

US00D832802S

(12) **United States Design Patent** (10) **Patent No.:** **US D832,802 S**  
**Nishio et al.** (45) **Date of Patent:** **\*\* Nov. 6, 2018**

(54) **OPTICAL SEMICONDUCTOR ELEMENT**

FOREIGN PATENT DOCUMENTS

(71) Applicant: **HAMAMATSU PHOTONICS K.K.**,  
Shizuoka (JP)

JP 1295912 3/2007  
JP 1344216 11/2008

(Continued)

(72) Inventors: **Fumitaka Nishio**, Hamamatsu (JP);  
**Makio Kume**, Hamamatsu (JP)

*Primary Examiner* — Rhea Shields

(57) **CLAIM**

(73) Assignee: **HAMAMATSU PHOTONICS K.K.**,  
Hamamatsu-shi, Shizuoka (JP)

The ornamental design for an optical semiconductor element, as shown and described.

**DESCRIPTION**

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

1. Optical semiconductor element

(21) Appl. No.: **35/502,665**

**1.1** : Top perspective view

(22) Filed: **Sep. 21, 2016**

**1.2** : Bottom perspective view

(80) **Hague Agreement Data**

Int. Filing Date: **Sep. 21, 2016**

**1.3** : Front

Int. Reg. No.: **DM/093515**

**1.4** : Back

Int. Reg. Date: **Sep. 21, 2016**

**1.5** : Top

Int. Reg. Pub. Date: **Mar. 24, 2017**

**1.6** : Bottom

**1.7** : Left

**1.8** : Right

**1.9** : Sectional view

**1.10** : Reference view showing the state in use

(30) **Foreign Application Priority Data**

Mar. 24, 2016 (JP) ..... 2016-006369

(51) **LOC (11) Cl.** ..... **13-03**

(52) **U.S. Cl.**  
USPC ..... **D13/180**

(58) **Field of Classification Search**  
USPC ..... D13/180, 134; D14/371; D9/737;  
D26/122, 120, 141, 118, 1  
(Continued)

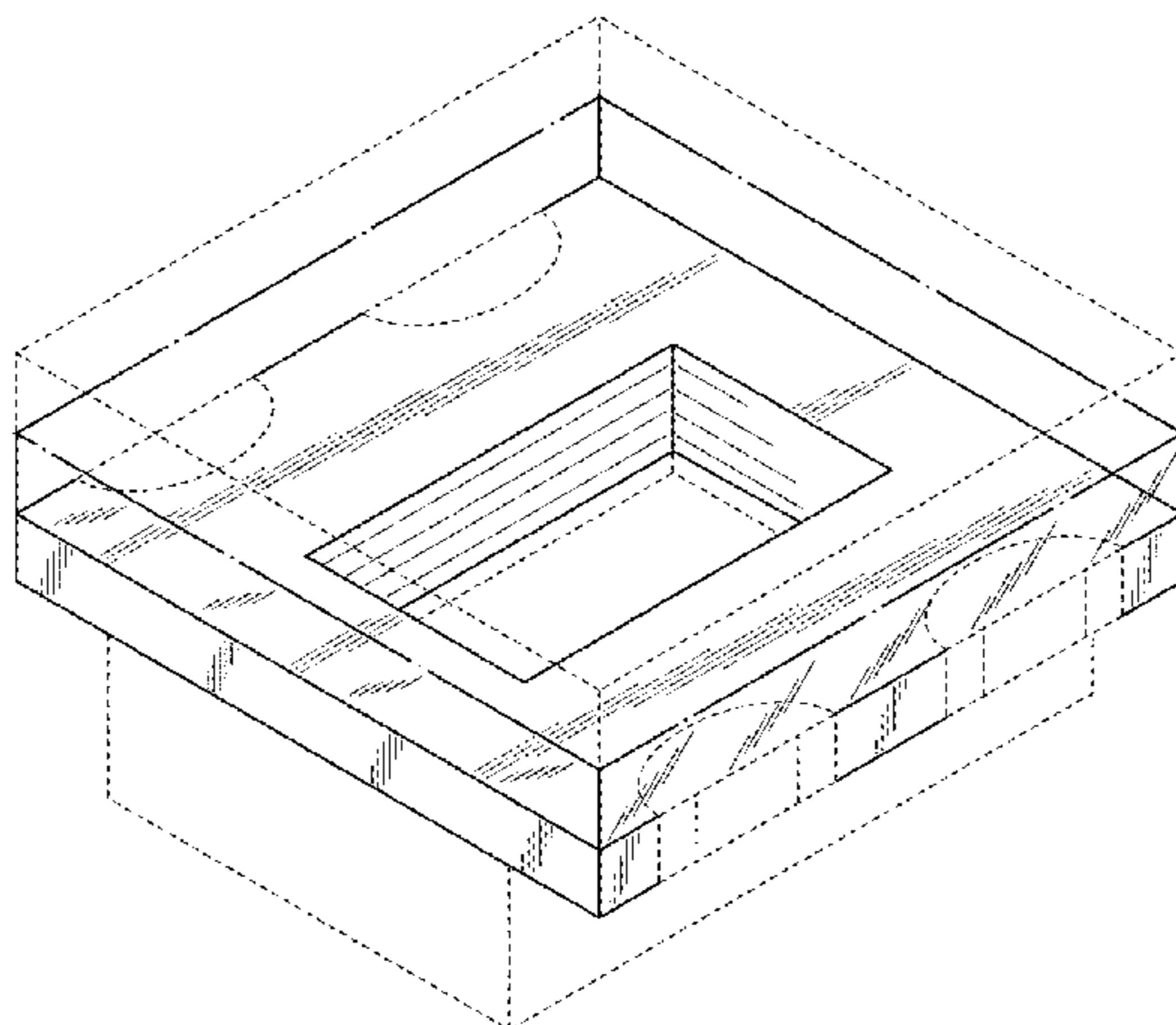
This article has a board part, a transparent sealing resin part and a light-shield sealing resin part; the board part has a rectangular entrance window in the center; the transparent sealing resin part covers an upper surface of the board part; the light-shield sealing resin part encapsulating a semiconductor light receiving element is positioned underneath the board part; the bottom center of the transparent sealing resin part is protruded and engaged with the rectangular entrance window part of the board part; the article can be mounted onto a mount board; the parts shown as solid lines are parts for which design registration is sought; the lines consisting of alternating long and short dashes in the drawings only indicate lines dividing our inventive design claimed herein from other parts which are not claimed; the parts for which design registration is sought are a lower part of the transparent sealing resin part including the protruding part, and the board part including the rectangular entrance window part; the transparent sealing resin part of the article is transparent; reproduction **1.9** is a cross-sectional view through the upper semicircular electrode parts of reproduc-

