

(12) **United States Design Patent** (10) **Patent No.:** **US D888,903 S**
Gunther et al. (45) **Date of Patent:** **** Jun. 30, 2020**

(54) **DEPOSITION RING FOR PHYSICAL VAPOR DEPOSITION CHAMBER**

(71) Applicant: **APPLIED MATERIALS, INC.**, Santa Clara, CA (US)

(72) Inventors: **David Gunther**, San Jose, CA (US); **Cheng-Hsiung Tsai**, Cupertino, CA (US); **Kirankumar Neelasandra Savandaiah**, Bangalore (IN)

(73) Assignee: **APPLIED MATERIALS, INC.**, Santa Clara, CA (US)

(**) Term: **15 Years**

(21) Appl. No.: **29/673,685**

(22) Filed: **Dec. 17, 2018**

(51) **LOC (12) Cl.** **23-01**

(52) **U.S. Cl.**
 USPC **D23/269; D23/259**

(58) **Field of Classification Search**
 USPC D23/269, 262, 249, 259; D15/138-139, D15/143; 277/351-360, 504, 563, 572,
 (Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

D244,533 S * 5/1977 Eidelberg D23/269
 D338,621 S * 8/1993 Balson D9/434
 (Continued)

FOREIGN PATENT DOCUMENTS

CN 206573738 U 10/2017
 CN 207176067 U 4/2018
 (Continued)

OTHER PUBLICATIONS

Search Report for Taiwan Design Application No. 108303547, dated Dec. 10, 2019.

(Continued)

Primary Examiner — Amy C Wierenga

(74) *Attorney, Agent, or Firm* — Moser Taboada; Alan Taboada

(57) **CLAIM**

The ornamental design for a deposition ring for a physical vapor deposition chamber, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a deposition ring for a physical vapor deposition chamber, according to the novel design.

FIG. 2 is a top plan view thereof.

FIG. 3 is a bottom plan view thereof.

FIG. 4 is a front elevation view thereof.

FIG. 5 is a back elevation view thereof.

FIG. 6 is a left side elevation view thereof.

FIG. 7 is a right side elevation view thereof.

FIG. 8 is a cross-sectional view taken along line 8-8 in FIG. 2.

FIG. 9 is a perspective view of a deposition ring for a physical vapor deposition chamber, according to the novel design.

FIG. 10 is a top plan view thereof.

FIG. 11 is a bottom plan view thereof.

FIG. 12 is a front elevation view thereof.

FIG. 13 is a back elevation view thereof.

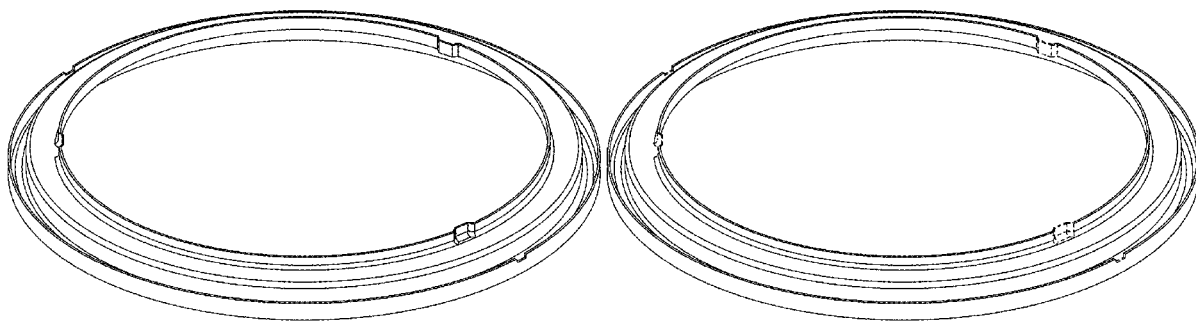
FIG. 14 is a left side elevation view thereof.

FIG. 15 is a right side elevation view thereof; and,

FIG. 16 is a cross-sectional view taken along line 16-16 in FIG. 10.

The dashed lines in FIGS. 9-16 represent unclaimed environment forming no part of the claimed design.

