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(12) **United States Design Patent** (10) **Patent No.:** **US D948,044 S**  
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- (54) **FLUID TRANSFER DEVICE**
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CPC ..... A61J 1/2096; A61J 1/201; A61J 1/2089; A61J 1/2048; A61J 1/22; A61J 1/2058; A61J 1/2062; A61J 1/16; A61J 1/2037; A61J 1/2055; A61M 5/14526; A61M 5/14593; A61M 39/20; A61M 5/31515; A61M 2005/1587; A61M 39/1011; A61M 5/1413; A61M 2209/045; A61M 5/284  
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,923,501 A	8/1933	Perry
2,597,699 A	5/1952	Bauer
3,157,201 A	11/1964	Littmann
3,295,297 A	1/1967	Collins
3,344,785 A	10/1967	Hamilton

(Continued)

FOREIGN PATENT DOCUMENTS

CN	1707379	12/2005
CN	101244297	8/2008

(Continued)

OTHER PUBLICATIONS

*Baxa Corp. v. McGaw Inc.* 981 F. Supp. 1348 (1997), Memorandum Opinion and Order, 14 pages.

(Continued)

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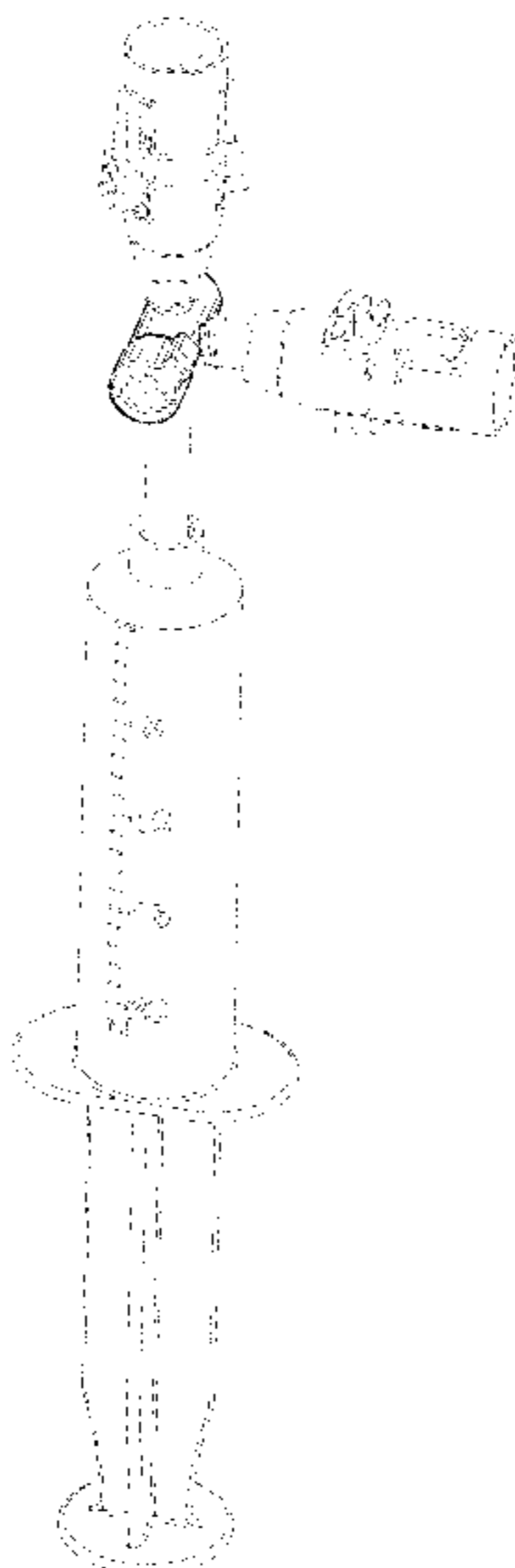
(57) **CLAIM**

The ornamental design for a fluid transfer device, as shown and described.

**DESCRIPTION**

FIG. 1 is a front perspective view of a fluid transfer device; FIG. 2 is a rear perspective view of the device of FIG. 1; FIG. 3 is a front view of the device of FIG. 1; FIG. 4 is a back view of the device of FIG. 1; FIG. 5 is a right side view of the device of FIG. 1; FIG. 6 is a left side view of the device of FIG. 1; FIG. 7 is a top view of the device of FIG. 1; and, FIG. 8 is a bottom view of the device of FIG. 1. The broken lines shown in FIGS. 1-9 illustrate portions of the fluid transfer device that form no part of the claimed design.

**1 Claim, 7 Drawing Sheets**



(56)

