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(12) **United States Design Patent** (10) **Patent No.:** **US D974,558 S**
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(54) **ULTRASONIC KNIFE**

FOREIGN PATENT DOCUMENTS

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WO 9524865 A1 9/1995
WO 2006101661 A2 9/2006
(Continued)

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OTHER PUBLICATIONS

[Bonescalpel UltraSonic Bone Dissector: Applications in Spine Surgery and Surgical Technique Guide], misonix.com, Posted: 2013 [online], site visited: [May 11, 2022], URL: <https://misonix.com/wp-content/uploads/2016/10/BS_1302_Final.pdf>. (Year: 2013).*
(Continued)

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

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(52) **U.S. Cl.**
USPC **D24/144; D24/146**

(57) **CLAIM**

The ornamental design for an ultrasonic knife, as shown and described.

(58) **Field of Classification Search**
USPC D24/107, 133, 144, 146, 147; D7/650; D8/20
CPC . A61B 17/32; A61B 17/3209; A61B 17/3211; A61B 17/320068
See application file for complete search history.

DESCRIPTION

FIG. 1 is a top, right side perspective view of an ultrasonic knife showing our new design;
FIG. 2 is a right side view thereof;
FIG. 3 is a left side view thereof;
FIG. 4 is a rear view thereof;
FIG. 5 is a front view thereof;
FIG. 6 is a top view thereof;
FIG. 7 is a bottom view thereof;
FIG. 8 is an enlarged view of area 8 encircled by broken lines in FIG. 6; and,
FIG. 9 is an enlarged view of area 9 encircled by broken lines in FIG. 3.

The dash-dash broken lines in the drawings depict portions of the ultrasonic knife that form no part of the claimed design. The dot-dash broken lines shown in the figures are included to identify areas of enlargement and form no part of the claimed design.

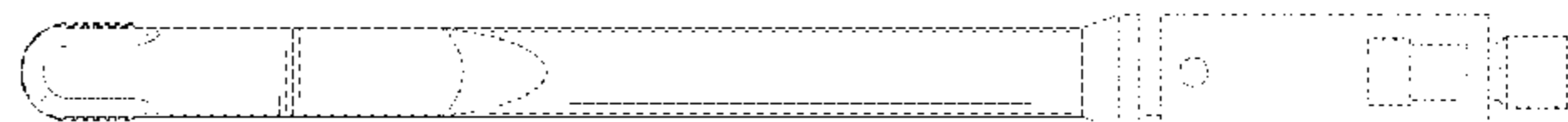
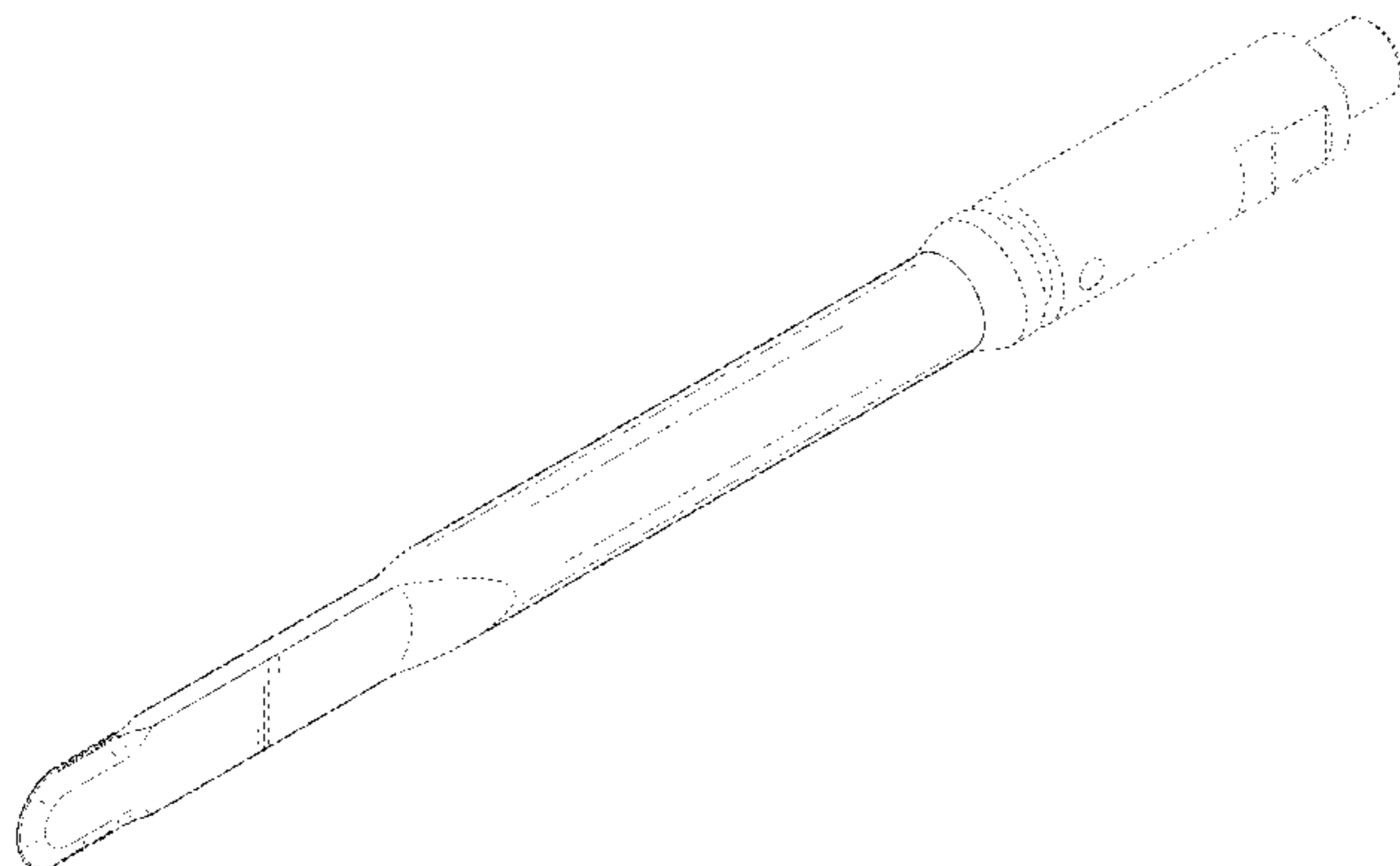
(56) **References Cited**

