

US00D909322S

(12) **United States Design Patent** (10) **Patent No.:** **US D909,322 S**  
**Yoshida et al.** (45) **Date of Patent:** **\*\* Feb. 2, 2021**

(54) **SEAL MEMBER FOR USE IN SEMICONDUCTOR PRODUCTION APPARATUS**

(71) Applicant: **VALQUA, LTD.**, Tokyo (JP)

(72) Inventors: **Nobuhiro Yoshida**, Gojo (JP); **Ippei Nakagawa**, Gojo (JP)

(73) Assignee: **Valqua, Ltd.**, Tokyo (JP)

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

(21) Appl. No.: **35/507,483**

(22) Filed: **Apr. 1, 2019**

(80) **Hague Agreement Data**

Int. Filing Date: **Apr. 1, 2019**

Int. Reg. No.: **DM/202409**

Int. Reg. Date: **Apr. 1, 2019**

Int. Reg. Pub. Date: **Oct. 4, 2019**

(30) **Foreign Application Priority Data**

Oct. 12, 2018 (JP) ..... 2018-022466  
Oct. 12, 2018 (JP) ..... 2018-022467  
Oct. 12, 2018 (JP) ..... 2018-022468  
Oct. 12, 2018 (JP) ..... 2018-022469

(51) **LOC (13) Cl.** ..... **13-99**

(52) **U.S. Cl.**  
USPC ..... **D13/199**

(58) **Field of Classification Search**

USPC ..... D13/182, 121, 154; D8/436; D23/269, D23/209; D9/779, 419, 454, 520, 416; D3/302; D34/29; D29/122; D14/436  
CPC ..... H01L 21/67126; H01L 25/165; H02G 3/0418; F16K 3/0227; F16J 15/062; A61J 7/0007; B29C 65/08; G01L 19/0084

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,815,802 A \* 6/1974 Stevens ..... A61J 7/0007  
225/93  
5,057,648 A \* 10/1991 Blough ..... H01L 25/165  
174/561

(Continued)

FOREIGN PATENT DOCUMENTS

TW M379164 U 4/2010  
TW D143035 S 10/2011

(Continued)

*Primary Examiner* — Rhea Shields

(74) *Attorney, Agent, or Firm* — The Webb Law Firm

(57) **CLAIM**

The ornamental design for seal member for use in semiconductor production apparatus, as shown and described.

**DESCRIPTION**

**1.1** is a perspective view of a seal member for use in semiconductor production apparatus, showing our new design in accordance with a first embodiment of the present invention;

