



US00D712853S

(12) **United States Design Patent**  
**Nakamura**

(10) **Patent No.:** **US D712,853 S**

(45) **Date of Patent:** **\*\* Sep. 9, 2014**

(54) **SEMICONDUCTOR MODULE**

(56) **References Cited**

(71) Applicant: **Fuji Electric Co., Ltd.**, Kawasaki (JP)

U.S. PATENT DOCUMENTS

(72) Inventor: **Hideyo Nakamura**, Kawasaki (JP)

5,408,128	A *	4/1995	Furnival	257/690
5,410,450	A *	4/1995	Iida et al.	361/736
D364,383	S *	11/1995	Yamada et al.	D13/182
D364,384	S *	11/1995	Shimizu et al.	D13/182
D364,385	S *	11/1995	Shimizu et al.	D13/182
6,078,501	A *	6/2000	Catrambone et al.	361/704
D441,726	S *	5/2001	Sofue et al.	D13/182
D441,727	S *	5/2001	Sekimoto	D13/182
6,521,983	B1 *	2/2003	Yoshimatsu et al.	257/678
D476,959	S *	7/2003	Yamada et al.	D13/182
D587,662	S *	3/2009	Soutome et al.	D13/182
D589,012	S *	3/2009	Soyano et al.	D13/182
D606,951	S *	12/2009	Soyano et al.	D13/182

(73) Assignee: **Fuji Electric Co., Ltd.**, Kawasaki-shi,  
Kanagawa (JP)

(\*\*) Term: **14 Years**

(21) Appl. No.: **29/458,665**

(22) Filed: **Jun. 21, 2013**

(30) **Foreign Application Priority Data**

Dec. 21, 2012 (JP) ..... D2012-031248

(51) **LOC (10) Cl.** ..... **13-03**

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

(58) **Field of Classification Search**

CPC . H01L 21/00; 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;  
G02B 6/4201; G02B 6/4256; G02B 6/4257;  
G02B 6/4261; G02B 6/4262; G02B 6/428;  
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  
USPC ..... D13/110, 182; 257/678, 684, 690, 691;  
361/679.01, 713, 728, 736, 760, 761,  
361/772, 775, 783, 820; 174/250, 253;  
438/15, 25, 26, 51, 55, 63, 64, 106

See application file for complete search history.

(Continued)

*Primary Examiner* — Elizabeth J Oswecki

(74) *Attorney, Agent, or Firm* — Young Basile Hanlon &  
MacFarlane P.C.

(57) **CLAIM**

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

**DESCRIPTION**

FIG. 1 is a front view of a semiconductor module showing my  
new design;

FIG. 2 is a rear view thereof;

FIG. 3 is a left side view thereof;

FIG. 4 is a right side view thereof;

FIG. 5 is a top plan view thereof;

