



- (51) International Patent Classification:  
*F16K 5/20* (2006.01) *F16K 5/06* (2006.01)
- (21) International Application Number:  
PCT/IB2012/052926
- (22) International Filing Date:  
8 June 2012 (08.06.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
61/494,466 8 June 2011 (08.06.2011) US
- (71) Applicant (for all designated States except US): **BRAY INTERNATIONAL, INC.** [US/US]; 13333 Westland E. Blvd., Houston, Texas 77041 (US).
- (72) Inventors; and  
(75) Inventors/Applicants (for US only): **NGUYEN, Vinh Van** [US/US]; 13333 Westland E. Blvd., Houston, Texas 77041 (US). **ALLEN, Stanley C.** [US/US]; 13333 Westland E. Blvd., Houston, Texas 77041 (US).
- (74) Agent: **OATHOUT, Mark A.**; Suite 960, 3701 Kirby Drive, Houston, TX 77098 (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, 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, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD,

[Continued on next page]

(54) Title: IN-LINE REPAIRABLE METAL SEATED FLOATING BALL VALVE

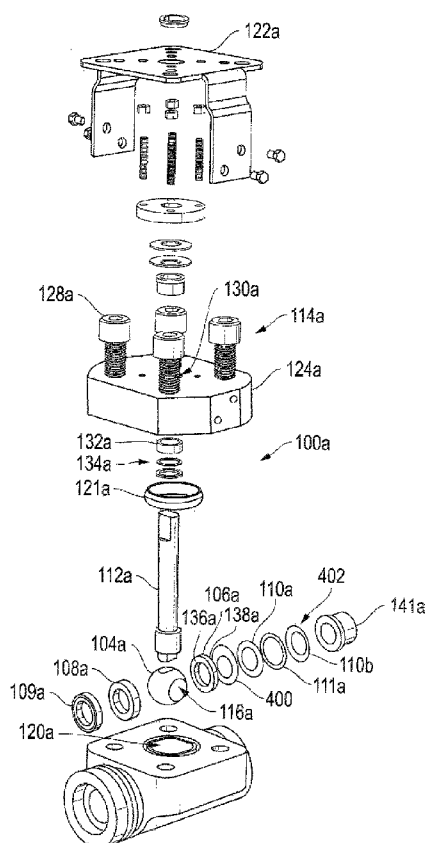


FIG. 5

(57) Abstract: A metal seated floating ball valve for in-line repair has a valve body, a ball mounted in the valve body, a stem connected to the ball, and a bonnet connected to the valve body. The floating ball valve further has a first seat and a second seat adjacent the ball mounted in the valve body, an energizing ring mounted in the valve body proximate the first seat and in series with the first seat and the second seat, and a valve seat bias mounted in the valve body proximate the energizing ring and in series with the energizing ring. The energizing ring may have a slot near the upper end and a wedge surface along the lower end.



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).

**Published:**

- 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))

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

31 January 2013