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(12) **United States Design Patent** (10) **Patent No.:** **US D797,290 S**  
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(54) **BONE GRAFT DELIVERY TOOL**  
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4,041,939 A 8/1977 Hall  
4,047,524 A 9/1977 Hall  
4,206,516 A 6/1980 Pilliar  
4,277,184 A 7/1981 Solomon  
4,338,925 A 7/1982 Miller  
(Continued)

**FOREIGN PATENT DOCUMENTS**

FR 2790946 9/2000  
JP H09-327468 12/1997  
(Continued)

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**OTHER PUBLICATIONS**

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(57) **CLAIM**

The ornamental design for a bone graft delivery tool, as  
shown and described.

**DESCRIPTION**

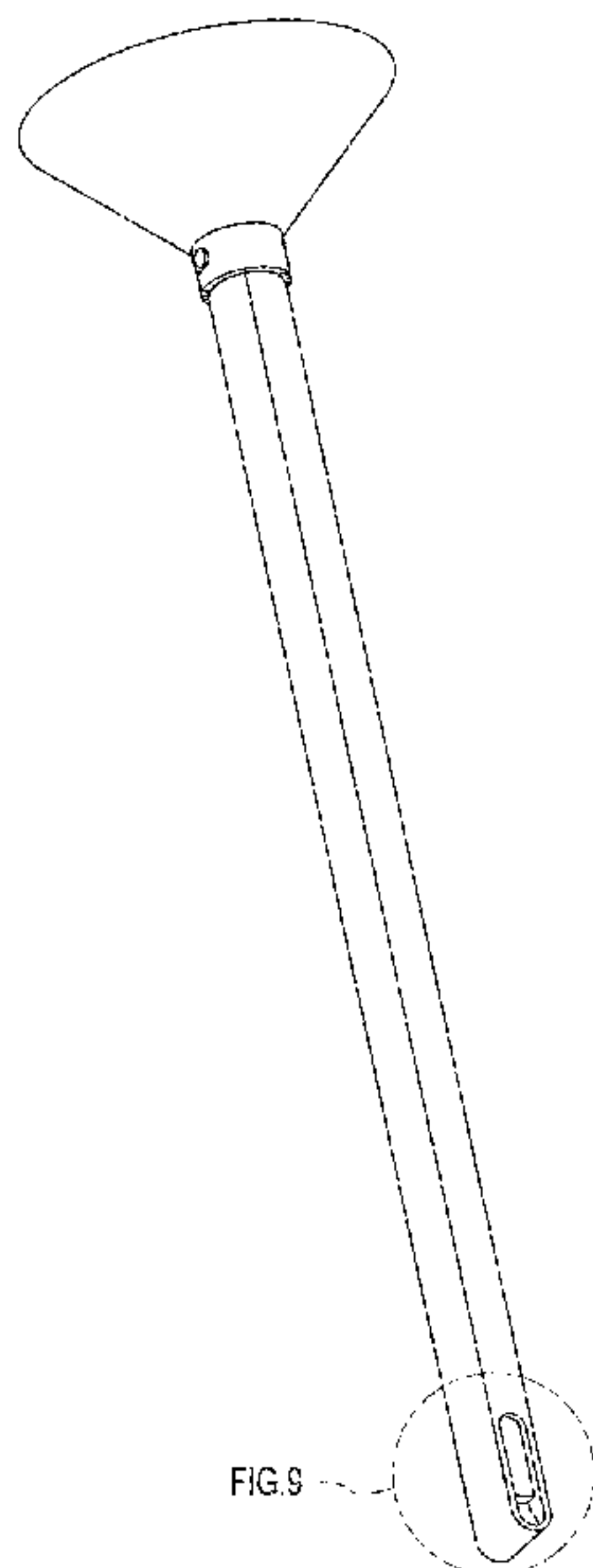
FIG. 1 is a front perspective view of the bone graft delivery  
tool;  
FIG. 2 is a front perspective exploded view thereof;  
FIG. 3 is a top plan view thereof;  
FIG. 4 is a front elevation view thereof;  
FIG. 5 is a right elevation view thereof;  
FIG. 6 is a bottom plan view thereof;  
FIG. 7 is a rear elevation view thereof;  
FIG. 8 is a left elevation view thereof;  
FIG. 9 is a detailed view of a portion of the bone graft  
delivery tool of FIG. 1; and,  
FIG. 10 is a cross-sectional view of Section A-A of FIG. 9.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

D30,951 S 6/1899 Saint Cyr, Jr.  
1,867,624 A 7/1932 Hoffman  
2,520,464 A 8/1950 Hubner  
3,697,011 A 10/1972 Christensen et al.  
3,741,496 A 6/1973 Beller  
3,836,092 A 9/1974 Hull  
3,855,638 A 12/1974 Pilliar  
4,039,156 A 8/1977 Abraham

**1 Claim, 5 Drawing Sheets**



(56)

## References Cited

## U.S. PATENT DOCUMENTS

4,430,062 A	2/1984	Henrichsen et al.	5,888,228 A	3/1999	Knothe et al.
4,462,402 A	7/1984	Burgio et al.	5,904,689 A	5/1999	Jonjic
4,467,478 A	8/1984	Jurgutis	5,904,718 A	5/1999	Jefferies
4,501,269 A	2/1985	Bagby	5,906,616 A	5/1999	Pavlov et al.
4,522,270 A	6/1985	Kishi	5,925,051 A	7/1999	Mikhail
4,570,623 A	2/1986	Ellison et al.	5,925,056 A	7/1999	Thomas et al.
4,580,978 A	4/1986	Motola et al.	5,944,658 A	8/1999	Koros et al.
4,592,346 A	6/1986	Jurgutis	5,944,686 A	8/1999	Patterson et al.
4,743,256 A	5/1988	Brantigan	5,947,972 A	9/1999	Gage et al.
4,863,476 A	9/1989	Shepperd	5,976,146 A	11/1999	Ogawa et al.
4,877,399 A	10/1989	Frank et al.	5,989,257 A	11/1999	Tidwell et al.
4,925,924 A	5/1990	Silver et al.	5,989,289 A	11/1999	Coates et al.
D309,499 S	7/1990	Bowman et al.	5,997,895 A	12/1999	Narotam et al.
D312,309 S	11/1990	Michelson	6,004,191 A	12/1999	Schur et al.
4,991,570 A	2/1991	Bullard	6,004,326 A	12/1999	Castro et al.
5,037,422 A	8/1991	Hayhurst	6,008,433 A	12/1999	Stone
5,053,038 A	10/1991	Sheehan	6,013,028 A	1/2000	Jho et al.
5,055,104 A	10/1991	Ray	6,019,765 A	2/2000	Thornhill et al.
5,058,823 A	10/1991	Emura et al.	6,030,356 A	2/2000	Carlson et al.
5,122,130 A	6/1992	Keller	6,030,388 A	2/2000	Yoshimi et al.
5,282,744 A	2/1994	Meyer	6,030,390 A	2/2000	Mehdizadeh
5,290,295 A	3/1994	Querals et al.	6,030,401 A	2/2000	Marino
5,311,640 A	5/1994	Holland	6,033,408 A	3/2000	Gage et al.
5,312,407 A	5/1994	Carter	6,033,438 A	3/2000	Bianchi et al.
5,312,417 A	5/1994	Wilk	6,045,555 A	4/2000	Smith et al.
5,324,307 A	6/1994	Jarrett et al.	6,059,829 A	5/2000	Schlapfer et al.
5,329,834 A	7/1994	Wong	6,090,143 A	7/2000	Meriwether et al.
5,333,812 A	8/1994	Sato	6,096,080 A	8/2000	Nicholson et al.
D351,022 S	9/1994	Saito	6,113,602 A	9/2000	Sand
5,354,292 A	10/1994	Braeuer et al.	6,120,503 A	9/2000	Michelson
5,395,372 A	3/1995	Holt et al.	6,123,705 A	9/2000	Michelson
5,425,772 A	6/1995	Brantigan	6,136,001 A	10/2000	Michelson
D360,689 S	7/1995	Giampapa	6,142,998 A	11/2000	Smith et al.
5,431,658 A	7/1995	Moskovich	6,146,420 A	11/2000	McKay
5,443,514 A	8/1995	Steffee	6,149,096 A	11/2000	Hartley
D364,462 S	11/1995	Michelson	6,152,871 A	11/2000	Foley et al.
5,520,611 A	5/1996	Rao et al.	6,159,211 A	12/2000	Boriani et al.
D370,531 S	6/1996	Ash et al.	6,159,245 A	12/2000	Meriwether et al.
5,527,312 A	6/1996	Ray	6,180,085 B1	1/2001	Achilefu
D372,311 S	7/1996	Koros et al.	6,200,322 B1	3/2001	Branch et al.
5,531,749 A	7/1996	Michelson	6,209,886 B1	4/2001	Estes et al.
D372,781 S	8/1996	Reif	6,216,573 B1	4/2001	Moutafis et al.
5,549,607 A	8/1996	Olson et al.	6,224,599 B1	5/2001	Baynham et al.
5,554,191 A	9/1996	Lahille et al.	6,224,607 B1	5/2001	Michelson
5,558,674 A	9/1996	Heggeness et al.	6,235,805 B1	5/2001	Chang et al.
D374,283 S	10/1996	Michelson	6,238,397 B1	5/2001	Zucherman et al.
5,562,661 A	10/1996	Yoshimi et al.	6,241,733 B1	6/2001	Nicholson et al.
5,569,246 A	10/1996	Ojima et al.	6,241,769 B1	6/2001	Nicholson et al.
5,586,989 A	12/1996	Bray	6,245,108 B1	6/2001	Biscup
5,595,563 A	1/1997	Moison	D444,878 S	7/2001	Walter
5,601,557 A	2/1997	Hayhurst	D445,188 S	7/2001	Walter
D378,409 S	3/1997	Michelson	6,258,094 B1	7/2001	Nicholson et al.
5,611,800 A	3/1997	Davis et al.	6,258,125 B1	7/2001	Paul et al.
5,634,925 A	6/1997	Urbanski	6,261,293 B1	7/2001	Nicholson et al.
5,653,763 A	8/1997	Errico et al.	6,261,295 B1	7/2001	Nicholson et al.
5,662,655 A	9/1997	Laboureau et al.	6,261,296 B1	7/2001	Aebi et al.
5,665,122 A	9/1997	Kambin	6,290,724 B1	9/2001	Marino
5,683,464 A	11/1997	Wagner et al.	6,299,613 B1	10/2001	Ogilvie et al.
5,688,285 A	11/1997	Yamada	6,309,395 B1	10/2001	Smith et al.
5,697,932 A	12/1997	Smith et al.	6,325,805 B1	12/2001	Ogilvie et al.
5,702,449 A	12/1997	McKay	6,328,738 B1	12/2001	Suddaby
5,704,892 A	1/1998	Adair	6,336,928 B1	1/2002	Guerin et al.
5,741,253 A	4/1998	Michelson	6,342,074 B1	1/2002	Simpson
5,752,969 A	5/1998	Cunci et al.	6,364,880 B1	4/2002	Michelson
5,762,629 A	6/1998	Kambin	6,375,635 B1	4/2002	Moutafis et al.
5,779,642 A	7/1998	Nightengale	6,387,096 B1	5/2002	Hyde, Jr.
5,782,919 A	7/1998	Zdeblick et al.	6,409,765 B1	6/2002	Bianchi et al.
5,797,918 A	8/1998	McGuire et al.	6,416,551 B1	7/2002	Keller
5,836,948 A	11/1998	Zucherman et al.	6,436,101 B1	8/2002	Hamada
5,836,958 A	11/1998	Ralph	6,451,017 B1	9/2002	Moutafis et al.
5,860,973 A	1/1999	Michelson	6,454,806 B1	9/2002	Cohen et al.
5,860,977 A	1/1999	Zucherman et al.	6,467,556 B2	10/2002	Alsrue
5,865,746 A	2/1999	Murugesan et al.	D467,657 S	12/2002	Scribner
5,865,846 A	2/1999	Bryan et al.	6,500,206 B1	12/2002	Bryan
5,871,462 A	2/1999	Yoder et al.	6,511,493 B1	1/2003	Moutafis et al.
			D469,871 S	2/2003	Sand
			6,520,976 B1	2/2003	Gage
			6,524,318 B1	2/2003	Longhini et al.
			6,565,574 B2	5/2003	Michelson



