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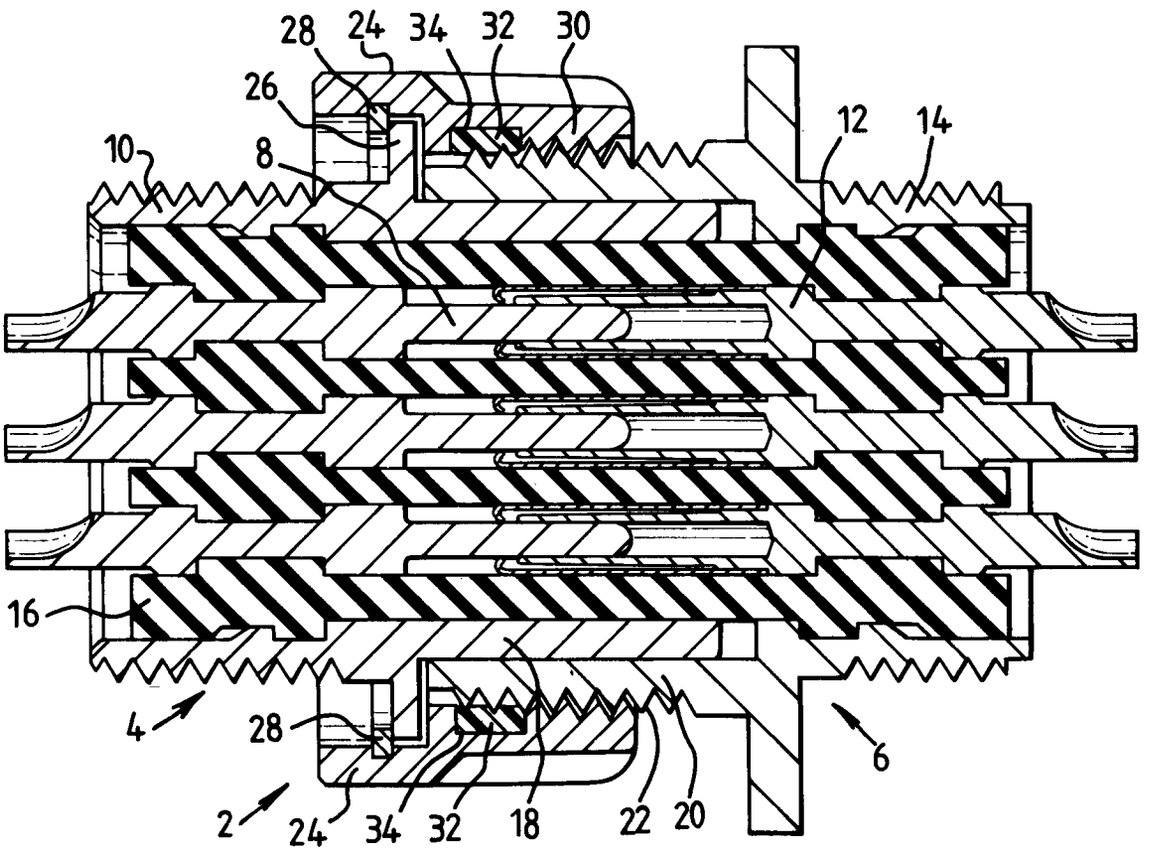
(54) Electrical connector.

(57) An electrical connector 2 comprises housing portions 4,6 carrying a plurality of mutually engageable male 8, and female 12 terminals respectively. Housing portion 4 has an internally threaded collar 24 rotatably mounted on a flange 26, arranged to engage with a thread 22 on housing portion 6 to hold the housing portions 4,6 together.

An annular insert 32 of polytetrafluoroethylene is provided in an annular recess 34 at the inner end of the threaded collar 24 so that the thread 22 bites into the ring 32 to provide additional grip on the thread 30 of the collar 24.



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The present invention relates to an electrical connector and aims to provide a connector having a relatively simple vibration proof connection which is particularly suited for use on military vehicles, such as tanks.

