



US00D889294S

(12) **United States Design Patent** (10) **Patent No.:** **US D889,294 S**  
**Yokino et al.** (45) **Date of Patent:** **\*\* Jul. 7, 2020**

(54) **SPECTROMETER HAVING A FLEXIBLE PRINTED CIRCUIT**

FOREIGN PATENT DOCUMENTS

(71) Applicant: **HAMAMATSU PHOTONICS K.K.**,  
Hamamatsu-shi, Shizuoka (JP)

TW 103133 2/2005  
TW 136549 8/2010

(72) Inventors: **Takafumi Yokino**, Hamamatsu (JP);  
**Katsuhiko Kato**, Hamamatsu (JP); **Yuji Mori**,  
Hamamatsu (JP); **Norihiro Iwasaki**, Hamamatsu (JP);  
**Tomonori Tsunashima**, Hamamatsu (JP)

*Primary Examiner* — Antoine Duval Davis

(74) *Attorney, Agent, or Firm* — Faegre Drinker Biddle & Reath LLP

(73) Assignee: **HAMAMATSU PHOTONICS K.K.**,  
Hamamatsu-shi, Shizuoka (JP)

(57) **CLAIM**

The ornamental design for a spectrometer having a flexible printed circuit, as shown and described.

(\*) Notice: This patent is subject to a terminal disclaimer.

**DESCRIPTION**

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

(21) Appl. No.: **29/675,127**

(22) Filed: **Dec. 28, 2018**

(30) **Foreign Application Priority Data**

Jun. 29, 2018 (JP) ..... 2018-014472

(51) **LOC (12) Cl.** ..... **10-04**

(52) **U.S. Cl.**  
USPC ..... **D10/103**

(58) **Field of Classification Search**  
USPC ..... D10/81, 103; D14/437, 438

(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,867,377 B2 \* 3/2005 Anderson ..... G02B 6/266  
174/254

D603,280 S \* 11/2009 Shibayama ..... G02B 6/266  
D10/81

(Continued)

FIG. 1 is a top perspective view of a first embodiment of a spectrometer having a flexible printed circuit showing our new design;

FIG. 2 is a bottom perspective view thereof;

FIG. 3 is a front view thereof;

FIG. 4 is a rear view thereof;

FIG. 5 is a top plan view thereof;

FIG. 6 is a bottom view thereof;

FIG. 7 is a right side view thereof;

FIG. 8 is a left side view thereof;

FIG. 9 is a top perspective view of a second embodiment of a spectrometer having a flexible printed circuit showing our new design;

FIG. 10 is a bottom perspective view thereof;

FIG. 11 is a front view thereof;

FIG. 12 is a rear view thereof;

FIG. 13 is a top plan view thereof;

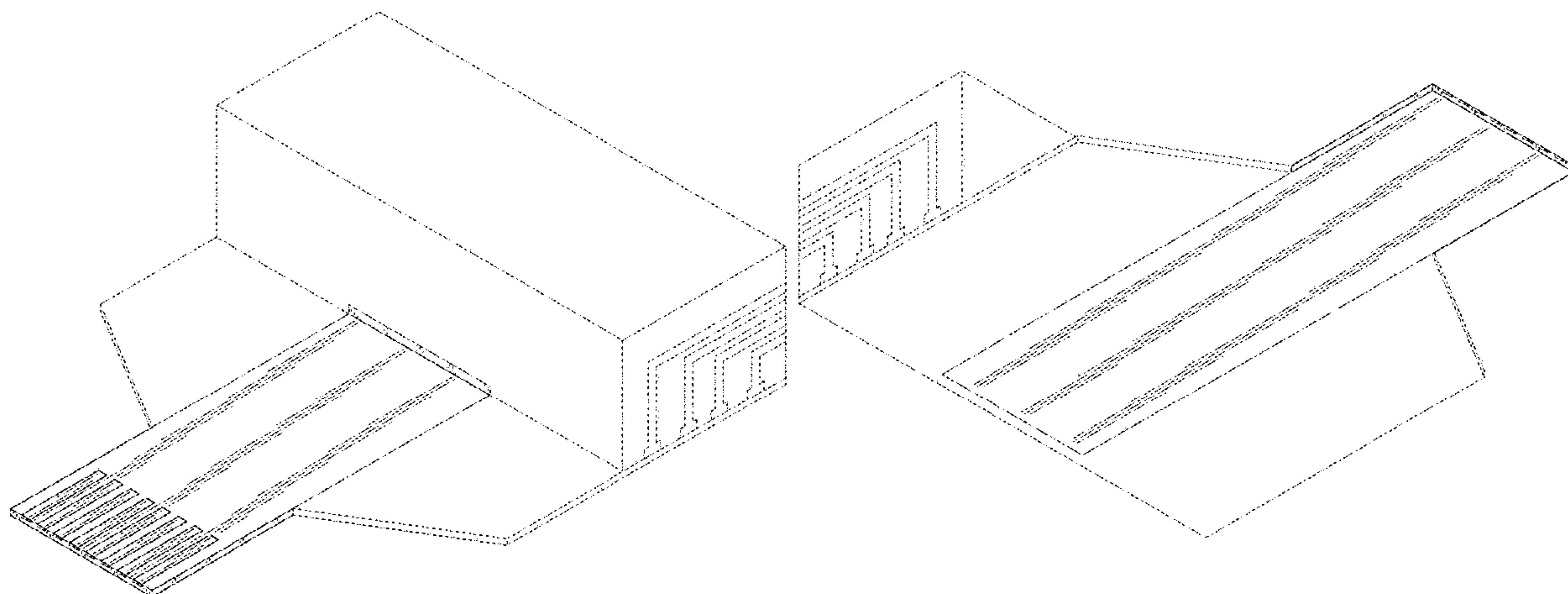
FIG. 14 is a bottom view thereof;

FIG. 15 is a right side view thereof; and,

FIG. 16 is a left side view thereof.

The features shown in broken lines depict environmental subject matter only and form no part of the claimed design. The alternate long and short dash lines are merely the boundary lines between the claimed parts and the non-claimed parts.

