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(54) **TISSUE MARKER FOR INTRACORPOREAL SITE IDENTIFICATION**

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(58) **Field of Classification Search**

USPC D24/158-161, 140, 155; 378/162-165;
600/414, 420, 426; D20/22, 23; D11/1,
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,899,362 A 8/1959 Sieger, Jr. et al.
2,907,327 A 10/1959 White

(Continued)

FOREIGN PATENT DOCUMENTS

DE 1029528 B 5/1958
EP 0146699 A1 7/1985

(Continued)

OTHER PUBLICATIONS

Press release for Biopsys Ethicon Endo-Surgery (Europe) GmbH; The Mammotome Vacuum Biopsy System. From: <http://www.medicine-news.com/articles/devices/mammotome.html>. 3 pages, Available in 2000.

(Continued)

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(57) **CLAIM**

The ornamental design for a tissue marker for intracorporeal site identification, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a tissue marker for intracorporeal site identification showing the new design, as viewed from the front lower right;

FIG. 2 is a perspective view of the tissue marker, as viewed from the rear upper right;

FIG. 3 is a perspective view of the tissue marker, as viewed from the rear lower right;

FIG. 4 is a perspective view of the tissue marker of FIG. 3, rotated clockwise 90 degrees;

FIG. 5 is a front view of the tissue marker;

FIG. 6 is a right side view of the tissue marker;

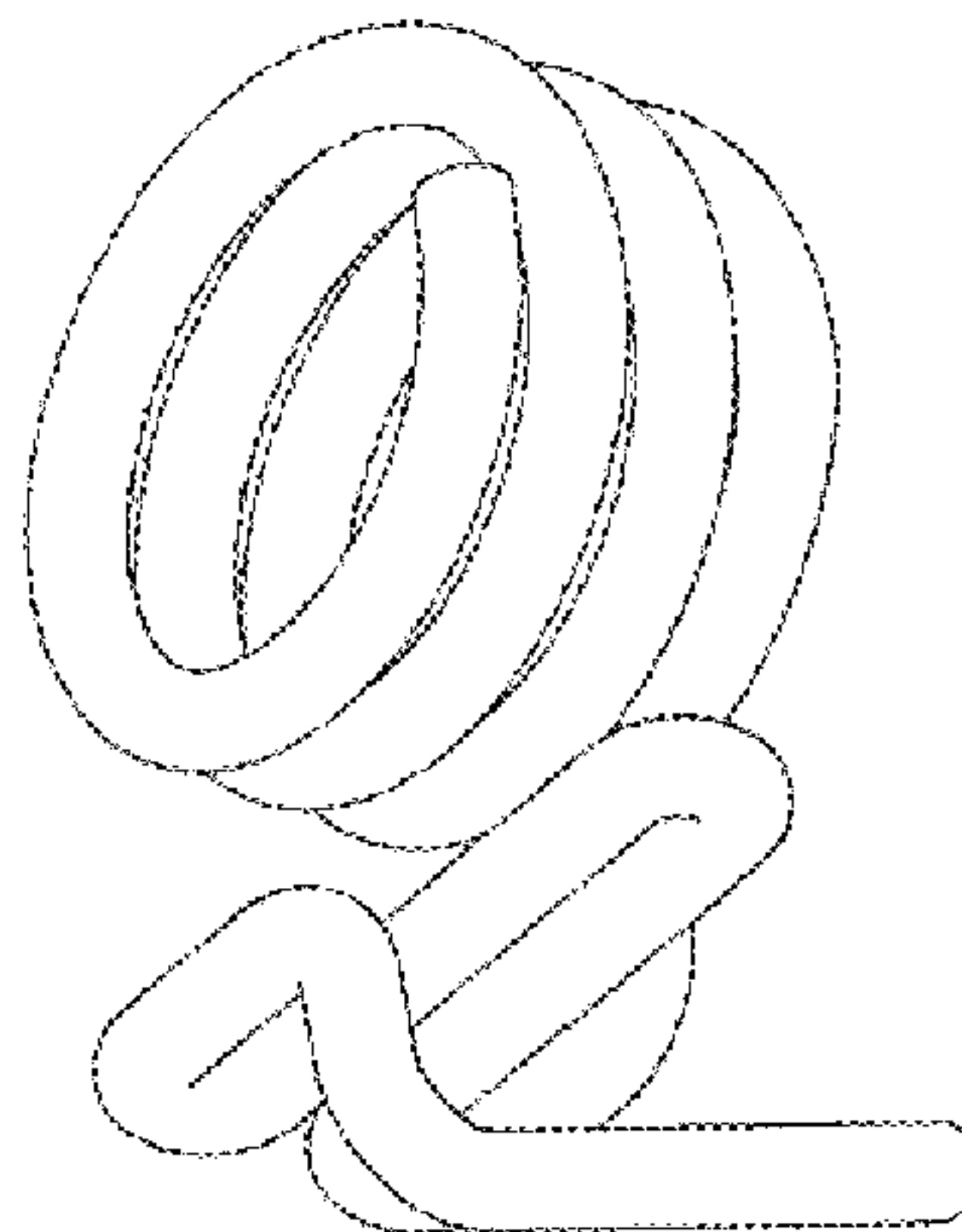
FIG. 7 is a left side view of the tissue marker;

FIG. 8 is a top view of the tissue marker; and,

FIG. 9 is a bottom view of the tissue marker.

Terms used above with respect to orientation, e.g., front, rear, upper, lower, right, left, top, bottom, etc., are terms of convenience used to distinguish between the various views, and are not necessarily reflective of the orientation of the tissue marker before or after being placed at the intracorporeal site. Preferably, the largest dimension of the tissue marker is less than 5 millimeters.

