June 27, 1939. O. C. KERR 2,163,790

PROTECTIVE COVERING FOR DEAD ENDS

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Fig. 1

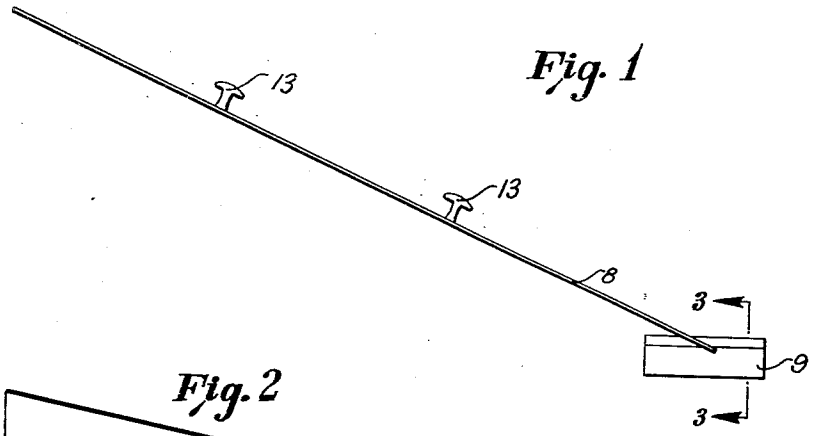
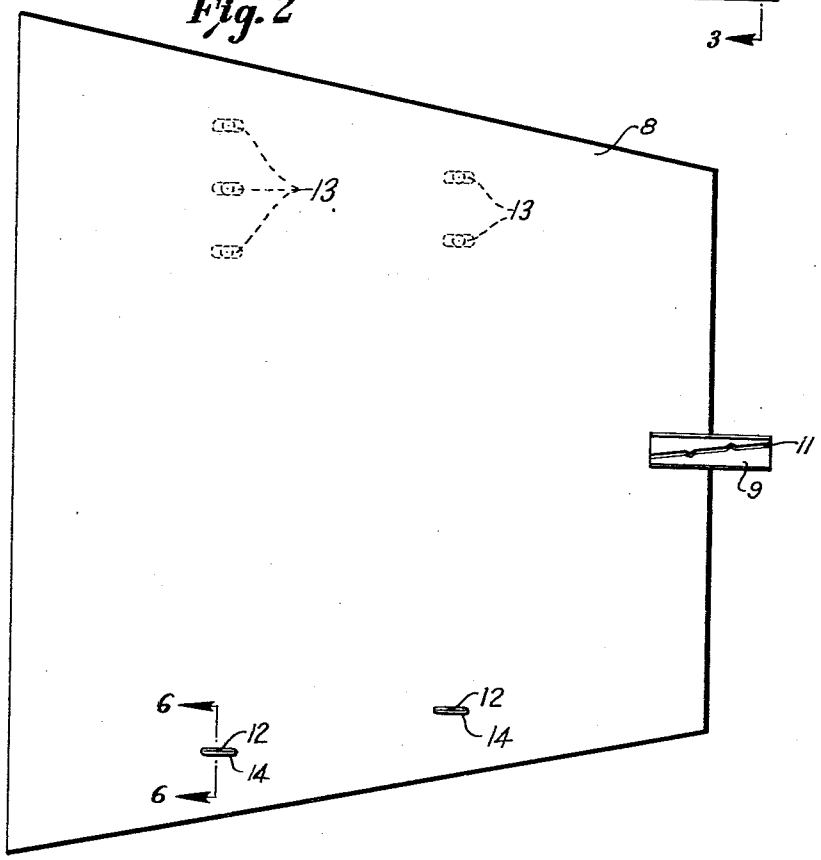


