

US00D963851S

(12) **United States Design Patent** (10) **Patent No.:** **US D963,851 S**
Seow et al. (45) **Date of Patent:** **** Sep. 13, 2022**

(54) **PORT APPARATUS**
(71) Applicant: **Covidien LP**, Mansfield, MA (US)
(72) Inventors: **Chi Min Seow**, Watertown, MA (US);
Brian A. Rockrohr, Guilford, CT (US)
(73) Assignee: **COVIDIEN LP**, Mansfield, MA (US)

6,671,581 B2 12/2003 Niemeyer et al.
6,676,684 B1 1/2004 Morley et al.
6,685,698 B2 2/2004 Morley et al.
6,699,235 B2 3/2004 Wallace et al.
6,714,839 B2 3/2004 Salisbury, Jr. et al.
6,716,233 B1 4/2004 Whitman
6,728,599 B2 4/2004 Wang et al.
(Continued)

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

FOREIGN PATENT DOCUMENTS

KR 301099309.0000 * 3/2021

(21) Appl. No.: **29/741,292**

(22) Filed: **Jul. 10, 2020**

OTHER PUBLICATIONS

(51) **LOC (13) Cl.** **24-02**

(52) **U.S. Cl.**
USPC **D24/129**

VersaOne™ Fascial Closure System In-Service Video, Medtronic Minimally Invasive Therapies Group, Youtube, [Post date: Apr. 3, 2020], [Site Seen Dec. 27, 2021], Seen at URL: <https://www.youtube.com/watch?v=ML8aDIEV6jA> (Year: 2020).*

(58) **Field of Classification Search**
USPC D24/129, 146, 147, 133
CPC A61B 17/809; A61B 17/1617; A61B 17/3211; A61B 5/1411; A61B 17/3417
See application file for complete search history.

(Continued)

Primary Examiner — Natasha Vujcic
Assistant Examiner — Gilbert B Ford
(74) *Attorney, Agent, or Firm* — Carter, DeLuca & Farrell LLP

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,132,368 A 10/2000 Cooper
6,206,903 B1 3/2001 Ramans
6,246,200 B1 6/2001 Blumenkranz et al.
6,312,435 B1 11/2001 Wallace et al.
6,331,181 B1 12/2001 Tierney et al.
6,394,998 B1 5/2002 Wallace et al.
6,424,885 B1 7/2002 Niemeyer et al.
6,441,577 B2 8/2002 Blumenkranz et al.
6,459,926 B1 10/2002 Nowlin et al.
6,478,806 B2 11/2002 McFarlane
6,491,691 B1 12/2002 Morley et al.
6,491,701 B2 12/2002 Tierney et al.
6,493,608 B1 12/2002 Niemeyer
6,565,554 B1 5/2003 Niemeyer
6,645,196 B1 11/2003 Nixon et al.
6,656,198 B2 12/2003 Tsonton et al.
6,659,939 B2 12/2003 Moll

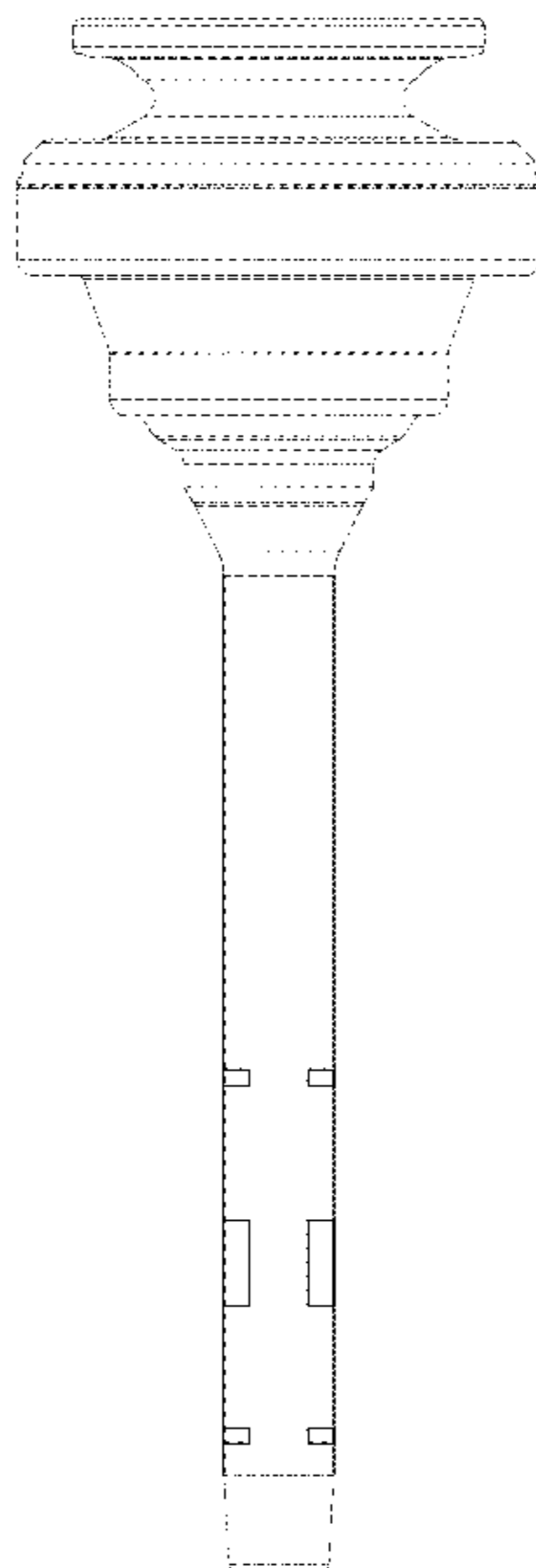
(57) **CLAIM**

The ornamental design for a port apparatus, as shown and described.