1 Claim, 8 Drawing Sheets



US D888,903 S

Page 2

(58) Field of Classification Search

USPC 277/316, 364-365, 394, 397, 406-407,
277/418, 449, 451-454, 458-460, 491,
277/517, 529, 602, 610, 612, 641-642,
277/644, 648; 285/339, 343
CPC E04D 13/14; F16J 7/00
See application file for complete search history.

2008/0141942 A1* 6/2008 Brown C23C 14/564
118/723 R
2012/0042825 A1* 2/2012 Hawrylychak H01L 21/68735
118/504
2012/0103257 A1* 5/2012 Rasheed C23C 14/50
118/715
2013/0206070 A1* 8/2013 Chen C23C 16/458
118/728
2015/0047563 A1 2/2015 Chung et al.
2017/0002461 A1 1/2017 Johanson et al.

(56) References Cited

U.S. PATENT DOCUMENTS

D379,588 S * 6/1997 Pledger D9/434
5,803,977 A * 9/1998 Tepman C23C 14/50
118/728
5,863,340 A 1/1999 Flanigan
D497,977 S * 11/2004 Engelbrektsson D23/269
7,282,123 B2 10/2007 Kosyachkov
7,520,969 B2 * 4/2009 Miller H01J 37/32495
118/720
D665,491 S * 8/2012 Goel D15/144
8,596,870 B2 * 12/2013 Akita F16J 15/3276
384/140
8,911,601 B2 * 12/2014 Rasheed C23C 14/50
204/298.15
9,534,286 B2 1/2017 Yoshidome et al.
9,689,070 B2 6/2017 Rasheed et al.
9,909,206 B2 3/2018 Johanson et al.
9,960,021 B2 5/2018 Riker et al.
2007/0102286 A1 5/2007 Scheible et al.

FOREIGN PATENT DOCUMENTS

TW 223429 5/1994
TW 223430 5/1994
TW M431893 6/2012
TW 201413868 4/2014
TW D180764 1/2017
TW D181803 3/2017
TW I600108 9/2017
TW D188898 3/2018
TW D191626 7/2018

OTHER PUBLICATIONS

International Search Report and Written Opinion for PCT/US2019/
065900 dated Apr. 10, 2020.

