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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
5 April 2007 (05.04.2007)

PCT

(10) International Publication Number
WO 2007/037825 A1

(51) International Patent Classification:
H01L 21/02 (2006.01) *G03F 7/16* (2006.01)
H01L 21/00 (2006.01)

(21) International Application Number:
PCT/US2006/032110

(22) International Filing Date: 17 August 2006 (17.08.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
11/230,263 19 September 2005 (19.09.2005) US

(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier application:
US 11/230,263 (CON)
Filed on 19 September 2005 (19.09.2005)

(71) Applicant *(for all designated States except US)*: **ACCRETECH USA, INC.** [US/US]; 2600 Telegraph Road, Suite 180, Bloomfield Hills, Michigan 48302 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **BAILEY, Joel, B.** [US/US]; 10804 Running Buck Lane, Austin, Texas 78750 (US). **DOAN, Jonathan** [US/US]; 5116 Bluestar Drive, Austin, Texas 78739 (US). **FORDERHASE, Paul, F.** [US/US]; 3600 Hillbrook, Austin, Texas 78731 (US). **ORTIZ, Johnny, D.** [US/US]; 1801 Warner Ranch Drive, Apt. 1721, Round Rock, TX 78664 (US). **ROBBINS, Michael, D.** [US/US]; 5031 Sable Oaks Drive, Round Rock, Texas 78664 (US).

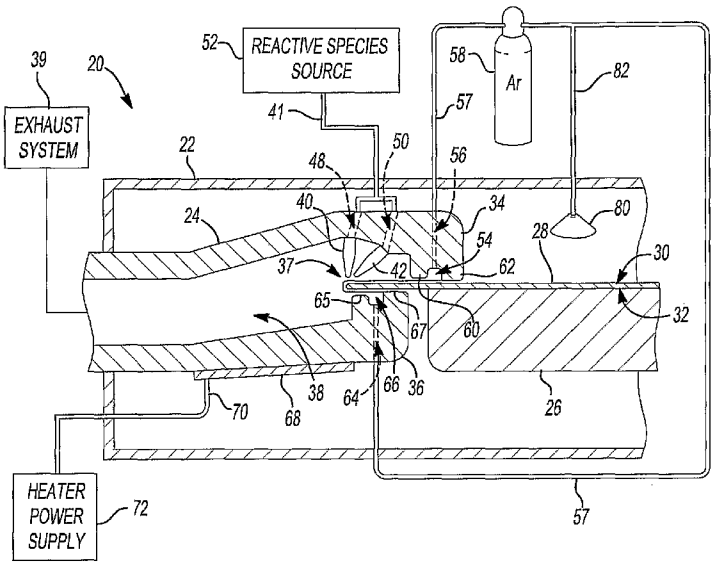
(74) Agents: **AMBURN, Dean, W.** et al.; HARNESS, DICKEY & PIERCE, P.L.C., P.O. Box 828, Bloomfield Hills, Michigan 48303 (US).

(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, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, 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,

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR ISOLATIVE SUBSTRATE EDGE AREA PROCESSING



(57) Abstract: An isolative substrate edge area processing method and apparatus is described. The apparatus has an isolator for isolating and processing by dry chemical technique a portion of a substrate including a substrate edge region. The isolator has nozzles for directing a flow of reactive species towards the edge area of the substrate and a purge plenum for biasing flow of reactive species towards an exhaust plenum while the substrate rotates on a chuck. Tuned flow control prevents migration of reactive species and reaction byproducts out of the processing area. A method for processing a substrate with the isolator involves directing a flow of reactive species at an angle towards an edge area of the substrate while forming a boundary around the processing area with flow control provided by the purge plenum, and exhaust plenum.

WO 2007/037825 A1

RO, SE, SI, SK, 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*

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.