

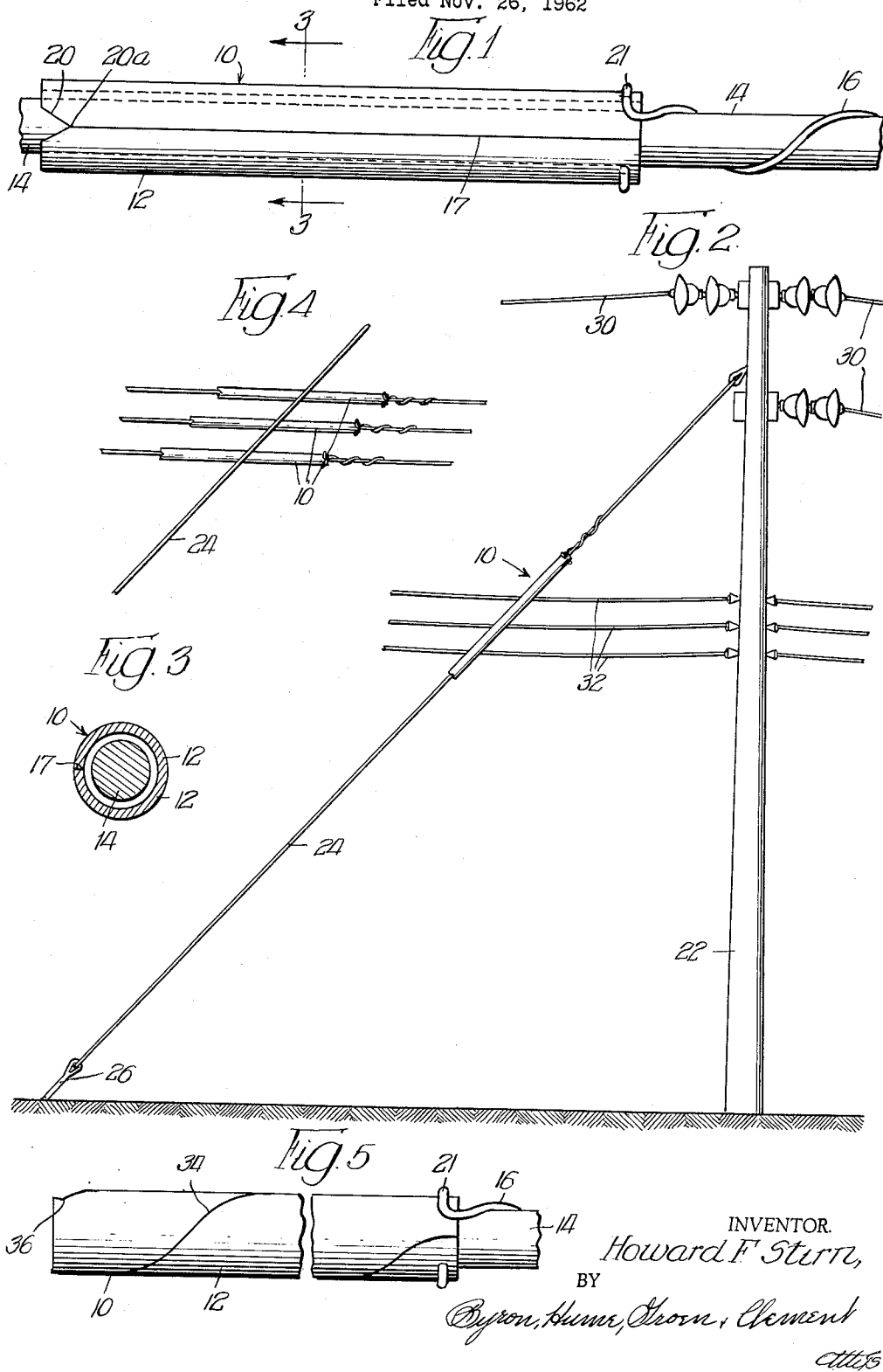
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PROTECTIVE APPLIANCE FOR SUSPENDED LINEAR BODIES

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PROTECTIVE APPLIANCE FOR SUSPENDED LINEAR BODIES

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1 Claim. (Cl. 52-147)

My invention relates to an appliance or wire guard for protecting suspended linear bodies, such as electrical conductors, guy wires, cables and the like for protecting the same from contacting extraneous structures. More specifically the appliance is adapted to be applied to linear bodies to prevent the same from contacting other wires or electrical conductors to prevent shorting out of the same, abrasion, and any other mechanical or electrical damage that might result from such contact. The invention is particularly applicable to linear bodies that are suspended in the air between supporting poles or structures, or between a pole and the ground.

