



(51) International Patent Classification:

BOW 24/46 (2006.01) BOW 24/22 (2006.01)

(21) International Application Number:

PCT/IB20 17/052 165

(22) International Filing Date:

14 April 2017 (14.04.2017)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

1606516.1 14 April 2016 (14.04.2016) GB

(71) Applicant: **I.D.E. TECHNOLOGIES LTD** [IL/IL]; Hamatechet St. Hasharon Industrial Park, 60920 Kadima (IL).

(72) Inventors: **LIBERMAN, Boris**; c/o I.D.E. Technologies Ltd, Hamatechet St. Hasharon Industrial Park, 60920 Kadima (IL). **LEVITIN, Vitaly**; c/o I.D.E. Technologies Ltd, Hamatechet St. Hasharon Industrial Park, 60920 Kadima (IL). **GREENBERG, Gal**; Hamatechet St. Hasharon Industrial Park, 60920 Kadima (IL).

(74) Agent: **FISHER, Zeev**; 32B Habarzel Street, 6971048 Tel Aviv (IL).

(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, 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: INTEGRATED UNIT FOR INTAKE AND PRETREATMENT WITH LOCAL BACKWASHING

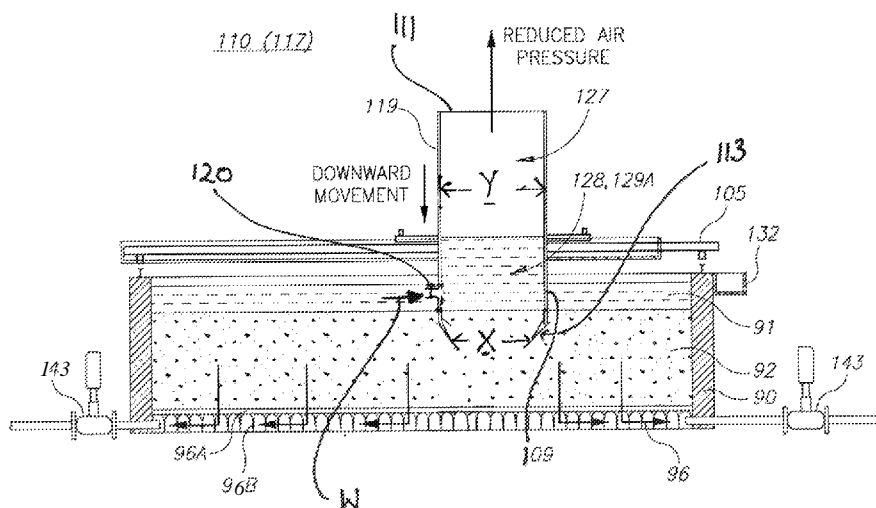


Figure 3A

(57) Abstract: Locally backwashing portions of filter media allows a simple and effective design of intake and pretreatment units, as well as their integration. An enclosure is used to limit portions of filter media and backwash them locally by suction, utilizing filtered water from adjacent filter media as the back wash water. Wastewater is produced at small amounts that allows efficient sludge treatment. This design enables water pretreatment at the intake unit, simplifying overall plant design and preventing damage to organisms living outside the intake unit.

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:

30 November 2017 (30.1 1.2017)

INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2017/052165

A. CLASSIFICATION OF SUBJECT MATTER
INV. B01D24/46 B01D24/22
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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 493 052 A (IDE TECHNOLOGIES LTD [IL]) 23 January 2013 (2013-01-23) the whole document -----	1-5 , 15
A	US 4 486 307 A (WEILER WALTER [DE]) 4 December 1984 (1984-12-04) column 2, line 24 - column 3, line 24 -----	1, 15
A	DE 41 12 237 Cl (FORSCHUNGSZENTRUM JÜLICH GMBH) 6 August 1992 (1992-08-06) column 2, line 19 - column 3, line 44 -----	1, 15



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 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

28 July 2017

Date of mailing of the international search report

17/10/2017

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

Tragousti s, Mari os

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2017/052165

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 2493052	A	23-01-2013	AU 2013217245 AI 18-09-2014 CL 2014002134 AI 24-10-2014 CN 104245081 A 24-12-2014 GB 2493052 A 23-01-2013 US 2015034569 AI 05-02-2015 Wo 2013118031 AI 15-08-2013
US 4486307	A	04-12-1984	CA 1193979 A 24-09-1985 DE 3138676 AI 14-04-1983 US 4486307 A 04-12-1984
DE 4112237	Cl	06-08-1992	AT 157554 T 15-09-1997 DE 4112237 Cl 06-08-1992 DE 59208838 DI 09-10-1997 DK 0509345 T3 14-04-1998 EP 0509345 A2 21-10-1992

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2017/052165

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 , 15

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, 15

Claim 1 is directed to a local backwashing apparatus which comprises conventional features (known from GB-A- 2493052) defined in the preamble of claim 1. The novel features are defined in the characterising part of claim 1: the free ends of the side walls of the enclosure converging to provide an open lower end with a smaller cross sectional area than the upper part of the enclosure. Said features solve the problem of enhancing the movement of the filter media into the enclosure during backwashing.

2. claims: 6-10, 16, 18

Independent claim 6 is directed to a local backwashing apparatus and comprises in its preamble the same conventional features (known from GB-A-2493052) that are defined in the preamble of claim 1. The novel features are defined in the characterising part of claim 6: the enclosure is provided with a water inlet for selective delivery of water from outside the enclosure to within the enclosure during sinking of the enclosure into the filter media. Said features solve the problem of reducing the stickiness of the filter media (sand) and facilitating the embedding of the side walls of the enclosure in the filter media.

Claim 18 defines a corresponding backwash method.

3. claims: 11-14, 17, 19

Independent claim 11 is directed to a local backwashing apparatus and comprises in its preamble the same conventional features (known from GB-A- 2493052) that are also defined in the preamble of claim 1. The novel features are defined in the characterising part of the claim: the enclosure is connected to a mechanical member configured to forcibly drive the enclosure into the filter media and release said force prior to contact of the lower end of the enclosure with the drainage layer, the lower end of the enclosure being brought into contact with the drainage layer through a pressure differential between the interior and exterior of the enclosure.

Said characterising features solve the problem of improving the sealing of the enclosure within a sub-area of the filter enabling the enclosure to land softly on the drainage layer. Claim 19 defines a corresponding backwashing method.