U.S. PATENT DOCUMENTS

2,059,414 A * 11/1936 Taylor B26B 9/02 D7/650
2,215,125 A * 9/1940 Maltz A61B 17/3213 D24/147
D175,248 S * 8/1955 Carroll D8/DIG. 3
D189,749 S * 2/1961 Miller D8/DIG. 3
3,574,937 A * 4/1971 Wolfe B26B 9/00 D7/650

(Continued)

1 Claim, 4 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

3,888,004 A *	6/1975	Coleman	B26B 7/005	6,498,421 B1	12/2002	Oh et al.	
			D24/146	6,579,270 B2	6/2003	Sussman et al.	
D248,166 S *	6/1978	Kanai	A61B 17/320068	6,589,201 B1	7/2003	Sussman et al.	
			D7/649	6,610,059 B1	8/2003	West, Jr.	
4,513,742 A	4/1985	Arnegger		D483,489 S *	12/2003	Scheller	A61B 17/320068
4,516,398 A	5/1985	Wuchinich					D24/146
4,517,977 A	5/1985	Frost		6,654,999 B2	12/2003	Stoddard et al.	
D289,084 S *	3/1987	Freitag	A61B 17/142	6,660,003 B1	12/2003	DeVore et al.	
			D24/170	6,660,017 B2	12/2003	Beaupre	
4,723,545 A *	2/1988	Nixon	A61B 17/320016	6,723,110 B2	4/2004	Timm et al.	
			D24/146	6,790,216 B1	9/2004	Ishikawa	
4,832,022 A *	5/1989	Tjulkov	A61B 18/0206	6,799,729 B1	10/2004	Voic	
			606/22	6,875,220 B2	4/2005	Du et al.	
4,974,581 A	12/1990	Wiksell		6,916,296 B2	7/2005	Soring et al.	
5,076,276 A	12/1991	Sakurai et al.		7,025,735 B2	4/2006	Soring et al.	
D324,424 S *	3/1992	Michelson	D24/147	7,063,680 B2	6/2006	Lee et al.	
5,151,083 A	9/1992	Pichler		7,156,231 B1 *	1/2007	Austria	A61B 17/32
5,163,433 A	11/1992	Kagawa et al.					206/355
D332,309 S *	1/1993	Detsch	D24/146	D551,764 S *	9/2007	Easley	A61B 17/32
5,203,865 A	4/1993	Siepser					D24/146
5,242,442 A	9/1993	Hirschfeld		7,300,446 B2	11/2007	Beaupre	
5,263,957 A	11/1993	Davison		7,329,253 B2	2/2008	Brounstein et al.	
D342,313 S *	12/1993	Hood	D24/146	7,507,212 B2	3/2009	Tsuchiya et al.	
D344,799 S *	3/1994	Hood	D24/146	7,530,986 B2	5/2009	Beaupre et al.	
D346,024 S *	4/1994	Hood	D24/146	7,601,135 B2	10/2009	Akahoshi	
5,342,380 A	8/1994	Hood		7,601,136 B2	10/2009	Akahoshi	
5,417,654 A	5/1995	Kelman		7,621,902 B2	11/2009	Nita et al.	
D359,356 S *	6/1995	Werner	D24/147	7,621,930 B2	11/2009	Houser	
5,486,162 A	1/1996	Brumbach		7,666,186 B2	2/2010	Harp	
D367,531 S *	2/1996	Price	A61F 2/447	D612,049 S *	3/2010	Baynham	A61B 17/32
			D24/143				D24/146
5,562,609 A	10/1996	Brumbach		7,714,481 B2	5/2010	Sakai	
5,645,530 A	7/1997	Boukhny et al.		D620,595 S *	7/2010	Pinel	A61B 17/32
5,669,922 A	9/1997	Hood					D24/146
5,674,235 A	10/1997	Parisi		7,749,240 B2	7/2010	Takahashi et al.	
5,695,510 A	12/1997	Hood		7,758,600 B2	7/2010	Beaupre	
5,718,676 A	2/1998	Barrett		7,762,978 B2	7/2010	Mackool	
5,830,192 A	11/1998	Van Voorhis		7,785,278 B2	8/2010	Babaev	
5,857,995 A	1/1999	Thomas et al.		D627,463 S	11/2010	Voic et al.	
5,911,699 A	6/1999	Anis et al.		7,931,611 B2	4/2011	Novak et al.	
5,919,157 A	7/1999	Strukel		7,955,293 B2	6/2011	Nita et al.	
5,925,056 A	7/1999	Thomas et al.		8,021,381 B2	9/2011	Beaupre	
5,941,887 A	8/1999	Steen et al.		8,057,498 B2	11/2011	Robertson	
5,968,062 A	10/1999	Thomas et al.		8,062,566 B2	11/2011	Nita et al.	
5,984,904 A	11/1999	Steen et al.		8,075,564 B2	12/2011	Lee	
6,007,555 A	12/1999	Devine		8,092,475 B2	1/2012	Cotter et al.	
6,013,046 A	1/2000	Maaskamp et al.		8,118,823 B2	2/2012	Cotter et al.	
6,042,593 A	3/2000	Storz et al.		8,142,460 B2	3/2012	Cotter et al.	
6,074,396 A	6/2000	Geuder		8,167,883 B2	5/2012	Termanini	
6,110,177 A	8/2000	Ebner et al.		8,206,410 B2	6/2012	Hirai	
6,126,629 A	10/2000	Perkins		8,236,019 B2	8/2012	Houser	
6,139,320 A	10/2000	Hahn		8,246,642 B2	8/2012	Houser et al.	
6,159,175 A	12/2000	Strukel et al.		D667,117 S	9/2012	Darian et al.	
6,159,176 A	12/2000	Broadwin et al.		8,273,087 B2	9/2012	Kimura et al.	
6,183,433 B1	2/2001	Bays		8,273,097 B2	9/2012	Malla et al.	
6,196,989 B1	3/2001	Padget et al.		D669,581 S *	10/2012	Van Wyk	A61B 17/320016
6,206,844 B1	3/2001	Reichel et al.					D24/144
6,224,565 B1	5/2001	Cimino		8,343,178 B2	1/2013	Novak et al.	
6,241,703 B1	6/2001	Levin et al.		8,348,967 B2	1/2013	Stulen	
6,254,622 B1	7/2001	Hood		8,353,912 B2	1/2013	Darian et al.	
6,256,859 B1	7/2001	Stoddard et al.		8,377,086 B2	2/2013	Flynn et al.	
6,270,471 B1	8/2001	Hechel et al.		D677,998 S *	3/2013	Kusanagi	D7/649
6,283,981 B1	9/2001	Beaupre		8,394,115 B2	3/2013	Houser et al.	
6,299,591 B1	10/2001	Banko		D680,218 S	4/2013	Darian et al.	
6,309,400 B2	10/2001	Beaupre		8,409,235 B2	4/2013	Rubin	
6,328,751 B1	12/2001	Beaupre		8,430,897 B2	4/2013	Novak et al.	
6,331,171 B1	12/2001	Cohen		8,469,981 B2	6/2013	Robertson et al.	
6,379,371 B1	4/2002	Novak et al.		8,486,096 B2	7/2013	Robertson et al.	
6,423,082 B1	7/2002	Houser et al.		8,518,066 B2	8/2013	Cotter et al.	
6,425,906 B1	7/2002	Young et al.		8,529,593 B2	9/2013	Berberich	
6,436,115 B1	8/2002	Beaupre		8,568,418 B2	10/2013	Matusaitis et al.	
6,443,969 B1	9/2002	Novak et al.		8,574,252 B2	11/2013	Young et al.	
6,454,779 B1	9/2002	Taylor		8,579,928 B2	11/2013	Robertson et al.	
6,497,715 B2	12/2002	Satou		8,585,724 B2	11/2013	Palmer et al.	
				8,591,536 B2	11/2013	Robertson	
				8,617,194 B2	12/2013	Beaupre	
				8,623,017 B2	1/2014	Moses et al.	
				8,647,293 B2	2/2014	Nita	

