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(12) **United States Design Patent** (10) **Patent No.:** **US D804,458 S**
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(54) **ANTENNA**
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D573,589 S 7/2008 Montgomery et al.
7,405,704 B1 7/2008 Lin et al.
D582,400 S * 12/2008 Takisawa D14/230
7,477,195 B2 1/2009 Vance
7,498,987 B2* 3/2009 Svigelj H01Q 1/38
343/700 MS
D592,195 S 5/2009 Wu et al.
7,570,215 B2 8/2009 Abramov et al.
D599,334 S 9/2009 Chiang
D606,053 S 12/2009 Wu et al.
D607,442 S 1/2010 Su et al.
D608,769 S 1/2010 Bufe
D612,368 S 3/2010 Yang et al.
7,705,783 B2 4/2010 Rao et al.

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

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

(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.

(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.

(Continued)

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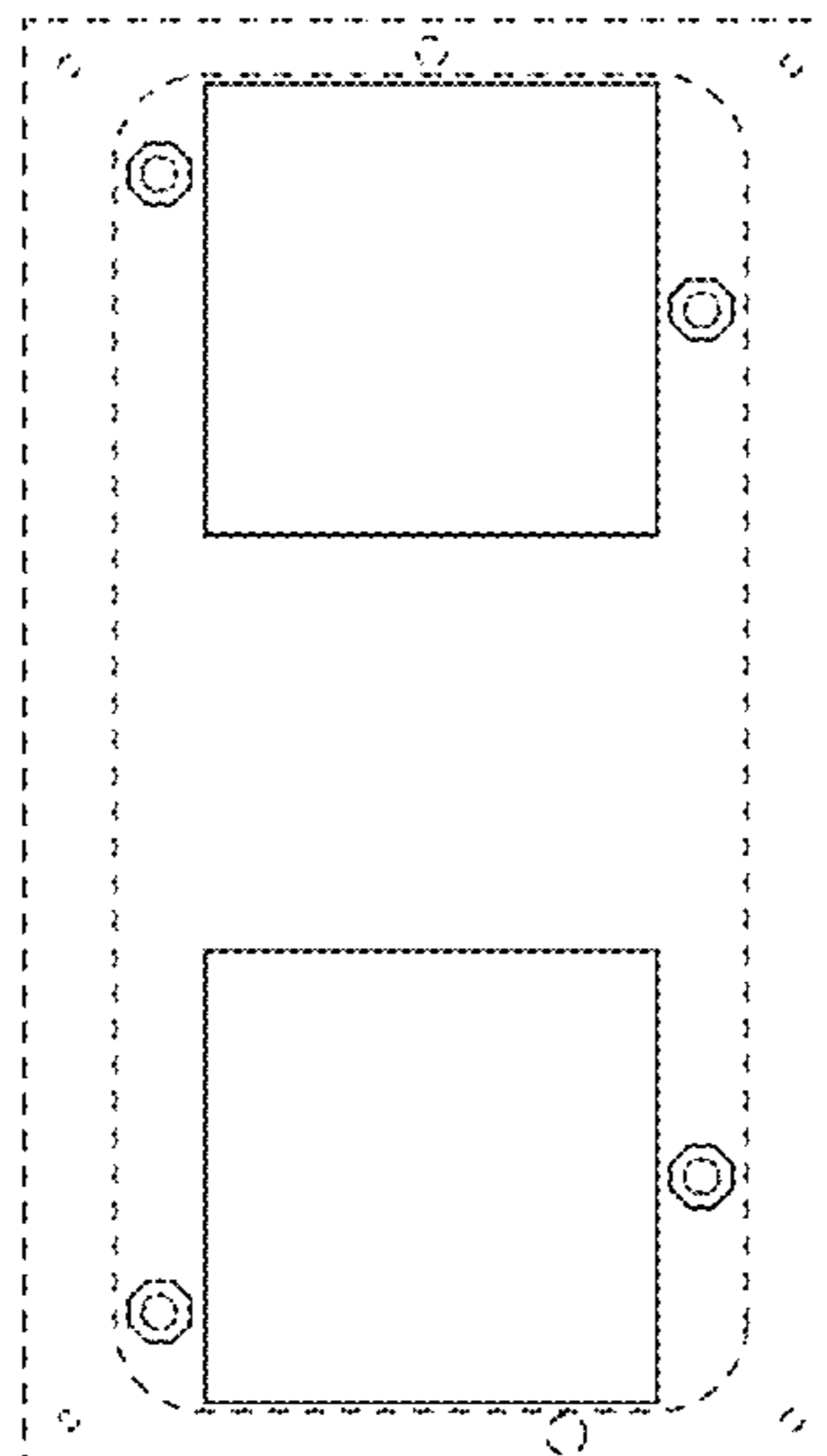
(57) **CLAIM**