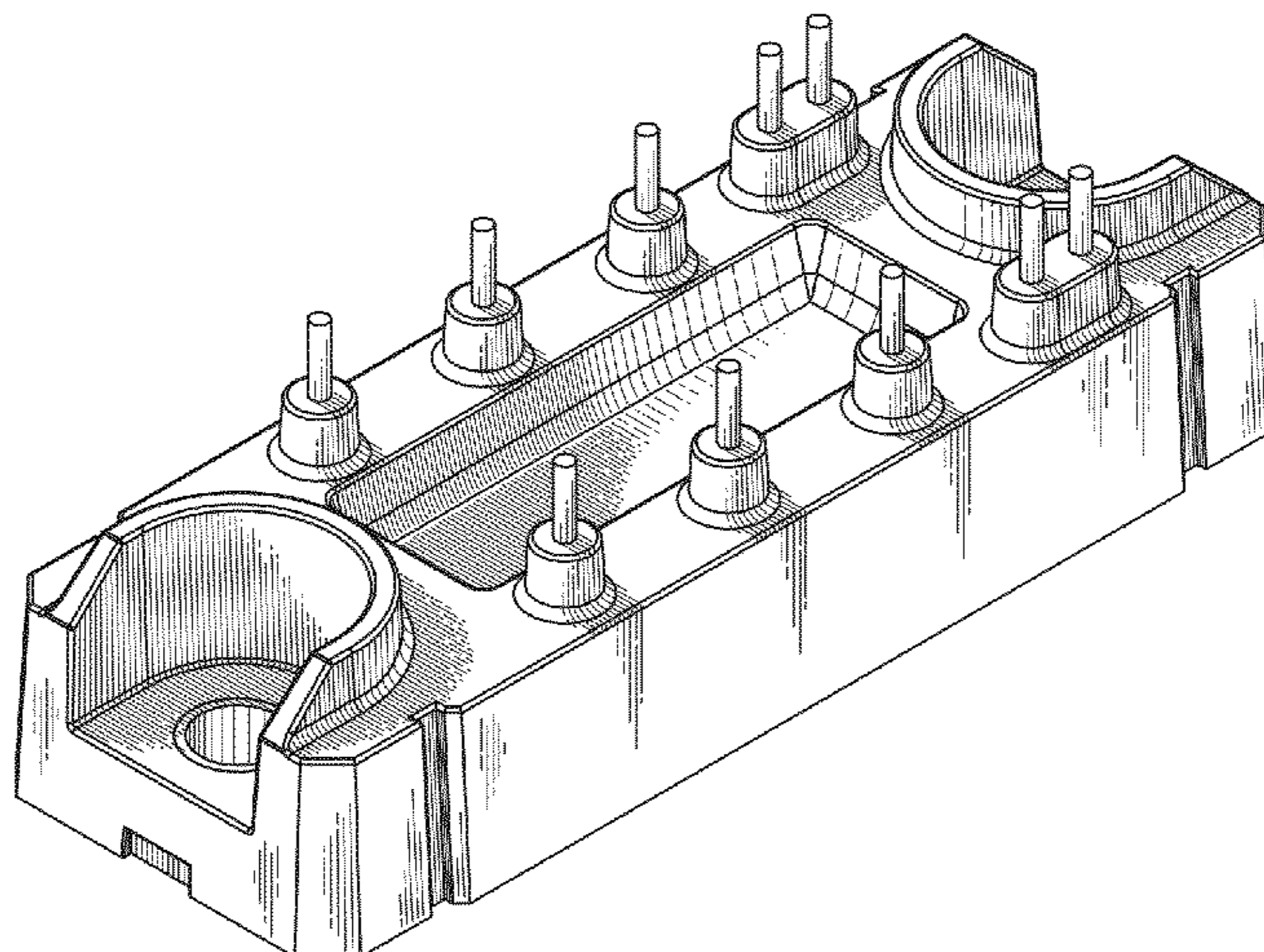
FIG. 6 is a bottom plan view thereof;

FIG. 7 is a perspective view thereof; and,

FIG. 8 is a cross-sectional view thereof taken along line 8-8 of  
FIG. 5.

The ornamental design of the present disclosure is a semicon-  
ductor module on which power semiconductor elements and  
the like may be mounted. A plurality of pin-shaped terminals  
protrudes from the top surface. Each end in a longitudinal  
direction includes a mounting hole.

**1 Claim, 8 Drawing Sheets**



(56)

**References Cited**

U.S. PATENT DOCUMENTS

D653,633 S *	2/2012	Soyano	.....	D13/182	8,526,199 B2 *	9/2013	Matsumoto et al.	.....	361/820
D653,634 S *	2/2012	Soyano	.....	D13/182	D699,693 S *	2/2014	Otsuka et al.	.....	D13/182
D686,174 S *	7/2013	Soyano	.....	D13/182	D703,625 S *	4/2014	Lim et al.	.....	D13/182
D689,446 S *	9/2013	Soyano	.....	D13/180	2001/0038143 A1 *	11/2001	Sonobe et al.	.....	257/690
					2011/0044012 A1 *	2/2011	Matsumoto	.....	361/728

