



US00D811452S

(12) **United States Design Patent** (10) **Patent No.:** **US D811,452 S**
Ishino et al. (45) **Date of Patent:** **** Feb. 27, 2018**

(54) **VACUUM CHUCK**

Primary Examiner — Richard E Chilcot

(71) Applicant: **NGK SPARK PLUG CO., LTD.**, Aichi (JP)

(74) *Attorney, Agent, or Firm* — Sughrue Mion, PLLC

(72) Inventors: **Tomohiro Ishino**, Sendai (JP); **Norio Onodera**, Sendai (JP)

(57) **CLAIM**

The ornamental design for a vacuum chuck, as shown and described.

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

(21) Appl. No.: **35/501,086**

DESCRIPTION

(22) Filed: **Dec. 14, 2015**

1. Vacuum chuck

(80) **Hague Agreement Data**

1.1 : Front View

Int. Filing Date: **Dec. 14, 2015**

The dot-dash line in the figure defines the boundaries of the claimed design and forms no part thereof. Namely, inside of the dot-dash line is not claimed. Dots inside of the dot-dash line represent projected portions which are not colored and are unclaimed.

Int. Reg. No.: **DM/089831**

Int. Reg. Date: **Dec. 14, 2015**

Int. Reg. Pub. Date: **Jun. 17, 2016**

1.2 : Back View

(51) **LOC (11) Cl.** **08-08**

Broken lines represent no part of claimed design and form no part thereof. Dots inside of broken lines represent projected portions which are not colored and are unclaimed.

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

USPC **D15/130**

CPC **B25B 11/00** (2013.01)

1.3 : Right View

(58) **Field of Classification Search**

USPC D15/130-141; D21/489-491; D34/38;

279/3; 269/21; 294/64.1-65, 902-907

CPC B25B 11/00; H01L 21/683; H01L 21/67

See application file for complete search history.

Broken lines represent no part of claimed design and form no part thereof.

1.4 : Top View

Broken lines represent no part of claimed design and form no part thereof.

1.5 : Bottom View

Broken lines represent no part of claimed design and form no part thereof.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D161,552 S * 1/1951 Stoner D15/130

2,852,264 A * 9/1958 Granata B23B 31/307

279/3

2,955,829 A * 10/1960 Brewster B25B 11/005

279/3

D189,992 S * 3/1961 Smith et al. D15/130

3,538,883 A * 11/1970 Polin B25B 11/005

118/50

3,627,338 A * 12/1971 Thompson B25B 11/005

279/3

3,740,900 A * 6/1973 Youmans B24B 37/27

269/21

1.6 : Partial enlarged View

The dot-dash line in the figure represent boundary lines of the claimed design that form no part of the claimed design. Broken lines represent no part of claimed design.

