



US00D878549S

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

(10) **Patent No.:** **US D878,549 S**  
(45) **Date of Patent:** **\*\* Mar. 17, 2020**

(54) **CONNECTOR FOR NASAL CANNULA ASSEMBLY**

4,106,505 A 8/1978 Slater et al.  
4,122,857 A 10/1978 Haerr  
4,446,869 A 5/1984 Knodle

(Continued)

(71) Applicant: **Fisher & Paykel Healthcare Limited,**  
Auckland (NZ)

FOREIGN PATENT DOCUMENTS

(72) Inventors: **Daniel Charles Wilson,** Auckland (NZ); **Chelsea Erin Johnson,** Auckland (NZ); **Leon Tyler Stanley,** Auckland (NZ); **Michael Paul Ronayne,** Auckland (NZ); **Anna Rose Northey,** Auckland (NZ)

CN 1905917 1/2007  
CN 101396576 A 4/2009

(Continued)

(73) Assignee: **Fisher & Paykel Healthcare Limited,**  
Auckland (NZ)

Australian Government Patent Examination Report; dated Jul. 2, 2015; 4 pages.

(Continued)

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

*Primary Examiner* — David G Muller

(21) Appl. No.: **29/627,027**

(74) *Attorney, Agent, or Firm* — Knobbe, Martens, Olson & Bear, LLP

(22) Filed: **Nov. 21, 2017**

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

(52) **U.S. Cl.**  
USPC ..... **D24/112**

(58) **Field of Classification Search**  
USPC ..... D24/112–114, 108, 130, 127, 133, 186;  
606/181, 185; 604/264, 523–528, 272,  
604/164.01–164.11, 187, 93.01; 600/101,  
600/139, 143; 128/200.24, 207.14,  
128/207.15  
CPC .. A61M 25/065; A61M 5/42; A61M 25/0612;  
A61M 25/00; A61M 39/00; A61M 27/00;  
A61M 25/0043; A61M 25/0067; A61M  
25/0097; A61F 2/958  
See application file for complete search history.

(57) **CLAIM**

The ornamental design for a nasal cannula assembly, as shown and described.

**DESCRIPTION**

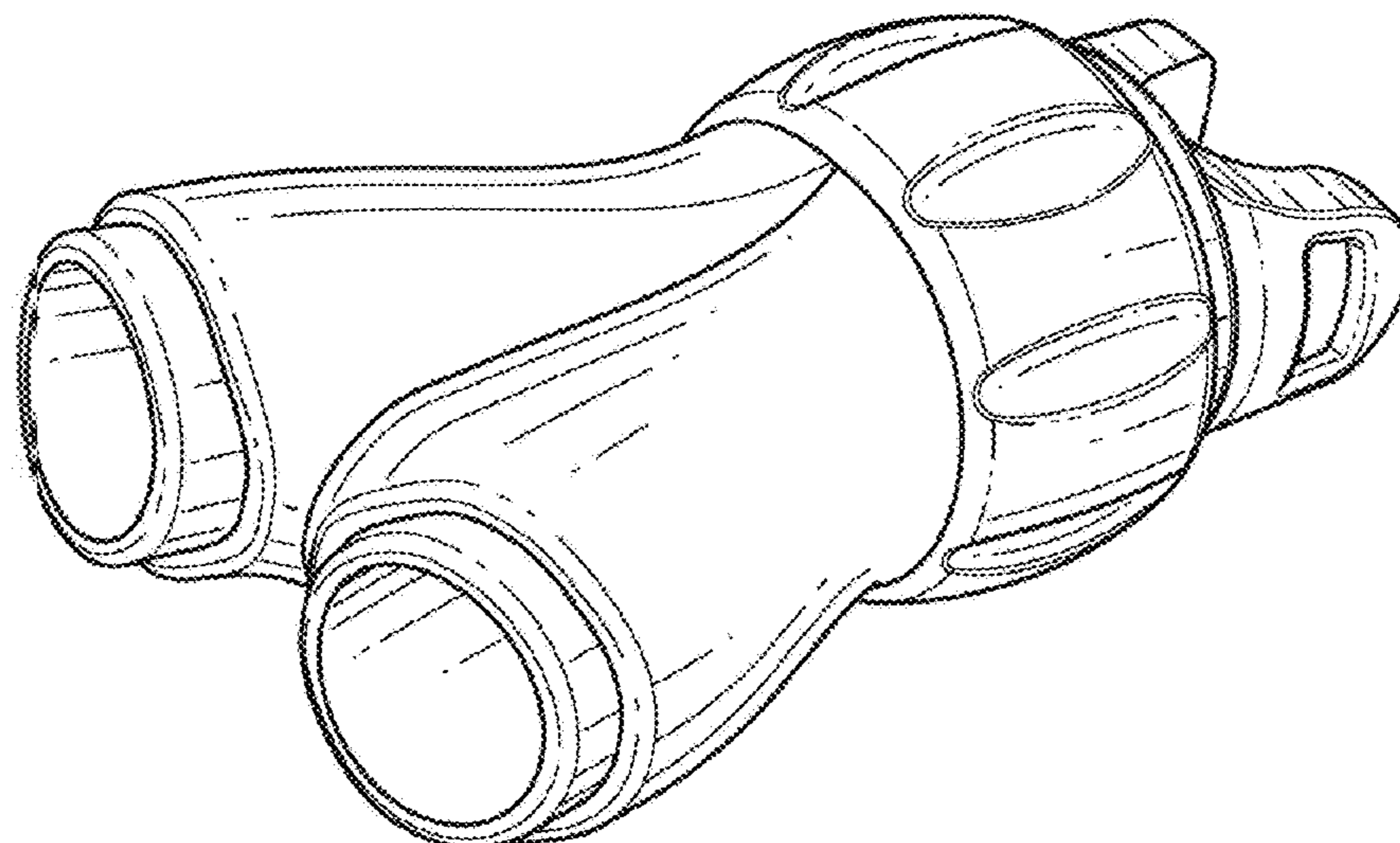
FIG. 1 is a top, front and right side perspective view of a connector for a nasal cannula assembly embodying our new design.  
FIG. 2 is a top, rear and right side perspective view thereof.  
FIG. 3 is a top view thereof.  
FIG. 4 is a bottom view thereof.  
FIG. 5 is a right side view thereof.  
FIG. 6 is a left side view thereof.  
FIG. 7 is a front view thereof; and,  
FIG. 8 is a rear view thereof.  
Broken lines are used to illustrate features of the nasal cannula assembly which form no part of the claimed design. Dash-dot lines define the bounds of the claimed design and form no part thereof.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,807,262 A 12/1952 Lew  
3,288,136 A 11/1966 Lund  
3,513,844 A 5/1970 Smith

