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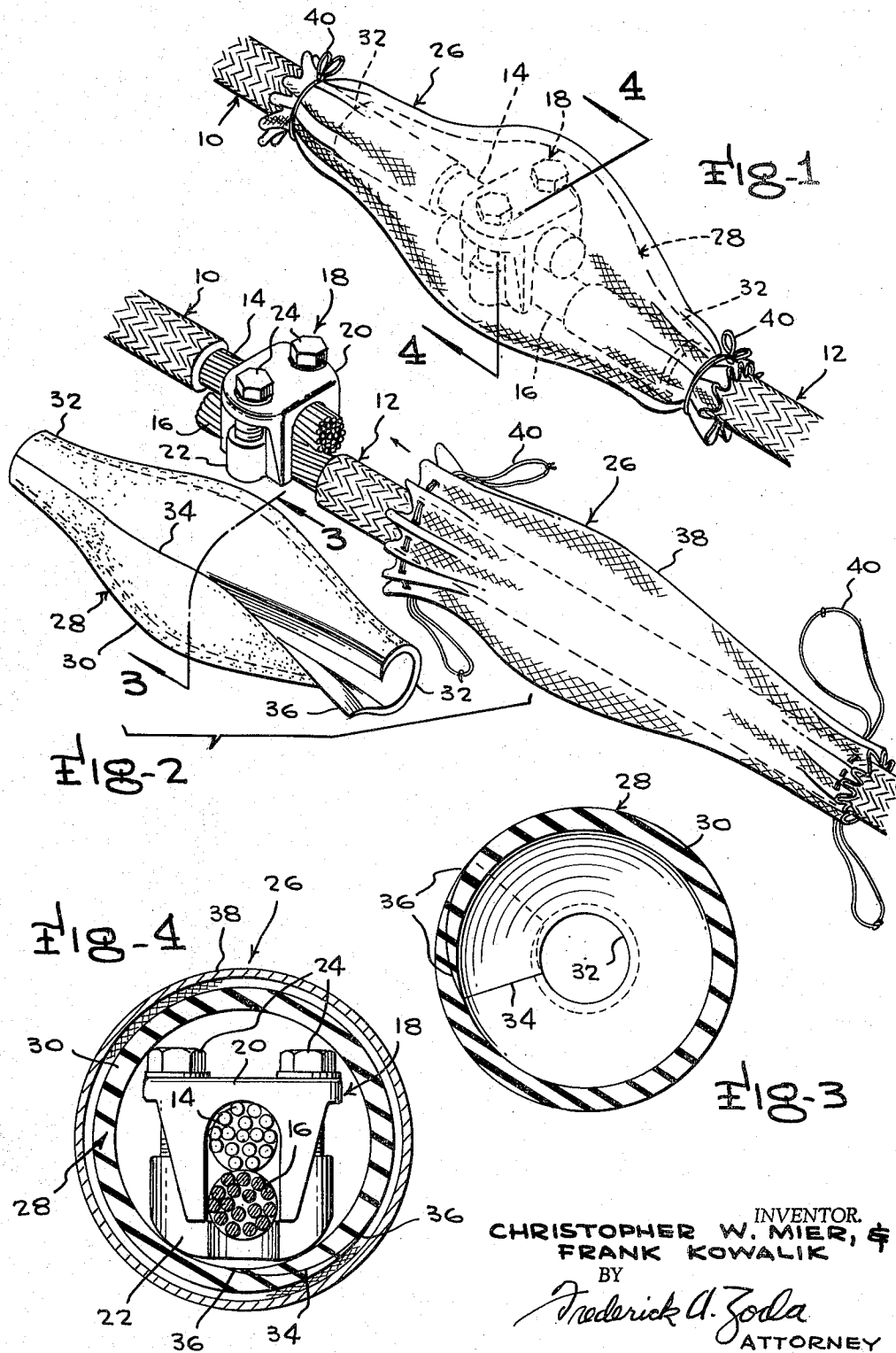
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INSULATING DEVICE FOR HEAVY DUTY SPLICES

