



US00D788083S

(12) **United States Design Patent** (10) **Patent No.:** **US D788,083 S**  
**Zheng et al.** (45) **Date of Patent:** **\*\* May 30, 2017**

(54) **ANTENNA**(71) Applicant: **Airgain, Incorporated**, San Diego, CA  
(US)(72) Inventors: **Bei Zheng**, Zhang Jia Gang (CN);  
**Mengyi Tao**, Zhang Jia Gang (CN);  
**Ziming He**, Irvine, CA (US)(73) Assignee: **Airgain Incorporated**, San Diego, CA  
(US)(\*\*) Term: **15 Years**(21) Appl. No.: **29/540,024**(22) Filed: **Sep. 20, 2015**(51) LOC (10) Cl. .... **14-03**

(52) U.S. Cl.

USPC ..... **D14/230**(58) **Field of Classification Search**USPC ..... D14/138, 230–238.1, 299, 358;  
D12/42–43; D13/182; D8/396;

248/68.1

CPC ..... H01L 33/48; H01L 33/486; H01L 23/02;  
H05K 5/00; H01Q 13/10; H01Q 7/00;  
F16L 3/2235; F16L 3/227; Y10T

403/7141

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.
D573,589 S	7/2008	Montgomery et al.
7,405,704 B1	7/2008	Lin et al.
7,477,195 B2	1/2009	Vance

D589,035 S \* 3/2009 Hellgren ..... D14/230  
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 Bufo  
D612,368 S 3/2010 Yang et al.  
7,705,783 B2 4/2010 Rao et al.  
7,729,662 B2 6/2010 Abramov et al.  
D621,819 S 8/2010 Tsai et al.  
7,843,390 B2 11/2010 Liu

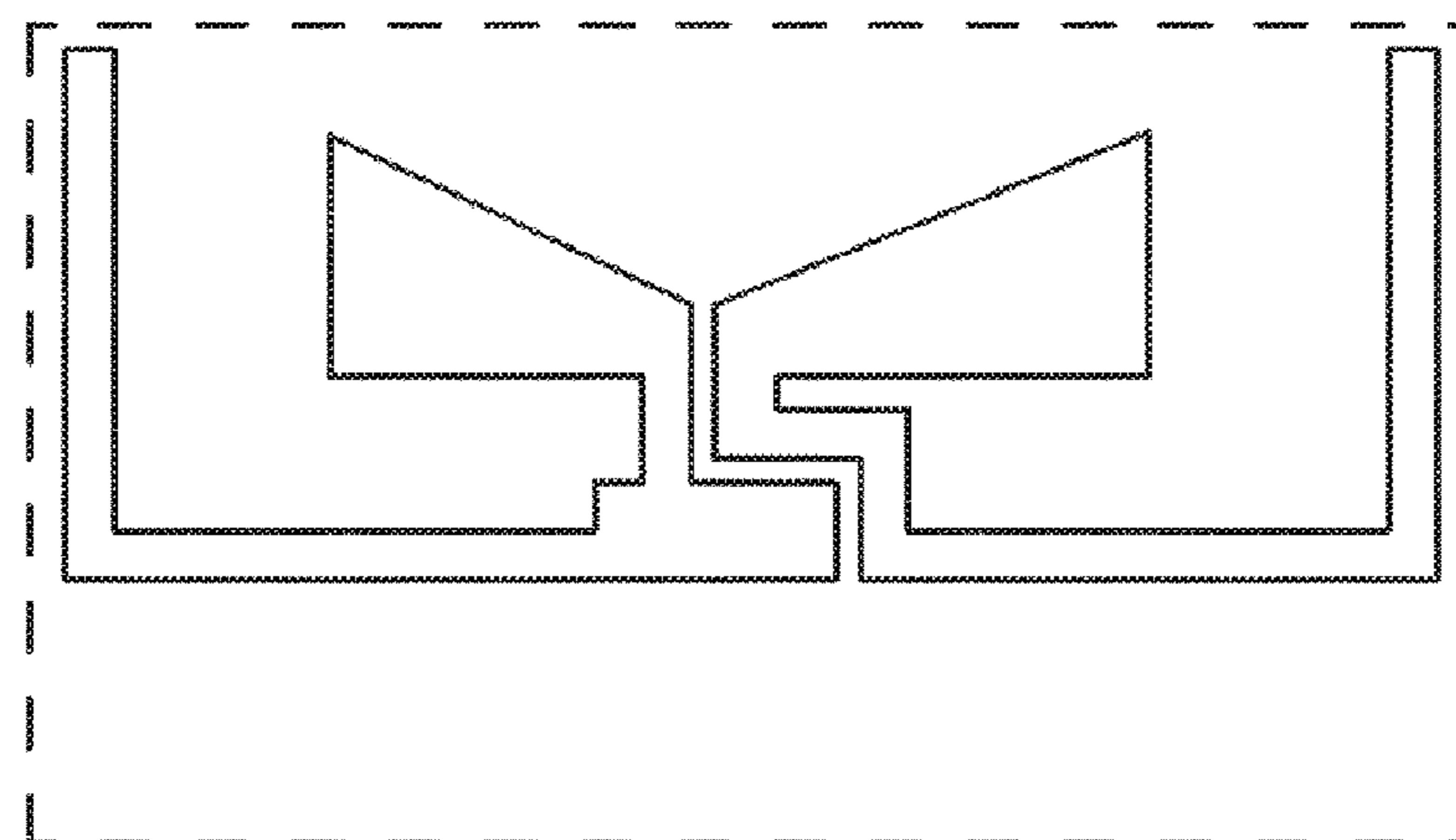
(Continued)

