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Levner et al.

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(54) **MICROFLUIDIC CHIP FOR USE WITH A FLUID PERFUSION MODULE**

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(**) Term: **15 Years**

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(52) **U.S. Cl.**
USPC **D24/224**

(58) **Field of Classification Search**
USPC D13/180, 182, 184, 199; D24/216, 226, D24/227, 229, 230, 231, 232
CPC B01L 3/5027; B01L 3/502715; B01L 3/502723; B01L 3/50273; B01L 3/502738; B01L 3/502761; B01L 3/502784; C12M 23/16
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D296,193 S * 6/1988 Keeler D9/435
6,001,231 A * 12/1999 Kopf-Sill B01L 3/502746
204/451
6,176,962 B1 * 1/2001 Soane B01D 57/02
156/273.5
6,495,104 B1 * 12/2002 Unno B01L 3/5027
204/601

D472,324 S * 3/2003 Rumore D24/216
6,536,477 B1 * 3/2003 O'Connor B01L 3/5027
137/833
6,755,211 B1 * 6/2004 O'Connor B01L 3/502738
137/315.01
7,112,444 B2 * 9/2006 Beebe G01N 33/6818
422/417
7,329,538 B2 * 2/2008 Wainwright G01N 33/579
435/23
7,391,020 B2 * 6/2008 Bousse B05B 5/025
250/281
7,608,160 B2 * 10/2009 Zhou B01F 5/0683
156/272.2
8,763,642 B2 * 7/2014 Vangbo B01L 3/502738
137/859
9,475,052 B2 * 10/2016 Tachibana B01J 19/0093
D771,833 S * 11/2016 Leaver D24/224
9,561,506 B2 * 2/2017 Taylor
D785,811 S * 5/2017 Watts D24/224
9,670,541 B2 * 6/2017 Mehta C12Q 1/6874
D800,336 S * 10/2017 Chang D24/224
2002/0134907 A1 * 9/2002 Benett B29C 39/10
249/135

(Continued)

