US00D611144S

(12) United States Design Patent

Reynolds et al.

(10) Patent No.: US D611,144 S
(45) Date of Patent: ** *Mar. 2, 2010

(54) **APPARATUS FOR DELIVERING A CLOSURE ELEMENT**

(75) Inventors: **Timothy C. Reynolds**, Sunnyvale, CA (US); **Erik K. Walberg**, Redwood City, CA (US); **Anthony J. Pantages**, San Jose, CA (US); **Brian A. Ellingwood**, Sunnyvale, CA (US)

(73) Assignee: **Abbott Laboratories**, Abbott Park, IL (US)

(**) Term: **14 Years**

(21) Appl. No.: **29/296,370**

(22) Filed: **Oct. 18, 2007**

Related U.S. Application Data

(63) Continuation-in-part of application No. 11/427,297, filed on Jun. 28, 2006.

(51) **LOC (9) Cl.** **24-02**
(52) **U.S. Cl.** **D24/145**; D24/143; D24/146; D24/147
(58) **Field of Classification Search** D24/145, D24/143, 146, 147, 142, 144, 153; 606/205, 606/206, 207, 208, 167, 22, 69
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

287,046 A 10/1883 Norton

(Continued)

FOREIGN PATENT DOCUMENTS

CA 2 339 060 2/2000

(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 60/696,069, Jul. 1, 2005, Pantages et al.

(Continued)

Primary Examiner—Ian Simmons
Assistant Examiner—Christopher Lee
(74) *Attorney, Agent, or Firm*—Workman Nydegger

(57) **CLAIM**

The ornamental design for an apparatus for delivering a closure element, as shown and described.

DESCRIPTION

FIG. **1** is a perspective view of the apparatus for delivering a closure element, in accordance with an embodiment of the present invention:

FIG. **2** is a side view of the apparatus for delivering a closure element shown in FIG. **1**;

FIG. **3** is an opposing side view of the apparatus for delivering a closure element shown in FIG. **1**;

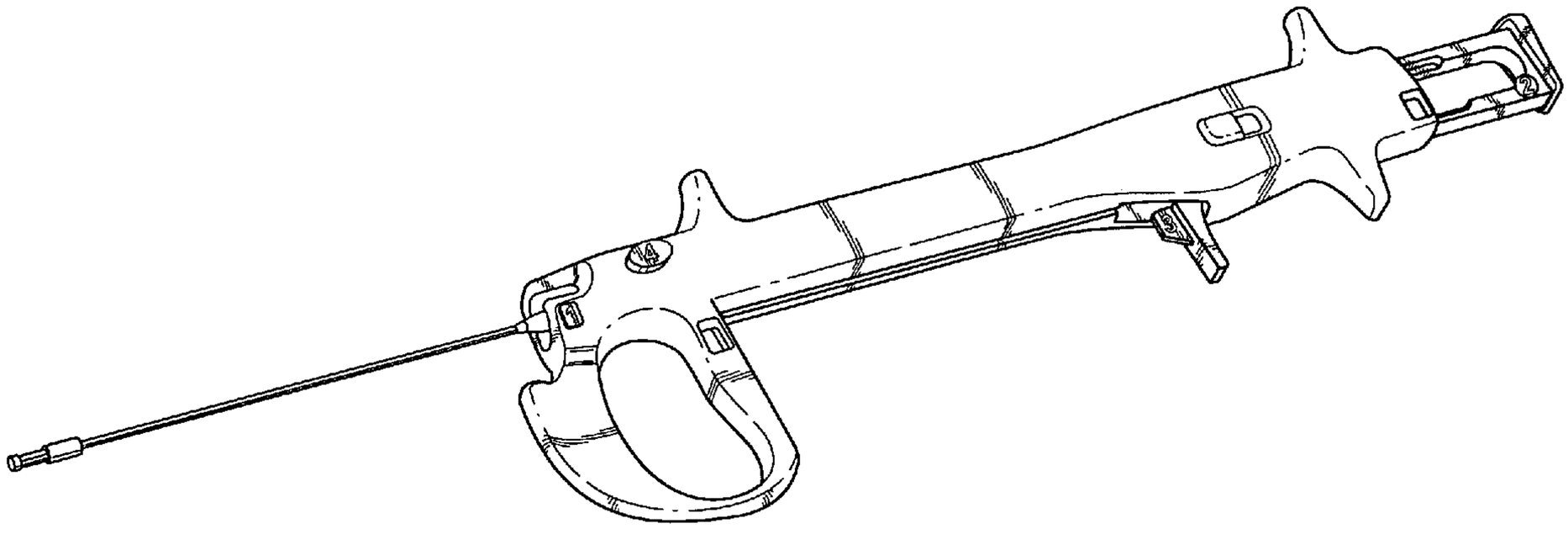
FIG. **4** is a top view of the apparatus for delivering a closure element shown in FIG. **1**;

FIG. **5** is a bottom view of the apparatus for delivering a closure element shown in FIG. **1**;

FIG. **6** is a front view of the apparatus for delivering a closure element shown in FIG. **1**; and,

FIG. **7** is a rear view of the apparatus for delivering a closure element shown in FIG. **1**.

