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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
17 February 2011 (17.02.2011)

PCT

(10) International Publication Number
WO 2011/019802 A1

(51) International Patent Classification:
B08B 3/08 (2006.01)

(21) International Application Number:
PCT/US2010/045139

(22) International Filing Date:
11 August 2010 (11.08.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/232,898 11 August 2009 (11.08.2009) US

(71) Applicant *(for all designated States except US)*: **GLAXOSMITHKLINE LLC** [US/US]; One Franklin Plaza, 200 North 16th Street, Philadelphia, PA 19102 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **CLARKE, Allan, J.** [US/US]; 1250 South Collegeville Road, Collegville, PA 19426 (US). **FIESSER, Frederick, H.** [US/US]; 1250 South Collegeville Road, Collegville, PA 19426 (US). **MCHUGH, James, A.** [US/US]; 1250 South Collegeville Road, Collegeville, PA 19426 (US).

(74) Agents: **DINNER, Dara L.** et al.; GlaxoSmithKline, Corporate Intellectual Property, UW2220, 709 Swedeland Road, P.O. Box 1539, King of Prussia, PA 19406-0939 (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, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,

[Continued on next page]

(54) Title: VAPOR SHEATH FOR LIQUID DISPENSING NOZZLE

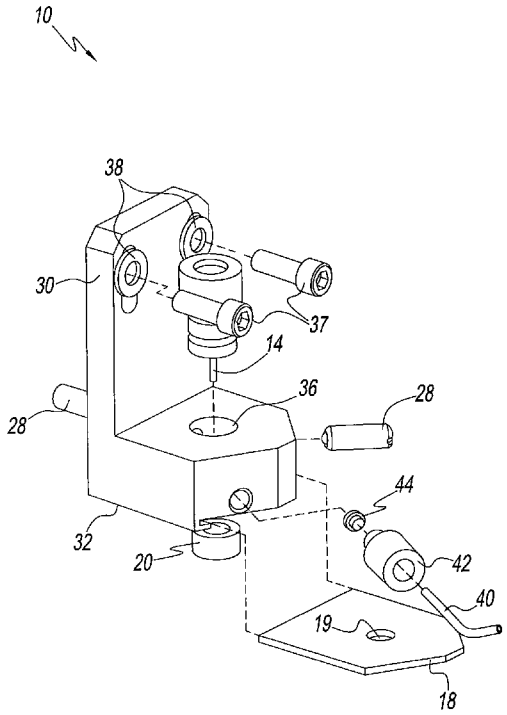


Fig. 1

(57) Abstract: The present disclosure provides a device for preventing the fouling of a liquid dispensing nozzle. The end of the dispensing nozzle is placed In a hollow interior of a band carrying the same solvents that are dispensed by the nozzle. The solvent on the band evaporates into a gap between the ring and the dispensing nozzle, thus providing a vapor sheath or environment that helps to prevent the fouling of the dispensing nozzle.

WO 2011/019802 A1

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, 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))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

— *of inventorship (Rule 4.17(iv))*

Published:

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