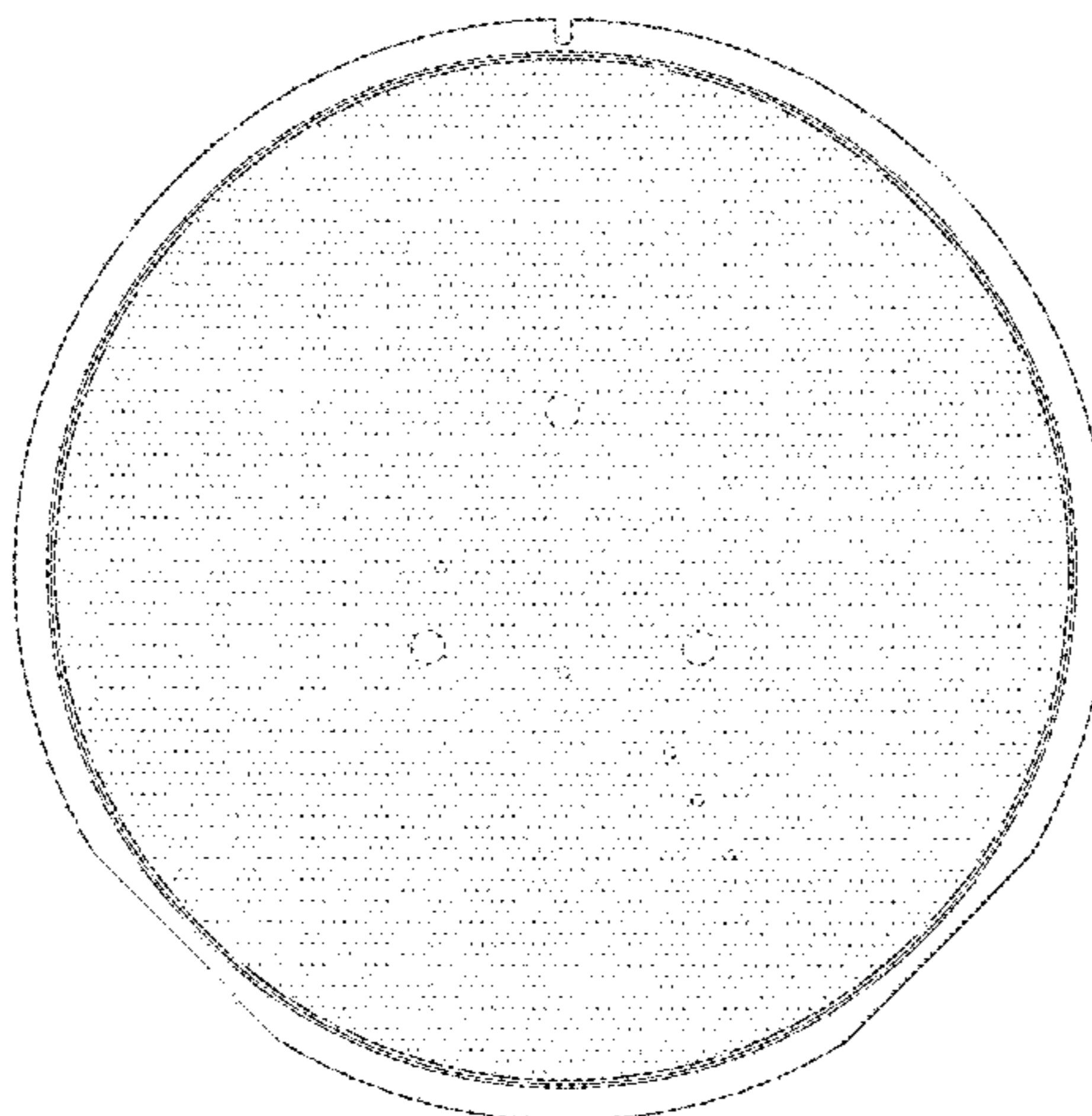
1.7 : Cross-sectional View

Broken lines represent no part of claimed design and form no part thereof.

A left view is omitted because it is symmetrical to the right view **1.3**; view **1.6** is a partial enlarged view to show a part of the claimed portion; view **1.7** is a cross-sectional view to show a part of the claimed portion.

(Continued)

1 Claim, 7 Drawing Sheets



(56)

