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(12) **United States Design Patent**
Terabe et al.

(10) **Patent No.:** **US D824,435 S**
(45) **Date of Patent:** **** Jul. 31, 2018**

(54) **TIGHT-FLASK MOLDING MACHINE**

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

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(30) **Foreign Application Priority Data**

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(51) **LOC (11) Cl.** **15-07**

(52) **U.S. Cl.**
USPC **D15/138**

(58) **Field of Classification Search**
USPC D15/122, 135-138, 141, 142, 199
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,277,739 A 10/1966 Morse
D479,884 S 9/2003 Berryman
(Continued)

FOREIGN PATENT DOCUMENTS

TW 343567 U 10/1998
TW D141728 S 8/2011
(Continued)

OTHER PUBLICATIONS

Taiwan Patent Office, Notice of Allowance in counterpart Taiwan Application No. 105306707, dated Aug. 4, 2017.

(Continued)

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(57) **CLAIM**

The ornamental design for a tight-flask molding machine, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a tight-flask molding machine of the present invention.

FIG. 2 is a front view of the tight-flask molding machine of FIG. 1.

FIG. 3 is a rear view of the tight-flask molding machine of FIG. 1.

FIG. 4 is a top plan view of the tight-flask molding machine of FIG. 1.

FIG. 5 is a bottom view of the tight-flask molding machine of FIG. 1.

FIG. 6 is a right side view of the tight-flask molding machine of FIG. 1.

FIG. 7 is a left side view of the tight-flask molding machine of FIG. 1.

FIG. 8 is an enlarged sectional view taken along the line 8-8 of the tight-flask molding machine of FIG. 2 of the portion between lines 801, 802, 803 and 804 of the tight-flask molding machine of FIG. 5.

FIG. 9 is an enlarged sectional view taken along the line 9-9 of the portion between lines 901 and 902 of the tight-flask molding machine of FIG. 2 and the portion between lines 903 and 904 of the tight-flask molding machine of FIG. 4.

FIG. 10 is a perspective view of a second embodiment of the tight-flask molding machine of the present invention.

FIG. 11 is a front view of the tight-flask molding machine of FIG. 10.

FIG. 12 is a rear view of the tight-flask molding machine of FIG. 10.

FIG. 13 is a top plan view of the tight-flask molding machine of FIG. 10.

FIG. 14 is a bottom view of the tight-flask molding machine of FIG. 10.

FIG. 15 is a right side view of the tight-flask molding machine of FIG. 10.

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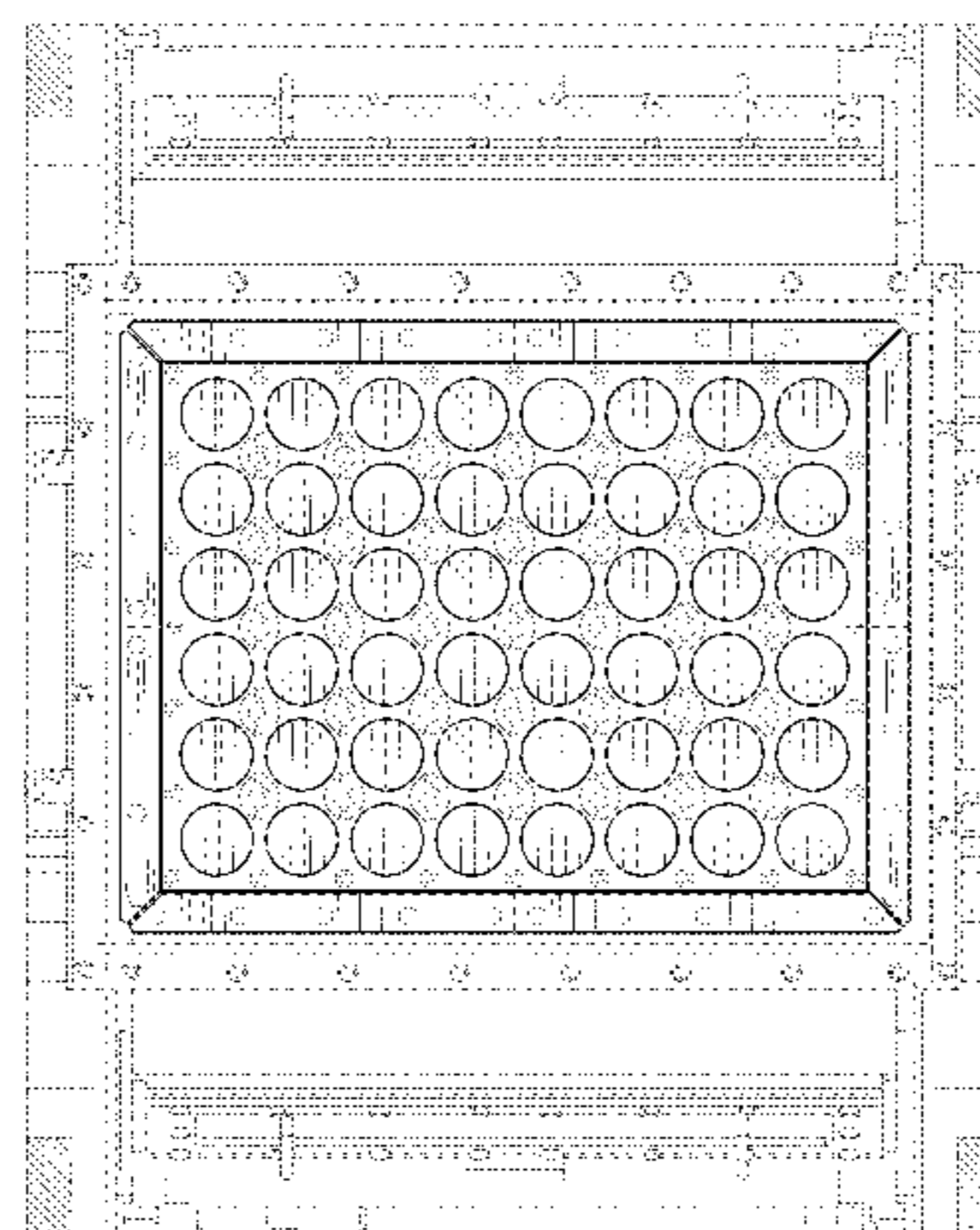
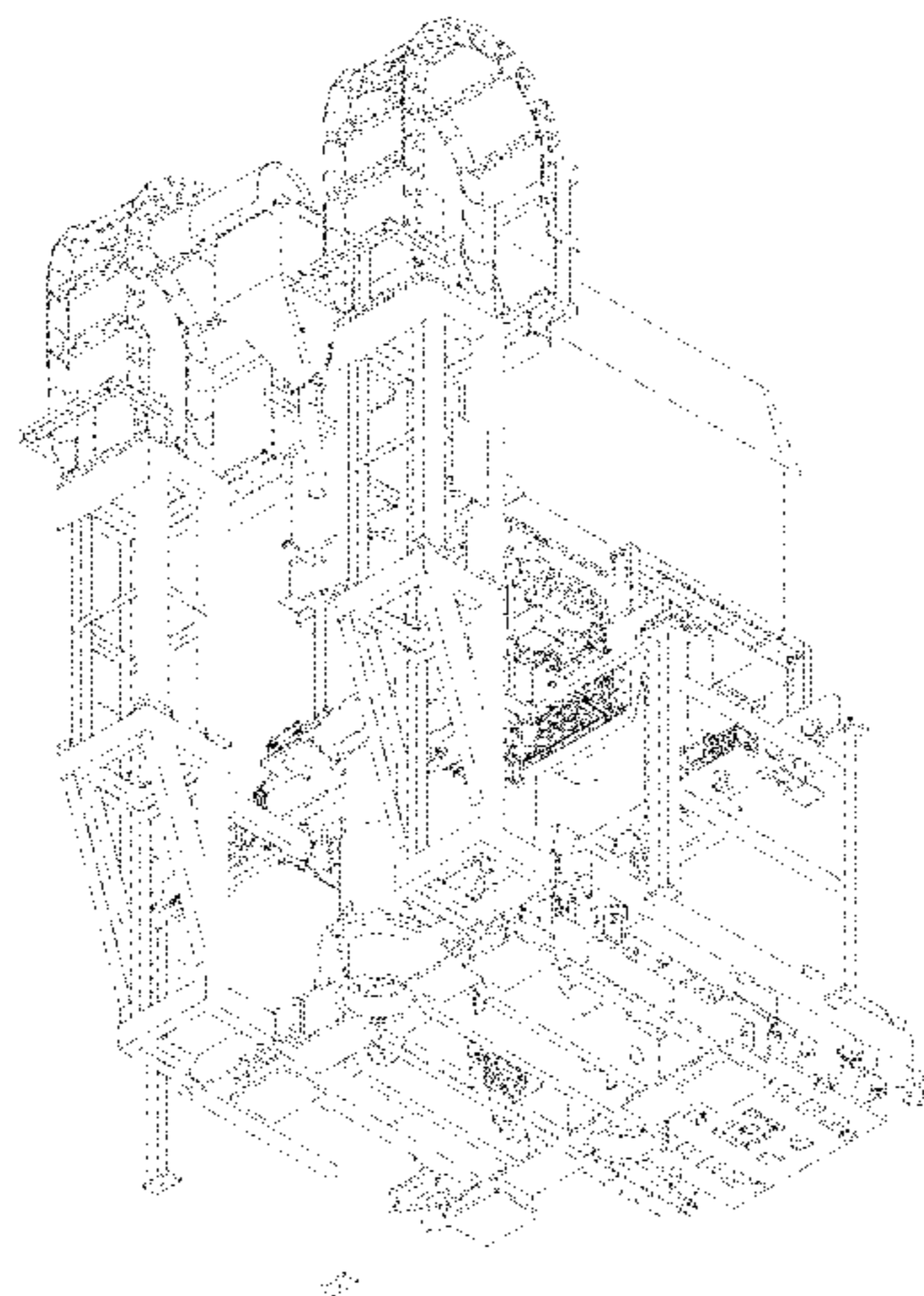


FIG. 16 is a left side view of the tight-flask molding machine of FIG. 10.

FIG. 17 is an enlarged sectional view taken along the line 17-17 of the tight-flask molding machine of FIG. 11 of the portion between lines 1701, 1702, 1703 and 1704 of the tight-flask molding machine of FIG. 14; and,

FIG. 18 is an enlarged sectional view taken along the line 18-18 of the portion between lines 1801 and 1802 of the tight-flask molding machine of FIG. 11 and the portion between lines 1803 and 1804 of the tight-flask molding machine of FIG. 13.

