



US00D779674S

(12) **United States Design Patent** (10) **Patent No.:** **US D779,674 S**
Blomberg et al. (45) **Date of Patent:** **** Feb. 21, 2017**

(54) **FILTER ELEMENT HAVING A CONNECTOR**

2,840,184 A 12/1954 Stampe
 2,845,927 A 8/1958 Hill
 3,316,904 A 5/1967 Wall

(71) Applicant: **3M INNOVATIVE PROPERTIES COMPANY**, St. Paul, MN (US)

(Continued)

(72) Inventors: **David M. Blomberg**, Lino Lakes, MN (US); **Elizabeth D. Cadogan**, St. Paul, MN (US); **John S. Huberty**, St. Paul, MN (US); **Ryan D. Kracht**, West St. Paul, MN (US); **William A. Mittelstadt**, Woodbury, MN (US); **Michael J. Svendsen**, Blaine, MN (US); **Michael J. Thunte**, St. Anthony Village, MN (US)

FOREIGN PATENT DOCUMENTS

CA 1069331 1/1980
 CA 2209246 7/1996

(Continued)

(73) Assignee: **3M Innovative Properties Company**, St. Paul, MN (US)

OTHER PUBLICATIONS

MSA Flexi-Filter® Pads for Advantage® Respirators, obtained from internet on May 18, 2015, <http://us.msasafety.com/Air-Purifying-Respirators-%28APR%29/Filters-%26-Cartridges/Advantage%26reg%3B-Flexi-Filters%26reg%3B/p/000100001000001241>.

(**) Term: **14 Years**

Primary Examiner — Rhea Shields

(21) Appl. No.: **29/518,833**

(22) Filed: **Feb. 27, 2015**

(57) **CLAIM**

(51) **LOC (10) Cl.** **24-00**

The ornamental design for a filter element having a connector, as shown and described.

(52) **U.S. Cl.**
USPC **D24/162**

DESCRIPTION

(58) **Field of Classification Search**

USPC D24/162, 164, 116, 110.1, 110; D23/209, D23/413; D34/10; 128/205.12, 201.25, D34/206.17, 128/863, 205.27, 202.22; 340/540
 CPC A62B 17/04; A62B 9/04; A62B 7/10; A62B 18/006; A62B 18/088; A62B 23/02; G01N 29/036

FIG. 1 is a perspective view showing the new design for a filter element having a connector;
 FIG. 2 is a front view thereof;
 FIG. 3 is a rear view thereof;
 FIG. 4 is a right side view thereof
 FIG. 5 is a left view thereof; and,
 FIG. 6 is a top view thereof, the bottom being a mirror image thereof.

See application file for complete search history.

In the drawings, the dash-dash broken lines illustrate environment and form no part of the claimed design, and any shading is provided to illustrate contour only and is not an indication of texture, gloss, etc.