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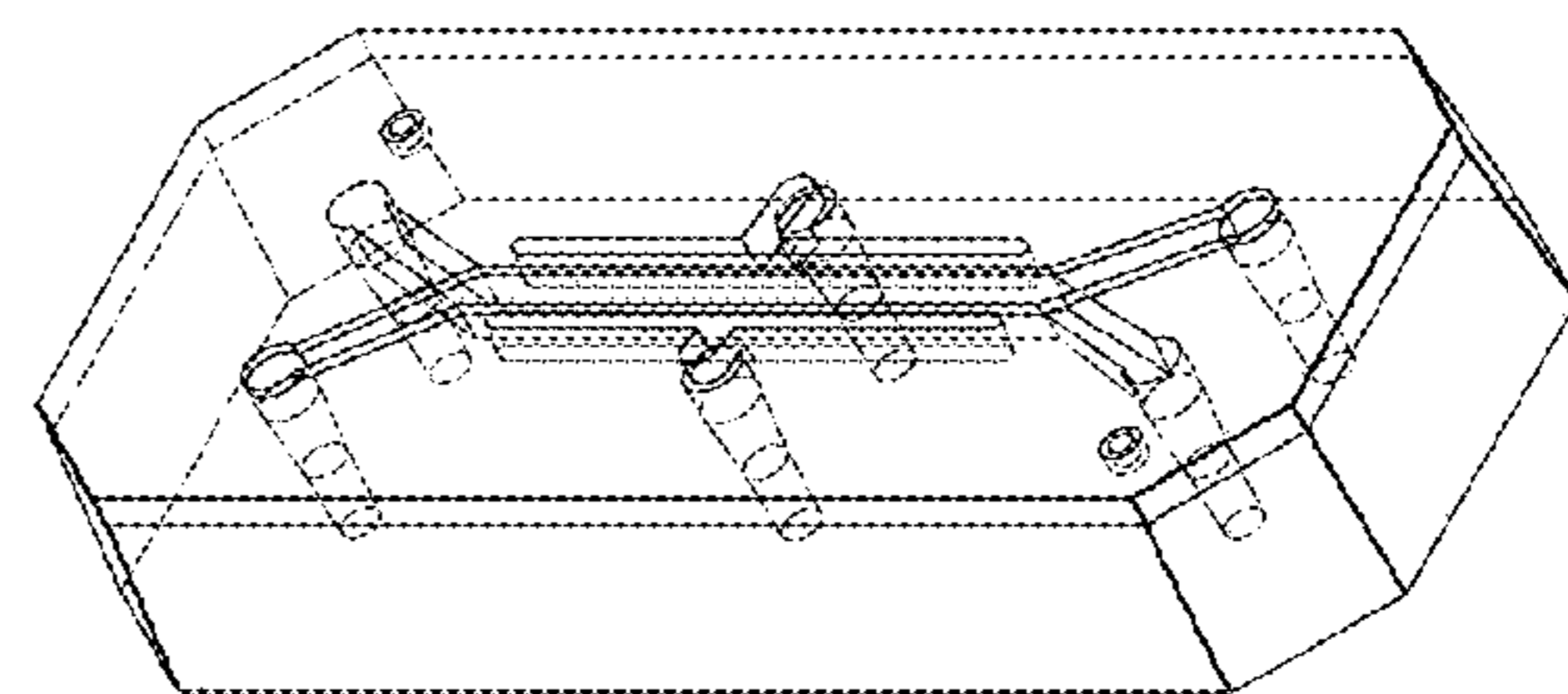
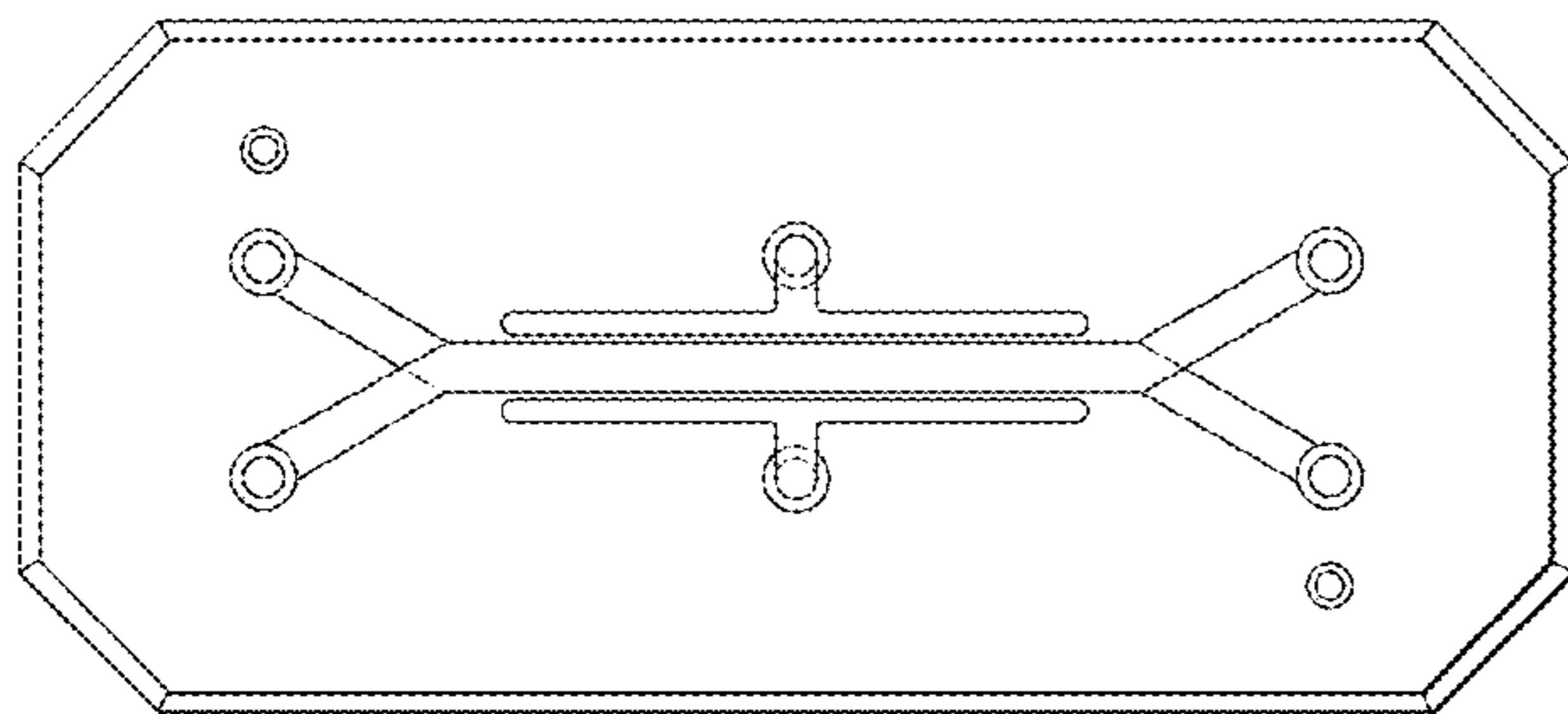
(57) **CLAIM**