DESCRIPTION

FIG. 1 is a rear view of a port apparatus in accordance with the present design;
FIG. 2 is a right, side view of the port apparatus of FIG. 1, the left, side view being a mirror of the right, side view; and,
FIG. 3 is a front view of the port apparatus of FIGS. 1 and 2.
The broken lines provided in the drawings illustrate portions of the port apparatus and form no part of the claimed design.

1 Claim, 3 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

6,746,443 B1	6/2004	Morley et al.	7,780,639 B2	8/2010	Van Lue
6,766,204 B2	7/2004	Niemeyer et al.	7,785,294 B2	8/2010	Hueil et al.
6,770,081 B1	8/2004	Cooper et al.	7,789,861 B2	9/2010	Franer
6,772,053 B2	8/2004	Niemeyer	7,798,991 B2	9/2010	Insignares
6,783,524 B2	8/2004	Anderson et al.	7,803,151 B2	9/2010	Whitman
6,793,652 B1	9/2004	Whitman et al.	7,806,891 B2	10/2010	Nowlin et al.
6,793,653 B2	9/2004	Sanchez et al.	7,819,859 B2	10/2010	Prisco et al.
6,799,065 B1	9/2004	Niemeyer	7,819,885 B2	10/2010	Cooper
6,837,883 B2	1/2005	Moll et al.	7,824,401 B2	11/2010	Manzo et al.
6,839,612 B2	1/2005	Sanchez et al.	7,835,823 B2	11/2010	Sillman et al.
6,840,938 B1	1/2005	Morley et al.	7,842,013 B2	11/2010	Haberland et al.
6,843,403 B2	1/2005	Whitman	7,843,158 B2	11/2010	Prisco
6,846,309 B2	1/2005	Whitman et al.	7,865,266 B2	1/2011	Moll et al.
6,866,671 B2	3/2005	Tierney et al.	7,865,269 B2	1/2011	Prisco et al.
6,871,117 B2	3/2005	Wang et al.	7,886,743 B2	2/2011	Cooper et al.
6,879,880 B2	4/2005	Nowlin et al.	7,899,578 B2	3/2011	Prisco et al.
6,884,253 B1	4/2005	McFarlane	7,907,166 B2	3/2011	Lamprecht et al.
6,899,705 B2	5/2005	Niemeyer	7,918,826 B2	4/2011	Armstrong et al.
6,902,560 B1	6/2005	Morley et al.	7,931,623 B2	4/2011	Wing et al.
6,936,042 B2	8/2005	Wallace et al.	7,935,130 B2	5/2011	Williams
6,951,535 B2	10/2005	Ghodoussi et al.	7,947,058 B2	5/2011	Kahle et al.
6,974,449 B2	12/2005	Niemeyer	7,963,913 B2	6/2011	Devengenzo et al.
6,989,003 B2	1/2006	Wing et al.	7,967,791 B2	6/2011	Franer et al.
6,991,627 B2	1/2006	Madhani et al.	7,976,501 B2	7/2011	Franer et al.
6,994,708 B2	2/2006	Manzo	7,983,793 B2	7/2011	Toth et al.
7,011,314 B2	3/2006	McFarlane	8,002,767 B2	8/2011	Sanchez
7,048,745 B2	5/2006	Tierney et al.	8,004,229 B2	8/2011	Nowlin et al.
7,066,926 B2	6/2006	Wallace et al.	8,012,128 B2	9/2011	Franer et al.
7,118,582 B1	10/2006	Wang et al.	8,012,170 B2	9/2011	Whitman et al.
7,125,403 B2	10/2006	Julian et al.	8,029,474 B2	10/2011	Chung
7,155,315 B2	12/2006	Niemeyer et al.	8,029,475 B2	10/2011	Franer et al.
7,163,525 B2	1/2007	Franer	8,034,032 B2	10/2011	Voegele et al.
D542,918 S *	5/2007	Albrecht D24/146	8,043,319 B2	10/2011	Lyon et al.
7,239,940 B2	7/2007	Wang et al.	8,054,752 B2	11/2011	Druke et al.
7,306,597 B2	12/2007	Manzo	8,062,288 B2	11/2011	Cooper et al.
7,357,774 B2	4/2008	Cooper	8,066,729 B2	11/2011	Mazzolla et al.
7,371,227 B2	5/2008	Zeiner	8,079,950 B2	12/2011	Stern et al.
7,373,219 B2	5/2008	Nowlin et al.	8,079,986 B2	12/2011	Taylor et al.
7,379,790 B2	5/2008	Toth et al.	8,092,431 B2	1/2012	Lunn et al.
7,386,365 B2	6/2008	Nixon	8,100,133 B2	1/2012	Mintz et al.
7,390,317 B2	6/2008	Taylor et al.	8,100,929 B2	1/2012	Franer et al.
7,391,173 B2	6/2008	Schena	8,108,072 B2	1/2012	Zhao et al.
7,398,707 B2	7/2008	Morley et al.	8,109,911 B2	2/2012	Taylor et al.
7,413,565 B2	8/2008	Wang et al.	8,120,301 B2	2/2012	Goldberg et al.
7,438,702 B2	10/2008	Hart et al.	8,128,590 B2	3/2012	Albrecht et al.
7,453,227 B2	11/2008	Prisco et al.	8,142,447 B2	3/2012	Cooper et al.
7,481,795 B2	1/2009	Thompson et al.	8,147,453 B2	4/2012	Albrecht et al.
7,524,320 B2	4/2009	Tierney et al.	8,147,457 B2	4/2012	Michael et al.
7,574,250 B2	8/2009	Niemeyer	8,147,458 B2	4/2012	Hart et al.
7,585,288 B2	9/2009	Haberland et al.	8,147,503 B2	4/2012	Zhao et al.
7,585,290 B2	9/2009	Kathrani et al.	8,151,661 B2	4/2012	Schena et al.
7,591,802 B2	9/2009	Johnson et al.	8,152,773 B2	4/2012	Albrecht et al.
7,594,912 B2	9/2009	Cooper et al.	8,152,828 B2	4/2012	Taylor et al.
7,597,701 B2	10/2009	Hueil et al.	8,155,479 B2	4/2012	Hoffman et al.
7,607,440 B2	10/2009	Coste-Maniere et al.	8,157,835 B2	4/2012	Taylor et al.
7,637,896 B2	12/2009	Voegele et al.	8,167,843 B2	5/2012	Albrecht et al.
7,666,191 B2	2/2010	Orban, III et al.	8,182,469 B2	5/2012	Anderson et al.
7,682,357 B2	3/2010	Ghodoussi et al.	8,202,278 B2	6/2012	Orban, III et al.
7,686,823 B2	3/2010	Pingleton et al.	8,206,406 B2	6/2012	Orban, III
7,689,320 B2	3/2010	Prisco et al.	8,206,411 B2	6/2012	Thompson et al.
7,695,481 B2	4/2010	Wang et al.	8,210,413 B2	7/2012	Whitman et al.
7,695,485 B2	4/2010	Whitman et al.	8,216,250 B2	7/2012	Orban, III et al.
7,699,855 B2	4/2010	Anderson et al.	8,220,468 B2	7/2012	Cooper et al.
7,708,713 B2	5/2010	Albrecht et al.	8,221,364 B2	7/2012	Voegele et al.
7,713,263 B2	5/2010	Niemeyer	8,231,579 B2	7/2012	Moran et al.
7,722,570 B2	5/2010	Almond et al.	8,256,319 B2	9/2012	Cooper et al.
7,725,214 B2	5/2010	Diolaiti	8,262,623 B2	9/2012	Nijland et al.
7,727,244 B2	6/2010	Orban, III et al.	8,267,952 B2	9/2012	Kahle et al.
7,727,255 B2	6/2010	Taylor et al.	8,273,060 B2	9/2012	Moreno, Jr. et al.
7,741,802 B2	6/2010	Prisco	8,285,517 B2	10/2012	Sillman et al.
7,756,036 B2	7/2010	Druke et al.	8,315,720 B2	11/2012	Mohr et al.
7,757,028 B2	7/2010	Druke et al.	8,335,590 B2	12/2012	Costa et al.
7,758,603 B2	7/2010	Taylor et al.	8,347,757 B2	1/2013	Duval
7,762,825 B2	7/2010	Burbank et al.	8,360,969 B2	1/2013	Hanypsiak et al.
7,778,733 B2	8/2010	Nowlin et al.	8,374,723 B2	2/2013	Zhao et al.
			8,377,090 B2	2/2013	Taylor et al.
			8,398,666 B2	3/2013	McFarlane
			8,418,073 B2	4/2013	Mohr et al.
			8,419,635 B2	4/2013	Shelton, IV et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

