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Conklin

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(54) **COLLAPSIBLE HEART VALVE SIZER**

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(56) **References Cited**

U.S. PATENT DOCUMENTS

528,759	A	11/1894	Bernhardt	
1,934,513	A *	11/1933	Schulte	A61D 1/08 606/122
3,143,742	A	8/1964	Cromie	
3,164,009	A	1/1965	Schaschl	
3,320,972	A	5/1967	High et al.	
3,371,352	A	3/1968	Siposs et al.	
3,409,013	A	11/1968	Berry	
3,546,710	A	12/1970	Shumakov et al.	
3,574,865	A	4/1971	Hamaker	
3,628,535	A	12/1971	Ostrowsky et al.	
3,657,744	A	4/1972	Ersek	
3,686,740	A	8/1972	Shiley	
3,755,823	A	9/1973	Hancock	
3,839,741	A	10/1974	Haller	

(Continued)

FOREIGN PATENT DOCUMENTS

DE	29911694	U1	8/1999
EP	0125393	A1	11/1984

(Continued)

OTHER PUBLICATIONS

A. Sidiropoulos, et al., Stentless Porcine Bioprostheses for all Types of Aortic Root pathology, European Journal of Cardio-Thoracic Surgery, 1997:11:917-921.

(Continued)

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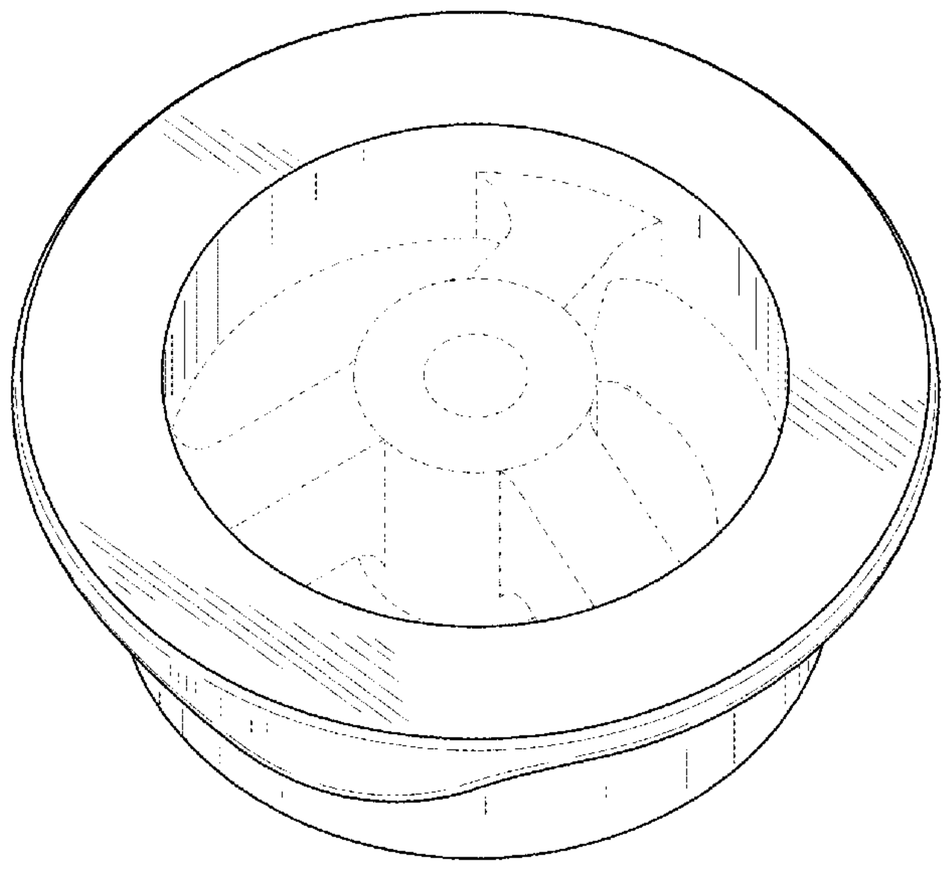
(57) **CLAIM**

The ornamental design for a collapsible heart valve sizer, as shown and described.

DESCRIPTION

FIG. **1** is a top perspective view of a collapsible heart valve sizer in accordance with another embodiment.
FIG. **2** is a bottom perspective view thereof.
FIG. **3** is a front elevation view thereof.
FIG. **4** is a right elevation view thereof.
FIG. **5** is a rear elevation view thereof.
FIG. **6** is left side elevation view thereof.
FIG. **7** is a top plan view thereof; and,
FIG. **8** is a bottom plan view thereof.

