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(12) **United States Design Patent** (10) **Patent No.:** **US D943,732 S**
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(54) **MEDICAL FLUID TRANSFER SYSTEM**
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D236,163 S 7/1975 Manno
4,005,710 A 2/1977 Zeddies et al.
4,084,606 A 4/1978 Mittleman
4,187,890 A 2/1980 Stach et al.
4,190,048 A 2/1980 Sampson
4,262,671 A 4/1981 Kersten
4,306,705 A 12/1981 Svensson

(Continued)

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

FOREIGN PATENT DOCUMENTS

CN 1707379 12/2005
CN 101244297 8/2008

(Continued)

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OTHER PUBLICATIONS

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(57)

CLAIM

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

DESCRIPTION

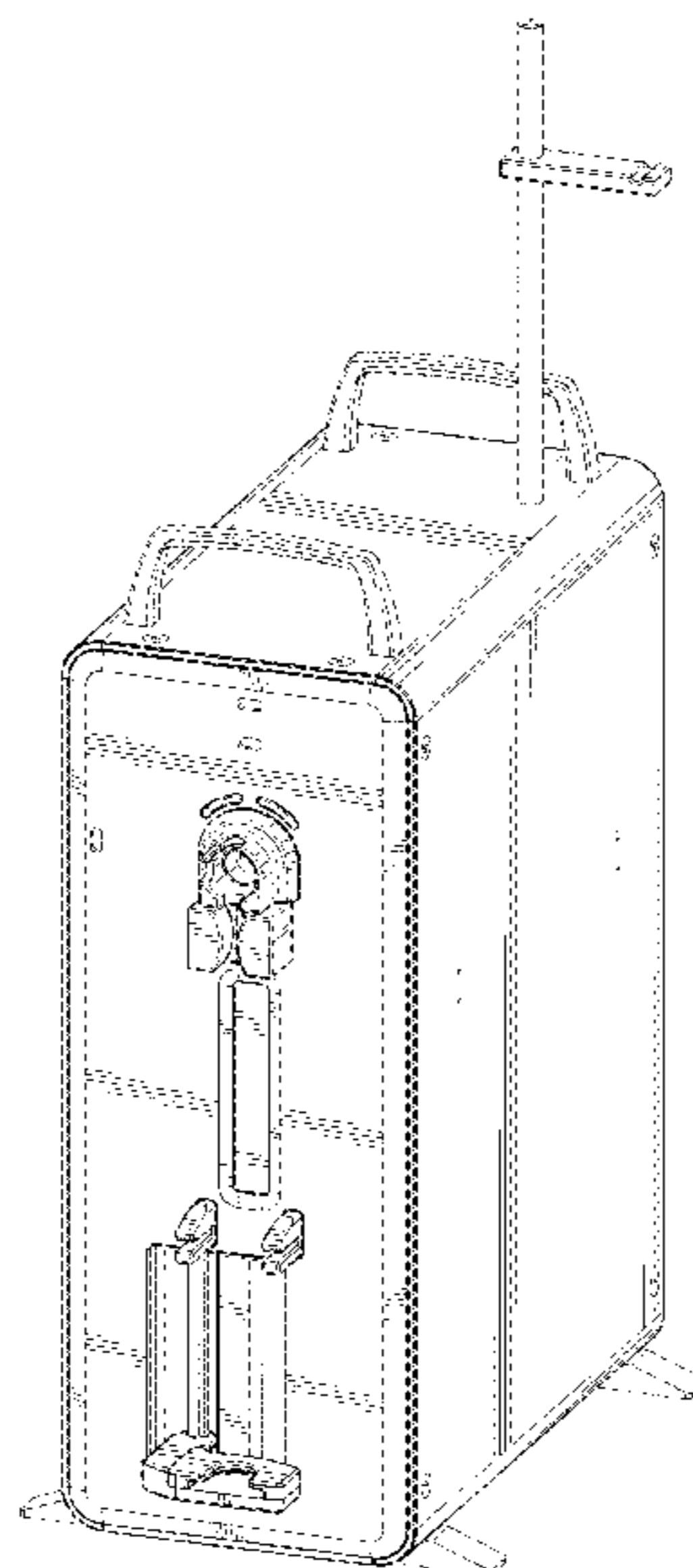
FIG. 1 is a front perspective view of a medical fluid transfer system with various features shown in broken lines; FIG. 2 is a front view thereof; FIG. 3 is a back view thereof; FIG. 4 is a left side view thereof; FIG. 5 is a right side view thereof; FIG. 6 is a top view thereof; and, FIG. 7 is a bottom view thereof.

The broken lines in the figures depict portions of the medical fluid transfer system that form no part of the presently claimed design.