(56)

References Cited

U.S. PATENT DOCUMENTS

8,852,278 B2 *	10/2014	Bellas	A61F 2/447 623/17.11	10,350,110 B2	7/2019	Banko	
8,882,791 B2	11/2014	Stulen		10,363,060 B2	7/2019	Stoddard et al.	
8,888,783 B2	11/2014	Young		10,463,381 B2	11/2019	Voic et al.	
8,894,673 B2	11/2014	Darian		10,470,789 B2	11/2019	Mikus et al.	
8,911,460 B2	12/2014	Neurohr et al.		10,500,319 B2	12/2019	Banko	
8,932,279 B2	1/2015	Stringham et al.		10,543,383 B2	1/2020	Kase	
8,945,021 B2	2/2015	Chin		10,555,749 B2	2/2020	Onuma et al.	
8,951,272 B2	2/2015	Robertson et al.		10,561,529 B2	2/2020	Chon et al.	
8,956,375 B2	2/2015	Nita et al.		D882,789 S *	4/2020	Qun	B26B 9/02 D7/650
9,044,261 B2	6/2015	Houser		10,905,445 B2	2/2021	Greuter et al.	
9,050,124 B2	6/2015	Houser		D928,956 S *	8/2021	Hacker	A61B 17/3213 D8/DIG. 3
9,066,747 B2	6/2015	Robertson		D958,989 S *	7/2022	Renwick	D24/146
9,095,367 B2	8/2015	Olson et al.		2001/0004695 A1	6/2001	Vercellotti et al.	
9,107,689 B2	8/2015	Robertson et al.		2001/0011176 A1	8/2001	Boukhny	
9,114,245 B2	8/2015	Dietz et al.		2001/0031951 A1	10/2001	Pezzola	
9,131,961 B2	9/2015	Wenger et al.		2001/0034532 A1	10/2001	Cimino	
D741,481 S	10/2015	Darian et al.		2002/0049462 A1 *	4/2002	Friedman	A61B 17/320068 606/169
9,211,137 B2	12/2015	Voic		2002/0055754 A1	5/2002	Ranucci et al.	
9,259,234 B2	2/2016	Robertson et al.		2002/0107446 A1	8/2002	Rabiner et al.	
9,265,973 B2	2/2016	Akagane		2002/0156493 A1	10/2002	Houser et al.	
9,289,227 B2	3/2016	Lauchner		2002/0161326 A1	10/2002	Sussman et al.	
9,320,528 B2	4/2016	Voic et al.		2002/0165680 A1	11/2002	Wiener et al.	
9,333,114 B2	5/2016	Koplin		2003/0065263 A1	4/2003	Hare et al.	
9,339,289 B2	5/2016	Robertson		2003/0125645 A1	7/2003	Rabiner et al.	
9,358,030 B2	6/2016	Young et al.		2003/0130657 A1	7/2003	Tom et al.	
9,358,407 B2	6/2016	Akagane		2003/0176791 A1	9/2003	Rabiner et al.	
9,387,004 B2	7/2016	Young et al.		2003/0204199 A1	10/2003	Novak et al.	
9,387,005 B2	7/2016	Voic		2003/0212332 A1 *	11/2003	Fenton	A61B 17/320068 600/459
9,421,027 B2	8/2016	Cotter et al.		2004/0034340 A1	2/2004	Biscup	
9,421,028 B2	8/2016	Darian		2004/0147945 A1	7/2004	Fritzsich	
9,421,072 B2	8/2016	Lesage et al.		2004/0158150 A1	8/2004	Rabiner et al.	
9,445,833 B2	9/2016	Akagane		2004/0158151 A1	8/2004	Ranucci et al.	
9,504,483 B2	11/2016	Houser et al.		2004/0199192 A1	10/2004	Akahoshi	
D773,904 S *	12/2016	Kennedy	D7/649	2005/0107783 A1	5/2005	Tom et al.	
9,510,850 B2	12/2016	Robertson et al.		2005/0177184 A1	8/2005	Easley	
9,526,517 B2	12/2016	Onuma et al.		2005/0234484 A1	10/2005	Houser et al.	
9,554,809 B2	1/2017	Lark et al.		2005/0264139 A1	12/2005	Wuchinich	
9,585,684 B2	3/2017	Nita et al.		2006/0167378 A1	7/2006	Miller	
9,597,105 B2	3/2017	Galer et al.		2006/0200154 A1	9/2006	Harp	
D783,166 S *	4/2017	Champ	B26B 9/00 D7/650	2006/0206050 A1	9/2006	Chon	
9,622,766 B2	4/2017	Voic		2006/0217741 A1	9/2006	Ghannoum	
9,622,767 B2	4/2017	Stoddard et al.		2006/0235306 A1	10/2006	Cotter et al.	
9,636,131 B2	5/2017	Manley et al.		2007/0073325 A1	3/2007	Stulen et al.	
9,636,135 B2	5/2017	Stulen		2007/0112268 A1	5/2007	Zhang et al.	
9,649,126 B2	5/2017	Robertson et al.		2007/0135827 A1	6/2007	Zipnick	
9,662,134 B2	5/2017	Onuma et al.		2007/0225619 A1	9/2007	Rabiner et al.	
9,693,793 B2	7/2017	Akagane		2007/0232926 A1	10/2007	Stulen et al.	
9,713,481 B2	7/2017	Du et al.		2007/0233131 A1	10/2007	Song et al.	
9,730,709 B2	8/2017	Yoshimine		2007/0255196 A1	11/2007	Wuchinich	
9,730,710 B2	8/2017	Yoshimine		2007/0276422 A1 *	11/2007	Pooler	A61B 17/3211 606/167
9,737,735 B2	8/2017	Dietz et al.		2007/0282333 A1	12/2007	Fortson et al.	
9,763,673 B2	9/2017	Young		2008/0091207 A1	4/2008	Truckai et al.	
9,763,689 B2	9/2017	Parham		2008/0139994 A1	6/2008	Mackool et al.	
9,764,166 B2	9/2017	Stoddard et al.		2008/0208231 A1	8/2008	Ota et al.	
9,775,637 B2	10/2017	Onuma et al.		2008/0228208 A1	9/2008	Wulfman et al.	
9,788,852 B2	10/2017	Voic		2008/0300591 A1	12/2008	Darian et al.	
9,826,987 B2	11/2017	Keefe et al.		2009/0216179 A1	8/2009	Babaev et al.	
9,827,009 B2	11/2017	Kucklick et al.		2009/0326535 A1	12/2009	Blus et al.	
9,839,437 B2	12/2017	Yoshimine		2010/0004667 A1	1/2010	Young et al.	
9,839,796 B2	12/2017	Sawada		2010/0023037 A1	1/2010	Nita et al.	
9,848,900 B2	12/2017	Witt et al.		2010/0042126 A1	2/2010	Houser et al.	
9,867,736 B2	1/2018	Morlet		2010/0057118 A1	3/2010	Dietz et al.	
9,878,184 B2	1/2018	Beaupre		2010/0106173 A1	4/2010	Yoshimine	
9,889,247 B2	2/2018	Akahoshi		2010/0167235 A1	7/2010	Vercellotti et al.	
9,895,160 B2	2/2018	Fan et al.		2010/0168741 A1	7/2010	Sanai et al.	
9,913,656 B2	3/2018	Stulen		2010/0204721 A1	8/2010	Young et al.	
9,962,289 B2	5/2018	Kishimoto		2010/0262172 A1	10/2010	Houser et al.	
9,974,587 B2	5/2018	Wang et al.		2011/0143308 A1	6/2011	Lee	
10,010,342 B2	7/2018	Akagane		2011/0190799 A1	8/2011	Slipszenko et al.	
10,045,793 B2	8/2018	Kawaguchi et al.		2012/0077140 A1	3/2012	Better et al.	
10,092,308 B2	10/2018	Mikus et al.		2013/0079771 A1	3/2013	Cuny	
10,207,045 B2	2/2019	Banko		2013/0102955 A1	4/2013	Koplin	
10,299,809 B2	5/2019	Mikus et al.		2013/0103066 A1	4/2013	Rad	
				2013/0116717 A1	5/2013	Balek et al.	

