



(51) International Patent Classification:

B01D 21/00 (2006.01) *B01D 39/00* (2006.01)
B01D 35/027 (2006.01)

(21) International Application Number:

PCT/IB2018/056609

(22) International Filing Date:

29 August 2018 (29.08.2018)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1713842.1 29 August 2017 (29.08.2017) GB

(71) Applicant: **HYDROBLOX LIMITED** [GB/GB]; Unit 9 Office, Leeds Bradford Airport Industrial Estate, Harrogate Road, Leeds Yorkshire LS19 7WP (GB).

(72) Inventors: **HOPKINS, Carl**; 12 Hazel Drive, Harrogate Yorkshire HG3 INY (GB). **O'NEIL, Patrick**; 11 Glendowne Terrace, Harrogate Yorkshire HG1 3HG (GB). **GRIESER, Edward**; 824 Oak Road, Bradford Woods, Pennsylvania, Pennsylvania 15015 (US).

(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, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, 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, KM, ML, MR, NE, SN, TD, TG).

(54) Title: PERMEABLE SHEETS ATTACHED TO TANKS AND OR TANK APPARATUS

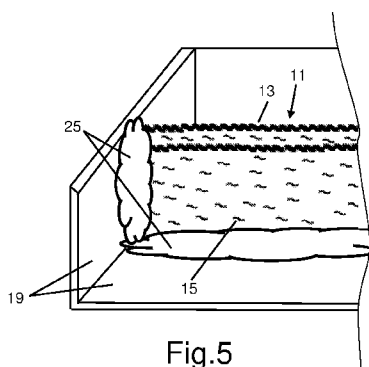


Fig.5

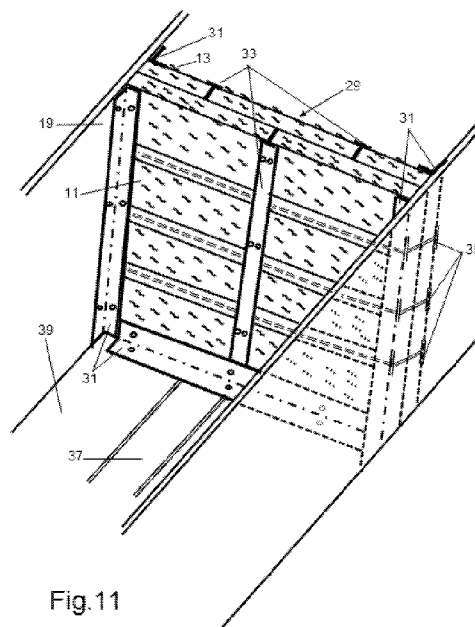


Fig.11

(57) Abstract: Permeable sheets attached to tanks and or tank apparatus A method of retaining solids in a tank system comprising the steps of: a) using a permeable copolymer nodule sheet 11 as a partition for retaining solids 29 from a suspension of the solids in a liquid; b) sealedly attaching said permeable copolymer nodule sheet 11 where any of its sides 13 make contact with the surface of said tank system 19.



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))*

(88) Date of publication of the international search report:
02 May 2019 (02.05.2019)

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2018/056609

A. CLASSIFICATION OF SUBJECT MATTER INV. B01D21/00 B01D35/027 B01D39/00 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) B01D		
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, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2017/233275 A1 (SEGroves THOMAS KYLE [US] ET AL) 17 August 2017 (2017-08-17) paragraphs [0018], [0028], [0076]; claims 1, 21; figures 1-5 -----	1-8, 11-13, 16, 18, 21, 22
X	WO 2004/076023 A1 (MADISON FILTER 981 LTD [GB]; ALLEN RICHARD FRAZER [GB]; JOHNSON JOSEPH) 10 September 2004 (2004-09-10) page 8, line 12 - page 9, line 2; figures 1-6 -----	21, 22
<input 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 "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 17 January 2019		Date of mailing of the international search report 22/03/2019
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 García Alonso, Nuria

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2018/056609

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.:

1-8, 11-13, 16, 18, 21, 22

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

Information on patent family members

International application No

PCT/IB2018/056609

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2017233275	A1	17-08-2017	NONE

WO 2004076023	A1	10-09-2004	NONE

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-8, 11-13, 16, 18, 21, 22

A method for retaining solids in a tank system by means of a permeable copolymer nodule sheet.

2. claims: 9, 15

A portable tank systems.

3. claim: 10

A tank system comprising non-leaching absorbent material.

4. claim: 14

A tank system comprising vibration means.

5. claim: 17

Method for sealing a permeable copolymer nodule sheet in a tank.

6. claims: 19, 20

Method for fabricating a permeable copolymer nodule sheet