(56) **References Cited**
U.S. PATENT DOCUMENTS

1,923,501 A 8/1933 Perry
3,157,201 A 11/1964 Littmann
3,344,785 A 10/1967 Hamilton
D222,956 S 2/1972 Sato
D222,957 S 2/1972 Sato

1 Claim, 6 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

4,336,802 A	6/1982	Stone et al.	6,193,675 B1	2/2001	Kraus et al.	
4,367,736 A	1/1983	Gupton	6,193,689 B1	2/2001	Woodard	
D268,206 S	3/1983	Kosako	6,202,708 B1	3/2001	Bynum	
D268,284 S	3/1983	Manno et al.	6,221,041 B1	4/2001	Russo	
4,397,335 A	8/1983	Doblar et al.	6,245,048 B1	6/2001	Fangrow, Jr. et al.	
4,410,321 A	10/1983	Pearson et al.	6,287,289 B1	9/2001	Niedospial, Jr.	
4,423,741 A	1/1984	Levy	6,302,864 B1	10/2001	Nowosielski	
4,519,792 A	5/1985	Dawe	6,425,497 B1	7/2002	Chu et al.	
4,534,758 A	8/1985	Akers et al.	6,474,375 B2	11/2002	Spero et al.	
4,559,043 A	12/1985	Whitehouse et al.	6,485,472 B1	11/2002	Richmond	
4,561,856 A	12/1985	Cochran	6,551,299 B2	4/2003	Miyoshi et al.	
4,666,429 A	5/1987	Stone	6,558,365 B2	5/2003	Zinger et al.	
4,670,007 A	6/1987	Wheeldon et al.	6,572,256 B2	6/2003	Seaton et al.	
4,683,916 A	8/1987	Raines	6,585,229 B2	7/2003	Cote, Sr. et al.	
4,755,172 A	7/1988	Baldwin	6,590,167 B2	7/2003	Clare	
4,759,756 A	7/1988	Forman et al.	6,599,273 B1	7/2003	Lopez	
4,768,568 A	9/1988	Fournier et al.	6,623,455 B2	9/2003	Small et al.	
4,778,450 A	10/1988	Kamen	6,629,956 B1	10/2003	Polidoro et al.	
4,819,684 A	4/1989	Zaugg et al.	6,651,956 B2	11/2003	Miller	
4,863,429 A	9/1989	Baldwin	6,663,586 B2	12/2003	Verkaart et al.	
D305,165 S	12/1989	Rudolph et al.	6,689,108 B2	2/2004	Lavi et al.	
4,922,975 A	5/1990	Polaschegg	6,699,230 B2	3/2004	Jaafar et al.	
4,936,841 A	6/1990	Aoki et al.	6,711,460 B1	3/2004	Reese	
4,969,874 A	11/1990	Michel et al.	6,711,460 B1	3/2004	Reese	
4,972,876 A	11/1990	Kabata et al.	6,726,672 B1	4/2004	Hanly et al.	
4,976,590 A	12/1990	Baldwin	6,793,651 B1	9/2004	Bennett et al.	
4,995,268 A	2/1991	Ash et al.	6,813,868 B2	11/2004	Baldwin et al.	
5,024,347 A	6/1991	Baldwin	6,854,620 B2	2/2005	Ramet	
5,037,390 A	8/1991	Raines et al.	6,877,530 B2	4/2005	Osborne 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	Poli 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	6/1995	Torchia et al.	7,163,031 B2*	1/2007	Graves B65B 3/003	
5,439,451 A	8/1995	Collinson et al.				141/104
5,466,220 A	11/1995	Brenneman	7,163,035 B2	1/2007	Khan et al.	
5,609,572 A	3/1997	Lang	7,175,615 B2	2/2007	Hanly et al.	
5,645,538 A	7/1997	Richmond	7,194,336 B2	3/2007	DiGianfilippo et al.	
5,647,845 A	7/1997	Haber et al.	7,260,447 B2	8/2007	Osborne	
5,676,346 A	10/1997	Leinsing	7,317,967 B2	1/2008	DiGianfilippo et al.	
5,685,866 A	11/1997	Lopez	7,343,224 B2	3/2008	DiGianfilippo et al.	
5,776,345 A	7/1998	Truitt et al.	7,343,943 B2	3/2008	Khan et al.	
5,782,816 A	7/1998	Werschmidt et al.	7,351,226 B1	4/2008	Herskowitz	
5,807,312 A	9/1998	Dzwonkiewicz	7,354,426 B2	4/2008	Young	
5,810,792 A	9/1998	Fangrow, Jr. et al.	7,392,638 B2	7/2008	Baldwin et al.	
5,830,185 A	11/1998	Block, Jr.	7,396,051 B2	7/2008	Baldwin et al.	
5,871,110 A	2/1999	Grimard et al.	7,398,183 B2	7/2008	Holland et al.	
5,871,500 A	2/1999	Jepson et al.	7,398,802 B2	7/2008	Baker	
D408,079 S	4/1999	Ellis	7,418,981 B2	9/2008	Baker et al.	
5,897,526 A	4/1999	Vaillancourt	7,442,186 B2	10/2008	Blomquist	
5,904,666 A	5/1999	DeDecker et al.	7,454,314 B2	11/2008	Holland et al.	
5,910,252 A	6/1999	Truitt et al.	7,488,311 B2	2/2009	Domkowski et al.	
5,935,106 A	8/1999	Olsen	7,499,581 B2	3/2009	Tribble et al.	
5,947,951 A	9/1999	Ortiz et al.	7,527,619 B2	5/2009	Domkowski et al.	
5,968,014 A	10/1999	Neftel et al.	7,530,211 B2	5/2009	McErlean et al.	
5,989,237 A	11/1999	Fowles et al.	7,530,974 B2	5/2009	Domkowski et al.	
6,059,747 A	5/2000	Bruggeman et al.	7,538,858 B2	5/2009	Mackey	
6,110,153 A	8/2000	Davis et al.	D594,120 S	6/2009	Berberich et al.	
RE36,871 E	9/2000	Epstein et al.	D596,291 S	7/2009	Berberich et al.	
6,123,685 A	9/2000	Reynolds	7,566,326 B2	7/2009	Duchon et al.	
6,132,404 A	10/2000	Lopez	7,590,021 B2	9/2009	Michalak et al.	
6,152,900 A	11/2000	Mayer	7,610,115 B2	10/2009	Rob et al.	
6,171,484 B1	1/2001	Schnell et al.	7,630,788 B1	12/2009	Reese	
6,179,823 B1	1/2001	Niedospial, Jr.	7,630,789 B2	12/2009	Broadfield et al.	
			7,632,261 B2	12/2009	Zinger et al.	
			7,654,976 B2	2/2010	Peterson et al.	
			7,681,606 B2	3/2010	Khan et al.	
			7,685,026 B1	3/2010	McGrady et al.	
			D616,092 S	5/2010	Domkowski et al.	

