



US00D767542S

(12) **United States Design Patent** (10) **Patent No.:** **US D767,542 S**
Chang et al. (45) **Date of Patent:** **** Sep. 27, 2016**

(54) **ANTENNA**

FOREIGN PATENT DOCUMENTS

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CN 302703462 * 1/2014
CN 302857080 * 6/2014
JP D1145610 * 7/2002

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OTHER PUBLICATIONS

M2M: Why paying for an embedded GSM antenna if you can get the antenna for free?, post date Dec. 10, 2011, online, <http://m2m.com/thread/1751>, [site visited Nov. 30, 2015 7:06:11 PM].*

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

Assistant Examiner — John R Yeh

(21) Appl. No.: **29/504,610**

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(22) Filed: **Oct. 8, 2014**

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

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

(58) **Field of Classification Search**
USPC D14/230, 299, 358, 427, 459-460, 344,
D14/203.5

CPC H01Q 1/38; H01Q 1/24; H01Q 9/04;
H01Q 9/24; H01Q 9/16; H01Q 5/00; H01Q
9/28; H01Q 1/50

See application file for complete search history.

(57) **CLAIM**

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

DESCRIPTION

FIG. 1 is a front elevational view of an antenna with a cover in broken lines.

FIG. 2 is a side elevational view of the antenna of FIG. 1 with a cover in broken lines.

FIG. 3 is a bottom plan view of the antenna of FIG. 1 with a cover in broken lines;

FIG. 4 is a rear elevational plan view of the antenna of FIG. 1 with a cover in broken lines.

FIG. 5 is a top perspective view of the antenna of FIG. 1 with a cover in broken lines.

FIG. 6 is a front elevational view of the antenna of FIG. 1.

FIG. 7 is a side elevational view of the antenna of FIG. 1; and,

FIG. 8 is a bottom plan view of the antenna of FIG. 1. The broken lines are for illustration purposes only and form no part of the claimed invention.

