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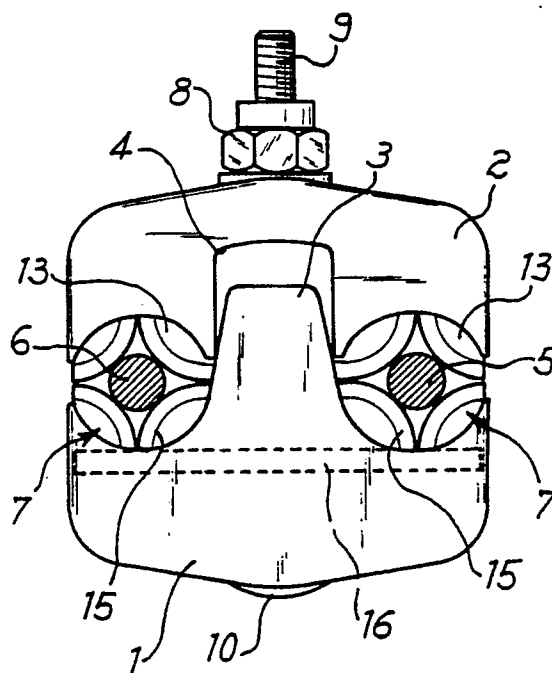
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54 **Electrical connector with clamping elements with curved sectors.**

57 The invention relates to the electrical connectors formed by two bodies, each of which includes some clamping elements that clamp the main conductor and the derived conductor and connect them electrically each other. The elements of a body are metallic for the electrical connection, while the elements of the other body are made of an insulating material.

According to the characteristic part of the invention, at least one of these elements is formed by a pair of sectors, with proper curving within which is set a conductor, so that the latter is clamped between the pair of sectors of one body and the corresponding element of the other body consequent to the pressure of one body against the other.

Fig. 1



ELECTRICAL CONNECTOR WITH CLAMPING ELEMENTS WITH CURVED SECTORS

The present invention relates to those electrical connectors of the type with two bodies provided with clamping elements fit to clamp the main conductor and the secondary conductor to electrically connect one to the other. Such connectors are usually used as shunt, junction or terminal elements for insulated or naked multiple or single-wired conductors.

Some connectors are known, a body of which is provided with a first and a second series of teeth or metallic top lands electrically connected among them. To the above described body another body is clamped, by suitable means, provided with insulated elements, for example plastic material, in such a way that a main conductor is laid down between the first series of teeth and the insulated elements of the second body and so likewise the derived conductor is laid down between the first body second series of teeth and the further insulated elements provided on the second body. Obviously the second body insulating elements are set in proper position, in such a way that when the second body is clamped on the first, such insulated elements come to set out in correspondence with the first and the second series of metallic teeth respectively. By virtue of said electrical connections between the first and the second series of teeth, the electric current of the main input conductor into connector is transmitted to the derived conductor.

These prior art connectors, however, present the disadvantage that, when clamping the two bodies one against the other, the interposed conductors, both naked and insulated, suffer a damaging, this being due to the insertion of said teeth into the very conductors and / or their insulation.

Purpose of the present invention is that of eliminating the above said inconvenience providing some clamping elements of the conductors that shall show the following advantages:

- would allow the application of any clamping effort without the conductors both naked and insulated shall suffer damagings, keeping a resistance to tensile stress very close to their rated ultimate tensile strength;
- could be used for conductors having different sections, ensuring a perfect self-centering; - shall be constructively economic and shouldn't require servicing interventions.

The purpose and the above listed advantages are obtained by the application to the electrical connectors of clamping elements, each formed by a pair of properly curved sectors into which are placed the conductors, without these being damaged when the connector bodies are clamped

one against the other.

Further features and advantages will result evident from the following detailed description of a preferred but not exclusive form of the invention illustrated for a merely exemplifying purpose and not limiting of the enclosed figures where:

FIGURE 1 represents the front view of a connector with the subject pairs of curved sectors;

FIGURE 2 represents a plan view of the connector lower body of Fig. 1;

FIGURE 3 represents in enlarged scale a pair of such sectors;

FIGURE 4 represents the section along the line IV-IV of the detail of Fig.3; and

FIGURE 5 represents in section a variant made up by two parallel pairs of sectors.

