



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

(10) **Patent No.:** **US D890,333 S**
(45) **Date of Patent:** **** Jul. 14, 2020**

- (54) **HEART VALVE DOCKING COIL**
- (71) Applicant: **Edwards Lifesciences Corporation**,
Irvine, CA (US)
- (72) Inventors: **Darshin S. Patel**, San Juan Capistrano,
CA (US); **Boaz Manash**, Givat Ada
(IL); **Khen Perlmutter**, Binyamina
(IL); **Noa Axelrod**, Herzeliya (IL)
- (73) Assignee: **Edwards Lifesciences Corporation**,
Irvine, CA (US)

4,790,843 A 12/1988 Carpentier et al.
 5,059,177 A 10/1991 Towne et al.
 5,275,152 A * 1/1994 Krauter A61B 1/0052
 138/109
 5,411,552 A 5/1995 Andersen et al.
 5,554,185 A 9/1996 Block et al.
 5,658,253 A * 8/1997 Piontek A61M 25/0102
 604/170.02
 5,738,666 A * 4/1998 Watson A61B 1/00135
 604/247

(Continued)

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

(21) Appl. No.: **29/635,857**

(22) Filed: **Feb. 2, 2018**

Related U.S. Application Data

(63) Continuation-in-part of application No. 15/682,287,
filed on Aug. 21, 2017, now Pat. No. 10,463,479.

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

(52) **U.S. Cl.**
USPC **D24/128**

(58) **Field of Classification Search**

USPC D24/127-131, 112-114, 133, 186;
 606/181, 185; 604/264, 523-528, 272,
 604/187, 158, 164.01-164.11, 181, 184,
 604/227; 600/101, 139, 143;
 128/200.24, 207.14, 207.15; 623/2.38
 CPC A61F 2/2409; A61F 2/958; A61M 25/00;
 A61M 39/00; A61M 27/00; A61M
 25/0043; A61M 25/0067; A61M 25/0097

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,035,849 A 7/1977 Angell et al.
 4,781,704 A * 11/1988 Potter A61J 15/0003
 604/105

FOREIGN PATENT DOCUMENTS

DE 19532846 A1 3/1997
 DE 19907646 A1 8/2000

(Continued)

Primary Examiner — David G Muller

(74) *Attorney, Agent, or Firm* — Calfee, Halter &
Griswold, LLP; Hans P. Smith

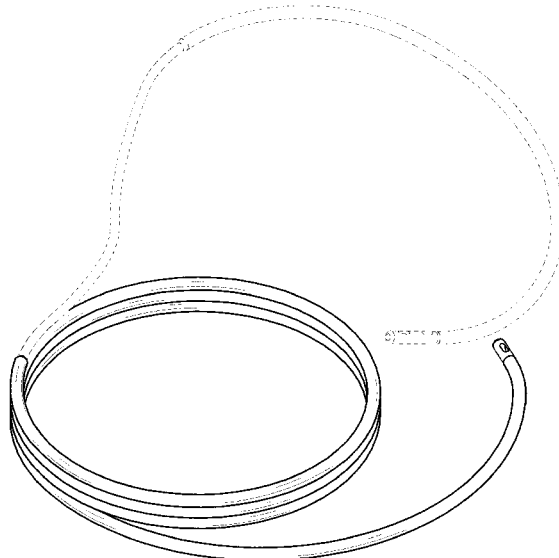
(57) **CLAIM**

The ornamental design for a heart valve docking coil, as shown and described.

DESCRIPTION

FIG. 1 is a top perspective view of a heart valve docking coil;
 FIG. 2 is a bottom perspective view thereof;
 FIG. 3 is a top plan view thereof;
 FIG. 4 is a bottom plan view thereof;
 FIG. 5 is a right side elevation view thereof;
 FIG. 6 is a left side elevation view thereof;
 FIG. 7 is a front elevation view thereof; and,
 FIG. 8 is a rear elevation view thereof.
 The broken line showing of parts of the drawings is included for the purpose of illustrating use and environment and forms no part of the claimed design.

