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CABLE JOINT CASING

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This invention relates to protective casings for the joints between lengths of electric cables of the type having a hard metallic external sheath surrounding the insulated conductor or conductors of the cable. The invention has particular reference to an improved cable joint casing which may be applied quickly and easily in the field and yet is of relatively simple and inexpensive construction.

The joints of lead sheathed cables are usually protected mechanically by a lead sleeve united to the cable sheaths at opposite sides of the cable joint by a soldered or lead-wiped joint. A similar construction is employed with aluminum sheathed cable, using an aluminum sleeve and taking special precautions in welding, or soldering and wiping the joints between this sleeve and the cable sheaths of the respective cable lengths to be joined. However, both the soldering and the welding processes are complicated, particularly in the case of joining aluminum and aluminum. In the latter case, the existence of a film or oxide on the aluminum surfaces necessitates the use of equipment and procedures which add greatly to the cost of making such joints under the difficult conditions found in manholes or on aerial equipment.

The present invention has for its principal object the provision of a cable joint casing which overcomes the disadvantages noted above. While the new protective casing is applicable generally to a cable of the type described irrespective of the metal used for the external sheath, it may be used to particular advantage where the sheath of the cable lengths to be joined is made of aluminum.

A cable joint casing made according to the invention comprises a pair of sleeves adapted to be interconnected at adjacent ends to form a composite sleeve surrounding the joint between the two cable lengths. Adjacent each end of this composite sleeve is a split clamp, each clamp having separable arcuate sections and releasable means, such as bolts, for drawing the sections together around the sheath of a corresponding cable length, whereby the sections of each clamp grip the sheath tightly. The composite sleeve has opposite end portions releasably engaging the respective clamps to form a substantially closed space around the cable point. Connecting means are provided for releasably interconnecting the adjacent ends of the two sleeves to hold the opposite end portions of the composite sleeve in engagement with the respective clamps. With this construction, the two sleeves may be slid over the ends of the respective cable lengths to be joined, and after the joint has been made, one of the split clamps is applied to the corresponding cable sheath near the joint, and the corresponding sleeve is releasably engaged with this clamp; whereupon the other split clamp is applied in proper position to the sheath of the other cable length, and the corresponding sleeve is releasably engaged with the latter clamp. By means of the releasable connecting means, the adjacent ends of the two sleeves are then interconnected to hold the opposite end portions of the composite sleeve in engagement with

the respective clamps, thereby forming a substantially closed space around the joint.

In the preferred construction, an annular end member, which may be split, is adapted to surround and slide on each cable sheath and is releasably secured to the corresponding split clamp, either directly or through the adjacent end portion of the composite sleeve.

In one embodiment of the invention, one of the arcuate sections of each split clamp has an annular part adapted to surround and slide on the corresponding sheath and which engages the adjacent end portion of the composite sleeve, one of these end portions being releasably connected to the annular end part of the adjacent clamp; and each annular end member of the casing is screwed on or otherwise releasably connected to the annular end part of the corresponding split clamp. In another embodiment of the invention, each end portion of the composite sleeve is screwed on or otherwise releaseably connected to the adjacent split clamp, and the adjacent end cap, in turn, is screwed on the corresponding end portion of the composite sleeve.

For a better understanding of the invention, reference may be had to the accompanying drawing, in which

Fig. 1 is a longitudinal sectional view of one form of the new casing applied to a cable joint, and

Fig. 2 is a view similar to Fig. 1 but illustrating another embodiment of the invention.

Referring to Fig. 1, the reference numerals **1** and **2** designate, respectively, the external metallic sheaths of the two cable lengths to be joined, these sheaths being made of aluminum. The cable parts which these sheaths contain (including the usual electrical conductor or conductors and the surrounding insulation) are shown generally at *1a* and *2a*, respectively; and the insulated electrical joint between the two cable lengths is shown generally at **3**.

The protective casing for the joint, as shown in Fig. 1, comprises a conical annular aluminum member **4**, having O-rings **5** and *5a*, which forms an end member surrounding the sheath of cable **1**. A pair of aluminum sleeves *6a* and *6b* are interconnected at adjacent ends to form a composite sleeve surrounding the cable joint **3** and the end portions of the outer sheaths of the respective cables **1** and **2**. The opposite end portions of this composite sleeve are formed by aluminum rings *6c* and *6d* which are factory-welded to the outer ends of the sleeves *6a* and *6b*, respectively. Thus, the rings *6c* and *6d* form annular flanges which extend radially inward from the composite sleeve toward the respective cable lengths. An O-ring *5c* engages the inner face of the end portion *6c* of the composite sleeve *6a*—*6b*.

A split clamp **7**—**8** is secured around the outer sheath of the cable length **1** near the joint **3**. This clamp includes separable arcuate sections **7** and **8** having internal gripping surfaces *7a* and *8a*, respectively, which may be formed by threads cut in these surfaces. The arcuate clamp section **8** is integral with an annular end part **9** which surrounds and is slidable on the sheath of cable **1**. The annular end part **9** has an outer extension of reduced diameter which is externally threaded at *9a*, so that the end member **4** may be screwed on this part. In its interior surface, the annular end part **9** is recessed to receive an O-ring **10** closely surrounding the outer sheath of cable **1**. The annular end part **9** is also provided with threaded holes for machine screws **11**, forming releasable means for connecting the sleeve end portion *6c* to the part **9**. Thus, the sleeve end portion *6c* is clamped between the end member **4** and the annular part **9**, with the O-rings **5** and *5c* engaging opposite sides of the end portion *6c*, and with the O-ring *5a* interposed between the end member **4** and the opposed end of the annular end part **9**.