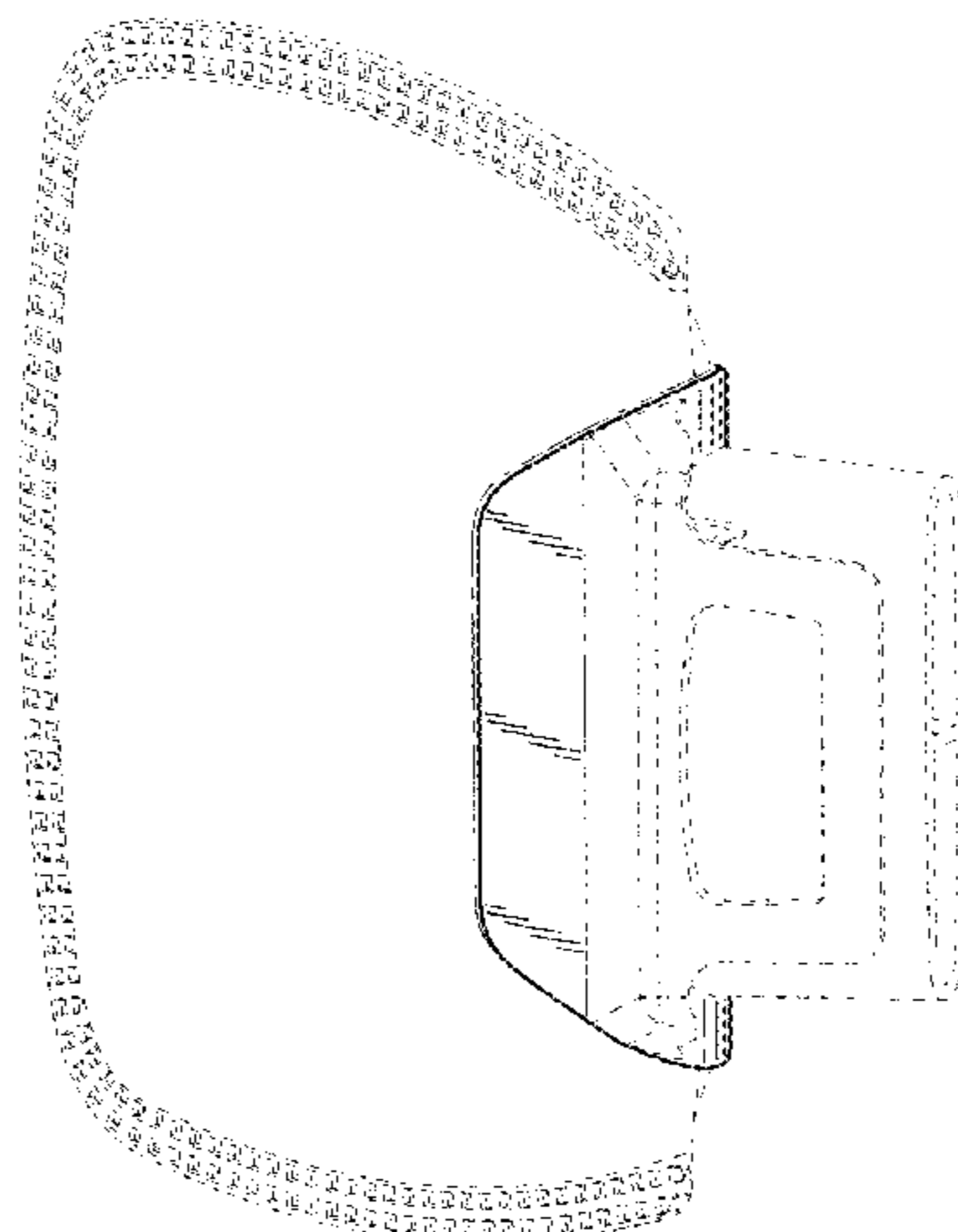
(56) **References Cited**

U.S. PATENT DOCUMENTS

2,206,061 A 11/1936 Splaine
 2,142,064 A 5/1937 Whipple
 2,205,368 A 11/1937 Whipple
 2,220,374 A 11/1940 Lewis
 2,320,770 A 12/1940 Cover
 2,227,959 A 1/1941 Cover
 2,295,119 A 9/1942 Malcom

The dot-dash broken lines in the figures immediately adjacent the solid lines represent a boundary between claimed and unclaimed subject matter and form no part of the claimed design.