1 Claim, 5 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

5,762,637	A *	6/1998	Berg	A61M 25/001 604/264	2002/0107535	A1	8/2002	Wei et al.
5,840,081	A	11/1998	Andersen et al.		2002/0151970	A1	10/2002	Garrison et al.
6,168,614	B1	1/2001	Andersen et al.		2003/0225420	A1	12/2003	Wardle
6,391,018	B1 *	5/2002	Tanaka	A61M 25/0041 604/164.13	2004/0111006	A1	6/2004	Alferness et al.
6,405,414	B1 *	6/2002	Byrnes	A61M 25/00 24/339	2004/0193260	A1	9/2004	Alferness et al.
6,419,696	B1	7/2002	Ortiz et al.		2004/0260389	A1	12/2004	Case et al.
6,425,916	B1	7/2002	Garrison et al.		2005/0096736	A1	5/2005	Osse et al.
6,432,134	B1	8/2002	Anson et al.		2005/0119682	A1	6/2005	Nguyen et al.
6,458,153	B1	10/2002	Bailey et al.		2005/0119735	A1	6/2005	Spence et al.
6,527,979	B2	3/2003	Constanz et al.		2005/0137691	A1	6/2005	Salahieh et al.
6,582,462	B1	6/2003	Andersen et al.		2005/0182486	A1	8/2005	Gabbay
6,652,578	B2	11/2003	Bailey et al.		2005/0203614	A1	9/2005	Forster et al.
6,730,121	B2	5/2004	Ortiz et al.		2005/0203617	A1	9/2005	Forster et al.
6,797,002	B2	9/2004	Spence et al.		2006/0025857	A1	2/2006	Bergheim et al.
6,908,481	B2	6/2005	Cribier		2006/0195134	A1	8/2006	Crittenden
7,018,408	B2	3/2006	Bailey et al.		2006/0229561	A1	10/2006	Huszar
7,037,334	B1	5/2006	Hlavka et al.		2007/0010877	A1	1/2007	Salahieh et al.
7,077,861	B2	7/2006	Spence		2007/0027533	A1	2/2007	Douk
7,101,395	B2	9/2006	Tremulis et al.		2007/0203575	A1	8/2007	Forster et al.
7,125,421	B2	10/2006	Tremulis et al.		2007/0265700	A1	11/2007	Eliassen et al.
7,314,485	B2	1/2008	Mathis		2007/0293808	A1	12/2007	Williams et al.
7,377,941	B2	5/2008	Rhee et al.		2008/0033542	A1	2/2008	Antonsson et al.
7,445,632	B2	11/2008	McGuckin, Jr. et al.		2008/0077235	A1	3/2008	Kirson
7,585,321	B2	9/2009	Cribier		2008/0125853	A1	5/2008	Bailey et al.
7,618,446	B2	11/2009	Andersen et al.		2008/0172034	A1	7/2008	Patton
7,637,946	B2	12/2009	Solem et al.		2008/0172035	A1	7/2008	Starksen et al.
7,708,775	B2	5/2010	Rowe et al.		2008/0208330	A1	8/2008	Keranan
7,737,060	B2	6/2010	Strickler et al.		2009/0192601	A1	7/2009	Rafiee et al.
7,740,614	B2 *	6/2010	Murashita	A61M 5/158 604/164.01	2009/0319037	A1	12/2009	Rowe et al.
7,785,366	B2	8/2010	Maurer et al.		2010/0036484	A1	2/2010	Hariton et al.
7,857,770	B2 *	12/2010	Raulerson	A61M 25/0105 600/585	2010/0145440	A1	6/2010	Keranan
7,942,927	B2	5/2011	Kaye et al.		2010/0312333	A1	12/2010	Navia et al.
7,951,195	B2	5/2011	Antonsson et al.		2010/0318184	A1	12/2010	Spence
8,128,691	B2	3/2012	Keranan		2012/0059458	A1	3/2012	Buchbinder et al.
8,142,492	B2	3/2012	Forster et al.		2012/0123529	A1	5/2012	Levi et al.
8,182,529	B2	5/2012	Gordon et al.		2012/0197379	A1	8/2012	Laske et al.
