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Yokoyama et al.

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(54) **SEMICONDUCTOR DEVICE**

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

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Related U.S. Application Data

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(30) **Foreign Application Priority Data**

Oct. 26, 2017 (JP) 2017-023790
Oct. 26, 2017 (JP) 2017-023791

(51) **LOC (12) Cl.** **13-03**

(52) **U.S. Cl.**
USPC **D13/182**

(58) **Field of Classification Search**
USPC D13/182
CPC H01L 21/00; H01L 21/02433; H01L 2224/42; H01L 2224/43; H01L 2021/00; H01L 2021/02; H01L 2021/04; H01L 21/4814; H01L 21/4846; H01L 21/4871; H01L 21/67144; H01L 23/12; H01L 23/13; H01L 23/14; H01L 23/147; H01L 2924/171; H01L 2924/1711; H01L 2924/1715; H01L 2924/17151; H01L 2924/181; H01L 2924/1811; H01L 2924/1815; H01L 2924/19042; H01L 2924/1905; H01L 2224/08054; H01L 23/58; H05B 41/14; H02B 6/4201; G02B

6/4256; G02B 6/4257; G02B 6/4261; G02B 6/4262; G02B 6/42; G02B 6/4281; H05K 1/14; H05K 1/141; H05K 1/142; H05K 1/144; H05K 1/18; H05K 1/181; H05K 1/182; H05K 1/026; H05K 1/0228; H05K 1/0245; H05K 1/0236; H05K 1/0263

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,602,846 A 8/1971 Hauser
3,762,039 A 10/1973 Douglass et al.
D259,560 S 6/1981 Mochizuki et al.
D259,782 S 7/1981 Mochizuki et al.
D259,783 S 7/1981 Mochizuki et al.
D260,091 S 8/1981 Mochizuki et al.

(Continued)