**1 Claim, 16 Drawing Sheets**



(58) **Field of Classification Search**

CPC ..... G01J 3/00; G01J 3/0202; G01J 3/0205;  
 G01J 3/0208; G01J 3/021; G01J 3/0213;  
 G01J 3/0216; G01J 3/0218; G01J 3/0221;  
 G01J 3/0224; G01J 3/0227; G01J 3/0229;  
 G01J 3/0232; G01J 3/0235; G01J 3/0237;  
 G01J 3/024; G01J 3/0243; G01J 3/0245;  
 G01J 3/0248; G01J 3/0251; G01J 3/0254;  
 G01J 3/0256; G01J 3/0259; G01J 3/0262;  
 G01J 3/0264; G01J 3/0267; G01J 3/027;  
 G01J 3/0272; G01J 3/0275; G01J 3/0278;  
 G01J 3/0283; G01J 3/0286; G01J 3/0289;  
 G01J 3/0291; G01J 3/0294; G01J 3/0297;  
 G01J 3/04; G01J 3/06; G01J 3/08; G01J  
 3/12; G01J 3/1256; G01J 3/14; G01J  
 3/16; G01J 3/18; G01J 3/1804; G01J  
 3/1809; G01J 3/1833; G01J 3/1838; G01J  
 3/189; G01J 3/1895; G01J 3/20; G01J  
 3/22; G01J 3/24; G01J 3/26; G01J 3/28;  
 G01J 3/2803; G01J 3/2823; G01J 3/2846;  
 G01J 3/2889; G01J 3/30; G01J 3/32;  
 G01J 3/36; G01J 3/40; G01J 3/42; G01J  
 3/427; G01J 3/433; G01J 3/4338; G01J  
 3/44; G01J 3/4406; G01J 3/4412; G01J  
 3/443; G01J 3/447; G01J 3/45; G01J  
 3/453; G01J 3/4531; G01J 3/4532; G01J  
 3/4535; G01J 3/4537; G01J 3/457; G01J  
 3/46; G01J 3/461; G01J 3/462; G01J  
 3/463; G01J 3/465; G01J 3/50; G01J  
 3/501; G01J 3/502; G01J 3/504; G01J  
 3/505; G01J 3/506; G01J 3/508; G01J  
 3/51; G01J 3/513; G01J 3/52; G01J  
 3/522; G01J 3/524; G01J 3/526; G01J  
 3/528; G01J 2003/0281; G01J 2003/042;  
 G01J 2003/045; G01J 2003/047; G01J  
 2003/061; G01J 2003/062; G01J  
 2003/064; G01J 2003/065; G01J  
 2003/066; G01J 2003/067; G01J  
 2003/068; G01J 2003/069; G01J  
 2003/1204; G01J 2003/1208; G01J  
 2003/1213; G01J 2003/1217; G01J  
 2003/1221; G01J 2003/1226; G01J  
 2003/123; G01J 2003/1234; G01J  
 2003/1239; G01J 2003/1243; G01J  
 2003/1247; G01J 2003/1252; G01J

2003/126; G01J 2003/1265; G01J  
 2003/1269; G01J 2003/1273; G01J  
 2003/1278; G01J 2003/1282; G01J  
 2003/1286; G01J 2003/1291; G01J  
 2003/1295; G01J 2003/145; G01J  
 2003/1814; G01J 2003/1819; G01J  
 2003/1823; G01J 2003/1828; G01J  
 2003/1842; G01J 2003/1847; G01J  
 2003/1852; G01J 2003/1857; G01J  
 2003/1861; G01J 2003/1866; G01J  
 2003/1871; G01J 2003/1876; G01J  
 2003/188; G01J 2003/1885; G01J  
 2003/262; G01J 2003/26; G01J 2003/267;  
 G01J 2003/2806; G01J 2003/2809; G01J  
 2003/2813; G01J 2003/2816; G01J  
 2003/282; G01J 2003/2826; G01J  
 2003/283; G01J 2003/2833; G01J  
 2003/2836; G01J 2003/284; G01J  
 2003/2843; G01J 2003/285; G01J  
 2003/2853; G01J 2003/2856; G01J  
 2003/2859; G01J 2003/2863; G01J  
 2003/2866; G01J 2003/2869; G01J  
 2003/2873; G01J 2003/2876; G01J  
 2003/2879; G01J 2003/2883; G01J  
 2003/2886; G01J 2003/2893; G01J  
 2003/2896; G01J 2003/323; G01J  
 2003/326; G01J 2003/421; G01J  
 2003/423; G01J 2003/425; G01J  
 2003/4275; G01J 2003/4332; G01J  
 2003/4334; G01J 2003/4336; G01J  
 2003/4418; G01J 2003/4424; G01J  
 2003/4435; G01J 2003/451; G01J  
 2003/452; G01J 2003/4534; G01J  
 2003/4538; G01J 2003/466; G01J  
 2003/467; G01J 2003/468; G01J  
 2003/503; G01J 2003/507; G01J  
 2003/516

See application file for complete search history.

(56)

