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(12) **United States Design Patent** (10) **Patent No.:** **US D877,078 S**
Miller et al. (45) **Date of Patent:** **** Mar. 3, 2020**

(54) **BATTERY SEPARATOR** 3,947,537 A * 3/1976 Buntin H01M 2/14
 264/137
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 429/147
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 (US) 4,142,334 A 3/1979 Kirsch et al.
 4,237,558 A 12/1980 Mackenroth, III et al.
 D311,896 S 11/1990 Mori
 D311,898 S * 11/1990 Luzader D13/119
 (Continued)

(73) Assignee: **Daramic, LLC**, Charlotte, NC (US)
 (**) Term: **15 Years**

(21) Appl. No.: **29/683,410**

(22) Filed: **Mar. 13, 2019**

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(57) **CLAIM**

The ornamental design for a battery separator, as shown and described.

Related U.S. Application Data

(62) Division of application No. 29/580,376, filed on Oct. 7, 2016, now Pat. No. Des. 847,746.
 (51) **LOC (12) Cl.** **13-02**
 (52) **U.S. Cl.**
 USPC **D13/119**
 (58) **Field of Classification Search**
 USPC D13/103, 104, 110, 107, 119, 120, 156;
 429/175, 151
 CPC H01R 13/641; H01M 2/1027;
 H01M 2/1022; H01M 2/1072; H01M
 2/105; H01M 2/1077; H01M 2/18; H01M
 2/14; H01M 2/1686; Y10T 428/2457
 See application file for complete search history.

DESCRIPTION

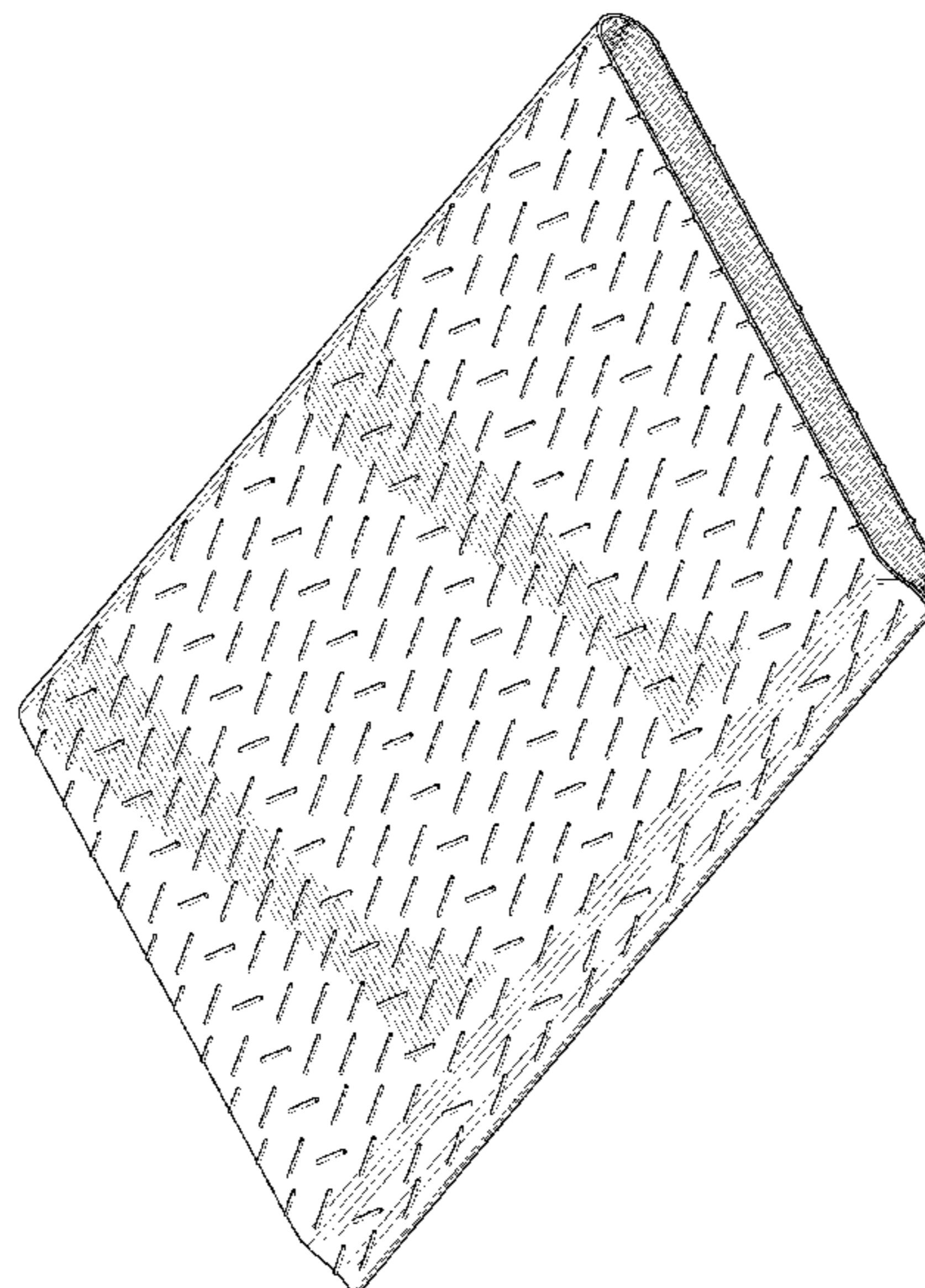
FIG. 1 is a perspective view of a first embodiment of a battery separator showing our new design;
 FIG. 2 is a front view thereof;
 FIG. 3 is a rear view thereof;
 FIG. 4 is a top view thereof;
 FIG. 5 is a bottom view thereof;
 FIG. 6 is a right side view thereof;
 FIG. 7 is a left side view thereof;
 FIG. 8 is an enlarged view of the identified area in FIG. 4;
 FIG. 9 is a perspective view of a second embodiment of a battery separator showing our new design;
 FIG. 10 is a front view thereof;
 FIG. 11 is a rear view thereof;
 FIG. 12 is a top view thereof;
 FIG. 13 is a bottom view thereof;
 FIG. 14 is a right side view thereof; and,
 FIG. 15 is a left side view thereof.
 The dot-dash broken lines define the bounds of the claimed design and form no part thereof.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D10,962 S 12/1878 Webb
 3,375,136 A 3/1968 Biggar
 3,917,772 A * 11/1975 Hollenbeck B29C 43/222
 264/41

