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(12) **United States Design Patent** (10) **Patent No.:** **US D910,539 S**  
**Nakano et al.** (45) **Date of Patent:** **\*\* Feb. 16, 2021**

(54) **COMMUNICATION MODULE WITH SOLAR CELL**

FOREIGN PATENT DOCUMENTS

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CN 305240412 S 7/2019  
CN 305240413 S 7/2019  
(Continued)

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OTHER PUBLICATIONS

U.S. Appl. No. 29/677,848 filed Jan. 24, 2019, entitled "Dye-Sensitized Solar Cell Module".  
(Continued)

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

(57) **CLAIM**

(21) Appl. No.: **29/677,846**

The ornamental design for a communication module with solar cell, as shown and described.

(22) Filed: **Jan. 24, 2019**

**DESCRIPTION**

(30) **Foreign Application Priority Data**

Jul. 24, 2018 (JP) ..... 2018-016141

(51) **LOC (13) Cl.** ..... **13-02**

(52) **U.S. Cl.**  
USPC ..... **D13/102**

(58) **Field of Classification Search**  
USPC ..... D13/102, 101, 110, 118, 133, 182, 184, D13/199  
CPC ..... H01L 31/02; H01L 31/042; H01L 31/048; H01L 27/142; H01L 27/1421; Y02E 10/40;

(Continued)

FIG. 1 is a front, right, top perspective view of a communication module with solar cell according to our design; FIG. 2 is a rear, left, top perspective view of the communication module with solar cell of FIG. 1; FIG. 3 is a front elevation view of the communication module with solar cell of FIG. 1; FIG. 4 is a rear elevation view of the communication module with solar cell of FIG. 1; FIG. 5 is a top plan view of the communication module with solar cell of FIG. 1; FIG. 6 is a bottom plan view of the communication module with solar cell of FIG. 1; FIG. 7 is a right side elevation view of the communication module with solar cell of FIG. 1; and, FIG. 8 is a left side elevation view of the communication module with solar cell of FIG. 1. The broken lines shown in the drawings depict portions of the communication module with solar cell that form no part of the claimed design.

