



(51) International Patent Classification:  
**H01J 37/32** (2006.01)

(21) International Application Number:  
PCT/US2021/054377

(22) International Filing Date:  
11 October 2021 (11.10.2021)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
17/071,506 15 October 2020 (15.10.2020) US

(71) Applicant: **APPLIED MATERIALS, INC.** [US/US];  
3050 Bowers Avenue, Santa Clara, California 95054 (US).

(72) Inventors: **WU, Fei**; 3050 Bowers Avenue, Santa Clara,  
California 95054 (US). **KHAJA, Abdul Aziz**; 3050 Bowers  
Avenue, Santa Clara, California 95054 (US). **HA, Sung-  
won**; 3050 Bowers Avenue, Santa Clara, California 95054  
(US). **BALASUBRAMANIAN, Ganesh**; 3050 Bowers  
Avenue, Santa Clara, California 95054 (US). **PRAB-  
HAKAR, Vinay**; 3050 Bowers Avenue, Santa Clara, Cali-  
fornia 95054 (US).

(74) Agent: **MCCORMICK, Daniel K.** et al.; 1100 Peachtree  
Street NE, Suite 2800, Mailstop: IP Docketing - 22, Atlanta,  
Georgia 30309 (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, IT, 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, ST, SV, SY, TH, TJ, TM, TN,  
TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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).

(54) Title: CHAMBER CONFIGURATIONS AND PROCESSES FOR PARTICLE CONTROL

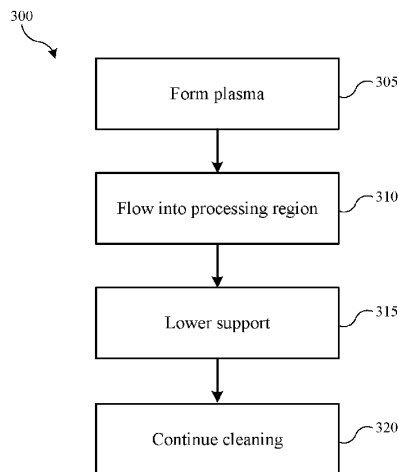


FIG. 3

(57) Abstract: Exemplary processing methods may include forming a plasma of a cleaning precursor in a remote region of a semiconductor processing chamber. The methods may include flowing plasma effluents of the cleaning precursor into a processing region of the semiconductor processing chamber. The methods may include contacting a substrate support with the plasma effluents for a first period of time. The methods may include lowering the substrate support from a first position to a second position while continuing to flow plasma effluents of the cleaning precursor. The methods may include cleaning the processing region of the semiconductor processing chamber for a second period of time.

**Published:**

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