1 Claim, 3 Drawing Sheets



U.S. PATENT DOCUMENTS

438,400	A	10/1890	Brennen
1,088,393	A	2/1914	Backus
1,331,401	A	2/1920	Summers
1,852,098	A	4/1932	Anderson
2,075,508	A	3/1937	Davidson
2,087,074	A	7/1937	Tucker
2,254,620	A	9/1941	MIller
2,316,297	A	4/1943	Southerland et al.
2,453,227	A	11/1948	James
2,583,625	A	1/1952	Bergan
2,684,070	A	7/1954	Kelsey
2,910,067	A	10/1959	White
2,944,311	A	7/1960	Schneckenberger
2,951,482	A	9/1960	Sullivan
2,969,887	A	1/1961	Darmstadt et al.
3,014,483	A	12/1961	McCarthy
3,015,403	A	1/1962	Fuller
3,113,379	A	12/1963	Frank
3,120,230	A	2/1964	Skold
3,142,878	A	8/1964	Santora
3,209,754	A	10/1965	Brown
3,482,428	A	12/1969	Kapitanov et al.
3,494,533	A	2/1970	Green et al.
3,513,848	A	5/1970	Winston et al
3,523,351	A	8/1970	Filia
3,525,340	A	8/1970	Gilbert
3,586,002	A	6/1971	Wood
3,604,425	A	9/1971	Le Roy
3,664,345	A	5/1972	Dabbs et al
3,677,243	A	7/1972	Nerz
3,732,719	A	5/1973	Pallotta
3,750,650	A	8/1973	Ruttgers
3,753,438	A	8/1973	Wood et al
3,757,629	A	9/1973	Schneider
3,805,337	A	4/1974	Branstetter
3,828,791	A	8/1974	Santos
3,831,608	A	8/1974	Kletschka et al
3,856,016	A	12/1974	Davis
3,908,662	A	9/1975	Razgulov et al
3,931,821	A	1/1976	Kletschka et al.
3,944,114	A	3/1976	Coppens
3,976,079	A	8/1976	Samuels et al.
4,014,492	A	3/1977	Rothfuss
4,064,881	A	12/1977	Meredith
4,169,476	A	10/1979	Hiltebrandt
4,192,315	A	3/1980	Hilzinger et al.
4,201,215	A	5/1980	Crossett et al.
4,204,541	A	5/1980	Kapitanov
4,207,870	A	6/1980	Eldridge
4,217,902	A	8/1980	March
4,278,091	A	7/1981	Borzone
4,287,489	A	9/1981	Pinkham
4,291,698	A	9/1981	Fuchs, deceased et al.
4,318,401	A	3/1982	Zimmerman
4,327,485	A	5/1982	Rix
4,345,606	A	8/1982	Littleford
4,368,736	A	1/1983	Kaster
4,387,489	A	6/1983	Dudek
4,396,139	A	8/1983	Hall et al.
4,411,654	A	10/1983	Boarini et al.
4,412,832	A	11/1983	Kling et al.
4,428,376	A	1/1984	Mericle
4,440,170	A	4/1984	Golden et al.
4,485,816	A	12/1984	Krumme
RE31,855	E	3/1985	Osborne
4,505,273	A	3/1985	Braun et al.
4,505,274	A	3/1985	Speelman
4,523,695	A	6/1985	Braun et al.
4,525,157	A	6/1985	Vaillancourt
4,526,174	A	7/1985	Froehlich
4,577,635	A	3/1986	Meredith
4,586,503	A	5/1986	Kirsch et al.
4,607,638	A	8/1986	Crainich
4,610,251	A	9/1986	Kumar
4,610,252	A	9/1986	Catalano
4,635,634	A	1/1987	Santos
4,644,956	A	2/1987	Morgenstern
4,665,906	A	5/1987	Jervis
4,667,675	A	5/1987	Davis
4,683,895	A	8/1987	Pohndorf
4,687,469	A	8/1987	Osypka
4,724,840	A	2/1988	McVay et al.
4,738,658	A	4/1988	Magro et al.
4,744,364	A	5/1988	Kensey
4,747,407	A	5/1988	Liu et al.
4,750,492	A	6/1988	Jacobs
4,759,364	A	7/1988	Boebel
4,771,782	A	9/1988	Millar
4,772,266	A	9/1988	Groshong
4,773,421	A	9/1988	Davis
4,777,950	A	10/1988	Kees, Jr.
4,789,090	A	12/1988	Blake, III
4,813,586	A	3/1989	Seifert
4,823,794	A	4/1989	Pierce
4,832,688	A	5/1989	Sagae et al.
4,836,204	A	6/1989	Landymore et al.
4,852,568	A	8/1989	Kensey
4,860,746	A	8/1989	Yoon
4,865,026	A	9/1989	Barrett
4,866,818	A	9/1989	Thompson
4,874,122	A	10/1989	Froelich et al.
4,878,915	A	11/1989	Brantigan
4,887,601	A	12/1989	Richards
4,917,087	A	4/1990	Walsh et al.
4,934,364	A	6/1990	Green
4,950,258	A	8/1990	Kawai et al.
4,957,499	A	9/1990	Lipatov et al.
4,997,439	A	3/1991	Chen
5,007,921	A	4/1991	Brown
5,009,663	A	4/1991	Broomé
5,015,247	A	5/1991	Michelson
5,021,059	A	6/1991	Kensey et al.
5,026,390	A	6/1991	Brown
5,032,127	A	7/1991	Frazee et al.
5,047,047	A	9/1991	Yoon
5,053,008	A	10/1991	Bajaj
5,061,274	A	10/1991	Kensey
5,071,430	A	12/1991	de Salis et al.
5,078,731	A	1/1992	Hayhurst
5,092,941	A	3/1992	Miura
5,100,418	A	3/1992	Yoon et al.
5,108,420	A	4/1992	Marks
5,108,421	A	4/1992	Fowler
5,114,032	A	5/1992	Laidlaw
5,114,065	A	5/1992	Storace
5,116,349	A	5/1992	Aranyi
5,122,156	A	6/1992	Granger et al.
5,131,379	A	7/1992	Sewell, Jr.
5,147,381	A	9/1992	Heimerl et al.
5,156,609	A	10/1992	Nakao et al.
5,158,566	A	10/1992	Pianetti
5,160,339	A	11/1992	Chen et al.
5,167,634	A	12/1992	Corrigan, Jr. et al.
5,167,643	A	12/1992	Lynn
5,171,249	A	12/1992	Stefanchik et al.
5,171,250	A	12/1992	Yoon
5,171,251	A	12/1992	Bregen et al.
5,176,648	A	1/1993	Holmes et al.
5,176,682	A	1/1993	Chow
5,192,288	A	3/1993	Thompson et al.
5,192,300	A	3/1993	Fowler
5,192,301	A	3/1993	Kamiya et al.
5,192,302	A	3/1993	Kensey et al.
5,203,787	A	4/1993	Noblitt et al.

