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EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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(54) Title: BIOMASS DIGESTER SYSTEM & PROCESS

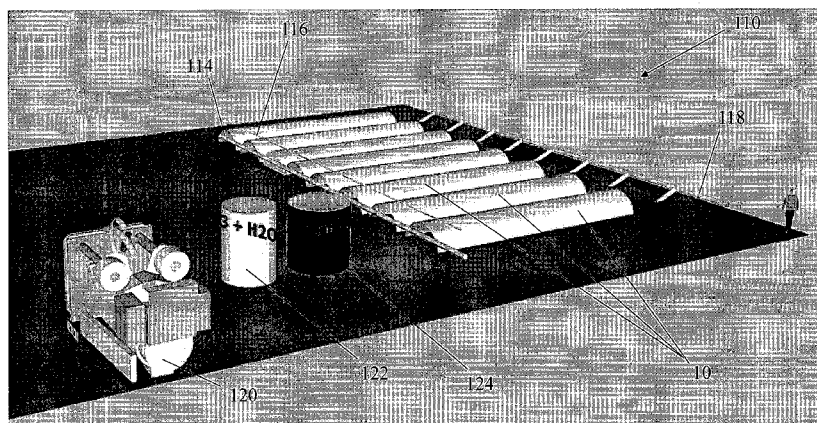


FIG. 2

(57) Abstract: A biomass digester system for generating biogas includes a battery of flexible, elongate digesters (10), at least one common biogas accumulator, connection means for connecting the digesters in gaseous communication with the accumulator and valve means fitted to the connection means, for adjusting flow of the biogas through the connection means thereby to permit a digester to be disconnected from the accumulator and taken offline. Each digester may include a flexible bag adapted to withstand pressure of the order of two bars, an inlet for biomass and an outlet for biogas. Also provided is a process for producing biogas from biomass.



INTERNATIONAL SEARCH REPORT

International application No
PCT/ZA2008/000122

A. CLASSIFICATION OF SUBJECT MATTER

INV. C12M1/107 C12M1/00 C12P5/02

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)

C12M B09B C12P

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/062497 A (BAG INTERNAT LTD AG [US]) 15 August 2002 (2002-08-15)	17-30
Y	page 2, line 14 - line 25 page 5, line 25 - page 8, line 12 figures 2-6	1-16
X	DE 32 28 391 A1 (NEUBAUER JOSEF) 5 January 1984 (1984-01-05) page 10, line 22 - page 11, line 8 figure 5	17-30
X	GB 1 452 781 A (OXFAM ACTIVITIES LTD) 13 October 1976 (1976-10-13) page 1, line 56 - page 2, line 31 figure 2	17-30
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☒ 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

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"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

"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

"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

"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

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No

PCT/ZA2008/000122

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2007/130513 A (NASA [US] US OF AMERICA AS REPRESENTED B [US]) 15 November 2007 (2007-11-15) cited in the application claims 1-20 -----	17-30
Y	EP 1 681 274 A (ORGAWORLD B V [NL]) 19 July 2006 (2006-07-19) claims 7,8,12,13 -----	1-16
A	EP 1 362 924 A (LINDE KCA DRESDEN GMBH [DE]) 19 November 2003 (2003-11-19) claim 1 -----	1-16

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ZA2008/000122

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see additional sheet(s)

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-6,7-16(partially),17-30

A digester for conversion of biomass into biogas comprising a flexible bag without sludge access ports and a method for generating biogas using a digester including a flexible bag.

2. claims: 31,32

A method of manufacturing a biomass digester using a flexible polymeric material.

3. claims: 7-16(partially),33-35

A retaining wall for supporting a flexible digester.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/ZA2008/000122

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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GB 1452781	A	13-10-1976	NONE	
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EP 1681274	A	19-07-2006	CA 2533213 A1	17-07-2006
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