1 Claim, 2 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

3,005,457 A	10/1961	Millman		5,195,540 A	3/1993	Shiber
3,402,712 A	9/1968	Eisenhand		5,197,482 A	3/1993	Rank et al.
3,516,412 A	6/1970	Ackerman		5,197,846 A	3/1993	Uno et al.
3,818,894 A	6/1974	Wichterle et al.		5,199,441 A	4/1993	Hogle
3,820,545 A	6/1974	Jefferts		5,219,339 A	6/1993	Saito
3,823,212 A	7/1974	Chvapil		5,221,269 A	6/1993	Miller et al.
3,921,632 A	11/1975	Bardani		5,231,615 A	7/1993	Endoh
4,005,699 A	2/1977	Bucalo		5,234,426 A	8/1993	Rank et al.
4,007,732 A	2/1977	Kvavle et al.		5,236,410 A	8/1993	Granov et al.
4,041,931 A	8/1977	Elliott et al.		5,242,759 A	9/1993	Hall
4,103,690 A	8/1978	Harris		5,250,026 A	10/1993	Ehrlich et al.
4,105,030 A	8/1978	Kercso		5,271,961 A	12/1993	Mathiowitz et al.
4,127,774 A *	11/1978	Gillen	378/165	5,273,532 A	12/1993	Niezink et al.
4,172,449 A	10/1979	LeRoy et al.		5,280,788 A	1/1994	Janes et al.
4,197,846 A	4/1980	Bucalo		5,281,197 A	1/1994	Arias et al.
4,217,889 A	8/1980	Radovan et al.		5,281,408 A	1/1994	Unger
D259,056 S *	4/1981	Zwart	D24/158	5,282,781 A	2/1994	Liprie
4,276,885 A	7/1981	Tickner et al.		5,284,479 A	2/1994	de Jong
4,294,241 A	10/1981	Miyata		5,289,831 A	3/1994	Bosley
4,298,998 A	11/1981	Naficy		5,320,100 A	6/1994	Herweck et al.
4,331,654 A	5/1982	Morris		5,320,613 A	6/1994	Houge et al.
4,390,018 A	6/1983	Zukowski		5,328,955 A	7/1994	Rhee et al.
4,400,170 A	8/1983	McNaughton et al.		5,334,381 A	8/1994	Unger
4,401,124 A	8/1983	Guess et al.		5,344,640 A	9/1994	Deutsch et al.
4,405,314 A	9/1983	Cope		5,353,804 A	10/1994	Kornberg et al.
4,428,082 A	1/1984	Naficy		5,354,623 A	10/1994	Hall
4,438,253 A	3/1984	Casey et al.		5,358,514 A	10/1994	Schulman et al.
4,442,843 A	4/1984	Rasor et al.		5,366,756 A	11/1994	Chesterfield et al.
4,470,160 A	9/1984	Cavon		5,368,030 A	11/1994	Zinreich et al.
4,487,209 A	12/1984	Mehl		5,388,588 A	2/1995	Nabai et al.
4,545,367 A	10/1985	Tucci		5,394,875 A	3/1995	Lewis et al.
4,549,560 A	10/1985	Andis		5,395,319 A	3/1995	Hirsch et al.
4,582,061 A	4/1986	Fry		5,409,004 A	4/1995	Sloan
4,582,640 A	4/1986	Smestad et al.		5,417,708 A	5/1995	Hall et al.
D283,807 S *	5/1986	Dobbins	D11/79	5,422,730 A	6/1995	Barlow et al.
4,588,395 A	5/1986	Lemelson		5,425,366 A	6/1995	Reinhardt et al.
4,597,753 A	7/1986	Turley		5,431,639 A	7/1995	Shaw
4,647,480 A	3/1987	Ahmed		5,433,204 A	7/1995	Olson
4,655,226 A	4/1987	Lee		5,449,560 A	9/1995	Antheunis et al.
4,661,103 A	4/1987	Harman		5,451,406 A	9/1995	Lawin et al.
4,682,606 A	7/1987	DeCaprio		5,458,643 A	10/1995	Oka et al.
4,693,237 A	9/1987	Hoffman et al.		5,460,182 A	10/1995	Goodman et al.
4,740,208 A	4/1988	Cavon		5,469,847 A	11/1995	Zinreich et al.
4,762,128 A	8/1988	Rosenbluth		5,475,052 A	12/1995	Rhee et al.
4,813,062 A	3/1989	Gilpatrick		5,490,521 A	2/1996	Davis et al.
4,820,267 A	4/1989	Harman		5,494,030 A	2/1996	Swartz et al.
4,832,680 A	5/1989	Haber et al.		5,499,989 A	3/1996	LaBash
4,832,686 A	5/1989	Anderson		5,507,807 A	4/1996	Shippert
4,847,049 A	7/1989	Yamamoto		5,508,021 A	4/1996	Grinstaff et al.
4,863,470 A	9/1989	Carter		5,514,085 A	5/1996	Yoon
4,870,966 A	10/1989	Dellon et al.		5,522,896 A	6/1996	Prescott
4,874,376 A	10/1989	Hawkins, Jr.		5,538,726 A	7/1996	Order
4,889,707 A	12/1989	Day et al.		5,542,915 A	8/1996	Edwards et al.
4,909,250 A	3/1990	Smith		5,545,180 A	8/1996	Le et al.
4,938,763 A	7/1990	Dunn et al.		5,549,560 A	8/1996	Van de Wijdeven
4,950,234 A	8/1990	Fujioka et al.		RE35,391 E	12/1996	Brauman
4,950,665 A	8/1990	Floyd		5,580,568 A	12/1996	Greff et al.
4,963,150 A	10/1990	Brauman		5,585,112 A	12/1996	Unger et al.
4,970,298 A	11/1990	Silver et al.		5,611,352 A	3/1997	Kobren et al.
4,989,608 A	2/1991	Ratner		5,626,611 A	5/1997	Liu et al.
4,994,013 A	2/1991	Suthanthiran et al.		5,628,781 A	5/1997	Williams et al.
4,994,028 A	2/1991	Leonard et al.		5,629,008 A	5/1997	Lee
5,012,818 A	5/1991	Joishy		5,636,255 A	6/1997	Ellis
5,018,530 A	5/1991	Rank et al.		5,643,246 A	7/1997	Leeb et al.
5,035,891 A	7/1991	Runkel et al.		5,646,146 A	7/1997	Faarup et al.
5,059,197 A	10/1991	Urie et al.		5,657,366 A	8/1997	Nakayama
5,081,997 A	1/1992	Bosley, Jr. et al.		5,665,092 A	9/1997	Mangiardi et al.
5,120,802 A	6/1992	Mares et al.		5,667,767 A	9/1997	Greff et al.
5,125,413 A	6/1992	Baran		5,669,882 A	9/1997	Pyles
5,137,928 A	8/1992	Erbel et al.		5,673,841 A	10/1997	Schulze et al.
5,141,748 A	8/1992	Rizzo		5,676,146 A	10/1997	Scarborough
5,147,307 A	9/1992	Gluck		5,676,925 A	10/1997	Klaveness et al.
5,147,631 A	9/1992	Glajch et al.		5,688,490 A	11/1997	Tournier et al.
5,162,430 A	11/1992	Rhee et al.		5,690,120 A	11/1997	Jacobsen et al.
5,163,896 A	11/1992	Suthanthiran et al.		5,695,480 A	12/1997	Evans et al.
				5,702,128 A	12/1997	Maxim et al.
				5,702,716 A	12/1997	Dunn et al.
				5,716,981 A	2/1998	Hunter et al.
				5,747,060 A	5/1998	Sackler et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