Accordingly, it is an object of the present invention to provide a new and improved appliance for protecting linear bodies such as guy wires, electrical conductors, cables and the like.

Another object of the present invention is to provide a new and improved wire guard that will prevent an energized suspended line from shorting out against a guy wire or other nearby conducting fixtures when caused to collide therewith.

A further object of the present invention is to provide a new and improved wire guard comprised of a minimum number of elements which can be readily applied to a suspended wire without the need of relatively complicated attachment means and procedures.

Yet another object of the present invention in accordance with the previous object, is to provide an insulator protector tube which is also relatively flexible, tough, unbreakable, corrosion resistant, and unaffected by changes of temperature and weather.

A further object of the present invention is to provide a new and improved wire guard having a long protector tube and retaining wrap attached to one end thereof to prevent lateral movement of the protector tube with respect to the line of attachment.

Yet another object of the present invention in accordance with the previous object is to provide a retaining member comprising a helically pre-shaped pigtail for enveloping and gripping the line of attachment.

Yet another object of the present invention resides in the provision of a guard adapted to be constructed of brightly colored material so as to visually warn of the presence of the linear body of association.

The above and other objects of the present invention are realized by providing an improved wire guard which in its preferred embodiment is the combination of a long protector tube and a retaining wrap comprising a helically pre-shaped pigtail fixedly secured to one end of the protector tube. The protector tube is a flexible, tough insulator and has a slit therein running for its entire length and preferably terminating into a notch at its other end. An operator applies the protector tube to a suspended line by fitting the tube thereon at the point where the slit runs into the notch and applying pressure thereon to force the tube to flex apart and envelop the line at the notched end portion. After this initial application, the balance of the tube is pressed onto the line through its slot in the same manner. The helically pre-shaped pigtail is then wound around the linear body to grip it sufficiently tight to prevent axial movement of the protector tube. As will be seen hereinafter, if the appliance is to be used to prevent contact between a guy wire and a sus-

pended electrical conductor it may be applied to either or both.

The invention, both as to its organization and method of operation taken with further objects and advantages thereof, will best be understood by reference to the following description, taken in connection with the following drawings in which:

FIGURE 1 is an elevational view of one embodiment of the appliance constructed in accordance with the present invention;

FIGURE 2 is a view illustrating the invention as applied to a guy wire bracing a typical support pole;

FIGURE 3 is a sectional view taken along the lines 3-3 in FIGURE 1;

FIGURE 4 is a fragmentary view showing the appliance embodying the invention as applied to suspended electrical conductors to prevent contact with a guy wire; and

FIGURE 5 is an elevational view of a second embodiment of the appliance constructed in accordance with the invention.

Referring now to the drawing and more particularly to FIGURE 1 there is shown an elevational view of the inventive appliance, generally denoted by the numeral 10 as applied to a linear body 14 such as an electrical conductor or the like. By linear body it is meant any wire-like element, such as cables, stranded or non-stranded conductors, insulated or non-insulated, and the like. The appliance 10 is composed of a long protector tube 12 enveloping the linear body 14 and a helically pre-shaped pigtail 16 secured to one end thereof and projecting therefrom. As shown in the drawing the pigtail 16 is wrapped around the linear body 14.

The protector tube 12 has a slit 17 extending through the wall 18 to permit application, as can best be seen in FIGURES 1 and 3. The slit 17 extends the entire length of the tube 12 and terminates in the vertex 20a of the V shaped notch 20. As shown in the drawings, the protector tube 12 has an internal diameter substantially larger than the outside diameter of the linear body 14. Since the relationship between the diameters are not critical other than that the tube diameter should be greater than that of the linear body, any specific appliance is adaptable for use on a range of linear bodies of different outside diameters. Furthermore such an appliance may be used to accommodate splices on a linear body or such other fixtures as would increase its diameter. As will be seen later on, the greater inside diameter facilitates the application of the tube and assures complete coverage of the co-extending portion of the linear body.

In the preferred embodiment of the appliance, the protector tube may be made of any suitable material that will permit it to fulfill the purpose for which it is intended. One group of materials which is particularly suitable for the construction of the tube are the plastics such as polyvinyl chloride. Such plastics are flexible, are non-conductors and may be resiliently distorted to permit application of the tube to the linear body 14. The insulating properties of polyvinyl chloride prevent electrical transfer from one line to the other and thus prevent shorting. Polyvinyl chloride has the other desirable properties of toughness, corrosion resistance, and resistance to change from temperature and the weather. Other materials such as fiber glass, insulated metal, and paper could also be used. The present invention, however, is not limited by the use of any particular material.

