

US00D927437S

(12) **United States Design Patent** (10) **Patent No.:** **US D927,437 S**  
**Shibata et al.** (45) **Date of Patent:** **\*\* Aug. 10, 2021**

(54) **POWER SEMICONDUCTOR MODULE**

(71) Applicant: **ROHM CO., LTD.**, Kyoto (JP)

(72) Inventors: **Kotaro Shibata**, Kyoto (JP); **Hideki Sawada**, Kyoto (JP)

(73) Assignee: **ROHM CO., LTD.**, Kyoto (JP)

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

(21) Appl. No.: **29/725,270**

(22) Filed: **Feb. 24, 2020**

(30) **Foreign Application Priority Data**

Aug. 29, 2019 (JP) ..... 2019-019210

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

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

(58) **Field of Classification Search**  
USPC ..... D13/182; 257/678, 684, 690, 691;  
361/679.01, 713, 728, 736, 760, 761, 772,  
361/775, 783, 820; 174/250, 523;  
438/15, 25, 26, 51, 55, 63, 64, 106  
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;  
H02B 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

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,078,501 A \* 6/2000 Catrambone ..... H02M 7/003  
361/704  
6,774,465 B2 \* 8/2004 Lee ..... H01L 23/049  
257/671  
D748,595 S \* 2/2016 Bertalan ..... D13/182  
D754,084 S \* 4/2016 Kawase ..... D13/182  
D762,185 S \* 7/2016 Muehlensiep ..... D13/182  
D762,597 S \* 8/2016 Bertalan ..... D13/182  
9,418,975 B1 \* 8/2016 Yoneyama ..... H01L 23/5386

(Continued)

FOREIGN PATENT DOCUMENTS

JP 1536191 10/2015  
JP 1536359 10/2015

(Continued)

*Primary Examiner* — Elizabeth J Oswecki

(74) *Attorney, Agent, or Firm* — Hamre, Schumann,  
Mueller & Larson, P.C.