**1 Claim, 4 Drawing Sheets**



(56)

References Cited

U.S. PATENT DOCUMENTS

4,584,997 A 4/1986 Delong  
 4,589,684 A 5/1986 Nowacki et al.  
 4,601,495 A 7/1986 Webb  
 4,686,354 A 8/1987 Makin  
 4,723,543 A \* 2/1988 Beran ..... A61B 5/097  
 128/207.14  
 4,808,160 A 2/1989 Timmons et al.  
 D300,271 S 3/1989 Rudolph et al.  
 D300,272 S 3/1989 Rudolph et al.  
 4,818,320 A 4/1989 Weichselbaum  
 5,040,527 A 8/1991 Larson et al.  
 5,163,914 A 11/1992 Abel  
 5,292,312 A 3/1994 Delk et al.  
 5,292,313 A 3/1994 Delk et al.  
 5,300,037 A 4/1994 Delk et al.  
 5,308,339 A 5/1994 Kalt et al.  
 5,335,656 A 8/1994 Bowe et al.  
 D363,541 S 10/1995 Cottone, Sr. et al.  
 D380,827 S \* 7/1997 Stringer ..... D24/112  
 5,672,159 A 9/1997 Warrick  
 5,682,881 A 11/1997 Winthrop et al.  
 5,752,511 A 5/1998 Simmons et al.  
 D431,634 S 10/2000 Mantz  
 6,206,134 B1 3/2001 Stark  
 6,328,038 B1 12/2001 Kessler et al.  
 6,439,234 B1 8/2002 Curti et al.  
 6,447,486 B1 9/2002 Tollini  
 D468,015 S 12/2002 Horppu  
 D472,316 S 3/2003 Douglas et al.  
 6,536,428 B1 3/2003 Smith et al.  
 D472,630 S 4/2003 Douglas et al.  
 D498,844 S \* 11/2004 Diamond ..... D24/130  
 6,893,055 B2 5/2005 Thomas et al.  
 6,915,705 B1 7/2005 Truitt  
 7,178,521 B2 2/2007 Burrow et al.  
 D551,340 S 9/2007 Wood et al.  
 7,331,348 B1 2/2008 Beevers  
 7,406,966 B2 8/2008 Wondka  
 7,469,719 B2 12/2008 Gray  
 7,753,901 B2 \* 7/2010 Piskun ..... A61B 17/3421  
 604/539  
 D627,059 S 11/2010 Wood et al.  
 7,896,853 B2 \* 3/2011 Triplett ..... A61M 25/0014  
 604/284  
 D645,547 S 9/2011 Lombardi et al.  
 D654,573 S 2/2012 Lombardi et al.  
 D661,785 S 6/2012 Johnson  
 8,317,203 B2 11/2012 Hermle et al.  
 D672,037 S 12/2012 Miller  
 8,485,193 B2 7/2013 Worley  
 8,534,278 B2 9/2013 Colman et al.  
 D691,717 S 10/2013 McLean et al.  
 D692,555 S 10/2013 Maksym et al.  
 D695,890 S 12/2013 Bowden et al.  
 D697,200 S 1/2014 Mahaffy  
 D724,720 S 3/2015 O'Connor et al.  
 9,005,154 B2 \* 4/2015 Matson ..... A61M 25/003  
 604/4.01  
 D735,326 S 7/2015 Gulliver  
 D736,914 S 8/2015 Schultz  
 D743,020 S \* 11/2015 Mehta ..... D24/108  
 D747,471 S 1/2016 Gulliver  
 D768,285 S 10/2016 Reed  
 D794,184 S 8/2017 Smith  
 9,808,612 B2 11/2017 Gulliver et al.  
 D807,503 S \* 1/2018 Davis ..... D24/130  
 D820,441 S \* 6/2018 Ketelhohn ..... A61B 17/22012  
 D24/127

2004/0090066 A1 5/2004 Hoffmann  
 2004/0103686 A1 6/2004 Fehr et al.  
 2004/0261797 A1 12/2004 White et al.  
 2005/0028822 A1 2/2005 Sleeper et al.  
 2005/0033247 A1 2/2005 Thompson  
 2005/0178383 A1 8/2005 Mackie et al.