*Primary Examiner* — Catherine Tuttle*Assistant Examiner* — Mary Malley(74) *Attorney, Agent, or Firm* — Clause Eight IPS;  
Michael Catania(57) **CLAIM**

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

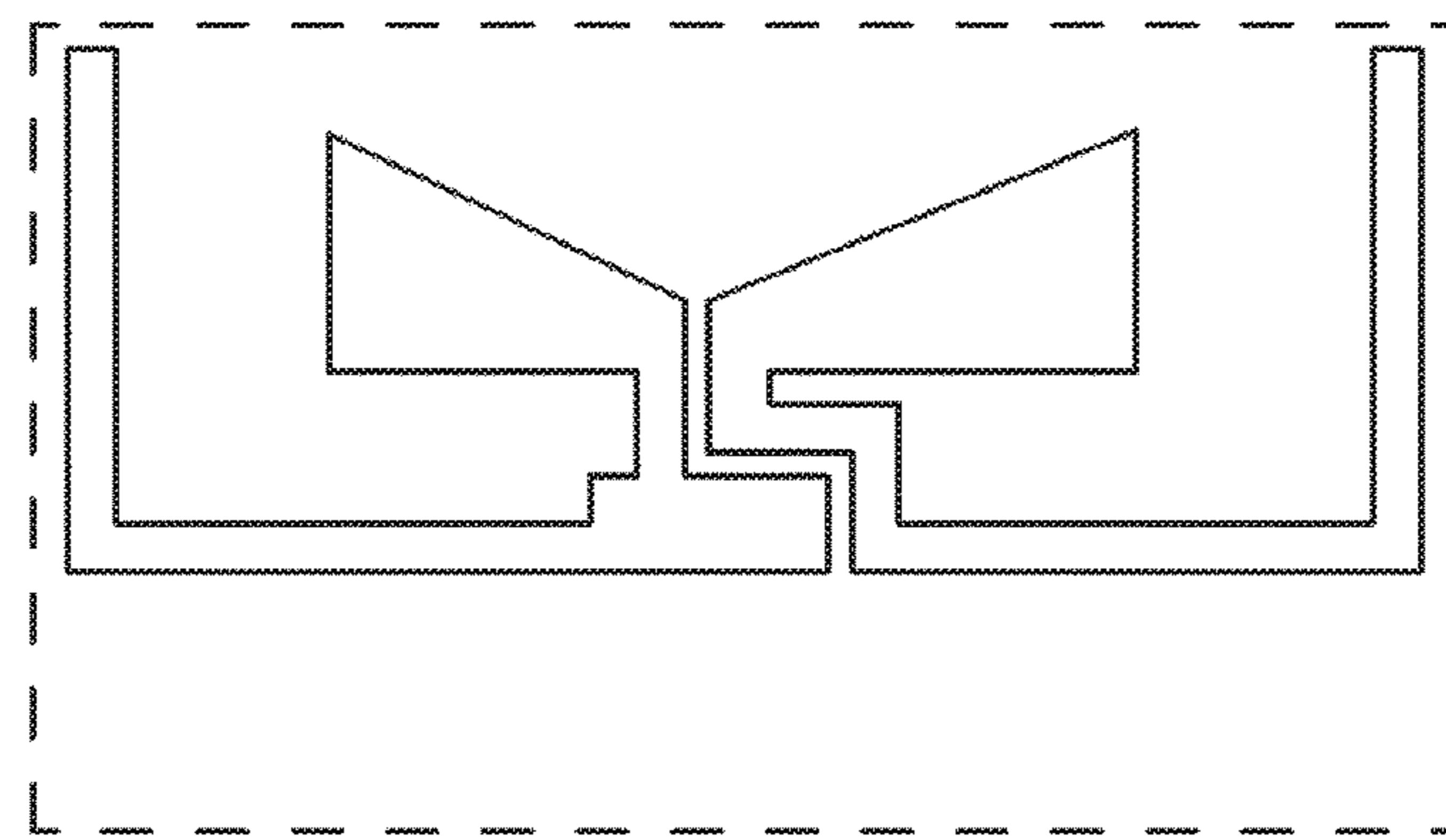
**DESCRIPTION**

FIG. 1 is a top plan view of an antenna showing our new design together with a base in broken lines;  
FIG. 2 is a side elevation view thereof;  
FIG. 3 is a front elevation view thereof;  
FIG. 4 is bottom plan view thereof;  
FIG. 5 is a top perspective view thereof;  
FIG. 6 is a top plan view of the antenna without the unclaimed base structure;  
FIG. 7 is a front elevation view thereof;  
FIG. 8 is a top plan view showing our design in the context of an alternative unclaimed base structure;  
FIG. 9 is a side elevation view thereof;  
FIG. 10 is a front elevation view thereof;  
FIG. 11 is bottom plan view thereof; and,  
FIG. 12 is a top perspective view thereof.  
The broken lines are for illustrative purposes only and form no part of the claimed design.

