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Fukuma et al.

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(54) **LIFTING LINK MECHANISM OF ARTICLE TRANSFERRING ROBOT**

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(73) Assignee: **Daihen Corporation**, Osaka (JP)

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

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(51) **LOC (9) Cl.** **12-05**

(52) **U.S. Cl.** **D34/28**

(58) **Field of Classification Search** D34/28,
D34/33, 31; 254/93 H, 93 R, 93 I, 93 VA
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,993,207	A *	11/1976	Jones	.....	414/495
4,724,930	A *	2/1988	VanLierop	.....	187/204
4,741,512	A *	5/1988	Elkuch et al.	.....	254/9 C
D302,141	S *	7/1989	Crozier	.....	D12/15
D302,893	S *	8/1989	Wakefield	.....	D34/31
4,867,277	A *	9/1989	Sloan	.....	187/243
4,899,987	A *	2/1990	Craig	.....	254/122
D307,346	S *	4/1990	Kawana	.....	D34/31
D308,743	S *	6/1990	Kawana	.....	D34/31
D346,680	S *	5/1994	Lee	.....	D34/31
D375,602	S *	11/1996	Henthorn et al.	.....	D34/28

D416,369	S *	11/1999	Johansson	.....	D34/28
D452,056	S *	12/2001	Rosania	.....	D34/28
D495,107	S *	8/2004	Thurm	.....	D34/28
D585,335	S *	1/2009	Henke et al.	.....	D12/115
2010/0012907	A1 *	1/2010	Lee	.....	254/131
2010/0012909	A1 *	1/2010	Lee	254/93 R
2010/0270523	A1 *	10/2010	Schmitt et al.	254/93 R

* cited by examiner

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(57) **CLAIM**

The ornamental design for a lifting link mechanism of article transferring robot, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a lifting link mechanism of article transferring robot showing our new design; FIG. 2 is a front view of the same lifting link mechanism; FIG. 3 is a rear view of the same lifting link mechanism; FIG. 4 is a top plan view of the same lifting link mechanism; FIG. 5 is a bottom view of the same lifting link mechanism; FIG. 6 is a right side view of the same lifting link mechanism; FIG. 7 is a left side view of the same lifting link mechanism; and, FIG. 8 is a perspective view of the same lifting link mechanism in an alternate position. The broken lines in FIGS. 1 through 8 showing the portions of the article transferring robot other than the lifting mechanism represented in solid lines are for illustrative purposes only and form no part of the claimed link mechanism.