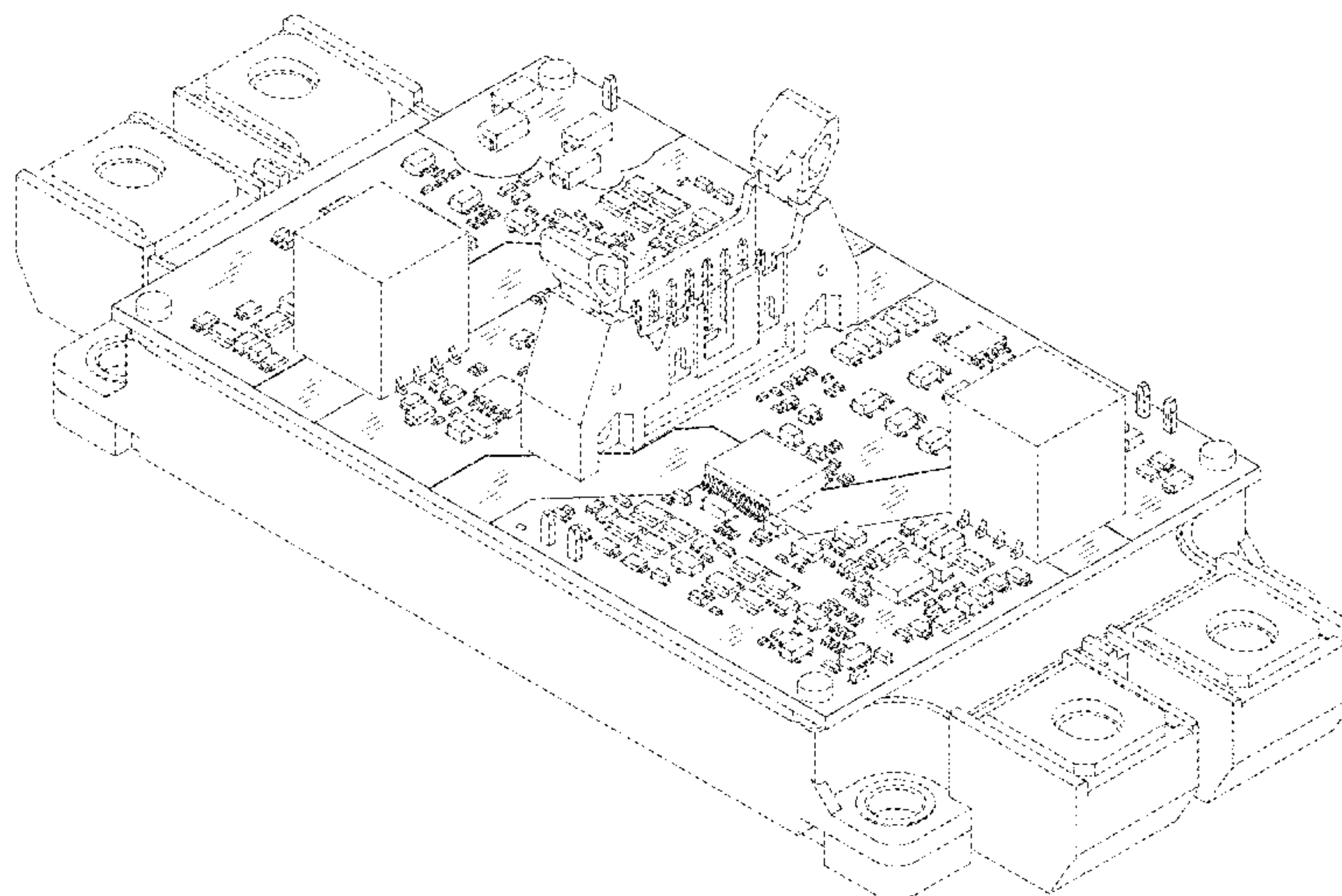
(57) **CLAIM**

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

**DESCRIPTION**

FIG. 1 is a front, top and right side perspective view of a  
power semiconductor module showing our new design;  
FIG. 2 is a front view thereof;  
FIG. 3 is a rear view thereof;  
FIG. 4 is a top plan view thereof;  
FIG. 5 is a right side view thereof; and,  
FIG. 6 is a left side view thereof.  
The broken lines illustrate portions of the power semicon-  
ductor module that form no part of the claimed design.

**1 Claim, 6 Drawing Sheets**



(56)

References Cited

U.S. PATENT DOCUMENTS

D766,851 S \* 9/2016 Yoneyama ..... D13/182  
 D772,184 S \* 11/2016 Soyano ..... D13/182  
 D774,479 S \* 12/2016 Soyano ..... D13/182  
 D775,091 S \* 12/2016 Edenharter ..... D13/182  
 D775,593 S \* 1/2017 Edenharter ..... D13/182  
 D776,071 S \* 1/2017 Edenharter ..... D13/182  
 D785,577 S \* 5/2017 Kawase ..... D13/182  
 9,660,356 B1 \* 5/2017 Nakamura ..... H05K 7/1432  
 D790,491 S \* 6/2017 Hayashida ..... D13/182  
 D798,832 S \* 10/2017 Hayashida ..... D13/182  
 D799,439 S \* 10/2017 Hayashiguchi ..... D13/182  
 D805,485 S \* 12/2017 Kawase ..... D13/182  
 D810,706 S \* 2/2018 Soyano ..... D13/182  
 D847,103 S 4/2019 Sawada  
 D847,104 S 4/2019 Sawada  
 D858,467 S 9/2019 Sawada  
 D864,132 S 10/2019 Sawada  
 D875,058 S \* 2/2020 Sawada ..... D13/182  
 D892,754 S \* 8/2020 Beckedahl ..... D13/182

D903,611 S \* 12/2020 Sannai ..... D13/182  
 D903,612 S \* 12/2020 Soyano ..... D13/182  
 2001/0038143 A1 \* 11/2001 Sonobe ..... H01L 24/49  
 257/690  
 2008/0142948 A1 \* 6/2008 Matsumoto ..... H01R 12/52  
 257/690  
 2016/0190915 A1 \* 6/2016 Horiuchi ..... H01L 25/072  
 363/132  
 2016/0284618 A1 \* 9/2016 Tsukamoto ..... H01L 23/645  
 2016/0336245 A1 \* 11/2016 Egusa ..... H01R 12/585

