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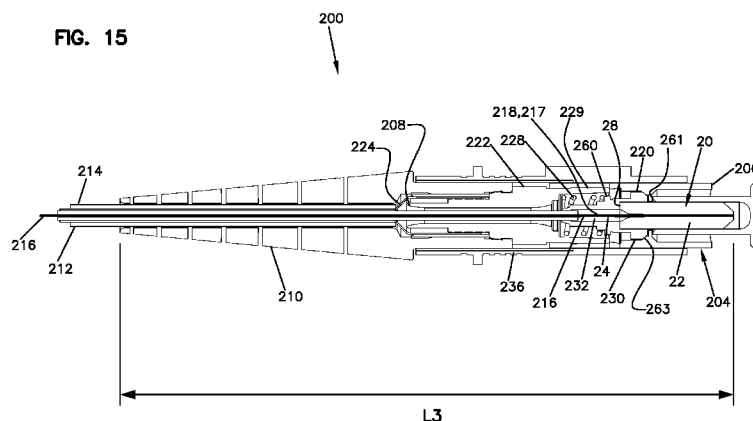
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, 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, 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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31 October 2013

(54) Title: FIBER OPTIC CONNECTOR, FIBER OPTIC CONNECTOR AND CABLE ASSEMBLY, AND METHODS FOR MANUFACTURING



(57) Abstract: A fiber optic cable and connector assembly including a fiber optic connector mounted at the end of a fiber optic cable. The fiber optic connector includes a ferrule assembly including a stub fiber supported within a ferrule. The stub fiber is fusion spliced to an optical fiber of the fiber optic cable at a location within the fiber optic connector.

A. CLASSIFICATION OF SUBJECT MATTER**G02B 6/38(2006.01)i, G02B 6/02(2006.01)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)

G02B 6/38; G02B 6/255; G02B 6/16; C03B 37/023; G02B 6/40; C03B 37/027; G02B 6/42; G02B 7/00; G06K 9/00; G02B 6/36; G02B 6/00; G02B 6/02

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) & Keywords: optical connector, ferrule, boot, hub, spring, splice, core offset, mold, tray

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008-0095504 A1 (KAWASAKI) 24 April 2008	1-5, 9-17, 27-31
Y	See paragraphs [0010], [0031], [0043]-[0060], claim 1 and figures 2-4.	
A		6-8, 18-26, 32-49, 58-61, 69-80, 88, 62-68, 100-116
Y	US 2006-0002662 A1 (MANNING et al.) 05 January 2006	6-8, 18-26, 32-49, 58-61, 69-80, 88
	See paragraphs [0008], [0023], [0036]-[0047], [0078] and figures 1a, 2a-2b, 8a-8b.	
X	US 2002-0044749 A1 (KOIKE et al.) 18 April 2002	82-87
	See paragraphs [0016], [0021] and figures 1A-1D.	
A	US 7628549 B2 (TAKAHASHI et al.) 08 December 2009	1-49, 58-80, 88, 100-116
	See abstract, claim 1 and figures 1, 28.	
A	US 2007-0274657 A1 (BILLMAN et al.) 29 November 2007	1-49, 58-80, 88, 100-116
	See paragraphs [0022]-[0024] and figures 1A-1B.	
A	JP 2011-095410 A (SEI OPTIFRONTIER CO., LTD. et al.) 12 May 2011	1-49, 58-80, 88, 100-116
	See abstract, claim 1 and figures 2-3.	



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 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

"&" document member of the same patent family

Date of the actual completion of the international search

13 August 2013 (13.08.2013)

Date of mailing of the international search report

14 August 2013 (14.08.2013)

Name and mailing address of the ISA/KR


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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/026904

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2003-0044143 A1 (TRENTELMAN et al.) 06 March 2003 See abstract, paragraph [0052] and figure 2.	50-51
A	US 6550279 B1 (ANDERSON et al.) 22 April 2003 See abstract, claims 1, 5 and figure 1.	50-51
A	US 2011-0226019 A1 (HUANG et al.) 22 September 2011 See paragraph [0067] and figure 1.	52,55-57,89-99
A	JP 08-234042 A (FURUKAWA ELECTRIC CO., LTD.) 13 September 1996 See abstract, paragraphs [0013]-[0014] and figures 1-2.	52,55-57,89-99
A	US 6742936 B1 (KNECHT et al.) 01 June 2004 See abstract, claims 1, 21 and figure 8.	53-54
A	US 2005-0276549 A1 (TABATA et al.) 15 December 2005 See paragraphs [0029], [0032], claim 1 and figure 3.	81
A	JP 2008-116840 A (SUMITOMO ELECTRIC IND., LTD.) 22 May 2008 See abstract, paragraph [0011] and figures 1-3.	81
A	JP 07-234344 A (MITSUBISHI ELECTRIC CORP.) 05 September 1995 See abstract, claim 1 and figure 1.	117

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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US 6550279 B1	22/04/2003	AU 2002-814902 A EP 1322563 A2 JP 2004-517021 A	22/03/2002 02/07/2003 10/06/2004

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PCT/US2013/026904

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2013/026904

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:

- Group I, claims 1-49, 58-80, 88, 100-116, drawn to a fiber optic connector.
- Group II, claims 50-51, drawn to a method for providing a core offset direction.
- Group III, claims 52, 55-57, 89-99, drawn to a method for connecting fibers.
- Group IV, claims 53-54, drawn to a method for staging.
- Group V, claim 81, drawn to a splicing tray.
- Group VI, claims 82-87, drawn to a method for molding.
- Group VII, claim 117, drawn to a method for mass producing.

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 fee, this Authority did not invite payment of any additional fee.

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.:

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.