1 Claim, 3 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

3,750,665 A 8/1973 Stranicky
 4,179,274 A * 12/1979 Moon A62B 23/02
 128/206.17
 4,299,605 A 11/1981 Aiyama
 4,382,440 A 5/1983 Kapp
 4,714,486 A 12/1987 Silverthorn
 4,886,058 A 12/1989 Brostrom
 4,961,765 A 10/1990 Guhne
 4,981,134 A 1/1991 Courtney
 5,035,236 A 7/1991 Kanegaonkar
 5,074,997 A 12/1991 Riley
 D328,789 S * 8/1992 Kopf D24/162
 5,140,980 A 8/1992 Haughey
 5,222,488 A 6/1993 Forsgren
 5,240,479 A 8/1993 Bachinski
 D339,658 S 9/1993 Lahteenmaki
 5,636,627 A 6/1997 Rochester
 5,647,356 A 7/1997 Osendorf
 5,720,789 A 2/1998 Pinson
 5,732,695 A 3/1998 Metzger
 5,992,414 A 11/1999 Tayebi
 6,044,842 A 4/2000 Pereira
 6,279,570 B1 8/2001 Mittelstadt
 6,298,849 B1 10/2001 Scholey
 6,345,620 B2 2/2002 Salapow
 6,408,845 B1 6/2002 Pereira
 D461,896 S * 8/2002 Worthington D24/162
 6,467,481 B1 10/2002 Eswarappa
 D465,568 S * 11/2002 Petherbridge D24/110
 D493,521 S * 7/2004 Guney D24/110.1
 6,761,169 B2 7/2004 Eswarappa
 6,793,702 B2 9/2004 Eswarappa
 7,334,579 B2 2/2008 Tayebi
 D599,472 S * 9/2009 Klausing D23/413
 D604,834 S * 11/2009 Ungar D24/110.1
 D645,220 S * 9/2011 Yang D34/10
 8,021,455 B2 9/2011 Adamek
 D652,506 S 1/2012 Huberty
 D652,910 S * 1/2012 Duffy D24/110.1
 8,089,367 B2 * 1/2012 Locke G01N 29/036
 340/540
 8,230,860 B2 7/2012 Dankert
 D677,781 S * 3/2013 Choi D24/110.1
 8,388,714 B2 3/2013 Kearsley
 D684,256 S * 6/2013 Menezes D24/110
 8,460,423 B2 6/2013 Legare
 8,590,532 B2 * 11/2013 Forbes A62B 17/04
 128/205.27
 8,721,402 B2 5/2014 Woo
 8,757,151 B2 6/2014 Johnstone
 8,839,788 B2 9/2014 Betz
 D732,670 S * 6/2015 Dwyer D24/162
 D739,936 S * 9/2015 Blomquist D24/162
 D741,983 S * 10/2015 Mueller D23/209
 D745,962 S * 12/2015 Dwyer D24/110.1
 D746,437 S * 12/2015 Blomberg D24/110.1
 D746,438 S * 12/2015 Dwyer D24/110.1
 D748,801 S * 2/2016 Suzuki D24/162
 D750,785 S * 3/2016 Suzuki D24/162
 D751,189 S * 3/2016 Suzuki D24/116
 D752,227 S * 3/2016 Suzuki D24/162
 2003/0089089 A1 5/2003 Fecteau
 2004/0031489 A1 2/2004 Tayebi
 2004/0055604 A1 3/2004 Viner
 2005/0081497 A1 4/2005 Connor
 2006/0081249 A1 4/2006 Duxbury
 2006/0090754 A1 5/2006 Mittelstadt
 2006/0196157 A1 9/2006 Greer
 2007/0144123 A1 6/2007 Angadjivand

2009/0065006 A1 3/2009 Patterson
 2009/0263546 A1 10/2009 Rea
 2010/0154369 A1 6/2010 Berisha
 2010/0294274 A1 * 11/2010 Poirier A62B 18/088
 128/202.22
 2011/0283505 A1 11/2011 Billingsley
 2011/0284006 A1 11/2011 Legare
 2013/0139818 A1 6/2013 Billingsley
 2014/0216473 A1 8/2014 Dwyer
 2014/0216475 A1 * 8/2014 Blomberg A62B 9/04
 128/863
 2014/0251327 A1 9/2014 Mittelstadt
 2015/0136142 A1 * 5/2015 Blomberg A62B 7/10
 128/206.17
 2015/0290478 A1 * 10/2015 Curran A62B 18/006
 128/201.25
 2015/0336718 A1 * 11/2015 Dwyer A62B 18/006
 128/205.12