References Cited

U.S. PATENT DOCUMENTS

D222,956 S	2/1972	Sato	5,824,212 A	10/1998	Brockhoff
D222,957 S	2/1972	Sato	5,830,185 A	11/1998	Block, Jr.
3,778,973 A	12/1973	Martinez	5,871,110 A	2/1999	Grimard et al.
3,803,810 A	4/1974	Rosenberg	5,871,500 A	2/1999	Jepson et al.
3,834,124 A	9/1974	Ichikawa	D408,079 S *	4/1999	Ellis ..... D24/108
D236,163 S	7/1975	Manno	5,897,526 A	4/1999	Vaillancourt
4,005,710 A	2/1977	Zeddies et al.	5,904,666 A	5/1999	DeDecker et al.
4,084,606 A	4/1978	Mittleman	5,910,252 A	6/1999	Truitt et al.
4,085,047 A	4/1978	Thompson	5,935,106 A	8/1999	Olsen
4,102,655 A	7/1978	Jeffery et al.	5,947,951 A	9/1999	Ortiz et al.
4,187,890 A	2/1980	Stach et al.	5,968,014 A	10/1999	Neftel et al.
4,190,048 A	2/1980	Sampson	5,989,237 A	11/1999	Fowles et al.
4,262,671 A	4/1981	Kersten	6,059,747 A	5/2000	Bruggeman et al.
4,306,705 A	12/1981	Svensson	6,110,153 A	8/2000	Davis et al.
4,336,802 A	6/1982	Stone et al.	RE36,871 E	9/2000	Epstein et al.
4,341,538 A	7/1982	Vadnay et al.	6,123,685 A	9/2000	Reynolds
4,367,736 A	1/1983	Gupton	6,132,404 A	10/2000	Lopez
D268,206 S	3/1983	Kosako	6,152,900 A	11/2000	Mayer
D268,284 S	3/1983	Manno et al.	6,171,484 B1	1/2001	Schnell et al.
4,397,335 A	8/1983	Doblar et al.	6,179,823 B1	1/2001	Niedospial, Jr.
4,410,321 A	10/1983	Pearson et al.	6,193,675 B1	2/2001	Kraus et al.
4,423,741 A	1/1984	Levy	6,193,689 B1	2/2001	Woodard
4,519,792 A	5/1985	Dawe	6,202,708 B1	3/2001	Bynum
4,534,758 A	8/1985	Akers et al.	6,221,041 B1	4/2001	Russo
4,559,043 A	12/1985	Whitehouse et al.	6,245,048 B1	6/2001	Fangrow, Jr. et al.
4,561,856 A	12/1985	Cochran	6,287,289 B1	9/2001	Niedospial, Jr.
4,568,330 A	2/1986	Kujawski et al.	6,302,864 B1	10/2001	Nowosielski
4,643,713 A	2/1987	Vitala	6,425,497 B1	7/2002	Chu et al.
4,666,429 A	5/1987	Stone	6,474,375 B2	11/2002	Spero et al.
4,670,007 A	6/1987	Wheeldon et al.	6,485,472 B1	11/2002	Richmond
4,683,916 A	8/1987	Raines	6,537,356 B1	3/2003	Soriano
4,755,172 A	7/1988	Baldwin	6,551,299 B2	4/2003	Miyoshi et al.
4,759,756 A	7/1988	Forman et al.	6,558,365 B2	5/2003	Zinger et al.
4,768,568 A	9/1988	Fournier et al.	6,572,256 B2	6/2003	Seaton et al.
4,778,450 A	10/1988	Kamen	6,585,229 B2	7/2003	Cote, Sr. et al.
4,819,684 A	4/1989	Zaugg et al.	6,590,167 B2	7/2003	Clare
4,828,587 A	5/1989	Baurmeisiter et al.	6,599,273 B1	7/2003	Lopez
4,863,429 A	9/1989	Baldwin	6,623,455 B2	9/2003	Small et al.
D305,165 S	12/1989	Rudolph et al.	6,629,956 B1	10/2003	Polldoro et al.
4,922,975 A	5/1990	Polaschegg	6,651,956 B2	11/2003	Miller
4,936,841 A	6/1990	Aoki et al.	6,663,586 B2	12/2003	Verkaart et al.
4,969,874 A	11/1990	Michel et al.	6,689,108 B2	2/2004	Lavi et al.
4,972,876 A	11/1990	Kabata et al.	6,699,230 B2	3/2004	Jaafar et al.
4,976,590 A	12/1990	Baldwin	6,711,460 B1	3/2004	Reese
4,995,268 A	2/1991	Ash et al.	6,726,672 B1	4/2004	Hanly et al.
5,024,347 A	6/1991	Baldwin	6,793,651 B1	9/2004	Bennett et al.
5,037,390 A	8/1991	Raines et al.	6,813,868 B2	11/2004	Baldwin et al.
5,114,580 A	5/1992	Ahmad et al.	6,908,459 B2	6/2005	Harding et al.
D328,952 S	8/1992	Arioka	6,915,823 B2	7/2005	Osborne et al.
5,176,658 A	1/1993	Ranford	6,948,522 B2	9/2005	Newbrough et al.
5,224,937 A	7/1993	van der Heiden et al.	6,953,450 B2	10/2005	Baldwin et al.
5,254,096 A	10/1993	Rondelet et al.	6,985,870 B2	1/2006	Martucci et al.
5,256,155 A	10/1993	Yerlikaya et al.	6,991,002 B2	1/2006	Osborne et al.
5,288,290 A	2/1994	Brody	6,994,315 B2	2/2006	Ryan et al.
5,300,044 A	4/1994	Classey et al.	6,997,917 B2	2/2006	Niedospial, Jr. et al.
D348,101 S	6/1994	Poll et al.	7,006,894 B2	2/2006	De La Huerga
5,334,211 A	8/1994	Shiber	7,017,623 B2	3/2006	Tribble et al.
5,336,201 A	8/1994	von der Decken	7,086,431 B2	8/2006	D'Antonio et al.
D352,778 S	11/1994	Irvin	7,108,024 B2	9/2006	Navarro
5,378,231 A	1/1995	Johnson et al.	7,117,901 B2	10/2006	Martinell Gisper-Sauch et al.
5,405,333 A	4/1995	Richmond	7,117,902 B2	10/2006	Osborne
5,423,791 A	6/1995	Bartlett	7,128,105 B2	10/2006	Tribble et al.
5,431,201 A	7/1995	Torchia et al.	7,163,031 B2	1/2007	Graves et al.
5,439,451 A	8/1995	Collinson et al.	7,163,035 B2	1/2007	Khan et al.
5,466,220 A	11/1995	Brenneman	7,175,615 B2	2/2007	Hanly et al.
5,609,572 A	3/1997	Lang	7,194,336 B2	3/2007	DiGianfilippo et al.
5,645,538 A	7/1997	Richmond	7,260,447 B2	8/2007	Osborne
5,647,845 A	7/1997	Haber et al.	7,317,967 B2	1/2008	DiGianfilippo et al.
5,674,199 A	10/1997	Brugger	7,343,224 B2	3/2008	DiGianfilippo et al.
5,676,346 A	10/1997	Leinsing	7,343,943 B2	3/2008	Khan et al.
5,685,866 A	11/1997	Lopez	7,351,226 B1	4/2008	Herskowitz
5,776,345 A	7/1998	Truitt et al.	7,354,426 B2	4/2008	Young
5,782,816 A	7/1998	Werschmidt et al.	7,392,638 B2	7/2008	Baldwin et al.
5,807,312 A	9/1998	Dzwonkiewicz	7,396,051 B2	7/2008	Baldwin et al.
5,810,792 A	9/1998	Fangrow, Jr. et al.	7,398,183 B2	7/2008	Holland et al.
			7,398,802 B2	7/2008	Baker
			7,418,981 B2	9/2008	Baker et al.
			7,442,186 B2	10/2008	Blomquist
			7,454,314 B2	11/2008	Holland et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

7,488,311 B2	2/2009	Domkowski et al.	8,356,644 B2	1/2013	Chong et al.
7,499,581 B2	3/2009	Tribble et al.	8,356,645 B2	1/2013	Chong et al.
7,527,619 B2	5/2009	Domkowski et al.	8,357,137 B2	1/2013	Yandell
7,530,211 B2	5/2009	McErlean et al.	8,374,887 B1	2/2013	Alexander
7,530,974 B2	5/2009	Domkowski et al.	8,380,536 B2	2/2013	Howard et al.
7,538,858 B2	5/2009	Mackey	8,381,776 B2	2/2013	Horppu
D594,120 S	6/2009	Berberich et al.	8,382,696 B2	2/2013	Beiriger et al.
D596,291 S	7/2009	Berberich et al.	8,386,070 B2	2/2013	Eliuk et al.
7,566,326 B2	7/2009	Duchon et al.	8,403,905 B2	3/2013	Yow
7,590,021 B2	9/2009	Michalak et al.	8,409,165 B2	4/2013	Niedospial, Jr. et al.
7,610,115 B2	10/2009	Rob et al.	8,414,554 B2	4/2013	Garfield et al.
7,630,788 B1	12/2009	Reese	8,414,556 B2	4/2013	Garfield et al.
7,630,789 B2	12/2009	Broadfield et al.	8,425,487 B2	4/2013	Beiriger et al.
7,632,261 B2	12/2009	Zinger et al.	8,430,859 B2	4/2013	McConnell
7,654,976 B2	2/2010	Peterson et al.	8,449,521 B2	5/2013	Thorne, Jr. et al.
7,681,606 B2	3/2010	Khan et al.	D687,948 S *	8/2013	Levesque ..... D24/111
7,685,026 B1	3/2010	McGrady et al.	8,506,548 B2	8/2013	Okiyama
D616,092 S	5/2010	Domkowski et al.	8,522,832 B2	9/2013	Lopez et al.
7,717,897 B2	5/2010	Burg et al.	8,543,416 B2	9/2013	Palmroos et al.
D620,108 S	7/2010	Eitenmueller et al.	8,551,037 B2	10/2013	Suchecky et al.
7,753,085 B2	7/2010	Tribble et al.	8,562,583 B2	10/2013	Akerlund et al.
7,758,560 B2	7/2010	Connell et al.	8,562,584 B2	10/2013	Beiriger et al.
7,789,850 B2	9/2010	Roger	8,567,235 B2	10/2013	Bojan et al.
7,814,731 B2	10/2010	Bender et al.	8,571,708 B2	10/2013	Rob et al.
7,850,051 B2	12/2010	Py et al.	8,602,067 B2	12/2013	Kuhni et al.
7,867,215 B2	1/2011	Akerlund et al.	8,608,723 B2	12/2013	Lev et al.
7,882,863 B2	2/2011	Pestotnik et al.	8,622,985 B2	1/2014	Ellstrom
7,895,053 B2	2/2011	Holland et al.	8,636,720 B2	1/2014	Truitt et al.
7,900,658 B2	3/2011	Osborne et al.	8,639,525 B2	1/2014	Levine et al.
7,913,720 B2	3/2011	Tribble et al.	8,660,860 B2	2/2014	Wehba et al.
7,963,201 B2	6/2011	Willoughby et al.	8,679,075 B2	3/2014	Lurvey et al.
7,963,954 B2	6/2011	Kavazov	8,684,994 B2	4/2014	Lev et al.
7,967,202 B2	6/2011	Durrell et al.	8,700,421 B2	4/2014	Feng et al.
7,981,381 B2	7/2011	Lurvey et al.	8,701,696 B2	4/2014	Guala
7,997,304 B2	8/2011	Ranalletta et al.	8,702,675 B2	4/2014	Imai
8,034,041 B2	10/2011	Domkowski et al.	8,720,496 B2	5/2014	Huwiler et al.
8,037,659 B2	10/2011	Osborne et al.	8,721,612 B2	5/2014	Moy et al.
8,065,161 B2	11/2011	Howard et al.	8,721,614 B2	5/2014	Takemoto et al.
8,075,545 B2	12/2011	Moy et al.	8,721,627 B2	5/2014	Alpert
8,091,727 B2	1/2012	Domkowski	D706,415 S *	6/2014	Levesque ..... D24/111
8,091,860 B2	1/2012	Thompson et al.	8,753,325 B2	6/2014	Lev et al.
8,104,644 B2	1/2012	Py et al.	8,763,798 B2	7/2014	Paul
8,117,809 B2	2/2012	McErlean et al.	8,795,231 B2	8/2014	Chong et al.
8,140,351 B2	3/2012	Tribble et al.	8,821,436 B2	9/2014	Mosler et al.
8,141,601 B2	3/2012	Fehr et al.	8,834,444 B2	9/2014	Domkowski
8,151,835 B2	4/2012	Khan et al.	8,852,147 B2	10/2014	Callan et al.
8,162,903 B2	4/2012	Reilly et al.	8,863,788 B2	10/2014	Ranalletta et al.
8,162,914 B2	4/2012	Kraushaar et al.	8,864,725 B2	10/2014	Ranalletta et al.
8,162,915 B2	4/2012	Brandenburger et al.	8,864,737 B2	10/2014	Hasegawa et al.
D660,423 S	5/2012	Hermle	8,870,832 B2	10/2014	Raday et al.
8,167,863 B2	5/2012	Yow	8,882,739 B2	11/2014	Domkowski et al.
8,172,823 B2	5/2012	Rondeau et al.	8,894,627 B2	11/2014	Garfield et al.
8,182,744 B2	5/2012	Mlodzinski et al.	8,911,421 B2	12/2014	Domkowski et al.
8,197,459 B2	6/2012	Jansen et al.	D721,803 S	1/2015	Dubach
8,206,367 B2	6/2012	Warren et al.	8,926,554 B2	1/2015	Okuda et al.
D664,647 S	7/2012	Becker	8,958,112 B2	2/2015	Matsui et al.
D664,648 S	7/2012	Becker	D724,198 S	3/2015	Oostman et al.
D664,649 S	7/2012	Becker	8,973,622 B2	3/2015	Lopez et al.
8,209,941 B2	7/2012	Osborne et al.	8,979,792 B2	3/2015	Lev et al.
8,216,207 B2	7/2012	Moy et al.	9,033,006 B2	5/2015	Perazzo et al.
8,220,503 B2	7/2012	Tribble et al.	9,043,019 B2	5/2015	Elluk et al.
8,220,504 B2	7/2012	Hartman et al.	9,056,164 B2	6/2015	Tate et al.
8,221,382 B2	7/2012	Moy et al.	9,057,363 B2	6/2015	Capone
8,225,824 B2	7/2012	Eliuk et al.	9,057,370 B2	6/2015	Mundt et al.
8,225,826 B2	7/2012	Horppu et al.	9,060,923 B2	6/2015	Hossainy
8,231,567 B2	7/2012	Tennican et al.	9,061,130 B2	6/2015	Truitt et al.
8,231,749 B2	7/2012	Dent et al.	9,076,115 B2	7/2015	Utech et al.
8,241,265 B2	8/2012	Moy et al.	9,079,686 B2	7/2015	Domkowski et al.
D667,946 S *	9/2012	Levesque ..... D24/111	9,089,474 B2	7/2015	Cederschlöld
8,267,129 B2	9/2012	Doherty et al.	9,089,647 B2	7/2015	Haenggi et al.
8,267,912 B2	9/2012	Ferris	9,101,717 B2	8/2015	Mansour et al.
8,287,513 B2	10/2012	Ellstrom et al.	9,114,242 B2	8/2015	Fangrow, Jr. et al.
8,328,082 B1	12/2012	Bochenko et al.	9,123,077 B2	9/2015	Silkaitis et al.
8,336,687 B2	12/2012	Rosenquist et al.	9,132,062 B2	9/2015	Fangrow
8,353,318 B2	1/2013	Ranalletta et al.	9,132,063 B2	9/2015	Lev et al.
			9,139,316 B2	9/2015	Husnu et al.
			9,144,646 B2	9/2015	Barron, III et al.
			9,149,576 B2	10/2015	Bullington et al.
			9,198,832 B2	12/2015	Moy et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

