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GW, ML, MR, NE, SN, TD, TG).

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- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

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(54) Title: MEASURING GAS LOSSES AT A RIG SURFACE CIRCULATION SYSTEM

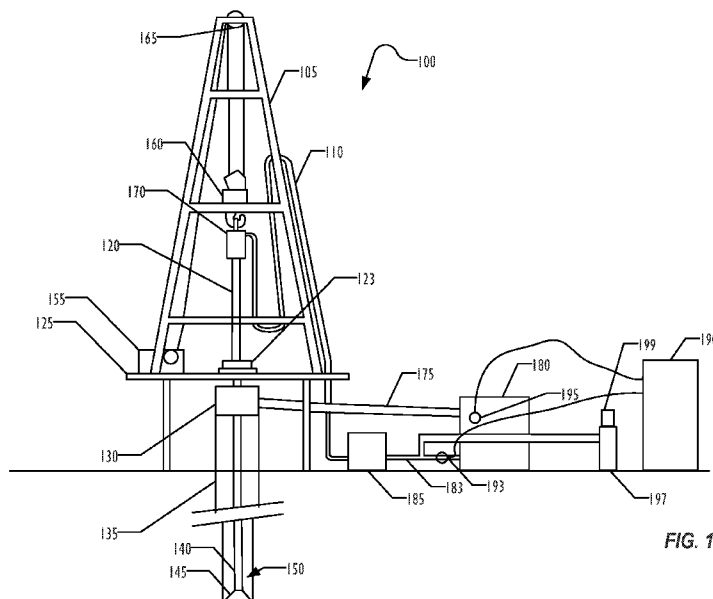


FIG. 1

(57) Abstract: A technique for improving the capability of measuring gas losses at the rig surface area uses a predetermined quantity of a preselected gas injected into the drilling fluid used in the drilling rig, which is then detected and compared to measure the gas loss. Various embodiments may use special-purpose gases. Other embodiments may use air or components of air, such as nitrogen or oxygen, as the gas to be detected and measured.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/27686

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G01N 23/04 (2012.01)

USPC - 73/19.09

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)

IPC(8): G01N 23/04 (2012.01)

USPC: 73/19.09

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

IPC(8): G01N 23/04 (2012.01)

USPC: 73/19.01, 19.02, 19.09

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

PubWEST; PGPB, USPT, EPAB, JPAB; Google Scholar; Google Patent; Search Terms: Gas rig well drill string carrier pill tracer volume fraction flow fluid mud pump valve surface platform casing borehole wellhole column analyze chromatograph fraction flow rate shale formation possum belly shaker table head bell acetylene methane nitrogen oxygen computer

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2011/0000294 A1 (Kimour et al.) 06 January 2011 (06.01.2011) para. [0002] through [0135], Fig. 1-5	1-25
Y	US 2010/0198533 A1 (Peacock et al.) 05 August 2010 (05.08.2010) para. [0020] through [0085], Fig. 1-5	1-25
Y	US 2010/0139386 A1 (Taylor) 10 June 2010 (10.06.2010) para. [0005], [0006], [0035], [0036], [0038]	4-6, 9 and 16
A	US 4,765,182 A (Boone) 23 August 1988 (23.08.1988) entire document	1-25
A	US 2010/0089120 A1 (Hanson) 15 April 2010 (15.04.2010) entire document	1-25
A	US 7,844,400 B1 (Selman et al.) 30 November 2010 (30.11.2010) entire document	1-25

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

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