1 Claim, 11 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

5,558,952	A *	9/1996	Knauer	H01M 2/18	D758,728	S	6/2016	Young et al.	
				429/139	D763,192	S	8/2016	Tyler et al.	
5,716,734	A *	2/1998	Nakano	H01M 2/18	9,796,337	B2	10/2017	Helmuth et al.	
				429/136	9,812,693	B2	11/2017	DeKeuster et al.	
5,716,735	A	2/1998	Muffoletto et al.		10,276,850	B2 *	4/2019	Whear	H01M 2/18
5,949,637	A	9/1999	Iwaida et al.		D847,746	S *	5/2019	Miller	D13/119
D456,533	S	4/2002	Moller, Jr.		2003/0224245	A1 *	12/2003	Miller	H01M 2/14
D462,936	S	9/2002	Maxwell						429/143
D462,938	S *	9/2002	Revak	D13/119	2006/0110662	A1	5/2006	Konishiike et al.	
7,425,387	B2 *	9/2008	Bohnstedt	H01M 2/18	2006/0141350	A1 *	6/2006	Dreyer	H01M 2/14
				428/167					429/143
D609,884	S	2/2010	Cho		2006/0216594	A1	9/2006	You et al.	
D615,927	S	5/2010	Kuriki		2011/0052105	A1	3/2011	Wilcoxon et al.	
8,530,081	B2	9/2013	Hayashida et al.		2012/0025420	A1	2/2012	Utashiro et al.	
D696,029	S	12/2013	Seyler		2012/0070714	A1 *	3/2012	Chambers	C08L 89/00
D725,916	S	4/2015	Haverfield et al.						429/145
D732,826	S	6/2015	Greene et al.		2014/0057154	A1 *	2/2014	Timmons	H01M 2/1633
									429/143
					2015/0228935	A1	8/2015	Seong	
					2017/0279089	A1	9/2017	Nishino	

