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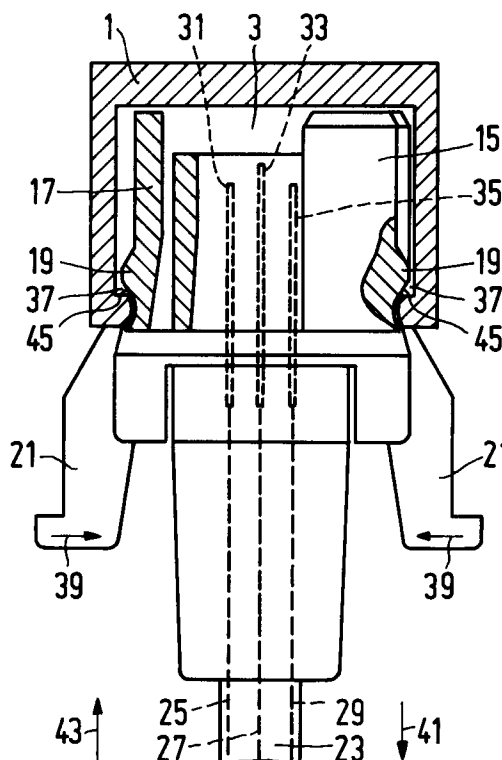
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NL-5656 AA Eindhoven(NL)(54) **Connection member comprising a chamber for a connector.**

(57) The connection member comprises an electrically insulating housing (1) with at least one chamber (3). The chamber (3) accommodates a connector (2) provided with an insertion portion (15). The insertion portion (15) comprises at least one resilient element (17) on which there is provided a lateral projection (19) which cooperates with a recess (37) in the chamber (3) in order to secure the connector (2) in the housing (1). At its side which is remote from the insertion direction (43), each projection (19) is provided with an inclined face (45) which encloses an acute angle (47) with respect to the insertion direction (43).

**FIG.3****EP 0 474 292 A1**

The invention relates to a connection member, comprising an electrically insulating housing provided with at least one chamber which accommodates a connector comprising an insertion portion and a connection cable, the insertion portion being provided with at least one resilient element which comprises a lateral projection which cooperates with a recess in the chamber.

The invention also relates to a connector suitable for use in a connection member in accordance with the invention.

A connection member of the kind set forth is known from Netherlands Patent Specification No. 7511843 laid open to public inspection. The connection member disclosed therein is formed by two portions which fit one into the other and which are secured to one another by way of a locking mechanism which can be released via a control member. One of the portions may be, for example, a connector which is provided with a connection cable and is secured in a housing.

Some users, however, tend to separate such portions by exerting a comparatively large force on the connector or on the connection cable instead of using the control member, thus damaging one of the portions.

It is an object of the invention to provide a connection member of the kind set forth in which said drawback is mitigated.

To achieve this, the connection member in accordance with the invention is characterized in that at its side which is remote from the insertion direction, each projection is provided with an inclined face which encloses an acute angle with respect to the insertion direction.

As a result of the described step, the connector can be removed from the housing using a comparatively small force. This reduces the risk of damaging should the user remove the connector without using the control member.

A preferred embodiment of the connection member in accordance with the invention is characterized in that the magnitude of a pulling force which is directed so as to oppose the insertion direction and which is necessary for removing the connector from the housing is smaller than the force required for pulling the connection cable loose from the connector. Despite the comparatively small force required for removing the connector from the housing, moreover the wire clamping is such that the cable remains connected to the connector even if the user were to remove the connector by pulling the connection cable.

The invention will be described in detail hereinafter with reference to the drawing.

Figure 1 is a front view of an embodiment of an electrically insulating housing suitable for use in a connection member in accordance with the

invention,

Figure 2 is a side elevation of an embodiment of a connector suitable for use in a connection member in accordance with the invention,

Figure 3 is a plan view of an embodiment of a connector as shown in Figure 2 which is arranged in a chamber of the electrically insulating housing shown in Figure 1, the chamber and a part of the connector being shown in a cross-sectional view, and

Figure 4 is a detailed plan view of a part of the connector at the area of the lateral projection.

The electrically insulating housing 1 shown in Figure 1 comprises two chambers 3 for receiving a connector 2 as shown in Figure 2. The connector 2 will be described in detail hereinafter with reference to Figure 2.

