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(12) **United States Design Patent**
Steelman et al.

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(45) **Date of Patent:** **** May 24, 2016**

(54) **INHALATION SPACER**

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(US)

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(US)

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

(21) Appl. No.: **29/529,727**

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Related U.S. Application Data

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11, 2013, now Pat. No. Des. 735,316.

(51) **LOC (10) Cl.** **29-02**

(52) **U.S. Cl.** **D24/110**
USPC

(58) **Field of Classification Search**

USPC D24/107, 108, 110, 127, 164
CPC A61M 15/0086; A61M 15/009; A61M
15/0018; A61M 15/0021; A61M 11/00;
A61M 16/20; A61M 15/0088
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,291,688 A 9/1981 Kistler
4,470,412 A * 9/1984 Nowacki A61M 15/0086
128/200.18
4,484,577 A 11/1984 Sackner et al.
4,706,663 A 11/1987 Makiej

D295,321 S * 4/1988 Hallworth D24/110
4,796,614 A 1/1989 Nowacki et al.
4,809,692 A 3/1989 Nowacki et al.
5,012,803 A * 5/1991 Foley A61M 15/0086
128/200.14
5,012,804 A * 5/1991 Foley A61M 15/0086
128/200.14

(Continued)

FOREIGN PATENT DOCUMENTS

GB 2 275 615 A 9/1994
WO WO 02/092146 A2 11/2002

(Continued)

OTHER PUBLICATIONS

“AeroChamber Plus Flow-Vu Anti-Static Valved Holding Chamber,
Mouthpiece, Large Mask” Forest Pharmaceuticals, Inc., RMC 16416
Revision: Jan. 2010 (1 page).

(Continued)

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(57) **CLAIM**

The ornamental design for an inhalation spacer, as shown and
described.

DESCRIPTION

FIG. 1 is a front, top perspective view of an inhalation spacer
showing our design;

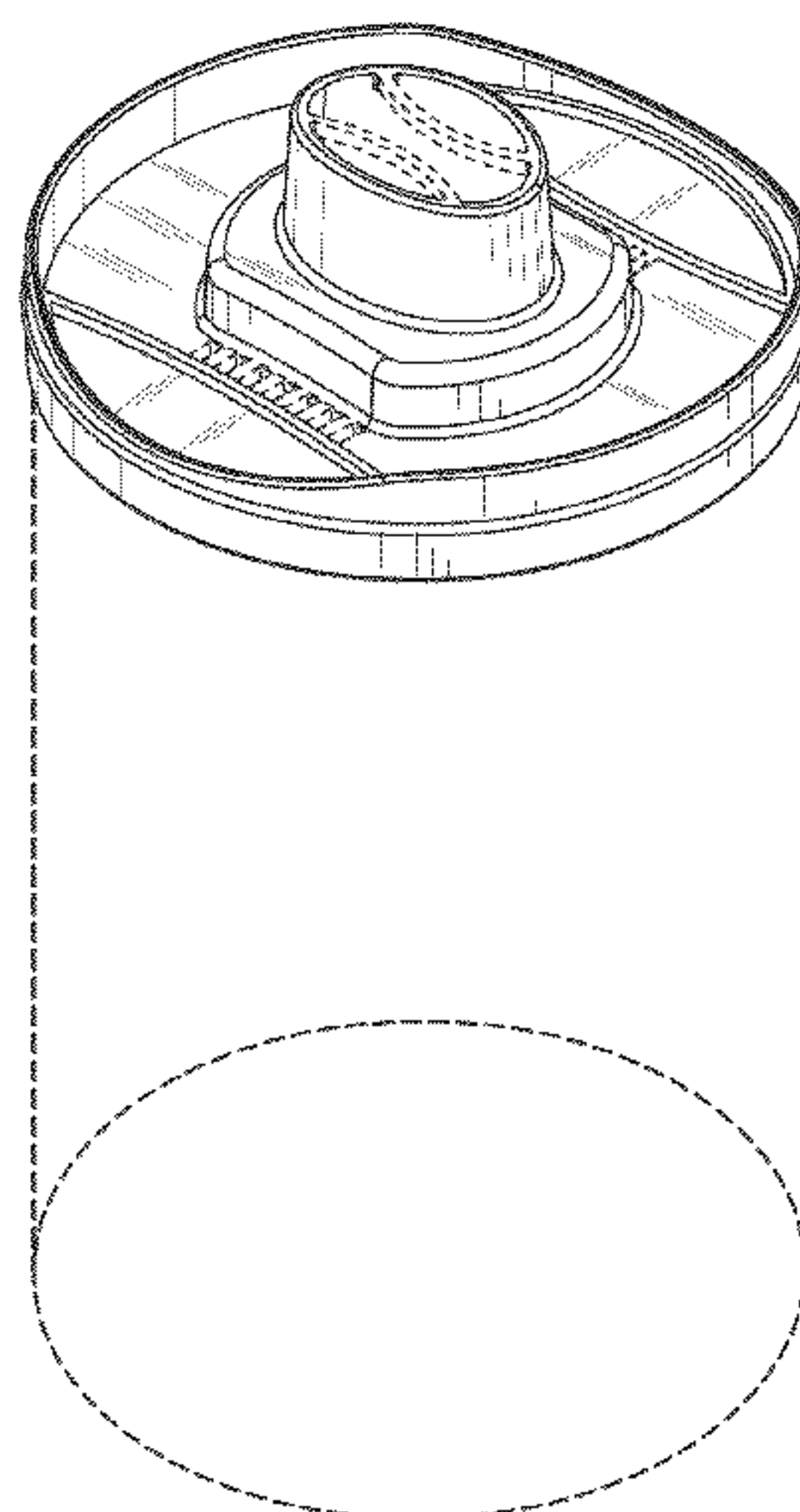
FIG. 2 is a front view thereof, the rear view being a mirror
image thereof;