8,236,049	B2	8/2012	Rowe et al.		2012/0283820	A1	11/2012	Tseng et al.
8,323,335	B2	12/2012	Rowe et al.		2013/0006352	A1	1/2013	Yaron
8,360,988	B2 *	1/2013	Bobo, Sr.	A61M 25/0097 600/561	2013/0190865	A1	7/2013	Anderson
8,377,115	B2	2/2013	Thompson		2013/0304197	A1	11/2013	Buchbinder et al.
8,388,680	B2	3/2013	Starksen et al.		2014/0074299	A1	3/2014	Endou et al.
8,398,708	B2	3/2013	Meiri et al.		2014/0081394	A1	3/2014	Keranan et al.
8,449,605	B2	5/2013	Lichtenstein et al.		2014/0172070	A1	6/2014	Seguin
8,449,606	B2	5/2013	Eliassen et al.		2014/0214159	A1	7/2014	Vidlund et al.
8,454,683	B2	6/2013	Rafiee et al.		2014/0324163	A1	10/2014	Keranan et al.
8,657,872	B2	2/2014	Seguin		2014/0358222	A1	12/2014	Gorman, III et al.
8,663,322	B2	3/2014	Keranan		2014/0379074	A1	12/2014	Spence et al.
8,672,998	B2	3/2014	Lichtenstein et al.		2015/0025623	A1	1/2015	Granada et al.
8,685,086	B2	4/2014	Navia et al.		2015/0039082	A1	2/2015	Keranan
8,734,507	B2	5/2014	Keranan		2015/0230921	A1	8/2015	Chau et al.
8,801,776	B2	8/2014	House et al.		2015/0245910	A1	9/2015	Righini et al.
8,864,823	B2	10/2014	Cartledge et al.		2015/0282931	A1	10/2015	Brunnett et al.
8,931,637	B2 *	1/2015	Deeds	A61M 25/002 206/364	2015/0335428	A1	11/2015	Keranan
9,078,747	B2	7/2015	Conklin		2015/0335430	A1	11/2015	Loulmet et al.
9,095,434	B2	8/2015	Rowe		2015/0374493	A1	12/2015	Yaron et al.
9,096,368	B2 *	8/2015	Wu	A61F 2/0095	2016/0015514	A1	1/2016	Lashinski et al.
9,119,718	B2	9/2015	Keranan		2016/0074165	A1	3/2016	Spence et al.
9,192,471	B2	11/2015	Boiling		2016/0095705	A1	4/2016	Keranan et al.
9,237,886	B2	1/2016	Seguin et al.		2016/0143732	A1	5/2016	Glimsdale
9,314,335	B2	4/2016	Konno		2016/0184095	A1	6/2016	Spence et al.
9,364,326	B2	6/2016	Yaron		2016/0199177	A1	7/2016	Spence et al.
9,463,268	B2	10/2016	Spence		2016/0228247	A1	8/2016	Maimon et al.
9,474,599	B2	10/2016	Keranan		2016/0256276	A1	9/2016	Yaron
9,597,205	B2	3/2017	Tuval		2016/0346080	A1	12/2016	Righini et al.
9,622,863	B2	4/2017	Karapetian et al.		2017/0007399	A1	1/2017	Keranan
D809,136	S *	1/2018	Kirwan, Jr.	D24/127	2017/0007402	A1	1/2017	Zerkowski et al.
2002/0032481	A1	3/2002	Gabbay		2017/0217385	A1	8/2017	Rinkleff et al.
					2017/0266005	A1	9/2017	McGuckin, Jr.
					2017/0273788	A1	9/2017	O'Carroll et al.
					2017/0273789	A1	9/2017	Yaron et al.
					2017/0281337	A1	10/2017	Campbell
					2018/0000580	A1	1/2018	Wallace et al.
					2018/0085217	A1	3/2018	Lashinski et al.
					2018/0206074	A1	7/2018	Tanasa et al.
					2018/0289481	A1	10/2018	Dolan
					2018/0303606	A1	10/2018	Rothstein et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2018/0318073 A1 11/2018 Tseng et al.
 2018/0318080 A1 11/2018 Quill et al.