9,211,231 B2	12/2015	Mansour et al.	11,033,459 B2 *	6/2021	Ariagno .....	A61J 1/201
9,212,762 B2	12/2015	Duncan	2002/0017328 A1	2/2002	Loo	
9,220,661 B2	12/2015	Garfield et al.	2002/0085952 A1	7/2002	Ellingboe et al.	
D747,472 S *	1/2016	Bradley .....	2002/0087144 A1	7/2002	Zinger et al.	
9,227,048 B2	1/2016	Frattini	2002/0095121 A1	7/2002	Norton et al.	
9,241,875 B2	1/2016	Davis et al.	2002/0115980 A1	8/2002	Niedospial, Jr. et al.	
9,242,039 B2	1/2016	Valk et al.	2002/0179544 A1	12/2002	Johnson et al.	
9,270,890 B2	2/2016	Okuma et al.	2002/0189712 A1	12/2002	Safabash	
9,345,640 B2	5/2016	Mosler et al.	2002/0189712 A1	12/2002	Safabash	
9,345,641 B2	5/2016	Kraus et al.	2003/0023226 A1	1/2003	Lopez	
9,345,643 B2	5/2016	Okiyama	2003/0153895 A1	8/2003	Leinsing	
9,381,135 B2	7/2016	Reynolds et al.	2003/0236500 A1	12/2003	Scheu	
9,381,137 B2	7/2016	Garfield et al.	2004/0031756 A1	2/2004	Suzuki et al.	
9,381,296 B2	7/2016	Arrizza et al.	2004/0035743 A1	2/2004	Tighe et al.	
9,382,021 B2	7/2016	Tribble et al.	2004/0073161 A1	4/2004	Tachibana	
9,393,362 B2	7/2016	Cozmi et al.	2004/0087888 A1	5/2004	Digianfilippo et al.	
9,402,786 B2	8/2016	Petrone	2004/0116891 A1	6/2004	Curutcharry	
9,408,966 B2	8/2016	Kamen	2004/0118477 A1	6/2004	Desmond	
9,466,088 B2	10/2016	Perazzo et al.	2004/0225274 A1	11/2004	Jansen et al.	
9,474,690 B2	10/2016	Ranalletta et al.	2005/0033260 A1	2/2005	Kubo et al.	
9,475,019 B2	10/2016	Kaucky et al.	2005/0096627 A1	5/2005	Howard	
9,481,477 B2	11/2016	Kjar	2005/0131357 A1	6/2005	Denton et al.	
D774,192 S	12/2016	Fuchs	2005/0230575 A1	10/2005	Zelenski et al.	
D775,325 S	12/2016	Larson et al.	2005/0252572 A1	11/2005	Khan et al.	
9,511,989 B2	12/2016	Lopez et al.	2005/0252574 A1	11/2005	Khan et al.	
9,561,893 B2	2/2017	Root et al.	2005/0278194 A1	12/2005	Holland et al.	
9,572,923 B2	2/2017	Howard et al.	2006/0048844 A1	3/2006	Merrill	
9,579,255 B2	2/2017	Eliuk et al.	2006/0064053 A1	3/2006	Bollish et al.	
9,615,997 B2	4/2017	Fangrow	2006/0089854 A1	4/2006	Holland et al.	
9,744,102 B2	8/2017	Kubo	2006/0089855 A1	4/2006	Holland et al.	
9,770,388 B2	9/2017	Noike et al.	2006/0100907 A1	5/2006	Holland et al.	
9,775,778 B2	10/2017	Qiu et al.	2006/0169348 A1	8/2006	Yigal	
9,801,787 B2	10/2017	Py	2006/0259195 A1	11/2006	Eliuk et al.	
9,802,171 B2	10/2017	Konrad, Jr. et al.	2007/0007478 A1	1/2007	Leinsing et al.	
9,802,172 B2	10/2017	Konrad, Jr. et al.	2007/0017583 A1	1/2007	Fangrow	
D803,396 S	11/2017	Oberkircher et al.	2007/0088252 A1	4/2007	Pestotnik et al.	
9,827,163 B2	11/2017	Lopez et al.	2007/0088313 A1	4/2007	Zinger et al.	
9,827,680 B2	11/2017	Davey et al.	2007/0106244 A1	5/2007	Mosler et al.	
D804,651 S	12/2017	Loonan	2007/0151984 A1	7/2007	Baker et al.	
9,833,605 B2 *	12/2017	Sanders .....	2007/0169836 A1	7/2007	Djurle et al.	
9,849,236 B2	12/2017	Hachey et al.	2007/0214003 A1	9/2007	Holland et al.	
9,883,987 B2	2/2018	Lopez et al.	2007/0244447 A1	10/2007	Capitaine et al.	
9,930,297 B2	3/2018	Alexander et al.	2007/0287953 A1	12/2007	Ziv et al.	
9,931,276 B2	4/2018	Lopez et al.	2008/0059228 A1	3/2008	Bossi et al.	
D819,414 S *	6/2018	Solomon .....	2008/0065006 A1	3/2008	Roger et al.	
10,106,278 B2	10/2018	Chang et al.	2008/0077116 A1	3/2008	Dailey et al.	
10,143,985 B2	12/2018	Brown et al.	2008/0086094 A1	4/2008	Peters	
D837,983 S *	1/2019	Fangrow .....	2008/0114328 A1	5/2008	Doherty et al.	
10,181,186 B2	1/2019	Kriheli et al.	2008/0125897 A1	5/2008	DiGianfilippo et al.	
10,188,849 B2	1/2019	Fangrow	2008/0169043 A1	7/2008	Osborne et al.	
10,189,616 B2	1/2019	Kraft	2008/0169044 A1	7/2008	Osborne et al.	
D846,146 S	4/2019	Amos et al.	2008/0172024 A1	7/2008	Yow	
10,259,608 B2	4/2019	Fianchini et al.	2008/0177222 A1	7/2008	De Marco et al.	
D851,745 S	6/2019	Shauver et al.	2008/0195416 A1	8/2008	Tribble et al.	
10,307,338 B2	6/2019	Hellenbrand	2008/0199353 A1	8/2008	Mlodzinski et al.	
10,314,764 B2	6/2019	Lopez et al.	2008/0269680 A1	10/2008	Ibranyan et al.	
10,314,765 B2	6/2019	Lopez et al.	2008/0287920 A1	11/2008	Fangrow et al.	
10,315,174 B2	6/2019	Konrad, Jr. et al.	2009/0012449 A1	1/2009	Lee et al.	
10,327,987 B1	6/2019	Bochenko et al.	2009/0050216 A1	2/2009	Trocki et al.	
10,327,988 B2	6/2019	Tribble et al.	2009/0067973 A1	3/2009	Eliuk et al.	
10,336,477 B2	7/2019	Perazzo et al.	2009/0069743 A1	3/2009	Krishnamoorthy et al.	
10,417,758 B1	9/2019	Alexander	2009/0082649 A1	3/2009	Muller et al.	
10,494,126 B2	12/2019	Joplin	2009/0088687 A1	4/2009	Yardimci et al.	
10,503,873 B2	12/2019	Prince et al.	2009/0099547 A1	4/2009	Radmer	
10,512,885 B2	12/2019	Janders et al.	2009/0101576 A1	4/2009	Rohde et al.	
D874,644 S	2/2020	Shauver et al.	2009/0126825 A1	5/2009	Eliuk et al.	
10,554,937 B2	2/2020	Alexander et al.	2009/0135196 A1	5/2009	Holland et al.	
10,556,062 B2	2/2020	Simpson et al.	2009/0145509 A1	6/2009	Baker et al.	
10,576,211 B2	3/2020	Hang et al.	2009/0149743 A1	6/2009	Barron et al.	
D887,577 S *	6/2020	Shor .....	2009/0154764 A1	6/2009	Khan et al.	
10,791,975 B2 *	10/2020	Wilkinson .....	2009/0163860 A1	6/2009	Patrick et al.	
D905,228 S	12/2020	Shauver et al.	2009/0177149 A1	7/2009	Childers et al.	
11,007,119 B2	5/2021	Lopez et al.	2009/0198215 A1	8/2009	Chong et al.	
11,020,541 B2	6/2021	Fangrow et al.	2009/0223592 A1	9/2009	Procyshyn et al.	
			2009/0223990 A1	9/2009	Bailey et al.	
			2009/0254031 A1	10/2009	Lee	
			2009/0270832 A1	10/2009	Vancaillie et al.	
			2009/0306621 A1	12/2009	Thome, Jr. et al.	
			2010/0024904 A1	2/2010	Hoffman et al.	
			2010/0049157 A1	2/2010	Fangrow	