(56)

## References Cited

## U.S. PATENT DOCUMENTS

6,569,201 B2	5/2003	Moumene et al.	7,329,283 B2	2/2008	Estes et al.
6,613,091 B1	9/2003	Zdeblick et al.	7,337,538 B2	3/2008	Moutafis et al.
6,616,669 B2	9/2003	Ogilvie et al.	7,341,590 B2	3/2008	Ferree
6,620,356 B1	9/2003	Wong et al.	7,341,591 B2	3/2008	Grinberg
6,641,613 B2	11/2003	Sennett	7,357,284 B2	4/2008	Jauvin
6,648,915 B2	11/2003	Sazy	7,357,804 B2	4/2008	Binder, Jr. et al.
6,652,533 B2	11/2003	O'Neil	7,361,178 B2	4/2008	Hearn et al.
6,669,710 B2	12/2003	Moutafis et al.	7,364,657 B2	4/2008	Mandrusov et al.
6,673,113 B2	1/2004	Ralph et al.	7,371,239 B2	5/2008	Dec et al.
6,679,887 B2	1/2004	Nicholson et al.	7,377,923 B2	5/2008	Purcell et al.
6,695,882 B2	2/2004	Bianchi et al.	7,387,643 B2	6/2008	Michelson
6,699,288 B2	3/2004	Moret	7,399,041 B2	7/2008	Prentner et al.
6,709,438 B2	3/2004	Dixon et al.	D574,495 S	8/2008	Petersen
6,719,760 B2	4/2004	Dorchak et al.	7,406,775 B2	8/2008	Funk et al.
6,719,795 B1	4/2004	Cornwall et al.	7,410,334 B2	8/2008	McGrew
6,723,096 B1	4/2004	Dorchak et al.	7,410,478 B2	8/2008	Yang
6,723,126 B1	4/2004	Berry	7,413,065 B2	8/2008	Gauthier
6,730,125 B1	5/2004	Lin	7,421,772 B2	9/2008	Gao et al.
6,743,255 B2	6/2004	Ferree	7,429,270 B2	9/2008	Baumgartner et al.
6,743,257 B2	6/2004	Castro	D579,562 S	10/2008	Anderson et al.
6,746,487 B2	6/2004	Scifert et al.	7,430,945 B2	10/2008	Gauthier et al.
6,764,491 B2	7/2004	Frey et al.	7,431,711 B2	10/2008	Moutafis et al.
6,770,074 B2	8/2004	Michelson	7,442,208 B2	10/2008	Mathieu et al.
6,773,437 B2	8/2004	Ogilvie et al.	7,455,157 B2	11/2008	Kimes et al.
6,773,460 B2	8/2004	Jackson	D582,552 S	12/2008	Berberich
6,800,093 B2	10/2004	Nicholson et al.	7,461,803 B2	12/2008	Boerner
6,823,871 B2	11/2004	Schmieding	7,473,255 B2	1/2009	McGarity et al.
6,824,565 B2	11/2004	Muhanna et al.	7,476,226 B2	1/2009	Weikel et al.
6,830,574 B2	12/2004	Heckele et al.	7,478,577 B1	1/2009	Wheeler
6,835,206 B2	12/2004	Jackson	7,481,766 B2	1/2009	Lee et al.
6,852,126 B2	2/2005	Ahlgren	7,481,813 B1	1/2009	Purcell
6,869,430 B2	3/2005	Balbierz et al.	7,485,145 B2	2/2009	Purcell
6,890,728 B2	5/2005	Dolecek et al.	D589,626 S	3/2009	Petersen
6,899,712 B2	5/2005	Moutafis et al.	7,501,073 B2	3/2009	Wen et al.
6,923,792 B2	8/2005	Staid et al.	7,503,933 B2	3/2009	Michelson
6,923,814 B1	8/2005	Hildebrand et al.	7,503,934 B2	3/2009	Eisermann et al.
6,929,646 B2	8/2005	Gambale	7,503,936 B2	3/2009	Trieu
6,942,665 B2	9/2005	Gambale	D590,943 S	4/2009	Petersen
6,960,182 B2	11/2005	Moutafis et al.	D590,945 S	4/2009	Berberich
6,962,592 B2	11/2005	Gatturna et al.	7,513,901 B2	4/2009	Scifert et al.
6,969,523 B1	11/2005	Mattern et al.	D593,202 S	5/2009	Petersen
6,972,035 B2	12/2005	Michelson	7,531,003 B2	5/2009	Reindel
6,974,480 B2	12/2005	Messerli et al.	7,534,265 B1	5/2009	Boyd
6,991,653 B2	1/2006	White et al.	7,534,270 B2	5/2009	Ball
6,994,728 B2	2/2006	Zubok et al.	D594,119 S	6/2009	Berberich et al.
7,004,946 B2	2/2006	Parker et al.	7,553,320 B2	6/2009	Molz, IV et al.
7,008,431 B2	3/2006	Simonson	D597,669 S	8/2009	Petersen
7,014,640 B2	3/2006	Kemppainen et al.	D598,096 S	8/2009	Petersen
7,025,742 B2	4/2006	Rubenstein et al.	D599,015 S	8/2009	Petersen
7,025,769 B1	4/2006	Ferree	7,578,820 B2	8/2009	Moore et al.
7,033,317 B2	4/2006	Pruitt	D600,806 S	9/2009	Horton et al.
7,041,136 B2	5/2006	Goble et al.	D601,251 S	9/2009	Horton et al.
7,041,137 B2	5/2006	Fulton et al.	7,582,058 B1	9/2009	Miles et al.
7,066,961 B2	6/2006	Hichelson	7,582,107 B2	9/2009	Trail et al.
D524,443 S	7/2006	Blain	7,595,043 B2	9/2009	Hedrick et al.
7,077,864 B2	7/2006	Byrd, III et al.	D603,502 S	11/2009	Petersen
7,094,257 B2	8/2006	Mujwid et al.	7,615,078 B2	11/2009	White et al.
7,122,017 B2	10/2006	Moutafis et al.	7,618,423 B1	11/2009	Valentine et al.
7,128,760 B2	10/2006	Michelson	7,625,374 B2	12/2009	Branch et al.
7,135,043 B2	11/2006	Nakahara et al.	7,632,276 B2	12/2009	Fishbein
7,169,182 B2	1/2007	Errico et al.	7,632,281 B2	12/2009	Errico et al.
7,182,782 B2	2/2007	Kirschman	D608,001 S	1/2010	Reardon et al.
7,204,825 B2	4/2007	Cimino et al.	7,655,027 B2	2/2010	Michelson
7,207,992 B2	4/2007	Ritland	7,658,766 B2	2/2010	Melkent et al.
D541,940 S	5/2007	Blain	D611,147 S	3/2010	Hanson et al.
7,211,112 B2	5/2007	Baynham et al.	7,671,014 B2	3/2010	Beals et al.
7,214,186 B2	5/2007	Ritland	7,674,265 B2	3/2010	Smith et al.
7,223,292 B2	5/2007	Messerli et al.	7,674,297 B2	3/2010	Falahee
7,232,463 B2	6/2007	Falahee	7,677,418 B2	3/2010	Henniges et al.
7,238,203 B2	7/2007	Bagga et al.	7,686,805 B2	3/2010	Michelson
7,255,703 B2	8/2007	Mujwid et al.	7,691,133 B2	4/2010	Partin et al.
7,267,691 B2	9/2007	Keller et al.	7,693,562 B2	4/2010	Marino et al.
7,273,498 B2	9/2007	Bianchi et al.	7,699,852 B2	4/2010	Frankel et al.
7,288,093 B2	10/2007	Michelson	D615,653 S	5/2010	Horton
7,316,070 B2	1/2008	Green	7,708,761 B2	5/2010	Petersen
			7,717,685 B2	5/2010	Moutafis et al.
			7,722,530 B2	5/2010	Davison
			7,722,613 B2	5/2010	Sutterlin et al.
			7,723,291 B2	5/2010	Beals et al.