The ornamental design for a microfluidic chip for use with a fluid perfusion module, as shown and described.

DESCRIPTION

FIG. 1 is a top plan view of an ornamental microfluidic chip. FIG. 2, is a bottom plan view, thereof. FIG. 3 is a left side elevational view, thereof. FIG. 4 is a right side elevational view, thereof. FIG. 5 is a front side elevational view, thereof. FIG. 6 is a rear side elevational view, thereof; and, FIG. 7 is a top perspective view, thereof.

1 Claim, 6 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2002/0187074	A1 *	12/2002	O'Connor	.....	B01F 5/0682	422/82.05
2004/0211054	A1 *	10/2004	Morse	.....	B01D 65/003	29/623.4
2005/0026134	A1 *	2/2005	Miller	.....	B01L 3/502746	506/14
2006/0228749	A1 *	10/2006	Wang	.....	G01N 33/5438	435/6.11
2007/0166199	A1 *	7/2007	Zhou	.....	B01L 3/5025	422/400
2009/0098659	A1 *	4/2009	Abhyankar	.....	B01L 3/5027	436/180
2009/0234332	A1 *	9/2009	Borenstein	.....	A61M 37/00	604/891.1
2009/0305326	A1 *	12/2009	Beebe	.....	B01J 19/0093	435/29
2009/0311796	A1 *	12/2009	Griss	.....	B01L 3/50273	436/166
2011/0003330	A1 *	1/2011	Durack	.....	B01L 3/502761	435/34
2011/0079513	A1 *	4/2011	Stelzle	.....	C12M 21/08	204/451
2011/0082563	A1 *	4/2011	Charest	.....	A61F 2/022	623/23.65
2011/0120562	A1 *	5/2011	Tan	.....	B01L 3/50273	137/1
2011/0250585	A1 *	10/2011	Ingber	.....	C12N 5/0696	435/5
2012/0070878	A1 *	3/2012	Fink	.....	B01L 3/502707	435/243
2012/0318726	A1 *	12/2012	Charest	.....	A61M 1/14	210/321.6
2013/0019688	A1 *	1/2013	Tung	.....	G01L 9/0058	73/719
2013/0130262	A1 *	5/2013	Battrell	.....	B01L 3/50273	435/6.12
2013/0288292	A1 *	10/2013	Meyvantsson	.....	B01L 3/50273	435/30
2013/0295551	A1 *	11/2013	Eddington	.....	A01N 1/0247	435/1.2
2014/0234954	A1 *	8/2014	Lee	.....	C12M 33/14	435/297.1
2014/0273223	A1 *	9/2014	Cho	.....	C12M 23/16	435/396
2015/0087079	A1 *	3/2015	Coffey	.....	G01N 33/54366	436/501
2016/0097028	A1 *	4/2016	Tung	.....	C12M 23/12	435/29
2016/0136646	A1 *	5/2016	Ingber	.....	B01L 3/563	435/309.1
2016/0136895	A1 *	5/2016	Beyer	.....	C12M 33/00	264/241
2016/0175840	A1 *	6/2016	Ingber	.....	B01L 3/502707	422/502
2016/0229683	A1 *	8/2016	Phommarine	.....	B81B 1/004	
2016/0313306	A1 *	10/2016	Ingber	.....	C12M 21/08	
2017/0022464	A1 *	1/2017	Novak	.....	C12M 23/16	
2017/0058257	A1 *	3/2017	Levner	.....	C12M 35/04	
2017/0113221	A1 *	4/2017	Hoffman	.....	B01L 3/502715	
2017/0121659	A1 *	5/2017	Hinojosa	.....	C12M 23/16	