2006/0107958 A1 5/2006 Sleeper  
 2006/0107960 A1 5/2006 Smart  
 2007/0043334 A1 2/2007 Guala  
 2007/0088327 A1 4/2007 Guala  
 2007/0175473 A1 8/2007 Lewis et al.  
 2008/0093846 A1 4/2008 Sparks et al.  
 2008/0142019 A1 6/2008 Lewis et al.  
 2008/0190436 A1 8/2008 Jaffe et al.  
 2009/0078259 A1 3/2009 Kooij et al.  
 2009/0101147 A1 4/2009 Landis et al.  
 2009/0183739 A1 7/2009 Wondka  
 2009/0223523 A1 9/2009 Chang  
 2009/0299158 A1 12/2009 Boatner et al.  
 2009/0320851 A1 12/2009 Selvarajan et al.  
 2010/0000534 A1 1/2010 Kooij et al.  
 2010/0018534 A1 1/2010 Veliss et al.  
 2010/0057034 A1 3/2010 Dennis et al.  
 2010/0100022 A1 4/2010 Greener et al.  
 2010/0163051 A1 7/2010 Brewer et al.  
 2010/0168600 A1 7/2010 Adriance et al.  
 2010/0192957 A1 8/2010 Hobson et al.  
 2010/0206310 A1 8/2010 Matsubara et al.  
 2010/0224196 A1 9/2010 Jablons  
 2010/0229872 A1 9/2010 Ho  
 2011/0067704 A1 3/2011 Kooji et al.  
 2012/0132209 A1 5/2012 Rummery et al.  
 2013/0037030 A1 2/2013 Matula  
 2013/0104888 A1 5/2013 Landis et al.  
 2014/0000626 A1 1/2014 O'Connor et al.  
 2014/0014108 A1 1/2014 Dillard  
 2014/0053846 A1 2/2014 Wood  
 2014/0200475 A1 7/2014 Rubin  
 2014/0338669 A1 11/2014 Zhao et al.  
 2015/0021909 A1 1/2015 Gulliver et al.  
 2015/0320962 A1 11/2015 Bafle et al.  
 2016/0030696 A1 2/2016 Klenner et al.  
 2016/0131292 A1 5/2016 Decker  
 2017/0065789 A1 3/2017 Reed

FOREIGN PATENT DOCUMENTS

CN 101653632 2/2010  
 CN 101977656 2/2011  
 DE 37 09 122 A1 9/1988  
 DE 10 2007 063 556 A1 7/2009  
 EP 806217 A2 11/1997  
 EP 1 314 446 8/2002  
 EP 1481702 12/2004  
 FR 2363423 A1 3/1978  
 GB 813700 A 5/1959  
 GB 836407 A 6/1960  
 GB 933172 A 8/1963  
 GB 2368800 5/2002  
 GB 2436525 10/2007  
 JP H09-510635 10/1997  
 JP 2000-500359 1/2000  
 JP 2003-502116 1/2003  
 JP 2005-40589 2/2005  
 JP 2009-72596 4/2009  
 JP 2009-291615 12/2009  
 WO WO 1992/20392 11/1992  
 WO WO 1998/044973 10/1998  
 WO WO 2003/082406 10/2003  
 WO WO 2004/108218 12/2004  
 WO WO 2005/079670 9/2005  
 WO WO 2008/019294 2/2008  
 WO WO 2008/100860 8/2008  
 WO WO 2012/091967 7/2012  
 WO WO 2013/014581 1/2013  
 WO WO 2013/022356 2/2013  
 WO WO 2013/157960 10/2013

OTHER PUBLICATIONS

Australian Examination Report; dated Jan. 19, 2017; 4 pages.  
 Chinese Exam Report, CN 201480069093.1; dated Jun. 28, 2017;  
 10 pages.  
 Chinese Office Action; dated Nov. 4, 2015; 8 pages.



(56)

**References Cited**

OTHER PUBLICATIONS

Extended European Search Report, EP 1485791.2; dated May 15, 2017; 7 pages.

GB Examination Report; dated Jun. 2, 2016; 2 pages.

GB Examination Report; dated May 18, 2016; 2 pages.

GB Examination Report; dated May 19, 2016; 1 page.

International Search Report and Written Opinion, PCT/NZ2011/000218; dated Feb. 27, 2012; 17 pages.

International Search Report and Written Opinion, PCT/NZ2012/000142; dated Jan. 22, 2013; 14 pages.

International Preliminary Report on Patentability, PCT/NZ2014/000217; dated Jan. 12, 2015; 21 pages.

International Preliminary Report on Patentability, PCT/NZ2012/000142; dated Feb. 20, 2014; 6 pages.

Japanese Examination Report and English translation; dated Aug. 19, 2015; 4 pages.

Japanese Examination Report, JP 2014524961A; dated Nov. 8, 2017; 2 pages.

TW Search Report; English Translation; dated May 18, 2016; 1 page.

UK Examination Report; GB15162878; dated Oct. 8, 2015; 8 pages.

UK Examination Report; GB15162852; dated Oct. 8, 2015; 7 pages.

UK Examination Report: GB15225840; dated Feb. 4, 2016; 8 pages.

UK Examination Report: GB15162878; dated Feb. 4, 2016; 5 pages.

UK Examination Report: GB15162852; dated Feb. 4, 2016; 5 pages.

UK Examination Report; GB15225832; dated Feb. 4, 2016; 5 pages.

UK Examination Report; GB13066352; dated Feb. 4, 2016; 3 pages.

UK Examination Report; GB16031130; dated Mar. 4, 2016; 7 pages.

UK Examination Report; GB16032922; dated Mar. 11, 2016; 6 pages.

AU Examination Report; 2011318681; dated Apr. 12, 2016; 3 pages.