1 Claim, 8 Drawing Sheets

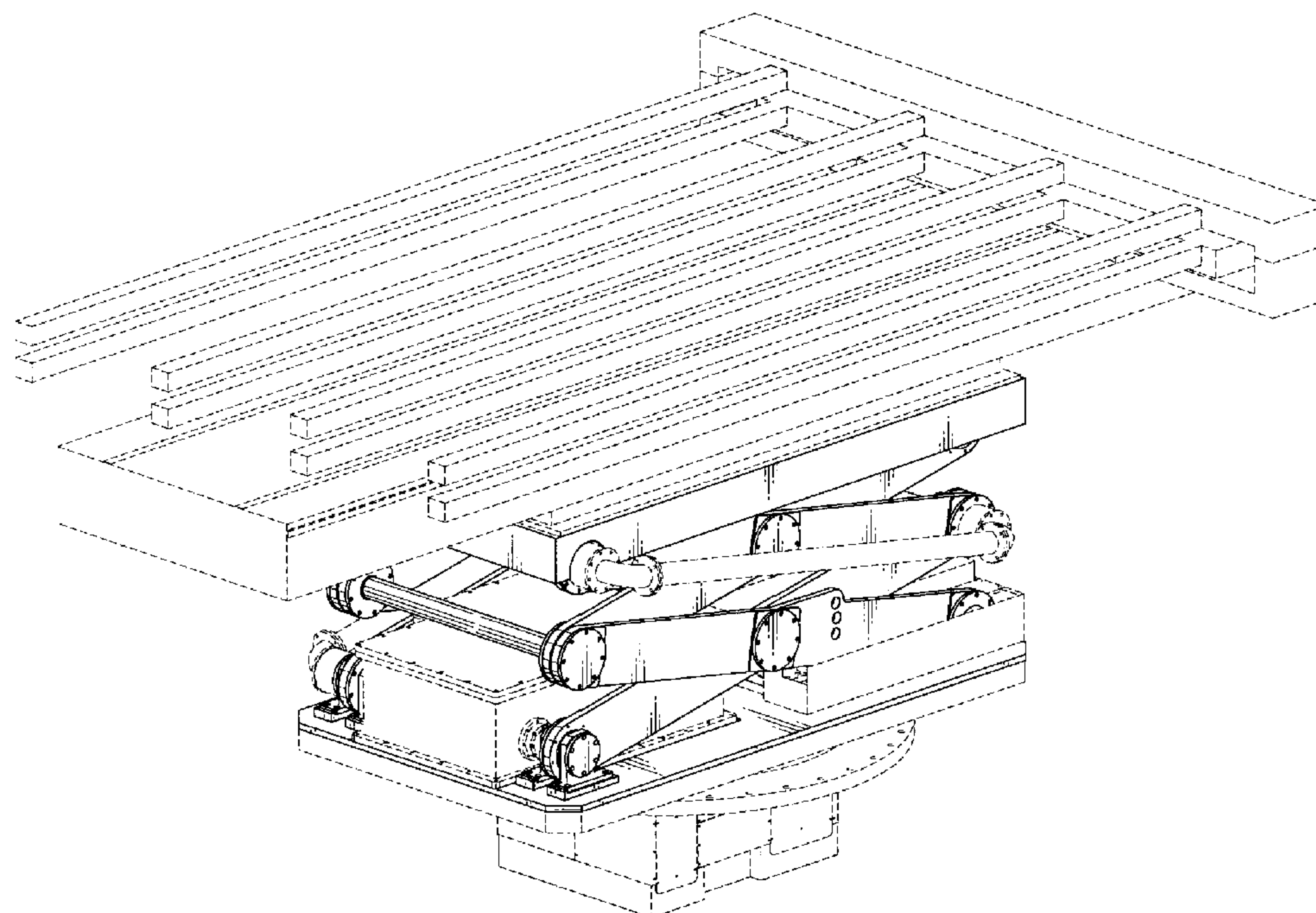