* cited by examiner

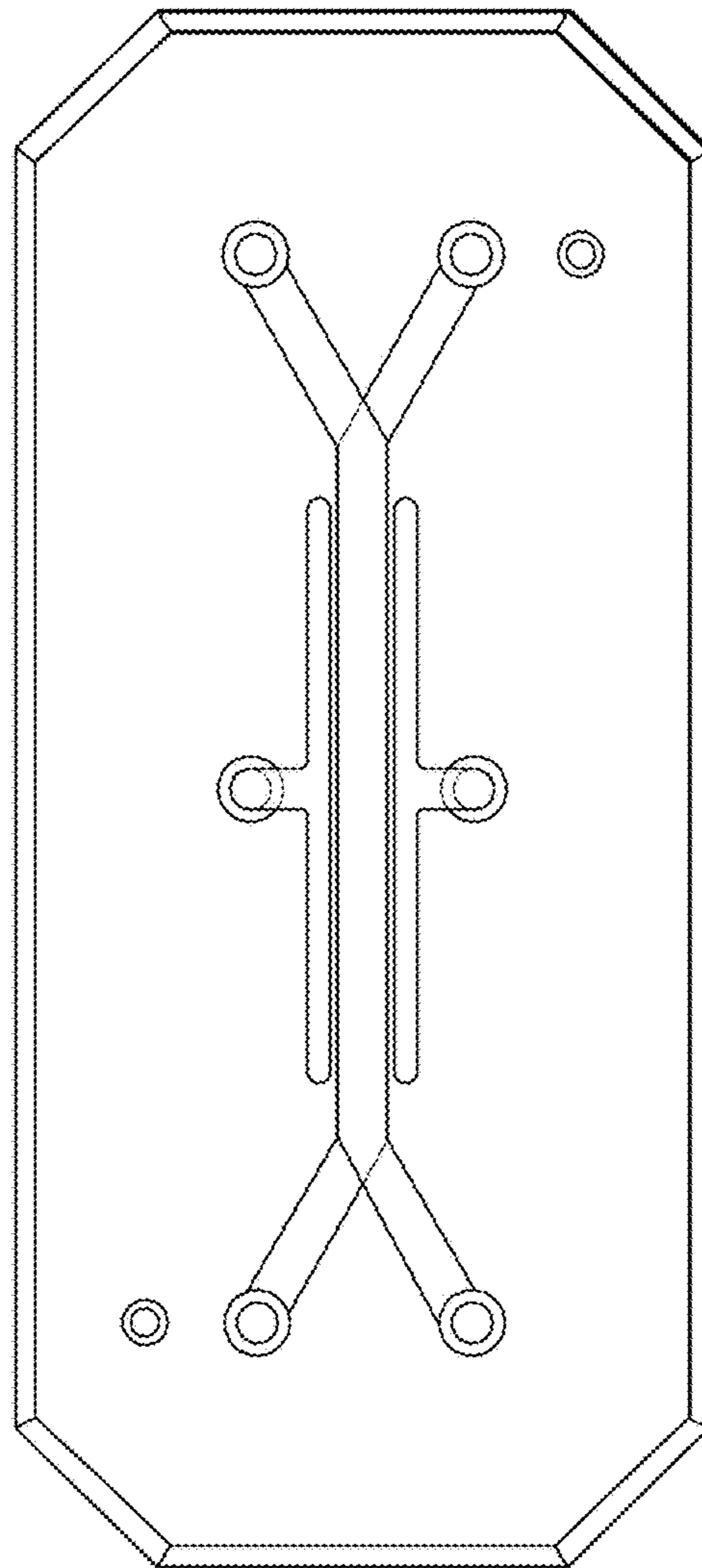


FIG. 1

