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(54) Title: SUSPENDED SOLIDS SEPARATION SYSTEMS AND METHODS

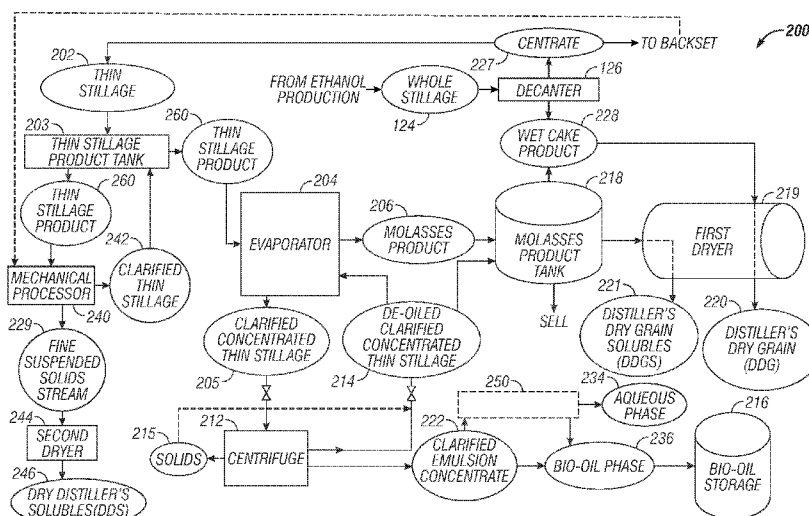


FIG. 2

(57) Abstract: A method that includes clarifying a thin stillage product in a mechanical processor to produce a fine suspended solids stream and a clarified thin stillage is provided. The method further includes providing the thin stillage product and the clarified thin stillage, separately or in a combined stream, to one or more evaporators to produce one or more reduced suspended solids streams, each stream having a reduced amount of suspended solids and a lower viscosity as compared to process streams having a comparable total solids content but containing a higher amount of suspended solids. The method can further include further processing of one or more of the reduced suspended solids streams to produce a bio-oil product.

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A. CLASSIFICATION OF SUBJECT MATTER*B01D 17/00(2006.01)i, B01D 1/00(2006.01)i, C10G 3/00(2006.01)i, C10L 1/02(2006.01)i, C07C 31/02(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)

B01D 17/00; C11B 1/00; A23K 1/06; C12M 3/00; B01D 61/58; C12P 7/06

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 oil, thin stillage, evaporator, clarify

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	WO 2010-138110 A1 (FLUID-QUIP, INC. et al.) 02 December 2010 See paragraphs [00077]-[00080];and figure 2.	22 1-3, 8-9, 11, 13-17 , 19-20, 23, 32-35 4-7, 10, 12, 18, 21 , 24-31
Y A	US 05250182 A (BENTO, J. M. A. et al.) 05 October 1993 See abstract; columns 9-10;and figure 1.	1-3, 8-9, 11, 13-17 , 19-20, 23, 32-35 4-7, 10, 12, 18, 21, 22 , 24-31
Y A	US 2007-0036881 A1 (GRIFFITH, C. R.) 15 February 2007 See abstract; paragraphs [0006]-[0013];and figure 1.	11 1-10, 12-35
A	US 2004-0087808 A1 (PREVOST, J. et al.) 06 May 2004 See abstract; paragraphs [0033]-[0035]; claim 1;and figure 1.	1-35

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

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"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

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010-138110 A1	02.12.2010	CA 2763467 A1 US 2012-064213 A1	02.12.2010 15.03.2012
US 05250182 A	05.10.1993	None	
US 2007-0036881 A1	15.02.2007	None	
US 2004-0087808 A1	06.05.2004	AU 2003-284371 A8	25.05.2004