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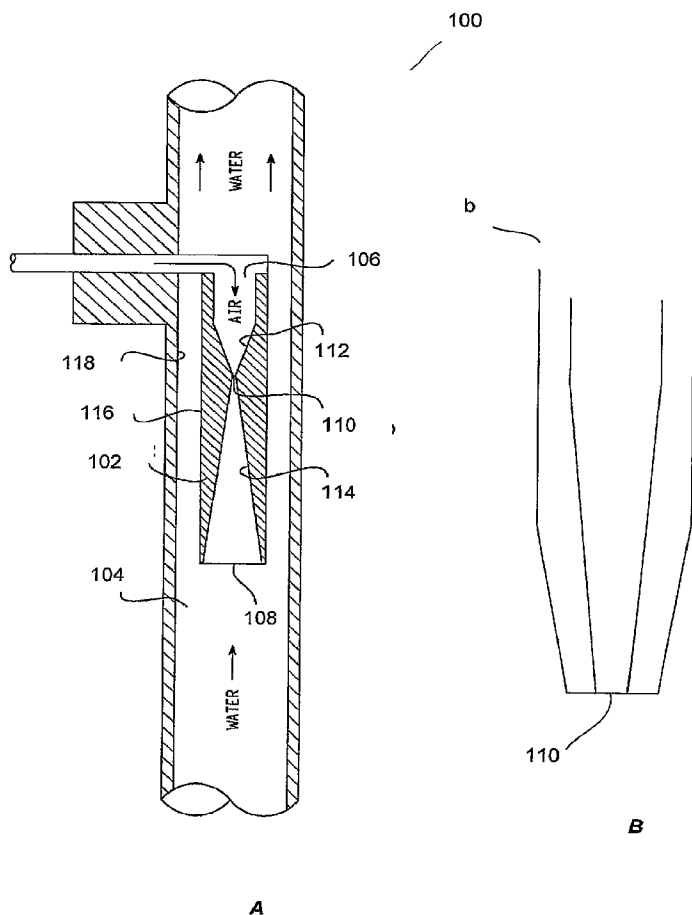
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[Continued on next page]

(54) Title: A SYSTEM AND METHOD FOR ALTERATION OF GAS CONTENT OF A LIQUID



(57) Abstract: The subject application is directed to a system and method for alteration of gas content in a liquid. The system includes a flow-through device, such as a vena contracta, converging/diverging nozzle, or orifice plate, which allows the saturation of a gas in water to exceed 100 percent. A flow of water is directed toward the outlet end of the flow-through device and a flow of gas is directed into the inlet end thereof. The flow of air passes through an orifice in the flow-through device and creates a shock wave adjacent the outlet end thereof. The shock wave creates a mass transfer interface permitting the super-saturation of gas in the water. The supersaturated water then exits past the flow-through device for discharge through a piping system into a pond, water reservoir or such containment area as is required by a particular application.



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/61756

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **B01F 3/04**(2006.01)

USPC: 261/76,117

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)

U.S. : 261/75,76,77, 115,117,118

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)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2,514,529 A (WEBER) 11 July 1950 (11.07.1950), the figure.	1-30
Y	US 4,483,805 A (GLINDSJO) 20 November 1984 (20.11.1984), figs. 1 and 2; col. 1, lines 43-46.	4,6,13,15,19,21,28,30
A	US 5,935,490 A (ARCHBOLD et al) 10 August 1999 (10.08.1999), fig. 5.	1-30
A	US 5,971,063 A (TREPPLER) 26 October 1999 (26.10.1999), fig. 3.	1-30
A	US 6,082,712 A (CINCOTTA et al) 04 July 2000 (04.07.2000), fig. 5.	1-30
X	US 2003/0122266 A1 (NAU et al) 03 July 2003 (03.07.2003), figs. 1, 2; [0020].	1-3,5,7-12,14,16-18,20,22-27,29
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Y		4,6,13,15,19,21,28,30

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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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 2004/0217491 A1 (CHAPMAN et al) 04 November 2004 (04.11.2004), fig. 1.	1-30

INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:

EAST Search Terms: liquid, gas, injector, constriction, venturi, oxygen, water, steam, opposite, opposed, conduit, interface, shockwave