FOREIGN PATENT DOCUMENTS

JP 1536360 10/2015  
 JP 1585830 9/2017  
 JP 1585831 9/2017  
 JP 1585962 9/2017  
 JP 1603793 5/2018  
 JP 1603980 5/2018  
 JP 1605558 6/2018

\* cited by examiner



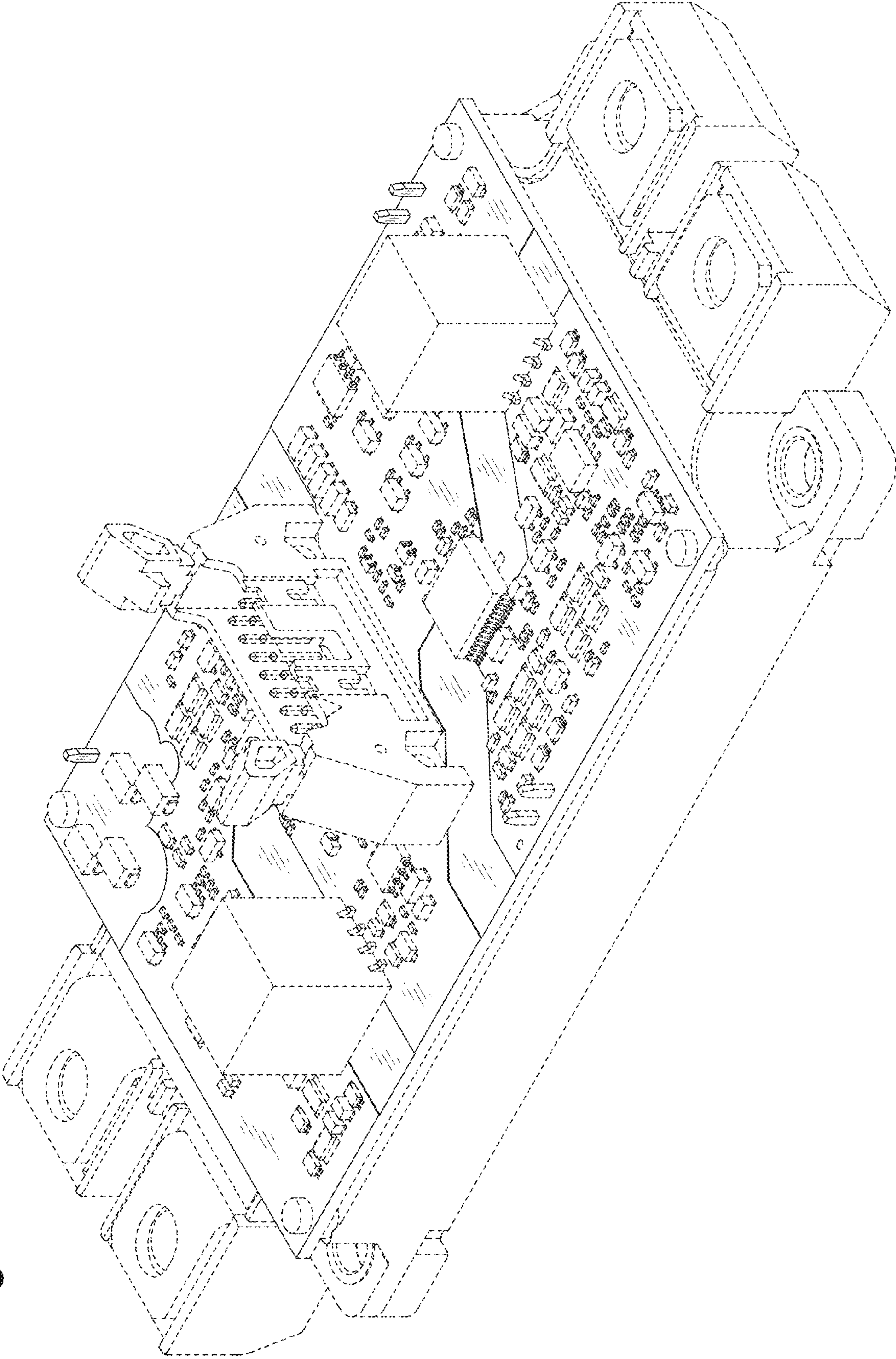


Fig.1

FIG. 2

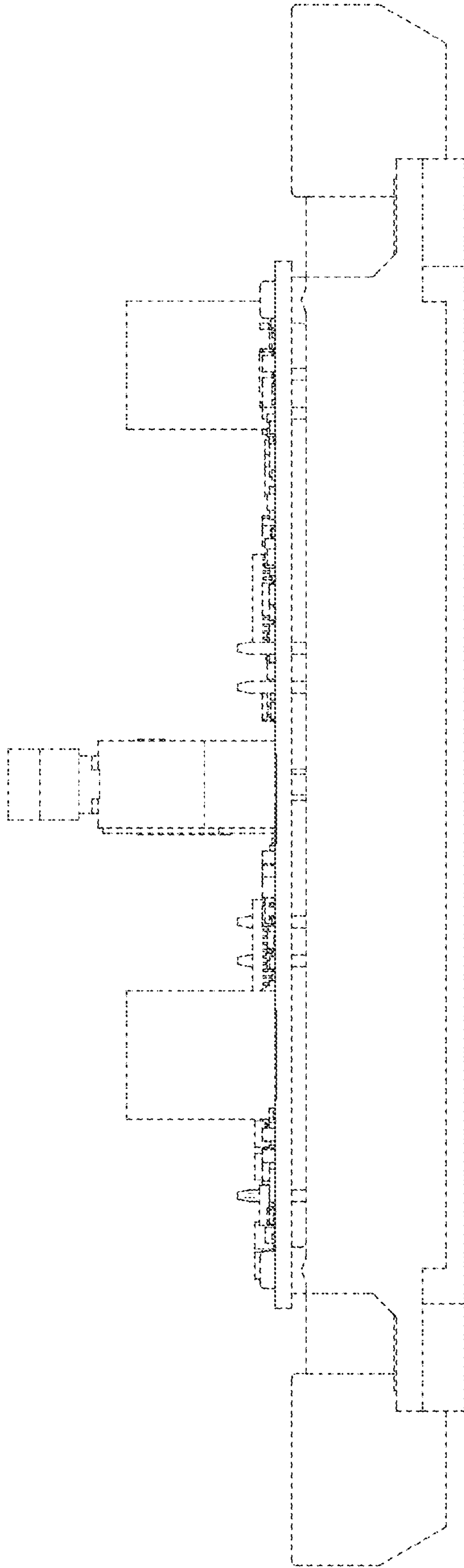
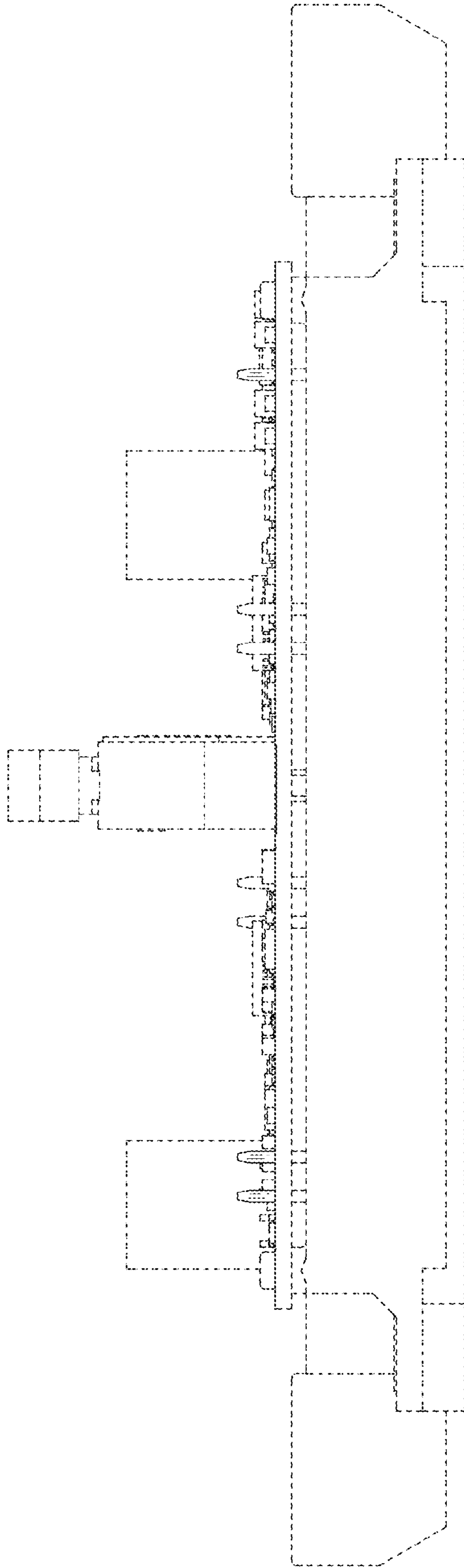


