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(12) **United States Design Patent** (10) **Patent No.:** **US D804,457 S**
Chang et al. (45) **Date of Patent:** **** Dec. 5, 2017**

(54) **ANTENNA ASSEMBLY** D573,589 S 7/2008 Montgomery et al.
7,405,704 B1 7/2008 Lin et al.
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(US) 7,477,195 B2 1/2009 Vance
7,498,987 B2* 3/2009 Svigelj H01Q 1/38
343/700 MS
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Qun Li, Zhang Jia Gang (CN); 7,570,215 B2 8/2009 Abramov et al.
Xiangjie Bian, Zhang Jia Gang (CN) D599,334 S 9/2009 Chiang
D606,053 S 12/2009 Wu et al.
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(US) D608,769 S 1/2010 Bufe
(Continued)

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

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(51) **LOC (10) Cl.** **14-03**

(57) **CLAIM**

(52) **U.S. Cl.**
USPC **D14/230**

The ornamental design for an antenna assembly, as shown and described.

(58) **Field of Classification Search**
USPC D14/230, 231, 232, 233, 234, 235, 236,
D14/237, 238, 138, 299, 358, 240;
D12/42, 43
CPC H01Q 7/00; H01Q 13/10; H01Q 9/285;
H01Q 9/26; H01Q 19/30; H01Q 19/12;
H01Q 1/38; H01Q 1/36; H01Q 1/42;
H01Q 1/242; H01Q 1/243; H01Q 1/2266;
H01Q 1/20; H01Q 1/08; H01Q 1/1235;
H01Q 15/161; H01Q 15/162
See application file for complete search history.

DESCRIPTION

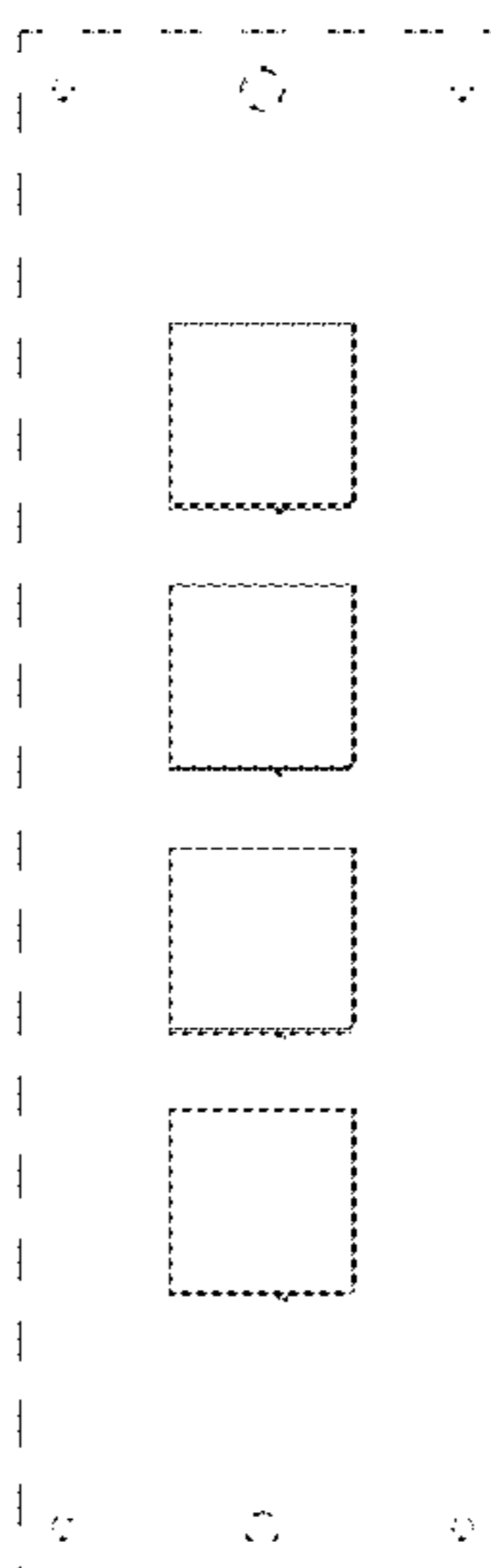
FIG. 1 is a top plan view of an antenna assembly
FIG. 2 is a side elevation view of the antenna assembly of FIG. 1
FIG. 3 is a bottom plan view of the antenna assembly of FIG. 1
FIG. 4 is an exploded view of the antenna assembly of FIG. 1
FIG. 5 is an isolated isometric view of a top antenna element of the antenna assembly of FIG. 1.
FIG. 6 is a top plan view thereof
FIG. 7 is a front elevation view thereof
FIG. 8 is a side elevation view thereof; and,
FIG. 9 is a bottom plan view of the bottom antenna element of the antenna assembly of FIG. 1.
The broken lines in the drawings depict the unclaimed base portion of the antenna assembly. The broken lines form no part of the claimed design.