(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

750,578 A 1/1904 Bostwick et al.  
D511,328 S \* 11/2005 Wang ..... D13/180  
(Continued)



tion 1.5. In the reproductions, the dash-dot-dash broken lines are for the purpose of illustrating the boundaries of the claimed design. The evenly spaced broken lines are for the purpose of illustrating environment only and form no part of the claimed design.

**1 Claim, 10 Drawing Sheets**

(58) **Field of Classification Search**

CPC ..... H01L 33/62; H01L 33/486  
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D512,029 S *	11/2005	Kim	.....	D13/180
D568,834 S *	5/2008	Nishida	.....	D13/180
D574,994 S *	8/2008	Boyer	.....	D26/120
D576,115 S *	9/2008	Choi	.....	D13/180
D585,850 S *	2/2009	Won	.....	D13/180
D626,097 S *	10/2010	Takeuchi	.....	D13/180
D626,922 S *	11/2010	Wada	.....	D13/180
D627,314 S *	11/2010	Lai	.....	D13/180
D647,864 S *	11/2011	Huang	.....	D13/180
D654,032 S *	2/2012	Yu	.....	D13/180
D671,674 S *	11/2012	Cho	.....	D26/118
D693,317 S *	11/2013	Kobayashi	.....	D13/180
D693,781 S *	11/2013	Kobayashi	.....	D13/180
D697,876 S *	1/2014	Hsu	.....	D13/180
D725,613 S *	3/2015	Lowes	.....	D13/180
D728,480 S *	5/2015	Chang	.....	D13/134
D728,493 S *	5/2015	Lin	.....	D13/180

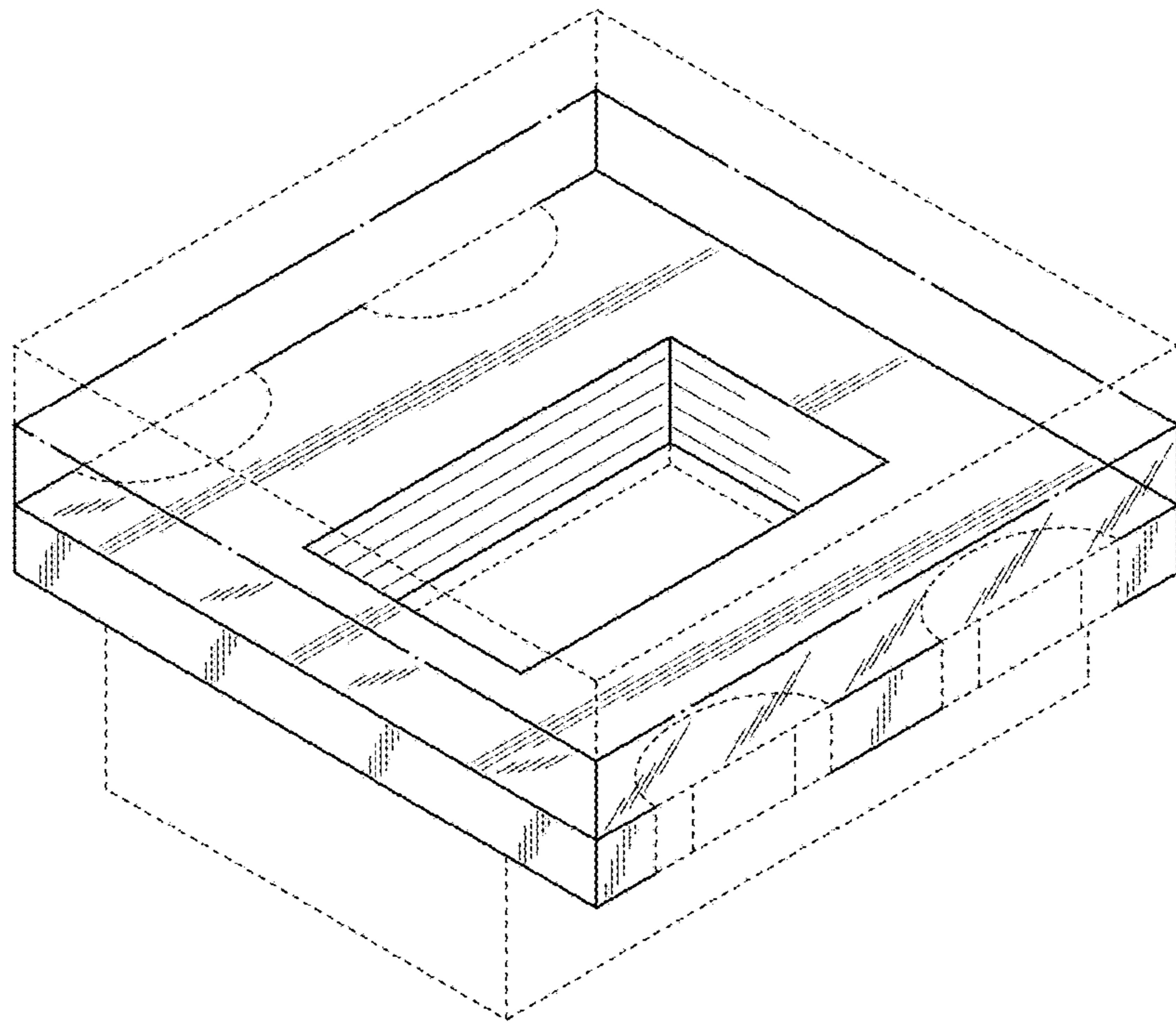
D730,303 S *	5/2015	Chou	.....	D13/180
D731,989 S *	6/2015	Huang	.....	D13/180
D735,683 S *	8/2015	Reiherzer	.....	D13/180
D737,784 S *	9/2015	Song	.....	D13/180
D738,832 S *	9/2015	Hussell	.....	D13/180
D741,821 S *	10/2015	Song	.....	D13/180
D742,554 S *	11/2015	Kanemaru	.....	D26/1
D750,578 S	3/2016	Chu et al.		
D753,612 S *	4/2016	Hussell	.....	D13/180
D757,664 S *	5/2016	Chu	.....	D13/180
D758,976 S *	6/2016	Reiherzer	.....	D13/180
D761,215 S *	7/2016	Shi	.....	D13/180
D763,206 S *	8/2016	Lin	.....	D13/180
D763,805 S *	8/2016	Huang	.....	D13/180
D773,724 S *	12/2016	Shiening Wang	.....	D26/141
D778,849 S *	2/2017	Maruyama	.....	D13/180
D783,547 S *	4/2017	Bergmann	.....	D13/180
9,620,693 B2 *	4/2017	Yoon	.....	H01L 33/62
9,634,209 B2 *	4/2017	Chan	.....	H01L 33/486
D794,582 S *	8/2017	Zhang	.....	D13/180
D795,492 S *	8/2017	Kim	.....	D26/120
D796,456 S *	9/2017	Lee	.....	D13/180
D800,678 S *	10/2017	Omori	.....	D13/180
D800,679 S *	10/2017	Omori	.....	D13/180
D805,070 S *	12/2017	Cai	.....	D14/371
D805,244 S *	12/2017	Vasylyev	.....	D26/122
D805,399 S *	12/2017	Torchin	.....	D9/737

