



US00D938590S

(12) **United States Design Patent** (10) **Patent No.:** **US D938,590 S**  
**Wolfe et al.** (45) **Date of Patent:** **\*\* Dec. 14, 2021**

(54) **HUMERAL IMPLANT**

(71) Applicant: **HOWMEDICA OSTEONICS CORP.**,  
Mahwah, NJ (US)

(72) Inventors: **Alexander Paul Wolfe**, Fort Wayne, IN  
(US); **David R. Stump**, Columbia City,  
IN (US)

(73) Assignee: **HOWMEDICA OSTEONICS CORP.**,  
Mahwah, NJ (US)

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

(21) Appl. No.: **29/707,802**

(22) Filed: **Oct. 1, 2019**

(51) **LOC (13) Cl.** ..... **24-03**

(52) **U.S. Cl.**  
USPC ..... **D24/155**

(58) **Field of Classification Search**  
USPC ..... D2/617; D3/201, 203.1, 203.6, 203.7,  
D3/304, 306, 314; D8/382; D14/205,  
D14/223; D15/199; D24/101, 102, 104,  
D24/133, 141, 155, 171, 188, 190, 193,  
D24/194, 196, 216, 224, 227, 228, 229,  
D24/231; D29/123

CPC .. A41D 19/00; A41D 19/0017; A41D 19/015;  
A41D 19/0055; A61B 17/80; A61B  
2017/00292; A61B 2017/00796; A61B  
2017/00969; A61B 50/30; A61B 50/33;  
A61F 2/00; A61F 2/02; A61F 2002/046;  
A61F 2/12; A61F 2/20; A61F 2/203;  
A61F 2/26; A61F 2/28; A61F 2002/2853;  
A61F 2/30; A61F 2/50; A61F 2002/5038;  
A61F 2002/5058; A61F 2002/5064; A61F  
2/52; A61F 2002/526; A61F 2/54; A61F  
2/58; A61F 2/583; A61F 2/60; A61F  
2/604; A61F 2/64; A61F 2/66; A61F  
2002/6614; A61F 2002/6621; A61F  
2002/6628; A61F 2/82; A61F 2/86; A61F  
2/88; A61F 2/885; A61N

(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,310,931 A 1/1982 Muller  
5,849,015 A 12/1998 Haywood et al.  
(Continued)

FOREIGN PATENT DOCUMENTS

DE 102 50 390 5/2004  
DE 10 2005 003 097 7/2006  
(Continued)

OTHER PUBLICATIONS

Med Gadget, "Tornier Announces First Implant in U.S. Trial of Its  
Simpliciti Stemless Shoulder Joint Replacement System", first  
available Aug. 5, 2011. (<https://www.medgadget.com/2011/08/tornier-announces-first-implant-in-u-s-trial-of-its-simpliciti-stemless-shoulder-joint-replacement-system.html>) (Year: 2011).\*

(Continued)

*Primary Examiner* — Lauren D McVey  
*Assistant Examiner* — Justin A Johnson  
(74) *Attorney, Agent, or Firm* — Duane Morris LLP