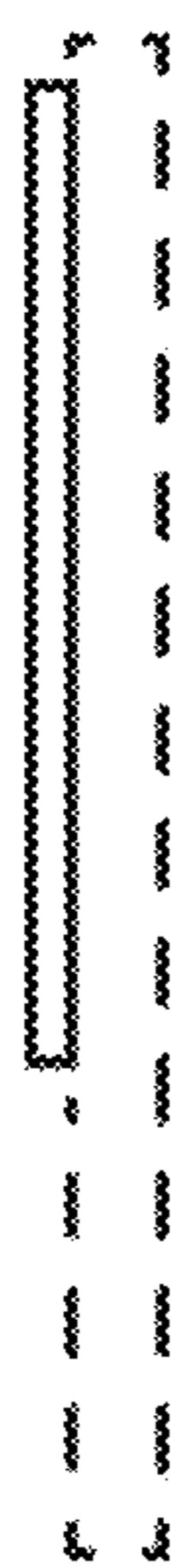
**1 Claim, 8 Drawing Sheets**

(56)	References Cited						
U.S. PATENT DOCUMENTS							
D633,483 S	3/2011	Su et al.	D708,602 S	7/2014	Gosalia et al.		
D635,127 S	3/2011	Tsai et al.	D709,053 S	7/2014	Chang et al.		
7,907,971 B2	3/2011	Salo et al.	D710,832 S	8/2014	Yang		
D635,560 S	4/2011	Tsai et al.	D710,833 S	8/2014	Zheng et al.		
D635,963 S	4/2011	Podduturi	8,854,265 B1	10/2014	Yang et al.		
D635,964 S	4/2011	Podduturi	D716,775 S	11/2014	Bidermann		
D635,965 S	4/2011	Mi et al.	D764,446 S	*	8/2016 Chang .....	D14/230	
D636,382 S	4/2011	Podduturi	D766,221 S	*	9/2016 Zheng .....	D14/230	
7,965,242 B2	6/2011	Abramov et al.	D766,882 S	*	9/2016 Schulteis .....	D14/230	
D649,962 S	12/2011	Tseng et al.	D766,883 S	*	9/2016 Yang .....	D14/230	
D651,198 S	12/2011	Mi et al.	D766,884 S	*	9/2016 Zheng .....	D14/240	
D654,059 S	2/2012	Mi et al.	2002/0003499 A1	1/2002	Kouam et al.		
D654,060 S	2/2012	Ko et al.	2004/0222936 A1	11/2004	Hung et al.		
D658,639 S	5/2012	Huang et al.	2005/0073462 A1	4/2005	Lin et al.		
D659,129 S	5/2012	Mi et al.	2005/0190108 A1	9/2005	Lin et al.		
D659,685 S	5/2012	Huang et al.	2006/0077113 A1*	4/2006	Yuanzhu .....	H01Q 9/0457	
D659,688 S	5/2012	Huang et al.				343/770	
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	Mumbru 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		257/99
D685,772 S	7/2013	Zheng et al.	2012/0229348 A1	9/2012	Chiang		343/749
D686,600 S	7/2013	Yang	2012/0242546 A1	9/2012	Hu et al.		
D689,474 S	9/2013	Yang et al.	2014/0061712 A1*	3/2014	Lin .....	H01L 33/387	
D692,870 S	11/2013	He				343/866	
D694,738 S	12/2013	Yang	2015/0162664 A1*	6/2015	Kawata .....	H01Q 1/38	
D695,279 S	12/2013	Yang et al.				257/98	
D695,280 S	12/2013	Yang et al.	2015/0295314 A1*	10/2015	Oh .....	H01Q 1/243	
D703,195 S	4/2014	Zheng				343/702	
D703,196 S	4/2014	Zheng	2016/0035947 A1*	2/2016	Hsing Chen .....	H01L 33/54	
D706,247 S	6/2014	Zheng et al.				257/98	
D706,750 S	6/2014	Bringuer	2016/0049734 A1*	2/2016	Kim .....	H01Q 13/16	
D706,751 S	6/2014	Chang et al.				343/702	
			2016/0211207 A1*	7/2016	Lin .....	H05K 1/02	