(56)

References Cited

U.S. PATENT DOCUMENTS

2010/0121246 A1	5/2010	Peters et al.	2015/0209510 A1	7/2015	Burkholz et al.
2010/0130933 A1	5/2010	Holland et al.	2015/0209572 A1	7/2015	Garfield et al.
2010/0245056 A1	9/2010	Braun et al.	2015/0051751 A1	8/2015	Silkaitis et al.
2010/0276034 A1	11/2010	Gonnelli et al.	2015/0250680 A1	9/2015	Browka et al.
2010/0280430 A1	11/2010	Caleffi et al.	2015/0250681 A1	9/2015	Lev et al.
2010/0286606 A1	11/2010	Ding	2015/0257977 A1	9/2015	Bochenko et al.
2011/0004143 A1	1/2011	Beiriger et al.	2015/0265500 A1	9/2015	Russo et al.
2011/0062703 A1	3/2011	Lopez et al.	2015/0283322 A1	10/2015	Hachey et al.
2011/0067781 A1	3/2011	Osborne	2015/0297451 A1	10/2015	Mariei et al.
2011/0152757 A1	6/2011	Beck et al.	2015/0297453 A1	10/2015	Kim et al.
2011/0175347 A1	7/2011	Okiyama	2015/0297454 A1	10/2015	Sanders et al.
2011/0178493 A1	7/2011	Okiyama	2015/0297456 A1	10/2015	Mariei et al.
2011/0196304 A1	8/2011	Kramer et al.	2015/0297459 A1	10/2015	Sanders et al.
2011/0204144 A1	8/2011	Waugh et al.	2015/0297460 A1	10/2015	Mansour et al.
2011/0229517 A1	9/2011	Strahlendorf et al.	2015/0297839 A1	10/2015	Sanders et al.
2011/0276031 A1	11/2011	Hoang et al.	2015/0297881 A1	10/2015	Sanders et al.
2011/0305545 A1	12/2011	Davis et al.	2015/0314066 A1	11/2015	Shimizu
2012/0157914 A1	1/2012	Stroup	2015/0346013 A1	12/2015	Feng et al.
2012/0041391 A1	2/2012	Fangrow et al.	2015/0359709 A1	12/2015	Kriheli et al.
2012/0067429 A1*	3/2012	Mosler .....	2015/0366758 A1	12/2015	Noguchi et al.
			2016/0000653 A1	1/2016	Kramer
			2016/0001003 A1	1/2016	Perazzo et al.
			2016/0058666 A1	3/2016	Strahlendorf et al.
			2016/0081878 A1	3/2016	Marks et al.
			2016/0081879 A1	3/2016	Garfield et al.
			2016/0101020 A1	4/2016	Guala
			2016/0114922 A1	4/2016	Bonhora et al.
			2016/0136051 A1	5/2016	Lavi
			2016/0136412 A1	5/2016	McKinnon et al.
			2016/0140315 A1	5/2016	Diaz et al.
			2016/0158104 A1	6/2016	All et al.
			2016/0158437 A1	6/2016	Biasi et al.
			2016/0206511 A1	7/2016	Garfield et al.
			2016/0213568 A1	7/2016	Mansour et al.
			2016/0250102 A1	9/2016	Garfield et al.
			2016/0256632 A1	9/2016	Fangrow
			2016/0310362 A1	10/2016	Lane et al.
			2016/0331893 A1	11/2016	Yeh et al.
			2016/0354281 A1	12/2016	O'Neill et al.
			2017/0007501 A1	1/2017	Schuldt-Lieb et al.
			2017/0020428 A1	1/2017	Rogers et al.
			2017/0079883 A1	3/2017	Lopez
			2017/0081168 A1	3/2017	Seay et al.
			2017/0128666 A1	5/2017	Davis
			2017/0129763 A1	5/2017	Fangrow, Jr.
			2017/0146381 A1	5/2017	Eckel et al.
			2017/0255760 A1	9/2017	Lee et al.
			2017/0274140 A1	9/2017	Howard et al.
			2017/0312716 A1	11/2017	Konrad, Jr. et al.
			2017/0354571 A1	12/2017	David et al.
			2018/0043323 A1	2/2018	Janders et al.
			2018/0055738 A1	3/2018	Chen et al.
			2018/0065097 A1	3/2018	Konrad, Jr. et al.
			2018/0133667 A1	5/2018	Lee et al.
			2018/0161244 A1	6/2018	Lopez
			2018/0168930 A1	6/2018	Tunesi
			2018/0168935 A1	6/2018	Chen et al.
			2018/0177940 A1	6/2018	Hachey
			2018/0194505 A1	7/2018	Amano et al.
			2018/0207063 A1	7/2018	Lopez
			2018/0232497 A1	8/2018	Hoffman et al.
			2018/0263850 A1	9/2018	Schneider et al.
			2018/0272117 A1	9/2018	Fangrow
			2018/0344572 A1	12/2018	Zollinger et al.
			2018/0353381 A1	12/2018	Pak et al.
			2018/0353382 A1	12/2018	Zollinger et al.
			2018/0354662 A1	12/2018	Feith et al.
			2018/0357476 A1	12/2018	Klumph
			2018/0360689 A1	12/2018	Zollinger et al.
			2019/0019576 A1	1/2019	DeCiccio et al.
			2019/0021947 A1	1/2019	Bomgaars et al.
			2019/0056419 A1	2/2019	Procysshyn et al.
			2019/0070405 A1	3/2019	Fangrow
			2019/0091639 A1	3/2019	Brown et al.
			2019/0105619 A1	4/2019	Wilson et al.
			2019/0151569 A1	5/2019	Fangrow
			2019/0152663 A1	5/2019	Kraft
			2019/0163876 A1	5/2019	Remme et al.
			2019/0170663 A1	6/2019	Pirkle et al.