Fig. 2



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Fig. 3

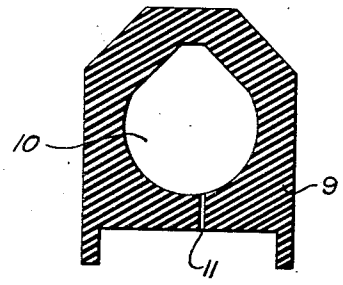


Fig. 4

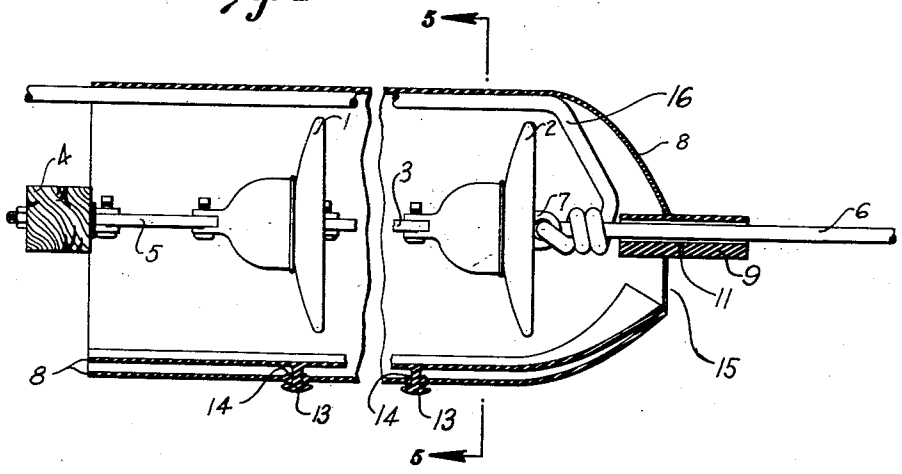


Fig. 5

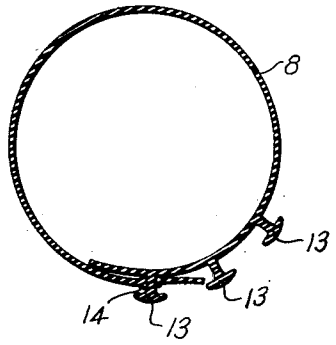
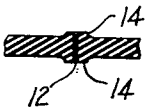


Fig. 6



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PROTECTIVE COVERING FOR DEAD ENDS

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Application June 14, 1937, Serial No. 148,054

4 Claims. (Cl. 174—5)

This invention relates to devices for the protection of linemen working on high tension transmission lines and has to do, more particularly, with a protective cover designed for use as a temporary encasement for "dead-ends".

The work performed by linemen on high voltage power lines is attended with great hazard, and every known practicable safety device that can be employed without too greatly hampering the work to be done is ordinarily made use of; and its use is generally mandatory. So called rubber "eels" designed to encircle the power wires and adapted to be linked together end-to-end so as to leave no part of the wire exposed are commonly employed; and, likewise, heavy rubber caps which fit over the pole insulators; and rubber "pigs" designed for use on double cross-arms are in regular everyday use and well known to electrical workers.

The aforementioned safety devices are referred to here solely for the purpose of emphasizing, by way of contrast, that no really comparable device has ever been developed, so far as I am aware, for adequately covering "dead-ends" and thus properly safeguarding linemen working on dead-end poles.

Heretofore, the only thing available for covering dead-ends has been a piece of sheet rubber, called a "blanket", which was wrapped about the insulators and fastened with a clamp similar to a clothes pin. Such blankets afford partial protection, of course, but are inadequate because they do not form a sufficiently complete enclosure; and it is always possible that a tool or length of wire in the hand of a workman may accidentally penetrate an opening in such a blanket with disastrous results.

The primary object of the present invention is to provide a protective covering for use on dead-ends which will form such a complete enclosure, when properly applied, as substantially to eliminate all possibility of a workman being electrocuted as a result of accidental contact therewith. A further object is to provide a covering of the kind above referred to which can be applied by a workman with a minimum of hazard.

The improved protective covering illustrated in the accompanying drawings and described in detail hereinafter, meets, very satisfactorily, both the above-stated objects in that it forms a substantially complete enclosure for the dead-end and can be applied without difficulty in a manner that entails no material hazard to a careful workman.

Referring to the drawings:

Fig. 1 is a side elevational view of the protective covering;

Fig. 2 is an underside view of the covering;

Fig. 3 is a substantially full-size cross-sectional view taken along the line 3—3 of Fig. 1;

Fig. 4 illustrates a dead-end with the protective covering applied thereto;

Fig. 5 is a cross-sectional view taken along the line 5—5 of Fig. 4; and

Fig. 6 is a cross-sectional view taken along the line 6—6 of Fig. 2.

What is herein referred to as a "dead-end" comprises, generally, a string of several insulators connected together to form a non-conductive chain, one end of which is connected to a pole or cross-arm—the other being connected to a live wire which is to be supported, under tension, by the dead-end. Such a dead-end is shown in Fig. 4 of the drawings. It comprises insulators 1 and 2 connected together, in series, by means of a link 3—which is shown broken to indicate that there may be one or more additional insulators included in the chain. On very high voltage lines the dead-ends may consist each of a half dozen or more such insulators. For lower voltages, fewer insulators will suffice; and insulators of greater or less diameter may be employed. Reference numeral 4 (Fig. 4) designates a cross-arm, mounted on a pole, to which cross-arm the dead-end is shown attached through the medium of a link 5. Insulator 2, at the "hot" end of the string has an eyelet 7 to which the live conductor 6 is attached, as shown.

The protective covering is shown opened up in Figs. 1 and 2, whereas it is shown, in Fig. 4, applied to the dead-end. It comprises, preferably, a sheet 8 of flexible rubber, thick enough to serve its purpose as an insulator and large enough, in area, to permit of its being wrapped about the dead-end so as to substantially completely enclose it. The geometrical form of sheet 8 is not vitally important, provided it be such as to enable the dead-end to be properly encased. The trapezoidal configuration depicted in Fig. 2 is very suitable.

To one edge of sheet 8 is attached a flexible rubber sleeve 9—the edge of the sheet converging with the sleeve about midway between the extremities thereof. The sheet and sleeve may be formed in one piece or made separately and vulcanized together. Preferably, the sheet converges with the sleeve at an angle, about as shown in Fig. 1.

