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(54) Electrical cable branch joint

(57) Electrical cable branch joint comprising contacts (14, 15) connecting, through piercing members (4, 16, 17), the phase conductors (5, 6, 7, 8), of a main cable (2) with the phase conductors (3a, 3b, 3c, 3d) of a branch cable, in which a rubber sheath (9) with sealing compound between sheath (9) and cable (2) is fitted at

the stripped area of the external surface of the main cable (2) affected by piercing members (4), and the piercing members (16, 17) come into contact with the phase conductors (3a, 3b, 3c, 3d) fitted on each of which is a sealing rubber hood (11), the latters converging into a single hood fitted on the branch cable.

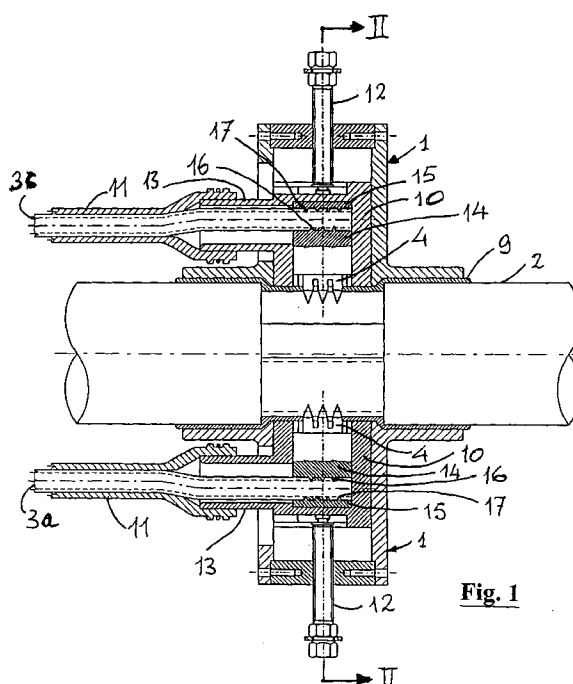


Fig. 1

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Description

[0001] The present invention relates to a branch joint for electrical cables, in particular for branching a low-voltage four-pole main cable with a bipolar or four-pole branch cable.

[0002] Joints of this type are already known, in particular from EP-0.763.872 concerning a branch joint which however has the following main drawbacks:

such joint is unsuitable to be laid underground, being not watertight, unless resin is poured about said joint, resulting in the drawback of a longer installation time, higher cost of the components, longer assembling times and possible ecological problems due to the presence of resin in the ground.

[0003] Thus, the object of the present invention is to eliminate the above-mentioned drawbacks by providing a joint having the following advantages:

full immersion-proof watertightness of the joint, hence adapted to be laid underground without being coated with any protective finish and cost reduction due to the significant reduction of the constituent parts and accordingly of the assembling times.

[0004] The above-mentioned characteristics and advantages will result in being evident from the joint in accordance with the following detailed description made merely by way of example of a preferred, but not exclusive, embodiment of the invention illustrated only by way of a non limiting example in the attached drawings in which:

- Fig. 1 shows a longitudinal cross-sectional view of the joint; and
- Fig. 2 shows a section of the joint taken along the line II-II of Fig. 1.

[0005] As it can be seen from the figures, the branch joint in question comprises an external body 1 subdivided into sectors, each containing all the members designed to connect the multipole main cable 2 with the phase conductors 3a, 3b, 3c, 3d of a branch cable, with the peculiarity of having each sector composed of contacts 14 and 15 which, through piercing members 4, 16, 17 connect the phase conductors 5, 6, 7, and 8 of the main cable with the phase conductors of the branch cable.

[0006] The main novelty of such joint consists in that, fitted at the stripped area of the external surface of the main cable 2 affected by the piercing members 4 is a sealing rubber sheath 9 with sealing compound interposed between cable and sheath and in that said contacts 14 and 15 are disposed into an insulating container 10 integral with a rubber hood 11 which is fitted on each of the phase conductors 3a, 3b, 3c, 3d, said hoods converging in a single hood fitted on the branch cable not shown in the figure.

[0007] In particular, said contacts 14 and 15 are mechanically connected with a manual operating screw-

bolt and all insulating containers 10 are inserted into seats of the sectors of body 1. Moreover said container 10 is provided with a sleeve 13 fixed to which is the rubber sealing hood 11.

[0008] When the screw-bolt 12 is tightened, said container 10 abuts on the rubber sheath thus preventing water from entering.

[0009] The features described above are just those resulting in a full watertightness of the joint in accordance with the invention, so as it could be laid underground without any additional protection.

[0010] Further, the fact that by tightening the operating screw-bolt 12 one carries out the simultaneous piercing of the insulating coating of the phase conductors of the main and branch cables through members 4, 16, 17 thus obtaining an effective electrical contact, contributes to make such joint as simple as possible with a significant reduction of constituent parts and therefore of the assembling times and reduced costs as a consequence.

[0011] Structural and practical changes could be made to the invention without departing from the scope of the present invention as claimed below, the annexed claims being an integral part of this description.