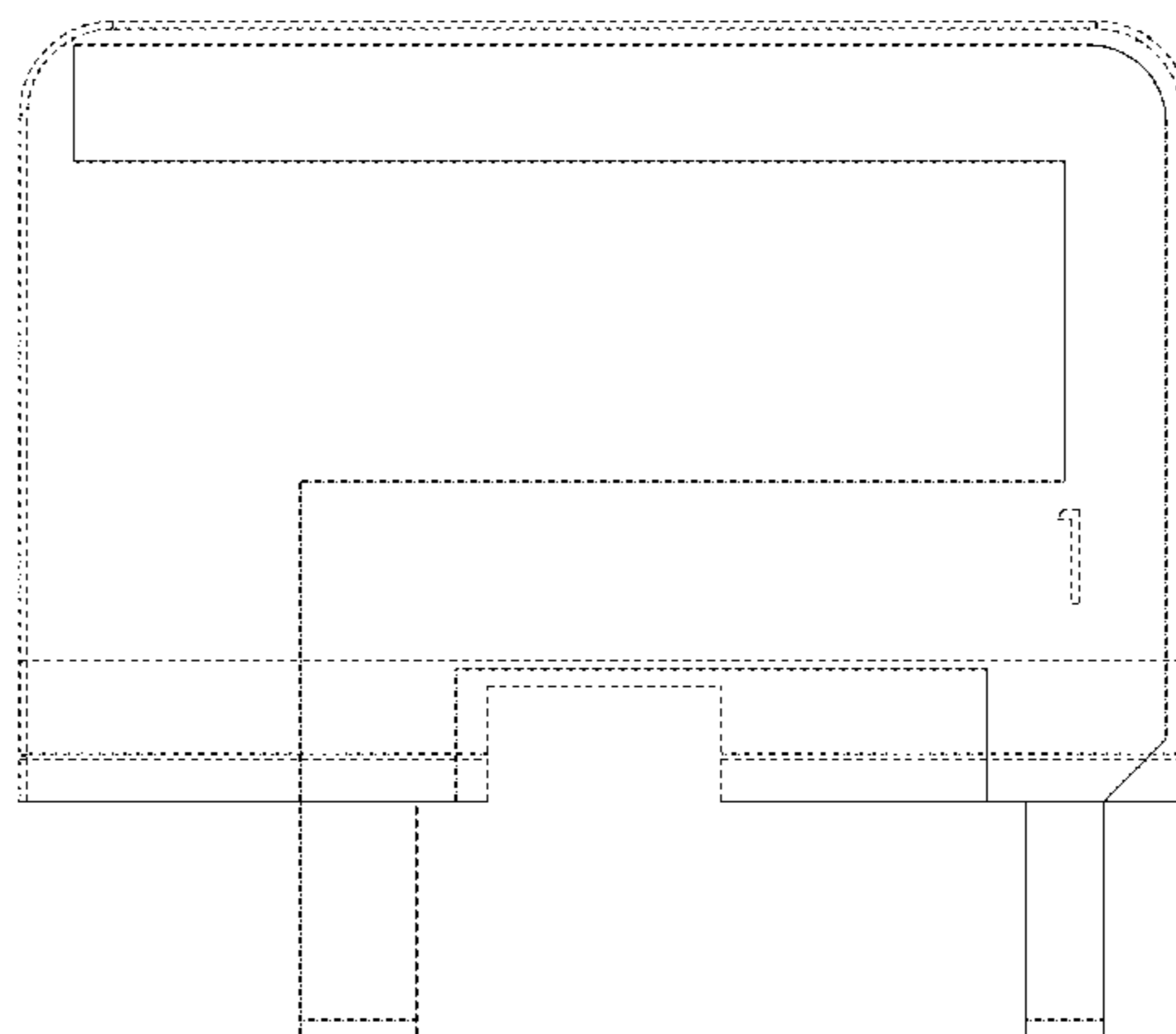
(56) **References Cited**

U.S. PATENT DOCUMENTS

1,765,438	A *	6/1930	Meissner	H01Q 9/28 333/27
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		

(Continued)

1 Claim, 8 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D589,035 S *	3/2009	Hellgren	D14/230	D706,247 S	6/2014	Zheng et al.	
D592,195 S	5/2009	Wu et al.		D706,750 S	6/2014	Bringuir	
D594,445 S *	6/2009	Kato	D14/230	D706,751 S	6/2014	Chang et al.	
7,570,215 B2	8/2009	Abramov et al.		8,760,357 B2 *	6/2014	Kim	H01Q 1/243 343/700 MS
D599,334 S *	9/2009	Chiang	D14/230	D708,602 S	7/2014	Gosalia et al.	
D606,053 S	12/2009	Wu et al.		D709,053 S	7/2014	Chang et al.	
D607,442 S	1/2010	Su et al.		D710,832 S	8/2014	Yang	
D608,769 S	1/2010	Bufe		D710,833 S *	8/2014	Zheng	D14/230
D612,368 S	3/2010	Yang et al.		8,854,265 B1	10/2014	Yang et al.	
7,705,783 B2	4/2010	Rao et al.		D716,775 S	11/2014	Bidermann	
7,729,662 B2	6/2010	Abramov et al.		2002/0003499 A1	1/2002	Kouarn et al.	
D621,819 S	8/2010	Tsai et al.		2004/0075611 A1 *	4/2004	Kenoun	H01Q 1/243 343/702
7,843,390 B2	11/2010	Liu		2004/0222936 A1 *	11/2004	Hung	H01Q 1/38 343/795
D633,483 S	3/2011	Su et al.		2005/0073462 A1	4/2005	Lin et al.	
D635,127 S	3/2011	Tsai et al.		2005/0190108 A1	9/2005	Lin et al.	
7,907,971 B2	3/2011	Salo et al.		2006/0132365 A1 *	6/2006	Chou	H01Q 1/243 343/702
D635,560 S	4/2011	Tsai et al.		2006/0208900 A1	9/2006	Tavassoli Hozouri	
D635,963 S *	4/2011	Podduturi	D14/230	2007/0030203 A1	2/2007	Tsai et al.	