FIG.1

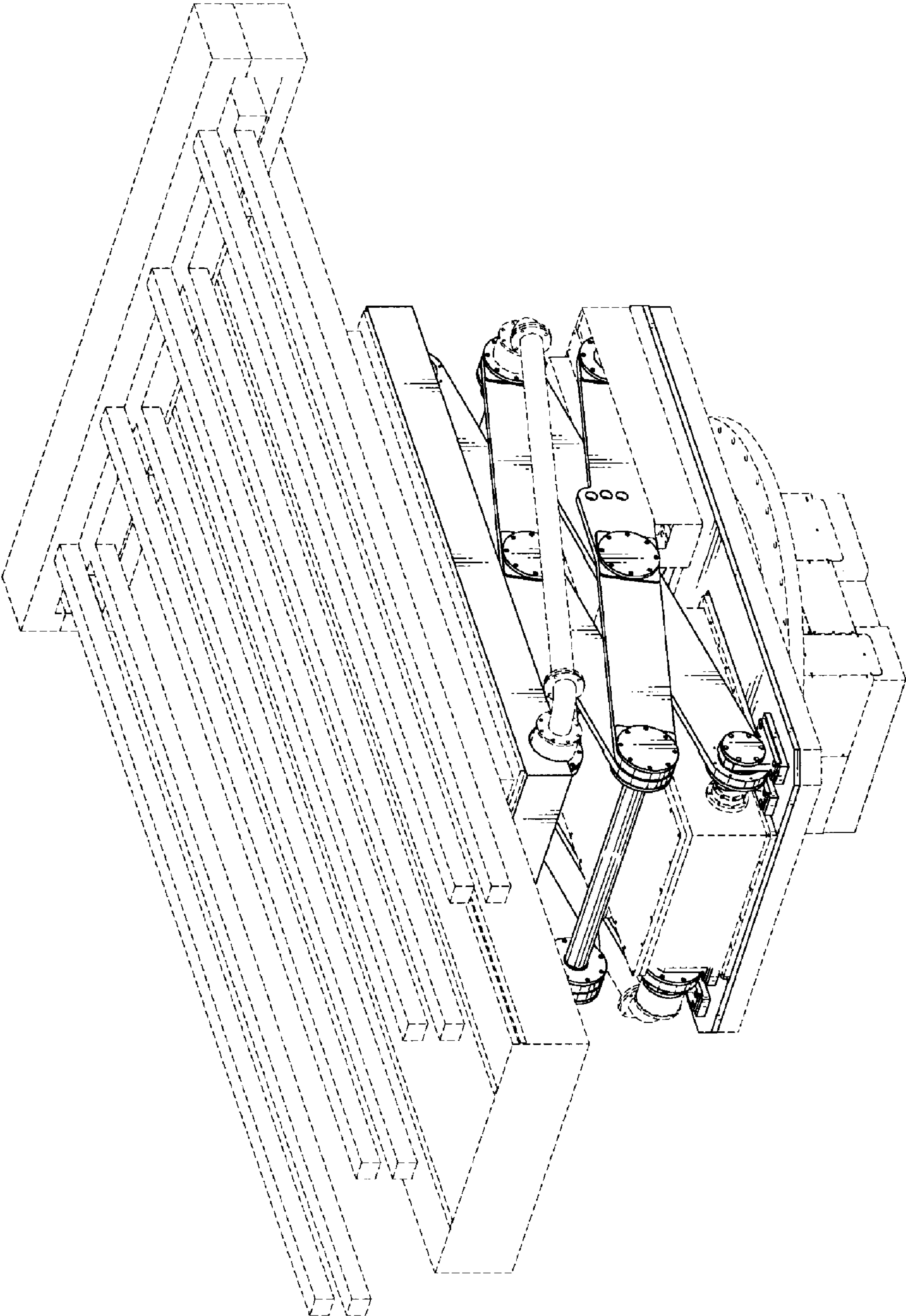


FIG.2