(56)

References Cited

U.S. PATENT DOCUMENTS

2013/0178882 A1 7/2013 Voegele et al.
 2013/0204285 A1 8/2013 Gouery et al.
 2013/0231691 A1 9/2013 Houser
 2013/0253559 A1 9/2013 Slipszenko et al.
 2013/0281997 A1 10/2013 Davie
 2014/0081299 A1 3/2014 Dietz et al.
 2014/0114335 A1 4/2014 Banko
 2014/0188095 A1 7/2014 Weber
 2014/0276849 A1 9/2014 Voic
 2015/0005795 A1 1/2015 Darian et al.
 2015/0025557 A1 1/2015 Kim et al.
 2015/0119897 A1 4/2015 Smith et al.
 2015/0148829 A1 5/2015 Kimball et al.
 2015/0148832 A1 5/2015 Boudreaux et al.
 2015/0164536 A1 6/2015 Czarnecki et al.
 2015/0374397 A1 12/2015 Brannon
 2016/0089155 A1* 3/2016 Lark A61B 17/1613
 D7/649
 2016/0128711 A1 5/2016 Cao et al.
 2016/0128716 A1 5/2016 Cao et al.
 2016/0135835 A1 5/2016 Onuma
 2016/0143657 A1 5/2016 Estera et al.
 2016/0157885 A1 6/2016 Lauchner
 2016/0184615 A1 6/2016 Neumann et al.
 2016/0206342 A1 7/2016 Robertson et al.
 2016/0249949 A1 9/2016 Voic et al.
 2016/0262786 A1 9/2016 Madan et al.
 2016/0296252 A1 10/2016 Olson et al.
 2016/0354105 A1 12/2016 Seymour
 2016/0367283 A1 12/2016 Hyodo et al.
 2016/0374706 A1 12/2016 Cotter et al.
 2017/0000513 A1 1/2017 Conlon et al.
 2017/0000514 A1 1/2017 Akagane
 2017/0007852 A1 1/2017 Isola et al.
 2017/0014152 A1 1/2017 Noui et al.
 2017/0020553 A1 1/2017 Yoshimine
 2017/0105753 A1 4/2017 Conlon et al.
 2017/0112524 A1 4/2017 Smith et al.
 2017/0119429 A1 5/2017 Chin
 2017/0172699 A1 6/2017 Otrembiak et al.
 2017/0281197 A1 10/2017 Thistle
 2017/0281216 A1 10/2017 Stoddard et al.
 2017/0319226 A1 11/2017 Voic et al.
 2017/0333074 A1 11/2017 Clark, III et al.
 2017/0340339 A1 11/2017 Madan et al.
 2017/0367727 A1 12/2017 Sakai
 2018/0014846 A1 1/2018 Rhee et al.
 2018/0055530 A1 3/2018 Messerly et al.
 2018/0056095 A1 3/2018 Messerly et al.
 2018/0070973 A1 3/2018 Stephenson et al.
 2018/0103964 A1 4/2018 Patel et al.
 2018/0103976 A1 4/2018 Heavey
 2018/0140275 A1 5/2018 Yoshimine
 2018/0146975 A1 5/2018 Zhang
 2018/0168680 A1 6/2018 Houser et al.
 2018/0199957 A1 7/2018 Robertson et al.
 2018/0200109 A1 7/2018 Chon et al.
 2018/0250031 A1 9/2018 Mikus et al.
 2018/0280021 A1 10/2018 Timm et al.
 2018/0280023 A1 10/2018 Timm et al.
 2018/0317957 A1 11/2018 Germain et al.
 2018/0333165 A1 11/2018 Algawi et al.
 2018/0344347 A1 12/2018 Nishio
 2019/0015123 A1 1/2019 Mikus et al.
 2019/0021782 A1 1/2019 Segit et al.
 2019/0110799 A1 4/2019 Sun et al.
 2019/0117457 A1 4/2019 Banko

2019/0117458 A1 4/2019 Banko
 2019/0167285 A1 6/2019 Mikus et al.
 2019/0209374 A1 7/2019 Banko
 2019/0247070 A1 8/2019 Araki et al.
 2019/0254696 A1* 8/2019 Sun A61B 17/142
 D7/649
 2019/0321067 A1 10/2019 Banko
 2019/0381339 A1 12/2019 Voegele et al.