5,762,903	A	6/1998	Park et al.	6,183,497	B1	2/2001	Sing et al.
5,769,086	A	6/1998	Ritchart et al.	6,190,350	B1	2/2001	Davis et al.
5,776,496	A	7/1998	Violante et al.	6,190,353	B1	2/2001	Makower et al.
5,779,647	A	7/1998	Chau et al.	6,200,258	B1	3/2001	Slater et al.
5,782,764	A	7/1998	Werne	6,203,524	B1	3/2001	Burney et al.
5,782,771	A	7/1998	Hussman	6,203,568	B1	3/2001	Lombardi et al.
5,782,775	A	7/1998	Milliman et al.	6,213,957	B1	4/2001	Milliman et al.
5,795,308	A	8/1998	Russin	6,214,045	B1	4/2001	Corbitt, Jr. et al.
5,799,099	A	8/1998	Wang et al.	6,214,315	B1	4/2001	Greff et al.
5,800,362	A	9/1998	Kobren et al.	6,220,248	B1	4/2001	Voegelé et al.
5,800,389	A	9/1998	Burney et al.	6,224,630	B1	5/2001	Bao et al.
5,800,445	A	9/1998	Ratcliff et al.	6,228,049	B1	5/2001	Schroeder et al.
5,800,541	A	9/1998	Rhee et al.	6,228,055	B1	5/2001	Foerster et al.
5,817,022	A	10/1998	Vesely	6,231,615	B1	5/2001	Preissman
5,820,918	A	10/1998	Ronan et al.	6,234,177	B1	5/2001	Barsch
5,821,184	A	10/1998	Haines et al.	6,241,687	B1	6/2001	Voegelé et al.
5,823,198	A	10/1998	Jones et al.	6,241,734	B1	6/2001	Scribner et al.
5,824,042	A	10/1998	Lombardi et al.	6,251,135	B1	6/2001	Stinson et al.
5,824,081	A	10/1998	Knapp et al.	6,251,418	B1	6/2001	Ahern et al.
5,826,776	A	10/1998	Schulze et al.	6,261,243	B1	7/2001	Burney et al.
5,830,178	A	11/1998	Jones et al.	6,261,302	B1	7/2001	Voegelé et al.
5,842,477	A	12/1998	Naughton et al.	6,264,917	B1	7/2001	Klaveness et al.
5,842,999	A	12/1998	Pruitt et al.	6,270,464	B1	8/2001	Fulton, III et al.
5,845,646	A	12/1998	Lemelson	6,270,472	B1	8/2001	Antaki et al.
5,846,220	A	12/1998	Elsberry	6,287,278	B1	9/2001	Woehr et al.
5,851,508	A	12/1998	Greff et al.	6,287,332	B1	9/2001	Bolz et al.
5,853,366	A	12/1998	Dowlatshahi	6,289,229	B1	9/2001	Crowley
5,865,806	A	2/1999	Howell	6,306,154	B1	10/2001	Hudson et al.
5,869,080	A	2/1999	McGregor et al.	6,312,429	B1	11/2001	Burbank et al.
5,871,501	A	2/1999	Leschinsky et al.	6,316,522	B1	11/2001	Loomis et al.
5,876,340	A	3/1999	Tu et al.	6,335,029	B1	1/2002	Kamath et al.
5,879,357	A	3/1999	Heaton et al.	6,336,904	B1	1/2002	Nikolchev
5,891,558	A	4/1999	Bell et al.	6,340,367	B1	1/2002	Stinson et al.
5,897,507	A	4/1999	Kortenbach et al.	6,343,227	B1	1/2002	Crowley
5,902,310	A	5/1999	Foerster et al.	6,347,240	B1	2/2002	Foley et al.
5,911,705	A	6/1999	Howell	6,347,241	B2	2/2002	Burbank et al.
5,916,164	A	6/1999	Fitzpatrick et al.	6,350,244	B1	2/2002	Fisher
5,921,933	A	7/1999	Sarkis et al.	6,350,274	B1	2/2002	Li
5,922,024	A	7/1999	Janzen et al.	6,354,989	B1	3/2002	Nudeshima
5,928,626	A	7/1999	Klaveness et al.	6,356,112	B1	3/2002	Tran et al.
5,928,773	A	7/1999	Andersen	6,356,782	B1	3/2002	Sirimanne et al.
5,941,439	A	8/1999	Kammerer et al.	6,358,217	B1	3/2002	Bourassa
5,941,890	A	8/1999	Voegelé et al.	6,363,940	B1	4/2002	Krag
5,942,209	A	8/1999	Leavitt et al.	6,371,904	B1	4/2002	Sirimanne et al.
5,948,425	A	9/1999	Janzen et al.	6,394,965	B1	5/2002	Klein
5,954,670	A	9/1999	Baker	6,403,758	B1	6/2002	Loomis
5,972,817	A	10/1999	Haines et al.	6,405,733	B1	6/2002	Fogarty et al.
5,980,564	A	11/1999	Stinson	6,409,742	B1	6/2002	Fulton, III et al.
5,989,265	A	11/1999	Bouquet De La Joliniere et al.	6,419,621	B1	7/2002	Sioshansi et al.
6,015,541	A	1/2000	Greff et al.	6,424,857	B1	7/2002	Henrichs et al.
6,030,333	A	2/2000	Sioshansi et al.	6,425,903	B1	7/2002	Voegelé
6,053,925	A	4/2000	Barnhart	6,427,081	B1	7/2002	Burbank et al.
6,056,700	A	5/2000	Burney et al.	6,436,030	B2	8/2002	Rehil
6,066,122	A	5/2000	Fisher	6,447,524	B1	9/2002	Knodel et al.
6,066,325	A	5/2000	Wallace et al.	6,447,527	B1	9/2002	Thompson et al.
6,071,301	A	6/2000	Cragg et al.	6,450,937	B1	9/2002	Mercereau et al.
6,071,310	A	6/2000	Picha et al.	6,450,938	B1	9/2002	Miller
6,071,496	A	6/2000	Stein et al.	6,471,700	B1	10/2002	Burbank et al.
6,090,996	A	7/2000	Li	6,478,790	B2	11/2002	Bardani
6,096,065	A	8/2000	Crowley	D466,827	S	12/2002	Fornas
6,096,070	A	8/2000	Ragheb et al.	6,506,156	B1	1/2003	Jones et al.
6,106,473	A	8/2000	Violante et al.	6,511,468	B1	1/2003	Cragg et al.
6,117,108	A	9/2000	Woehr et al.	6,537,193	B1	3/2003	Lennox
6,120,536	A	9/2000	Ding et al.	6,540,981	B2	4/2003	Klaveness et al.
6,135,993	A	10/2000	Hussman	6,544,185	B2	4/2003	Montegrando
6,142,955	A	11/2000	Farascioni et al.	6,544,231	B1	4/2003	Palmer et al.
6,159,240	A	12/2000	Sparer et al.	6,551,253	B2	4/2003	Worm et al.
6,159,445	A	12/2000	Klaveness et al.	6,554,760	B2	4/2003	Lamoureux et al.
6,161,034	A	12/2000	Burbank et al.	6,562,317	B2	5/2003	Greff et al.
6,162,192	A	12/2000	Cragg et al.	6,564,806	B1	5/2003	Fogarty et al.
6,166,079	A	12/2000	Follen et al.	6,565,551	B1	5/2003	Jones et al.
6,173,715	B1	1/2001	Sinanan et al.	6,567,689	B2	5/2003	Burbank et al.
6,174,330	B1	1/2001	Stinson	6,575,888	B2	6/2003	Zamora et al.
6,177,062	B1	1/2001	Stein et al.	6,575,991	B1	6/2003	Chesbrough et al.
6,181,960	B1	1/2001	Jensen et al.	6,585,773	B1	7/2003	Xie
				D478,836	S	8/2003	McCormack
				6,605,047	B2	8/2003	Zarins et al.
				6,610,026	B2	8/2003	Cragg et al.
				6,613,002	B1	9/2003	Clark et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