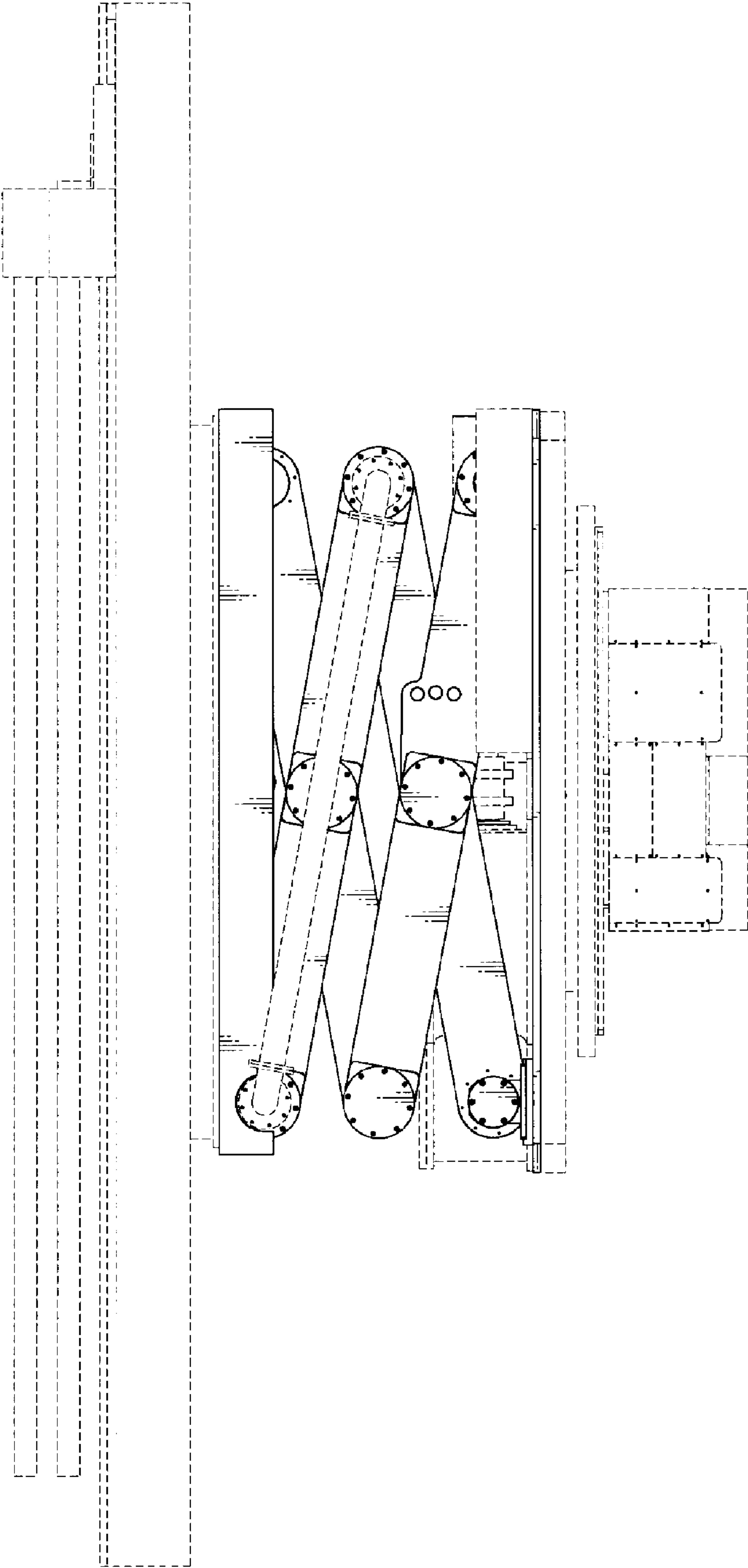
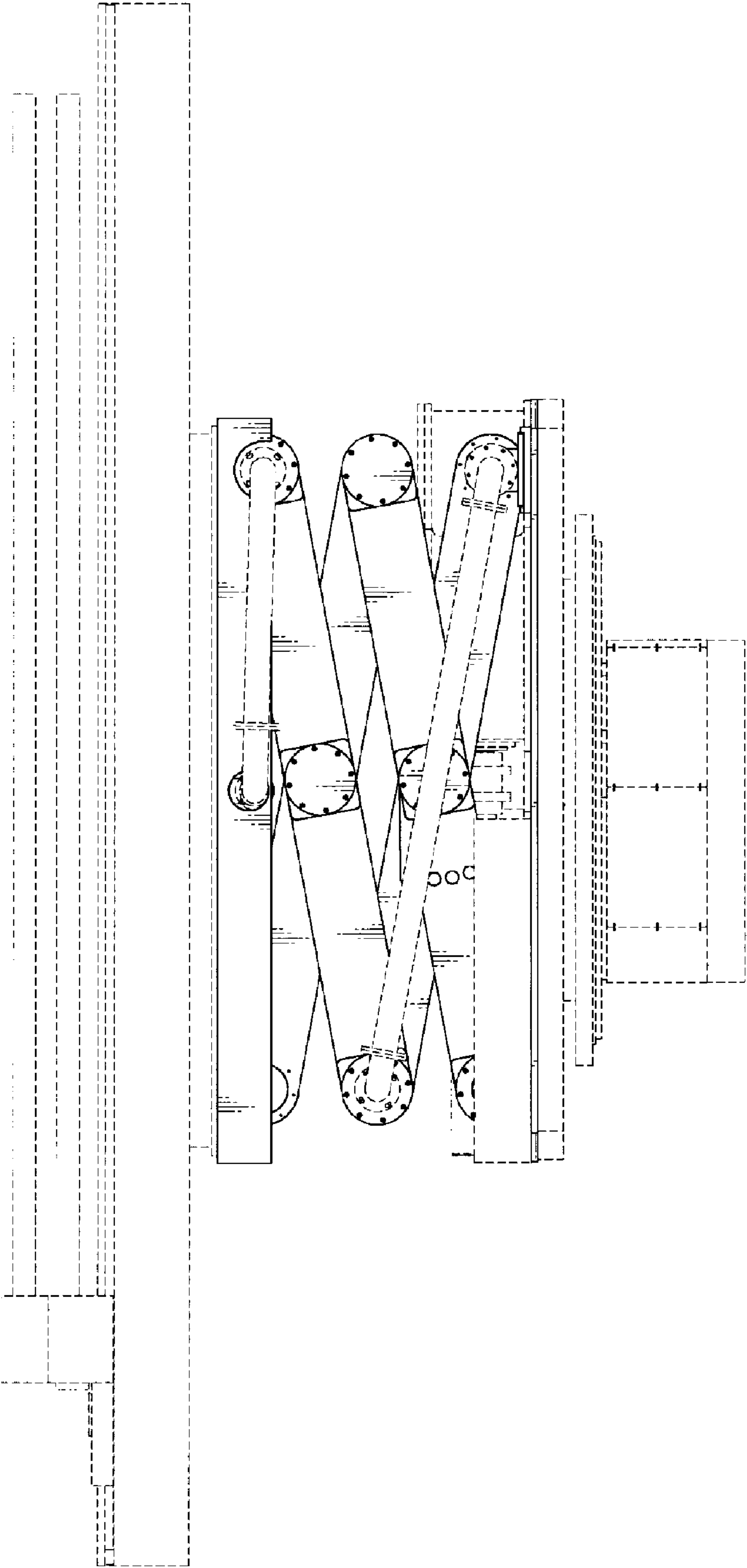