FOREIGN PATENT DOCUMENTS

CA 2209857 7/1996
 CA 2295170 11/1999
 CA 2405510 10/2001
 CA 2567266 5/2007
 CN 201098482 8/2008
 CN 201190125 2/2009
 CN 101554942 10/2009
 CN 201342303 U 11/2009
 CN 101628649 1/2010
 CN 101703828 5/2010
 CN 201603485 U 10/2010
 CN 202983422 6/2013
 CN 203540246 U 4/2014
 DE 2041931 3/1972
 DE 3719419 12/1988
 DE 10213654 9/2003
 DE 10328002 1/2005
 DE 202011100327 7/2011
 DK 9200731 6/1992
 EP 44721 1/1982
 EP 0234277 9/1987
 EP 0310970 4/1989
 EP 1016599 7/2000
 EP 1110610 6/2001
 EP 1800729 6/2007
 FR 814797 6/1937
 FR 2511605 2/1983
 FR 2544218 10/1984
 GB 470850 8/1937
 JP 02108844 4/1990
 JP 06062349 U 9/1994
 JP 09192246 7/1997
 JP 2000140587 5/2000
 JP 2000288105 10/2000
 JP 2002346326 12/2002
 KR 20060121699 11/2006
 KR 100900755 6/2009
 KR 20090010452 U 10/2009
 KR 100943196 2/2010
 KR 100959146 5/2010
 KR 100961411 6/2010
 KR 100978602 8/2010
 KR 20110000792 U 1/2011
 KR 20110037710 4/2011
 KR 20110005024 U 5/2011
 KR 101051109 7/2011
 PL 172113 8/1997
 RU 2008126072 1/2010
 SE 8403209 6/1984
 TW 262201 4/2005