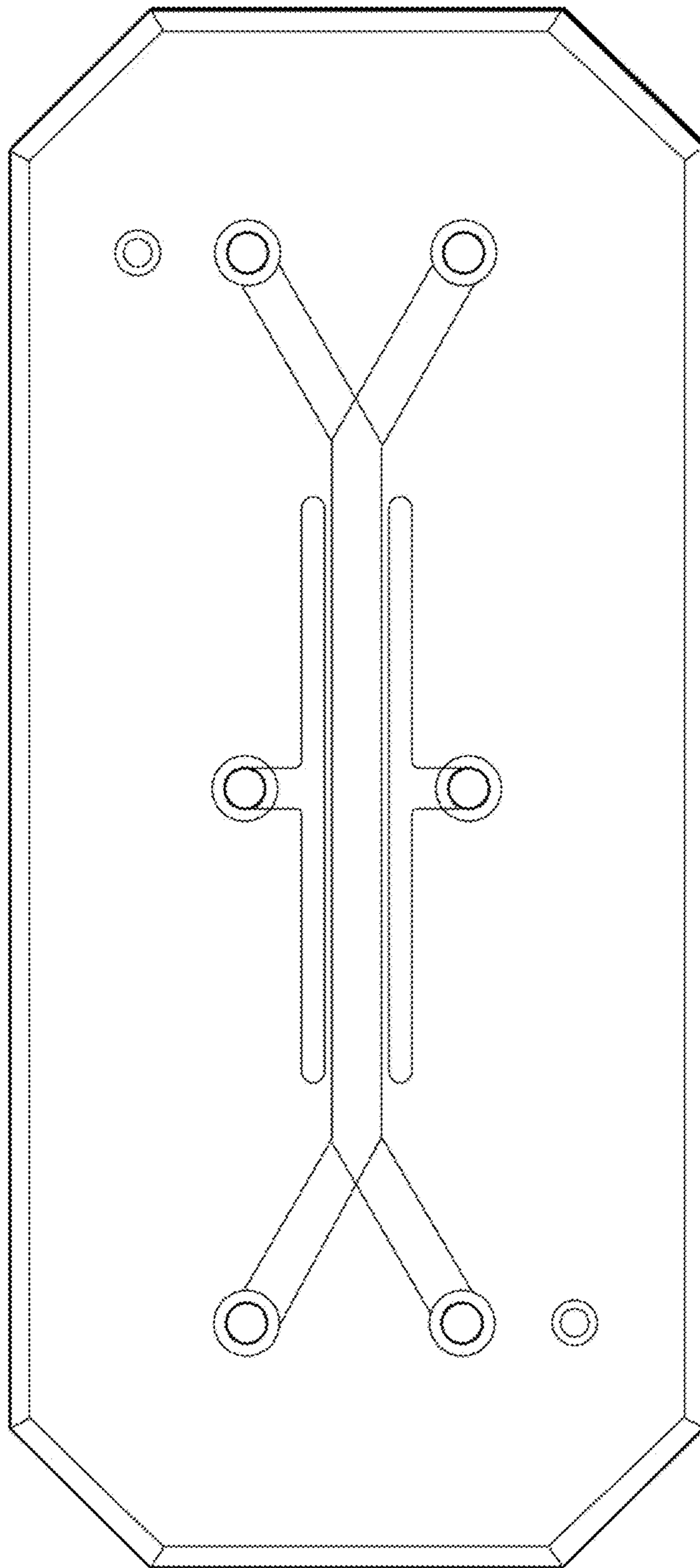


FIG. 2

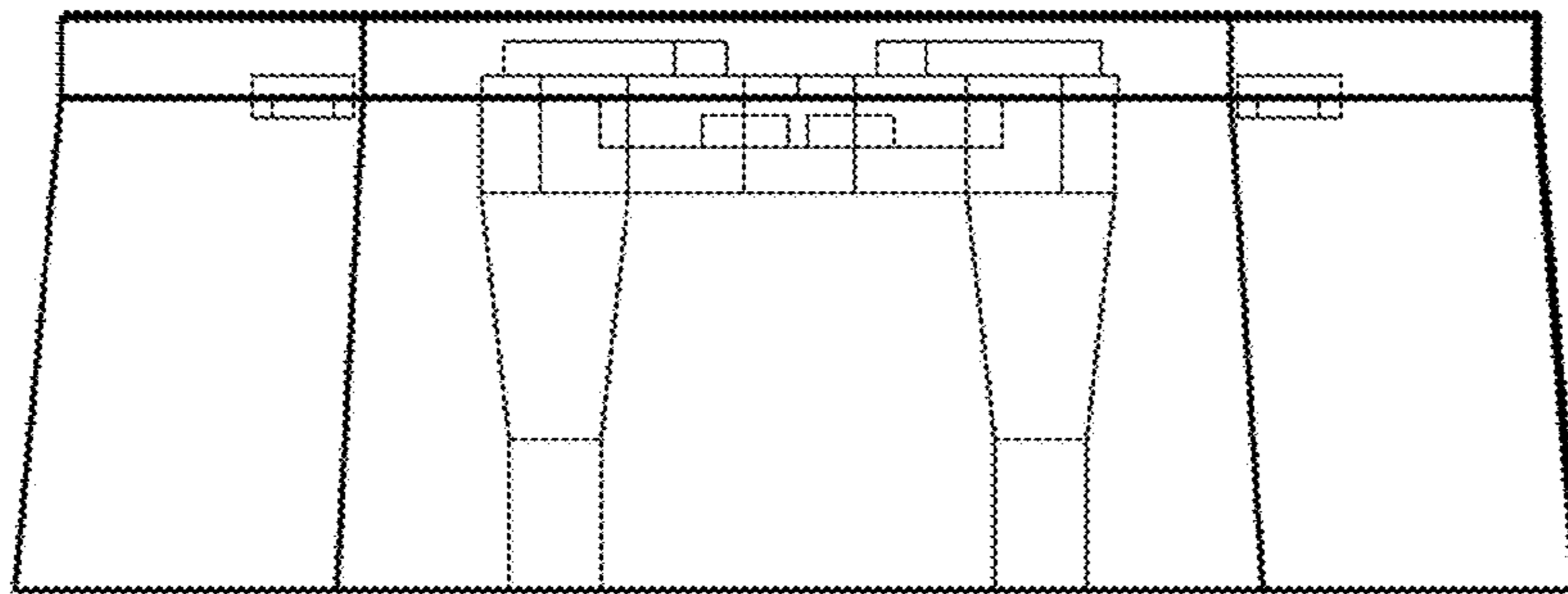