\* cited by examiner

Fig. 1

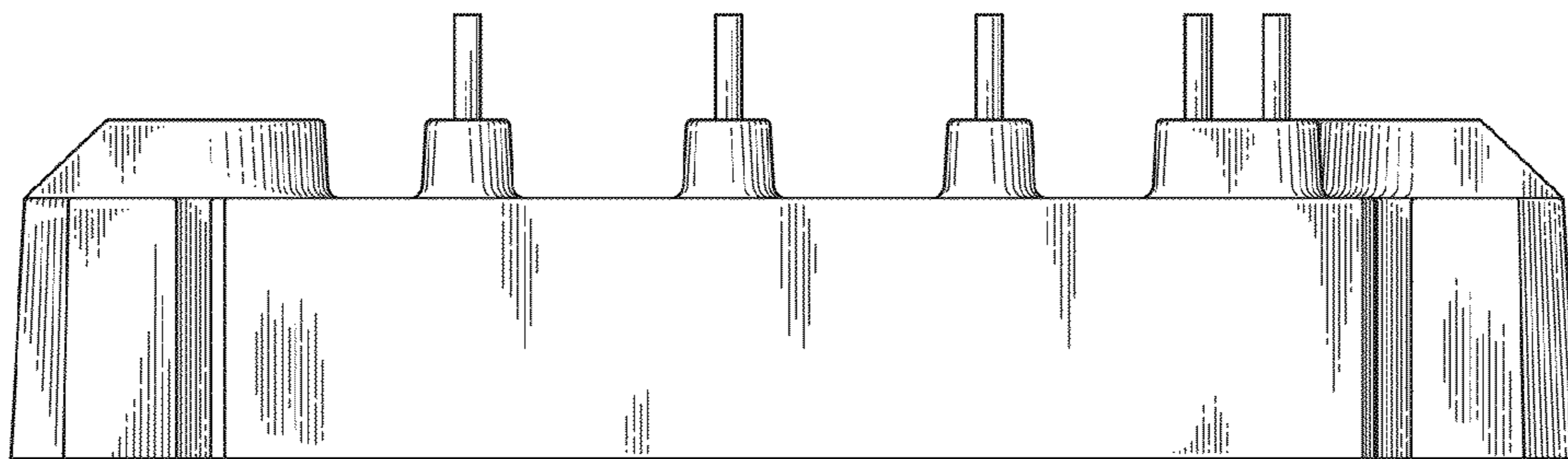