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(57) **CLAIM**

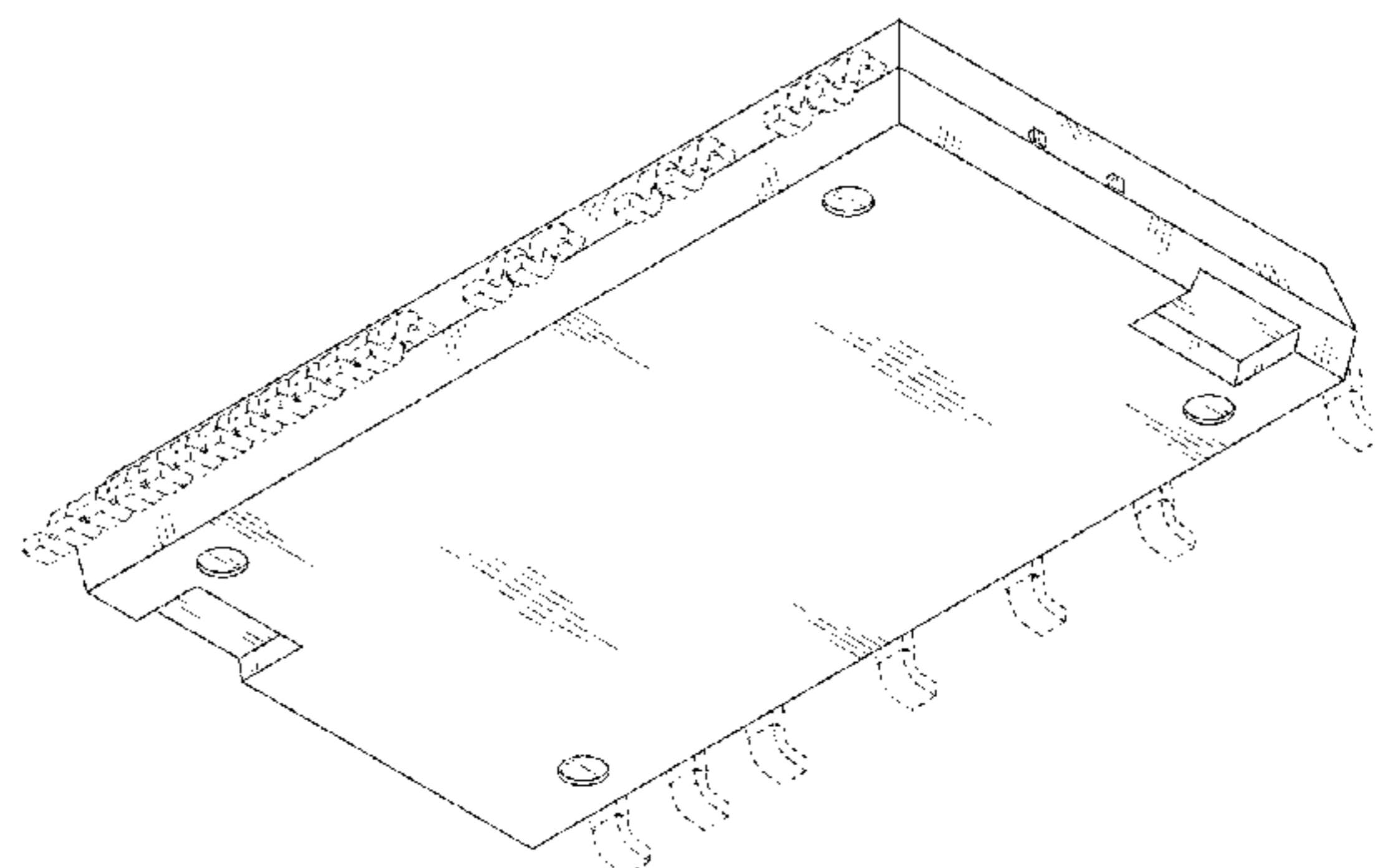