5,209,756	A	5/1993	Seedhom et al.	5,547,474	A	8/1996	Kloeckl et al.
5,219,359	A	6/1993	McQuilkin et al.	5,560,532	A	10/1996	DeFonzo et al.
5,222,974	A	6/1993	Kensey et al.	5,575,771	A	11/1996	Walinsky
5,234,449	A	8/1993	Bruker et al.	5,584,879	A	12/1996	Reimold et al.
5,236,445	A	8/1993	Hayhurst et al.	5,591,205	A	1/1997	Fowler
5,242,457	A	9/1993	Akopov et al.	5,593,412	A	1/1997	Martinez et al.
5,243,857	A	9/1993	Janota	5,593,422	A	1/1997	Muijs Van de Moer et al.
5,246,156	A	9/1993	Rothfuss et al.	5,593,425	A	1/1997	Bonutti et al.
5,246,443	A	9/1993	Mai	5,601,602	A	2/1997	Fowler
5,250,058	A	10/1993	Miller et al.	5,611,986	A	3/1997	Datta et al.
5,258,015	A	11/1993	Li et al.	5,618,291	A	4/1997	Thompson et al.
5,269,792	A	12/1993	Kovac et al.	5,618,306	A	4/1997	Roth et al.
5,275,616	A	1/1994	Fowler	5,620,452	A	4/1997	Yoon
5,282,808	A	2/1994	Kovac et al.	5,620,461	A	4/1997	Muijs et al.
5,282,832	A	2/1994	Toso et al.	5,630,824	A	5/1997	Hart
5,290,243	A	3/1994	Chodorow et al.	5,643,318	A	7/1997	Tsukernik et al.
5,290,310	A	3/1994	Makower et al.	5,645,553	A	7/1997	Kolesa et al.
5,292,309	A	3/1994	Van Tassel et al.	5,645,565	A	7/1997	Rudd et al.
5,292,332	A	3/1994	Lee	5,645,566	A	7/1997	Brenneman et al.
5,304,184	A	4/1994	Hathaway et al.	5,645,567	A	7/1997	Crainich
5,306,254	A	4/1994	Nash et al.	D383,539	S *	9/1997	Croley D24/143
5,306,280	A	4/1994	Bregen et al.	5,669,917	A	9/1997	Sauer et al.
5,318,542	A	6/1994	Hirsch et al.	5,674,231	A	10/1997	Green et al.
5,320,639	A	6/1994	Rudnick	5,676,689	A	10/1997	Kensey et al.
5,330,442	A	7/1994	Green et al.	5,676,974	A	10/1997	Valdes et al.
5,334,216	A	8/1994	Vidal et al.	5,681,351	A	10/1997	Jamiolkowski et al.
5,334,217	A	8/1994	Das	5,683,405	A	11/1997	Yacoubian et al.
5,335,680	A	8/1994	Moore	5,690,674	A	11/1997	Diaz
5,340,360	A	8/1994	Stefanchik	5,695,504	A	12/1997	Gifford, III et al.
5,350,399	A	9/1994	Erlebacher et al.	5,695,505	A	12/1997	Yoon
5,352,229	A	10/1994	Goble et al.	5,695,524	A	12/1997	Kelley et al.
5,364,406	A	11/1994	Sewell, Jr.	5,709,708	A	1/1998	Thal
5,366,458	A	11/1994	Korthoff et al.	5,716,375	A	2/1998	Fowler
5,366,479	A	11/1994	McGarry et al.	5,720,755	A	2/1998	Dakov
5,376,101	A	12/1994	Green et al.	5,720,765	A	2/1998	Thal
5,383,905	A	1/1995	Golds et al.	5,725,554	A	3/1998	Simon et al.
RE34,866	E	2/1995	Kensey et al.	5,725,556	A	3/1998	Moser et al.
5,391,173	A	2/1995	Wilk	5,728,109	A	3/1998	Schulze et al.
5,392,978	A	2/1995	Velez et al.	5,728,114	A	3/1998	Evans et al.
5,395,030	A	3/1995	Kuramoto et al.	5,728,122	A	3/1998	Leschinsky et al.
5,409,499	A	4/1995	Yi	5,728,132	A	3/1998	Van Tassel et al.
5,411,520	A	5/1995	Nash et al.	5,732,872	A	3/1998	Bolduc et al.
5,413,571	A	5/1995	Katsaros et al.	5,735,875	A	4/1998	Bonutti et al.
5,413,584	A	5/1995	Schulze	5,735,877	A	4/1998	Pagedas
5,416,584	A	5/1995	Kay	5,749,898	A	5/1998	Schulze et al.
5,417,699	A	5/1995	Klein et al.	5,752,966	A	5/1998	Chang
5,423,857	A	6/1995	Rosenman et al.	5,755,778	A	5/1998	Kleshinski
5,431,639	A	7/1995	Shaw	5,766,246	A	6/1998	Mulhauser et al.
5,431,667	A	7/1995	Thompson et al.	5,769,862	A	6/1998	Kammerer et al.
5,437,631	A	8/1995	Janzen	5,769,870	A	6/1998	Salahieh et al.
5,443,481	A	8/1995	Lee	5,776,150	A	7/1998	Nolan et al.
5,449,359	A	9/1995	Groiso	5,779,707	A	7/1998	Bertholet et al.
5,456,400	A	10/1995	Shichman et al.	5,782,844	A	7/1998	Yoon et al.
5,462,558	A	10/1995	Kolesa et al.	5,782,860	A	7/1998	Epstein et al.
5,462,561	A	10/1995	Voda	5,782,861	A	7/1998	Cragg et al.
5,470,010	A	11/1995	Rothfuss et al.	5,782,864	A	7/1998	Lizardi
5,474,557	A	12/1995	Mai	5,795,958	A	8/1998	Rao et al.
5,474,572	A	12/1995	Hayhurst	5,797,931	A	8/1998	Bito et al.
5,478,352	A	12/1995	Fowler	5,797,933	A	8/1998	Snow et al.
5,478,353	A	12/1995	Yoon	5,797,958	A	8/1998	Yoon
5,478,354	A	12/1995	Tovey et al.	5,810,776	A	9/1998	Bacich et al.
5,486,195	A	1/1996	Myers et al.	5,810,846	A	9/1998	Virnich et al.
5,497,933	A	3/1996	DeFonzo et al.	5,810,851	A	9/1998	Yoon
5,501,698	A	3/1996	Roth et al.	5,810,877	A	9/1998	Roth et al.
5,507,755	A	4/1996	Gresl et al.	5,814,069	A	9/1998	Schulze et al.
5,514,159	A	5/1996	Matula et al.	5,817,113	A	10/1998	Gifford, III et al.
5,521,184	A	5/1996	Zimmermann	5,820,631	A	10/1998	Nobles
5,522,840	A	6/1996	Krajicek	5,827,298	A	10/1998	Hart et al.
5,527,322	A	6/1996	Klein et al.	5,830,125	A	11/1998	Scribner et al.
5,536,251	A	7/1996	Evard et al.	5,833,698	A	11/1998	Hinchliffe et al.
5,540,712	A	7/1996	Kleshinski et al.	5,846,254	A	12/1998	Schulze et al.
5,543,520	A	8/1996	Zimmermann	5,853,421	A	12/1998	Leschinsky et al.
5,544,802	A	8/1996	Crainich	5,853,422	A	12/1998	Huebsch et al.