6,616,630 B1	9/2003	Woehr et al.	D590,741 S	4/2009	Gruosi-Scheufele
6,626,850 B1	9/2003	Chau et al.	7,527,610 B2	5/2009	Erickson
6,626,899 B2	9/2003	Houser et al.	7,534,452 B2	5/2009	Chernomorsky et al.
6,628,982 B1	9/2003	Thomas et al.	7,535,363 B2	5/2009	Gisselberg et al.
6,636,758 B2	10/2003	Sanchez et al.	D593,431 S	6/2009	Komenaka
6,638,234 B2	10/2003	Burbank et al.	7,565,191 B2	7/2009	Burbank et al.
6,638,308 B2	10/2003	Corbitt, Jr. et al.	7,569,065 B2	8/2009	Chesbrough et al.
6,652,442 B2	11/2003	Gatto	7,577,473 B2	8/2009	Davis et al.
6,656,192 B2	12/2003	Espositio et al.	D604,659 S	11/2009	Sandberg
6,659,933 B2	12/2003	Asano	D605,967 S	12/2009	Sandberg
6,662,041 B2	12/2003	Burbank et al.	7,637,948 B2	12/2009	Corbitt, Jr.
6,699,205 B2	3/2004	Fulton, III et al.	D608,237 S *	1/2010	Gruosi D11/79
6,712,774 B2	3/2004	Voegelé et al.	7,651,505 B2	1/2010	Lubock et al.
6,712,836 B1	3/2004	Berg et al.	7,668,582 B2	2/2010	Sirimanne et al.
6,716,444 B1	4/2004	Castro et al.	7,670,350 B2	3/2010	Selis
6,725,083 B1	4/2004	Burbank et al.	7,783,336 B2	8/2010	Macfarlane et al.
6,730,042 B2	5/2004	Fulton et al.	7,792,569 B2	9/2010	Burbank et al.
6,730,044 B2	5/2004	Stephens et al.	7,819,819 B2	10/2010	Quick et al.
6,746,661 B2	6/2004	Kaplan	7,819,820 B2	10/2010	Field et al.
6,746,773 B2	6/2004	Llanos et al.	D627,255 S *	11/2010	Wang D11/99
6,752,154 B2	6/2004	Fogarty et al.	D631,386 S *	1/2011	Ventura D11/79
6,766,186 B1	7/2004	Hoyns et al.	7,871,438 B2	1/2011	Corbitt, Jr.
6,774,278 B1	8/2004	Ragheb et al.	7,877,133 B2	1/2011	Burbank et al.
6,780,179 B2	8/2004	Lee et al.	D632,603 S *	2/2011	Krakoff D11/1
6,824,507 B2	11/2004	Miller	7,914,553 B2	3/2011	Ferree
6,824,527 B2	11/2004	Gollobin	D636,693 S	4/2011	Hegi
6,846,320 B2	1/2005	Ashby et al.	7,945,307 B2	5/2011	Lubock et al.
6,862,470 B2	3/2005	Burbank et al.	7,978,825 B2	7/2011	Ngo
6,863,685 B2	3/2005	Davila et al.	7,983,734 B2	7/2011	Jones et al.
D503,980 S	4/2005	Sayre et al.	D643,324 S	8/2011	Kim et al.
6,881,226 B2	4/2005	Corbitt, Jr. et al.	8,011,508 B2	9/2011	Seiler et al.
6,889,833 B2	5/2005	Seiler et al.	8,027,712 B2	9/2011	Sioshansi et al.
6,899,731 B2	5/2005	Li et al.	D646,994 S	10/2011	Kim et al.
6,918,927 B2	7/2005	Bates et al.	8,052,658 B2	11/2011	Field
6,936,014 B2	8/2005	Vetter et al.	8,052,708 B2	11/2011	Chesbrough et al.
6,939,318 B2	9/2005	Stenzel	8,064,987 B2 *	11/2011	Carr, Jr. 600/431
6,945,973 B2	9/2005	Bray	D656,053 S	3/2012	Bax Stas
6,951,564 B2	10/2005	Espositio et al.	8,128,641 B2	3/2012	Wardle
6,958,044 B2	10/2005	Burbank et al.	8,157,862 B2	4/2012	Corbitt, Jr.
D512,660 S	12/2005	Steshik	D661,398 S	6/2012	Dutschmann
6,992,233 B2	1/2006	Drake et al.	D668,987 S *	10/2012	Wang D11/79
6,993,375 B2	1/2006	Burbank et al.	8,306,602 B2	11/2012	Sirimanne et al.
6,994,712 B1	2/2006	Fisher et al.	8,311,610 B2	11/2012	Ranpura
6,996,433 B2	2/2006	Burbank et al.	8,320,993 B2	11/2012	Sirimanne et al.
7,001,341 B2	2/2006	Gellman et al.	8,320,994 B2	11/2012	Sirimanne et al.
7,008,382 B2	3/2006	Adams et al.	8,320,995 B2	11/2012	Schwamb, Jr.
7,014,610 B2	3/2006	Koulik	8,334,424 B2	12/2012	Szypka
7,025,765 B2	4/2006	Balbierz et al.	8,361,082 B2	1/2013	Jones et al.
7,041,047 B2	5/2006	Gellman et al.	8,401,622 B2	3/2013	Talpade et al.
7,044,957 B2	5/2006	Foerster et al.	8,414,602 B2	4/2013	Selis
7,047,063 B2	5/2006	Burbank et al.	D683,457 S	5/2013	Dutschmann
7,083,576 B2	8/2006	Zarins et al.	8,437,834 B2	5/2013	Carr, Jr.
D528,211 S *	9/2006	Solar et al. D24/158	8,442,623 B2	5/2013	Nicoson et al.
7,125,397 B2	10/2006	Woehr et al.	8,454,629 B2	6/2013	Selis
7,135,978 B2	11/2006	Gisselberg et al.	8,486,028 B2	7/2013	Field
7,160,258 B2	1/2007	Imran et al.	D692,137 S	10/2013	Sicarelli
7,172,549 B2	2/2007	Slater et al.	8,579,931 B2	11/2013	Chesbrough et al.
7,189,206 B2	3/2007	Quick et al.	D695,900 S *	12/2013	Dutschmann D24/158
D542,171 S	5/2007	Olson	8,626,269 B2	1/2014	Jones et al.
7,214,211 B2	5/2007	Woehr et al.	8,626,270 B2	1/2014	Burbank et al.
7,229,417 B2	6/2007	Foerster et al.	8,639,315 B2	1/2014	Burbank et al.
7,236,816 B2	6/2007	Kumar et al.	2001/0006616 A1	7/2001	Leavitt et al.
D550,113 S	9/2007	Osterbaek	2002/0004060 A1	1/2002	Heublein et al.
7,264,613 B2	9/2007	Woehr et al.	2002/0016625 A1	2/2002	Falotico et al.
D552,735 S	10/2007	Archambault	2002/0022883 A1	2/2002	Burg
7,280,865 B2 *	10/2007	Adler 600/429	2002/0026201 A1	2/2002	Foerster et al.
7,294,118 B2	11/2007	Saulenas et al.	2002/0035324 A1	3/2002	Sirimanne et al.
7,297,725 B2	11/2007	Winterton et al.	2002/0045842 A1	4/2002	Van Bladel et al.
7,329,402 B2	2/2008	Unger et al.	2002/0052572 A1	5/2002	Franco et al.
7,329,414 B2	2/2008	Fisher et al.	2002/0055731 A1	5/2002	Atala et al.
7,407,054 B2	8/2008	Seiler et al.	2002/0058868 A1	5/2002	Hoshino et al.
7,416,533 B2	8/2008	Gellman et al.	2002/0058882 A1	5/2002	Fulton, III et al.
7,424,320 B2	9/2008	Chesbrough et al.	2002/0077687 A1	6/2002	Ahn
7,449,000 B2	11/2008	Adams et al.	2002/0082517 A1	6/2002	Klein
D589,391 S	3/2009	Sandberg	2002/0082519 A1	6/2002	Miller et al.
			2002/0082682 A1	6/2002	Barclay et al.
			2002/0082683 A1	6/2002	Stinson et al.
			2002/0095204 A1	7/2002	Thompson et al.
			2002/0095205 A1	7/2002	Edwin et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2002/0107437 A1 8/2002 Sirimanne et al.
 2002/0133148 A1 9/2002 Daniel et al.
 2002/0143359 A1 10/2002 Fulton, III et al.
 2002/0165608 A1 11/2002 Llanos et al.
 2002/0177776 A1 11/2002 Crawford Kellar et al.
 2002/0188195 A1 12/2002 Mills
 2002/0193815 A1 12/2002 Foerster et al.
 2002/0193867 A1 12/2002 Gladdish, Jr. et al.
 2003/0032969 A1 2/2003 Gannoe et al.
 2003/0036803 A1 2/2003 McGhan
 2003/0051735 A1 3/2003 Pavcnik et al.
 2003/0116806 A1 6/2003 Kato
 2003/0165478 A1 9/2003 Sokoll
 2003/0191355 A1 10/2003 Ferguson
 2003/0199887 A1 10/2003 Ferrera et al.
 2003/0225420 A1 12/2003 Wardle
 2003/0236573 A1 12/2003 Evans et al.
 2004/0001841 A1 1/2004 Nagavarapu et al.
 2004/0002650 A1 1/2004 Mandrusov et al.
 2004/0016195 A1 1/2004 Archuleta
 2004/0024304 A1 2/2004 Foerster et al.
 2004/0059341 A1 3/2004 Gellman et al.
 2004/0068312 A1 4/2004 Sigg et al.
 2004/0073284 A1 4/2004 Bates et al.
 2004/0097981 A1 5/2004 Selis
 2004/0101479 A1 5/2004 Burbank et al.
 2004/0101548 A1 5/2004 Pendharkar
 2004/0106891 A1 6/2004 Langan et al.
 2004/0116802 A1 6/2004 Jessop et al.
 2004/0127765 A1 7/2004 Seiler et al.
 2004/0133124 A1 7/2004 Bates et al.
 2004/0153074 A1 8/2004 Bojarski et al.
 2004/0162574 A1 8/2004 Viola
 2004/0167619 A1 8/2004 Case et al.
 2004/0204660 A1 10/2004 Fulton et al.
 2004/0210208 A1 10/2004 Paul et al.
 2004/0213756 A1 10/2004 Michal et al.
 2004/0236213 A1 11/2004 Jones et al.
 2004/0253185 A1 12/2004 Herweck et al.
 2004/0265371 A1 12/2004 Looney et al.
 2005/0020916 A1 1/2005 MacFarlane et al.
 2005/0033157 A1 2/2005 Klein et al.
 2005/0033195 A1 2/2005 Fulton et al.
 2005/0036946 A1 2/2005 Pathak et al.
 2005/0045192 A1 3/2005 Fulton et al.
 2005/0059887 A1 3/2005 Mostafavi et al.
 2005/0059888 A1 3/2005 Sirimanne et al.
 2005/0065354 A1 3/2005 Roberts
 2005/0065453 A1 3/2005 Shabaz et al.
 2005/0080337 A1 4/2005 Sirimanne et al.
 2005/0080339 A1 4/2005 Sirimanne et al.
 2005/0100580 A1 5/2005 Osborne et al.
 2005/0112151 A1 5/2005 Hornig
 2005/0113659 A1 5/2005 Pothier et al.
 2005/0119562 A1 6/2005 Jones et al.
 2005/0142161 A1 6/2005 Freeman et al.
 2005/0143650 A1 6/2005 Winkel
 2005/0165305 A1 7/2005 Foerster et al.
 2005/0175657 A1 8/2005 Hunter et al.
 2005/0181007 A1 8/2005 Hunter et al.
 2005/0208122 A1 9/2005 Allen et al.
 2005/0216018 A1 9/2005 Sennett
 2005/0234336 A1 10/2005 Beckman et al.
 2005/0268922 A1 12/2005 Conrad et al.
 2005/0273002 A1 12/2005 Goosen et al.
 2005/0277871 A1 12/2005 Selis
 2006/0004440 A1 1/2006 Stinson
 2006/0009800 A1 1/2006 Christianson et al.
 2006/0025677 A1 2/2006 Verard et al.
 2006/0025795 A1 2/2006 Chesbrough et al.
 2006/0036158 A1 2/2006 Field et al.
 2006/0036159 A1 2/2006 Sirimanne et al.
 2006/0074443 A1 4/2006 Foerster et al.
 2006/0079770 A1 4/2006 Sirimanne et al.
 2006/0079805 A1 4/2006 Miller et al.