FOREIGN PATENT DOCUMENTS

WO 2009088390 A1 7/2009
 WO 2013052635 A2 4/2013
 WO 2014209872 A1 12/2014
 WO 2014210163 A1 12/2014
 WO 2014210273 A1 12/2014
 WO 2015045199 A1 4/2015
 WO 2015045431 A1 4/2015
 WO 2015045438 A1 4/2015
 WO 2015046348 A1 4/2015
 WO 2015073428 A1 5/2015
 WO 2015114560 A1 8/2015
 WO 2015133230 A1 9/2015
 WO 2015164753 A1 10/2015
 WO 2015198005 A1 12/2015
 WO 2016080303 A1 5/2016
 WO 2016081026 A1 5/2016
 WO 2016100478 A1 6/2016
 WO 2016204046 A1 12/2016
 WO 2016204997 A1 12/2016
 WO 2016205335 A1 12/2016
 WO 2017013813 A1 1/2017
 WO 2017013815 A1 1/2017
 WO 2017013886 A1 1/2017
 WO 2017027745 A1 2/2017
 WO 2017027853 A1 2/2017
 WO 2017192288 A1 11/2017
 WO 2017205093 A1 11/2017
 WO 2017205094 A1 11/2017
 WO 2017211209 A1 12/2017
 WO 2017211210 A1 12/2017
 WO 2018031331 A1 2/2018
 WO 2018051196 A1 3/2018
 WO 2018078833 A1 5/2018
 WO 2018078834 A1 5/2018
 WO D216777-001 * 12/2021

OTHER PUBLICATIONS

Heavey, Cathal A., "Ultrasonic Cutting of Bone", National University of Ireland, Dec. 2013, 256 pages.
 Cusa, "Clarity 23 kHz Tips Webpage", <https://www.integralife.com/cusa-clarity-23-khz-tips/product/cusa-tissue-ablation-cusa-clarity-system-accessories-cusa-clarity-23-khz-tips>, 2020, 2 pages.
 Cusa, "Excel Tips Webpage", <https://www.integralife.com/cusa-excel-tips/product/cusa-tissue-ablation-cusa-excel-system-accessories-cusa-excel-tips>, 2020, 3 pages.
 Integra, "CUSA Excel/CUSA Excel+ Ultrasonic Surgical Aspirator System User's Guide", <https://www.integralife.com/file/general/1560878816.pdf>, 2019, 195 pages.
 Life Healthcare, "SonaStar Ultrasonic Aspirator Webpage", <https://www.lifehealthcare.com.au/products/sonostar/>, 2020, 3 pages.
 Soring, "Levics Micro instrument Webpage", <https://www.soering.de/en/products/micro-instruments-for-neurosurgery/levics-micro-instrument-for-neurosurgery/>, 2020, 5 pages.

