

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
13 November 2003 (13.11.2003)

PCT

(10) International Publication Number
WO 2003/093036 A3

- (51) International Patent Classification:
H01R 25/00 (2006.01)
- (21) International Application Number:
PCT/US2003/013984
- (22) International Filing Date: 5 May 2003 (05.05.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/377,517 3 May 2002 (03.05.2002) US
- (71) Applicant (for all designated States except US): R.A. PHILLIPS INDUSTRIES, INC. [US/US]; 12012 Burke Street, Santa Fe Springs, CA 90670 (US).

- (74) Agent: WARFFORD, Rodney, V.; Christie, Parker & Hale, LLP, P.O. Box 7068, Pasadena, CA 91109-7068 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

- (72) Inventor; and
- (75) Inventor/Applicant (for US only): JACOBS, John, D. [US/US]; 503 North Peppertree Drive, Brea, CA 92821 (US).

- Published:
— with international search report
- (88) Date of publication of the international search report:
18 June 2009

(54) Title: CONTACT INSERT CARTRIDGE FOR PLUGS OF TRACTOR/TRAILER JUMPER CABLES

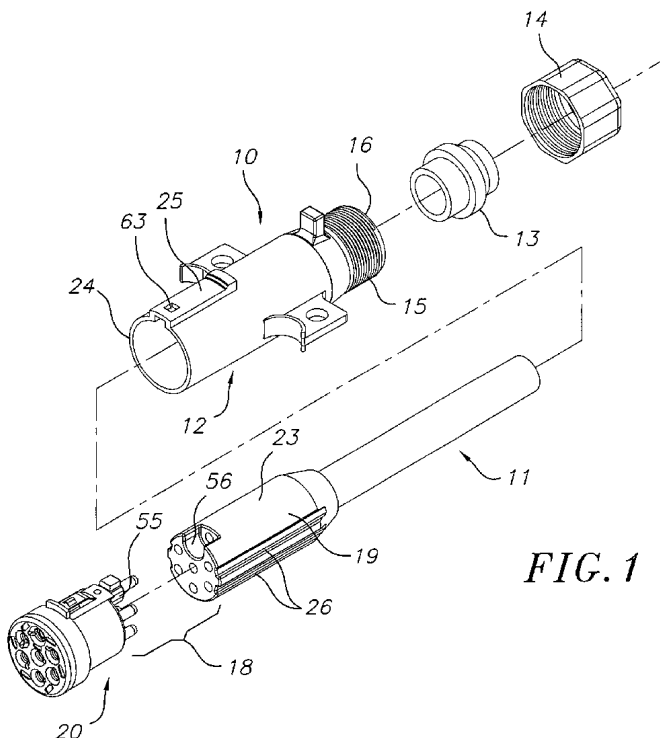
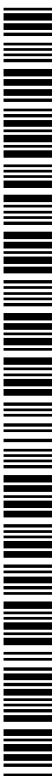


FIG. 1

(57) Abstract: A cartridge for removably connecting to a cable that electrically connects a tow vehicle to a towed vehicle is provided. The cartridge includes a body having a first end and a second end and a plurality of openings extending from the first end to the second end. The cartridge also includes a common contact member having a female contact end and a male contact end, wherein the female contact end is disposed in and the male contact extends from a corresponding one of the plurality of openings, and wherein the female contact end has an outer diameter that is smaller than an inner diameter of the corresponding body opening in which it is disposed to allow for a lateral movement of the female contact end within the body. The cartridge also includes a plurality of noncommon contact members each having a female contact end and a male contact end, wherein each female contact end is disposed in and each male contact extends from a corresponding one of the plurality of openings, and wherein each female contact end has an outer diameter that

is smaller than an inner diameter of the corresponding body opening in which it is disposed to allow for a lateral movement of each female contact end within the body.



WO 2003/093036 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/13984

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01R 25/00
 US CL : 439/651

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)
 U.S. : 439/651,680,290,701,686,695,284

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	US 4,179,179 A (LOWDEN) 18 DECEMBER 1979 (18.12.1979), SEE ENTIRE DOCUMENT.	1-28
A	US 6,257,923 B1 (STONE ET AL.) 10 JUNE ^{JULY} 2001 (10.07.2001), SEE ENTIRE DOCUMENT.	1-28
A	US 6,220,891 B1 (HILS) 24 APRIL 2001 (24.04.2001), SEE ENTIRE DOCUMENT.	1-28
A	US 6,007,362 A (DAVIS ET AL.) 28 DECEMBER 1999 (28.12.1999), SEE ENTIRE DOCUMENT.	1-28
A	US 4,211,461 A (WESCOTT) 08 JULY 1980 (08.07.1980), SEE ENTIRE DOCUMENT.	1-28

 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 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

"&"

document member of the same patent family

Date of the actual completion of the international search

30 June 2003 (30.06.2003)

Date of mailing of the international search report

20 NOV 2003

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
 Commissioner for Patents
 P.O. Box 1450
 Alexandria, Virginia 22313-1450

Facsimile No. (703)305-3230

Authorized officer

Paula A. Bradley

Telephone No. (703) 308-0956