According to the present invention there is provided an electrical connector comprising two housing portions, the housing portions carrying respective mutually engageable terminals which are connected to respective electrical leads, the housing portions being brought together to make an electrical connection between the respective leads, a threaded collar being rotatably mounted on one of the housing portions and arranged to engage with a thread on the other housing portion to hold the housing portions together, characterised in that an insert of relatively soft, resilient material is provided on one of the housing protions for gripping the thread on the other housing portion.

The relatively soft, resilient material insert has been found to deform and engage the cooperating thread sufficiently to prevent unscrewing of the threaded parts when subjected to a range of vibration, particularly that found on military tanks.

Other preferred features and advantages of the invention will be apparent from the following description and the accompanying claims.

The invention will be further described by way of example with reference to the accompanying single figure of drawings, which shows an axial cross-section through a connector in accordance with the invention.

In the drawing there is shown an electrical connector 2 embodying the invention. The connector 2 comprises two housing portions 4, 6. Housing portion 4 carries a plurality of male terminals 8 which are in use to be connected to respective wire leads (not shown). The outer end 10 of housing portion 4 is threaded for engagment of a ferrule or the like to grip a jacket or sleeve for the wire leads. Housing portion 6 carries a plurality of female terminals 12 which are arranged to receive and so electrically connect with the male terminals 8 when the housing portions 4, 6 are connected together. Terminals 12 are in use to be connected to respective wire leads (not shown) and the outer end 14 of the housing portion 6 is threaded, as for housing portion 4.

The two housing portions 4, 6 are of aluminium and a keyway (not shown) is provided to align the portions and prevent relative rotation as the housing portions are brought together. A non-conducting polymer material 16 may fill the connector to insulate and stabilise the terminals.

Housing portion 4 has a sleeve 18 which slides inside a sleeve 20 on housing portion 6.

The outside of the sleeve 20 has a male thread 22. A collar 24 is rotatably mounted on a flange 26 on the housing portion 4 by means of a circlip 28 and has a female thread 30 which engages the thread 22.

To assemble the connector, the housing portions 4, 6 are brought together, sleeve 18 sliding inside sleeve 20, and the collar 24 is screwed on to the thread 22, the thread providing a mechanical advantage to assist coupling of the connector portions.

An annular insert 32 of polytetrafluoroethylene is provided on the inside of the collar 24, in an annular recess 34 at the inner end of the thread 30. As the collar 24 is screwed home on the thread 22, the thread 22 bites into the PTFE ring 32, deforming the ring which thus grips the thread 22. The ring 32 is dimensioned so that the thread 22 penetrates or deforms the ring to about 20 per cent of its radial thickness. A particular advantage of the PTFE material is that a thread is formed in the material when first coupling the housing portion 4, 6 and on continued uncoupling and coupling it has been found that the originally formed thread pattern is used repeatedly, thus minimising damage to the PTFE insert, which remains sufficiently resilient to grip the thread 22.

To insert the ring 32 into the recess 34, the ring can be split and coiled slightly as it is slid in to the collar 24.

Various modifications may be made to the described embodiment and it is desired to include all such modifications as fall within the scope of the invention.

Claims

1. An electrical connector comprising two housing portions, the housing portions carrying respective mutually engageable terminals which are connected to respective electrical leads, the housing portions being brought together to make an electrical connection between the respective leads, a threaded collar being rotatably mounted on one of the housing portions and arranged to engage with a thread on the other housing portion to hold the housing portions together, characterised in that an insert 32 of relatively soft, resilient material is provided on one of the housing portions 4 for gripping the thread 22 on the other housing portion 6.

2. A connector as claimed in claim 1, characterised in that the relatively soft, resilient material is polytetrafluoroethylene.