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,061,437 B2 6/2006 Lin et al.
7,148,849 B2 12/2006 Lin
7,215,296 B2 5/2007 Abramov et al.
D546,821 S 7/2007 Oliver
D549,696 S 8/2007 Oshima et al.
7,333,067 B2 2/2008 Hung et al.
7,336,959 B2 2/2008 Khitrik et al.

1 Claim, 4 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D612,368 S	3/2010	Yang et al.	D695,280 S	12/2013	Yang et al.
7,705,783 B2	4/2010	Rao et al.	D703,195 S	4/2014	Zheng
7,729,662 B2	6/2010	Abramov et al.	D703,196 S	4/2014	Zheng
D621,819 S	8/2010	Tsai et al.	D706,247 S	6/2014	Zheng et al.
7,843,390 B2	11/2010	Liu	D706,750 S	6/2014	Bringuir
D633,483 S	3/2011	Su et al.	D706,751 S	6/2014	Chang et al.
D635,127 S	3/2011	Tsai et al.	D708,602 S	7/2014	Gosalia et al.
7,907,971 B2	3/2011	Salo et al.	D709,053 S	7/2014	Chang et al.
7,911,402 B2*	3/2011	Rowson	D710,832 S	8/2014	Yang
	 H01Q 1/243	D710,833 S	8/2014	Zheng et al.
		343/700 MS	8,854,265 B1	10/2014	Yang et al.
D635,560 S	4/2011	Tsai et al.	D716,775 S	11/2014	Bidermann
D635,963 S	4/2011	Podduturi	D733,104 S *	6/2015	Yang D14/230
D635,964 S	4/2011	Podduturi	9,077,077 B2 *	7/2015	Wong H01Q 1/243
D635,965 S	4/2011	Mi et al.	D754,108 S *	4/2016	Yang D14/230
D636,382 S	4/2011	Podduturi	2002/0003499 A1	1/2002	Kouarn et al.
7,965,242 B2	6/2011	Abramov et al.	2004/0222936 A1	11/2004	Hung et al.
D649,962 S	12/2011	Tseng et al.	2005/0001768 A1*	1/2005	Sekiguchi H01Q 9/0421
D651,198 S	12/2011	Mi et al.			343/700 MS
D654,059 S	2/2012	Mi et al.	2005/0073462 A1	4/2005	Lin et al.
D654,060 S	2/2012	Ko et al.	2005/0190108 A1	9/2005	Lin et al.
D658,639 S	5/2012	Huang et al.	2005/0237258 A1*	10/2005	Abramov H01Q 3/24
D659,129 S	5/2012	Mi et al.			343/834
D659,685 S	5/2012	Huang et al.	2006/0044196 A1*	3/2006	Grant H01Q 1/3275
D659,688 S	5/2012	Huang et al.			343/713
8,175,036 B2	5/2012	Visuri et al.	2006/0208900 A1	9/2006	Tavassoli Hozouri
8,184,601 B2	5/2012	Abramov et al.	2007/0030203 A1	2/2007	Tsai et al.
D662,916 S	7/2012	Huang et al.	2008/0150829 A1	6/2008	Lin et al.
8,248,970 B2	8/2012	Abramov et al.	2009/0002244 A1	1/2009	Woo
D671,097 S	11/2012	Mi et al.	2009/0058739 A1	3/2009	Konishi
8,310,402 B2	11/2012	Yang	2009/0135072 A1	5/2009	Ke et al.
D676,429 S	2/2013	Gosalia et al.	2009/0262028 A1	10/2009	Murnbru et al.
D678,255 S	3/2013	Ko et al.	2010/0188297 A1	7/2010	Chen et al.
8,423,084 B2	4/2013	Abramov et al.	2010/0309067 A1	12/2010	Tsou et al.
D684,565 S	6/2013	Wei	2011/0006950 A1	1/2011	Park et al.
D685,352 S	7/2013	Wei	2012/0038514 A1	2/2012	Bang
D685,772 S	7/2013	Zheng et al.	2012/0229348 A1	9/2012	Chiang
D686,600 S	7/2013	Yang	2012/0242546 A1	9/2012	Hu et al.
8,482,471 B2*	7/2013	Su	2012/0287000 A1*	11/2012	Ando H01Q 21/08
	 H01Q 7/00			343/700 MS
		343/700 MS	2013/0176177 A1*	7/2013	Cetiner H01Q 19/005
D689,474 S	9/2013	Yang et al.			343/700 MS
D692,870 S	11/2013	He	2014/0210687 A1*	7/2014	Chiu H01Q 1/2283
D694,738 S	12/2013	Yang			343/872
D695,279 S	12/2013	Yang et al.			