FIG. 3 is a left side view thereof, the right side view being a
mirror image of the left side view; and,

FIG. 4 is a top view thereof.

The broken lines in the drawings illustrate portions of the
inhalation spacer which form no part of the claimed design.

1 Claim, 3 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

5,040,527	A	8/1991	Larson et al.	
5,042,467	A	8/1991	Foley et al.	
5,074,294	A	12/1991	Chiesi	
5,109,840	A	5/1992	Daleiden	
5,150,815	A	9/1992	Saklad	
5,203,323	A	4/1993	Tritle	
D342,993	S *	1/1994	Fathi	D24/110
5,318,016	A *	6/1994	Mecikalski	A61M 15/0086 128/200.14
5,385,140	A	1/1995	Smith	
5,427,089	A	6/1995	Kraemer	
5,477,849	A	12/1995	Fry	
5,497,765	A	3/1996	Praud et al.	
5,501,214	A	3/1996	Sabo	
5,513,626	A	5/1996	Hamilton	
D373,630	S	9/1996	Berg et al.	
5,571,246	A *	11/1996	Alldredge	A61M 15/0086 128/200.14
5,645,049	A	7/1997	Foley et al.	
5,724,962	A	3/1998	Vidgren et al.	
5,809,996	A	9/1998	Alldredge	
5,816,240	A	10/1998	Komesaroff	
5,848,588	A *	12/1998	Foley	A61M 15/0086 128/200.14
D412,979	S	8/1999	Weinstein et al.	
5,988,160	A	11/1999	Foley et al.	
6,026,807	A *	2/2000	Puderbaugh	A61M 15/0086 128/200.14
6,039,042	A *	3/2000	Sladek	A61M 15/0086 128/200.23
6,240,917	B1	6/2001	Andrade	
6,293,279	B1	9/2001	Schmidt et al.	
6,345,617	B1	2/2002	Engelbreth et al.	
6,435,176	B1	8/2002	Berg et al.	
6,435,177	B1	8/2002	Schmidt et al.	
6,463,929	B1	10/2002	Scheuch et al.	
6,550,473	B1	4/2003	Sladek	
6,557,549	B2 *	5/2003	Schmidt	A61M 15/0086 128/200.24
6,595,204	B2	7/2003	Genova et al.	
6,595,206	B2	7/2003	Vito	
6,604,522	B2	8/2003	Arvidsson et al.	
7,107,987	B2	9/2006	Sundaram et al.	
7,360,537	B2	4/2008	Snyder et al.	
7,404,400	B2	7/2008	Lulla et al.	
7,431,175	B2	10/2008	Heilos	
D585,542	S	1/2009	Watson et al.	
7,562,656	B2 *	7/2009	Gallem	A61M 15/0086 128/200.14
D597,656	S	8/2009	Bird et al.	
7,748,385	B2	7/2010	Lieberman	
8,074,641	B2	12/2011	Gallem et al.	
8,074,642	B2	12/2011	Bruce et al.	
RE43,174	E	2/2012	Schmidt et al.	
8,528,543	B2	9/2013	Barney et al.	
D692,122	S *	10/2013	von Hollen	D24/110
D717,424	S	11/2014	Steelman et al.	
D735,316	S *	7/2015	Steelman	D24/110
2002/0069870	A1	6/2002	Farmer	
2003/0010336	A1 *	1/2003	Vito	A61M 15/0086 128/200.22
2003/0029447	A1 *	2/2003	Vito	A61M 15/0086 128/200.23
2003/0205226	A1 *	11/2003	Gallem	A61M 15/0086 128/200.14
2004/0050869	A1 *	3/2004	Jennings	A61M 15/009 222/183
2004/0094148	A1	5/2004	Lulla et al.	
2004/0231665	A1 *	11/2004	Lieberman	A61M 15/0086 128/200.14
2006/0000471	A1 *	1/2006	Klein	A61M 15/0088 128/200.23
2007/0113841	A1	5/2007	Fuchs	
2007/0289590	A1	12/2007	Kreutzmann et al.	