**References Cited**

U.S. PATENT DOCUMENTS

D603,731 S \* 11/2009 Shibayama ..... D10/81  
 D758,223 S 6/2016 Bertolotti

\* cited by examiner

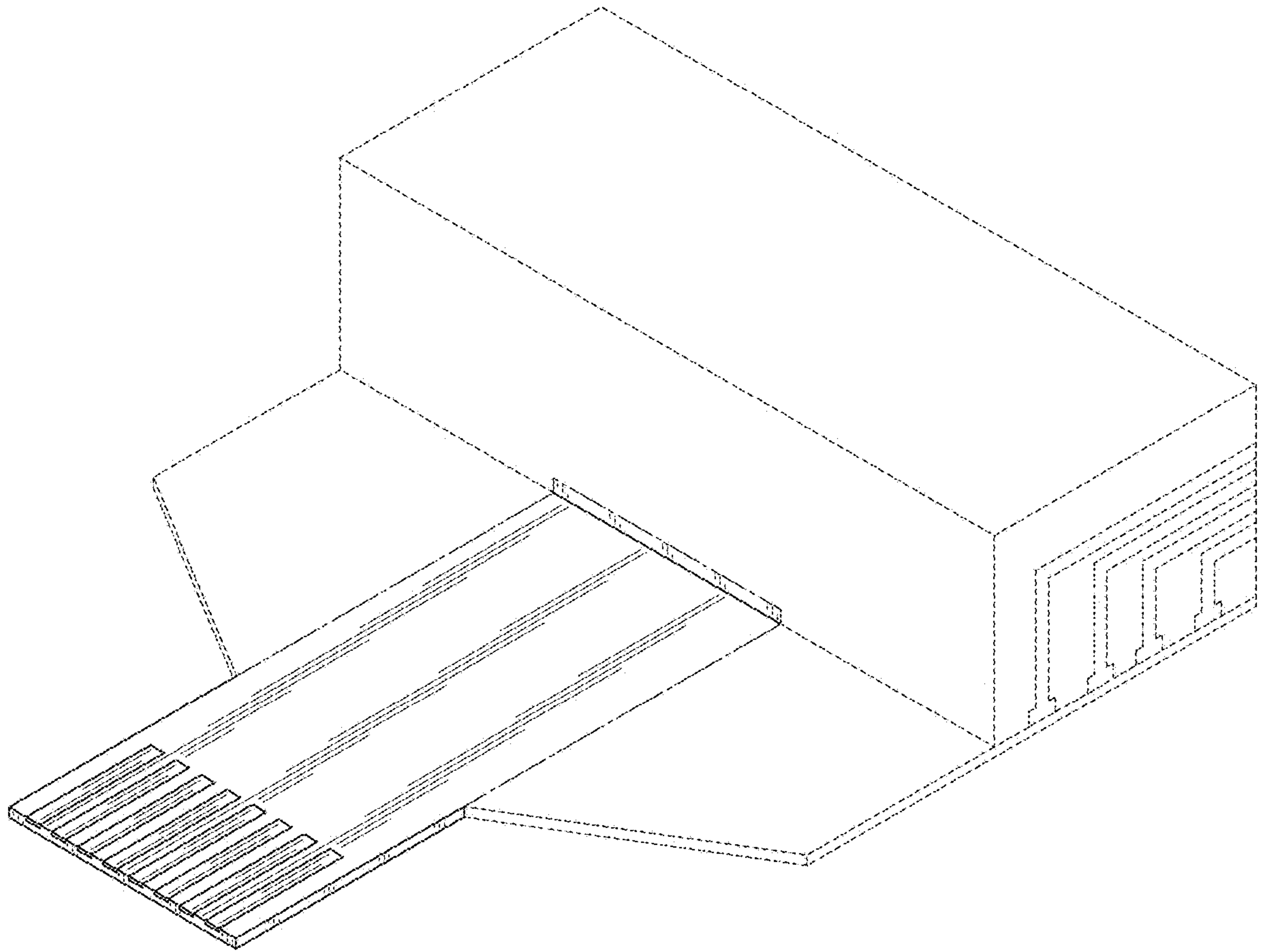


FIG. 1



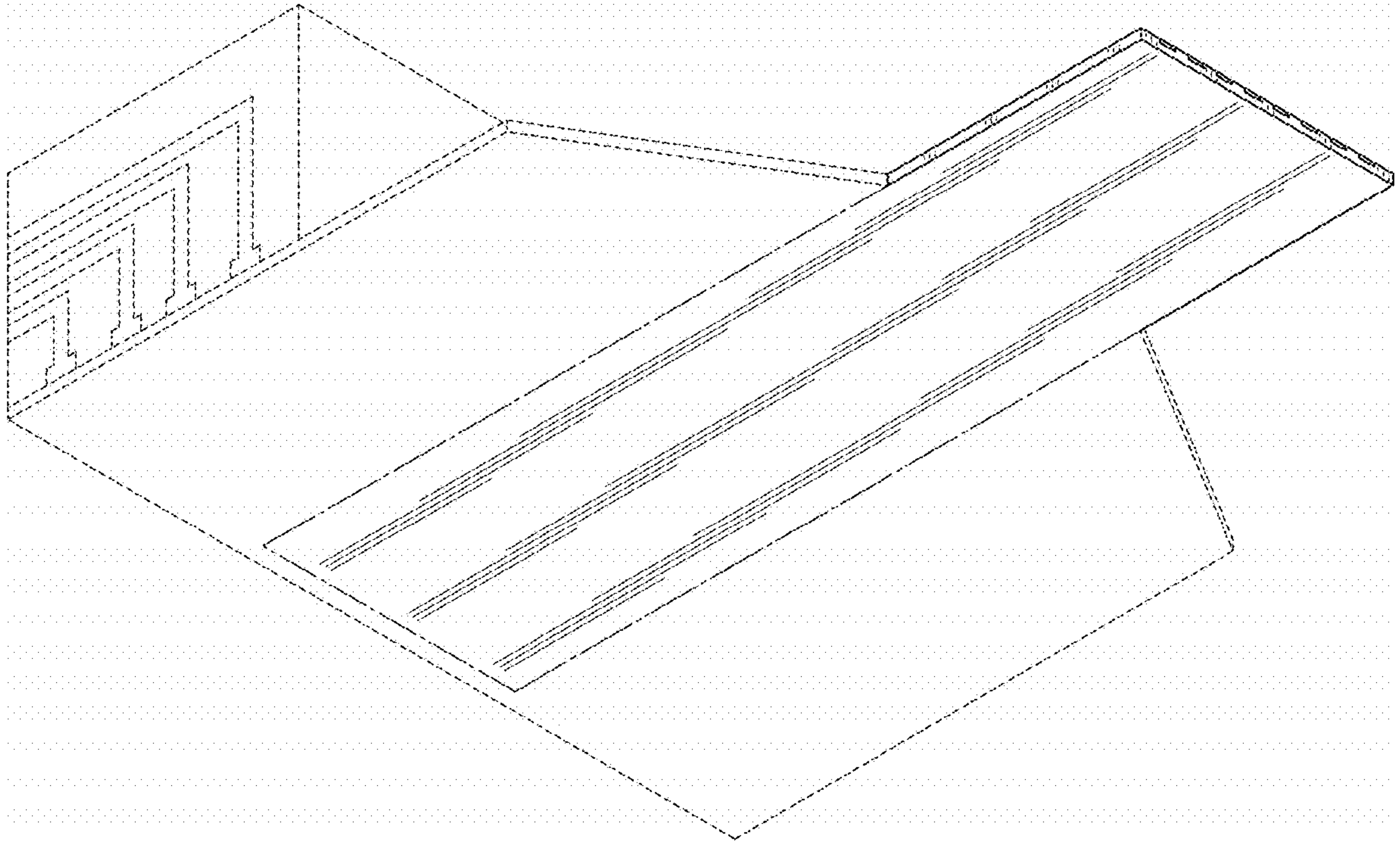


FIG. 2

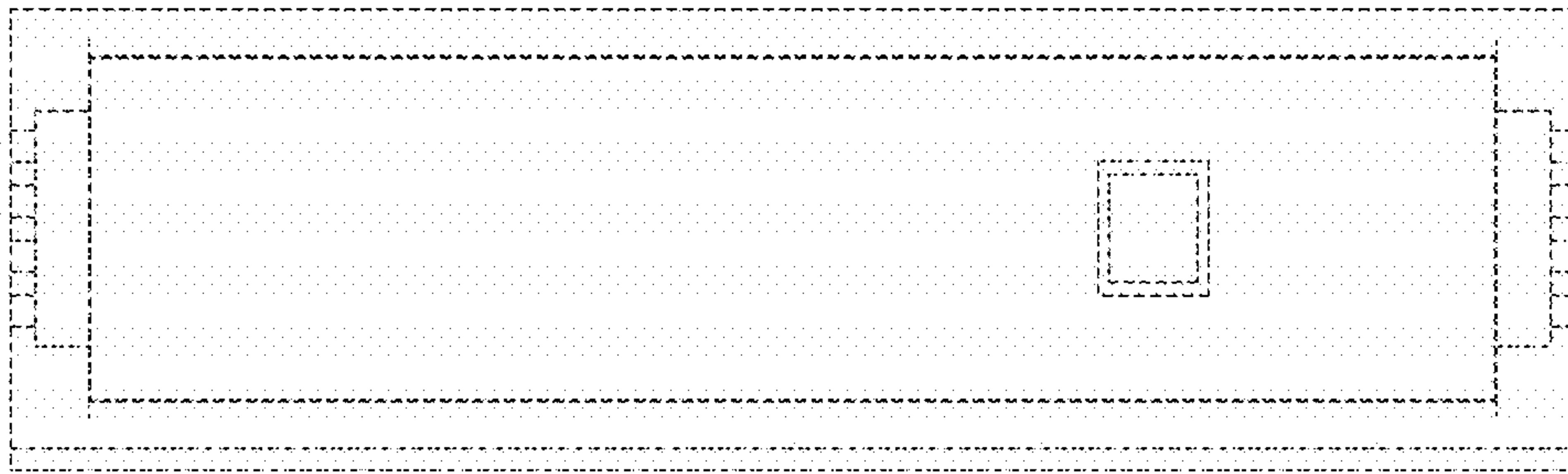


FIG. 3

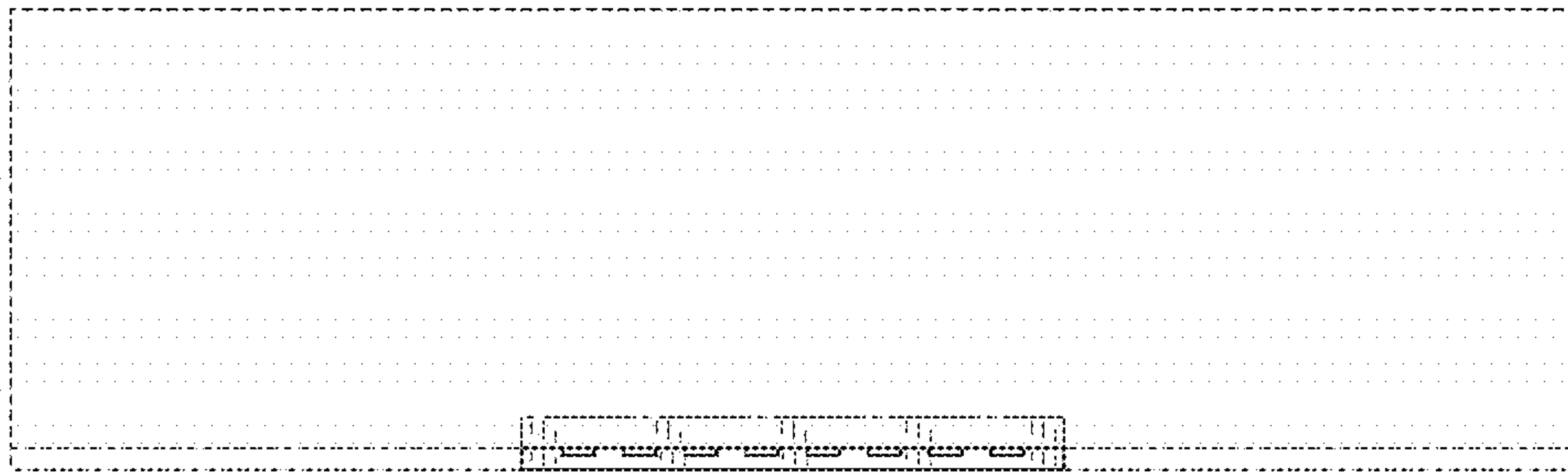