FOREIGN PATENT DOCUMENTS

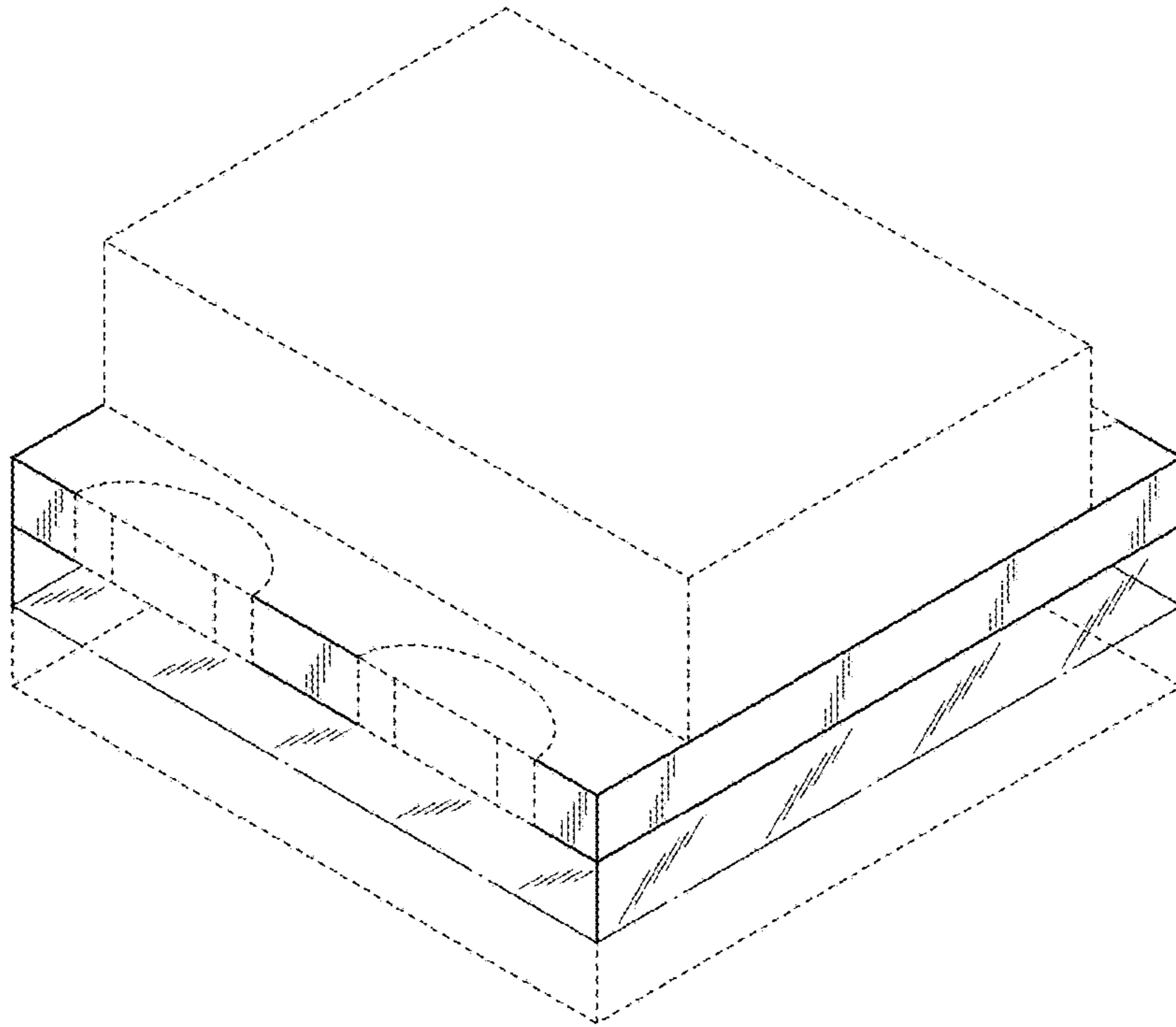
JP	1563811 S	11/2016
JP	1563910 S	11/2016
TW	122714	5/2008
TW	143792	11/2011
TW	163532	10/2014

