(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 017 128 A1

(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 158(3) EPC

(43) Date of publication:
05.07.2000 Bulletin 2000/27

(21) Application number: **99928016.7**

(22) Date of filing: **23.06.1999**

(51) Int. Cl.[7]: **H01R 4/02**, H01R 43/02

(86) International application number:
PCT/ES99/00189

(87) International publication number:
WO 00/04605 (27.01.2000 Gazette 2000/04)

(84) Designated Contracting States:
BE DE FR GB IT NL SE

(30) Priority: **15.07.1998 ES 9801891 U**

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(54) CONNECTOR DESIGNED TO FACILITATE THE WELDING OF TERMINALS

(57) The object of the present application for a Patent of Invention is a connector of a noticeably prismatic configuration which major lateral bases extend as per a sort of rectangular wings in the interior face of which are provided channels allowing the fitting in a support plane of the welding formed with a support in the shape of a four and which is introduced through the above channels, holding the prismatic zone of the connector a row of cavities or sockets provided with the corresponding retention means for the terminals that must be held.

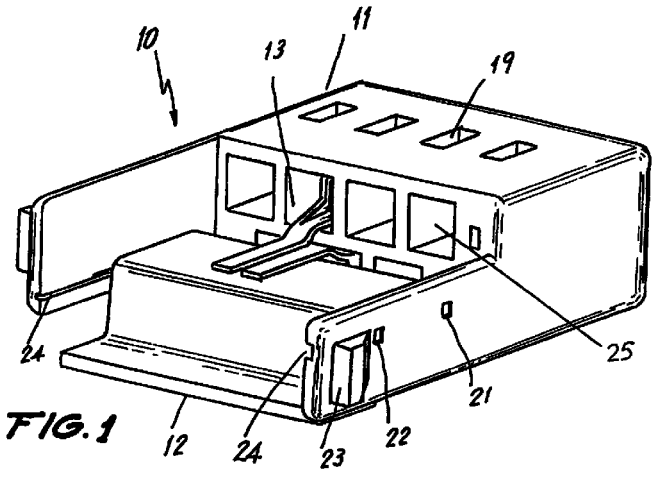

FIG. 1

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Description

[0001] The present Patent of Invention relates more specifically to a connector whose shape characteristics allow the welding of female terminals or micro-terminals in the same plane and over a flat support zone forming a portion of same connector.

[0002] There are in the market and can be therefore considered as the state of the art a plurality of connectors of a noticeably prismatic configuration provided in the interior with a plurality of sockets or cavities also prismatic provided in the side walls with the corresponding retention means allowing also the housing of the corresponding terminals, that same in the connection operation do not keep a rear position and after the connection with other terminals may come out from the inside of said sockets or cavities.

[0003] In the interior of such type of connectors are joined a great quantity of terminals, which receive, through a rear zone, the corresponding wire formed with a conductive portion and an insulating portion, whilst through the opposite portion receive the other terminal.

[0004] Therefore, the operation of joining in a connector the corresponding terminals with the corresponding wires is a complex operation and needing a great number of precautions for avoiding connection failures as well as that the terminals do not come out from the cavities designed to that effect and which must retain them.

[0005] The object of the present application is a connector of a noticeably prismatic configuration which major lateral bases extend as per a sort of rectangular wings in whose interior face are provided channels allowing the insertion of a welding support plane formed with a support in the shape of a four and which is introduced through said channels.

[0006] The prismatic zone of the connector, as it is a known formula, holds a number of cavities or sockets provided with the corresponding retention means for the terminals that must lodge there.

[0007] The insertion of the terminals into said channels in grace to the configuration of same allows that the rear zones of said terminals meet in the welding support zone of said support, by which the welding operation itself, regardless of its nature, is enormously simplified, since it must be done in a single plane, placing the wires on top of said rear portion of the terminals for being afterwards all welded in a single step.

[0008] Other details and characteristics of the present application will be manifest through the reading of the description given herebelow, in which reference is made to the figures attached to this description where the above details are depicted in a rather schematic way. These details are given as an example, referring to a case of a possible practical embodiment, but is not limited to the details outlined; therefore this description must be considered from an illustrative point of view and with no limitations whatsoever.

[0009] There follows a report of the several elements numbered in the drawings acompanying the present description: (10) connector, (11) body, (12) support, (13) terminal, (14) support zone, (15) wall, (16) rear zone, (17) swelling, (18) guides, (19) openings, (20) mouths, (21) holes, (22) holes, (23) protuberances, (24) channels, (25) cavities.

Figure 1 is a perspective view of the connector (10) in which is mounted the support (12).