\* cited by examiner

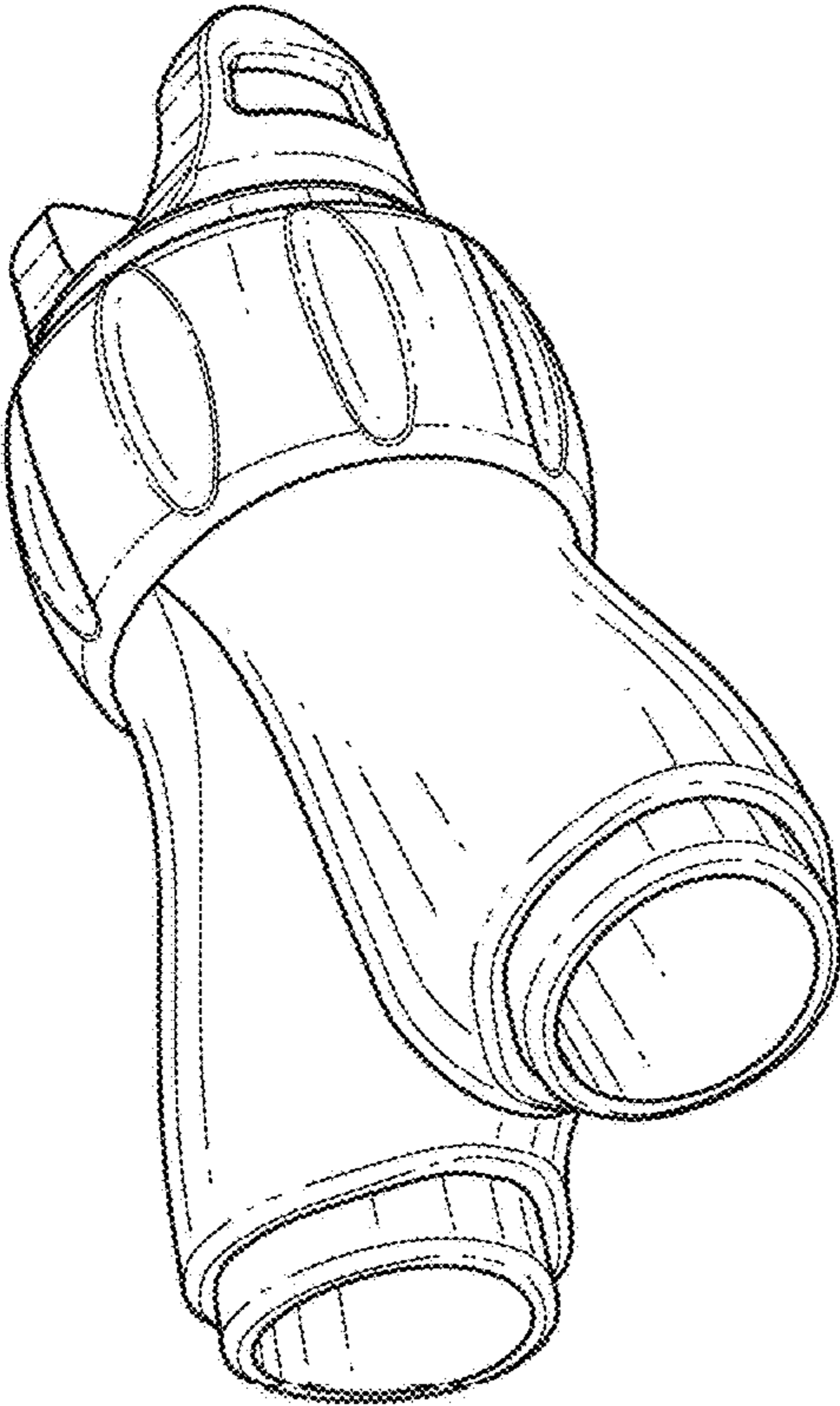


FIG. 1