FIG. 4

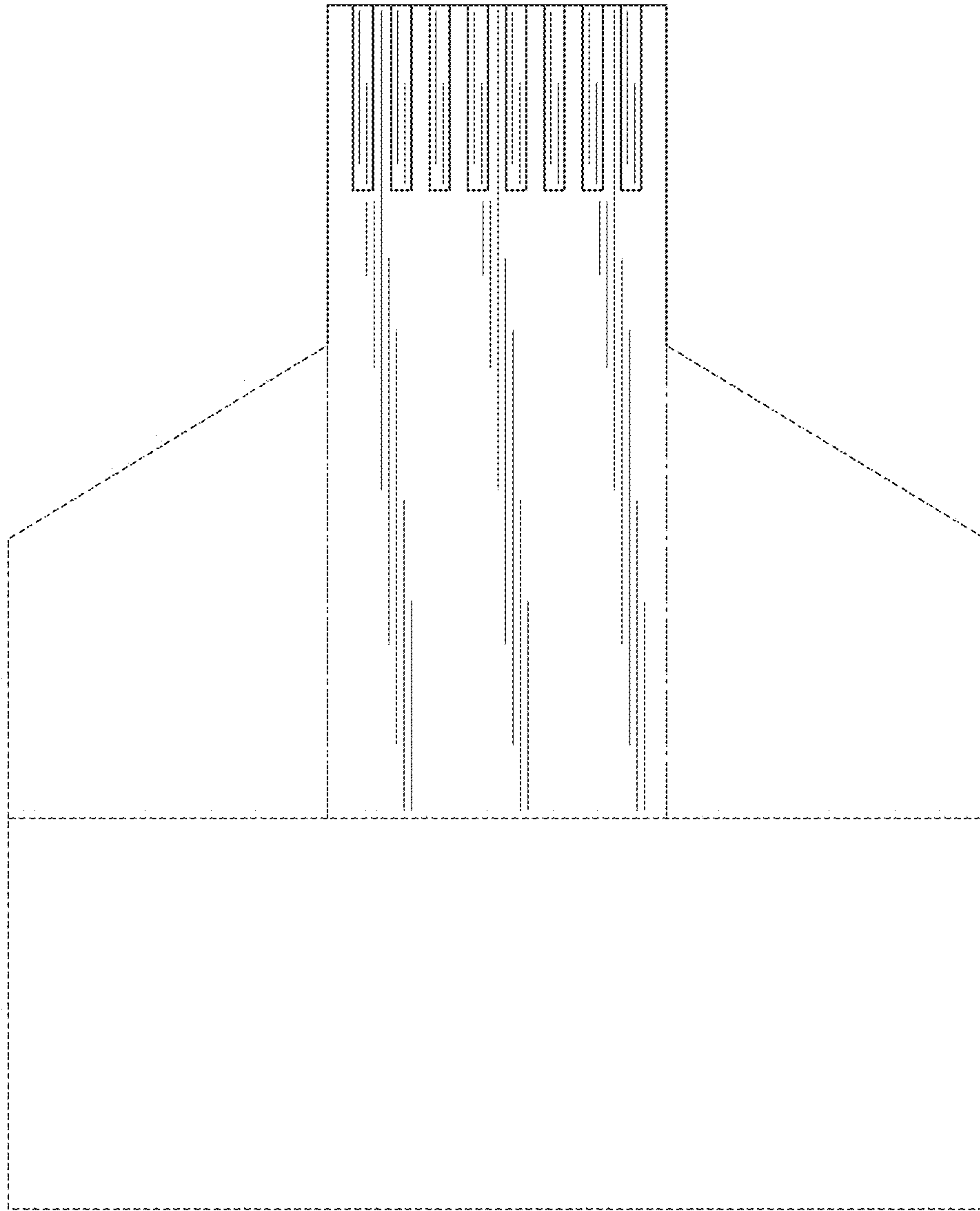


FIG. 5

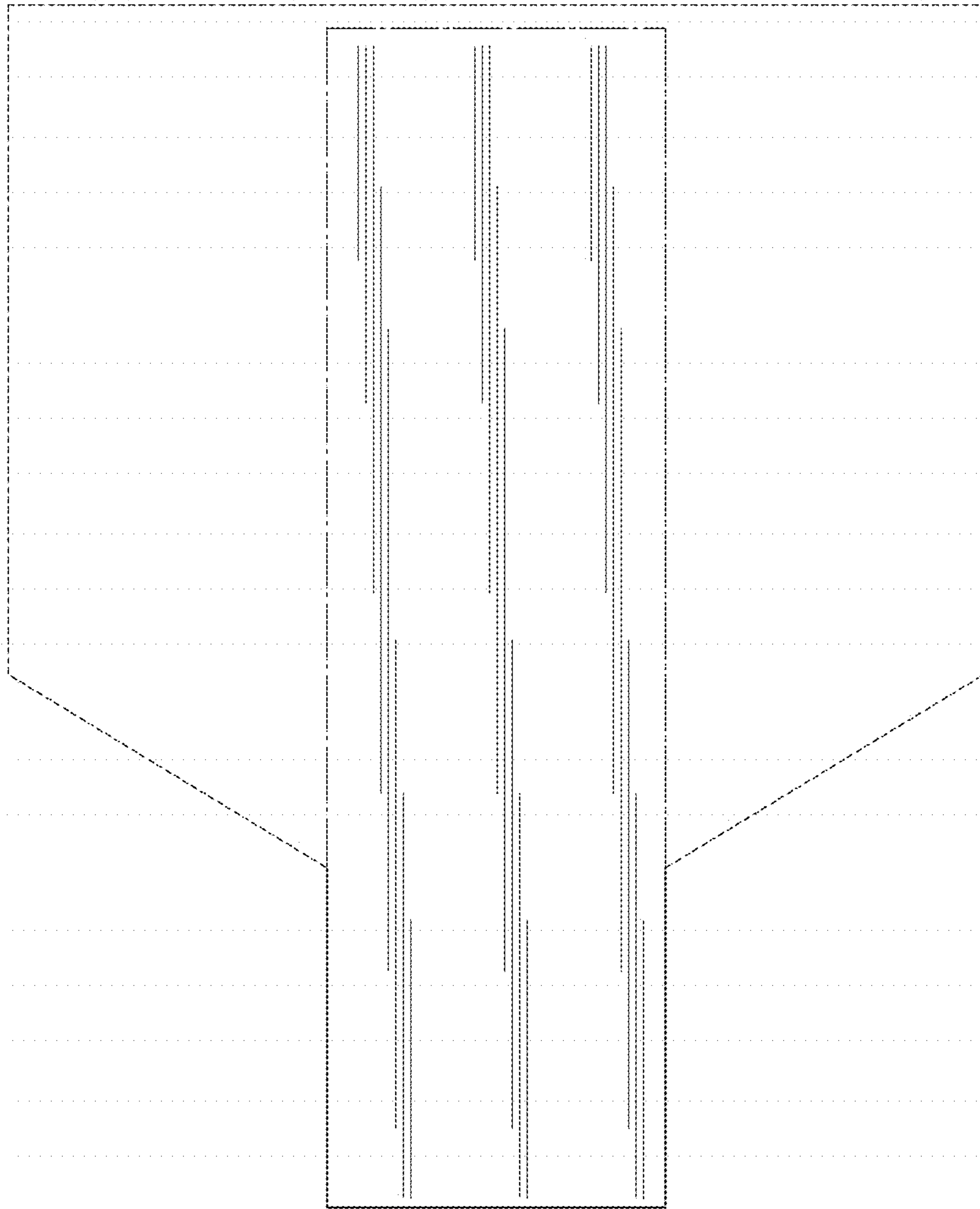


FIG. 6



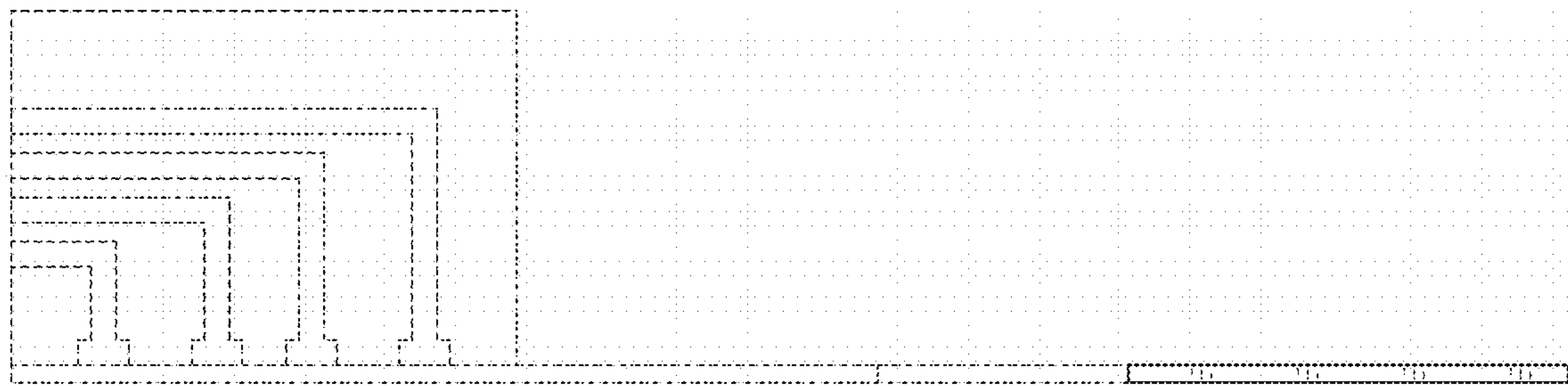


