



(51) International Patent Classification:

E21B 21/10 (2006.01) *E21B 34/10* (2006.01)
E21B 21/08 (2006.01)

(21) International Application Number:

PCT/US2012/036941

(22) International Filing Date:

8 May 2012 (08.05.2012)

(25) Filing Language:

English

(26) Publication Language:

English

(71) Applicant (for all designated States except US): **HAL-LIBURTON ENERGY SERVICES, INC.** [US/US];
2601 Beltline Road, Carrollton, TX 75006 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GANO, John, Charles** [US/US]; 2015 White Ash Road, Carrollton, TX 75007 (US). **FRIPP, Michael, Linley** [US/US]; 3826 Cemetery Hill Road, Carrollton, TX 75007 (US).

(74) Agent: **YOUST, Lawrence, R.**; Lawrence Youst PLLC, One Waterway Court, Suite 3B, The Woodlands, TX 77380 (US).

(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, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, 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, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

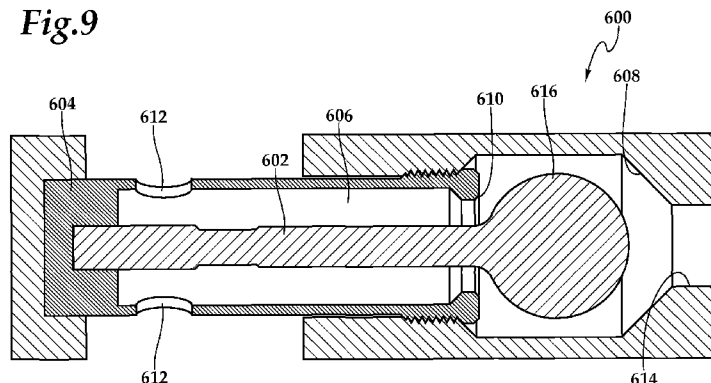
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

Published:

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

(54) Title: DOWNHOLE FLUID FLOW CONTROL SYSTEM AND METHOD HAVING AUTONOMOUS CLOSURE

Fig.9



(57) Abstract: A downhole fluid flow control system for autonomously controlling the inflow of production fluids. The fluid flow control system includes a flow control assembly having a fluid flow path through which a fluid flows. A support structure is positioned in the fluid flow path. A plug is releasably coupled to the support structure such that when fluid flow through the fluid flow path induces sufficient movement in the support structure, the movement causes release of the plug from the support structure into the fluid flow path, thereby restricting subsequent fluid flow in at least one direction through the fluid flow path.