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

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- (54) **HEART TREATMENT DEVICE**
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- (58) **Field of Classification Search**  
USPC ..... D24/165–168, 186, 187, 155, 200;  
600/16, 37; 607/7, 129; 623/3.16, 3.2  
See application file for complete search history.

- 3,983,863 A 10/1976 Janke et al.
- 4,048,990 A 9/1977 Goetz
- 4,196,534 A 4/1980 Shibamoto
- 4,403,604 A 9/1983 Wilkinson et al.

(Continued)

**FOREIGN PATENT DOCUMENTS**

- DE 324524 8/1920
- DE 29517393 2/1996

(Continued)

**OTHER PUBLICATIONS**

U.S. Appl. No. 14/053,261, filed Oct. 16, 2013, Hjelle et al.

(Continued)

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(57) **CLAIM**

The ornamental design for a heart treatment device, substantially as shown and described.

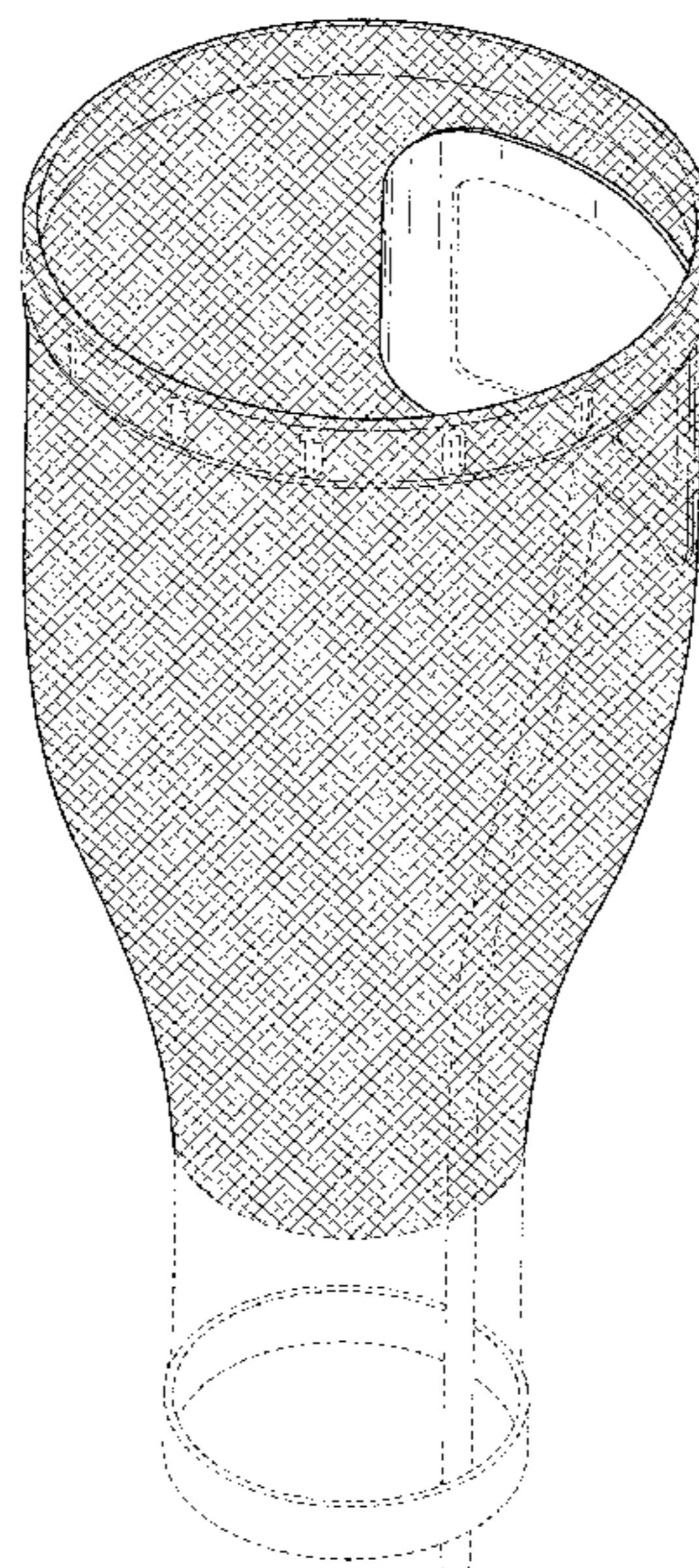
**DESCRIPTION**

FIG. 1 is a perspective view of a heart treatment device. FIG. 2 is a front view of the heart treatment device of FIG. 1. FIG. 3 is a rear view of the heart treatment device of FIG. 1. FIG. 4 is a right side view of the heart treatment device of FIG. 1. FIG. 5 is a left view of the heart treatment device of FIG. 1. FIG. 6 is a top view of the heart treatment device of FIG. 1; and, FIG. 7 is a bottom view of the heart treatment device of FIG. 1. The broken lines immediately adjacent the shaded areas represent the boundaries of the claimed design. The broken lines form no part of the claimed design.

**1 Claim, 6 Drawing Sheets**

(56) **References Cited**  
**U.S. PATENT DOCUMENTS**

- 1,682,119 A 8/1928 Field
- 1,965,542 A 11/1933 Colvin, Jr.
- 1,982,207 A 11/1934 Furniss
- 2,138,603 A 11/1938 Johnson
- 2,278,926 A 4/1942 Hartwell
- 2,376,442 A 5/1945 Mehler
- 2,992,550 A 7/1961 Frith
- 3,384,530 A 5/1968 Mercer et al.
- 3,452,742 A 7/1969 Muller
- 3,551,543 A 12/1970 Mercer et al.
- 3,587,567 A 6/1971 Schiff
- 3,732,662 A 5/1973 Paxton
- 3,768,643 A 10/1973 Bruno
- 3,811,411 A 5/1974 Moeller



(56)