B65D 51/002  
137/1

(56)

## References Cited

## U.S. PATENT DOCUMENTS

2019/0216683 A1 7/2019 Yaegashi  
 2019/0244466 A1 8/2019 Berg et al.  
 2019/0247280 A1 8/2019 Hellenbrand  
 2019/0262790 A1 8/2019 Konrad, Jr. et al.  
 2019/0275243 A1 9/2019 Deck et al.  
 2019/0307643 A1 10/2019 Tribble et al.  
 2019/0388302 A1 12/2019 Schobel et al.  
 2020/0016037 A1 1/2020 Oda et al.  
 2020/0066389 A1 2/2020 Prince et al.  
 2020/0093699 A1 3/2020 Oda et al.  
 2020/0113784 A1 4/2020 Lopez  
 2020/0113785 A1 4/2020 Lopez  
 2020/0206492 A1 7/2020 Fangrow  
 2020/0289370 A1 9/2020 Lopez  
 2020/0297581 A1 9/2020 Lopez  
 2021/0002008 A1 1/2021 Min et al.  
 2021/0121363 A1 4/2021 Oda et al.  
 2021/0259921 A1 8/2021 Lopez

## FOREIGN PATENT DOCUMENTS

CN 106860003 A 6/2017  
 CN 107198658 A 9/2017  
 CN 108210332 A 6/2018  
 DE 202 16 791 U 2/2003  
 DE 20 2004 014 868 11/2004  
 EP 0 521 460 B1 9/1995  
 EP 0 974 330 1/2000  
 EP 1 533 597 5/2005  
 EP 1 563 819 8/2005  
 EP 1 997 471 12/2008  
 EP 3 375 427 A1 9/2018  
 JP S55-156750 11/1980  
 JP 55-173339 12/1980  
 JP 56-95247 A 8/1981  
 JP 62-189072 A 8/1987  
 JP 06-343706 12/1994  
 JP 10-118158 A 5/1998  
 JP 2001-190689 A 7/2001  
 JP 2002-238979 A 8/2002  
 JP 2002-355318 12/2002  
 JP 2003-144546 5/2003  
 JP 2003-199823 7/2003  
 JP 2003-225305 A 8/2003  
 JP 2004-049497 2/2004  
 JP 2007-14618 A 1/2007  
 JP 2007-215775 A 8/2007  
 KR 10-1095961 B1 12/2011  
 KR 10-1574194 B1 12/2015  
 WO WO 1997/14493 4/1997  
 WO WO 1998/23353 6/1998  
 WO WO 1999/19012 4/1999  
 WO WO 1999/63547 12/1999  
 WO WO 2000/41751 7/2000  
 WO WO 2001/03757 1/2001  
 WO WO 2001/039874 6/2001  
 WO WO 2005/041846 5/2005  
 WO WO 2005/110007 11/2005  
 WO WO 2005/123162 12/2005  
 WO WO 2007/033013 3/2007  
 WO WO 2007/061424 5/2007  
 WO WO 2007/062315 5/2007  
 WO WO 2007/079305 7/2007  
 WO WO 2007/148708 12/2007  
 WO WO 2008/051998 5/2008  
 WO WO 2008/128074 10/2008  
 WO WO 2008/144447 11/2008  
 WO WO 2009/060419 5/2009  
 WO WO 2009/130147 10/2009  
 WO WO 2011/002853 1/2011  
 WO WO 2011/012313 2/2011  
 WO WO 2011/014525 2/2011  
 WO WO 2011/058545 5/2011  
 WO WO 2011/058548 5/2011  
 WO WO 2011/091542 8/2011

WO WO 2011/091543 8/2011  
 WO WO 2011/104711 9/2011  
 WO WO 2011/104712 9/2011  
 WO WO 2011/150037 12/2011  
 WO WO 2012/119225 9/2012  
 WO WO 2013/096911 6/2013  
 WO WO 2014/122643 8/2014  
 WO WO 2014/126473 8/2014  
 WO WO 2014/177347 11/2014  
 WO WO 2014/181320 11/2014  
 WO WO 2015/029020 3/2015  
 WO WO 2015/077184 5/2015  
 WO WO 2015/077466 5/2015  
 WO WO 2015/122921 8/2015  
 WO WO 2016/010909 1/2016  
 WO WO 2018/009996 1/2018  
 WO WO 2019/018195 1/2019

## OTHER PUBLICATIONS

Abbott Laboratories, "Abbott MedNet Software," Installation and User Guide in 156 pages, Copyright 2006. (Part 1—pp. 1-78).  
 Abbott Laboratories, "Abbott MedNet Software," Installation and User Guide in 156 pages, Copyright 2006. (Part 2—pp. 79-156).  
 Abbott "Plum A+," System Operating Manual (For use with List 11971-04) in 85 pages, May 2001.  
 European Extended Search Report, re EP Application No. 16871522, dated Jun. 7, 2019.  
 Hospira, "Hospira MedNet Software Suite," IT Implementation Training Guide in 143 pages, Copyright 2006.  
 Hospira, "LifeCare PCA with Hospira MedNet Software," LifeCare PCA Technical Service Manual in 208 pages, Published 2007. (Part 1—pp. 1-104).  
 Hospira, "LifeCare PCA with Hospira MedNet Software," LifeCare PCA Technical Service Manual in 208 pages, Published 2007. (Part 2—pp. 105-208).  
 International Preliminary Report on Patentability, re PCT Application No. PCT/US 16/64467, dated Jun. 5, 2018.  
 U.S. Appl. No. 29/571,547, filed Jul. 19, 2016, Shauver et al.  
 Autoyec 50, from KRZ, Dec. 6, 2007.  
 B. Braun Medical Inc. Two-Bag Irrigation Set, Two Non-vented Spikes, dated Jul. 2012, in 1 page.  
 BioExpert International Inc., Company overview, credentials for Rabih Jamaledine, Nabil Kereknawi, and Danica Robillard Corso, copyright 2010 BioExpert International Inc. in 3 pages [retrieved on Jan. 6, 2015; Publication Date Unknown]; accessed on the world wide web at <http://bloexpert.ca/about.html>.  
 Cato (Computer Aided Therapy For Oncology)—Reference Manual—Vienna, May 2005, 255 pgs.  
 ISO/Tech Design, QC, Canada, "Chemosphere," product brochure, in 2 pages [Publication Date Unknown].  
 Clearlink Needleless IV Access System, dated Aug. 2007, in 2 pages.  
 CytoCare, by Health Robotics, Brochure, Date Unknown, downloaded on May 25, 2012 from <http://www.health-robotics.com/smartedit/downloads/en/cytocare7.pdf>, 6 pages.  
 Exacta-Mix 2400, from Baxa, which appears to have a date of 2007, 2 pages.  
 Flickinger, Bruce, "Misperceptions Cloud the Issue of Sterile Drug Compounding," Jun. 2007.  
 Fox, Brent I., "Pharmacy Automation and Technology: Automated intravenous Preparation: Robots for the Pharmacy," Hospital Pharmacy, vol. 44, Mar. 2009, pp. 255-257.  
 Healthmark, "Hospital Medication Preparation, Packaging and Dispensing," Chemo Drug Preparation/Administration in 2 pages [retrieved on Jan. 6, 2015; Publication Date Unknown]; accessed on the world wide web at [http://www.healthmark.ca/2-36-88-Chemo-Drug-Preparation-Administration\\_en.html](http://www.healthmark.ca/2-36-88-Chemo-Drug-Preparation-Administration_en.html).  
 Healthmark, "Hospital Medication Preparation, Packaging and Dispensing," Chemosphere, Sterile Chemo Compounding (Isolator) in 1 page [retrieved on Jan. 6, 2015; Publication Date Unknown]; accessed on the world wide web at [http://www.healthmark.ca/2-36-10-ChemoSphere\\_en.html?ProduitID=244](http://www.healthmark.ca/2-36-10-ChemoSphere_en.html?ProduitID=244).

