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- (71) Applicant: **BAKER HUGUES INCORPORATED**
[US/US]; 3900 Essex Lane, Suite 1200, Houston, TX 77027 (US).
- (72) Inventor: **TAICHER, Gersh, Zvi**; 12119 Maple Rock Drive, Houston, TX 77077 (US).
- (74) Agents: **SPRINGS, Darryl, M.** et al.; Baker Hughes Incorporated, 3900 Essex Lane, Suite 1200, Houston, TX 77027 (US).
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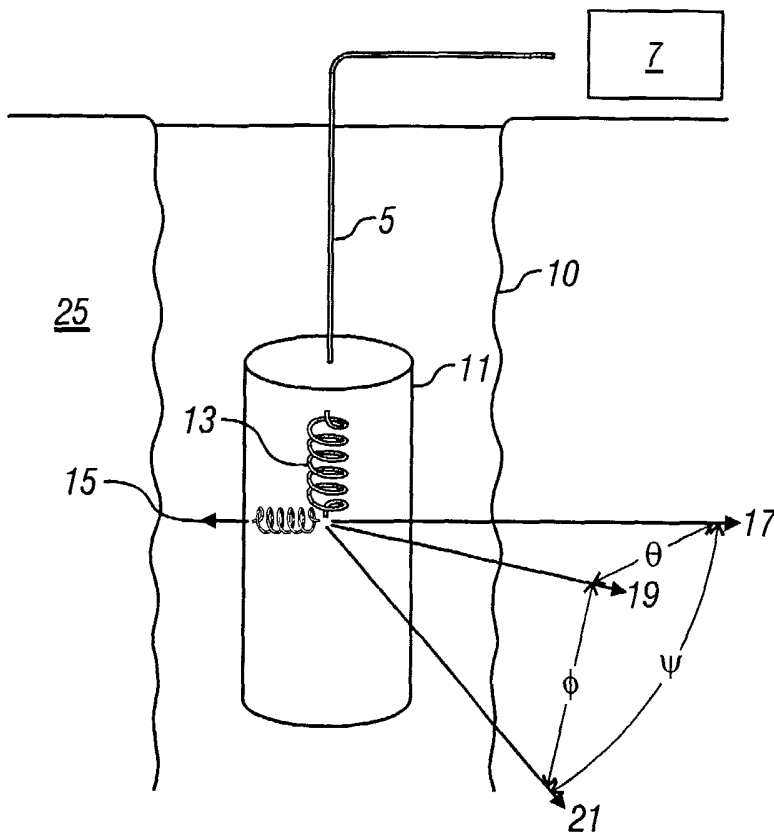
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- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations CA, GB, ID, NO, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR)
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii)) for all designations

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(54) Title: NMR LOGGING IN THE EARTH'S MAGNETIC FIELD



(57) Abstract: An apparatus (Figure 1) and a method for measurement of NMR relaxation parameters of earth formation (25) uses a coil (13) on a logging tool (11) to substantially polarize nuclear spins within a volume of earth (25). The polarizing pulses then switch off adiabatically. The magnetization of the spins then precesses around earth's magnetic field (21) at a Larmor frequency corresponding to the earth's field (21). A second coil (15) on the logging tool (11) is pulsed with a carrier signal having this frequency and modulated by CPMG sequence to obtain spin echo signals. The spin echo signals may be received by the same coil (13) or by a second coil (15). Alternatively, beam steering of two coils (13 and 15) on the tool (11) may be carried out to ensure a resultant field that has a significant component transverse to the earth's field (21) for carrying out the spin echo measurements.



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B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) U.S. : 324/303		
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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,133,735 (HURLIMANN et al) 17 October 2000 (17.10.2000), whole document.	1-9, 11-13, 16-26, 28 and 30
X	US 6,118,272 (TAICHER et al) 12 September 2000 (12.09.2000), whole document.	14
X	US 6,247,542 (KRUSPE et al) 18 June 2001 (18.06.2001), whole document.	15 and 29
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
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Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230		Authorized officer Edward Lefkowitz Telephone No. (703) 305-0956 <i>Deborah P. Vega</i> Deborah P. Vega