2006/0079829 A1 4/2006 Fulton et al.
 2006/0079888 A1 4/2006 Mulier et al.
 2006/0122503 A1 6/2006 Burbank et al.
 2006/0155190 A1 7/2006 Burbank et al.
 2006/0173280 A1 8/2006 Goosen et al.
 2006/0173296 A1 8/2006 Miller et al.
 2006/0177379 A1 8/2006 Asgari
 2006/0217635 A1 9/2006 McCombs et al.
 2006/0235298 A1 10/2006 Kotmel et al.
 2006/0241385 A1 10/2006 Dietz
 2006/0241411 A1 10/2006 Field et al.
 2006/0292690 A1 12/2006 Liu et al.
 2007/0021642 A1 1/2007 Lamoureux et al.
 2007/0038145 A1 2/2007 Field
 2007/0083132 A1 4/2007 Sharrow
 2007/0106152 A1 5/2007 Kantrowitz et al.
 2007/0135711 A1 6/2007 Chernomorsky et al.
 2007/0142725 A1 6/2007 Hardin et al.
 2007/0167736 A1 7/2007 Dietz et al.
 2007/0167749 A1 7/2007 Yarnall et al.
 2007/0239118 A1 10/2007 Ono et al.
 2007/0276492 A1 11/2007 Andrews et al.
 2007/0287933 A1 12/2007 Phan et al.
 2008/0039819 A1 2/2008 Jones et al.
 2008/0058640 A1 3/2008 Jones et al.
 2008/0091120 A1 4/2008 Fisher
 2008/0097199 A1 4/2008 Mullen
 2008/0121242 A1 5/2008 Revie et al.
 2008/0188768 A1 8/2008 Zarins et al.
 2008/0249436 A1 10/2008 Darr
 2008/0269638 A1 10/2008 Cooke et al.
 2008/0294039 A1 11/2008 Jones et al.
 2009/0000629 A1 1/2009 Hornscheidt et al.
 2009/0024225 A1 1/2009 Stubbs
 2009/0030309 A1 1/2009 Jones et al.
 2009/0069713 A1 3/2009 Adams et al.
 2009/0076484 A1 3/2009 Fukaya
 2009/0131825 A1 5/2009 Burbank et al.
 2009/0171198 A1 7/2009 Jones et al.
 2009/0216118 A1 8/2009 Jones et al.
 2009/0287078 A1 11/2009 Burbank et al.
 2010/0010342 A1 1/2010 Burbank et al.
 2010/0030072 A1 2/2010 Casanova et al.
 2010/0042041 A1 2/2010 Tune et al.
 2010/0082102 A1 4/2010 Govil et al.
 2010/0094169 A1 4/2010 Lubock et al.
 2010/0198059 A1 8/2010 Burbank et al.
 2010/0204570 A1 8/2010 Lubock
 2010/0298696 A1 11/2010 Field et al.
 2010/0298698 A1 11/2010 Burbank et al.
 2010/0324416 A1 12/2010 Burbank et al.
 2011/0028836 A1 2/2011 Ranpura
 2011/0092815 A1 4/2011 Burbank et al.
 2011/0184280 A1 7/2011 Jones et al.
 2011/0184449 A1 7/2011 Lubock et al.
 2012/0078086 A1 3/2012 Hoffa
 2012/0078087 A1 3/2012 Curry
 2012/0078092 A1 3/2012 Jones et al.
 2012/0116215 A1 5/2012 Jones et al.
 2012/0179251 A1 7/2012 Corbitt, Jr.
 2012/0215230 A1 8/2012 Lubock et al.
 2012/0277859 A1 11/2012 Govil et al.
 2013/0144157 A1 6/2013 Jones et al.
 2013/0184562 A1 7/2013 Talpade et al.
 2013/0190616 A1 7/2013 Casanova et al.
 2013/0281847 A1 10/2013 Jones et al.
 2013/0289390 A1* 10/2013 Hermann et al. 600/424
 2013/0310686 A1 11/2013 Jones et al.
 2014/0058258 A1 2/2014 Chesbrough et al.
 2014/0094698 A1 4/2014 Burbank et al.
 2014/0114186 A1 4/2014 Burbank et al.

FOREIGN PATENT DOCUMENTS

EP 0255123 A2 2/1988
 EP 0292936 A2 11/1988
 EP 0458745 A1 11/1991
 EP 0475077 A2 3/1992
 EP 0552924 A1 7/1993

(56)

References Cited

FOREIGN PATENT DOCUMENTS

EP	0769281	A2	4/1997
EP	1114618	A2	7/2001
EP	1163888	A1	12/2001
EP	1281416	A2	6/2002
EP	1364628	A1	11/2003
EP	1493451	A1	1/2005
EP	1767167	A2	3/2007
FR	2646674	A3	11/1990
FR	2853521	A1	10/2004
GB	708148		4/1954
JP	2131757	A	5/1990
JP	2006516468	A	7/2006
JP	2007537017	A	12/2007
WO	8906978	A1	8/1989
WO	9112823	A1	9/1991
WO	9314712	A1	8/1993
WO	9317671	A1	9/1993
WO	9317718	A1	9/1993
WO	9416647	A1	8/1994
WO	9507057	A1	3/1995
WO	9806346	A1	2/1998
WO	9908607	A1	2/1999
WO	9935966	A1	7/1999
WO	9951143	A1	10/1999
WO	0023124	A1	4/2000
WO	0024332	A1	5/2000
WO	0028554	A1	5/2000
WO	0054689	A1	9/2000
WO	0108578	A1	2/2001
WO	0170114	A1	9/2001
WO	0207786	A2	1/2002
WO	0241786	A2	5/2002
WO	03000308	A1	1/2003
WO	2004045444	A2	6/2004
WO	2005013832	A1	2/2005
WO	2005089664	A1	9/2005
WO	2005112787	A2	12/2005
WO	2006012630	A2	2/2006
WO	2006056739	A2	6/2006
WO	2006097331	A2	9/2006
WO	2006105353	A2	10/2006
WO	2007067255	A1	6/2007
WO	2007069105	A2	6/2007
WO	2008077081	A2	6/2008

OTHER PUBLICATIONS

Johnson & Johnson: Breast Biopsy (minimally invasive): Surgical Technique: Steps in the Mamotome Surgical Procedure. From <http://www.jnjgateway.com>. 3 pages, Available in 1998.

Johnson & Johnson: New Minimally Invasive Breast Biopsy Device Receives Marketing Clearance in Canada; Aug. 6, 1999. From <http://www.jnjgateway.com>. 4 pages.

Johnson & Johnson: Mammotome Hand Held Receives FDA Marketing Clearance for Minimally Invasive Breast Biopsies; Sep. 1, 1999. From <http://www.jnjgateway.com>. 5 pages.

Johnson & Johnson: The Mammotome Breast Biopsy System. From: <http://www.breastcareinfo.com/aboutm.htm>. 6 pages, Available in 1998.

Cook Incorporated: Embolization and Occlusion. From: www.cookgroup.com 6 pages, Available in 1997.

Lieberman, Laura, et al. Percutaneous Removal of Malignant Mammographic Lesions at Stereotactic Vacuum-assisted Biopsy. From: The Departments of Radiology, Pathology, and Surgery. Memorial Sloan-Kettering Cancer Center. From the 1997 RSNA scientific assembly. vol. 206, No. 3. pp. 711-715.

International Search Report for PCT/US2009/000945 mailed Jul. 16, 2009.

Written Opinion of the International Searching Authority for PCT/US2009/000945 mailed Jul. 16, 2009.

International Search Report for PCT/US2007/016902 mailed Feb. 28, 2008.

International Search Report for PCT/US2007/016902 mailed Feb. 4, 2009.

Written Opinion of the International Searching Authority for PCT/US2007/016902 mailed Feb. 4, 2009.

International Search Report for PCT/US2007016918 mailed Nov. 26, 2007.