* cited by examiner

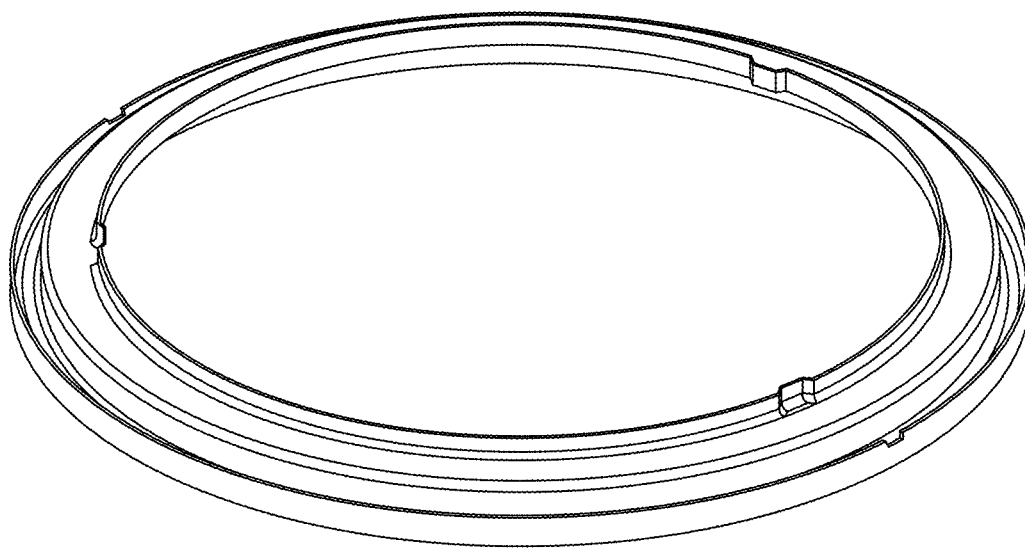


FIG. 1

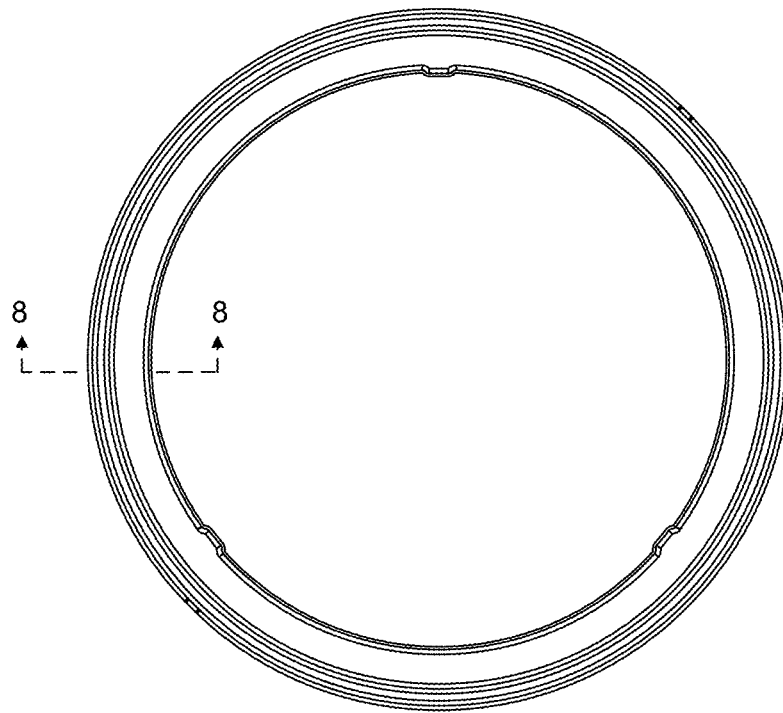


FIG. 2

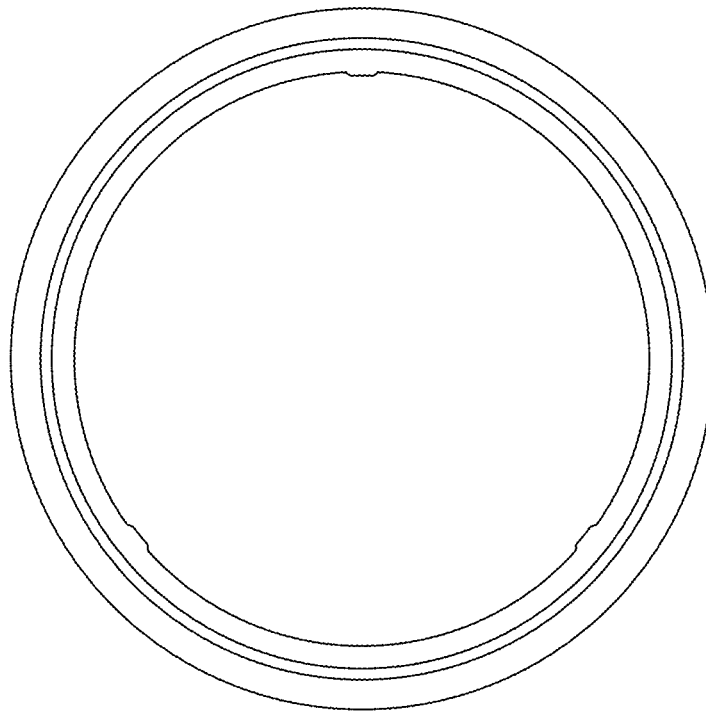


FIG. 3

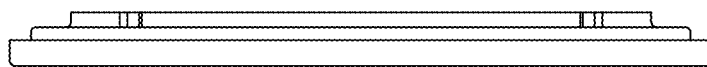