References Cited

U.S. PATENT DOCUMENTS

4,428,375 A	1/1984	Ellman	6,076,013 A	6/2000	Brennan et al.
D273,514 S *	4/1984	Heilman et al. .... D24/168	6,077,214 A	6/2000	Mortier et al.
4,466,331 A	8/1984	Matheson	6,077,218 A	6/2000	Alferness
4,536,893 A	8/1985	Parravicini	6,085,754 A	7/2000	Alferness et al.
4,567,900 A	2/1986	Moore	6,089,051 A	7/2000	Gorywoda et al.
4,598,039 A	7/1986	Fischer et al.	6,095,968 A	8/2000	Snyders
4,630,597 A	12/1986	Kantrowitz et al.	6,123,662 A	9/2000	Alferness
4,637,377 A	1/1987	Loop	6,126,590 A	10/2000	Alferness
4,690,134 A	9/1987	Snyders	6,155,968 A	12/2000	Wilk
4,790,850 A	12/1988	Dunn et al.	6,155,972 A	12/2000	Nauertz et al.
4,821,723 A	4/1989	Baker, Jr. et al.	6,162,168 A	12/2000	Schweich, Jr. et al.
4,827,932 A	5/1989	Ideker et al.	6,165,119 A	12/2000	Schweich, Jr. et al.
4,834,707 A	5/1989	Evans	6,165,120 A	12/2000	Schweich, Jr. et al.
4,840,626 A	6/1989	Linsky et al.	6,165,121 A	12/2000	Alferness
4,878,890 A	11/1989	Bilweis	6,165,122 A	12/2000	Alferness
4,932,972 A	6/1990	Dunn et al.	6,169,922 B1	1/2001	Alferness et al.
4,936,857 A	6/1990	Kulik	6,174,279 B1	1/2001	Girard
4,957,477 A	9/1990	Lundback	6,179,791 B1	1/2001	Krueger
4,973,300 A	11/1990	Wright	6,183,411 B1	2/2001	Mortier et al.
4,976,730 A	12/1990	Kwan-Gett	6,190,408 B1	2/2001	Melvin
4,984,584 A	1/1991	Hansen et al.	6,193,646 B1	2/2001	Kulisz et al.
4,995,857 A	2/1991	Arnold	6,193,648 B1	2/2001	Krueger
5,042,463 A	8/1991	Lekholm	6,205,747 B1	3/2001	Paniagua Olacocha
5,057,117 A	10/1991	Atweh	6,206,004 B1	3/2001	Schmidt et al.
5,074,129 A	12/1991	Matthew	6,206,820 B1	3/2001	Kazi
5,087,243 A	2/1992	Avitall	6,221,103 B1	4/2001	Melvin
5,131,905 A	7/1992	Grooters	6,224,540 B1	5/2001	Lederman et al.
5,150,706 A	9/1992	Cox et al.	6,230,714 B1	5/2001	Alferness et al.
5,186,711 A	2/1993	Epstein	6,241,654 B1	6/2001	Alferness
5,188,813 A	2/1993	Fairey et al.	6,260,552 B1	7/2001	Mortier et al.
5,192,314 A	3/1993	Daskalakis	6,261,222 B1	7/2001	Schweich, Jr. et al.
5,207,725 A	5/1993	Pinkerton	6,264,602 B1	7/2001	Mortier et al.
5,224,363 A	7/1993	Sutton	6,293,906 B1	9/2001	Vanden Hoek et al.
5,256,132 A	10/1993	Snyders	6,332,863 B1	12/2001	Schweich, Jr. et al.
5,279,539 A	1/1994	Bohan et al.	6,332,864 B1	12/2001	Schweich, Jr. et al.
5,290,217 A	3/1994	Campos	6,332,893 B1	12/2001	Mortier et al.
5,336,253 A	8/1994	Gordon et al.	6,360,749 B1	3/2002	Jayaraman
5,339,657 A	8/1994	McMurray	6,370,429 B1	4/2002	Alferness et al.
5,341,815 A	8/1994	Cofone et al.	6,375,608 B1	4/2002	Alferness
5,356,432 A	10/1994	Rutkow et al.	6,402,679 B1	6/2002	Mortier
5,366,460 A	11/1994	Eberbach	6,402,680 B2	6/2002	Mortier
5,383,840 A	1/1995	Heilman et al.	6,406,420 B1	6/2002	McCarthy et al.
5,385,156 A	1/1995	Oliva	6,409,760 B1	6/2002	Melvin
5,405,360 A	4/1995	Tovey	6,416,459 B1	7/2002	Haindl
5,409,703 A	4/1995	McAnalley et al.	6,425,856 B1	7/2002	Shaplant et al.
5,429,584 A	7/1995	Chiu	6,432,039 B1	8/2002	Wardle
5,507,779 A	4/1996	Altman	6,482,146 B1	11/2002	Alferness et al.
5,524,633 A	6/1996	Heaven et al.	6,488,618 B1	12/2002	Paolitto et al.
5,533,958 A	7/1996	Wilk	6,494,825 B1	12/2002	Talpade
5,558,617 A	9/1996	Heilman et al.	6,508,756 B1	1/2003	Kung et al.
5,593,441 A	1/1997	Lichtenstein et al.	6,514,194 B2	2/2003	Schweich, Jr. et al.
5,603,337 A	2/1997	Jarvik	6,517,570 B1	2/2003	Lau et al.
5,611,515 A	3/1997	Benderev et al.	6,520,904 B1	2/2003	Melvin
5,647,380 A	7/1997	Campbell et al.	6,537,198 B1	3/2003	Vidlund et al.
5,695,525 A	12/1997	Mulhauser et al.	6,537,203 B1	3/2003	Alferness et al.
5,702,343 A	12/1997	Alferness	6,541,678 B2	4/2003	Klein
5,713,954 A	2/1998	Rosenberg et al.	6,544,168 B2	4/2003	Alferness
5,735,290 A	4/1998	Sterman et al.	6,547,716 B1	4/2003	Milbocker
5,766,216 A	6/1998	Gangal et al.	6,558,319 B1	5/2003	Aboul-Hosn et al.
5,782,746 A	7/1998	Wright	6,564,094 B2	5/2003	Alferness et al.
D399,000 S *	9/1998	Rothman et al. .... D24/167	6,567,699 B2	5/2003	Alferness et al.
5,800,334 A	9/1998	Wilk	6,569,082 B1	5/2003	Chin
5,800,528 A	9/1998	Lederman et al.	6,572,533 B1	6/2003	Shaplant et al.
5,839,842 A	11/1998	Wanat et al.	6,575,921 B2	6/2003	Vanden Hoek et al.
5,853,422 A	12/1998	Huebsch et al.	6,579,226 B2	6/2003	Vanden Hoek et al.
5,928,250 A	7/1999	Koike et al.	6,582,355 B2	6/2003	Alferness et al.
5,931,810 A	8/1999	Grabek	6,587,734 B2	7/2003	Okuzumi et al.
5,961,440 A	10/1999	Schweich, Jr. et al.	6,589,160 B2	7/2003	Schweich, Jr. et al.
5,972,013 A	10/1999	Schmidt	6,592,514 B2	7/2003	Kolata et al.
5,976,551 A	11/1999	Mottez et al.	6,595,912 B2	7/2003	Lau et al.
5,990,378 A	11/1999	Ellis	6,602,184 B2	8/2003	Lau et al.
6,042,536 A	3/2000	Tihon et al.	6,612,978 B2	9/2003	Lau et al.
6,045,497 A	4/2000	Schweich, Jr. et al.	6,612,979 B2	9/2003	Lau et al.
6,050,936 A	4/2000	Schweich, Jr. et al.	6,616,596 B1	9/2003	Milbocker
6,059,715 A	5/2000	Schweich, Jr. et al.	6,616,684 B1	9/2003	Vidlund et al.
			6,620,095 B2	9/2003	Taheri
			6,622,730 B2	9/2003	Ekvall et al.
			6,629,921 B1	10/2003	Schweich, Jr. et al.
			6,645,139 B2	11/2003	Haindl