(56)

## References Cited

## U.S. PATENT DOCUMENTS

7,728,868	B2	6/2010	Razzaque et al.	7,811,327	B2	10/2010	Hansell et al.
7,730,563	B1	6/2010	Sklar et al.	7,811,329	B2	10/2010	Ankney et al.
7,734,327	B2	6/2010	Colquhoun	7,815,681	B2	10/2010	Ferguson
7,740,634	B2	6/2010	Orbay et al.	7,819,801	B2	10/2010	Miles et al.
7,740,661	B2	6/2010	Baratz et al.	7,819,921	B2	10/2010	Grotz
7,744,555	B2	6/2010	DiMauro et al.	D627,460	S	11/2010	Horton
7,744,637	B2	6/2010	Johnson et al.	D627,468	S	11/2010	Richter et al.
7,744,973	B2	6/2010	Schoenle et al.	7,824,328	B2	11/2010	Gattani et al.
D620,108	S	7/2010	Eitenmueller et al.	7,824,332	B2	11/2010	Fakhrai
7,749,231	B2	7/2010	Bonvallet et al.	7,824,410	B2	11/2010	Simonson
7,749,253	B2	7/2010	Zucherman et al.	7,824,703	B2	11/2010	Scifert et al.
7,749,269	B2	7/2010	Peterman et al.	7,828,804	B2	11/2010	Li et al.
7,749,273	B2	7/2010	Cauthen et al.	7,828,845	B2	11/2010	Estes et al.
7,749,274	B2	7/2010	Razian	7,828,849	B2	11/2010	Lim
7,749,276	B2	7/2010	Fitz	7,837,713	B2	11/2010	Petersen
7,749,279	B2	7/2010	Twomey et al.	7,837,732	B2	11/2010	Zucherman et al.
7,749,555	B2	7/2010	Zanella et al.	D628,694	S	12/2010	Donnez
7,751,865	B2	7/2010	Jascob et al.	D629,896	S	12/2010	Horton
7,753,911	B2	7/2010	Ray et al.	7,846,210	B2	12/2010	Perez-Cruet et al.
7,753,914	B2	7/2010	Ruhling et al.	7,850,733	B2	12/2010	Baynham et al.
7,753,938	B2	7/2010	Aschmann et al.	7,850,735	B2	12/2010	Eisermann et al.
7,753,940	B2	7/2010	Veldman et al.	7,850,736	B2	12/2010	Heinz
7,753,962	B2	7/2010	Melder	D631,156	S	1/2011	Halder et al.
7,758,501	B2	7/2010	Frasier et al.	7,867,277	B1	1/2011	Tohmeh
7,758,616	B2	7/2010	LeHuec et al.	D631,967	S	2/2011	Horton
7,758,617	B2	7/2010	Lott et al.	7,892,261	B2	2/2011	Bonutti
7,758,644	B2	7/2010	Trieu	7,897,164	B2	3/2011	Scifert
7,758,648	B2	7/2010	Castlemen et al.	7,897,564	B2	3/2011	Beals et al.
7,763,025	B2	7/2010	Assell et al.	7,905,840	B2	3/2011	Pimenta et al.
7,763,035	B2	7/2010	Melkent et al.	7,905,886	B1	3/2011	Curran et al.
7,763,055	B2	7/2010	Foley	7,918,891	B1	4/2011	Curran et al.
7,763,078	B2	7/2010	Peterman et al.	7,922,766	B2	4/2011	Grob et al.
7,763,080	B2	7/2010	Southworth	7,927,361	B2	4/2011	Oliver et al.
D621,509	S	8/2010	Lovell	D637,721	S	5/2011	Horton
D622,395	S	8/2010	Iott et al.	7,935,124	B2	5/2011	Frey et al.
D622,843	S	8/2010	Horton	7,938,857	B2	5/2011	Garcia-Bengochea et al.
D622,851	S	8/2010	Horton	7,939,092	B2	5/2011	McKay et al.
7,766,914	B2	8/2010	McCormack et al.	7,951,107	B2	5/2011	Staid et al.
7,766,918	B2	8/2010	Allard et al.	7,964,208	B2	6/2011	Spagnoli et al.
7,766,930	B2	8/2010	DiPoto et al.	D641,872	S	7/2011	Solingen et al.
7,766,940	B2	8/2010	Kwak et al.	D641,873	S	7/2011	Solingen et al.
7,766,967	B2	8/2010	Francis	D641,874	S	7/2011	Solingen et al.
7,766,969	B2	8/2010	Justin et al.	D642,268	S	7/2011	Qureshi
7,769,422	B2	8/2010	DiSilvestro et al.	7,985,256	B2	7/2011	Grotz et al.
7,771,143	B2	8/2010	Bharadwaj et al.	D643,921	S	8/2011	Davila
7,771,473	B2	8/2010	Thramann	D647,202	S	10/2011	Scifert
7,771,475	B2	8/2010	Michelson	D650,481	S	12/2011	Gottlieb et al.
7,771,476	B2	8/2010	Justis et al.	8,080,521	B2	12/2011	Beals et al.
7,771,479	B2	8/2010	Humphreys et al.	8,088,163	B1	1/2012	Kleiner
7,776,040	B2	8/2010	Markworth et al.	D653,757	S	2/2012	Binder
7,776,046	B2	8/2010	Boyd et al.	D655,414	S	3/2012	Cuschieri et al.
7,776,047	B2	8/2010	Fanger et al.	D656,610	S	3/2012	Kleiner
7,776,049	B1	8/2010	Curran et al.	8,148,326	B2	4/2012	Beals et al.
7,776,075	B2	8/2010	Bruneau et al.	D660,428	S	5/2012	Hohl
7,776,090	B2	8/2010	Winslow et al.	8,198,238	B2	6/2012	Beals et al.
7,776,091	B2	8/2010	Mastrorio et al.	8,246,572	B2	8/2012	Cantor et al.
7,776,094	B2	8/2010	McKinley et al.	D667,542	S	9/2012	Kleiner
7,776,095	B2	8/2010	Peterman et al.	8,273,129	B2	9/2012	Baynham et al.
7,776,594	B2	8/2010	Bays et al.	8,277,510	B2	10/2012	Kleiner
7,780,707	B2	8/2010	Johnson et al.	8,282,683	B2	10/2012	McLaughlin et al.
D623,748	S	9/2010	Horton et al.	8,292,960	B2	10/2012	Kleiner
D623,749	S	9/2010	Horton et al.	8,293,232	B2	10/2012	Beals et al.
7,794,396	B2	9/2010	Gattani et al.	8,303,659	B2	11/2012	Errico et al.
7,794,501	B2	9/2010	Edie et al.	D674,900	S	1/2013	Janice et al.
7,799,034	B2	9/2010	Johnson et al.	8,361,152	B2	1/2013	McCormack et al.
7,799,036	B2	9/2010	Davison et al.	8,366,748	B2	2/2013	Kleiner
7,799,053	B2	9/2010	Haid et al.	D677,791	S	3/2013	Danacioglu et al.
7,799,054	B2	9/2010	Kwak et al.	8,394,129	B2	3/2013	Morgenstern Lopez et al.
7,799,055	B2	9/2010	Lim	D681,205	S	4/2013	Farris et al.
7,799,056	B2	9/2010	Sankaran	8,454,621	B2	6/2013	DeRidder et al.
7,799,076	B2	9/2010	Sybert et al.	8,506,635	B2	8/2013	Palmatier et al.
7,799,078	B2	9/2010	Embry et al.	8,512,347	B2	8/2013	McCormack et al.
7,799,083	B2	9/2010	Smith et al.	8,518,087	B2	8/2013	Lopez et al.
7,803,159	B2	9/2010	Perez-Cruet et al.	D692,133	S	10/2013	Steinwachs et al.
7,806,901	B2	10/2010	Stad et al.	8,556,979	B2	10/2013	Glerum et al.
				8,562,685	B2	10/2013	Ullrich, Jr. et al.
				8,585,761	B2	11/2013	Theofilos
				8,591,585	B2	11/2013	McLaughlin et al.
				D696,399	S	12/2013	Kleiner



(56)

