



US00D453402S

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

(10) **Patent No.: US D453,402 S**  
(45) **Date of Patent: \*\* Feb. 5, 2002**

(54) **VACUUM PROCESSING EQUIPMENT CONFIGURATION**

4,313,783 A 2/1982 Davies et al.

(List continued on next page.)

(75) Inventors: **Shigekazu Kato**, Kudamatsu; **Kouji Nishihata**, Tokuyama; **Tsunehiko Tsubone**, Hikari; **Atsushi Itou**, Kudamatsu, all of (JP)

**FOREIGN PATENT DOCUMENTS**

EP 0246453 4/1987  
EP 0381338 5/1990

(List continued on next page.)

(73) Assignee: **Hitachi, Ltd.**, Tokyo (JP)

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

**OTHER PUBLICATIONS**

(21) Appl. No.: **29/099,072**

(22) Filed: **Jan. 12, 1999**

R.P.H. Chang, "Multipurpose plasma reactor for materials research and processing", J. Vac. Sci. Technol., vol. 14, No. 1, Jan./Feb. 1977, pp. 278-280.

Semiconductor Equipment Association of Japan, Terminological Dictionary of Semiconductor Equipment), front, table, p. 183, back, Nov. 20, 1987.

Semiconductor Equipment Association of Japan, "Semiconductor News", vol. 4, pp. 38-43, Apr. 10, 1987 (w/translation).

*Primary Examiner*—Ruth McInroy

(74) *Attorney, Agent, or Firm*—Antonelli, Terry, Stout & Kraus, LLP

**Related U.S. Application Data**

(63) Continuation-in-part of application No. 09/061,062, filed on Apr. 16, 1998, now Pat. No. 5,950,330, which is a continuation of application No. 08/882,731, filed on Jun. 26, 1997, now Pat. No. 5,784,799, which is a division of application No. 08/593,870, filed on Jan. 30, 1996, now Pat. No. 5,661,913, which is a continuation of application No. 08/443,039, filed on May 17, 1995, now Pat. No. 5,553,396, which is a division of application No. 08/302,443, filed on Sep. 9, 1994, now Pat. No. 5,457,896, which is a continuation of application No. 08/096,256, filed on Jul. 26, 1993, now Pat. No. 5,349,762, which is a continuation of application No. 07/751,951, filed on Aug. 29, 1991, now Pat. No. 5,314,509.

(57) **CLAIM**

The ornamental design for a vacuum processing equipment configuration, as shown and described.

(30) **Foreign Application Priority Data**

Aug. 22, 1990 (JP) ..... 1-225321

(51) **LOC (7) Cl.** ..... **15-05**

(52) **U.S. Cl.** ..... **D32/1**

(58) **Field of Search** ..... 34/406, 229, 92,  
34/228; 134/902

**DESCRIPTION**

FIG. 1 is front, top and left side perspective view of cassettes storage equipment in relation to a conveyor equipped robot and load and unload chambers showing our new design;

FIG. 2 is a top plan view;

FIG. 3 is a front side elevational view;

FIG. 4 is a right side elevational view;

FIG. 5 is a rear side elevational view;

FIG. 6 is a left side elevational view;

FIG. 7 is a bottom plan view; and,

FIG. 8 is a right side elevational view along line 8—8 of FIG. 2.

