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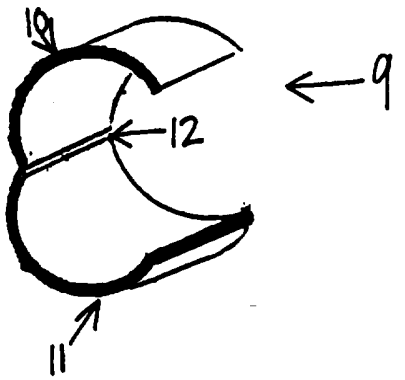
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(54) Title: SPLIT RING

(57) Abstract

A split ring cable protector for use in forming a cable joint in the form of two collar half sections which are joined together along a structural zone of weakness with their free ends in separation. The split ring performs its function by the user simply squeezing the two half collar sections together about the zone of weakness so that, as well as being effective, it is extremely easy to handle in contrast to the existing arrangements.



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SPLIT RING

FIELD OF THE INVENTION

The present invention relates to a mechanical device in the form of a split ring for use in forming a cable joint.

BACKGROUND OF THE INVENTION

Various types of cable joint are known, used typically to join cables with one or more inner insulated conducting cores and one or more outer insulating or protecting sheaths.

To protect the inner cables, a surrounding layer of stiff metal wires, known as an armour sheath, is arranged between the outer sheath of the cable and the insulated conductor cores.

The armour sheath also acts as an earthing wire, being bridged between cables to be connected, by a connecting piece of insulated conductor wire and secured to the armour sheath of the cables by a jubilee clip or other suitable clamping means.

It will be appreciated that as the jubilee clip is tightened around the armour sheath, the latter will be pressed directly against the insulation of the conductor cores causing possible damage which could lead to shorting of the system.

Some form of protection is thus necessary between the armour sheath and the insulated conductor cores and this typically takes the form of metal tubes of various designs interposed between the insulated conducting cores and the armour and around which a clamp such as a jubilee clip may be arranged so that the earth wire is securely held between the metal tube and the jubilee clip and damage to the insulated cores is avoided.

Two examples of the prior art include a prefabricated metal tube in the form of a split ring and a metal tube formed of two separable constituent parts having interengagable lugs such that the protective tube is rendered whole and structurally stable by fitting the two interconnecting pieces together between the armour sheath and the insulated cores of the cables.

As regards the prefabricated split ring, this lacks versatility and a wide range of sizes has to be manufactured to suit differing cable dimensions.

The device comprised of interlocking constituent pieces is a relatively complicated arrangement and expensive to manufacture. It is furthermore not easy to use in practice, consequently being inefficient in terms of loss of valuable working time during installation.

SUMMARY OF THE INVENTION

An object of the invention accordingly is to provide a mechanical device of the type described above for use in cable joints which combines ease of use with full protection for the insulated conductor cores of the cables of the joint, thus obviating the disadvantages of the prior art.

According to the invention there is provided a cable protector for use in forming a cable joint comprising two collar half sections interconnected in disposed apart relationship along a structural zone of weakness such that upon the application of pressure the half sections may be brought together around a cable to be protected to form a split protective ring.

Preferably the interconnected collar half sections are formed out of extruded aluminium.

BRIEF DESCRIPTION OF THE DRAWINGS

Other features and advantages of the invention will now be described by way of example with reference to the accompanying drawings wherein;

Fig 1 shows a schematic view of a cable joint to which the present invention is particularly useful;

Fig 2 shows a cross-section of a cable protector; and

Fig 3 shows a schematic view of the cable protector of Fig 1

A typical known clear cable joint 1 for joining together two cables 2, 3 is illustrated in Fig 1.

PREFERRED EMBODIMENTS OF THE INVENTION

The cables 2 and 3 have an outer cover 4 and an inner armour sheath to reveal individual insulated conducting cores 6. Both the outer cover 4 and sheath 5 have been removed. The individual insulated conductors 6 are joined together using cable connectors 7 and an earth connection E is made between the sheaths 5 of respective cables 2 and 3.