Fig.2

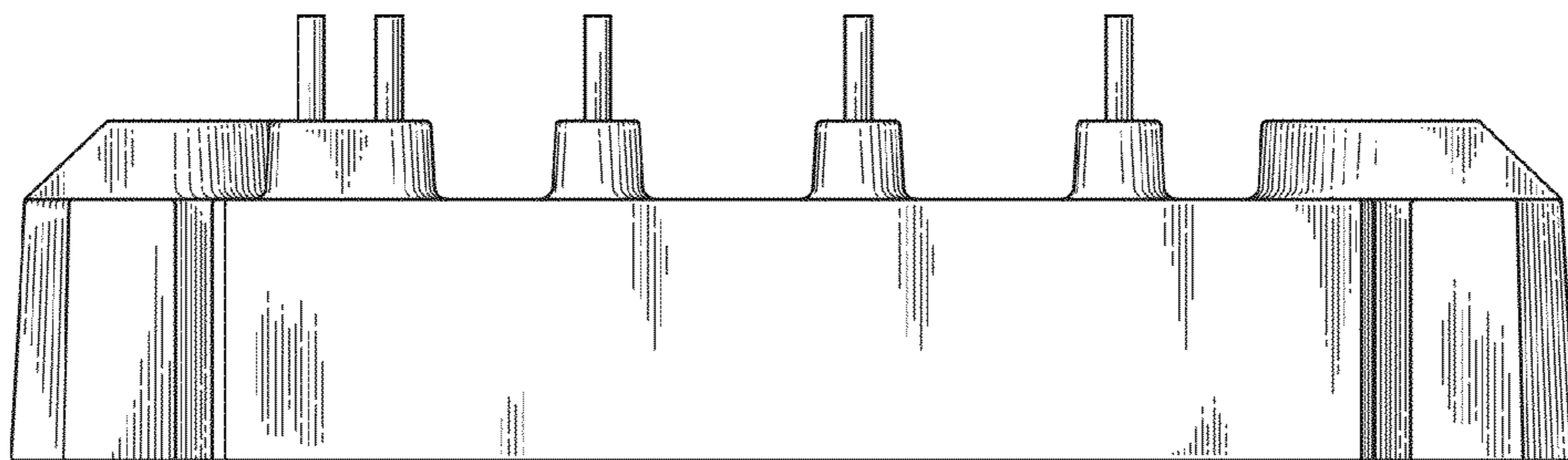


Fig. 3