FIG.3



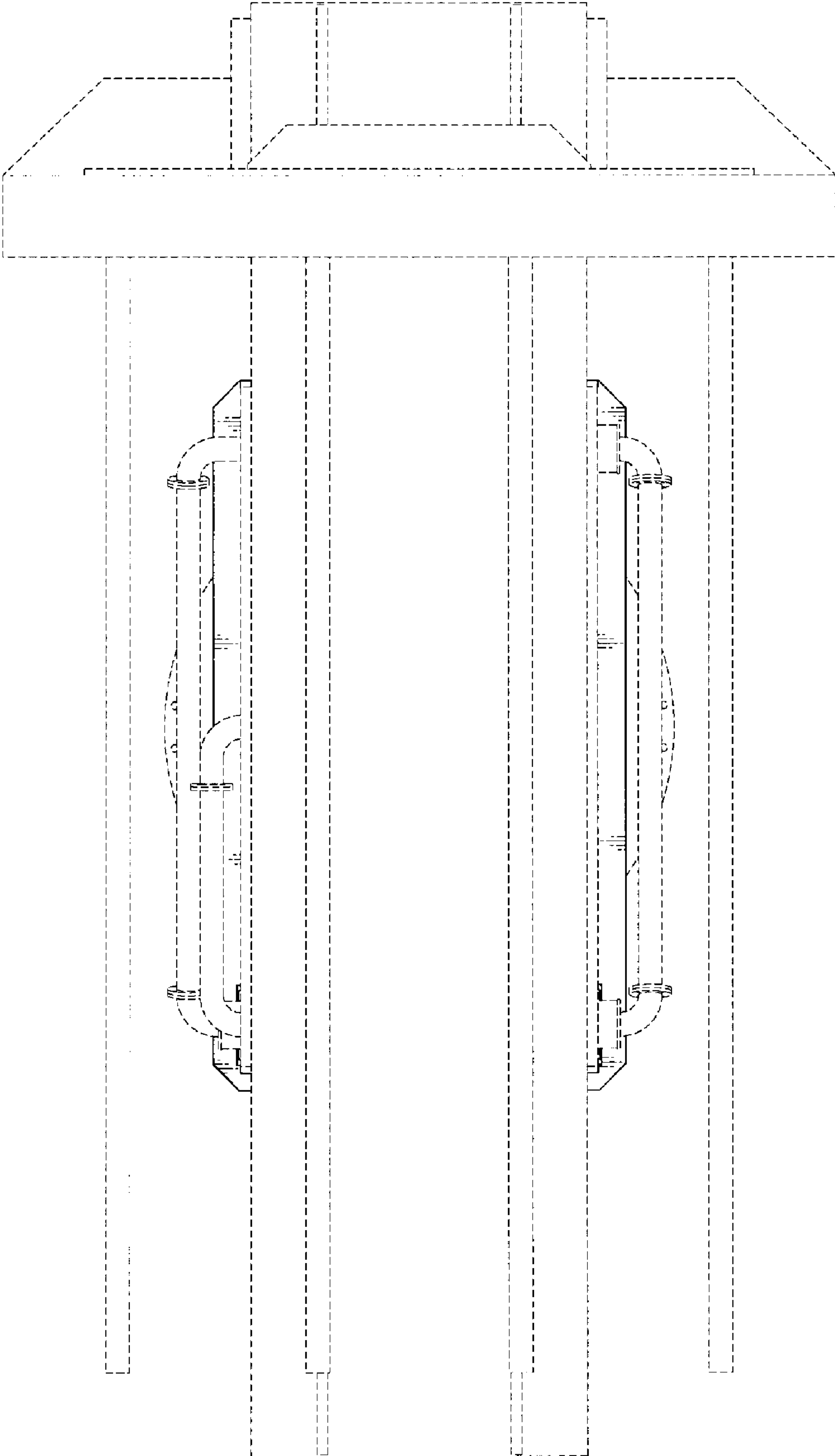


