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[Continued on next page]

(54) **Title**: SYSTEM, APPARATUS AND METHOD FOR GUIDING A DRILL BIT BASED ON FORCES APPLIED TO A DRILL BIT

(57) **Abstract**: The present disclosure relates to a system, apparatus and method for guiding a drill bit based on forces applied to a drill bit, and drilling methods related to same.

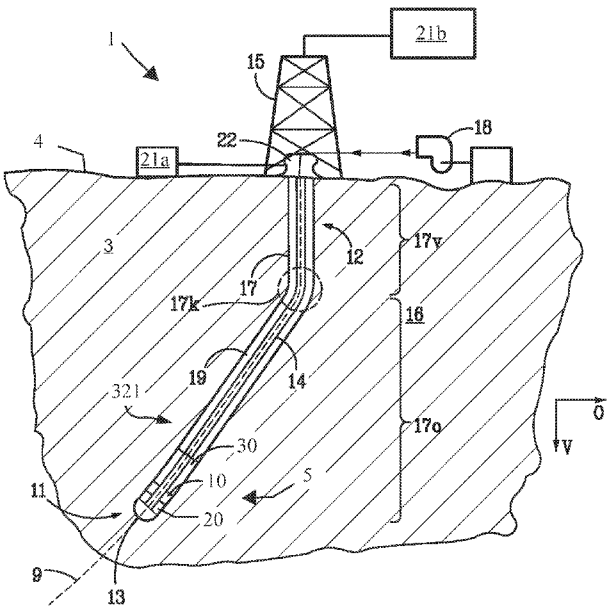


FIG. 1

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Declarations under Rule 4.17:

— *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))*

Published:

— *with international search report (Art. 21(3))*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - E21B 47/01 (2015.01)
CPC - E21B 47/0006 (2015.04)
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) - E21B 7/10, 44/00, 47/00, 47/007, 47/01 (2015.01)
CPC - E21B 7/04, 44/00, 44/005, 47/00, 47/0006, 47/01 (2015.04) (keyword delimited)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC - 73/152.48; 175/40, 45, 61

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

Orbit, Google Patents, Google Scholar, Google.com, YouTube.com
Search terms used: strain gauge, telemetry, force, bending, path, guidance, controller, steer, drill bit

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 8,397,562 B2 (WASSELL et al) 19 March 2013 (19.03.2013) entire document	1, 8
Y		2-7, 9, 17-19, 25, 29, 35
X	US 2005/0150689 A1 (JOGI et al) 14 July 2005 (14.07.2005) entire document	10-13, 20, 22-23, 27
Y		2-7, 9, 14-16, 19, 21, 25, 28-33, 35
Y	US 6,057,784 A (SCHAAF et al) 02 May 2000 (02.05.2000) entire document	14-16, 19, 21, 28-33, 35
Y	US 7,389,830 B2 (TURNER et al) 24 June 2008 (24.06.2008) entire document	4
A	US 5,419,405 A (PATTON) 30 May 1995 (30.05.1995) entire document	1-35

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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

Date of the actual completion of the international search	Date of mailing of the international search report
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