FIG. 7

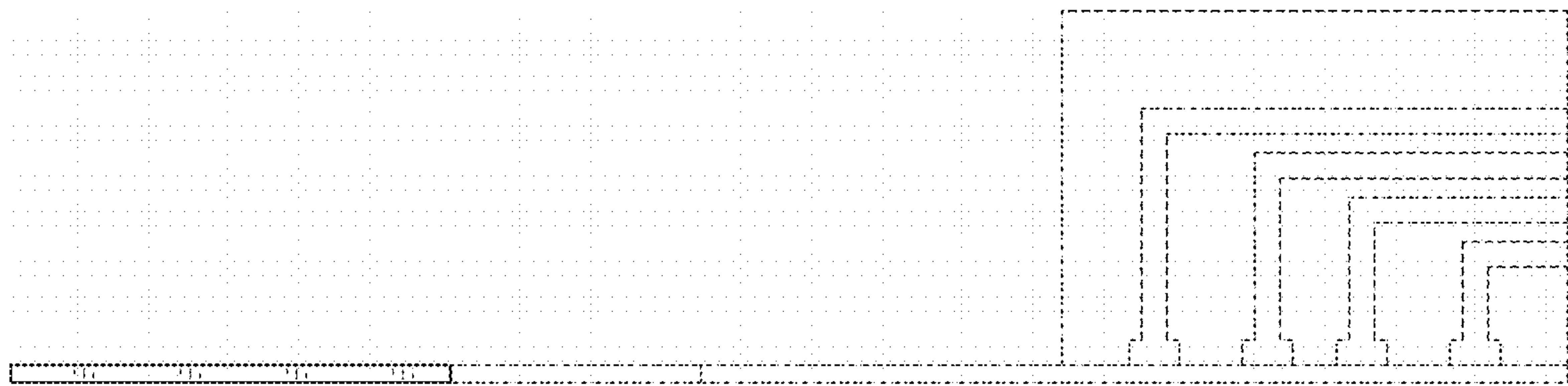


FIG. 8

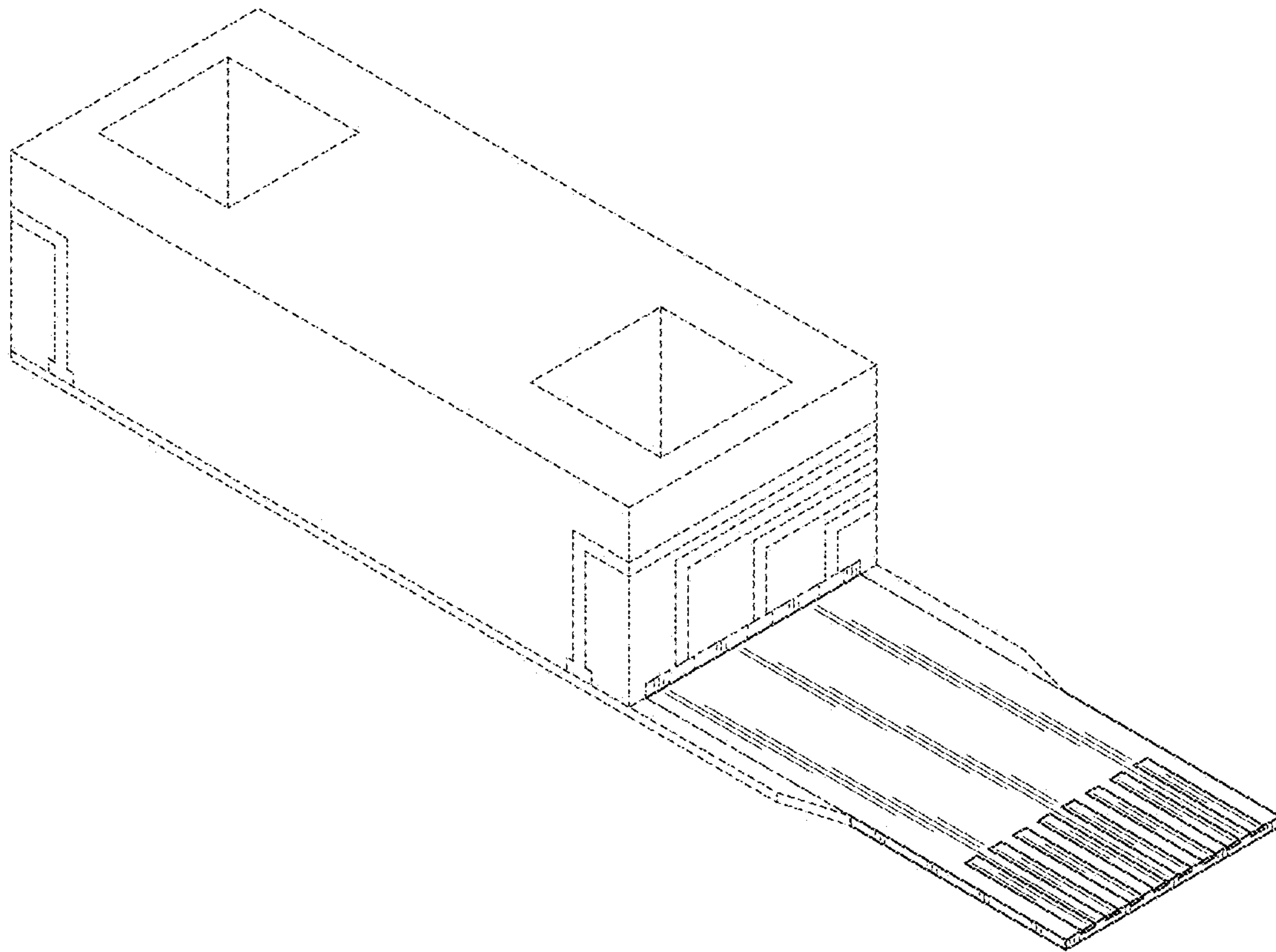


FIG. 9

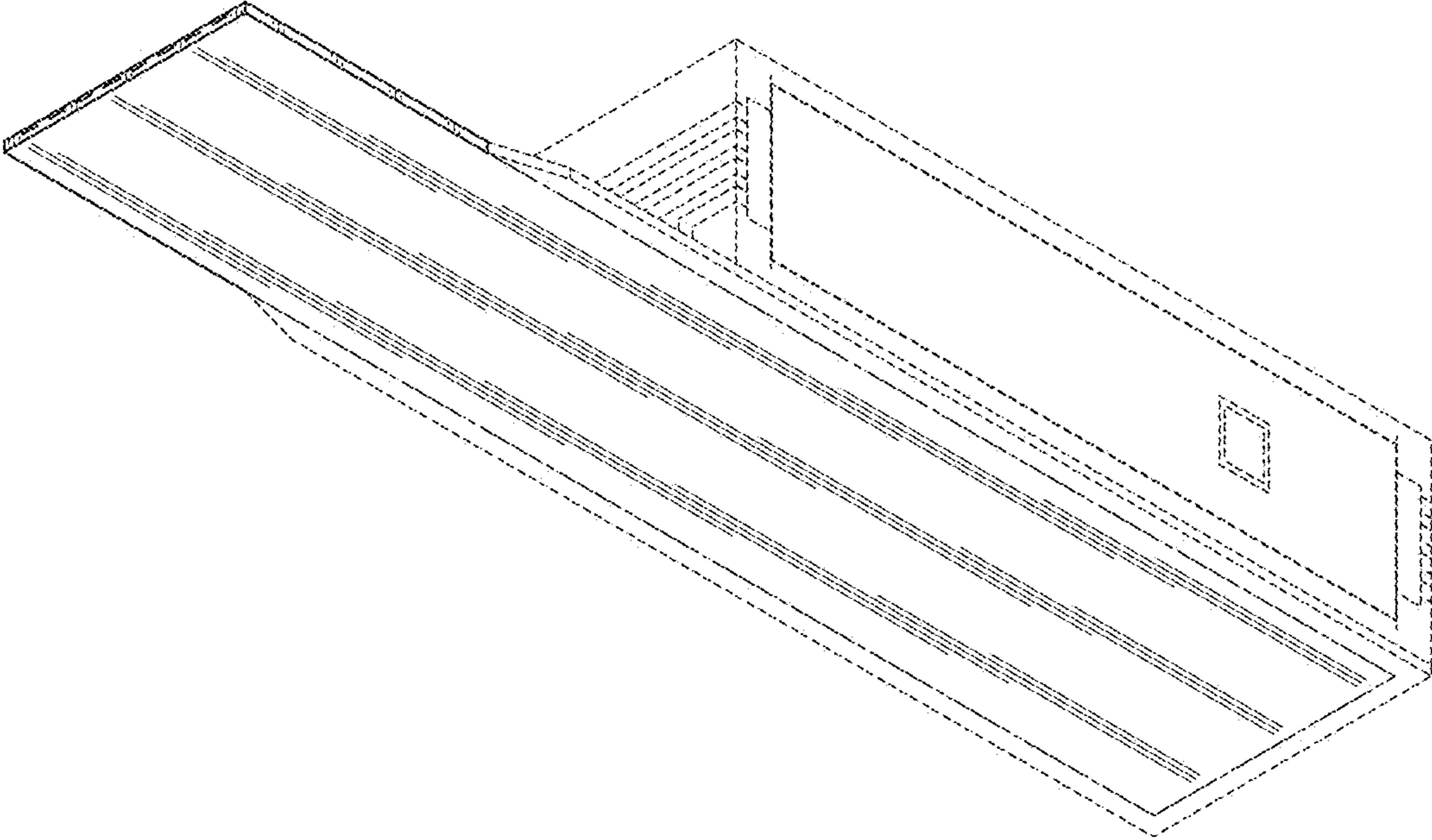