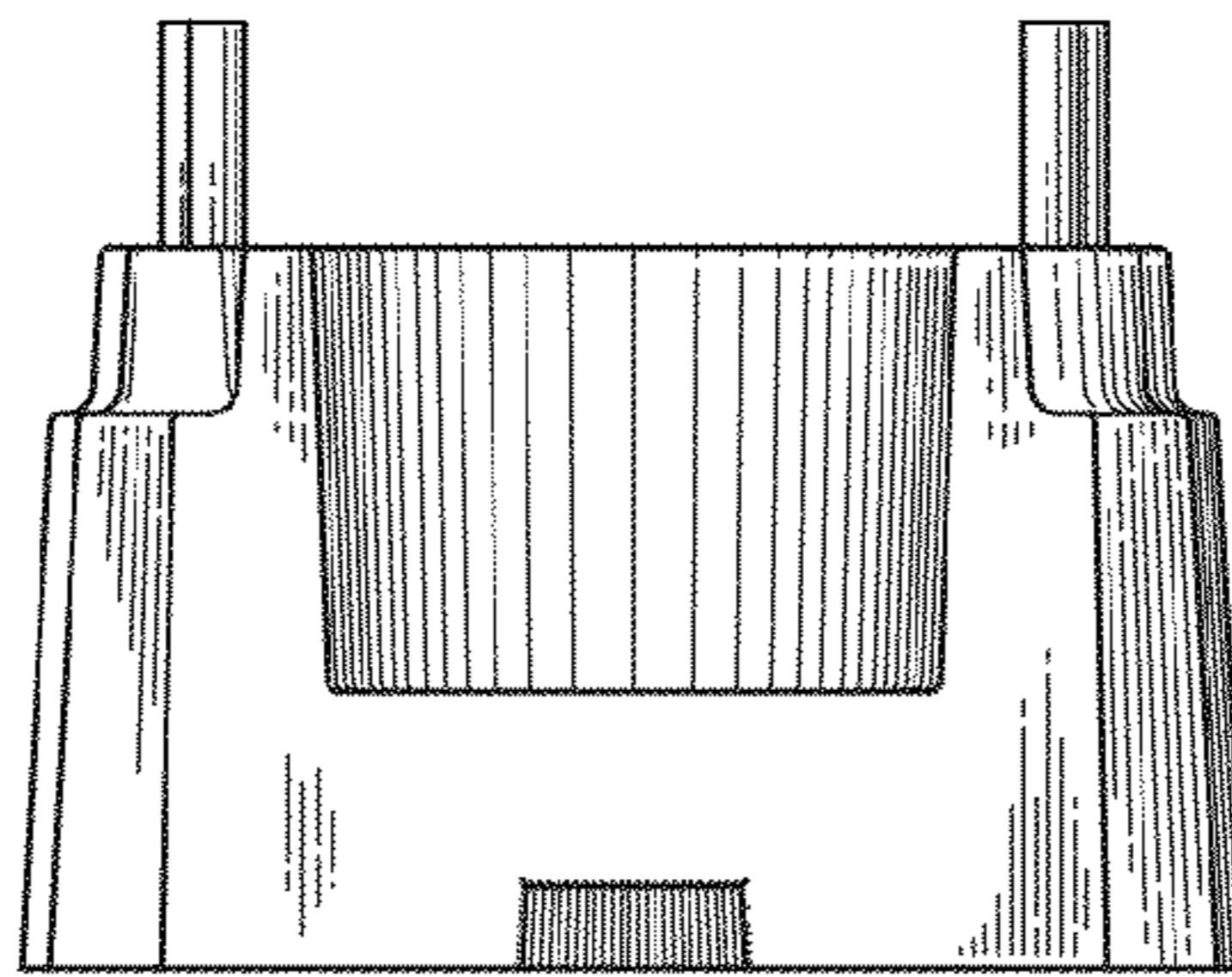


Fig. 4

