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(12) **United States Design Patent** (10) **Patent No.:** **US D782,409 S**
Tyler et al. (45) **Date of Patent:** **** Mar. 28, 2017**

(54) **LITHIUM ION BATTERY CELL WITH
TERMINAL WASHERS**

2/206; H01M 2/02; H01M 2/022; H01M
2/0202; H01M 2/0207;

(Continued)

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(56) **References Cited**

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U.S. PATENT DOCUMENTS

D307,133 S * 4/1990 Ching, Jr. D13/103
5,562,484 A * 10/1996 Mlynarz H01R 9/16
411/373

(Continued)

(73) Assignee: **Johnson Controls Technology
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FOREIGN PATENT DOCUMENTS

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

JP 2003086151 3/2003
JP 2010129315 6/2010

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Related U.S. Application Data

(63) Continuation-in-part of application No. 14/673,740,
filed on Mar. 30, 2015.

(57) **CLAIM**

The ornamental design for a lithium ion battery cell with
terminal washers, as shown and described in FIGS. 1-7.

(51) **LOC (10) Cl.** **13-02**

(52) **U.S. Cl.**
USPC **D13/103**

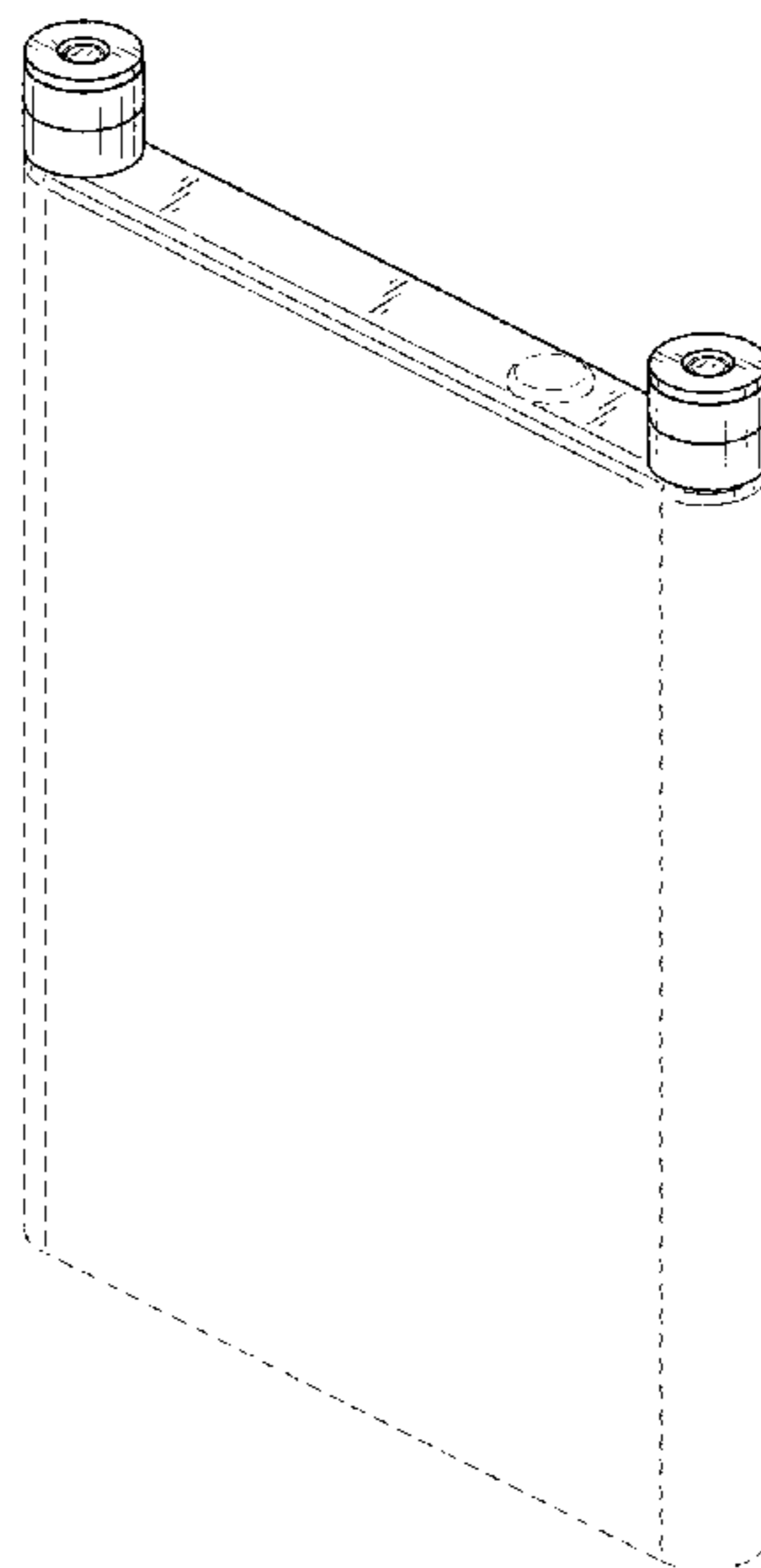
DESCRIPTION

(58) **Field of Classification Search**
USPC D13/102–106, 110, 188–119, 184, 199,
D13/107–109; 429/170, 176, 163,
429/96–100; D14/372, 356, 432
CPC Y02E 60/12; Y02E 60/122; Y02E 60/124;
Y02E 60/50; H02J 2007/0062; H02J
7/00; H02J 7/0003; H02J 7/0011; H02J
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7/0057; H01M 2200/30; H01M 2250/30;
H01M 2250/40; H01M 10/44; H01M
10/46; H01M 10/465; H01M 10/482;
H01M 10/4257; H01M 10/0436; H01M
10/48; H01M 2/20; H01M 2/202; H01M