(56)

References Cited

U.S. PATENT DOCUMENTS

6,663,558 B2	12/2003	Lau et al.	2002/0169358 A1	11/2002	Mortier et al.
6,673,009 B1	1/2004	Vanden Hoek et al.	2002/0169359 A1	11/2002	McCarthy et al.
6,682,474 B2	1/2004	Lau et al.	2002/0169360 A1	11/2002	Taylor et al.
6,682,475 B2	1/2004	Cox et al.	2002/0173694 A1	11/2002	Mortier et al.
6,682,476 B2	1/2004	Alferness et al.	2003/0032979 A1	2/2003	Mortier et al.
6,685,627 B2	2/2004	Jayaraman	2003/0050529 A1	3/2003	Vidlund et al.
6,689,048 B2	2/2004	Vanden Hoek et al.	2003/0060895 A1	3/2003	French et al.
6,695,768 B1	2/2004	Levine et al.	2003/0065248 A1	4/2003	Lau et al.
6,695,769 B2	2/2004	French et al.	2003/0088149 A1	5/2003	Raman et al.
6,701,929 B2	3/2004	Hussein	2003/0130731 A1	7/2003	Vidlund et al.
6,702,732 B1	3/2004	Lau et al.	2003/0166992 A1	9/2003	Schweich, Jr. et al.
6,709,382 B1	3/2004	Horner	2003/0171641 A1	9/2003	Schweich, Jr. et al.
6,716,158 B2	4/2004	Raman et al.	2003/0181928 A1	9/2003	Vidlund et al.
6,723,038 B1	4/2004	Schroeder et al.	2003/0229260 A1	12/2003	Girard et al.
6,723,041 B2	4/2004	Lau et al.	2003/0229265 A1	12/2003	Girard et al.
6,726,696 B1	4/2004	Houser et al.	2003/0233023 A1	12/2003	Khaghani et al.
6,726,920 B1	4/2004	Theeuwes et al.	2004/0002626 A1	1/2004	Feld et al.
6,727,316 B1	4/2004	Bremser	2004/0034272 A1	2/2004	Diaz et al.
6,730,016 B1	5/2004	Cox et al.	2004/0059181 A1	3/2004	Alferness
6,746,471 B2	6/2004	Mortier et al.	2004/0127983 A1	7/2004	Mortier et al.
6,755,777 B2	6/2004	Schweich, Jr. et al.	2004/0133062 A1	7/2004	Pai et al.
6,755,779 B2	6/2004	Vanden Hoek et al.	2004/0133063 A1	7/2004	McCarthy et al.
6,755,861 B2	6/2004	Nakao	2004/0147805 A1	7/2004	Lau et al.
6,764,510 B2	7/2004	Vidlund et al.	2004/0147965 A1*	7/2004	Berger ..... 607/5
6,776,754 B1	8/2004	Wilk	2004/0167374 A1	8/2004	Schweich et al.
6,793,618 B2	9/2004	Schweich, Jr. et al.	2004/0181118 A1	9/2004	Kochamba
6,808,488 B2	10/2004	Mortier et al.	2004/0181120 A1	9/2004	Kochamba
6,852,075 B1	2/2005	Taylor	2004/0181124 A1	9/2004	Alferness
6,852,076 B2	2/2005	Nikolic et al.	2004/0186342 A1	9/2004	Vanden Hock et al.
6,858,001 B1	2/2005	Aboul-Hosn	2004/0210104 A1	10/2004	Lau et al.
6,876,887 B2	4/2005	Okuzumi et al.	2004/0215308 A1	10/2004	Bardy et al.
6,881,185 B2	4/2005	Vanden Hock et al.	2004/0225304 A1	11/2004	Vidlund et al.
6,893,392 B2	5/2005	Alferness	2004/0243229 A1	12/2004	Vidlund et al.
6,896,652 B2	5/2005	Alferness et al.	2004/0249242 A1	12/2004	Lau et al.
6,902,522 B1	6/2005	Walsh et al.	2004/0267083 A1	12/2004	McCarthy et al.
6,902,524 B2	6/2005	Alferness et al.	2004/0267329 A1	12/2004	Raman et al.
6,908,426 B2	6/2005	Shapland et al.	2005/0004428 A1	1/2005	Cox et al.
6,951,534 B2	10/2005	Girard et al.	2005/0010079 A1	1/2005	Bertolero et al.
6,997,865 B2	2/2006	Alferness et al.	2005/0014992 A1	1/2005	Lilip et al.
7,022,063 B2	4/2006	Lau et al.	2005/0020874 A1	1/2005	Lau et al.
7,022,064 B2	4/2006	Alferness et al.	2005/0033109 A1	2/2005	Lau et al.
7,025,719 B2	4/2006	Alferness et al.	2005/0038316 A1	2/2005	Taylor
7,060,023 B2	6/2006	French et al.	2005/0054892 A1	3/2005	Lau et al.
7,077,862 B2	7/2006	Vidlund et al.	2005/0058853 A1	3/2005	Kochambe
7,081,086 B2	7/2006	Lau et al.	2005/0059854 A1	3/2005	Hoek et al.
7,112,219 B2	9/2006	Vidlund et al.	2005/0059855 A1	3/2005	Lau et al.
7,155,295 B2	12/2006	Lau et al.	2005/0065396 A1	3/2005	Mortier et al.
7,163,507 B2	1/2007	Alferness et al.	2005/0075723 A1	4/2005	Schroeder et al.
7,181,272 B2*	2/2007	Struble et al. .... 607/129	2005/0085688 A1	4/2005	Girard et al.
7,189,203 B2	3/2007	Lau et al.	2005/0090707 A1	4/2005	Lau et al.
7,235,042 B2	6/2007	Vanden Hoek et al.	2005/0133941 A1	6/2005	Schuhmacher
7,252,632 B2	8/2007	Shapland et al.	2005/0171589 A1	8/2005	Lau et al.
7,276,022 B2	10/2007	Lau et al.	2005/0192474 A1	9/2005	Vanden Hoek et al.
7,351,200 B2	4/2008	Alferness	2005/0228217 A1	10/2005	Alferness et al.
7,398,781 B1	7/2008	Chin	2005/0256368 A1	11/2005	Klenk et al.
7,404,793 B2	7/2008	Lau	2005/0283042 A1	12/2005	Meyer et al.
7,410,461 B2	8/2008	Lau et al.	2005/0288715 A1	12/2005	Lau et al.
7,651,462 B2	1/2010	Hjelle et al.	2006/0009831 A1	1/2006	Lau et al.
8,092,363 B2	1/2012	Leinsing et al.	2006/0063970 A1	3/2006	Raman et al.
8,100,821 B2	1/2012	Hjelle et al.	2006/0155165 A1	7/2006	Vanden Hoek et al.
8,109,868 B2	2/2012	Girard et al.	2006/0229490 A1	10/2006	Chin
8,202,212 B2	6/2012	Hjelle et al.	2006/0270896 A1	11/2006	Dietz et al.
8,277,372 B2	10/2012	Alferness et al.	2007/0032696 A1	2/2007	Duong
8,617,051 B2	12/2013	Hjelle et al.	2007/0043416 A1*	2/2007	Callas et al. .... 607/129
2001/0016675 A1	8/2001	Mortier et al.	2007/0208211 A1	9/2007	Alferness et al.
2001/0025171 A1	9/2001	Mortier et al.	2007/0208215 A1	9/2007	Hjelle
2002/0019580 A1	2/2002	Lau et al.	2007/0219407 A1	9/2007	Vanden Hoek et al.
2002/0029080 A1	3/2002	Mortier et al.	2007/0225547 A1	9/2007	Alferness et al.
2002/0045798 A1	4/2002	Lau et al.	2008/0033234 A1	2/2008	Hjelle et al.
2002/0058855 A1	5/2002	Schweich, Jr. et al.	2008/0064917 A1	3/2008	Bar et al.
2002/0068849 A1	6/2002	Schweich, Jr. et al.	2009/0062596 A1	3/2009	Leinsing et al.
2002/0068850 A1	6/2002	Vanden Hoek et al.	2009/0131743 A1	5/2009	Hjelle et al.
2002/0077524 A1	6/2002	Schweich, Jr. et al.	2010/0094080 A1	4/2010	Hjelle et al.
2002/0133055 A1	9/2002	Handl	2010/0160721 A1	6/2010	Alferness et al.
2002/0147406 A1	10/2002	Von Segesser	2010/0185050 A1	7/2010	Alferness et al.
			2010/0268019 A1	10/2010	Hjelle et al.
			2012/0253112 A1	10/2012	Hjelle et al.