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

DESCRIPTION

FIG. 1 is a top plan view of an antenna with a base in broken lines.
FIG. 2 is a side elevation view of the antenna of FIG. 1 with a base in broken lines.
FIG. 3 is a bottom plan view of the antenna of FIG. 1 with a base in broken lines.
FIG. 4 is an exploded perspective view of the antenna of FIG. 1.
FIG. 5 is a top plan view of the top elements of the antenna of FIG. 1; and,
FIG. 6 is a bottom plan view of the connector elements of the antenna of FIG. 1.
The broken lines in the drawings depict the unclaimed base portion of the antenna. The broken lines form no part of the claimed design.

1 Claim, 4 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

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

* cited by examiner

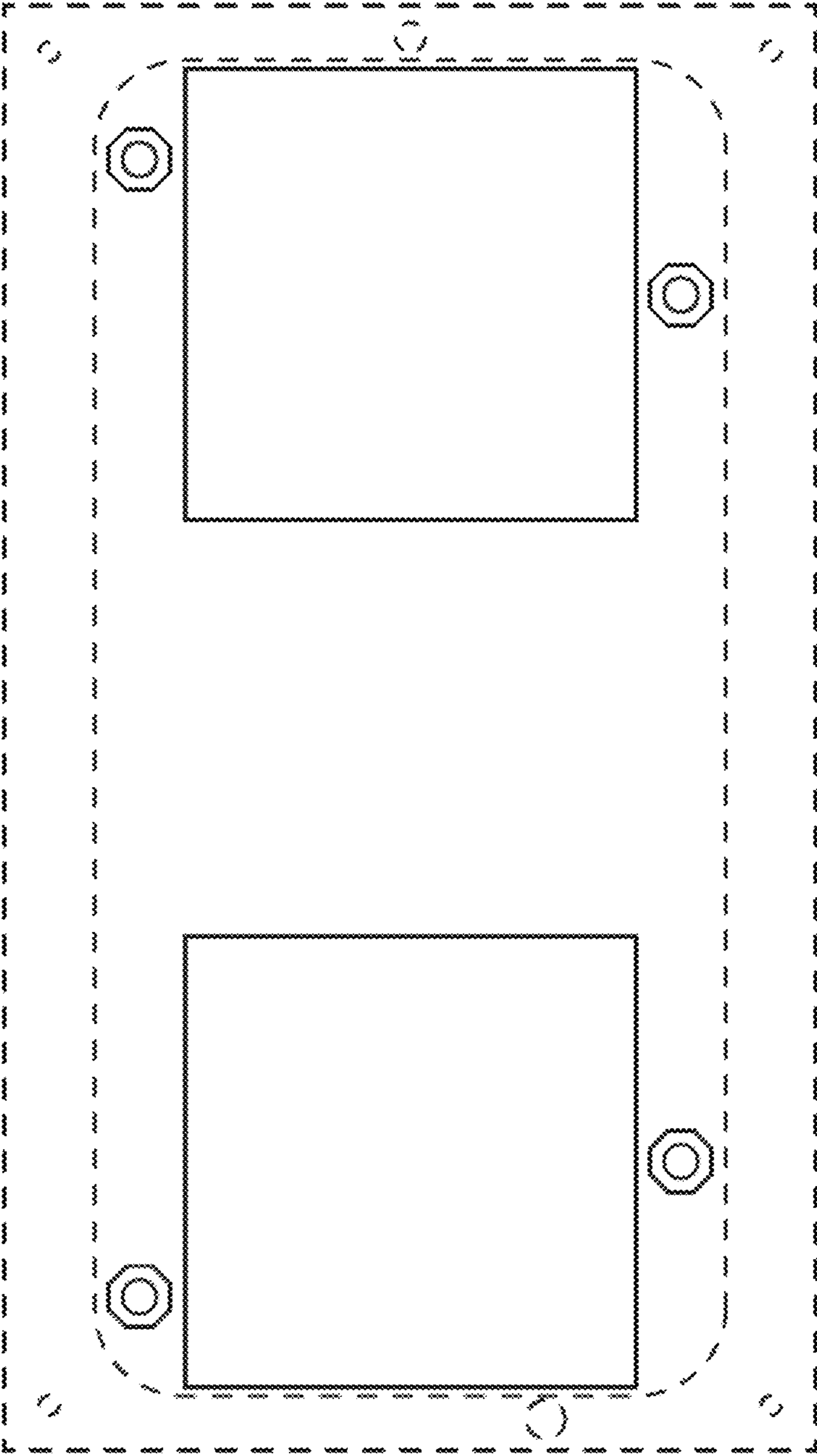


FIG. 1