FOREIGN PATENT DOCUMENTS

EP 0592410 B1 10/1995
 EP 0850607 A1 7/1998
 EP 1432369 A1 6/2004
 EP 1521550 A2 4/2005
 EP 1296618 B1 1/2008
 EP 1827314 B1 12/2010
 EP 2620125 A1 7/2013
 EP 2726018 A2 5/2014
 EP 2806829 A2 12/2014
 WO 9117720 A1 11/1991
 WO 0149213 A2 7/2001
 WO 0154625 A1 8/2001
 WO 0247575 A2 6/2002
 WO 03020179 A1 3/2003

WO 03028558 A2 4/2003
 WO 2005084595 A1 9/2005
 WO 2005102015 A2 11/2005
 WO 2006011127 A2 2/2006
 WO 2005102015 A3 4/2007
 WO 2007067942 A1 6/2007
 WO 2009155561 A2 12/2009
 WO 2010121076 A2 10/2010
 WO 2012027116 A1 3/2012
 WO 2012063228 A1 5/2012
 WO 2013110722 A2 8/2013
 WO 2013114214 A2 8/2013
 WO 2015023579 A1 2/2015
 WO 2015023862 A2 2/2015
 WO 2015127264 A1 8/2015
 WO 2015198125 A1 12/2015
 WO 2016038017 A1 3/2016
 WO 2016040881 A1 3/2016
 WO 2016101529 A1 6/2016
 WO 2016130820 A1 8/2016
 WO 2017103833 A1 6/2017