* cited by examiner



FIG. 1

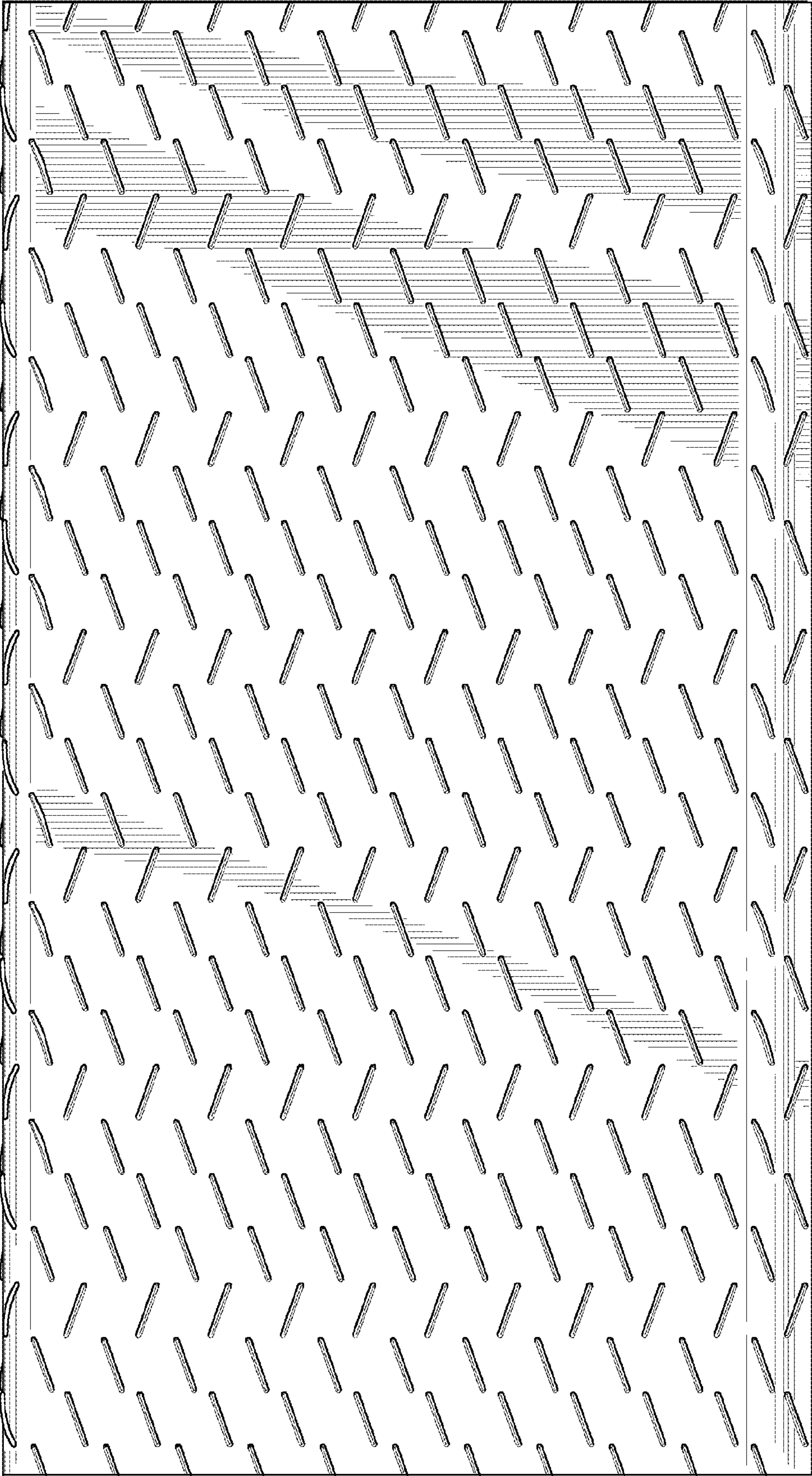


FIG. 2

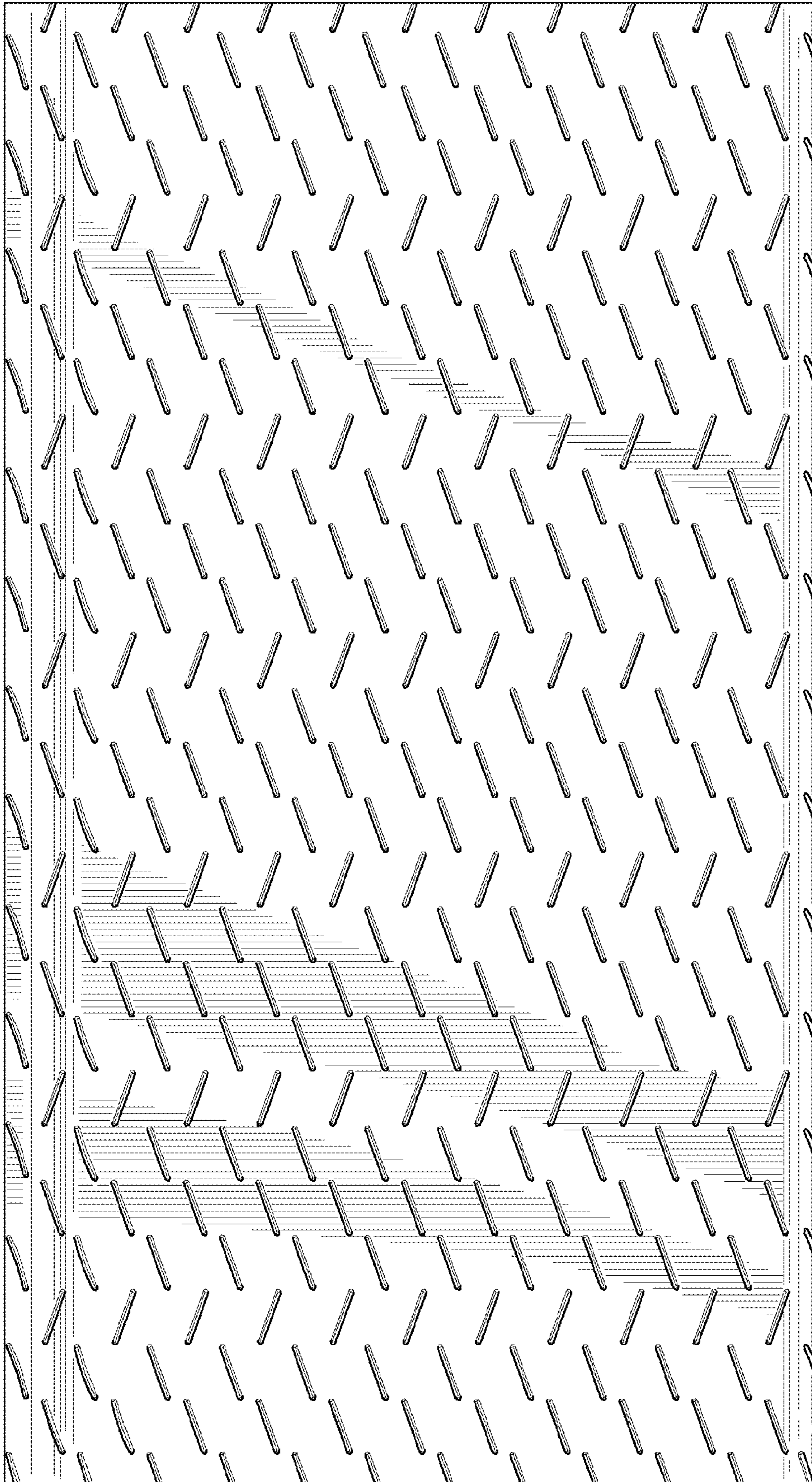


