



- (51) International Patent Classification:  
B60L 11/18 (2006.01)
- (21) International Application Number:  
PCT/EP2010/058106
- (22) International Filing Date:  
9 June 2010 (09.06.2010)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
0953817 9 June 2009 (09.06.2009) FR
- (71) Applicant (for all designated States except US): **RENAULT SAS** [FR/FR]; 13/15 Quai Le Gallo, F-92100 Boulogne Billancourt (FR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **LOUDOT, Serge** [FR/FR]; 17 rue de Bastillat, F-91190 Villiers Le Bacle (FR). **BRIANE, Benoit** [FR/FR]; 2 rue de la Princesse de Clèves, F-78280 Guyancourt (FR). **PLOIX, Olivier** [FR/FR]; 8 parc des Bordes, F-78760 Jouars Pontchartrain (FR).
- (74) Agent: **RELIGIEUX, Vincent**; RENAULT TECHNO-CENTRE, TCR GRA 2 36 - SCE 0267, 1 Avenue Du Golf, F-78288 Guyancourt (FR).

(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, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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.

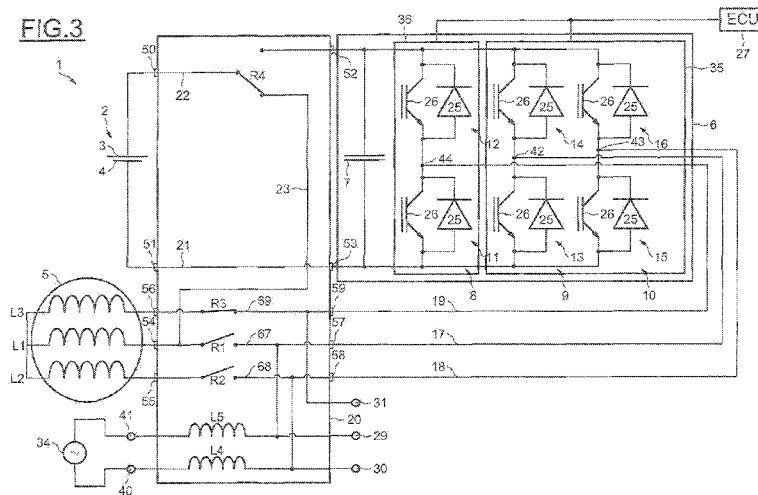
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, 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))

[Continued on next page]

(54) Title: ELECTRIC MOTOR ASSEMBLY RECHARGEABLE FROM AN ELECTRICAL MAINS SYSTEM, AND DEDICATED CONNECTION HOUSING



(57) Abstract: An electric motor assembly (1), notably for an electrically driven automobile vehicle, includes a multi-phase electric motor (5), a battery of accumulators (2), an inverter (6) suitable for converting the direct current of the battery into multi-phase alternating current adapted to supply the motor (5), and a connection housing (20). The connection housing comprises plugs (50, 51, 52, 53, 54, 55, 56, 57, 58, 59) allowing the connection of the motor phases, the battery terminals and at least five connections to the inverter. The housing (20) furthermore comprises a group of contacts (40, 41) allowing it to be connected to a single phase mains system (34), and comprises a group of contacts (29, 30, 31) allowing it to be connected to a multi-phase mains system. The housing (20) comprises switches (R1, R2, R3, R4) according to the position of which the system comprising the housing (20), the battery (2), the inverter (6) and the motor (5) connected solely by its phases, alternatively allows the motor (5) to be supplied from the battery (2), the battery (2) to be recharged directly from a single-phase mains system (34), and the battery to be recharged from multi-phase mains system.



**(88) Date of publication of the international search report:**  
5 May 2011

**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/EP2010/058106

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. 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)  
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 practical, search terms used)  
EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 847 523 A (PEUGEOT CITROEN AUTOMOBILES SA [FR]) 28 May 2004 (2004-05-28)	1,4,8,9, 11,12
Y	page 2, lines 24-34 page 3, lines 1-9 - lines 29-35 page 4 - lines 1-3 page 8, lines 1-10 page 9, lines 16-30 figures 4,6-8	2
Y	----- FR 2 738 411 A (RENAULT [FR]) 7 March 1997 (1997-03-07) cited in the application figure 4	2
A	----- EP 0 553 824 A (FUJI ELECTRIC CO LTD [JP]) 4 August 1993 (1993-08-04) cited in the application the whole document -----	1-12

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 document 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.
- "&" document member of the same patent family

Date of the actual completion of the international search  
  
3 March 2011

Date of mailing of the international search report  
  
14/03/2011

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  
  
Marannino, M

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2010/058106

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2847523	A	28-05-2004	AT 388036 T 15-03-2008
			AU 2003292350 A1 23-06-2004
			DE 60319570 T2 02-04-2009
			EP 1567383 A2 31-08-2005
			ES 2299733 T3 01-06-2008
			WO 2004050411 A2 17-06-2004
			US 2006132085 A1 22-06-2006
			-----
FR 2738411	A	07-03-1997	DE 69617026 D1 20-12-2001
			DE 69617026 T2 20-06-2002
			EP 0847338 A1 17-06-1998
			ES 2163652 T3 01-02-2002
			WO 9708009 A1 06-03-1997
			-----
EP 0553824	A	04-08-1993	CA 2088170 A1 01-08-1993
			DE 69324830 D1 17-06-1999
			DE 69324830 T2 13-01-2000
			JP 6030505 A 04-02-1994
			US 5504414 A 02-04-1996
			-----