FIG.4

FIG.5

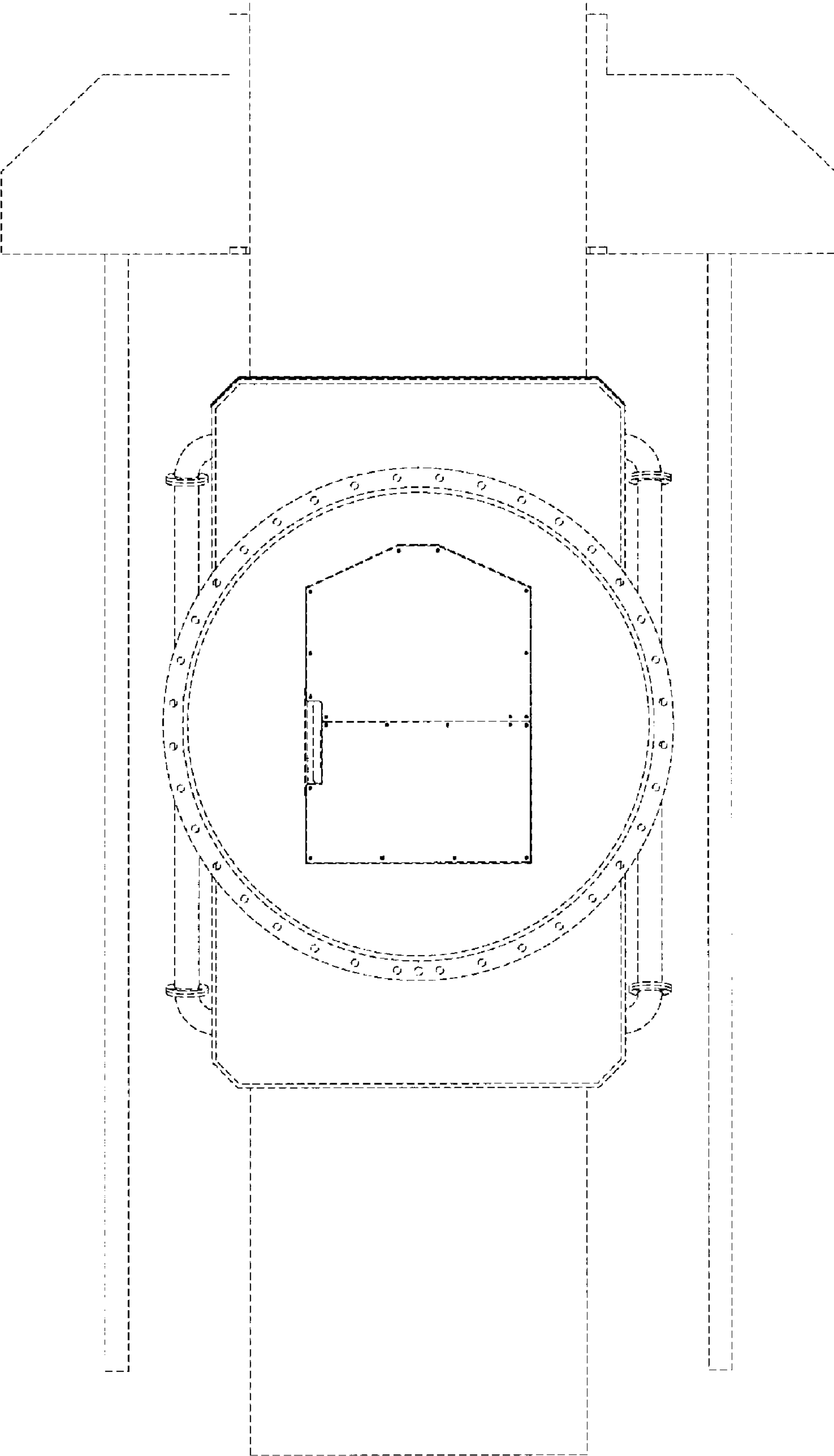