(56)

References Cited

U.S. PATENT DOCUMENTS

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	Suchecki 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.	8,567,235 B2	10/2013	Bojan et al.
7,789,850 B2	9/2010	Roger	8,571,708 B2	10/2013	Rob et al.
7,814,731 B2	10/2010	Bender et al.	8,562,584 B2	11/2013	Beiriger 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	Domkowski 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 et al.
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.	8,801,689 B2	8/2014	Moy et al.
8,141,601 B2	3/2012	Fehr et al.	8,821,436 B2	9/2014	Mosler et al.
8,151,835 B2	4/2012	Khan et al.	8,834,444 B2	9/2014	Domkowski
8,162,903 B2	4/2012	Reilly et al.	8,852,147 B2	10/2014	Callan et al.
8,162,914 B2	4/2012	Kraushaar et al.	8,863,788 B2	10/2014	Ranalletta et al.
8,162,915 B2	4/2012	Brandenburger et al.	8,864,725 B2	10/2014	Ranalletta et al.
D660,423 S	5/2012	Hermle	8,864,737 B2	10/2014	Hasegawa et al.
8,172,823 B2	5/2012	Rondeau et al.	8,870,832 B2	10/2014	Raday et al.
8,182,744 B2	5/2012	Mlodzinski et al.	8,882,739 B2	11/2014	Domkowski et al.
8,197,459 B2	6/2012	Jansen et al.	8,894,627 B2	11/2014	Garfield et al.
8,206,367 B2	6/2012	Warren et al.	8,911,421 B2	12/2014	Domkowski et al.
D664,647 S	7/2012	Becker	D721,803 S	1/2015	Dubach
D664,648 S	7/2012	Becker	8,926,554 B2	1/2015	Okuda et al.
D664,649 S	7/2012	Becker	8,958,112 B2	2/2015	Matsui et al.
8,209,941 B2	7/2012	Osborne et al.	D724,198 S	3/2015	Oostman et al.
8,216,207 B2	7/2012	Moy et al.	8,973,622 B2	3/2015	Lopez et al.
8,220,503 B2	7/2012	Tribble et al.	8,979,792 B2	3/2015	Lev et al.
8,220,504 B2	7/2012	Hartman et al.	9,033,006 B2	5/2015	Perazzo et al.
8,221,382 B2	7/2012	Moy et al.	9,043,019 B2	5/2015	Eliuk et al.
8,225,824 B2	7/2012	Eliuk et al.	9,056,164 B2	6/2015	Tate et al.
8,225,826 B2	7/2012	Horppu et al.	9,057,363 B2	6/2015	Capone
8,231,567 B2	7/2012	Tennican et al.	9,057,370 B2	6/2015	Mundt et al.
8,231,749 B2	7/2012	Dent et al.	9,060,923 B2	6/2015	Hossainy
8,241,265 B2	8/2012	Moy et al.	9,061,130 B2	6/2015	Truitt et al.
D667,946 S	9/2012	Levesque et al.	9,076,115 B2	7/2015	Utech et al.
8,267,129 B2	9/2012	Doherty et al.	9,079,686 B2	7/2015	Domkowski et al.
8,267,912 B2	9/2012	Ferris	9,089,474 B2	7/2015	Cederschiöld
8,287,513 B2	10/2012	Ellstrom et al.	9,089,647 B2	7/2015	Haenggi et al.
8,328,082 B1	12/2012	Bochenko et al.	9,101,717 B2	8/2015	Mansour et al.
8,336,587 B2	12/2012	Rosenquist et al.	9,114,242 B2	8/2015	Fangrow, Jr. et al.
8,353,318 B2	1/2013	Ranalletta et al.	9,123,077 B2	9/2015	Silkaitis et al.
8,356,644 B2	1/2013	Chong et al.	9,132,062 B2	9/2015	Fangrow
8,356,645 B2	1/2013	Chong et al.	9,132,063 B2	9/2015	Lev et al.
8,357,137 B2	1/2013	Yandell	9,139,316 B2	9/2015	Husnu et al.
8,374,887 B1	2/2013	Alexander	9,144,646 B2	9/2015	Barron, III et al.
8,380,536 B2	2/2013	Howard et al.	9,149,576 B2	10/2015	Bullington et al.
8,381,776 B2	2/2013	Horppu	9,198,832 B2	12/2015	Moy et al.
8,382,696 B2	2/2013	Beiriger et al.	9,211,231 B2	12/2015	Mansour et al.
8,386,070 B2	2/2013	Eliuk et al.	9,212,762 B2	12/2015	Duncan
8,403,905 B2	3/2013	Yow	9,220,661 B2	12/2015	Garfield et al.
8,409,165 B2	4/2013	Niedospial, Jr. et al.	D747,472 S	1/2016	Bradley et al.
8,414,554 B2	4/2013	Garfield et al.	9,227,048 B2	1/2016	Frattini
8,414,556 B2	4/2013	Garfield et al.	9,241,875 B2	1/2016	Davis et al.
8,425,487 B2 *	4/2013	Beiriger G16H 20/40 604/411	9,242,039 B2	1/2016	Valk et al.
8,430,859 B2	4/2013	McConnell	9,270,890 B2	2/2016	Okuma et al.
8,449,521 B2	5/2013	Thorne, Jr. et al.	9,345,640 B2	5/2016	Mosler
D687,948 S	8/2013	Levesque et al.	9,345,641 B2	5/2016	Kraus et al.
8,506,548 B2	8/2013	Okiyama	9,345,643 B2	5/2016	Okiyama
8,522,832 B2	9/2013	Lopez et al.	9,381,135 B2	7/2016	Reynolds et al.
			9,381,137 B2	7/2016	Garfield et al.
			9,381,296 B2	7/2016	Arrizza et al.
			9,382,021 B2	7/2016	Tribble et al.
			9,393,362 B2	7/2016	Cozmi et al.
			9,402,786 B2	8/2016	Petrone