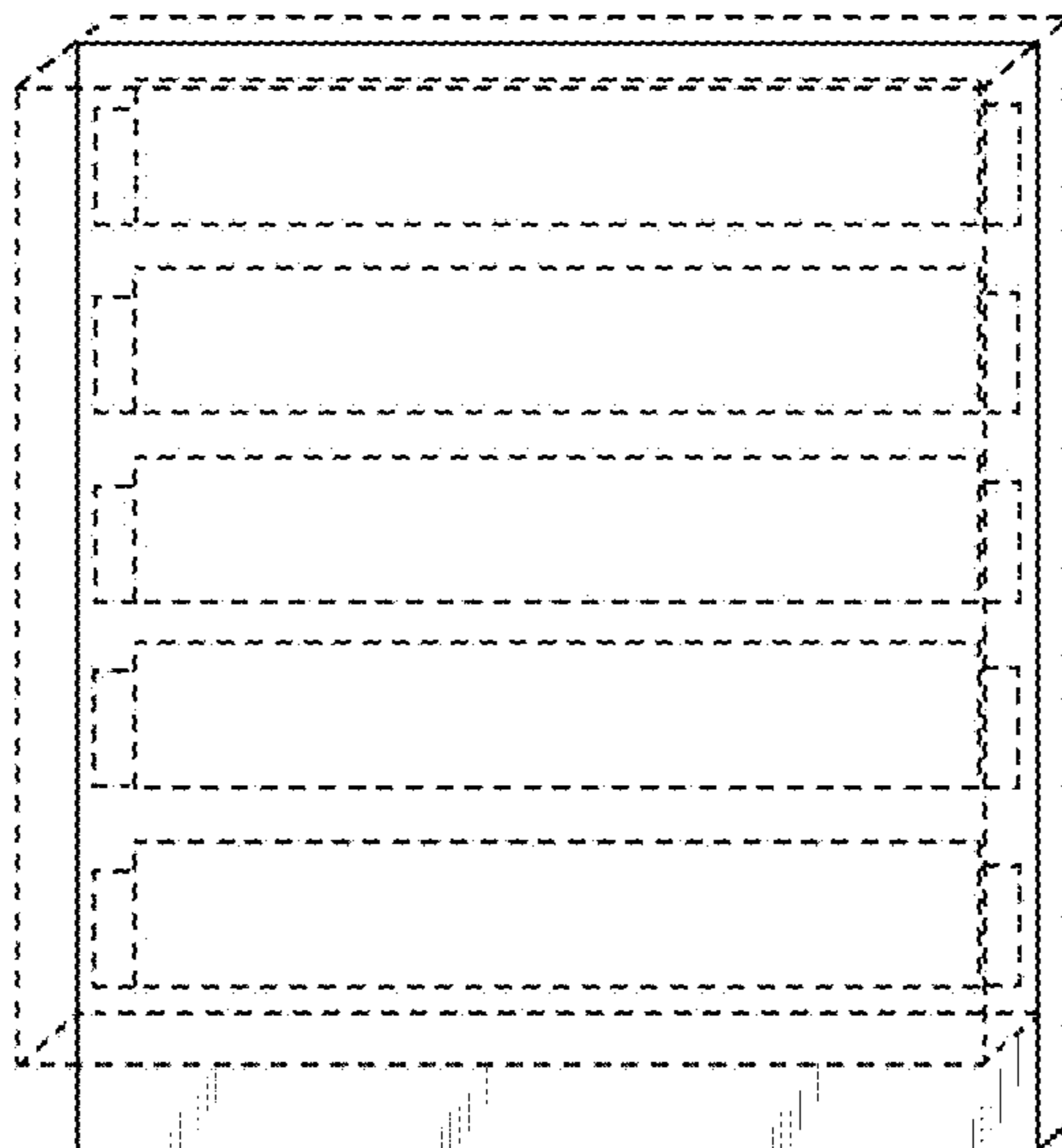
(56) **References Cited**

U.S. PATENT DOCUMENTS

1,209,998 A 12/1916 Pinckert  
1,553,742 A 9/1925 Blatter  
2,340,703 A 2/1944 Schwabacher

(Continued)

**1 Claim, 6 Drawing Sheets**



(58) **Field of Classification Search**  
 CPC ..... Y02E 10/47; Y02E 10/50; Y02E 10/52;  
 Y02E 10/54  
 See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,627,533	A	2/1953	Jensen	
4,099,517	A *	7/1978	McRae .....	F24S 70/10 126/704
D257,893	S	1/1981	Millhollen	
4,293,808	A	10/1981	Varadi	
4,315,498	A *	2/1982	Devin .....	F24S 40/58 126/635
D309,786	S	8/1990	Chien	
D344,733	S *	3/1994	Walthers .....	D14/140.8
D346,170	S	4/1994	Tang	
D347,584	S	6/1994	Vogelpohl	
5,453,729	A	9/1995	Chu	
D378,435	S	3/1997	Trombley	
D378,578	S	3/1997	Eberhardt	
D380,191	S *	6/1997	White .....	D13/102
D380,441	S	7/1997	Fukuhara	
5,745,262	A	4/1998	Tatsumi	
D397,233	S	8/1998	Bassford	
6,238,218	B1	5/2001	Baffert	
D453,329	S	2/2002	Muramatsu	
D453,511	S	2/2002	Goto	
D456,807	S	5/2002	Floyd	
D464,347	S	10/2002	Floyd	
D466,866	S *	12/2002	Stack .....	D13/123
D468,296	S	1/2003	Graceffa	
D477,312	S *	7/2003	Dugas .....	D14/240
D496,038	S	9/2004	Floyd	
D507,657	S	7/2005	Neel	
D563,327	S *	3/2008	Horio .....	D13/165
D580,800	S	11/2008	Hauk	
D588,534	S	3/2009	Sharma	
D589,013	S	3/2009	Pozin	
D590,604	S	4/2009	Pozin	
D606,489	S *	12/2009	Sasada .....	D13/102
D611,460	S	3/2010	Chao	
D621,985	S	8/2010	Sanoner	
D631,566	S	1/2011	Egawa	
D650,334	S	12/2011	Matsuoka	
D658,605	S	5/2012	Egawa	
D664,213	S	7/2012	Sogabe	
D671,921	S	12/2012	Beall	
D683,251	S	5/2013	Dumas	
D687,590	S	8/2013	Chilton	
8,574,943	B2	11/2013	Murray	
D695,679	S	12/2013	Eridoh	
D701,827	S *	4/2014	Turk .....	D13/102
D708,569	S	7/2014	Beckerman	
D719,960	S	12/2014	Akana	
D738,275	S	9/2015	Tachiiri	
D748,639	S	2/2016	Khodapanah	
9,257,237	B2	2/2016	Okada	
D761,198	S	7/2016	Hou	
D761,736	S	7/2016	Imai	
D766,844	S	9/2016	Turksu	
D774,451	S *	12/2016	Castillo-Aguilella .....	D13/102
D774,934	S	12/2016	Akana	
D780,727	S	3/2017	Wang	
9,589,736	B2	3/2017	Matsumoto	
D786,724	S	5/2017	Seagle, Jr.	
D801,316	S	10/2017	Weber	
D804,059	S	11/2017	Labesque	
D804,533	S	12/2017	Mangum	
D806,014	S *	12/2017	Saitou .....	D13/102