* cited by examiner

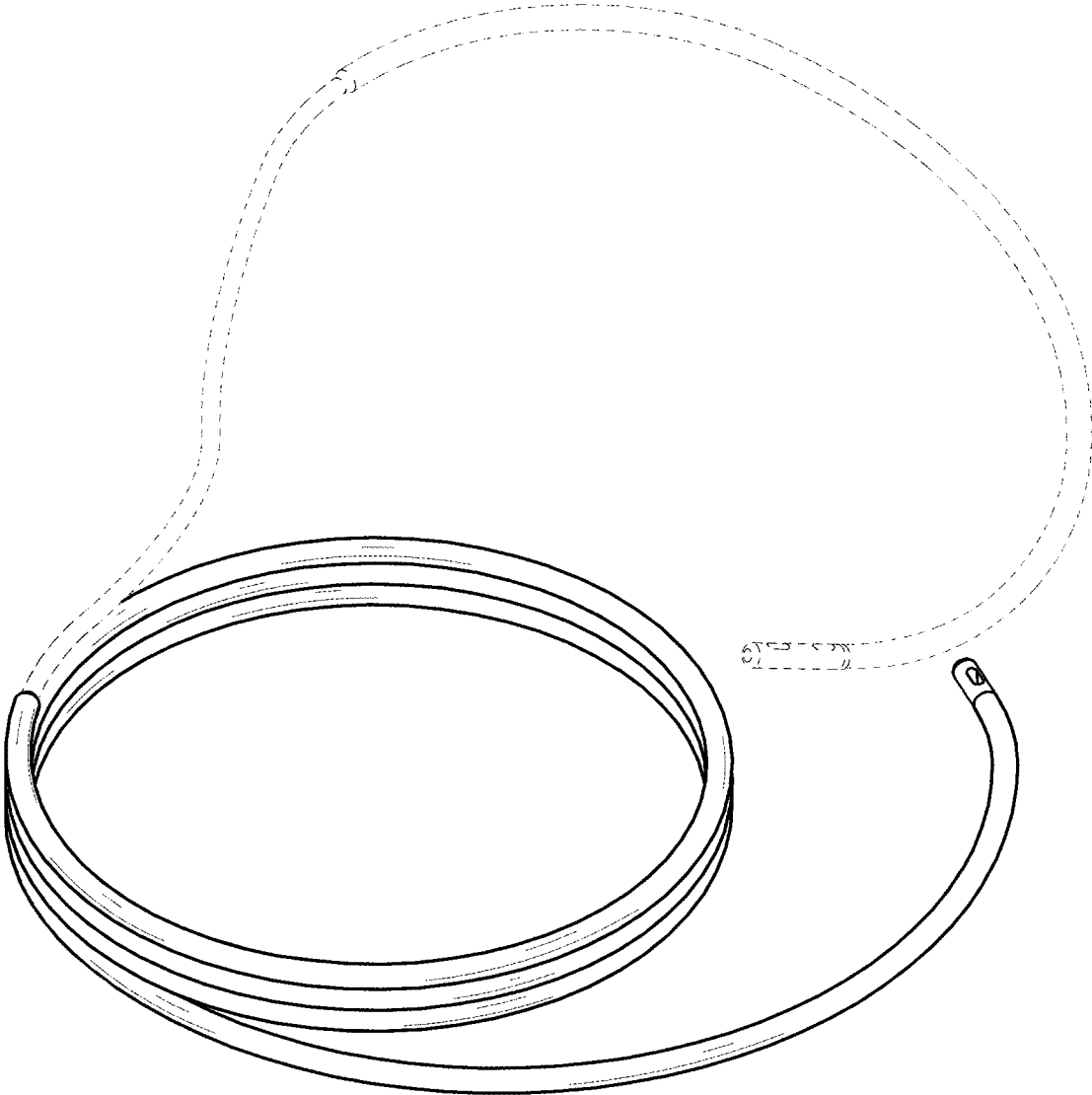


Fig. 1