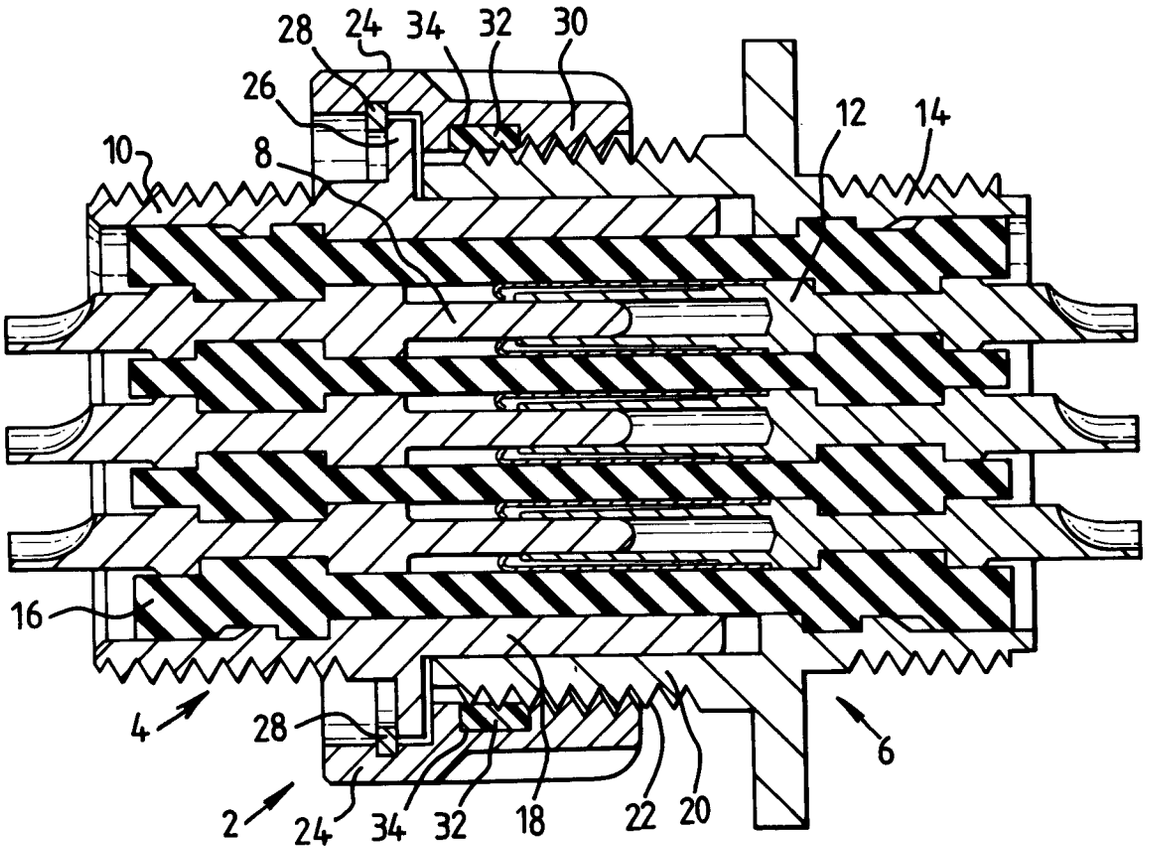
3. A connector as claimed in claim 1 or 2, characterised in that the insert is annular.

4. A connector as claimed in claim 1, 2 or 3, characterised in that the insert is positioned to engage the thread 22 on the other housing portion 6 after the threads 30, 22 on the housing portions 4, 6 are engaged.

5. A connector as claimed in claim 1, 2, 3 or 4, characterised in that the insert engages a male thread portion 22.

6. A connector as claimed in any one of claims 1 to 5, characterised in that the insert is carried by a collar 24.

7. A connector as claimed in claim 6, characterised in that the collar carries a female thread 22.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EUROPEAN SEARCH REPORT

Application Number

EP 91 30 6584

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	DE-A-2 729 181 (BENDIX) * figures 1,2; page 9, lines 6-23 * ---	1,3,6,7	H 01 R 13/621 H 01 R 13/639
A	EP-A-0 324 104 (MANNESMANN KIENZLE) * figure 2; column 3, lines 34-51 * ---	1,4-6	
A	EP-A-0 218 060 (SOGAPEX) * figures 1-6; page 4, line 29 - page 7, line 18 * -----	1,4-7	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

H 01 R 13/62

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
BERLIN	25-10-1991	HAHN G

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
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P : intermediate document

T : theory or principle underlying the invention
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