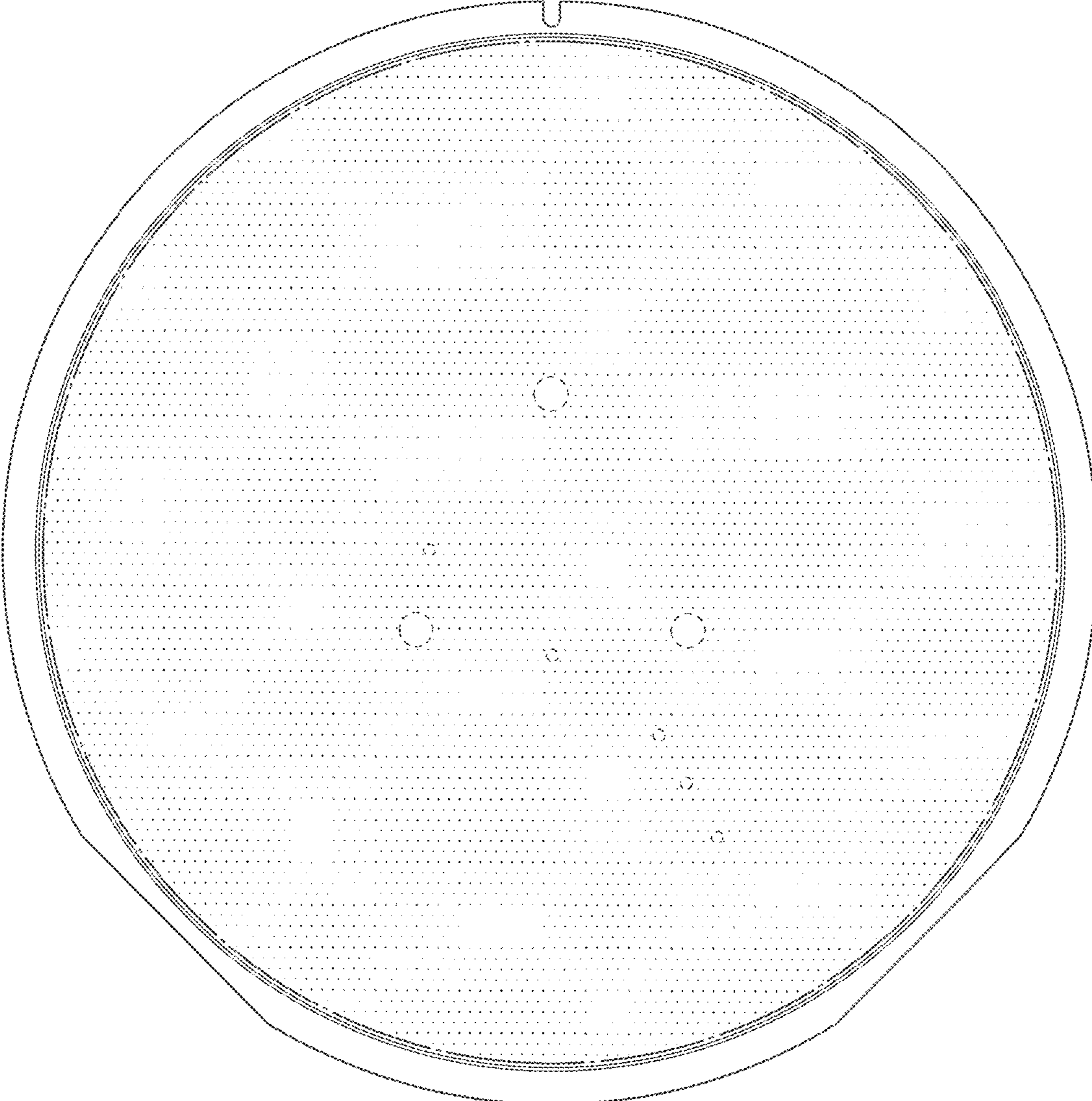
References Cited

U.S. PATENT DOCUMENTS

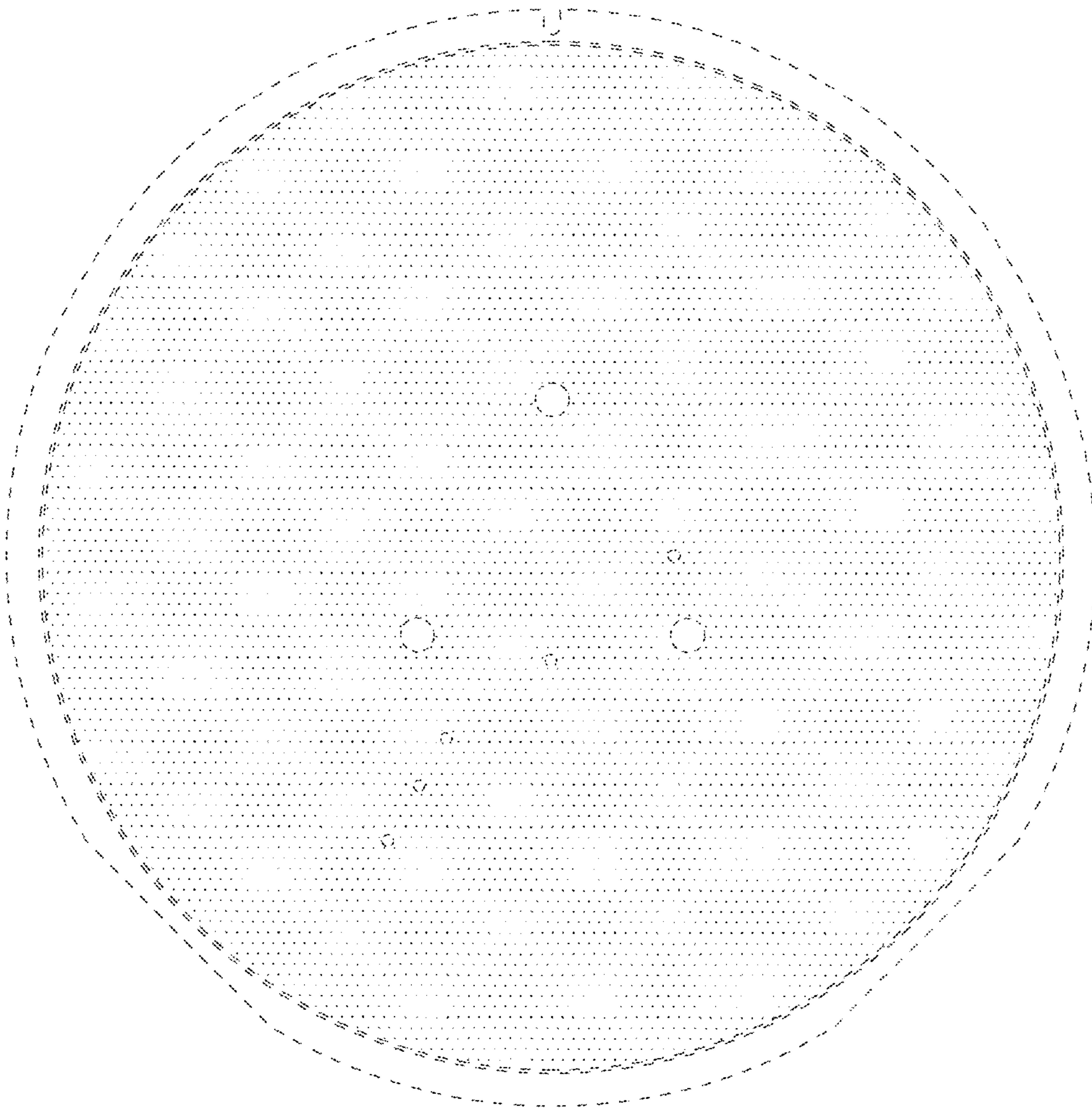
D268,414 S *	3/1983	Cleary	D15/130
D307,593 S *	5/1990	Chishty	D15/130
6,032,997 A *	3/2000	Elliott	B25B 11/005 269/21
6,427,991 B1 *	8/2002	Kao	B23Q 1/38 269/21
8,122,795 B2 *	2/2012	Goll	B26D 3/003 82/1.11
D667,033 S *	9/2012	Frey	D15/138