1 Claim, 3 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

4,016,867	A		4/1977	King et al.
4,035,849	A		7/1977	Angell et al.
4,056,854	A		11/1977	Boretos et al.
4,062,911	A		12/1977	Pepping
4,078,468	A		3/1978	Civitello
4,079,468	A		3/1978	Liotta et al.
4,084,268	A		4/1978	Ionescu et al.
4,106,129	A		8/1978	Carpentier et al.
4,172,295	A		10/1979	Batten
4,185,638	A		1/1980	Bruner
4,211,241	A		7/1980	Kaster et al.
4,217,665	A		8/1980	Bex et al.
4,218,782	A		8/1980	Rygg
4,252,131	A		2/1981	Hon et al.
4,259,753	A		4/1981	Liotta et al.
4,340,091	A		7/1982	Skelton et al.
4,343,048	A		8/1982	Ross et al.
4,362,167	A		12/1982	Nicolai et al.
4,364,126	A		12/1982	Rosen et al.
4,372,743	A		2/1983	Lane
4,388,735	A		6/1983	Ionescu et al.
4,441,216	A		4/1984	Ionescu et al.
4,451,936	A		6/1984	Carpentier et al.
4,470,157	A		9/1984	Love
4,490,859	A		1/1985	Black et al.
4,501,030	A		2/1985	Lane
4,506,394	A		3/1985	Bedard
4,535,483	A		8/1985	Klawitter et al.
4,566,465	A		1/1986	Arhan et al.
4,585,453	A		4/1986	Martin et al.
D284,889	S	*	7/1986	Kenna D24/140
4,602,911	A		7/1986	Ahmadi et al.
4,605,407	A		8/1986	Black et al.
4,626,255	A		12/1986	Reichart et al.
4,629,459	A		12/1986	Ionescu et al.
4,643,194	A		2/1987	Fogarty
4,679,556	A		7/1987	Lubock et al.
4,680,031	A		7/1987	Alonso
4,685,474	A		8/1987	Kurz et al.
4,687,483	A		8/1987	Fisher et al.
4,702,250	A		10/1987	Ovil et al.
4,705,516	A		11/1987	Barone et al.
4,725,274	A		2/1988	Lane et al.
4,731,074	A		3/1988	Rousseau et al.
4,778,461	A		10/1988	Pietsch et al.
4,790,843	A		12/1988	Carpentier et al.
4,851,000	A		7/1989	Gupta
4,865,600	A		9/1989	Carpentier et al.
4,888,009	A		12/1989	Lederman et al.
4,898,155	A		2/1990	Ovil et al.
4,914,097	A		4/1990	Oda et al.
4,940,459	A		7/1990	Noce
4,960,424	A		10/1990	Grooters
4,993,428	A		2/1991	Arms
5,010,892	A		4/1991	Colvin et al.
5,011,481	A		4/1991	Myers et al.
5,032,128	A		7/1991	Alonso
5,037,434	A		8/1991	Lane
5,042,161	A		8/1991	Hodge
5,053,008	A		10/1991	Bajaj
5,089,015	A		2/1992	Ross
5,147,391	A		9/1992	Lane
5,163,955	A		11/1992	Love et al.
5,171,248	A		12/1992	Ellis
5,197,979	A		3/1993	Quintero et al.
5,236,450	A		8/1993	Scott
5,258,023	A		11/1993	Reger
5,290,300	A		3/1994	Cosgrove et al.
5,316,016	A		5/1994	Adams et al.
5,326,370	A		7/1994	Love et al.
5,326,371	A		7/1994	Love et al.
5,332,402	A		7/1994	Teitelbaum
5,360,014	A		11/1994	Sauter et al.
5,360,444	A		11/1994	Kusuhara
5,370,685	A		12/1994	Stevens
5,376,112	A		12/1994	Duran
5,396,887	A		3/1995	Imran
5,397,351	A		3/1995	Pavcnik et al.
5,411,522	A		5/1995	Trott
5,423,887	A		6/1995	Love et al.
5,425,741	A		6/1995	Lemp et al.
5,431,676	A		7/1995	Dubrul et al.
5,449,384	A		9/1995	Johnson
5,449,385	A		9/1995	Religa et al.
5,469,868	A		11/1995	Reger
5,471,756	A		12/1995	Bolanos et al.
5,476,510	A		12/1995	Eberhardt et al.
5,488,789	A		2/1996	Religa et al.
5,489,296	A	*	2/1996	Love A61F 2/2496 600/587
5,489,297	A		2/1996	Duran
5,489,298	A		2/1996	Love et al.
5,496,346	A		3/1996	Horzewski et al.
5,500,016	A		3/1996	Fisher
5,531,785	A		7/1996	Love et al.
5,533,515	A		7/1996	Coller et al.
5,545,214	A		8/1996	Stevens
5,549,665	A		8/1996	Vesely et al.
5,562,729	A		10/1996	Purdy et al.
5,571,215	A		11/1996	Sterman et al.
5,573,007	A		11/1996	Bobo, Sr.
5,578,076	A		11/1996	Krueger et al.
5,584,803	A		12/1996	Stevens et al.
5,584,878	A		12/1996	Love et al.
5,618,307	A		4/1997	Donlon et al.
5,626,607	A		5/1997	Malecki et al.
5,628,789	A		5/1997	Vanney et al.
5,653,749	A		8/1997	Love et al.
5,662,705	A		9/1997	Love et al.
5,693,090	A		12/1997	Unsworth et al.
5,695,503	A		12/1997	Krueger et al.
5,713,952	A		2/1998	Vanney et al.
5,716,370	A		2/1998	Williamson, IV et al.
5,716,417	A		2/1998	Girard et al.
5,728,064	A		3/1998	Bums et al.
5,728,151	A		3/1998	Garrison et al.
5,735,894	A		4/1998	Krueger et al.
5,752,522	A		5/1998	Murphy
5,755,782	A		5/1998	Love et al.
5,766,240	A		6/1998	Johnson
5,776,187	A		7/1998	Krueger et al.
5,776,188	A		7/1998	Shepherd et al.
5,800,527	A		9/1998	Jansen et al.
5,814,096	A		9/1998	Lam et al.
5,814,097	A		9/1998	Sterman et al.
5,814,098	A		9/1998	Hinnenkamp et al.
5,824,064	A		10/1998	Taheri
5,824,068	A		10/1998	Bugge
5,840,081	A		11/1998	Andersen et al.
5,843,177	A		12/1998	Vanney et al.
5,848,969	A		12/1998	Panescu et al.
5,855,563	A		1/1999	Kaplan et al.
5,855,601	A		1/1999	Bessler et al.
5,865,801	A		2/1999	Houser
5,885,228	A		3/1999	Rosenman et al.
5,891,160	A		4/1999	Williamson, IV et al.
5,895,420	A		4/1999	Mirsch, II et al.
5,902,308	A		5/1999	Murphy
5,908,450	A		6/1999	Gross et al.
5,919,147	A		7/1999	Jain
5,921,934	A		7/1999	Teo
5,921,935	A		7/1999	Hickey
5,924,984	A		7/1999	Rao
5,928,281	A		7/1999	Huynh et al.
5,957,949	A		9/1999	Leonhardt et al.
5,972,004	A		10/1999	Williamson, IV et al.
5,984,959	A		11/1999	Robertson et al.
5,984,973	A		11/1999	Girard et al.
6,001,126	A		12/1999	Nguyen-Thien-Nhon
6,010,511	A		1/2000	Murphy
6,010,531	A		1/2000	Donlon et al.
6,019,739	A		2/2000	Rhee et al.
6,042,554	A		3/2000	Rosenman et al.
6,042,607	A		3/2000	Williamson, IV et al.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,045,576	A	4/2000	Starr et al.	
6,050,973	A	4/2000	Duffy	
6,059,827	A	5/2000	Fenton, Jr.	
6,066,160	A	5/2000	Colvin et al.	
6,074,418	A	6/2000	Buchanan et al.	
6,081,737	A	6/2000	Shah	