D806,932	S	1/2018	Hui	
D806,933	S	1/2018	Hui	
D812,577	S	3/2018	Turksu	
D813,068	S	3/2018	Studer	
D820,238	S	6/2018	Boshernitzan	
D822,253	S	7/2018	Wu	
10,079,504	B2	9/2018	Hui	
D854,950	S	7/2019	Seum	
D855,492	S	8/2019	Jones	
D860,958	S	9/2019	Lewis	
D865,859	S	11/2019	Ben Avi	
D867,346	S	11/2019	Hofstede	
D869,697	S	12/2019	Kasuga	
D882,144	S	4/2020	Zhu	
D885,631	S	5/2020	Li	
D889,444	S	7/2020	Sakamoto	
D890,144	S	7/2020	Sakamoto	
2007/0201187	A1	8/2007	McGregor et al.	
2008/0011917	A1	1/2008	Adams	
2008/0123313	A1 *	5/2008	Horne .....	H01L 31/02008 361/807
2008/0158865	A1	7/2008	Chen	
2008/0314448	A1	12/2008	Kato et al.	
2011/0263067	A1	10/2011	Vaid	
2018/0283630	A1	10/2018	Soofer	

FOREIGN PATENT DOCUMENTS

CN	305240415	S	7/2019
EM	005215001-0003		6/2018
JP	1131849		11/2001
JP	1161787		11/2002
JP	1290286		11/2006
JP	1390147		5/2010
JP	1390148		5/2010
JP	1462708		1/2013
JP	1469292		4/2013
JP	1490549		1/2014
JP	1593399		11/2017
JP	1627499		3/2019
JP	1627618		3/2019
JP	1632696		4/2019
JP	1636976		6/2019
JP	1637087		6/2019
JP	1637236		6/2019
JP	1637250		6/2019
JP	1638436		7/2019

OTHER PUBLICATIONS

U.S. Appl. No. 29/677,859 filed Jan. 24, 2019, entitled "Data Transmitter with Solar Cell and Sensor".  
 Notice of Allowance dated Sep. 10, 2020 in U.S. Appl. No. 29/677,848.  
 U.S. Office Action dated Oct. 9, 2020 in U.S. Appl. No. 29/377,859. Petrala Solar Lantern Lights Panel Replacement Top. (online) 12 pgs. Available Dec. 6, 2018. [retrieved Oct. 2, 2020] [https://www.amazon.com/Petrala-Lantern-Replacement-Outdoor-Lanterns/dp/B07L687LCX?ref=ast\\_sto\\_dp](https://www.amazon.com/Petrala-Lantern-Replacement-Outdoor-Lanterns/dp/B07L687LCX?ref=ast_sto_dp).  
 MAGGIFT Solar Pathway Lights Replacement Top. (online) 7 pgs. Available Jan. 18, 2018. [retrieved Oct. 2, 2020] [https://www.amazon.com/MAGGI-FT-Solar-Pathway-Lights-Replacement/dp/807-D-F5QSJ-F?ref=ast\\_sto\\_dp](https://www.amazon.com/MAGGI-FT-Solar-Pathway-Lights-Replacement/dp/807-D-F5QSJ-F?ref=ast_sto_dp).  
 Antenna Transmitters and Solar Cells. (Design-©Questel) orbit.com. [online PDF] 30 pgs. Print Dates Range Jul. 21, 2017 through Sep. 27, 2019 [Oct. 3, 2020] <https://www.orbit.com/export/QPTUJ214/pdf2/75d42c1d-d199-413f-8d92-710b6727e733-170049.pdf>.  
 Notice of Allowance dated Oct. 20, 2020 in U.S. Appl. No. 29/677,848.