The features shown in broken lines depict environmental subject matter and illustrate portions of the tight-flask molding machine and form no part of the claimed design.

1 Claim, 18 Drawing Sheets

(58) **Field of Classification Search**

CPC B29C 45/0001; B29C 2043/3427; B29C 2043/3494; B29C 2045/0006; B29C 2045/0043; B29C 2045/0049; B29C 2045/14803; B29C 2945/76444; B29C 43/24; B29C 45/0005; B29C 45/0025; B29C 45/006; B29C 45/14311; B29C 45/14778; B29C 45/14811; B29C 45/14819; B29C 45/1657; B29C 45/1671; B29C 45/1761; B29C 45/2708; B29C 45/40; B29C 45/401; B29C 45/42; B29C 45/84; B29C 47/0004; B29C 47/0021

See application file for complete search history.

(56)

References Cited

U.S. PATENT DOCUMENTS

6,709,188 B2 3/2004 Ushimaru
 D498,542 S 11/2004 Brushaber
 D499,190 S 11/2004 Garelick et al.
 D506,693 S 6/2005 Kaczmarek
 D527,611 S 9/2006 Sato
 D547,336 S 7/2007 Kai
 D612,364 S 3/2010 Kwolek
 D617,356 S 6/2010 Wang
 D690,331 S 9/2013 Kitamura
 D707,853 S 6/2014 Lafontaine
 8,827,538 B2 * 9/2014 Padmanabhan ... B01F 15/00928
 366/79
 8,920,210 B2 * 12/2014 Benson B24C 9/006
 451/75

D723,715 S 3/2015 Lafontaine
 D733,603 S 7/2015 Graf
 D736,449 S 8/2015 Getty
 9,156,085 B2 * 10/2015 Zammattio B22D 17/10
 D749,156 S 2/2016 Sugiura et al.
 D750,980 S 3/2016 Takach et al.
 9,289,821 B2 * 3/2016 Lee B22D 11/0622
 D755,004 S 5/2016 Bock et al.
 D758,462 S 6/2016 Bell
 D759,840 S 6/2016 Grovender
 D766,696 S 9/2016 Kemker
 D766,844 S 9/2016 Turksu et al.
 D768,216 S 10/2016 Funakoshi et al.
 D768,741 S 10/2016 Funakoshi et al.
 D769,339 S * 10/2016 Funakoshi D15/135
 D776,176 S * 1/2017 Galomb D15/135
 D777,367 S 1/2017 Ma
 D779,977 S 2/2017 Jacob et al.
 D782,727 S 3/2017 Weiss et al.
 D783,422 S 4/2017 Kashimoto
 D793,808 S 8/2017 Weaden et al.
 2001/0027152 A1 * 10/2001 Bolledi B23Q 11/0053
 483/14
 2004/0121890 A1 * 6/2004 Taga B23Q 1/012
 483/54
 2007/0000122 A1 * 1/2007 Caya B21F 3/00
 29/735
 2007/0077329 A1 * 4/2007 Okumura B29C 45/76
 425/589
 2008/0303183 A1 * 12/2008 Rote B29C 43/08
 264/219
 2010/0225015 A1 * 9/2010 Techlin E04G 11/34
 264/33
 2011/0259209 A1 * 10/2011 Huang A21C 11/163
 99/450.7
 2013/0292481 A1 11/2013 Filson et al.

FOREIGN PATENT DOCUMENTS

TW 151847 S 2/2013
 TW M459232 U 8/2013

OTHER PUBLICATIONS

Taiwan Patent Office, Notice of Allowance in counterpart Taiwan Application No. 105306709, dated Aug. 4, 2017.
 United States Patent and Trademark Office, Notice of Allowance in U.S. Appl. No. 29/583,635, dated Oct. 16, 2017.
 United States Patent and Trademark Office, Office Action in U.S. Appl. No. 29/583,645, dated Nov. 29, 2017.
 United States Patent and Trademark Office, Office Action in U.S. Appl. No. 29/583,642, dated Dec. 13, 2017.