**1.2** is a front elevation view thereof;

**1.3** is a rear elevation view thereof;

**1.4** is a left side elevation view thereof;

**1.5** is a right side elevation view thereof;

**1.6** is a top view thereof;

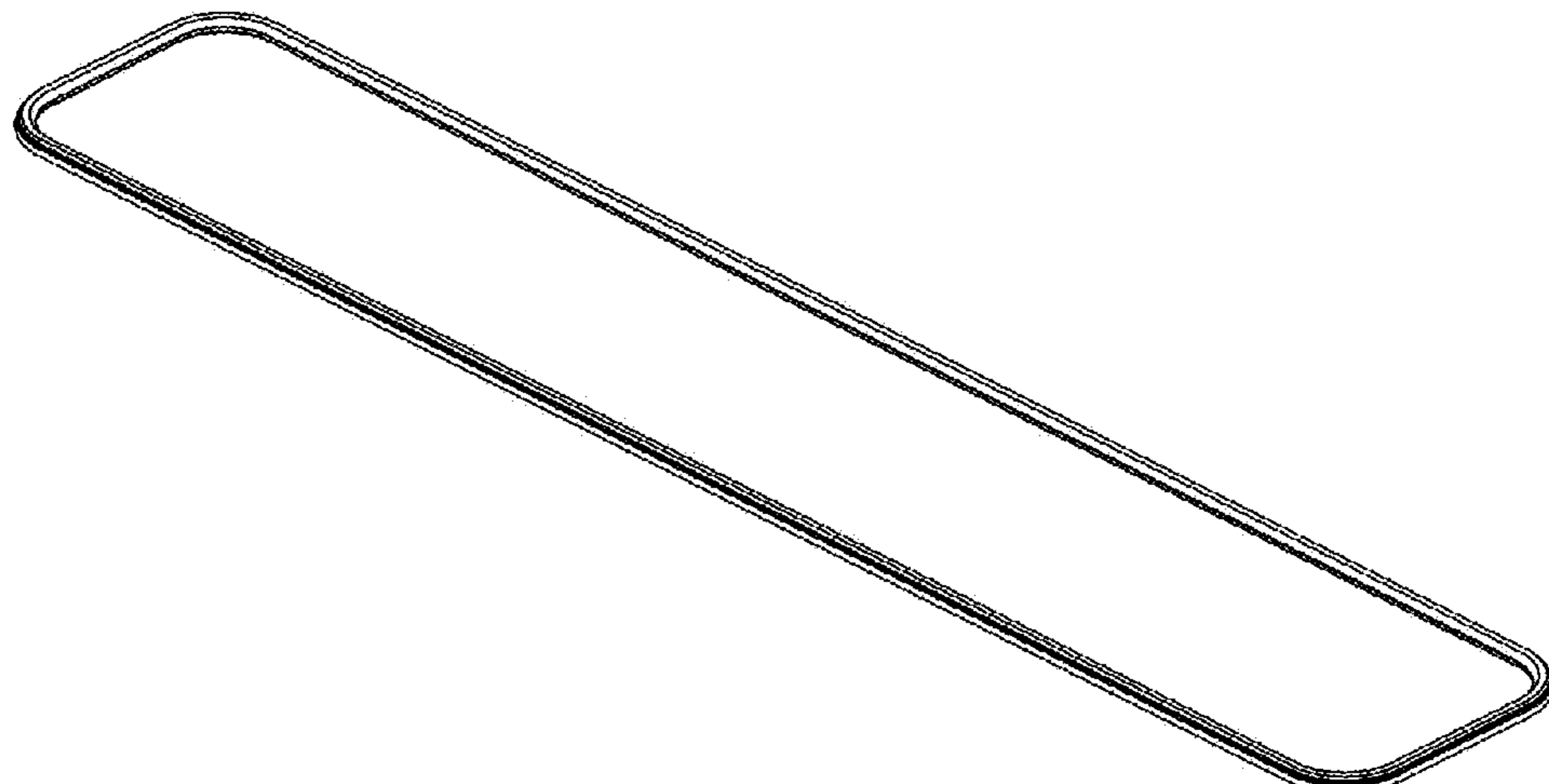
**1.7** is a bottom view thereof;

**1.8** is a cross-sectional view thereof;

**1.9** is an enlarged cross-sectional view of a portion thereof;

**1.10** is an enlarged cross-sectional view thereof in a condition of use;

(Continued)



2.1 is a perspective view of a seal member for use in semiconductor production apparatus, showing our new design in accordance with a second embodiment of the present invention:

2.2 is a front elevation view thereof;

2.3 is a rear elevation view thereof;

2.4 is a left side elevation view thereof;

2.5 is a right side elevation view thereof;

2.6 is a top view thereof;

2.7 is a bottom view thereof;

2.8 is a cross-sectional view thereof;

2.9 is an enlarged cross-sectional view of a portion thereof; and

2.10 is an enlarged cross-sectional view thereof in a condition of use.

In the Reproductions 1.10 and 2.10, the broken lines are for the purpose of illustrating portions of the seal member for use in semiconductor production apparatus that forms no part of the claimed design.

**1 Claim, 20 Drawing Sheets**

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,184,107 A \* 2/1993 Maurer ..... G01L 19/0084  
29/621.1  
5,289,932 A \* 3/1994 Dimeo ..... B29C 65/08  
215/349  
5,464,355 A \* 11/1995 Rothenberger .... H01R 13/2442  
439/559  
5,621,189 A \* 4/1997 Dodds ..... H02G 3/0418  
174/17 CT  
D499,025 S \* 11/2004 Houk ..... D9/520  
7,306,237 B2 \* 12/2007 Tsuji ..... F16J 15/062  
277/644  
D562,684 S \* 2/2008 Brashear ..... D9/454  
D633,043 S \* 2/2011 Wada ..... D13/121  
D633,991 S \* 3/2011 Nakagawa ..... D23/269  
D638,522 S \* 5/2011 Yoshida ..... D23/269  
D689,653 S \* 9/2013 Lowther ..... D29/122