FIG.6

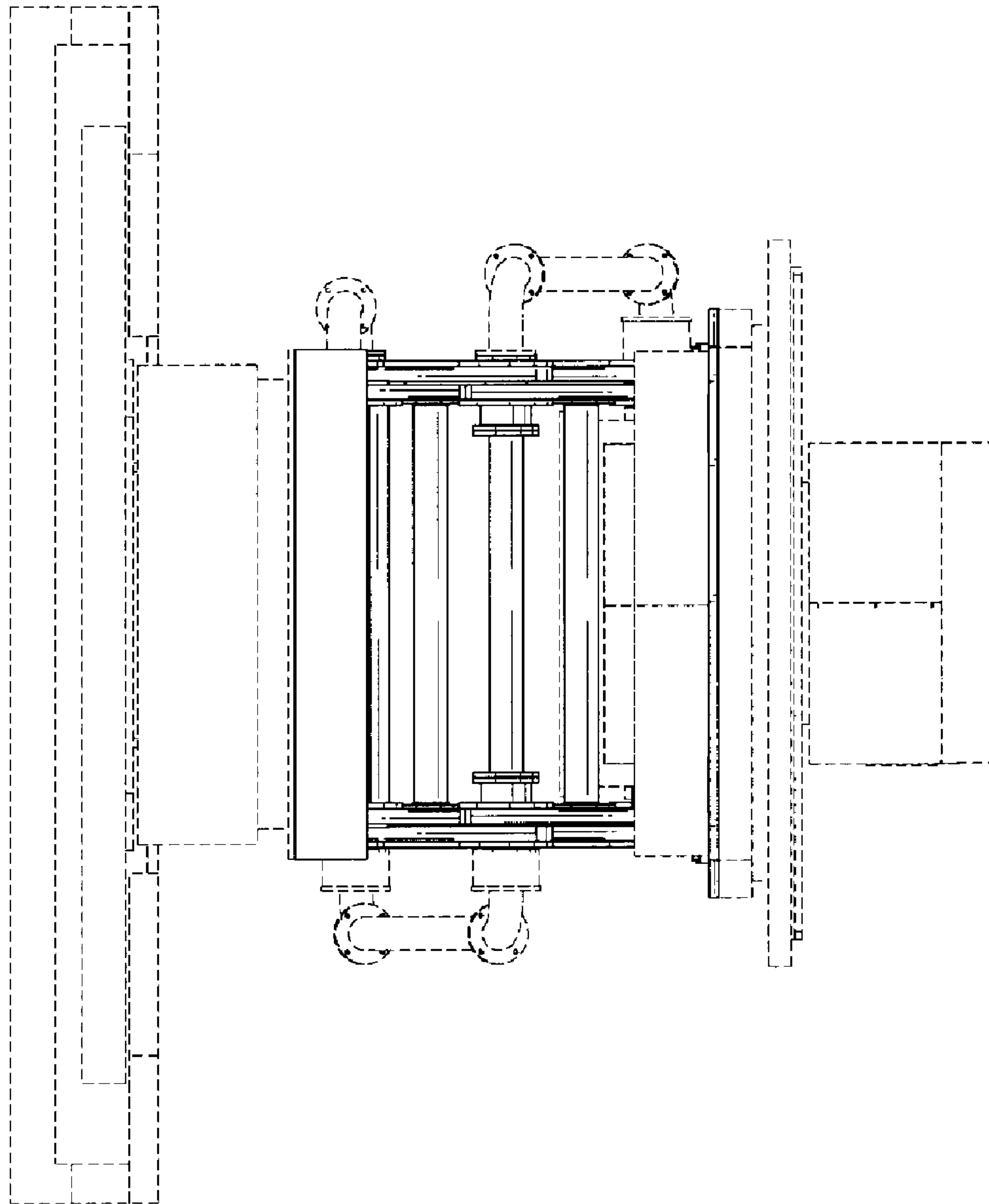