* cited by examiner

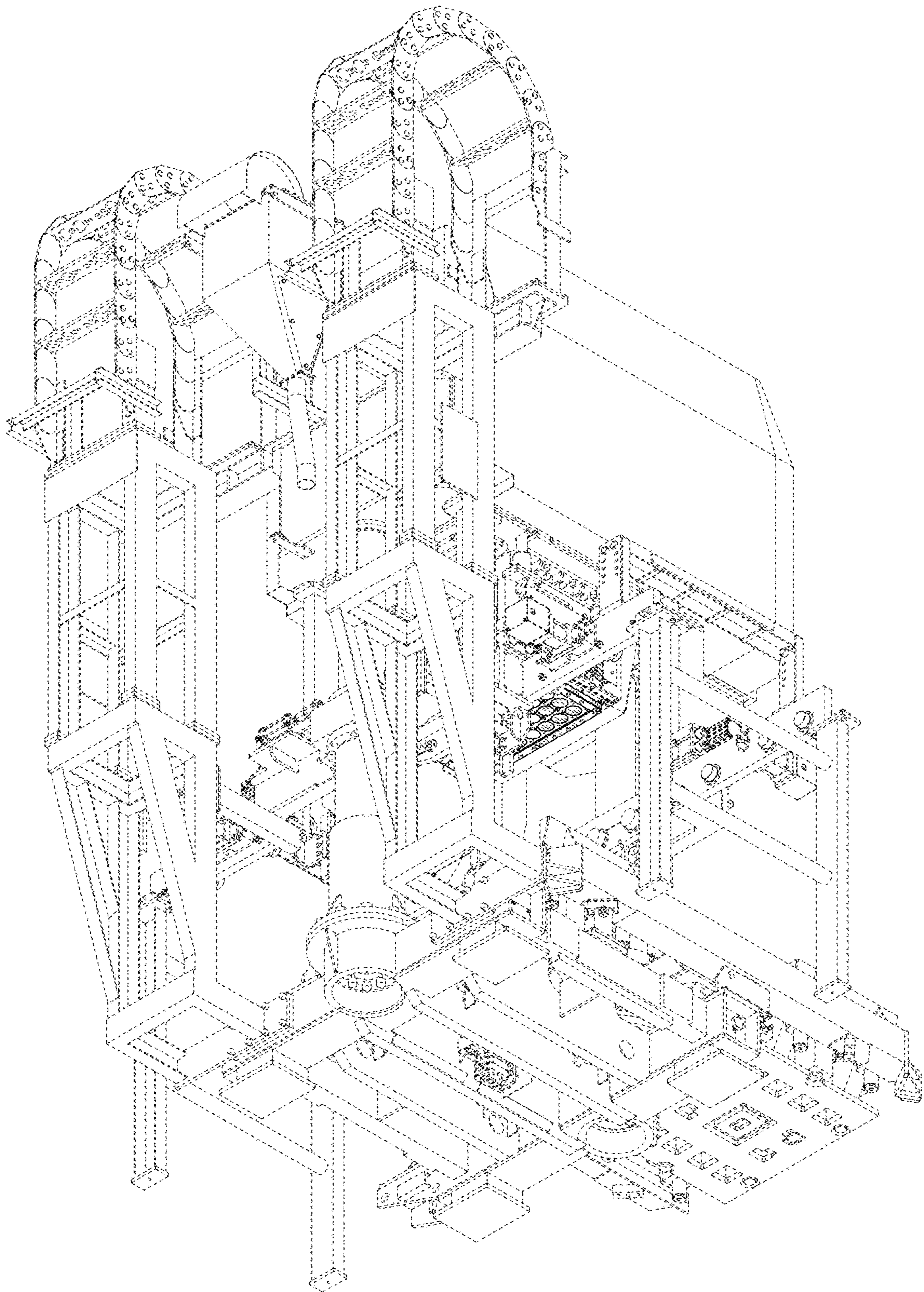


FIG. 1

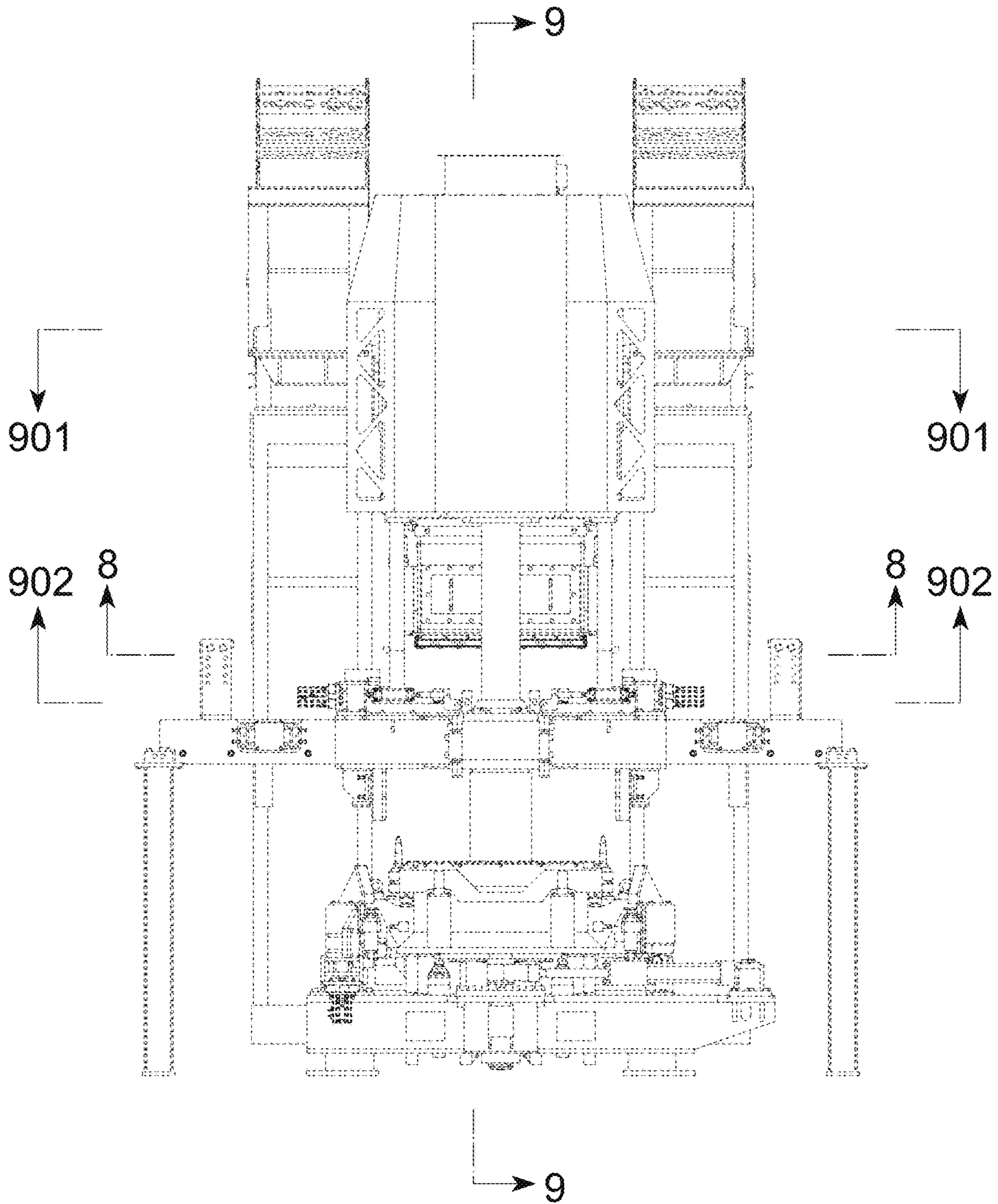


FIG. 2

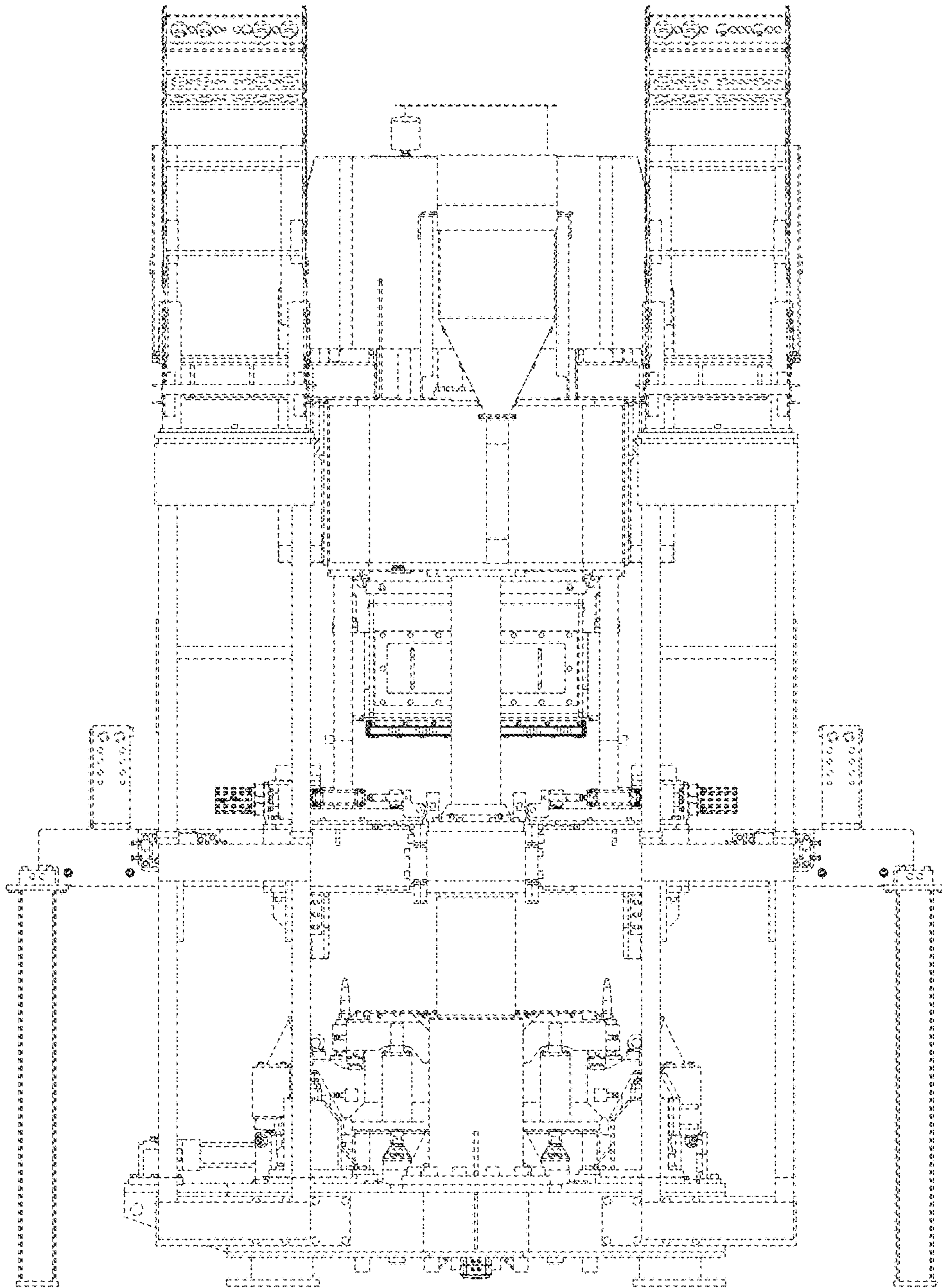