[0012] Further, it should be clear that the reference to "rubber" in the present description, as well as in the following claims, should be interpreted in a broader sense; in other words, "rubber" will mean not only rubber but also materials having the same known properties and characteristics of resilience, flexibility, elasticity, wear and tear resistance, pliability, fluid tightness, etc.

Claims

1. Electrical cable branch joint comprising a sector body (1), each sector containing the members designed to connect a multipole main cable (2) with a branch cable, in which each sector comprises contacts (14 and 15) connecting, by means of piercing members (4, 16, 17), phase conductors (5, 6, 7, 8) of main cable (2) with phase conductors (3a, 3b, 3c, 3d) of the branch cable, characterized in that it further comprises a sheath (9), said sheath (9) being fitted on the external surface of the main cable (2) affected by said piercing members (4) and in that said contacts (14, 15) are disposed into insulating containers (10) each being integral with a hood (11) which is fitted on each of the phase conductors (3a, 3b, 3c, 3d) of the branch cable.
2. Joint according to claim 1, characterized in that both said sheath (9) and hood (11) are made of rubber or the like and further a sealing compound is provided between sheath (9) and main cable (2).
3. Joint according to claim 1, characterized in that said contacts (14, 15) are mechanically connected with

operating screw-bolt means (12).

4. Joint according to claim 1, characterized in that all said insulating containers (10) are inserted into seats of the sectors of the body (1). 5
5. Joint according to claim 1, characterized in that each of the phase conductors (3a, 3b, 3c, 3d) is contained in a sleeve (13) of each container (10) and in that fixed to each sleeve (13) is the sealing hood (11), possibly made of rubber or the like. 10
6. Joint according to claim 3, characterized in that said operating screw-bolt (12) moves simultaneously said piercing members (16, 17) which come into contact with each phase conductors of both the main (5, 6, 7, 8) and branch (3a, 3b, 3c, 3d) cables by operating the screw-bolt (12). 15
7. Joint according to claim 3, characterized in that said container (10) abuts on the rubber sheath (9) when the screw-bolt is tightened. 20