(56)

## References Cited

## U.S. PATENT DOCUMENTS

## FOREIGN PATENT DOCUMENTS

EP	0280564	8/1988
EP	0303719	2/1989
EP	0557964	9/1993
GB	2209678	5/1989
JP	60-203250	10/1985
JP	01-145066	6/1989
JP	02-271829	11/1990
SU	1009457	4/1983
WO	WO 93/03685	3/1993
WO	WO 96/16601	6/1996
WO	WO 96/31175	10/1996
WO	WO 98/14136	4/1998
WO	WO 98/29041	7/1998
WO	WO 98/35632	8/1998
WO	WO 98/58598	12/1998
WO	WO 99/44534	9/1999
WO	WO 99/52470	10/1999
WO	WO 99/52471	10/1999
WO	WO 00/01306	1/2000
WO	WO 00/02500	1/2000
WO	WO 00/06026	2/2000
WO	WO 00/06027	2/2000
WO	WO 00/06028	2/2000
WO	WO 00/16700	3/2000
WO	WO 00/28912	5/2000
WO	WO 00/28918	5/2000
WO	WO 01/02500	1/2001
WO	WO 01/03608	1/2001
WO	WO 01/10421	2/2001
WO	WO 01/67985	9/2001
WO	WO 01/91667	12/2001
WO	WO 01/95830	12/2001
WO	WO 02/13726	2/2002
WO	WO 2002/000099	9/2002
WO	WO 2003/022131	3/2003
WO	WO 2006/023580	3/2006
WO	WO 2008/011411	1/2008
WO	WO 2010/111592	9/2010

## OTHER PUBLICATIONS

U.S. Appl. No. 14/053,587, filed Oct. 14, 2013, Hjelle et al.  
 U.S. Appl. No. 14/053,590, filed Oct. 14, 2013, Hjelle et al.  
 Bolling, et al., "Intermediate-Term Outcome of Mitral Reconstruction in Cardiomyopathy", *J Thorac. Cardiovasc. Surg.*, Feb. 1998, 115(2):381-388.  
 Bourge, "Clinical Trial Begins for Innovative Device-Altering Left Ventricular Shape in Heart Failure", UAB Insight, posted Aug. 8, 2012, retrieved Jun. 17, 2004, <http://www.health.uab.edu/show>, 2 pages.  
 Capomolla et al., "Dobutamine and nitroprusside infusion in patients with severe congestive heart failure: Hemodynamic improvement by discordant effects on mitral regurgitation, left atrial function, and ventricular function", *American Heart Journal*, Dec. 1997, 1089-1098.  
 Capouya et al., "Girdling Effect of Nonstimulated Cardiomyoplasty on Left Ventricular Function", *Ann Thorac. Surg.*, 1993, 56:867-871.  
 Cohn, "The Management of Chronic Heart Failure", *The New England Journal of Medicine*, Aug. 15, 1996, 335(7): 490-498.  
 Coletta et al., "Prognostic value of left ventricular volume response during dobutamine stress echocardiography," *European Heart Journal*, Oct. 1997, 18: 1599-1605.  
 Daubeney et al., "Pulmonary Atresia/Intact Ventricular Septum: Early Outcome After Right Ventricular Outflow Reconstruction by Surgery or Catheter Intervention," Supplement to *Circulation*, Oct. 15, 1995, 92(8), Abstract 1812.

DeVries et al., "A Novel Technique for Measurement of Pericardial Balloon," *Am. J Physiol Heart Circ Physiol*, Jan. 2001, 280(6):H2815-H2822.

Ghanta, et al., "Cardiovascular Surgery: Adjustable, Physiological Ventricular Restraint Improves Left Ventricular Mechanics and Reduces Dilation in an Ovine Model of Chronic Heart Failure," *Circulation, JAHA*, 2007, 115:1201-10.

Guasp., "Una protesis contentiva para el tratamiento de la miocardiopatía dilatada," *Revista Espanola de Cardiologia*, Jul. 1998, 51(7): 521-528.

Hamilton et al., "Static and Dynamic Operating Characteristics of a Pericardial Balloon," *J Appl. Physiol*, Apr. 2001, 90(4):1481-1488.

Hung, et al., "Persistent Reduction of Ischemic Mitral Regurgitation by Papillary Muscle Repositioning: Structural Stabilization of the Papillary Muscle Ventricular Wall Complex," *Circulation, JAHA*, 2007, 116:1-259 1-263.

Justo et al., "Outcomes of Transcatheter Perforation of the Right Ventricular Outflow Tract as Primary Management for Pulmonary Valve Atresia in the Newborn," Supplement to *Circulation*, Oct. 15, 1995, 92(8), Abstract 1813.