(56)

References Cited

U.S. PATENT DOCUMENTS

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.
9,629,955 B2	4/2017	Bresina et al.	2006/0089855 A1	4/2006	Holland et al.
9,744,102 B2	8/2017	Kubo	2006/0100907 A1	5/2006	Holland et al.
9,770,388 B2	9/2017	Noike et al.	2006/0169348 A1	8/2006	Yigal
9,775,778 B2	10/2017	Qiu et al.	2006/0259195 A1	11/2006	Eliuk et al.
9,801,787 B2	10/2017	Py	2007/0007478 A1	1/2007	Leinsing et al.
9,802,171 B2	10/2017	Konrad, Jr. et al.	2007/0017583 A1	1/2007	Fangrow
9,802,172 B2	10/2017	Konrad, Jr. et al.	2007/0088252 A1	4/2007	Pestotnik et al.
D803,396 S	11/2017	Oberkircher et al.	2007/0088313 A1	4/2007	Zinger et al.
9,827,163 B2	11/2017	Lopez et al.	2007/0106244 A1	5/2007	Mosler et al.
9,827,680 B2	11/2017	Davey et al.	2007/0151984 A1	7/2007	Baker et al.
D804,651 S	12/2017	Loonan	2007/0169836 A1	7/2007	Djurle et al.
9,833,605 B2	12/2017	Sanders et al.	2007/0214003 A1	9/2007	Holland et al.
9,849,236 B2	12/2017	Hachey et al.	2007/0244447 A1	10/2007	Capitaine et al.
9,883,987 B2	2/2018	Lopez et al.	2007/0287953 A1	12/2007	Ziv et al.
9,930,297 B2	3/2018	Alexander et al.	2008/0059228 A1	3/2008	Bossi et al.
9,931,276 B2	4/2018	Lopez et al.	2008/0065006 A1	3/2008	Roger et al.
D819,414 S	6/2018	Solomon	2008/0077116 A1	3/2008	Dailey et al.
10,106,278 B2	10/2018	Chang et al.	2008/0086094 A1	4/2008	Peters
10,143,985 B2	12/2018	Brown et al.	2008/0114328 A1	5/2008	Doherty et al.
D837,983 S	1/2019	Fangrow	2008/0125897 A1	5/2008	DiGianfilippo et al.
10,181,186 B2	1/2019	Kriheli et al.	2008/0169043 A1	7/2008	Osborne et al.
10,188,849 B2	1/2019	Fangrow	2008/0169044 A1	7/2008	Osborne et al.
10,189,616 B2	1/2019	Kraft	2008/0172024 A1	7/2008	Yow
D846,146 S	4/2019	Amos et al.	2008/0177222 A1	7/2008	Roger
10,259,608 B2	4/2019	Fianchini et al.	2008/0195416 A1	8/2008	Tribble et al.
D851,745 S *	6/2019	Shauver D24/108	2008/0199353 A1	8/2008	Mlodzinski et al.
10,307,338 B2	6/2019	Hellenbrand	2008/0269680 A1	10/2008	Ibranyan et al.
10,314,764 B2	6/2019	Lopez et al.	2008/0287920 A1	11/2008	Fangrow et al.
10,314,765 B2	6/2019	Lopez et al.	2009/0012449 A1	1/2009	Lee et al.
10,315,174 B2	6/2019	Konrad, Jr. et al.	2009/0050216 A1	2/2009	Trocki et al.
10,327,987 B1	6/2019	Bochenko et al.	2009/0067973 A1	3/2009	Eliuk et al.
10,327,988 B2	6/2019	Tribble et al.	2009/0069743 A1	3/2009	Krishnamoorthy et al.
10,336,477 B2	7/2019	Perazzo et al.	2009/0082649 A1	3/2009	Muller et al.
10,417,758 B1	9/2019	Alexander	2009/0088687 A1	4/2009	Yardimci et al.
10,420,927 B2	9/2019	Fangrow	2009/0099547 A1	4/2009	Radmer
10,494,126 B2	12/2019	Joplin	2009/0101576 A1	4/2009	Rohde et al.
10,503,873 B2	12/2019	Prince et al.	2009/0126825 A1	5/2009	Eliuk et al.
10,512,885 B2	12/2019	Janders et al.	2009/0135196 A1	5/2009	Holland et al.
D874,644 S *	2/2020	Shauver D24/108	2009/0145509 A1	6/2009	Baker et al.
10,554,937 B2	2/2020	Alexander et al.	2009/0149743 A1	6/2009	Barron et al.
10,556,062 B2	2/2020	Simpson et al.	2009/0154764 A1	6/2009	Khan et al.
10,576,211 B2	3/2020	Hang et al.	2009/0163860 A1	6/2009	Patrick et al.
D887,577 S	6/2020	Shor et al.	2009/0177149 A1	7/2009	Childers et al.
10,791,975 B2	10/2020	Wilkinson et al.	2009/0198215 A1	8/2009	Chong et al.
D905,228 S *	12/2020	Shauver D24/108	2009/0223592 A1	9/2009	Procyshyn et al.
11,007,119 B2	5/2021	Lopez et al.	2009/0223990 A1	9/2009	Bailey et al.
11,020,541 B2	6/2021	Fangrow et al.	2009/0254031 A1	10/2009	Lee