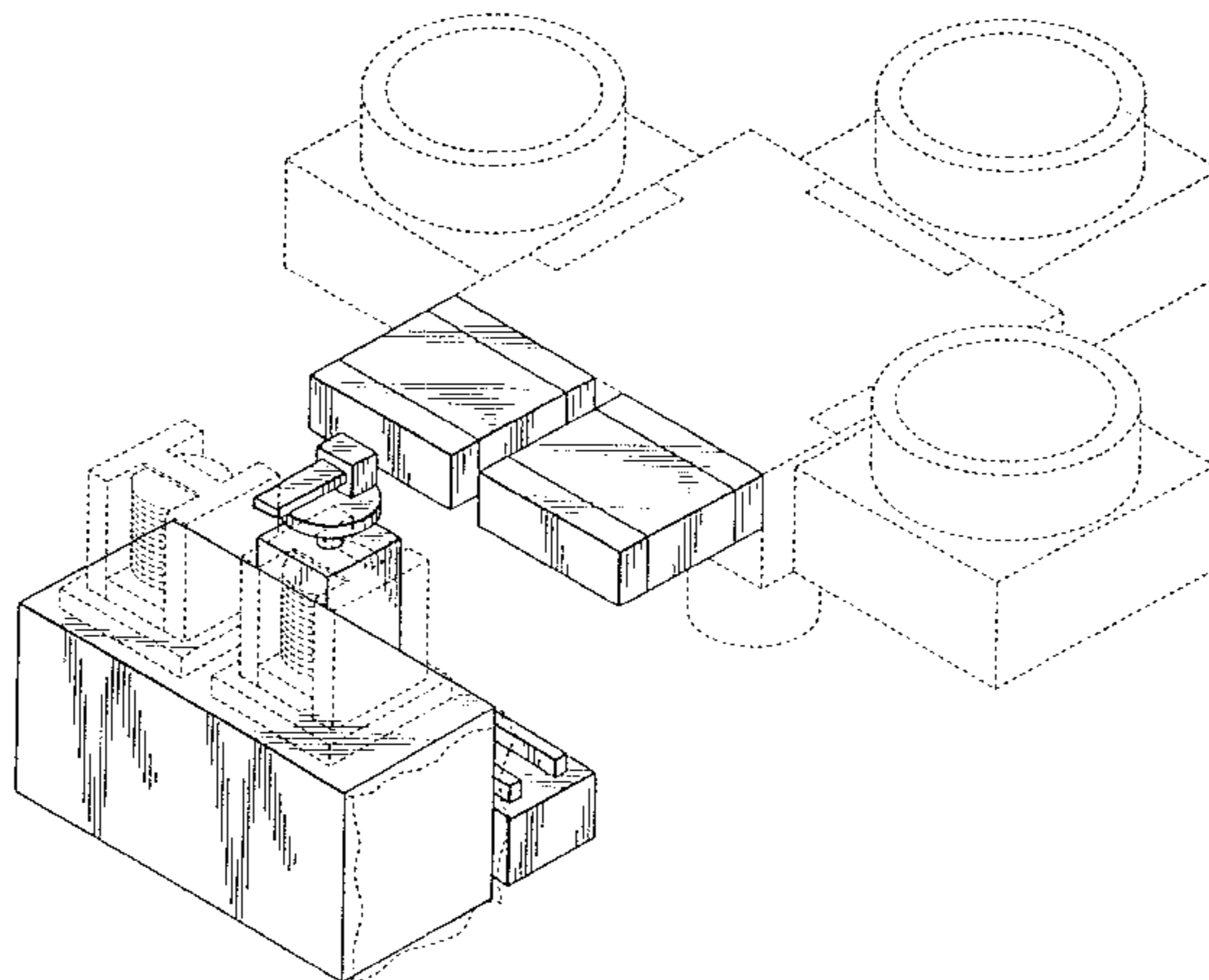
The details shown in broken lines in all views is for illustrative purposes only and form no part of the claimed design.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

3,652,444 A 3/1972 Lester et al.  
3,981,791 A 9/1976 Rosvold  
4,138,306 A 2/1979 Niwa ..... 156/345  
4,226,897 A 10/1980 Coleman  
4,311,427 A 1/1982 Coad et al.