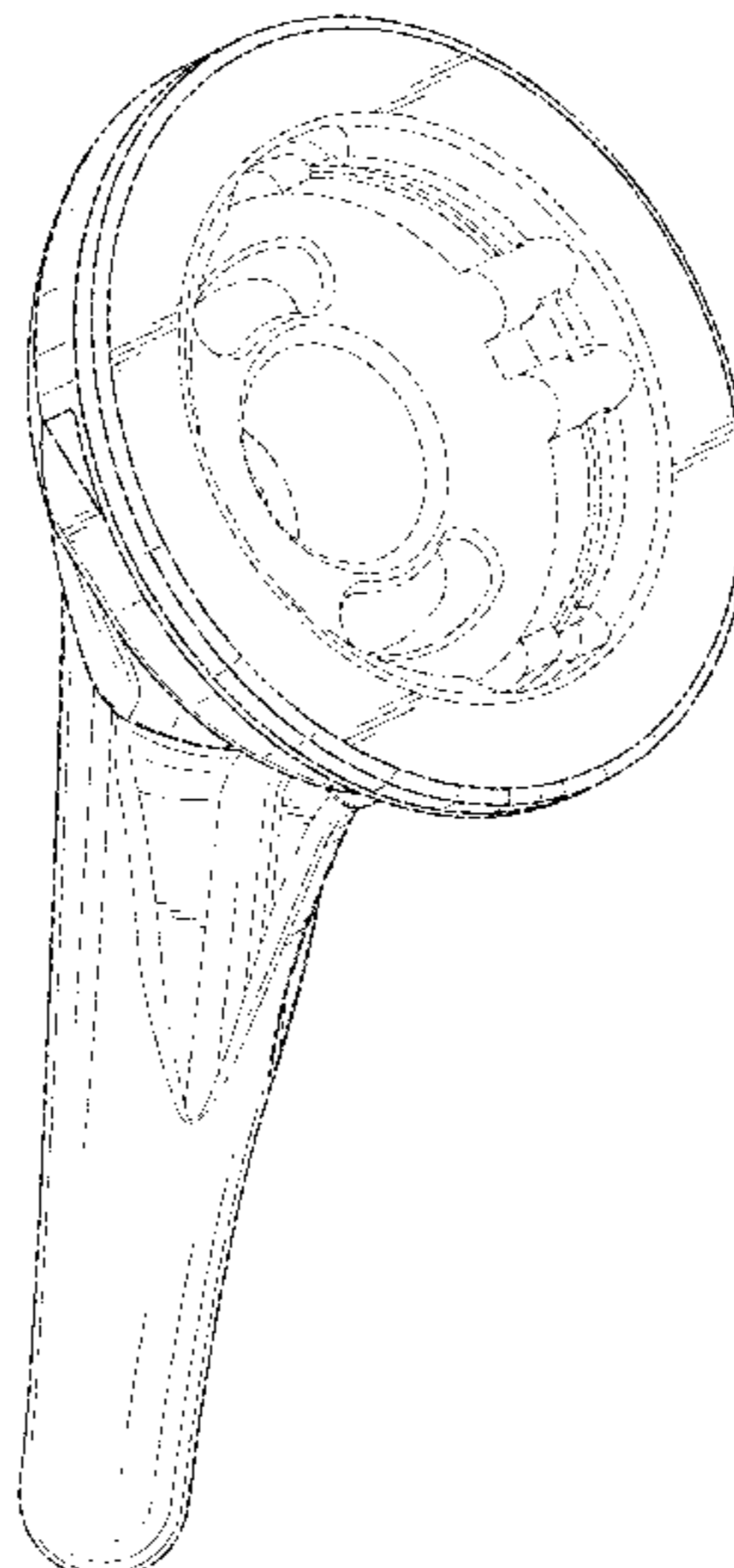
(57) **CLAIM**

The ornamental design for a humeral implant, as shown and  
described.

**DESCRIPTION**

FIG. 1 is a perspective view of a humeral implant of our  
design;  
FIG. 2 is a right side view thereof;  
FIG. 3 is a left side view thereof;  
FIGS. 4-5 are front and rear views, respectively, thereof;  
FIG. 6 is a top view thereof; and,  
FIG. 7 is a bottom view thereof.  
All features illustrated in broken lines form no part of the  
claimed design.

**1 Claim, 6 Drawing Sheets**



(58) **Field of Classification Search**  
 CPC ..... 1/05; A61N 1/0551; A61N 1/20; A61M  
 16/04  
 See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,910,171 A 6/1999 Kummer et al.  
 6,165,224 A 12/2000 Tornier  
 6,187,012 B1 2/2001 Masini  
 6,197,062 B1 3/2001 Fenlin  
 6,228,119 B1 5/2001 Ondrla et al.  
 6,283,999 B1 9/2001 Rockwood, Jr.  
 6,334,874 B1 1/2002 Tornier et al.  
 6,436,147 B1 8/2002 Zweymuller  
 6,468,314 B2 10/2002 Schwartz et al.  
 D469,808 S \* 2/2003 Browne-Wilkinson ..... D19/62  
 6,520,994 B2 2/2003 Nogarin  
 6,558,425 B2 5/2003 Rockwood, Jr.  
 6,648,894 B2 11/2003 Abdelgany et al.  
 6,673,114 B2 1/2004 Hartdegen et al.  
 6,702,854 B1 3/2004 Cheal et al.  
 6,719,799 B1 4/2004 Kropf  
 6,746,487 B2 6/2004 Seifert et al.  
 6,887,277 B2 5/2005 Rauscher et al.  
 6,899,736 B1 5/2005 Rauscher et al.  
 7,001,389 B1 2/2006 Navarro et al.  
 7,011,686 B2 3/2006 Ball et al.  
 7,166,132 B2 1/2007 Callaway et al.  
 7,175,663 B1 2/2007 Stone  
 D542,782 S \* 5/2007 Pena Angarita ..... D14/223  
 7,309,360 B2 12/2007 Tornier et al.  
 7,445,638 B2 11/2008 Benguin et al.  
 7,758,650 B2 7/2010 Dewes et al.  
 7,802,503 B2 9/2010 Couvillion et al.  
 7,998,217 B1 8/2011 Brown  
 8,231,684 B2 7/2012 Mutchler et al.  
 8,257,363 B2 9/2012 Splieth et al.  
 8,357,204 B2 1/2013 Ragbir  
 8,512,410 B2 8/2013 Metcalfe et al.  
 8,529,629 B2 9/2013 Angibaud et al.  
 8,545,504 B2 10/2013 Durand-Allen et al.  
 8,608,805 B2 12/2013 Forrer et al.  
 8,647,387 B2 2/2014 Winslow  
 8,663,333 B2 3/2014 Metcalfe et al.  
 8,663,334 B2 3/2014 Viscardi et al.  
 8,764,845 B2 7/2014 Brooks et al.  
 8,764,846 B2 7/2014 Grappiolo  
 D718,284 S \* 11/2014 Shibusawa ..... D14/223  
 8,888,855 B2 11/2014 Roche et al.  
 8,945,234 B2 2/2015 Humphrey  
 D725,634 S \* 3/2015 Burgett ..... D14/223  
 9,421,105 B2 8/2016 Metcalfe et al.  
 9,474,618 B2 10/2016 Bickley et al.  
 9,498,344 B2 11/2016 Hodorek et al.  
 9,566,162 B2 2/2017 Isch  
 9,597,190 B2 3/2017 Chavarria et al.  
 9,603,712 B2 3/2017 Bachmaier  
 9,610,165 B2 4/2017 Poncet et al.  
 9,622,869 B2 4/2017 Nerot et al.  
 9,700,423 B2 7/2017 Stone et al.  
 9,770,334 B2 9/2017 Wiley et al.  
 D801,314 S \* 10/2017 Akana ..... D14/223  
 9,844,439 B2 12/2017 Katrana et al.  
 9,867,710 B2 1/2018 Dalla Pria et al.  
 9,925,047 B2 3/2018 Klotz et al.  
 D817,932 S \* 5/2018 Hsieh ..... D14/223  
 9,956,083 B2 5/2018 Humphrey  
 10,034,759 B2 7/2018 Deransart et al.  
 10,143,558 B2 12/2018 Frankle  
 10,143,559 B2 12/2018 Ries et al.  
 10,172,714 B2 1/2019 Hatzidakis et al.  
 10,226,349 B2 3/2019 Sperling et al.  
 10,383,734 B2 8/2019 Ekelund et al.  
 D865,720 S \* 11/2019 Deng ..... A61F 2/40  
 D14/223