Kass et al., "Reverse Remodeling From Cardiomyoplasty in Human Heart Failure External Constraint Versus Active Assist," *Circulation*, May 1, 1995, 91(9):2314-2318, retrieved Jan. 16, 2014, <http://circ.ahajournals.org/content/91/9/2314.full>.

Labrousse, Louis et al., "Implantation of a Cardiac Support Device by the 'Parachute-Like' Technique Through Sternal and Trans-Abdominal Approach," Abstract, 94 *Programme of the 4th Eactsiests Joint Meeting*, Sep. 28, 2005, Barcelona, Spain.

Lamas, et al., "Clinical Significance of Mitral Regurgitation After Acute Myocardial Infarction," *Circulation-JAHA*, Aug. 5, 1997, 96(3):827-833, retrieved Jan. 16, 2014, <http://circ.ahajournals.org/content/96/3/827.long>.

Lei-Cohen, et al., "Design of a New Surgical Approach for Ventricular Remodeling to Relieve Ischemic Mitral Regurgitation," *Circulation*, Jun. 13, 2000, 101:2756-2763.

Levin et al., "Reversal of Chronic Ventricular Dilation in Patients with End-Stage Cardiomyopathy by Prolonged Mechanical Unloading," *Circulation*, Jun. 1, 1995, 91(11): 2717-2720, retrieved Jan. 16, 2014, <http://circ.ahajournals.org/content/91/11/2717.long>.

Lloyd et al., "The PDA Coil Registry: Report of the First 535 Procedures," Supplement to *Circulation*, Oct. 15, 1995, 92(8), Abstract 1811.

Oh et al., "The Effects of Prosthetic Cardiac Binding and Adynamic Cardiomyoplasty in a Model of Dilated Cardiomyopathy," *The Journal of Thoracic and Cardiovascular Surgery*, Jul. 1998, 116(1):148-153.

Pai, et al., "Valvular Egurgitation," *Clinical Science Abstracts*, 2000, 1800-1804.

Paling, "Two-Bar Fabrics (Part-Set Threading)," *Warp Knitting Technology*, Columbine Press (Publishers) Ltd., Buxton, Great Britain, p. 111 (1970).

Timek, et al., "Pathogenesis of Mitral Regurgitation in Tachycardia Induced Cardiomyopathy," *Circulation-JAHA*, 2001, 104:1-47-1-53.

Vaynblat et al., "Cardiac Binding in Experimental Heart Failure," *Ann. Thorac. Surg.*, 1994, vol. 64, 11 pages.

Vinereanu, et al., "'Pure' diastolic dysfunction is associated with long-axis systolic dysfunction. Implications for the diagnosis and classification of hear failure," *European Journal of Heart Failure*, Aug. 2005, 7(5): 820-828 (Abstract Only).

International Search Report and Written Opinion in International Application No. PCT/US2013/064894, mailed Apr. 3, 2014, 27 pages.

International Search Report and Written Opinion in International Application No. PCT/US2013/064895, mailed Apr. 21, 2014, 14 pages.

