



- (51) **International Patent Classification:**
C23C 16/455 (2006.01) C23C 16/505 (2006.01)
C23C 16/54 (2006.01)
- (21) **International Application Number:**
PCT/US2019/046171
- (22) **International Filing Date:**
12 August 2019 (12.08.2019)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
16/115,970 29 August 2018 (29.08.2018) US
- (71) **Applicant:** LAM RESEARCH CORPORATION
[US/US]; 4650 Cushing Parkway, M/S CA-1, Fremont, California 94538 (US).
- (72) **Inventors:** LAVOIE, Adrien; 12705 NE Coyote Loop, Newberg, Oregon 97132 (US). AGARWAL, Pulkit; 9890 SW Tephra Terrace, Beaverton, Oregon 97007 (US).
- (74) **Agent:** LEE, Michael; BEYER LAW GROUP LLP, P.O. Box 51887, Palo Alto, California 94303-1887 (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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, 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, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, 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, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

- (54) **Title:** METHOD AND APPARATUS FOR PROVIDING STATION TO STATION UNIFORMITY

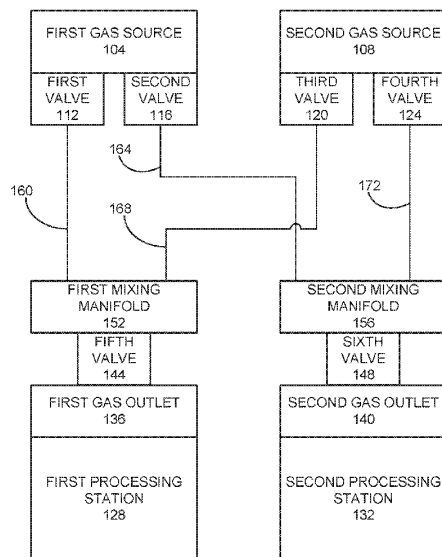


FIG. 1

(57) **Abstract:** An apparatus for processing substrates is provided. A first gas source is provided. A first gas manifold is connected to the first gas source. A second gas manifold is connected to the first gas source. A first processing station has a first gas outlet, wherein the first gas outlet is connected to the first gas manifold. A second processing station has a second gas outlet, wherein the second gas outlet is connected to the second gas manifold. A first variable conductance valve is between the first gas source and the first gas outlet along the first gas manifold. A second variable conductance valve is between the first gas source and the second gas outlet along the second gas manifold.

(88) Date of publication of the international search report:
29 October 2020 (29.10.2020)