**1 Claim, 5 Drawing Sheets**



# US D453,402 S

Page 2

## U.S. PATENT DOCUMENTS

4,313,815 A	2/1982	Graves, Jr. et al.	
4,318,767 A	3/1982	Hijikata et al.	
4,449,885 A	5/1984	Hertel et al.	
4,457,661 A	7/1984	Flint et al.	
4,534,314 A	8/1985	Ackley	
4,563,240 A	1/1986	Shibata et al.	
4,576,698 A	3/1986	Gallagher et al.	..... 204/192
4,634,331 A	1/1987	Hertel	
4,705,951 A	11/1987	Layman et al.	
4,715,764 A	12/1987	Hutchinson	
4,836,733 A	6/1989	Hertel et al.	
4,836,905 A	6/1989	Davis et al.	
4,851,101 A	7/1989	Hutchinson	
4,895,107 A	1/1990	Yano et al.	
4,902,934 A	2/1990	Miyamura et al.	
4,903,937 A	2/1990	Jakuniec et al.	
4,909,695 A	3/1990	Hurwitt et al.	
4,911,597 A	3/1990	Maydan et al.	
4,915,564 A	4/1990	Eror et al.	
4,917,556 A	4/1990	Stark et al.	
4,924,890 A	5/1990	Giles et al.	..... 134/902
4,936,329 A	6/1990	Michael et al.	..... 134/902
4,951,601 A	8/1990	Maydan et al.	..... 414/217 X
4,969,790 A	11/1990	Petz et al.	
5,007,981 A	4/1991	Kawasaki et al.	
5,014,217 A	5/1991	Savage	..... 364/550
5,292,393 A	3/1994	Maydan et al.	
5,351,415 A	10/1994	Brooks et al.	..... 34/389
5,452,166 A	9/1995	Aylwin et al.	
5,462,397 A	10/1995	Iwabuchi	..... 414/222

5,504,033 A	4/1996	Bajor et al.	
5,504,347 A	4/1996	Jovanovic et al.	
5,509,771 A	4/1996	Hiroki	..... 414/217
5,556,714 A	9/1996	Fukuyama et al.	
5,651,858 A	7/1997	Lin	
5,675,461 A	10/1997	Aylwin et al.	
5,685,684 A	11/1997	Kato et al.	..... 414/217

## FOREIGN PATENT DOCUMENTS

JP	57-29577	2/1982
JP	60246635	12/1985
JP	62-44571	2/1987
JP	62-50463	3/1987
JP	6289881	4/1987
JP	62207866	9/1987
JP	63-153270	6/1988
JP	636582	1/1989
JP	6412037	1/1989
JP	131970	2/1989
JP	131971	2/1989
JP	1135015	5/1989
JP	1-251734	10/1989
JP	1298180	12/1989
JP	1-310553	12/1989
JP	2-61064	3/1990
JP	265252	3/1990
JP	294647	4/1990
JP	2-106037	4/1990
JP	430549	4/1992
WO	8707309	5/1987