D635,964 S	4/2011	Podduturi		2007/0205949 A1 *	9/2007	Enoshima	H01Q 1/38 343/702
D635,965 S	4/2011	Mi et al.		2008/0136711 A1 *	6/2008	Lai	H01Q 1/243 343/700 MS
D636,382 S	4/2011	Podduturi		2008/0143630 A1 *	6/2008	Kato	G06K 19/07749 343/795
7,965,242 B2	6/2011	Abramov et al.		2008/0150829 A1	6/2008	Lin et al.	
D649,962 S	12/2011	Tseng et al.		2008/0158085 A1 *	7/2008	Lu	H01Q 1/36 343/793
D651,198 S	12/2011	Mi et al.		2009/0002244 A1 *	1/2009	Woo	H01Q 1/38 343/702
D654,059 S	2/2012	Mi et al.		2009/0058739 A1 *	3/2009	Konishi	G06F 1/1616 343/702
D654,060 S	2/2012	Ko et al.		2009/0135072 A1	5/2009	Ke et al.	
D658,639 S	5/2012	Huang et al.		2009/0262028 A1	10/2009	Murnbru et al.	
D659,129 S	5/2012	Mi et al.		2010/0079350 A1 *	4/2010	Lai	H01Q 1/243 343/843
D659,685 S	5/2012	Huang et al.		2010/0188297 A1	7/2010	Chen et al.	
D659,688 S	5/2012	Huang et al.		2010/0214180 A1 *	8/2010	Krogerus	H01Q 1/243 343/702
8,175,036 B2	5/2012	Visuri et al.		2010/0309067 A1	12/2010	Tsou et al.	
8,184,601 B2	5/2012	Abramov et al.		2011/0006950 A1	1/2011	Park et al.	
D662,916 S	7/2012	Huang et al.		2011/0012789 A1 *	1/2011	Yang	H01Q 1/38 343/700 MS
8,248,970 B2	8/2012	Abramov et al.		2012/0038514 A1	2/2012	Bang	
D671,097 S *	11/2012	Mi	D14/230	2012/0229348 A1	9/2012	Chiang	
8,310,402 B2	11/2012	Yang		2012/0242546 A1	9/2012	Hu et al.	
D676,429 S	2/2013	Gosalia et al.		2013/0335280 A1 *	12/2013	Chen, III	H01Q 21/28 343/725
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					
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					