References Cited

U.S. PATENT DOCUMENTS

8,597,333 B2	12/2013	Morgenstern Lopez et al.	2004/0167532 A1	8/2004	Olson, Jr. et al.
8,623,054 B2	1/2014	McCormack et al.	2004/0176853 A1	9/2004	Sennett et al.
8,628,576 B2	1/2014	Triplett et al.	2004/0215201 A1	10/2004	Lieberman
D700,322 S	2/2014	Kleiner	2004/0230211 A1	11/2004	Moutafis et al.
D700,332 S	2/2014	Tyber	2005/0070900 A1	3/2005	Serhan et al.
8,685,031 B2	4/2014	Kleiner	2005/0070912 A1	3/2005	Voellmicke
8,709,086 B2	4/2014	Glerum	2005/0080443 A1	4/2005	Fallin et al.
8,709,088 B2	4/2014	Kleiner et al.	2005/0096601 A1	5/2005	Doyle
8,715,351 B1	5/2014	Pinto	2005/0112091 A1	5/2005	DiMauro et al.
8,753,345 B2	6/2014	McCormack et al.	2005/0118550 A1	6/2005	Turri
8,753,347 B2	6/2014	McCormack et al.	2005/0124993 A1	6/2005	Chappuis
8,753,377 B2	6/2014	McCormack et al.	2005/0124994 A1	6/2005	Berger et al.
8,758,443 B2	6/2014	Ullrich, Jr. et al.	2005/0149035 A1	7/2005	Pimenta et al.
D708,323 S	7/2014	Reyes et al.	2005/0149192 A1	7/2005	Zucherman et al.
D708,747 S	7/2014	Curran et al.	2005/0159765 A1	7/2005	Moutafis et al.
8,771,360 B2	7/2014	Jimenez et al.	2005/0165405 A1	7/2005	Tsou
8,778,025 B2	7/2014	Ragab et al.	2005/0216002 A1	9/2005	Simonson
8,778,027 B2	7/2014	Medina	2005/0216018 A1	9/2005	Sennett
8,795,366 B2	8/2014	Varela	2005/0251146 A1	11/2005	Martz et al.
8,808,304 B2	8/2014	Weiman et al.	2005/0251257 A1	11/2005	Mitchell et al.
8,808,305 B2	8/2014	Kleiner	2005/0261781 A1	11/2005	Sennett et al.
8,808,383 B2	8/2014	Kwak et al.	2005/0278026 A1	12/2005	Gordon et al.
8,814,940 B2	8/2014	Curran et al.	2005/0283150 A1	12/2005	Moutafis et al.
8,821,396 B1	9/2014	Miles et al.	2006/0004367 A1	1/2006	Alamin et al.
8,828,019 B1	9/2014	Raymond et al.	2006/0015184 A1	1/2006	Winterbottom et al.
8,828,062 B2	9/2014	McCormack et al.	2006/0058585 A1	3/2006	Oberlaender et al.
8,834,472 B2	9/2014	McCormack et al.	2006/0058807 A1	3/2006	Landry et al.
8,840,622 B1	9/2014	Vellido et al.	2006/0100304 A1	5/2006	Vresilovic et al.
8,840,668 B1	9/2014	Donahoe et al.	2006/0100705 A1	5/2006	Puno et al.
8,845,727 B2	9/2014	Gottlieb et al.	2006/0111779 A1	5/2006	Petersen
8,845,731 B2	9/2014	Weiman	2006/0111780 A1	5/2006	Petersen
8,845,732 B2	9/2014	Weiman	2006/0116770 A1	6/2006	White et al.
8,845,734 B2	9/2014	Weiman	2006/0122597 A1	6/2006	Jones et al.
D714,933 S	10/2014	Kawamura	2006/0142858 A1	6/2006	Colleran et al.
8,852,242 B2	10/2014	Morgenstern Lopez et al.	2006/0154366 A1	7/2006	Brown et al.
8,852,243 B2	10/2014	Morgenstern Lopez et al.	2006/0155170 A1	7/2006	Hanson et al.
8,852,244 B2	10/2014	Simonson	2006/0167461 A1	7/2006	Hawkins et al.
8,852,279 B2	10/2014	Weiman	2006/0190081 A1	8/2006	Kraus
8,852,281 B2	10/2014	Phelps	2006/0229550 A1	10/2006	Staid et al.
8,852,282 B2	10/2014	Farley et al.	2006/0247650 A1	11/2006	Yerby et al.
8,858,598 B2	10/2014	Seifert et al.	2006/0247791 A1	11/2006	McKay et al.
8,870,882 B2	10/2014	Kleiner	2006/0264808 A1	11/2006	Staid et al.
8,906,028 B2	12/2014	Kleiner	2006/0264964 A1	11/2006	Scifert et al.
D721,808 S	1/2015	Oi	2007/0003598 A1	1/2007	Trieu
8,932,295 B1	1/2015	Greenhalgh	2007/0010824 A1	1/2007	Malandain et al.
8,945,137 B1	2/2015	Greenhalgh et al.	2007/0043376 A1	2/2007	Leatherbury et al.
D723,682 S	3/2015	Kleiner	2007/0043442 A1	2/2007	Abernathie
D724,213 S	3/2015	Tyber	2007/0067034 A1	3/2007	Chirico et al.
8,992,622 B2	3/2015	Ullrich, Jr. et al.	2007/0073110 A1	3/2007	Larson et al.
9,060,877 B2	6/2015	Kleiner	2007/0073294 A1	3/2007	Chin et al.
D735,336 S	7/2015	Lovell	2007/0088007 A1	4/2007	Ng
9,173,694 B2	11/2015	Kleiner	2007/0093850 A1	4/2007	Harris et al.
9,186,193 B2	11/2015	Kleiner et al.	2007/0123985 A1	5/2007	Errico et al.
9,629,729 B2 *	4/2017	Grimberg, Jr. .... A61F 2/4455	2007/0172790 A1	7/2007	Doucette, Jr. et al.
2002/0010472 A1	1/2002	Kuslich et al.	2007/0185496 A1	8/2007	Beckman et al.
2002/0049448 A1	4/2002	Sand et al.	2007/0208423 A1	9/2007	Messerli et al.
2002/0058947 A1	5/2002	Hochschulter et al.	2007/0213596 A1	9/2007	Hamada
2002/0099377 A1	7/2002	Zucherman et al.	2007/0213717 A1	9/2007	Trieu
2002/0116006 A1	8/2002	Cohen	2007/0213718 A1	9/2007	Trieu
2003/0009169 A1	1/2003	Young et al.	2007/0213822 A1	9/2007	Trieu
2003/0083748 A1	5/2003	Lee et al.	2007/0213826 A1	9/2007	Smith et al.
2003/0125739 A1	7/2003	Bagga et al.	2007/0225219 A1	9/2007	Boden et al.
2003/0149482 A1	8/2003	Michelson	2007/0225811 A1	9/2007	Scifert et al.
2003/0171812 A1	9/2003	Grunberg et al.	2007/0242869 A1	10/2007	Luo et al.
2003/0229358 A1	12/2003	Errico et al.	2007/0250166 A1	10/2007	McKay
2004/0002713 A1	1/2004	Olson et al.	2007/0264300 A1	11/2007	Scifert et al.
2004/0024466 A1	2/2004	Heerklotz et al.	2007/0265632 A1	11/2007	Scifert et al.
2004/0073314 A1	4/2004	White et al.	2007/0270951 A1	11/2007	Davis et al.
2004/0087956 A1	5/2004	Weikel et al.	2007/0276406 A1	11/2007	Mahoney et al.
2004/0133211 A1	7/2004	Raskin et al.	2007/0288007 A1	12/2007	Burkus et al.
2004/0133217 A1	7/2004	Watschke	2007/0293948 A1	12/2007	Bagga et al.
2004/0143330 A1	7/2004	Sazy	2008/0003255 A1	1/2008	Kerr et al.
2004/0148027 A1	7/2004	Errico et al.	2008/0009929 A1	1/2008	Harris et al.
2004/0153158 A1	8/2004	Errico et al.	2008/0033440 A1	2/2008	Moskowitz et al.
2004/0162616 A1	8/2004	Simonton et al.	2008/0058606 A1	3/2008	Miles et al.
			2008/0071284 A1	3/2008	Lechmann et al.
			2008/0086142 A1	4/2008	Kohm et al.
			2008/0125856 A1	5/2008	Perez-Cruet et al.
			2008/0147191 A1	6/2008	Lopez et al.



(56)