*FIG. 1*

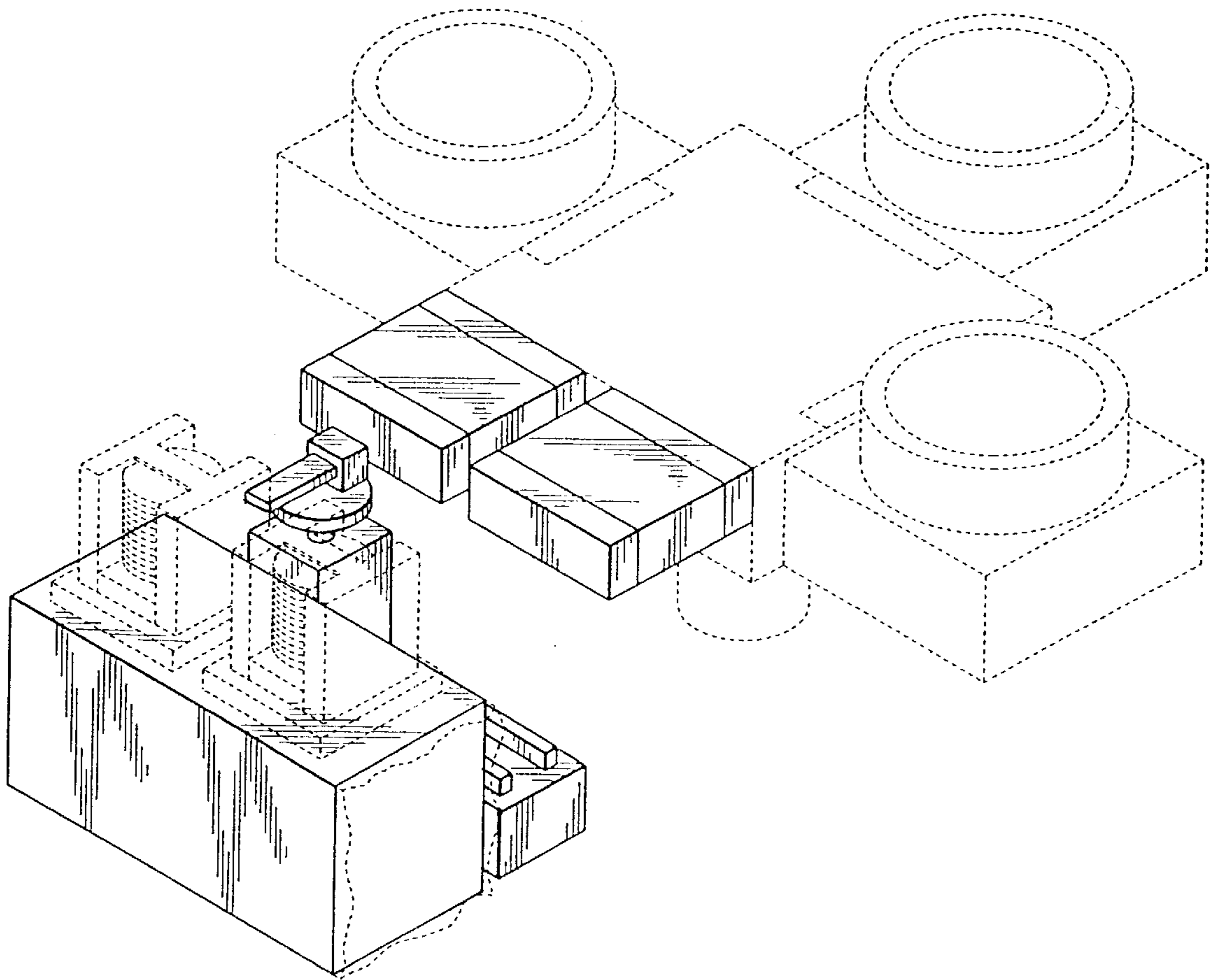


FIG. 2