\* cited by examiner

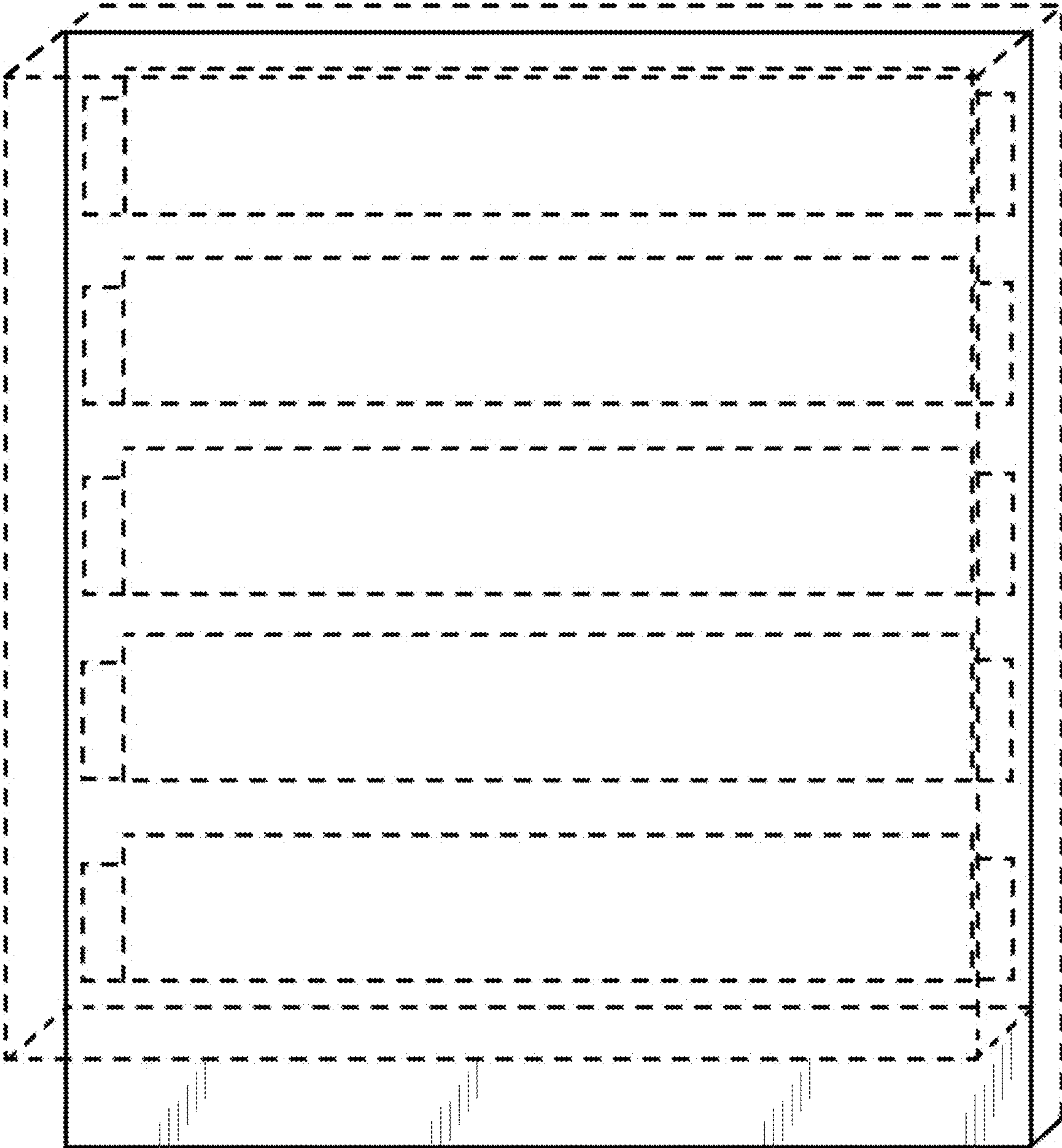


FIG. 1