FIG. 4

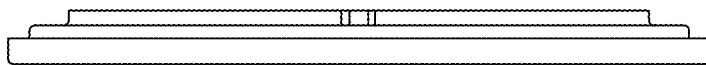


FIG. 5

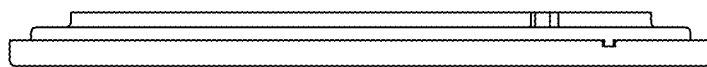


FIG. 6



FIG. 7

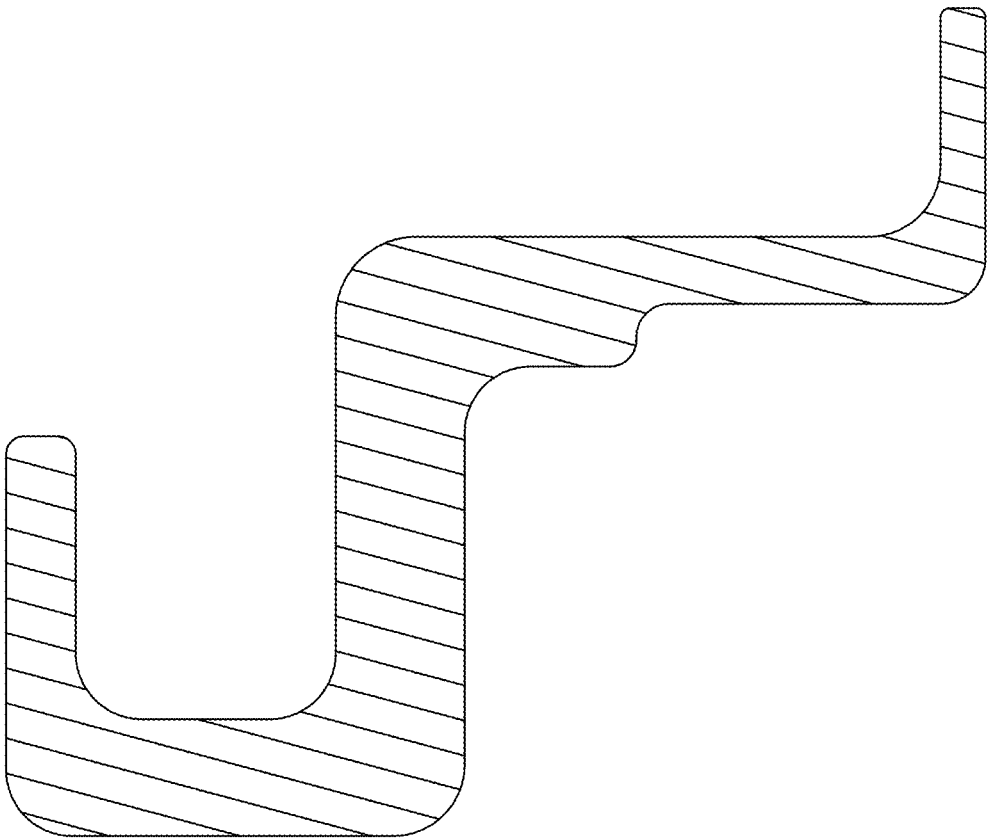


FIG. 8

