

Exhibit 27



US010468292B2

(12) **United States Patent**
Brown et al.

(10) **Patent No.:** **US 10,468,292 B2**
(45) **Date of Patent:** **Nov. 5, 2019**

(54) **SHUTTER DISK FOR PHYSICAL VAPOR DEPOSITION CHAMBER**

USPC 156/345.3, 345.19
See application file for complete search history.

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Jason Schaller, Austin, TX (US)

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

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 233 days.

(21) Appl. No.: **15/245,004**

(22) Filed: **Aug. 23, 2016**

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(65) **Prior Publication Data**

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US 2016/0358809 A1 Dec. 8, 2016

Related U.S. Application Data

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(63) Continuation of application No. 12/563,531, filed on Sep. 21, 2009.

Chinese Search Report for Application No. 2009801380005 filed Sep. 21, 2009, 2 pages.

(60) Provisional application No. 61/099,090, filed on Sep. 22, 2008.

(Continued)

(51) **Int. Cl.**

Primary Examiner — Keath T Chen

C23C 16/00	(2006.01)
H01L 21/687	(2006.01)
H01J 37/32	(2006.01)
H01L 21/67	(2006.01)
C23C 14/50	(2006.01)

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(52) **U.S. Cl.**

CPC **H01L 21/68785** (2013.01); **C23C 14/50** (2013.01); **H01J 37/32477** (2013.01); **H01L 21/6719** (2013.01); **H01L 21/67069** (2013.01); **H01L 21/68707** (2013.01)

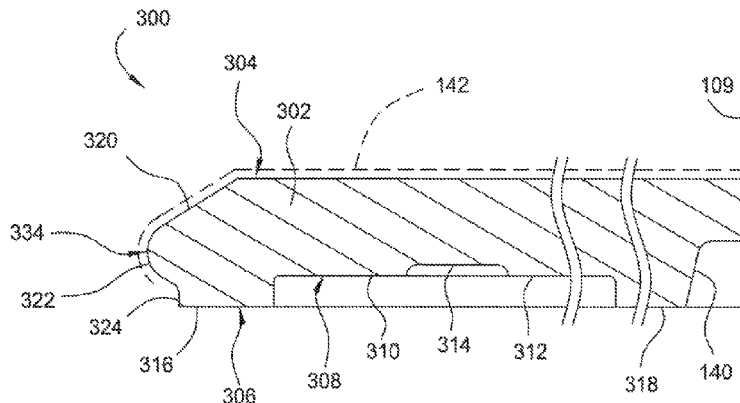
(57) **ABSTRACT**

A shutter disk suitable for shield a substrate support in a physical vapor deposition chamber is provided. In one embodiment, the shutter disk includes a disk-shaped body having an outer diameter disposed between a top surface and a bottom surface. The disk-shape body includes a double step connecting the bottom surface to the outer diameter.

(58) **Field of Classification Search**

CPC H01J 37/32477; H01L 21/68785

15 Claims, 3 Drawing Sheets



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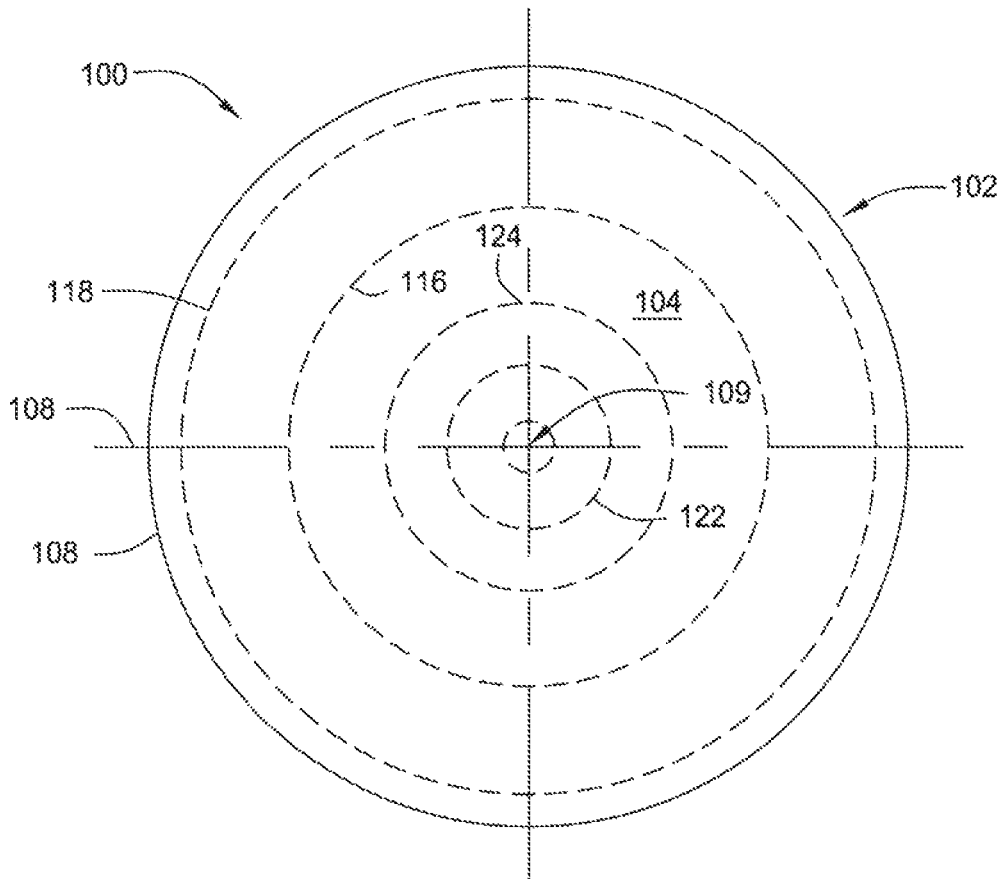