6,083,179	A	7/2000	Oredsson	
6,099,475	A	8/2000	Seward et al.	
6,106,550	A	8/2000	Magovern et al.	
6,110,200	A	8/2000	Hinnenkamp	
6,117,091	A	9/2000	Young et al.	
6,126,007	A	10/2000	Kari et al.	
6,136,017	A	10/2000	Craver et al.	
6,166,184	A	12/2000	Hendriks et al.	
6,210,338	B1	4/2001	Afremov et al.	
6,214,054	B1	4/2001	Cunanan et al.	
6,264,611	B1	7/2001	Ishikawa et al.	
6,319,281	B1	11/2001	Patel	
6,322,526	B1	11/2001	Rosenman et al.	
6,350,281	B1 *	2/2002	Rhee	A61B 5/1076 33/512
6,350,282	B1	2/2002	Eberhardt	
6,491,624	B1	12/2002	Lotfi	
6,582,419	B1	6/2003	Schoon et al.	
6,598,307	B2	7/2003	Love et al.	
6,678,962	B1 *	1/2004	Love	A61B 5/1076 33/512
6,773,457	B2	8/2004	Ivancev et al.	
6,802,860	B2	10/2004	Cosgrove et al.	
6,846,324	B2	1/2005	Stobie	
6,942,694	B2	9/2005	Liddicoat et al.	
7,007,396	B2	3/2006	Rudko et al.	
7,018,404	B2	3/2006	Holmberg et al.	
7,037,333	B2	5/2006	Myers et al.	
7,258,698	B2	8/2007	Lemmon	
7,270,142	B2	9/2007	Acosta	
7,351,197	B2	4/2008	Montpetit et al.	
7,637,943	B2	12/2009	Lemmon	
7,713,216	B2	5/2010	Dubey et al.	
7,842,084	B2	11/2010	Bicer	
7,998,151	B2	8/2011	St. Goar et al.	
8,057,396	B2	11/2011	Forster et al.	
8,308,798	B2	11/2012	Pintor et al.	
8,317,696	B2 *	11/2012	Paolitto	A61F 2/2496 600/235
8,323,337	B2	12/2012	Gurskis et al.	
8,348,998	B2	1/2013	Pintor et al.	
8,449,625	B2	5/2013	Campbell et al.	
8,475,521	B2	7/2013	Suri et al.	
D723,164	S *	2/2015	Leedy	D24/155
D744,097	S *	11/2015	Baratz	D24/133
D827,134	S *	8/2018	Matsumura	D24/140
D846,122	S *	4/2019	Pintor	D24/140
D924,399	S *	7/2021	Conklin	D24/140
2001/0021872	A1	9/2001	Bailey et al.	
2001/0039435	A1	11/2001	Roue et al.	
2001/0039436	A1	11/2001	Frazier et al.	
2001/0041914	A1	11/2001	Frazier et al.	
2001/0041915	A1	11/2001	Roue et al.	
2001/0049492	A1	12/2001	Frazier et al.	
2002/0020074	A1	2/2002	Love et al.	
2002/0026238	A1	2/2002	Lane et al.	
2002/0032481	A1	3/2002	Gabbay	
2002/0055773	A1	5/2002	Campbell et al.	
2002/0058995	A1	5/2002	Stevens	
2002/0123802	A1	9/2002	Snyders	
2002/0138138	A1	9/2002	Yang	
2002/0151970	A1	10/2002	Garrison et al.	
2002/0188348	A1	12/2002	DiMatteo et al.	
2002/0198594	A1	12/2002	Schreck	
2003/0014104	A1	1/2003	Cribier	
2003/0023300	A1	1/2003	Bailey et al.	
2003/0023303	A1	1/2003	Palmaz et al.	
2003/0036795	A1	2/2003	Andersen et al.	
2003/0040792	A1	2/2003	Gabbay	
2003/0055495	A1	3/2003	Pease et al.	
2003/0105519	A1	6/2003	Fasol et al.	
2003/0109924	A1	6/2003	Cribier	
2003/0114913	A1	6/2003	Spenser et al.	
2003/0130729	A1	7/2003	Paniagua et al.	
2003/0149478	A1	8/2003	Figulla et al.	
2003/0167089	A1	9/2003	Lane	
2003/0191416	A1	10/2003	Rosenman et al.	
2003/0236568	A1	12/2003	Hojeibane et al.	
2004/0019374	A1	1/2004	Hojeibane et al.	
2004/0034411	A1	2/2004	Quijano et al.	
2004/0044406	A1	3/2004	Woolfson et al.	
2004/0106976	A1	6/2004	Bailey et al.	
2004/0122514	A1	6/2004	Fogarty et al.	
2004/0122516	A1	6/2004	Fogarty et al.	
2004/0148017	A1	7/2004	Stobie	
2004/0167573	A1	8/2004	Williamson et al.	
2004/0186563	A1	9/2004	Lobbi	
2004/0186565	A1	9/2004	Schreck	
2004/0193261	A1	9/2004	Berreklouw	
2004/0206363	A1	10/2004	McCarthy et al.	
2004/0210304	A1	10/2004	Seguin et al.	
2004/0210305	A1	10/2004	Shu et al.	
2004/0210307	A1	10/2004	Khairkhahan	
2004/0215235	A1	10/2004	Jackson et al.	
2004/0225355	A1	11/2004	Stevens	
2004/0236411	A1	11/2004	Sarac et al.	
2004/0237321	A1	12/2004	Rudko et al.	
2004/0260389	A1	12/2004	Case et al.	
2004/0260390	A1	12/2004	Sarac et al.	
2005/0010285	A1	1/2005	Lambrecht et al.	
2005/0027348	A1	2/2005	Case et al.	
2005/0033398	A1	2/2005	Seguin	
2005/0043760	A1	2/2005	Fogarty et al.	
2005/0043790	A1	2/2005	Seguin	
2005/0060029	A1	3/2005	Le et al.	
2005/0065594	A1	3/2005	DiMatteo et al.	
2005/0065614	A1	3/2005	Stinson	
2005/0075584	A1	4/2005	Cali	
2005/0075713	A1	4/2005	Biancucci et al.	
2005/0075717	A1	4/2005	Nguyen et al.	
2005/0075718	A1	4/2005	Nguyen et al.	
2005/0075719	A1	4/2005	Bergheim	
2005/0075720	A1	4/2005	Nguyen et al.	
2005/0075724	A1	4/2005	Svanidze et al.	
2005/0080454	A1	4/2005	Drews et al.	
2005/0096738	A1	5/2005	Cali et al.	
2005/0137682	A1	6/2005	Justino	
2005/0137686	A1	6/2005	Salahieh et al.	
2005/0137687	A1	6/2005	Salahieh et al.	
2005/0137688	A1	6/2005	Salahieh et al.	
2005/0137689	A1	6/2005	Salahieh et al.	
2005/0137690	A1	6/2005	Salahieh et al.	
2005/0137691	A1	6/2005	Salahieh et al.	
2005/0137692	A1	6/2005	Haug et al.	
2005/0137694	A1	6/2005	Haug et al.	
2005/0137695	A1	6/2005	Salahieh et al.	
2005/0137702	A1	6/2005	Haug et al.	
2005/0159811	A1	7/2005	Lane	
2005/0165477	A1	7/2005	Anduiza et al.	
2005/0165479	A1	7/2005	Drews et al.	
2005/0182483	A1	8/2005	Osborne et al.	
2005/0182486	A1	8/2005	Gabbay	
2005/0192665	A1	9/2005	Spenser et al.	
2005/0203616	A1	9/2005	Cribier	
2005/0203617	A1	9/2005	Forster et al.	
2005/0203618	A1	9/2005	Sharkawy et al.	
2005/0216079	A1	9/2005	MaCoviak	
2005/0222674	A1	10/2005	Paine	
2005/0234546	A1	10/2005	Nugent et al.	
2005/0240259	A1	10/2005	Sisken et al.	
2005/0251252	A1	11/2005	Stobie	
2005/0261765	A1	11/2005	Liddicoat	
2005/0283231	A1	12/2005	Haug et al.	
2006/0004398	A1	1/2006	Binder et al.	
2006/0025857	A1	2/2006	Bergheim et al.	
2006/0052867	A1	3/2006	Revuelta et al.	
2006/0058871	A1	3/2006	Zakay et al.	
2006/0058872	A1	3/2006	Salahieh et al.	