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2 Sheets-Sheet 1



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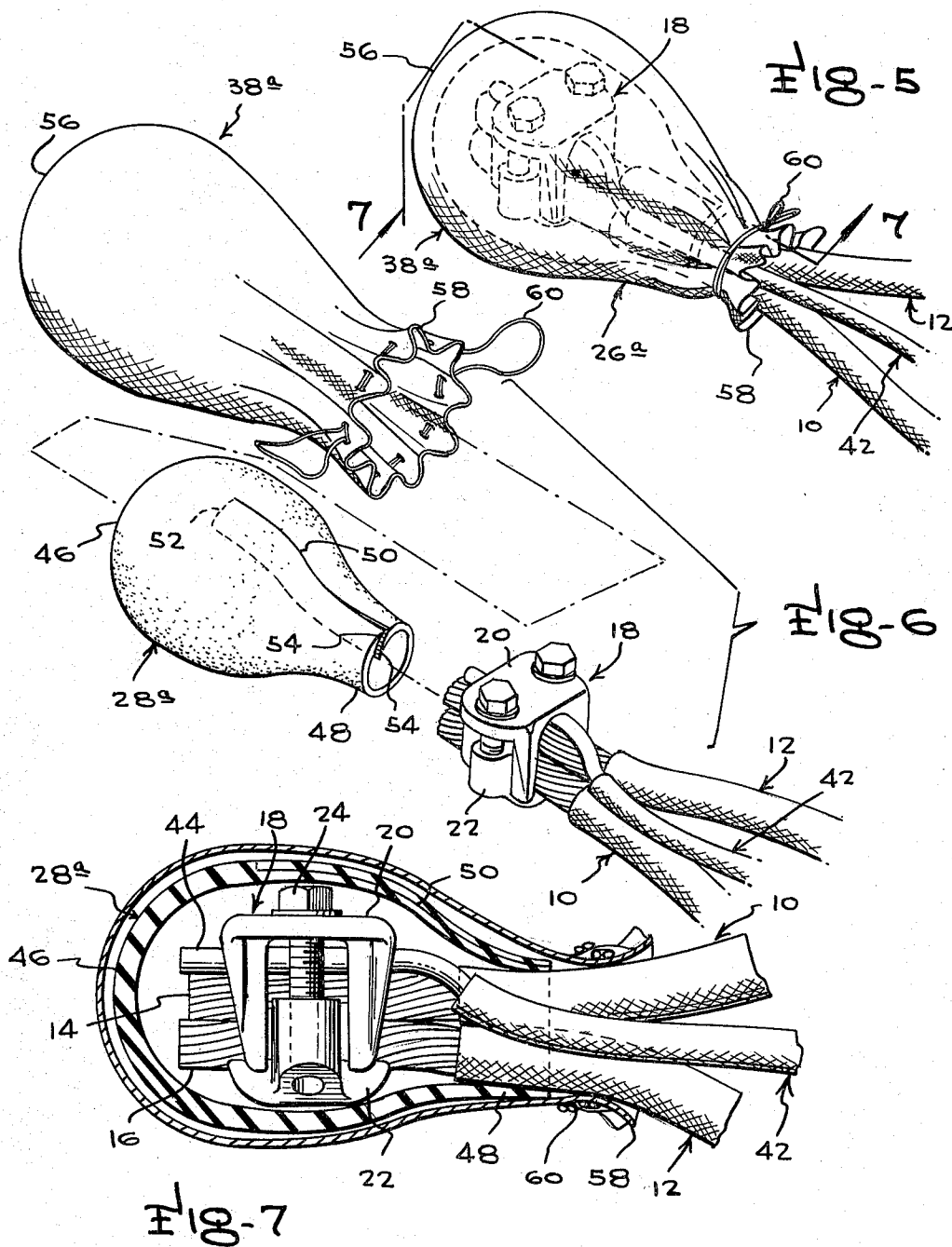
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INSULATING DEVICE FOR HEAVY DUTY SPLICES
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This invention relates generally to electrical splices. More particularly, the invention relates to a protective, electrically insulative covering for heavy duty splices.