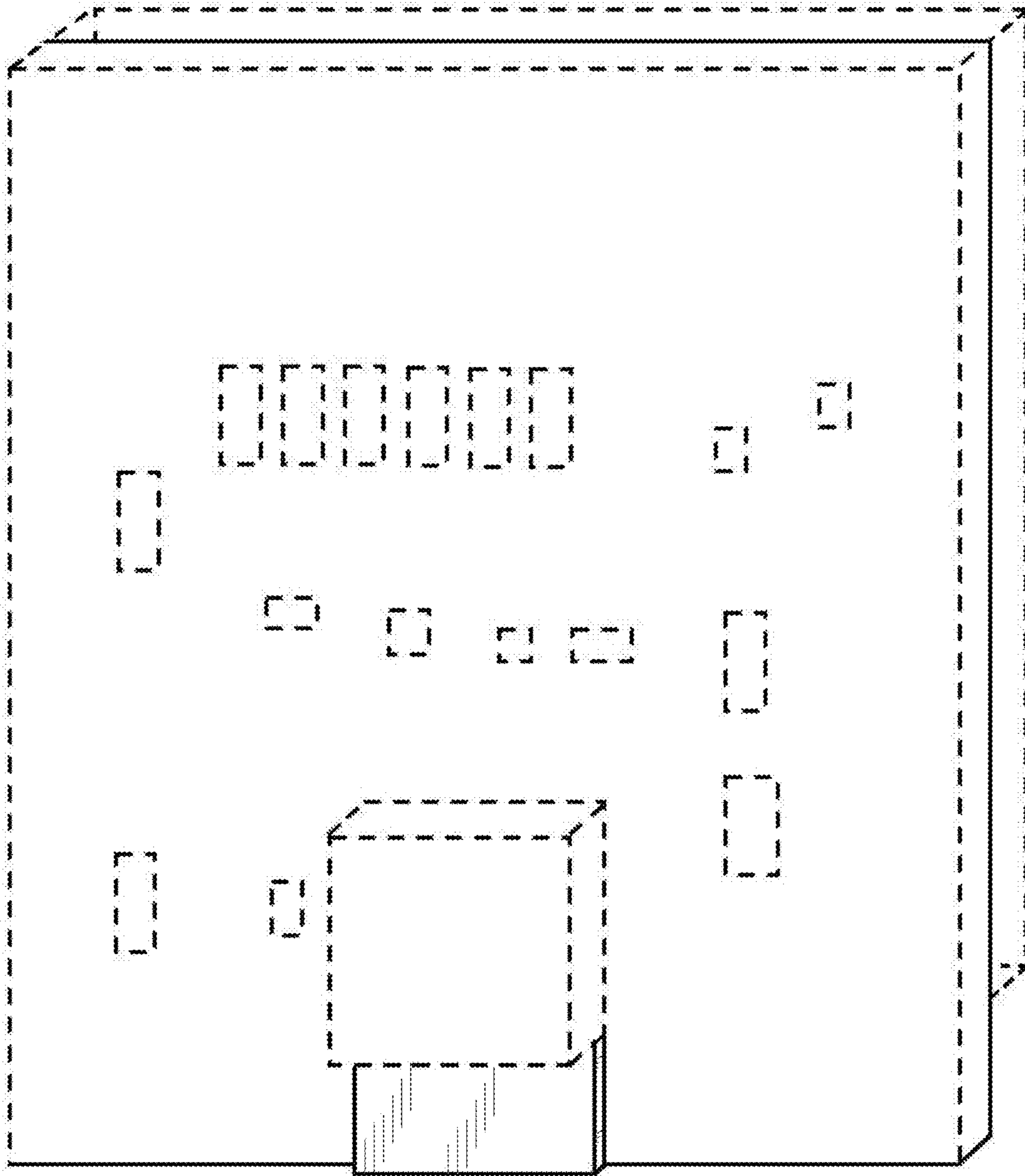


FIG. 2

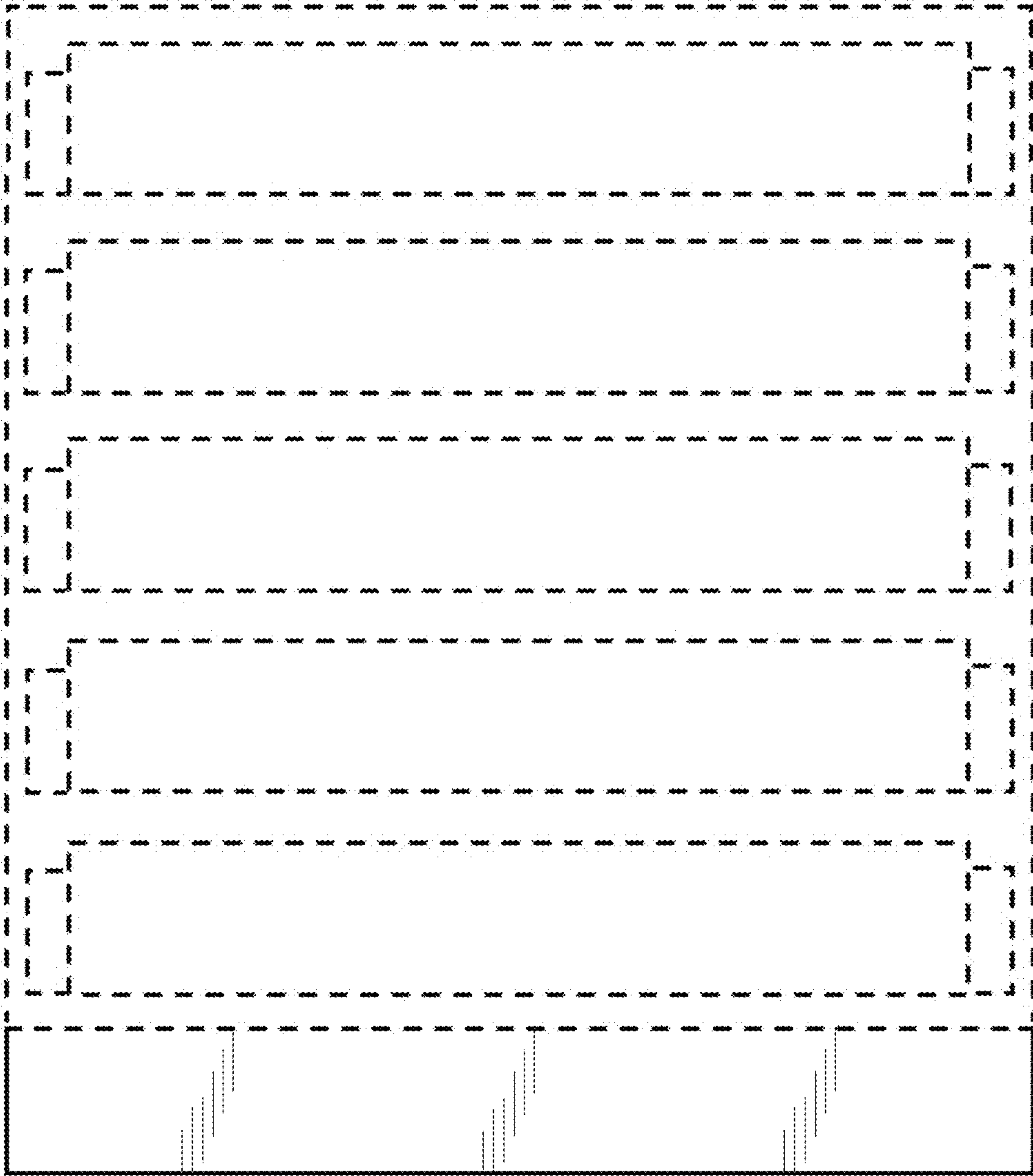


FIG. 3