FIG. 3

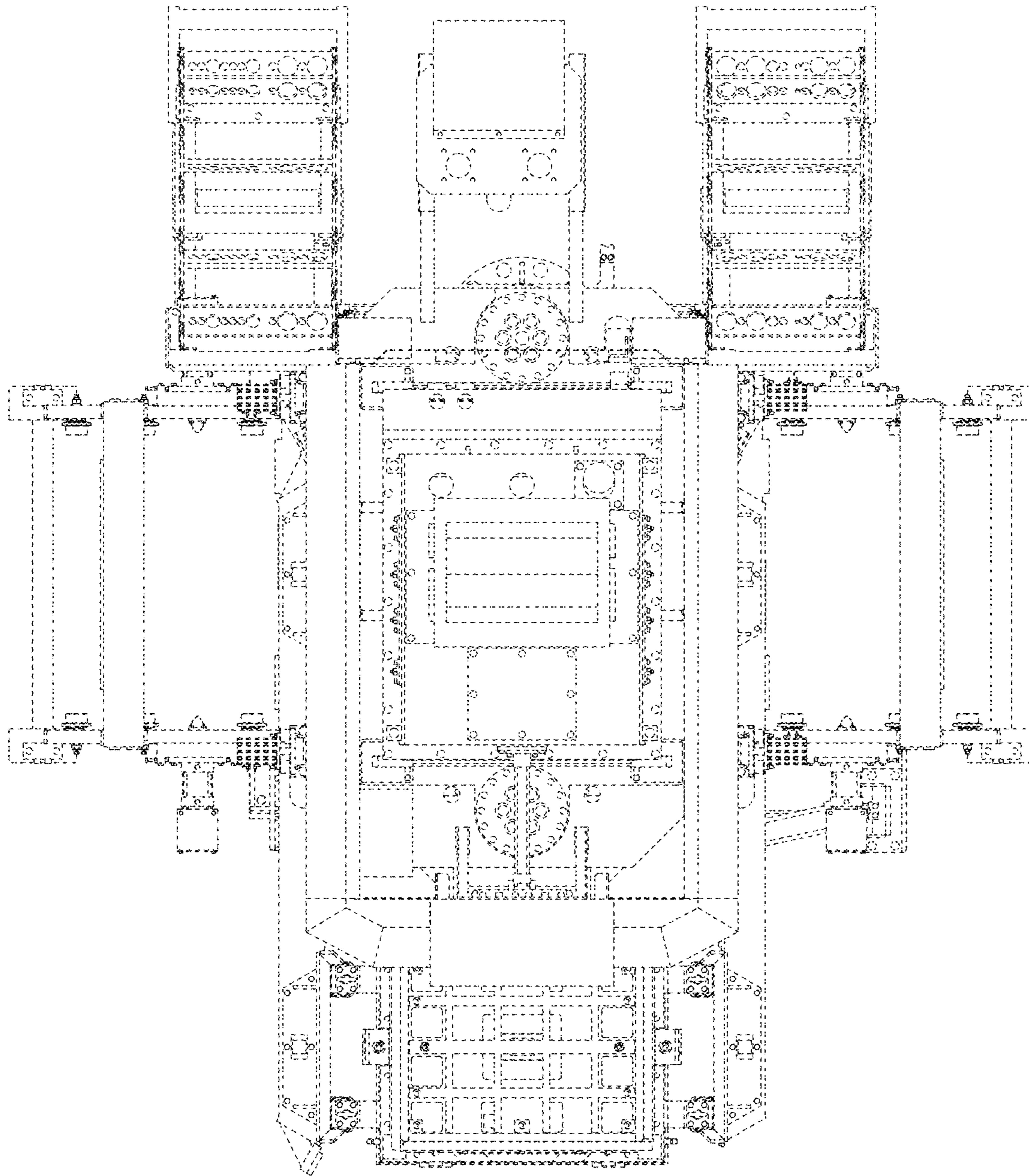


FIG. 4

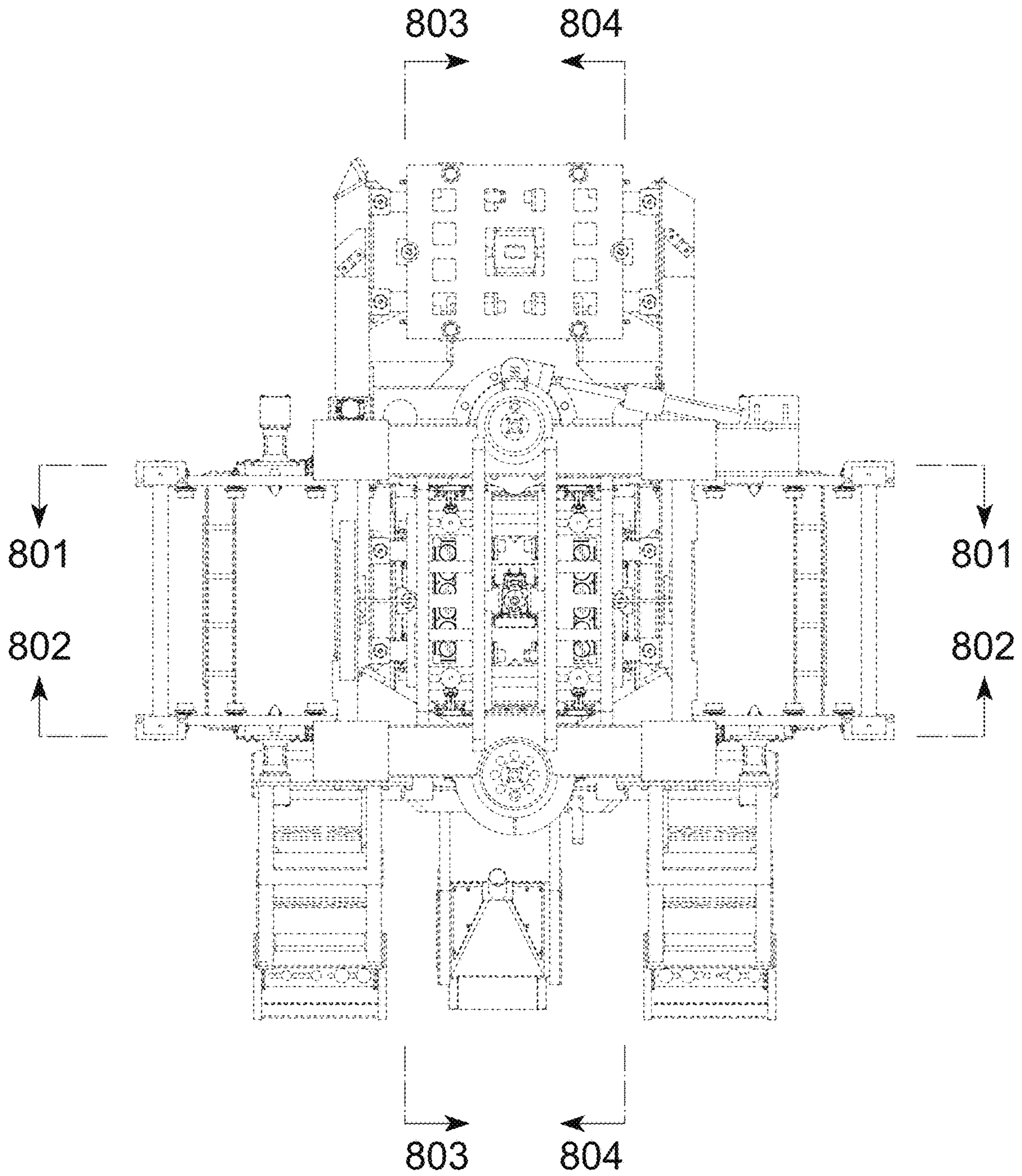


FIG. 5

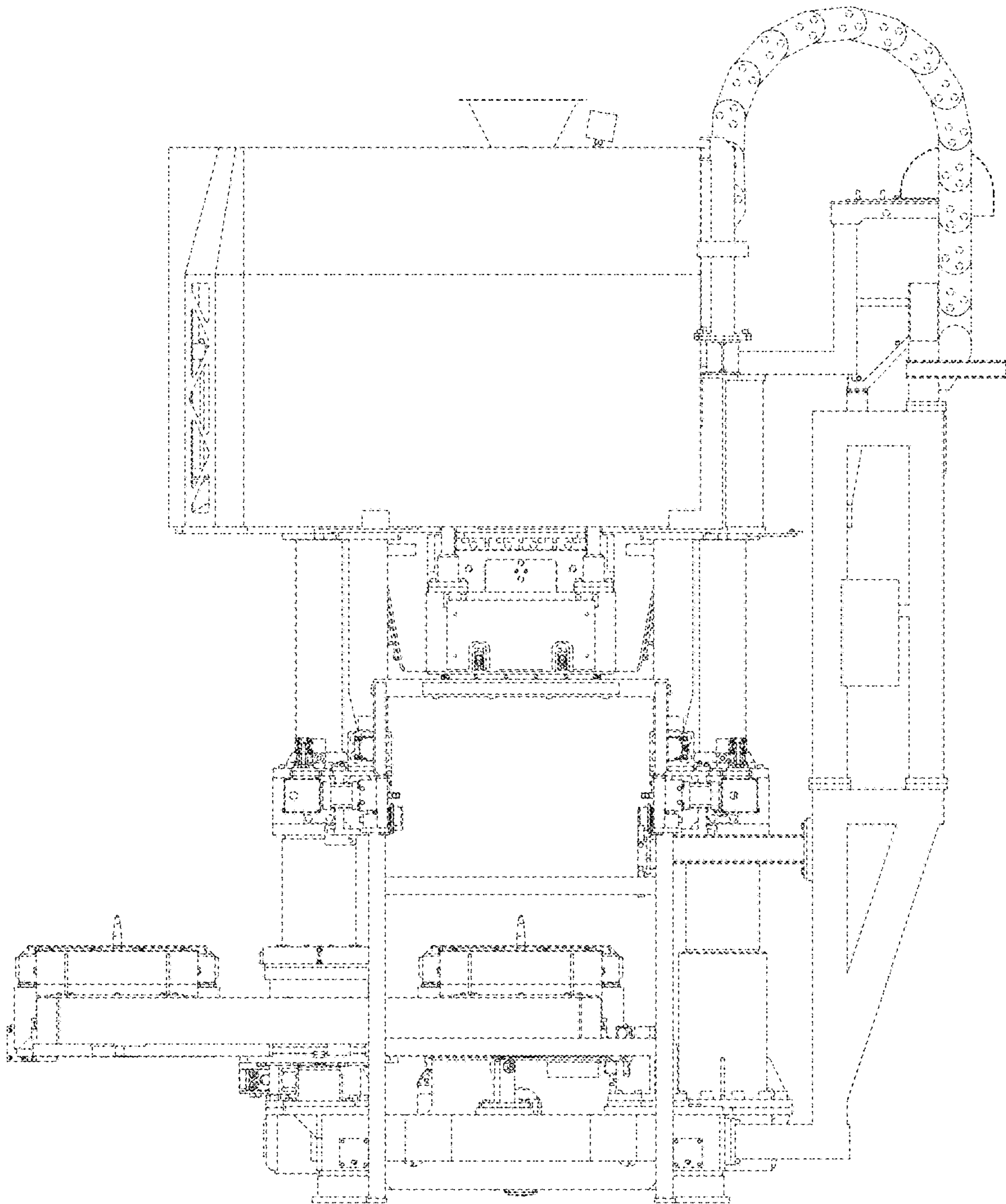


