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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.	

(Continued)

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

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

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

(58) **Field of Classification Search**  
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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;  
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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.

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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.

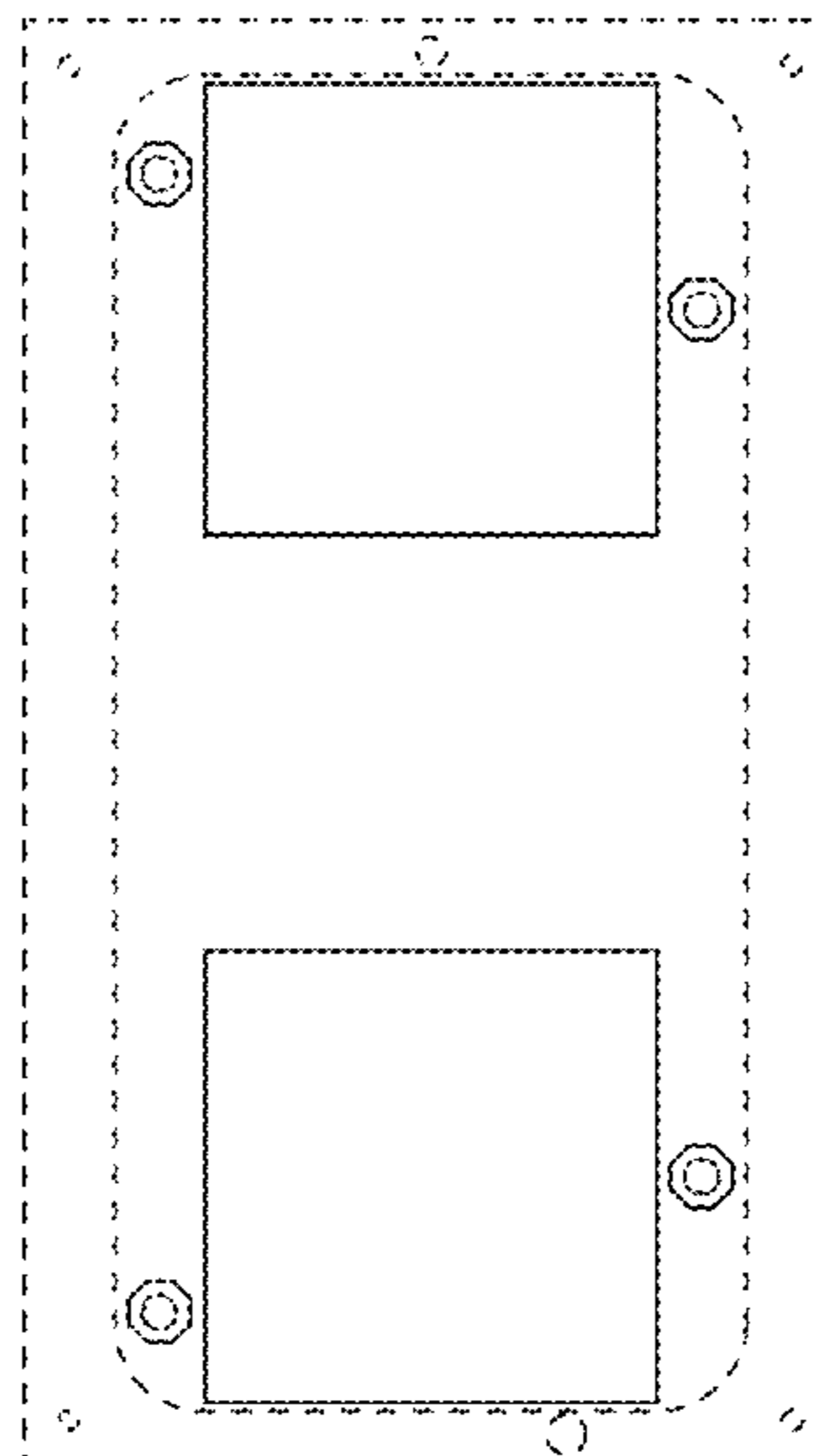
FIG. 4 is an exploded perspective view of the antenna of FIG. 1.