D889,440 S \* 7/2020 Yan ..... A61F 2/4003  
 D14/223  
 2001/0010023 A1 7/2001 Schwartz et al.  
 2001/0011193 A1 8/2001 Nogarin  
 2003/0028253 A1 2/2003 Stone et al.  
 2003/0097183 A1 5/2003 Rauscher et al.  
 2004/0064190 A1 4/2004 Ball et al.  
 2005/0071014 A1 3/2005 Barnett et al.  
 2006/0020344 A1 1/2006 Shultz et al.  
 2006/0069445 A1 3/2006 Ondria et al.  
 2007/0162140 A1 7/2007 McDevitt  
 2007/0173945 A1 7/2007 Wiley et al.  
 2007/0179624 A1 8/2007 Stone et al.  
 2007/0225726 A1 9/2007 Dye et al.  
 2007/0225821 A1 9/2007 Reubelt et al.  
 2008/0039860 A1 2/2008 Trudeau  
 2008/0183297 A1 7/2008 Boileau et al.  
 2008/0228281 A1 9/2008 Forrer et al.  
 2009/0265010 A1 10/2009 Angibaud et al.  
 2009/0281630 A1 11/2009 Delince et al.  
 2010/0049327 A1 2/2010 Isch et al.  
 2010/0114326 A1 5/2010 Winslow et al.  
 2010/0249797 A1 9/2010 Trudeau et al.  
 2011/0029089 A1 2/2011 Giuliani et al.  
 2011/0060417 A1 3/2011 Simmen et al.  
 2011/0125285 A1 5/2011 Ragbir  
 2012/0143204 A1 6/2012 Blaycock et al.  
 2012/0253350 A1 10/2012 Anthony et al.  
 2012/0253467 A1 \* 10/2012 Frankle ..... A61F 2/40  
 623/19.11  
 2013/0090736 A1 4/2013 Katrana et al.  
 2013/0197652 A1 8/2013 Ekelund et al.  
 2013/0289738 A1 10/2013 Humphrey  
 2013/0325134 A1 12/2013 Viscardi et al.  
 2015/0245912 A1 9/2015 Link  
 2015/0265411 A1 9/2015 Deransart et al.  
 2016/0361173 A1 12/2016 Reubelt et al.  
 2017/0049573 A1 2/2017 Hodorek et al.  
 2017/0056187 A1 3/2017 Humphrey et al.  
 2017/0304063 A1 \* 10/2017 Hatzidakis ..... A61F 2/4003  
 2017/0030449 A1 11/2017 Deransart et al.  
 2018/0000598 A1 1/2018 Amis et al.  
 2018/0280152 A1 10/2018 Mutchler et al.  
 2018/0325687 A1 11/2018 Deransart et al.  
 2018/0333265 A1 11/2018 Termanini et al.  
 2019/0046326 A1 \* 2/2019 Ball ..... A61F 2/4003  
 2019/0105169 A1 4/2019 Sperling  
 2019/0231540 A1 8/2019 Kim et al.  
 2019/0231544 A1 \* 8/2019 Boileau ..... A61F 2/4014  
 2020/0289280 A1 \* 9/2020 Lefebvre ..... A61F 2/4059

FOREIGN PATENT DOCUMENTS

DE 102008010478 A1 8/2009  
 EP 0898946 A1 3/1999  
 EP 1093777 4/2001  
 EP 1402854 A2 3/2004  
 EP 1472999 A1 3/2004  
 EP 1415621 A2 5/2004  
 EP 1 520 562 4/2005  
 EP 1520560 B1 10/2006  
 EP 1048274 9/2012  
 EP 2 604 227 6/2013  
 EP 2604225 A1 6/2013  
 FR 2652498 A1 4/1991  
 FR 2 758 256 7/1998  
 FR 2773469 A1 7/1999  
 FR 2 932 678 12/2011  
 WO WO 93/09733 A1 5/1993  
 WO WO 96/17553 6/1996  
 WO WO 2004/080331 9/2004  
 WO WO 2007/084939 7/2007  
 WO WO 2007/082925 10/2007  
 WO WO 2008/000928 A2 1/2008  
 WO WO 2008/050091 5/2008  
 WO WO 2008/109751 9/2008  
 WO WO 2013/064569 5/2013  
 WO WO 2014/067961 5/2014  
 WO WO 2014/178706 11/2014



(56)

**References Cited**

## FOREIGN PATENT DOCUMENTS

WO	WO 2015/112307	7/2015
WO	WO 2016/094739	6/2016
WO	WO 2017/184792	10/2017
WO	WO 2019/053576	3/2019
WO	WO 2019/106276	6/2019
WO	WO 2019/106277	6/2019
WO	WO 2019/178104	9/2019

## OTHER PUBLICATIONS

Wright Media, “Tornier Aequalis Reversed FX”, first available May 19, 2016. ([https://www.wrightmedia.com/ProductFiles/Files/PDFs/CAW-1146\\_EN\\_LR\\_LE.pdf](https://www.wrightmedia.com/ProductFiles/Files/PDFs/CAW-1146_EN_LR_LE.pdf)) (Year: 2016).\*

Wright Media, “Aequalis Ascend Flex”, first available Jul. 30, 2019. ([https://www.wrightmedia.com/ProductFiles/Files/PDFs/AP-010187\\_EN\\_LR\\_LE.pdf](https://www.wrightmedia.com/ProductFiles/Files/PDFs/AP-010187_EN_LR_LE.pdf)) (Year: 2019).\*

Arthrex, “Univers Revers Shoulder System”, first available Apr. 24, 2019. ([https://www.arthrex.com/resources/surgical-technique-guide/qkv6M00\\_50qt2QFBx1PKnA/univers-revers-shoulder-system](https://www.arthrex.com/resources/surgical-technique-guide/qkv6M00_50qt2QFBx1PKnA/univers-revers-shoulder-system)) (Year: 2019).\*

Aston® Medical, “Operative Technique—Duocentric Expert Reversed, Total Shoulder Prosthesis”.