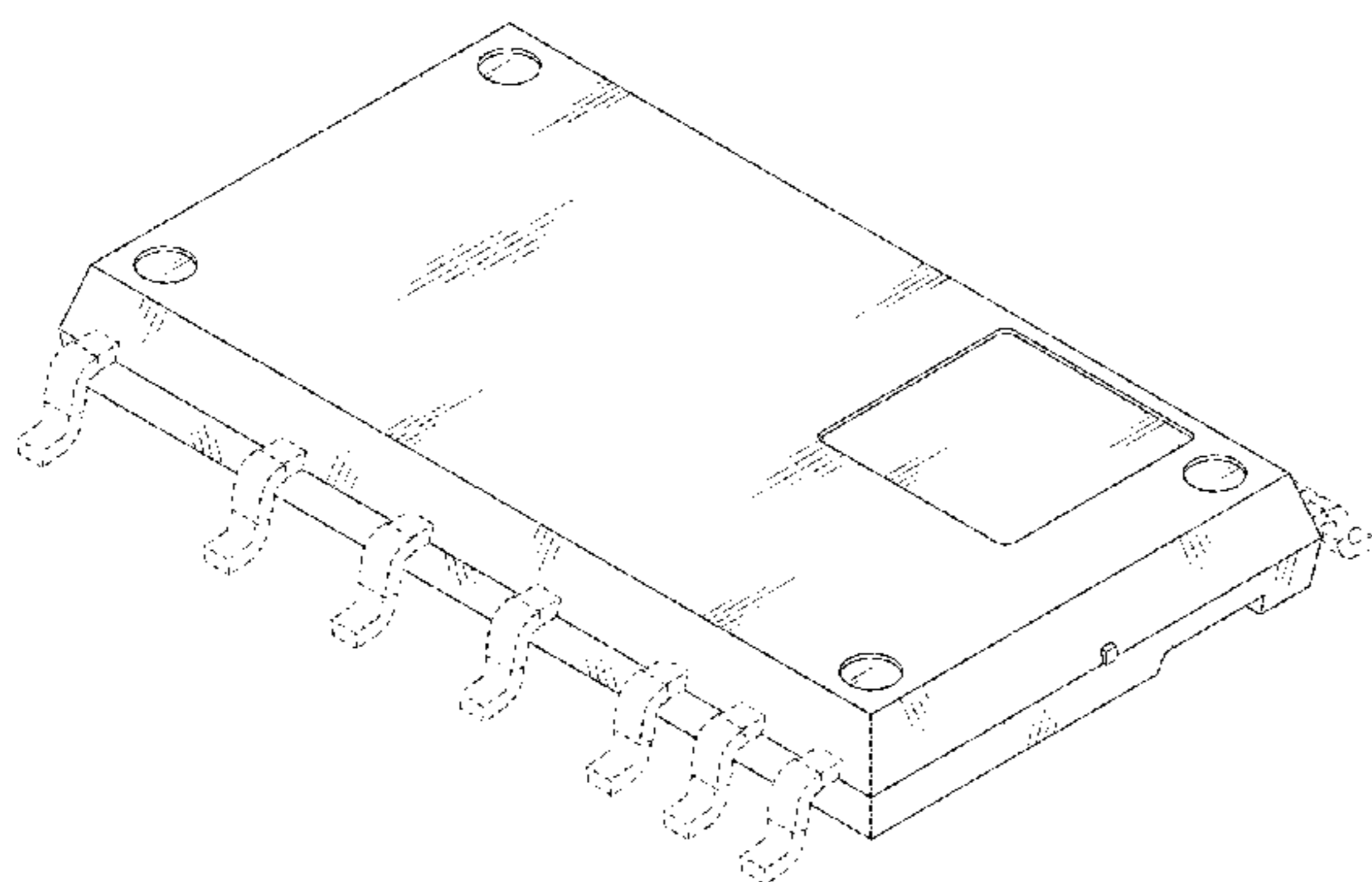
The ornamental design for a semiconductor device, as shown and described.