11,033,459 B2	6/2021	Ariagno et al.	2009/0270832 A1	10/2009	Vancaillie et al.
2001/0029360 A1	10/2001	Miyoshi et al.	2009/0306621 A1	12/2009	Thome, Jr. et al.
2002/0017328 A1	2/2002	Loo	2010/0024904 A1	2/2010	Hoffman et al.
2002/0085952 A1	7/2002	Ellingboe et al.	2010/0049157 A1	2/2010	Fangrow
2002/0087144 A1	7/2002	Zinger et al.	2010/0121246 A1	5/2010	Peters et al.
2002/0095121 A1	7/2002	Norton et al.	2010/0130933 A1	5/2010	Holland et al.
2002/0115980 A1	8/2002	Niedospial, Jr. et al.	2010/0245056 A1	9/2010	Braun et al.
2002/0189712 A1	12/2002	Safabash	2010/0276034 A1	11/2010	Gonnelli et al.
2003/0023226 A1	1/2003	Lopez	2010/0280430 A1	11/2010	Caleffi et al.
2003/0153895 A1	8/2003	Leinsing	2010/0286606 A1	11/2010	Ding
2003/0236500 A1	12/2003	Scheu	2011/0004143 A1	1/2011	Beiriger et al.
2004/0031756 A1	2/2004	Suzuki et al.	2011/0062703 A1	3/2011	Lopez et al.
2004/0035743 A1	2/2004	Tighe et al.	2011/0067781 A1	3/2011	Osborne
2004/0073161 A1	4/2004	Tachibana	2011/0087164 A1	4/2011	Mosler et al.
2004/0087888 A1	5/2004	Digianfilippo et al.	2011/0152757 A1	6/2011	Beck et al.
2004/0116891 A1	6/2004	Curutcharry	2011/0175347 A1	7/2011	Okiyama
			2011/0178493 A1	7/2011	Okiyama
			2011/0196304 A1	8/2011	Kramer et al.
			2011/0204144 A1	8/2011	Waugh et al.
			2011/0229517 A1	9/2011	Strahlendorf et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2011/0276031 A1	11/2011	Hoang et al.	2016/0038373 A1	2/2016	Ohlin
2011/0305545 A1	12/2011	Davis et al.	2016/0038374 A1	2/2016	Merhold et al.
2012/0157914 A1	1/2012	Stroup	2016/0051446 A1	2/2016	Lev et al.
2012/0067429 A1	3/2012	Mosler et al.	2016/0051751 A1	2/2016	Silkaitis et al.
2012/0109077 A1	5/2012	Ryan	2016/0058666 A1	3/2016	Strahlendorf et al.
2012/0123298 A1	5/2012	Mendels et al.	2016/0058667 A1	3/2016	Kriheli
2012/0302986 A1	11/2012	Brem et al.	2016/0081878 A1	3/2016	Marks et al.
2013/0006214 A1	1/2013	Garfield et al.	2016/0081879 A1	3/2016	Garfield et al.
2013/0018356 A1	1/2013	Prince et al.	2016/0101020 A1	4/2016	Guala
2013/0053815 A1	2/2013	Mucientes et al.	2016/0114922 A1	4/2016	Bonhora et al.
2013/0085439 A1	4/2013	Sansoucy et al.	2016/0136051 A1	5/2016	Lavi
2013/0102772 A1	4/2013	Eshima et al.	2016/0136412 A1	5/2016	McKinnon et al.
2013/0180618 A1	7/2013	Py	2016/0140315 A1	5/2016	Diaz et al.
2013/0211332 A1	8/2013	Beiriger et al.	2016/0158104 A1	6/2016	Ali et al.
2013/0218121 A1	8/2013	Waller et al.	2016/0158437 A1	6/2016	Biasi et al.
2013/0220484 A1	8/2013	De Marco	2016/0206511 A1	7/2016	Garfield et al.
2013/0292004 A1	11/2013	Ducret et al.	2016/0213568 A1	7/2016	Mansour et al.
2014/0020790 A1	1/2014	Yuyama et al.	2016/0213861 A1	7/2016	Whitaker et al.
2014/0039392 A1	2/2014	Geipel et al.	2016/0213862 A1	7/2016	Whitaker et al.
2014/0124087 A1	5/2014	Anderson et al.	2016/0250102 A1	9/2016	Garfield et al.
2014/0135732 A1	5/2014	Spronken et al.	2016/0256632 A1	9/2016	Fangrow
2014/0136229 A1	5/2014	Levine et al.	2016/0262981 A1	9/2016	Carrez et al.
2014/0150925 A1	6/2014	Sjogren et al.	2016/0310362 A1	10/2016	Lane et al.
2014/0261727 A1	9/2014	Mansour et al.	2016/0331893 A1	11/2016	Yeh et al.
2014/0261860 A1	9/2014	Heath	2016/0354281 A1	12/2016	O'Neill et al.
2014/0261877 A1	9/2014	Ivosevic et al.	2017/0007501 A1	1/2017	Schuldt-Lieb et al.
2014/0263614 A1	9/2014	Keefe et al.	2017/0020428 A1	1/2017	Rogers et al.
2014/0276386 A1	9/2014	Mansour et al.	2017/0081168 A1	3/2017	Seay et al.