FIG. 3

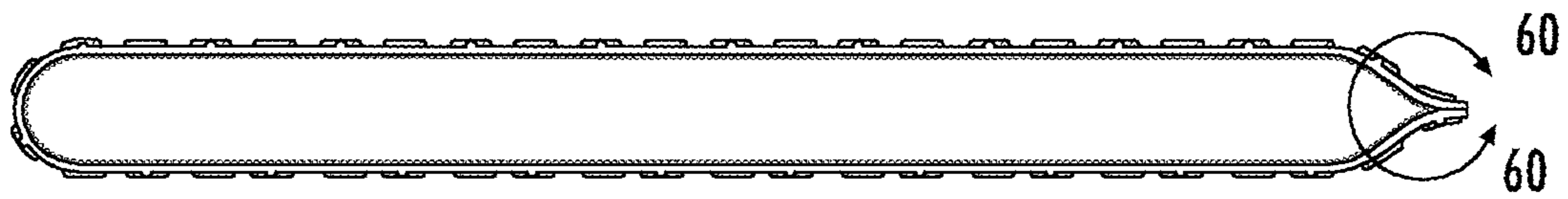


FIG. 4

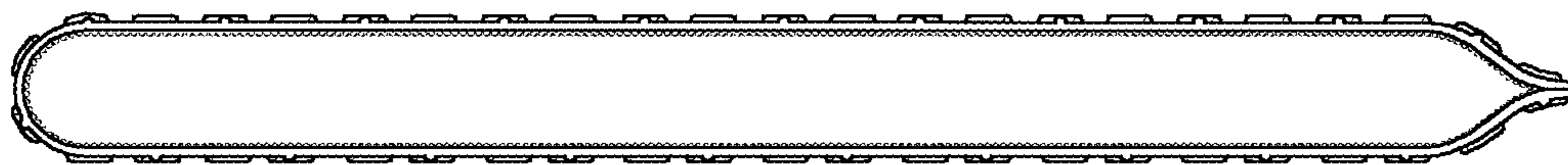


FIG. 5