* cited by examiner

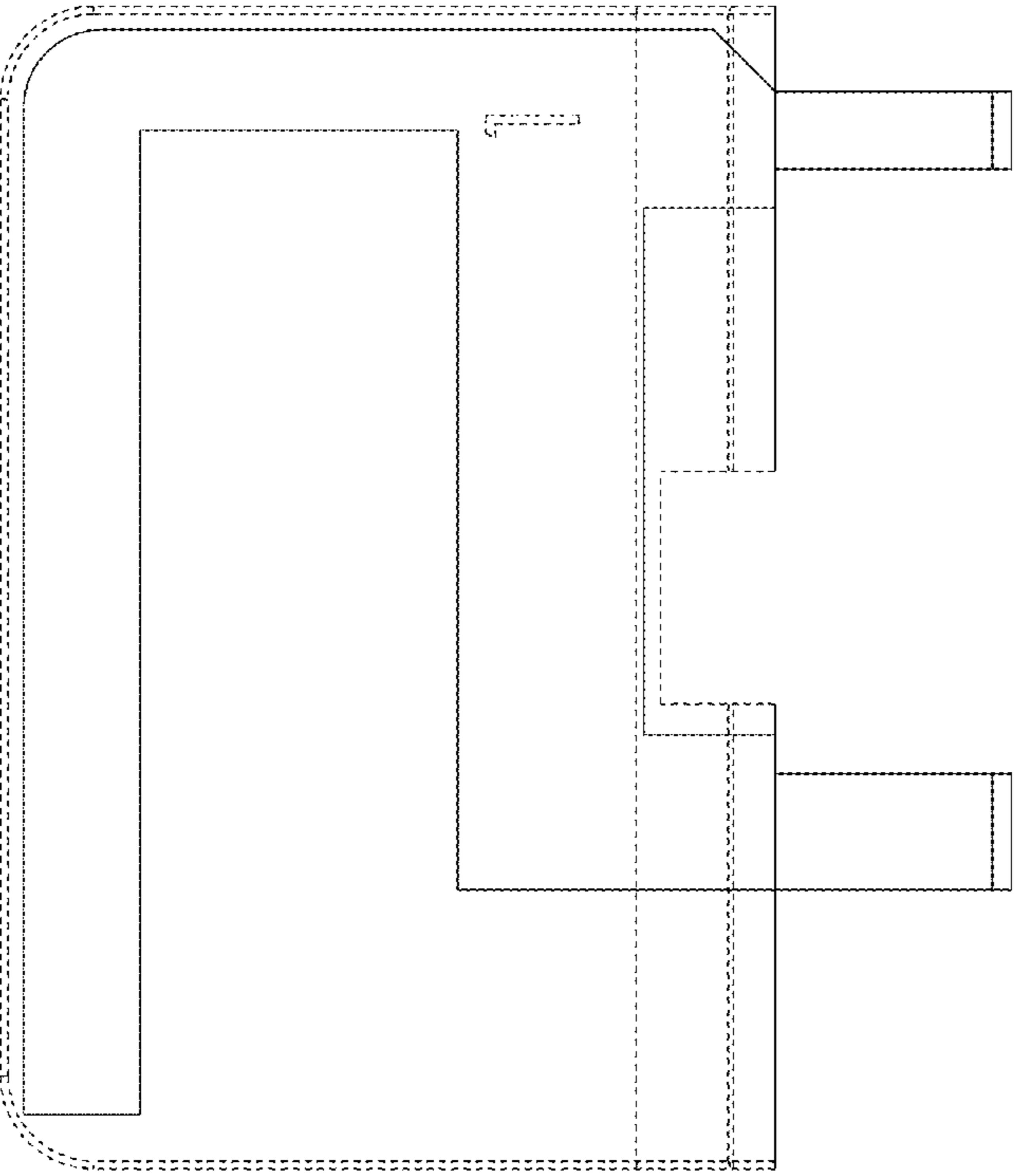


FIG. 1

