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(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, 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.

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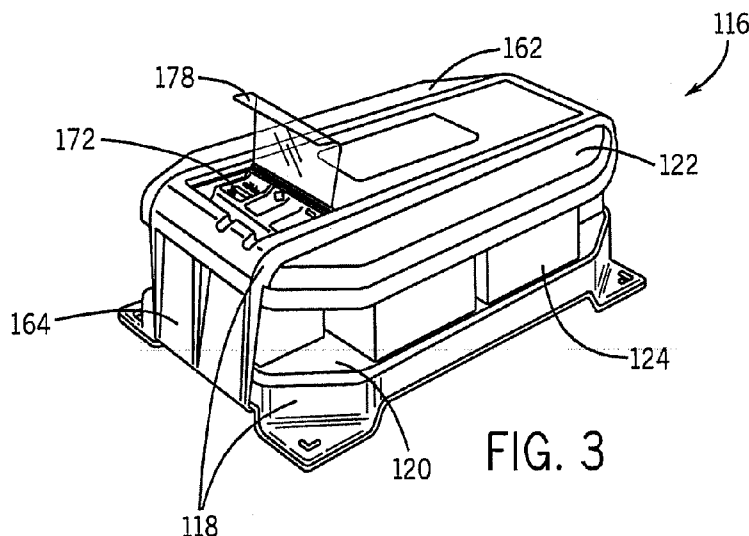
ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI,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

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: BATTERY SYSTEM, HOUSING & VEHICLE INCLUDING BATTERY SYSTEM



(57) Abstract: A battery system for use in a vehicle is disclosed. The battery system includes a tray having a plurality of battery receptacles. A plurality of batteries are also provided, each battery in the plurality of batteries being received in a battery receptacle. A conductive layer in electrical communication with the plurality of batteries and a terminal for electrically coupling to a vehicle are also provided in the battery system. A cover interlocks with the tray. The cover carries a computer and a diagnostic identification system for the plurality of batteries. A housing for a battery system and a vehicle including a battery system are also disclosed.



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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/050397

A. CLASSIFICATION OF SUBJECT MATTER
 INV. H01M2/10 B60K1/04 B60R16/04 H01M10/42
 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)
 H01M B60K B60R

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, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2010/136413 A1 (HERMANN WESTON ARTHUR [US] ET AL) 3 June 2010 (2010-06-03) paragraphs [0004], [0005], [0022], [0024], [0030] figures 1,2,7 abstract	1-5,7-10
Y	EP 2 187 465 A1 (TOSHIBA KK [JP]) 19 May 2010 (2010-05-19) paragraphs [0010], [0012], [0016], [0022] - [0024] figure 3	1-5,7-10
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 5 December 2012	Date of mailing of the international search report 14/03/2013
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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 Mercedes González
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/050397

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-10

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/050397

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2010/019764 A2 (JOHNSON CONTROLS SAFT ADVANCED [US]; FUHR JASON [US]; TRESTER DALE [US] 18 February 2010 (2010-02-18) paragraphs [0049] - [0051] figure 9 abstract	1-10
A	----- EP 2 202 824 A1 (PANASONIC CORP [JP]) 30 June 2010 (2010-06-30) paragraphs [0009] - [0012], [0036] - [0042] figures 4a,4b abstract -----	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/050397

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010136413 A1	03-06-2010	US 2010136413 A1 US 2012183826 A1	03-06-2010 19-07-2012
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EP 2202824 A1	30-06-2010	CN 101803063 A EP 2202824 A1 JP 2009211907 A KR 20100070322 A US 2010266880 A1 WO 2009110167 A1	11-08-2010 30-06-2010 17-09-2009 25-06-2010 21-10-2010 11-09-2009

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-10

Battery system for use in a vehicle comprising: a tray having a plurality of battery receptacles; a plurality of batteries, each battery in the plurality of batteries received in a battery receptacle from the plurality of receptacles; a conductive layer in electrical communication with the plurality of batteries and a terminal for electrically coupling to a vehicle; and a cover which interlocks with the tray, the cover carrying a computer, electrical access to the terminal, and a diagnostic identification system for the plurality of batteries

2. claims: 11-15

Housing for a battery system comprising: a tray having a plurality of receptacles sized to carry batteries, an elevated floor providing an area of clearance below the floor, and apertures in the receptacles in communication with the area of clearance; and a cover which interlocks with the tray, the cover having a leg which extends and couples to the tray

3. claims: 16-20

Vehicle comprising: a vehicle body having a power system coupled to driven wheels; a battery system docking area on the vehicle body having a drawer to rack system; a battery system movable on the drawer to rack system into and out of the docking area; and a self-docking plug-in system defined by an electrical coupling of the battery system and the power system in the docking area
