



(51) International Patent Classification:
H01J 37/32 (2006.01) *C23C 14/34* (2006.01)
C23C 14/56 (2006.01)

(21) International Application Number:
PCT/US2017/042493

(22) International Filing Date:
18 July 2017 (18.07.2017)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
15/233,613 10 August 2016 (10.08.2016) US

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

(72) Inventors: **SHEELAVANT, Gangadhar**; 1353A, Ward
No. 3, Sheelavant Street, Guledgudd 587203 (IN). **BADU-
VAMANDA, Cariappa Achappa**; #103, Sunshine Apart-
ments, East End D Main Road, 9th Block, Jayanagar, Ban-
galore 560069 (IN). **VASANTHA, Bopanna Ichettira**;
#15, 3rd Cross, 4th Block, Kumara Park West, Bangalore
560020 (IN).

(74) Agent: **PATTERSON, B. Todd** et al.; Patterson & Sheri-
dan, L.L.P., 24 Greenway Plaza, Suite 1600, Houston,
Texas 77046 (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).

(54) Title: THERMALLY OPTIMIZED RINGS

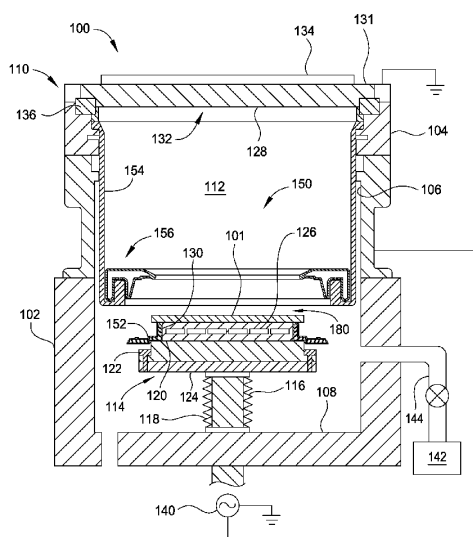


FIG. 1

(57) Abstract: A process kit ring for use in a plasma processing system is disclosed herein. The process kit ring includes an annular body and one or more hollow inner cavities. The annular body is formed from a plasma resistant material. The annular body has an outer diameter greater than 200 mm. The annular body includes a top surface and a bottom surface. The top surface is configured to face a plasma processing region of a process chamber. The bottom surface is opposite the top surface. The bottom surface is substantially perpendicular to a centerline of the body. The bottom surface is supported at least partially by a pedestal assembly. The one or more hollow inner cavities are formed in the annular body about the centerline. The one or more hollow inner cavities are arranged in a circle within the annular body.

[Continued on next page]

Published:

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