* cited by examiner

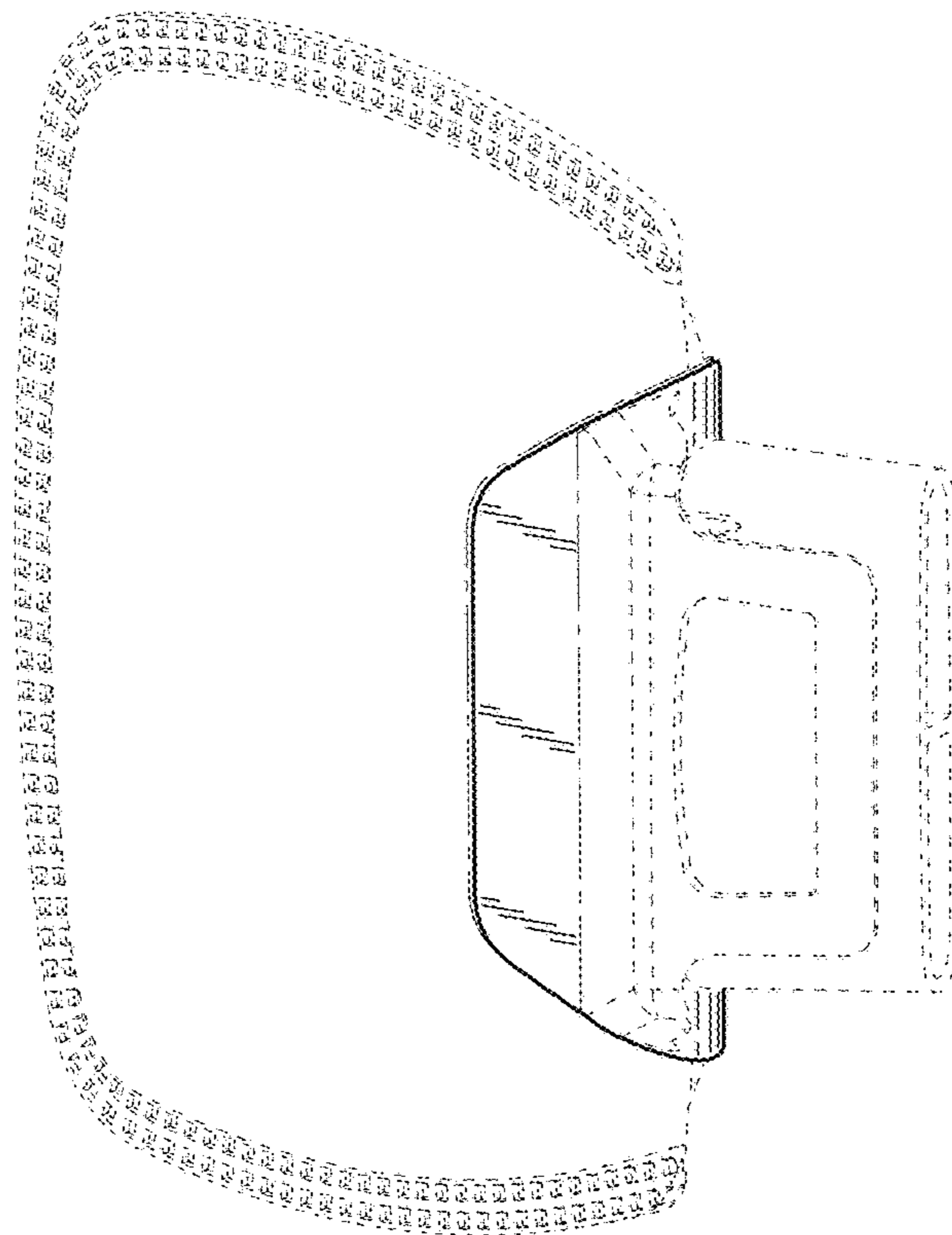


Fig. 1