FIG. 10

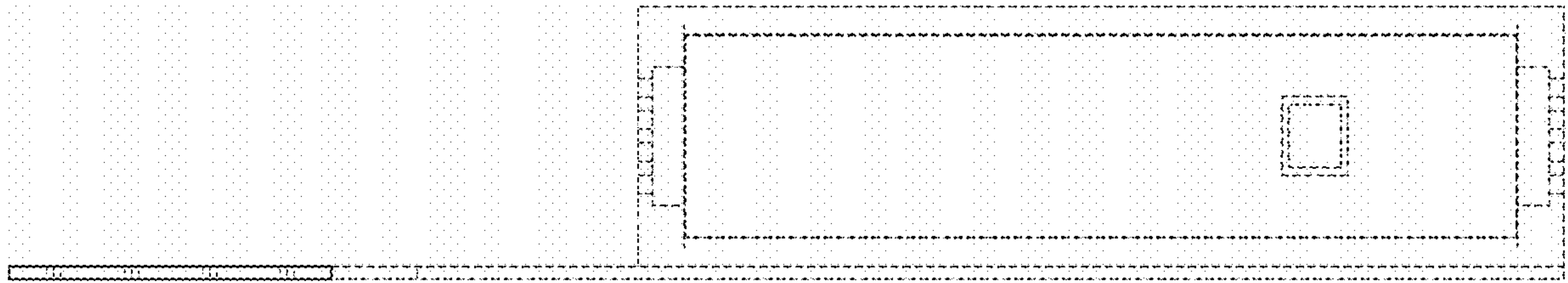


FIG. 11



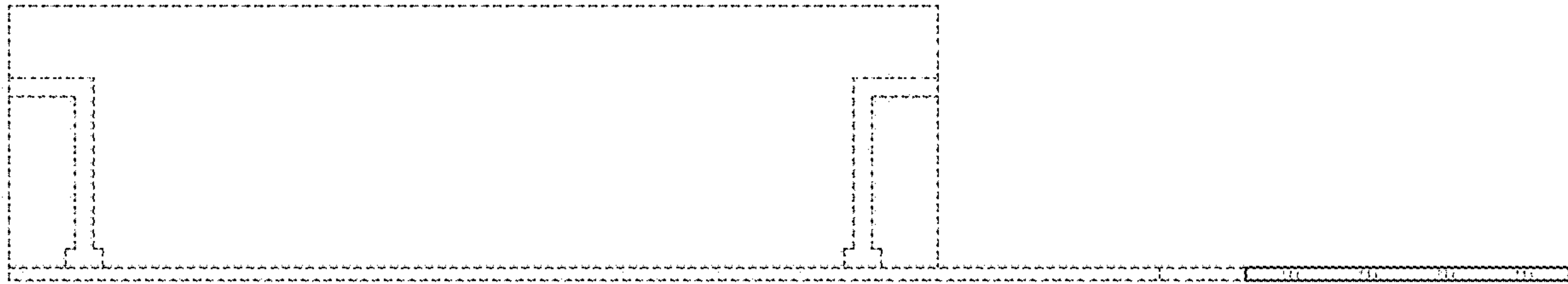


FIG. 12

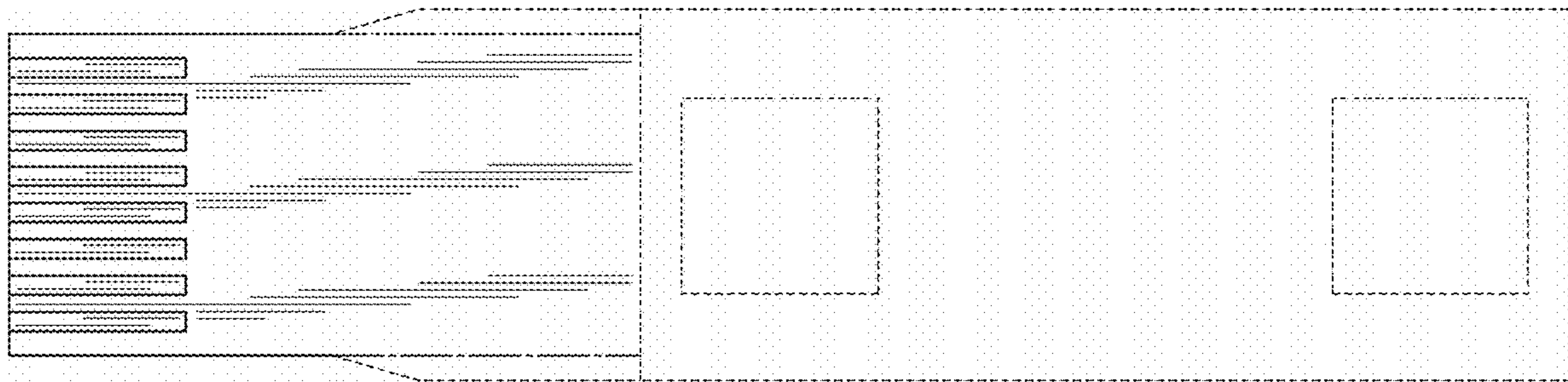