2008/0035142	A1 *	2/2008	Lulla	A61M 15/0086 128/203.12
2008/0210225	A1	9/2008	Geiger	
2009/0007909	A1	1/2009	Carrico	
2009/0013993	A1	1/2009	Bird et al.	
2011/0209700	A1	9/2011	Kreutzmann et al.	
2011/0226242	A1	9/2011	Von Hollen et al.	
2011/0232636	A1 *	9/2011	Von Hollen	A61M 15/0086 128/202.13
2011/0247624	A1	10/2011	Von Hollen et al.	
2012/0042874	A1	2/2012	Gallem et al.	
2012/0247460	A1	10/2012	Stenzler et al.	
2012/0285236	A1 *	11/2012	Haartsen	A61M 11/005 73/204.11
2012/0318261	A1 *	12/2012	Newhouse	A61M 15/0086 128/200.23
2013/0075393	A1	3/2013	Haynie	
2013/0276781	A1	10/2013	Steelman et al.	
2013/0291862	A1	11/2013	Eagle	
2015/0059739	A1 *	3/2015	Aslam	A61M 15/009 128/202.22

FOREIGN PATENT DOCUMENTS

WO	WO 2010/070496	A1	6/2010
WO	WO 2012/038861	A1	3/2012

OTHER PUBLICATIONS

“AeroChamber Plus Flow-Vu Anti-Static Valved Holding Chamber, Small Mask, Medium Mask” Forest Pharmaceuticals, Inc., RMC 16417 Revision: Jan. 2010 (1 page).

“AeroChamber Plus Valved Holding Chamber” Forest Pharmaceuticals, Inc., Retrieved Date: May 6, 2010, From URL: <http://www.aerochambervhc.com> (3 pages).

“E-Z Spacer® Collapsible holding chamber for metered-dose inhalers” FSC Laboratories, Inc., FSC 393-11, Rev A, Nov. 2008 (1 page).

“Optichamber® Advantage Valved Holding Chamber” Philips Respironics, Retrieved Date: Oct. 14, 2010, From URL: <http://optichamberholdingchamber.respironics.com/default.asp> (5 pages).

“PARI Granted U.S. Patent for Vortex Holding Chamber” PARI Respiratory Equipment, Inc., News Release, Midlothian, Virginia, Jul. 21, 2009 (1 page).

“PARI In the Americas—The Lower Airways—Home” PARI Respiratory Equipment, Inc., Retrieved Date: May 6, 2010, From URL: <http://www.pari.com/pdd.htm> (1 page).

“PARI Vortex® Non Electrostatic Valved Holding Chamber” PARI Respiratory Equipment, Inc., Retrieved Date: May 6, 2010, From URL: <http://www.pari.com/pdd/vortex.htm> (2 pages).

“Pocket Flow Spacer” Health Enterprise East Ltd., Retrieved Date: Jun. 21, 2010, From URL: <http://www.hee.org.uk/Licensing-Opportunities/pocket-flow-spacer.html> (1 page).

“Spacers and holding chambers” Koninklijke Philips Electronics N.V., Retrieved Date: May 6, 2010, From URL: http://www.healthcare.philips.com/main/homehealth/respiratory_drug_delivery/spacers_and_holding_chambers/index.wpd (1 page).