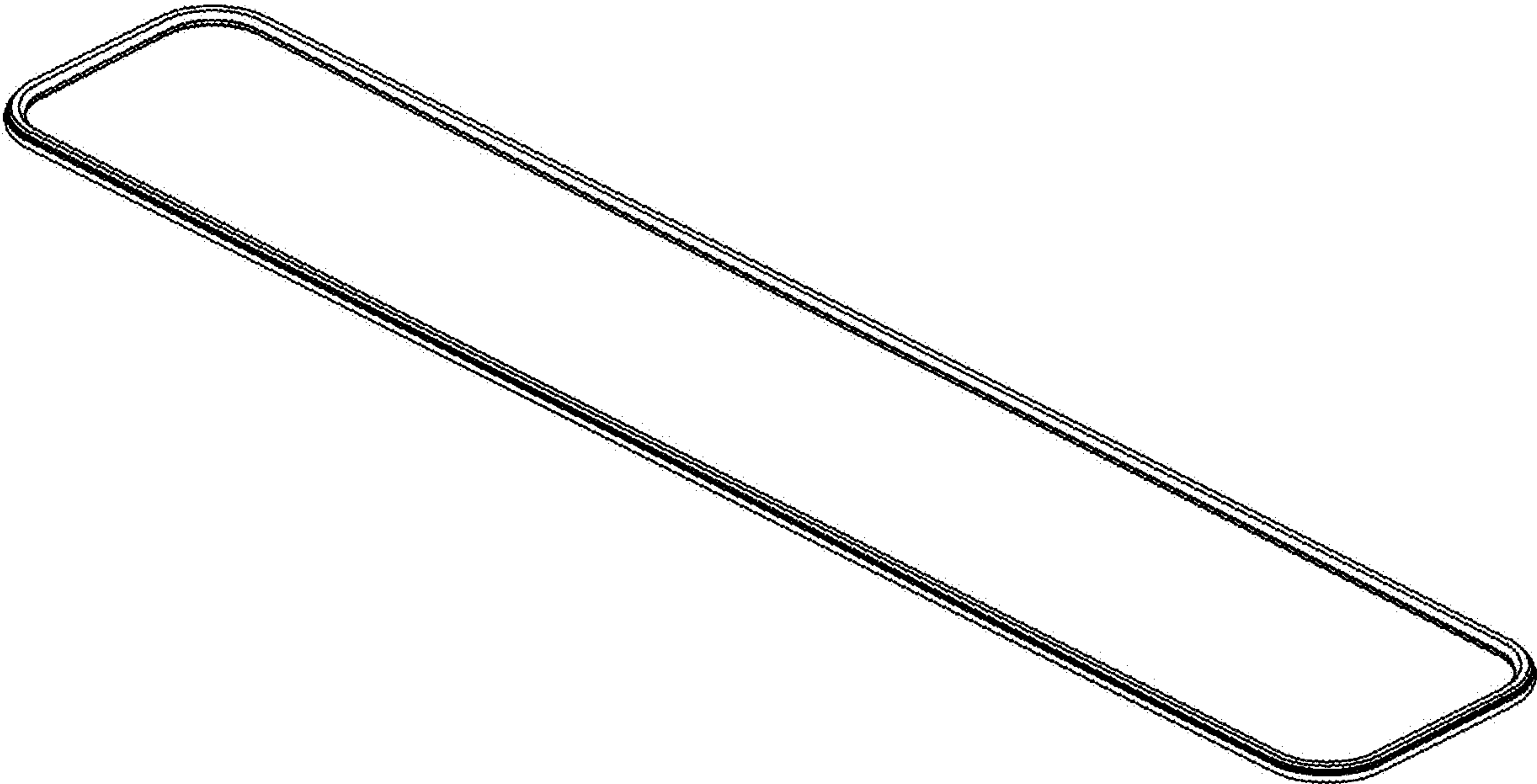
D733,263 S \* 6/2015 Fujii ..... D23/262  
D738,111 S \* 9/2015 Otto ..... D3/302  
D751,380 S \* 3/2016 Torrison ..... D9/416  
D751,381 S \* 3/2016 Torrison ..... D9/416  
D751,382 S \* 3/2016 Torrison ..... D9/416  
D751,383 S \* 3/2016 Torrison ..... D9/416  
D754,308 S \* 4/2016 Nakagawa ..... D23/269  
D767,234 S \* 9/2016 Kirkland ..... D34/29  
D774,887 S \* 12/2016 Torrison ..... D9/416  
D783,922 S \* 4/2017 Kirkland ..... D34/29  
9,611,940 B2 \* 4/2017 Khan ..... F16K 3/0227  
D800,549 S \* 10/2017 Delle Cese ..... D9/419  
D802,723 S \* 11/2017 Miyamoto ..... D23/269  
9,892,945 B2 \* 2/2018 Nakagawa ..... H01L 21/67126  
D813,181 S \* 3/2018 Okajima ..... D13/182  
D819,187 S \* 5/2018 Yamamoto ..... D23/269  
D821,552 S \* 6/2018 Nakagawa ..... D23/269  
D822,181 S \* 7/2018 Nakagawa ..... D23/269  
D836,186 S \* 12/2018 Takahashi ..... D23/269  
D839,091 S \* 1/2019 Torrison ..... D9/416  
D848,585 S \* 5/2019 Yamamoto ..... D23/269  
D849,211 S \* 5/2019 Yamamoto ..... D23/269  
D849,559 S \* 5/2019 Swenson ..... D9/779  
D862,404 S \* 10/2019 Murata ..... D13/182  
D864,361 S \* 10/2019 Kim ..... D23/269  
D865,920 S \* 11/2019 Takahashi ..... D23/269  
D871,561 S \* 12/2019 Kang ..... D23/269  
D873,981 S \* 1/2020 Yoshida ..... D23/269  
D875,899 S \* 2/2020 Yoshida ..... D23/269  
D875,900 S \* 2/2020 Yoshida ..... D23/269  
D877,739 S \* 3/2020 Maus ..... D14/436  
D877,865 S \* 3/2020 Nakagawa ..... D23/269  
D881,822 S \* 4/2020 Wladyka ..... D13/154  
D885,444 S \* 5/2020 Tsuji ..... D15/7  
D888,888 S \* 6/2020 Widom ..... D23/209  
2015/0279706 A1 \* 10/2015 Nakagawa ..... H01L 21/67126  
277/641