* cited by examiner

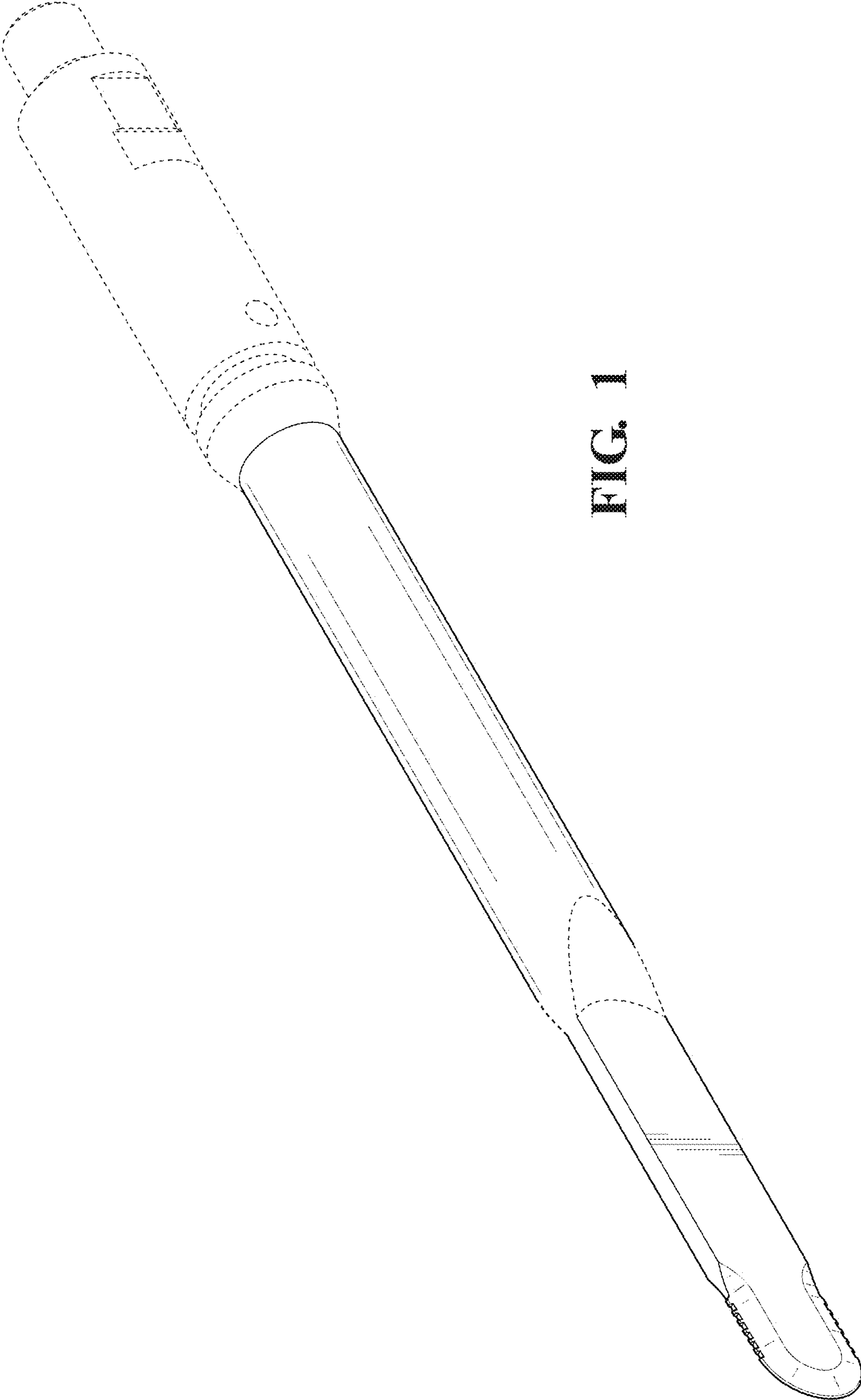


FIG. 1

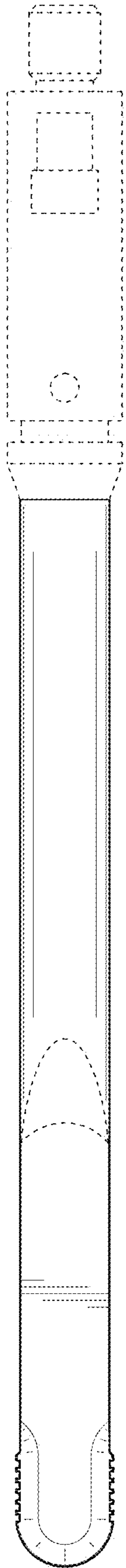


FIG. 2

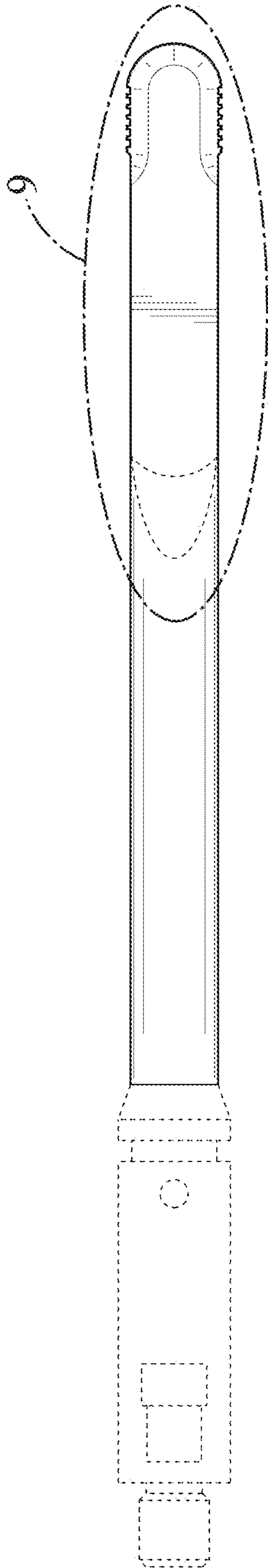


