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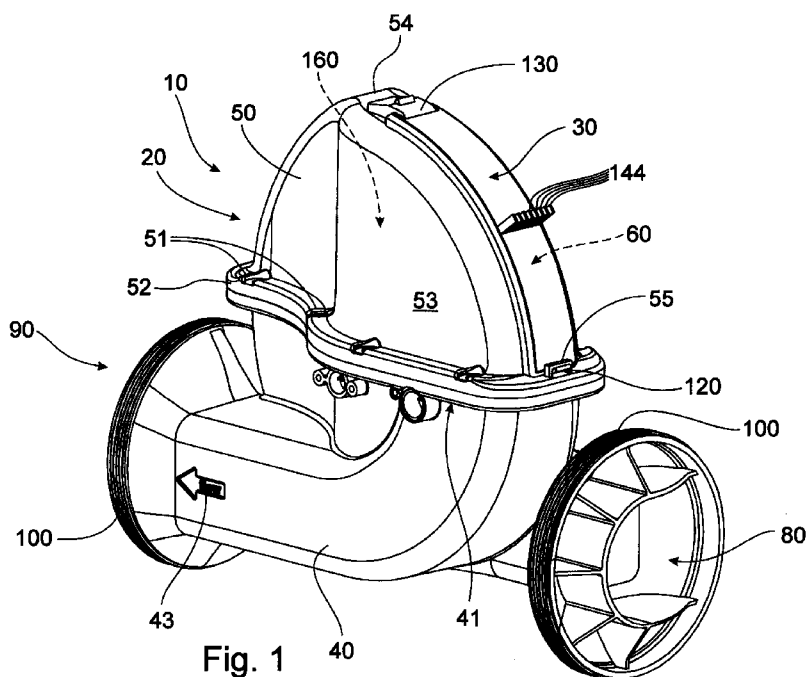
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[Continued on next page]

(54) Title: AN ELECTROLYTIC CELL AND AN ELECTRODE CARTRIDGE THEREOF



(57) Abstract: An electrolytic cell comprising, a housing having a channel extending there through and an opening formed in the housing for receiving an electrode cartridge, an inlet allowing water to pass into the channel, an outlet allowing water to pass from the channel, and a removable electrode cartridge comprising, a support member, having an outer side and an inner side, the support member being adapted to close off the opening in the housing when the electrode cartridge is received in the opening, and a series of separate spaced electrode plates supported by the support member, each electrode plate having a terminal which extends through the support member from the inner side to project from the outer side.



**(88) Date of publication of the international search report:**  
1 November 2012

## INTERNATIONAL SEARCH REPORT

International application No.

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|   |  |                       |
|---|--|-----------------------|
| <b>A. CLASSIFICATION OF SUBJECT MATTER</b>  |  |                       |
| C25B 9/00 (2006.01) C02F 1/461 (2006.01) C25B 1/26 (2006.01) C25B 11/02 (2006.01) H01M 4/70 (2006.01)   |  |                       |
| According to International Patent Classification (IPC) or to both national classification and IPC   |  |                       |
| <b>B. FIELDS SEARCHED</b>   |  |                       |
| Minimum documentation searched (classification system followed by classification symbols)   |  |                       |
| 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)<br>EPODOC & WPI: Invention 1 - C25B 1/24/IC/EC, C25B 1/26/IC/EC, C25B 11/02/IC/EC, C25B 9/IC/EC, C02F 1/461/LOW/IC/EC and key words: water, electrode, hold, attach, release and similar terms; Invention 2 - H01M 4/low/ic/ec and key words: unitary, tab and similar terms |  |                       |
| <b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>   |  |                       |
| Category*   | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. |
|   | Documents are listed in the continuation of Box C  |                       |
| <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> 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  | "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  |                       |
| "E" earlier application or patent but published on or after the international filing date   | "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   |                       |
| "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)   | "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 |                       |
| "O" document referring to an oral disclosure, use, exhibition or other means  | "&" document member of the same patent family  |                       |
| "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<br>03 August 2012   | Date of mailing of the international search report<br>06 August 2012   |                       |
| Name and mailing address of the ISA/AU<br>AUSTRALIAN PATENT OFFICE<br>PO BOX 200, WODEN ACT 2606, AUSTRALIA<br>Email address: pct@ipaustalia.gov.au<br>Facsimile No.: +61 2 6283 7999   | Authorized officer<br>Santosh Gupta<br>AUSTRALIAN PATENT OFFICE<br>(ISO 9001 Quality Certified Service)<br>Telephone No. 0262837947  |                       |