Biomet Orthopedics, “Comprehensive® Shoulder System, Surgical Technique”, 2007.

Delta, Delta CTA Reverse Shoulder Prosthesis, Surgical Technique, DePuy a Johnson & Johnson company, 2004.

Depuy, “Global™ Fx Shoulder Fracture System, Surgical Technique”, 1999.

Depuy Synthes, “Global® UNITE Platform Shoulder System, Product Rationale & Surgical Technique”, 2013.

DJO Surgical, “DJO Surgical Shoulder Solutions—Reaching Higher by Design”, 2013.

Exactech, “Equinox Platform Shoulder System”, 2014.

FH Orthopedics, “Arrow, Prothese d’épaule Universelle (Universal shoulder prosthesis)”, Nov. 2009.

Integra, Titan™ Reverse Shoulder System, Surgical Technique, 2013.

JRI Orthopaedics, “VAIOS® Shoulder System”, 2011.

Levy et al., “Reverse Shoulder Prosthesis for Acute Four-Part Fracture: Tuberosity Fixation Using a Horseshoe Graft”, *J Orthop Trauma*, vol. 25, No. 5, May 2011.

Lima Corporate, “SMR System, Surgical Technique”.

Mathys European Orthopaedics, “Affinis® Fracture Affinis® Fracture Inverse, Technique opératoire”.

Stryker Orthopaedics, “ReUnion Fracture System Surgical Protocol”, 2007.

Tornier, “Aequalis Ascend Flex Convertible Shoulder System”, Feb. 8, 2016.

Tornier, “Aequalis-Fracture Shoulder Prosthesis”.

Tornier, “Aequalis® Reversed Adapter, Surgical Technique Shoulder Revision System”.

Tornier, “Aequalis® Reversed Fracture, Surgical Technique Reversed Shoulder Prosthesis”.

Zimmer, “Anatomical Shoulder™ Fracture System, Surgical Technique”, 2010.

ZIMMER®, “Trabecular Metal™ Humeral Stem—Enabling fracture healing”, 2009.

Office Action issued in connection with Korean Patent Application No. 10-2021-7004528, dated May 6, 2021, 16 pages.

First Examination Report issued in connection with Australian Patent Application No. 2020204546, dated Oct. 21, 2021, 9 pages.