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

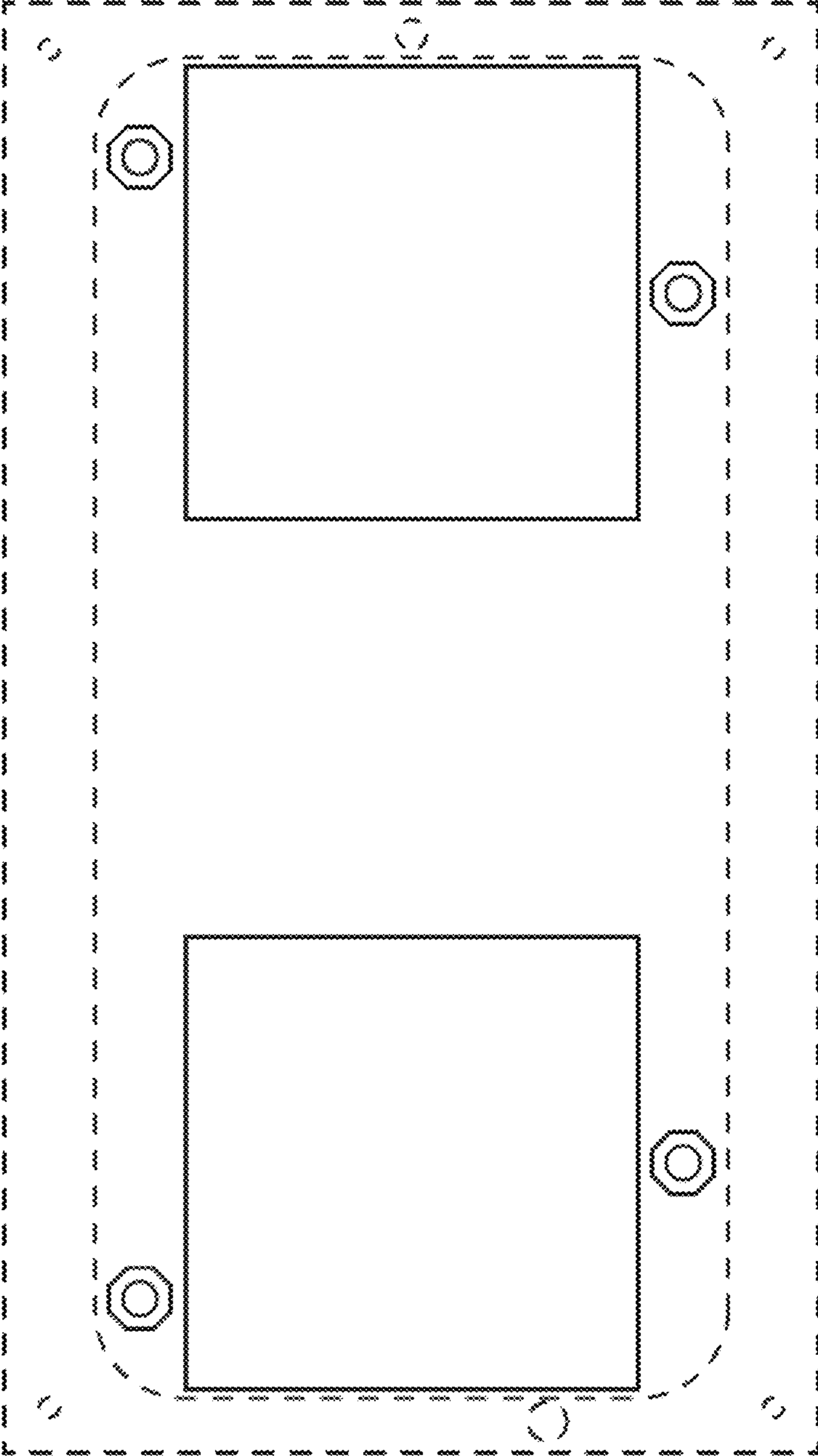


FIG. 1

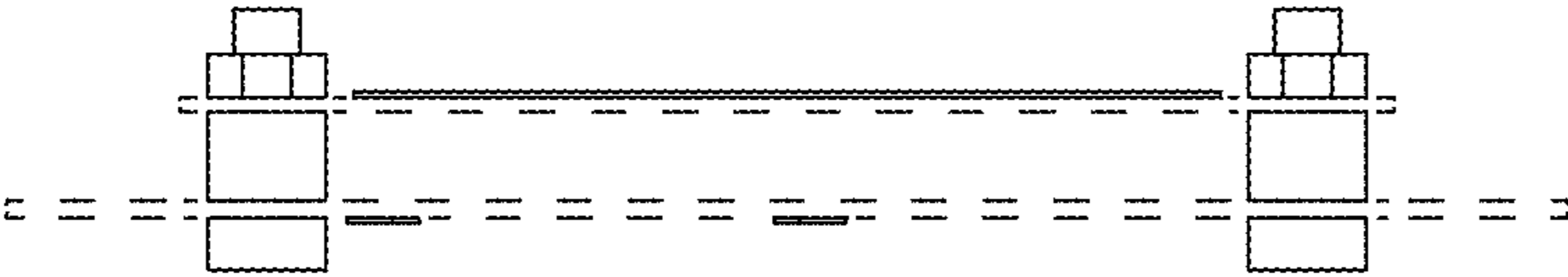