\* cited by examiner

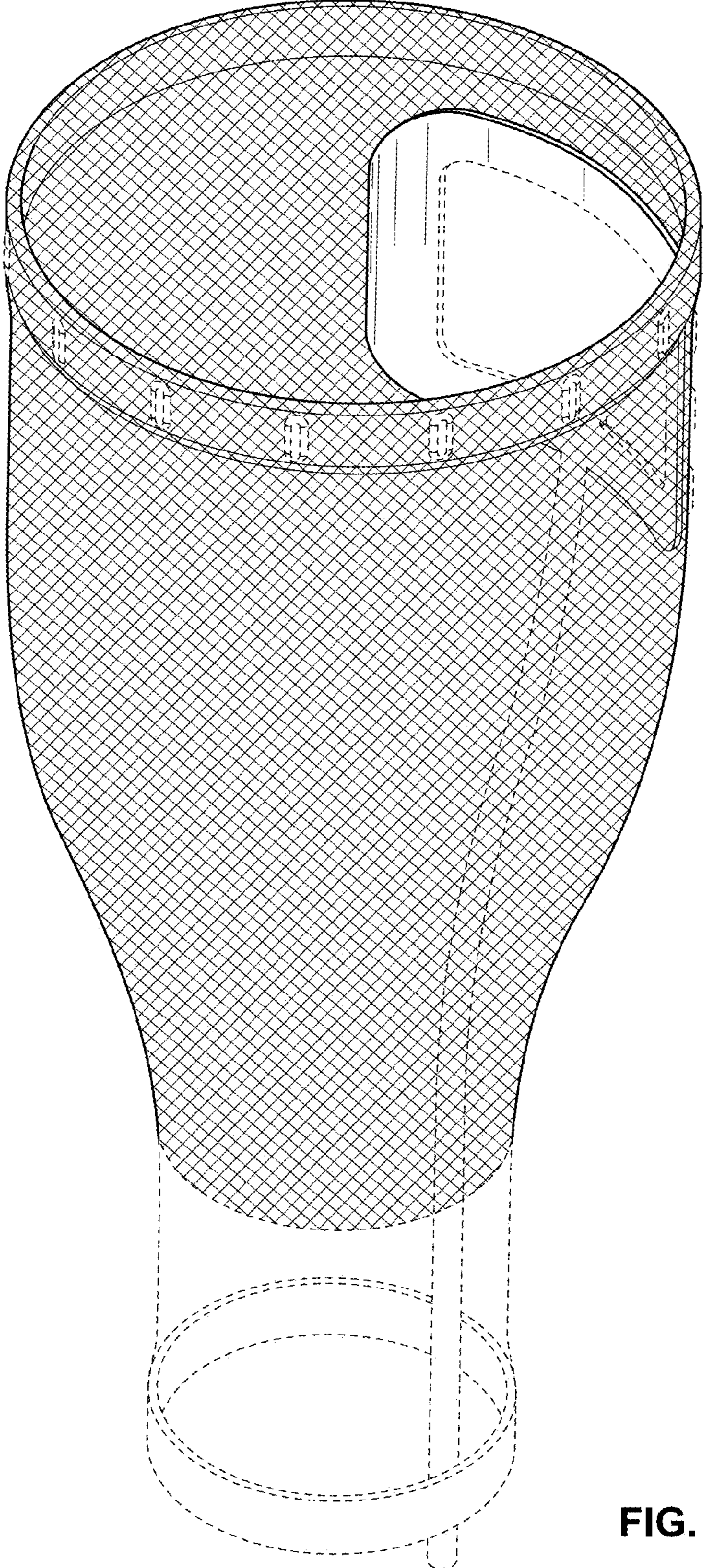


FIG. 1

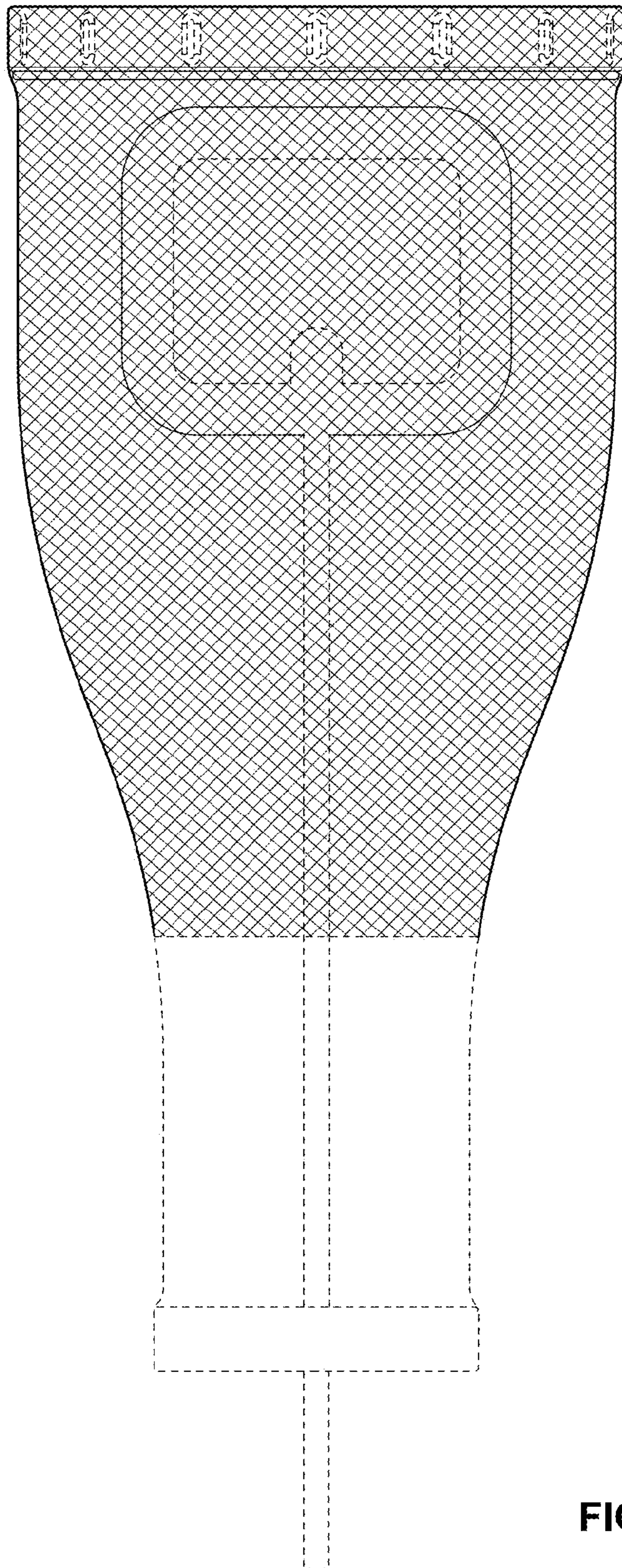


FIG. 2