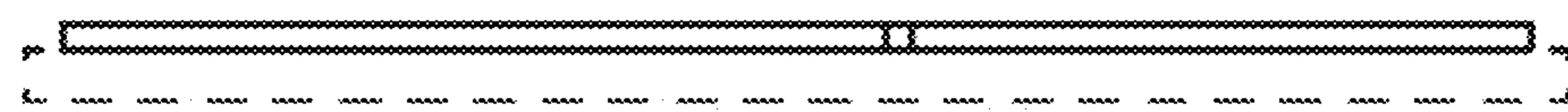
\* cited by examiner



**FIG. 1**



**FIG. 2**



**FIG. 3**



FIG. 4

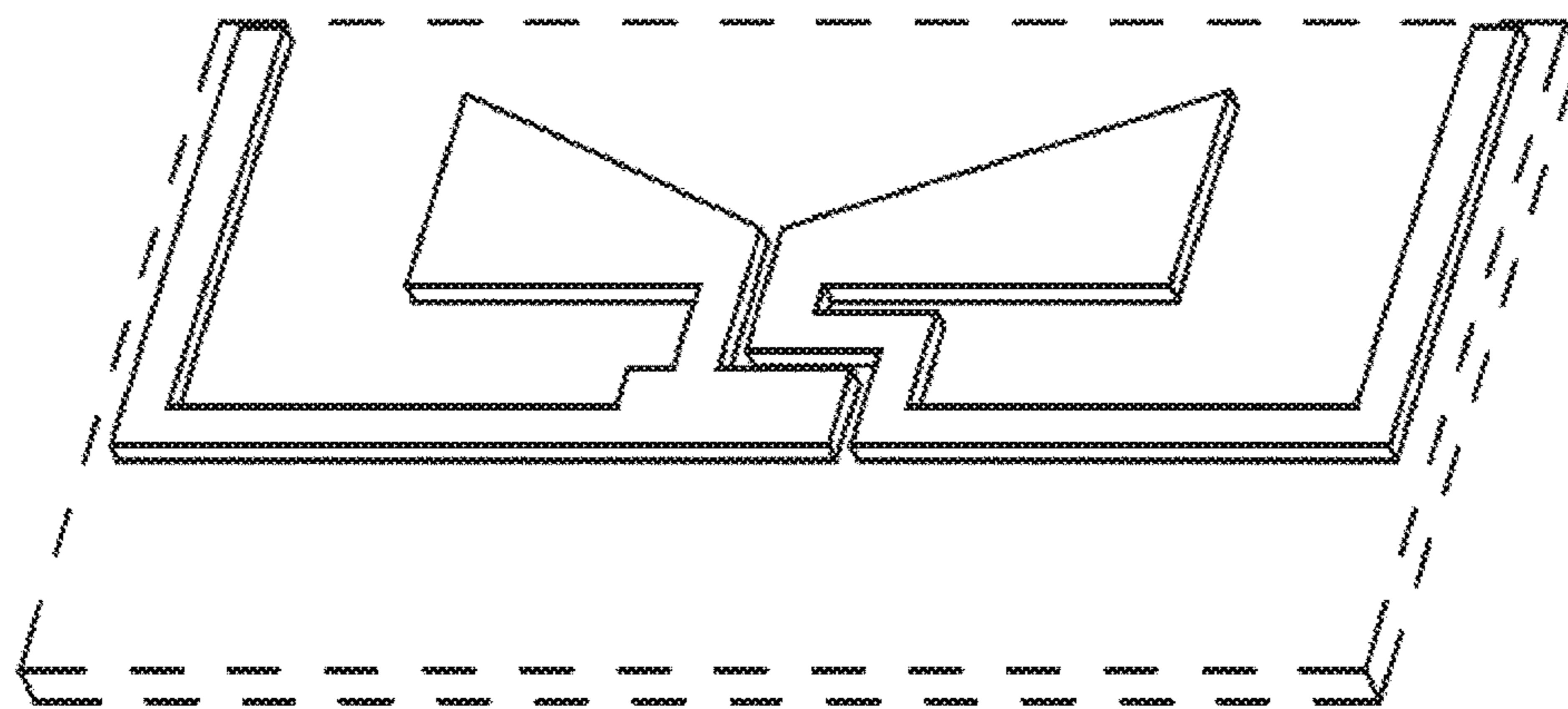
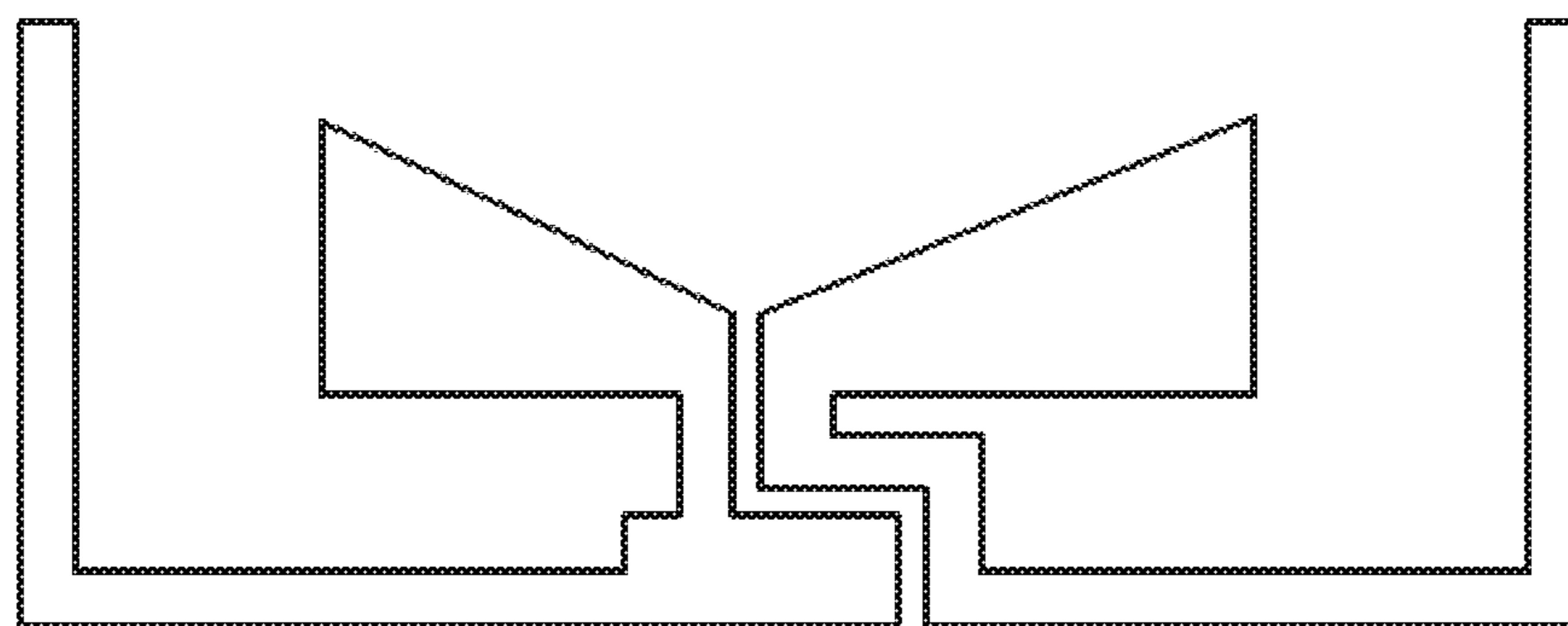


