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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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(54) Title: LOW PROFILE ELECTRICAL CONNECTOR SYSTEM WITH DIFFERENTIAL PAIR CABLE INTERFACE

(57) Abstract: An electrical connector includes a differential signal pair. A portion of each terminal is disposed in an insulative housing and an electrically conductive shield extends around at least a portion of the terminals and a least a portion of the housing. The housing may have a lower surface and a projection extending downward from the lower surface between a portion of a vertical section of each of the terminals. The terminals may have an angled section including a vertical portion having a first width, an angled portion narrower than the vertical portion, and a horizontal portion narrower than the angled portion. The housing may have a housing mating component spaced from a housing body component and aligned with but spaced from the terminals. The terminals may have a planar termination section with a first portion wider than a second portion.

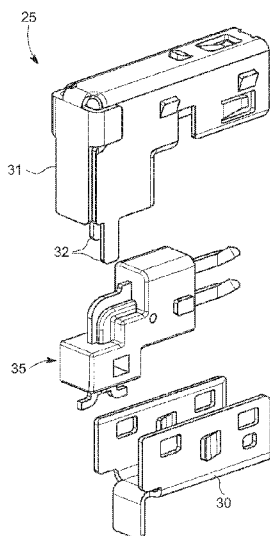


FIG. 8



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**Published:**

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

**(88) Date of publication of the international search report:**

12 September 2019 (12.09.2019)

## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2019/012260****A. CLASSIFICATION OF SUBJECT MATTER****H01R 4/2416(2018.01)i, H01R 13/627(2006.01)i, H01R 13/6581(2011.01)i**

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)

H01R 4/2416; H01B 11/20; H01R 13/05; H01R 13/648; H01R 23/68; H01R 23/70; H01R 9/05; H01R 13/627; H01R 13/6581

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

Korean utility models and applications for utility models  
Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) &amp; Keywords: electrical connector, electrically conductive terminal, mount tail, vertical section, contact section, housing, projection, shield

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2016-195849 A1 (3M INNOVATIVE PROPERTIES COMPANY) 08 December 2016 See pages 4-7 and figures 1A-3C.	1-18
Y	EP 0774807 A2 (MOLEX INCORPORATED) 21 May 1997 See column 2, line 42 - column 4, line 46, claim 1 and figures 1-2, 6.	1-18
A	US 2004-0094328 A1 (JOSEPH C. FJELSTAD et al.) 20 May 2004 See paragraphs [0061]-[0062] and figure 4B.	1-18
A	US 5967844 A (RAY C. DOUTRICH et al.) 19 October 1999 See column 2, line 16 - column 3, line 12 and figures 1-3.	1-18
A	US 5417590 A (HELEN DECHELETTE et al.) 23 May 1995 See column 4, line 41 - column 5, line 2 and figure 2.	1-18

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

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

05 August 2019 (05.08.2019)

Date of mailing of the international search report

**05 August 2019 (05.08.2019)**

Name and mailing address of the ISA/KR

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INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2019/012260**

**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

- 1.  Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
- 2.  Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
- 3.  Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

- I. claims 1-18 directed to an electrical connector for mounting to a circuit board.
- II. claims 19-29 directed to an electrical connector for termination to a cable.

- 1.  As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
- 2.  As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of any additional fees.
- 3.  As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
- 4.  No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  
1-18

- Remark on Protest**
- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
  - The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
  - No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2019/012260**

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		KR 10-1997-0004219 B1	26/03/1997