FIG. 2

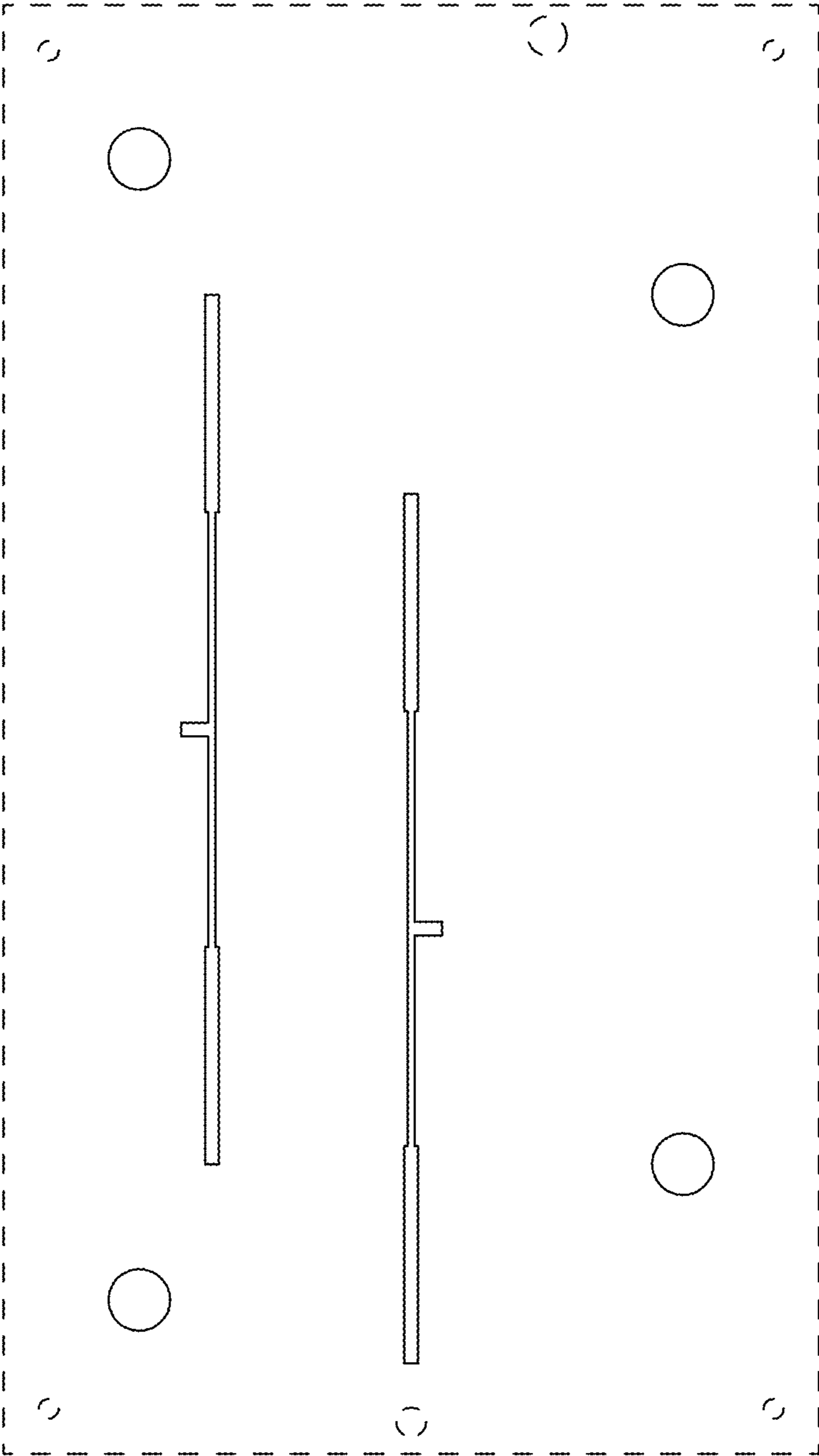


FIG. 3

