

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
10 January 2019 (10.01.2019)



(10) International Publication Number
WO 2019/008432 A1

- (51) **International Patent Classification:**
A61M 25/00 (2006.01) *A61M 25/06* (2006.01)
- (21) **International Application Number:**
PCT/IB2018/000718
- (22) **International Filing Date:**
05 July 2018 (05.07.2018)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
62/528,884 05 July 2017 (05.07.2017) US
- (71) **Applicant:** B. BRAUN MEDICAL INDUSTRIES SDN., BHD. [MY/MY]; Bayan Lepas Free Industrial Zone, Penang 10810 (MY).
- (72) **Inventors:** NEOH, Kit Weng; 15, Lorong Kurau 21, Chai Leng Park, 13700 Perai, Penang (MY). NEOH, Boon Ping; 43, Seremban Lane, 10150 Penang (MY).

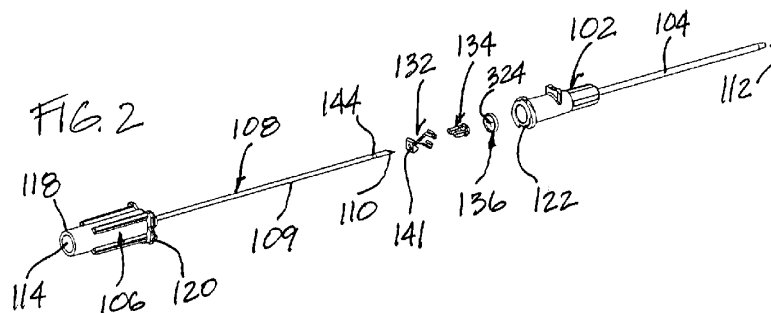
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

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

- (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, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, 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,

(54) **Title:** CATHETER DEVICES WITH BLOOD CONTROL SYSTEMS AND RELATED METHODS



(57) **Abstract:** Needle assemblies (100) and related methods having a needle hub (106) with a needle (108), a catheter tube (104) with a catheter hub (102) and having the needle extending through the catheter tube, a valve (136) positioned in an interior cavity (130) of the catheter hub, a valve opener (134) proximal of the valve, and a needle guard (132) extending at least partially into the valve opener. The valve opener can be used with a range of needle sizes.



WO 2019/008432 A1