\* cited by examiner

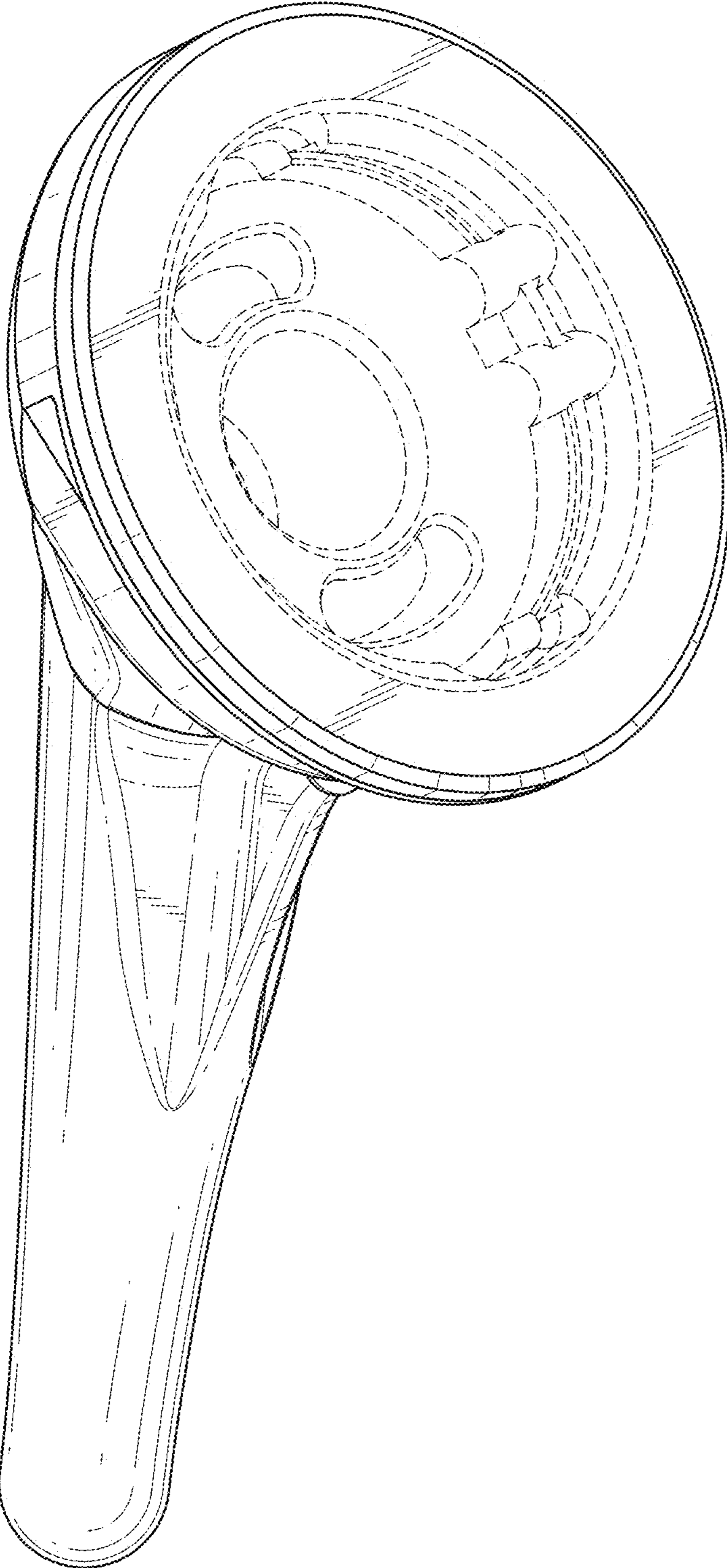


FIG. 1