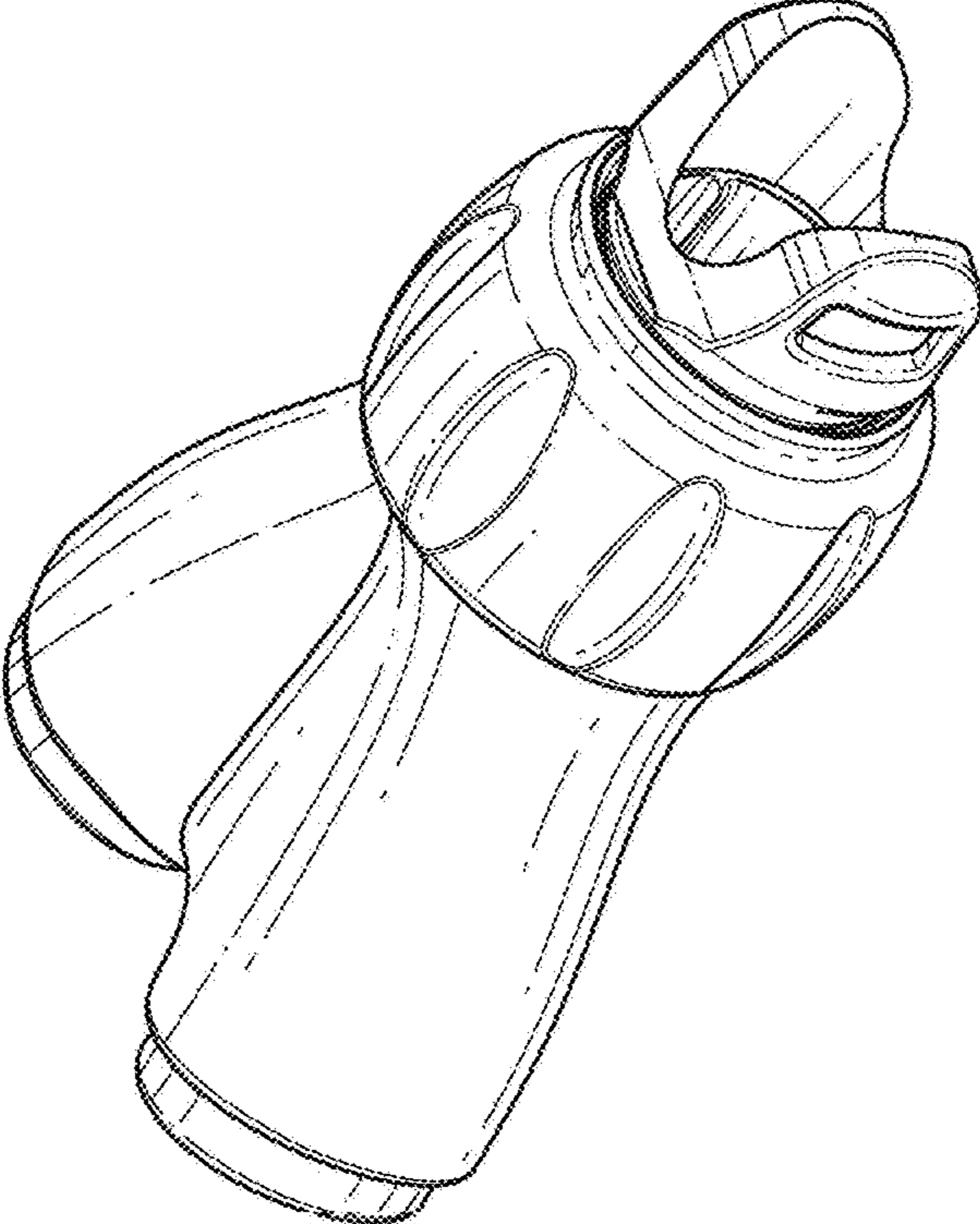


FIG. 2

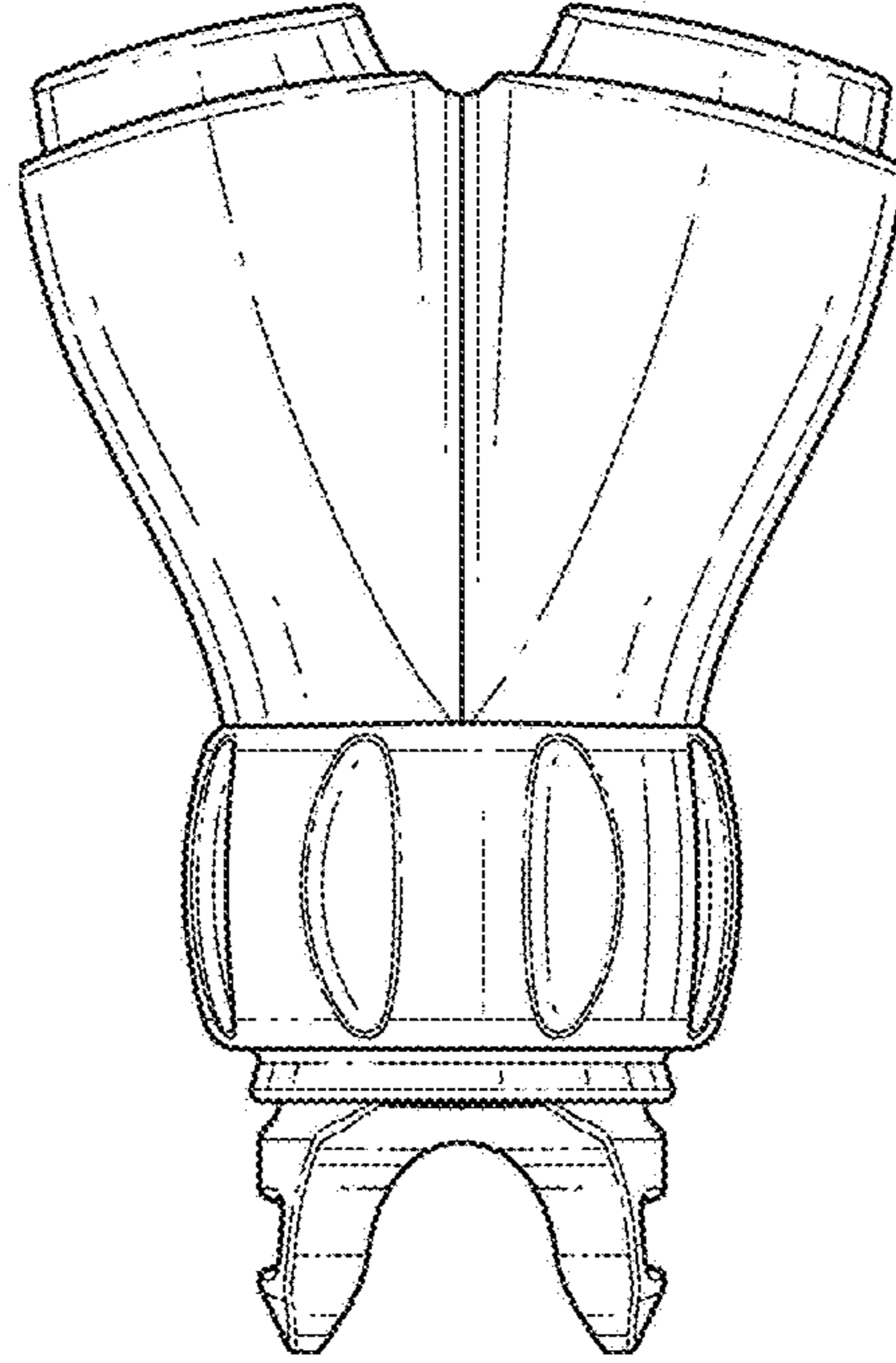


FIG. 4