FIG. 6

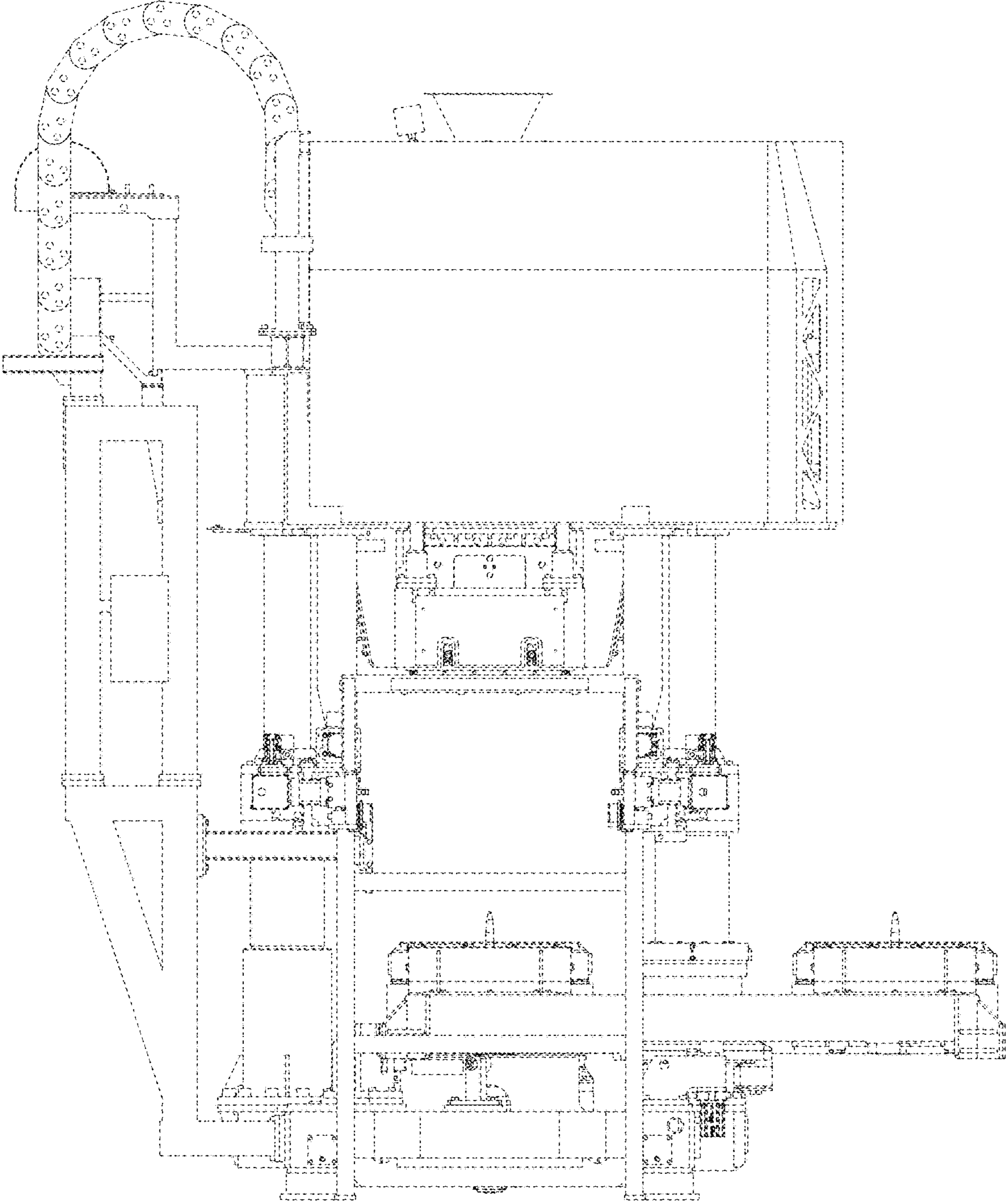


FIG. 7

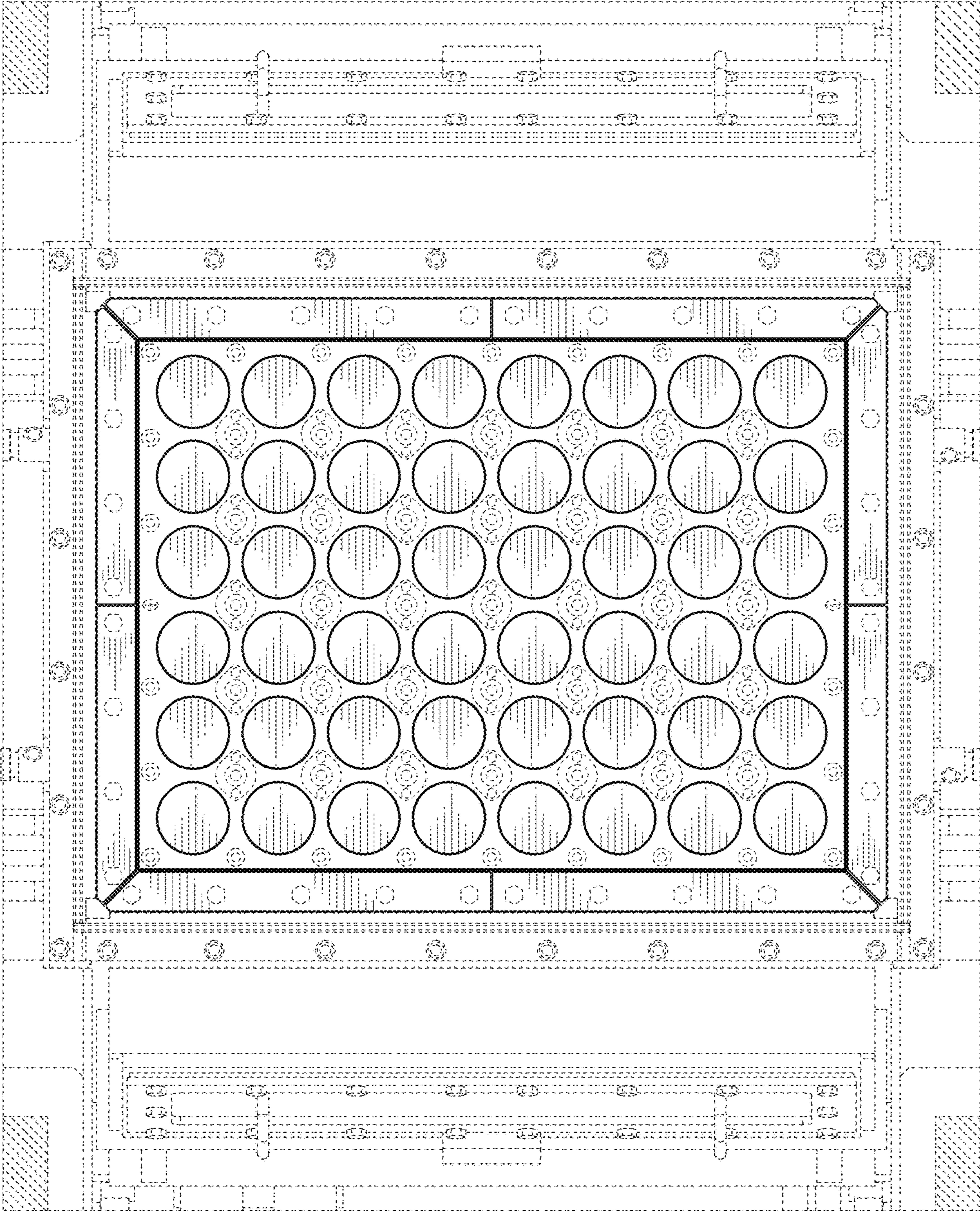


FIG. 8

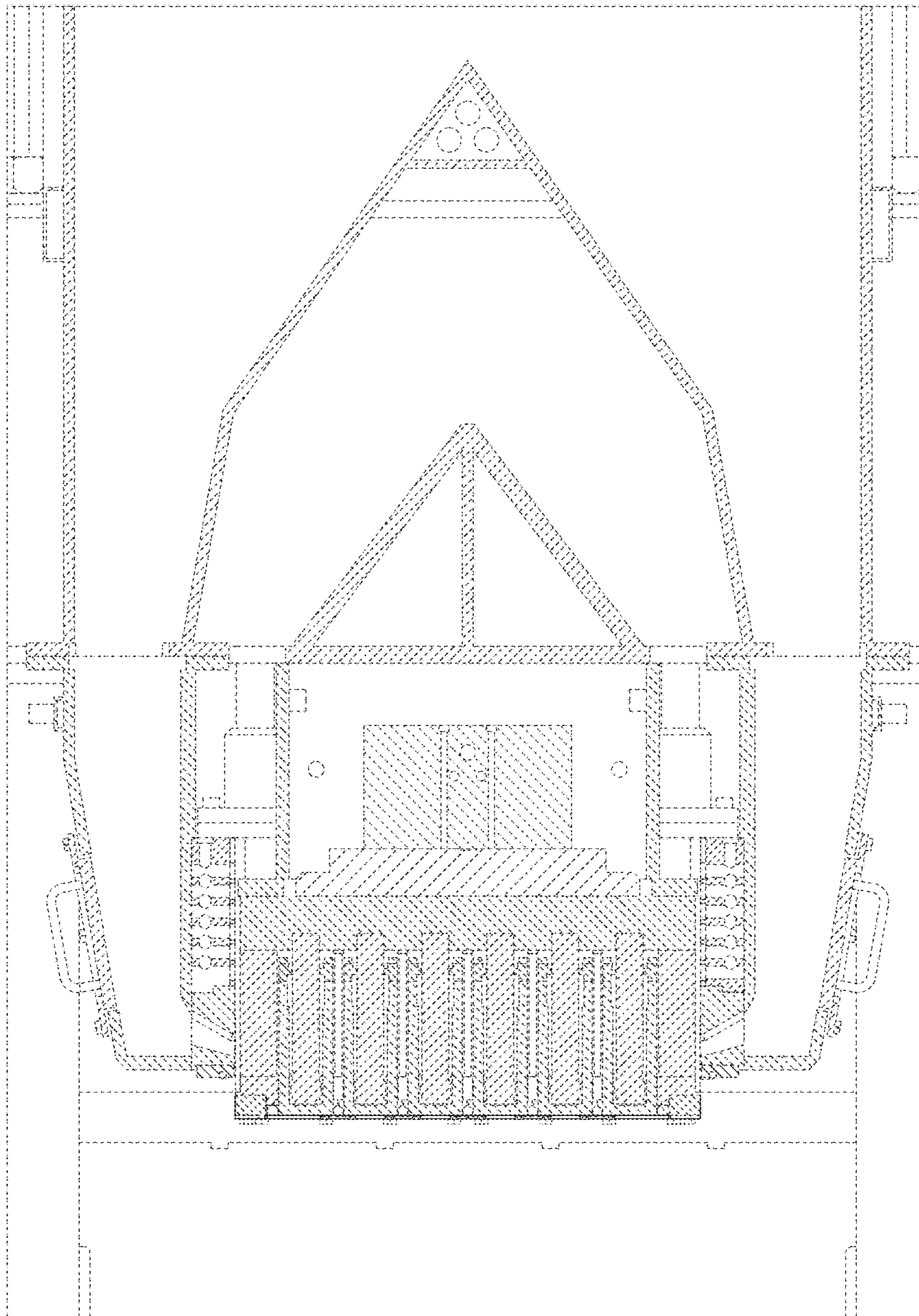


