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(72) Inventor; and

(71) Applicant : REVANKAR KRISHNA PRASAD, Panduranga [IN/IN]; #1826 (Upstairs), 2nd Cross, Sampige Road, Malleshwaram, Bangalore 560003, Karnataka (IN).

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(54) Title: A DEVICE AND METHOD TO SEPARATE AT ENTRY POLLUTED WATER FROM CLEAN WATER AND TREAT IT INSIDE A RIVER AND INSIDE A LAKE

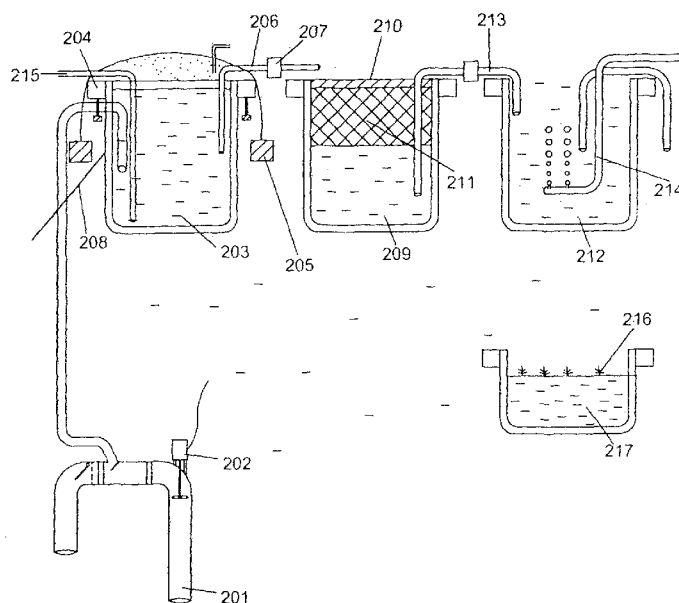


FIGURE-3 SYSTEM VIEW OF ENTIRE DEVICE

(57) Abstract: A device system to separate at entry polluted water from clean water and treat it inside a river and inside a lake by apportionment of a river and a lake for polluted water, using plastic film barrier based chambers for separation, storage and treatment (203, 209, 212, 217), open and closed channels for separating flow with isolator connector, sediment suction and concentrator (201), river flow based concentrator, compressed air generator powered from windmill, water drops and muscle power, biogas driven engine and electric power used for aeration and membrane filtration in tertiary treatment, separate flow of pollutants to outside city enabling clean areas in river and lake for use in cities for various activities. A low infrastructure cost solution, using renewable energy generated from waste, utilizing waste plastic of the cities to solve the pollution and water problem.

INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER IPC: C02F 1/74 (2012.01); C02F 3/00 (2012.01); C02F 9/04 (2012.01); C02F 9/14 (2012.01); C02F 11/02 (2012.01); B01D 21/00 (2012.01); B01D 29/00 (2012.01); E03F 5/14 (2012.01) 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, B01D, E03F 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) EPODOC, WPI, X-FULL		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 20110008449 A (Kim Song Yi) 27Woc January 2011 (27.01.2011) Abstract; Description, [0050], [0051], [0054] - [0056]; Fig. 1, 4 - 6; Claims 1, 11	2, 3, 6, 7, 9
A	US 6258274 B1 (Wu) 10 July 2001 (10.07.2001) Abstract; Description, col. 2, 1. 26 - 50, 59 - 67, col. 3, 1. 1 - 48, 61 - 67, col. 4, 1. 25 - 46; Fig. 2; Claims 1, 2, 5, 9 - 11	2, 3, 6, 8, 10
A	GB 2340416 A (Barnett et al.) 23 February 2000 (23.02.2000) Abstract; Description; Fig. 1, 2; Claims 1, 5	3, 6
A	WO 2009128090 A2 (Revankar Krishna Prasad) 22 October 2009 (22.10.2009) Abstract; Description, [0019] - [0023]; Fig. 2, 12; Claims 1, 4 - 8	4, 5, 8, 10
☒	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		Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

International application No.

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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.: 1 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: The claim or claims shall define the matter for which protection is sought. Claims shall be clear and concise (Art. 6 PCT). According to rule 6.3 (a) under the PCT, the definition of the matter for which protection is sought shall be in terms of the technical features of the invention. Claim 1 concerns a device system for separating and treating polluted water of rivers or lakes by apportionment of said waters using plastic film barriers. Following, said device system is characterized by an incoherent listing of numerous means in principle known in the field of water purification, though without revealing any operational linkage between these means. For that reason, the number of possible implementations of claim 1 is so unmanageable and the formulation of claim 1 is so unclear that no meaningful research of claim 1 could be accomplished. 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: Group A: Claims 1 - 8, 10 Group B: Claim 9 Group C: Claim 11 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 only those claims for which fees were paid, specifically 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.	

INTERNATIONAL SEARCH REPORT

International application No.

PCT / IN 2012/000088

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 9961379 A1 (Koloumbis) 02 December 1999 (02.12.1999) Abstract; Description, p. 2, l. 21 - 29, p. 3, p. 4, l. 1 - 20; Fig. 1 - 4; Claims 1, 2, 4, 5	5
A	US 6231766 B1 (Hausin) 15 May 2001 (15.05.2001) Abstract; Description, col. 1, l. 66 - 67, col. 2, l. 1 - 7, 58 - 67, col. 3, l. 1 - 3, 16 - 24, col. 9, l. 48 - 67, col. 10, l. 1 - 19; Fig. 1, 14; Claims 1, 2	6, 7, 9
A	US 6290852 B1 (Heine et al.) 18 September 2001 (18.09.2001) Abstract; Description, col. 4, l. 39 - 67, col. 5, l. 1 - 16, 37 - 51; Fig. 1; Claims 1, 3, 4, 9 - 13	6, 11
A	US 4350589 A (Stog) 21 September 1982 (21.09.1982) Abstract; Description, col. 3, l. 53 - 68, col. 4, col. 5, l. 1 - 19; Fig. 1, 2, 6, 7; Claims 1 - 6	6

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT / IN 2012/000088

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