

(51) International Patent Classification:
E21B 33/043 (2006.01)(21) International Application Number:
PCT/US2014/061480(22) International Filing Date:
21 October 2014 (21.10.2014)

(25) Filing Language: English

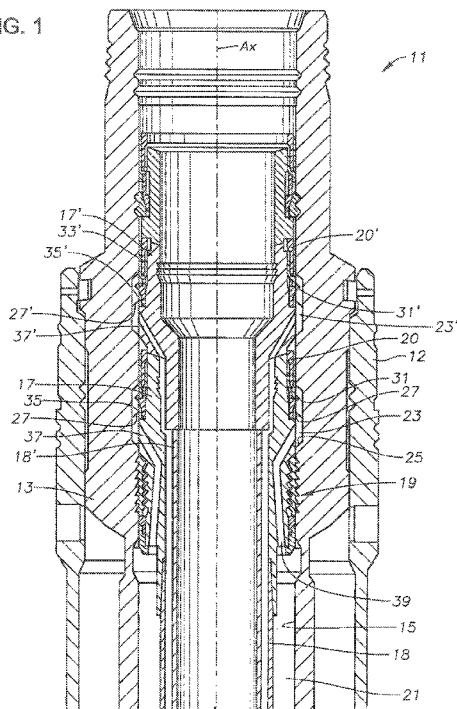
(26) Publication Language: English

(30) Priority Data:
61/896,438 28 October 2013 (28.10.2013) US
14/496,259 25 September 2014 (25.09.2014) US(71) Applicant: **VETCO GRAY INC.** [US/US]; 4424 West Sam Houston Pkwy North, Suite 100, Houston, TX 77041 (US).(72) Inventors: **MANSUKH, Mayur**; 4424 West Sam Houston Parkway North, Suite 100, Houston, TX 77041 (US). **GADRE, Aniruddha, D**; 4424 West Sam Houston Parkway North, Suite 100, Houston, TX 77041 (US). **BEN-SON, Daniel, Caleb**; 4424 West Sam Houston Parkway North, Suite 100, Houston, TX 77041 (US). **FORD, Dav-****id, Lawrence**; 4424 West Sam Houston Parkway North, Suite 100, Houston, TX 77041 (US).(74) Agents: **DOMBROWSKI, Joanna, M.** et al.; General Electric Company, Global Patent Operation, 3135 Easton Turnpike, Fairfield, CT 06828 (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, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, 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,

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(54) Title: FLOW-BY HOLES WITH GALLERY AND CHANNEL ARRANGEMENT ON WELLHEAD AND TUBULAR HANGER

FIG. 1



(57) Abstract: A wellhead assembly (11) includes a tubular wellhead housing (13) having a bore (15) and an annular gallery slot (23). The annular gallery slot is defined by an enlarged inner diameter of the bore. A tubular hanger (17) is selectively landed in the bore of the wellhead housing, defining an annular cavity (21) between the bore and an outer diameter of the tubular hanger. The tubular hanger is supported by the wellhead housing with a hanger support (19) located in the annular cavity. A flow-by passage (37) is in fluid communication with the annular cavity at locations above and below the hanger support. The flow-by passage intersects with the gallery slot and intersects an outer radial surface of the tubular hanger.



SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

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

Declarations under Rule 4.17:

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

— 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))

— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

(88) Date of publication of the international search report:

16 July 2015