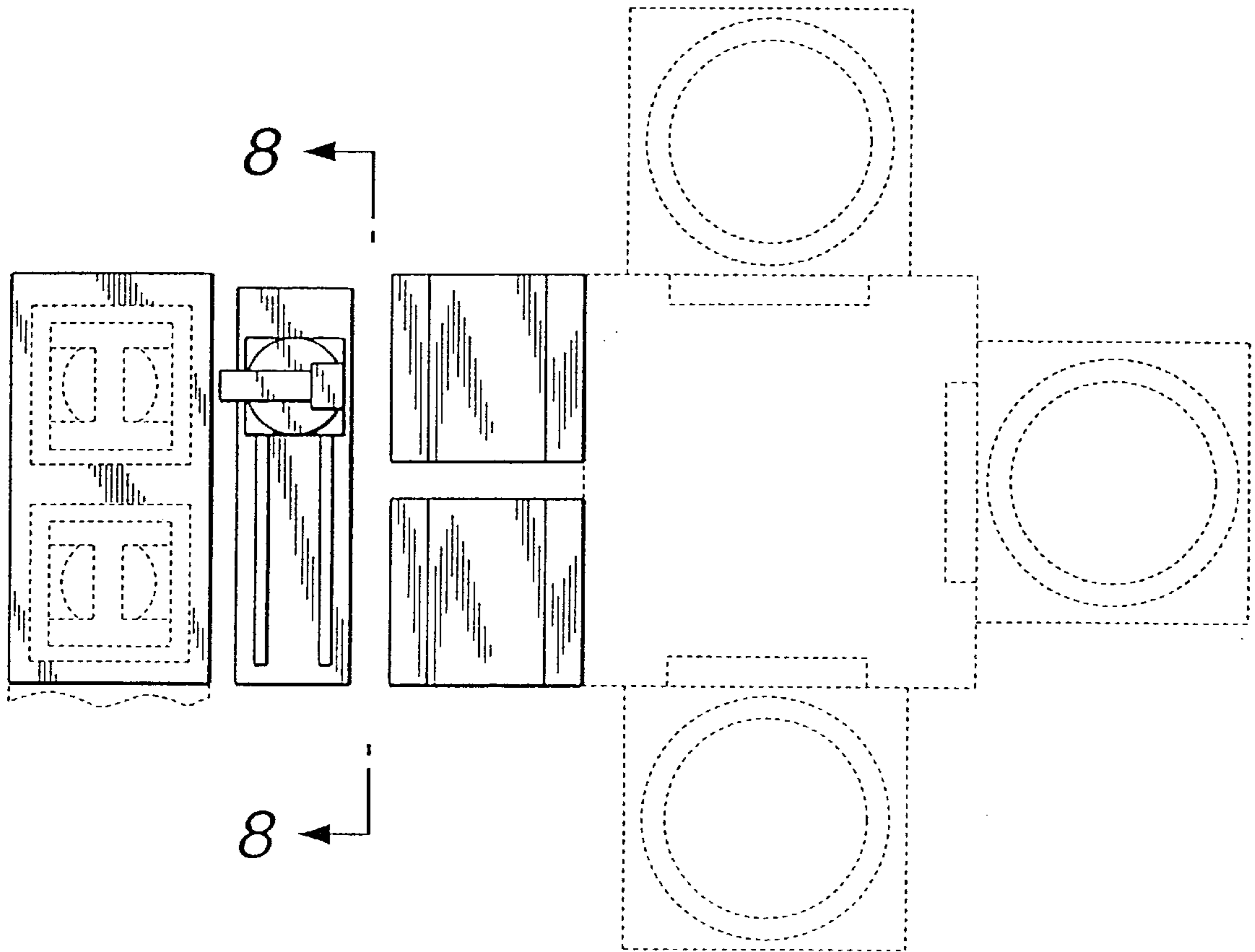


FIG. 3

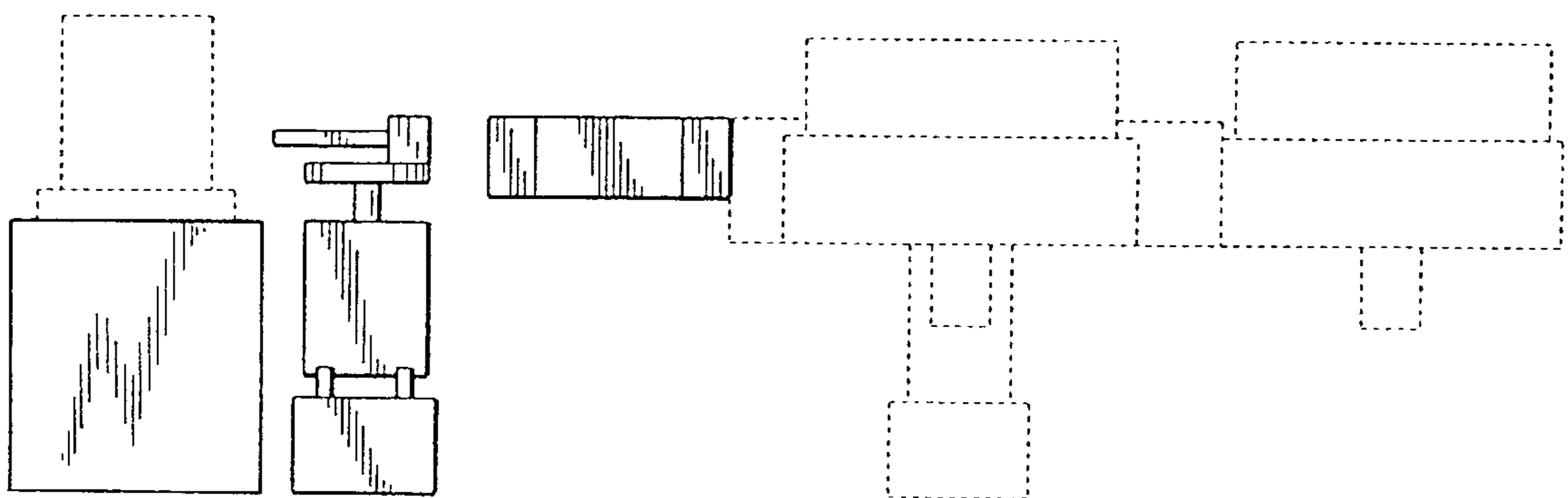




