



(51) International Patent Classification:

G01F 1/84 (2006.01) G01F 15/14 (2006.01)
G01F 15/02 (2006.01) E21B 21/08 (2006.01)

(21) International Application Number:

PCT/US2015/051200

(22) International Filing Date:

21 September 2015 (21.09.2015)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/053,015 19 September 2014 (19.09.2014) US

(71) Applicant: WEATHERFORD/LAMB, INC. [US/US];
2000 St. James Place, Houston, TX 77056 (US).(72) Inventors: DILLARD, Walter, S.; 11909 Spencer Road -
Fm 529, Houston, TX 77041 (US). NORTHAM, Paul, R.;
11909 Spencer Road - Fm 529, Houston, TX 77041 (US).
GEORGE, Gerald, G.; 11909 Spencer Road - Fm 529,
Houston, TX 77041 (US). RING, Lev; 11909 Spencer
Road - Fm 529, Houston, TX 77041 (US).(74) Agent: MCDERMOTT, Sean, P.; Blank Rome LLP, 717
Texas Avenue, Suite 1400, Houston, TX 77002 (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, 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))

(54) Title: CORIOLIS FLOW METER HAVING FLOW TUBE WITH EQUALIZED PRESSURE DIFFERENTIAL

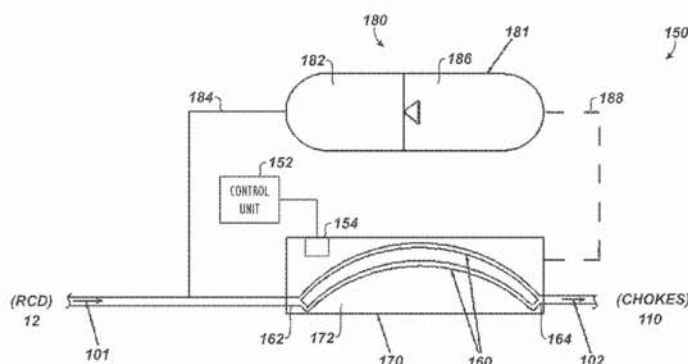


FIG. 4A

(57) Abstract: A Coriolis flow meter for a drilling system measures flow from a wellbore and/or from at least one pump into the wellbore. The meter can be disposed upstream of at least one choke used for controlling backpressure, and/or the meter can be disposed between at least one pump and the wellbore. The meter has at least one flow tube adapted to vibrate and conducts the flow at a first pressure level from an inlet side to an outlet side. A vessel encloses the at least one flow tube at least between the inlet and outlet sides and holds a second pressure level therein about the at least one flow tube. The second pressure level can be equal to or nearly equal to the first pressure level to reduce or nearly eliminate a pressure differential across the at least one flow tube. For example, the second pressure level can be elevated above environmental relative to the first pressure level to reduce a pressure differential across the at least one flow tube. Alternatively, the second pressure level can be less than the first pressure level.

PCT

MCDERMOTT, Sean, P.
Blank Rome LLP
717 Texas Avenue, Suite 1400
Houston, TX 77002
ÉTATS-UNIS D'AMÉRIQUE

1/R34CSC946ESJY0