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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
19 May 2011 (19.05.2011)

PCT

(10) International Publication Number
WO 2011/059953 A1

(51) International Patent Classification:
A61M 15/00 (2006.01)

(21) International Application Number:
PCT/US2010/055957

(22) International Filing Date:
9 November 2010 (09.11.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/261,122 13 November 2009 (13.11.2009) US

(71) Applicant *(for all designated States except US)*: **SCHERING CORPORATION** [US/US]; 2000 Galloping Hill Road, Kenilworth, New Jersey 07033 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **GALLUPPI, Michael** [US/US]; 556 Morris Avenue, Summit, New Jersey 07901 (US). **BROWN, Scott** [US/US]; 556 Morris Avenue, Summit, New Jersey 07901 (US). **BASILE, Peter, A.** [US/US]; 556 Morris Avenue, Summit, New Jersey 07901 (US).

(74) Common Representative: **SCHERING CORPORATION**; 2000 Galloping Hill Road, Kenilworth, New Jersey 07033 (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,

[Continued on next page]

WO 2011/059953 A1

(54) Title: DRUG PRODUCTS, DRY POWDER INHALERS AND POLYFLUX COLLIDER ARRANGEMENTS

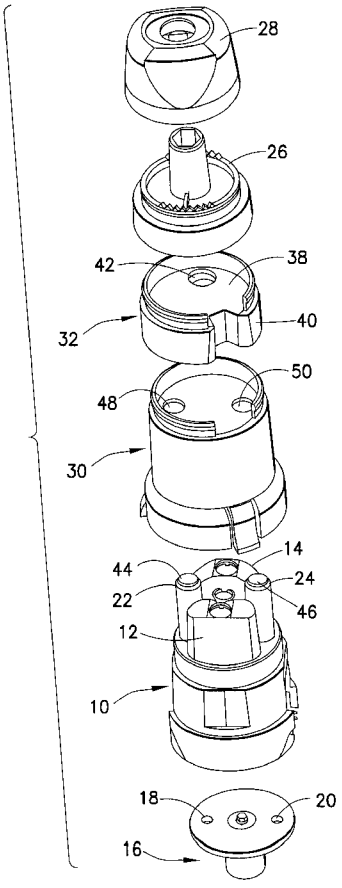


FIG. 1

(57) Abstract: This invention relates to dry powder inhalers and drug products and, more particularly to polyflux colliders useful for de-agglomerating dry powder in dry powder dispensers. Various embodiments provide drug products, dry powder inhalers and polyflux collider arrangement. With various embodiments of the present invention, a polyflux collider is provided which utilizes colliding streams of dry powder to provide desirable de-agglomerating capability for dry powder dispensers.

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, 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).

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))*

Published:

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