(56) **References Cited**

U.S. PATENT DOCUMENTS

2006/0074484	A1	4/2006	Huber	
2006/0085060	A1	4/2006	Campbell	
2006/0095125	A1	5/2006	Chinn et al.	
2006/0122634	A1	6/2006	Ino et al.	
2006/0122692	A1	6/2006	Gilad et al.	
2006/0136054	A1	6/2006	Berg et al.	
2006/0144441	A1	7/2006	Acosta	
2006/0149360	A1	7/2006	Schwammenthal et al.	
2006/0154230	A1	7/2006	Cunanan et al.	
2006/0155321	A1	7/2006	Bressler et al.	
2006/0161249	A1	7/2006	Realyvasquez et al.	
2006/0167543	A1	7/2006	Bailey et al.	
2006/0195134	A1	8/2006	Crittenden	
2006/0195183	A1	8/2006	Navia et al.	
2006/0195184	A1	8/2006	Lane et al.	
2006/0195185	A1	8/2006	Lane et al.	
2006/0195186	A1	8/2006	Drews et al.	
2006/0207031	A1	9/2006	Cunanan et al.	
2006/0229708	A1	10/2006	Powell et al.	
2006/0235508	A1	10/2006	Lane et al.	
2006/0241743	A1	10/2006	Bergin et al.	
2006/0241745	A1	10/2006	Solem	
2006/0246888	A1	11/2006	Bender et al.	
2006/0253191	A1	11/2006	Salahieh et al.	
2006/0259134	A1	11/2006	Schwammenthal et al.	
2006/0259135	A1	11/2006	Navia et al.	
2006/0259136	A1	11/2006	Nguyen et al.	
2006/0265056	A1	11/2006	Nguyen et al.	
2006/0271000	A1	11/2006	Ranalletta et al.	
2006/0271172	A1	11/2006	Tehrani	
2006/0271175	A1	11/2006	Woolfson et al.	
2006/0287717	A1	12/2006	Rowe et al.	
2006/0287718	A1	12/2006	Bicer	
2006/0287719	A1	12/2006	Rowe et al.	
2006/0293745	A1	12/2006	Carpentier et al.	
2007/0005129	A1	1/2007	Damm et al.	
2007/0010876	A1	1/2007	Salahieh et al.	
2007/0010877	A1	1/2007	Salahieh et al.	
2007/0016285	A1	1/2007	Lane et al.	
2007/0016286	A1	1/2007	Herrmann et al.	
2007/0016288	A1	1/2007	Gurskis et al.	
2007/0043435	A1	2/2007	Seguin et al.	
2007/0078509	A1	4/2007	Lotfy	
2007/0078510	A1	4/2007	Ryan	
2007/0100440	A1	5/2007	Figulla et al.	
2007/0129794	A1	6/2007	Realyvasquez	
2007/0142906	A1	6/2007	Figulla et al.	
2007/0142907	A1	6/2007	Moaddeb et al.	
2007/0150053	A1	6/2007	Gurskis et al.	
2007/0156233	A1	7/2007	Kapadia et al.	
2007/0162103	A1	7/2007	Case et al.	
2007/0162107	A1	7/2007	Haug et al.	
2007/0162111	A1	7/2007	Fukamachi et al.	
2007/0179604	A1	8/2007	Lane	
2007/0185565	A1	8/2007	Schwammenthal et al.	
2007/0198097	A1	8/2007	Zegdi	
2007/0203575	A1	8/2007	Forster et al.	
2007/0203576	A1	8/2007	Lee et al.	
2007/0213813	A1	9/2007	Von Segesser et al.	
2007/0225801	A1	9/2007	Drews et al.	
2007/0233237	A1	10/2007	Krivoruchko	
2007/0239266	A1	10/2007	Birdsall	
2007/0239269	A1	10/2007	Dolan et al.	
2007/0239273	A1	10/2007	Mien	
2007/0244546	A1	10/2007	Francis	
2007/0244558	A1	10/2007	Machiraju	
2007/0255398	A1	11/2007	Yang et al.	
2007/0260305	A1	11/2007	Drews et al.	
2007/0265701	A1	11/2007	Gurskis et al.	
2007/0270944	A1	11/2007	Bergheim et al.	
2007/0282436	A1	12/2007	Pinchuk	
2007/0288089	A1	12/2007	Gurskis et al.	
2007/0299513	A1	12/2007	Ryan et al.	
2008/0009746	A1	1/2008	Forster et al.	
2008/0021546	A1	1/2008	Patz et al.	
2008/0033543	A1	2/2008	Gurskis et al.	
2008/0033544	A1	2/2008	Lemmon	
2008/0065198	A1	3/2008	Quintessenza	
2008/0119875	A1	5/2008	Ino et al.	
2008/0154356	A1	6/2008	Obermiller et al.	
2008/0208331	A1	8/2008	McCarthy et al.	
2008/0281411	A1	11/2008	Berreklouw	
2008/0319543	A1	12/2008	Lane	
2009/0036903	A1	2/2009	Ino et al.	
2009/0069890	A1	3/2009	Suri et al.	
2009/0093877	A1	4/2009	Keidar et al.	
2009/0132036	A1	5/2009	Navia	
2009/0182419	A1	7/2009	Bolling	
2009/0192599	A1	7/2009	Lane et al.	
2009/0192600	A1	7/2009	Ryan	
2009/0192602	A1	7/2009	Kuehn	
2009/0192603	A1	7/2009	Kuehn	
2009/0192604	A1	7/2009	Gloss	
2009/0192605	A1	7/2009	Gloss et al.	
2009/0192606	A1	7/2009	Gloss et al.	
2010/0152844	A1	6/2010	Couetil	
2010/0160832	A1*	6/2010	Braido	A61B 5/1076 600/587
2010/0161036	A1	6/2010	Pintor et al.	
2010/0249661	A1	9/2010	Righini et al.	
2010/0249894	A1	9/2010	Oba et al.	
2010/0249908	A1	9/2010	Chau et al.	
2010/0331972	A1	12/2010	Pintor et al.	
2011/0022165	A1	1/2011	Oba et al.	
2011/0040372	A1	2/2011	Hansen et al.	
2011/0147251	A1	6/2011	Hodshon et al.	
2012/0065729	A1	3/2012	Pintor et al.	
2012/0071968	A1	3/2012	Li et al.	
2012/0141656	A1	6/2012	Orr et al.	
2012/0150288	A1	6/2012	Hodshon et al.	
2013/0053949	A1	2/2013	Pintor et al.	
2013/0116777	A1	5/2013	Pintor et al.	
2013/0150954	A1	6/2013	Conklin	
2014/0058194	A1	2/2014	Soletti et al.	
2014/0079758	A1	3/2014	Hall et al.	
2020/0138569	A1*	5/2020	Basude	A61F 2/2466

