

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
13 November 2008 (13.11.2008)

PCT

(10) International Publication Number
WO 2008/136836 A3

(51) International Patent Classification:
B60K 6/00 (2007.10)

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(21) International Application Number:
PCT/US2007/068632

(22) International Filing Date: 10 May 2007 (10.05.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/745,022 7 May 2007 (07.05.2007) US

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, 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, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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(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, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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[Continued on next page]

(54) Title: FUEL CELL HYBRID-ELECTRIC HEAVY-DUTY VEHICLE DRIVE SYSTEM AND METHOD

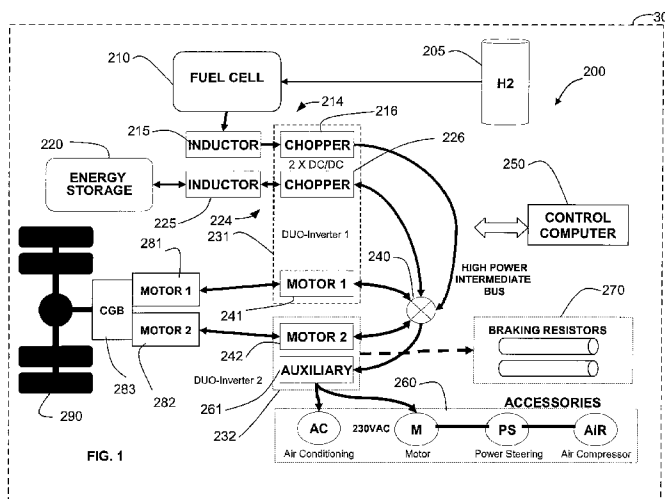


FIG. 1

(57) Abstract: A system and a method that provides fuel cell and energy storage hybrid-electric propulsion and control for a heavy-duty vehicle over 10,000 pounds GVWR. Power output is supplied from a fuel cell system to a high-power intermediate DC bus through a fuel cell DC/DC converter. Power output is supplied from an energy storage system to the high-power intermediate DC bus through a separate energy storage fuel cell DC/DC converter. The received power is combined on the high-power intermediate DC bus to create a stable voltage. The stable voltage from the high-power intermediate DC bus is supplied to one or more electric motors/generators to accelerate the heavy duty vehicle.

WO 2008/136836 A3



Published:

— *with international search report*

(88) Date of publication of the international search report:

2 April 2009

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 07/68632

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - B60K 6/00 (2008.01)
USPC - 180/65.2
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(8): B60K 6/00 (2008.01); USPC: 180/65.2

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 180/65.1-65.3,65.8; 429/12,13,23; 701/22 (keyword limited -- see keywords below)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST (PGPB,USPT,EPAB,JPAB); GOOGLE SCHOLAR: hybrid, weight, vehicle, heavy-duty, fuel cell, battery, ultracapacitor, flywheel, DC/DC, converter, second, IGBT, PEM, inductor, chopper, motor, state, hydrogen, regeneration, dissipate, external, auxiliary

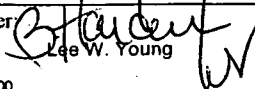
C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,885,920 B2 (YAKES et al.) 26 April 2005 (26.04.2005), entire document; Abstract; col 48, ln 30-56; col 5, ln 45-54; col 70, ln 12-18; col 51, ln 28-32; col 51, ln 25-29; Fig 32A, B; col 52, ln 7-18; col 51, ln 13-24; col 53, ln 32-48; col 12, ln 51-63, Fig 1; col 51, ln 25-32; col 70, ln 12-18; col 52, ln 7-18; col 54, ln 14-31; col 53, ln 32-48; Fig 26.	1-36
Y	US 6,646,418 B1 (XIE et al.) 11 November 2003 (11.11.2003), entire document; Abstract; col 2, ln 34-49; Fig 3; col 5, ln 30-40; col 3, ln 4-6.	1-36
Y	US 6,847,127 B1 (LEE) 25 January 2005 (25.01.2005), entire document; Abstract; col 4, ln 40-49; Fig 1; col 4, ln 56-67; Fig 1; col 3, ln 1-16; col 6, ln 15-39; Fig 3; col 6, ln 15-39; col 1, ln 60-62; col 6, ln 56-67; Fig 5.	1-36
Y	US 6,583,519 B2 (ABERLE et al.) 24 June 2003 (24.06.2003), entire document; Abstract; col 1, ln 38-43; col 2, ln 8-20; Fig 1; col 5, ln 61-col 6, ln 65; Fig 3; col 2, ln 21-29; col 6, ln 16-17; col 6, ln 55-65.	3, 5-7, 18-19, 22, 24-26, 35-36
Y	US 7,197,382 B2 (PREMA et al.) 27 March 2007 (27.03.2007), entire document; Abstract; col 3, ln 1-62; col 2, ln 6-25; col 4, ln 39-46.	12-16, 31-34
A	US 6,615,940 B2 (MORISAWA) 09 September 2003 (09.09.2003), entire document.	1-36
A	US 7,087,329 B2 (CONVERSE et al.) 08 August 2006 (08.08.2006), entire document.	1-36
A	US 6,777,909 B1 (ABERLE et al.) 17 August 2004 (17.08.2004), entire document.	1-36

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
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"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	

Date of the actual completion of the international search 08 February 2008 (08.02.2008)	Date of mailing of the international search report 28 MAR 2008
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