\* cited by examiner

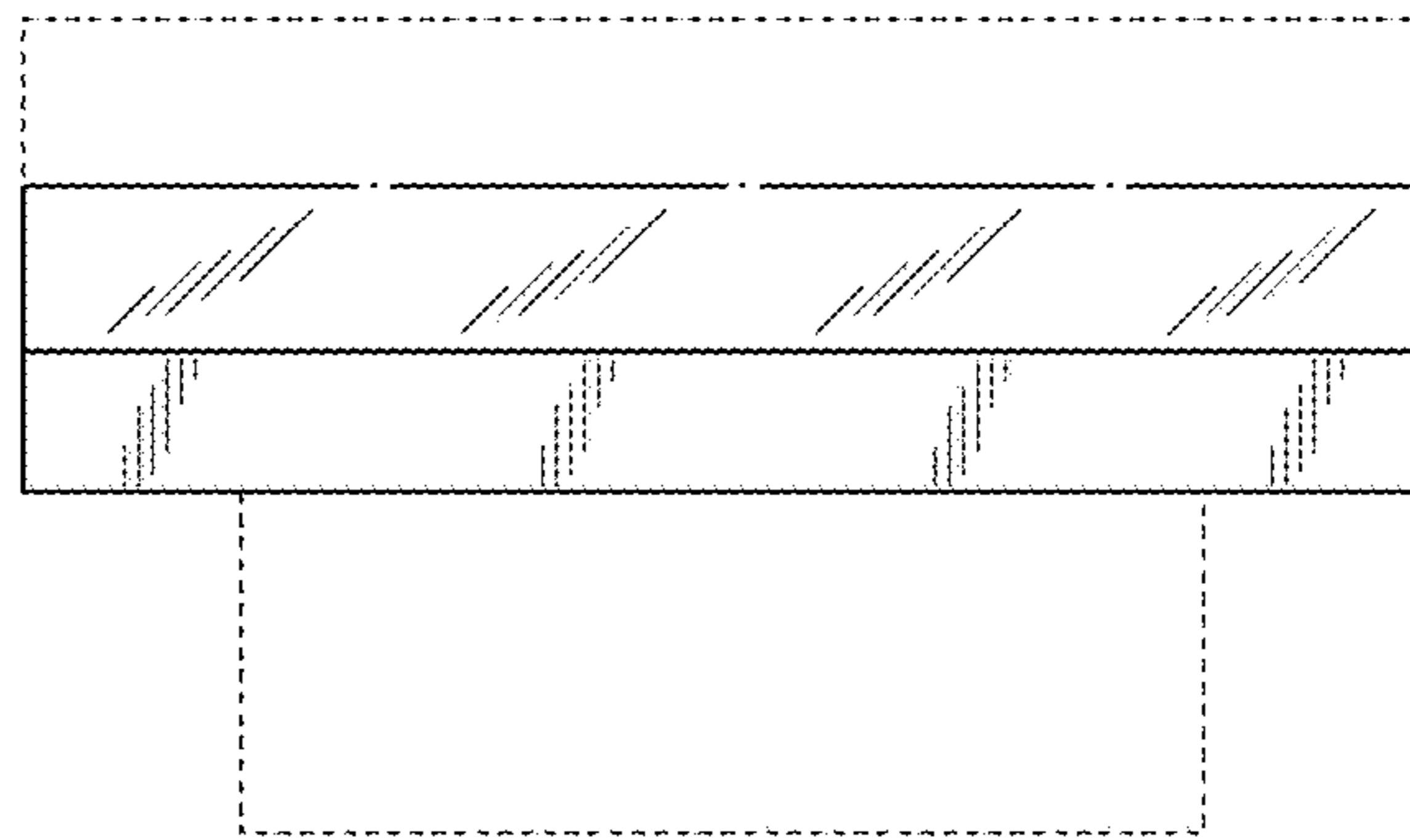
1.1