## References Cited

## U.S. PATENT DOCUMENTS

2008/0154375	A1	6/2008	Serhan et al.	2010/0112029	A1	5/2010	Scifert
2008/0154377	A1	6/2008	Voellmicke	2010/0114147	A1	5/2010	Biyani
2008/0154381	A1	6/2008	Parrish	2010/0121365	A1	5/2010	O'Sullivan et al.
2008/0161924	A1	7/2008	Viker	2010/0121453	A1	5/2010	Peterman
2008/0172127	A1	7/2008	Perez-Cruet et al.	2010/0125333	A1	5/2010	Zdeblick et al.
2008/0195058	A1	8/2008	Moutafis et al.	2010/0125338	A1	5/2010	Fitz
2008/0228225	A1	9/2008	Trautwein et al.	2010/0131020	A1	5/2010	Heinz et al.
2008/0243126	A1	10/2008	Gutierrez et al.	2010/0137690	A1	6/2010	Miles et al.
2008/0249569	A1	10/2008	Waugh et al.	2010/0137923	A1	6/2010	Greenhalgh et al.
2008/0255564	A1	10/2008	Michelson	2010/0145390	A1	6/2010	McCarthy et al.
2008/0255666	A1	10/2008	Fisher et al.	2010/0145452	A1	6/2010	Blaylock et al.
2008/0260598	A1	10/2008	Gross et al.	2010/0145461	A1	6/2010	Landry et al.
2008/0269904	A1	10/2008	Voorhies	2010/0152853	A1	6/2010	Kirschman
2008/0288071	A1	11/2008	Biyani et al.	2010/0160923	A1	6/2010	Sand et al.
2008/0300598	A1	12/2008	Barreiro et al.	2010/0160982	A1	6/2010	Justis et al.
2009/0043312	A1	2/2009	Koulisis	2010/0161062	A1	6/2010	Foley et al.
2009/0076440	A1	3/2009	Moutafis et al.	2010/0161074	A1	6/2010	McKay
2009/0076556	A1	3/2009	McGarity et al.	2010/0168755	A1	7/2010	Reiley et al.
2009/0088765	A1	4/2009	Butler et al.	2010/0168862	A1	7/2010	Edie et al.
2009/0098184	A1	4/2009	Govil et al.	2010/0174326	A1	7/2010	Selover et al.
2009/0099660	A1	4/2009	Scifert et al.	2010/0185286	A1	7/2010	Allard
2009/0105718	A1	4/2009	Zhang et al.	2010/0185287	A1	7/2010	Allard
2009/0124860	A1	5/2009	Miles et al.	2010/0185288	A1	7/2010	Carls
2009/0124980	A1	5/2009	Chen	2010/0191241	A1	7/2010	McCormack et al.
2009/0125066	A1	5/2009	Kraus et al.	2010/0191334	A1	7/2010	Keller
2009/0142385	A1	6/2009	Gross et al.	2010/0191337	A1	7/2010	Zamani et al.
2009/0182429	A1	7/2009	Humphreys et al.	2010/0198140	A1	8/2010	Lawson
2009/0187194	A1	7/2009	Hamada	2010/0199483	A1	8/2010	Justis et al.
2009/0192350	A1	7/2009	Meja	2010/0204798	A1	8/2010	Gerbec et al.
2009/0192403	A1	7/2009	Gharib et al.	2010/0217398	A1	8/2010	Keller
2009/0198241	A1	8/2009	Phan	2010/0222784	A1	9/2010	Schwab et al.
2009/0198243	A1	8/2009	Melsheimer	2010/0222824	A1	9/2010	Simonson
2009/0198245	A1	8/2009	Phan	2010/0228294	A1	9/2010	LeHuec et al.
2009/0198337	A1	8/2009	Phan	2010/0228351	A1	9/2010	Ankney et al.
2009/0198338	A1	8/2009	Phan	2010/0234848	A1	9/2010	Sutterlin et al.
2009/0198339	A1	8/2009	Kleiner et al.	2010/0234957	A1	9/2010	Zdeblick et al.
2009/0203967	A1	8/2009	Branch et al.	2010/0249934	A1	9/2010	Melkent
2009/0204148	A1	8/2009	Lenke	2010/0256767	A1	10/2010	Melkent
2009/0204159	A1	8/2009	Justis et al.	2010/0256768	A1	10/2010	Lim et al.
2009/0204220	A1	8/2009	Trieu	2010/0262241	A1	10/2010	Eisermann et al.
2009/0222011	A1	9/2009	Lehuc et al.	2010/0262245	A1	10/2010	Alfaro et al.
2009/0228107	A1	9/2009	Michelson	2010/0266689	A1	10/2010	Simonton et al.
2009/0234455	A1	9/2009	Moskowitz et al.	2010/0280622	A1	11/2010	McKinley
2009/0246244	A1	10/2009	McKay et al.	2010/0286778	A1	11/2010	Eisermann et al.
2009/0248163	A1	10/2009	King et al.	2010/0286784	A1	11/2010	Curran et al.
2009/0259108	A1	10/2009	Miles et al.	2010/0298938	A1	11/2010	Humphreys et al.
2009/0264892	A1	10/2009	Beyar et al.	2010/0305575	A1	12/2010	Wilkinson et al.
2009/0275995	A1	11/2009	Truckai et al.	2010/0312103	A1	12/2010	Gorek et al.
2009/0292361	A1	11/2009	Lopez	2010/0312290	A1	12/2010	McKinley et al.
2009/0299477	A1	12/2009	Clayton et al.	2010/0312347	A1	12/2010	Arramon et al.
2009/0306671	A1	12/2009	McCormack et al.	2010/0331847	A1	12/2010	Wilkinson et al.
2009/0306692	A1	12/2009	Barrington et al.	2010/0331891	A1	12/2010	Culbert et al.
2010/0004752	A1	1/2010	White et al.	2011/0014587	A1	1/2011	Spagnoli et al.
2010/0010367	A1	1/2010	Foley et al.	2011/0015748	A1	1/2011	Molz, IV et al.
2010/0010524	A1	1/2010	Barrington et al.	2011/0020768	A1	1/2011	Spagnoli et al.
2010/0016903	A1	1/2010	Matityahu et al.	2011/0021427	A1	1/2011	Amsden et al.
2010/0016972	A1	1/2010	Jansen et al.	2011/0028393	A1	2/2011	Vickers et al.
2010/0016973	A1	1/2010	de Villiers et al.	2011/0054538	A1	3/2011	Zehavi et al.
2010/0021518	A1	1/2010	Scifert et al.	2011/0071527	A1	3/2011	Nelson et al.
2010/0030065	A1	2/2010	Farr et al.	2011/0093005	A1	4/2011	Strokosz et al.
2010/0036226	A9	2/2010	Marino et al.	2011/0106162	A1	5/2011	Ballard et al.
2010/0036442	A1	2/2010	Laurysen et al.	2011/0144687	A1	6/2011	Kleiner
2010/0042221	A1	2/2010	Boyd	2011/0160777	A1	6/2011	Spagnoli et al.
2010/0057208	A1	3/2010	Dryer	2011/0184412	A1	7/2011	Scifert et al.
2010/0063516	A1	3/2010	Parmer et al.	2011/0208226	A1	8/2011	Fatone et al.
2010/0063554	A1	3/2010	Branch et al.	2011/0230970	A1	9/2011	Lynn et al.
2010/0076335	A1	3/2010	Gharib et al.	2011/0257478	A1	10/2011	Kleiner et al.
2010/0076445	A1	3/2010	Pagano	2012/0022603	A1	1/2012	Kirschman
2010/0076446	A1	3/2010	Gorek	2012/0022651	A1	1/2012	Akyuz et al.
2010/0082036	A1	4/2010	Reiley et al.	2012/0029635	A1	2/2012	Schoenhoeffer et al.
2010/0087828	A1	4/2010	Krueger et al.	2012/0035668	A1	2/2012	Manninen et al.
2010/0087875	A1	4/2010	McGahan et al.	2012/0035729	A1	2/2012	Glerum et al.
2010/0100141	A1	4/2010	de Villiers et al.	2012/0065613	A1	3/2012	Pepper et al.
2010/0105986	A1	4/2010	Miles et al.	2012/0065687	A1	3/2012	Ballard et al.
2010/0105987	A1	4/2010	Miles et al.	2012/0071981	A1	3/2012	Farley et al.
				2012/0078315	A1	3/2012	Sweeney
				2012/0089185	A1	4/2012	Gabelberger
				2012/0123546	A1	5/2012	Medina
				2012/0158146	A1	6/2012	Glerum et al.



(56)

References Cited

U.S. PATENT DOCUMENTS

2012/0197311	A1	8/2012	Kirschman	
2012/0215316	A1	8/2012	Mohr et al.	
2012/0259335	A1	10/2012	Scifert et al.	
2013/0006364	A1	1/2013	McCormack et al.	
2013/0006365	A1	1/2013	Pepper et al.	