The housing 1 can be made of an electrically insulating plastics, for example using an injection moulding process. A housing 1 of this kind is suitable, for example for use in a connection member as disclosed in Netherlands Patent Application Nr. 8802434 (PHN 12.692). The housing 1 comprises connection members 5, 7, 9 and laterally projecting portions 11 with through-holes 13 wherethrough connection bolts (not shown) can be inserted.

The connector 2 shown in Figure 2 comprises an insertion portion 15 which comprises at least one resilient element 17 on which a lateral projection 19 is provided. A control member 21 is formed on each resilient element 17. The connector is also provided with a connection cable 23.

Figure 3 shows a connector 2 mounted in the housing 1. The connection cable 23 comprises three cores 25, 27, 29 which are connected to the contact members 31, 33, 35 of the connector 2 (denoted by broken lines). When the connector 2 is mounted in the housing 1, the contact members 31, 33, 35 are connected to the connection members 5, 7, 9, respectively, of the housing 1. The wall of the chamber 3 of the housing 1 is provided with at least one recess 37. When the insertion portion 15 of the connector 2 is arranged in the chamber 3, the projection 19 engages the recess 37. The connector 2 is locked in the chamber 3 by cooperation between the projection 19 and the recess 37. The connector 2 is thus prevented from dropping out of the housing 1 under the influence of vibrations. The projection 19 is removed from the recess 37 by moving the control member 21 in the direction of the arrow 39, so that the connector 2 can be removed from the housing 1 in the direction of the arrow 41.

The side of each projection 19 which is remote from the insertion direction, indicated by the arrow 43, is provided with an inclined face 45 which encloses an acute angle 47 with respect to the

insertion direction 43. This is shown in detail in Figure 4. As a result, a comparatively small force suffices to remove the connector 2 from the housing 1, without utilizing the control member 21. This is because in many cases a user removes a connector 2 of this kind from the housing 3 by pulling the connector 2 itself or the connection cable 23. This could damage the connector 2 or could detach the connection cable 23 from the connector 2.

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Because a comparatively small force suffices to remove the connector 2 from the housing 1, the risk of detachment of the cable is minimized. Moreover, the wire clamping of the connector 2 on the connection cable 23 is realized so that it is capable of withstanding the pulling force (in the direction of the arrow 41) required to remove the connector 2.

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Claims

1. A connection member, comprising an electrically insulating housing provided with at least one chamber which accommodates a connector comprising an insertion portion and a connection cable, the insertion portion being provided with at least one resilient element which comprises a lateral projection which cooperates with a recess in the chamber, characterized in that at its side which is remote from the insertion direction each projection is provided with an inclined face which encloses an acute angle with respect to the insertion direction.
2. A connection member as claimed in Claim 1, characterized in that the magnitude of a pulling force which is directed so as to oppose the insertion direction and which is necessary for removing the connector from the housing is smaller than the force required for pulling the connection cable loose from the connector.
3. A connector suitable for use in a connection member as claimed in Claim 1 or 2.

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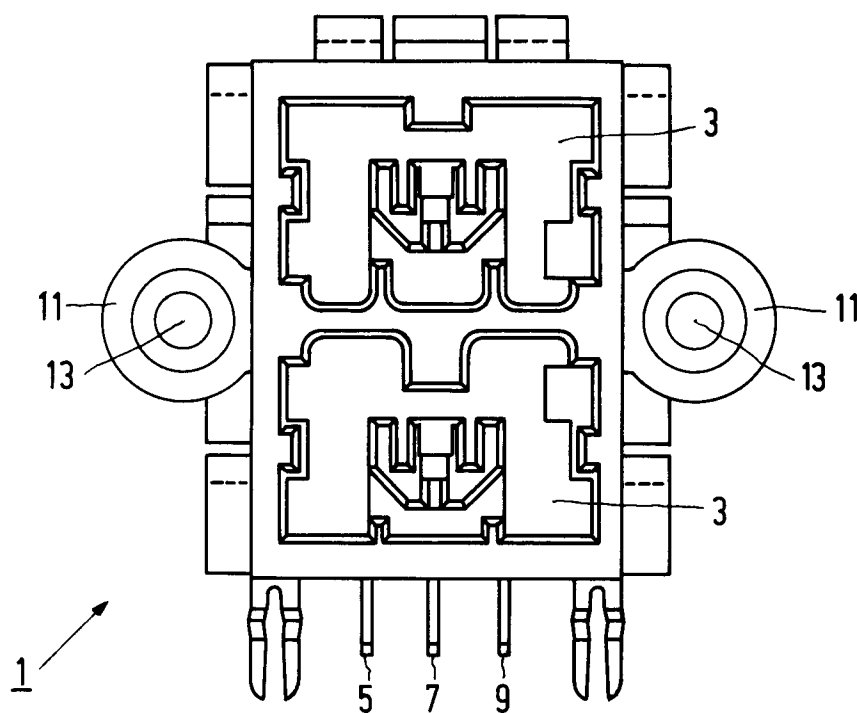