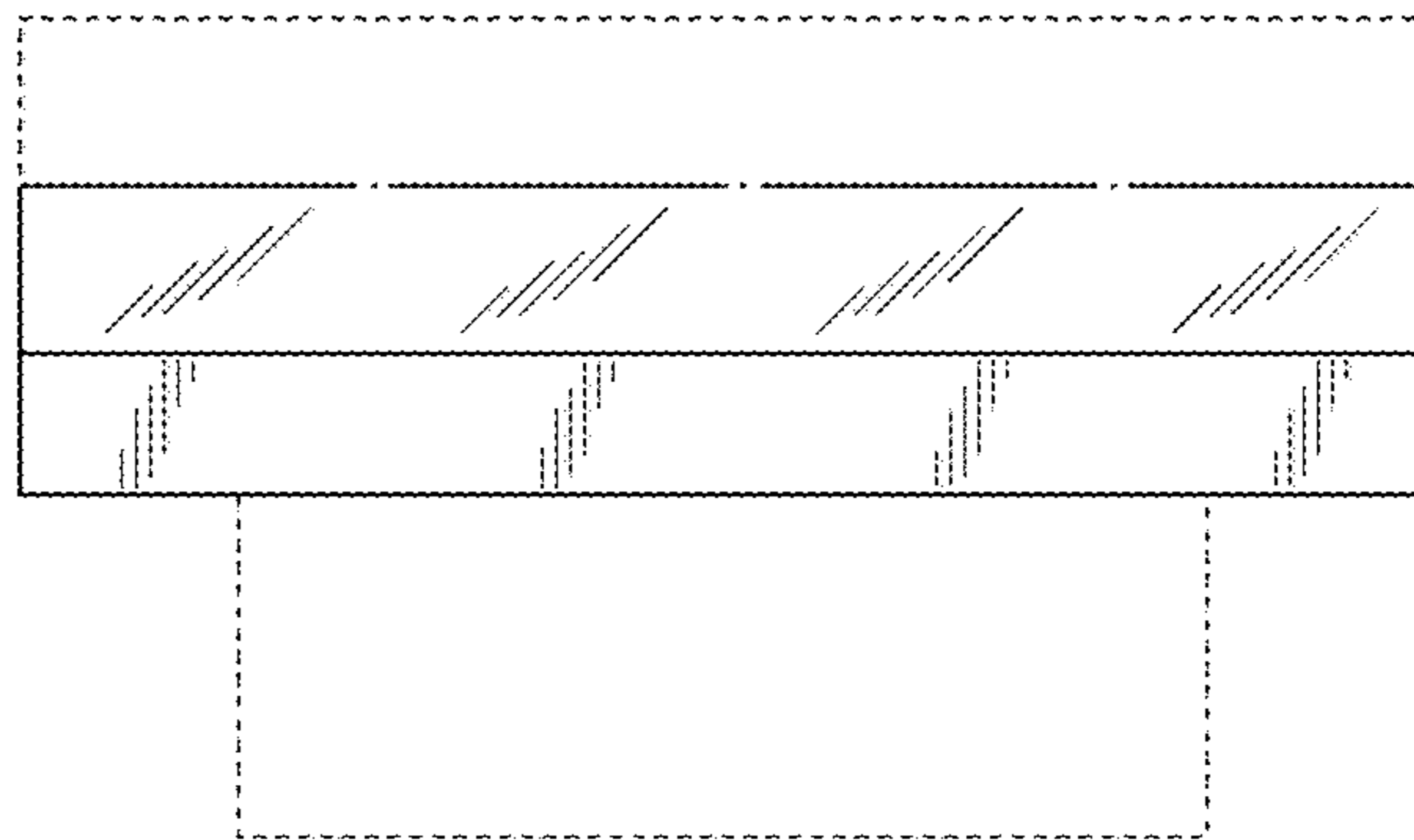
1.2



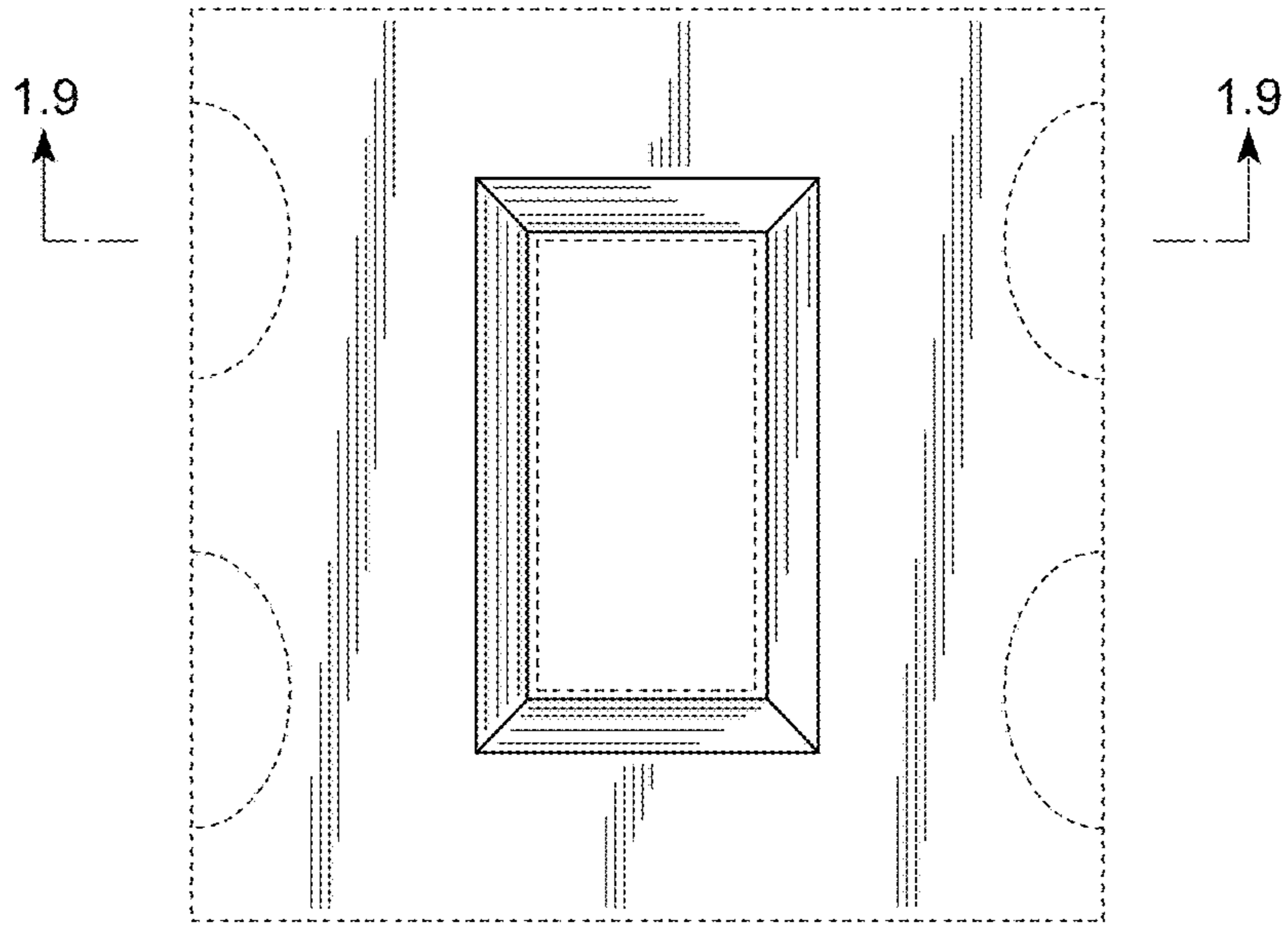