FIG. 9

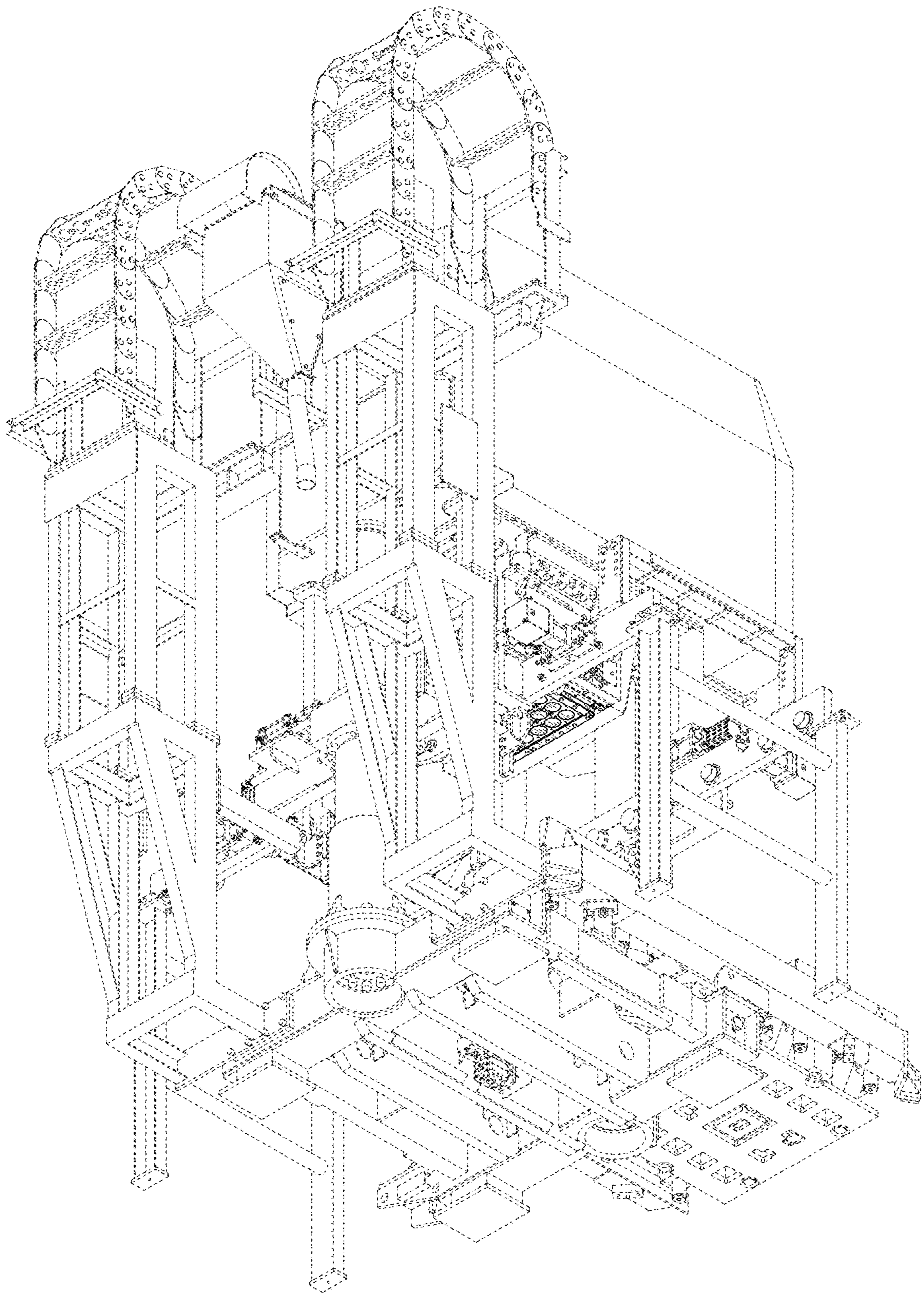


FIG. 10

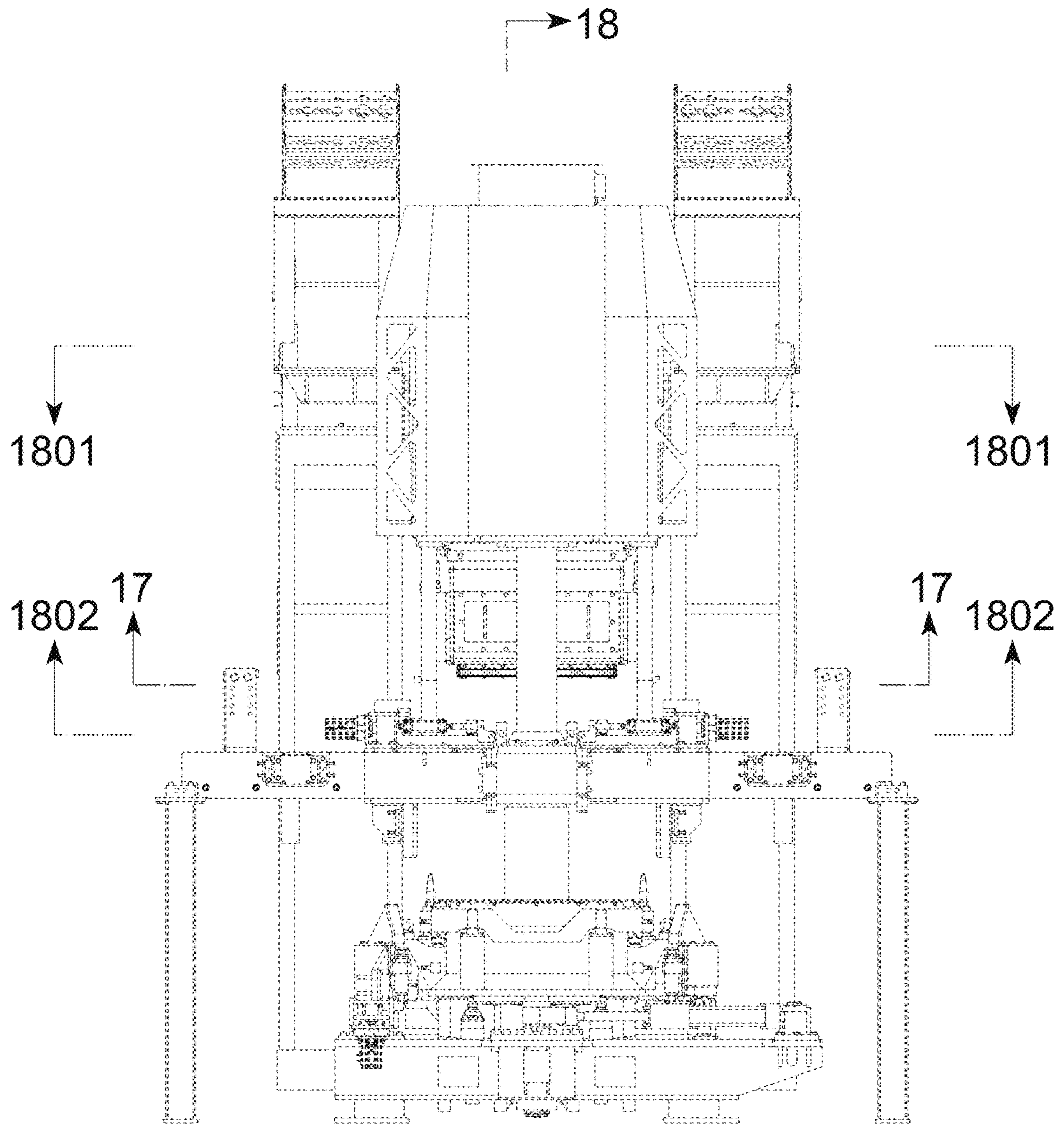


FIG. 11

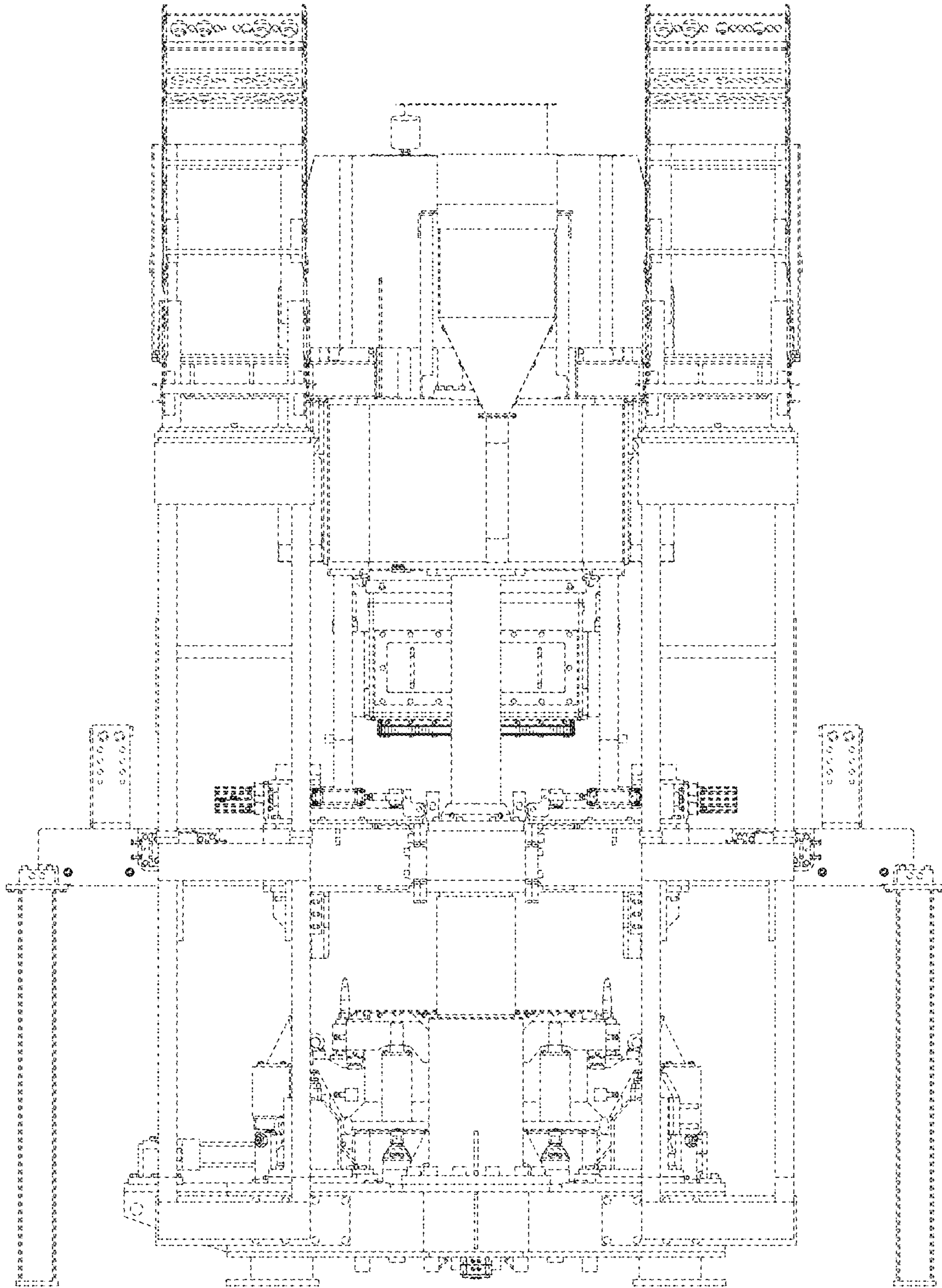


