



- (51) International Patent Classification:
H01F 38/14 (2006.01) *B60L 11/18* (2006.01)
- (21) International Application Number:
PCT/EP2013/053466
- (22) International Filing Date:
21 February 2013 (21.02.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
12156693.9 23 February 2012 (23.02.2012) EP
- (71) Applicant: **TYCO ELECTRONICS NEDERLAND BV** [NL/NL]; Rietveldweg 32, NL-5222 AR S-hertogenbosch (NL).
- (72) Inventor: **HABRAKEN, Gied**; Witbolgrasbeemd 49, NL 5551 HX Valkenswaard (NL).
- (74) Agent: **HEINZ-SCHAEFER, Marion**; c/o Tyco Electronics UK LTD, Faraday Road, Dorcan, Swindon Wiltshire SN3 5HH (GB).

- (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.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, 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, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: WIRELESS POWER CONNECTOR AND WIRELESS POWER CONNECTOR SYSTEM

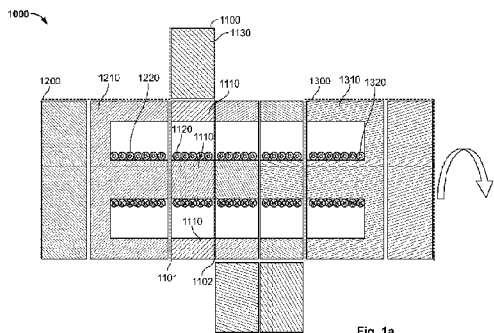


Fig. 1a

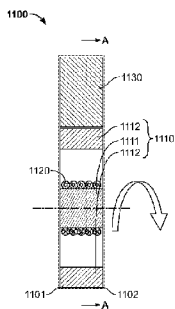


Fig. 1b

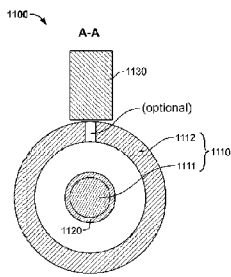


Fig. 1c

(57) Abstract: The invention relates to a wireless power connector and a wireless power connector system including at least one wireless power connector for contactless receiving electric power from a second connector and for contactless supplying electric power to a third connector. In order to enable the wireless power connector to inductively forward electric power received from the second connector, the invention suggest providing a first and a second mating end respectively connectable to the second and the third connector and a magnetic core extending between the first and the second mating end. A coil is wound around the magnetic core and configured to output, as an alternating current, at least parts of the electric power received from the second connector. The magnetic core interconnects the first and the second mating end such that, in a connected state, the magnetic core inductively forwards electric power to the third connector.





Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *of inventorship (Rule 4.17(iv))*

- *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:

23 October 2014

Published:

- *with international search report (Art. 21(3))*

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/053466

A. CLASSIFICATION OF SUBJECT MATTER
INV. H01F38/14 B60L11/18
ADD.
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)
H02J H01F B60L

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)
EPO-Internal, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 5 463 303 A (HALL JOHN T [US] ET AL) 31 October 1995 (1995-10-31) column 3, line 14 - column 4, line 13; figures 2,3	1,5,8,9 2-4,6,7, 10-14
A	----- EP 2 364 873 A1 (GEN ELECTRIC [US]) 14 September 2011 (2011-09-14) paragraph [0018] - paragraph [0021]; figures 1,2	1-14
A	----- US 2011/018359 A1 (WADA HIROTSUGU [JP] ET AL) 27 January 2011 (2011-01-27) paragraph [0052] - paragraph [0054] paragraph [0064] - paragraph [0065]; figure 1 ----- -/--	1-14

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	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 20 August 2014	Date of mailing of the international search report 28/08/2014
---	--

Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Chaumeron, Bernard
--	--

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/053466

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 5 539 296 A (ITO MAKOTO [JP]) 23 July 1996 (1996-07-23) column 3, line 28 - column 5, line 59; figure 11 -----	1-14
A	US 2012/007439 A1 (KOZAKAI OSAMU [JP] ET AL) 12 January 2012 (2012-01-12) paragraph [0120] - paragraph [0123]; figure 11 -----	1-14
A	EP 0 552 737 A1 (HUGHES AIRCRAFT CO [US]) 28 July 1993 (1993-07-28) column 7, line 24 - line 54; figures 8a,8b -----	1-14
A	EP 0 653 766 A1 (HUGHES AIRCRAFT CO [US]) 17 May 1995 (1995-05-17) column 2, line 38 - column 3, line 48; figure 1 -----	1-14
A	JP 2002 280241 A (YAZAKI CORP) 27 September 2002 (2002-09-27) the whole document -----	1-14

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/053466

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5463303	A	31-10-1995	NONE
EP 2364873	A1	14-09-2011	CN 102195328 A 21-09-2011 EP 2364873 A1 14-09-2011 JP 2011188736 A 22-09-2011 US 2011221387 A1 15-09-2011
US 2011018359	A1	27-01-2011	JP 5387201 B2 15-01-2014 JP 2011030317 A 10-02-2011 US 2011018359 A1 27-01-2011
US 5539296	A	23-07-1996	JP H06189479 A 08-07-1994 US 5539296 A 23-07-1996
US 2012007439	A1	12-01-2012	CN 102340183 A 01-02-2012 JP 2012019648 A 26-01-2012 US 2012007439 A1 12-01-2012
EP 0552737	A1	28-07-1993	EP 0552737 A1 28-07-1993 JP 2546594 B2 23-10-1996 JP H05260671 A 08-10-1993 NO 930195 A 23-07-1993 US 5461299 A 24-10-1995
EP 0653766	A1	17-05-1995	DE 69402665 D1 22-05-1997 DE 69402665 T2 16-10-1997 EP 0653766 A1 17-05-1995 ES 2100614 T3 16-06-1997 JP 2546631 B2 23-10-1996 JP H07220962 A 18-08-1995 NO 944266 A 16-05-1995 US 5719483 A 17-02-1998
JP 2002280241	A	27-09-2002	NONE