FOREIGN PATENT DOCUMENTS

TW D149670 S 10/2012  
TW D149671 S 10/2012  
TW D149672 S 10/2012  
TW D150427 S 11/2012  
TW D185712 S 10/2017  
TW D185713 S 10/2017  
TW D185714 S 10/2017

\* cited by examiner

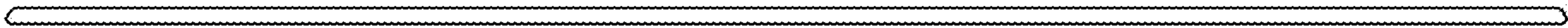
1.1



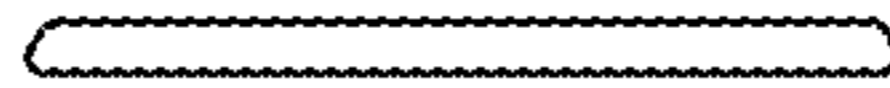
**1.2**

---

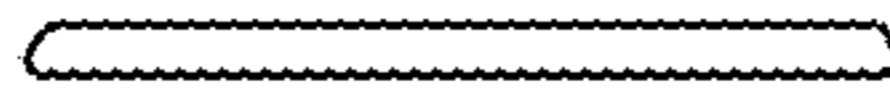
1.3



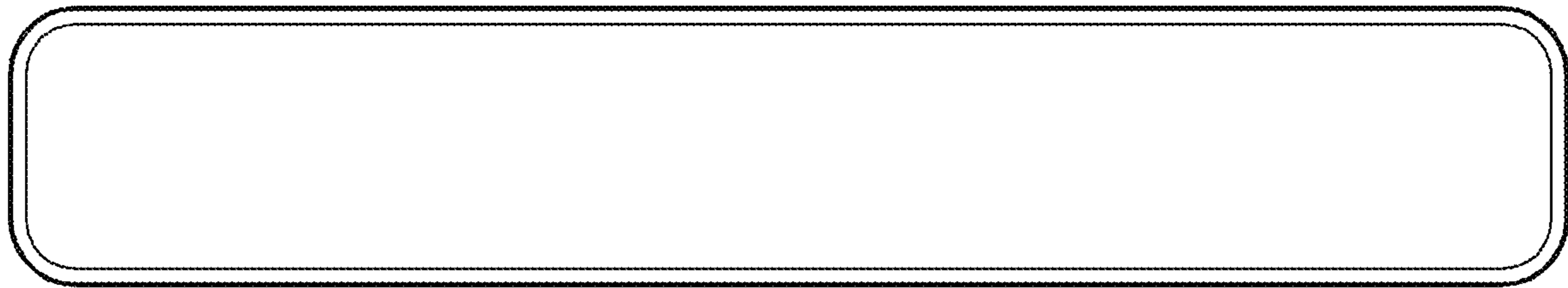
**1.4**



**1.5**



1.6

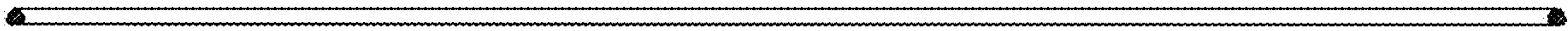




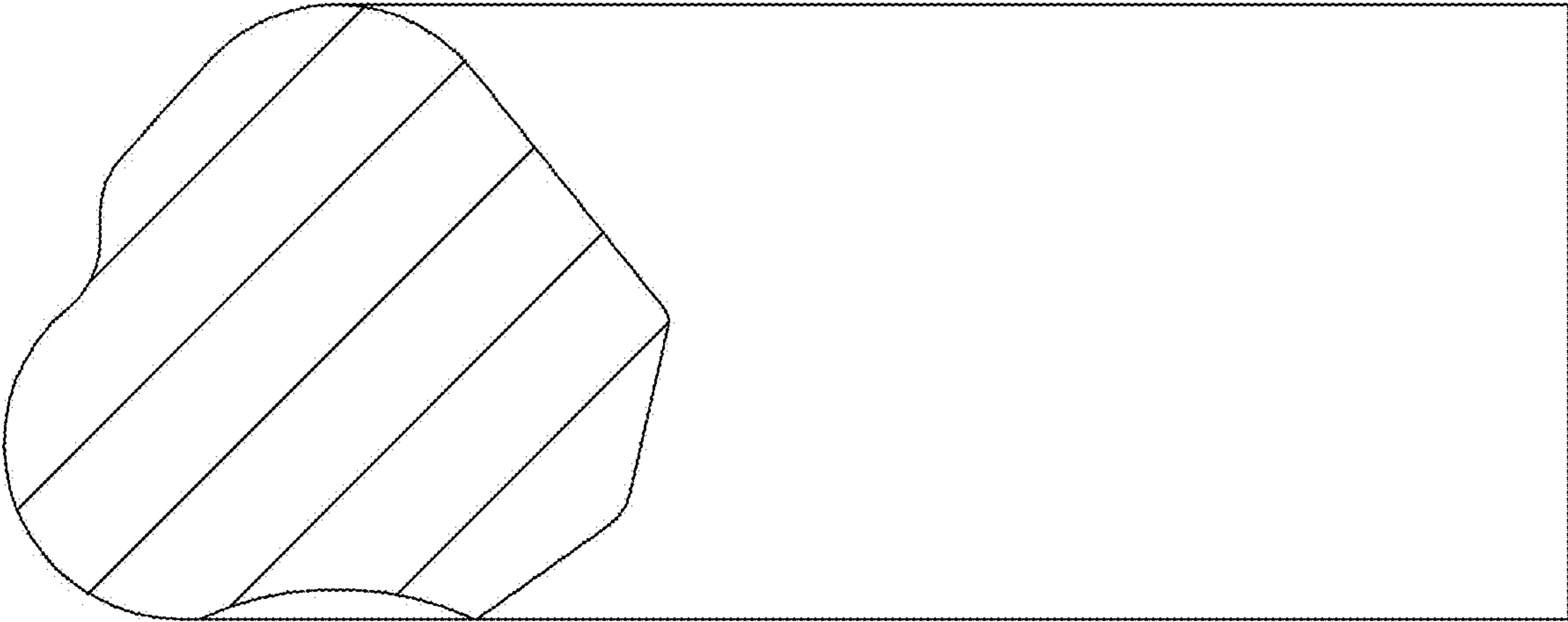
1.7



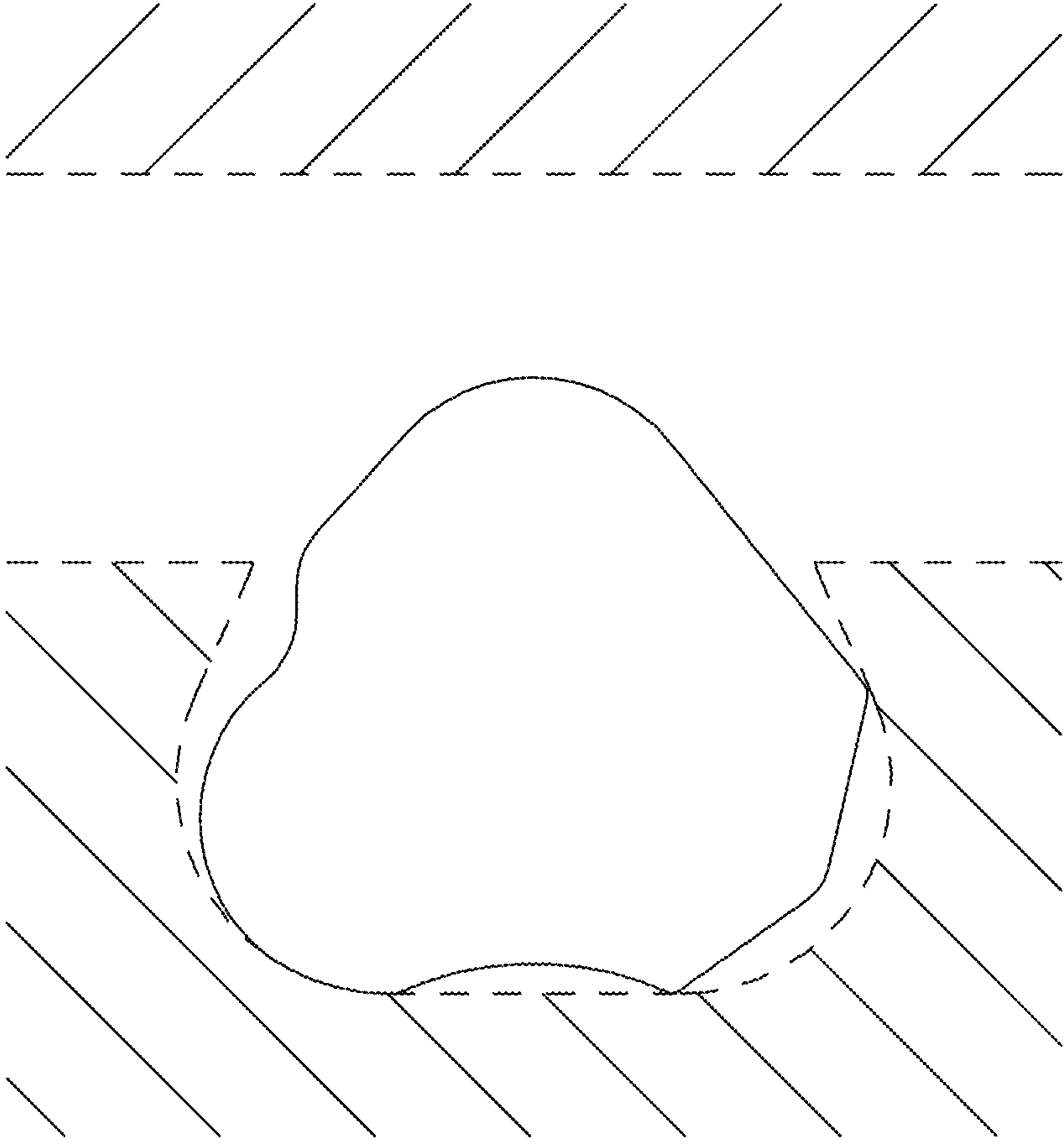
1.8