Heidi et al., “Inhaled isotonic alkaline versus saline solution and radioaerosol clearance in chronic cough” *European Respiratory Journal* 2000; 16: 1102-1108.

Hsu et al. “Breath-by-breath Delivered Dose Comparison from Three Anti-Static Valved Holding Chambers With Facemasks Under Simulated Use Conditions”, Philips Respironics, (Date Unknown).

Hsu et al. “Evaluation of Delivery Efficiency from Valved Holding Chambers with Facemasks Under Simulated Use Conditions”, Retrieved from the Internet at URL http://www.healthcare.philips.com/pwc_hc/us_en/homehealth/respiratory_drug_delivery/optic-chamberdiamond/pdf/RDD_2011_Hsu_et_al_LiteTouch_Facemask_seal.pdf (Date Unknown).

Nikander et al. In Vitro Comparison of Aerosol Characteristics of HFA Ipratropium Bromide Pressurized Metered Dose Inhaler (pMDI) Formulation from Three Valved Holding Chambers (VHCs), Philips Respironics, Presented at the European Respiratory Society Conference, Sep. 24-28, 2011, Amsterdam, The Netherlands (1 page).

(56)

References Cited

OTHER PUBLICATIONS

OptiChamber Advantage Valved Holding Chamber Koninklijke Philips Electronics N.V., Retrieved Date: May 6, 2010, From URL: http://www.healthcare.philips.com/main/homehealth/respiratory_drug_delivery/optichamberholdingchamber/default.wpd (1 page).

Philips Respironics, "OptiChamber Diamond anti-static valved holding chamber", 2011 Koninklijke Philips Electronics N.V., Retrived from the Internet at URL http://www.healthcare.philips.com/pwc_hc/main/homehealth/respiratory_drug_delivery/litetouch/pdf/PR_OCD_AerosolCharacterization_Charts_HI.pdf (3 pages).

Philips Respironics, "Philips Respironics OptiChamber Diamond anti-static valved holding chamber", 2011 Koninklijke Philips Electronics N.V., Retrieved from the Internet at URL http://www.healthcare.philips.com/pwc_hc/main/homehealth/respiratory_drug_delivery/optichamberdiamond/pdf/Intl-PN1091731.pdf (2 pages).

von Hollen et al. "Determining the Influence of Washing on the Aerosol Performance of an Anti-Static Valved Holding Chamber" Philips Respironics, Presented at the Association of Asthma Educators Annual Conference, Jul. 22-24, 2011, Denver, Colorado, USA (1 page).

von Hollen et al. "Effect of Simulated Facial Movement on the Seal Integrity of a Valved Holding Chamber Mask", Philips Respironics, Presented at the American Thoracic Society International Conference, May 14-19, 2010, New Orleans, LA, USA, (1 page).

von Hollen et al. "In Vitro Comparison of Aerosol Characteristics of Two Pressurized Metered Dose Inhaler Formulations Commonly Used in COPD", Philips Respironics, Presented at the American Association of Pharmaceutical Scientists Conference, Oct. 23-27, 2011, Washington, DC. USA, (1 page).

von Hollen et al. "In Vitro Comparison of Aerosol Characteristics of HFA Albuterol Pressurized Metered Dose Inhaler Formulation from Anti-Static Valved Holding Chambers", Philips Respironics, Pre-

sented at the American Thoracic Society International Conference, May 13-18, 2011, Denver, CO, USA, (1 page).

von Hollen et al. In Vitro Comparison of Aerosol Characteristics of HFA Albuterol (Salbutamol) Pressurized Metered Dose Inhaler (pMDI) Formulation from Three Valved Holding Chambers (VHCs), Philips Respironics, Presented at the European Respiratory Society Conference, Sep. 24-28, 2011, Amsterdam, The Netherlands, (1 page).

von Hollen et al. "Quantifying Facemask Sealing Efficiency when used on a Valved Holding Chamber During Simulated Breathing", Philips Respironics, Presented at the Association of Asthma Educators annual conference, Jul. 31- Aug. 2, 2009, New Orleans, LA, (1 page).

von Hollen et al., "Comparison of Aerosol Characteristics from Two HFA Pressurized Metered Dose Inhaler Formulations using Anti-Static Valved Holding Chambers", Philips Respironics, Presented at Respiratory Drug Delivery Europe, Berlin, Germany, May 3-6, 2011, (1 page).

