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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
1 July 2004 (01.07.2004)

PCT

(10) International Publication Number
WO 2004/054647 A1

(51) International Patent Classification[7]: A61M 15/00

(21) International Application Number:
PCT/JP2003/015943

(22) International Filing Date:
12 December 2003 (12.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2002-362754 13 December 2002 (13.12.2002) JP

(71) Applicant *(for all designated States except US)*: **OTSUKA PHARMACEUTICAL CO., LTD.** [JP/JP]; 9, Kandatsukasa-cho 2-chome, Chiyoda-ku, Tokyo 101-8535 (JP).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **YAMASHITA, Chikamasa** [JP/JP]; 11-5, Aza Kawamukainishinokoshi, Tokunaga, Otsu-cho, Naruto-shi, Tokushima 772-0034 (JP). **MATSUSHITA, Hitoshi** [JP/JP]; 60-1, Aza Minamikawamukai, Hiroshima, Matsushige-cho, Itano-gun, Tokushima 771-0220 (JP). **IBARAGI, Shigeru** [JP/JP]; 111-26, Aza Kojima, Shozui, Aizumi-cho, Itano-gun, Tokushima 771-1271 (JP). **AKAGI, Akitsuna** [JP/JP]; 2-36, Aza Korai, Hinoki, Oasa-cho, Naruto-shi, Tokushima 779-0225 (JP).

(74) Agents: **SAEGUSA, Eiji** et al.; Kitahama TNK Building, 1-7-1, Doshomachi, Chuo-ku, Osaka-shi, Osaka 541-0045 (JP).

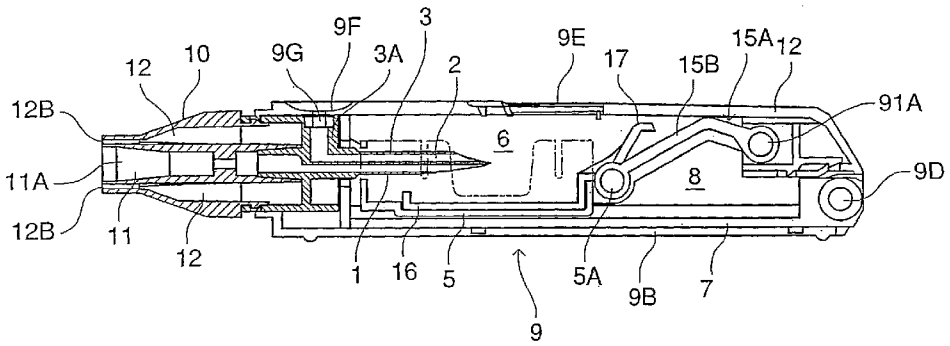
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG,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

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

Published:
— *with international search 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:** INHALATION DEVICE FOR TRANSPULMONARY ADMINISTRATION



(57) **Abstract:** An inhalation device for transpulmonary administration comprises: a chamber (16) for containing a pharmaceutical composition which is pulverized into fine particles by an air-generated impact for dispersal in air; an air inlet flow path (2) for introducing to the chamber (16) outside air to apply the air-generated impact to the pharmaceutical composition and for injecting the outside air toward the pharmaceutical composition; an inhalation flow path (1) for inhaling the pulverized pharmaceutical composition; a housing (9) for accommodating the chamber (16), the air inlet flow path (2), and the inhalation flow path (1); a mouthpiece (10) provided at one end of the housing (9), the mouthpiece (9) being provided with a mouth-side flow path (11) which communicates with the inhalation flow path (1), and an auxiliary flow path (12).

WO 2004/054647 A1