



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;

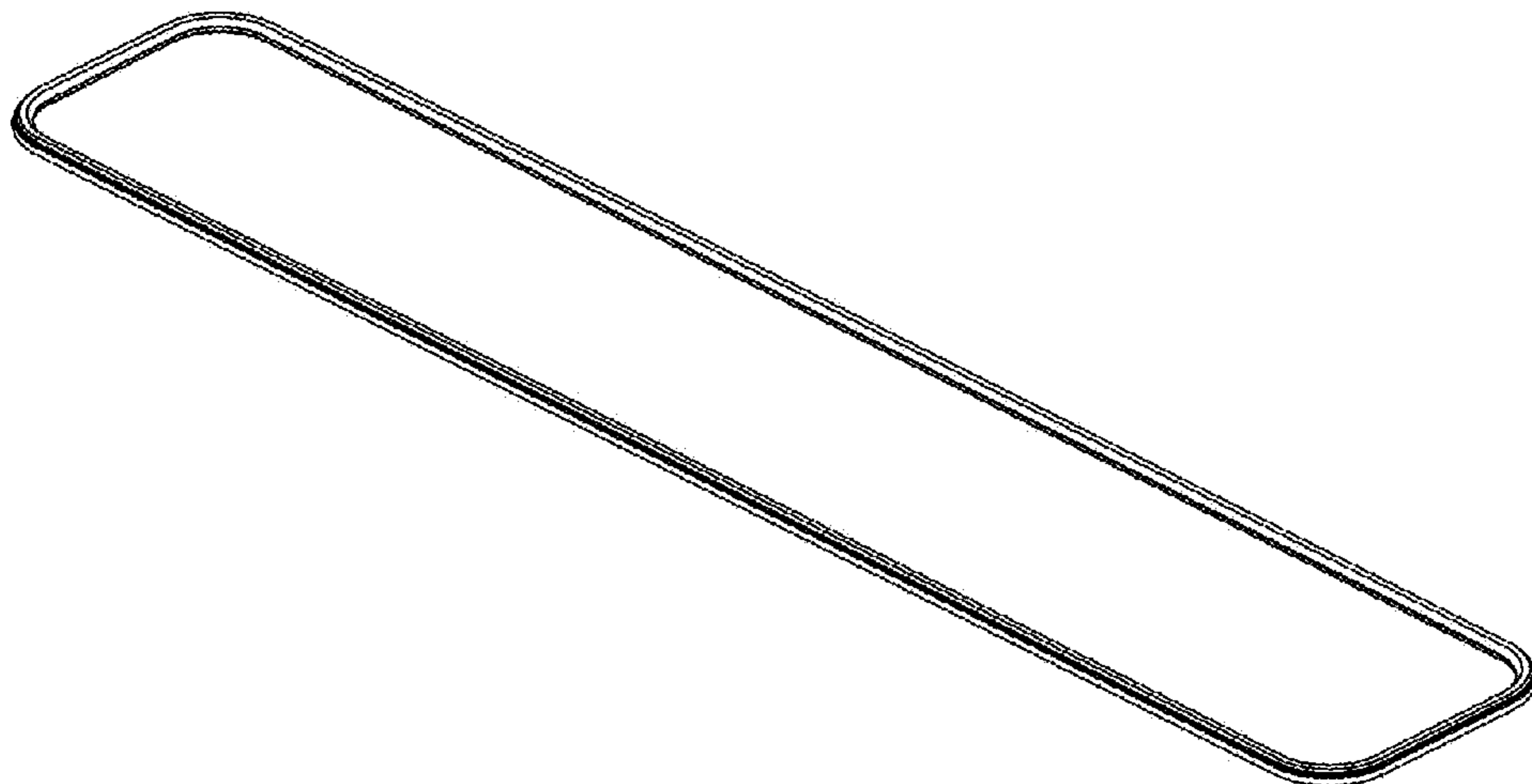
1.7 is a bottom view thereof;