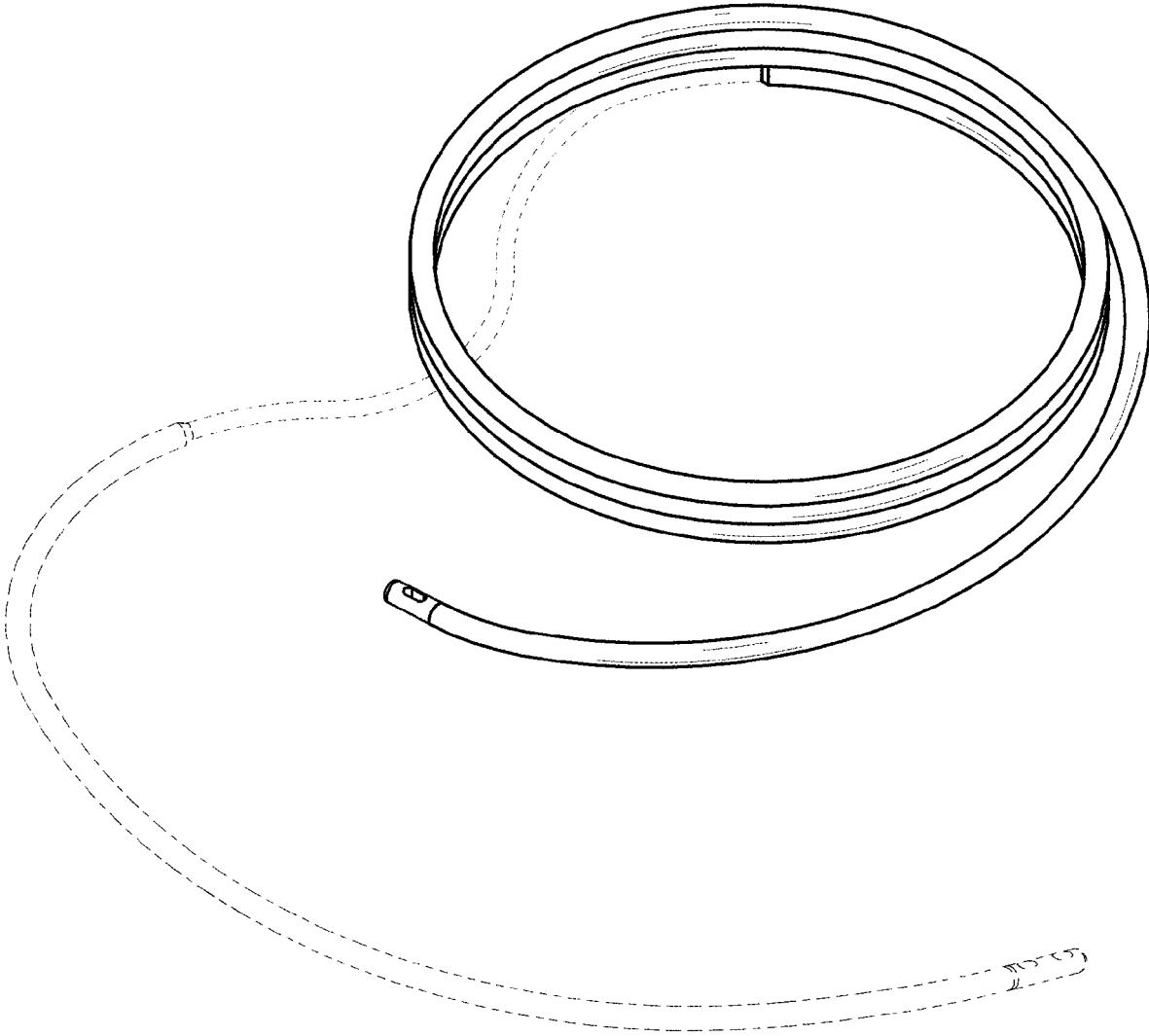


Fig. 2

Fig. 3