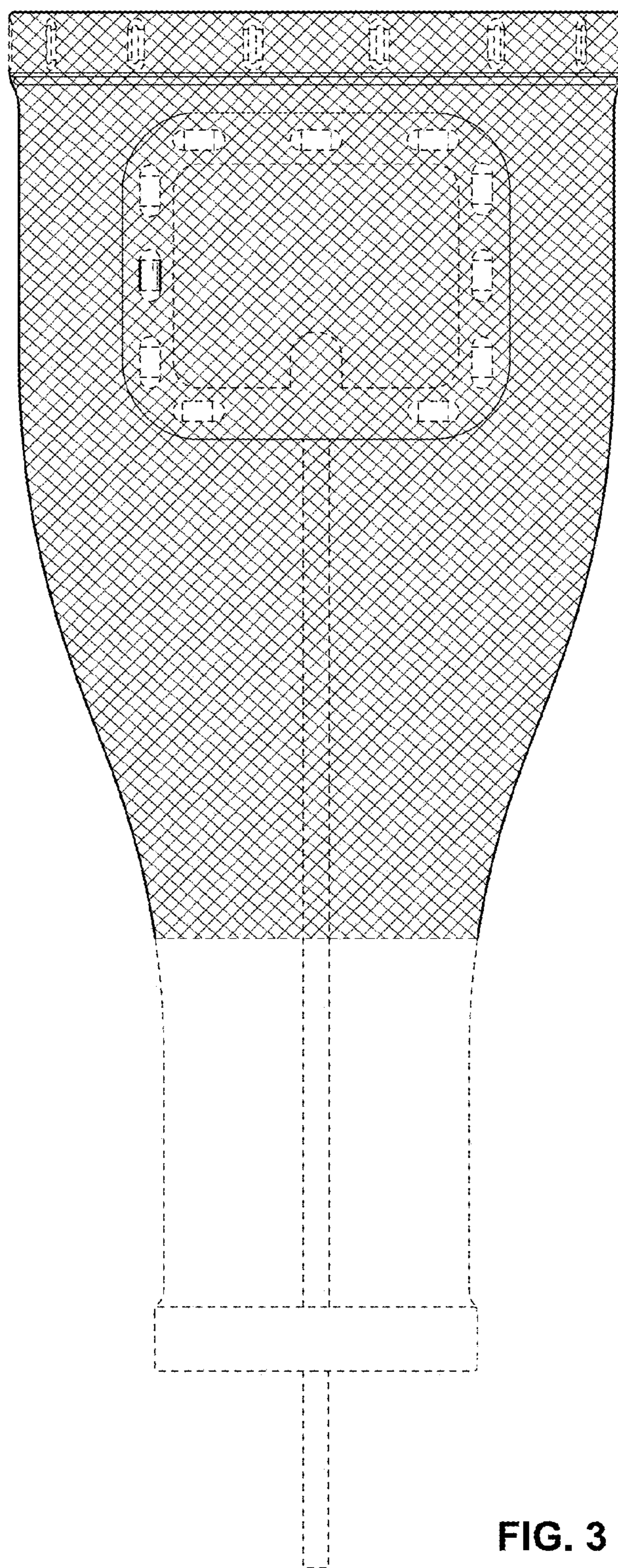


FIG. 3

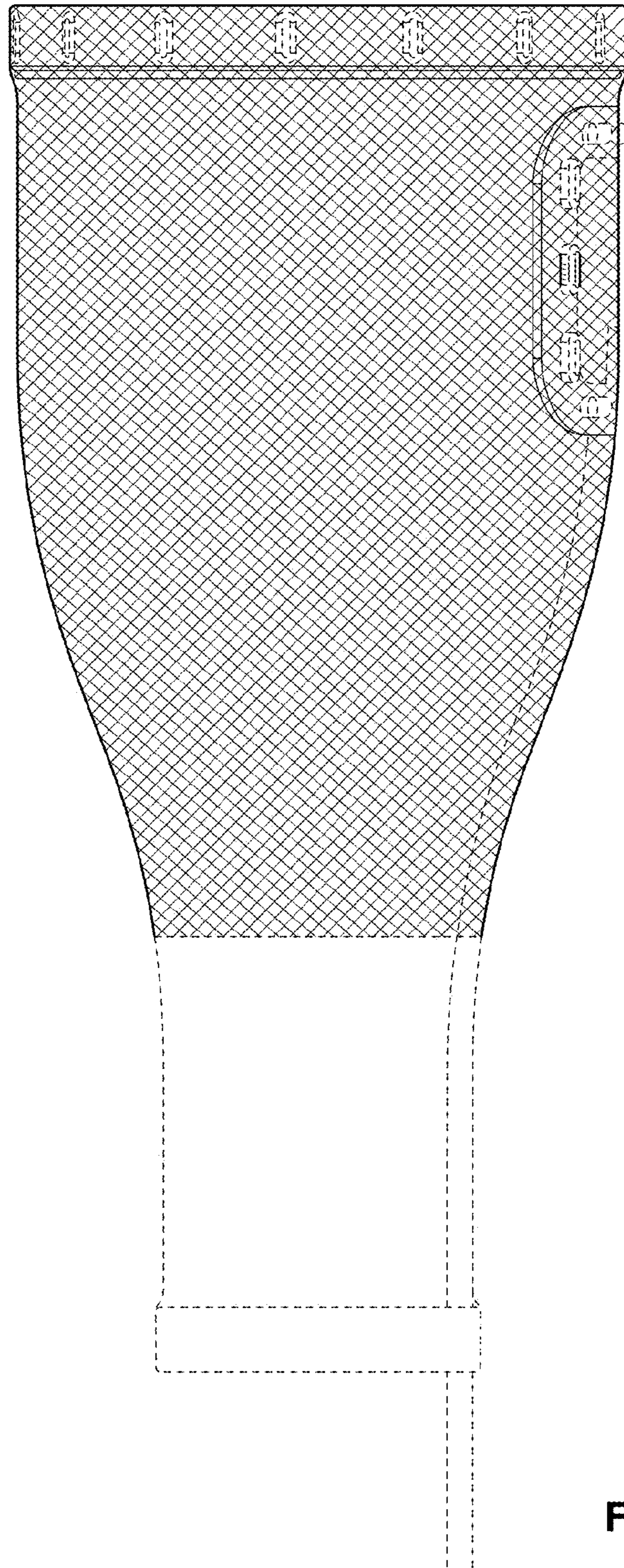


FIG. 4



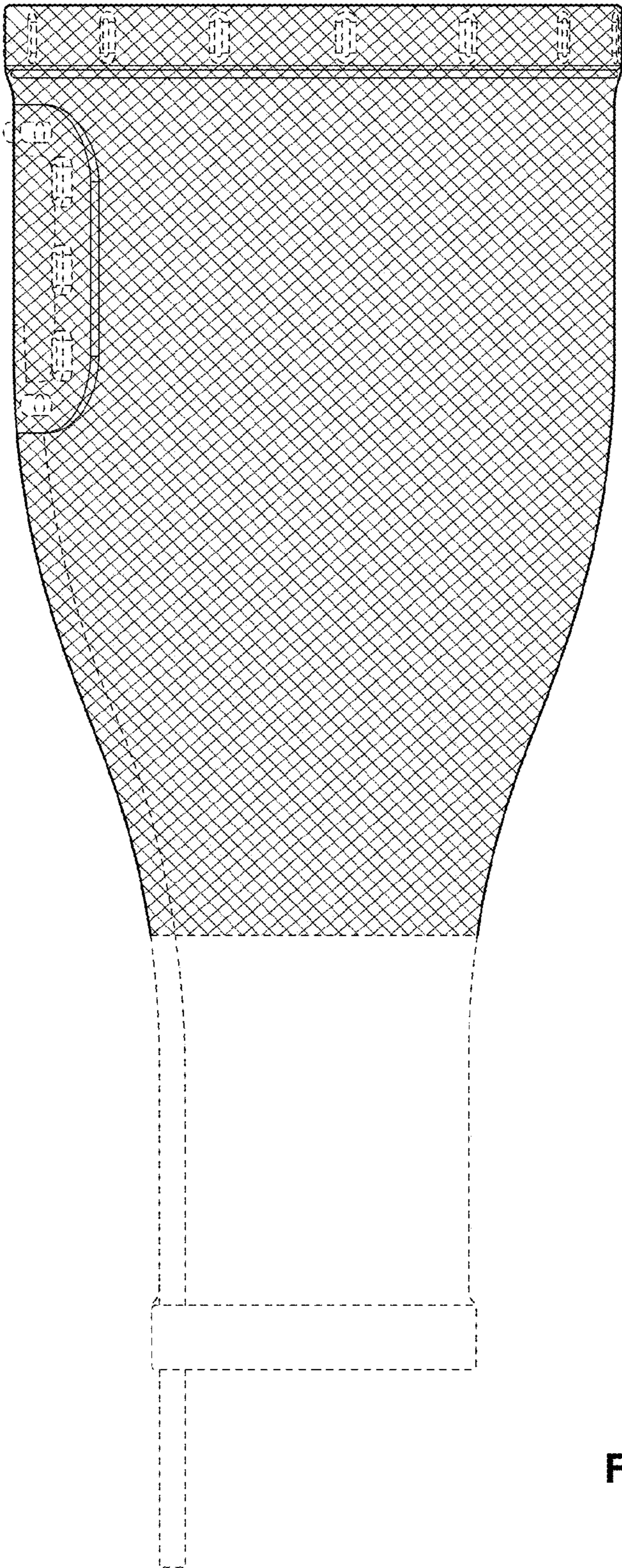