FOREIGN PATENT DOCUMENTS

EP	0143246	A2	6/1985
EP	2080474	A1	7/2009
FR	2681775	A1	4/1993
GB	2083362	A	3/1982
GB	2137499	A	10/1984
SU	1116573	A1	7/1985
SU	1697790	A1	12/1991
WO	8102098	A1	8/1981
WO	8705489	A1	9/1987
WO	9213502	A1	8/1992
WO	9418909	A2	9/1994
WO	9516410	A1	6/1995
WO	9640006	A1	12/1996
WO	9725003	A1	7/1997
WO	9741801	A1	11/1997
WO	9742871	A1	11/1997
WO	01/50985	A1	7/2001
WO	2007146261	A2	12/2007
WO	2010090720	A1	8/2010
WO	2010111621	A1	9/2010
WO	2011097355	A2	8/2011
WO	2011106354	A1	9/2011

OTHER PUBLICATIONS

Krakow,"3F Therapeutics,Inc. Announces the First Clinical Implantation of the 3F Enable Aortic Heart ValveTM, a Patented, Sutureless Implantation, Replacement Heart Valve Intended to Save Valuable Surgery Time and Reduce Time Related Complications . . . " Healthcare Sales & Marketing Network News Feed, Jan. 18, 2005, p. 1 2.

(56) **References Cited**

OTHER PUBLICATIONS

Medtronic, The Freestyle Aortic Root Bioprosthesis.
Neal D. Kon, MD, et al., Comparison of Implantation Techniques Using Freestyle Stentles Porcine Aortic Valve, The Society of Thoracic Surgeons 1995, pp. 857-862.
Sadowski, Jerzy; Kapelak, Boguslaw; Bartus, Krzysztof, "Sutureless Heart Valve Implantation—A Case Study," Touch Briefings, 2005, pp. 48-50.
Stephen Westaby, et al., Aortic Valve Replacement With the Freestyle Stentless Xenograft, The Society of Thoracic Surgeons 1995, pp. S422-S427.
Stephen Westaby, et al., Time-Related Hemodynamic Changes After Aortic Replacement With the Freestyle Stentless Xenograft, The Society of Thoracic Surgeons 1995, pp. 857-862.
Techniques for 3D Quantitative Echocardiography, University of Washington Cardiovascular Research & Training Center Cardiac Imaging Research Lab, pp. 1-5, Oct. 2003.