FIG. 1 is a top perspective view of the lithium ion battery
cell with terminal washers showing our new design;
FIG. 2 is a front elevational view thereof;
FIG. 3 is a rear elevational view thereof;
FIG. 4 is a right side elevational view thereof;
FIG. 5 is a left side elevational view thereof;
FIG. 6 is a top plan view thereof; and,
FIG. 7 is a bottom plan view thereof.

The broken lines in the drawings are for the purpose of
illustrating environmental structure and unclaimed portions
of the lithium ion battery cell with terminal washers.

1 Claim, 5 Drawing Sheets



(58) **Field of Classification Search**
 CPC H01M 2/0212; H01M 2/1061; H01M
 2/1022; H01M 2/1055; H01M 2/1066;
 H01M 2/105; H01M 2/204
 See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D537,775	S *	3/2007	Morris	.....	D13/103
D592,129	S *	5/2009	Masuda	.....	D13/103
D644,178	S *	8/2011	Sato	.....	D13/120
D645,813	S *	9/2011	Yamauchi	.....	D13/103
D664,917	S *	8/2012	Taguchi	.....	D13/103
8,303,357	B2	11/2012	Kuwahara et al.		
8,313,855	B2	11/2012	Muis		
8,372,537	B2	2/2013	Bielawski et al.		
8,377,584	B2	2/2013	Suzuki		
D678,185	S *	3/2013	Horiuchi	.....	D13/103
D700,139	S *	2/2014	Chan	.....	D13/103
8,647,766	B2	2/2014	Maguire		
D704,625	S *	5/2014	Tsutsumi	.....	D13/103
8,765,285	B2 *	7/2014	Kim	.....	H01M 10/625 429/129
8,815,431	B2 *	8/2014	Han	.....	H01M 2/202 429/121
D747,264	S *	1/2016	Kitsugi	.....	D13/103
9,240,576	B2 *	1/2016	Kugino	.....	H01M 2/0404
9,252,407	B2 *	2/2016	Kim	.....	H01M 2/1077
2003/0044677	A1 *	3/2003	Naruoka	.....	H01M 2/0257 429/161
2003/0129487	A1 *	7/2003	Inoue	.....	H01M 2/0262 429/176
2004/0191612	A1 *	9/2004	Akita	.....	H01M 2/0426 429/94