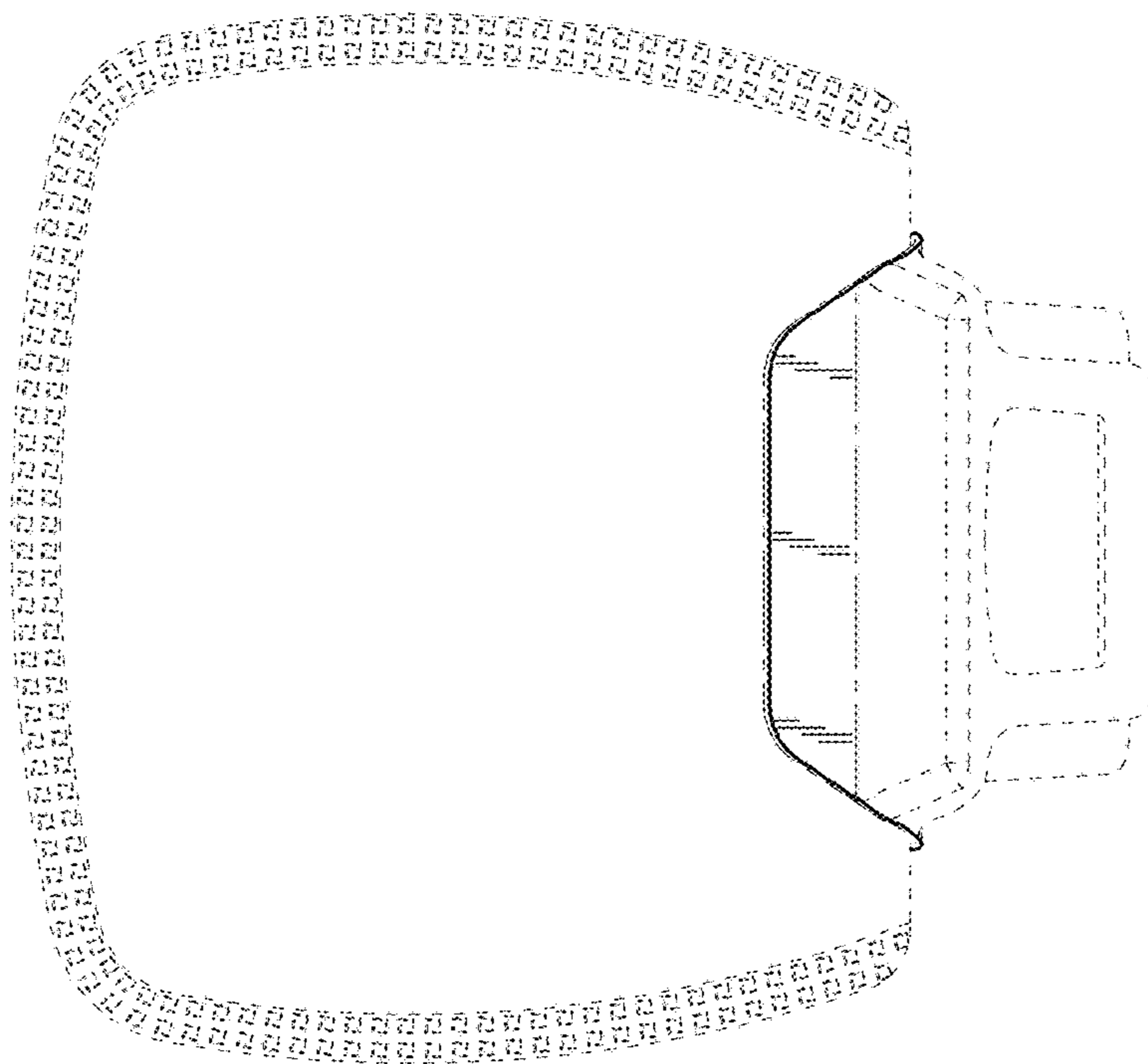


Fig. 2

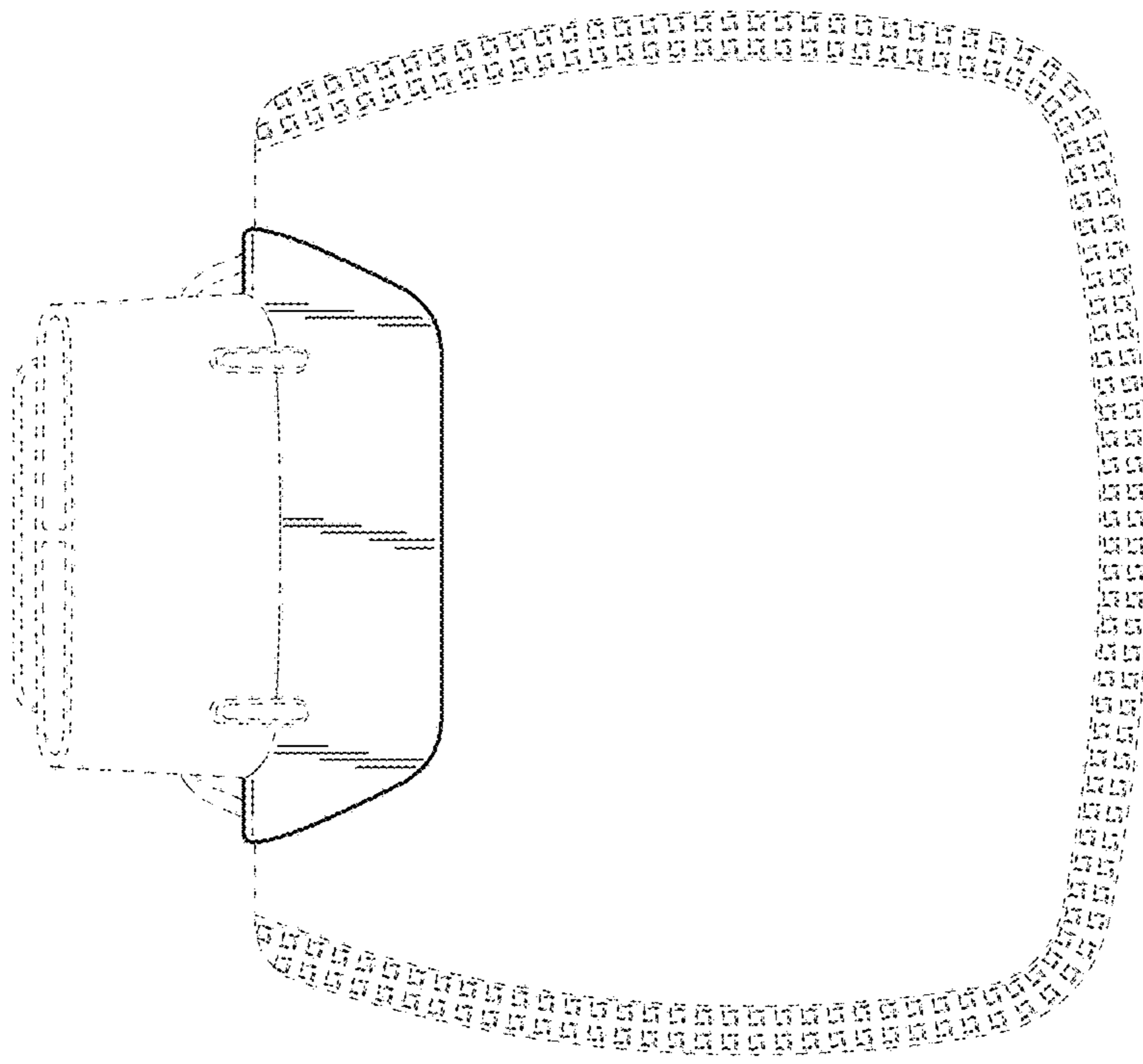