FIG. 3



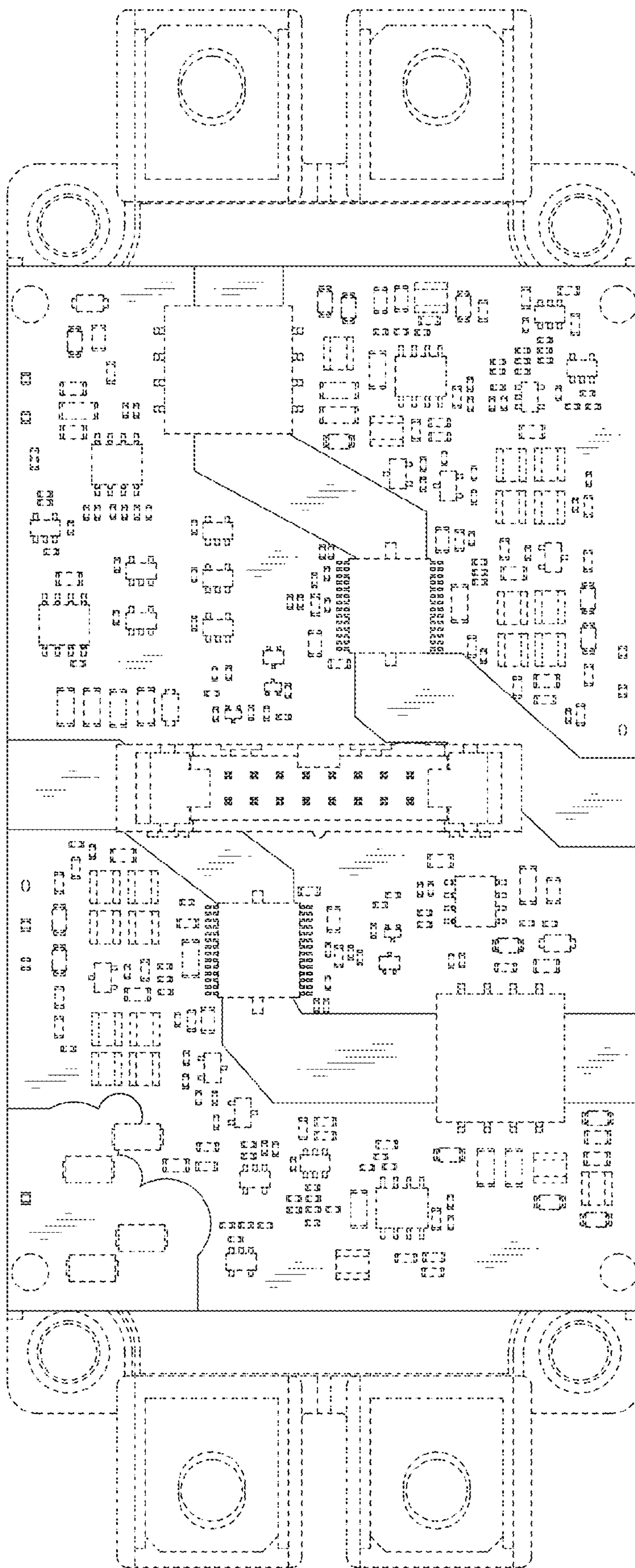