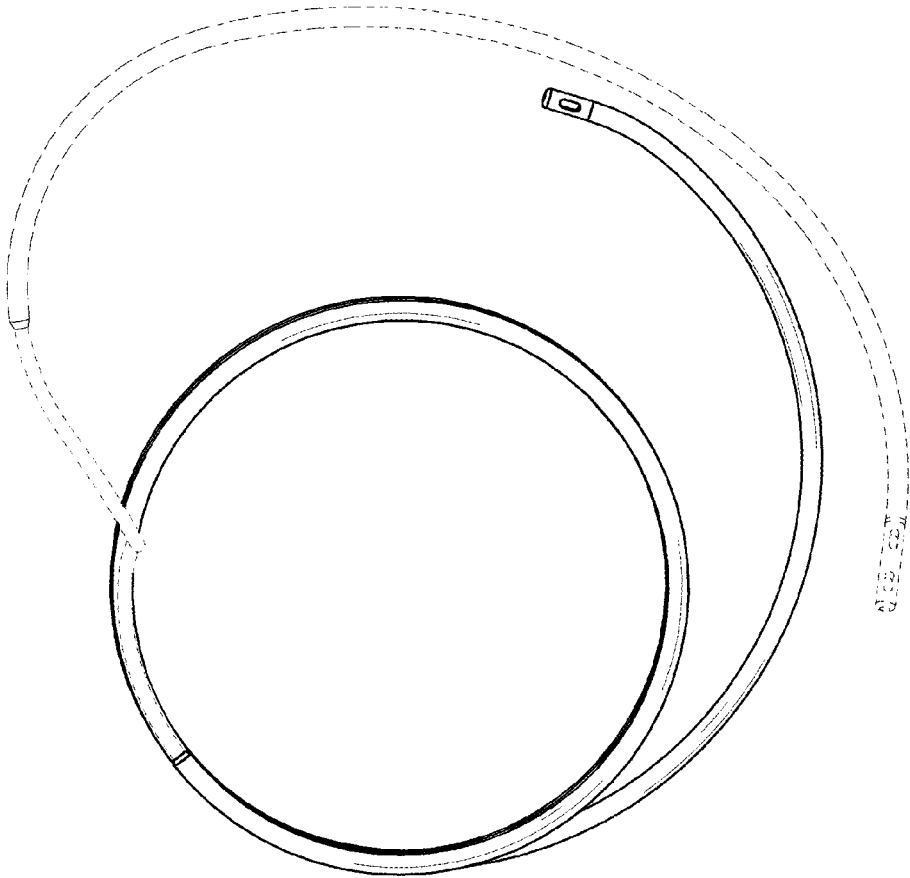
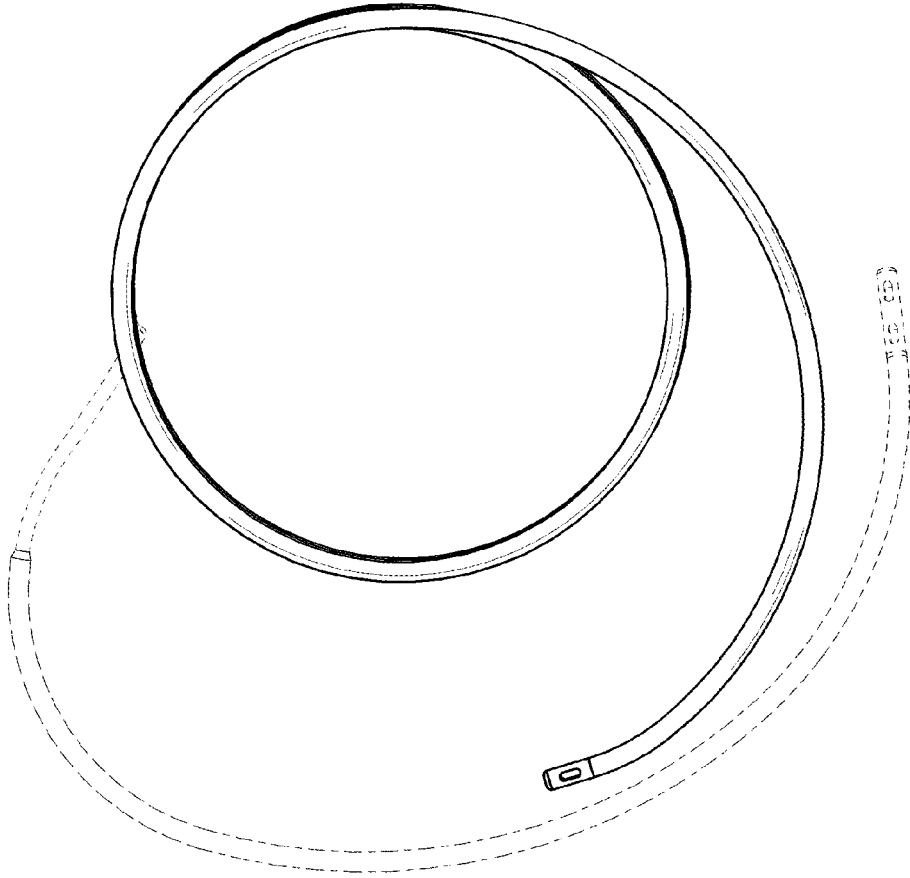