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

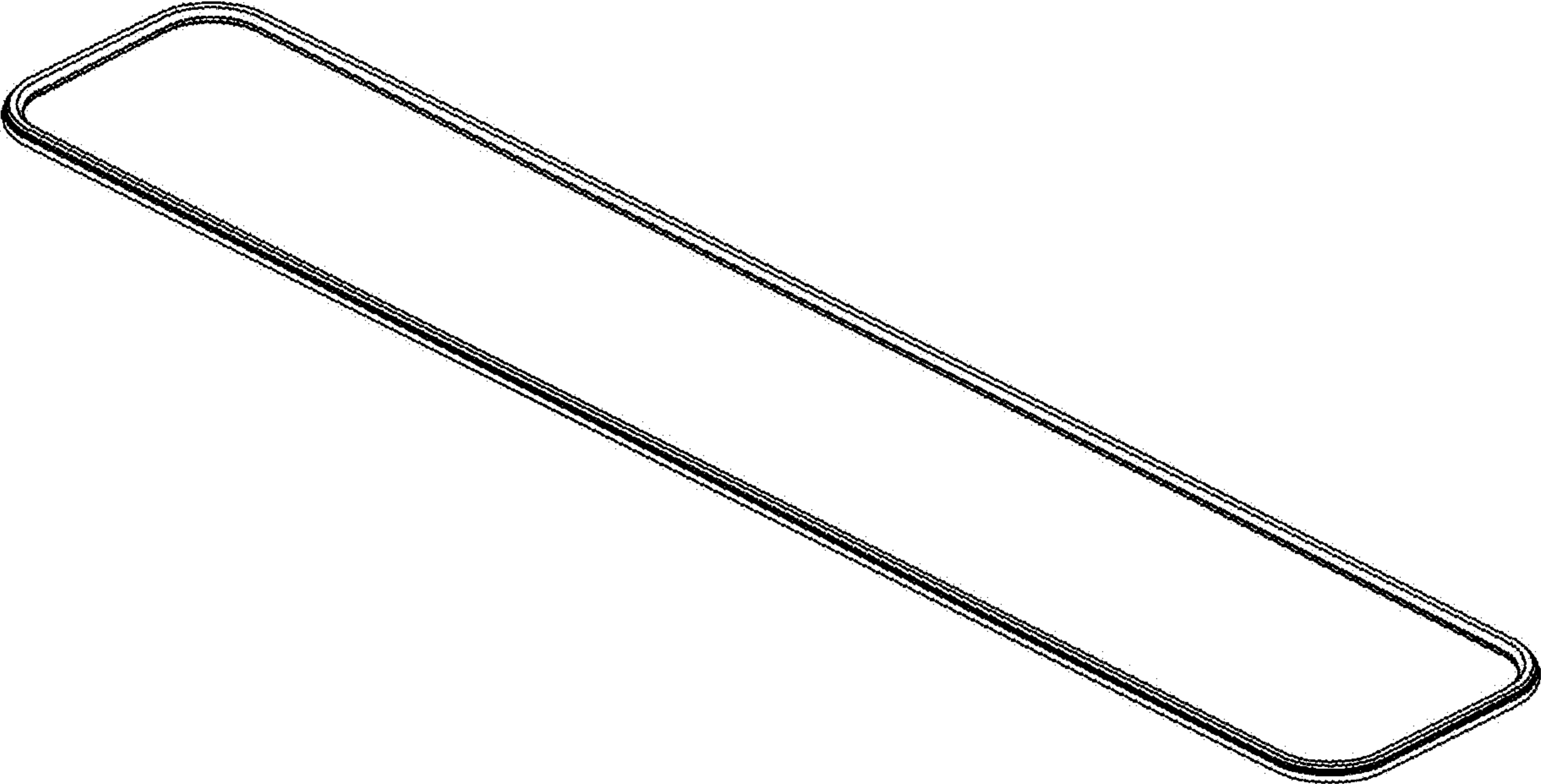
D733,263 S * 6/2015 Fujii D23/262
D738,111 S * 9/2015 Otto D3/302
D751,380 S * 3/2016 Torrison D9/416
D751,381 S * 3/2016 Torrison D9/416
D751,382 S * 3/2016 Torrison D9/416
D751,383 S * 3/2016 Torrison D9/416
D754,308 S * 4/2016 Nakagawa D23/269
D767,234 S * 9/2016 Kirkland D34/29
D774,887 S * 12/2016 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