FIG. 4

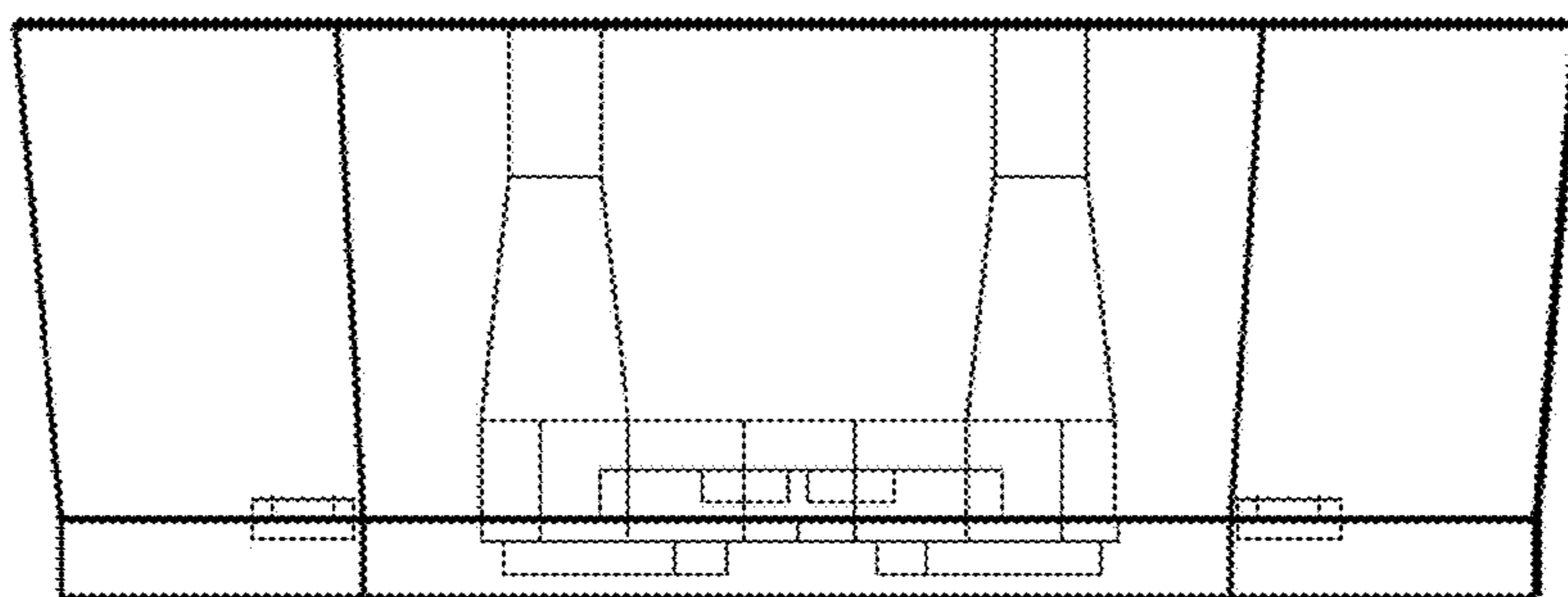


FIG. 3