FIG. 4

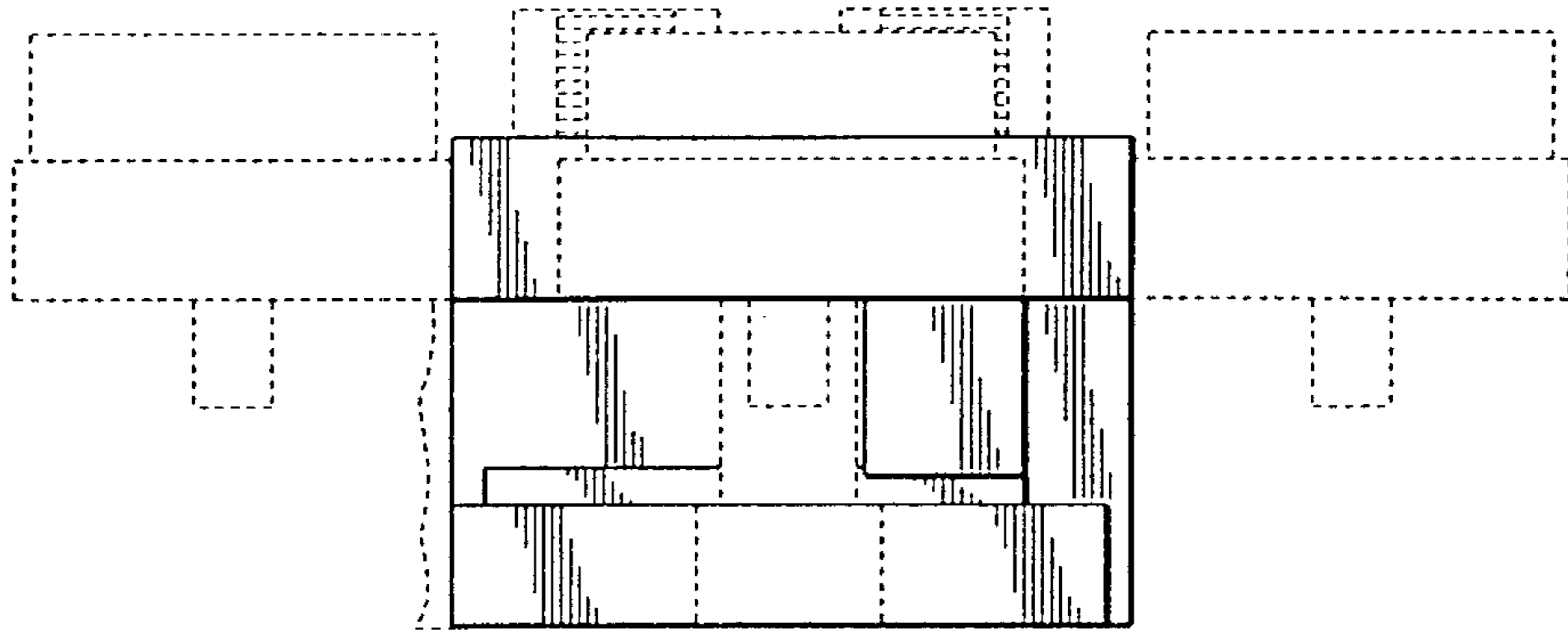


FIG. 5

