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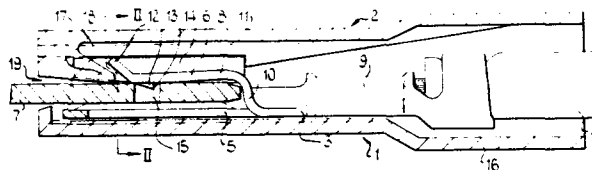
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54 **Electrical connector.**

57 An electrical connector (2) having an electric contact (3) engageable with a terminal (7) by moving the connector (2) in a forward direction into engagement with the terminal (7), a forwardly-projecting resilient cantilever finger (8) having a rear facing shoulder (14) for latching engagement with an oppositely facing rigid shoulder on the terminal (7), the free-end of the finger (8) having an extension (12) for engagement for unlatching the connector (2) from the terminal (7) by flexing the finger (8) to release the latching engagement, and a housing (16) with a formation (17) so shaped that when the housing (16) moves in the rearward direction with respect to the contact (3) the formation (17) will engage the extension (12) of the finger (8) to release the latching engagement, allowing the connector (2) to be removed from the terminal (7).



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ELECTRICAL CONNECTOR

This invention relates to electrical connectors which can be removed from a terminal by applying a small force when required but resist pulling on the cable or other conductor connected to the contact of the
5 connector.

Connectors of this type are known in which the connector includes a forwardly-projecting resilient cantilever finger having a rear facing shoulder for latching engagement with an oppositely facing rigid
10 shoulder on the terminal, the free-end of the finger having an extension for engagement with a suitable tool for unlatching the connector for the terminal. This type of connector is described in UK Patent Specification 1080420.

15 An alternative form of known connector as described in UK Patent Specification No. 1463751 has a rearwardly projecting resilient cantilever finger. This connector latches to a terminal in a similar manner to the previous connector, but is released by depressing
20 the free-end of the finger, preferably by pulling the connector housing.

Both these connectors have disadvantages. The first connector requires the use of a special tool to release the connector from a terminal. The second connector
25 has the disadvantage that the extension of the finger needs to be a considerable distance from the rear-facing

shoulder on the finger, and hence the free-end of the finger has to be depressed a considerable amount in order to release the latching engagement of the rear-facing shoulder with the terminal.

5 According to the invention an electrical connector comprises an electric contact engageable with a terminal by moving the connector in a forward direction into engagement with the terminal, a resilient cantilever finger having a rear-facing shoulder for latching
10 engagement with an oppositely facing rigid shoulder on the terminal, the free-end of the finger having an extension for engagement for unlatching the connector from the terminal by flexing the finger to release the latching engagement, and a housing having a formation so shaped that
15 when the housing moves in the rearward direction with respect to the contact the formation will engage the extension of the finger to release the latching engagement, allowing the connector to be removed from the terminal characterised in that the finger projects forwardly.

20 Preferably the extension of the finger and/or the engaging formation on the housing has a flat surface oblique to the mating axis for engaging the other.

 The invention also includes a two-part electrical coupling comprising the connector described and a terminal
25 having a forwardly facing rigid shoulder for engagement with it in the manner described. Preferably the cantilever finger of the connector is so shaped that when the connector is engaged with the terminal, the terminal abuts a part of the finger to inhibit further relative movement.

30 This invention does not require the use of a special unlatching too, and the rear-facing shoulder on the cantilever finger can be positioned adjacent the extension of the finger so that a small amount of movement of the free-end of the finger will release the latching
35 engagement of the rear-facing shoulder with the terminal.

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Preferably the contact and the finger are stamped in one piece from sheet metal.

Under normal circumstances the housing will be made from insulating material and in this case, one housing may be common to several connectors.

An embodiment of the invention will now be described with reference to the accompanying drawings in which:-

Figure 1 is a cross-sectional view on the line I-I in Figure 2 of a coupling in accordance with the invention; and

Figure 2 is a cross-sectional view on the line II-II in Figure 1, with the blade terminal omitted.

The coupling 1 comprises a connector 2 having a sheet-metal contact 3 which has a part 9 which is crimped to a conductor 4 and joined to a part having a channel cross-section 5, the free ends of the arms 6 curved inwards, which engages a blade terminal 7. The contact 3 has a cantilever finger 8 pressed out from the base of the channel part 5, one end remaining attached to the contact 3 between the channel part 5 and the crimping part 9. The finger 8 is bent to form a first part 10 extending upwards, approximately normal to the mating axis, from this end, a second part 11 extending forwards, approximately parallel to the mating axis, and an extension 12 at the free-end at an oblique angle away from the mating axis. The upward part 10 of the finger 8 abuts the terminal 7, inhibiting further relative movement. A rear-facing tab 13 is pressed down from the forward part 11 of the finger 8 near its free-end, to form a shoulder 14 which latchingly engages the edge of a hole 15 in the blade terminal 7. The connector 2 also has an insulating housing 16 surrounding the contact 3. The housing has a rearwardly directed formation 17 with a surface 18 oblique to the mating axis in the same direction as the oblique extension 12 of the

finger 8 on the inside of the housing 16 at the blade terminal entry aperture 19. When the housing 16 is moved backwards with respect to the contact 3 the surface 18 of the formation 17 engages under the oblique extension 12 of the finger 8, lifting the tab 13 on the finger 8 out of the hole 15 in the blade terminal 7, allowing the connector 2 to slide freely from the terminal 7.