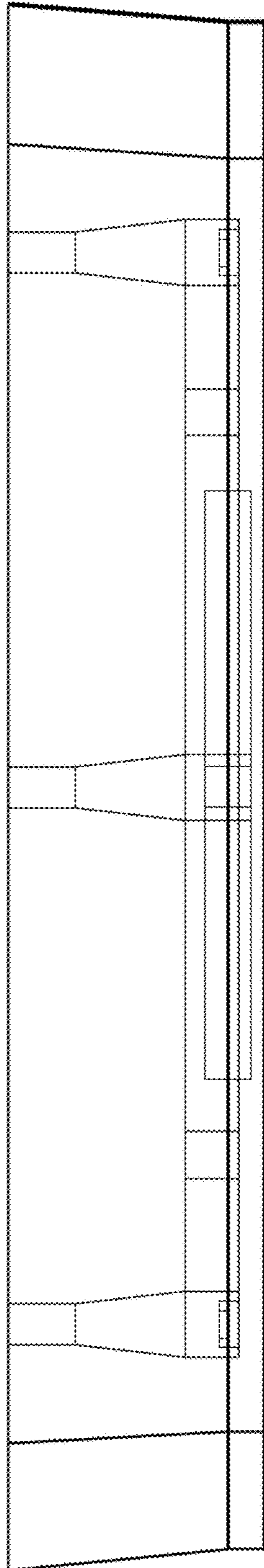


FIG. 5

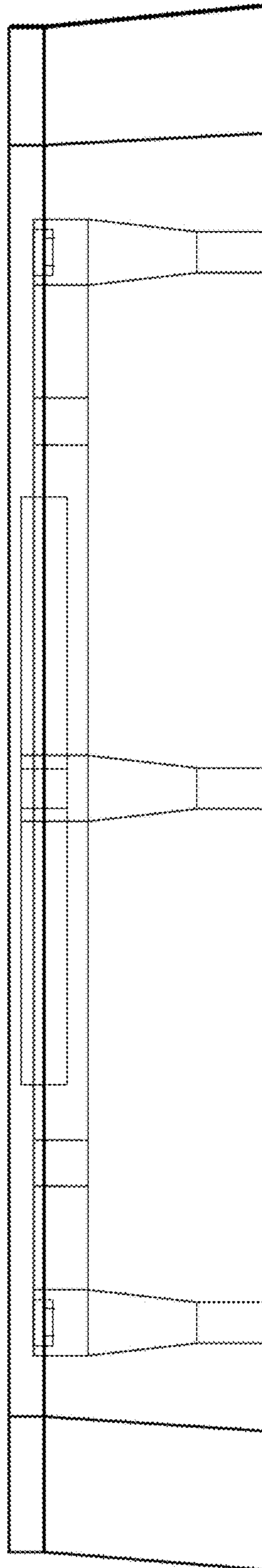