1.3



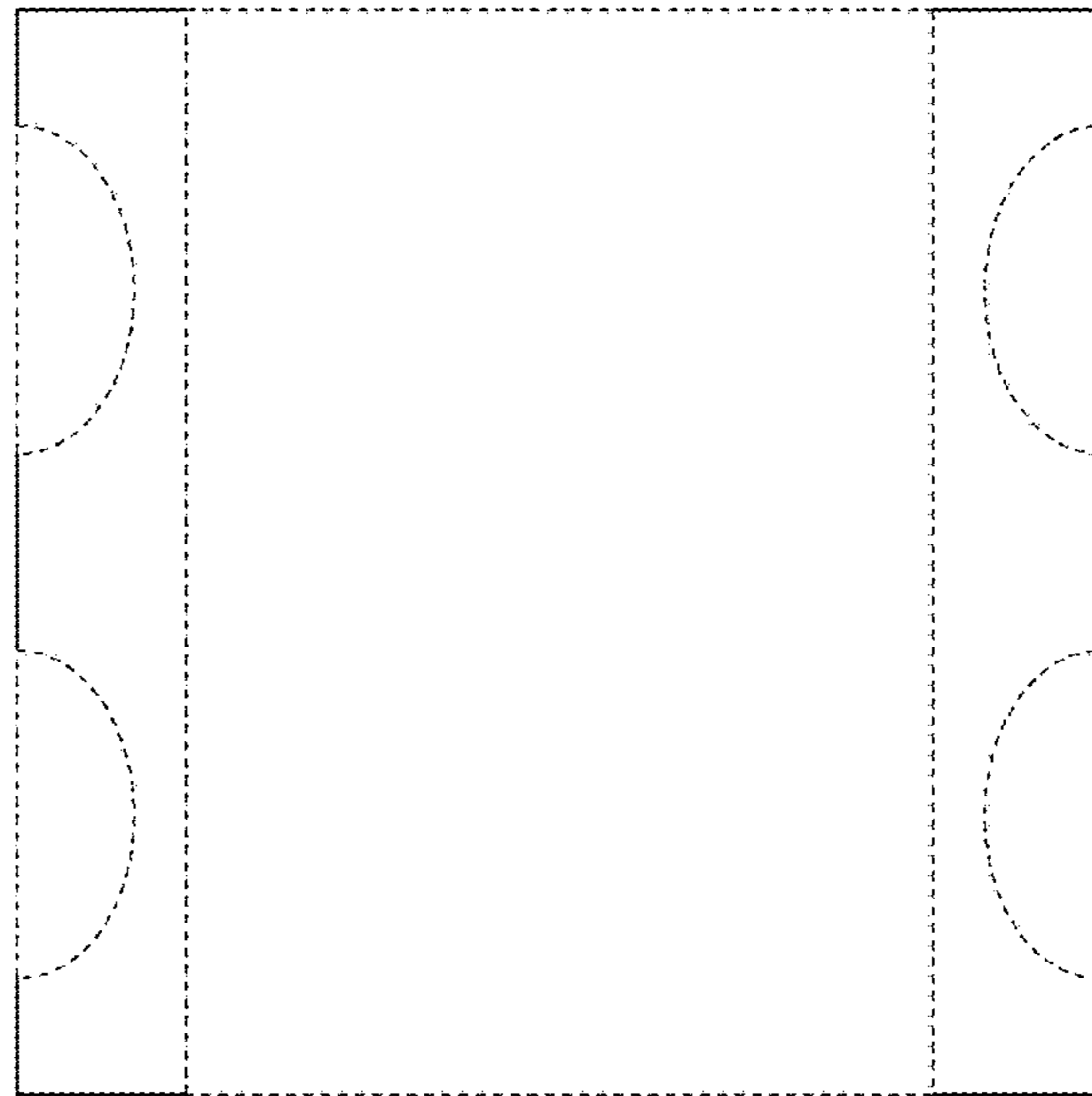
1.4



1.5

