



## (51) International Patent Classification:

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

## (21) International Application Number:

PCT/US2013/031003

## (22) International Filing Date:

13 March 2013 (13.03.2013)

## (25) Filing Language:

English

## (26) Publication Language:

English

(71) Applicant: HALLIBURTON ENERGY SERVICES, INC. [US/US]; 10200 Bellaire Blvd., Houston, TX 77072 (US).

(72) Inventors: DAVIS, Nancy, Suzan; 9510 Vista Circle, Irving, TX 75063 (US). BUTLER, Cody, Neal; 18064 Appleridge Drive, Apt. #3533, Dallas, TX 75287 (US).

(74) Agents: RIPPAMONTI, Russell, N. et al.; Fish & Richardson P.C., P. O. Box 1022, Minneapolis, MN 55440-1022 (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, 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, PA, 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: DIVERTING FLOW IN A DRILLING FLUID CIRCULATION SYSTEM TO REGULATE DRILLING FLUID PRESSURE

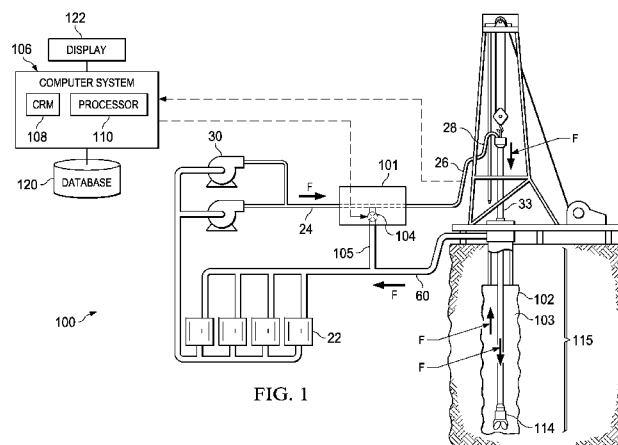


FIG. 1

(57) Abstract: Diverting flow in a drilling fluid circulation system to regulate drilling fluid pressure. A pump of a drilling fluid pressure regulation system for a well bore can discharge drilling fluid through discharge piping at flow rate. A pressure control device has an inlet connected to the discharge piping and an outlet connected to bypass piping. A processor connected to the pump and the pressure control device can adjust the pressure control device to modify a pressure of the drilling fluid by at least partially opening the pressure control device and releasing drilling fluid into the bypass piping at a selected flow rate. The processor can modify the drilling fluid flow rate in the discharge piping based on the pressure represented by the pressure measurement signals and the selected flow rate in the bypass piping such that the target pressure parameter of the drilling fluid in the discharge piping is satisfied.