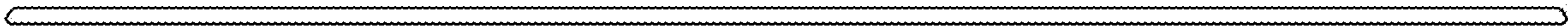
* cited by examiner

1.1

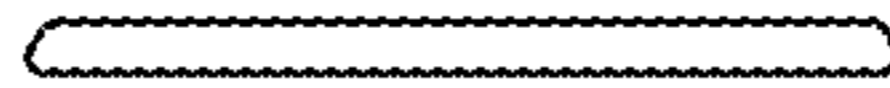


1.2

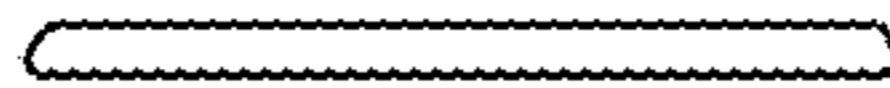
1.3



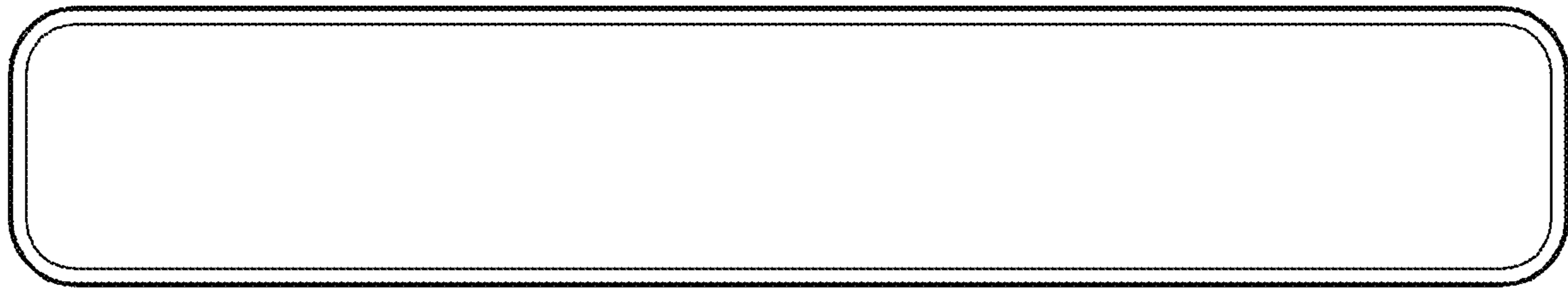
1.4



1.5



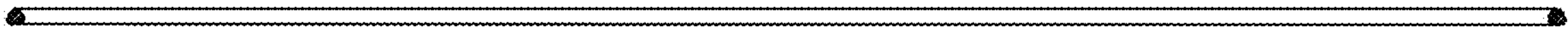
1.6



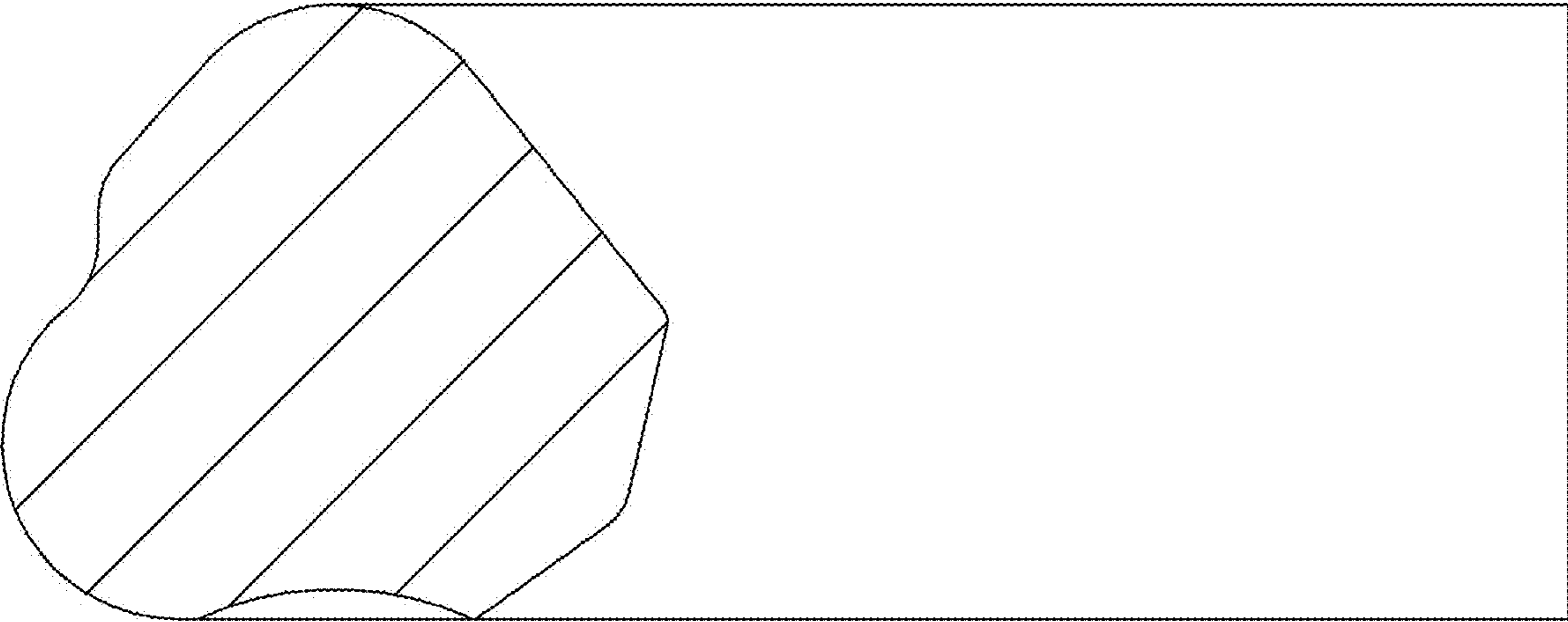