5,855,312	A		1/1999	Toledano	6,200,329	B1	3/2001	Fung et al.
5,858,082	A		1/1999	Cruz et al.	6,203,565	B1	3/2001	Bonutti et al.
5,861,005	A		1/1999	Kontos	6,206,913	B1	3/2001	Yencho et al.
5,868,755	A		2/1999	Kanner et al.	6,221,102	B1	4/2001	Baker et al.
5,871,474	A		2/1999	Hermann et al.	6,231,592	B1	5/2001	Bonutti et al.
5,871,490	A		2/1999	Schulze et al.	6,254,615	B1	7/2001	Bolduc et al.
5,871,501	A		2/1999	Leschinsky et al.	6,254,642	B1	7/2001	Taylor
5,871,525	A		2/1999	Edwards et al.	6,277,140	B2	8/2001	Ginn et al.
5,879,366	A		3/1999	Shaw et al.	6,280,460	B1	8/2001	Bolduc et al.
5,893,592	A		4/1999	Schulze et al.	6,287,322	B1	9/2001	Zhu et al.
5,902,310	A		5/1999	Foerster et al.	6,305,891	B1	10/2001	Burlingame
5,904,697	A		5/1999	Gifford, III et al.	6,322,580	B1	11/2001	Kanner
5,907,893	A		6/1999	Zadno-Azizi et al.	6,334,865	B1	1/2002	Redmond et al.
5,910,155	A		6/1999	Ratcliff et al.	6,348,064	B1	2/2002	Kanner
5,919,208	A		7/1999	Valenti	D457,958	S	* 5/2002	Dycus et al. D24/144
5,922,009	A		7/1999	Epstein et al.	6,391,048	B1	5/2002	Ginn et al.
5,935,147	A		8/1999	Kensey et al.	6,398,752	B1	6/2002	Sweezer, Jr. et al.
5,938,667	A		8/1999	Peyser et al.	6,402,765	B1	6/2002	Monassevitch et al.
5,941,890	A		8/1999	Voegele et al.	6,409,739	B1	6/2002	Nobles et al.
5,947,999	A		9/1999	Groiso	6,419,669	B1	7/2002	Frazier et al.
5,951,518	A		9/1999	Licata et al.	6,428,548	B1	8/2002	Durgin et al.
5,951,576	A		9/1999	Wakabayashi	6,443,158	B1	9/2002	LaFontaine et al.
5,951,589	A		9/1999	Epstein et al.	6,450,391	B1	9/2002	Kayan et al.
5,964,782	A		10/1999	Lafontaine et al.	6,458,130	B1	* 10/2002	Frazier et al. 606/51
5,976,159	A		11/1999	Bolduc et al.	6,461,364	B1	10/2002	Ginn et al.
5,984,934	A		11/1999	Ashby et al.	6,488,692	B1	12/2002	Spence et al.
5,984,949	A		11/1999	Levin	6,500,115	B2	* 12/2002	Krattiger et al. 600/173
5,993,468	A		11/1999	Rygaard	6,506,210	B1	1/2003	Kanner
6,001,110	A		12/1999	Adams	6,517,569	B2	2/2003	Mikus et al.
6,004,341	A		12/1999	Zhu et al.	6,533,762	B2	3/2003	Kanner et al.
6,007,563	A		12/1999	Nash et al.	6,537,288	B2	3/2003	Vargas et al.
6,022,372	A		2/2000	Kontos	6,547,806	B1	4/2003	Ding
6,024,750	A	*	2/2000	Mastri et al. 606/169	6,569,173	B1	5/2003	Blatter et al.
6,024,758	A		2/2000	Thal	6,582,452	B2	6/2003	Coleman et al.
6,030,364	A		2/2000	Durgin et al.	6,599,303	B1	7/2003	Peterson et al.
6,030,413	A		2/2000	Lazarus	6,602,263	B1	8/2003	Swanson et al.
6,036,703	A		3/2000	Evans et al.	6,616,686	B2	9/2003	Coleman et al.
6,036,720	A		3/2000	Abrams et al.	6,623,510	B2	9/2003	Belef et al.
6,045,570	A		4/2000	Epstein et al.	6,626,918	B1	9/2003	Ginn et al.
6,048,358	A		4/2000	Barak	6,632,238	B2	10/2003	Ginn et al.
6,056,768	A		5/2000	Cates et al.	6,634,537	B2	10/2003	Chen
6,056,769	A		5/2000	Epstein et al.	6,645,205	B2	11/2003	Ginn
6,056,770	A		5/2000	Epstein et al.	6,652,538	B2	11/2003	Kayan et al.
6,059,800	A		5/2000	Hart et al.	6,669,714	B2	12/2003	Coleman et al.
6,063,085	A		5/2000	Tay et al.	6,676,671	B2	1/2004	Robertson et al.
6,066,160	A		5/2000	Colvin et al.	6,679,904	B2	1/2004	Gleeson et al.
6,074,409	A		6/2000	Goldfarb	6,695,867	B2	2/2004	Ginn et al.
6,077,281	A		6/2000	Das	6,699,256	B1	3/2004	Logan et al.
6,077,291	A		6/2000	Das	6,712,836	B1	3/2004	Berg et al.
6,080,182	A		6/2000	Shaw et al.	6,719,777	B2	4/2004	Ginn et al.
6,080,183	A		6/2000	Tsugita et al.	6,726,704	B1	4/2004	Loshakove et al.
6,086,608	A		7/2000	Ek et al.	6,749,621	B2	6/2004	Pantages et al.
6,090,130	A		7/2000	Nash et al.	6,749,622	B2	6/2004	McGuckin, Jr. et al.
6,092,561	A		7/2000	Schmid	6,755,842	B2	6/2004	Kanner et al.
6,099,553	A		8/2000	Hart et al.	6,767,356	B2	7/2004	Kanner et al.
6,102,271	A		8/2000	Longo et al.	6,780,197	B2	8/2004	Roe et al.
6,106,545	A		8/2000	Egan	6,846,319	B2	1/2005	Ginn et al.
6,110,184	A		8/2000	Weadock	6,896,687	B2	5/2005	Dakov
6,113,612	A		9/2000	Swanson et al.	6,926,723	B1	8/2005	Mulhauser et al.
6,117,148	A		9/2000	Ravo et al.	6,926,731	B2	8/2005	Coleman et al.
6,120,524	A		9/2000	Taheri	6,942,674	B2	9/2005	Belef et al.
6,126,677	A		10/2000	Ganaja et al.	7,001,398	B2	2/2006	Carley et al.
6,143,017	A		11/2000	Thal	7,033,379	B2	4/2006	Peterson
6,149,660	A		11/2000	Laufer et al.	7,108,709	B2	9/2006	Cummins
6,149,667	A		11/2000	Hovland et al.	7,108,710	B2	9/2006	Anderson
6,152,144	A		11/2000	Lesh et al.	7,111,768	B2	9/2006	Cummins et al.
6,152,934	A		11/2000	Harper et al.	7,163,551	B2	1/2007	Anthony et al.
6,152,937	A		11/2000	Peterson et al.	7,169,158	B2	1/2007	Sniffin et al.
6,159,234	A		12/2000	Bonutti et al.	7,211,101	B2	5/2007	Carley et
6,165,204	A		12/2000	Levinson et al.	D566,272	S	* 4/2008	Walburg et al. D24/145
6,174,324	B1		1/2001	Egan et al.	7,396,359	B1	7/2008	Derowe et al.
6,193,734	B1		2/2001	Bolduc et al.	2001/0007077	A1	7/2001	Ginn et al.
6,197,042	B1		3/2001	Ginn et al.	2001/0031972	A1	10/2001	Robertson et al.