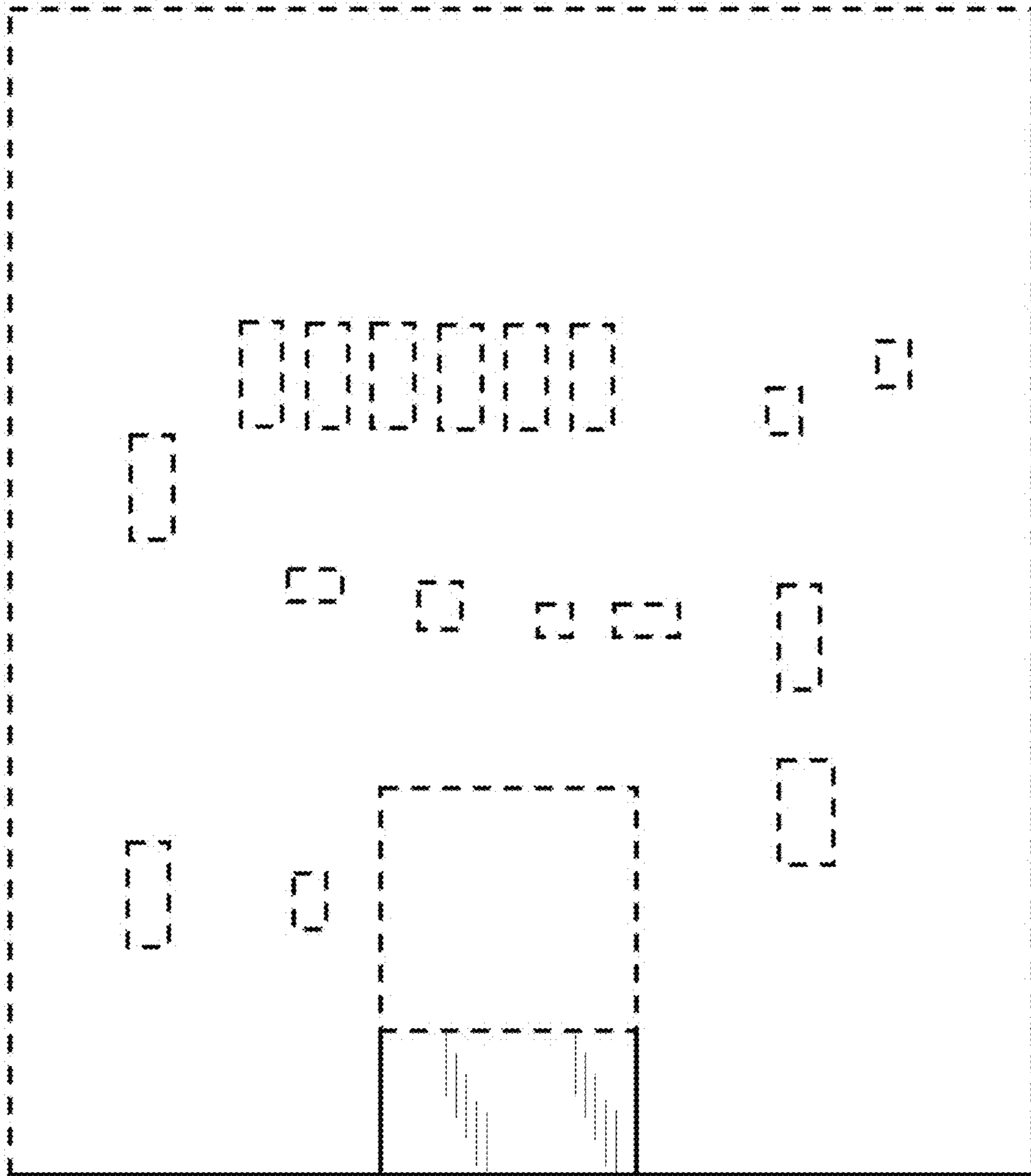


FIG. 4

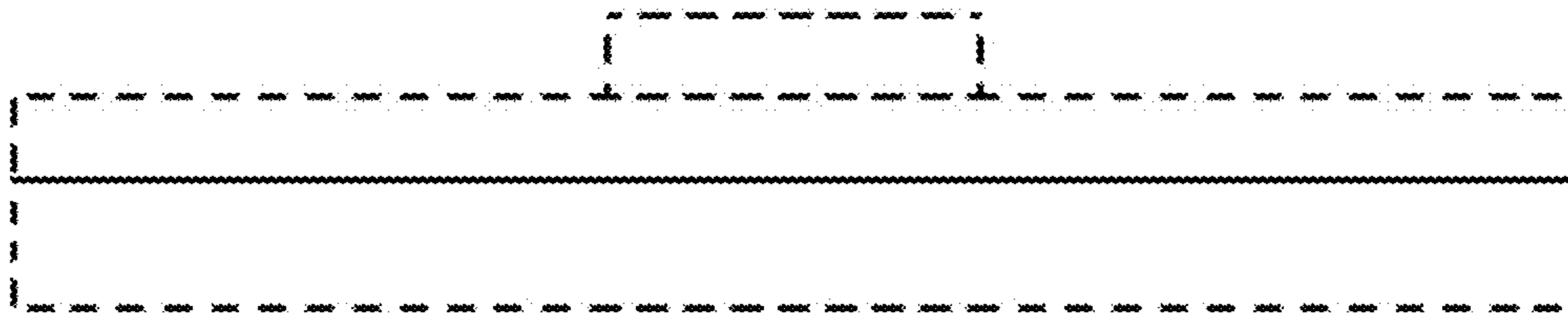