Fig. 3

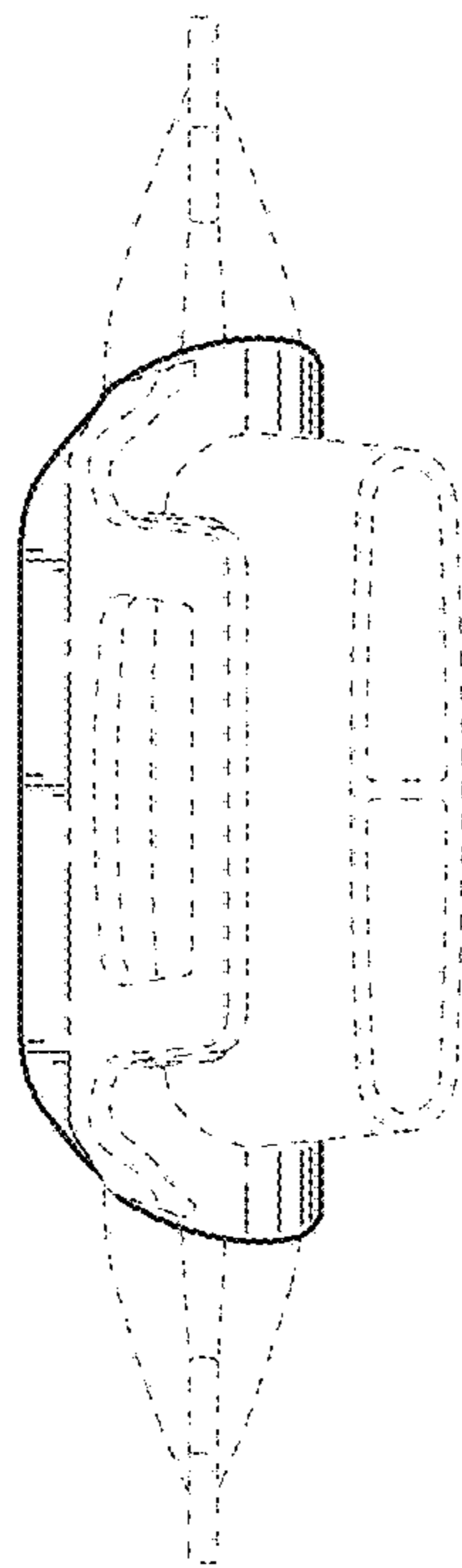


Fig. 4