As seen in Fig 1 the earth connector E is clamped to the sheaths 5 using a jubilee clip 8 and it is to obviate damage to the conducting cores 6 when the clamp 8 is tightened that a cable protector (not shown in Fig 1) is required, being interposed between the outer protective sheath 5 and the inner insulated conducting cores 6 with the earth connector E securely fastened to the sheath 5 between the clamp 8 and the cable protector.

A cable protector 9 according to one embodiment of the invention for use with the cable joint in Fig 1 is shown in Figs 2 and 3.

The cable protector 9 is formed of two collar half sections 10 and 11 joined along perimeter edges thereof with an indented longitudinal groove 12 formed along the join between the sections 10, 11, forming a line or zone of weakness in the structure.

When used in the cable joint of Fig 1 the sheath 5 is drawn back over the outer cover 4 whereupon the still open cable protector 9 is placed around the inner insulated conducting cores 6. Pressure is then applied by the installer

electrician, for example, to the two half collars 10 and 11, thus causing them to pivot around the line of weakness occasioned by the groove 12, forcing the two halves 10, 11 together to form a split ring enclosing the inner insulated conducting cores 6.

The sheath 5 is returned to its original position and the clamp 8 tightened thereabout, thus securely clamping the earth connection E to the sheath 5 whilst simultaneously obviating any damage to the insulated cores 6 caused by the clamping, and effecting a solid earth connection between the cables 2 and 3.

In a preferred embodiment, the half collar section 10 and 11 may be, but are not limited to being, semi-circular. Similarly, a preferred, although not limiting, material out of which to construct the device of Fig 2 is metal, such as extruded aluminium.

Although the invention has been described with reference to its use in a cable joint it has wider application as a general mechanical device for use in other fields where split rings may be employed for whatever purpose.

CLAIMS

1. A cable protector for use in forming a cable joint comprising two collar half sections interconnected in disposed apart relationship along a structural zone of weakness such that upon the application of pressure the half sections may be brought together around a cable to be protected to form a split protective ring.

2. A cable protector as claimed in claim 1 wherein the half collar sections are semi-circular in cross section.

3. A cable protector as claimed in claims 1 or 2 wherein the half collar sections are constructed out of extruded aluminium.

4. A cable joint comprising portions of one or more insulated conducting cores, means for forming a joint between the portions of the conducting cores, a protective earthed sheath arranged as to enclose the conducting cores either side of the joint, a split ring arranged between the conducting core and the protective sheath either side of the joint as to enclose the conducting core, an earth connection between the protective earth sheaths and clamping means tightened around each of the protective sheaths to allow secure clamping of the earthed connection to the earthed sheaths against the split ring without damage to the conducting cores characterised in that the split ring is in the form of two collar half sections interconnected along a structural zone of weakness which has allowed the collar sections to be disposed between the conducting core and the protective sheath by the application of pressure to the half sections when in an initial disposed apart relationship.

5. A cable joint as claimed in claim 4 wherein the split ring is made out of extruded aluminium.

6. A method of forming a cable joint between cables consisting of portions of one or more insulated conducting cores enclosed by portions of a protective earthed sheath comprising joining the portions of the conducting cores, drawing back the portions of the protective sheath enclosing the conducting cores either side of the joint, placing a split ring in the form of two collar half sections

interconnected in disposed apart relationship along a structural zone of weakness around the conducting cores either side of the joint, applying pressure such that the half sections are brought together to form split rings enclosing the conducting cores, returning the portions of the protective earthed sheath over the split rings, connecting together both portions of the protective earthed sheath by an earth connection and tightening clamping means around portions of the protective sheath engaging with the earth connection and corresponding with the split rings as to allow secure clamping of the earth connection to a portion of the protective earthed sheath against the split rings without damage to the conducting cores.

7. A method of forming a cable joint as claimed in claim 6 wherein the split rings are in the form of extruded aluminium.