2014/0276649 A1	9/2014	Ivosevic et al.	2017/0128666 A1	5/2017	Davis
2014/0299221 A1	10/2014	Lopez	2017/0129763 A1	5/2017	Fangrow, Jr.
2014/0323970 A1	10/2014	Duncan	2017/0146381 A1	5/2017	Eckel et al.
2014/0350949 A1	11/2014	Utech et al.	2017/0165435 A1	6/2017	Green
2015/0000784 A1	1/2015	Jamaledine	2017/0165436 A1	6/2017	Haddad et al.
2015/0008664 A1	1/2015	Tachizaki	2017/0255760 A1	9/2017	Lee et al.
2015/0025453 A1	1/2015	Ledford et al.	2017/0274140 A1	9/2017	Howard et al.
2015/0040987 A1	2/2015	Reichert et al.	2017/0312716 A1	11/2017	Konrad, Jr. et al.
2015/0040988 A1	2/2015	Reichert et al.	2017/0354571 A1	12/2017	David et al.
2015/0041531 A1	2/2015	Vavala et al.	2018/0043323 A1	2/2018	Janders et al.
2015/0045772 A1	2/2015	Reichert et al.	2018/0055735 A1	3/2018	Lopez
2015/0101707 A1	4/2015	Ranalletta et al.	2018/0055738 A1	3/2018	Chen et al.
2015/0119820 A1	4/2015	Kanamoto	2018/0065097 A1	3/2018	Konrad, Jr. et al.
2015/0123398 A1	5/2015	Sanders et al.	2018/0133667 A1	5/2018	Lee et al.
2015/0126958 A1	5/2015	Sanders et al.	2018/0161244 A1	6/2018	Lopez
2015/0133879 A1	5/2015	Kanamoto et al.	2018/0168930 A1	6/2018	Tunesi
2015/0151041 A1	6/2015	Yodfat et al.	2018/0168935 A1	6/2018	Chen et al.
2015/0157536 A1	6/2015	Qiu et al.	2018/0177940 A1	6/2018	Hachey
2015/0161354 A1	6/2015	Blomquist	2018/0194505 A1	7/2018	Amano et al.
2015/0202382 A1	7/2015	Juretich et al.	2018/0207063 A1	7/2018	Lopez
2015/0202383 A1	7/2015	Juretich et al.	2018/0232497 A1	8/2018	Hoffman et al.
2015/0202384 A1	7/2015	Juretich et al.	2018/0263850 A1	9/2018	Schneider et al.
2015/0202385 A1	7/2015	Juretich et al.	2018/0344572 A1	12/2018	Zollinger et al.
2015/0209230 A1	7/2015	Lev et al.	2018/0353381 A1	12/2018	Pak et al.
2015/0209233 A1	7/2015	Fukuoka	2018/0353382 A1	12/2018	Zollinger et al.
2015/0209495 A1	7/2015	Biset et al.	2018/0354662 A1	12/2018	Feith et al.
2015/0209510 A1	7/2015	Burkholz et al.	2018/0357476 A1	12/2018	Klumph
2015/0209572 A1	7/2015	Garfield et al.	2018/0360689 A1	12/2018	Zollinger et al.
2015/0250680 A1	9/2015	Browka et al.	2019/0019576 A1	1/2019	DeCiccio et al.
2015/0250681 A1	9/2015	Lev et al.	2019/0021947 A1	1/2019	Bomgaars et al.
2015/0257977 A1	9/2015	Bochenko et al.	2019/0056419 A1	2/2019	Procyshyn et al.
2015/0265500 A1	9/2015	Russo et al.	2019/0070405 A1	3/2019	Fangrow
2015/0297451 A1	10/2015	Mariei et al.	2019/0091639 A1*	3/2019	Brown B01F 13/0059
2015/0297453 A1	10/2015	Kim et al.	2019/0105619 A1	4/2019	Wilson et al.
2015/0297454 A1	10/2015	Sanders et al.	2019/0151569 A1	5/2019	Fangrow
2015/0297456 A1	10/2015	Mariei et al.	2019/0152663 A1	5/2019	Kraft
2015/0297459 A1	10/2015	Sanders et al.	2019/0163876 A1	5/2019	Remme et al.
2015/0297460 A1	10/2015	Mansour et al.	2019/0170663 A1	6/2019	Pirkle et al.
2015/0297839 A1	10/2015	Sanders et al.	2019/0216683 A1	7/2019	Yaegashi
2015/0297881 A1	10/2015	Sanders et al.	2019/0244466 A1	8/2019	Berg et al.
2015/0314066 A1	11/2015	Shimizu	2019/0247280 A1	8/2019	Hellenbrand
2015/0320992 A1	11/2015	Bonnet et al.	2019/0262790 A1	8/2019	Konrad, Jr. et al.
2015/0346013 A1	12/2015	Feng et al.	2019/0275243 A1	9/2019	Deck et al.
2015/0359709 A1	12/2015	Kriheli et al.	2019/0307643 A1	10/2019	Tribble et al.
2015/0366758 A1	12/2015	Noguchi et al.	2019/0388302 A1	12/2019	Schobel et al.
2016/0000653 A1	1/2016	Kramer	2020/0016037 A1	1/2020	Oda et al.
2016/0001003 A1	1/2016	Perazzo 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