* cited by examiner

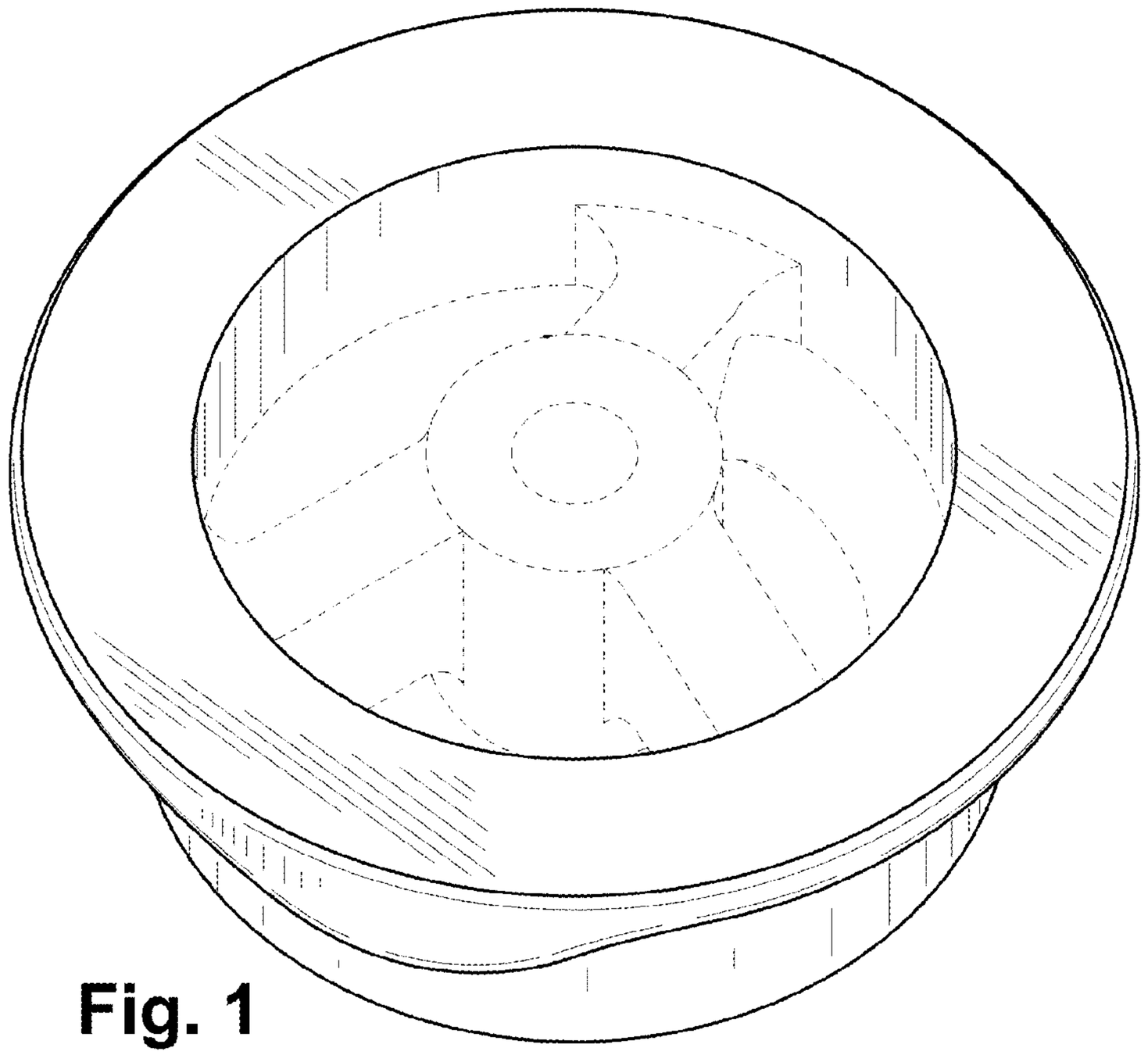


Fig. 1

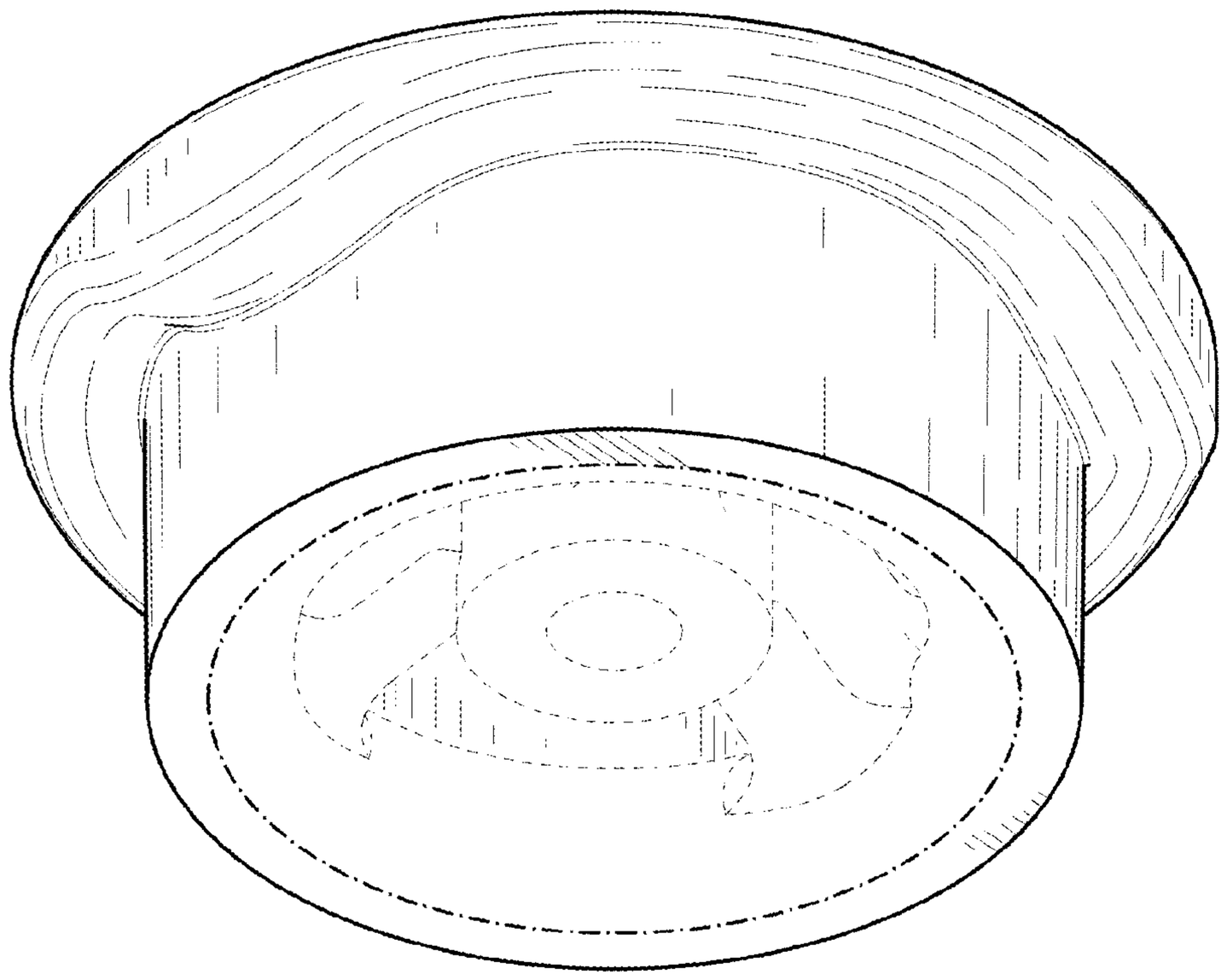


Fig. 2

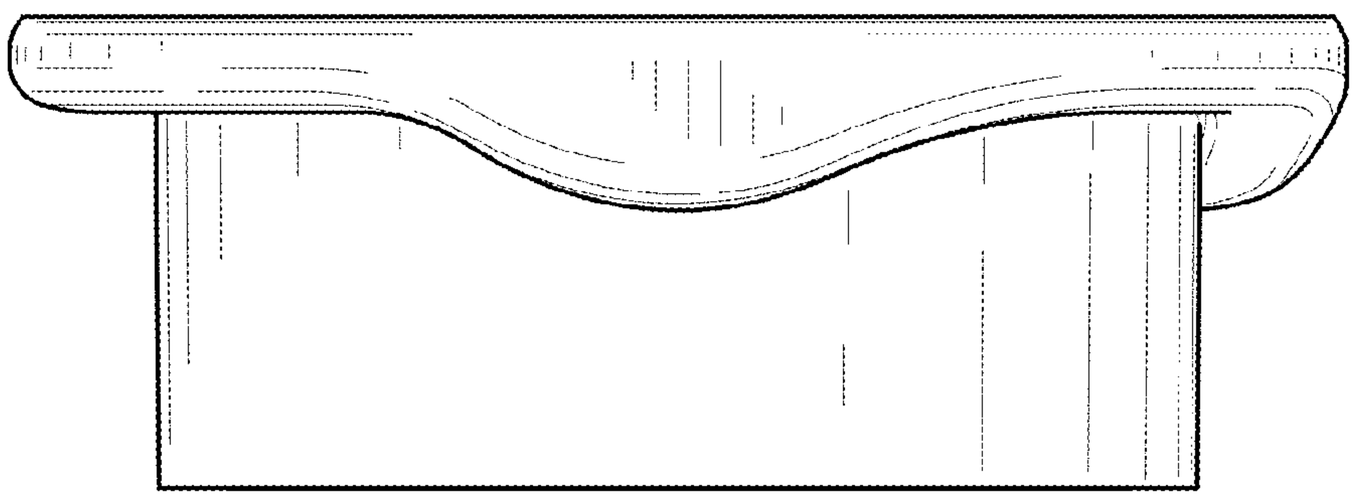


