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Thompson, II et al.

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(54) **MICROFLUIDIC CHIP WITHOUT PRESSURE FEATURES FOR USE WITH A FLUID PERFUSION MODULE**

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(*) Notice: This patent is subject to a terminal disclaimer.

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

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Related U.S. Application Data

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(51) **LOC (12) Cl.** **24-02**

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

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USPC D13/180, 182, 184, 199; D24/216, 224, D24/225, 226, 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
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
7,391,020 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
9,561,506 B2 * 2/2017 Taylor
9,670,541 B2 * 6/2017 Mehta C12Q 1/6874
D816,861 S * 5/2018 Levner D24/224
D842,493 S * 3/2019 Levner D24/224

(Continued)

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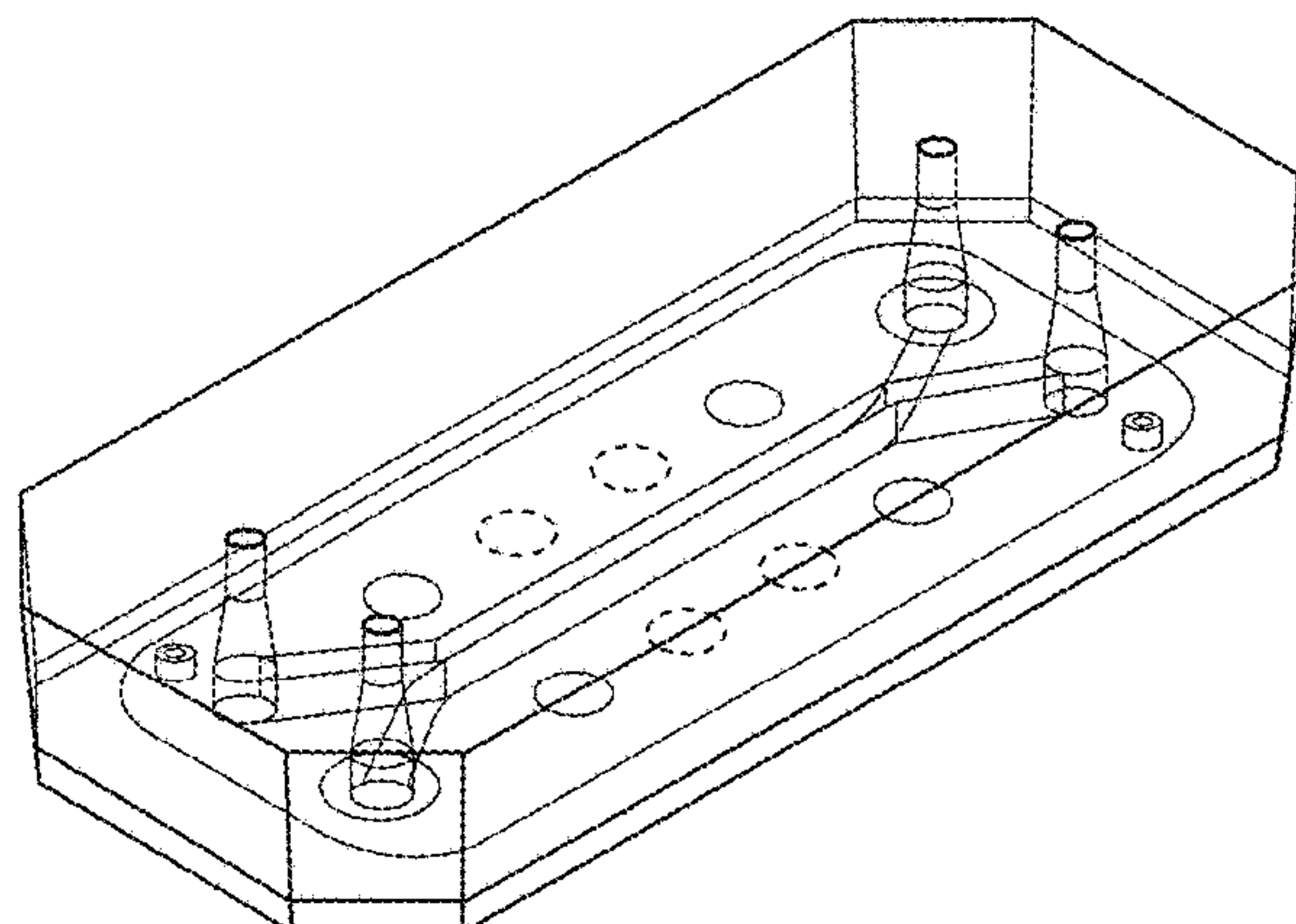
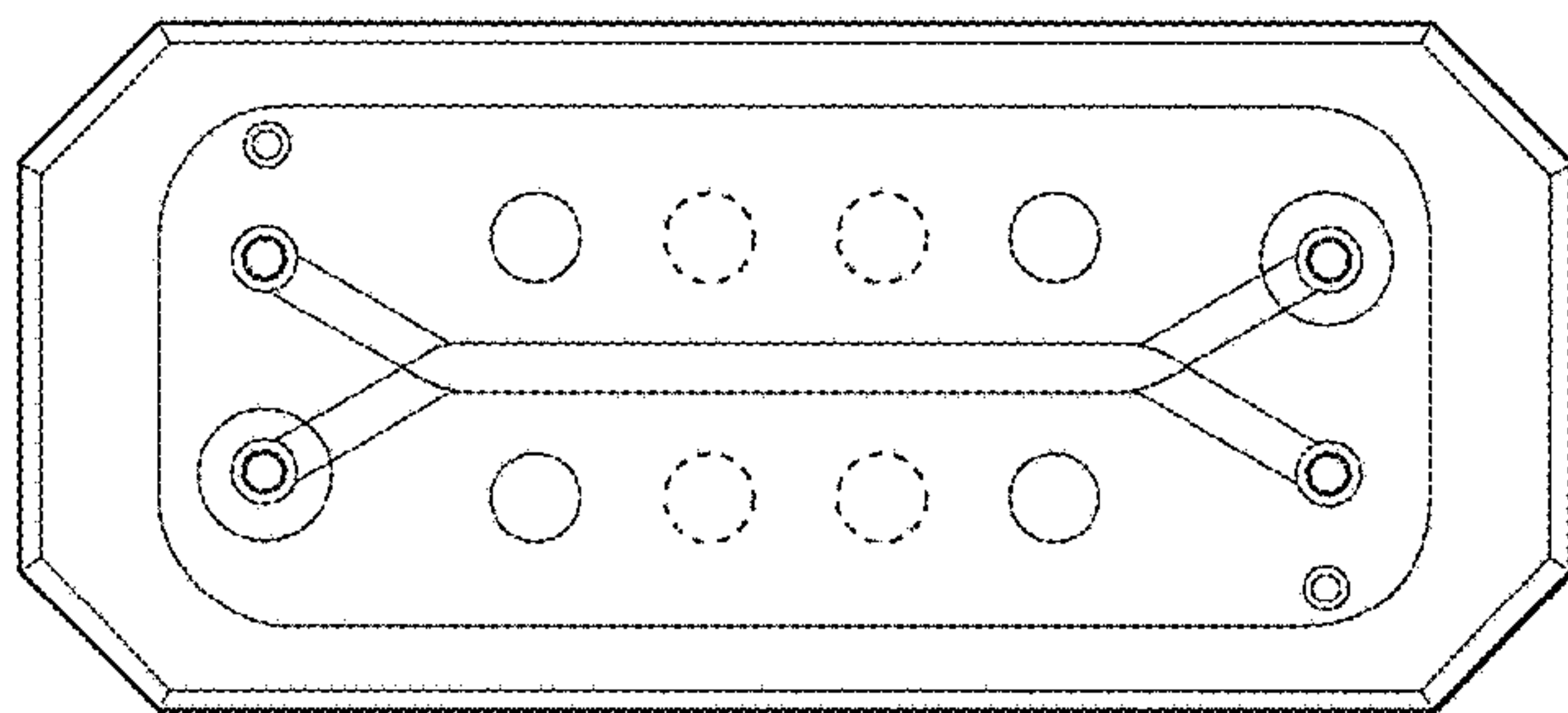
(57) **CLAIM**