By way of background, it may be noted that heavy duty entrance cables of the wiring systems of office buildings or the like are spliced by means of rugged, specially designed clamping devices of substantial size. Normally, after splicing of the cables it is necessary to enclose the splice with a protective, heavy wrap of insulating material. In some areas of the country, this is called a "bug."

To apply the insulating covering involves a laborious, time-consuming procedure involving wrapping of the splice with a long length of insulating tape until eventually, a thick, weatherproof splice cover is produced. Application of the tape often involves as much as a full half-hour's work on the part of the electrician. It can thus be readily seen that the present practice employed for insulating and protectively enclosing a heavy duty cable splice leaves much to be desired, due to its exceedingly costly nature, not only in respect to the expenditure of skilled labor, but also in respect to the excessive amount of electrical tape needed for the covering.

It is, accordingly, the main object of the present invention to provide a splice cover or insulating device that will be relatively inexpensive and will be capable of being applied swiftly and easily. To this end, the invention, summarized briefly, comprises a molded, flexible splicing sleeve of rubber, vinyl, or the like, having a bulbous center part merging into reduced end portions. The sleeve in one form is split from end to end to facilitate its application to or removal from the splice. In other forms, the sleeve may be open at one end only.

The invention further comprises a weatherproof outer covering having one or both ends open, the open end or ends being adapted to be closed swiftly and easily about the cable or cables by means of a drawstring.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawings, in which like reference characters designate like parts throughout the several views, and wherein:

FIGURE 1 is a perspective view of the splice insulator comprising the invention, applied to a typical heavy duty cable splice;

FIGURE 2 is a partially exploded perspective view showing the sleeve removed and the outer covering ready for movement into its functional position;

FIGURE 3 is an enlarged transverse sectional view through the sleeve per se, on line 3—3 of FIGURE 2;

FIGURE 4 is a view on line 4—4 of FIGURE 1, on the same scale as FIGURE 3;

FIGURE 5 is a view like FIGURE 1 showing a modified form applied to a pigtail splice;

FIGURE 6 is an exploded perspective view of the modified construction in FIGURE 5; and

FIGURE 7 is an enlarged longitudinal sectional view on line 7—7 of FIGURE 5.

Referring to the drawing in detail, cables 10, 12 are stripped as at 14, 16, after which the stripped ends are disposed in longitudinally contacting engagement and secured together by means of a conventional splicing device 18 having cooperating, cable-embracing clamp elements 20, 22 drawn into gripping engagement with the cable ends 14, 16 by means of bolts 24, 24.

This is completely conventional in a heavy-duty cable

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splice, and normally a laborious, time-consuming wrapping of the splice with a long length of tape is required to enclose the splice with a heavy, weatherproof covering of electrical insulation.

Our invention comprises a splice covering designed to obviate the necessity of wrapping the splice with tape. The covering, generally designated 26, includes an inner sleeve generally designated 28, formed from a single piece of resilient, weatherproof molded material such as polyvinyl chloride, rubber, or the like. The sleeve includes a bulbous center part 30 merging into reduced end portions 32, 32. The sleeve 28 is split from end to end as at 34 and the edge portions of the slit are tapered in cross-section to feather edges 36, 36. These, as shown in FIGURE 4, are overlapped through approximately 45° of the circumference of the sleeve to form an enclosure of the splice over the full length of the sleeve.

