



- (51) **International Patent Classification:**
E21B 10/60 (2006.01) *E21B 17/10* (2006.01)
- (21) **International Application Number:**
PCT/GB2009/002545
- (22) **International Filing Date:**
26 October 2009 (26.10.2009)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
12/258,610 27 October 2008 (27.10.2008) US
- (71) **Applicant (for GB, JP, NL only):** **SCHLUMBERGER HOLDINGS LIMITED** [NL/—]; P.O. Box 71, Craigmuir Chambers, Road Town, Tortola (VG).
- (71) **Applicant (for CA only):** **SCHLUMBERGER CANADA LIMITED** [CA/CA]; 525.3rd Avenue S.W. Calgary, Alberta T2P 0GA (CA).
- (71) **Applicant (for all designated States except AL, AU, AZ, BG, CA, CO, CZ, DE, DK, FR, GB, GQ, GR, HU, ID, IE, IL, IT, JP, KZ, LT, MX, MY, NL, NO, NZ, OM, PL, RO, RU, SI, SK, TD, TM, TN, TR, TT, US, UZ, ZA):** **PRAD RESEARCH AND DEVELOPMENT LIMITED** [NL/—]; Craigmuir Chambers, Road Town, Tortola (VG).
- (71) **Applicant (for FR only):** **SERVICE PETROLIERS SCHLUMBERGER** [FR/FR]; 42, rue Saint Dominique, F-75007 Paris (FR).
- (71) **Applicant (for AL, AU, AZ, BG, CO, CZ, DE, DK, GQ, GR, HU, ID, IE, IL, IT, KZ, LT, MX, MY, NO, NZ, OM, PL, RO, RU, SI, SK, TD, TM, TN, TR, TT, UZ, ZA only):** **SCHLUMBERGER TECHNOLOGY B.V.** [NL/NL]; Parkstraat Drive, NL-2514 JG The Hague (NL).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **SINDT, Olivier** [FR/GB]; 135 St. Georges Road, Cheltenham, Gloucestershire GL50 3EQ (GB). **HART, Steven** [GB/GB]; 153 Long Croft, Brimsham Park, Yate, Bristol BS37 7YN (GB). **LACOUR, Bertrand** [FR/GB]; 3 Fen End, Williamgham, Cambridge CB24 5LH (GB). **BOUAL-LEG, Riadh** [TN/GB]; 2 Hurst Park Avenue, Cambridge CB4 2AE (GB). **HAUGVALDSTAD, Kjell** [NO/NO]; Lyng Drilling AS, NO-7125 Vanvikan (NO).
- (74) **Agent:** **STOOLE, Brian, D.**; Gamma House, Enterprise Road, The University of Southampton Science Park, Southampton SO16 7NS (GB).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, 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, PE, 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.
- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

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

(54) **Title:** SELF-STABILIZED AND ANTI-WHIRL DRILL BITS AND BOTTOM-HOLE ASSEMBLIES AND SYSTEMS FOR USING THE SAME

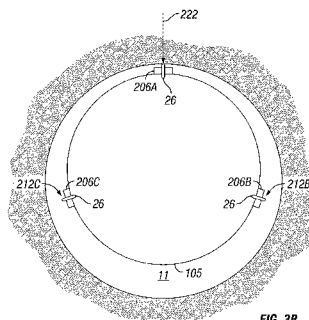


FIG. 3B

(57) **Abstract:** The present invention provides self-stabilized and anti-whirl drill bits (105) and bottom-hole assemblies and systems for using the same. One embodiment of the invention provides a drill bit including an interior cavity in fluid communication with a drill string, and a plurality of gauge pads (206a) located on the exterior of the drill bit. One or more of the gauge pads include an orifice (212) in communication with the interior cavity. The drill bit is configured such that a fluid continuously flows from each of the orifices.