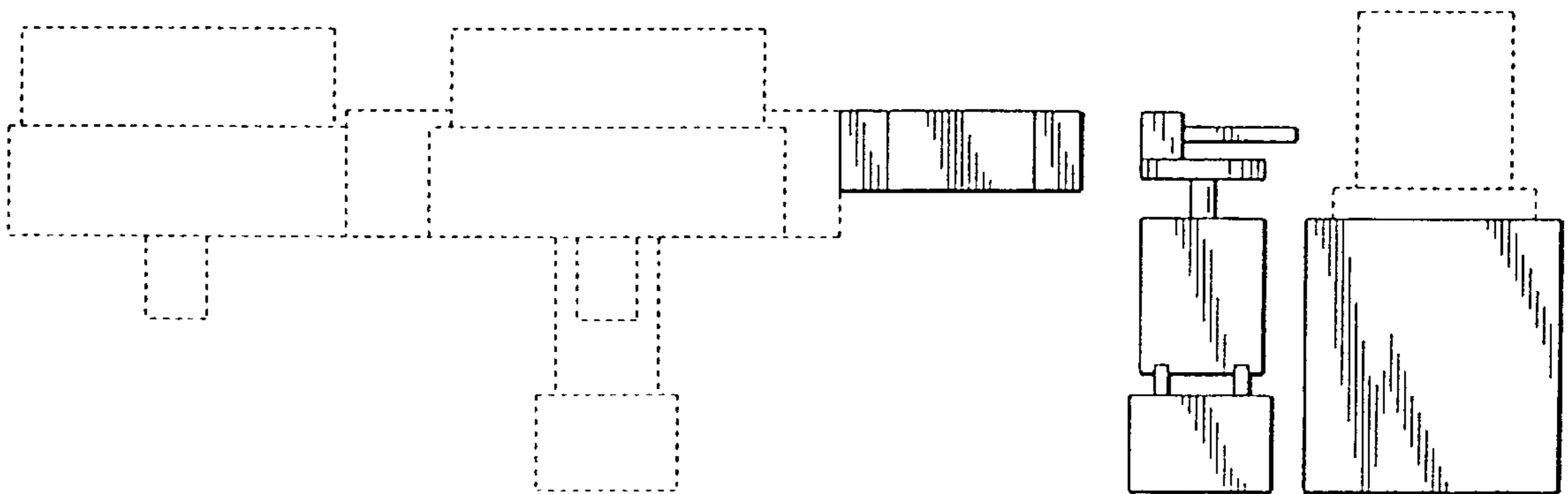


FIG. 6

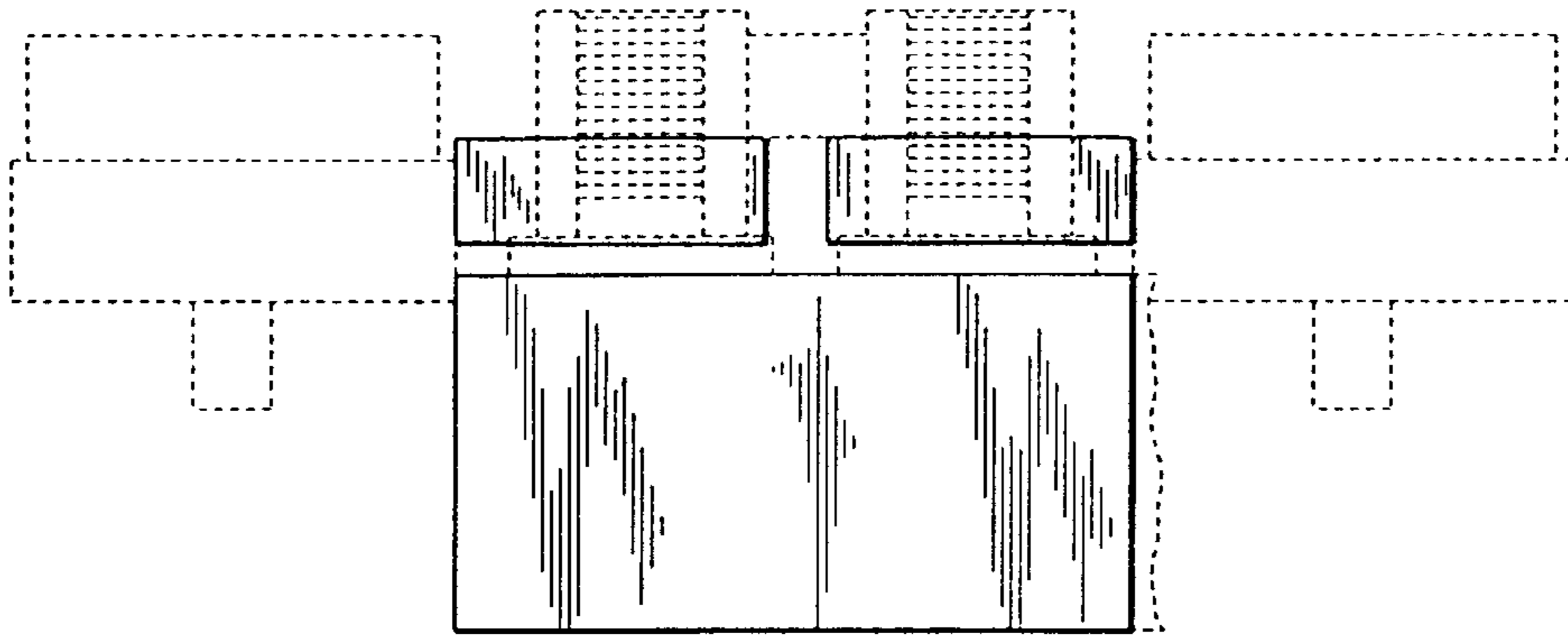