FIG. 5

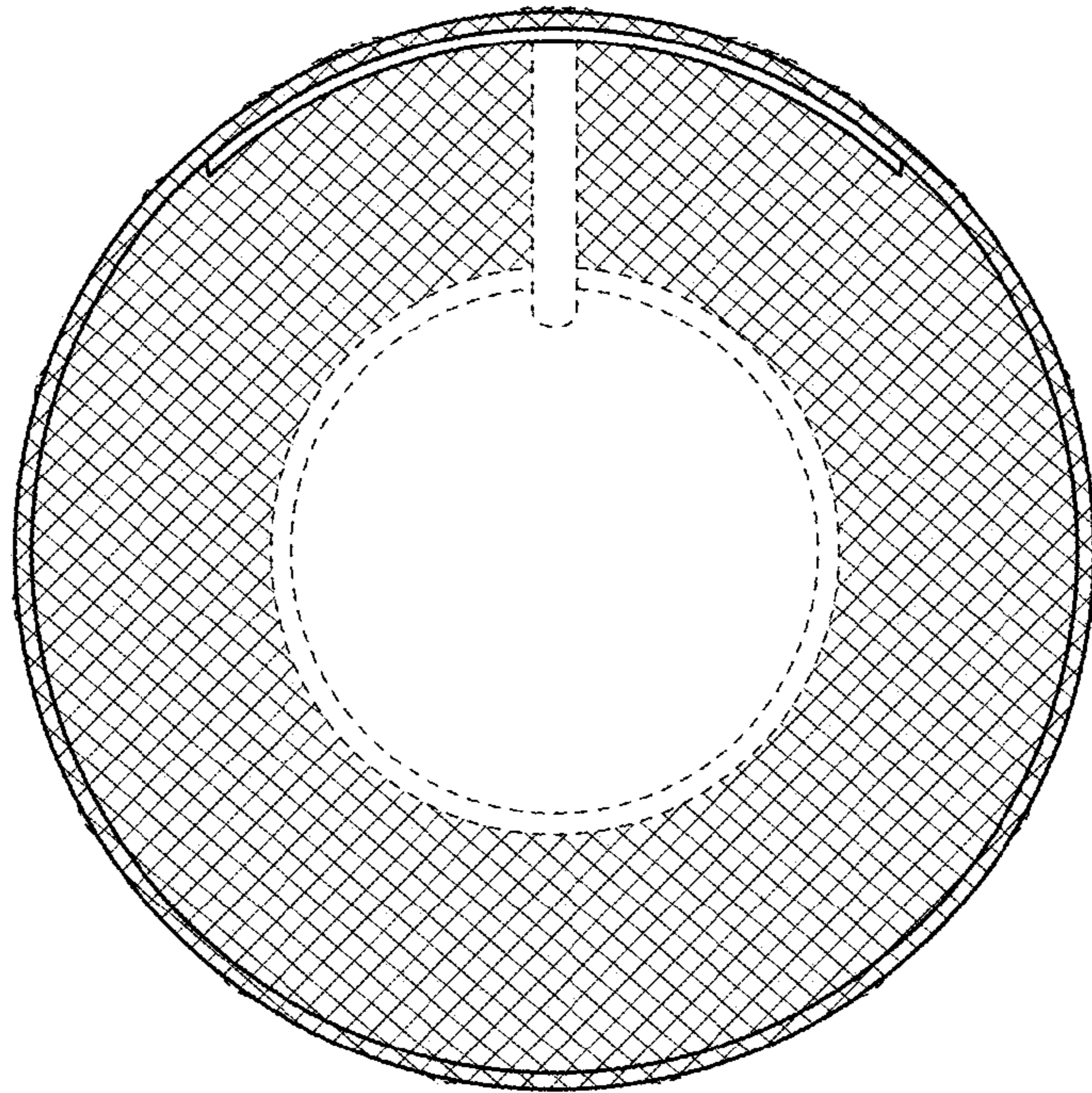


FIG. 6

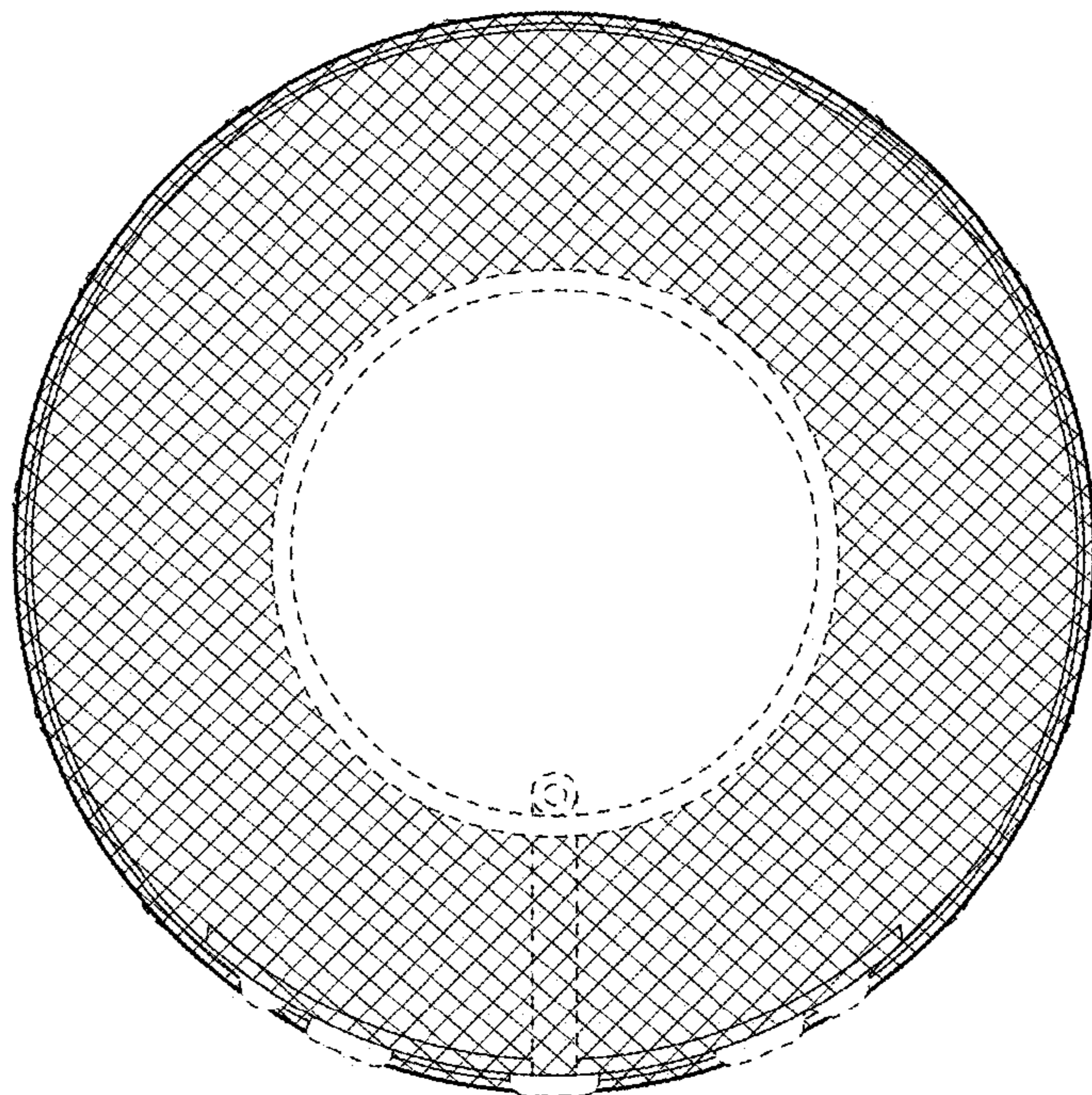


FIG. 7