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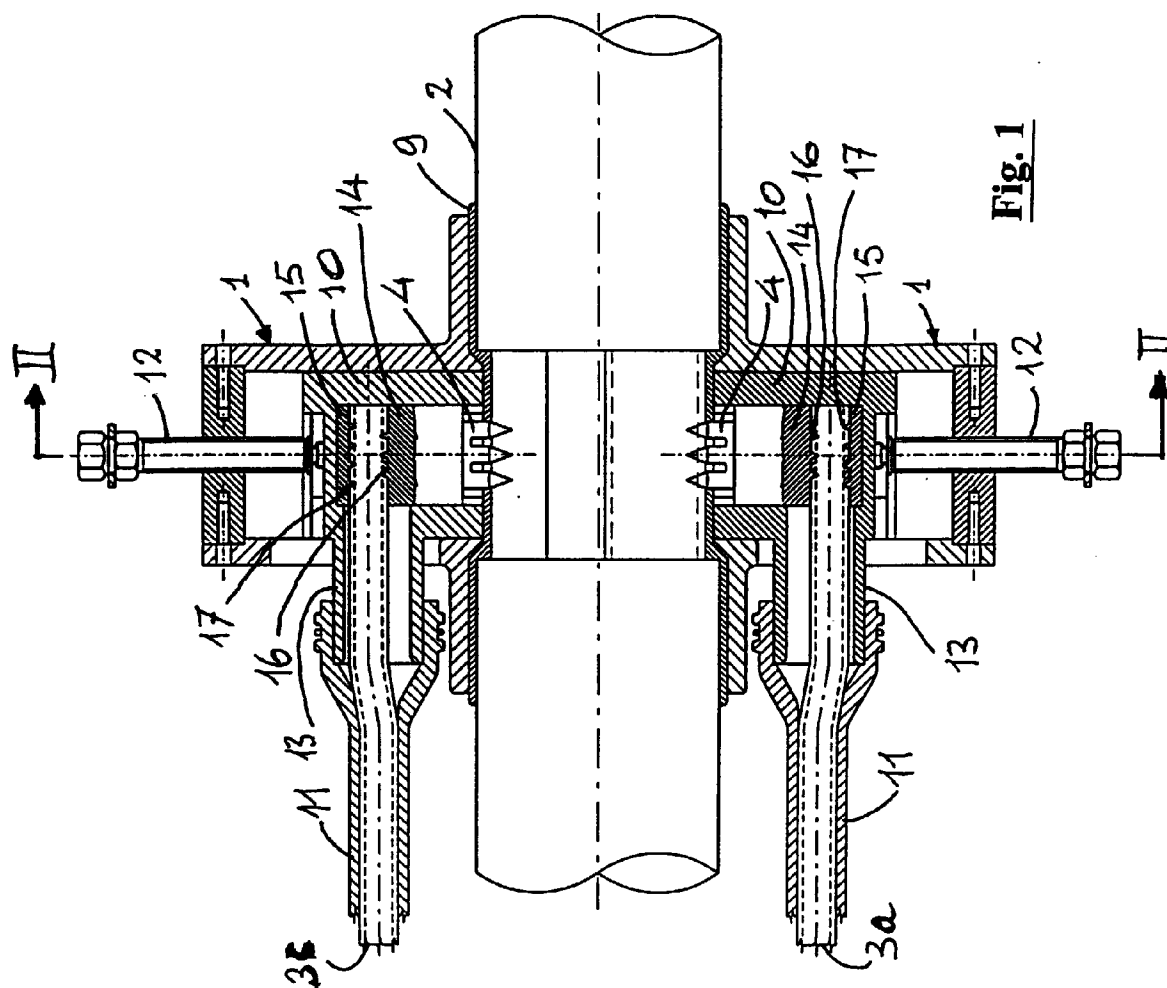
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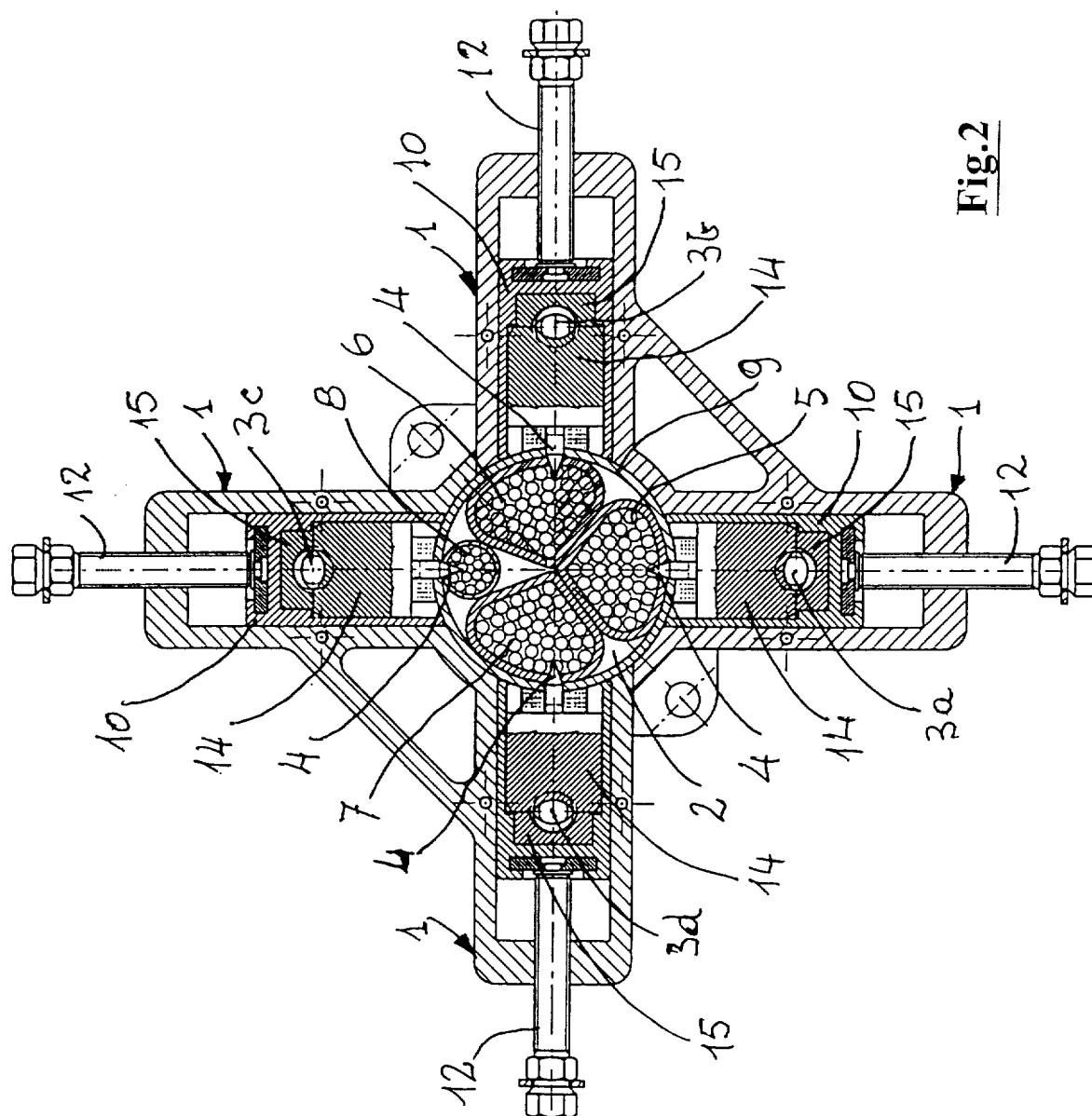
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EUROPEAN SEARCH REPORT

Application Number
EP 98 44 0284

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			H01R
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 18 March 1999	Examiner Serrano Funcia, J
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EPO FORM 1503 03/92 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82