DESCRIPTION

FIG. 1 is a front, bottom and right side perspective view of a semiconductor device showing our new design; FIG. 2 is a rear, top and left side perspective view thereof; FIG. 3 is a front view thereof; FIG. 4 is a rear view thereof; FIG. 5 is a top view thereof; FIG. 6 is a bottom view thereof; FIG. 7 is a left side view thereof; and, FIG. 8 is a right side view thereof.

The broken lines illustrate portions of the semiconductor device that form no part of the claimed designs.

1 Claim, 6 Drawing Sheets



(56)

References Cited

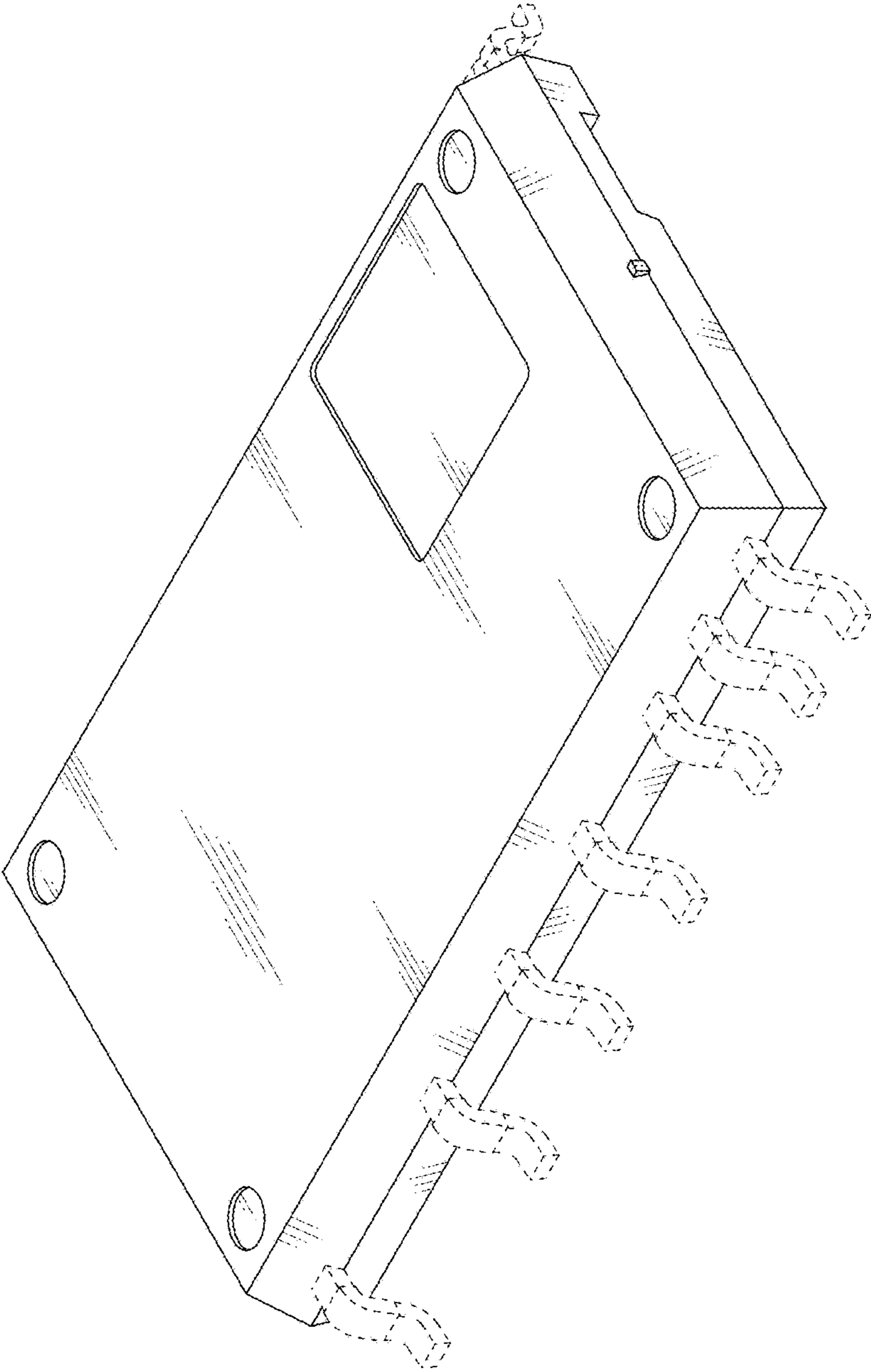
U.S. PATENT DOCUMENTS

4,663,833 A 5/1987 Tanaka et al.
 4,916,519 A * 4/1990 Ward H01L 23/495
 257/666
 D317,592 S * 6/1991 Yoshizawa D13/182
 5,172,213 A * 12/1992 Zimmerman H01L 23/4334
 165/80.2
 D345,731 S 4/1994 Owens et al.
 D357,901 S 5/1995 Horman
 D358,806 S 5/1995 Siegel et al.
 D359,028 S 6/1995 Siegel et al.
 5,557,504 A 9/1996 Siegel et al.
 D394,244 S 5/1998 Majumdar et al.
 D396,211 S 7/1998 Enomoto et al.
 D396,212 S 7/1998 Enomoto et al.
 D396,213 S 7/1998 Enomoto et al.
 D396,847 S 8/1998 Nakayama et al.
 5,798,570 A 8/1998 Watanabe et al.
 D421,421 S 3/2000 Kashio
 D427,977 S 7/2000 Takizawa et al.
 6,093,957 A 7/2000 Kwon
 D432,097 S 10/2000 Song et al.
 D441,727 S * 5/2001 Sekimoto D13/182
 6,238,953 B1 5/2001 Tanaka et al.
 D448,739 S 10/2001 Iwasaki et al.
 D466,485 S 12/2002 Maehara et al.
 D466,873 S 12/2002 Kasem et al.

D472,528 S 4/2003 Kasem et al.
 D473,199 S 4/2003 Sako et al.
 6,555,899 B1 4/2003 Chung et al.
 D476,962 S 7/2003 Yoshihira et al.
 D480,371 S 10/2003 Sako et al.
 6,716,670 B1 * 4/2004 Chiang H01L 21/4821
 257/E23.033
 6,992,386 B2 1/2006 Hata et al.
 D539,761 S 4/2007 Takahashi et al.
 D548,202 S 8/2007 Takahashi
 D548,203 S 8/2007 Takahashi
 7,683,494 B1 * 3/2010 Stortini H01L 23/13
 257/668
 D648,290 S * 11/2011 Mori D13/182
 D717,253 S 11/2014 Jo et al.
 D717,254 S 11/2014 Jo et al.
 D717,255 S 11/2014 Lim et al.
 D717,256 S 11/2014 Sohn et al.
 D719,113 S 12/2014 Sohn et al.
 D719,926 S * 12/2014 Sohn D13/182
 D770,994 S 11/2016 Hasegawa et al.
 D783,550 S 4/2017 Hasegawa et al.
 D796,459 S * 9/2017 Iwai D13/182
 D824,866 S 8/2018 Matsubara et al.
 2001/0038143 A1 * 11/2001 Sonobe H01L 24/49
 257/690
 2003/0042584 A1 * 3/2003 Yamaguchi H01L 21/50
 257/666