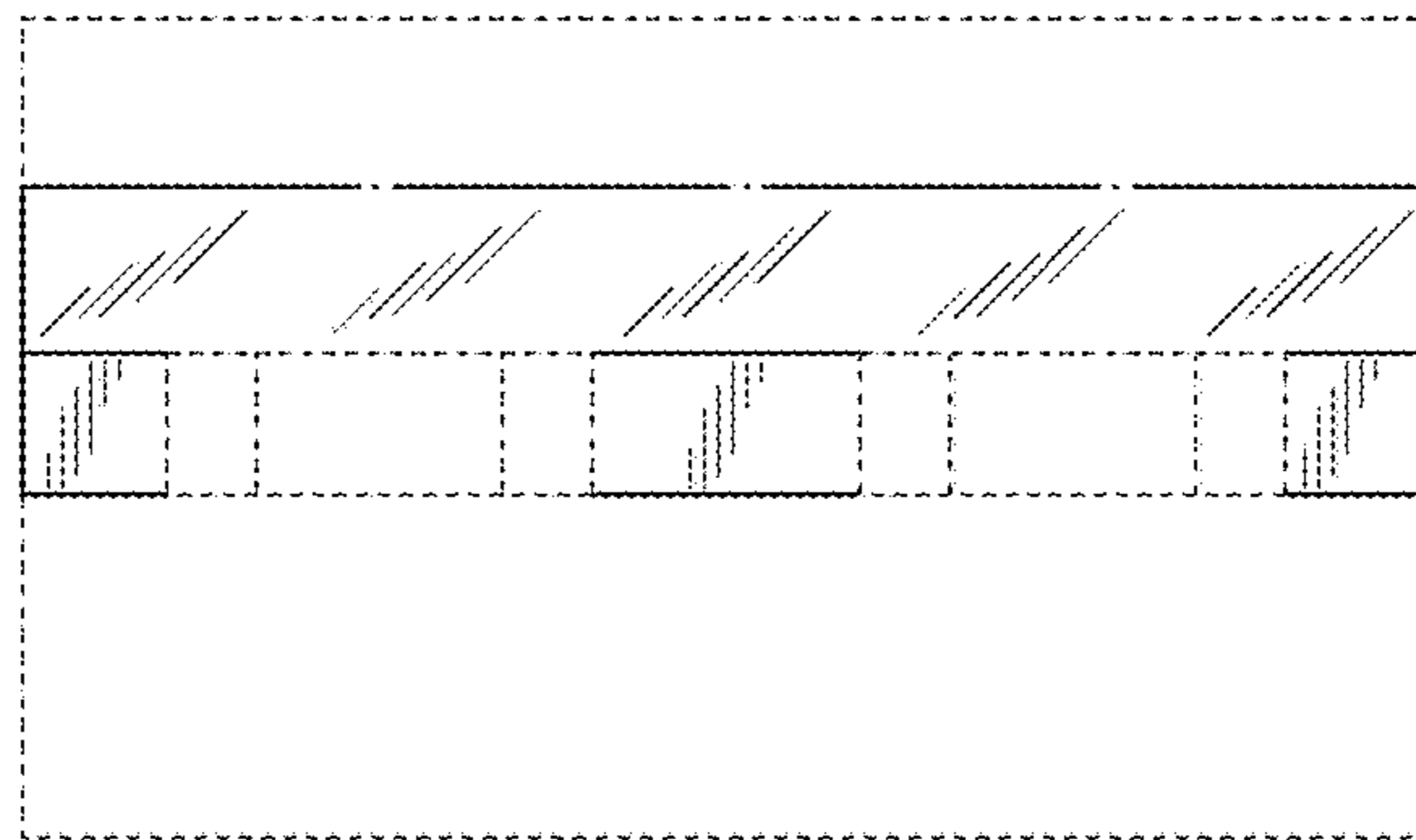


1.6

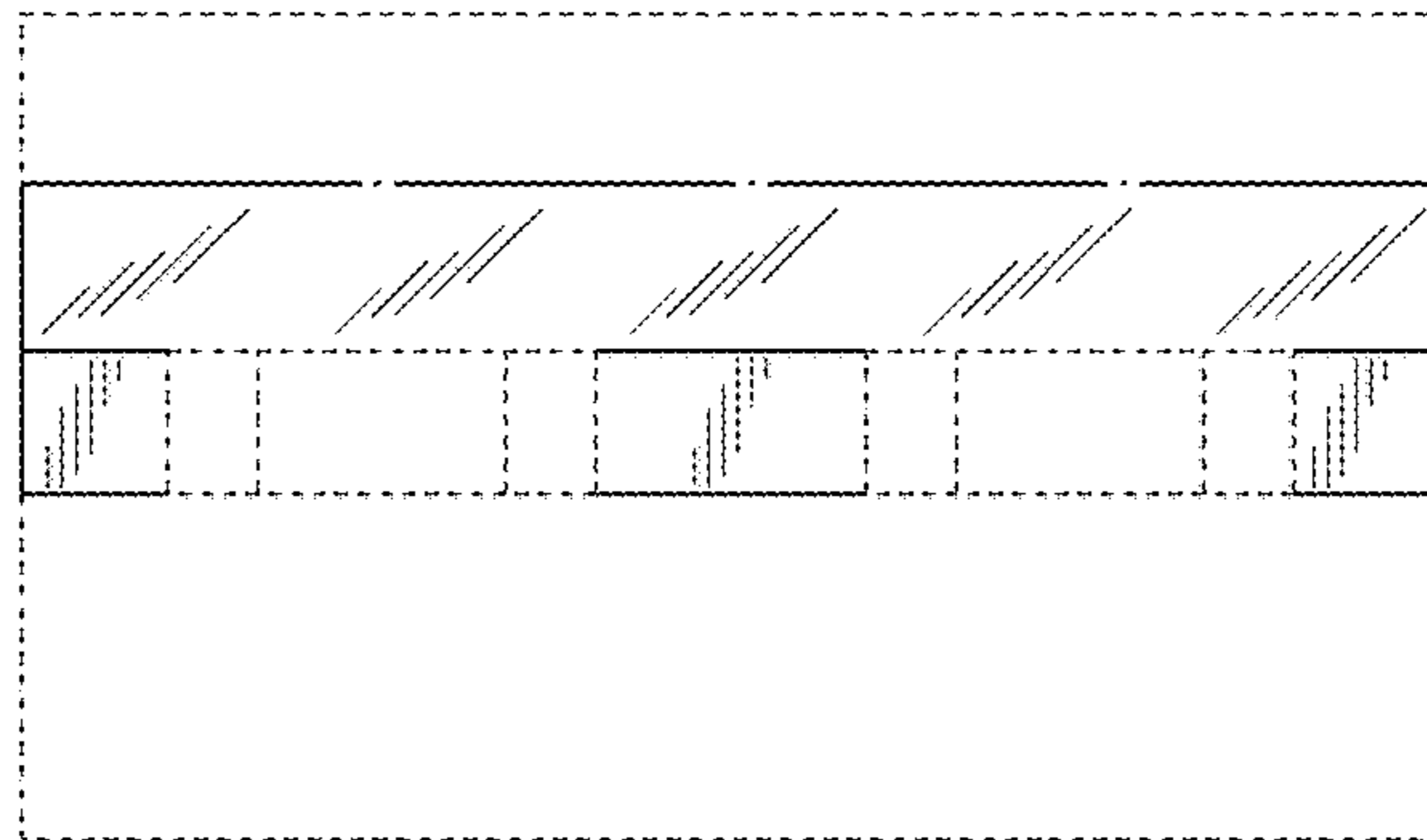