FIG.7

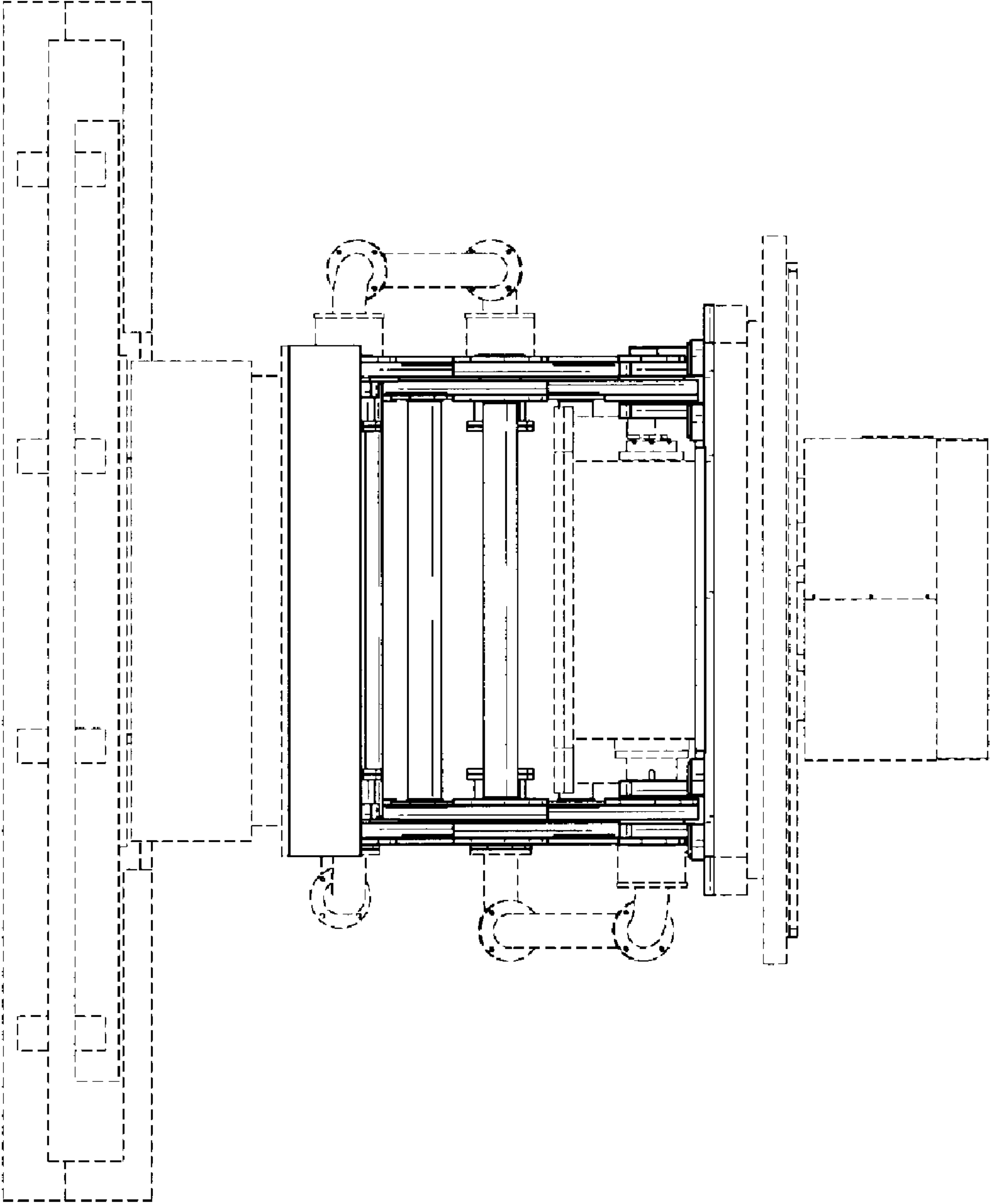


FIG.8