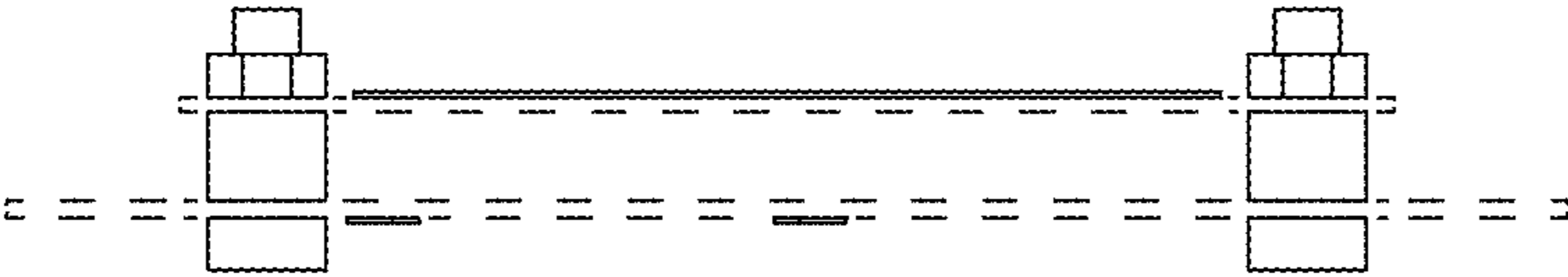


FIG. 2

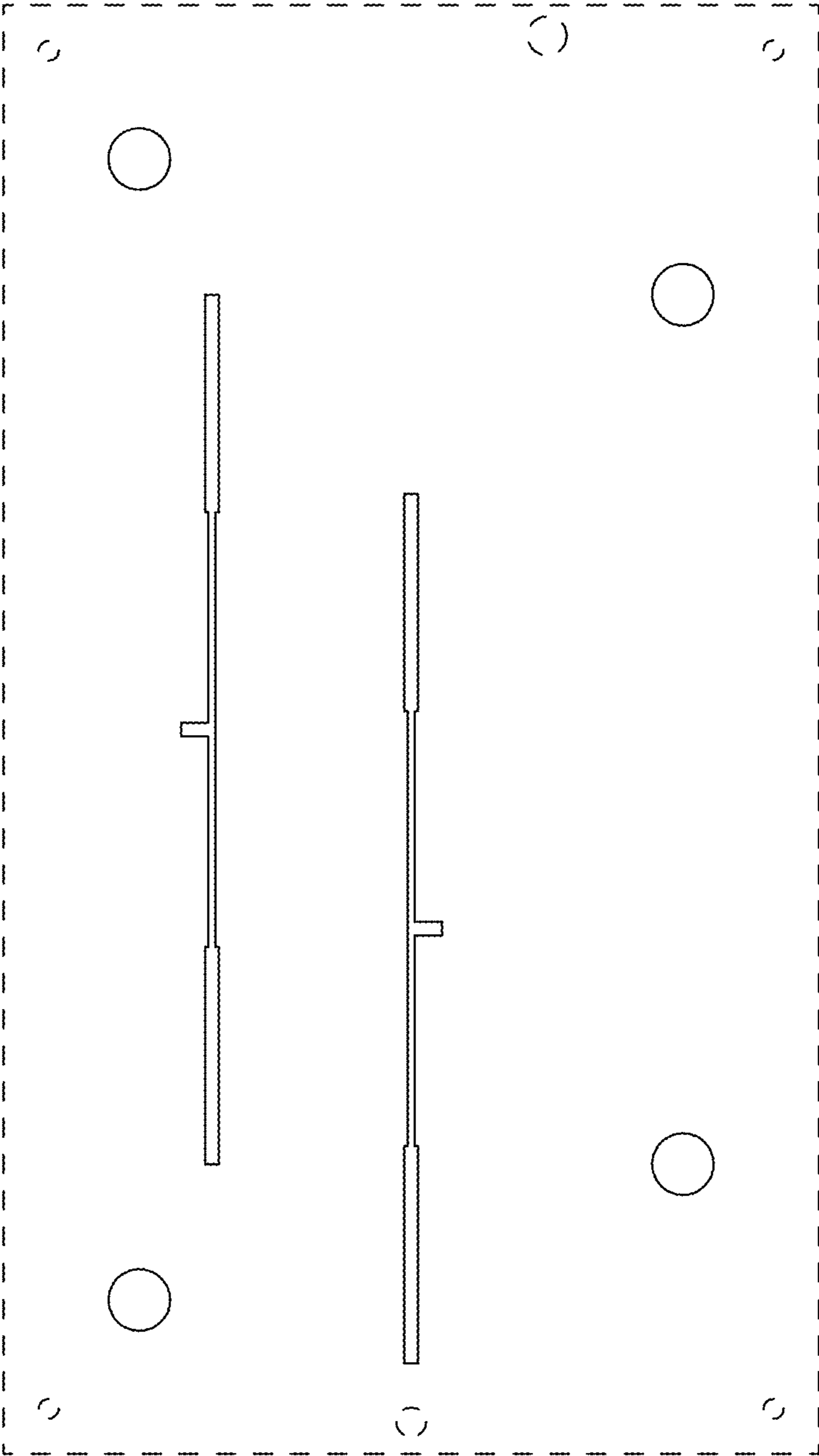


FIG. 3

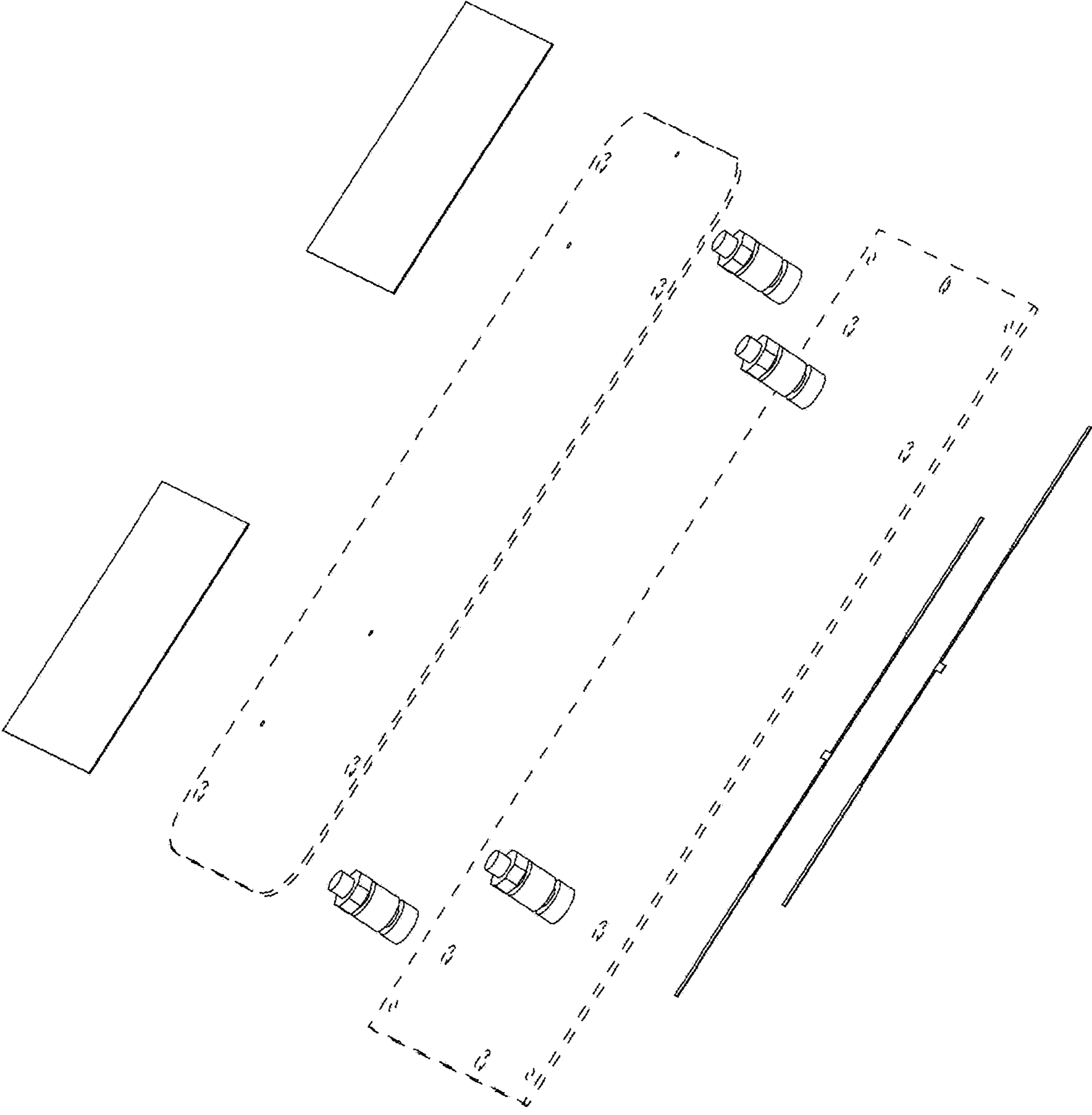


FIG. 4

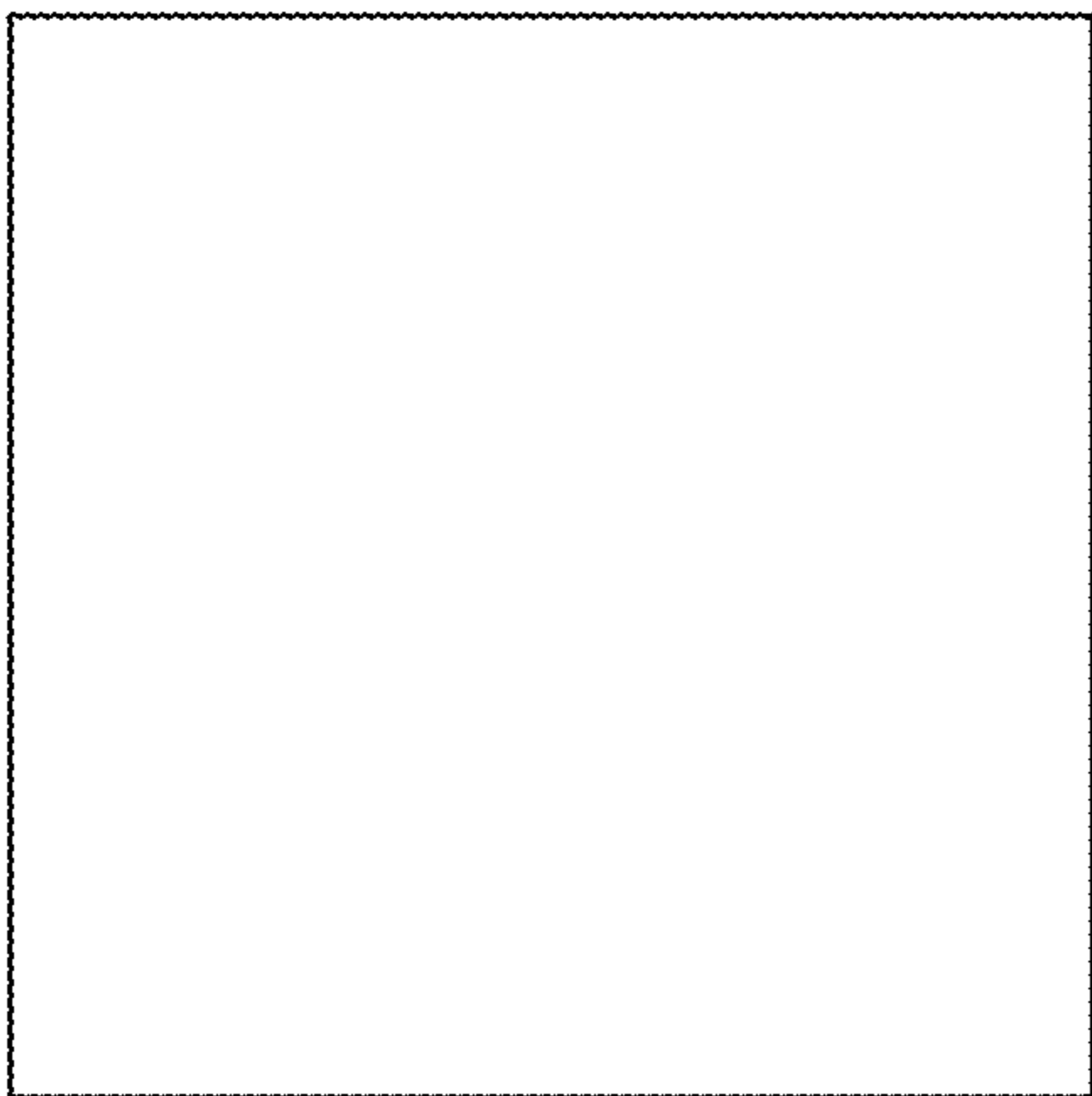
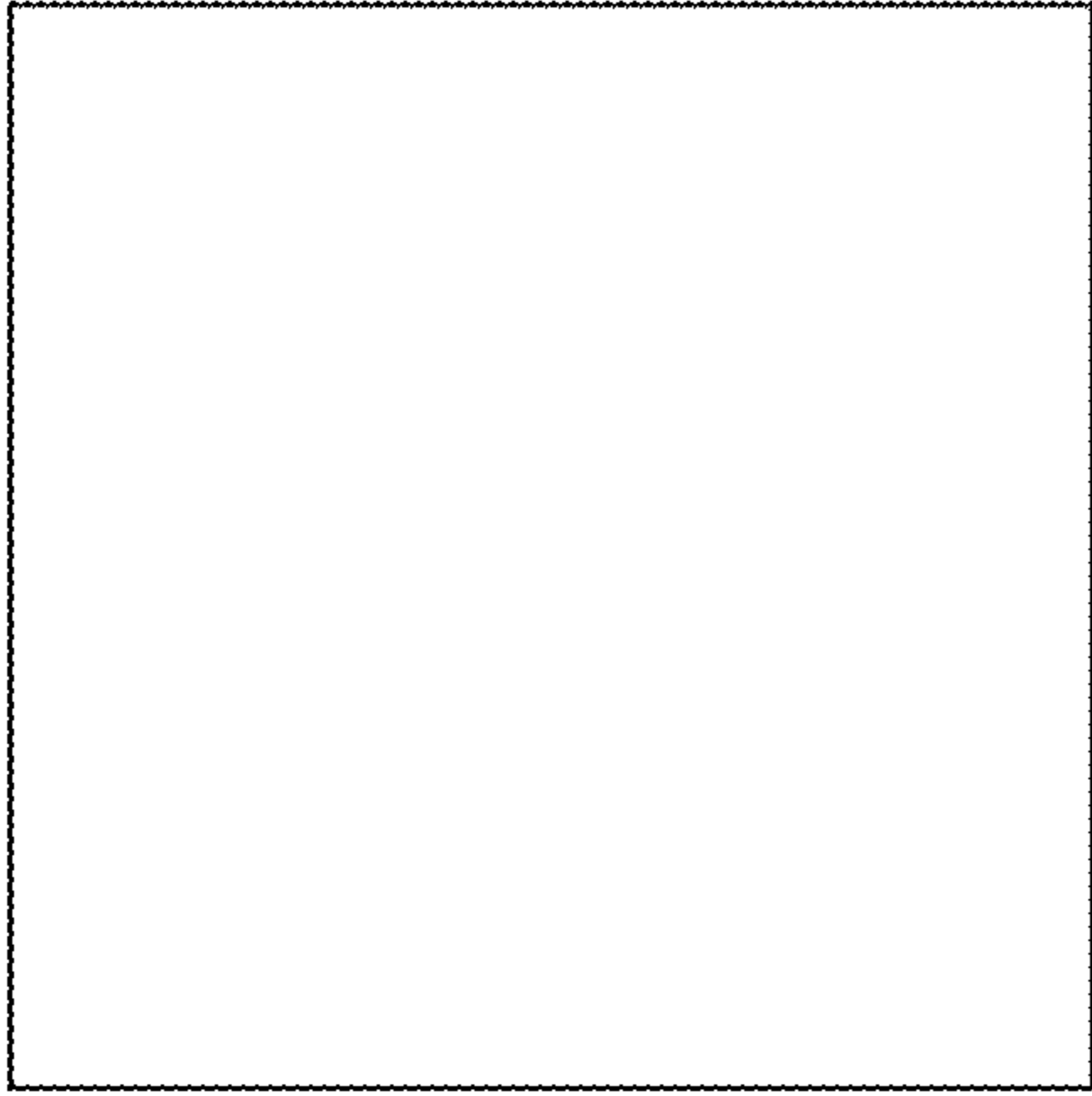