Figure 2 is a perspective view of the support (12), which, as can be seen, shows a support zone (14) or welding plane related with a rear zone through a wall (15) perpendicular to the support zone (14) and to the rear zone (16).

Figure 3 is a perspective view of the connector (10) free fron the support (12).

[0010] In one of the preferred embodiments of what is the object of the present Patent of Invention, and as can be seen in Figure 1, the connector (10) is formed with a body (11) of noticeably prismatic configuration which minor lateral bases extend as per extensions whose interior face shows near its perimeter support guides or channels (24).

[0011] The body (11), as per a known formula, is volumetrically distributed as per a set of cavities (25) also prismatic, inside which are placed the terminals (13).

[0012] At the extensions of the minor lateral bases are provided holes (21 and 22) which serve as retention means of the support (12).

[0013] The support (12), see Figure 2, is formed with two planes (14 and 16) related through a wall (15) perpendicular to same and of little height.

[0014] In the perimetral zones of the upper or welding zone or support zone (14) are provided swellings (17) which fit into the holes (21 and 22) provided in the extensions of the lateral bases of the connector (10).

[0015] Also in the perimetral zone of the support zone (14) are provided guides (18) which fit with the channels (24) in such a way that once introduced the terminals into the interior of the cavities (25) is placed the support (12) in such a way that the guides (18) slid by the channels (24) until the front edge of the support zone (14) contacts the interior portion of the body (11) of the connector (10).

[0016] The body (11) shows in one of its bases a row of mouths (20) by wich are introduced the corresponding male terminals, not shown in the figures, making contact with the corresponding female terminals (13) situated in the interior of the cavities (25).

[0017] As can be seen in Figure 2, the mouths (20) had been designed in such a way that between their centers the longitudinal axis passing through same show a distance a and b of the same magnitude which in combination with the characteristics of the terminals (13) used allows, as can be seen in Figure 1, that the

rear portions of said terminals (13) remain placed over the plane of support or welding (14), allowing with that, as has been said above, firstly that all welding zones remain placed in the same plane, the (14), secondly that the distance between said flat zones, given the configuration of the mouths and the distances between their axis a and b , referred in Figure 3, allows that said rear zones of the terminals (13) keep always a constant distance, by which it will be possible to fully automate the welding operation, given that the means may work always in a flat zone and produce the welding at regular intervals, in time as well as in distance.

[0018] In order to be able to fit the connector (10) in the corresponding moduli there are provided in the extension of the minor lateral bases protuberances (23) which will fit in the corresponding openings provided in said moduli and not shown in the Figures attached to the present description.

[0019] The configuration of the connector (10) above described allows introducing in a first operation the terminals (13) into the cavities (25) for placing then the support (12) with the help of the guides (18) and the channels (24), for proceeding then to the welding operation by any known method but in a fully automated way.

[0020] Enough disclosed what the present application for a Patent of Invention is in agreement with the attached figures, it s understood that can be introduced in same any detail modifications regarded as convenient, always provided that any the modifications entered do not depart from the essence of the present invention as summarized in the following claims.

Claims

1. IMPROVED CONNECTOR WITH ADAPTATION STEP of those formed with a body (11) of noticeably prismatic configuration into which are disposed a series of cavities or sockets (25) also of prismatic configuration, provided with retention means for the terminals (13) which are introduced into the cavities (25) by any known system, characterized in that the body (11) extends by its minor lateral bases with extensions provided in their interior face of channels (24) por placing a support (12) provided with guiding and fitting means in said channels (24).

2. IMPROVED CONNECTOR WITH ADAPTATION STEP as per claim 1 characterized in that the support (12) is formed by the planes (14 and 16) related with the wall (15) perpendicular to same and of little height, provided the support (12) with the corresponding guiding and retention means.

3. IMPROVED CONNECTOR WITH ADAPTATION STEP as per the above claims characterized in that the support (12) shows in the edges of the support zone (14) guides (18) and swellings (17) which fit in the holes (21) and (22) provided in the extensions of the minor lateral bases.

4. IMPROVED CONNECTOR WITH ADAPTATION STEP as per the above claims characterized in that the distance a and b between the centers of the cavities (25) determines in combination with the terminals (13) that their rear zones remain situates in the welding support plane (14).