FIG. 12

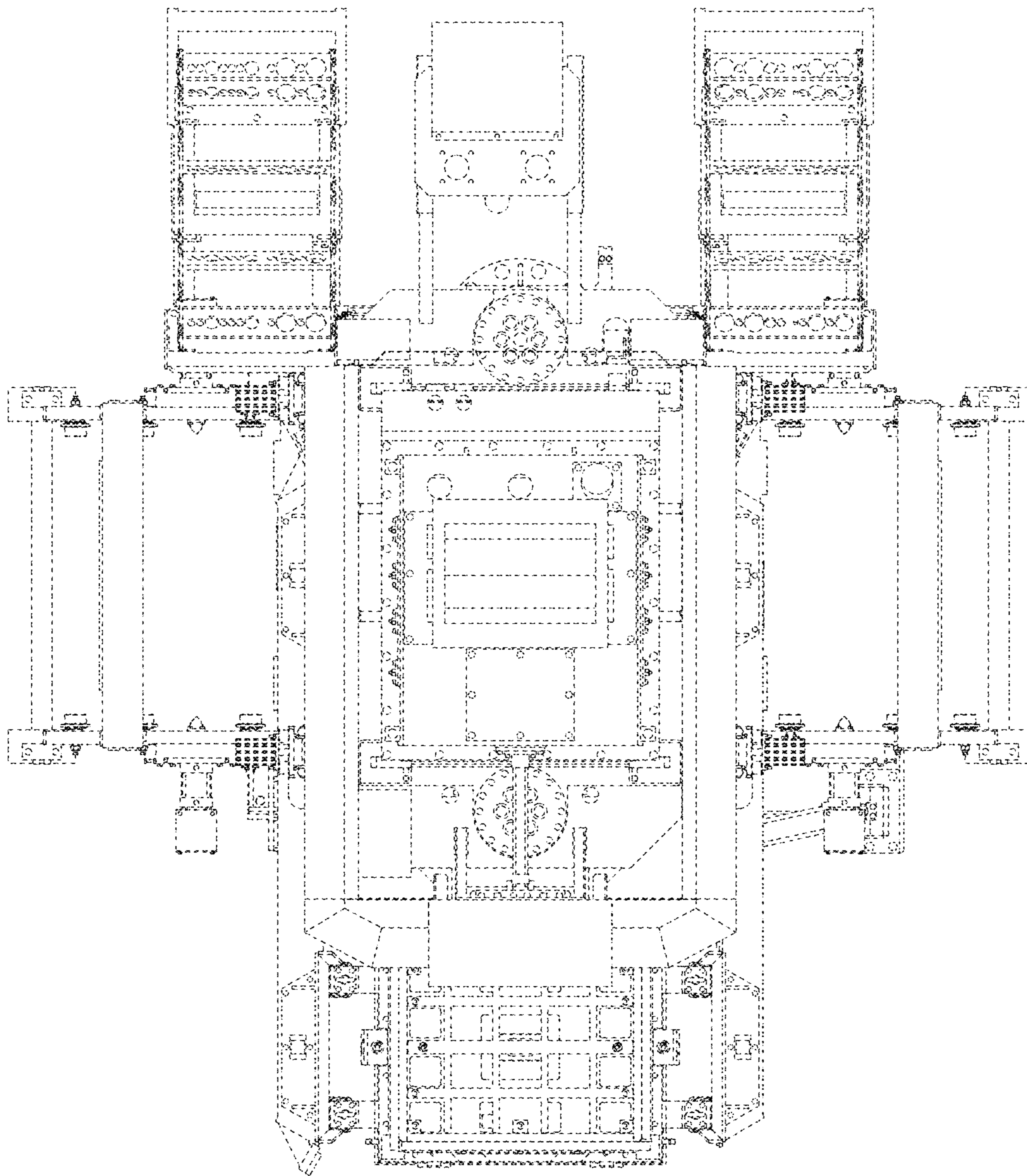


FIG. 13

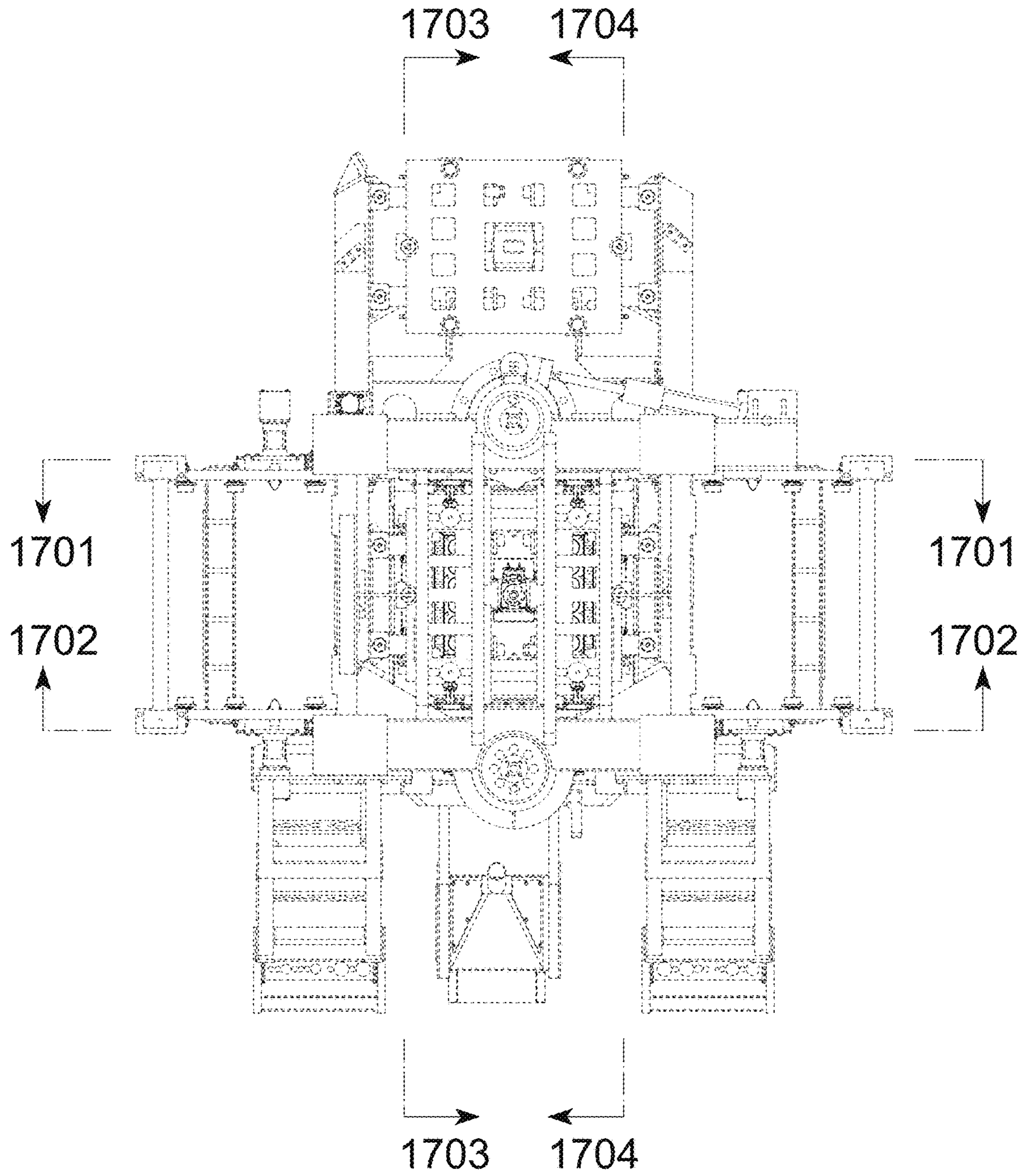


FIG. 14

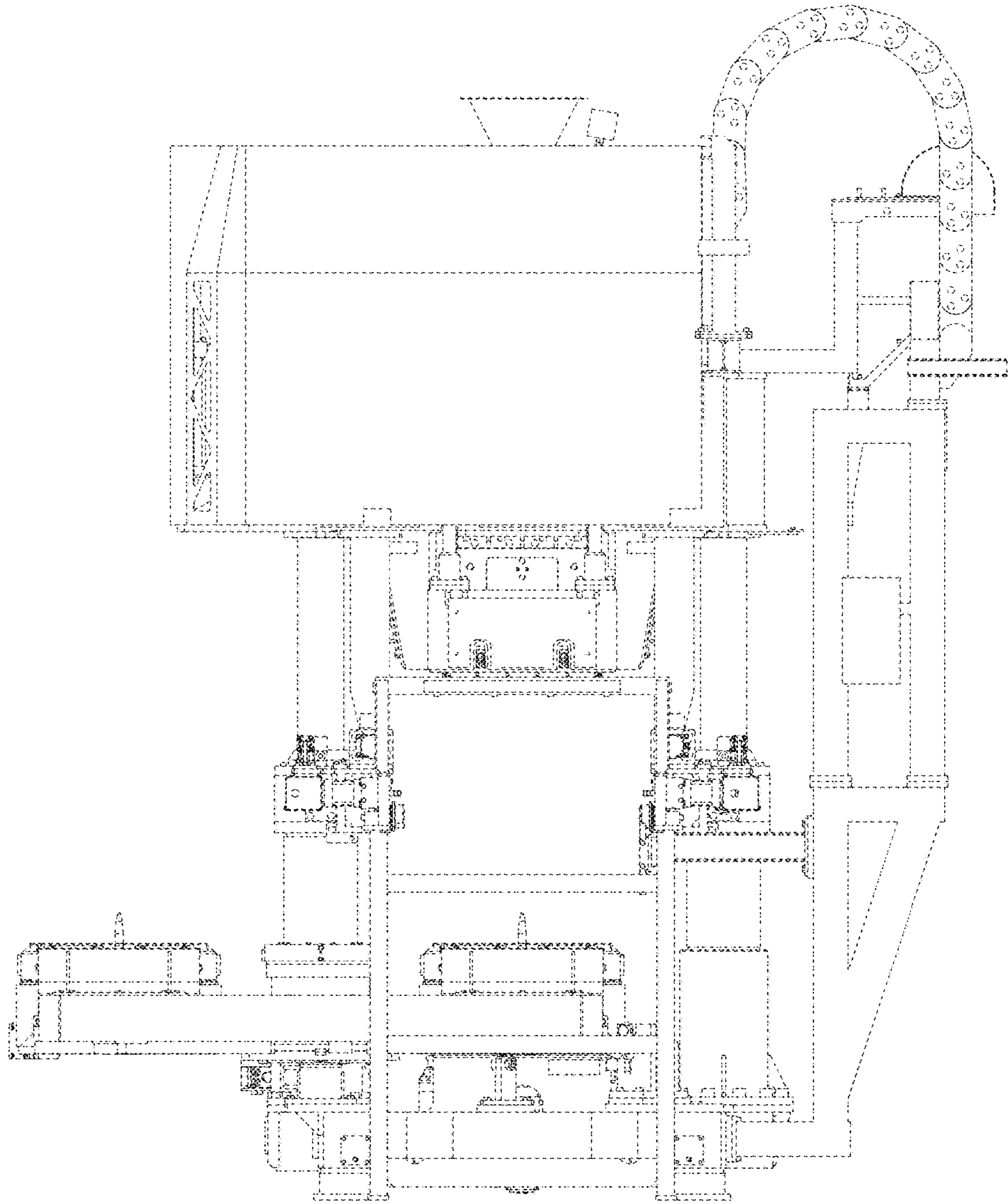


FIG. 15