The ornamental design for a microfluidic chip without pressure features for use with a fluid perfusion module, as shown and described.

DESCRIPTION

FIG. 1 is a top plan view of an ornamental microfluidic chip without pressure features; and, FIG. 2, is a top perspective view, thereof. The broken line showing of the ornamental microfluidic chip without pressure features is for the purpose of illustrating portions of the ornamental microfluidic chip without pressure features and forms no part of the claimed design.

1 Claim, 2 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2002/0134907	A1 *	9/2002	Benett	B29C 39/10 249/135	2011/0250585	A1 *	10/2011	Ingber	C12N 5/0696 435/5
2002/0187074	A1 *	12/2002	O'Connor	B01F 5/0682 422/82.05	2012/0070878	A1 *	3/2012	Fink	B01L 3/502707 435/243
2004/0211054	A1 *	10/2004	Morse	B01D 65/003 29/623.4	2012/0318726	A1 *	12/2012	Charest	A61M 1/14 210/321.6
2005/0026134	A1 *	2/2005	Miller	B01L 3/502746 506/14	2013/0019688	A1 *	1/2013	Tung	G01L 9/0058 73/719
2006/0228749	A1 *	10/2006	Wang	G01N 33/5438 435/6.11	2013/0288292	A1 *	10/2013	Meyvantsson	B01L 3/50273 435/30
2007/0166199	A1 *	7/2007	Zhou	B01L 3/5025 422/400	2014/0234954	A1 *	8/2014	Lee	C12M 33/14 435/297.1
2009/0098659	A1 *	4/2009	Abhyankar	B01L 3/5027 436/180	2014/0273223	A1 *	9/2014	Cho	C12M 23/16 435/396
2009/0234332	A1 *	9/2009	Borenstein	A61M 37/00 604/891.1	2016/0097028	A1 *	4/2016	Tung	C12M 23/12 435/29
2009/0305326	A1 *	12/2009	Beebe	B01J 19/0093 435/29	2016/0136646	A1 *	5/2016	Ingber	B01L 3/563 435/309.1
2011/0079513	A1 *	4/2011	Stelzle	C12M 21/08 204/451	2016/0136895	A1 *	5/2016	Beyer	C12M 33/00 264/241
2011/0082563	A1 *	4/2011	Charest	A61F 2/022 623/23.65	2016/0229683	A1 *	8/2016	Phommarine	B81B 1/004
2011/0120562	A1 *	5/2011	Tan	B01L 3/50273 137/1	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
					2017/0121659	A1 *	5/2017	Hinojosa	C12M 23/16