8. A split ring cable protector for use in forming a cable joint, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

9. A cable joint and method for forming same substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

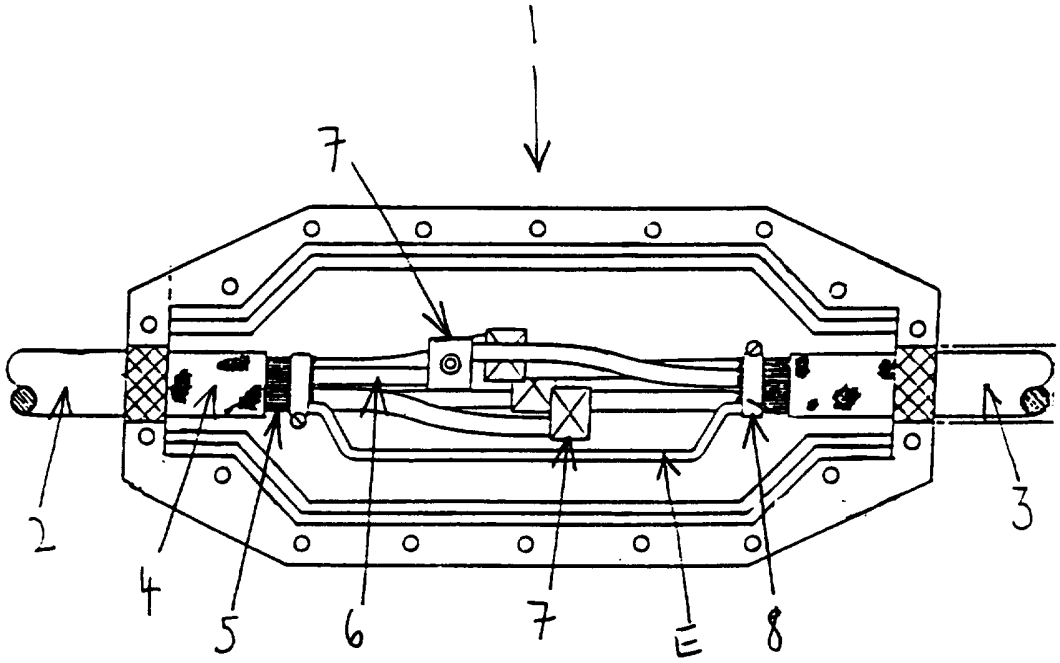


FIG. 1.

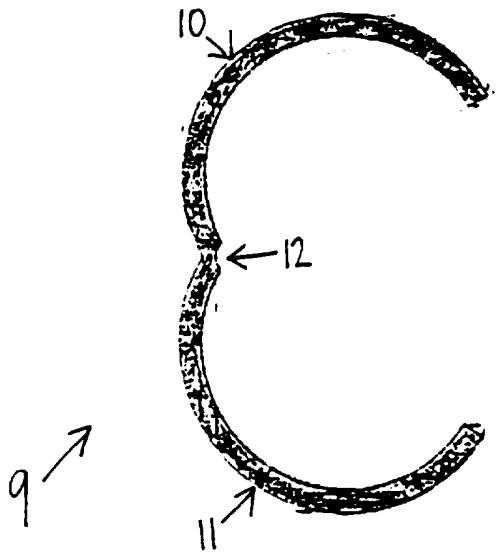


FIG. 2.

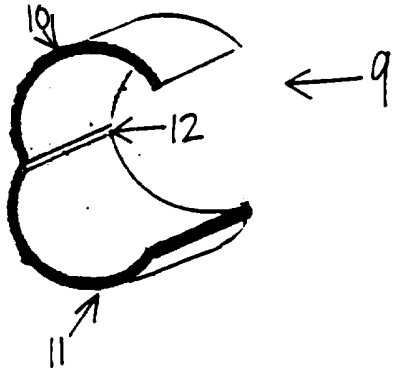


FIG. 3.

INTERNATIONAL SEARCH REPORT

Inte[illegible]nal Application No
PCT/GB 94/02394

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H01R4/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 H01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US,A,4 087 889 (SHINTARO OHBA) 9 May 1978 see the whole document	1 2-8
A	FR,A,1 359 893 (SIMEL) 23 March 1964 see the whole document	1-8
A	CH,A,363 695 (THE HEPWORTH IRON COMPANY) 15 August 1962 see claims; figures	1-8
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☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-4087889	09-05-78	NONE	
FR-A-1359893	07-08-64	NONE	
CH-A-363695		NONE	
US-A-2250156	22-07-41	NONE	