FIG.4



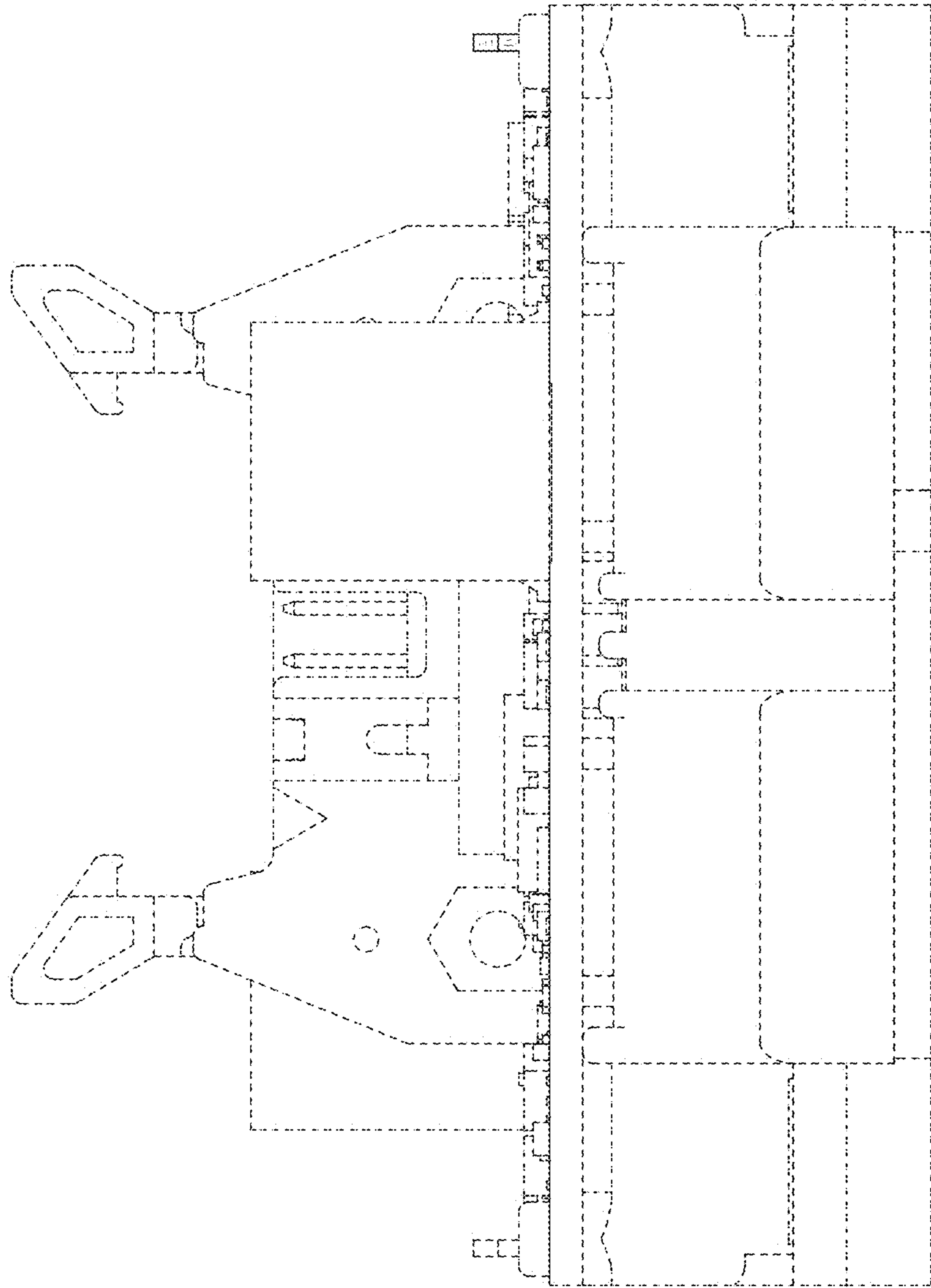