8,419,717 B2	4/2013	Diolaiti et al.	8,989,903 B2	3/2015	Weir et al.
8,423,182 B2	4/2013	Robinson et al.	9,002,518 B2	4/2015	Manzo
8,430,851 B2	4/2013	McGinley et al.	9,014,856 B2	4/2015	Manzo et al.
8,444,557 B2	5/2013	Schleitweiler et al.	9,016,540 B2	4/2015	Whitman et al.
8,449,460 B2	5/2013	Duke et al.	9,019,345 B2	4/2015	O'Grady et al.
8,452,447 B2	5/2013	Nixon	9,033,929 B2	5/2015	Moreno et al.
8,454,563 B2	6/2013	Insignares et al.	9,043,027 B2	5/2015	Durant et al.
8,454,585 B2	6/2013	Whitman	9,050,120 B2	6/2015	Swarup et al.
8,491,533 B2	7/2013	Parihar et al.	9,055,961 B2	6/2015	Manzo et al.
8,499,992 B2	8/2013	Whitman et al.	9,068,628 B2	6/2015	Solomon et al.
8,506,520 B2	8/2013	Kahle et al.	9,078,684 B2	7/2015	Williams
8,508,173 B2	8/2013	Goldberg et al.	9,084,623 B2	7/2015	Gomez et al.
8,517,977 B2	8/2013	Taylor et al.	D735,852 S	8/2015	Minnelli et al.
8,523,895 B2	9/2013	Mazzolla et al.	D737,444 S *	8/2015	Mueller D24/147
8,528,440 B2	9/2013	Morley et al.	9,095,362 B2	8/2015	Dachs, II et al.
8,529,582 B2	9/2013	Devengenzo et al.	9,096,033 B2	8/2015	Holop et al.
8,540,748 B2	9/2013	Murphy et al.	9,101,381 B2	8/2015	Burbank et al.
8,551,116 B2	10/2013	Julian et al.	9,113,877 B1	8/2015	Whitman et al.
8,562,594 B2	10/2013	Cooper et al.	9,119,663 B2	9/2015	Webb
8,568,362 B2	10/2013	Moreno, Jr. et al.	9,131,958 B2	9/2015	Lunn et al.
8,579,807 B2	11/2013	Moreno, Jr. et al.	9,138,284 B2	9/2015	Krom et al.
8,594,841 B2	11/2013	Zhao et al.	9,144,456 B2	9/2015	Rosa et al.
8,597,182 B2	12/2013	Stein et al.	9,149,294 B2	10/2015	Webb
8,597,280 B2	12/2013	Cooper et al.	9,155,558 B2	10/2015	Albrecht et al.
8,600,551 B2	12/2013	Itkowitz et al.	9,198,730 B2	12/2015	Prisco et al.
8,608,768 B2	12/2013	Taylor et al.	9,204,923 B2	12/2015	Manzo et al.
8,608,769 B2	12/2013	Kahle et al.	9,226,648 B2	1/2016	Saadat et al.
8,608,773 B2	12/2013	Tierney et al.	9,226,750 B2	1/2016	Weir et al.
8,620,473 B2	12/2013	Diolaiti et al.	9,226,761 B2	1/2016	Burbank
8,622,969 B2	1/2014	Albrecht et al.	9,232,963 B2	1/2016	Albrecht et al.
8,624,537 B2	1/2014	Nowlin et al.	9,232,984 B2	1/2016	Guthart et al.
8,634,957 B2	1/2014	Toth et al.	9,241,766 B2	1/2016	Duque et al.
8,636,686 B2	1/2014	Minnelli et al.	9,241,767 B2	1/2016	Prisco et al.
8,636,759 B2	1/2014	Pingleton et al.	9,241,769 B2	1/2016	Larkin et al.
8,638,056 B2	1/2014	Goldberg et al.	9,247,862 B2	2/2016	Shen et al.
8,638,057 B2	1/2014	Goldberg et al.	9,254,125 B2	2/2016	Pingleton et al.
8,644,988 B2	2/2014	Prisco et al.	9,254,148 B2	2/2016	Hart
8,666,544 B2	3/2014	Moll et al.	9,259,238 B2	2/2016	Albrecht et al.
8,668,638 B2	3/2014	Donhowe et al.	9,259,275 B2	2/2016	Burbank
8,672,890 B2	3/2014	Franer et al.	9,259,277 B2	2/2016	Rogers et al.
8,684,975 B2	4/2014	Albrecht et al.	9,259,281 B2	2/2016	Griffiths et al.
8,728,037 B2	5/2014	Franer	9,259,282 B2	2/2016	Azizian et al.
8,746,252 B2	6/2014	McGrogan et al.	9,261,172 B2	2/2016	Solomon et al.
8,749,189 B2	6/2014	Nowlin et al.	9,265,567 B2	2/2016	Orban, III et al.
8,749,190 B2	6/2014	Nowlin et al.	9,265,584 B2	2/2016	Itkowitz et al.
8,758,352 B2	6/2014	Cooper et al.	9,265,899 B2	2/2016	Albrecht et al.
8,761,930 B2	6/2014	Nixon	9,283,049 B2	3/2016	Diolaiti et al.
8,768,516 B2	7/2014	Diolaiti et al.	9,295,490 B2	3/2016	Stearns et al.
8,771,307 B2	7/2014	Franer et al.	D753,303 S *	4/2016	Dannaher D24/146
8,786,241 B2	7/2014	Nowlin et al.	9,301,811 B2	4/2016	Goldberg et al.
8,790,243 B2	7/2014	Cooper et al.	9,314,266 B2	4/2016	Kahle et al.
8,801,741 B2	8/2014	Ahlberg et al.	9,314,269 B2	4/2016	Webb et al.
8,808,164 B2	8/2014	Hoffman et al.	9,314,307 B2	4/2016	Richmond et al.
8,816,628 B2	8/2014	Nowlin et al.	9,317,651 B2	4/2016	Nixon
8,821,480 B2	9/2014	Burbank	9,345,546 B2	5/2016	Toth et al.
8,823,308 B2	9/2014	Nowlin et al.	9,358,040 B2	6/2016	Kahle et al.
8,827,989 B2	9/2014	Niemeyer	9,358,041 B2	6/2016	Moreno, Jr. et al.
8,838,270 B2	9/2014	Druke et al.	9,393,017 B2	7/2016	Flanagan et al.
8,852,174 B2	10/2014	Burbank	9,398,924 B2	7/2016	Webb
8,858,547 B2	10/2014	Brogna	9,402,689 B2	8/2016	Prisco et al.
8,862,268 B2	10/2014	Robinson et al.	9,417,621 B2	8/2016	Diolaiti
8,864,751 B2	10/2014	Prisco et al.	9,424,303 B2	8/2016	Hoffman et al.
8,864,752 B2	10/2014	Diolaiti et al.	9,433,418 B2	9/2016	Whitman et al.
8,870,747 B2	10/2014	Moreno, Jr. et al.	9,446,517 B2	9/2016	Burns et al.
8,870,904 B2	10/2014	Taylor et al.	9,452,020 B2	9/2016	Griffiths et al.
8,903,546 B2	12/2014	Diolaiti et al.	9,468,463 B2	10/2016	Albrecht et al.
8,903,549 B2	12/2014	Itkowitz et al.	9,474,569 B2	10/2016	Manzo et al.
8,911,428 B2	12/2014	Cooper et al.	9,480,533 B2	11/2016	Devengenzo et al.
8,912,746 B2	12/2014	Reid et al.	9,486,241 B2	11/2016	Zeiner et al.
8,932,249 B2	1/2015	Parihar et al.	9,492,062 B2	11/2016	Taylor et al.
8,939,946 B2	1/2015	Albrecht et al.	9,503,713 B2	11/2016	Zhao et al.
8,940,009 B2	1/2015	Kahle et al.	9,545,248 B2	1/2017	Taylor et al.
8,944,070 B2	2/2015	Guthart	9,545,264 B2	1/2017	Mastri et al.
8,961,451 B2	2/2015	Stearns et al.	9,550,300 B2	1/2017	Danitz et al.
8,968,250 B2	3/2015	McGinley et al.	9,554,859 B2	1/2017	Nowlin et al.
			9,566,124 B2	2/2017	Prisco et al.
			9,579,164 B2	2/2017	Itkowitz et al.
			9,585,641 B2	3/2017	Cooper et al.
			D785,175 S	4/2017	Zhou et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