FIG. 3

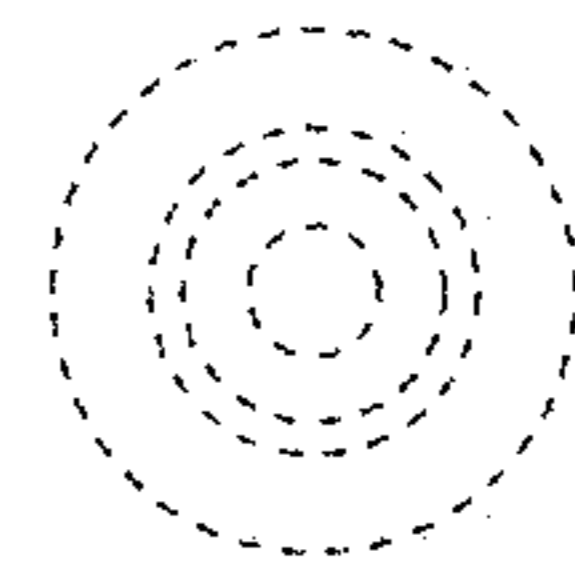


FIG. 4

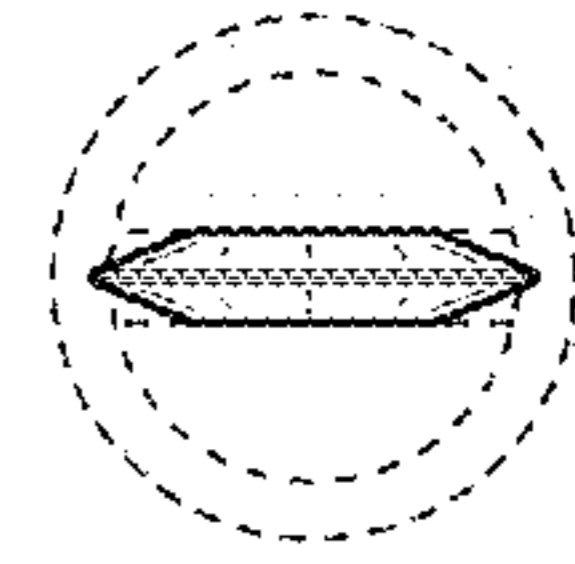


FIG. 5

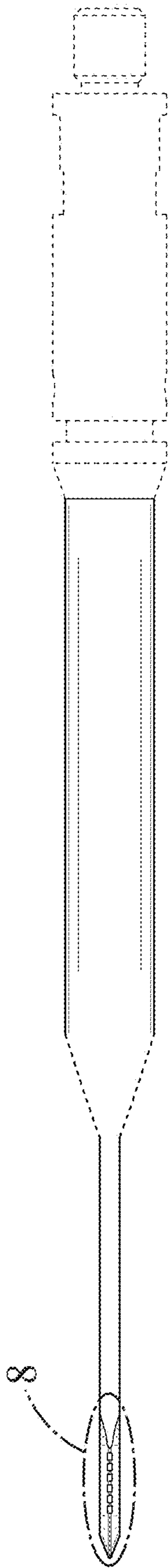


