted sufficient current leakage to occur to produce tracking (charring) of the crossarm and/or establishment of hazardous potentials on the crossarm.

Hence, it is an important object of this invention to provide a crossarm cover which is constructed of an economical, nonconductive material, is adapted for quick and easy positioning on the crossarm of a utility pole, and will safely receive and support a proximal conductor in spaced relationship from an insulator assembly when the latter is removed therefrom. The cover of this invention is extremely simple in construction and economical to fabricate, while prior maintenance methods have of necessity involved utilization of relatively expensive parts and equipment, and were time-consuming in actual use. The present cover is especially adapted to be releasably positioned on the crossarm of a utility pole for quick mounting and removal therefrom and is uniquely designed to interlock with both the crossarm and insulator assembly.

Another object of the instant invention is to provide a crossarm cover of the aforementioned character wherein a projection is provided for receiving the electrical conductor and configured to prevent inadvertent displacement of the conductor therefrom as by the workman bumping thereagainst, or by creeping of the conductor occasioned by wind action. The projection preferably defines a V-shaped notch which complementally receives the conductor in partially surrounding relationship thereto and thereby substantially locks the conductor in spaced relationship from the insulator support therefor. The notch may also be shaped to substantially complementally receive the conductor when it is combined with a protective line hose. A further important object of the invention is to provide a cover as described which is provided with means thereon for securely fastening the cover to the pole crossarm so that there is virtually no danger of the cover slipping from the crossarm while a conductor is carried by the projection on the cover.

Other objects include details of construction which will become apparent from the following specification and accompanying drawing, wherein:

FIGURE 1 is a perspective view of a crossarm cover made pursuant to our invention and showing the same mounted in the normal operative position thereof on the crossarm of a utility pole;

FIG. 2 is an end view thereof with the crossarm being shown in dotted lines; and

FIG. 3 is a cross-sectional view taken along line 3—3 of FIG. 2.

The crossarm cover of the present invention, broadly designated by the numeral **10**, is adapted to be positioned on the normally horizontal crossarm **12** of a conventional utility pole. Crossarm **12** normally supports a plurality of insulator assemblies **14**, each of which receive and carries electrical conductor **16**.

Assembly **14** conventionally includes a pin **18** (indicated by dotted lines in FIG. 2) attached to the upper portion of crossarm **12** and an insulator **19** having a skirt portion **20** which is internally threaded for complemental

mounting on the uppermost end of pin 18. The upper section 21 of insulator 19 has a recess 22 therein for receiving and supporting conductor 16. Tie means is normally employed to secure the conductor to section 21 of insulator 19.

Cover 10 includes a generally tubular member 24 which is provided with a longitudinally extending slot at the lower portion causing the member to define a substantially U-shaped body. Member 24 is divided into first and second portions 26 and 28. Portion 26 is adapted to be releasably telescoped over crossarm 12 an comprises a pair of legs 30 an a bight portion 32, the latter being configured to engage the upper surface of crossarm 12.

Portion 28 of member 24 is adapted for releasably engaging insulator assembly 14 and is provided with an elongated slot 34 in the upper portion thereof extending longitudinally of member 24. The slot is open at one end for receiving pin 18 of insulator assembly 14. A pair of spaced generally pyramid shaped projections 36 are provided on the upper surface of the first portion 26 of member 24 and thus serve to define a V-shaped notch 38 therebetween. The lowermost proximal facing portions of projections 36 are configured to complementally receive conductor 16 therein. Each projection 36 is provided with a raised transversely arcuate section 40 at the upper edge thereof proximal to notch 38.

Cover 10 is preferably of molded construction and thus formed of a synthetic resin, nonconductive material such as polyethylene, the material preferably being flexible in nature whereby legs 30 form substantially resilient wing portions. A plurality of transverse ribs 42 formed in member 24 during molding thereof serve to increase strength thereof longitudinally of the same. Connecting structure 44 is mounted on the lower edges of legs 30 for securing member 24 to a crossarm.

Structure 44 is made up of a pair of castings 46 each attached to a respective leg 30 of portion 26 of member 24. Each casting 46 includes an eye 48 which is adapted for engagement by the fingers of a clamping stick. The castings 46 also are each provided with flange 50 for receiving a connecting rope and a rope snubber 52, these two components being disposed in opposed relationship above respective eyes 48. A polyethylene rope 54 is secured to one of the flanges 50.