Fig. 4



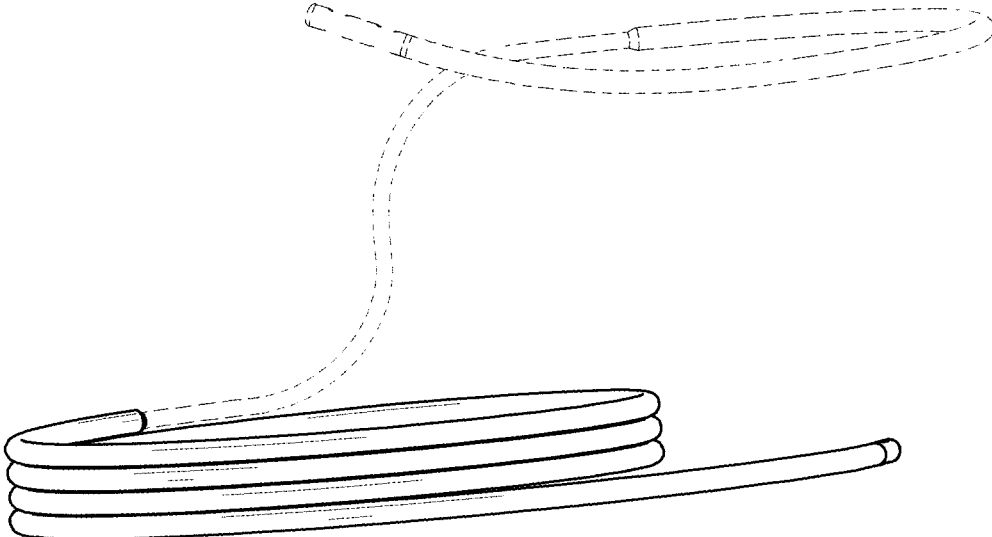


Fig. 5

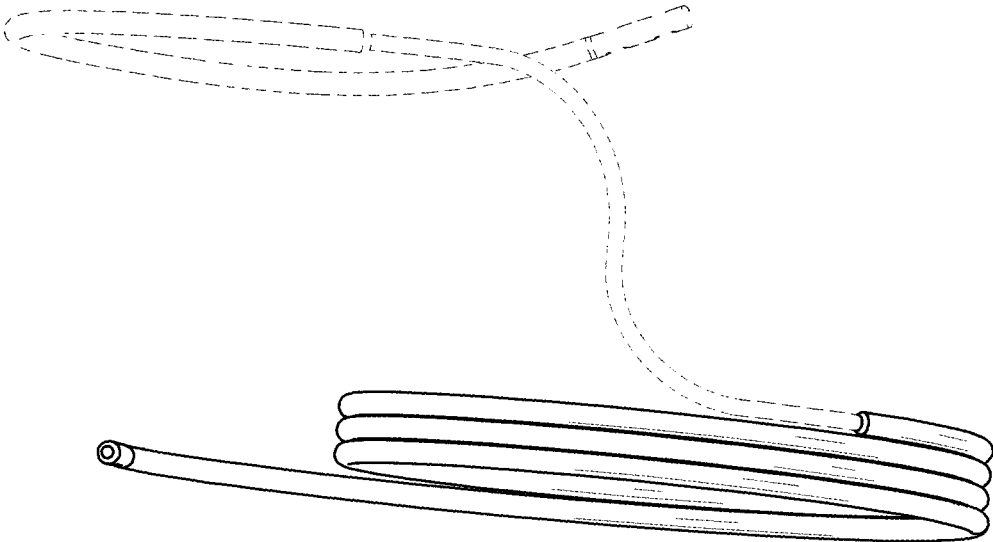


Fig. 6

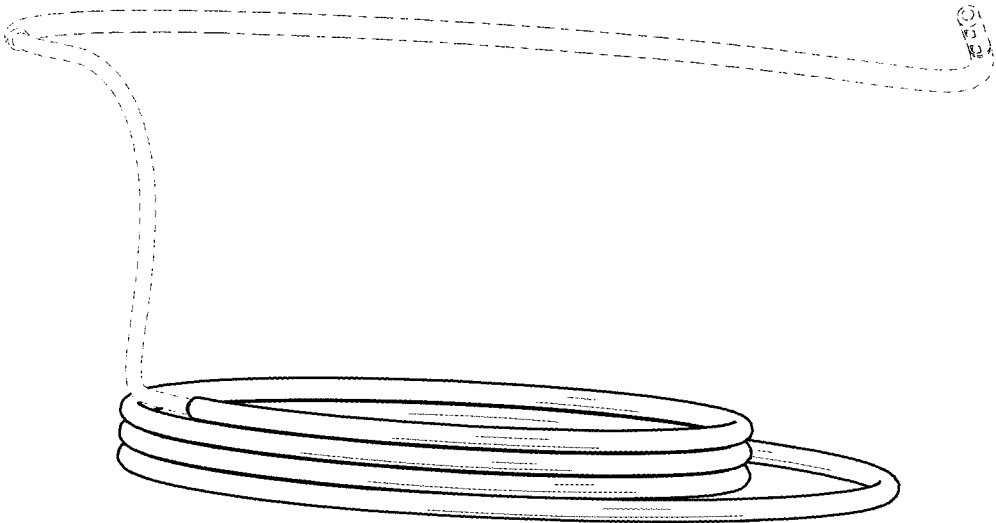


Fig. 7

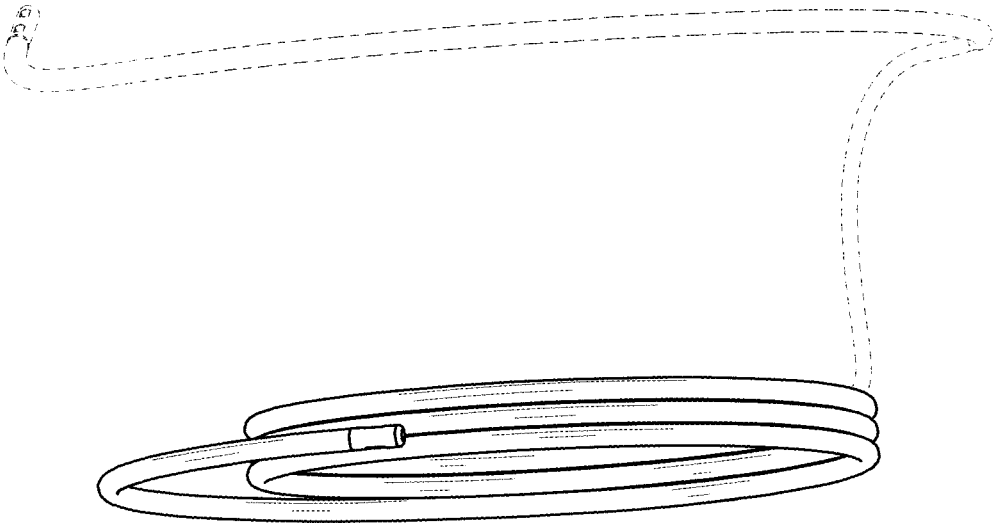


Fig. 8