FIG. 5

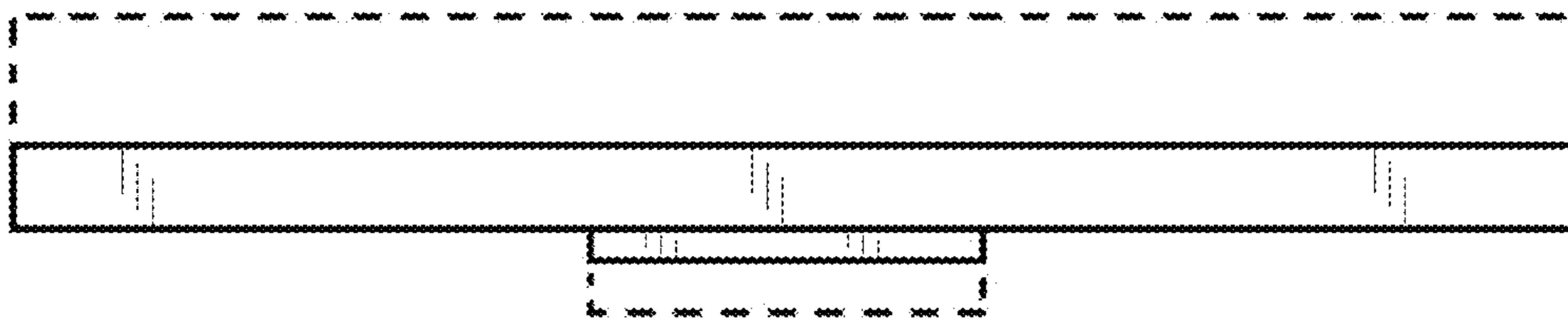


FIG. 6