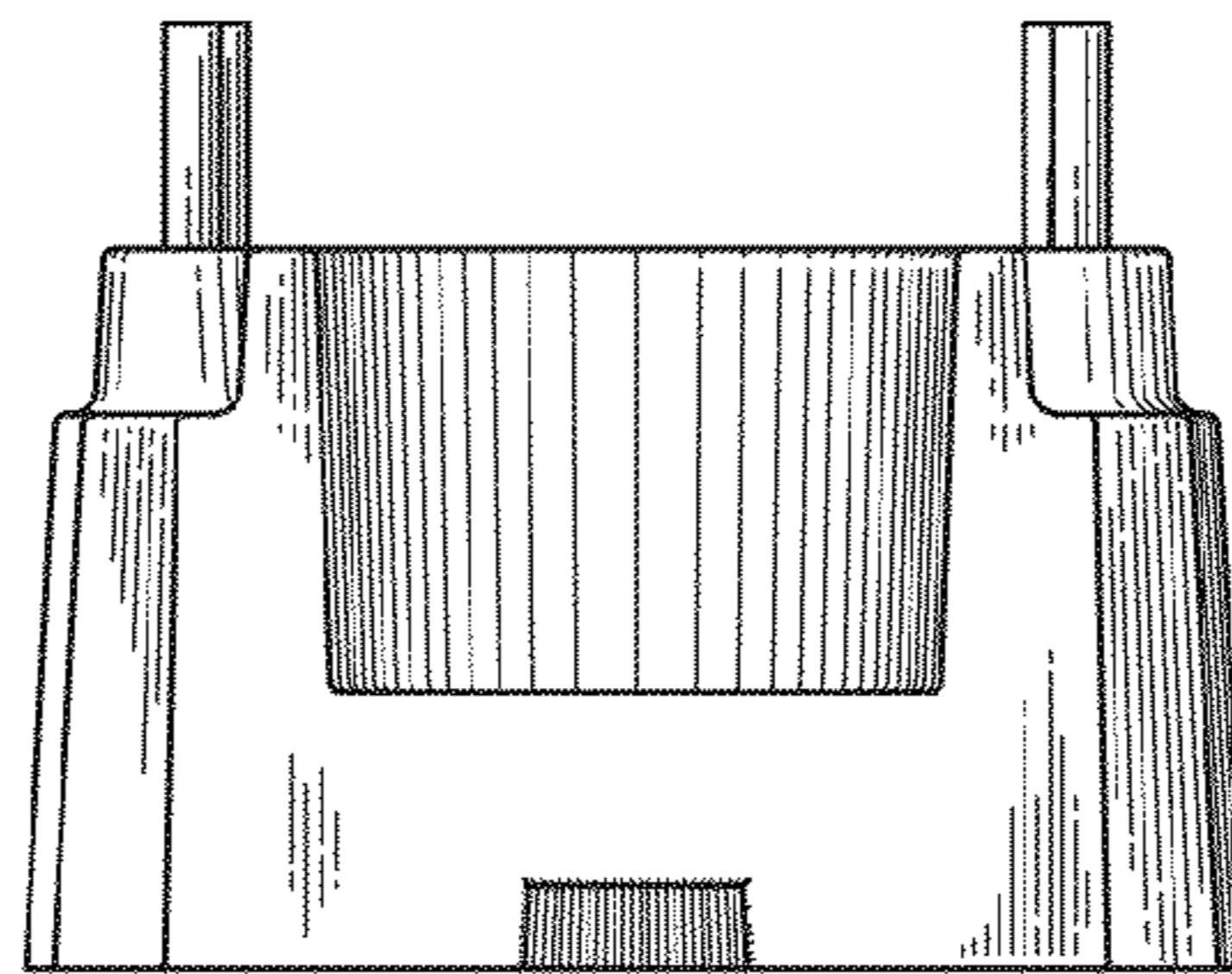


Fig.5

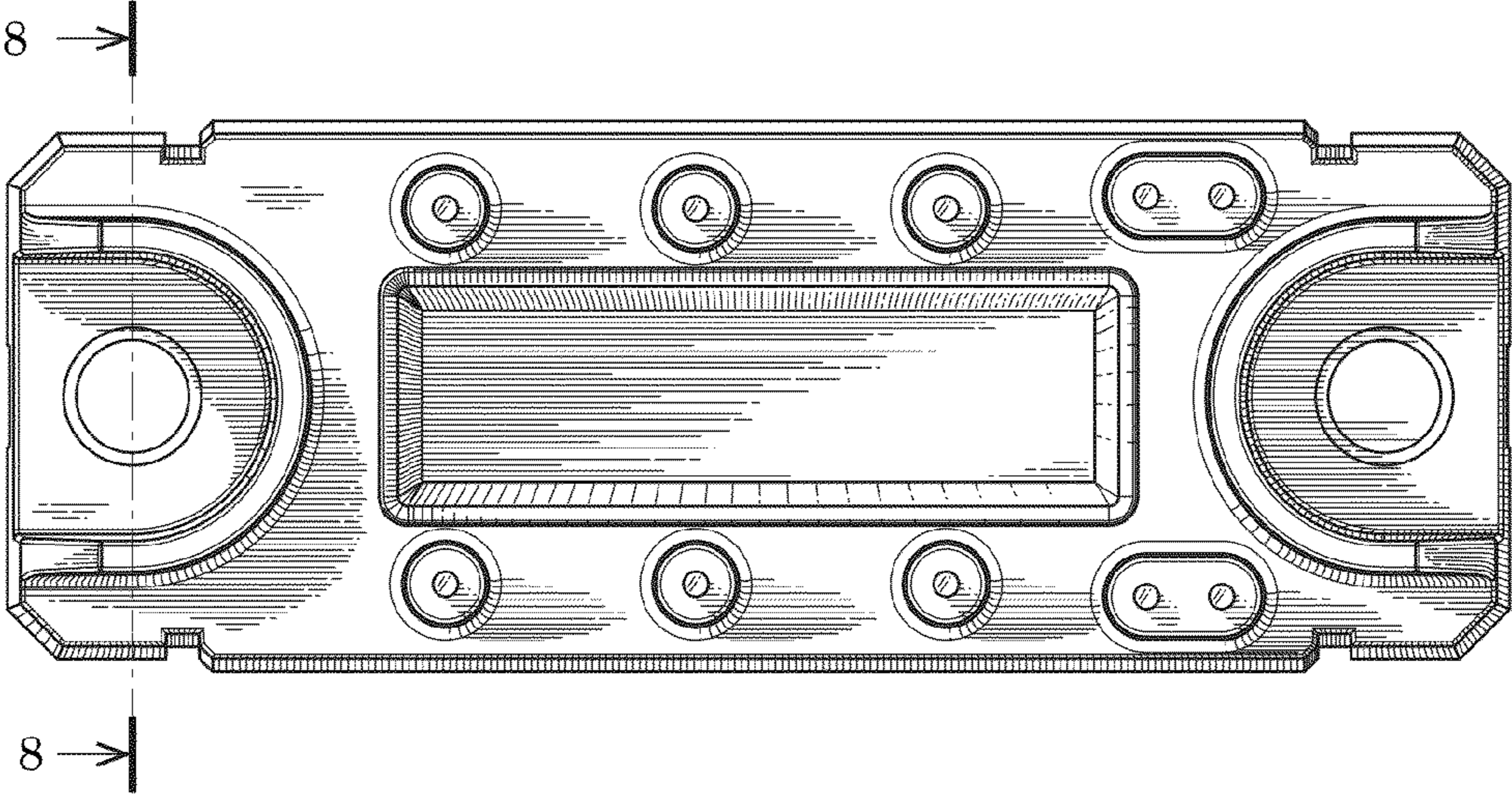


