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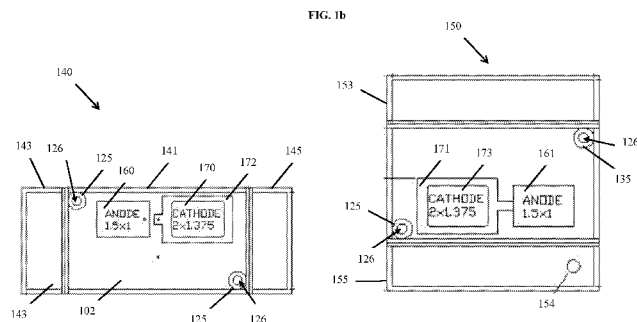
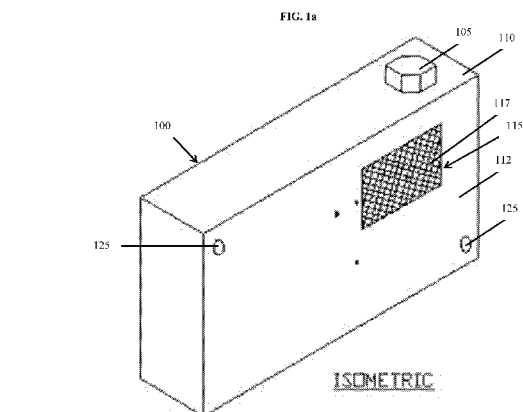
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[Continued on next page]

(54) Title: BATTERY CHARGER AND FUEL CELL



(57) Abstract: A non-electric battery charging fuel cell system that includes a fuel cell system with a closed internal chamber and at least one magnesium anode and a cathode pair that is electrically connected to eternally accessible battery positions designed to receive rechargeable batteries. The addition of saltwater to fill the fuel cell begins the generation of electricity to recharge batteries



SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— *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))*

Published:

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

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

15 November 2012

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/030190

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - H02J 7/00 (2012.01)

USPC - 320/138

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) - H01M 2/36, 10/44/ 10/52 12/08; H02J 7/00 (2012.01)

USPC - 320/101, 112, 138; 429/401, 498, 499

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)

PatBase, Google Patent, Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2006/0158150 A1 (YEN) 20 July 2006 (20.07.2006) entire document	1-31, 43-46
Y	US 7,442,334 B2 (HARA et al) 28 October 2008 (28.10.2008) entire document	10, 18-29
Y	US 2008/0166629 A1 (SHIAU) 10 July 2008 (10.07.2008) entire document	1-31
Y	US 5,362,577 A (PEDICINI) 08 November 1994 (08.11.1994) entire document	1-17, 20-21, 30-31, 43-46
Y	US 2009/0035653 A1 (SHIAU) 05 February 2009 (05.02.2009) entire document	43-46
Y	US 4,390,602 A (STRUTHERS) 28 June 1983 (28.06.1983) entire document	1-17, 30-31
Y	US 6,660,426 B2 (HAMPE et al) 09 December 2003 (09.12.2003) entire document	5-6, 22-23
A	US 6,123,854 (IWANE et al) 26 September 2000 (26.09.2000) entire document	1-31, 43-46
A	The Enviro-Gen 12 Saltwater Generator: An Ideal Power Source for Boaters, Campers, etc. Dragonet. 31 August 2010 (31.08.2010) [retrieved on 2012-08-31]. Retrieved from the Internet: <URL:http://dragonet.com/fhp/>. pages 1-4	

☐ Further documents are listed in the continuation of Box C.

* 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 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

31 August 2012

Date of mailing of the international search report

24 SEP 2012

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/030190

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 extra 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 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.:
1-31, 43-46

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.

Continuation of Box III.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-31, 43-46, drawn to a battery charger/fuel cell comprising a water tight body having at least one output gas opening defined in a wall of the body and sealingly covered by a gas-permeable, waterproof gas vent, a first cathode opening being defined in a front wall of the body and a second cathode opening being defined in a back wall of the body; a first anode affixed to an inside surface of the front wall of the body; a first cathode affixed to the inside surface of the front wall of the body and sealingly covering the first cathode opening, the first cathode being electrically connected to the first anode; a second anode affixed to an inside surface of the back wall of the body; a second cathode affixed to the inside surface of the back wall of the body and sealingly covering the second cathode opening, the second cathode being electrically separate from the second anode; a positive terminal connected to the second cathode and extending through and being affixed to the back wall of the body; a negative terminal connected to the second anode and extending through and being affixed to the back wall of the body.

Group II, claims 32-37, drawn to a battery charger/fuel cell comprising means for producing a current.

Group III, claims 38-42, drawn to a battery charger kit comprising a saltwater powered battery charger; and at least 1.5 teaspoons of salt.

The inventions listed as Groups I, II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: a water tight body having at least one output gas opening defined in a wall of the body and sealingly covered by a gas-permeable, waterproof gas vent, a first cathode opening being defined in a front wall of the body and a second cathode opening being defined in a back wall of the body; a first anode affixed to an inside surface of the front wall of the body; a first cathode affixed to the inside surface of the front wall of the body and sealingly covering the first cathode opening, the first cathode being electrically connected to the first anode; a second anode affixed to an inside surface of the back wall of the body; a second cathode affixed to the inside surface of the back wall of the body and sealingly covering the second cathode opening, the second cathode being electrically separate from the second anode; a positive terminal connected to the second cathode and extending through and being affixed to the back wall of the body; a negative terminal connected to the second anode and extending through and being affixed to the back wall of the body as claimed therein is not present in the invention of Groups II and III. The special technical feature of the Group II invention: means for producing a current as claimed therein is not present in the invention of Groups I or III. The special technical feature of the Group III invention: saltwater powered battery charger; and at least 1.5 teaspoons of salt as claimed therein is not present in the invention of Groups I or II.

Groups I, II and III lack unity of invention because even though the inventions of these groups require the technical feature of a battery charger using water to generate electricity and comprising a water tight body, and a rechargeable battery holder, this technical feature is not a special technical feature as it does not make a contribution over the prior art in view of US 2006/0158150 A1 (YEN) 20 July 2006 (20.07.2006) paragraphs [0012], [0013], [0015]; figures 1, 2A, 2B.

Since none of the special technical features of the Group I, II or III inventions are found in more than one of the inventions, unity of invention is lacking.