2001/0047180	A1	11/2001	Grudem et al.	
2002/0026215	A1	2/2002	Redmond et al.	
2002/0042622	A1	4/2002	Vargas et al.	
2002/0049427	A1	4/2002	Wiener et al.	
2002/0049472	A1	4/2002	Coleman et al.	
2002/0058960	A1	5/2002	Hudson et al.	
2002/0072768	A1	6/2002	Ginn	
2002/0077657	A1	6/2002	Ginn et al.	
2002/0082641	A1	6/2002	Ginn et al.	
2002/0107542	A1	8/2002	Kanner et al.	
2002/0133193	A1	9/2002	Ginn et al.	
2002/0151921	A1	10/2002	Kanner et al.	
2002/0193808	A1	12/2002	Belef et al.	
2003/0004543	A1	1/2003	Gleeson et al.	
2003/0009180	A1	1/2003	Hinchliffe et al.	
2003/0009196	A1	1/2003	Peterson	
2003/0065358	A1*	4/2003	Frecker et al.	606/205
2003/0078598	A1	4/2003	Ginn et al.	
2003/0083679	A1	5/2003	Grudem et al.	
2003/0093096	A1	5/2003	McGuckin et al.	
2003/0097140	A1	5/2003	Kanner	
2003/0109890	A1	6/2003	Kanner et al.	
2003/0125766	A1	7/2003	Ding	
2003/0158577	A1	8/2003	Pantages et al.	
2003/0158578	A1	8/2003	Pantages et al.	
2003/0195561	A1	10/2003	Carley et al.	
2004/0009289	A1	1/2004	Carley et al.	
2004/0010285	A1	1/2004	Carley et al.	
2004/0039414	A1	2/2004	Carley et al.	
2004/0073236	A1	4/2004	Carley et al.	
2004/0073255	A1	4/2004	Ginn et al.	
2004/0087985	A1	5/2004	Loshakove et al.	
2004/0092968	A1	5/2004	Caro et al.	
2004/0153122	A1	8/2004	Palermo	
2004/0153123	A1	8/2004	Palermo et al.	
2004/0167570	A1	8/2004	Pantages	
2004/0254591	A1	12/2004	Kanner et al.	
2004/0267312	A1	12/2004	Kanner et al.	
2005/0090859	A1	4/2005	Ravlkumar	
2005/0119695	A1	6/2005	Carley et al.	
2005/0216057	A1	9/2005	Coleman et al.	
2005/0234508	A1	10/2005	Cummins et al.	
2005/0267530	A1	12/2005	Cummins et al.	
2005/0273136	A1	12/2005	Belef et al.	
2005/0274768	A1	12/2005	Cummins et al.	
2005/0283188	A1	12/2005	Loshakove et al.	
2006/0020270	A1	1/2006	Jabba et al.	
2006/0135989	A1	6/2006	Carley et al.	
2006/0144479	A1	7/2006	Carley et al.	
2006/0167484	A1	7/2006	Carley et al.	
2006/0190014	A1	8/2006	Ginn et al.	
2006/0190037	A1	8/2006	Carley et al.	
2006/0190038	A1	8/2006	Carley et al.	
2006/0195123	A1	8/2006	Ginn et al.	
2006/0195124	A1	8/2006	Ginn et al.	
2006/0265012	A1	11/2006	Anderson	
2006/0287674	A1	12/2006	Ginn et al.	
2007/0010854	A1	1/2007	Cummins et al.	
2007/0270904	A1	11/2007	Ginn	
2007/0276416	A1	11/2007	Ginn et al.	
2007/0282352	A1	12/2007	Carley et al.	
2008/0004636	A1	1/2008	Walberg	
2008/0065152	A1	3/2008	Carley	
2008/0210737	A1	9/2008	Ginn et al.	
2008/0221616	A1	9/2008	Ginn et al.	
2008/0269801	A1	10/2008	Coleman et al.	
2008/0269802	A1	10/2008	Coleman et al.	
2008/0272173	A1	11/2008	Coleman et al.	
2008/0312666	A1	12/2008	Ellingwood et al.	
2008/0312686	A1	12/2008	Ellingwood	