* cited by examiner

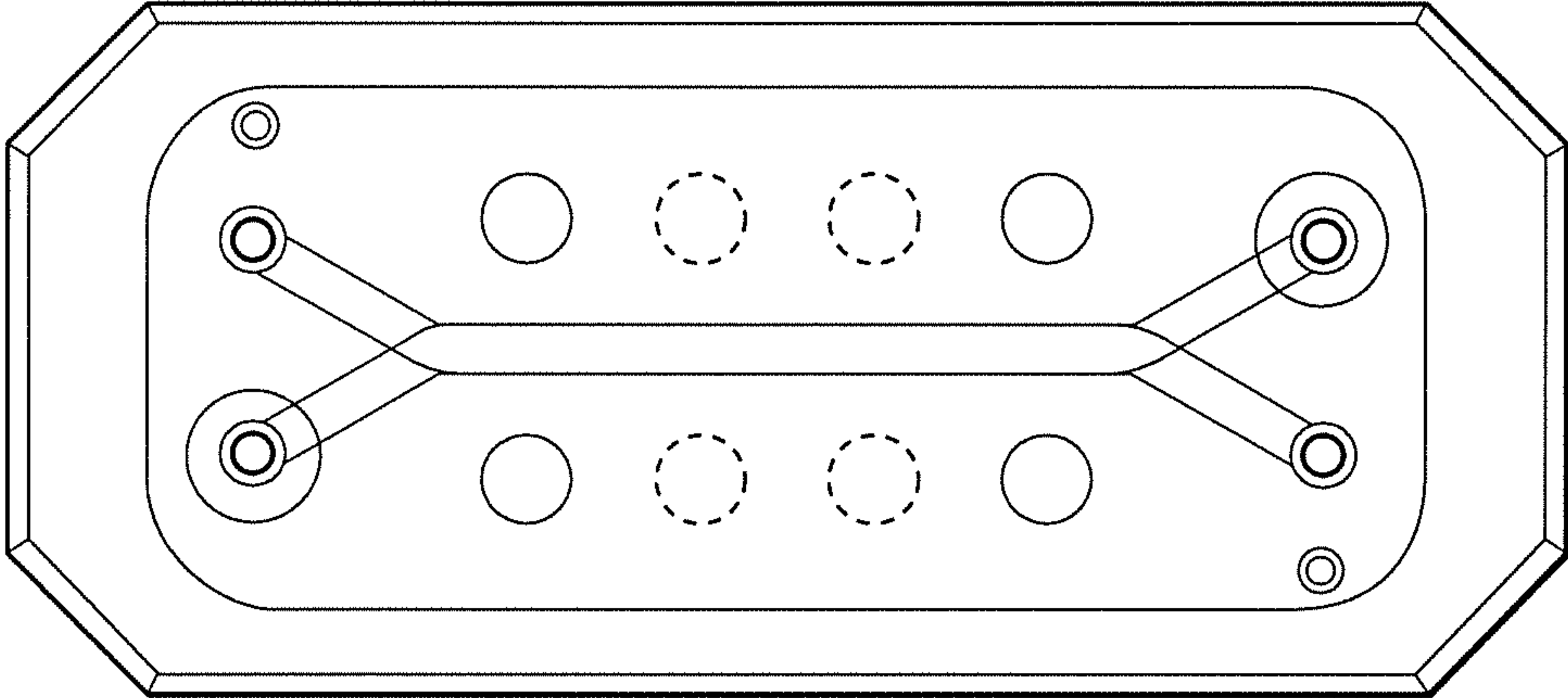


FIG. 1

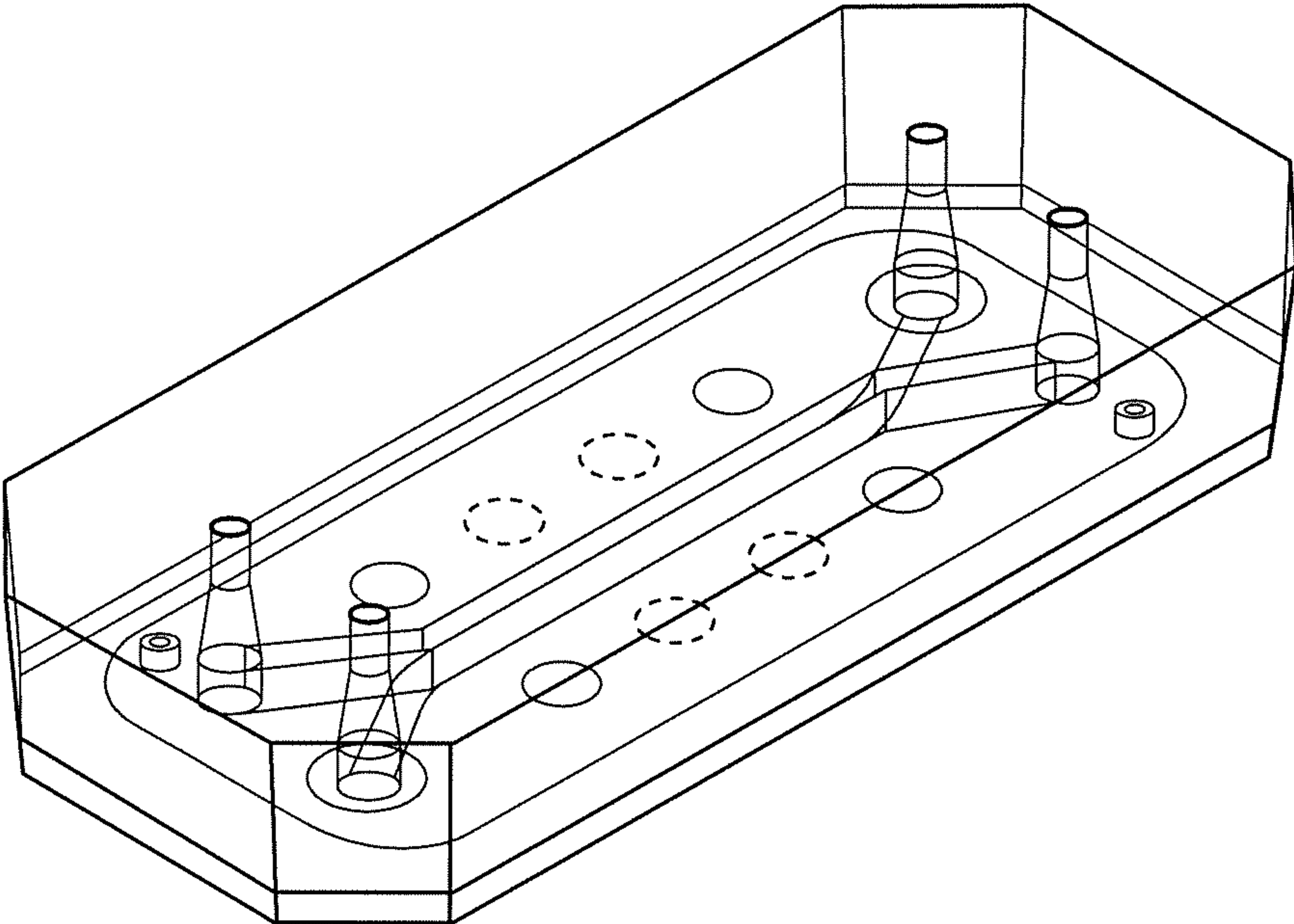


FIG. 2