2013/0006366	A1	1/2013	Farley et al.	
2013/0073041	A1	3/2013	Scifert et al.	
2013/0110169	A1	5/2013	Hynes et al.	
2013/0158664	A1	6/2013	Palmatier et al.	
2013/0178940	A1	7/2013	Farley	
2013/0345710	A1*	12/2013	Kleiner	A61F 2/4455 606/94
2014/0012383	A1	1/2014	Triplett et al.	
2014/0100657	A1	4/2014	McCormack et al.	
2014/0156006	A1	6/2014	Bannigan et al.	
2014/0172103	A1	6/2014	O'Neil et al.	
2014/0172106	A1	6/2014	To et al.	
2014/0207239	A1	7/2014	Barreiro	
2014/0228955	A1	8/2014	Weiman	
2014/0236296	A1	8/2014	Wagner et al.	
2014/0236297	A1	8/2014	Iott et al.	
2014/0236298	A1	8/2014	Pinto	
2014/0257405	A1	9/2014	Zappacosta et al.	
2014/0257490	A1	9/2014	Himmelberger et al.	
2014/0276896	A1	9/2014	Harper	
2014/0277497	A1	9/2014	Bennett et al.	
2014/0287055	A1	9/2014	Kunjachan	
2014/0288652	A1	9/2014	Boehm et al.	
2014/0296985	A1	10/2014	Balasubramanian et al.	
2014/0303675	A1	10/2014	Mishra	
2014/0303731	A1	10/2014	Glerum	
2014/0303732	A1	10/2014	Rhoda et al.	
2014/0309268	A1	10/2014	Arnou	
2014/0309548	A1	10/2014	Merz et al.	
2014/0309697	A1	10/2014	Iott et al.	
2014/0309714	A1	10/2014	Mercanzini et al.	
2015/0025575	A1	1/2015	Kleiner	
2015/0073557	A1	3/2015	Kleiner	

FOREIGN PATENT DOCUMENTS

JP	2002-052331	2/2002
JP	2009-534140	9/2009
JP	2009-535115	10/2009
WO	WO 95/22402	8/1995
WO	WO 99/08627	2/1999
WO	WO 02/17801	3/2002
WO	WO 2005/037149	4/2005
WO	WO 2005/071190	8/2005
WO	WO 2007/122006	11/2007
WO	WO 2007/127666	11/2007
WO	WO 2012/031267	3/2012

OTHER PUBLICATIONS

Official Action for U.S. Appl. No. 14/887,598, mailed Jul. 15, 2016  
8 pages.

U.S. Appl. No. 13/168,611, Kleiner.  
 U.S. Appl. No. 14/214,031, Greenhalgh.  
 U.S. Appl. No. 29/506,748, Grimberg et al.  
 U.S. Appl. No. 14/887,598, Grimberg et al.  
 "BAK® /Proximity™ (BP®) Cage", Zimmer Website, as early as Oct. 23, 2007, available at [www.zimmer.com/z/ctl/op/global/action/1/id/7930/template/MP/prcat/M6/prod/y](http://www.zimmer.com/z/ctl/op/global/action/1/id/7930/template/MP/prcat/M6/prod/y), printed on Jun. 8, 2009, 1 page.  
 "BAK® Vista® Radiolucent Interbody Fusion System", Zimmer Website, as early as Oct. 25, 2005, available at [www.zimmerindia.com/z/ctl/op/global/action/1/id/7809/template/MP/prcat/M6/prod/y](http://www.zimmerindia.com/z/ctl/op/global/action/1/id/7809/template/MP/prcat/M6/prod/y), printed on Jun. 8, 2009, pp. 1-2.  
 "Facet Joint Syndrome," The Cleveland Clinic Foundation, copyright 1995-2008, printed Nov. 19, 2008, available at [www.my.clevelandclinic.org/disorders/facet\\_joint\\_syndrome/hic\\_facet\\_joint\\_syndrome.aspx](http://www.my.clevelandclinic.org/disorders/facet_joint_syndrome/hic_facet_joint_syndrome.aspx), 2 pages.  
 "Screws, Cages or Both", Spine Universe Website, as early as Aug. 18, 2002, available at [www.spineuniverse.com/displayarticle.php/article1363.html](http://www.spineuniverse.com/displayarticle.php/article1363.html), printed on Jun. 8, 2009, pp. 1-13.  
 "University of Maryland Spine Program: A Patient's Guide to Anterior Lumbar Interbody Fusion with Intervertebral Cages", University of Maryland Medical Center website, as early as 2003, available at [www.umm.edu/spinecenter/education/anterior\\_lumbar\\_interbody\\_fusion\\_with\\_intervertebral\\_cages.htm](http://www.umm.edu/spinecenter/education/anterior_lumbar_interbody_fusion_with_intervertebral_cages.htm), printed on Jun. 8, 2009, pp. 1-4.  
 "Vertebral column," from Wikipedia, the free encyclopedia, printed May 19, 2009, retrieved from [www.en.wikipedia.org/wiki/Vertebral\\_column](http://www.en.wikipedia.org/wiki/Vertebral_column), 6 pages.  
 "Zygapophysial joint," from Wikipedia, the free encyclopedia, printed May 19, 2009, retrieved from [www.en.wikipedia.org/wiki/Zygapophysial\\_joint](http://www.en.wikipedia.org/wiki/Zygapophysial_joint), 2 pages.  
 Ehrenberg, "The 3-D Printing Revolution," Science News, Mar. 9, 2013, pp. 20-25.  
 Newton, "EOS Teams with Medical Implant Designer to Advance 3D Printing in Medicine," Graphic Speak, 2012, 2 pages.  
 Ray, "Facet Joint Disorders and Back Pain," published on Spine-Health, Dec. 10, 2002, available at [www.spine-health.com/conditions/arthritis/facet-joint-disorders-and-back-pain](http://www.spine-health.com/conditions/arthritis/facet-joint-disorders-and-back-pain), 1 page.  
 Staehler, "Spine Surgery for a Cervical Herniated Disc," published on Spine-Health, Jun. 12, 2002, available at [www.spine-health.com/conditions/herniated-disc/spine-surgery-a-cervical-herniated-disc](http://www.spine-health.com/conditions/herniated-disc/spine-surgery-a-cervical-herniated-disc), 2 pages.  
 Staehler, "Summary of Cervical Herniated Disc Treatment Options," published on Spine-Health, Jun. 12, 2002, available at [www.spine-health.com/conditions/herniated-disc/summary-cervical-herniated-disc-treatment-options](http://www.spine-health.com/conditions/herniated-disc/summary-cervical-herniated-disc-treatment-options), 1 page.  
 Ullrich, "Anterior Cervical Spinal Fusion Surgery," published on Spine-Health, Oct. 7, 2005, available at [www.spine-health.com/treatment/back-surgery/anterior-cervical-spinal-fusion-surgery](http://www.spine-health.com/treatment/back-surgery/anterior-cervical-spinal-fusion-surgery), 2 pages.  
 Ullrich, "Cervical Spinal Instrumentation," published on Spine-Health, Oct. 7, 2005, available at [www.spine-health.com/treatment/back-surgery/cervical-spinal-instrumentation](http://www.spine-health.com/treatment/back-surgery/cervical-spinal-instrumentation), 2 pages.  
 Wascher, "Anterior cervical decompression and spine fusion procedure," published on Spine-Health, Aug. 29, 2001, available at [www.spine-health.com/treatment/spinal-fusion/anterior-cervical-decompression-and-spine-fusion-procedure](http://www.spine-health.com/treatment/spinal-fusion/anterior-cervical-decompression-and-spine-fusion-procedure), 2 pages.