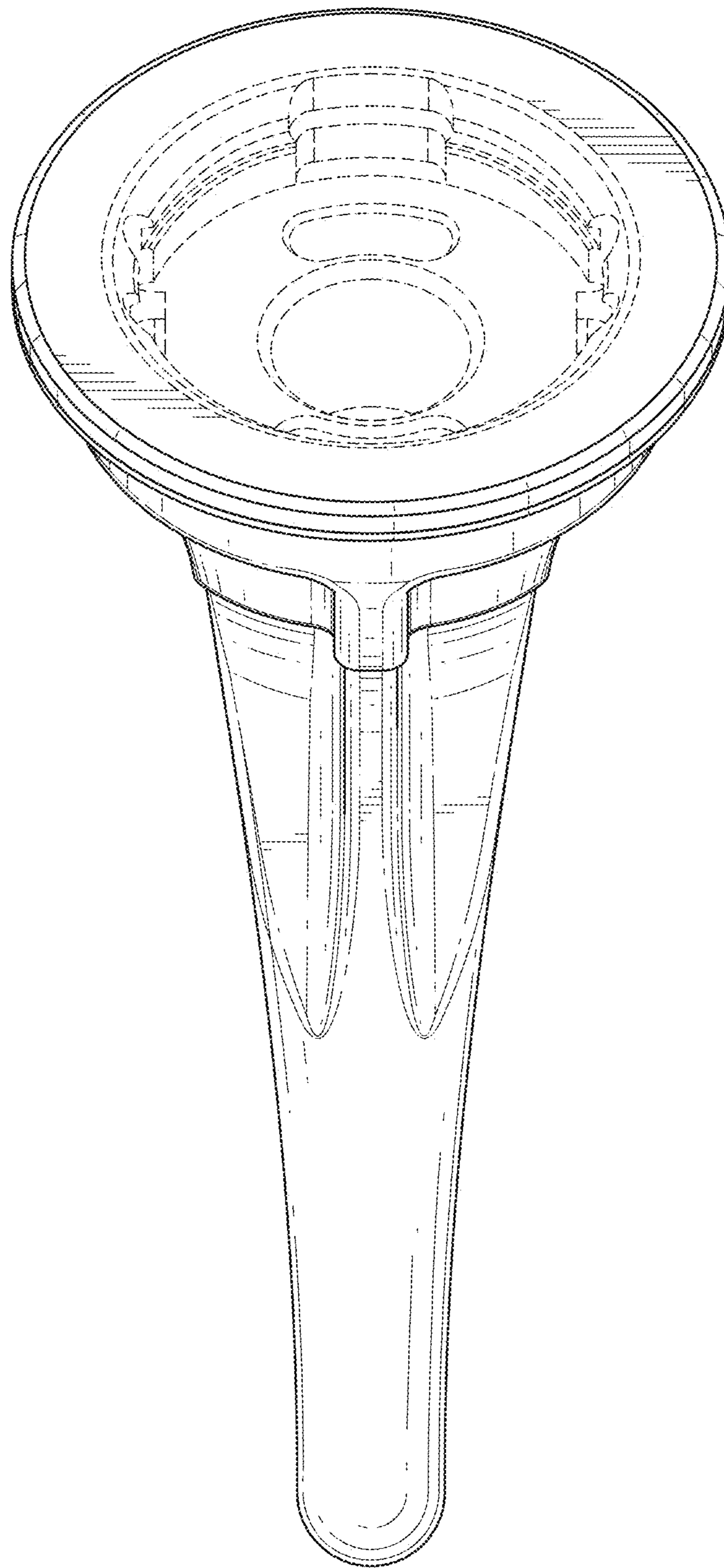
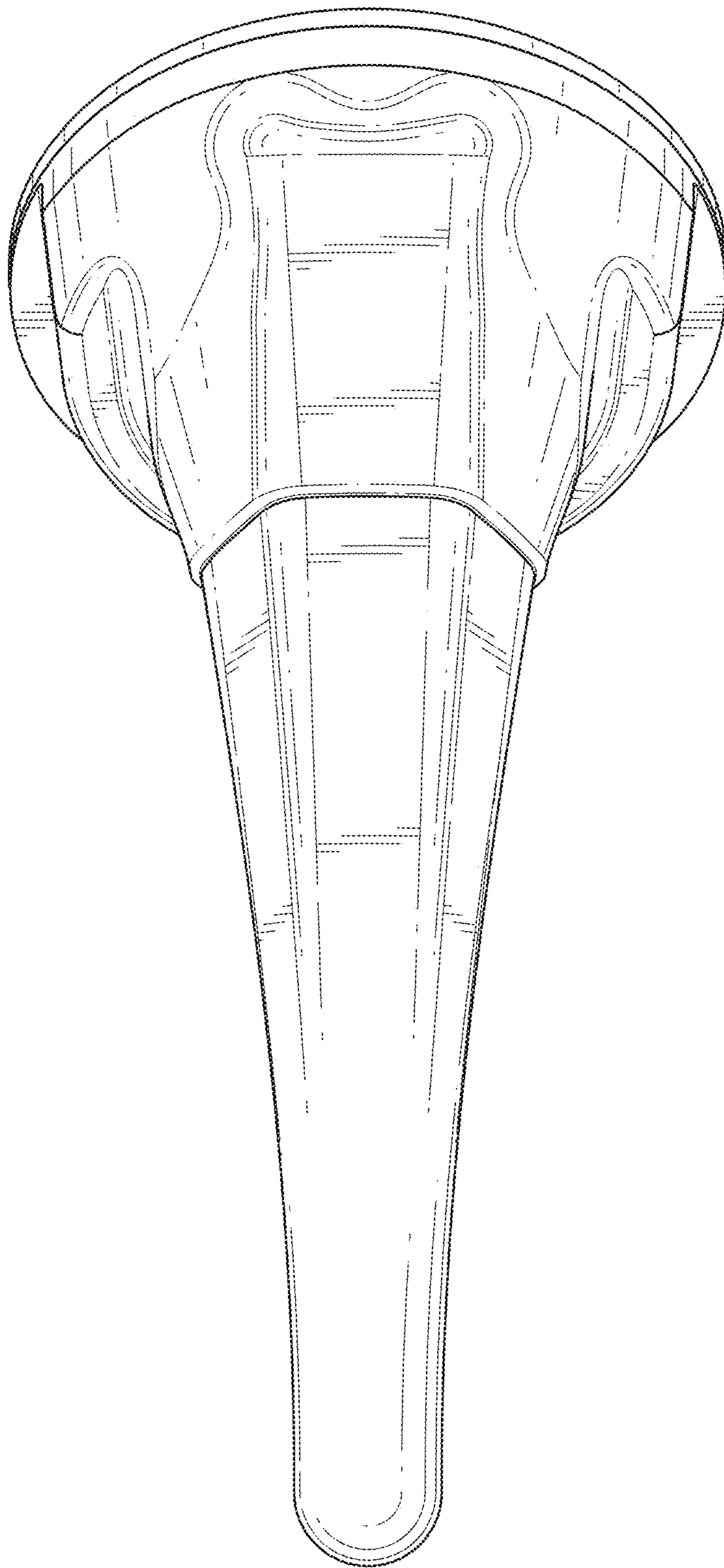