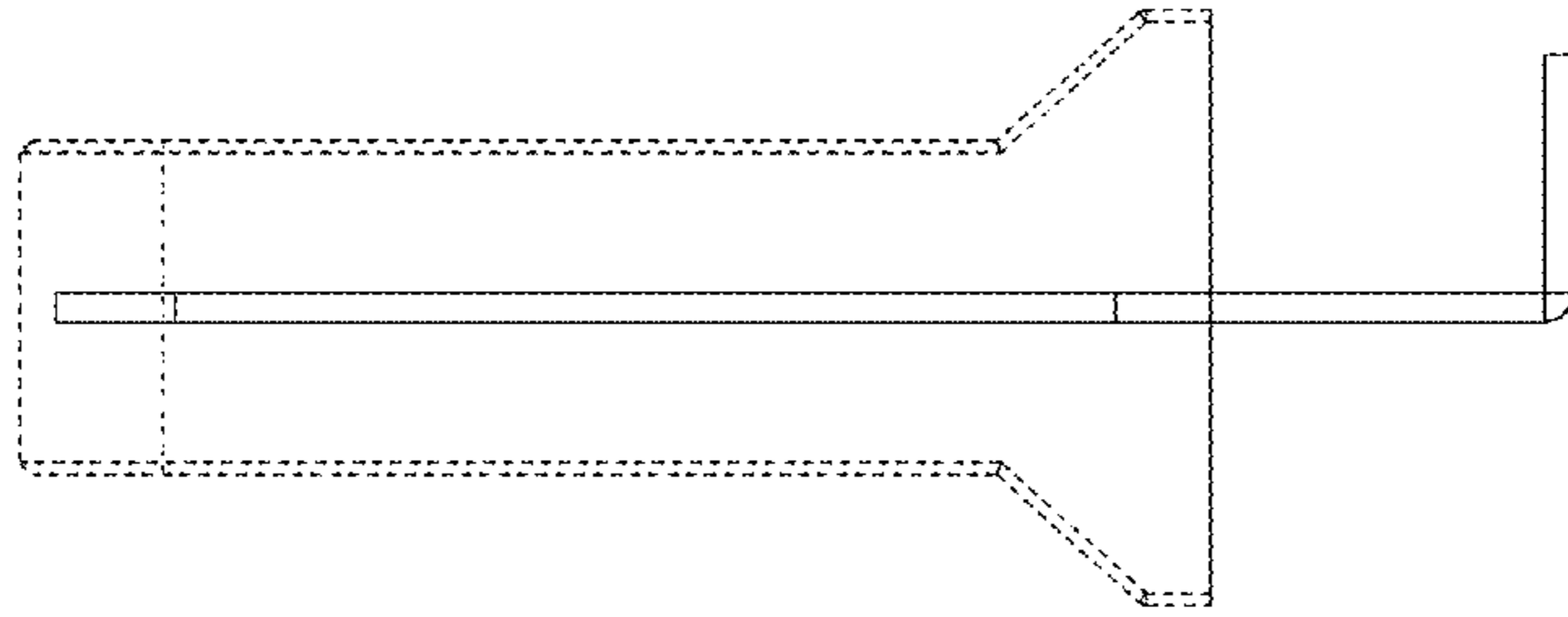


FIG. 2

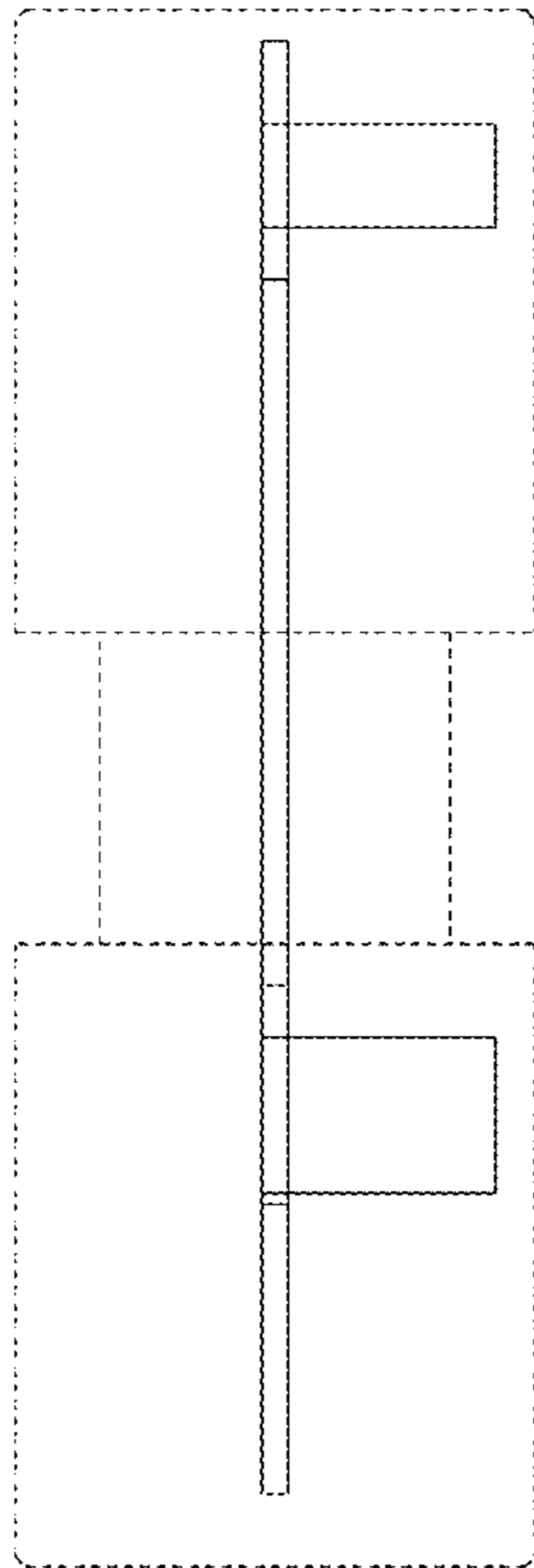


FIG. 3