FIG. 1

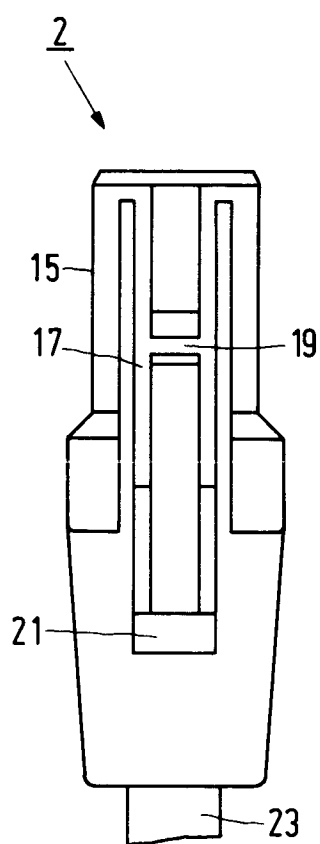


FIG. 2

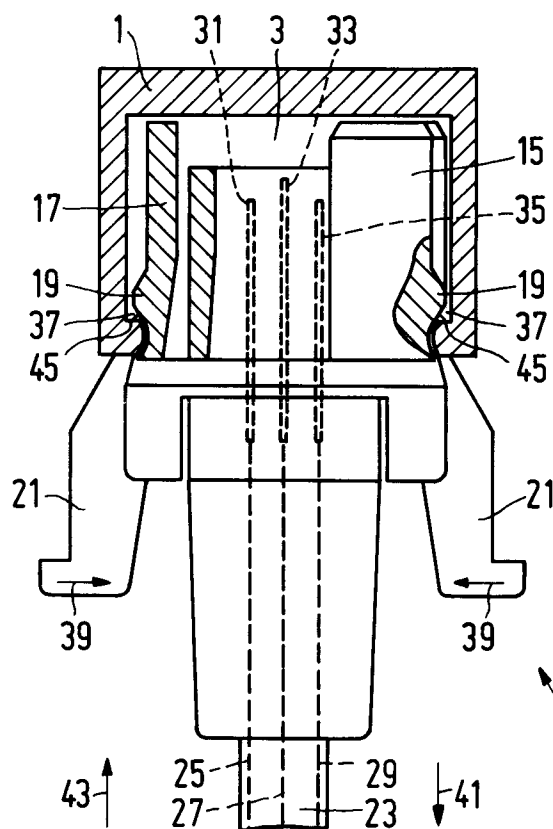


FIG. 3

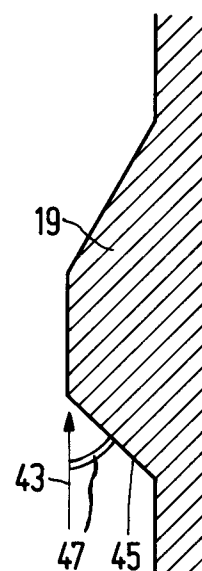


FIG. 4



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EUROPEAN SEARCH REPORT

Application Number

EP 91 20 2191

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	US-A-4 026 624 (FORD MOTOR COMPANY) * column 4, line 65 - line 69; figures 1-4 * * - - -	1-3	H 01 R 13/627
A	US-A-4 010 998 (GENERAL MOTORS CORPORATION) * column 3, line 8 - line 17; figures 1-3 * * - - - - -	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			H 01 R
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of search 26 November 91	Examiner TAPPEINER R.
<div>CATEGORY OF CITED DOCUMENTS</div> <div>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</div> <div>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</div>			