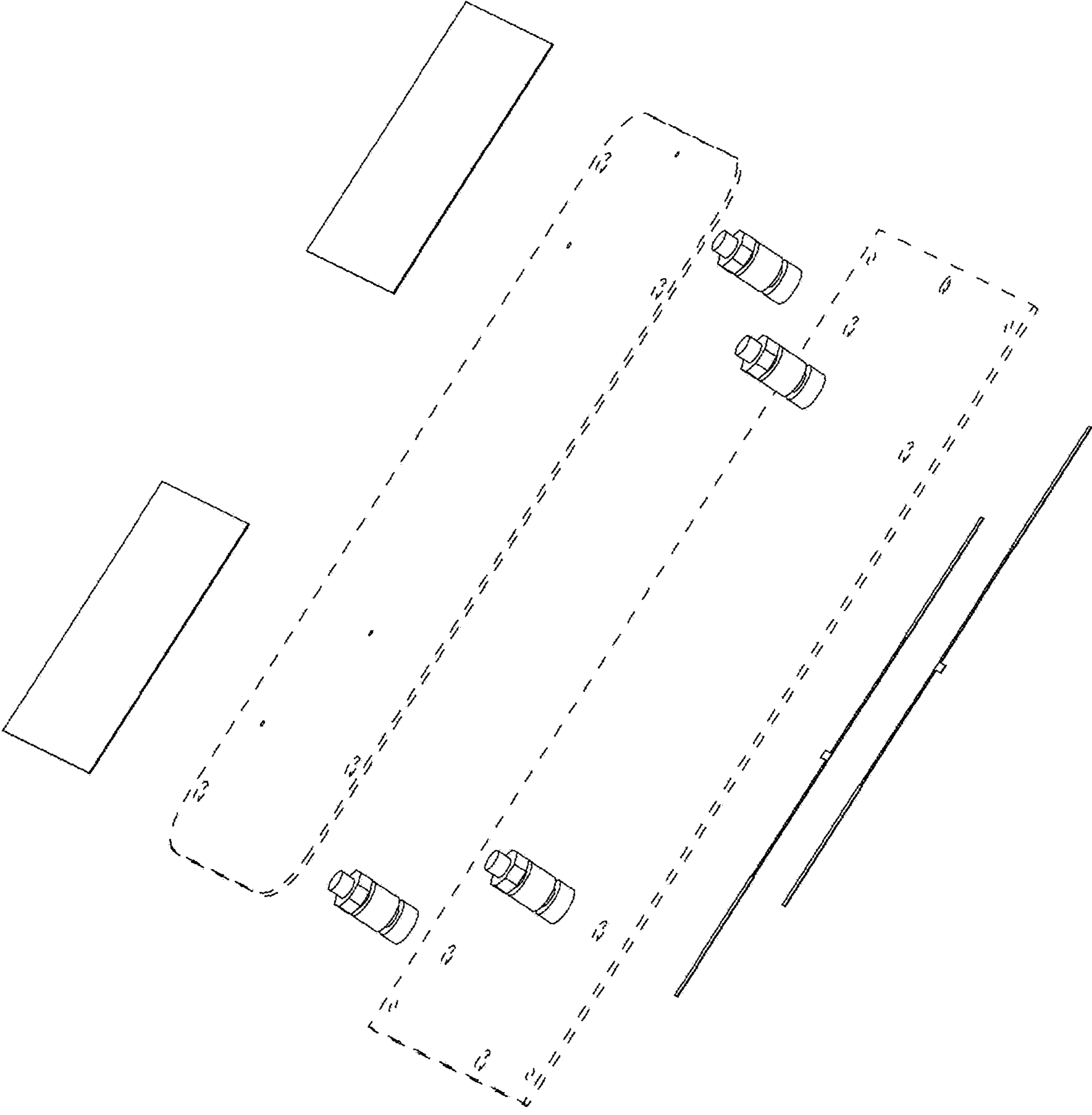


FIG. 4