(56)

References Cited

U.S. PATENT DOCUMENTS

2020/0289370 A1 9/2020 Lopez
 2020/0297581 A1 9/2020 Lopez
 2021/0002008 A1* 1/2021 Min A61M 1/3693
 2021/0121363 A1* 4/2021 Oda B65B 3/30

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 2017/096072 6/2017
 WO WO 2018/009996 1/2018
 WO WO 2018/022640 2/2018
 WO WO 2019/018195 1/2019

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 2002/04065 1/2002
 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 2008/052140 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 2010/111546 9/2010
 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

OTHER PUBLICATIONS

U.S. Appl. No. 29/571,547, filed Jul. 19, 2016, Shauver et al.
 U.S. Appl. No. 29/586,575, filed Dec. 5, 2016, Fangrow.
 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.
 Autotec 50, from KRZ, Dec. 6, 2007.
 B. Braun Medical Inc. Two-Bag Irrigation Set, Two Non-vented Spikes, dated Jul. 2012, in 1 page.
Baxa Corp. v. McGaw Inc. 981 F. Supp. 1348 (1997), Memorandum Opinion and Order, 14 pages.
 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://bioexpert.ca/about.html>.
 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>.
 Cato (Computer Aided Therapy For Oncology)—Reference Manual—Vienna, May 2005, 255 pgs.
 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/smarterdit/downloads/en/cytocare7.pdf>, 6 pages.
 European Extended Search Report, re EP Application No. 16871522, dated Jun. 7, 2019.
 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.
 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].
 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," 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.
 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?ProductID=244.
 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>.

(56)

References Cited

OTHER PUBLICATIONS

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?ProductID=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].

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).

Integra Brochure, from Eurospital, Brochure acquired in Mar. 2012. International Invitation to Pay Additional Fees (with cited art), re PCT Application No. PCT/US16/64467, dated Jan. 25, 2017.

International Preliminary Report on Patentability, re PCT Application No. PCT/US 16/64467, dated Jun. 5, 2018.

International Search Report and Written Opinion, re PCT Application No. PCT/US 16/64467, dated Apr. 5, 2017.

ISO/Tech Design, QC, Canada, "CHEMOSPHERE," product brochure, in 2 pages [Publication Date Unknown].

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.

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

Pinnacle TPN Management System, from B Braun, downloaded May 5, 2009 from <http://www.bbraunusa.com/index.cfm?uuid=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.

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

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.