9,615,883 B2	4/2017	Schena et al.	10,285,688 B2	5/2019	Hess et al.
9,623,563 B2	4/2017	Nixon	10,299,785 B2	5/2019	Hess et al.
9,623,902 B2	4/2017	Griffiths et al.	10,335,242 B2	7/2019	Devengenzo et al.
9,629,520 B2	4/2017	Diolaiti	10,349,929 B2	7/2019	Berti et al.
9,655,643 B2	5/2017	Kahle et al.	10,368,906 B2	8/2019	Taylor et al.
9,662,177 B2	5/2017	Weir et al.	10,398,296 B2	9/2019	Rosenbaum et al.
9,664,262 B2	5/2017	Donlon et al.	10,405,934 B2	9/2019	Prisco et al.
D790,700 S *	6/2017	Zhou D24/146	10,420,544 B2	9/2019	Hess et al.
9,687,312 B2	6/2017	Dachs, II et al.	10,426,461 B2	10/2019	Hess et al.
9,700,334 B2	7/2017	Hinman et al.	10,433,922 B2	10/2019	Itkowitz et al.
D794,791 S *	8/2017	Zhou D24/146	10,464,219 B2	11/2019	Robinson et al.
9,718,190 B2	8/2017	Larkin et al.	10,478,219 B2 *	11/2019	McGinley A61B 17/0218
9,730,719 B2	8/2017	Brisson et al.	10,485,580 B2	11/2019	Parihar et al.
9,737,199 B2	8/2017	Pistor et al.	10,485,621 B2	11/2019	Morrisette et al.
D797,288 S *	9/2017	Zhou D24/146	10,492,824 B2	12/2019	Kim
D797,289 S *	9/2017	Zhou D24/146	10,500,004 B2	12/2019	Hanuschik et al.
9,775,642 B2	10/2017	Azarbarzin et al.	10,500,005 B2	12/2019	Weir et al.
9,795,409 B2	10/2017	Kreuz et al.	10,500,007 B2	12/2019	Richmond et al.
9,795,446 B2	10/2017	DiMaio et al.	10,507,066 B2	12/2019	DiMaio et al.
9,797,484 B2	10/2017	Solomon et al.	10,510,267 B2	12/2019	Jarc et al.
9,801,690 B2	10/2017	Larkin et al.	10,524,871 B2	1/2020	Liao
9,814,491 B2	11/2017	Franer	10,548,459 B2	2/2020	Itkowitz et al.
9,814,530 B2	11/2017	Weir et al.	10,568,619 B2	2/2020	Shelton, IV et al.
9,814,536 B2	11/2017	Goldberg et al.	10,568,658 B2	2/2020	Kahle et al.
9,814,537 B2	11/2017	Itkowitz et al.	10,568,660 B2	2/2020	Zhou
9,820,823 B2	11/2017	Richmond et al.	D878,606 S	3/2020	Minnelli et al.
9,827,059 B2	11/2017	Robinson et al.	10,575,871 B2	3/2020	Chen et al.
9,827,383 B2	11/2017	Minnelli et al.	10,575,909 B2	3/2020	Robinson et al.
9,830,371 B2	11/2017	Hoffman et al.	10,588,658 B2 *	3/2020	Kiev A61B 17/3496
9,833,259 B2	12/2017	McGinley et al.	10,592,529 B2	3/2020	Hoffman et al.
9,839,481 B2	12/2017	Blumenkranz et al.	10,595,946 B2	3/2020	Nixon
9,839,487 B2	12/2017	Dachs, II	10,639,068 B2	5/2020	Parihar et al.
9,850,994 B2	12/2017	Schena	10,653,449 B2	5/2020	Main et al.
9,855,102 B2	1/2018	Blumenkranz	D887,002 S *	6/2020	Geng D24/146
9,855,107 B2	1/2018	Labonville et al.	10,675,009 B2	6/2020	Hess et al.
9,872,737 B2	1/2018	Nixon	10,881,469 B2	1/2021	Robinson
9,877,718 B2	1/2018	Weir et al.	10,881,473 B2	1/2021	Itkowitz et al.
9,883,920 B2	2/2018	Blumenkranz	10,898,188 B2	1/2021	Burbank
9,888,942 B1	2/2018	Savage et al.	10,898,189 B2	1/2021	McDonald, II
9,888,974 B2	2/2018	Niemeyer	10,905,506 B2	2/2021	Itkowitz et al.
9,895,813 B2	2/2018	Blumenkranz et al.	10,912,544 B2	2/2021	Brisson et al.
9,901,408 B2	2/2018	Larkin	10,912,619 B2	2/2021	Jarc et al.
D813,389 S *	3/2018	Zhou D24/146	10,918,387 B2	2/2021	Duque et al.
D814,032 S *	3/2018	Zhou D24/146	10,918,449 B2	2/2021	Solomon et al.
9,918,800 B2	3/2018	Itkowitz et al.	10,932,873 B2	3/2021	Griffiths et al.
9,943,375 B2	4/2018	Blumenkranz et al.	10,932,877 B2	3/2021	Devengenzo et al.
9,948,852 B2	4/2018	Lilagan et al.	10,939,969 B2	3/2021	Swarup et al.
9,949,798 B2	4/2018	Weir	10,939,973 B2	3/2021	DiMaio et al.
9,949,802 B2	4/2018	Cooper	10,952,801 B2	3/2021	Miller et al.
9,952,107 B2	4/2018	Blumenkranz et al.	10,965,933 B2	3/2021	Jarc
9,956,044 B2	5/2018	Gomez et al.	10,966,742 B2	4/2021	Rosa et al.
9,980,778 B2	5/2018	Ohline et al.	10,973,517 B2	4/2021	Wixey
10,008,017 B2	6/2018	Itkowitz et al.	10,973,519 B2	4/2021	Weir et al.
10,022,150 B2	7/2018	Kahle et al.	10,984,567 B2	4/2021	Itkowitz et al.
10,028,793 B2	7/2018	Griffiths et al.	10,993,773 B2	5/2021	Cooper et al.
10,033,308 B2	7/2018	Chaghajerdi et al.	10,993,775 B2	5/2021	Cooper et al.
10,034,719 B2	7/2018	Richmond et al.	11,000,331 B2	5/2021	Krom et al.
10,052,167 B2	8/2018	Au et al.	11,013,567 B2	5/2021	Wu et al.
10,070,887 B2	9/2018	Lambrecht et al.	11,020,138 B2	6/2021	Ragosta
10,085,811 B2	10/2018	Weir et al.	11,020,191 B2	6/2021	Diolaiti et al.
10,092,344 B2	10/2018	Mohr	11,020,193 B2	6/2021	Wixey et al.
10,098,661 B2	10/2018	Zhou	11,026,755 B2	6/2021	Weir et al.
10,123,844 B2	11/2018	Nowlin	11,026,759 B2	6/2021	Donlon et al.
10,149,699 B2	12/2018	Webb et al.	11,040,189 B2	6/2021	Vaders et al.
10,188,471 B2	1/2019	Brisson	11,045,077 B2	6/2021	Stern et al.
10,201,370 B2	2/2019	Zhou	11,045,274 B2	6/2021	Dachs, II et al.
10,201,390 B2	2/2019	Swarup et al.	11,058,501 B2	7/2021	Tokarchuk et al.
10,201,396 B2	2/2019	Rosenbaum et al.	11,076,925 B2	8/2021	DiMaio et al.
10,213,202 B2	2/2019	Flanagan et al.	11,090,119 B2	8/2021	Burbank
10,226,589 B2	3/2019	Albrecht et al.	11,096,687 B2	8/2021	Flanagan et al.
10,251,638 B2	4/2019	Hess et al.	11,098,803 B2	8/2021	Duque et al.
10,258,416 B2	4/2019	Mintz et al.	11,109,925 B2	9/2021	Cooper et al.
10,278,782 B2	5/2019	Jarc et al.	11,116,578 B2	9/2021	Hoffman et al.
10,278,783 B2	5/2019	Itkowitz et al.	11,129,683 B2	9/2021	Steger et al.
10,282,881 B2	5/2019	Itkowitz et al.	11,135,029 B2	10/2021	Suresh et al.
			11,147,552 B2	10/2021	Burbank et al.
			11,147,640 B2	10/2021	Jarc et al.
			11,154,373 B2	10/2021	Abbott et al.
			11,154,374 B2	10/2021	Hanuschik et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