Fig.6

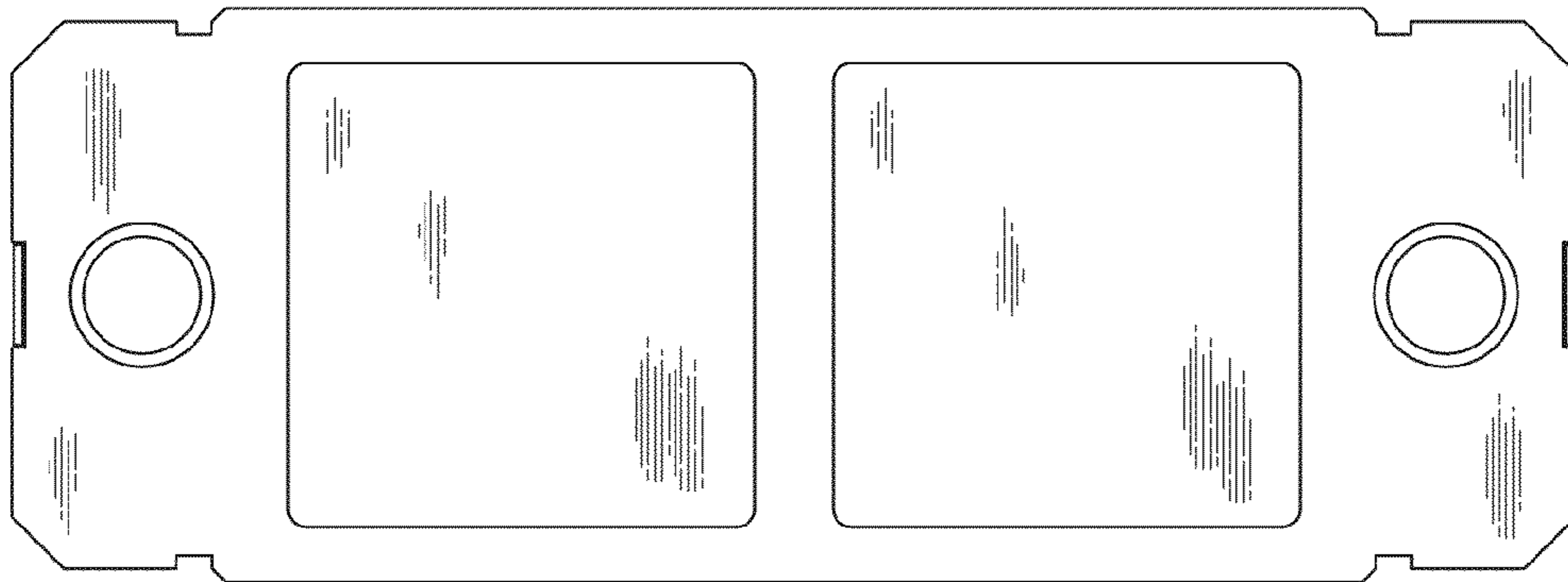