Fig. 3

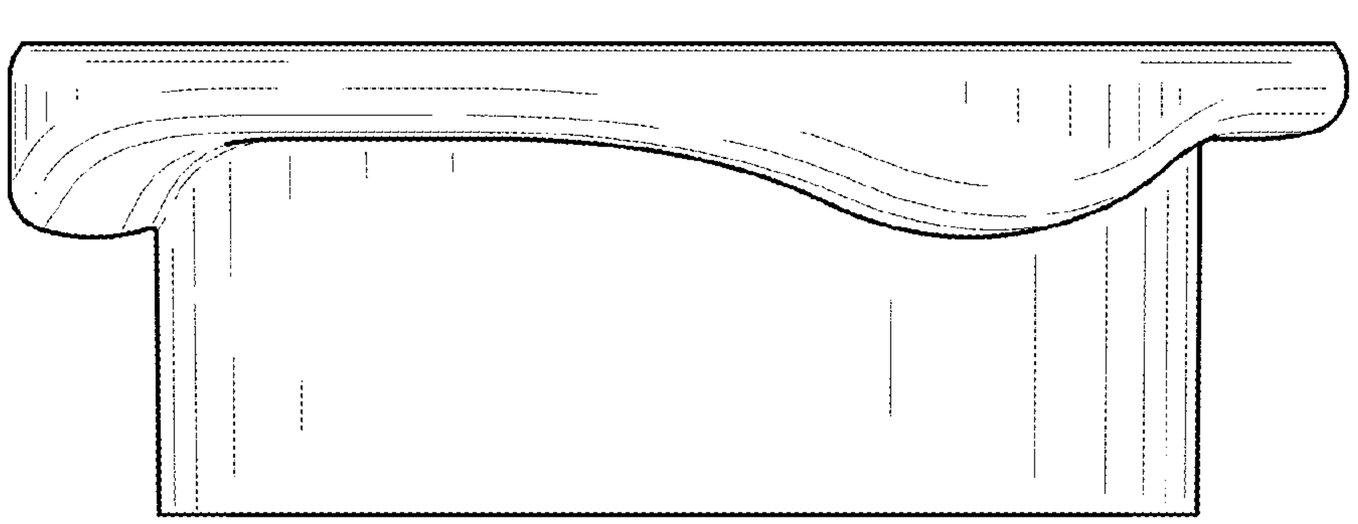


Fig. 4

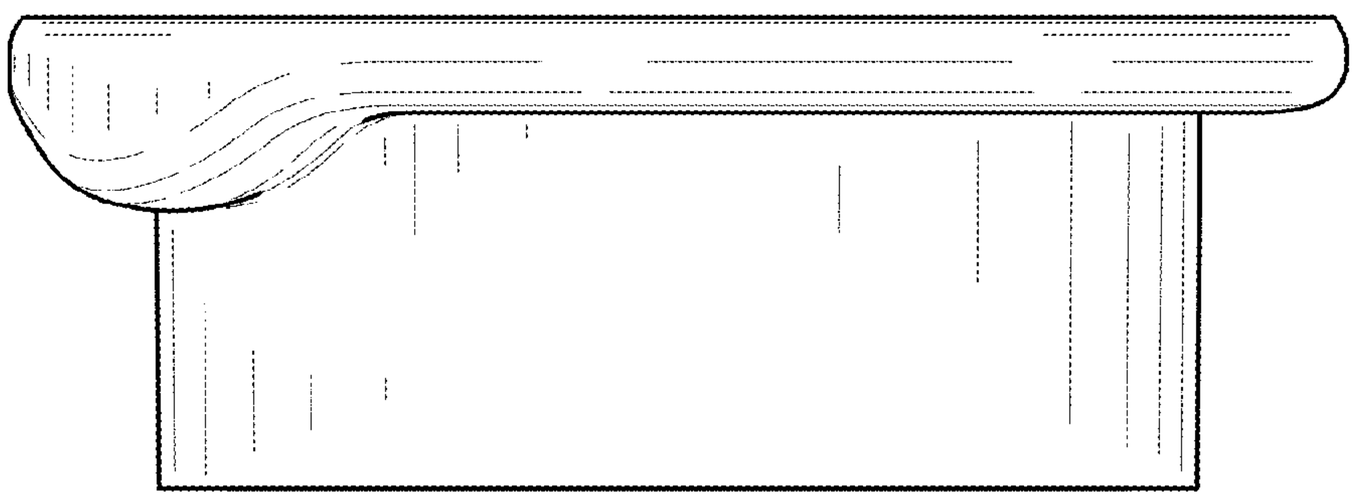
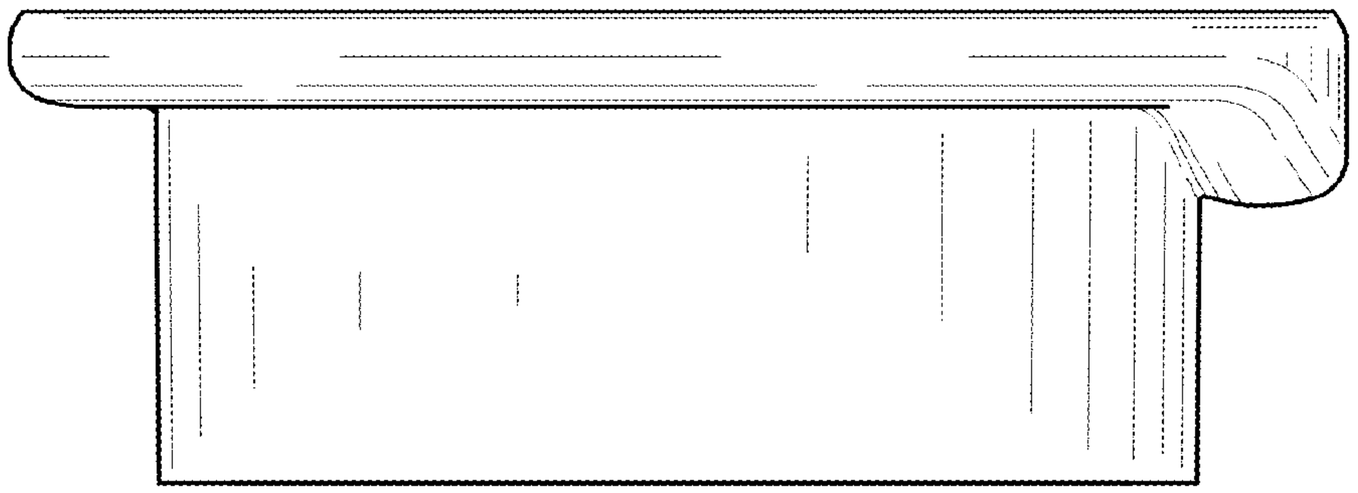