FIG. 1

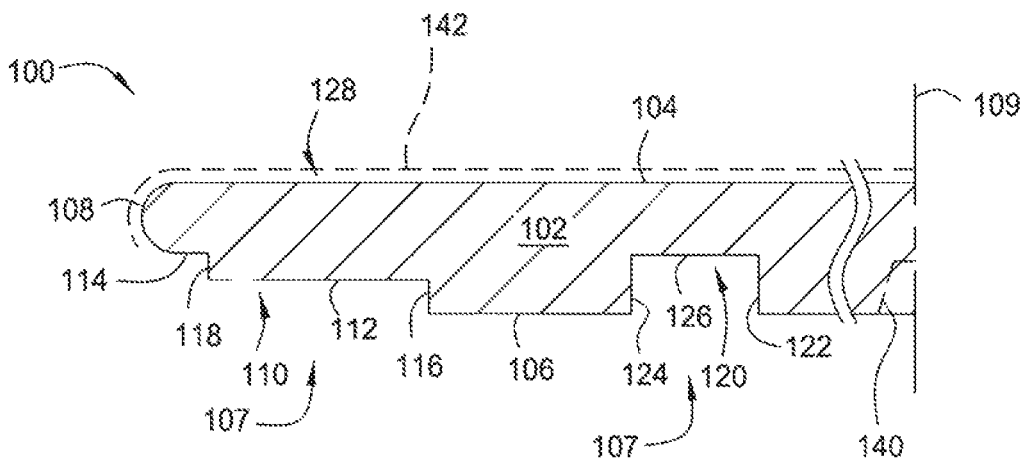


FIG. 2

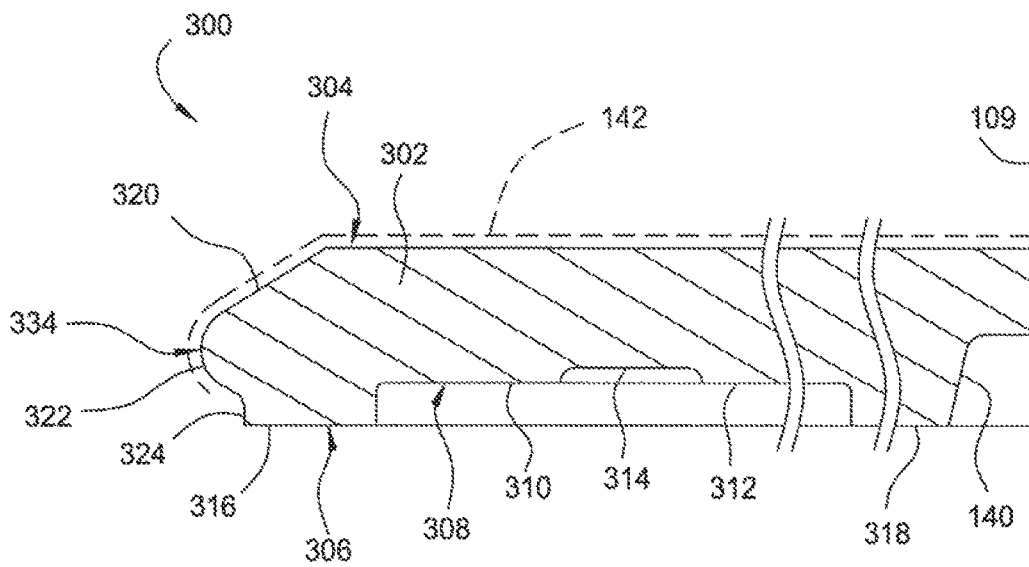


FIG. 3

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