

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
29 August 2019 (29.08.2019)



(10) International Publication Number
WO 2019/164483 A1

(51) International Patent Classification:
E21B 43/12 (2006.01) *F15D 1/00* (2006.01)
E21B 33/12 (2006.01)

(21) International Application Number:
PCT/US2018/019051

(22) International Filing Date:
21 February 2018 (21.02.2018)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant: **HALLIBURTON ENERGY SERVICES, INC.** [US/US]; 3000 N. Sam Houston Parkway E., Houston, TX 77032-3219 (US).

(72) Inventors: **GRECI, Stephen, Michael**; 3113 Luminara Dr., Little Elm, TX 75068 (US). **FRIPP, Michael, Linley**; 3826 Cemetery Hill Rd., Carrollton, TX 75007 (US). **DAGENAIS, Pete, Clement**; 4009 Heron Cove Ln., The Colony, TX 75056 (US).

(74) Agent: **HILTON, Robert, C.**; McGuireWoods LLP, Attn.: Docketing Department, 1750 Tysons Blvd., Suite 1800, Tysons Corner, VA 22102 (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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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, ST, 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,

(54) Title: METHOD AND APPARATUS FOR INFLOW CONTROL WITH VORTEX GENERATION

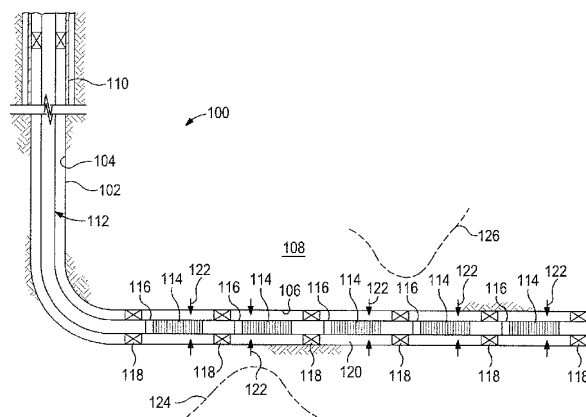


FIG. 1

(57) Abstract: An inflow control device for controlling a production flow can include an inlet, a vortex chamber, and a flow control chamber. The inlet can extend obliquely relative to the central axis of the device. The vortex chamber can induce a vortical inflow from the inlet. The flow chamber can receive vortical inflow from the vortex chamber. A movable restriction disk within the flow control chamber can restrict the vortical inflow therein.

[Continued on next page]



WO 2019/164483 A1

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, 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))*