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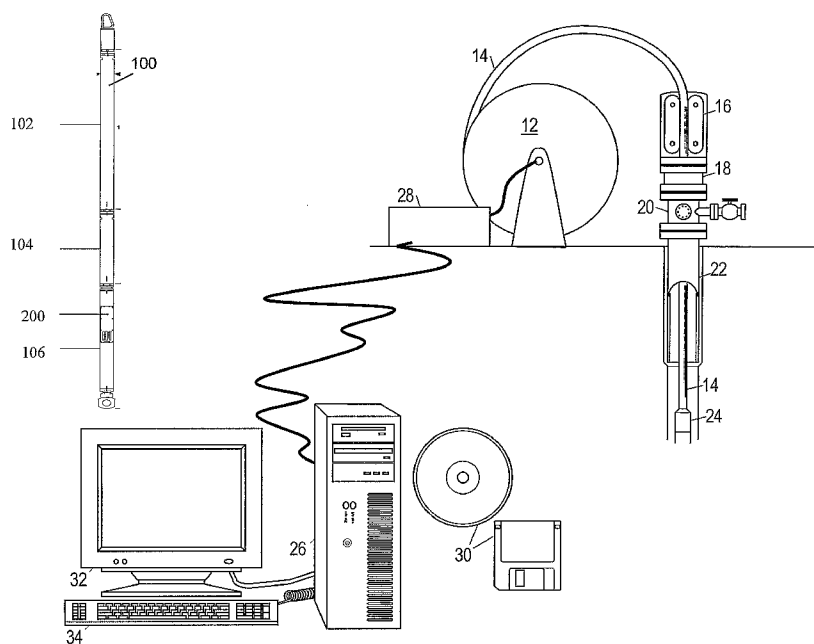
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4 September 2008

(54) Title: ULTRASONIC IMAGING IN WELLS OR TUBULARS



(57) Abstract: An ultrasonic imaging method is provided. A wideband acoustic pulse is fired at a wall. A wideband response signal is received. The wideband response signal is processed to select an impedance measurement frequency. A wavelet having a characteristic frequency approximately equal to the impedance measurement frequency is fired. A wavelet response signal is received. A reflection coefficient is determined from the wavelet response signal. An impedance measurement is calculated from the reflection coefficient. Related tools and systems are also disclosed.

WO 2007/015796 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/27629

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G01V 1/00 (2007.1)

USPC - 367/28

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)

USPC: 367/28

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

USPC: 367/7, 9, 14, 21, 38; 702/14, 16, 39, 51

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

PubWEST(USPT,PGPB,EPAB,JPAB); Google Scholar

Search Terms: Ultrasonic, acoustic imaging, transducer, borehole, pulse, wavelet, well

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,874,676 A (MAKI, JR.) 23 February 1999 (23.02.1999), entire document, especially FIG. 1 and 8, col 6, ln 40-49, col 7, ln 1-3, col 10, ln 7-17	12 and 15

Y		13-14, 17, 19-20
Y	US 6,125,079 A (BIRCHAK et al.) 26 September 2000 (26.09.2000), entire document, especially FIG. 5 and col 38, ln 30-37	14, 20
Y	US 6,661,737 B2 (WISNIEWSKI et al.) 09 December 2003 (09.12.2003) entire document, especially col 6, ln 61-67 and col 8, ln 27-45)	1-2, 6-7, 9-11, 13, 17, 19
Y	US 6,041,861 A (MANDAL et al) 28 March 2000 (28.03.2000) entire document, especially col 3, ln 15-55, col 6, 34-41	1-2, 6-7, 9-11
Y	US 3,343,627 A (SCHRODER) 26 September 1967 (26.09.1967) entire document, especially Abstract	7
A	US 2003/0147480 A1 (RICHARDS et al) 07 August 2003 (07.08.2003) entire document	3, 4, and 8

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


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"P" document published prior to the international filing date but later than the priority date claimed

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"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

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