(56)

**References Cited**

## OTHER PUBLICATIONS

Healthmark, "Hospital Medication Preparation, Packaging and Dispensing" in 1 page [retrieved on Jan. 6, 2015; Publication Date Unknown]; accessed on the world wide web at <http://www.healthmark.ca/2-en-Hospital-Medication-Preparation-Packaging-and-Dispensing.html>.

Healthmark, "Hospital Medication Preparation, Packaging and Dispensing," Oncology Preparation and Administration in 1 page [retrieved on Jan. 6, 2015; Publication Date Unknown]; accessed on the world wide web at <http://www.healthmark.ca/2-36-10-COMPANY-PROFILEHospital-en.html>.

Healthmark, "Hospital Medication Preparation, Packaging and Dispensing," Phocus RX (Camera Verification System), Remote Rx Checking of admixtures in 2 pages [retrieved on Jan. 6, 2015; Publication Date Unknown]; accessed on the world wide web at [http://www.healthmark.ca/2-36-10-PHOCUS-Rx-Camera-Verification-System-\\_en.html?ProduitID=229](http://www.healthmark.ca/2-36-10-PHOCUS-Rx-Camera-Verification-System-_en.html?ProduitID=229).

Healthmark, "New Product Items" in 1 page [retrieved on Jan. 6, 2015; Publication Date Unknown]; accessed on the world wide web at <http://www.healthmark.ca/home.html>.

Healthmark, "Introducing the Precifill Dispensing Pump" product brochure in 2 pages [Publication Date Unknown].

Integra Brochure, from Eurospital, Brochure acquired in Mar. 2012. International Preliminary Report on Patentability for International PCT Patent Application No. PCT/US2014/065972, dated Jun. 9, 2016.

International Search Report and Written Opinion for International PCT Patent Application No. PCT/US2014/065972, dated Feb. 24, 2015.

International Invitation to Pay Additional Fees (with cited art), re PCT Application No. PCT/US16/64467, dated Jan. 25, 2017.

International Search Report and Written Opinion, re PCT Application No. PCT/US16/64467, dated Apr. 5, 2017.

Machine transcription generated by YouTube taken from a video titled, "RIVA Robotic IV Automation," available at <https://www.youtube.com/watch?v=GbLIBNMPv9Y>, as allegedly published on Sep. 11, 2006.

Richard Anders, "RIVA Robotic IV Automation," available at <https://www.youtube.com/watch?v=GbLIBNMPv9Y>, as allegedly published Sep. 11, 2006.

Neo Care Medical Products: Product Catalog, dated Jun. 2008, in 38 pages.

Grifols International, S.A., "PHOCUS Rx, Remote IV Compounding Validation" product brochure and "Product Description Sheet" in 13 pages [Publication Date unknown but may be May 29, 2013]. Pinnacle TPN Management System, from B Braun, downloaded May 5, 2009 from <http://www.bbraunusa.com/index.cfm?uid=7386ADF065B05CD0D22AF700339AA4092>, 1 page.

"Precifill," Trademark search (TESS) in 1 page, [retrieved on Jan. 6, 2015; Application Filing Date of Sep. 30, 2011]; accessed on the world wide web at <http://tmsearch.uspto.gov/bin/showfield?f=doc&state=4807:gz67gx.3.1>.

Product detail for "NAMIC® Closed Fluid Systems" from Navilyst Medical, downloaded on May 11, 2010 from <http://www.navilystmedical.com/Products/index.cfm/19>, 2 pages.

Product detail for "RapidFill™ Automated Syringe Filler," from Baxa, downloaded on Mar. 31, 2010 from <http://www.baxa.com/PharmacyProducts/AutomatedFillingSystems/ProductDetail/?id=B1>, 2 pages.

Product detail for "Summit Medical DirectFlow" micro Infusion extension set from Summit Medical Technologies, downloaded on May 10, 2010 from <http://summitmedtech.com/p6line.php>, 1 page. Riva, downloaded in Apr. 2009 from <http://www.rivasystem.com>, 6 pages.

SmartSite Safety Disposables, with copyright notice dated 2004.

Smith, "Lifesaving Cancer Drugs May Put Workers' Lives at Risk," downloaded on Jul. 12, 2010 from <http://www.msnbc.msn.com/id/38114586/ns/health-cancer>, 7 pages.

Spiros—Closed Male Connector, published Jan. 22, 2008.

Technical Data sheet for Analog Amplifiers Type VA, models V8-C and V8-D, STM Sensors dated Dec. 2007, 4 pages.

Technical Data sheet for Through Beam Sensors Type G2, 1480 nm, STM Sensors dated Dec. 2009, 2 pages.

Technical Data sheet for Through Beam Sensors Type G2, 645 nm, STM Sensors dated Sep. 2008, 2 pages.

User Guide for medOC 1xx Basic, Neo Care Medical Products GmbH, Version Jun. 2008, 23 pages.

User Manual for medOC 3xx/6xx/8xx, Neo Care Medical Products GmbH, Version May 2008, 44 pages.

Burrows, et al., "Intravenous (IV) Fluidmaker IV. A Disposable Device for Preparation of Sterile Water for Injection in a Field Setting," Fort Detrick, US Army Biomedical Research & Development Laboratory, Sep. 1991. <https://apps.dtic.mil/dtic/tr/fulltest/u2/a247385.pdf>.