Written Opinion of the International Searching Authority for PCT/US2007016918 mailed Feb. 4, 2009.

Collagen—Definitions from Dictionary.com, Available since 1865.

Fibrous—Definitions from Dictionary.com, Available since 1620.

Armstrong, J.S., et al., "Differential marking of Excision Planes in Screened Breast lesions by Organically Coloured Gelatins", *Journal of Clinical Pathology*, Jul. 1990, No. 43 (7) pp. 604-607, XP000971447 abstract; tables 1,2.

Fucci, V., et al., "Large Bowel Transit Times Using Radioopaque Markers in Normal Cats", *J. of Am. Animal Hospital Assn.*, Nov.-Dec. 1995 31 (6) 473-477.

Schindlbeck, N.E., et al., "Measurement of Colon Transit Time", *J. of Gastroenterology*, No. 28, pp. 399-404, 1990.

Shiga, et al., Preparation of Poly(D, L-lactide) and Copoly(lactide-glycolide) Microspheres of Uniform Size, *J. Pharm. Pharmacol.* 1996 48:891-895.

Eiselt, P. et al, "Development of Technologies Aiding Large-Tissue Engineering", *Biotechnol. Prog.*, vol. 14, No. 1, pp. 134-140, 1998.

Fajardo, Laurie, et al., "Placement of Endovascular Embolization Microcoils to Localize the Site of Breast Lesions Removed at Stereotactic Core Biopsy", *Radiology*, Jan. 1998, pp. 275-278, vol. 206—No. 1.

H. J. Gent, M.D., et al., Stereotaxic Needle Localization and Cytological Diagnosis of Occult Breast Lesions, *Annals of Surgery*, Nov. 1986, pp. 580-584, vol. 204—No. 5.

Meuris, Bart, "Calcification of Aortic Wall Tissue in Prosthetic Heart Valves: Initiation, Influencing Factors and Strategies Towards Prevention", Thesis, 2007, pp. 21-36, Leuven University Press; Leuven, Belgium.

Jong-Won Rhie, et al. "Implantation of Cultured Preadipocyte Using Chitosan/Alginate Sponge", *Key Engineering Materials*, Jul. 1, 2007, pp. 346-352, XP008159356, ISSN: 0252-1059, DOI: 10.4028/www.scientific.net/KEM.342-343.349, Department of Plastic Surgery, College of Medicine, The Catholic University of Korea, Seoul Korea.