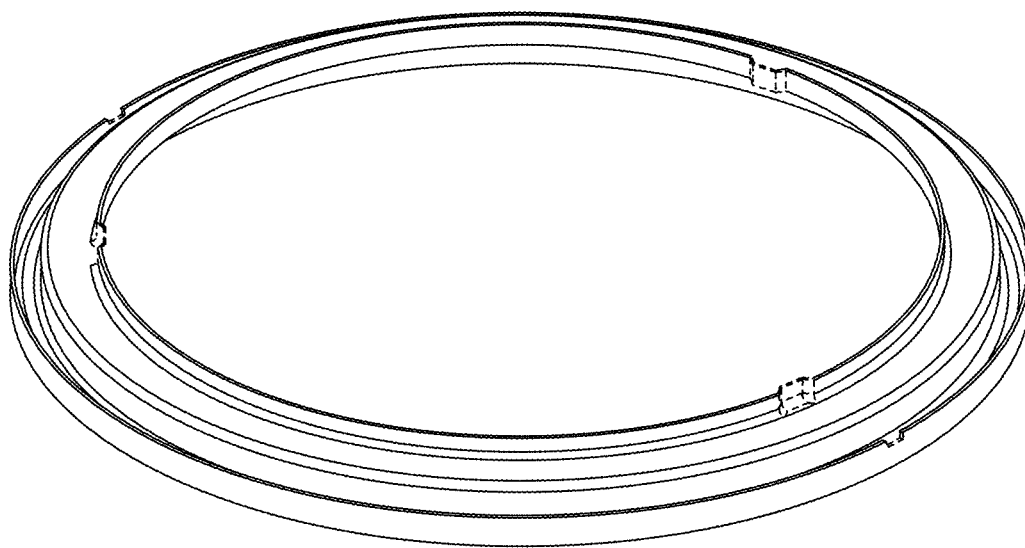


FIG. 9

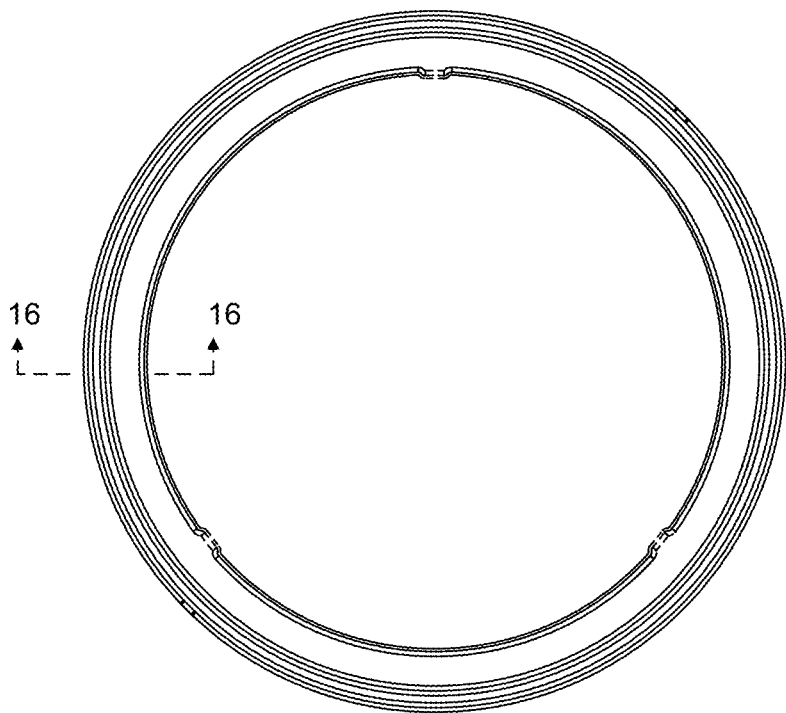


FIG. 10

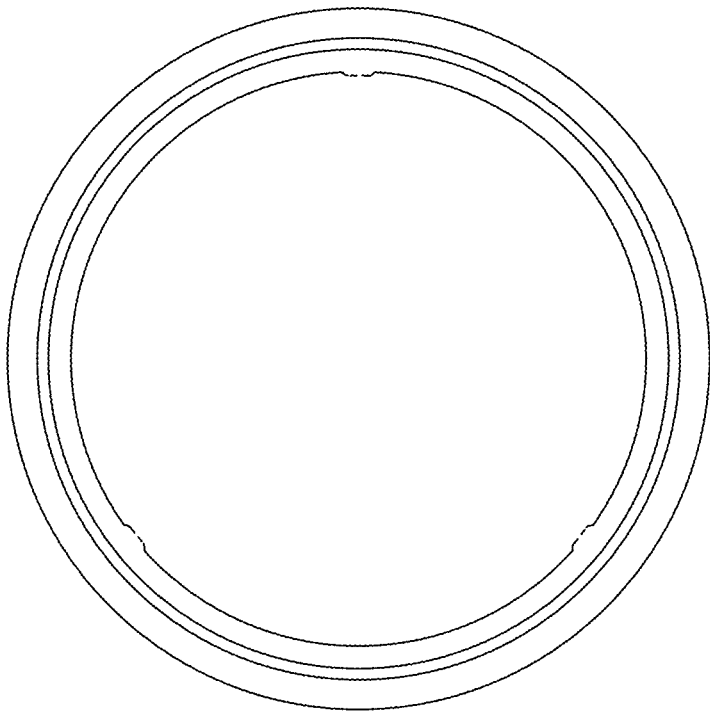


FIG. 11

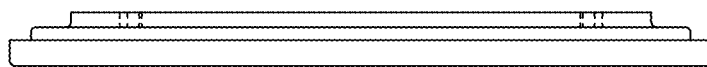


FIG. 12

