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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
30 November 2006 (30.11.2006)

PCT

(10) International Publication Number
WO 2006/127181 A2

(51) International Patent Classification:
E02B 3/06 (2006.01)

(21) International Application Number:
PCT/US2006/014654

(22) International Filing Date: 17 April 2006 (17.04.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/684,720 25 May 2005 (25.05.2005) US

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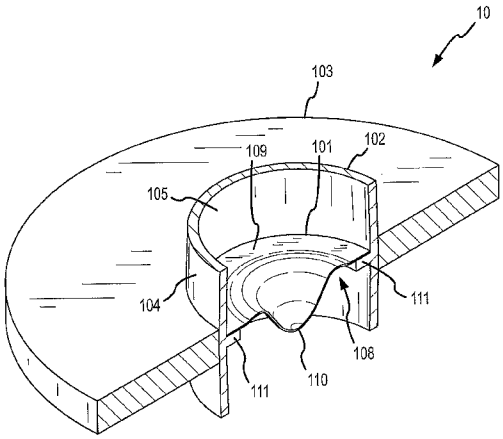
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: VIBRATION SYSTEMS AND METHODS



(57) Abstract: In one or more embodiments, a vibration system comprises a vibratable plate, a support member surrounding the vibratable plate, and a vibration-inducing member surrounding the support member, wherein the vibration-inducing member is configured to radially expand and contract against the support member so as to produce axial vibration of the vibratable plate. In one embodiment, the vibratable plate has an outer circumference; a tubular member is concentrically disposed about the outer circumference of the plate, and an annular vibration-inducing member is concentrically disposed about the outer circumference of the tubular member. The vibration-inducing member is preferably a piezoelectric ring that is radially expandable and contractable against the wall of the tubular member to cause the plate to vibrate in the axial direction. In another embodiment, an aerosol generating system comprises an piezoelectric ring that is radially expandable and contractable upon actuation thereof; a tubular member disposed within the center hole of the piezoelectric ring, and a circular vibratable aperture plate disposed across the internal lumen of the tubular member. The piezoelectric ring is radially expandable and contractable against the tubular member to cause the aperture plate to vibrate in the axial direction, and a reservoir of liquid is coupled to the tubular member so as to supply the liquid to the vibratable aperture plate and produce an aerosol upon vibration thereof.

WO 2006/127181 A2