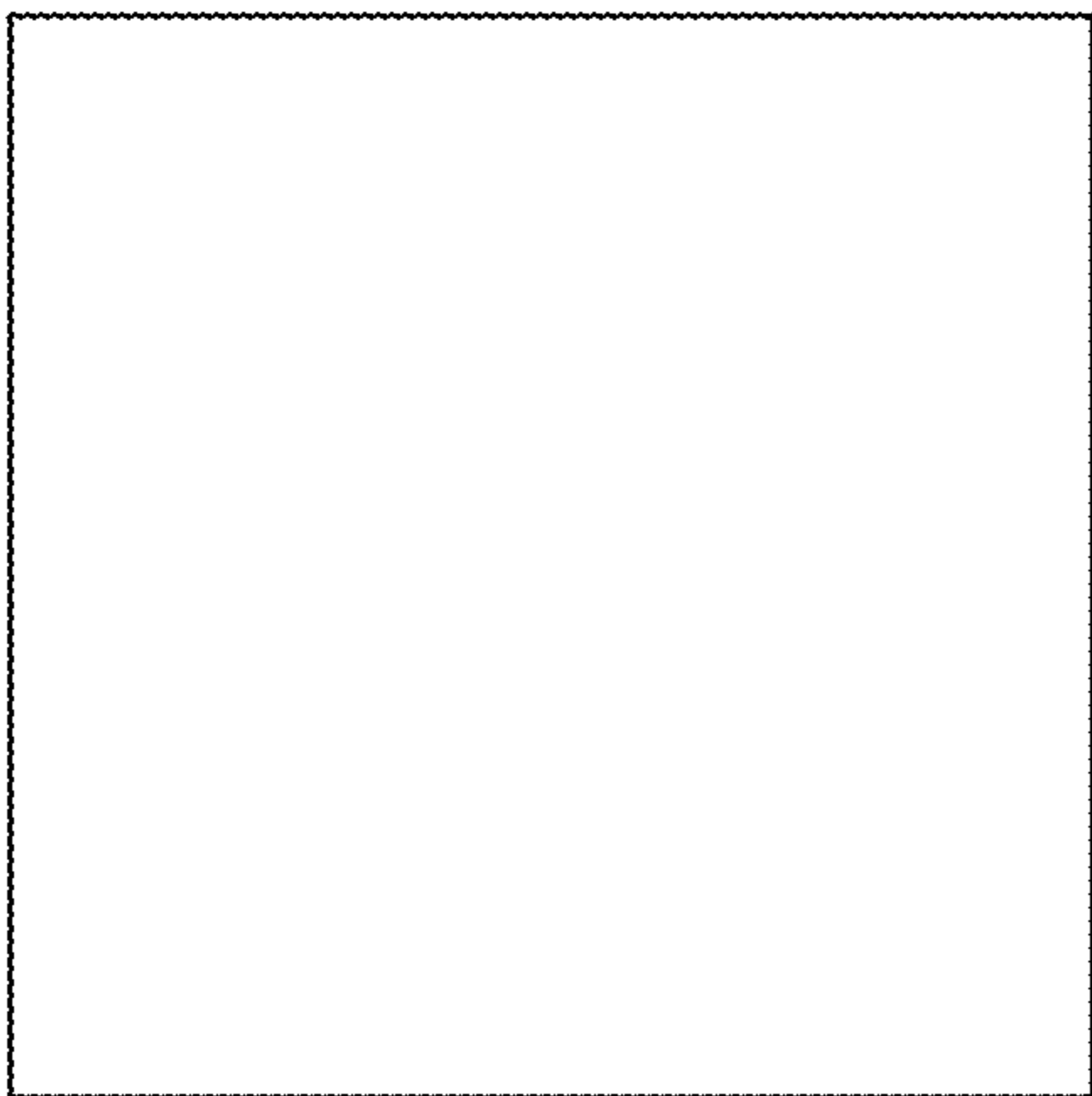
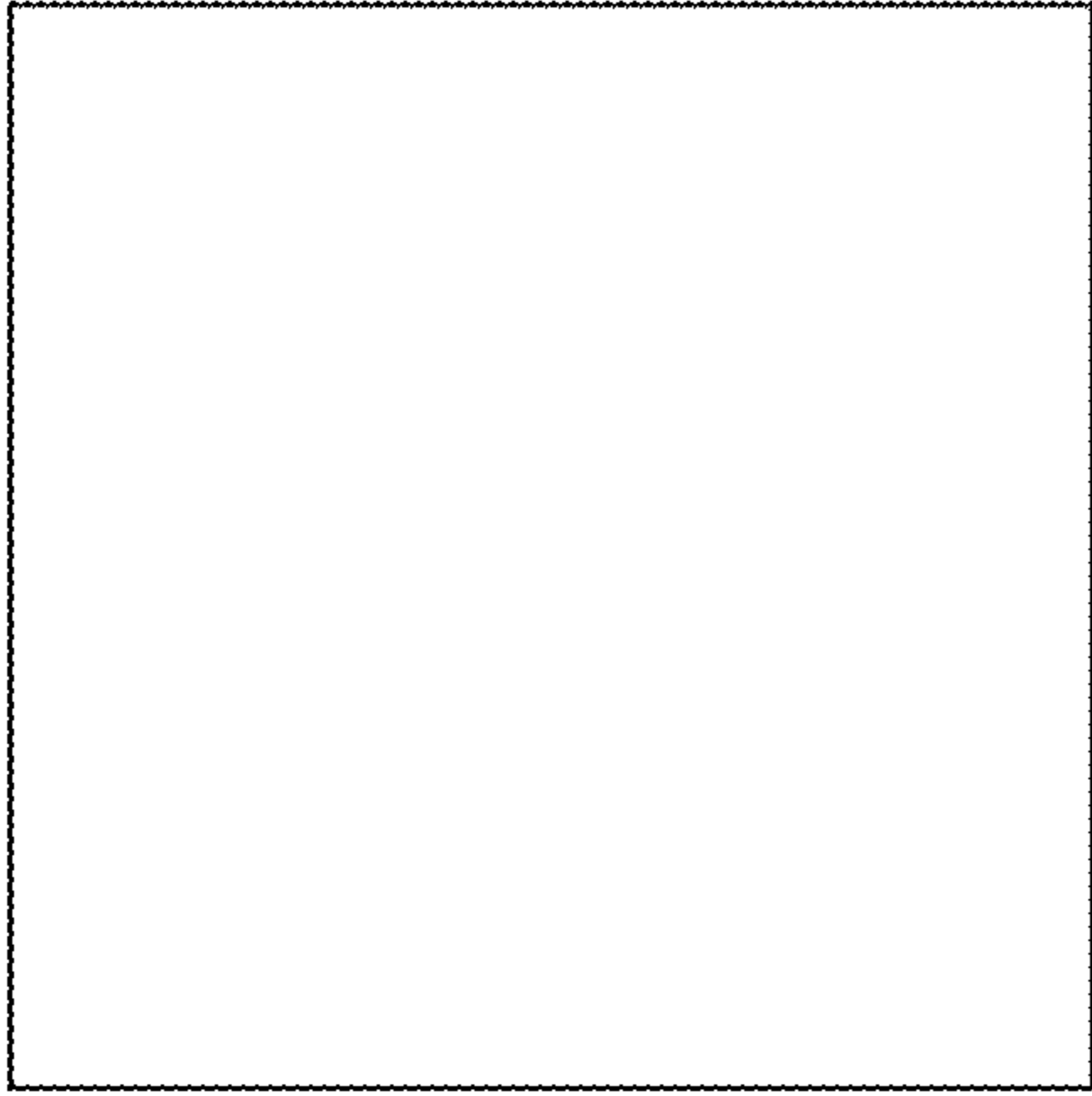