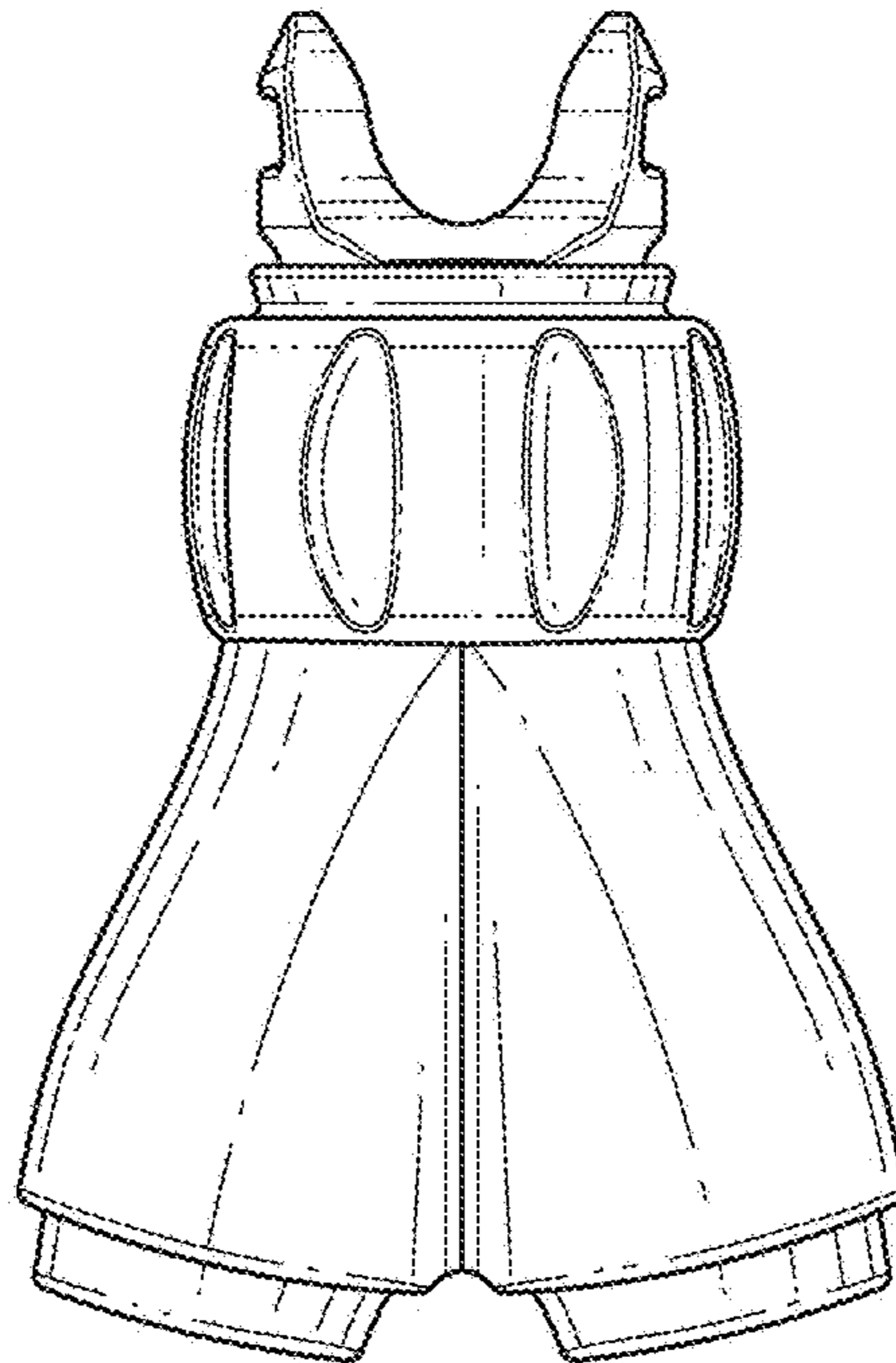


FIG. 3

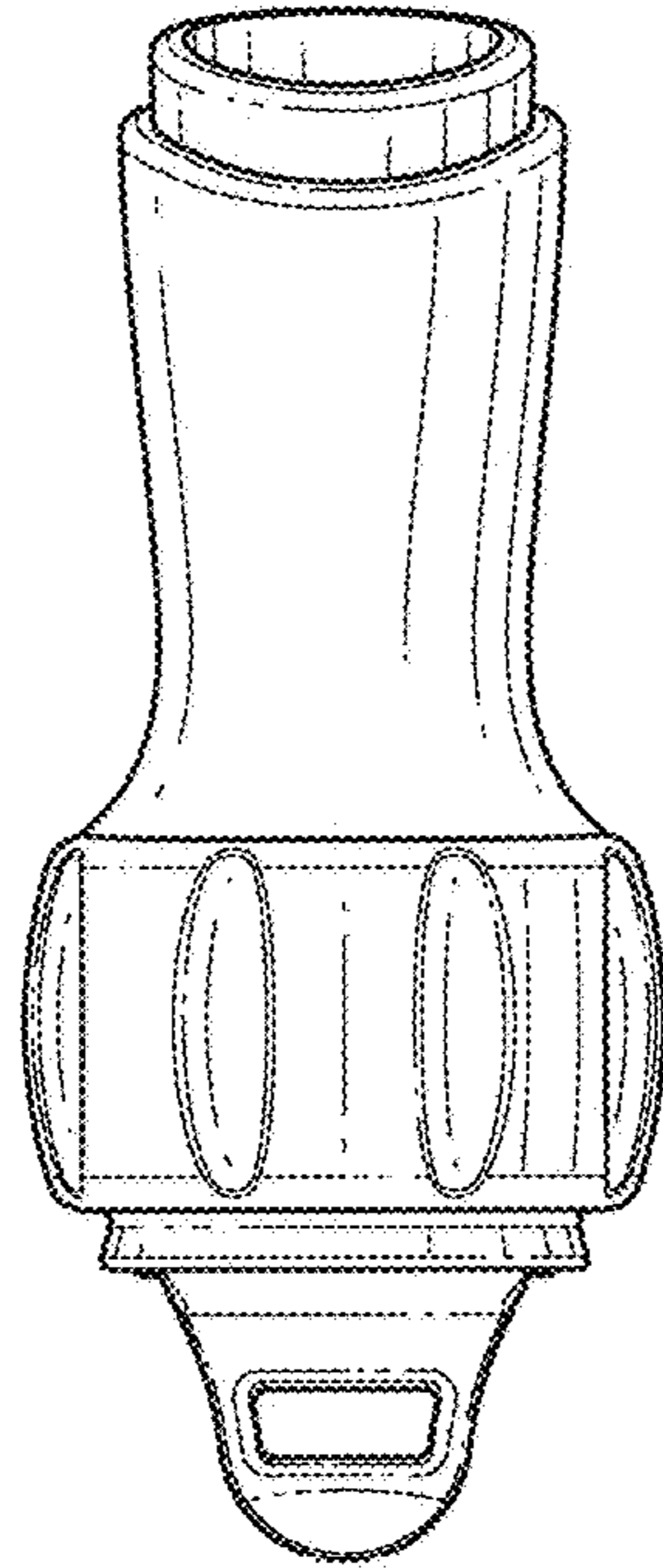