11,160,622 B2 11/2021 Goldberg et al.
 11,160,625 B2 11/2021 Wixey et al.
 11,161,243 B2 11/2021 Rabindran et al.
 11,166,758 B2 11/2021 Mohr et al.
 11,166,770 B2 11/2021 DiMaio et al.
 11,166,773 B2 11/2021 Ragosta et al.
 11,173,597 B2 11/2021 Rabindran et al.
 11,185,378 B2 11/2021 Weir et al.
 11,191,596 B2 12/2021 Thompson et al.
 11,197,729 B2 12/2021 Thompson et al.
 11,213,360 B2 1/2022 Hourtash et al.
 11,221,863 B2 1/2022 Azizian et al.
 11,234,700 B2 2/2022 Ragosta et al.
 11,241,274 B2 2/2022 Vaders et al.
 11,241,290 B2 2/2022 Waterbury et al.
 11,259,870 B2 3/2022 DiMaio et al.
 11,259,884 B2 3/2022 Burbank
 11,272,993 B2 3/2022 Gomez et al.
 11,272,994 B2 3/2022 Saraliev et al.
 11,291,442 B2 4/2022 Wixey et al.
 11,291,513 B2 4/2022 Manzo et al.
 2009/0270817 A1* 10/2009 Moreno A61B 17/3462
 604/264
 2010/0262166 A1* 10/2010 Boraiah A61B 17/34
 606/148
 2013/0338694 A1* 12/2013 Fischvogt A61B 17/3494
 606/185
 2016/0228107 A1* 8/2016 Madsen A61B 17/3417
 2017/0119361 A1 5/2017 Hess et al.
 2018/0008313 A1 1/2018 Augelli et al.
 2018/0104423 A1 4/2018 Minnelli et al.
 2018/0289391 A1 10/2018 Fujii et al.
 2018/0310959 A1 11/2018 Kahle et al.
 2018/0325551 A1 11/2018 Kang
 2019/0000504 A1 1/2019 Terefe et al.
 2019/0000506 A1 1/2019 Parihar et al.
 2019/0059946 A1 2/2019 Lambrecht et al.
 2019/0090905 A1 3/2019 Hall et al.
 2019/0099201 A1 4/2019 Morgan et al.