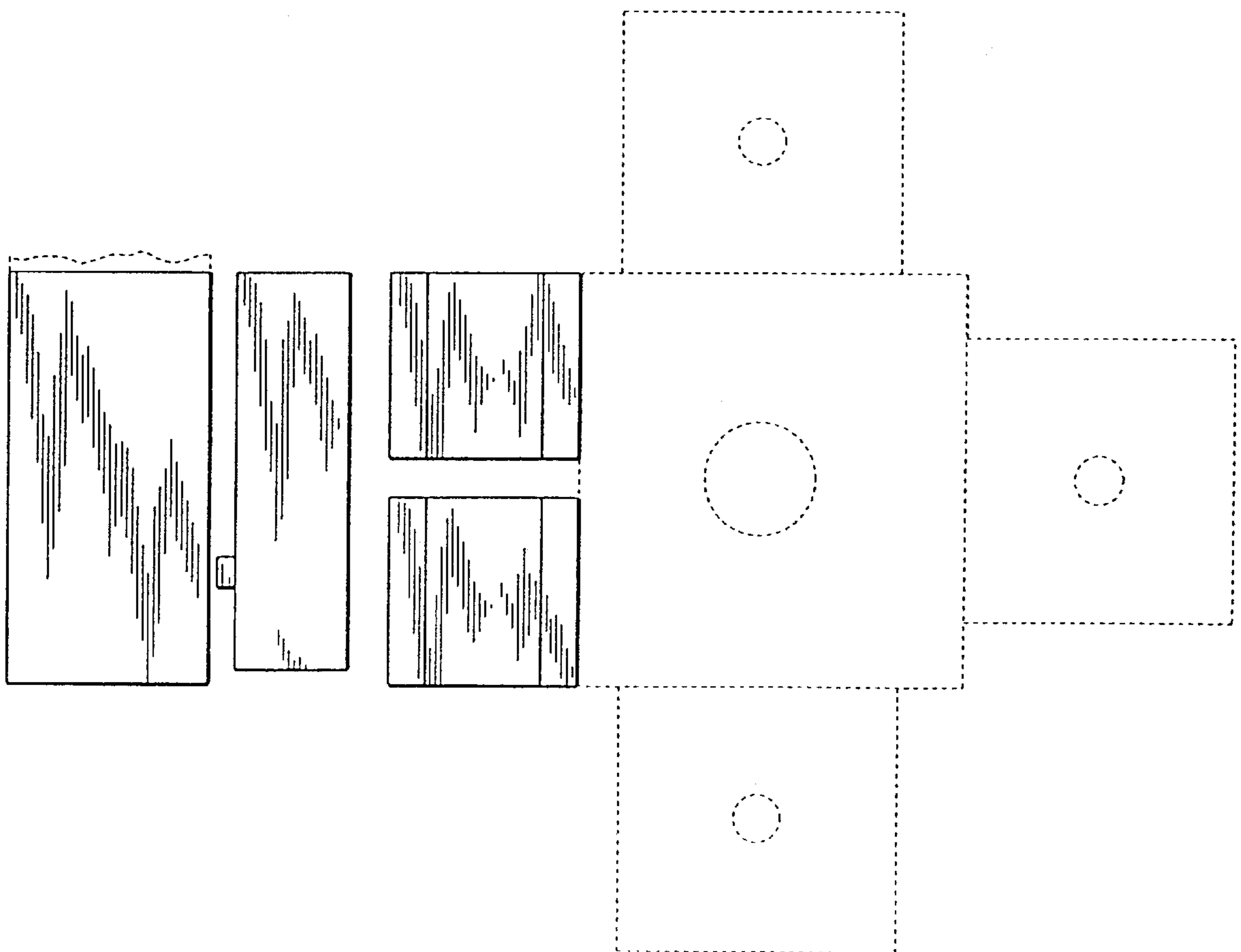


FIG. 7



*FIG. 8*