FIG.5

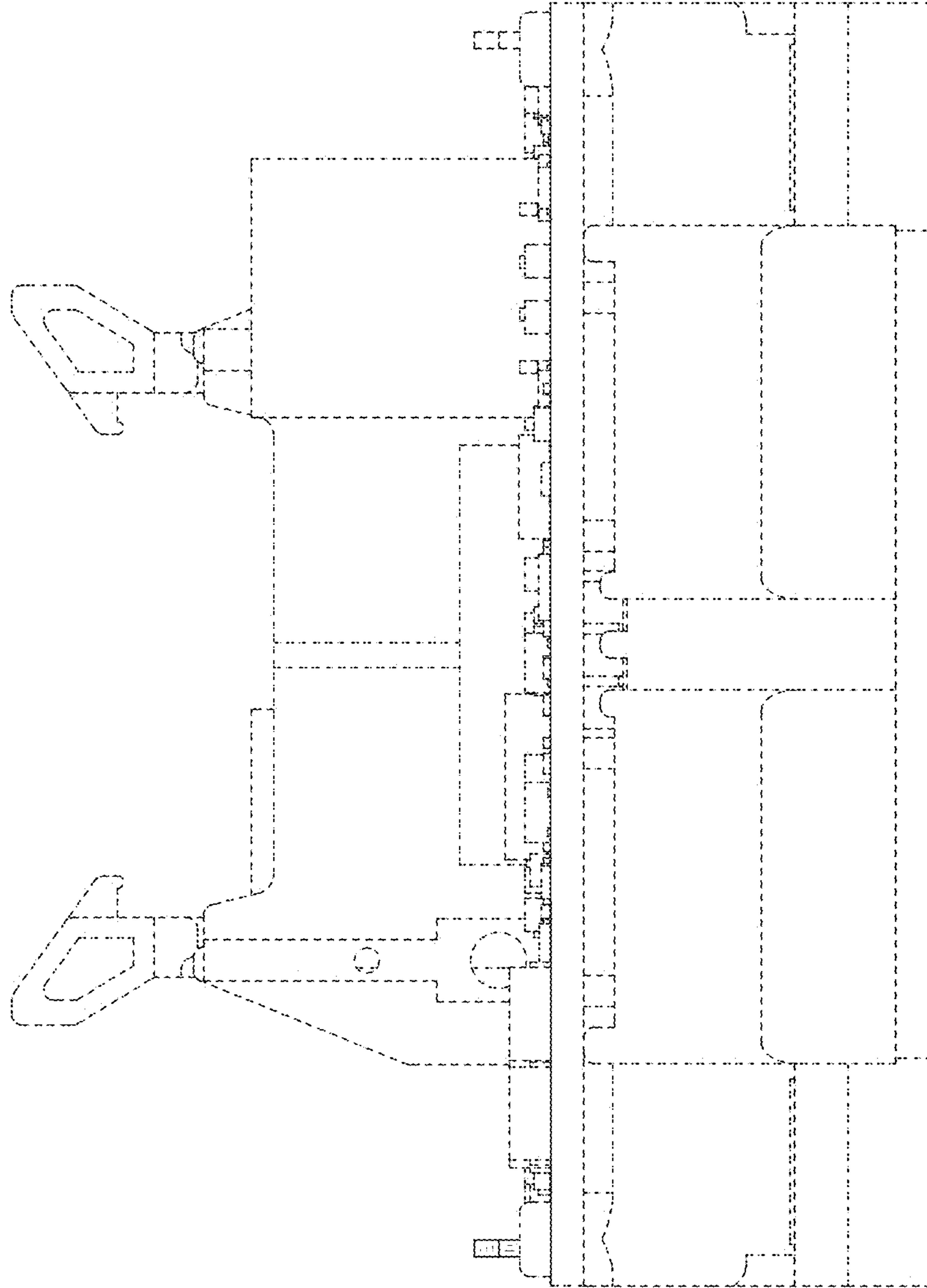


FIG. 6