FIG. 13

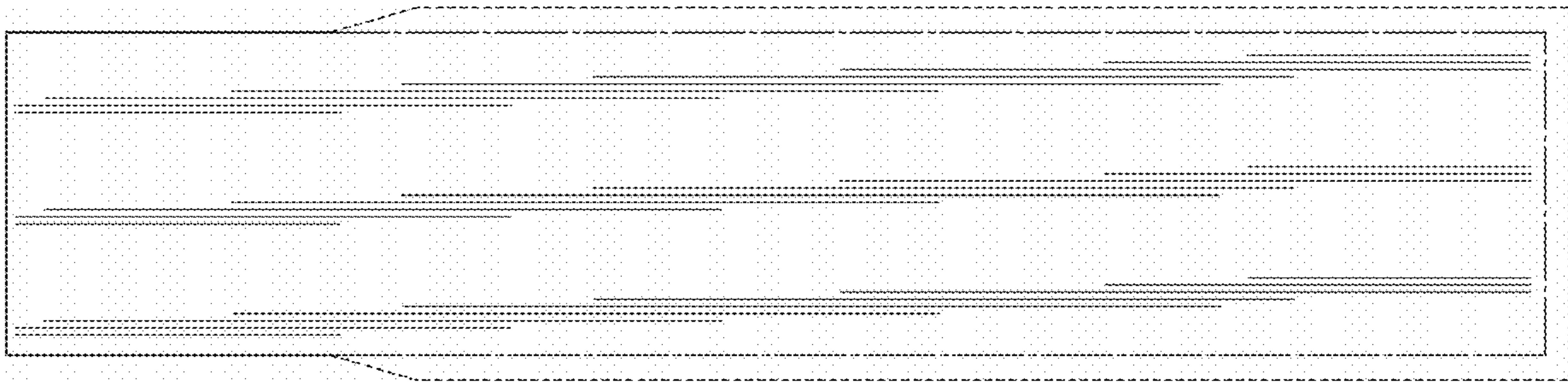


FIG. 14

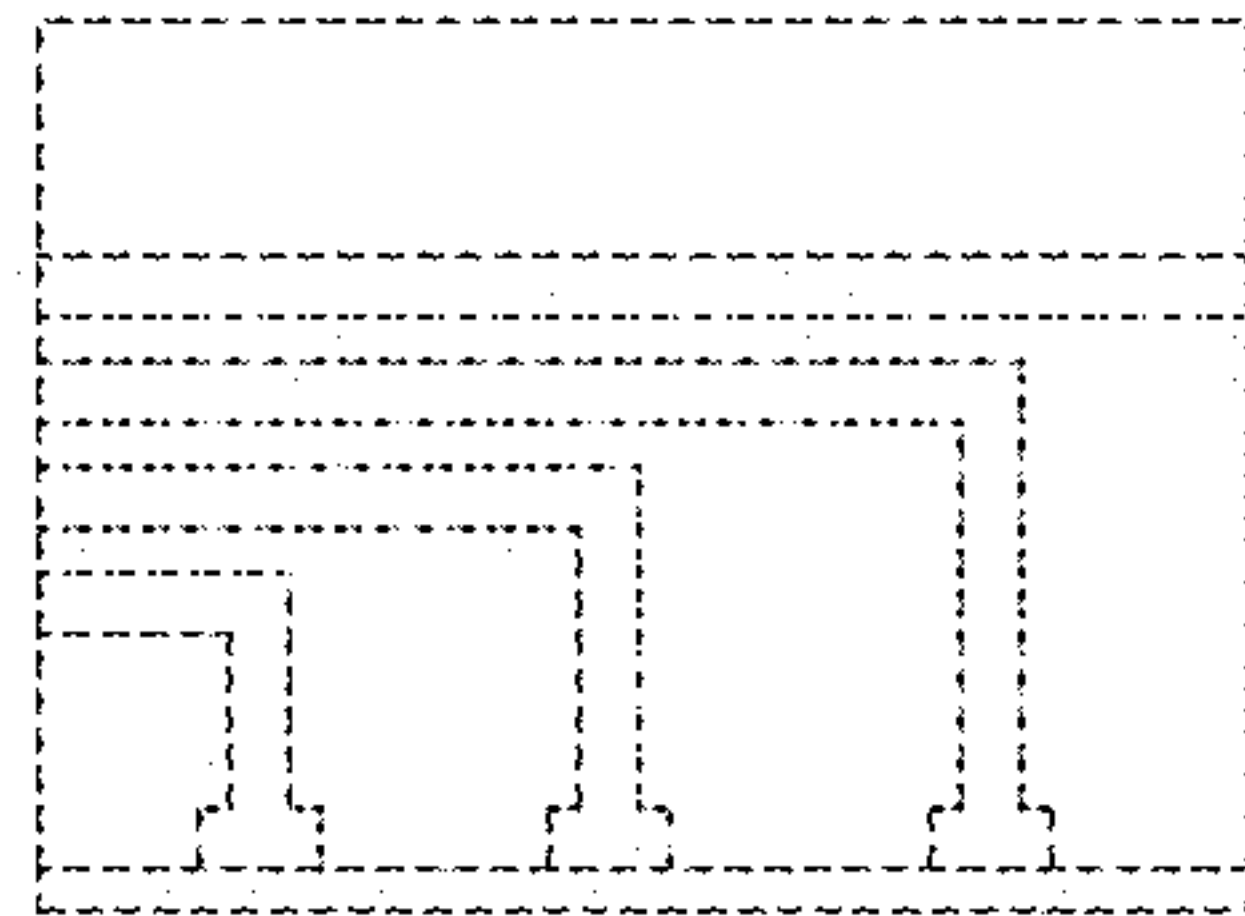


FIG. 15

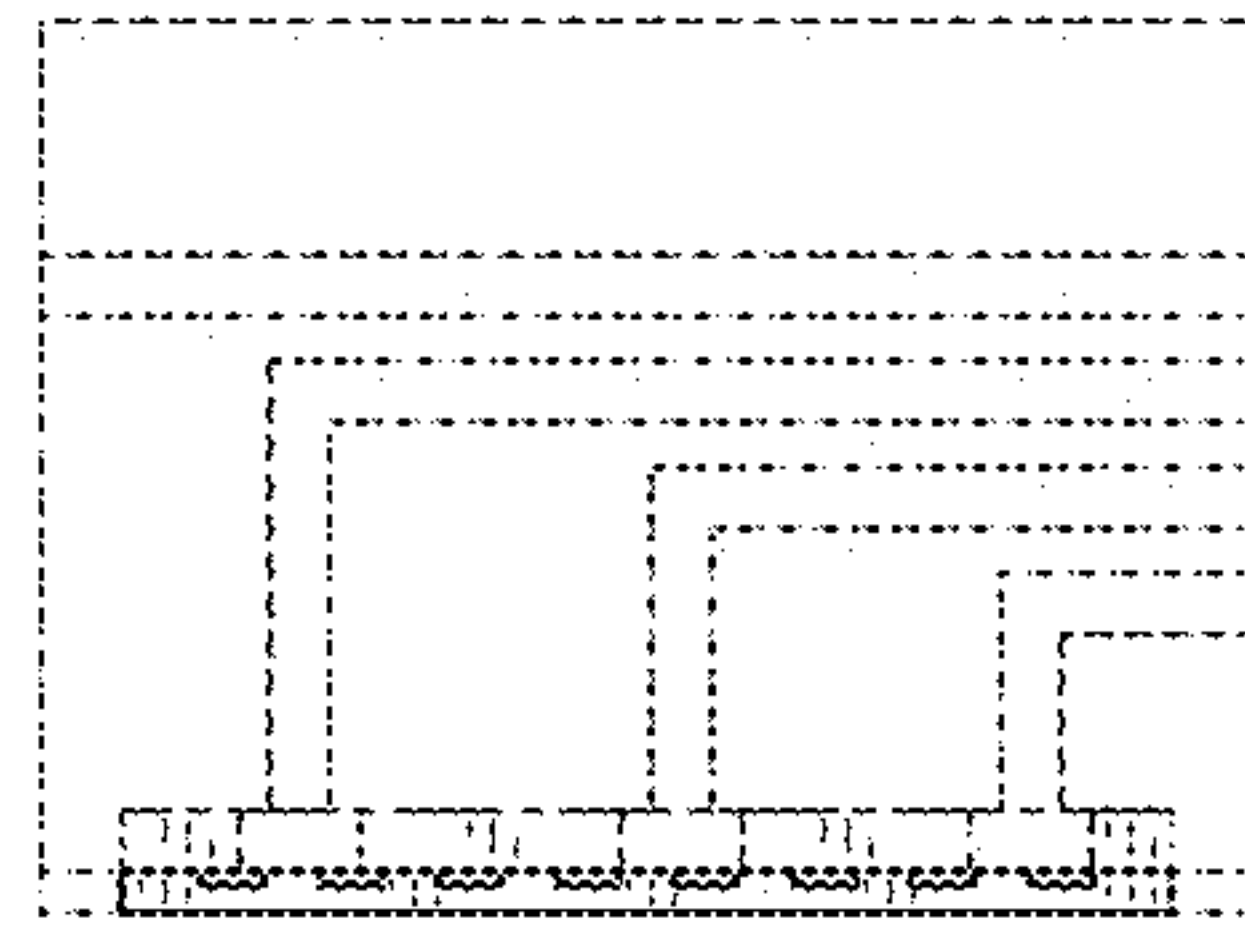


FIG. 16