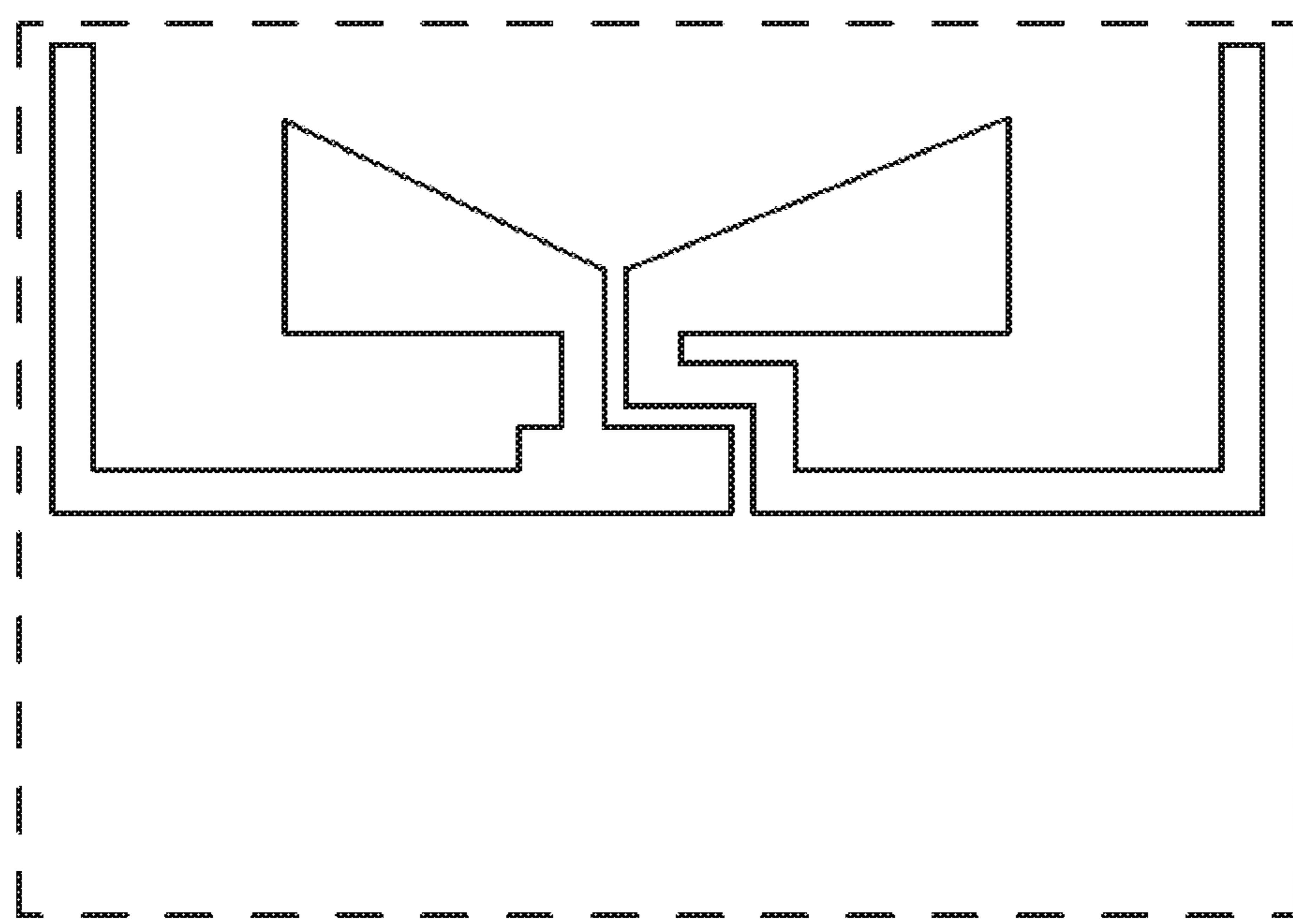
FIG. 5



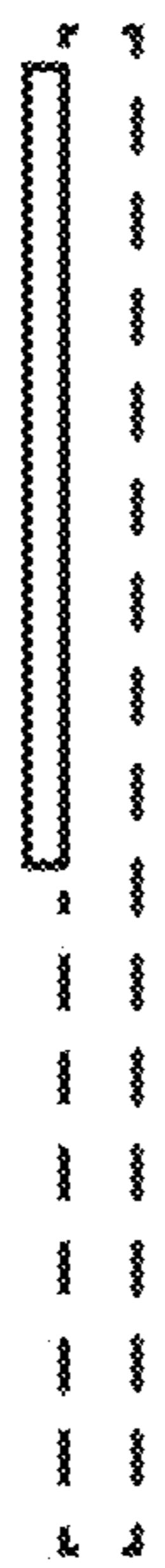
**FIG. 6**



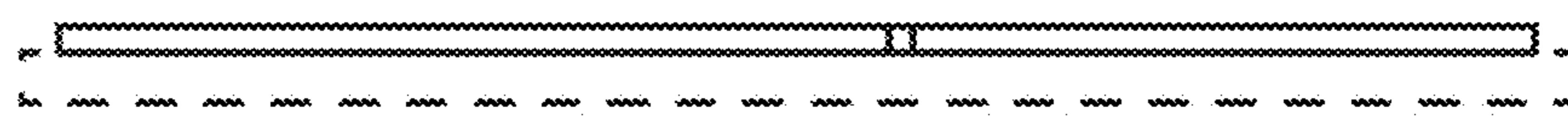