The helically pre-shaped pigtail comprises a single strand 16 which has been pre-shaped into an open helix with an internal diameter preferably less than the outside of the linear body to which it is to be applied. The pitch length of the pigtail 16 is sufficiently great to permit it to be applied from the side to the linear body 14 until

they are in co-axial relationship. Since the pigtail 16 must expand radially to accommodate the larger diameter of the linear body 14, the latter will be tightly gripped thereby. This tightly gripping relationship prevents relative axial movement between the pigtail 16 and the linear body 14 and in turn the protector tube 12.

One end of the pigtail 16 is attached to the protector tube 12 preferably adjacent the latter's end. The method for attachment may take any suitable form. As shown in FIGURE 1, the method for attachment comprises a portion of the pigtail 16 which has been formed into a semicircular configuration attached to extend at least partially around the tube 12. The semicircular portion 21 does not define a complete circle but presents a gap which is coincident with the slit 17 so as to not interfere with the application of the tube to the linear body.

The semicircular portions 21 may be affixed to the tube 12 by constructing it to a diameter less than the external diameter of the tube, so that it must resiliently expand and thus tightly grip the latter. If desired, the circular portion may be anchored or cemented in place. It will also be apparent that the pigtail 16 may be an integral part of the tube 12 or may be affixed thereto without the semicircular portion 21.

In the preferred embodiment of the invention the pigtail 16 is made from the same material as the protector tube 12 such as polyvinyl chloride. However this is not a necessity in the practice of the invention.

The appliance 10 is applied to the linear body 14 by the following procedure. The V shaped notch 20 is placed by the lineman over the line adjacent that portion thereof to be protected. The vertex 20a of the notch 20 is then pushed into the linear body 14 with sufficient force to cause the adjacent part of the slit 17 to open. When this happens the linear body 14 is permitted to pass into the interior of the tube. Generally the linear body 14 will be received progressively within the tube 12 as the slit opens up beginning at the vertex 20a and progressing toward the other end of the tube 12.

After the protector tube is fully positioned on the linear body 14 and is axially positioned over that portion to be protected, the pigtail is then wound into position thus preventing dislocation from the desired position. For maximum protection the slit 17 should be placed 180° away from the point of possible contact with the nearby extraneous body.

Referring now to FIGURE 2 there is shown one example of a specific use of the inventive appliance. The example includes a support pole 22 which is braced by a guy wire 24. The guy wire 24 is secured at its upper end to the pole 22 and at the lower end to a ground anchor 26 of some suitable type. The pole 22 supports a plurality of lines 30 which are secured adjacent the top and the lines 32 which are suspended midway up the pole 22. As shown in the drawings the lines 32 could conceivably contact the guy wire 24. In order to prevent any damage either electrical or mechanical, resulting from such contact, the guy wire 24 is provided with the appliance 10 described above. The appliance 10 would prevent any abrasion or electrical contact between the lines 32 and the guy wire 24.

Referring now to FIGURE 4 there is shown a fragmentary view in which the appliances 10 are applied to the lines 32 rather than the guy wire 24. The results

and method of application are substantially the same and merely shows a different arrangement in which the appliance may be used.

The appliance may be used for prevention of contact with any extraneous body such as trees, buildings and the like. In those instances, the appliance will be applied to the line.

It will be understood that the invention is not limited to a straight slit for permitting the application of the tube to a linear body. Specifically as shown in FIGURE 5 the tube 12 may be provided with a curved or helical slit 34 which terminates in a notch 36. The tube may be applied in substantially the same manner as with the straight slit 17 except that it is rotated as it is being forced upon the linear body.

Although certain specific forms of the invention have been described herein, it is to be understood that they are merely by way of example and are not limitations. It will be apparent that certain modifications may be made within the scope of the claim without departing from the spirit of the invention.

I claim:

An appliance for linear bodies adapted to be applied to suspended lines such as conductors, cables, guy wires, and the like comprising a tubular element adapted to be applied to a linear body, said tubular element having an internal diameter substantially larger than the external diameter of the linear body, said tubular element having a slit for its entire length to permit application to said linear body, and an elongated resilient element preshaped for a portion of its length at one end in a radially-expandable arcuate configuration having an internal diameter less than the external diameter of said tubular element such that said arcuate portion grasps one end portion of said tubular element when applied thereto, said arcuate portion being of less than 360° in arcuate extent thereby defining a gap which is arranged coincident with said slit so as not to interfere with the application of said tubular element to said linear body, said elongated resilient element being preshaped for another portion of its length in a radially-expandable helical configuration having an internal diameter less than the external diameter of said linear body such that said helical portion is adapted to grasp said linear body when applied thereto, said helical portion extending outwardly from and generally co-axially with said tubular element.

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