In Figg. 1 and 2, is shown, as an example, an electrical connector formed by two bodies 1 and 2, provided respectively with tongue 3 that goes to insert into slot 4 when the two bodies are mounted one against the other, clamping the main conductor 5 and the derived conductor 6 by means of clamping elements 7. Said bodies 1 and 2 are clamped one against the other by screwing the nut 8 on the screw 9 provided by the head 10 placed below the body 1. The screw 9 is through across a hole 11 made into bodies 1 and 2, as one can see in Fig. 2.

The conductors may be indifferently naked or insulated. For example in Fig.2 the conductors 5 and 6 are insulated by means of a sheath 12.

The elements 7 consist of the parts 13 and 15. The upper clamping 13 elements made of an insulating material being part of body 2 consist each of a pair of curved sectors 14 tapered blade-shaped on the side where they receive the conductors 5 and 6 as one can see in Figg.3 and 4. The lower metallic 15 clamping elements, for example of copper, aluminum or Zn + Al + Mg alloy, consist likewise of a pair of blade-shaped tapered curved 14 sectors that set opposed to the elements 13 in a way such as to clamp to perforation the conductors between the pairs of curved 14 sectors respectively of parts 13 and 15.

The metallic elements 15 in contact respectively with the conductors 5 and 6 are electrically connected by the conductors 16, as illustrated in the Figg.1 and 2.

As a variant, only one of the elements 13 or 15 is formed by the curved sectors while the other may be formed in a traditional way. So, instead of only one pair of curved sectors, each element 13 or 15 can consist of two or more pairs of curved sectors brought closer or parallel among them.

Preferably, the elements made of plastic 13

material are machined enbloc with their own body 2 formed of plastic material by the die-casting technique. As above said, once the conductors 5 and 6 are mounted within the two bodies 1 and 2, the nut 8 is tightened by an usual spanner in such a way as to occur the tightening of the above said conductors 5 and 6 between the tightening elements 7.

Said sectors 14 have a curving radius suitable to the various dimensions of the conductors and tapered in blades-shape for not damaging the conductors and for their perfect self-centering.

Finally each sector 14 both of metal and of insulating material, is slightly spaced from the adjacent sector by an entity 17, as one can see in Fig. 3.

Changes of practical and constructive nature may be brought to the invention without because of this going out of the range of the present invention as it is claimed below.

Claims

1. Electrical connector for the shunt or the junction of a main conductor with a secondary conductor, said connector consisting of two bodies each of these including at least two clamping elements so that the elements of said bodies clamp the main conductor and the secondary conductor, said conductors being naked or insulated, the elements of a body being metallic for the electrical connection while the other body elements being of an insulating material, characterized by that at least one of said elements in a body is formed by a pair of sectors with suitable curving within which a conductor is placed so that the latter is clamped between the pair of sectors of a body and the corresponding element of the other body consequent to the pressure of one body against the other.

2. Electrical connector according to Claim 1, characterized by that the curved sectors are blade-shaped tapered on the side where said sectors receive the conductors so that the latter are drilling clamped when one body is pressed against the other.

3. Electrical connector according to Claims 1 or 2 characterized by that two or more pairs of curved sectors are provided, said pairs being got closer and parallel between them.

4. Electrical connector according to the preceding claims characterized by that each sector is slightly spaced from the adjacent sector so that said adjacent sectors not joined among them form said pair of sectors.