* cited by examiner

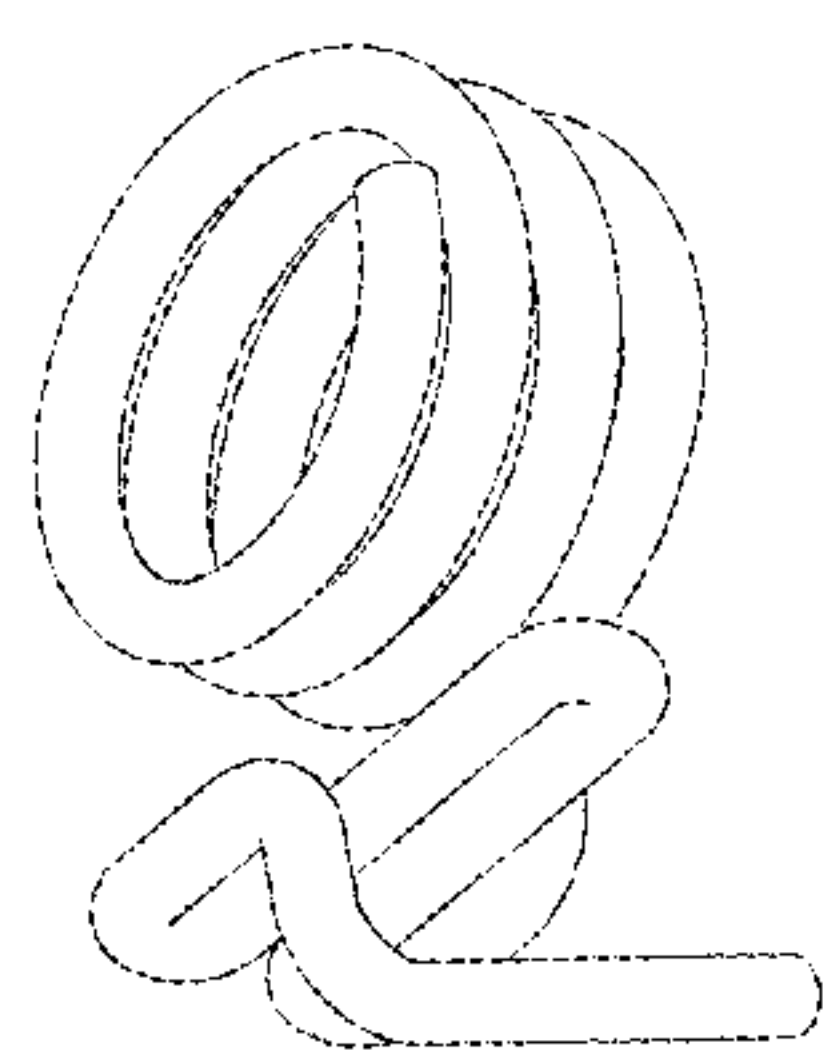


Fig. 1

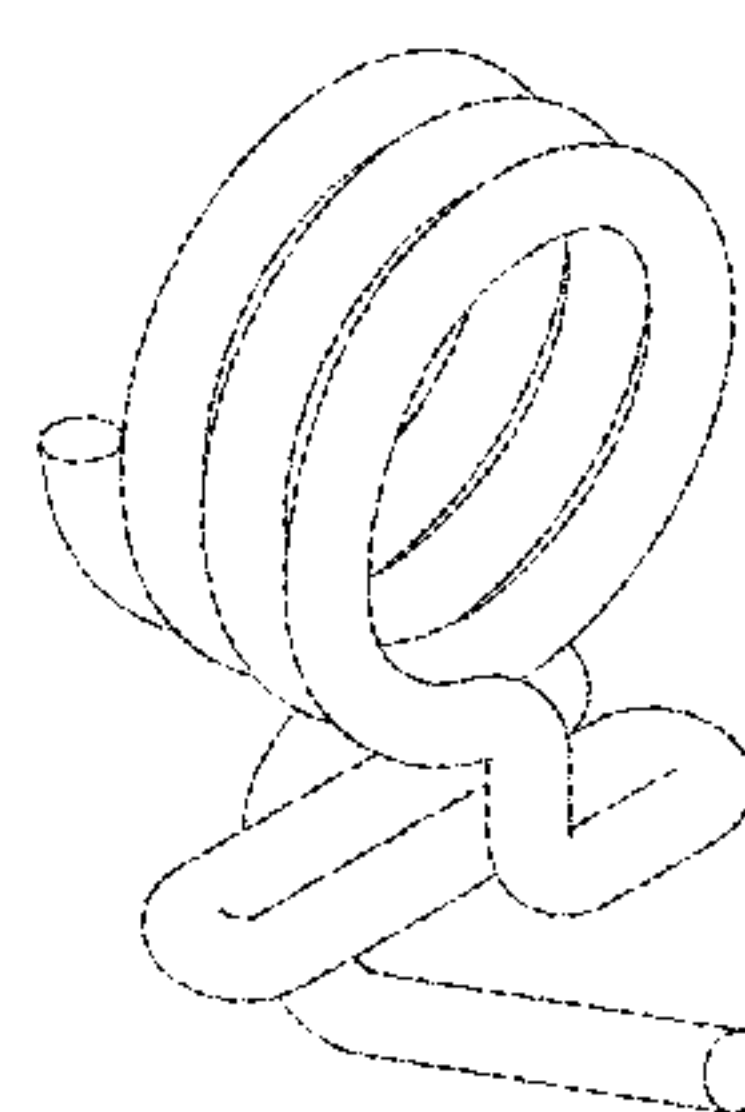


Fig. 2

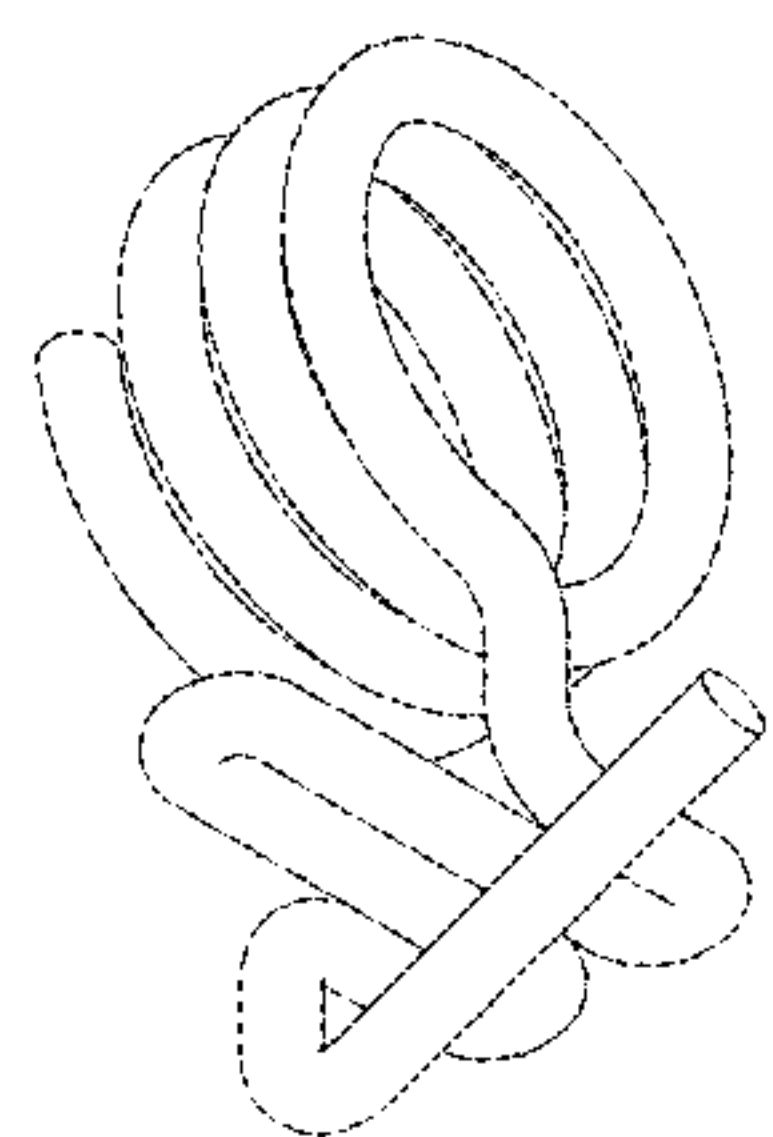


Fig. 3

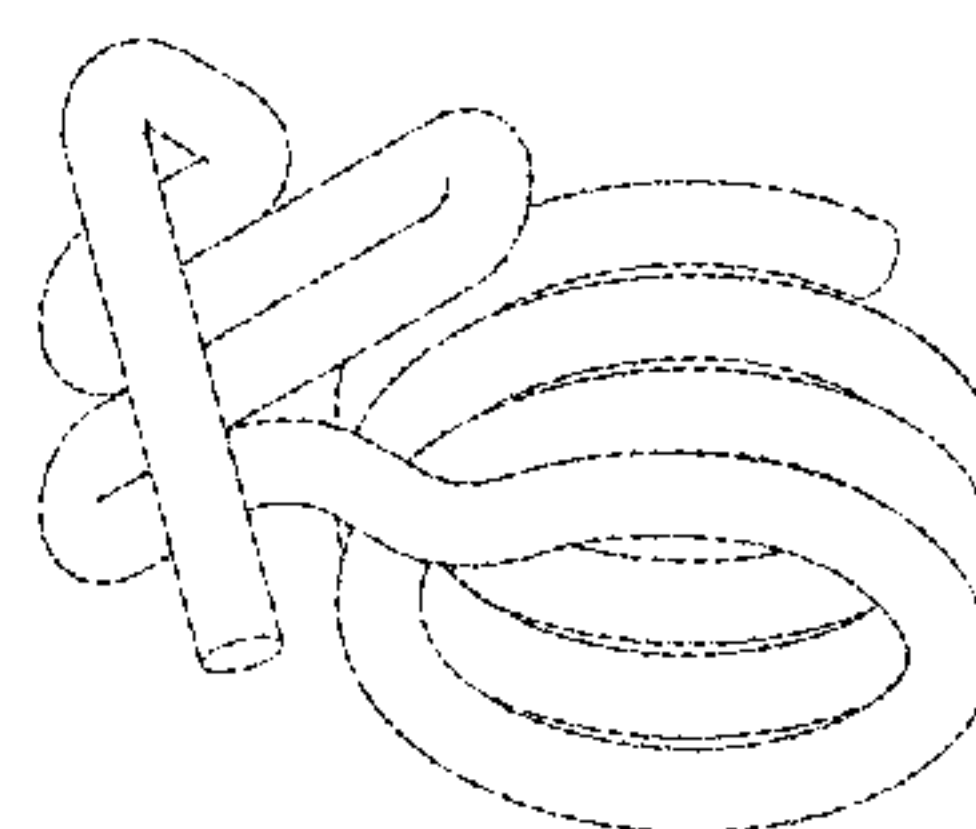


Fig. 4