2005/0233206	A1 *	10/2005	Puttaiah	.....	H01M 2/024 429/120
2005/0260491	A1 *	11/2005	Cho	.....	H01M 2/021 429/178
2011/0117420	A1 *	5/2011	Kim	.....	B23K 9/0026 429/158
2011/0123848	A1 *	5/2011	Han	.....	H01M 2/105 429/121
2011/0135970	A1	6/2011	Han et al.		
2011/0183192	A1 *	7/2011	Kim	.....	H01M 2/0275 429/176
2013/0143099	A1 *	6/2013	Huang	.....	H01M 4/136 429/153
2013/0143106	A1 *	6/2013	Huang	.....	H01M 2/021 429/163
2013/0177803	A1 *	7/2013	Kugino	.....	H01M 2/0404 429/179
2013/0216879	A1 *	8/2013	Egawa	.....	H01M 10/0587 429/94
2013/0273415	A1 *	10/2013	Lee	.....	H01M 2/021 429/176
2014/0017535	A1 *	1/2014	Kawamura	.....	H01M 10/0525 429/94
2014/0363712	A1 *	12/2014	Wohrle	.....	H01M 2/024 429/94
2015/0107093	A1 *	4/2015	Luo	.....	H01M 4/13 29/623.1

FOREIGN PATENT DOCUMENTS

JP	2014066343	4/2014
JP	2014116194	6/2014
WO	2012147531 A1	11/2012

* cited by examiner

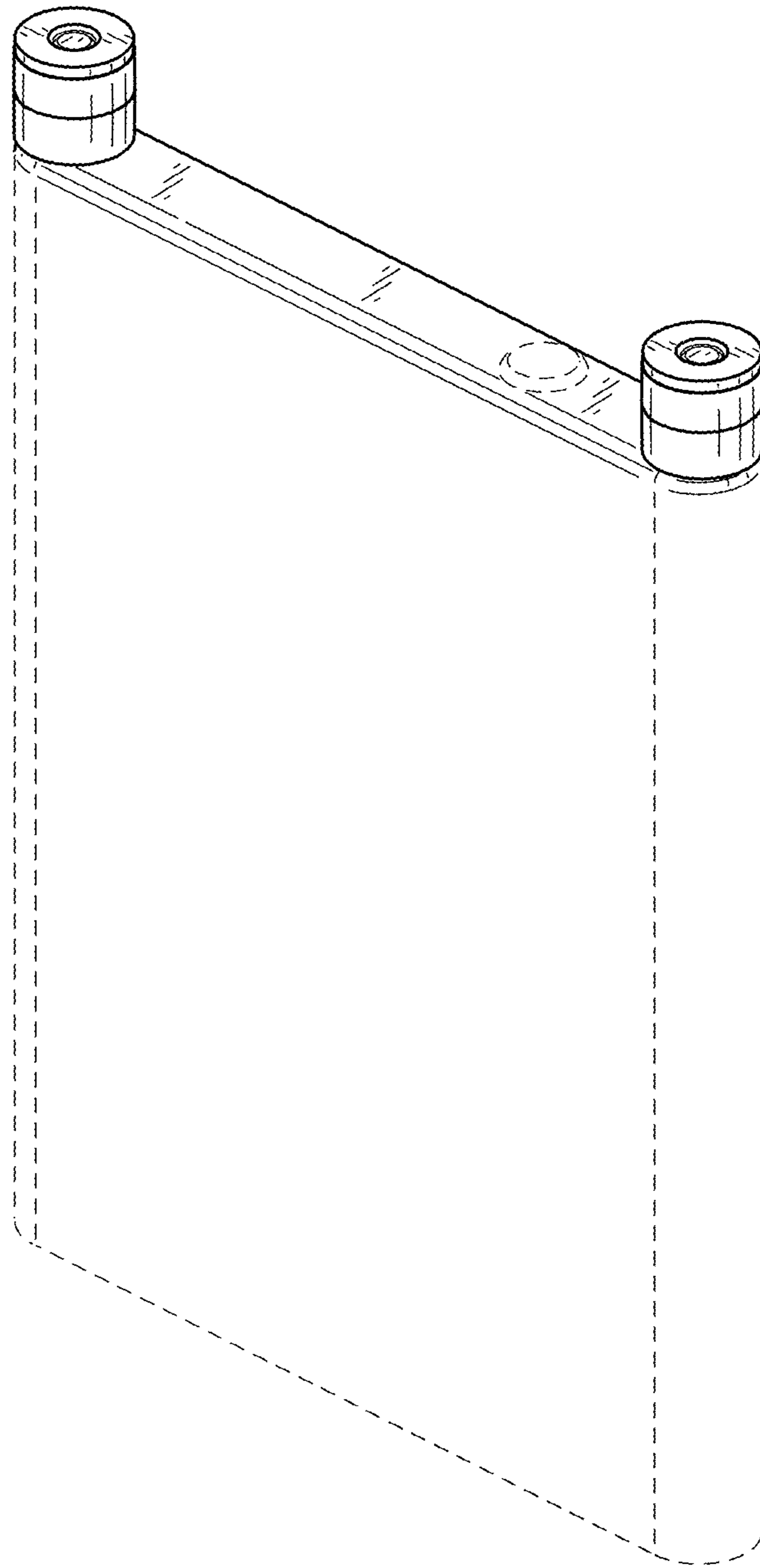


FIG. 1



FIG. 2

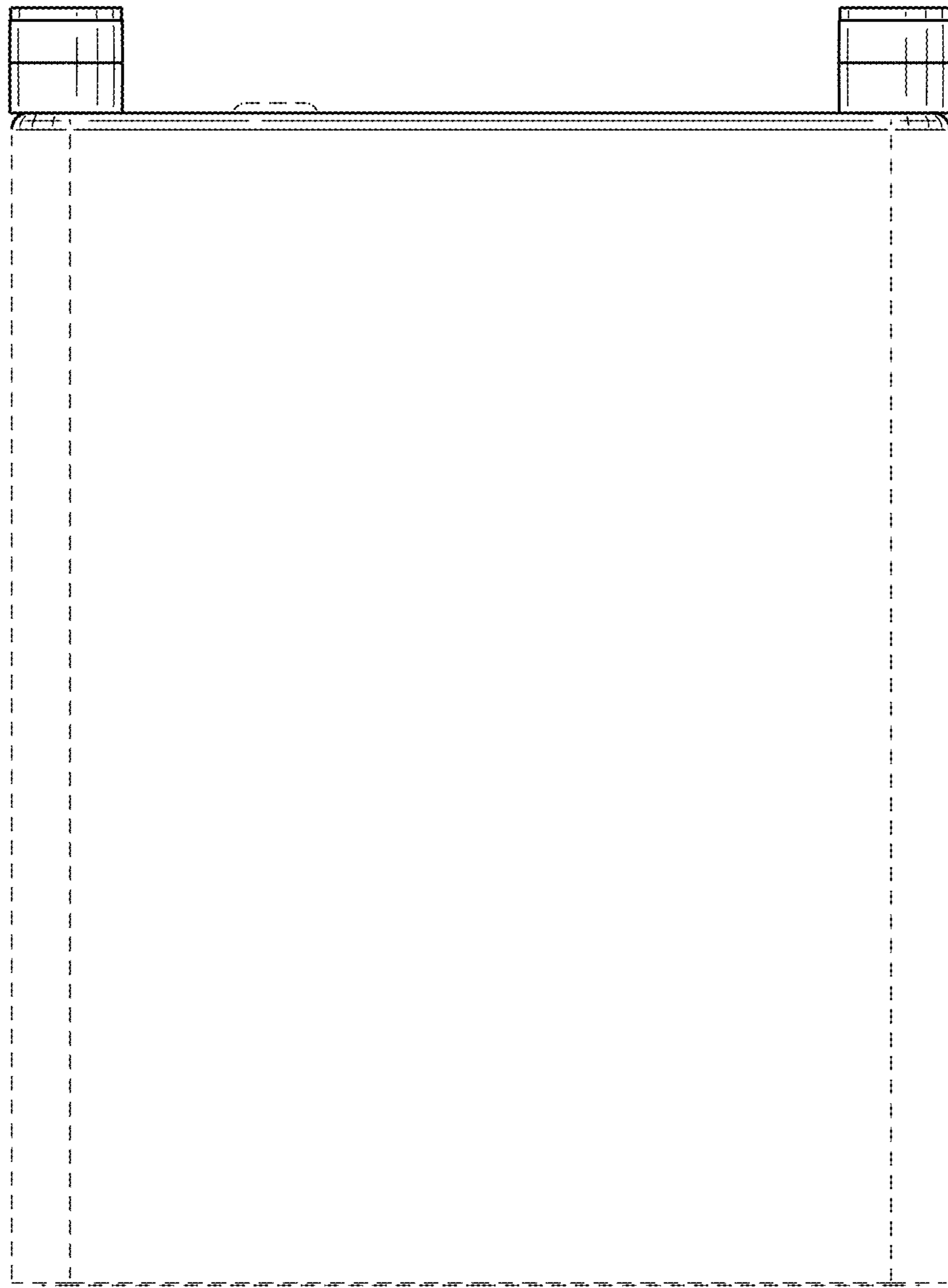


FIG. 3

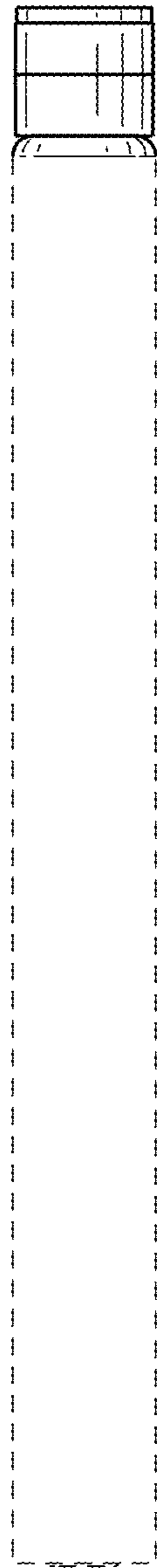


FIG. 4

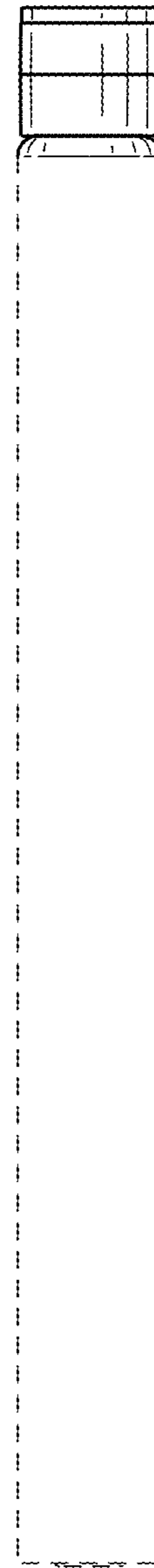


FIG. 5

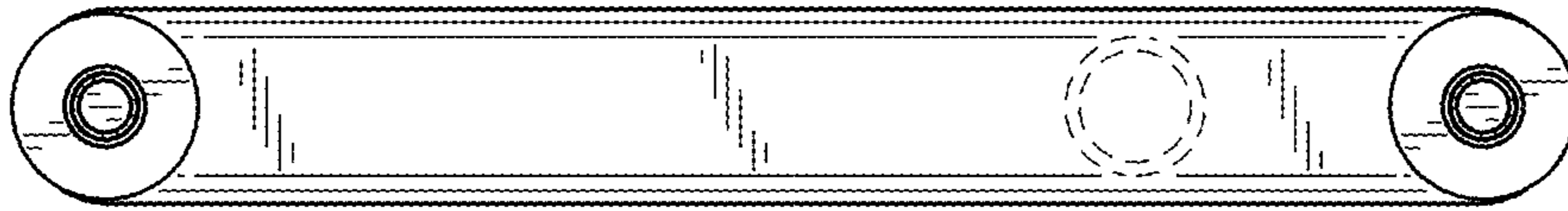


FIG. 6



FIG. 7