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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))

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24 February 2011

(54) Title: DEVICES FOR TREATING, SENSING, OR OTHERWISE ACTING UPON FLUID

(57) Abstract: Treating, sensing, diverting, measuring, and collecting devices for fluid such as water are described. When designed for use as chlorinators, the devices may divert water flowing in conduits into the devices for treatment and subsequent return to the flow stream. A return tube of the device may be designed to create vortex action, using a pressure differential to evacuate treated water from the device back into the conduit. When designed for use as feeders for supplying acid or other material to flowing water, the devices may include one or more channels communicating between the material and the flowing water. When designed for use as flow sensors or otherwise, the devices may include objects acted upon by flowing water to indicate that water indeed is flowing. Yet other sensors may be utilized to determine characteristics of water passing through the conduits.



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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER

INV. C02F1/00 E03B7/07
ADD. C02F1/76 C02F1/20 C02F103/42

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)

C02F E03B F16L

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	US 2002/153043 A1 (HILLYARD WILLIAM C [US]) 24 October 2002 (2002-10-24)	1,13
Y	paragraphs [0035] - [0043]; claim 1; figures 1-9	2-4
X	US 5 810 999 A (BACHAND STEVEN P [US] ET AL) 22 September 1998 (1998-09-22)	1,13
Y	column 3, line 23 - column 3, line 38; claims 1-11; figures 3,4	2-4
X	US 5 660 802 A (ARCHER DAVID D [US] ET AL) 26 August 1997 (1997-08-26)	1,13
Y	claims 1-15; figures 1-13	2-4
X	US 5 993 753 A (DAVIDSON DONALD R [US]) 30 November 1999 (1999-11-30)	1,13
Y	column 2, line 25 - column 4, line 54; claim 1; figure 1	2-4
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☒ 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

17 August 2010

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International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 680 026 B1 (DENKEWICZ JR RAYMOND P [US] ET AL) 20 January 2004 (2004-01-20) cited in the application claims 1-14; figures 1-6 -----	1-4,13
A	WO 2006/110799 A1 (ZODIAC POOL CARE INC [US]; KENNEDY GARY ANDREW [AU]; HIN RAYMOND ALBE) 19 October 2006 (2006-10-19) cited in the application claims 1-18; figures 1-7 -----	1-4,13
X,P	WO 2010/015924 A2 (ZODIAC POOL CARE EUROPE [FR]; ANDREWS CRAIG [AU]; HIN RAYMOND ALBERT []) 11 February 2010 (2010-02-11) page 4, line 1 - page 7, line 2; figures 1-5 -----	1,2,13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2010/001408

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.:

1-5, 13

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-5, 13

An assembly and the corresponding method for diverting liquid flowing at a first rate through a conduit comprising means for acting upon diverted liquid in the low-flow region.

2. claims: 6-11, 14

An assembly and the corresponding method for diverting liquid flowing at a first rate through a conduit comprising a chemical feeder communicating with a feeder port.

3. claim: 12

An assembly for diverting liquid flowing at a first rate through a conduit comprising a flow sensor.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2010/001408

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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