* cited by examiner

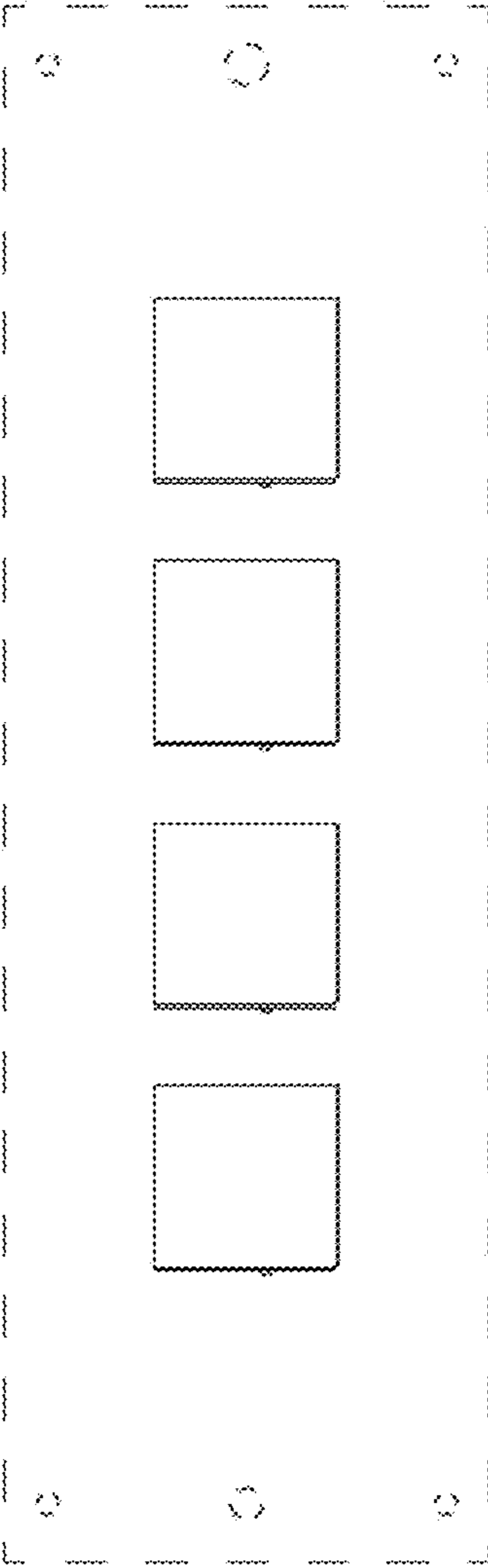


FIG. 1

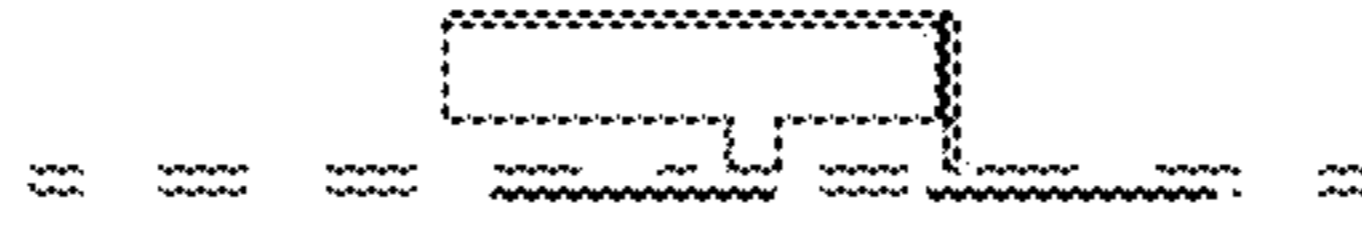