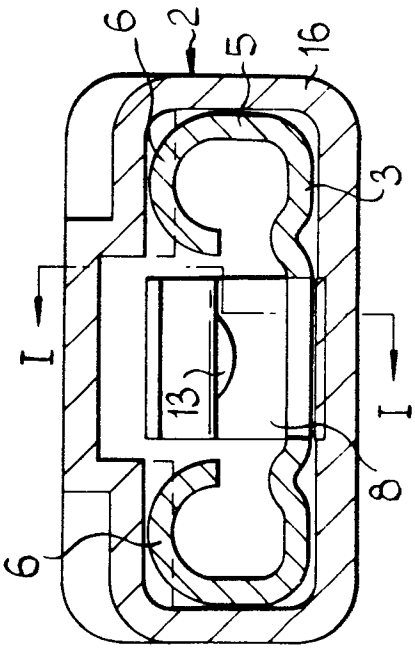
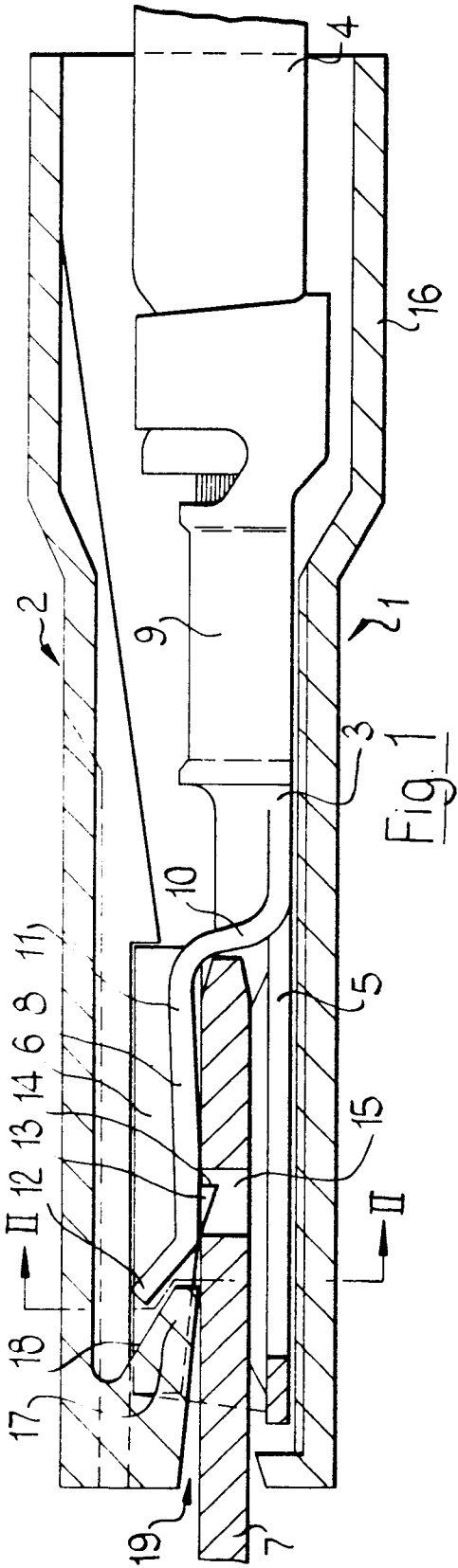
The length of the sheet-metal blank from which this contact is made does not have to be increased to allow the addition of a cantilever finger.

The upward part 10 of the finger 8 also prevents the conductor 4 from being inserted too far into the connector 2 before the conductor 4 is crimped to the connector 2.

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CLAIMS:

1. An electrical connector comprising an electric contact engageable with a terminal by moving the connector in a forward direction into engagement with the terminal, a resilient cantilever finger having a rear facing shoulder
5 for latching engagement with an oppositely facing rigid shoulder on the terminal, the free-end of the finger having an extension for engagement for unlatching the connector from the terminal by flexing the finger to release the latching engagement, and a housing having a
10 formation so shaped that when the housing moves in the rearward direction with respect to the contact the formation will engage the extension of the finger to release the latching engagement, allowing the connector to be removed from the terminal, characterised in that the
15 finger projects forwardly.
2. A two-part electrical coupling comprising a terminal, having a forwardly-facing rigid shoulder, and a connector, characterised in that the connector is as claimed in Claim 1.
- 20 3. A coupling as claimed in Claim 2, characterised in that the cantilever finger of the connector is so shaped that when the connector is engaged with the terminal, the terminal abuts a part of the finger to inhibit further relative movement.





DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ²)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
P	<u>FR - A - 2 373 896</u> (BERNIER) * page 2, line 9 to page 3, line 32; fig. 1 to 3 * --	1,3	H 01 R 13/20 H 01 R 13/10 H 01 R 13/12
A	<u>US - A - 3 970 353</u> (KAUFMAN) * column 3, lines 7 to 41; fig. 1 to 3 * --		
A	<u>US - A - 3 644 872</u> (RUSSO, JR.) * column 2, lines 61 to 74; fig. 1 and 2 * --		TECHNICAL FIELDS SEARCHED (Int. Cl. ²) H 01 R 13/00
D, A	<u>GB - A - 1 463 751</u> (AMP) * complete document * --		
D, A	<u>GB - A - 1 080 420</u> (AMP) * complete document *		
			CATEGORY OF CITED DOCUMENTS X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
☒ The present search report has been drawn up for all claims			&: member of the same patent family, corresponding document
Place of search Berlin		Date of completion of the search 26-07-1979	Examiner HAHN