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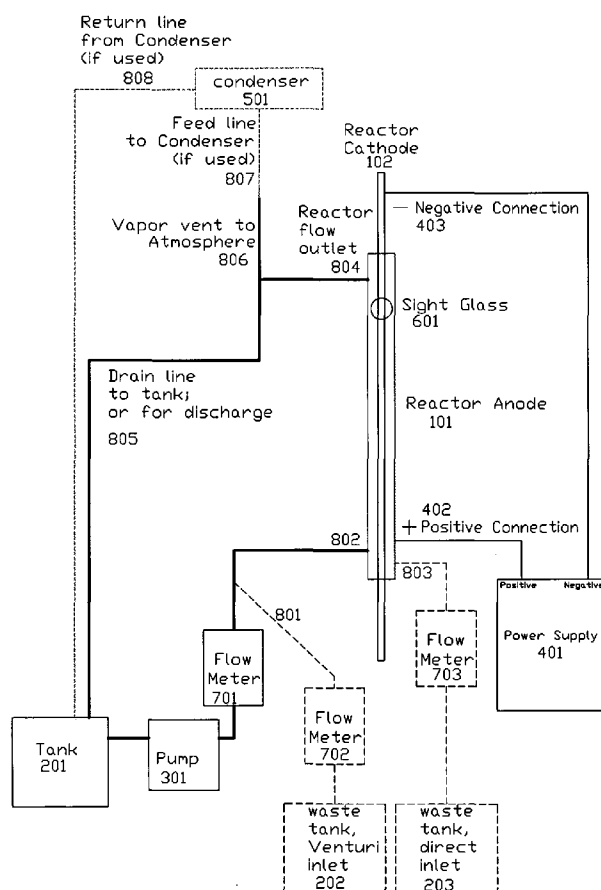
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[Continued on next page]

(54) Title: TREATMENT OF FLUIDS AND/OR SLUDGE WITH ELECTRO PLASMA



(57) Abstract: A process for the treatment and/or removal of contaminants from a waste water, waste stream, industrial or municipal sludge, metals, oils, organics and other materials consider to be harmful to the environment are removed from the feed stock; in the case of non-metals, mineralized and in the case of metals, plated to the cathode. The present invention provides an apparatus and methods which overcome some of the problems associated with the treatment of wastewater and sludge and offers a new, novel approach to the treatment of waste, by employing the use of electroplasma processing which utilizes aspects of ultraviolet blue light, thermal energy, cavitation, flocculation, aeration, and electrical energy. The ability to control flow rates, energy density, cavitation density, aeration density and heat generation within the system offers a new level of control over different materials for treatment of waste, contaminants or metals within the same process and apparatus.



European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, 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/US05/14382

A. CLASSIFICATION OF SUBJECT MATTER

IPC: C02F 1/46(2007.01);B01J 19/12(2007.01);C23C 16/00(2007.01)
C02F 1/48(2007.01)

USPC: 204/164,165;422/186.04,22

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. : 204/164, 165; 422/186.04, 22

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)

WEST: Glow near3 discharge and (wastewater or sewage)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,876,663 A (LAROUSSI) 02 March 1999 (02.03.1999) see figures 1-4 and columns 4 and 5.	1-19
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Y		20-22
Y	US 2003/0101936 A1 (LEE) 05 June 2003 (05.06.2003) see figures 1a and claims 1-27.	20-22

☐ 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	"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
"E" earlier application or patent published on or after the international filing date	"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
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

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