FIG. 6

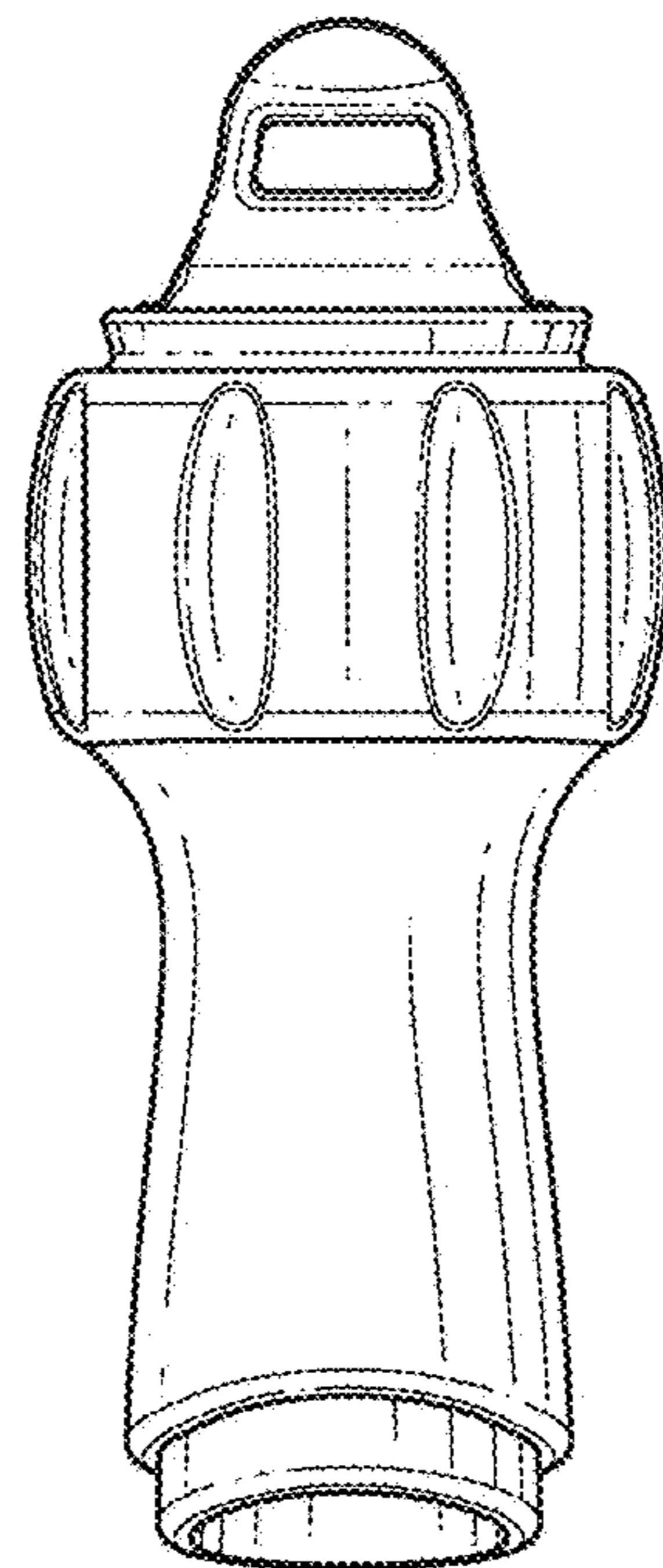


FIG. 5