**FIG. 7**



**FIG. 8**



**FIG. 9**



**FIG. 10**



**FIG. 11**

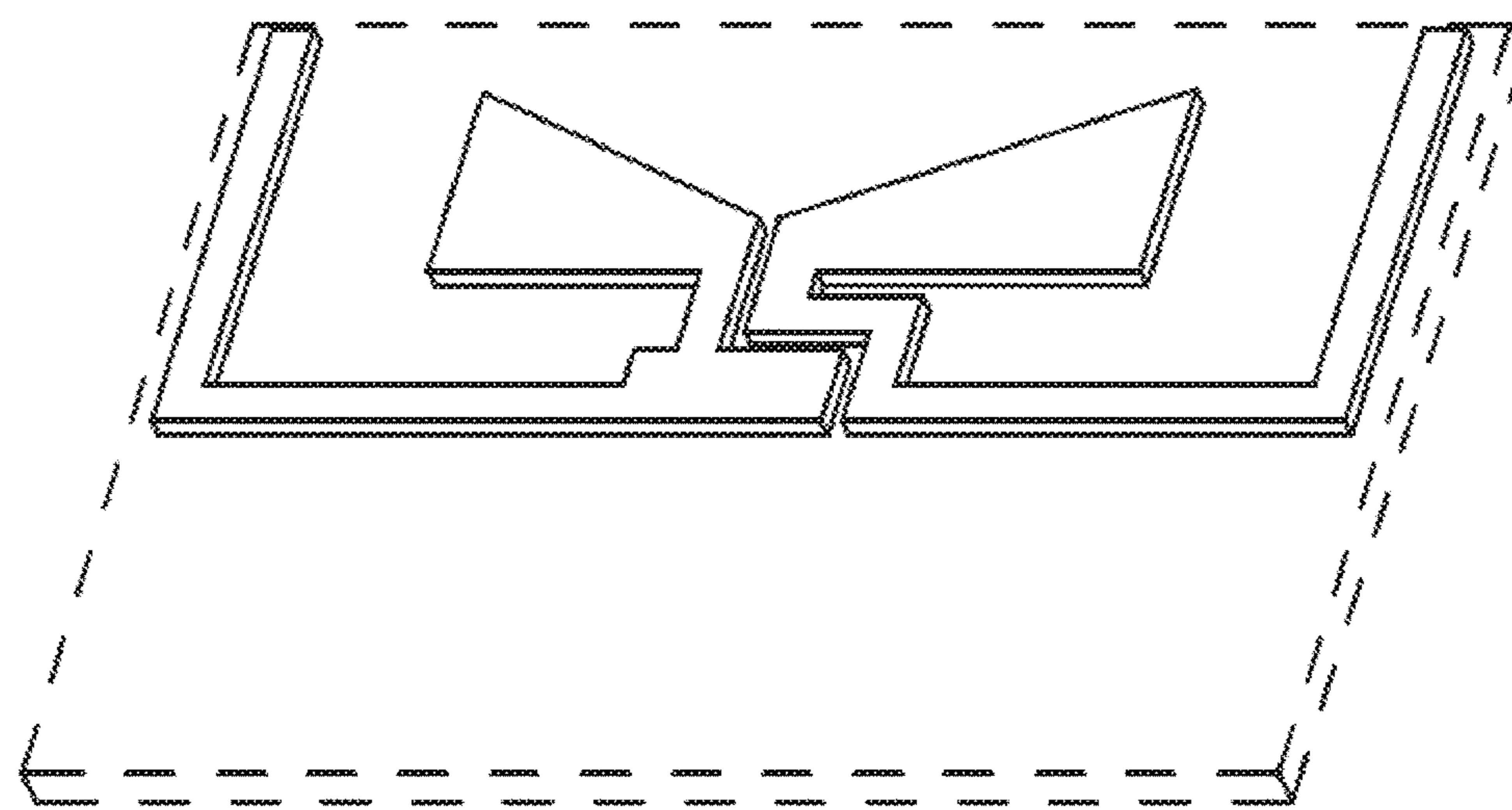


FIG. 12