\* cited by examiner

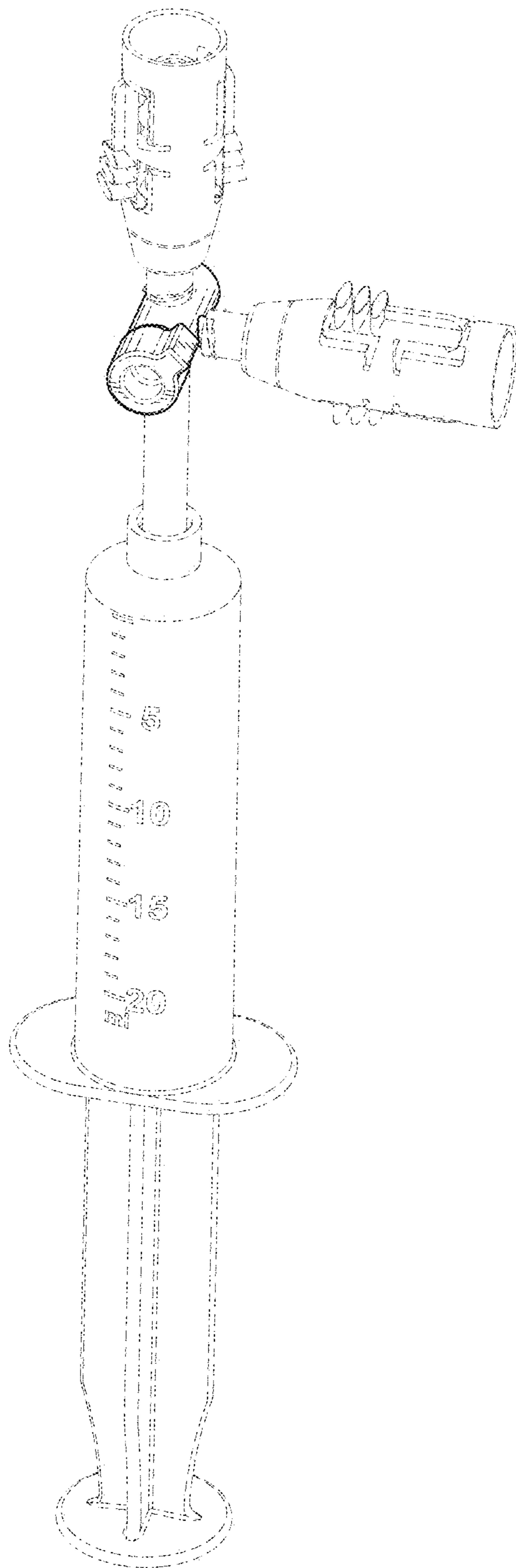


FIG. 1



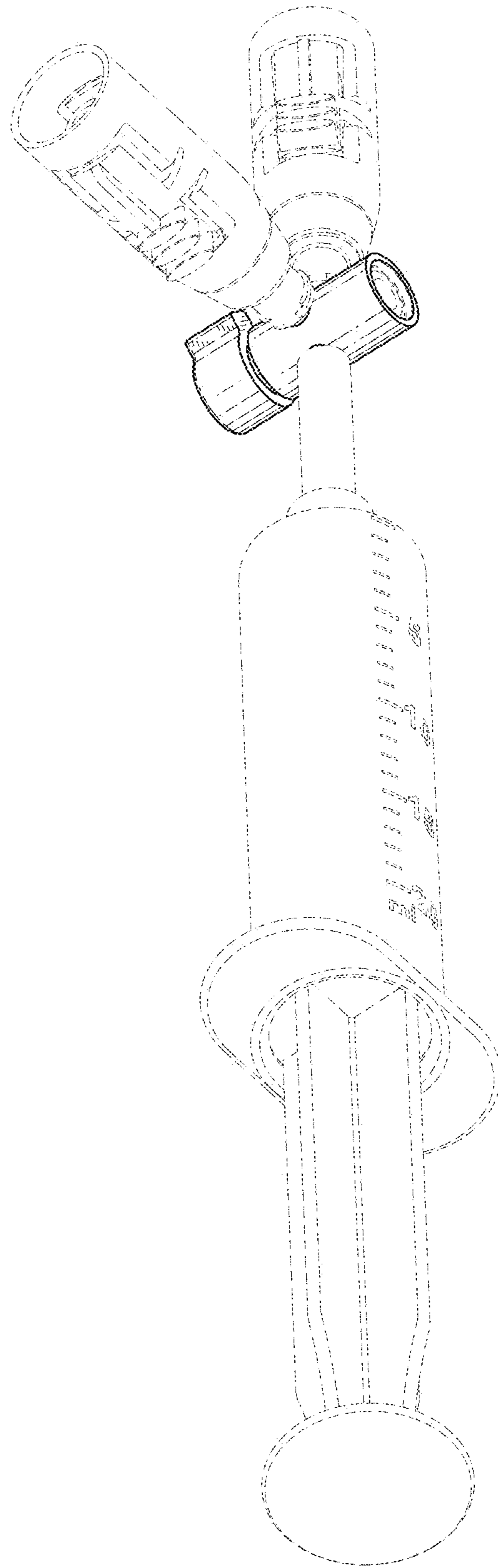


FIG. 2

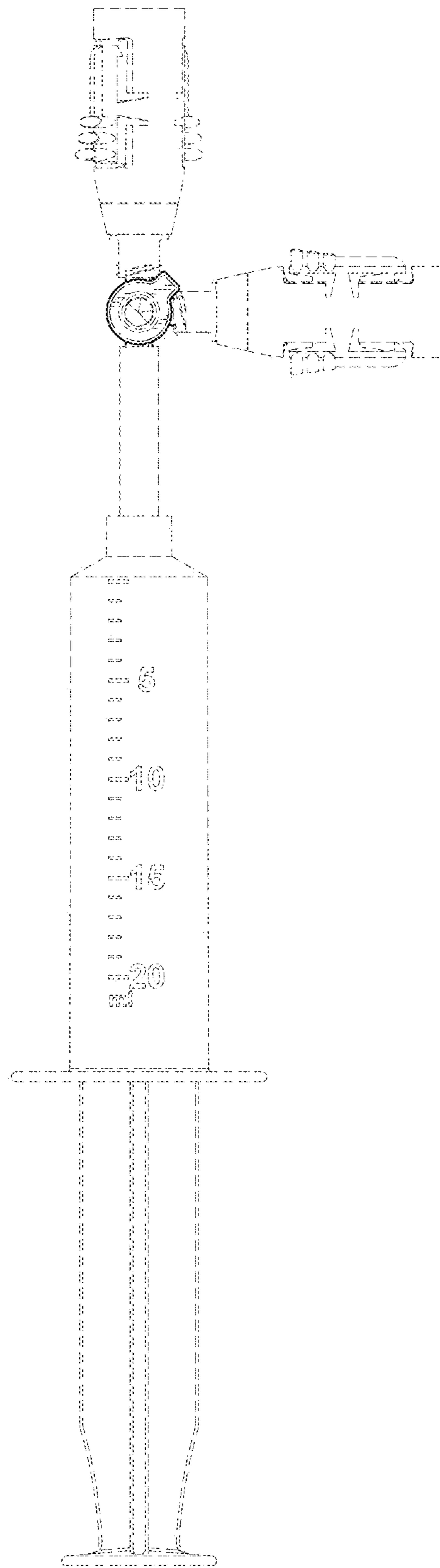


FIG. 3

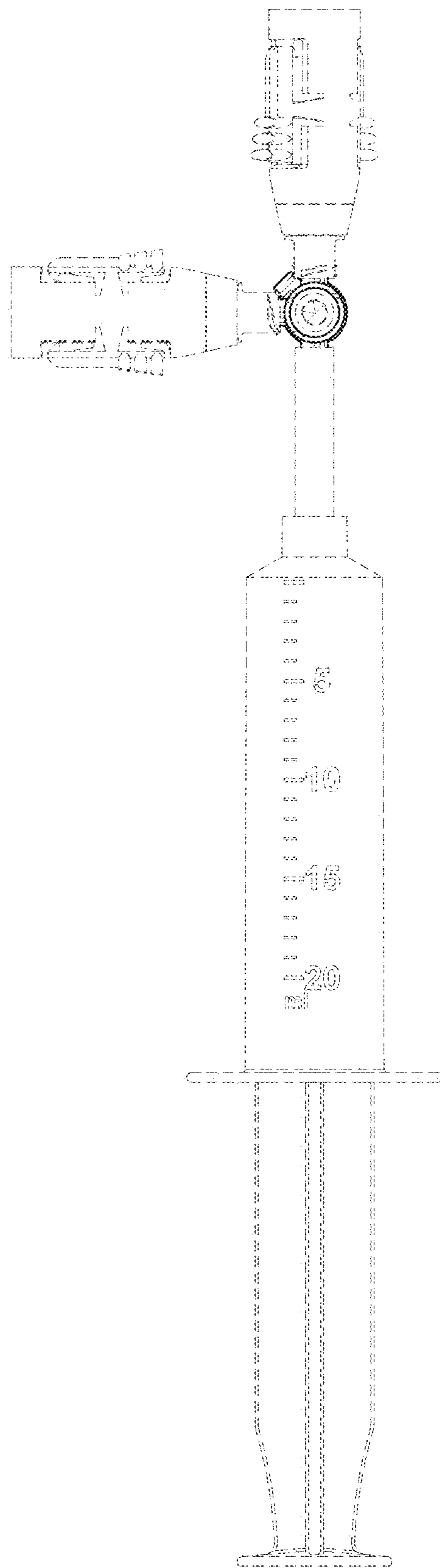