Cover 10 is placed in use by telescoping member 24 over crossarm 12 with portion 28 proximal to insulator assembly 14, bight 32 of member 24 engaging the upper surface of crossarm 12, and legs 30 straddling the side faces thereof. Cover 10 may be placed into this position by hand or by use of a conventional clamp stick. When using a clamp stick, a lineman engages the fingers thereof in the eye 48 of one of the castings 46 and then raises cover 10 to its operative position on crossarm 12.

After cover 10 has been placed on crossarm 12, it is then slipped toward insulator assembly 14 to cause the openend of slot 34 to receive pin 18. Cover 10 is shifted onto the crossarm until the segment of portion 28 defining the innermost part of slot 34 engages pin 18. The portion 28 of member 24 is disposed directly beneath skirt 20 of insulator assembly 14 in clamping engagement therewith so as to provide maximum stability of cover 10 when the latter is in final position on crossarm 12.

The free end of rope 54 is then drawn beneath crossarm 12 and snubbed around rope snubber 52 to draw the wings 30 of member 24 into frictional engagement with the crossarm 12 to give rigidity to the cover 10.

Conductor 16 may then be united from insulator assembly 14 and removed therefrom for positioning in notch 38. Notch 38 is confined to complementially receive conductor 16 with opposed triangular faces of projections 36 in partially surrounding relationship to the conductor as seen in FIG. 3 to guard against inadvertent disengagement of the conductor from cover 10 by the workman bumping against the line or cover during his work. If conductor 16 is by chance slightly displaced from its normal position in notch 38, it will be prevented from sliding out of the notch by virtue of the provision of raising sections 40 on the upper edges of projections 36. After insulator assembly 14 has been replaced or repaired by the lineman, conductor 16 may then be transferred from notch 38 to recess 22 and resecured in the normal position thereof. Cover 10 may then be quickly removed by release of rope 54 and sliding of the cover 10 along pin 18 from beneath skirt 20 until cover 10 may be completely removed from crossarm 12.



Often, a number of conductors 16 are arranged in relatively close horizontally spaced relationship on crossarm 12 and, for best results, notch 38 is located on member 24 so that when cover 10 is placed in proper position, notch 38 will be disposed approximately midway between two adjacent conductors. This provides optimum spacing with relation to the adjacent circuit and total work area. The polyethylene material from which cover 10 is molded provides adequate insulation to guard against dangerous leakage currents along the crossarm or flashover to either of the work area of the adjacent conductor.

It is common practice for linemen to place a protective polyethylene hose covering over the conductor before completely removing it from insulator assembly 14. In this case, notch 38 is also preferably configured to complementally receive the protective hose rather than conductor 16.

Thus, it is seen that an inexpensive and safe crossarm cover has been provided for use with a conductor and insulator assembly and which may be quickly and easily placed into operation. Suitable projections are provided for receiving the conductor in spaced relationship from its respective insulator assembly and which serve to temporarily restrain the conductor during repair or replacement of the insulator assembly. The conductor is precluded from movement toward and away from the insulator assembly and hence, presents very little hazard to the lineman.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a transmission line support structure provided with a crossarm having a conductor-supporting insulator assembly thereon, the combination with said crossarm and said assembly of:

a flexible, nonconductive, elongated cover member including a first, elongated, transversely generally U-shaped portion straddling said crossarm, and a second portion extending from one end of said first portion and having an open end, elongated slot therein extending longitudinally of the member and receiving said assembly to stabilize the member with respect to the crossarm,

said first portion having a transversely convex bight overlying said crossarm and engaging the latter exclusively at transversely spaced, longitudinally extending zones of contact to thereby define an air space beneath the bight between the latter and the crossarm extending between said zones, and a pair of depending legs presenting a pair of opposed wings each provided with an outwardly flared tip disposed beneath the crossarm; and

means coupled with said wings for drawing the tips thereof toward each other under the crossarm to deform the member and thereby frictionally interengage the crossarm and the member to clamp the latter to the crossarm,

said bight having a pair of upstanding, juxtaposed projections thereon spaced from said assembly longitudinally of said first portion and presenting a conductor-receiving notch therebetween extending horizontally at a right angle with respect to the longitudinal axis of the crossarm and, therefore, in the same direction as the conductor supported by said assembly,

said projections having facing surfaces defining said notch,

said surfaces being disposed to engage opposed sides of the conductor to hold the latter against lateral movement when the conductor is removed from the assembly and placed in the notch.

**2.** The invention of claim **1**,

said legs being transversely convex and integral with said bight, providing said first portion with a transversely arcuate configuration,

said surfaces being inclined and converging as the bottom of the notch is approached,

said projections being pyramid-shaped and each having an arcuate, raised section at the apex thereof for maintaining the conductor in the notch.



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