1.7



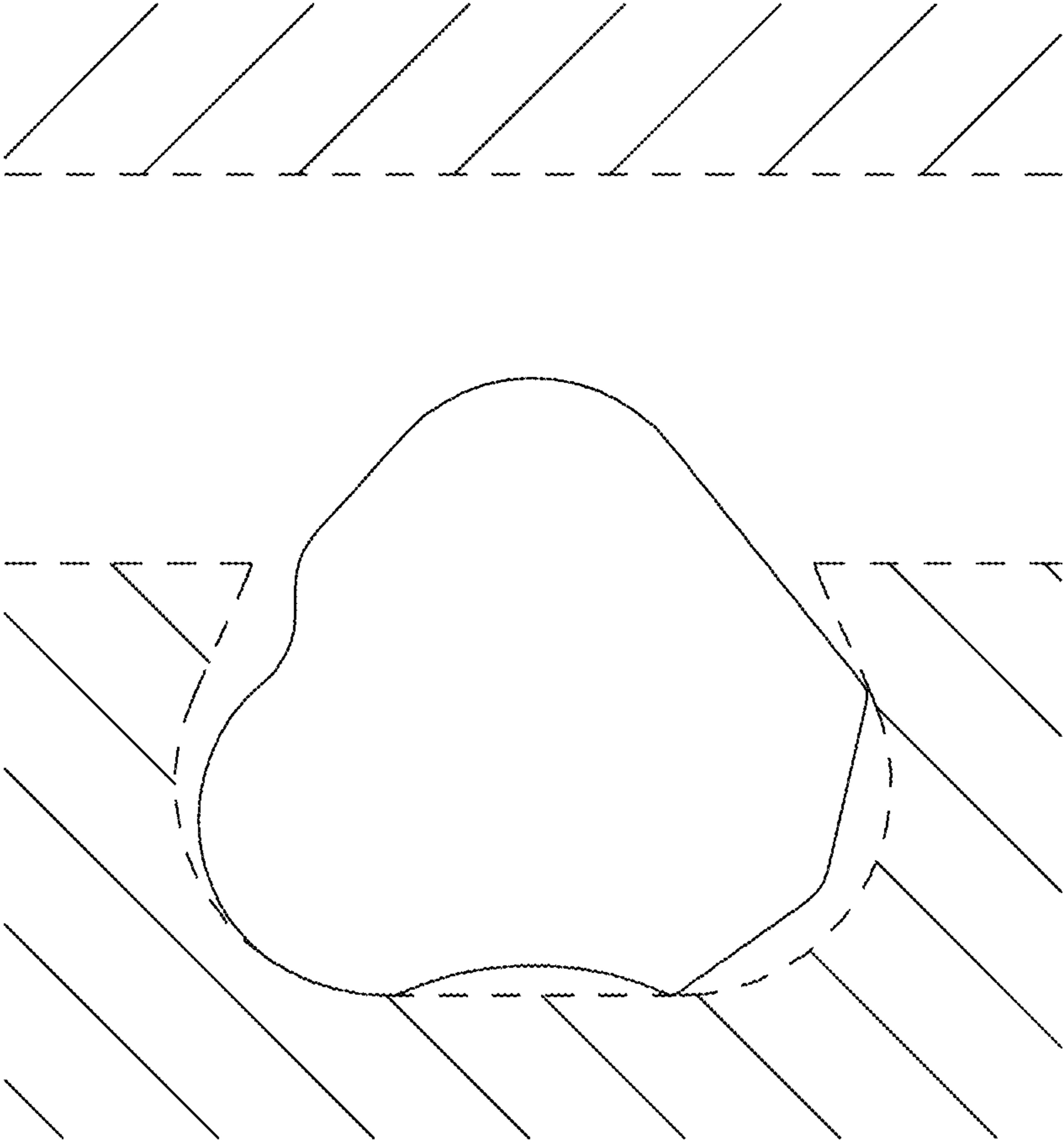
1.8



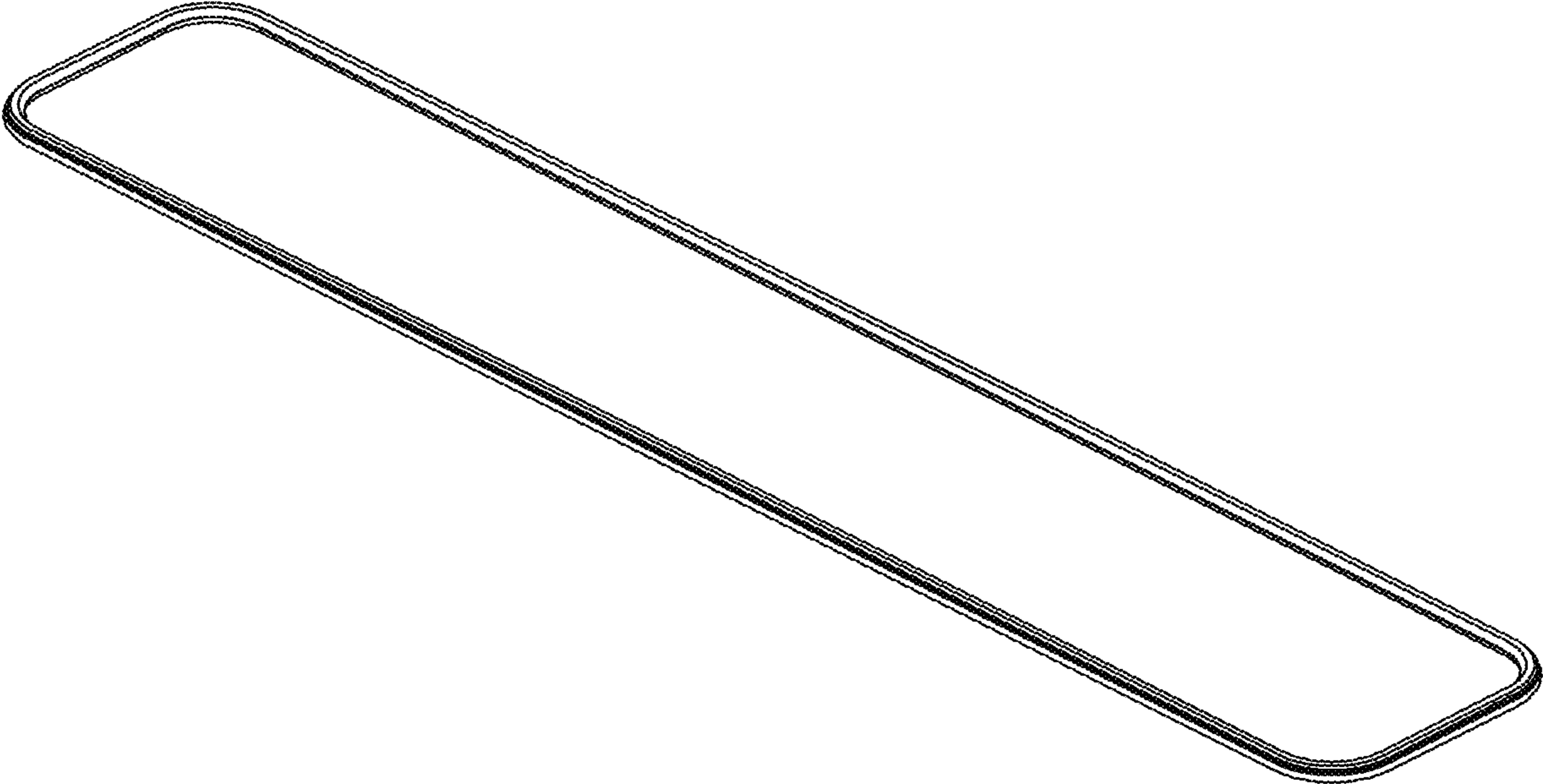
1.9



1.10

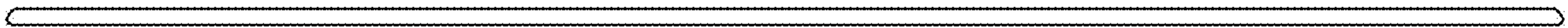