* cited by examiner

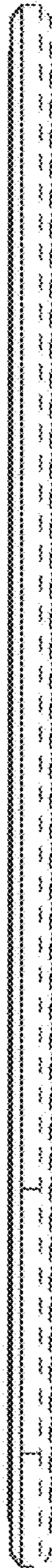
1.1



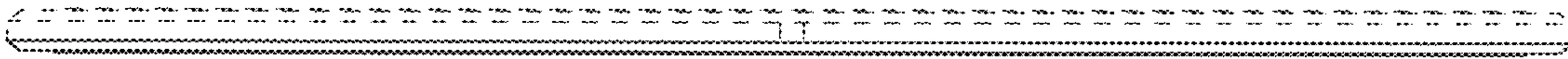
1.2



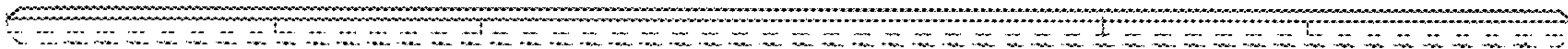
1.3



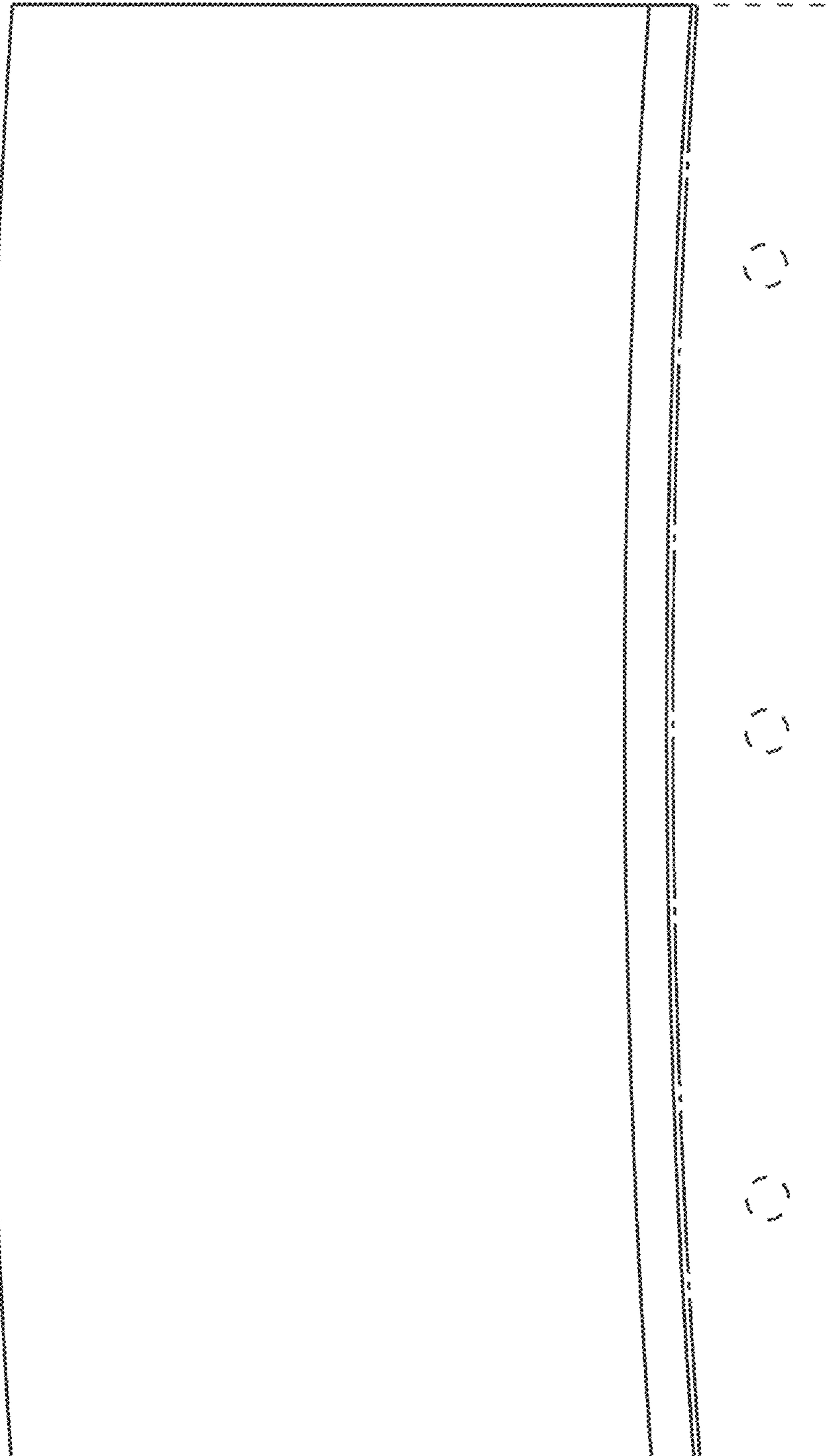
1.4



1.5



1.6



1.7