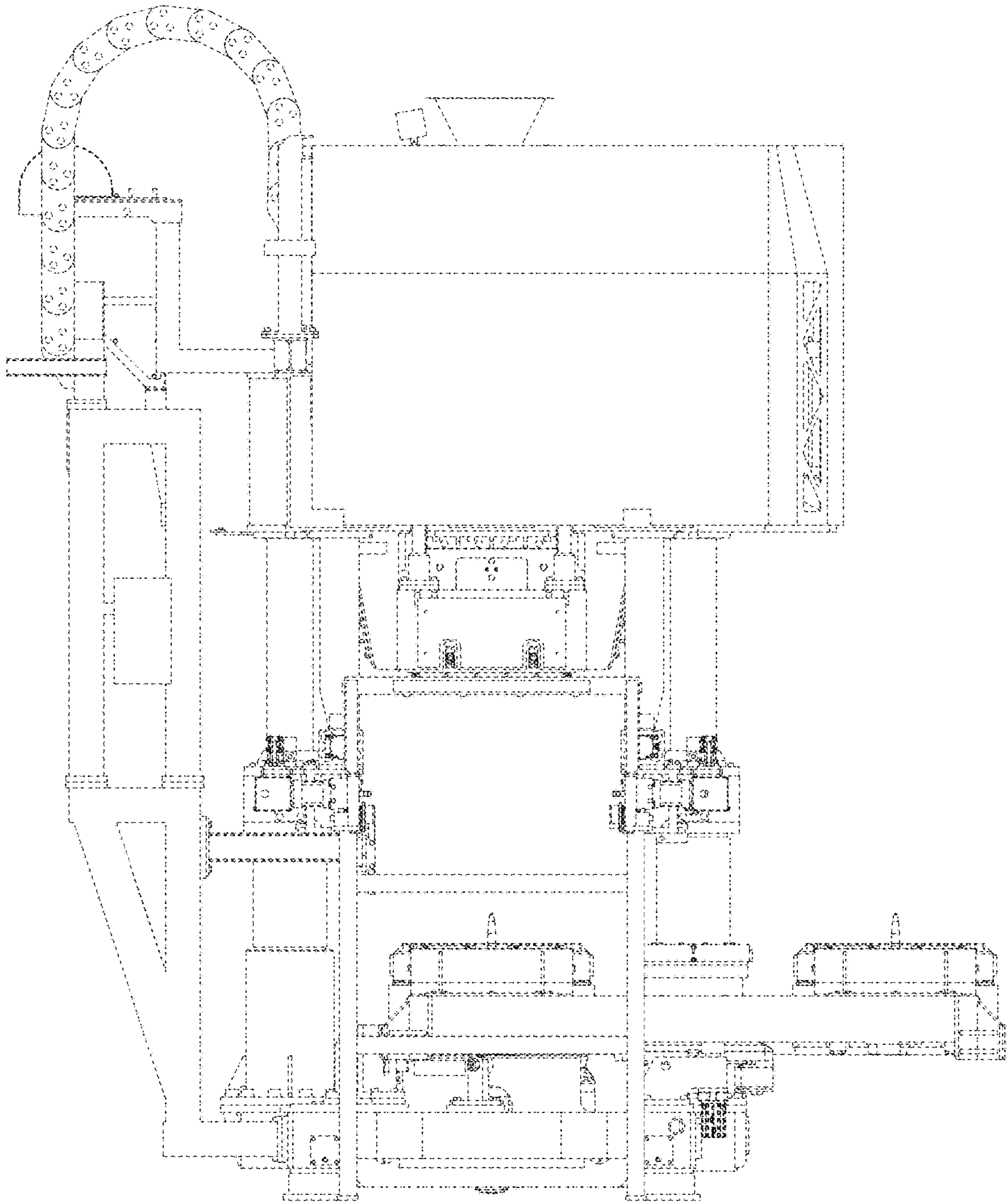


FIG. 16

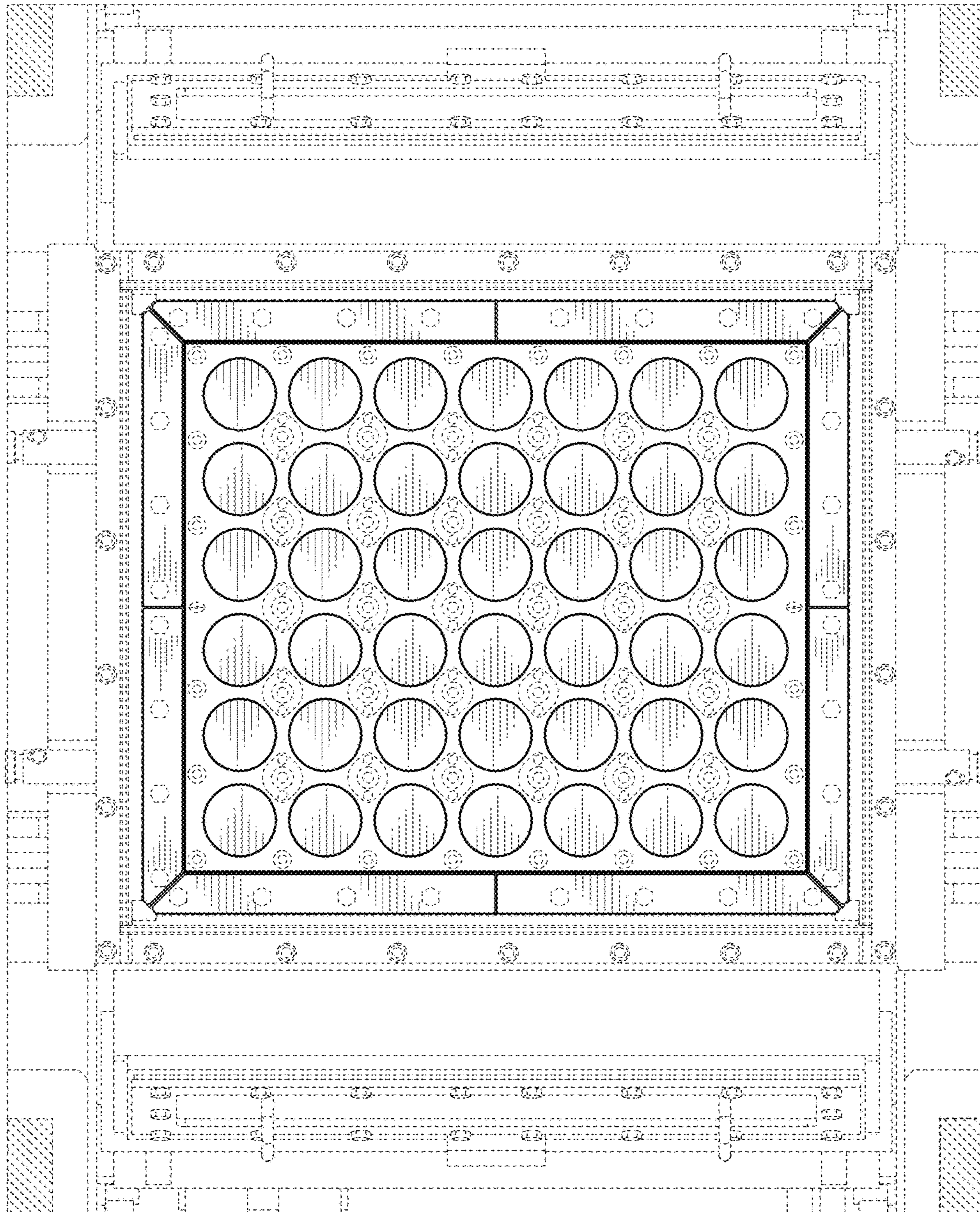


FIG. 17

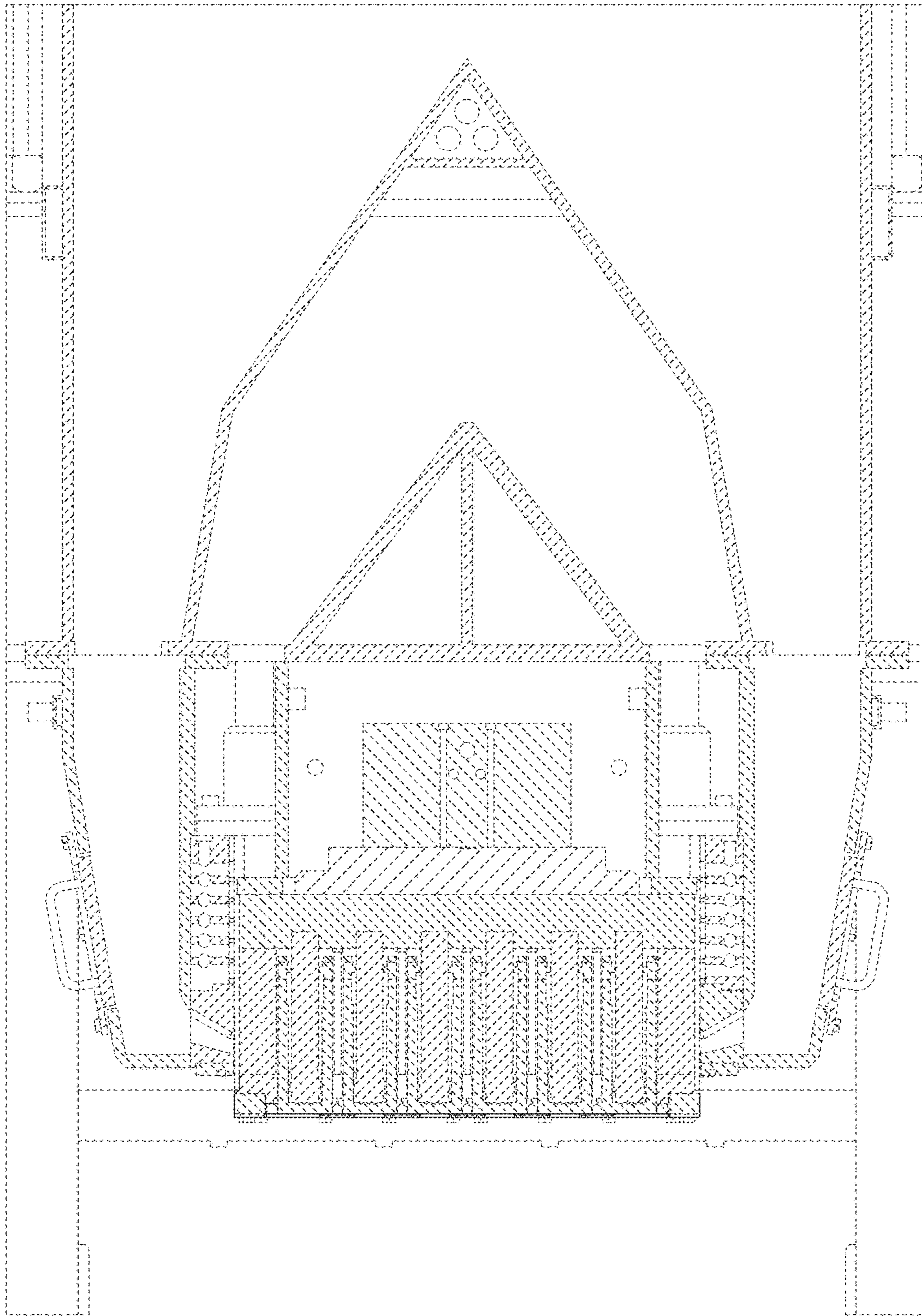


FIG. 18