FIG. 2

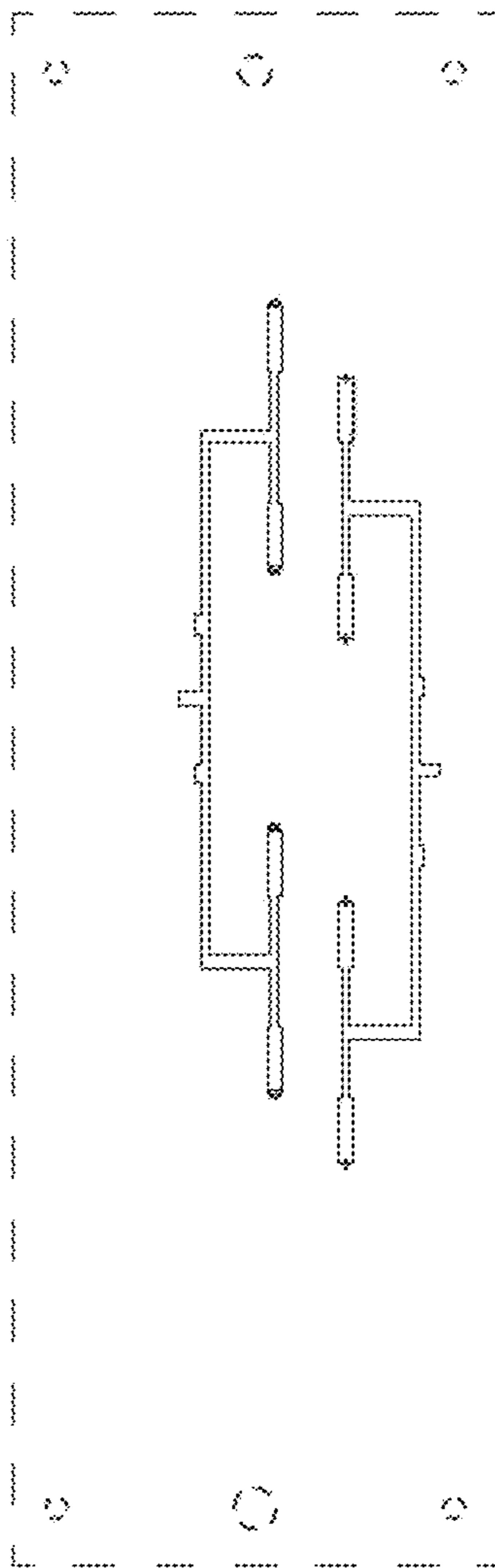


FIG. 3

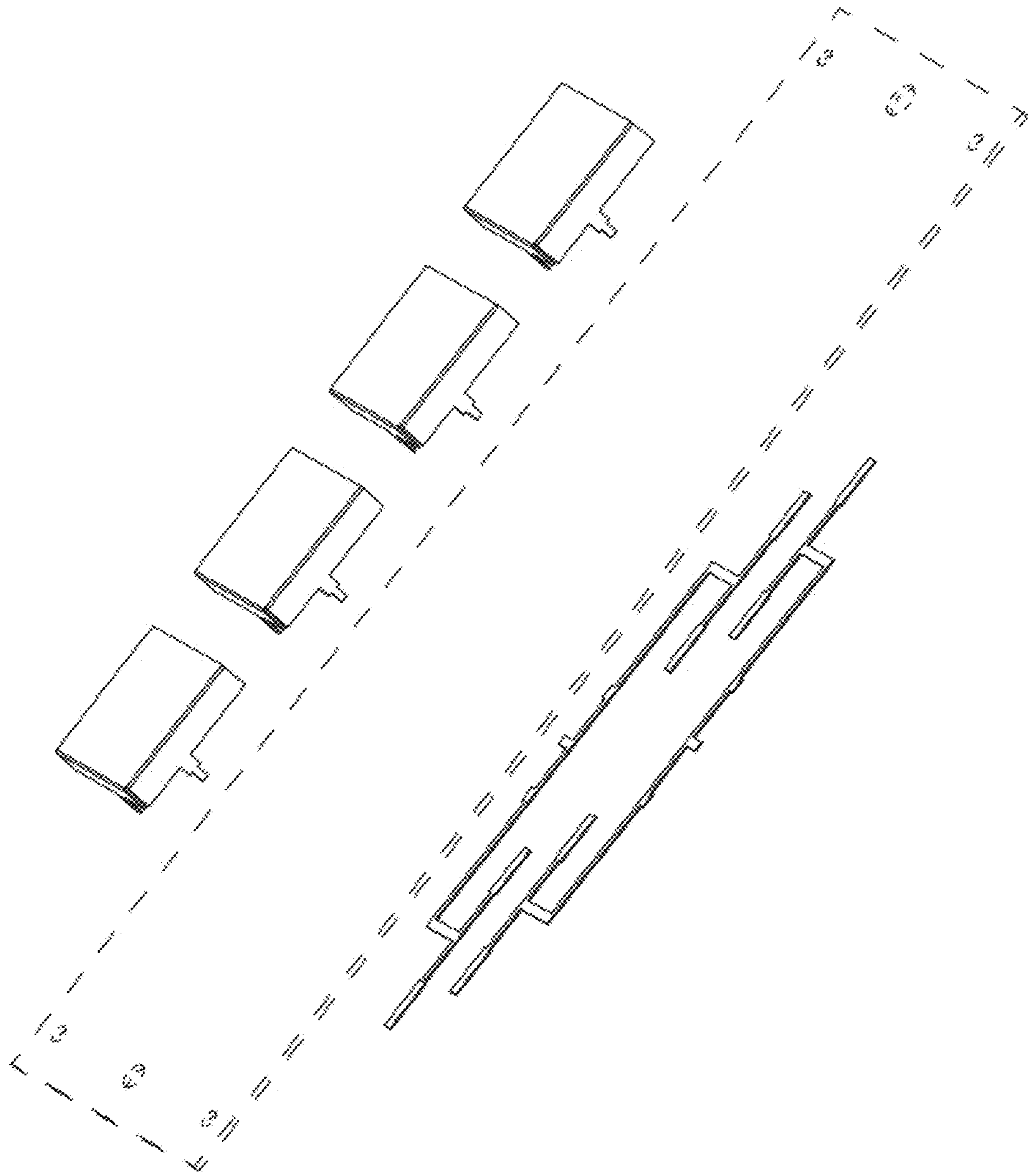