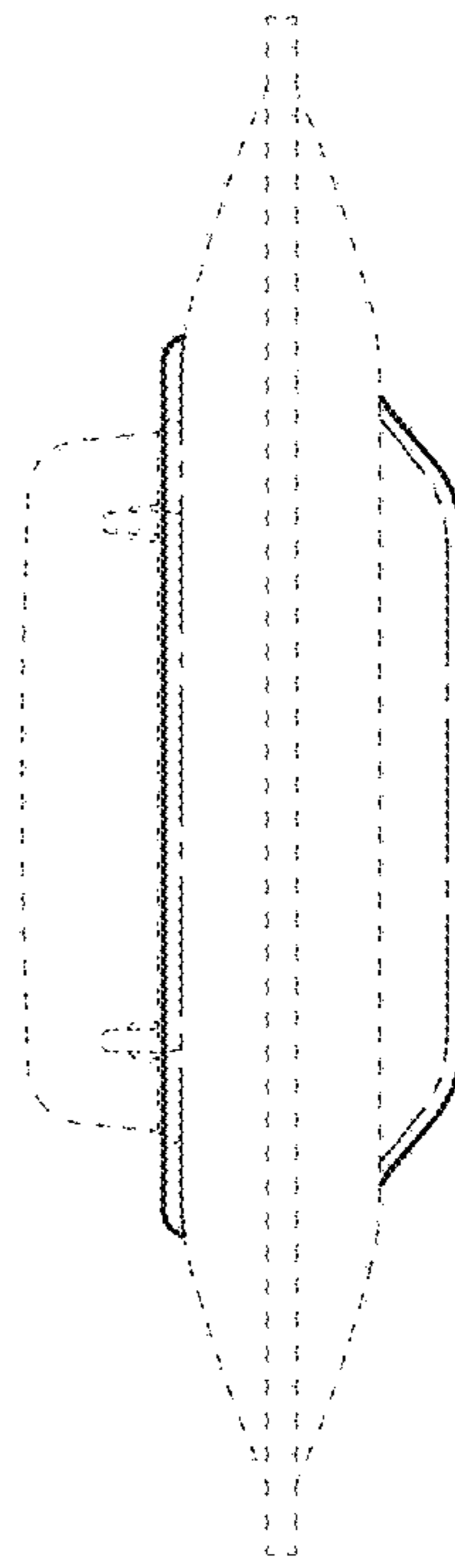


Fig. 5

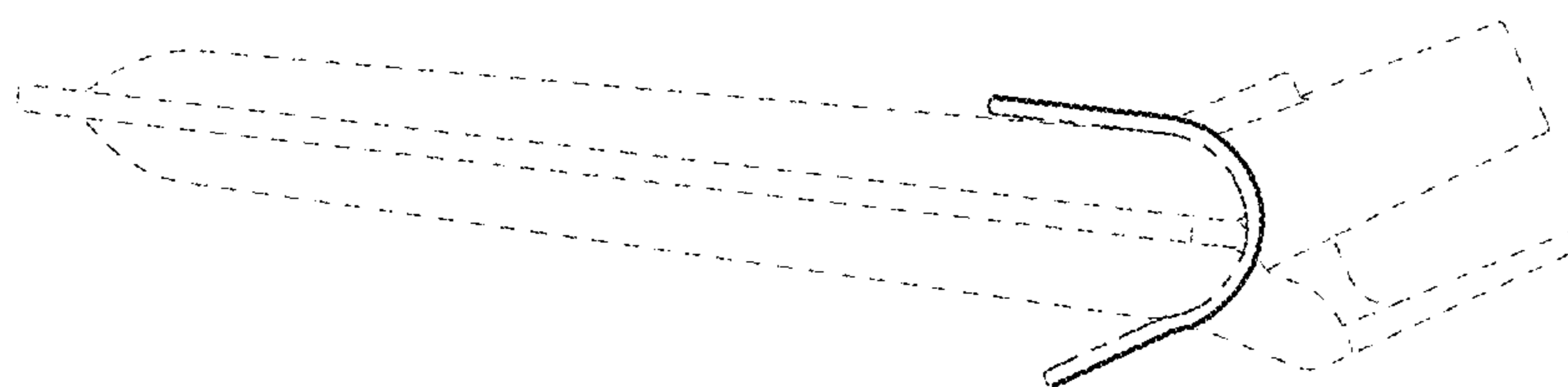


Fig. 6