FIG. 5

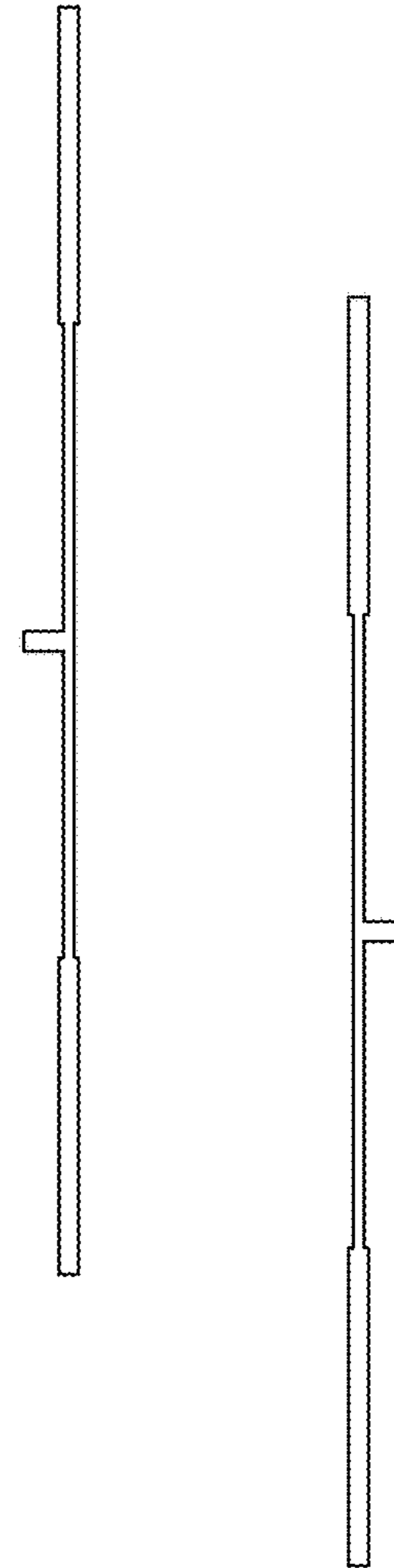


FIG. 6