2.1

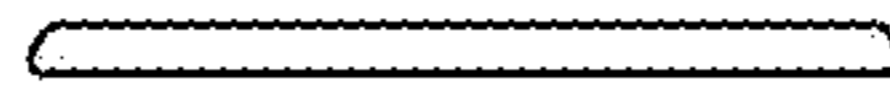


2.2

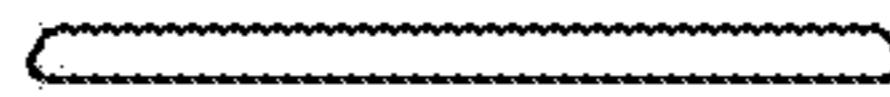
2.3



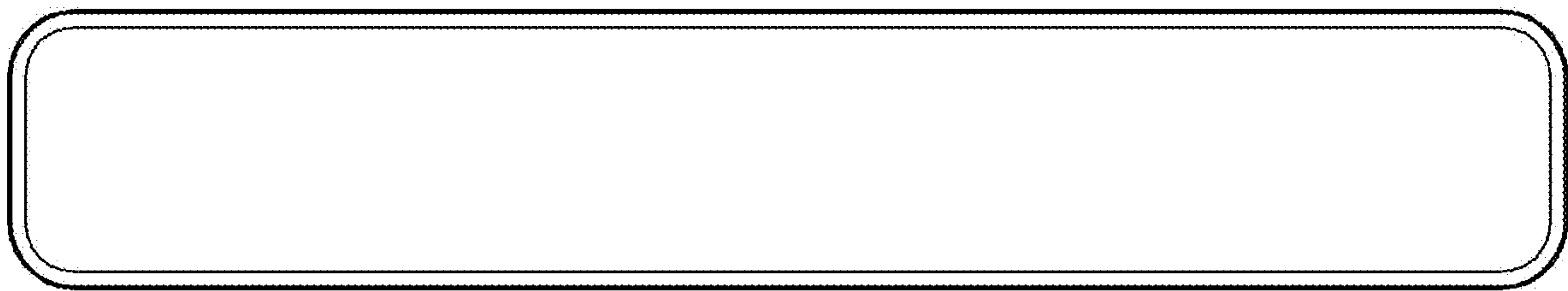