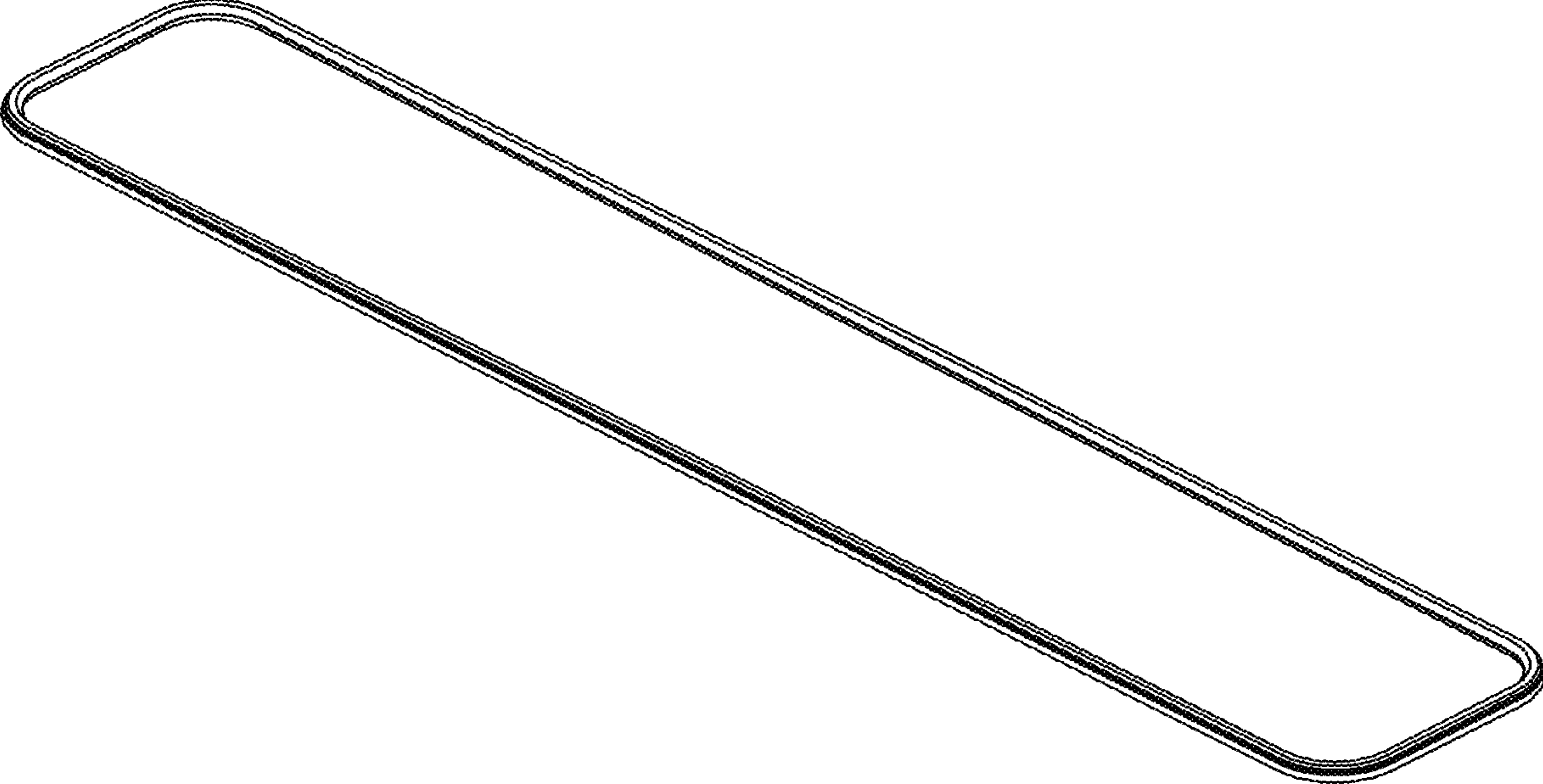
1.9



1.10



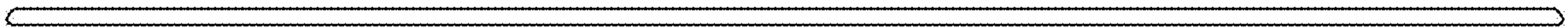
2.1



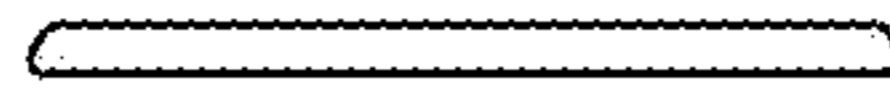
2.2

---

2.3

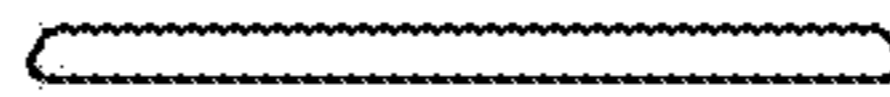