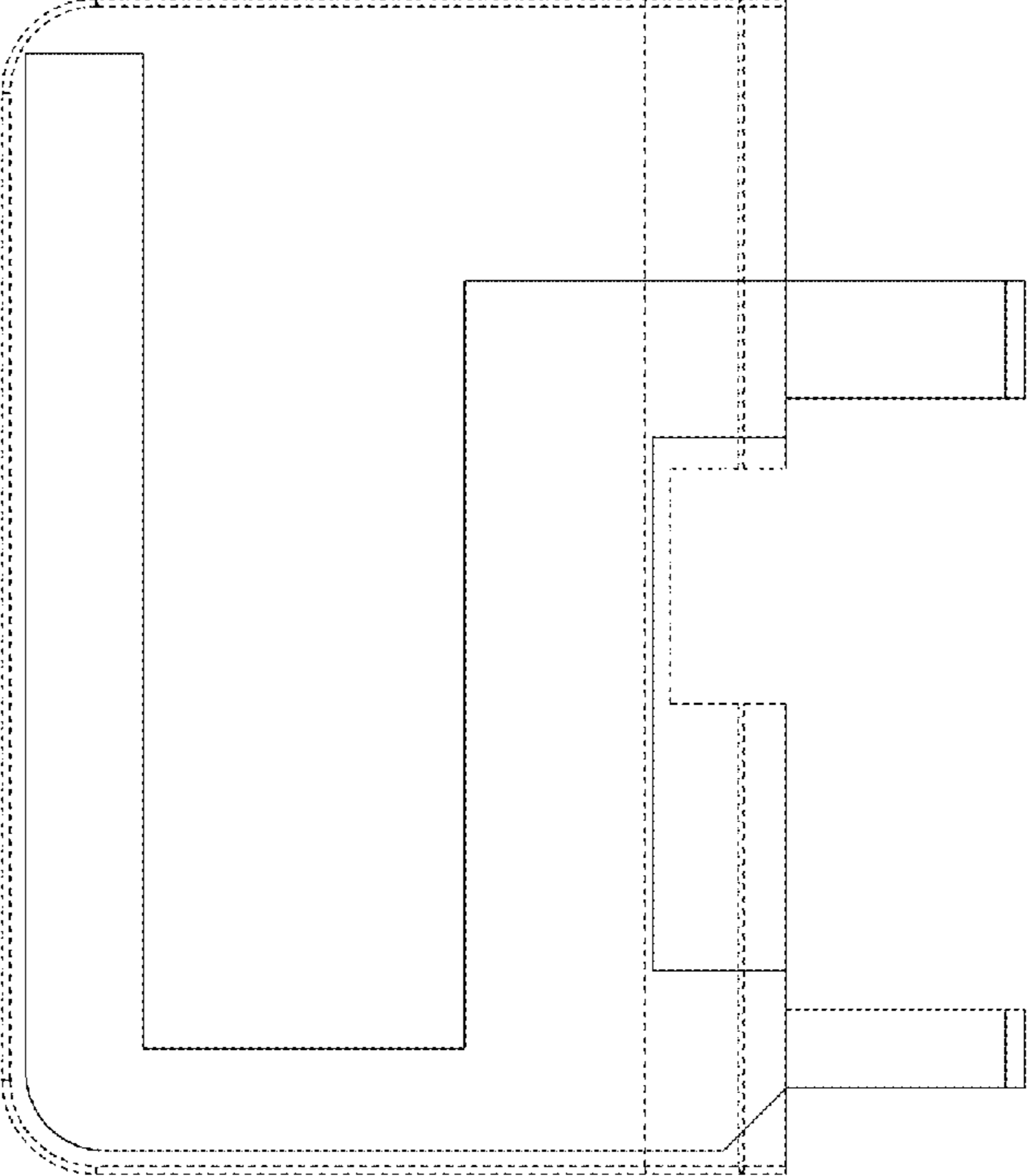


FIG. 4

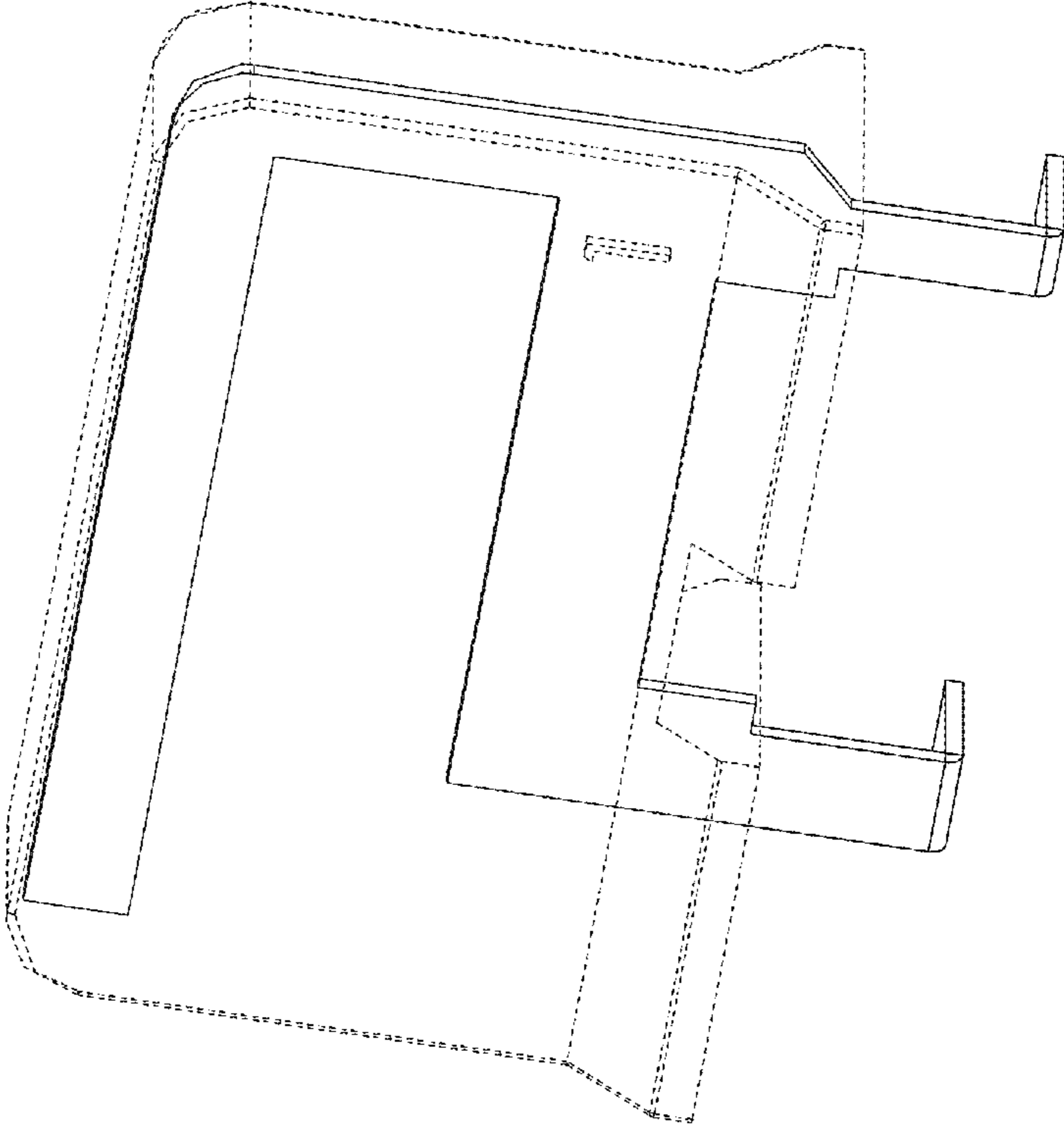