Sleeve 28, in use, is spread apart against its inherent resiliency to an extent sufficient to permit the splice to pass through the open slit 34. The bulbous center part encloses the splicing clamp 18, while the reduced ends fit tightly about the cables 10, 12. Normally, the diameter of the ends 32 of the sleeve is slightly less than that of the cables, so as to cause the sleeve ends to resiliently grasp the cables and thus provide substantially weathertight, closed ends on the splice cover when the same is in use.

As shown in FIGURE 2, the invention also includes an outer sleeve or covering element 38. This is slipped loosely over one of the cables before they are brought together and spliced. Then, after the inner sleeve or covering element 28 is applied, the outer covering element 38 is moved longitudinally of the cable over which it was positioned, until it completely encloses the inner element 28. Element 38 is slightly longer than the inner element 28, so that its ends project therebeyond in cable-embracing relation. The projecting ends of element 38 are equipped with drawstrings 40, and these are drawn tight to sealably close the ends of element 38 about the cables at locations beyond the ends of the inner covering element 28.

The outer element is formed of a weatherproof, flexible material such as a heavy vinyl sheet material, rubberized fabric, or the like.

In FIGURES 5—7 there is shown a modified construction applicable to a pigtail splice. In this instance, cables 10, 12 are in side-by-side relation with each other and with a third cable 42, with the clamp 18 gripping the stripped ends 14, 16, 44 of the several cables as shown in FIGURE 7.

In this form, the invention 26a includes an inner sleeve or cover element 28a having a bulbous part 46 closed at one end and formed integrally at its other end with a reduced, open-ended end portion 48.

In this form, a slit 50 extends from the open end of element 28a to a location on bulbous part 46 short of the closed end. The closed end 52 of the slit may be rounded or otherwise formed to minimize the possibility of tearing when the slit is spread. The edges 54, 54 of the slit are tapered to a feather edge and overlapped as in the first form of the invention.

In this form of the device, the inner sleeve is applied by spreading the open end thereof to an extent sufficient to receive the splice. Then, an outer sleeve 38a having a closed, enlarged end 56 and open end 58 is slipped over the inner sleeve. The end 58 has a drawstring 60 which extends beyond the end 48 of the inner sleeve (see FIGURE 7). This is drawn tight to complete the operation of sealably enclosing the splice.

The invention, as will be apparent, has many advantages over wrapping a splice with tape. Not only is there a very distinct and substantial saving of time but also the cost of the device represents a considerable saving when

compared to that of the great length of tape that is normally used.

Still further, the invention has the advantage of being readily removable whenever the splice is to be exposed for separation of the cables. This is a not uncommon occurrence, and normally, one would have to cut the tape wrapping away or else unwind it. In either event, the wrapping would have to be discarded and a new one applied when the splice is re-made and is to be covered again. The invention, to the contrary, is swiftly removed and as swiftly reapplied.

It is believed apparent that the invention is not necessarily confined to the specific use or uses thereof described above, since it may be utilized for any purpose to which it may be suited. Nor is the invention to be necessarily limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles of operation and the means presently devised to carry out said principles, it being considered that the invention comprehends any change in construction that may be permitted within the scope of the appended claims.

We claim as our invention, and desire to protect by Letters Patent:

1. An electrically insulating cover for a splice of at least two cables, comprising:

(a) a splice-enclosing inner covering element of electrically insulative, resiliently flexible material formed as a sleeve slit for at least part of its length, to temporarily spread the same for insertion of the splice; and

(b) an outer covering element in the form of a sleeve having a length greater than that of the inner element and formed of a flexible, weatherproof material, said outer element completely enveloping the inner covering element, said outer element having at least one of its ends formed open and projecting beyond the inner element to receive at least one cable of the splice, the outer element including means extending circumferentially of the open end thereof and contractible radially of said open end to sealably close the same about the cable.