FIG. 6

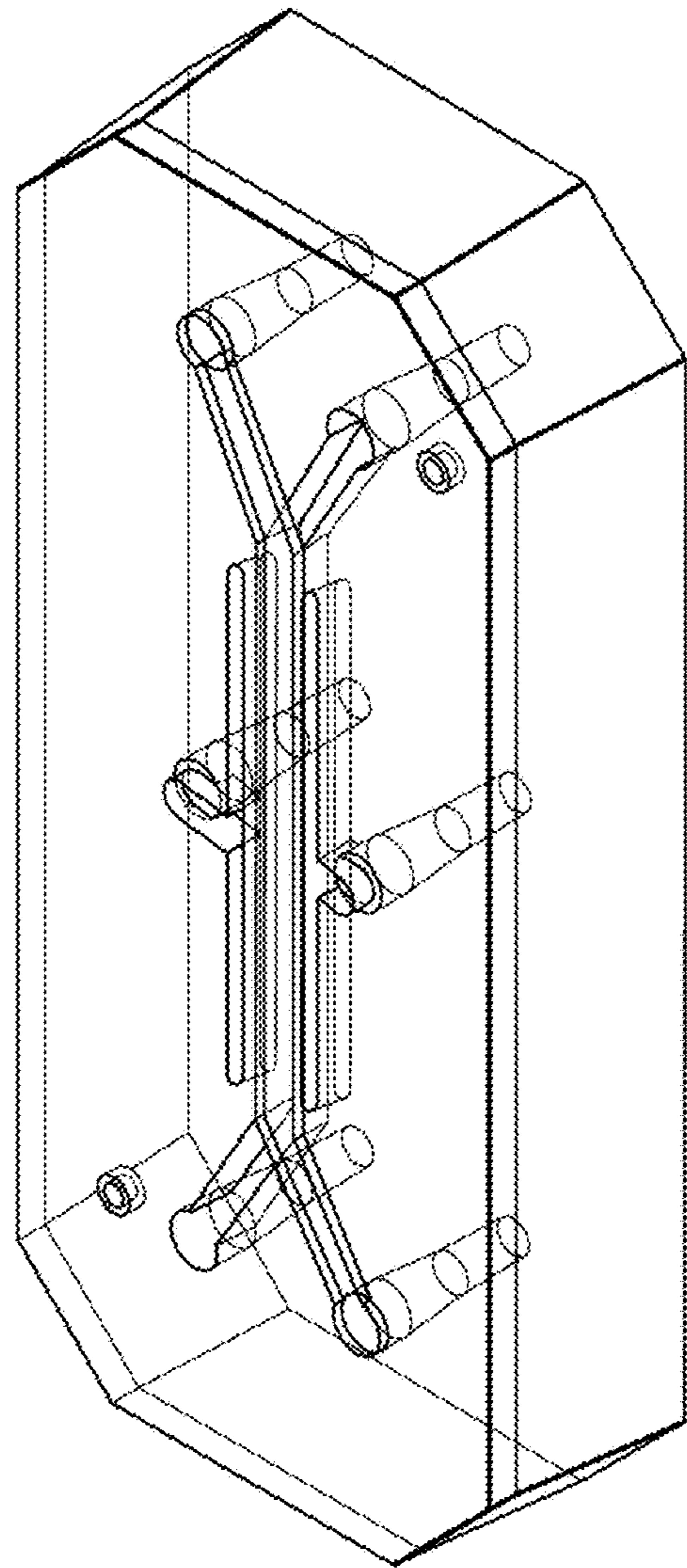


FIG. 7