Fig. 5



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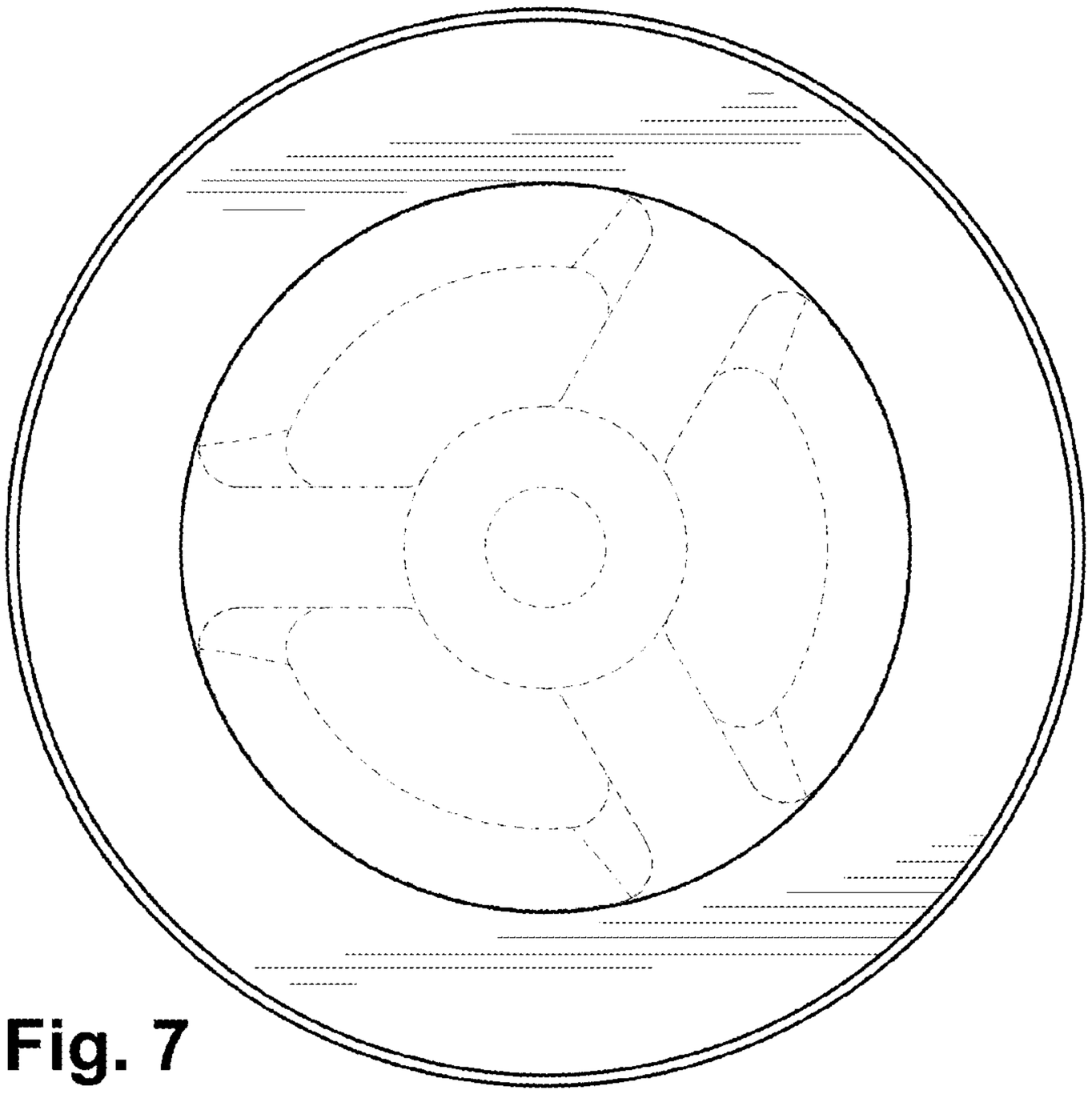

Fig. 7

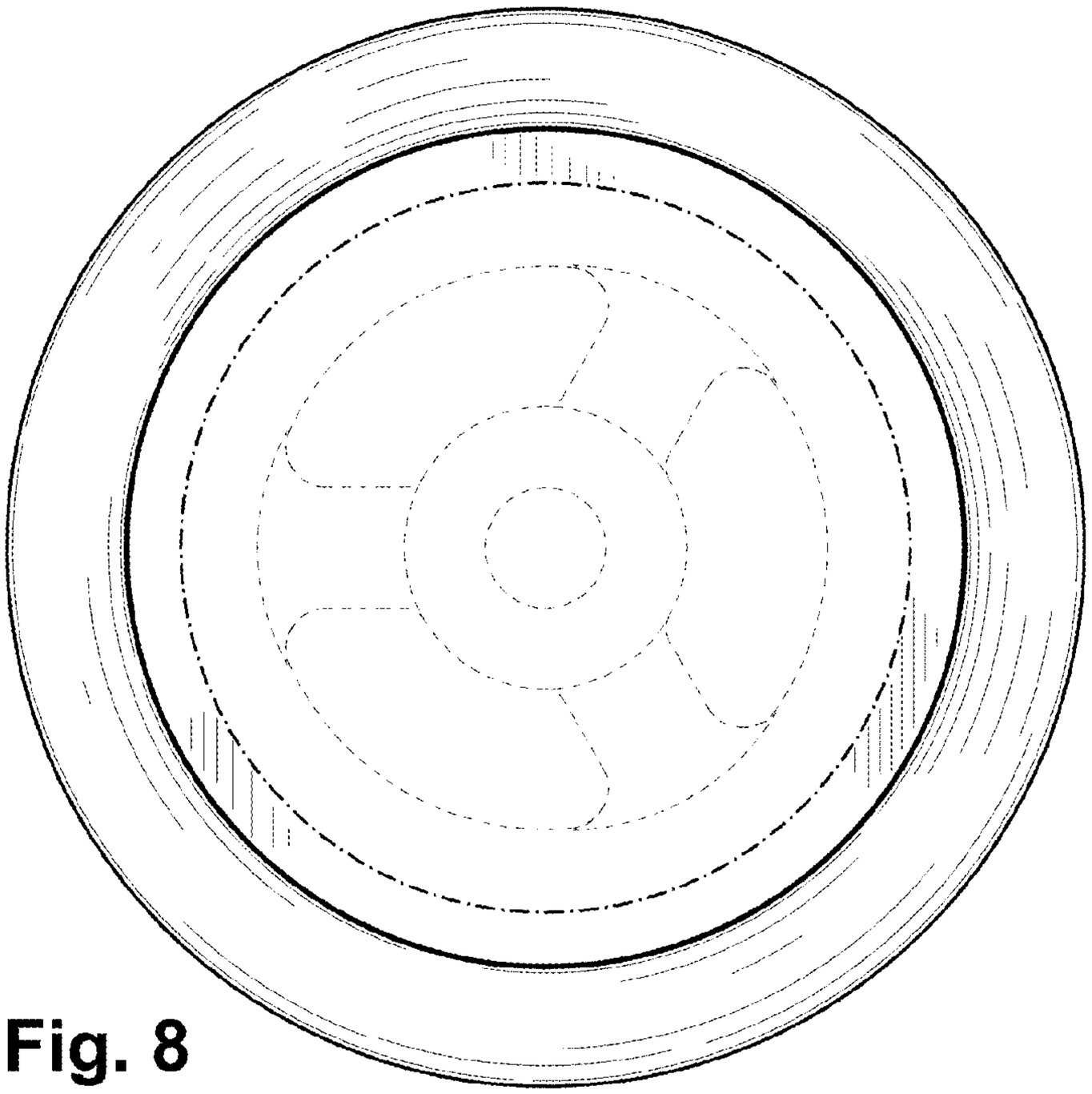

Fig. 8