2.4



2.5



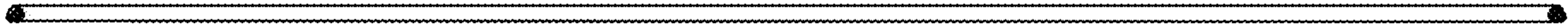
2.6



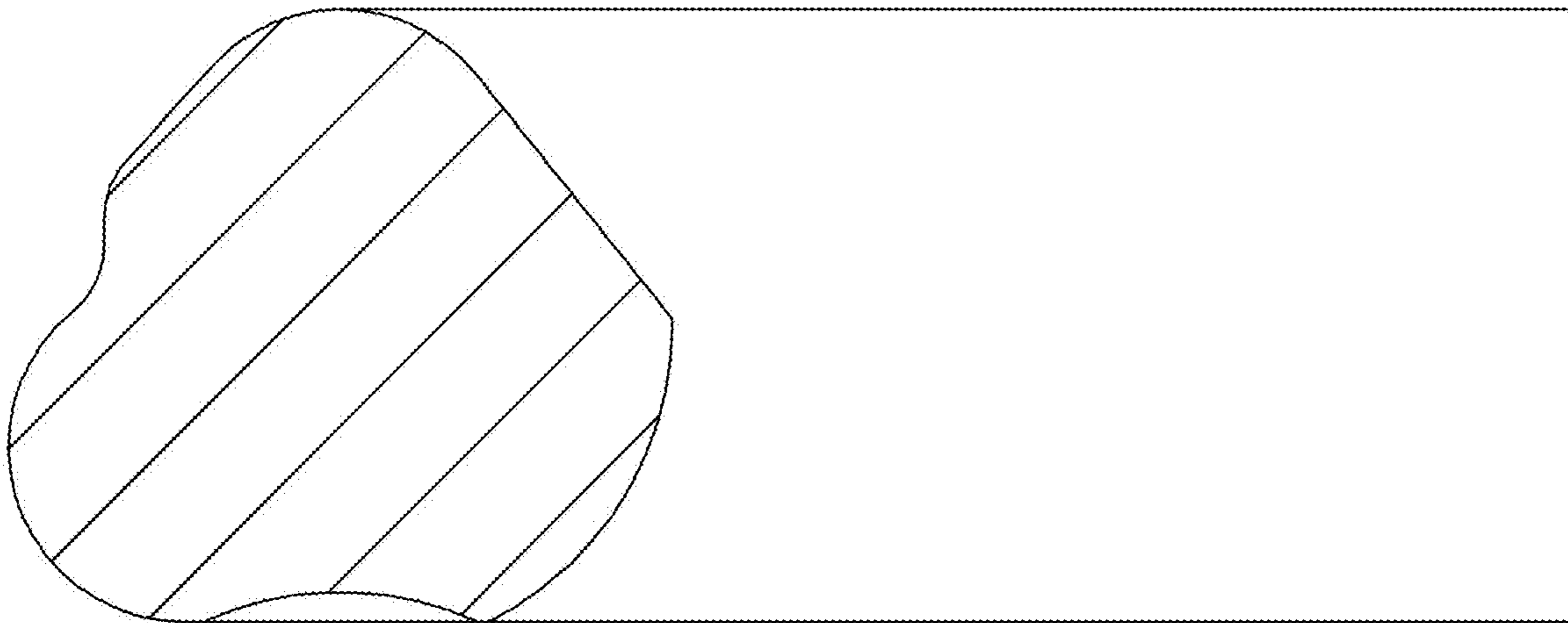
2.7



2.8



2.9



2.10