The sleeve has an opening 10 (see Fig. 3) ex-

tending lengthwise therethrough, of a size suitable for the accommodation of conductor 6, and is split along one side, as indicated at 11, the line of severance extending, preferably, somewhat diagonally—the adjoining edges being complementarily serrated, as shown in Fig. 2—the purpose being to ensure against the possibility of the sleeve dropping off the conductor in event of its being turned upside down after being put in place.

The protective cover is applied to the dead-end, as previously stated, in the manner illustrated in Fig. 4, from which it will be seen that sleeve 9 embraces conductor 6 at a point adjacent insulator 2, while the rubber sheet is wrapped around the insulator, with edges overlapping, forming a substantially complete encasement.

To enable fastening the overlapping edges of the sheet after the cover has been put in place, the sheet is provided with one or more buttonholes 12 and several buttons 13—the buttons and buttonholes being so placed as to permit the sheet being adjusted to accommodate insulators of different diameters. The buttons 13 are preferably moulded as integral parts of the sheet and of the same material. Buttonholes 12 are preferably reinforced by means of a bead 14, as shown in Fig. 6, on either side of the sheet.

When the protective covering herein described has been applied to the dead-end, the edge adjacent the sleeve embraces the sleeve quite closely, so that there is little possibility of a workman inadvertently putting his hand or a tool or piece of wire through the opening between the sheet and the under side of the sleeve—the opening referred to be identified by reference numeral 15. But such a possibility is inherent and, for that reason, the sleeve is designed to extend inwardly a distance of several inches, as clearly illustrated in Fig. 4. This feature renders it virtually impossible for an accidental contact to occur underneath the covering. The opening at 15 is shown somewhat exaggerated in order to make more clear the function of the inwardly projecting portion of the sleeve. In actual practice the covering should be drawn up around the dead-end snugly enough to practically close the opening at 15; but should he neglect to do so, there is still very little chance of an accidental contact underneath the covering due to the inwardly projecting portion of the sleeve.

That part of conductor 6 which is shown bare would ordinarily be encased within a rubber "eel"—which forms no part of the present invention.

Reference numeral 16 designates a bridging conductor, commonly called a jumper, which serves to interconnect conductor 6 with another like conductor (not shown) on the other side of the cross-arm.

What is claimed is:

1. A removable protective covering for use on dead-ends of the type consisting of one or more insulators interposed between a live conductor wire and a supporting pole or cross-arm, said covering comprising, in combination: an elongated, flexible rubber sleeve having a passageway extending lengthwise therethrough, said passageway being dimensioned to encircle said live conductor wire, said sleeve being split lengthwise along one side so as to enable the sleeve to be applied to said conductor wire, a sheet of flexible rubber of extended area secured to said sleeve and forming a skirt-like appendage thereto, said rubber sheet being of such size and configuration and so oriented with respect to said sleeve that it can be wrapped about said dead-end in such manner as to substantially completely envelope said dead-end.

2. A removable protective covering for use on dead-ends of the type consisting of one or more insulators interposed between a live conductor wiire and a supporting pole or cross-arm, said covering comprising, in combination: an elongated, flexible rubber sleeve having a passageway extending lengthwise therethrough, said passageway being dimensioned to encircle said live conductor wire, said sleeve being split lengthwise along one side so as to enable the sleeve to be applied to said conductor wire, a sheet of flexible rubber of extended area attached to the exterior surface of said sleeve at a point between the two extremities thereof, said sheet forming a skirt-like appendage to said sleeve, said rubber sheet being of such size and configuration and so oriented with respect to said sleeve that it can be wrapped about said dead-end in such manner as to substantially completely envelope said dead-end.

3. A removable protective covering for use on dead-ends of the type consisting of one or more insulators interposed between a live conductor wire and a supporting pole or cross-arm, said covering comprising, in combination: a sheet of rubber of extended area designed to be wrapped around the dead-end and overlapped and fastened so as to form an enclosure for said dead-end, and an elongated tubular sleeve integrally connected with said sheet and designed to form a protective wrapping for the live conductor at a point adjacent the dead-end, said sleeve being split lengthwise on one side in such manner as to permit of its attachment to said live conductor, said sheet being provided with buttons and complementary buttonholes so placed as to permit of its overlapping portions to be fastened together.

4. A removable protective covering for use on dead-ends of the type consisting of one or more insulators interposed between a live conductor wire and a supporting pole or cross-arm, said covering comprising, in combination; a sheet of rubber having such length and breadth as to permit it to form a substantially complete protective enclosure for said dead-end when wrapped thereabout, said sheet being provided with buttons and complementary buttonholes by means of which it can be fastened when wrapped about said dead-end, and an elongated tubular sleeve forming an integral part of said cover and connected to one edge of said sheet, said sleeve being attached at its mid-portion to said sheet in such manner that one end portion of said sleeve extends underneath the adjacent edge portion of said sheet, when in place, while the other end portion of said sleeve extends away from said sheet, said sleeve being split lengthwise along one side in such manner as to permit it to be wrapped about the live conductor wire at a point adjacent the dead-end.

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