FIG. 5

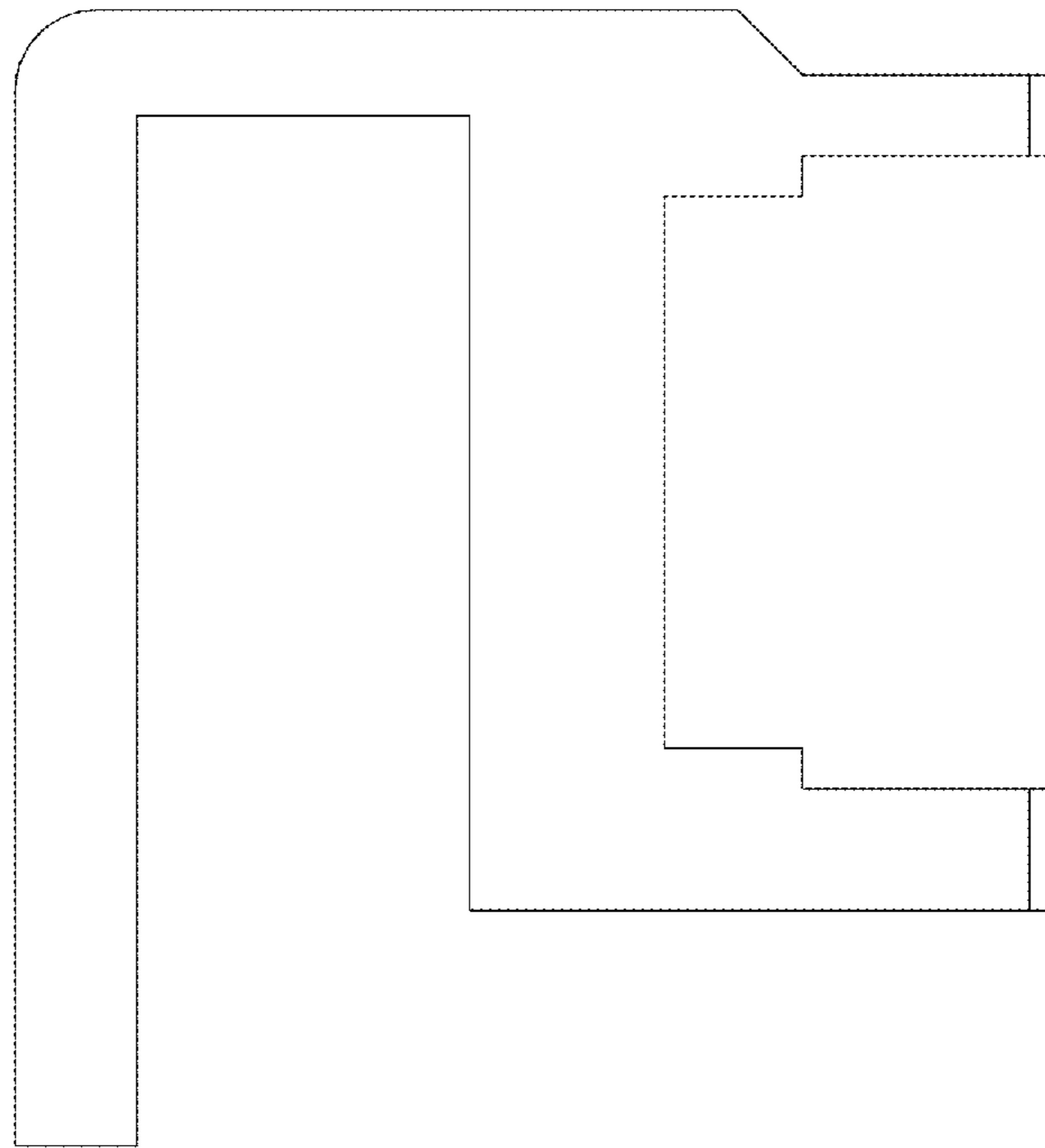


FIG. 6

