



- (51) International Patent Classification:
F04B 9/00 (2006.01)
- (21) International Application Number:
PCT/US2013/038440
- (22) International Filing Date:
26 April 2013 (26.04.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/639,524 27 April 2012 (27.04.2012) US
13/827,136 14 March 2013 (14.03.2013) US
- (71) Applicant: CHECKPOINT FLUIDIC SYSTEMS INTERNATIONAL, LTD. [US/US]; 21356 Marion Lane, Mandeville, LA 70471 (US).
- (72) Inventors; and
- (71) Applicants : ELLIOTT, Andrew C. [US/US]; 21534 Pat O'bien Road, Covington, LA 70435 (US). MATHERNE JR., Don, G. [US/US]; 6382 Catina Street, New Orleans, LA 70124 (US).
- (74) Agent: FOSTER, Lance A.; 8555 United Plaza Boulevard, 5th Floor, Baton Rouge, LA 70809 (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,

[Continued on next page]

(54) Title: DIRECT VOLUME-CONTROLLING DEVICE (DVCD) FOR RECIPROCATING POSITIVE-DISPLACEMENT PUMPS

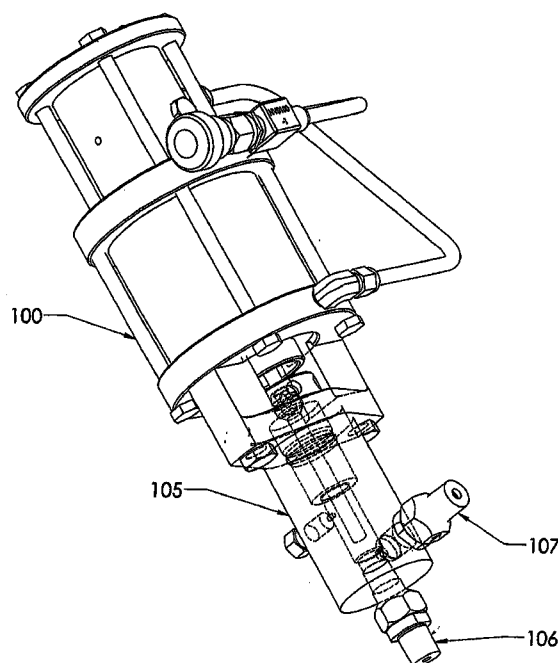


FIGURE 1

(57) Abstract: A volume control device having a housing with an inlet passage, an outlet passage, and an internal chamber communicating with the inlet and outlet passages. An accumulator is movably positioned within the internal chamber and substantially conforms with walls of the internal chamber, the accumulator including an internal passage allowing fluid flow therethrough. A one-way valve is positioned in the internal passage of the accumulator where the valve is biased in a closed position and an adjustable seat is positioned within the housing internal chamber between the accumulator and the housing outlet passage. A positioning mechanism engages the housing and adjustable seat whereby the position of the adjustable seat within the housing internal chamber may be adjustably fixed.



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

Published:

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

- *with international search report (Art. 21(3))*
- *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))*