FOREIGN PATENT DOCUMENTS

DE	197 11 288		10/1998
DE	29723736	U1	4/1999
EP	386 361		9/1990
EP	O 534 696		3/1993
EP	0 756 851		2/1997
EP	0 774 237		5/1997
EP	0 858 776		8/1998
EP	0 941 697		9/1999
FR	2 443 238		7/1980
FR	2 715 290		7/1995
FR	2 722 975		2/1996
GB	1 358 466		7/1974
GB	2 075 144		11/1981
IE	S2000/0722		10/2001
IE	S2000/0724		10/2001
IE	S2001/0547		7/2002
IE	S2001/0815		7/2002
IE	S2001/0748		8/2002
IE	S2001/0749		8/2002
IE	S2002/0452		12/2002
IE	S2002/0664		2/2003
IE	S2002/0665		2/2003
IE	S2002/0451		7/2003
IE	S2002/0552		7/2003
IE	S2003/0424		12/2003
IE	S2003/0490		1/2004
IE	S2004/0368		11/2005
IE	S2005/0342		11/2005
JP	12 74750		11/1989
JP	11500642		8/1997
NL	9302140		7/1995
PL	171425		4/1997
RU	2086192		8/1997
SU	197801		6/1967
SU	495067		12/1975
SU	912155		3/1982
SU	1243708		7/1986
SU	1324650		7/1987
SU	1405828		6/1988
SU	1456109		2/1989
SU	1560133		4/1990
WO	WO 96/24291		8/1956
WO	WO 95/21573		8/1995
WO	WO 97/07741		3/1997
WO	WO 97/20505		6/1997
WO	WO 97/28745		8/1997
WO	WO 98/06448		2/1998
WO	WO 98/16161		4/1998
WO	WO 98/17179		4/1998
WO	WO 98/18389		5/1998
WO	WO 98/24374		6/1998
WO	WO 98/25508		6/1998
WO	WO 98/58591		12/1998
WO	OW 99/21491		5/1999
WO	WO 99/62408		12/1999
WO	WO 99/62415		12/1999
WO	WO 00/06029		2/2000
WO	WO 00/07640		2/2000
WO	WO 00/56223		9/2000
WO	WO 00/56227		9/2000
WO	WO 00/56228		9/2000
WO	WO 00/71032		11/2000
WO	WO 01/21058		3/2001
WO	WO 01/35832		5/2001
WO	WO 01/47594		7/2001
WO	WO 01/49186		7/2001
WO	WO 01/91628		12/2001
WO	WO 02/19915		3/2002
WO	WO 02/19920		3/2002

WO	WO 02/19922	3/2002
WO	WO 02/19924	3/2002
WO	WO 02/45593	6/2002
WO	WO 02/45594	6/2002
WO	WO 02/98302	12/2002
WO	WO 03/13363	2/2003
WO	WO 03/13364	2/2003
WO	WO 03/47434	6/2003
WO	WO 03/71955	9/2003
WO	WO 03/71956	9/2003
WO	WO 03/71957	9/2003
WO	WO 03/101310	12/2003
WO	WO 04/04578	1/2004
WO	WO 04/60169	7/2004
WO	WO 04/69054	8/2004
WO	WO 05/82256	9/2005
WO	WO 05/115521	12/2005
WO	WO 06/83889	8/2006
WO	WO 07/05585	1/2007
WO	WO 08/31102	3/2008
ZA	200100527	1/2001

OTHER PUBLICATIONS

U.S. Appl. No. 60/946,026, Jun. 25, 2007, Ellingwood.
U.S. Appl. No. 12/113092, Apr. 30, 2008, Ginn et al.
U.S. Appl. No. 60/843325, Sep. 8, 2006, Carly.
U.S. Appl. No. 60/946030, Jun. 25, 2007, Voss et al.
U.S. Appl. No. 60/946042, Jun. 25, 2007, Ellingwood et al.
Database WPI; Section PQ, Week 200120; Derwent Publications Ltd., London GB; Class P31, AN 2001-203165; XP002199926 & ZA 200 100 528 A (Anthony T), Feb. 28, 2001 (Feb. 28, 2001) abstract.
Deepak Mital et al, Renal Transplantation Without Sutures Using the Vascular Clipping System for Renal Artery and Vein Anastomosis - A New Technique, Transplantation Issue, Oct 1996, pp. 1171-1173, vol. 62 - No. 8, Section of Transplantation Surgery, Department of General Surgery, Rush-Presbyterian/St. Luke's Medical Center, Chigago, IL.
"Hand tool for forming telephone connections - comprises pliers with reciprocably driven ram crimping clip around conductors against anvil", Derwent-ACC-No: 1978-B8090A.
DL Wessel et al, Outpatient closure of the patent ductus arteriosus, Circulation, May 1988, pp. 1068-1071, vol. 77 - No. 5, Department of Anesthesia, Children's Hospital, Boston, MA.
E Pikoulis et al, Arterial reconstruction with vascular clips is safe and quicker than sutured repair, Cardiovascular Surgery, Dec 1998, pp. 573-578(6), vol. 6 - No. 6, Department of Surgery, Uniformed Services University of the Health Sciences, Bethesda, MD.
G Gershony et al, Novel vascular sealing device for closure of percutaneous vascular access sites, Cathet. Cardiovasc. Diagn., Jan. 1998, pp. 82-88, vol. 45.
H De Swart et al, A new hemostatic puncture closure device for the immediate sealing of arterial puncture sites, American journal of cardiology, Aug 1993, pp. 445-449, vol. 72 - No. 5, Department of Cardiology, Academic Hospital Maastricht, The Netherlands.
Harrith M. Hasson M.D. , Laparoscopic Cannula Cone with Means for Cannula Stabilization and Wound Closure, The Journal of the American Association of Gynecologic Laparoscopists, May 1998, pp. 183-185, vol. 5 - No. 2, Division of Obstetrics and Gynecology, University of Chicago, Chigago, IL.
J. Findlay et al, Carotid Arteriotomy Closure Using a Vascular Clip System, Neurosurgery, Mar. 1998, pp. 550-554, vol. 42 - No. 3, Division of Neurosurgery, University of Alberta, Edmonton, Canada.
Jeremy L Gilbert Phd, Wound Closure Biomaterials and Devices, Shock., Mar. 1999, p. 226, vol. 11- No. 3, Institution Northwestern University.
