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(54) **Title:** METHOD AND APPARATUS FOR DEPOSITING AGENTS UPON AND WITHIN BIO-CHAR

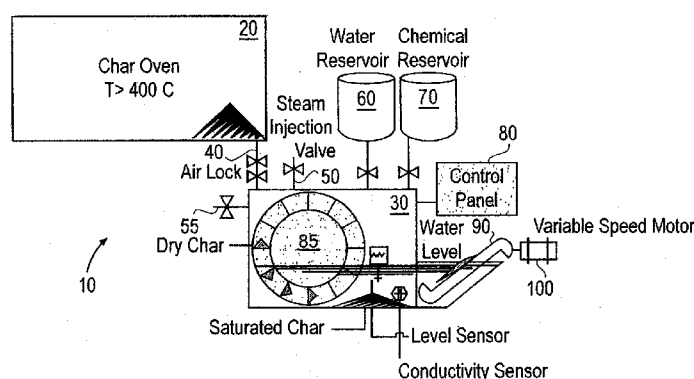


FIG. 1

(57) **Abstract:** Methods and apparatuses for depositing agents relatively deep within pores of bio-char. Bio-char is first produced in an airtight oven by heating biomass feedstock. The bio-char is then cooled and steam is diffused into the pores of the bio-char. The steam-laden bio-char is immersed in a liquid bath containing soluble agents that are to be deposited in the pores of the bio-char. The liquid bath cools the char to below the condensation temperature of the steam, whereupon the condensing steam generates a partial vacuum within the pores, drawing the liquid into the pores. The bio-char is then removed from the liquid bath and dried so that the liquid within the pores evaporates, leaving behind the soluble agent. Accordingly, the invention yields bio-char that has soluble agent embedded relatively deep within its pores.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2009/068285**A. CLASSIFICATION OF SUBJECT MATTER****C10L 5/44(2006.01)i, C01B 31/00(2006.01)i**

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)

C10L 5/44; B01J 10/00; C07C 4/00; C10L 5/00

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords:bio char, pore, deposit, gas mixture

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2006-0096167 A1 (DONALD DUNLOP) 11 May 2006 See the abstract, fig.1 ~ 6, paragraph [51] - paragraph [130], whole claims	1-29
A	US 2002-0035307 A1 (HAROLD J. VINEGAR et al.) 21 March 2002 See the abstract, paragraph [23] - paragraph [87]	1-29
A	US 2004-0192980 A1 (BRIAN S. APPEL et al.) 30 September 2004 See the whole document	1-29

☐ 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

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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