FIG. 4



FIG. 5



FIG. 6

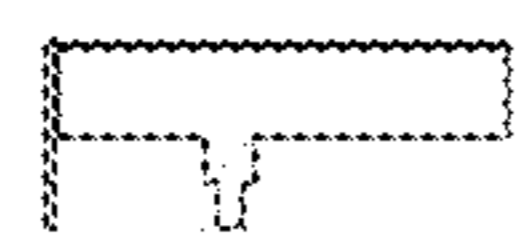


FIG. 7

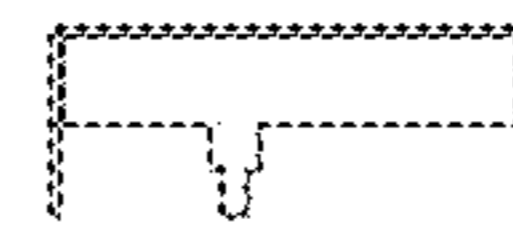


FIG. 8

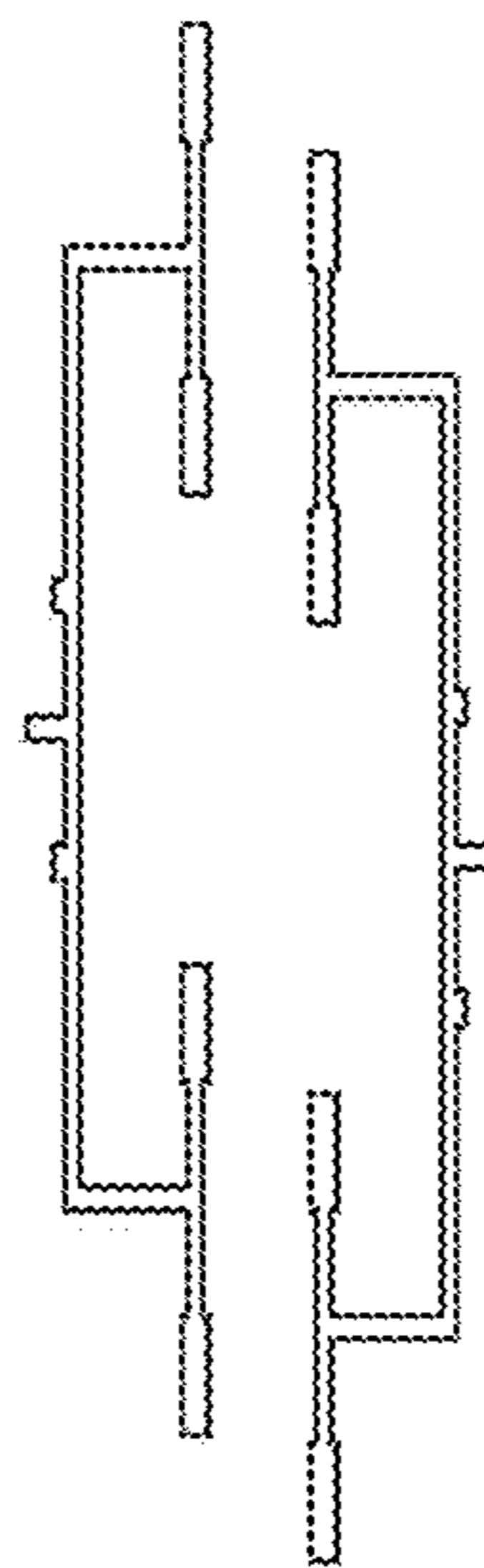


FIG. 9