FIG. 2



*FIG. 3*



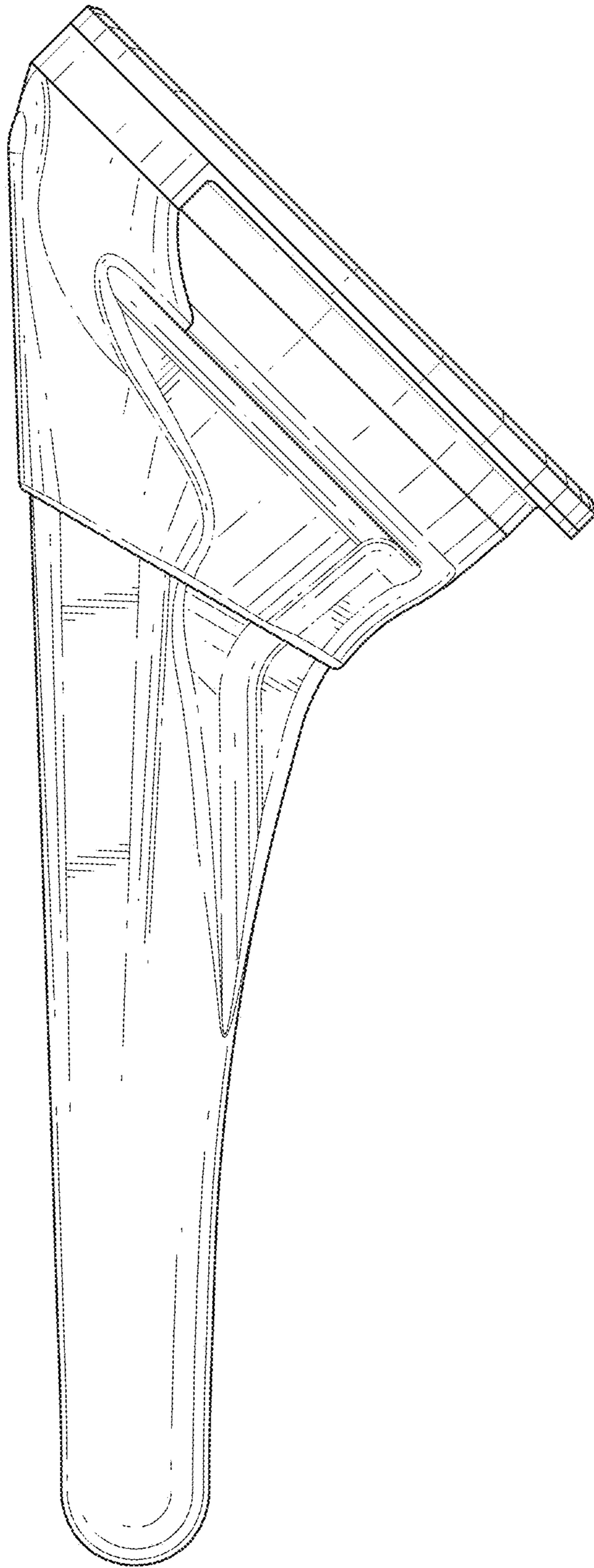
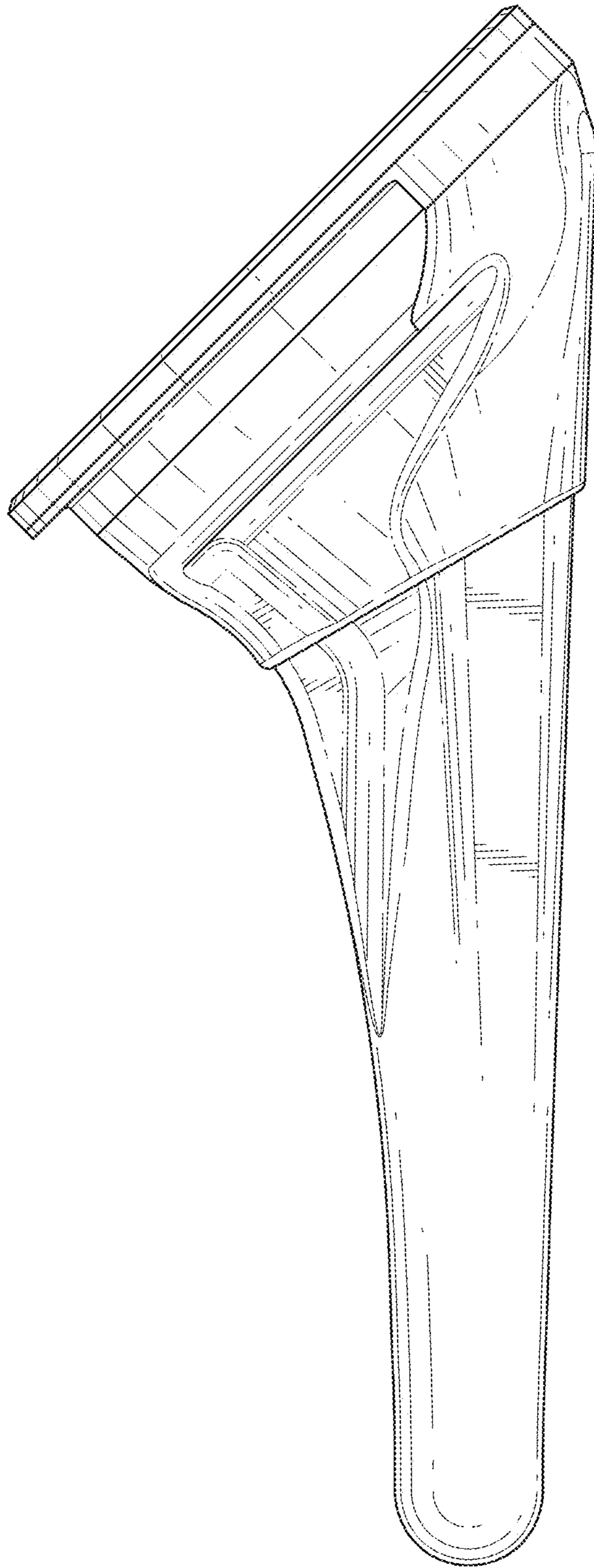
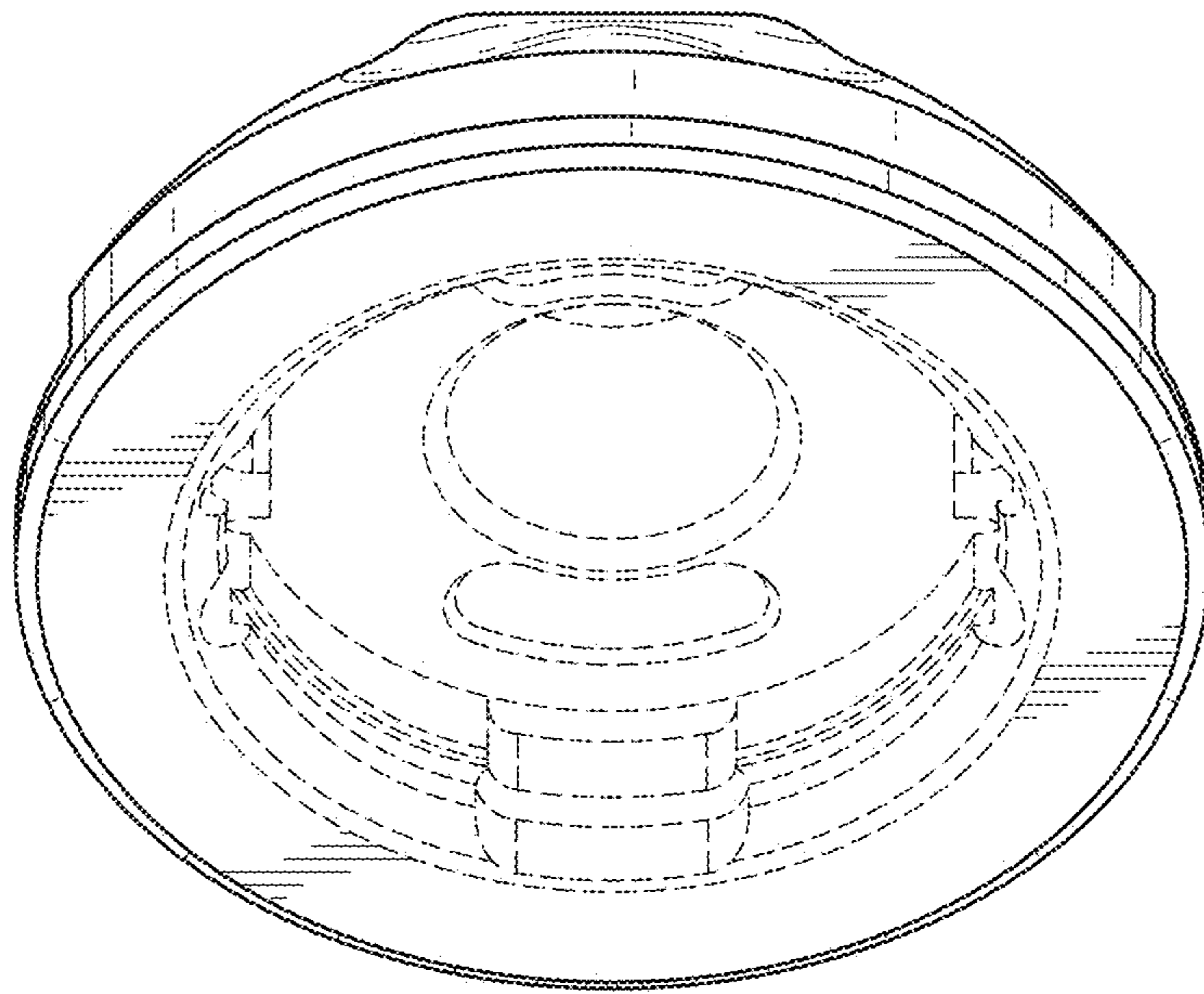