\* cited by examiner

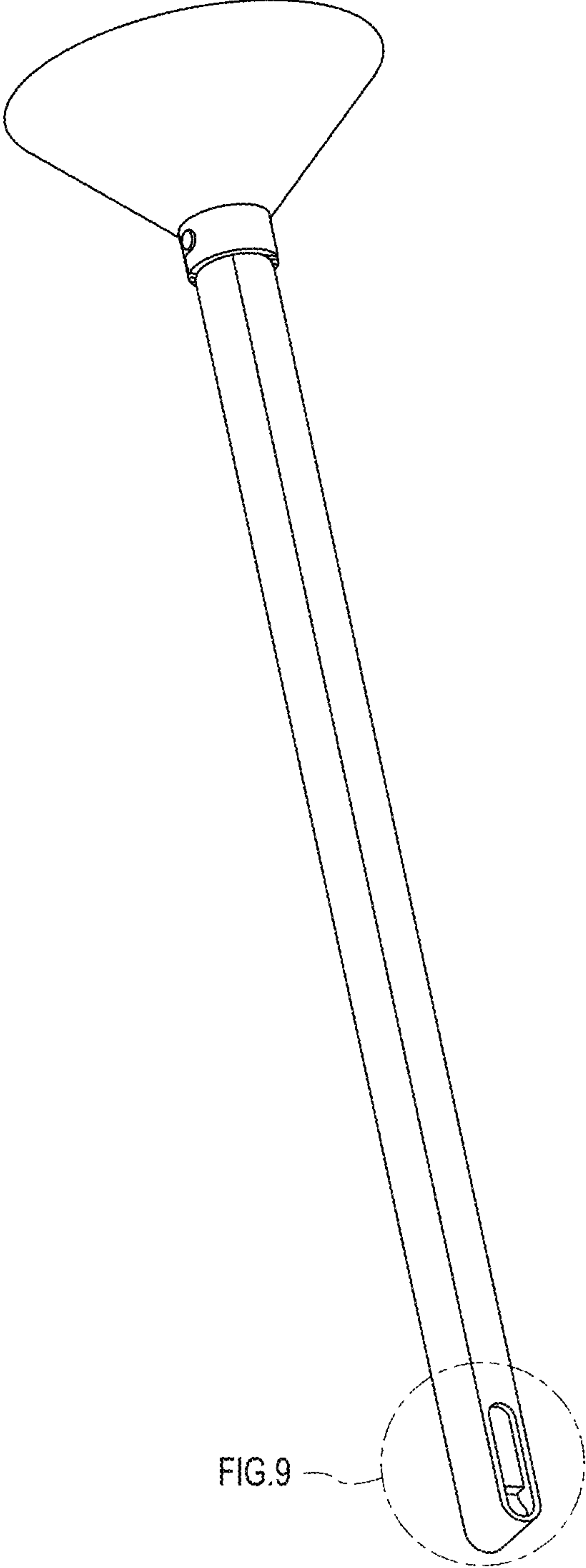


FIG.1



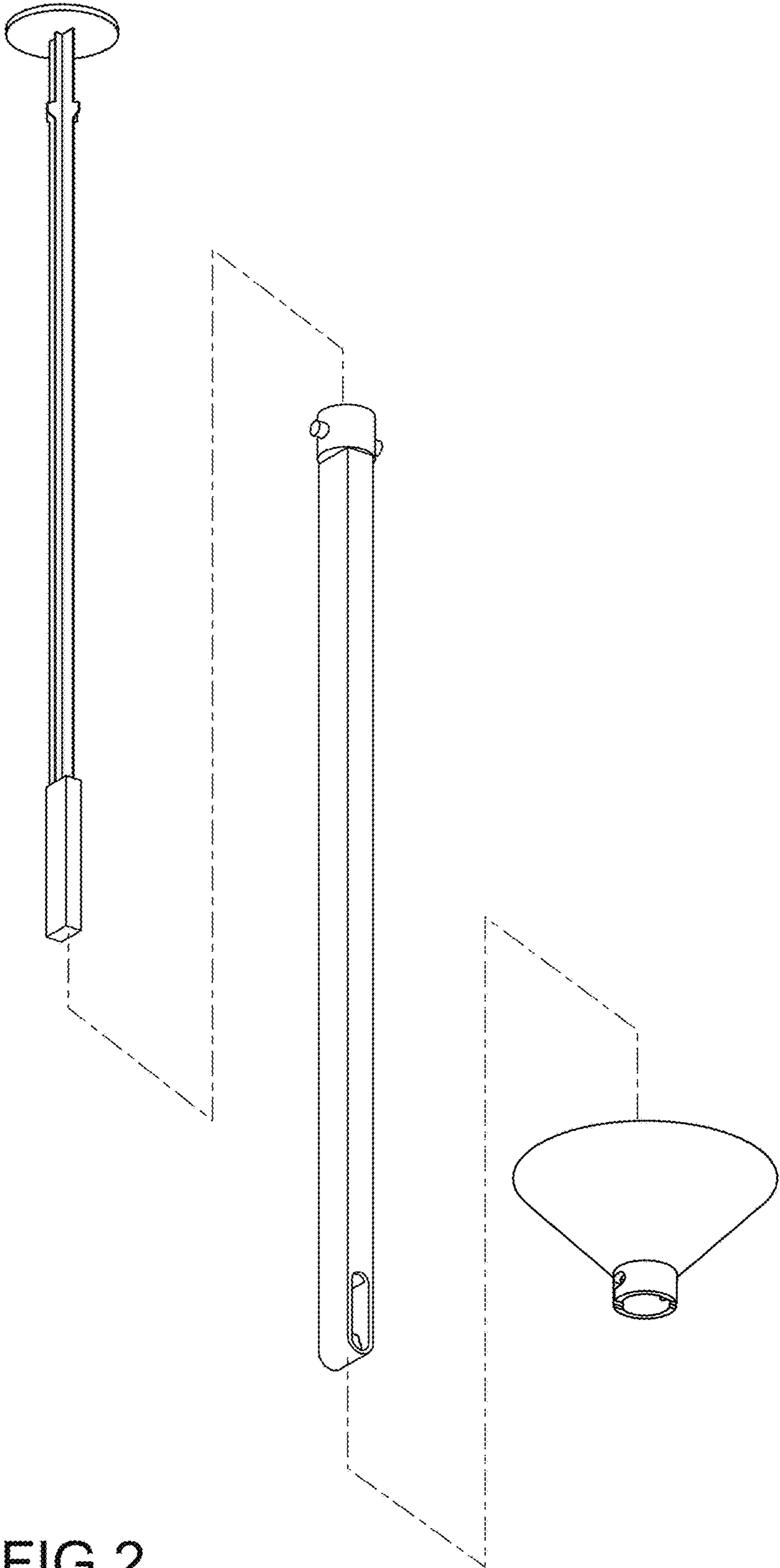


FIG.2

FIG.3

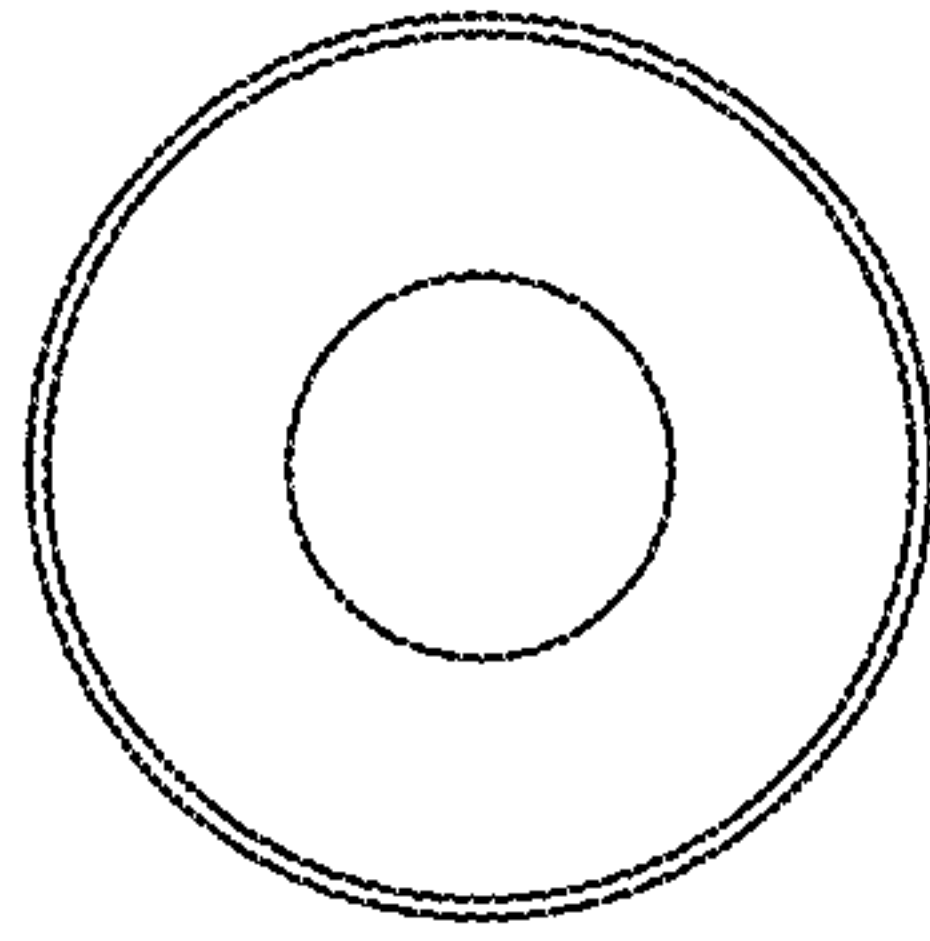


FIG.4

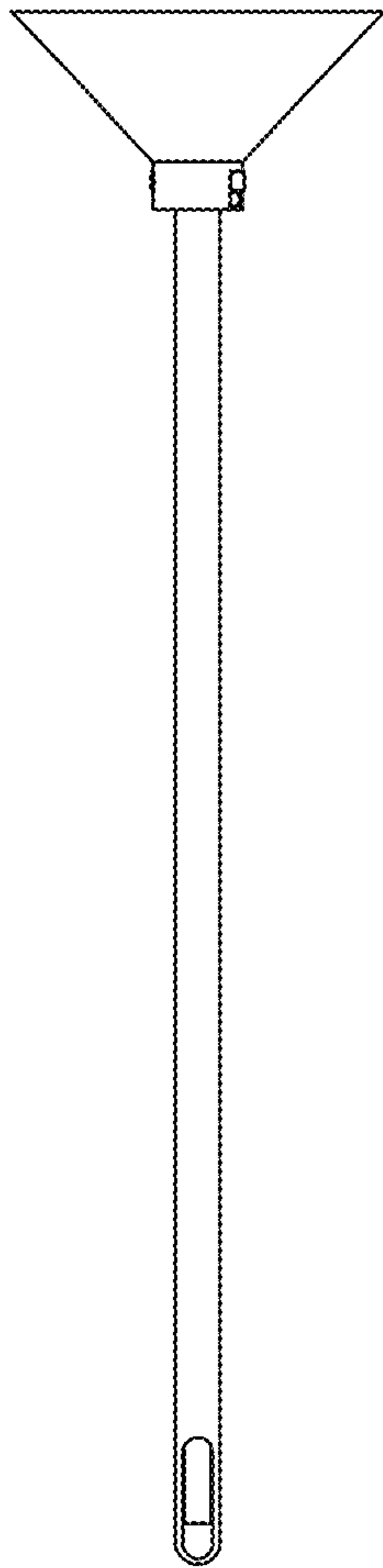


FIG.5

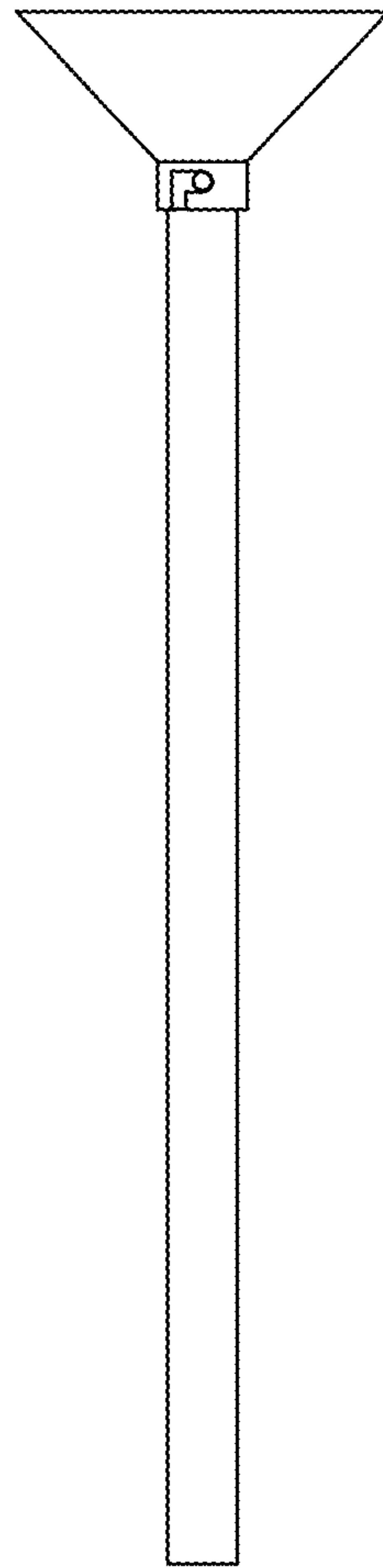
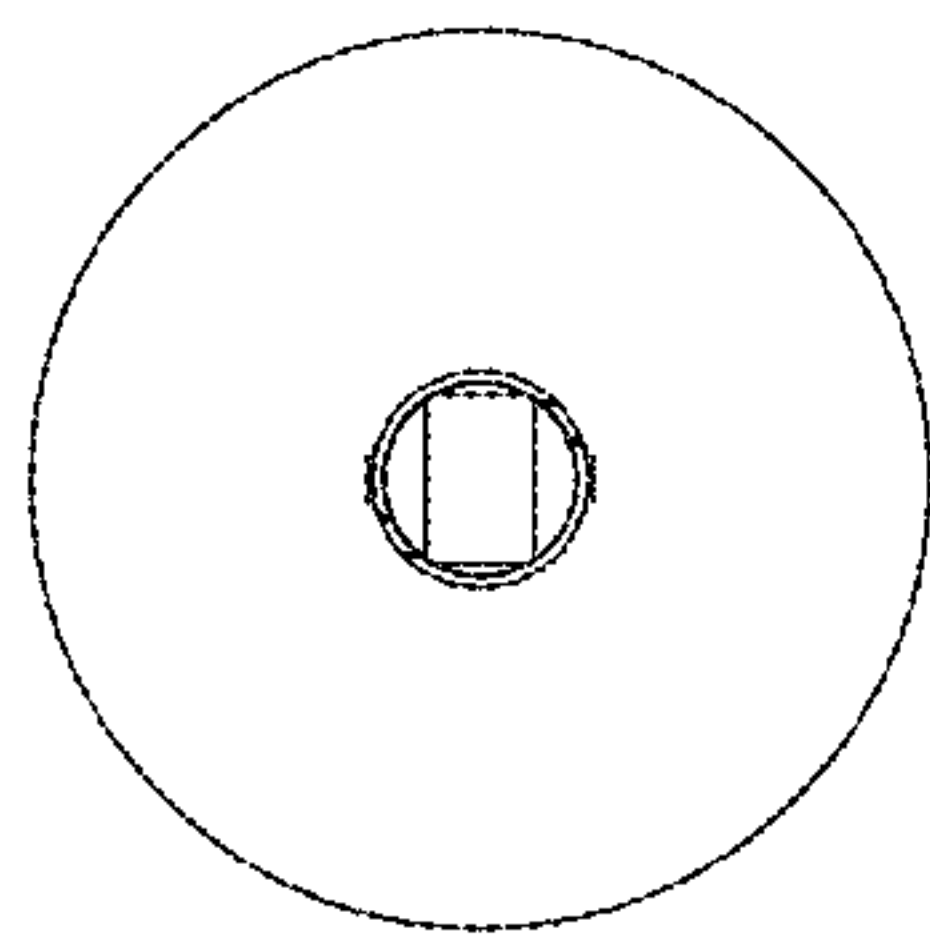