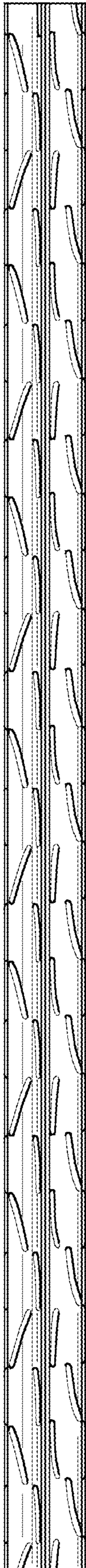


FIG. 6

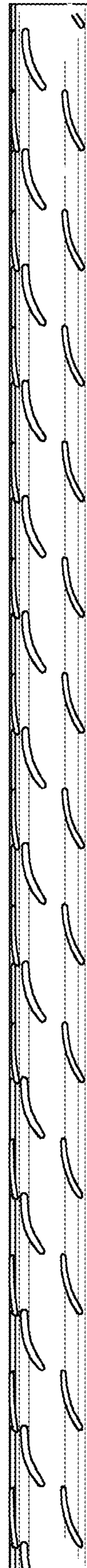


FIG. 7

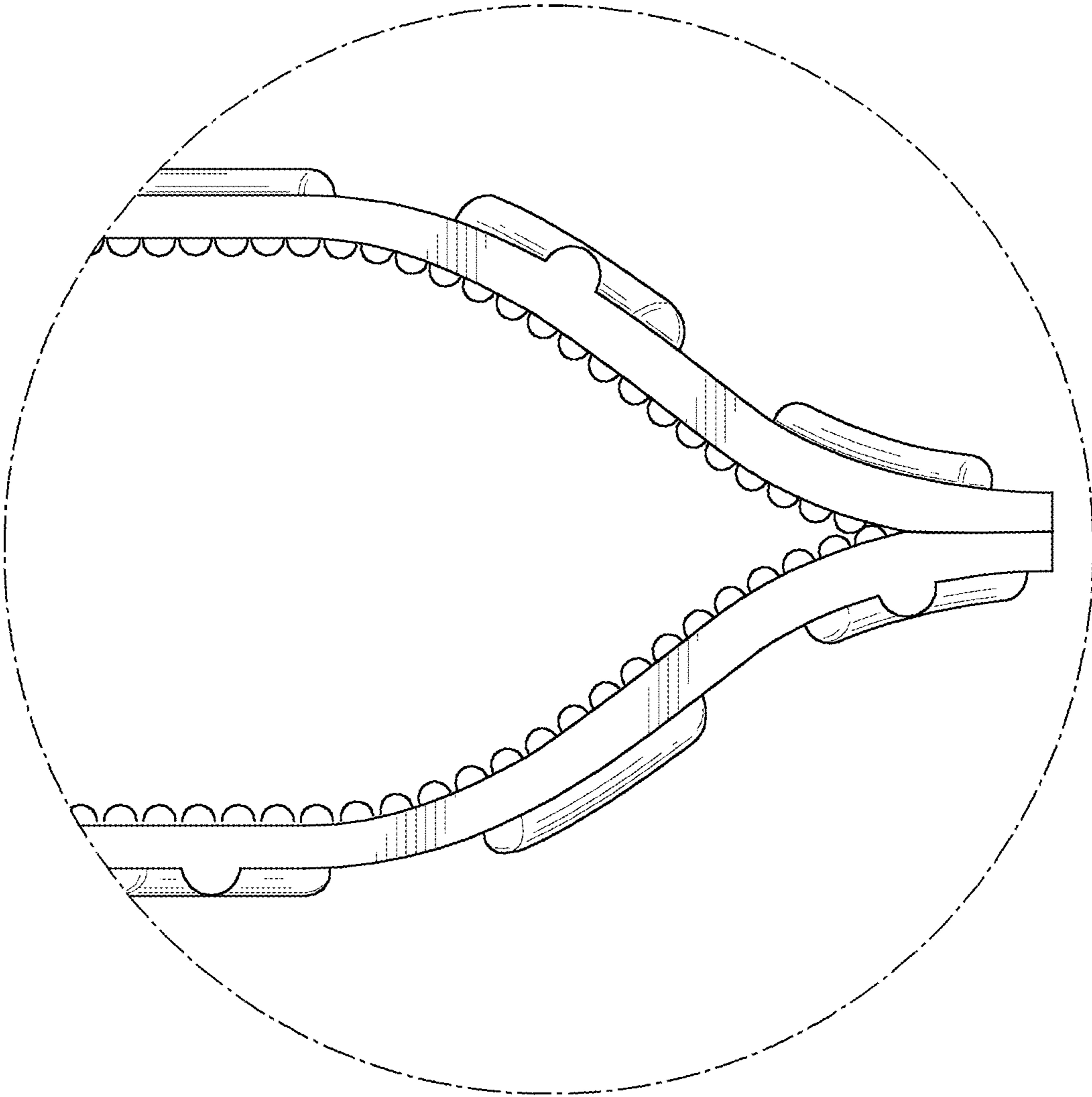


FIG. 8

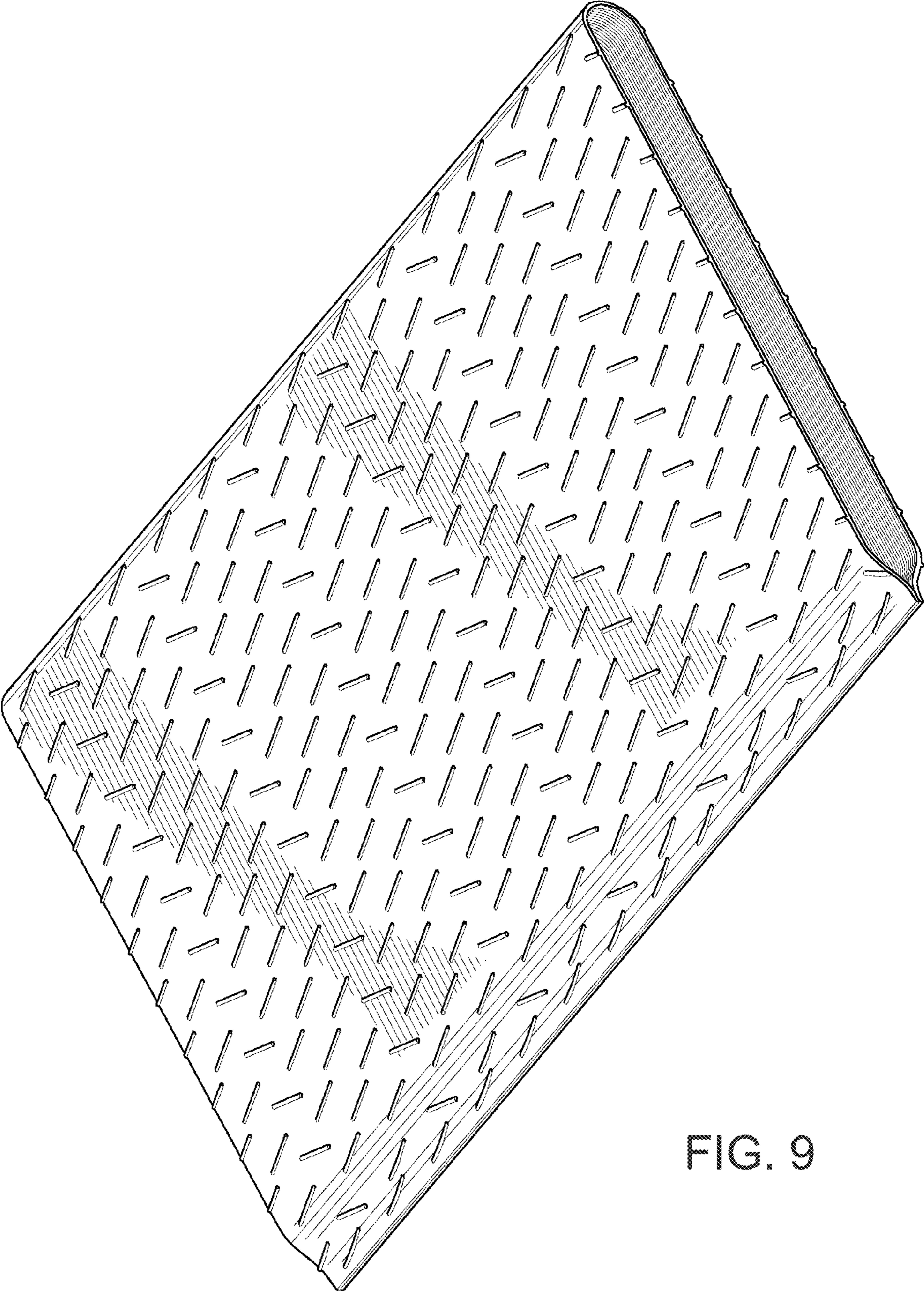


FIG. 9

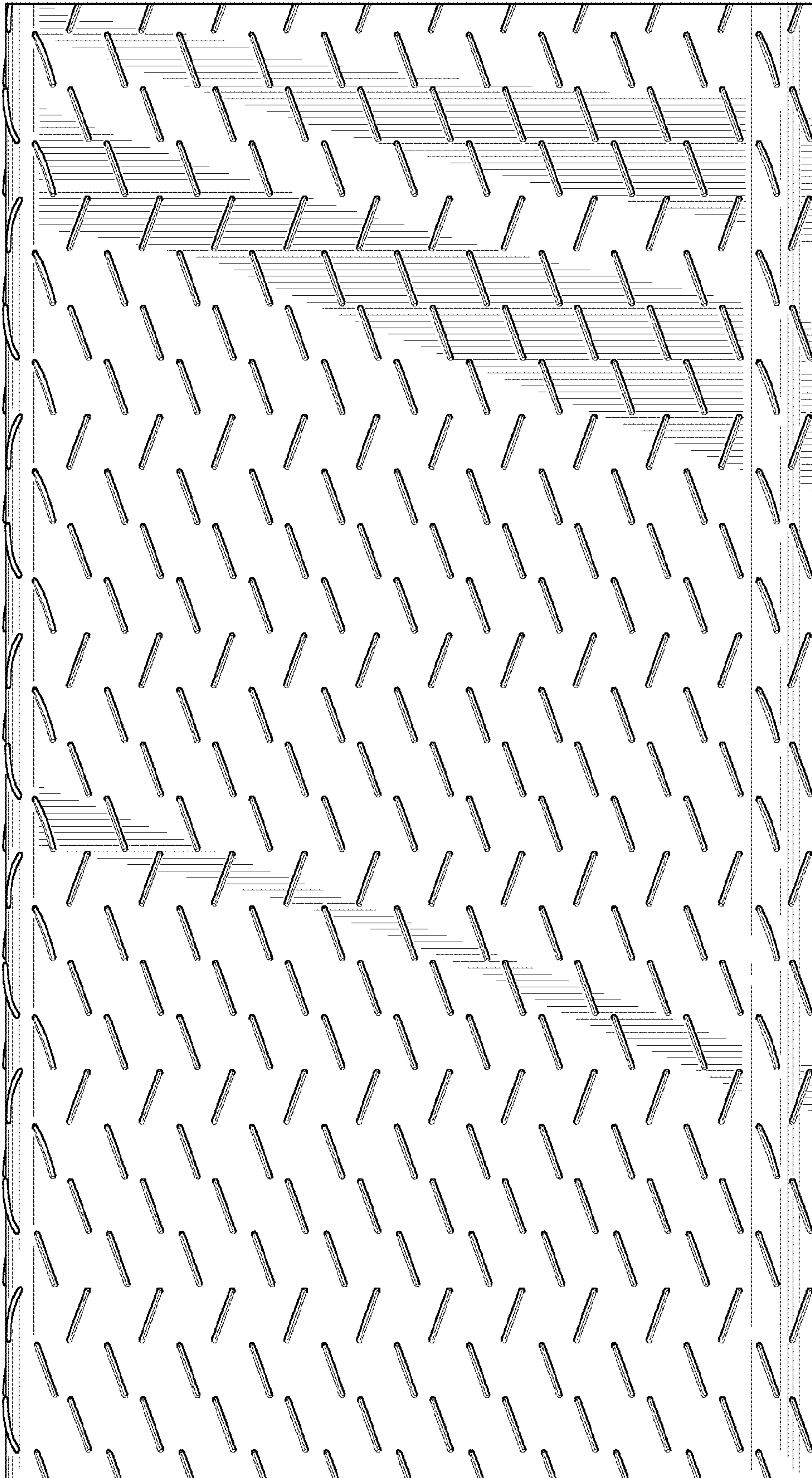