FIG. 4

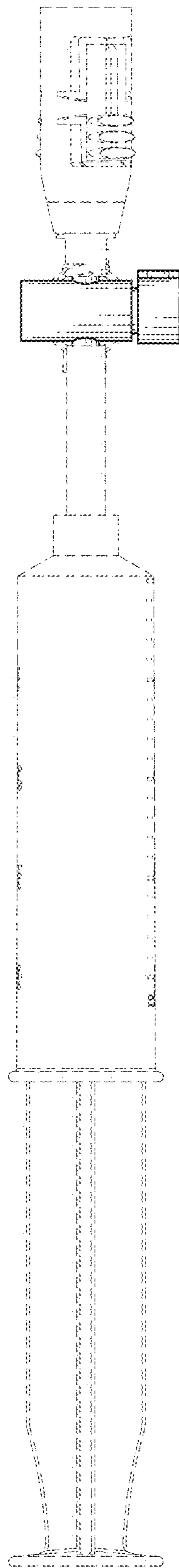


FIG. 5

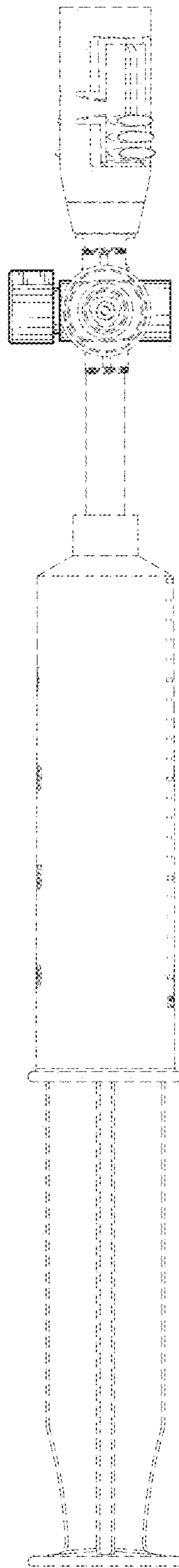
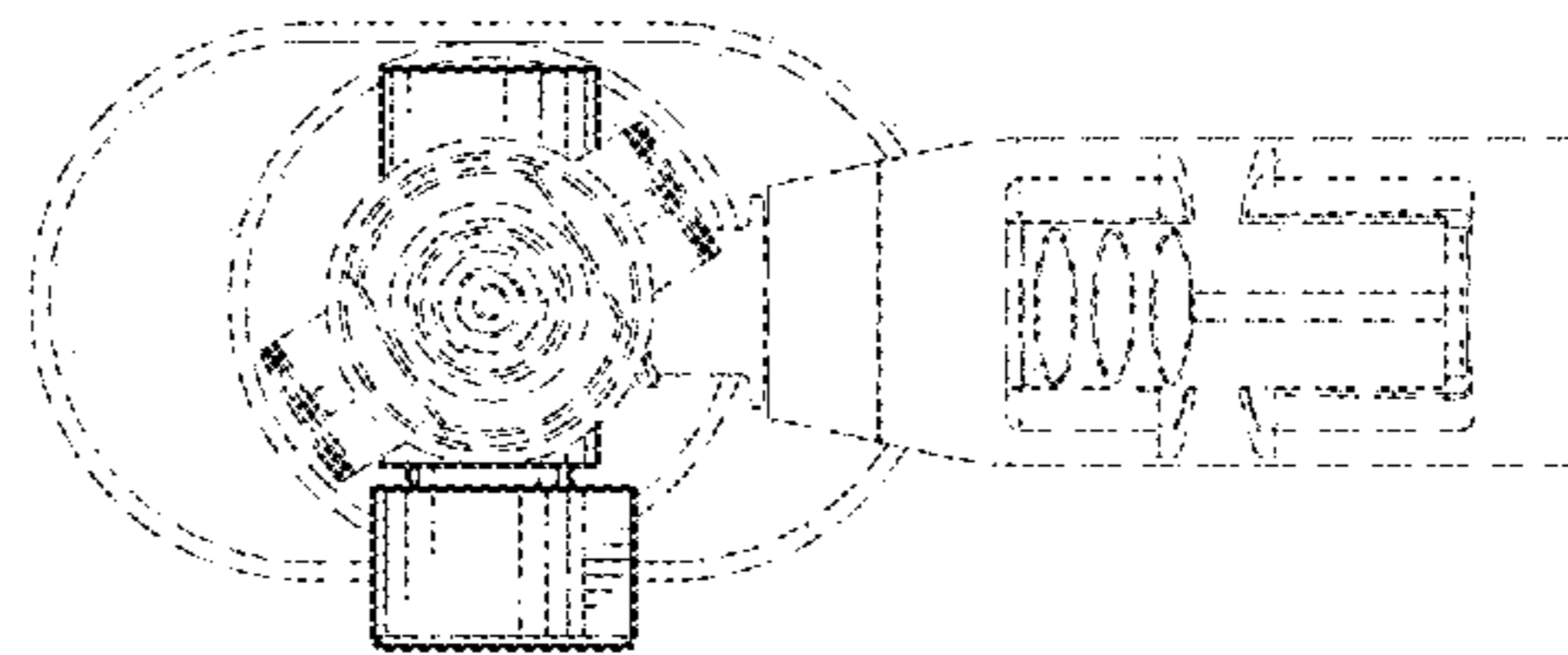
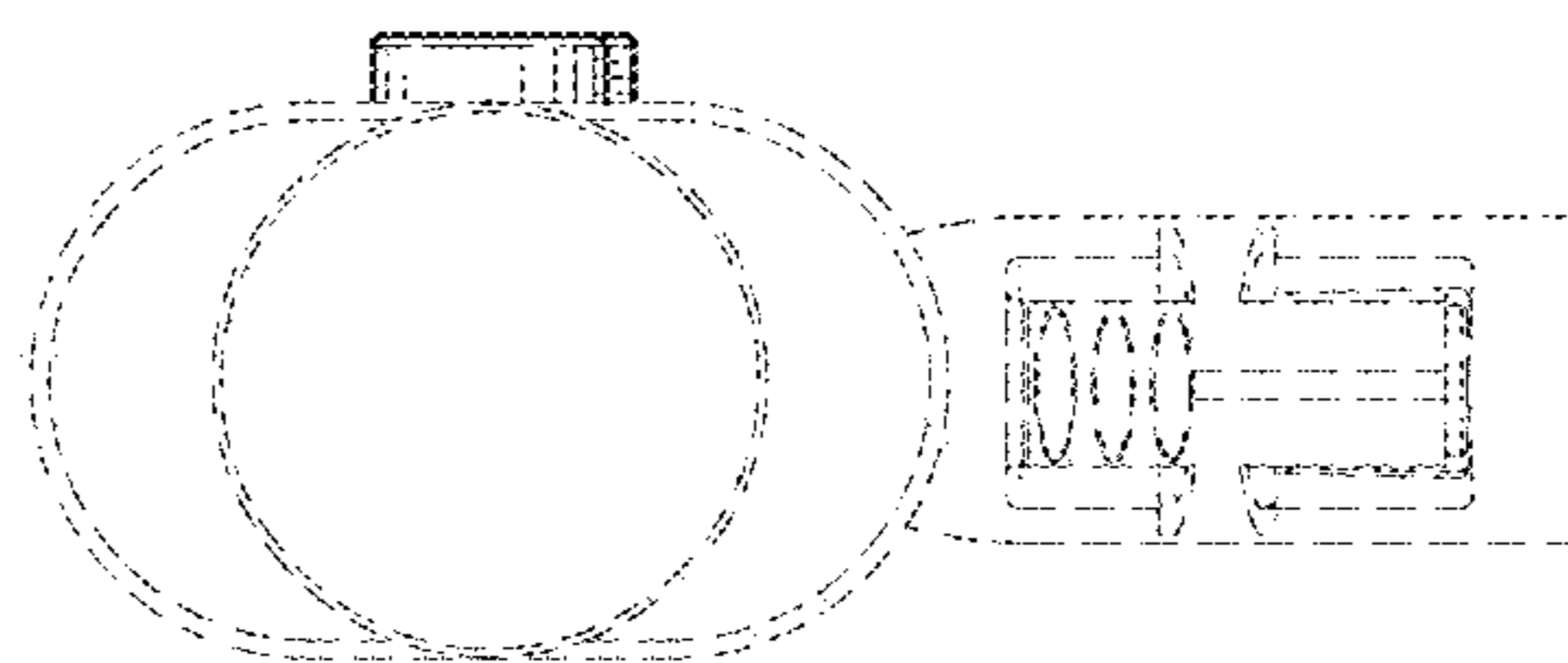


FIG. 6



*FIG. 7*



*FIG. 8*