2019/0099202 A1 4/2019 Morgan et al.
 2019/0105076 A1 4/2019 Harris et al.
 2019/0105078 A1 4/2019 Taylor et al.
 2019/0142454 A1* 5/2019 Kim A61B 17/3417
 604/164.01
 2019/0142458 A1 5/2019 Zhu
 2019/0142459 A1 5/2019 Zhu
 2019/0142460 A1 5/2019 Zhu
 2019/0142461 A1 5/2019 Zhu
 2019/0142462 A1 5/2019 Zhu
 2019/0142463 A1 5/2019 Zhu
 2019/0142464 A1 5/2019 Zhu
 2019/0142465 A1 5/2019 Zhu
 2019/0142466 A1 5/2019 Zhu
 2019/0150978 A1 5/2019 Dannaher
 2019/0150982 A1 5/2019 Wu et al.
 2019/0192793 A1 6/2019 Albrecht et al.
 2019/0216497 A1 7/2019 Doerr et al.
 2019/0268581 A1 8/2019 Miyazaki et al.
 2019/0290321 A1 9/2019 Zhu
 2019/0290326 A1 9/2019 Zhu
 2019/0298329 A1 10/2019 Berti et al.
 2019/0343552 A1 11/2019 Yaffe et al.
 2019/0344014 A1 11/2019 Murakami et al.
 2019/0350618 A1 11/2019 Taylor et al.
 2019/0350619 A1 11/2019 Fujii et al.
 2019/0365378 A1 12/2019 Heneveld
 2019/0380742 A1 12/2019 Hall et al.
 2020/0008663 A1 1/2020 Rosenbaum et al.
 2020/0015853 A1 1/2020 Hall et al.
 2020/0038059 A1 2/2020 McGinley et al.
 2020/0046342 A1 2/2020 Hess et al.