FIG. 6

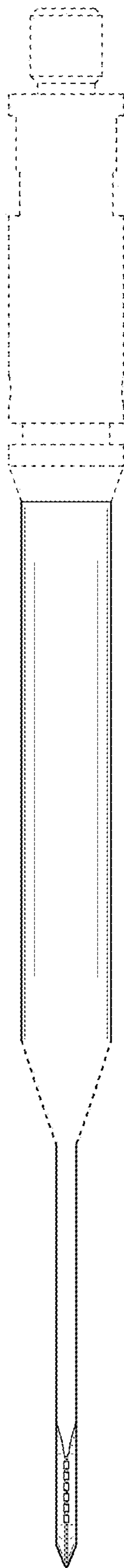


FIG. 7

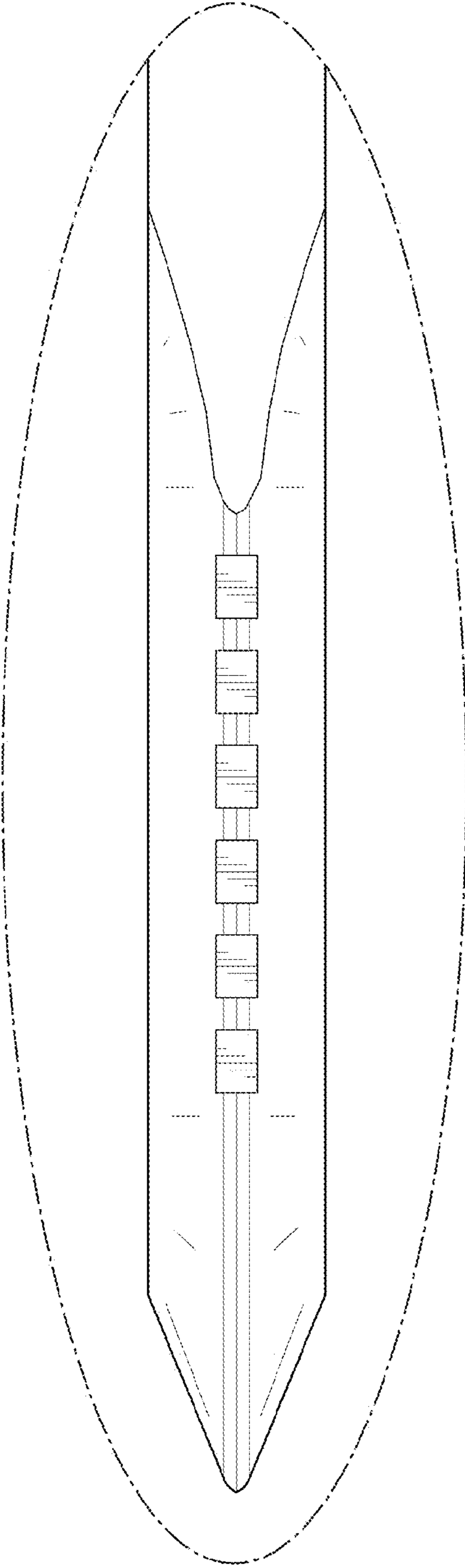


FIG. 8

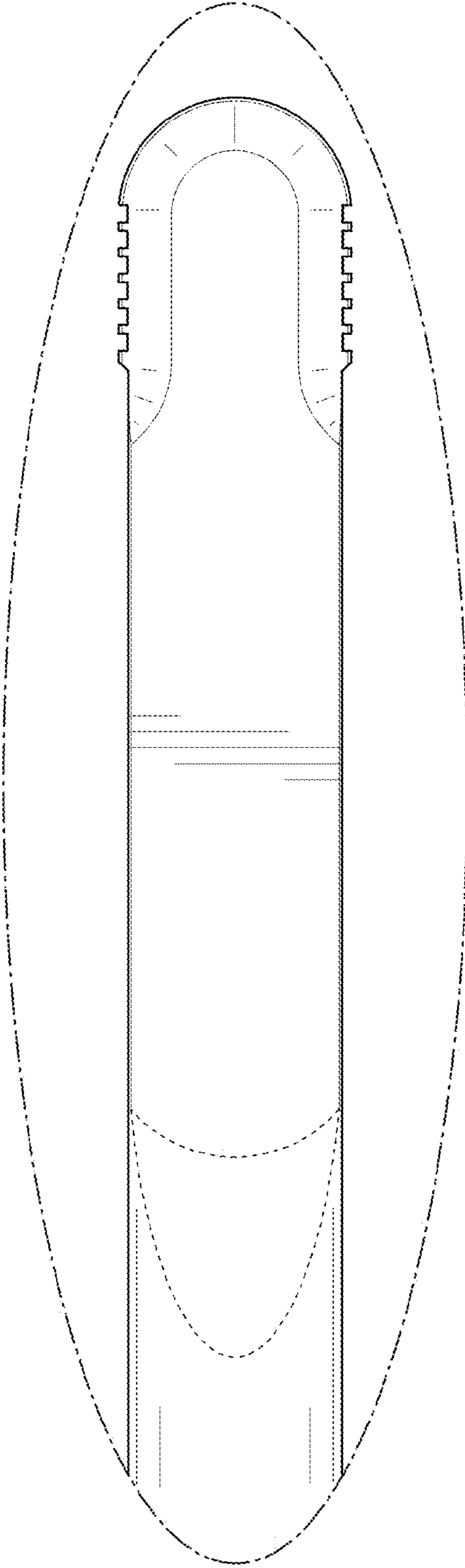


FIG. 9