Fig. 7

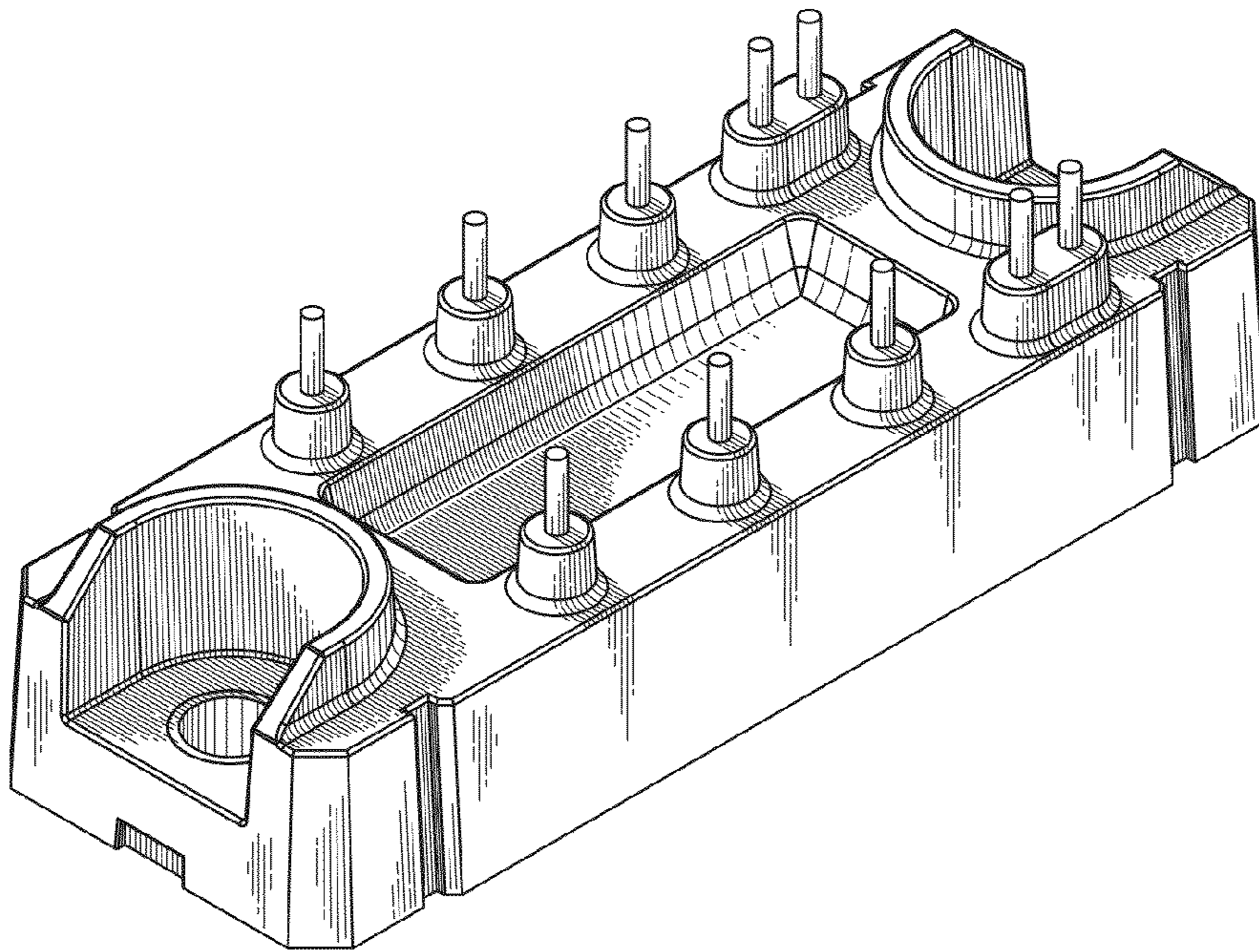


Fig. 8