| INTERNATIONAL SEARCH REPORT                           |  | International application No. |
|---|--|-------------------------------|
| C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |  | PCT/AU2011/001098             |
| Category*   | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No.         |
| X   | US 6391167 B1 (GRANNERSBERGER) 21 May 2002<br>Whole document particularly abstract; col. 2, lines 27-41; Figure 1; claim 1   | 1-2, 4-7, 9-11                |
| Y   | Whole document particularly abstract; col. 2, lines 27-41; Figure 1; claim 1   | 8                             |
| X   | AU 60775/98 A (AQUATRONICS PTY LTD) 21 October 1999<br>& AU 765688 B2<br>Whole document particularly abstract; page 5, lines 8-10 & lines 13-15; page 9, lines 19-23 | 1-5, 9, 11-13                 |
| X   | EP 1014465 A1 (HUGHES ELECTRONICS CORPORATION) 28 June 2000<br>Abstract; Fig. 3A   | 14                            |
| Y   | Abstract; Fig. 3A  | 8                             |

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/AU2011/001098

## 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 Supplemental Box for Details**

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.:

### 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.

**Supplemental Box**

Continuation of: **Box III**

This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

This Authority has found that there are different inventions based on the following features that separate the claims into distinct groups:

- Claims 1-13 are directed to an electrolytic cell. The feature of housing; inlet and outlet of water; removable electrode cartridge supported by the support member; and connecting electrolytic cell to a power module is specific to this group of claims.
- Claim 14 is directed to an electrode. The feature of terminal tab being unitary with the plate portion and a cut-out portion is located within the plate portion of the same size and shape as the terminal tab is specific to this group of claims.

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

When there is no special technical feature common to all the claimed inventions there is no unity of invention.

In the above groups of claims, the identified features may have the potential to make a contribution over the prior art but are not common to all the claimed inventions and therefore cannot provide the required technical relationship. Therefore there is no special technical feature common to all the claimed inventions and the requirements for unity of invention are consequently not satisfied *a priori*.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/AU2011/001098**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

| <b>Patent Document/s Cited in Search Report</b> |                         | <b>Patent Family Member/s</b> |                         |
|---|-------------------------|-------------------------------|-------------------------|
| <b>Publication Number</b>                       | <b>Publication Date</b> | <b>Publication Number</b>     | <b>Publication Date</b> |
| US 6391167 B1                                   | 21 May 2002             | AU 745501 B2                  | 21 Mar 2002             |
|   |                         | AU 6317199 A                  | 08 Jun 2000             |
|   |                         | ES 2179722 A1                 | 16 Jan 2003             |
|   |                         | ES 2179722 B1                 | 01 Feb 2004             |
|   |                         | FR 2786761 A1                 | 09 Jun 2000             |
|   |                         | FR 2786761 B1                 | 10 Jan 2003             |
|   |                         | US 6391167 B1                 | 21 May 2002             |
|   |                         | ZA 9907445 A                  | 12 Oct 2000             |
| AU 60775/98 A                                   | 21 Oct 1999             | AU 765688 B2                  | 25 Sep 2003             |
|   |                         | AU 6077598 A                  | 21 Oct 1999             |
| EP 1014465 A1                                   | 28 Jun 2000             | EP 1014465 A1                 | 28 Jun 2000             |
|   |                         | JP 2000200611 A               | 18 Jul 2000             |

**End of Annex**