

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
27 August 2009 (27.08.2009)

(10) International Publication Number
WO 2009/105784 A3

(51) International Patent Classification:
H01R 11/11 (2006.01) *H01R 9/11* (2006.01)

(21) International Application Number:
PCT/US2009/034928

(22) International Filing Date:
23 February 2009 (23.02.2009)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/030,470 21 February 2008 (21.02.2008) US
61/054,770 20 May 2008 (20.05.2008) US
61/100,768 29 September 2008 (29.09.2008) US
61/106,473 17 October 2008 (17.10.2008) US

(71) Applicant and

(72) Inventor: MELNI, Mark, L. [US/US]; 265 Ash Street N., Twin Falls, ID 83301 (US).

(74) Agents: PEDERSEN, Barbara, S. et al.; Pedersen & Company, PLLC, PO Box 2666, Boise, ID 83701 (US).

(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, BR, BW, BY, BZ, CA, CH, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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:
26 November 2009

(54) Title: ELECTRICAL CONNECTORS AND METHODS OF MANUFACTURING AND USING SAME

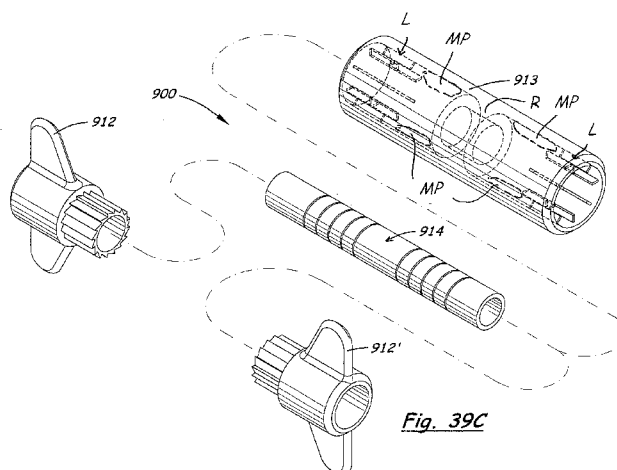


Fig. 39C

(57) Abstract: An electrical connector forms electrical contact by tightening of a movable, electrically-conductive spiral around un-insulated wire or wires. The spiral coils around the wire multiple times and tightens on the wire(s) when either one or the other end, or both ends, of the spiral is/are rotated relative to the other. One region of the spiral is preferably fixed to an insulating housing, while another region of the spiral may be rotated for the tightening on the wire and then preferably latched to the housing so that the spiral remains in the tightened condition. A terminal end may extend from the spiral, or connectors without a terminal end may be used to electrically connect wires to each other that extend from and to other equipment not located on the connector itself. Multiple spirals may be provided in one connector, including spirals that tighten around separate wires at opposite ends of the connector. The connectors may be tightened quickly by hand, without tools, as one hand may grasp the housing or a housing portion, while the terminal end or another housing portion fixed to an end of the spiral (and consequently the spiral coils along with it) is twisted by the other hand.



WO 2009/105784 A3

A. CLASSIFICATION OF SUBJECT MATTER**H01R 11/11(2006.01)i, H01R 9/11(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)

IPC: H01R

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 since 1975

Japanese Utility models and applications for Utility models since 1975

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

eKOMPASS(KIPO internal) & keywords: SPIRAL, COIL, BUTT, TWIST*, and SPLICE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5925853 A (WILLIAM A. MILLER) 20 July 1999 (1999-07-20) See column 2, line 6 - column 3, line 2 and figures 1 - 8	1 - 27
A	US 2008-0023224 A1 (MARKUS GUMLEY) 31 January 2008 (2008-01-31) See paragraphs [0017] - [0026] and figures 1 - 5	1 - 27
A	US 5683273 A (WILLIAM JOSEPH GARVER; HUNG VIET NGO) 4 November 1997 (1997-11-04) See column 2, line 23 - column 4, line 19 and figures 1 - 7	1 - 27
A	US 7086150 B2 (L. HERBERT King, Jr. et al.) 8 August 2006 (2006-08-08) See column 3, line 38 - column 6, line 67 and figures 1 - 13	1 - 27
A	US 2005-0045362 A1 (L. HERBERT King, Jr. et al.) 3 March 2005 (2005-03-03) See paragraphs [0043] - [0056] and figures 1 - 6	1 - 27

 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

30 SEPTEMBER 2009 (30.09.2009)

Date of mailing of the international search report

30 SEPTEMBER 2009 (30.09.2009)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex-Daejeon, 139 Seonsa-ro, Seo-gu, Daejeon 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

Hong, Young Uk

Telephone No. 82-42-481-8465



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2009/034928

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5925853 A	20.07.1999	None	
US 2008-0023224 A1	31.01.2008	US 2008-0217055 A1 US 7394022 B2	11.09.2008 01.07.2008
US 5683273 A	04.11.1997	None	
US 7086150 B2	08.08.2006	US 2006-0169476 A1 US 2006-0042079 A1	03.08.2006 02.03.2006
US 2005-0045362 A1	03.03.2005	CA 02536594 A1 EP 1665466 A2 US 6815616 B1 US 2006-0191705 A1 US 7420122 B2 US 7122742 B2 US 7170005 B1 WO 2005-025002 A2 WO 2005-025002 A3 WO 2005-025002 A3	17.03.2005 07.06.2006 09.11.2004 31.08.2006 02.09.2008 17.10.2006 30.01.2007 17.03.2005 22.03.2007 17.03.2005