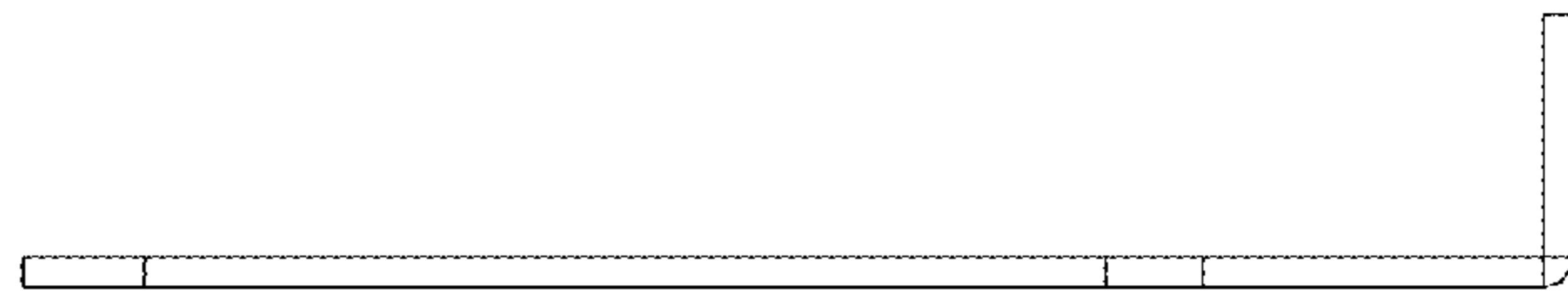


FIG. 7

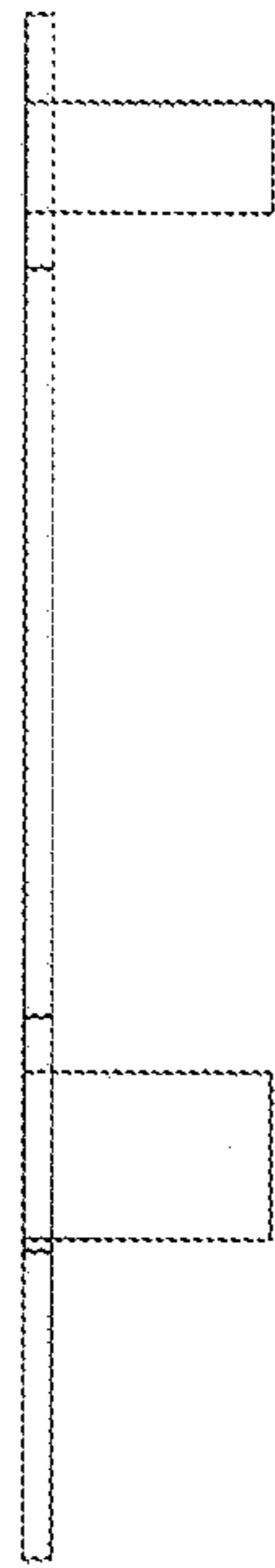


FIG. 8