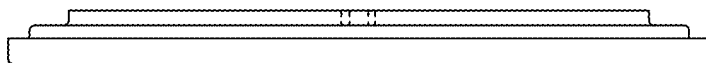


FIG. 13

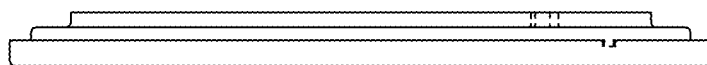


FIG. 14

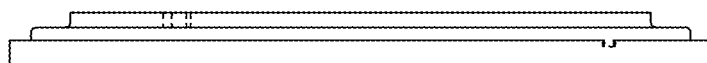


FIG. 15

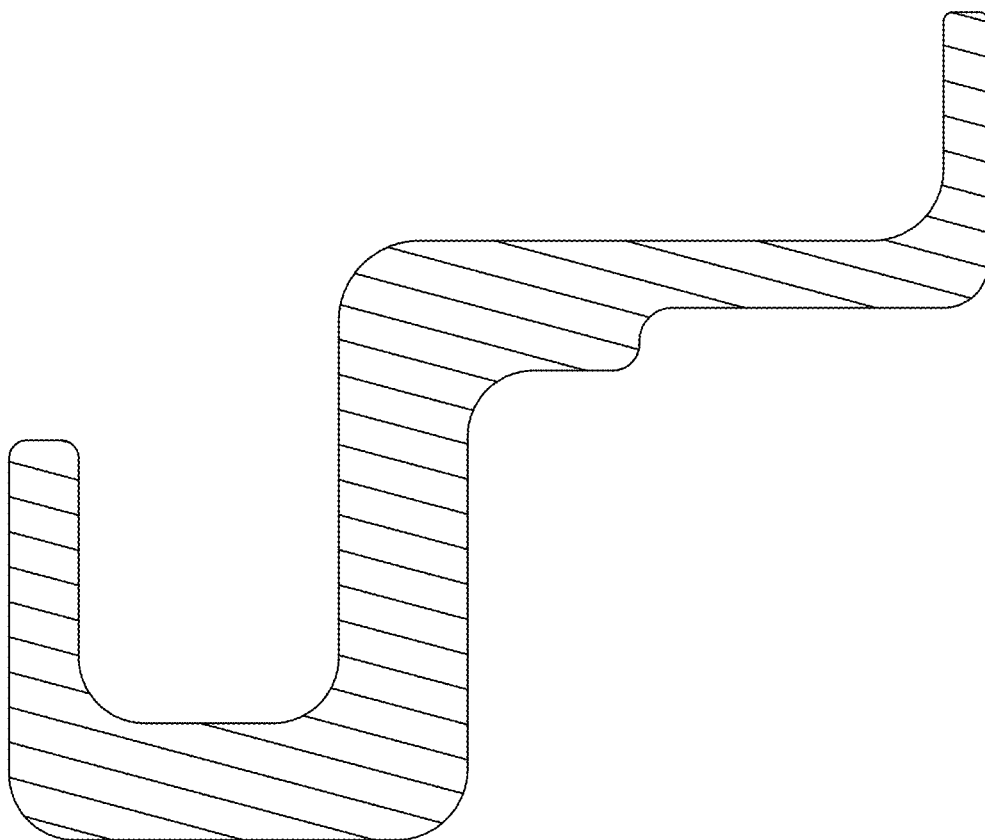


FIG. 16