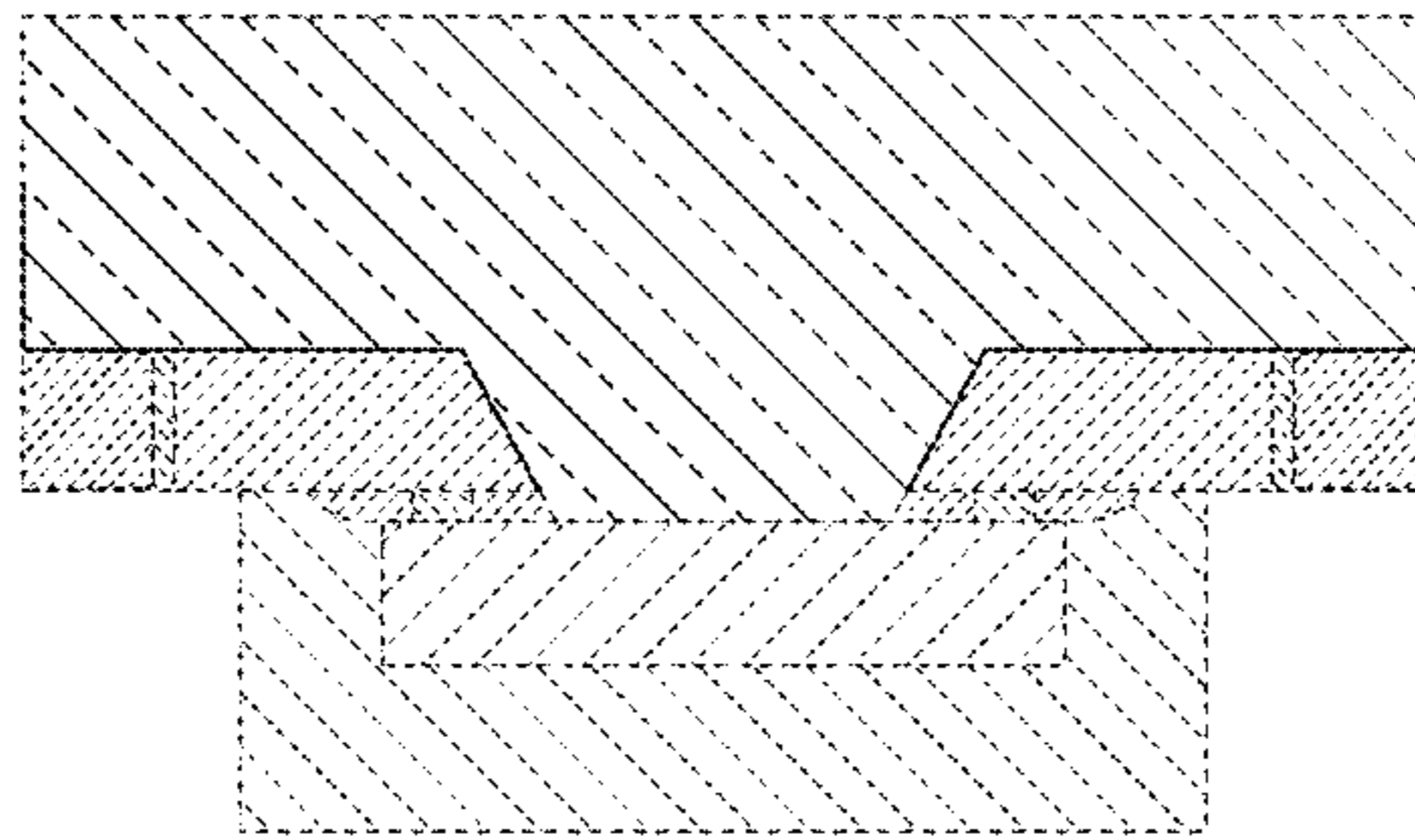
1.7



1.8



1.9



1.10