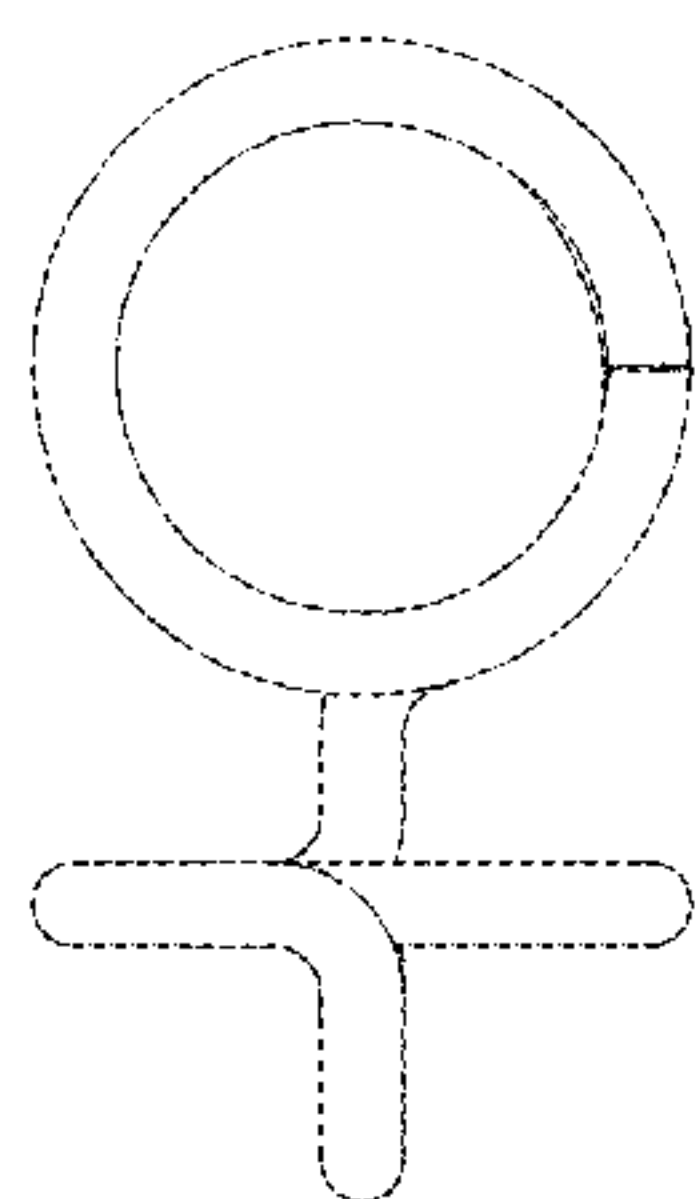


Fig. 5

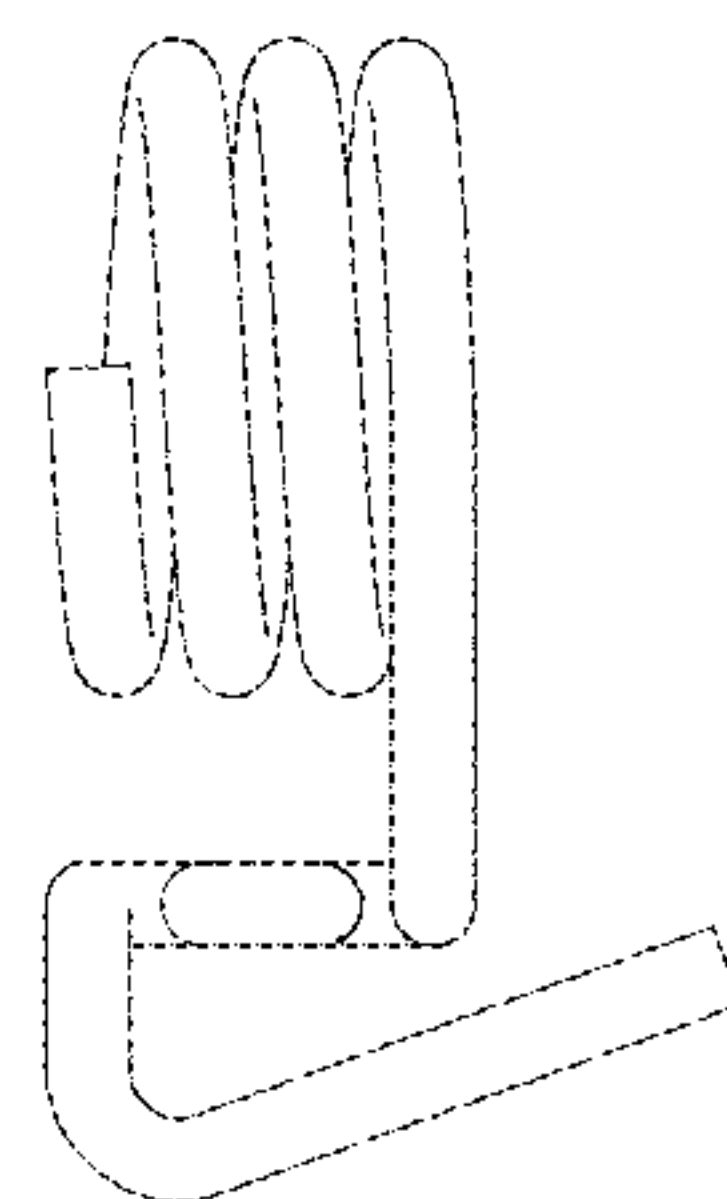


Fig. 6

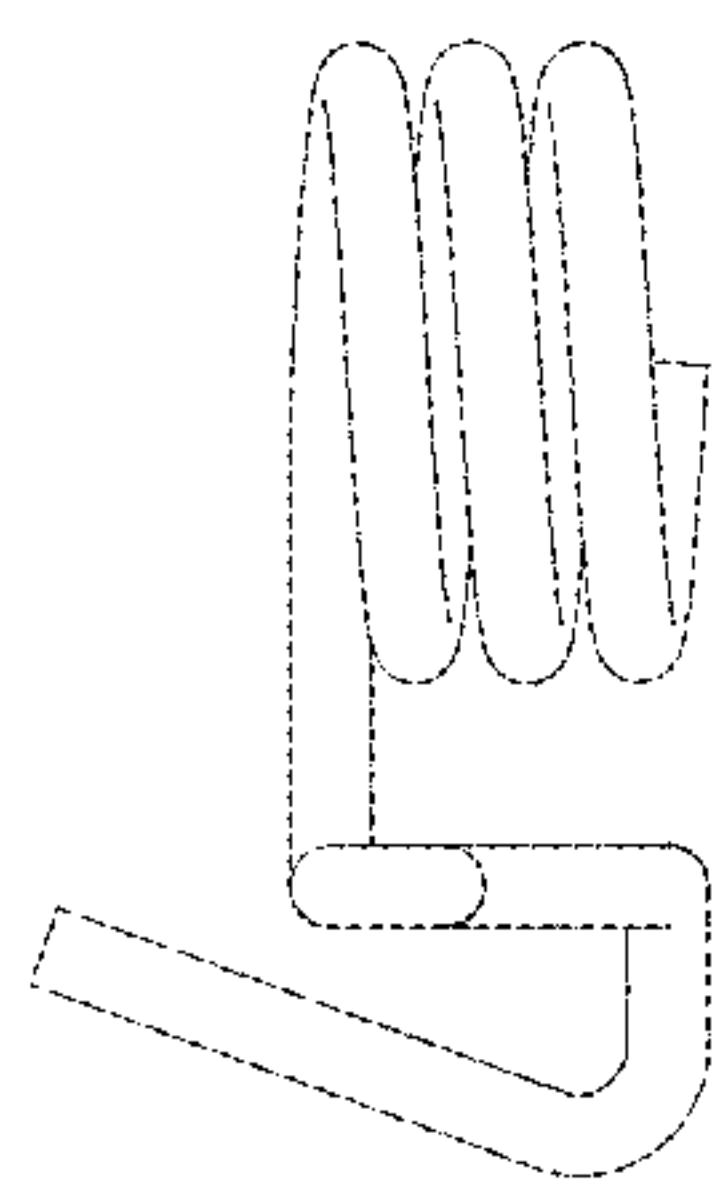


Fig. 7

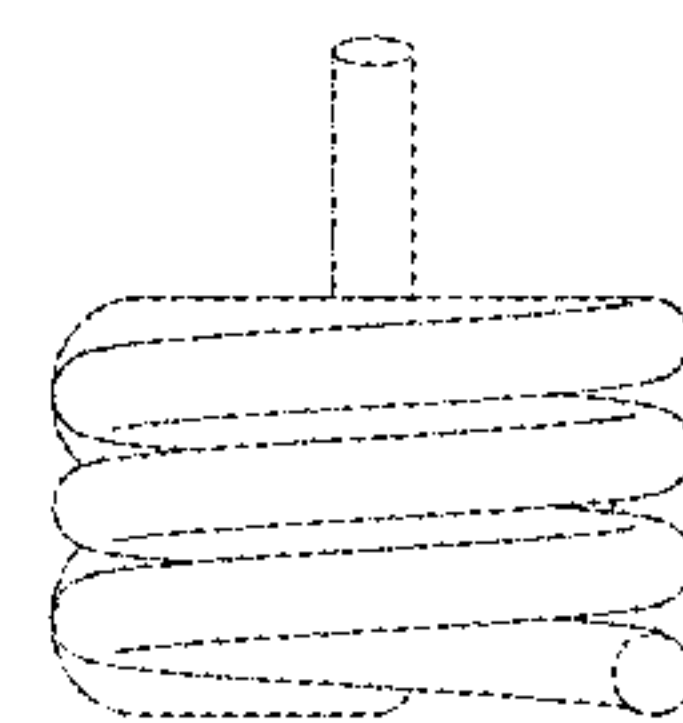


Fig. 8

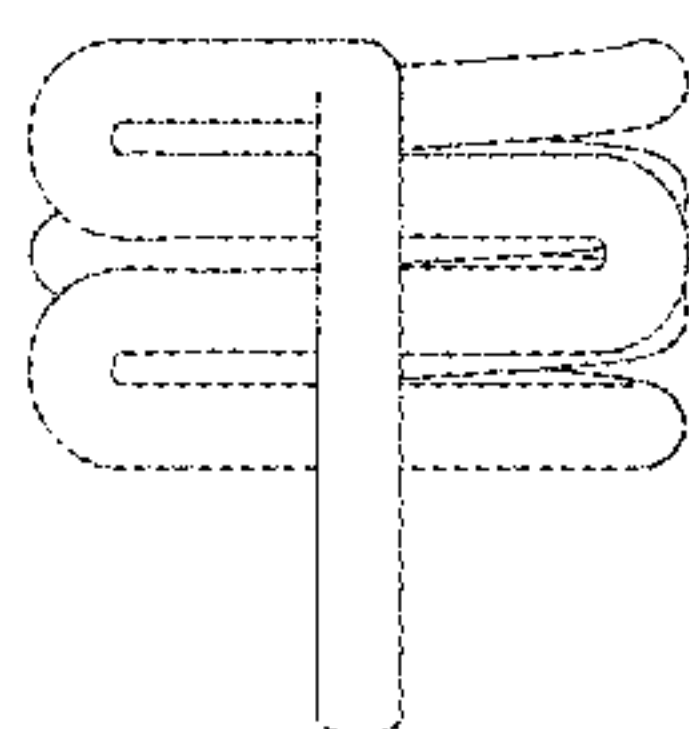


Fig. 9