FIG. 5

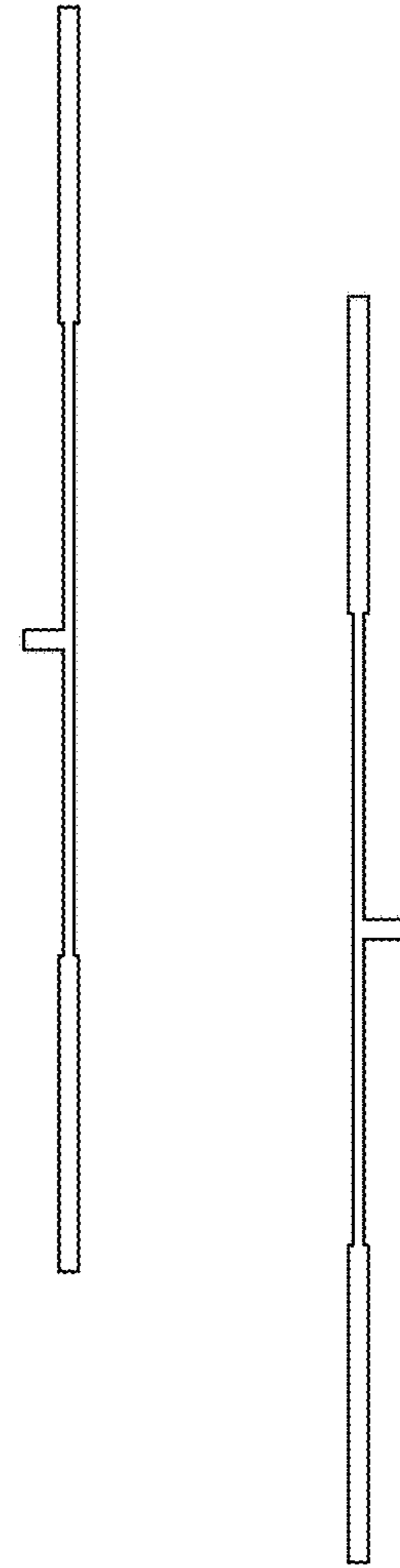


FIG. 6