von Hollen et al., "Evaluation of the Aerosol Characteristics of an HFA Fluticasone Propionate Pressurized Metered Dose Inhaler Formulation with Conventional and Anti-Static plastic Valved Holding Chambers", Philips Respironics, Presented at the 18th Congress of International Society for Aerosols in Medicine, Jun. 18-22, 2011, Rotterdam, The Netherlands, (1 page).

von Hollen et al., "Impact of Flow Rate Change on the Aerosol Characteristics of HFA Albuterol (Salbutamol) Pressurized Metered Dose Inhaler Formulation with an Anti-Static Valved Holding Chamber", Philips Respironics, Presented at the 18th Congress of International Society for Aerosols in Medicine, Jun. 18-22, 2011, Rotterdam, The Netherlands, (1 page).

Invitation To Pay Additional Fees Corresponding to International Application No. PCT/US2013/036936; Date of Mailing: Jun. 27, 2013; 8 Pages.

* cited by examiner

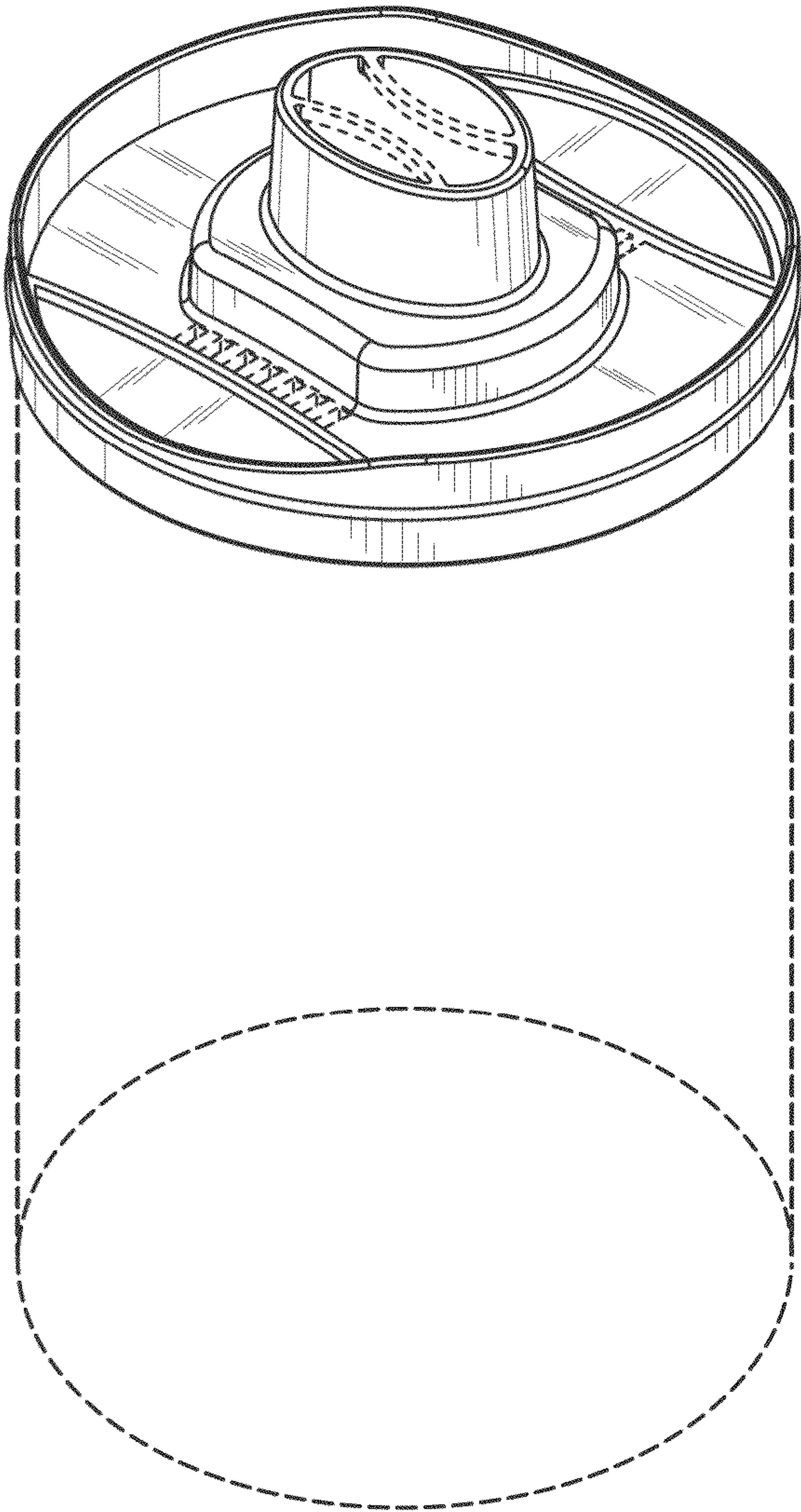


Fig. 1

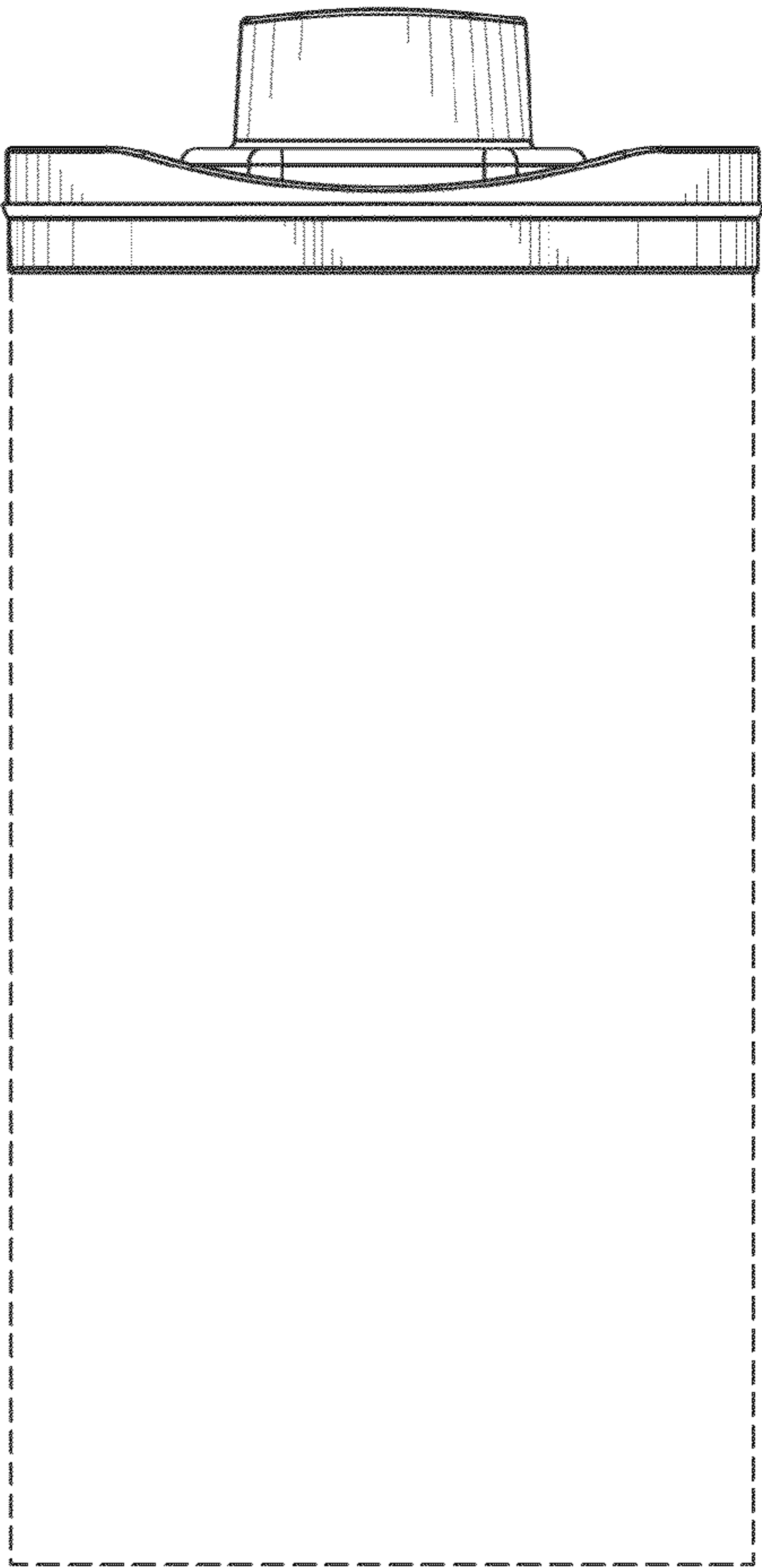


Fig. 2

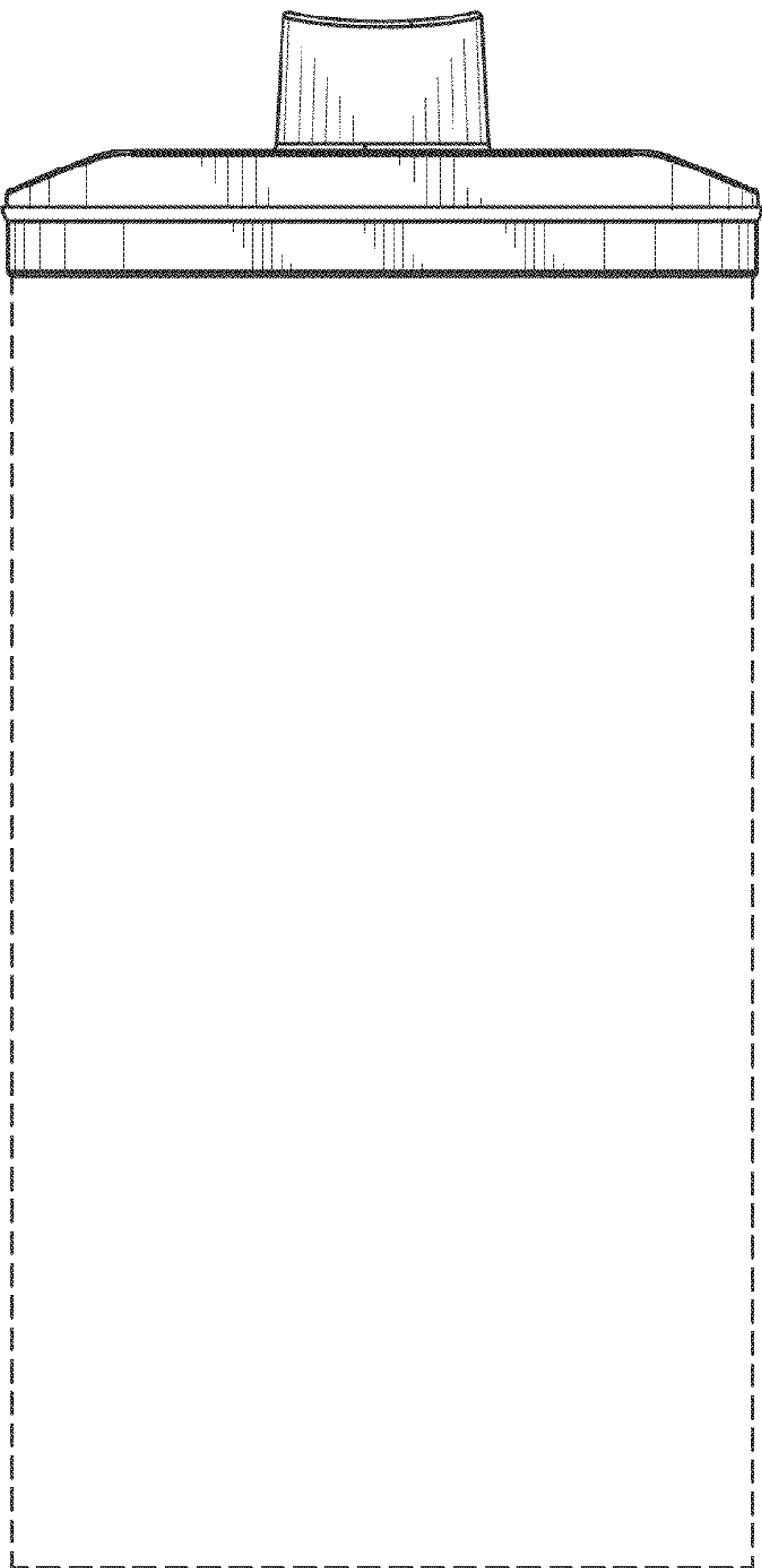


Fig. 3

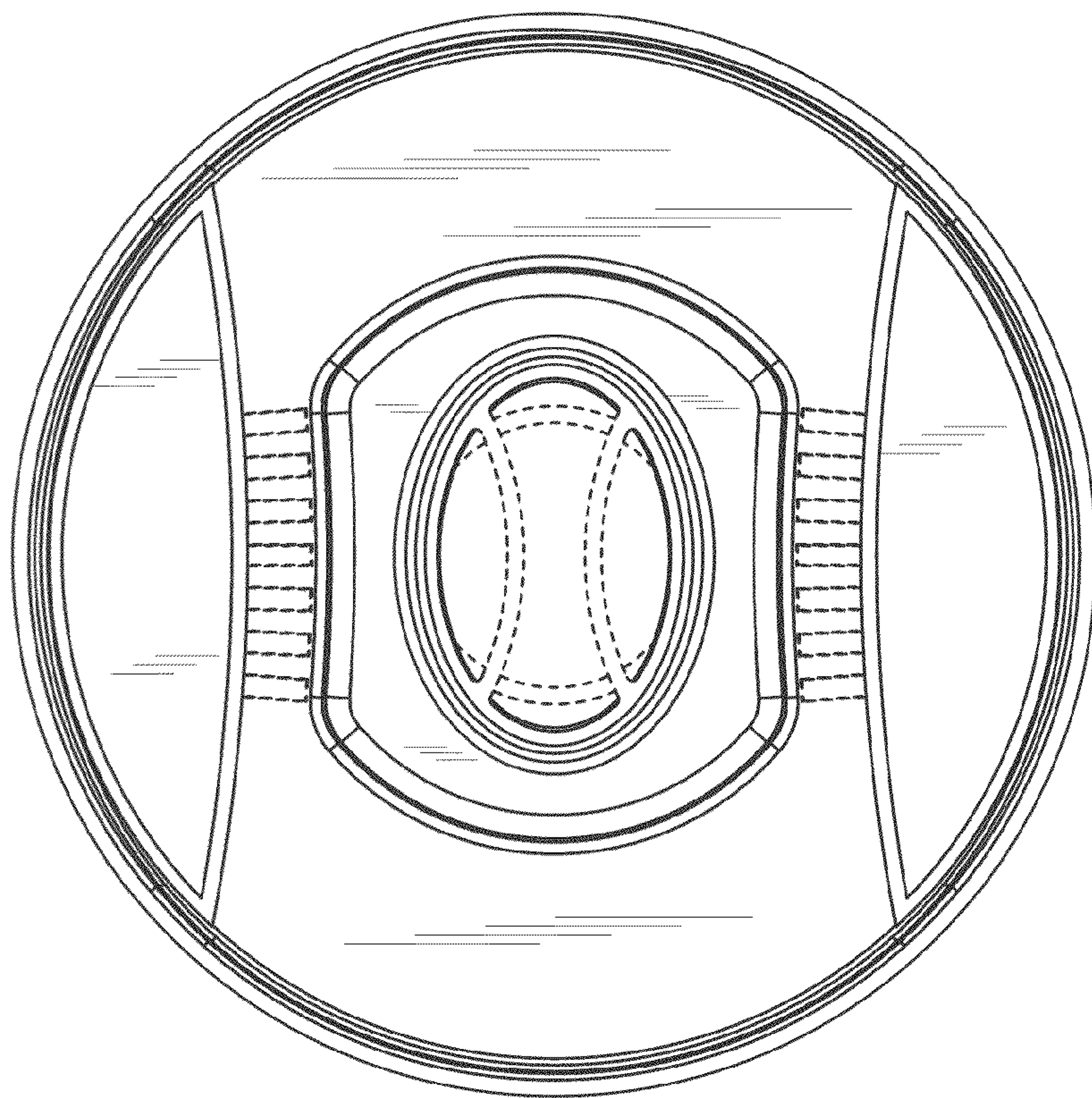


Fig. 4

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : D757,246 S
APPLICATION NO. : 29/529727
DATED : May 24, 2016
INVENTOR(S) : Steelman et al.

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On Title Page:

Item (57) **CLAIM**: Please correct “spacer, as” to read -- spacer as --

In the **DESCRIPTION**, FIG. 3, Line 2: Please correct “and,” to read -- and --

Page 2, OTHER PUBLICATIONS: Line 28: Please correct “Heidi et al.,” to read -- Haidl et al., --

Signed and Sealed this
Eighth Day of November, 2016



Michelle K. Lee
Director of the United States Patent and Trademark Office