Jochen T. Cremer, Md, et al, Different approaches for minimally invasive closure of atrial septal defects, Ann. Thorac. Surg., Nov 1998, pp. 1648-1652, vol. 67, a Division of Thoracic and Cardiovascular Surgery, Surgical Center, Hannover Medical School. Hannover, Germany.
K Narayanan et al, Simultaneous primary closure of four fasciotomy wounds in a single setting using the Sure-Closure device, Injury, Jul 1996, pp. 449-451, vol. 27 - No. 6, Department of Surgery, Mercy Hospital of Pittsburgh, PA.
Mccarthy, et al., "Tension (Stay) Suture Bridge", J. of International College of Surgeons, 34(5), pp. 613-614 (Nov. 1960). cited by other.
Md Gonze et al, Complications associated with percutaneous closure devices, Conference: Annual Meeting of the Society for Clinical Vascular Surgery, The American journal of surgery, Mar. 1999, pp. 209-211, vol. 178, No. 3, Department of Surgery, Section of Vascular Surgery, Ochsner Medical Institutions, New Orleans, LA.
Md Hellinger et al, Effective peritoneal and fascial closure of abdominal trocar sites utilizing the Endo-Judge, J Laparoendosc Surg., Oct 1996, pp. 329-332, vol. 6 - No. 5, Orlando Regional Medical Center, FL.
Michael Gianturco, A Play on Catheterization, Forbes, Dec 1996, p. 146, vol. 158 - No. 15.
Stretch Comb by Scunci, retrieved via internet at www.scunci.com/productdetail by examiner on Oct. 9, 2007, publication date unavailable.
OM Elashry et al, Comparative clinical study of port-closure techniques following laparoscopic surgery, Department of Surgery, Mallickrodt Institute of Radiography, J Am Coll Surg., Oct 1996, pp. 335-344, vol. 183 - No. 4.
P M N Werker, et al, Review of facilitated approaches to vascular anastomosis surgery, Conference: Utrecht MICABG Workshop 2, The Annals of thoracic surgery, Apr. 1996, pp. S122-127, vol. 63 - No. 6, Department of Plastic, Reconstructive and Hand surgery, University Hospital Utrecht Netherlands Departments of Cardiology and Cardiopulmonary Surgery, Heart Lung Institute, Utrecht Netherlands.; Utrect University Hospital Utrecht Netherlands.
Peter Rhee MD et al, Use of Titanium Vascular Staples in Trauma, Journal of Trauma-Injury Infection & Critical Care, Dec 1998, pp. 1097-1099, vol. 45 - No. 6, Institution from the Department of Surgery, Washington Hospital Center, Washington DC, and Uniformed Services University of the Health Sciences, Bethesda, Maryland.
ProstarXL - Percutaneous Vascular Surgical Device, www.Archive.org, Jun. 1998, Original Publisher: http://prostar.com, may also be found at http://web.archive.org/web/19980630040429/www.perclose.com/html/prstrxl.html.
SA Beyer-Enke et al, Immediate sealing of arterial puncture site following femoropopliteal angioplasty: A prospective randomized trial, Cardiovascular and Interventional Radiology 1996, Nov-Dec 1996, pp. 406-410, vol. 19 - No. 6, Gen Hosp North, Dept Dianost & Intervent Radiol, Nurnberg, Germany (Reprint).
Scott Hensley, Closing Wounds. New Devices seal arterial punctures in double time, Modern Healthcare (United States), Mar. 23, 2008, p. 48.
Sigmund Silber et al, A novel vascular device for closure of percutaneous arterial access sites, the American Journal of Cardiology, Apr. 1999, pp. 1248-1252, vol. 83 - No. 8.
Simonetta Blengino et al, A Randomized Study of the 8 French Hemostatic Puncture Closure Device vs Manual Compression After Coronary Interventions, Journal of the American College of Cardiology, Feb. 1995, p. 262A, vol. 25. - No. 2, Supplement 1.
Swee Lian Tan, Md, Phd, Facs, Explanation of Infected Hemostatic Puncture Closure Devices - A Case Report, Vascular and Endovascular Surgery, 1999, pp. 507-510, vol. 33 - No. 5, Parkland Medical Center, Derry, New Hampshire.
Sy Nakada et al, Comparison of newer laparoscopic port closure techniques in the porcine model, J Endourol, Oct. 1995, pp. 397-401, vol. 9 - No. 5, Department of Surgery/Urology, University of Wisconsin Medical School, Madison.
Thomas P. Baum RPA-C et al, Delayed Primary Closure Using Silastic Vessel Loops and Skin Staples: Description of the Technique and Case Reports, Annals of Plastic Surgery, Mar. 1999, pp. 337-340, vol. 42 - No. 3, Institution Department of Plastic and Reconstructive Surgery, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY.
Tomoaki Hinohara, Percutaneous vascular surgery (Prostar® Plus and Techstar® for femoral artery site closure), Interventional Cardiology Newsletter, May-Jul. 1997, pp. 19-28, vol. 5 - No. 3-4.

