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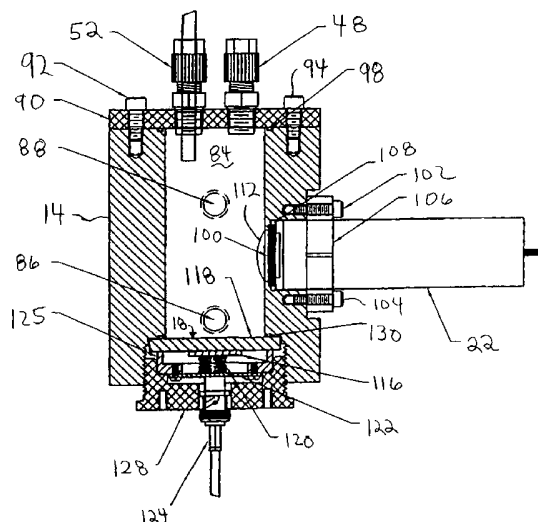
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(54) Title: METHOD AND APPARATUS FOR CAVITATION THRESHOLD CHARACTERIZATION AND CONTROL



(57) Abstract: An apparatus and method for characterizing cavitation that occurs in a fluid exposed to acoustic energy. The apparatus comprises a vessel (14) for holding the fluid; an acoustic energy generating means (118) for generating acoustic energy, the acoustic energy generating means (118) being positioned to transmit the acoustic energy into the fluid while the fluid is held in the vessel (14); and a cavitation detection means (22) for detecting cavitation in the fluid held in the vessel (14). In a preferred embodiment, the cavitation detection means (22) comprises a light detection means, such as a photomultiplier tube, that detects sonoluminescent emission from the fluid. The method comprises the steps of exposing a volume of process fluid to acoustic energy at a specified power level; measuring the photon output from the fluid over a period of time; and when the photon output deviates from a desired level, initiating a remedial step to bring the photon output back to approximately the desired level.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/33180

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H01L 41/08

US CL : 310/316.01, 316.02, 317, 328; 73/571, 584, 590

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. : 310/316.01, 316.02, 317, 328; 73/571, 584, 590

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Please See Continuation Sheet

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO, DERWENT, JPO, USPG-PUBS, USPAT, IBM-TDB, all via EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3,443,797 A (Branson) 13 May 1969 (13.05.1969), Figures 1-3, column 2, lines 26-50, claims.	1, 4, 6
Y		2, 3, 5, 7, 8
Y	DE 10244387 A1 (Ueberle) 01 April 2004 (01.04.2004) Abstract	2
Y	US 3,647,387 A (Benson et al.) 07 March 1972 (07.03.1972), column 2, lines 26-36.	2, 3
Y	US 5,367,497 A (Marschall) 22 November 1994 (22.11.1994), claim 1	5
Y	US 6,220,472A (Townsend et al.) 24 April 2001 (24.04.2001), claim 1.	7
Y	US 6,655,922 B1 (Flek) 02 December 2003 (02.12.2003), figure 3.	8

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

☐ See patent family annex.

* Special categories of cited documents:	"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
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"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		

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INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 2:

internet search of: european patent office via esp@cenet; WIPO via PCT Gazette Search; CIPO via Canadian Patent Office; JPO via Japanese Patent Office