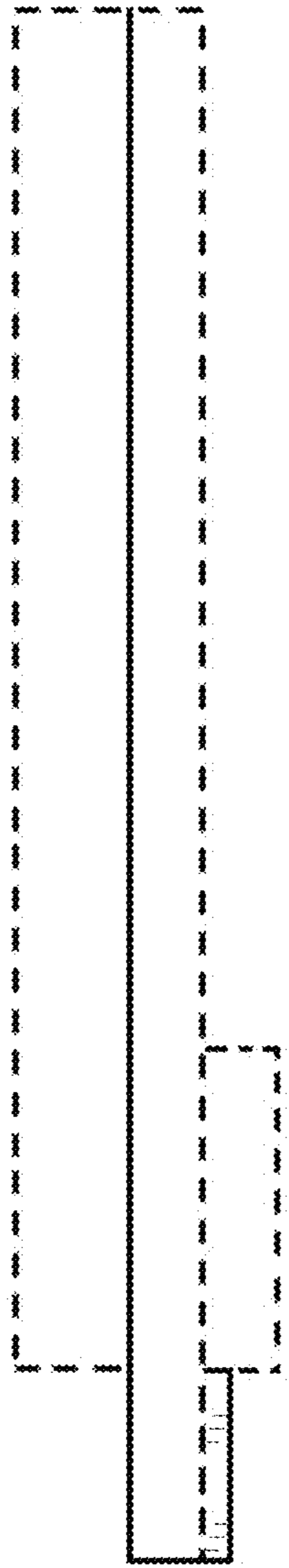


FIG. 7

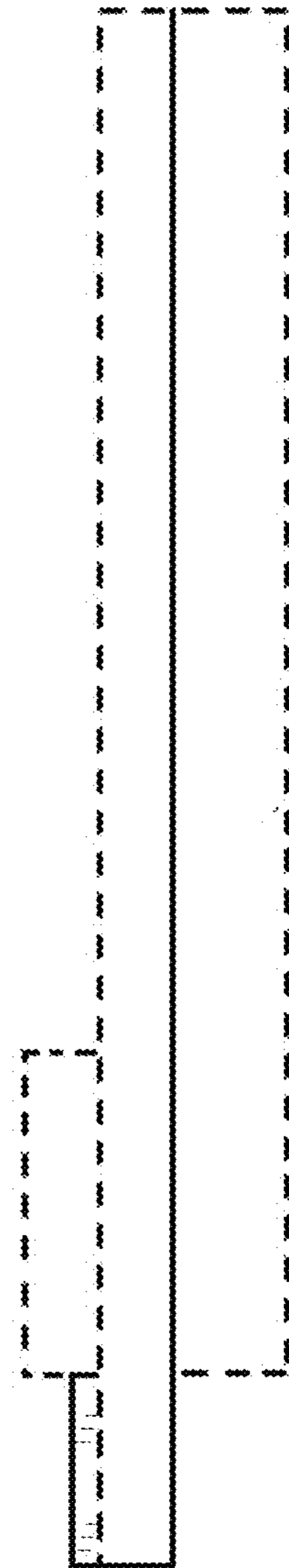


FIG. 8