2. An electrically insulating cover for a splice of at least two cables, comprising:

(a) a splice-enclosing inner sleeve element formed of an electrically insulative, resiliently flexible material, said element being slit longitudinally to temporarily spread the same for insertion of the splice, the side edges of the slit being overlapped; and

(b) an outer sleeve element of a length exceeding that of the inner element and formed of a weatherproof, flexible material, said outer element completely enveloping the inner element, said outer element having an open end projecting beyond an adjacent end of the inner element to receive at least one of the spliced cables, and including means extending around said open end and contractile in a radial direction in respect to said open end to sealably close the same about the cable so received.

3. An electrically insulating cover for a splice of at least two cables, comprising:

(a) a splice-enclosing inner covering element in the form of a molded one-piece sleeve formed of an electrically insulative, resilient material, said sleeve being longitudinally slit for resilient, temporary expansion of the same in a radial direction to insert the splice, the sleeve having a bulbous part merging into a reduced open end portion receiving at least one of the spliced cables; and

(b) an outer sleeve of a length exceeding that of the inner sleeve and formed of a weatherproof, flexible material, said outer sleeve completely enveloping the inner sleeve, the outer sleeve having an open end extending beyond the end portion of the inner sleeve to receive said one cable, the open end of the outer

sleeve including means extending circumferentially thereof beyond the end of the inner sleeve and contractile with the open end of the outer sleeve to close the same sealably about said one cable.

4. An electrically insulating cover for a splice of at least two cables, comprising:

(a) a splice-enclosing inner covering element formed wholly of an electrically insulative, resiliently flexible material, said element being in the form of a sleeve enclosing the splice and having a longitudinal slit for at least part of its length, said element being temporarily, resiliently expandable in a radial direction for insertion of the splice and including a bulbous part merging into a reduced open end portion to receive at least one of the cables, the side edges of the slit being tapered to a feather edge when viewed in cross section and being normally overlapped; and

(b) an outer covering element in the form of a sleeve of a length exceeding that of the inner element and formed of flexible, weatherproof material throughout, said outer element completely enveloping the inner element and projecting beyond the inner element at one end at least, the outer element having said one end thereof formed open to receive said one cable, said outer element including a drawstring extending about its open end for contracting the same in a radial direction into sealing, gripping relation to said one cable.

5. An electrically insulating cover for a splice of at least two cables, comprising:

(a) an inner covering element formed as a sleeve of a resiliently flexible, electrically insulative material having a slit from end to end, both ends of the inner element being open to receive said cables, said inner element having a splice-enclosing, bulbous center part merging into reduced end portions, the side edges of the slit being tapered to a feather edge when viewed in cross section and being normally overlapped; and

(b) an outer covering element also in the form of a sleeve and formed of a flexible, weatherproof material, said outer element wholly enveloping the inner element, the ends of the outer element projecting past the respective ends of the inner element to receive said cables beyond the locations at which the cables enter the inner element, said outer element including means extending thereabout and contractible radially to close said projecting ends about the respective, spliced cables.

6. An electrically insulating cover for a splice of at least two cables, said cover comprising:

(a) a splice-enclosing inner cover element formed of a single piece of electrically insulative, resiliently flexible material in the form of a sleeve having a bulbous part at one end for receiving the splice, said part merging gradually into a reduced part at the other end of the sleeve, said one end being closed and said other end being open for extension of the cables therethrough, said element having a longitudinal slit extending from the open end and terminating in the bulbous part for temporarily, radially expanding the element to insert the splice, the side edges of the slit being tapered to a feather edge and being overlapped in contact with each other; and

(b) an outer cover element formed as a sleeve composed of a flexible weatherproof material and having one end closed and the other end open, said ends corresponding to the closed and open ends, respectively of the inner element, said outer element being longer than the inner element and completely enveloping the inner element, the outer element projecting at its open end beyond the open end of the inner element to receive said cables beyond the

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location at which the cables enter the inner element, said outer element including drawstring means extending about its open end for contracting the open end of the outer element radially into sealing engagement with the cables.

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