FIG.6





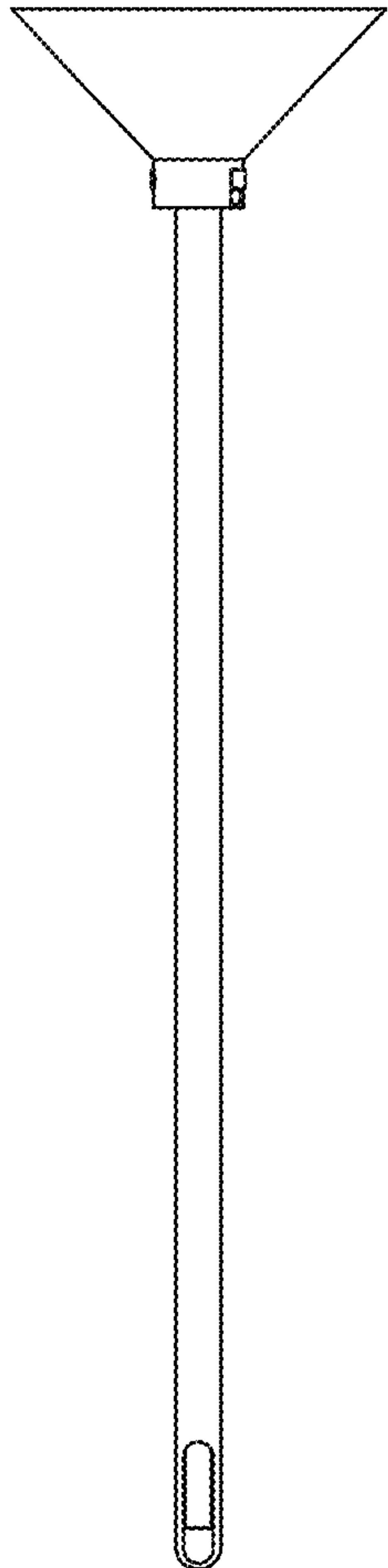


FIG. 7

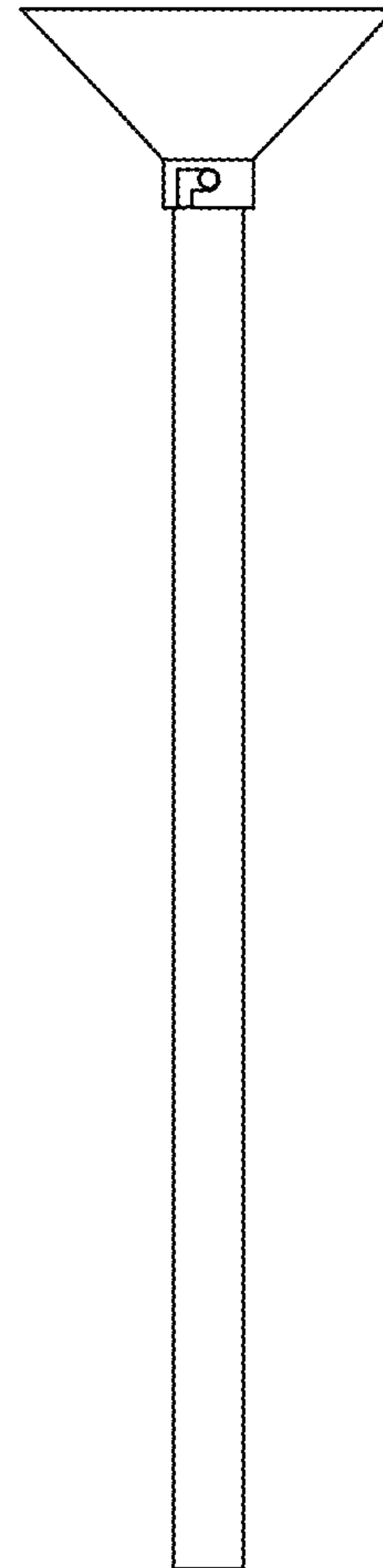


FIG. 8

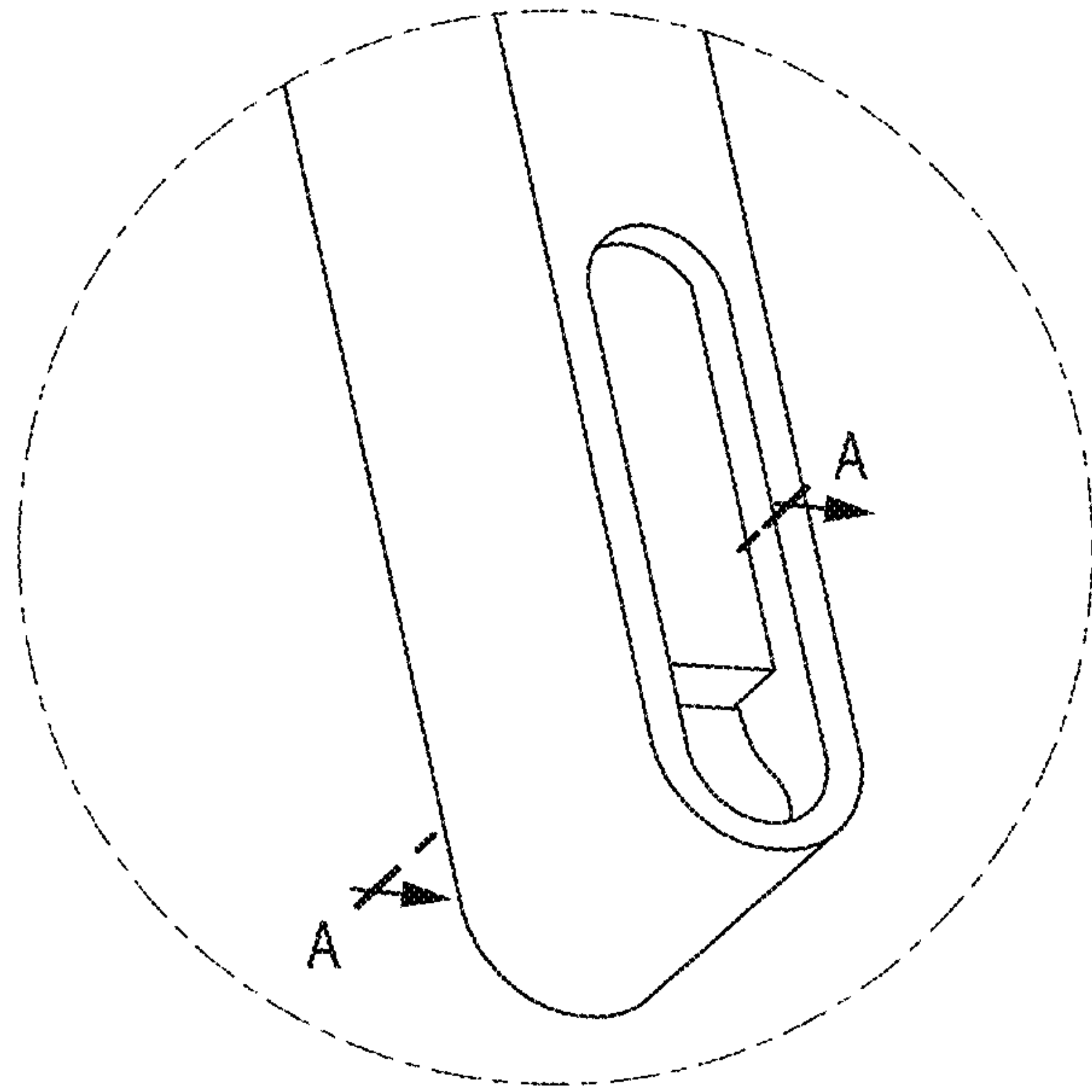


FIG. 9

SECTION A-A

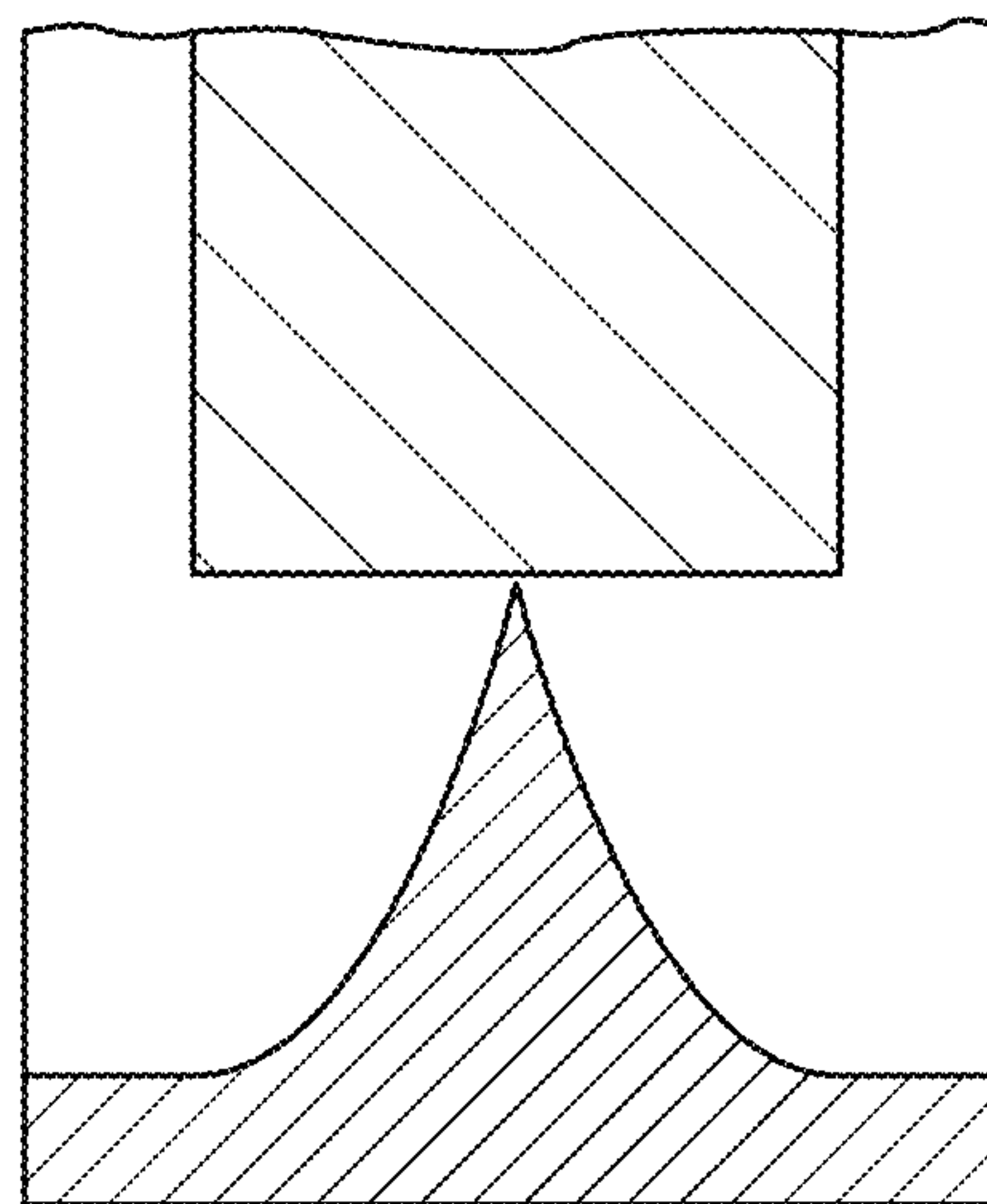


FIG. 10