Fig.1

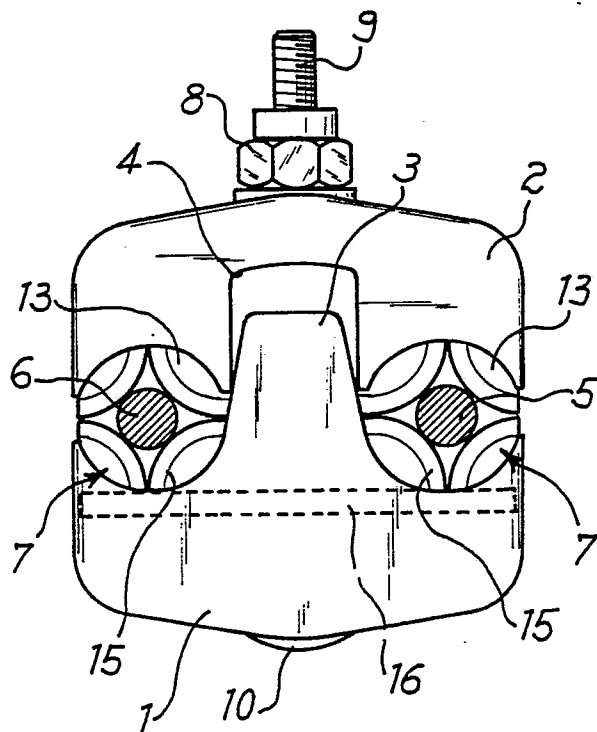


Fig.2

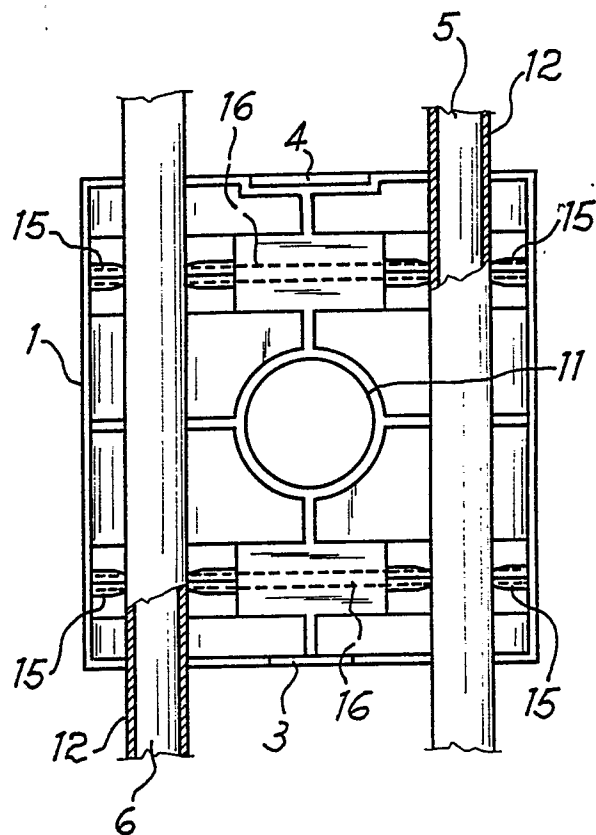


Fig.3

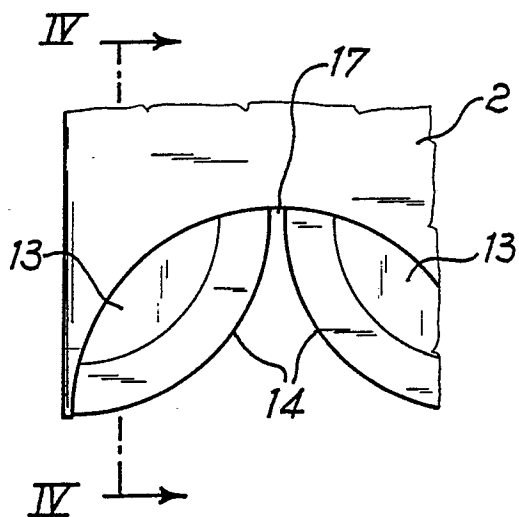


Fig.4

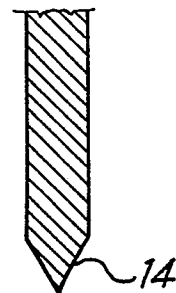
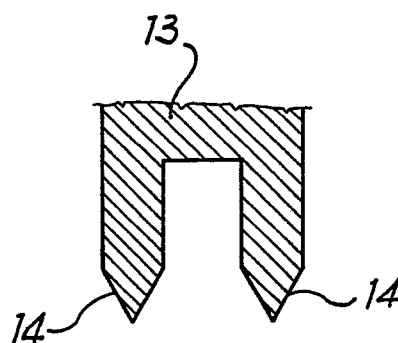


Fig.5





DOCUMENTS CONSIDERED TO BE RELEVANT			EP 90830088.2
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.)
A	<u>DE - B2 - 2 903 960</u> (KARL PFISTERER ELEKTROTECH- NISCHE SPEZIALARTIKEL GMBH & COKG) * Claims 1,4; column 4, line 47 - column 5, line 32; fig. 5,6 *	1-4	H 01 R 4/30
A	<u>DE - A1 - 2 611 080</u> (BURNDY CORP) * Pages 1,2,3; fig. 6,7 *	1-4	
A	<u>DE - B - 1 122 121</u> (SIEMENS & HALSKE AKTIENGE- SELLSCHAFT) * Claims 1,4 *	1	
A	<u>CH - A5 - 589 946</u> (SOTAX AG) * Claim 1; fig. 3 *	1	
A	<u>DD - A - 10 008</u> (RUDOLF DIETRICH) -----		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.)
Place of search: VIENNA			Date of completion of the search 21-05-1990
			Examiner SCHMIDT
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	