* cited by examiner

Fig. 1



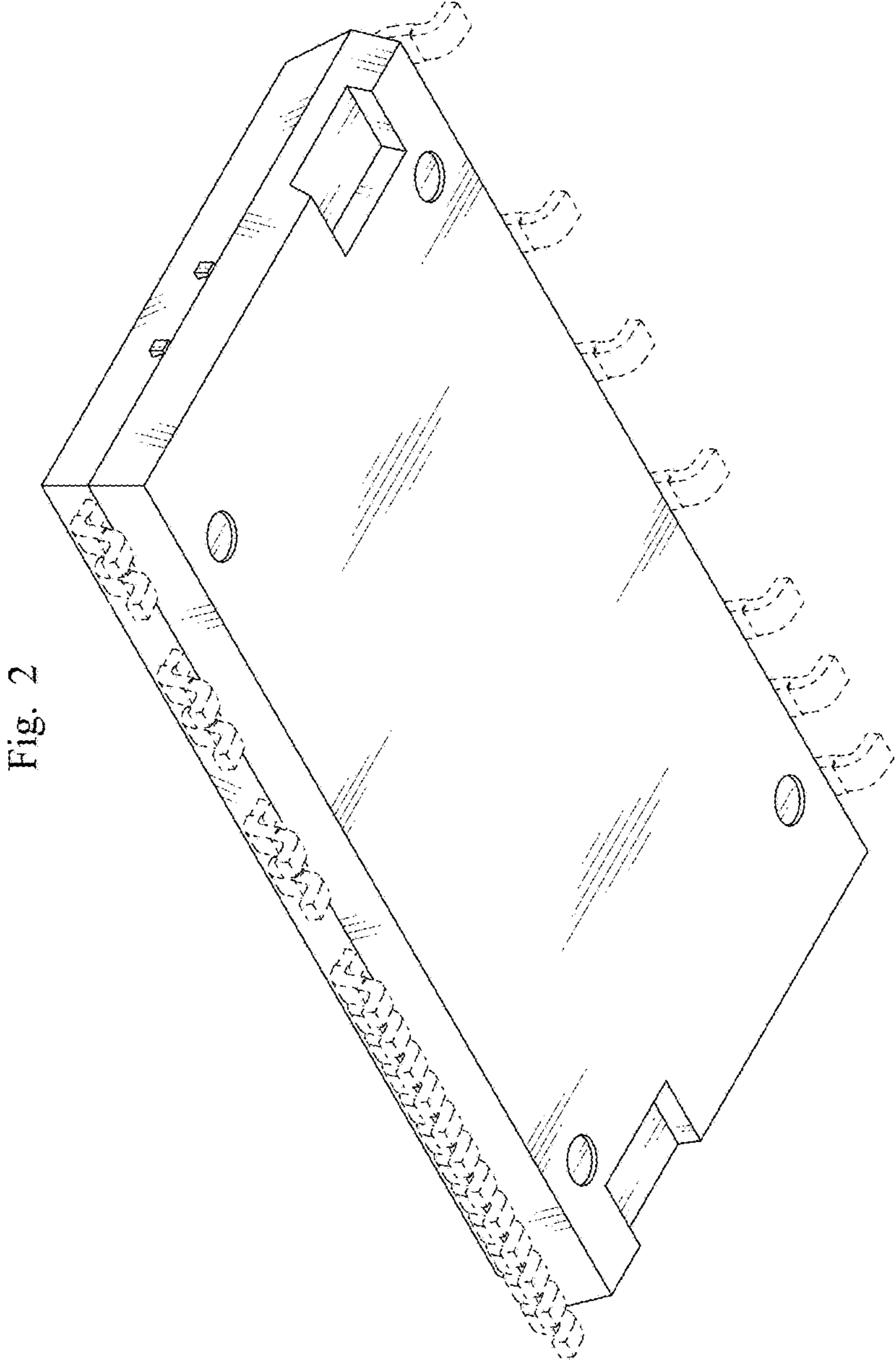


Fig. 2

Fig. 3