2.4

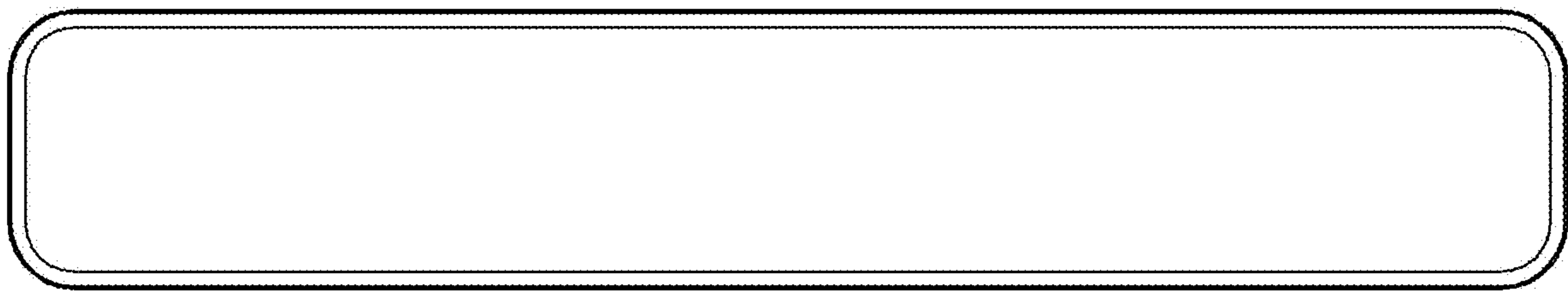




2.5



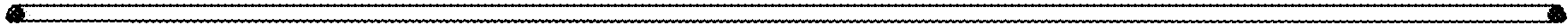
2.6



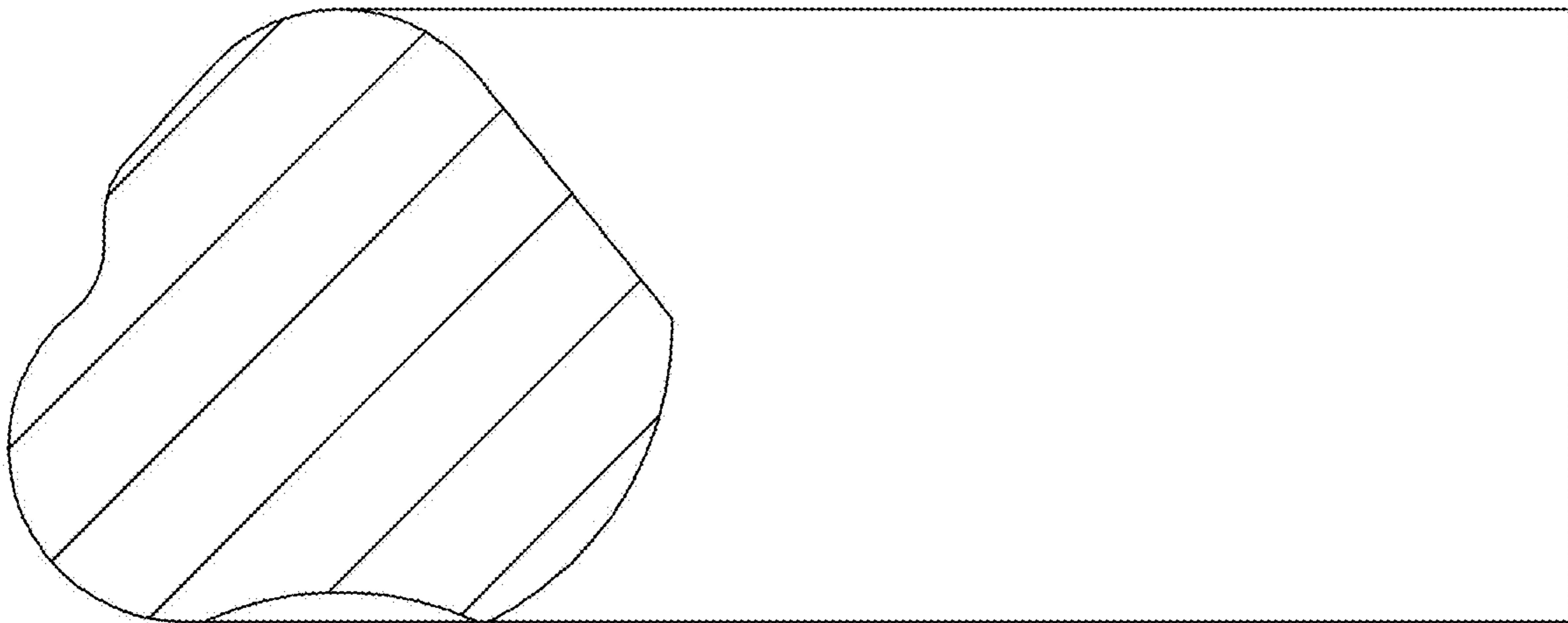
2.7



2.8



2.9



2.10