FIG. 4

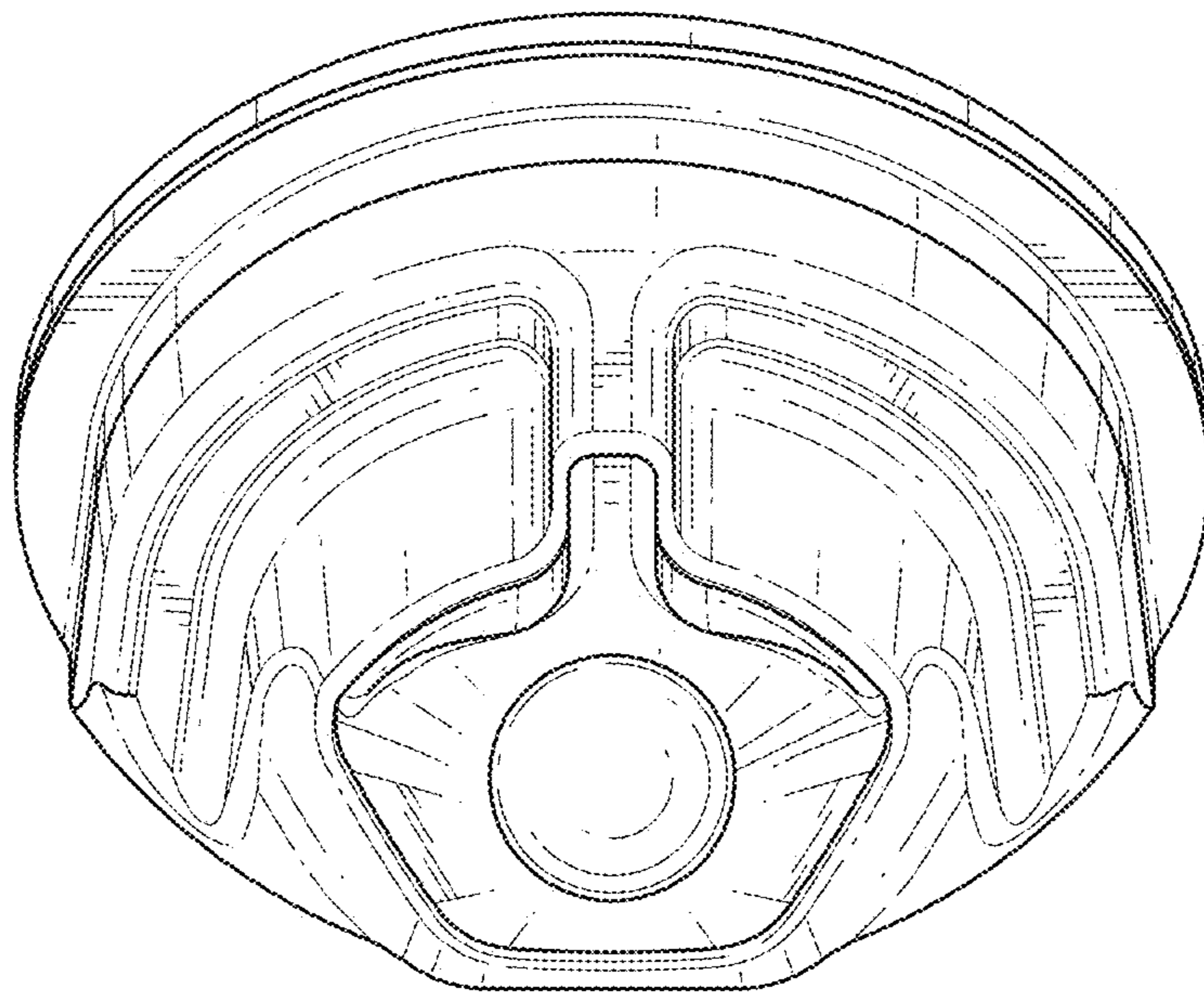


*FIG. 5*





*FIG. 6*



*FIG. 7*