FIG. 10

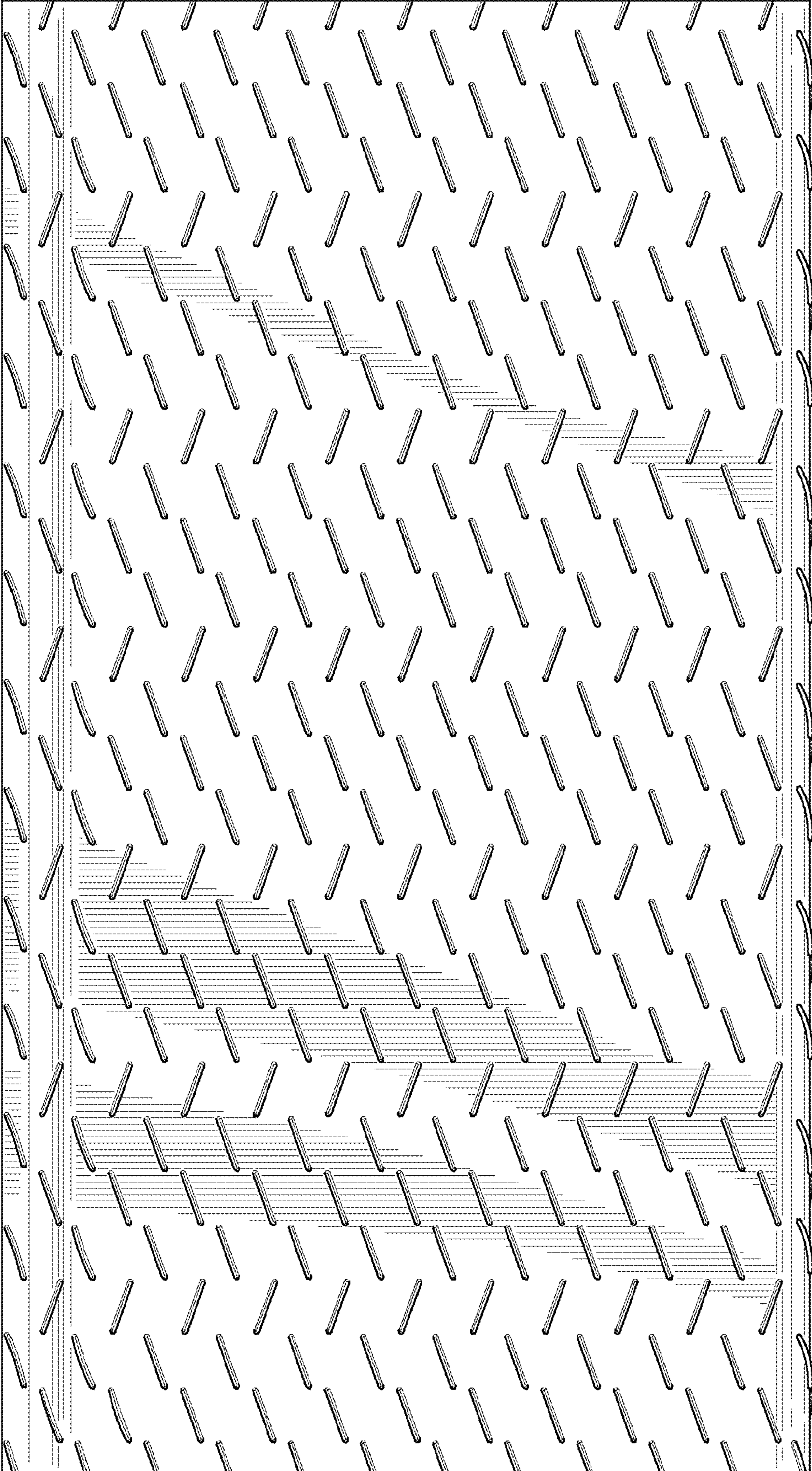


FIG. 11

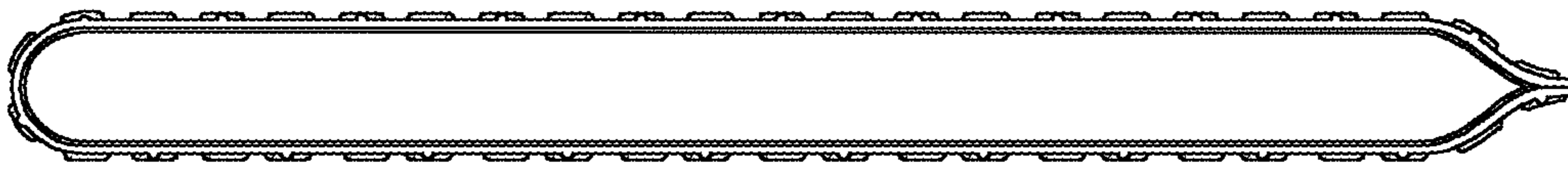


FIG. 12



FIG. 13

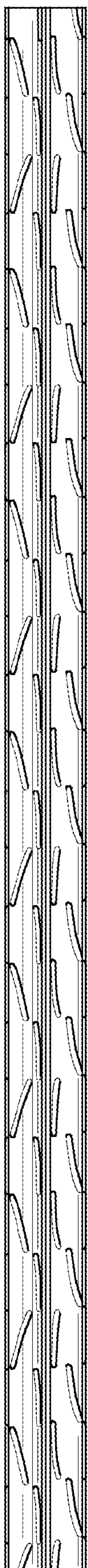


FIG. 14

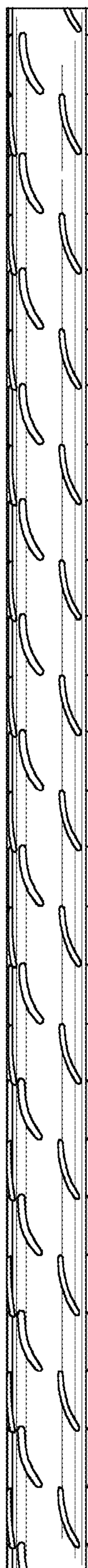


FIG. 15