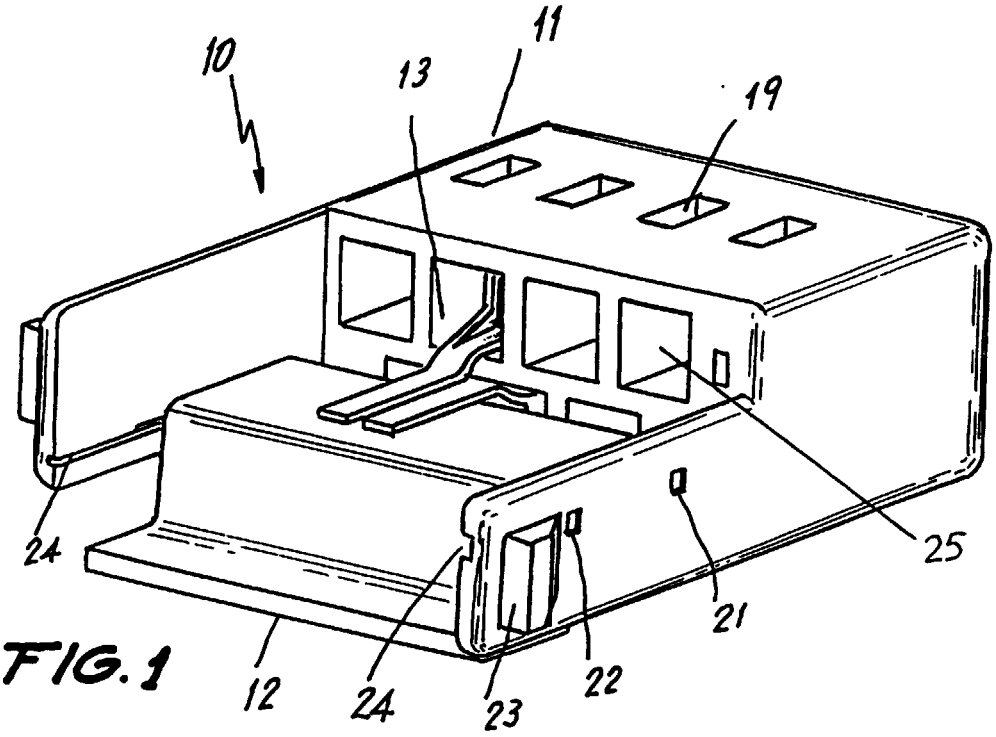

FIG. 1

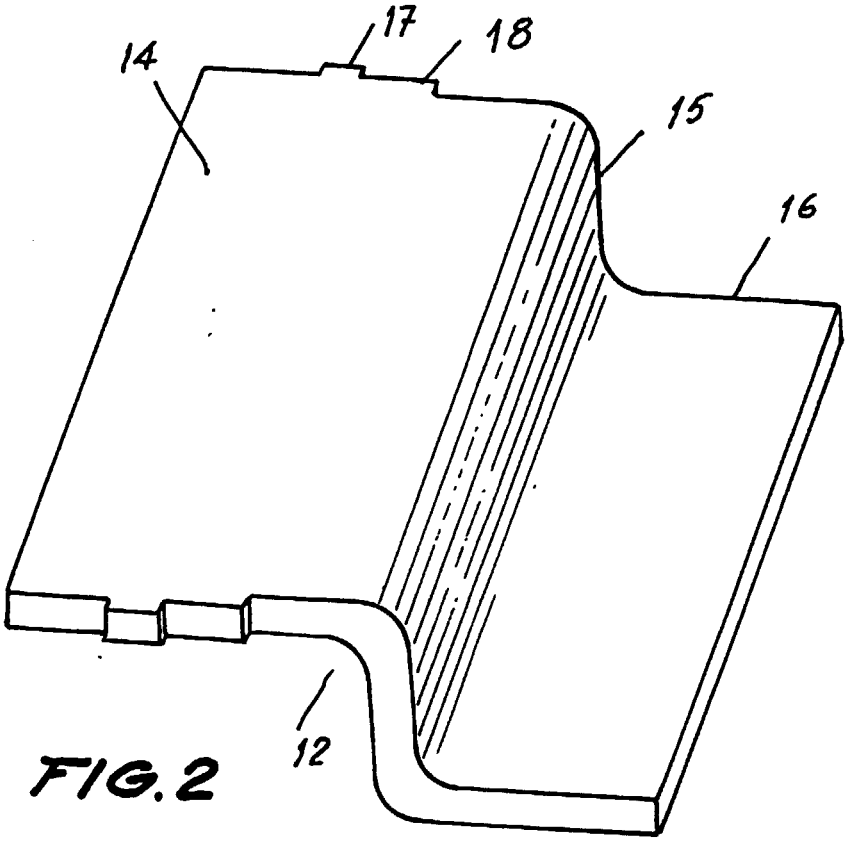

FIG. 2

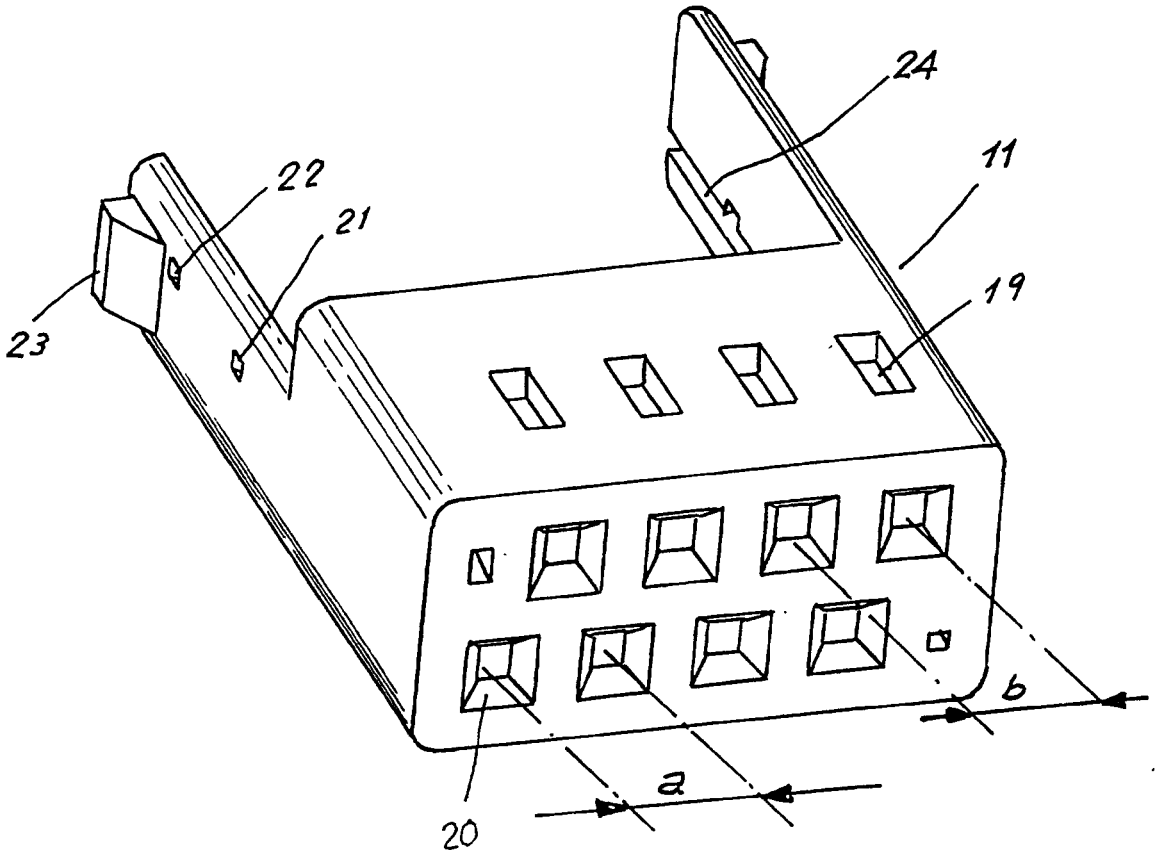

FIG. 3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 99/00189

A. CLASSIFICATION OF SUBJECPC6 T MATTER [6]:
IPC6 H01R 4/02, 43/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC6 H01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and. where practicable. search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	GB 2285346 A1 (THE WHITAKER CORP.) 05 July 1995 (05.07.95); page 4, line 11- page 6, line 7; figures 1-4.	1,4 3
Y	US 5354207 A1 (KEL CORP.) 11 October 1994 (11.10.94); abstract; figures 1,4.	3
X	US 5346404 A1 (MINNESOTA MINING AND MANUFACTURING CO.) 13 September 1994 (13.09.94); column 2, line 25- column 3, line 51; figures 1-6.	1

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

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Date of) 08 October 1999 (08.10.99)	Date of mailing of the international search report 18 October 1999 (18.10.99)
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/ ES 99/00189

Patent document cited in search report	Publication date	Patent familiy member(s)	Publication date
GB 2285346 A1	05.07.1995	JP 07-220780 A	18.08.1995
		US 5580269 A	03.12.1996
		CN 1108439 A	13.09.1995
US 5354207 A1	11.10.1994	JP 05-109444 A	30.04.1993
US 5346404 A1	13.09.1994	JP 06-036816 A	10.02.1994

Form PCT/ISA/210 (patent family annex) (July 1992)