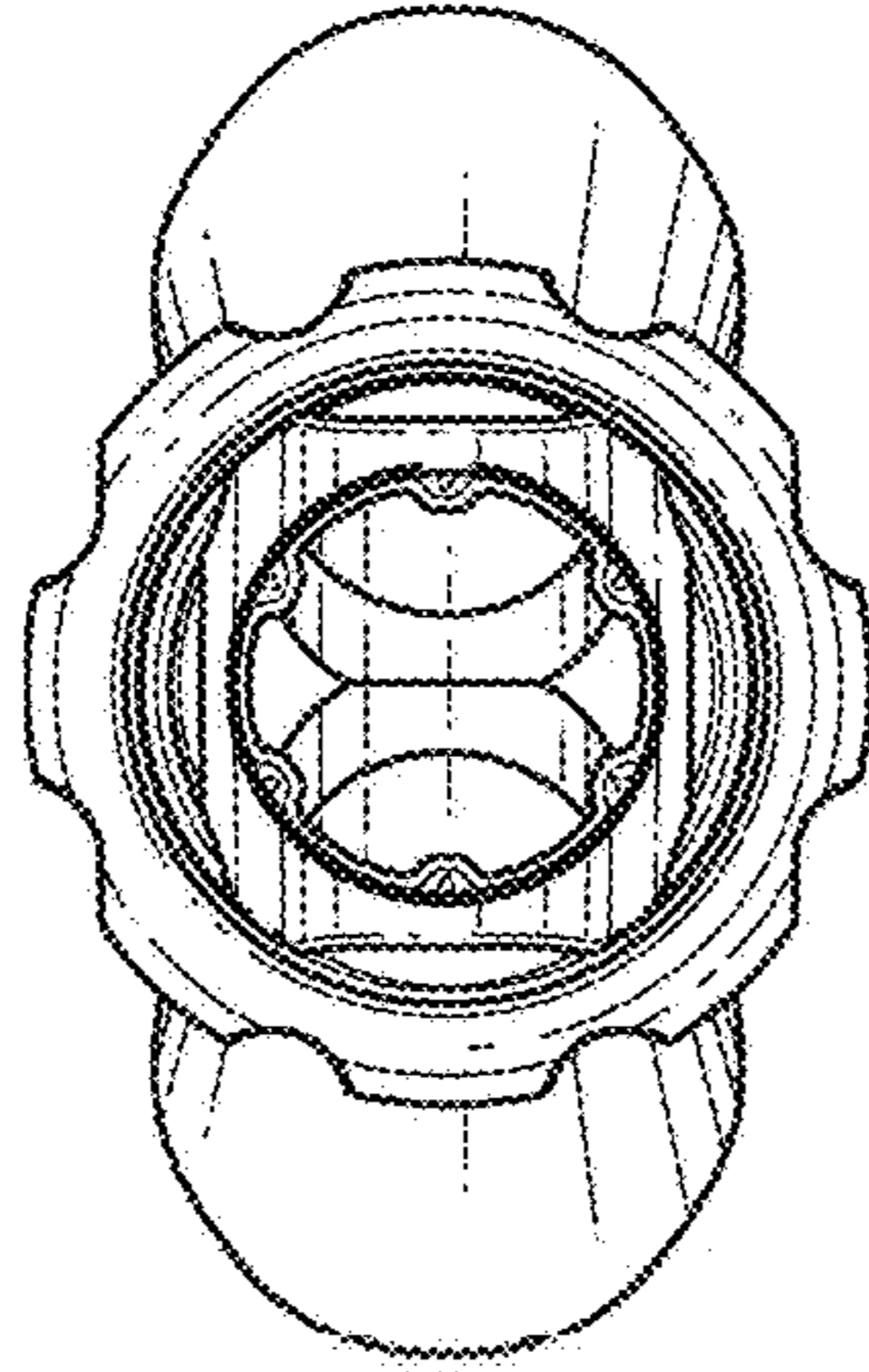


FIG. 8

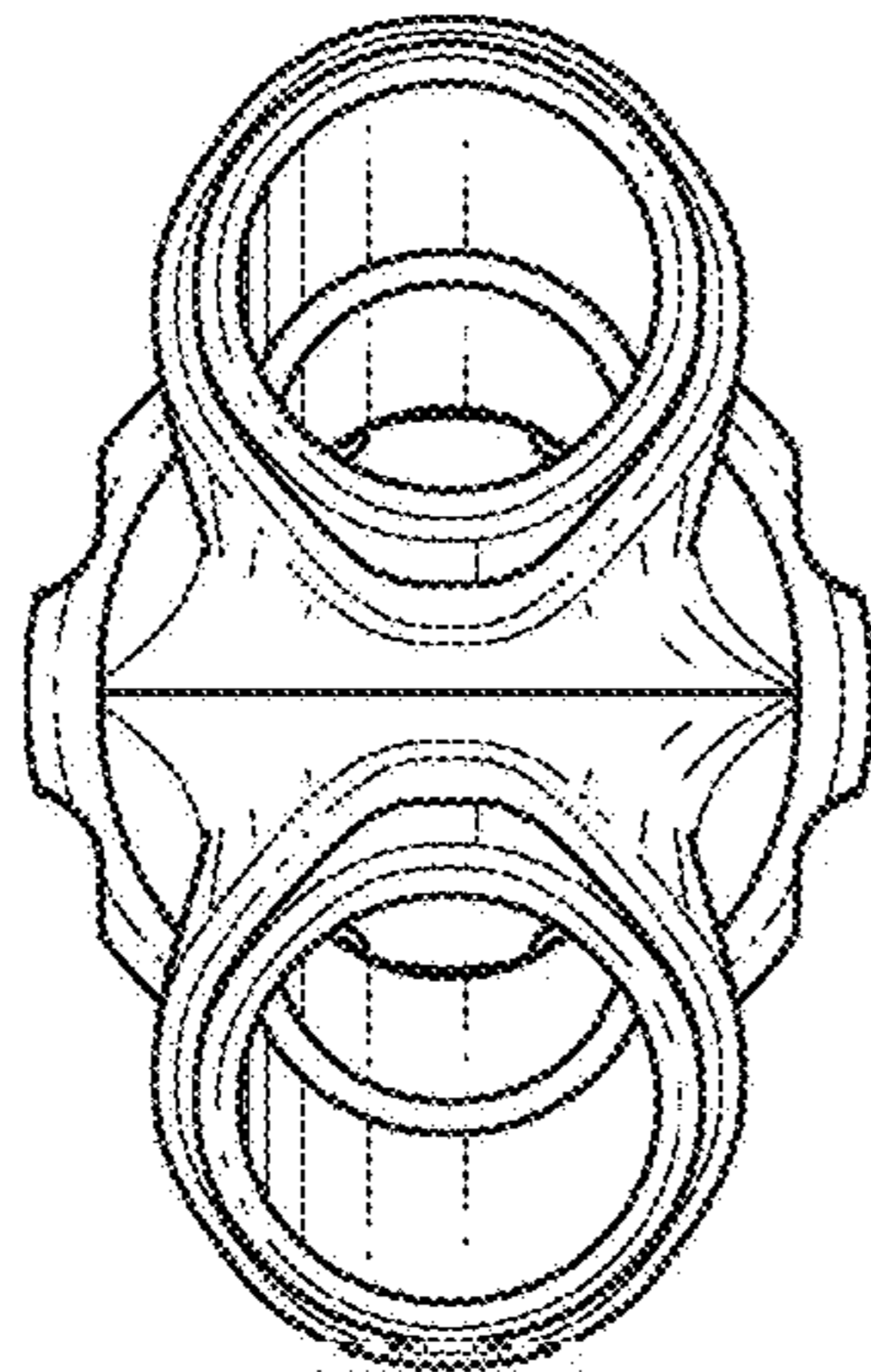


FIG. 7