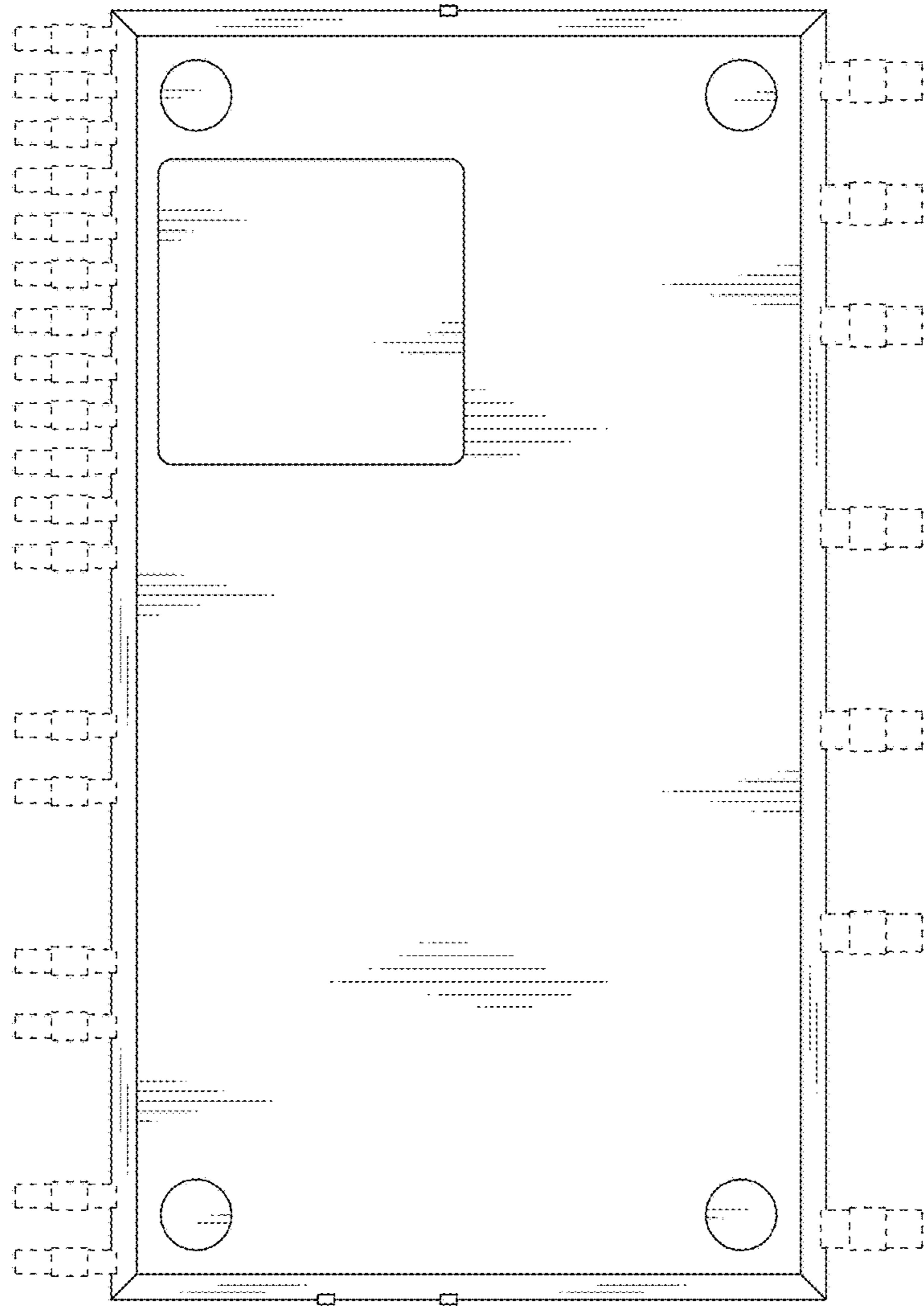


Fig. 4

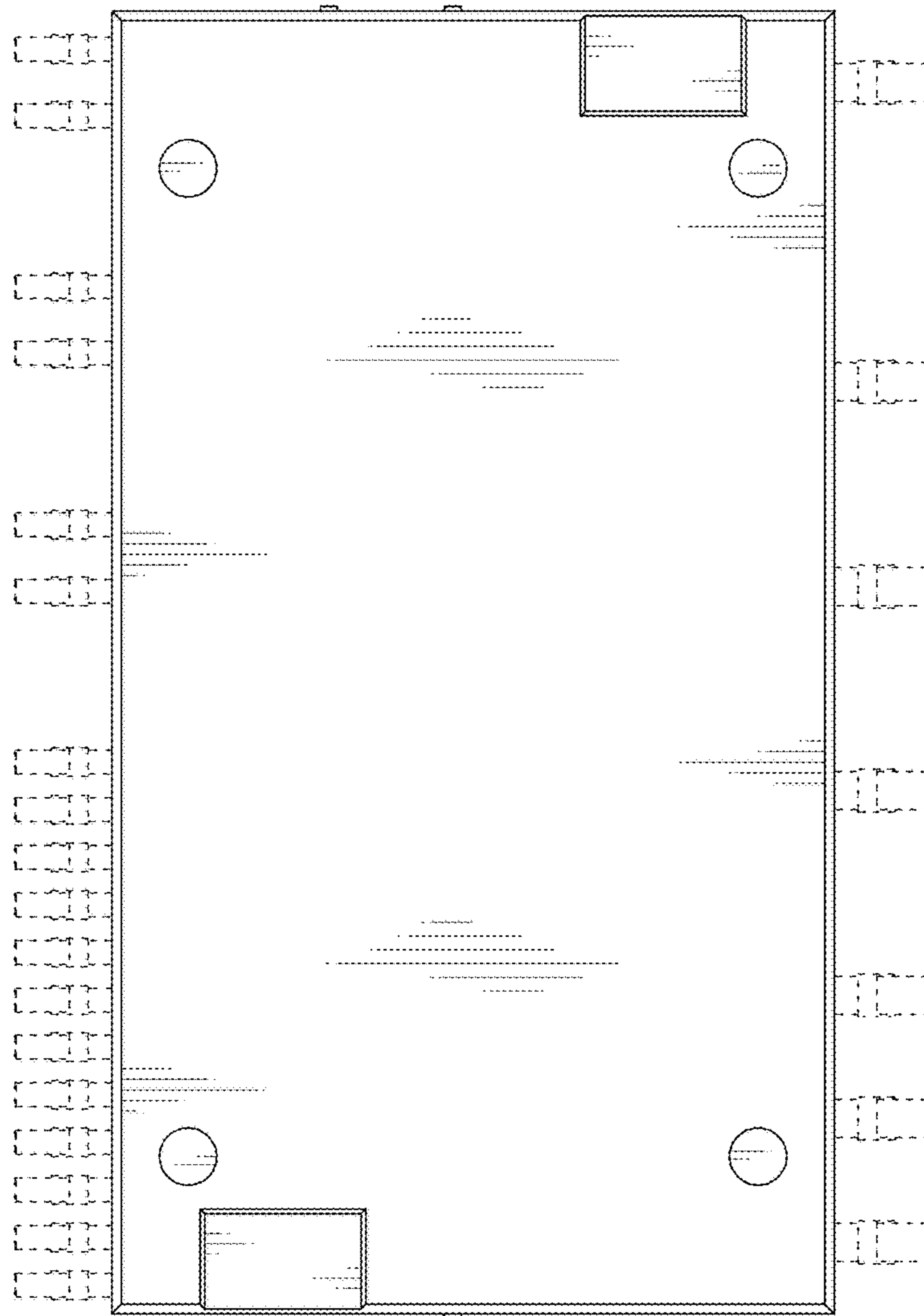