UT Aker et al, Immediate arterial hemostasis after cardiac catheterization: initial experience with a new puncture closure device, Cathet Cardiovasc Diagn, Mar. 1994, pp. 228-232, vol. 33 - No. 3, Missouri Baptist Medical Center, St. Louis.

Wei Qu et al, An absorbable pinned-ring device for microvascular anastomosis of vein grafts: Experimental studies, Microsurgery 1999, Mar. 1999, pp. 128-134, vol. 19 - No. 3, Department of Orthopaedic Surgery, Hiroshima University School of Medicine, Hiroshima, Japan.

William G. Kussmaul III Md, et al., Rapid arterial hemostasis and decreased access site complications after cardiac catheterization and angioplasty: Results of a randomized trial of a novel hemostatic device, Journal of the American College of Cardiology, Jun. 1995, pp. 1685 - 1692, vol. 25 - No. 7.

* cited by examiner

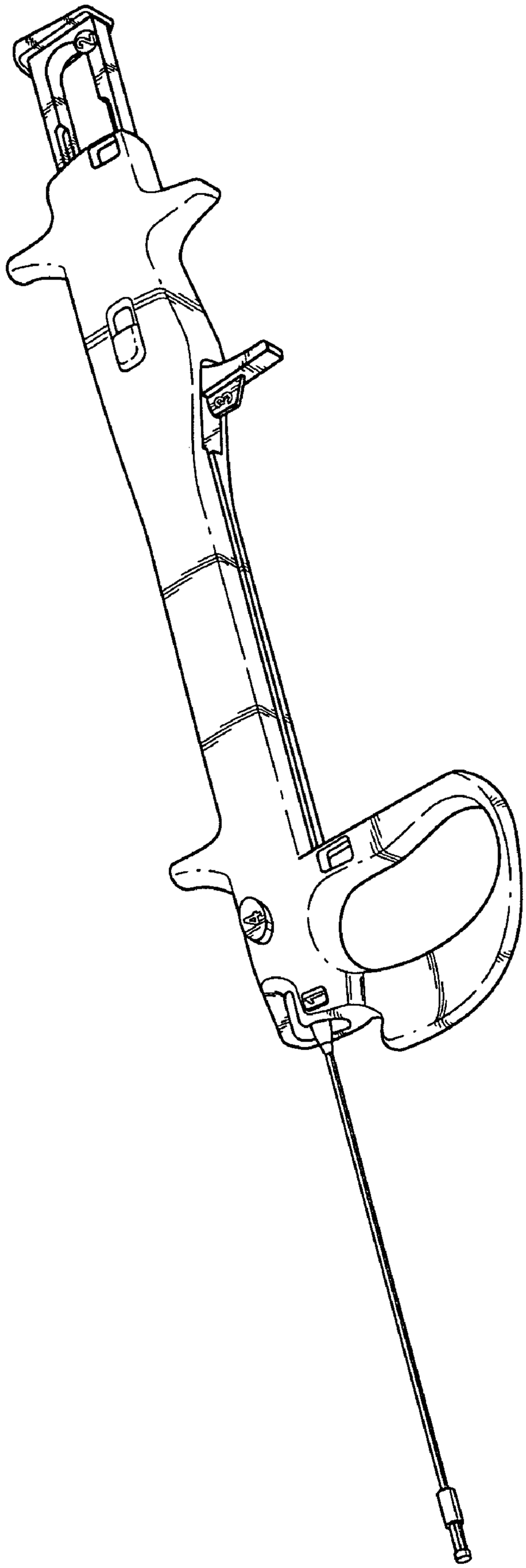


Fig. 1

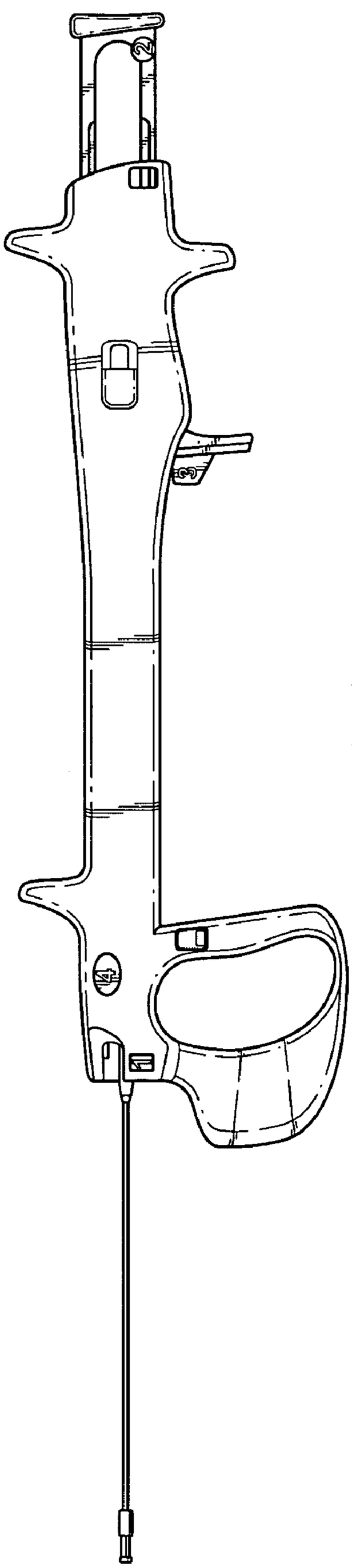


Fig. 2

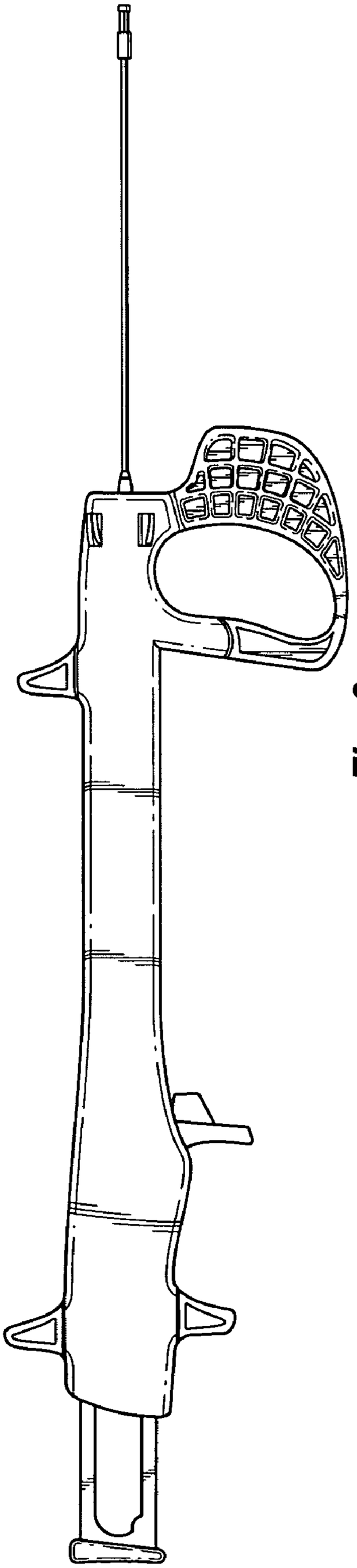


Fig. 3

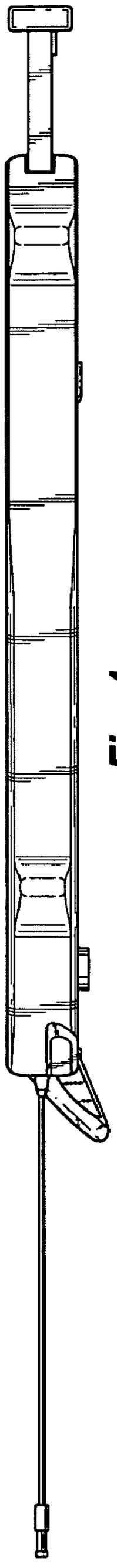


Fig. 4

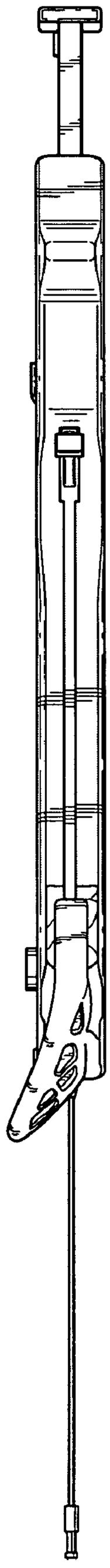


Fig. 5

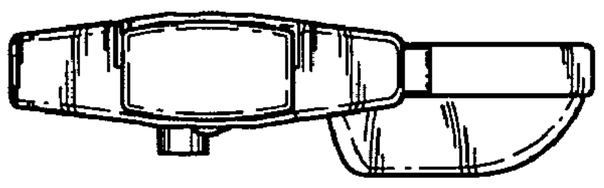


Fig. 7

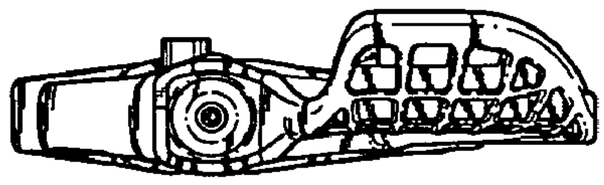


Fig. 6