OTHER PUBLICATIONS

VersaOne™ Fascial Closure System, Medtronic, [Postdate unknown],
 [Site seen Dec. 27, 2021], Seen at URL: <https://www.medtronic.com/covidien/en-us/products/trocars-access/port-site-closure-devices.html> (Year: 2021).*

* cited by examiner

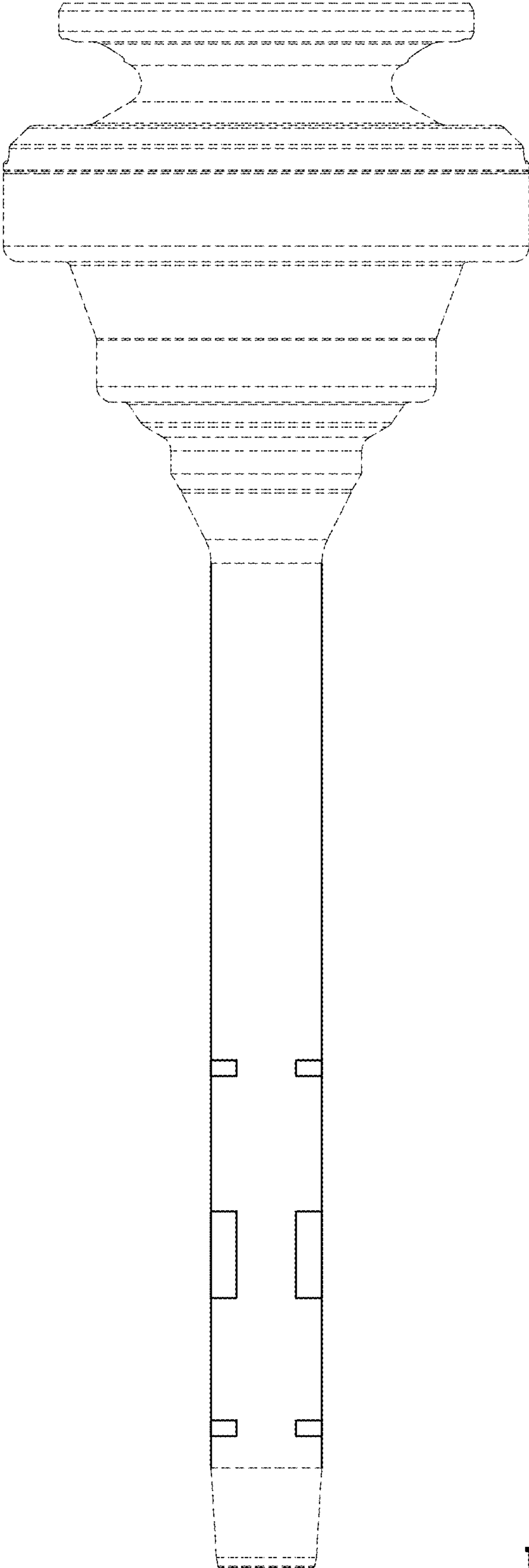


FIG. 1

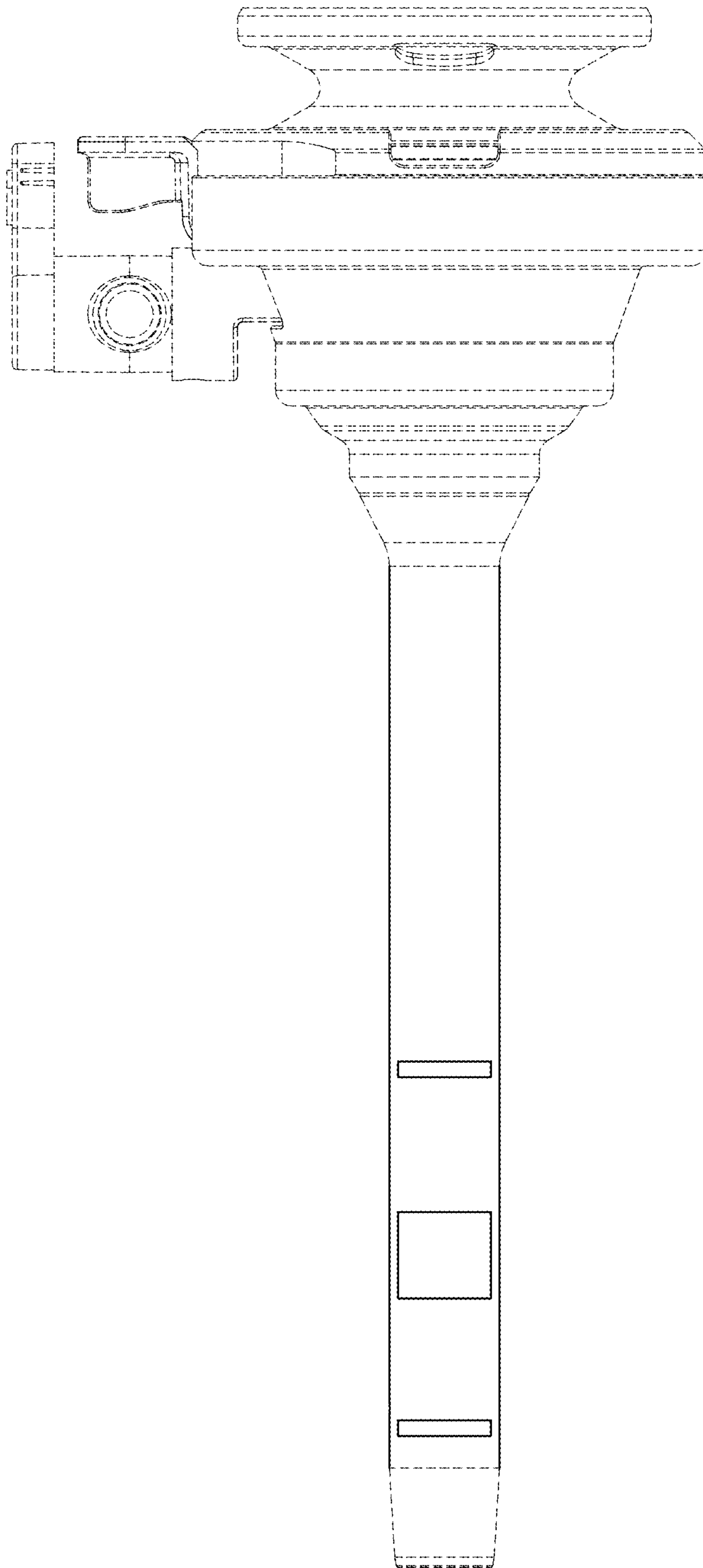


FIG. 2

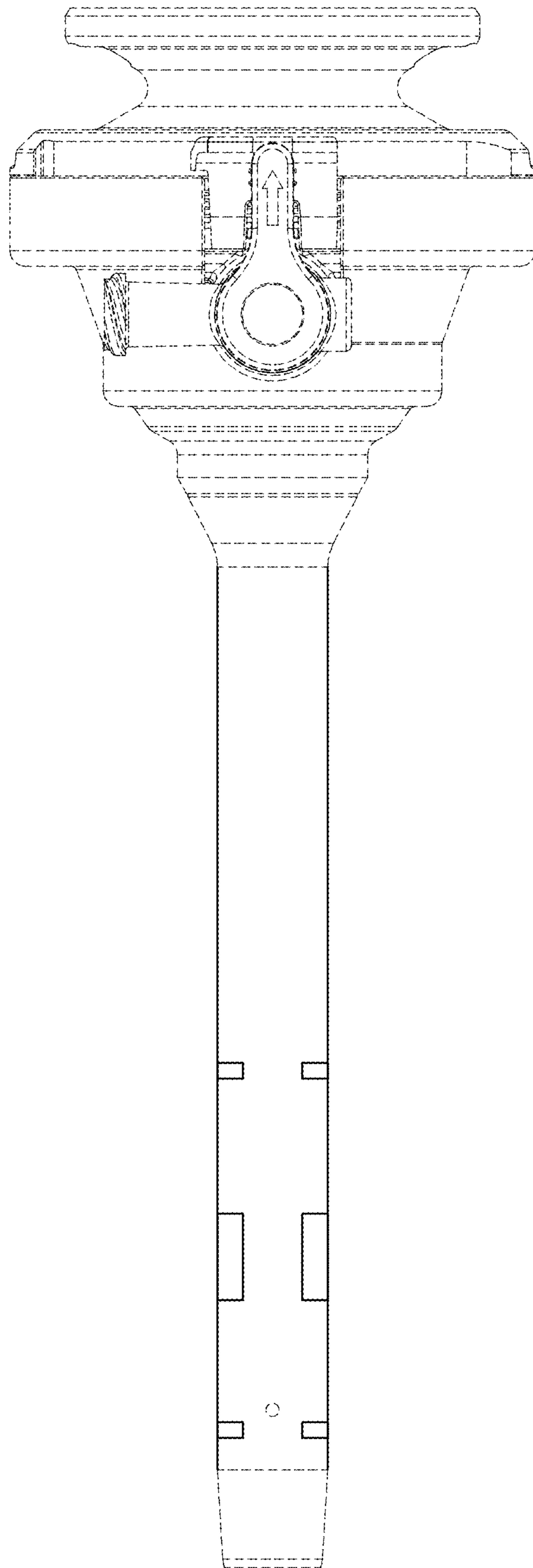


FIG. 3