Fig. 5

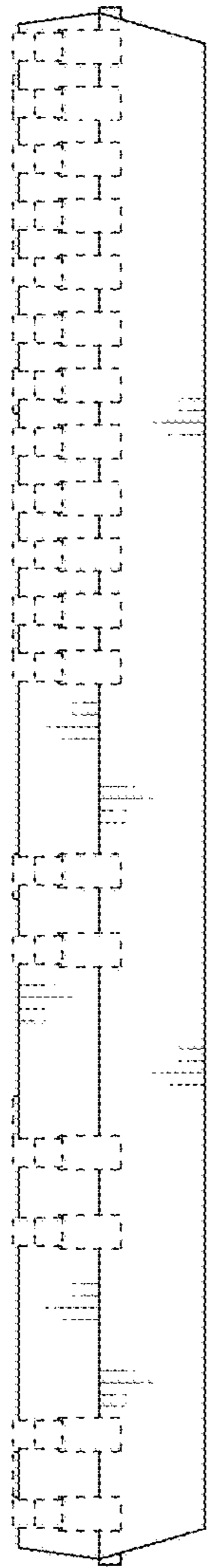


Fig. 6

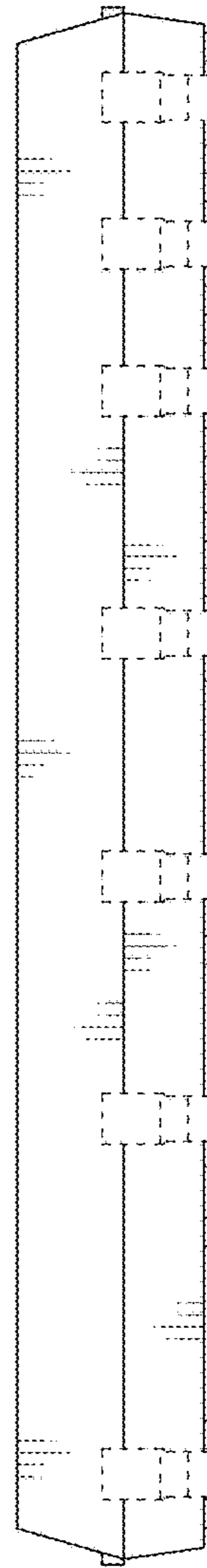


Fig. 8

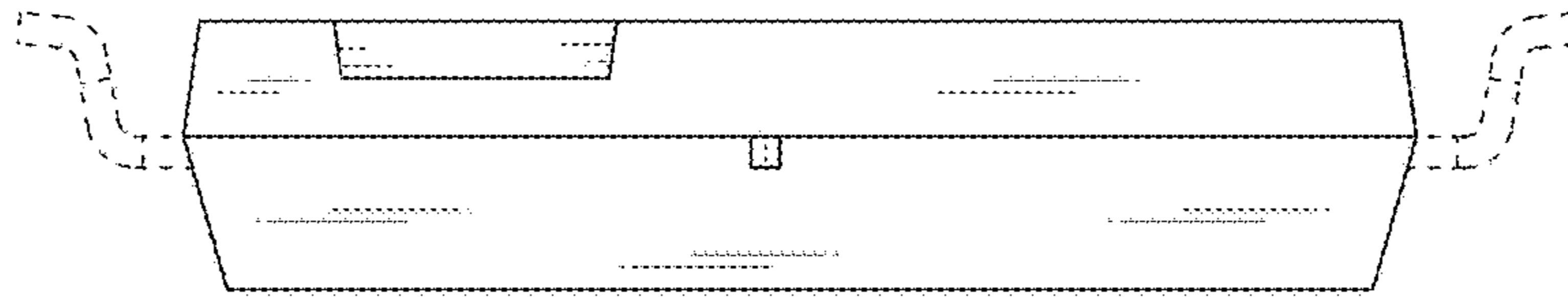


Fig. 7