* cited by examiner

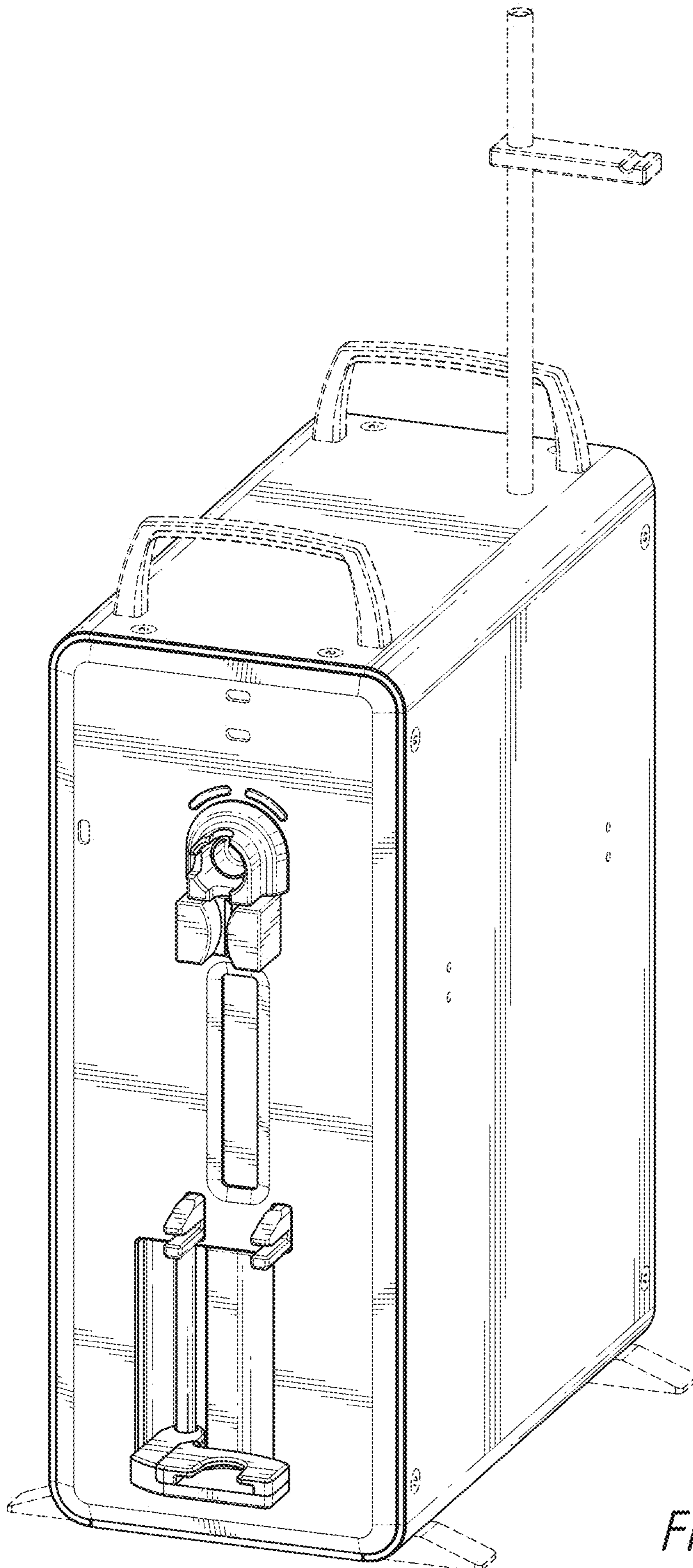


FIG. 1

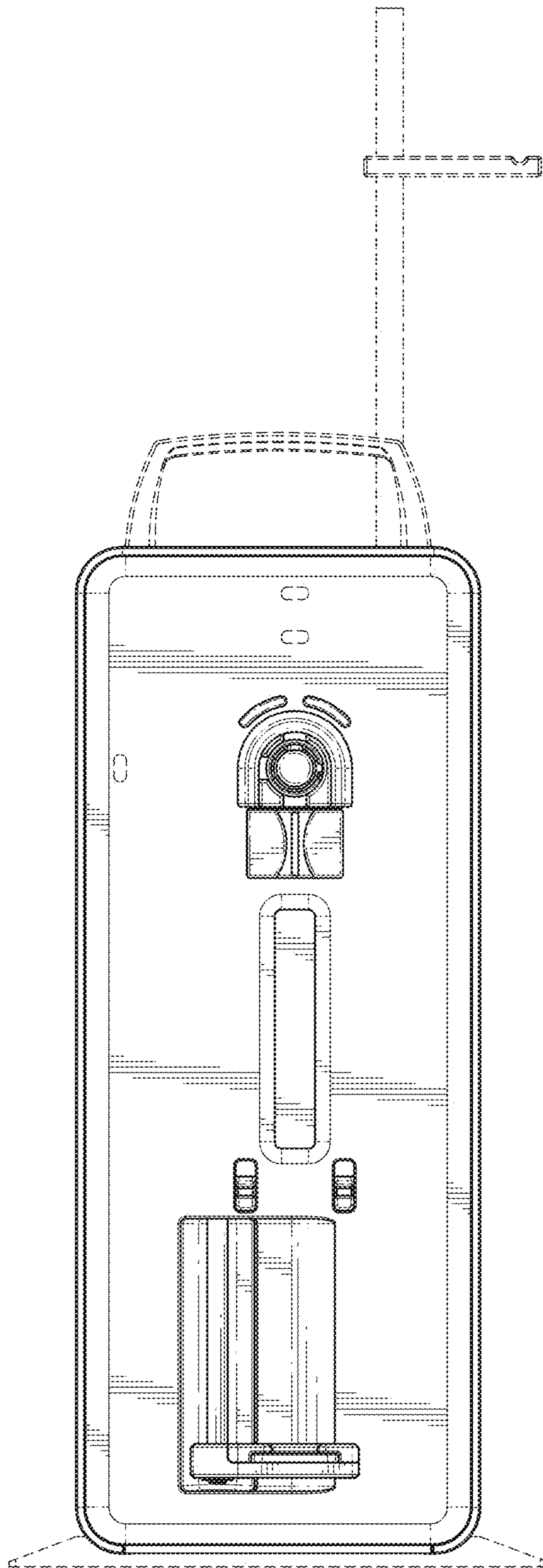


FIG. 2

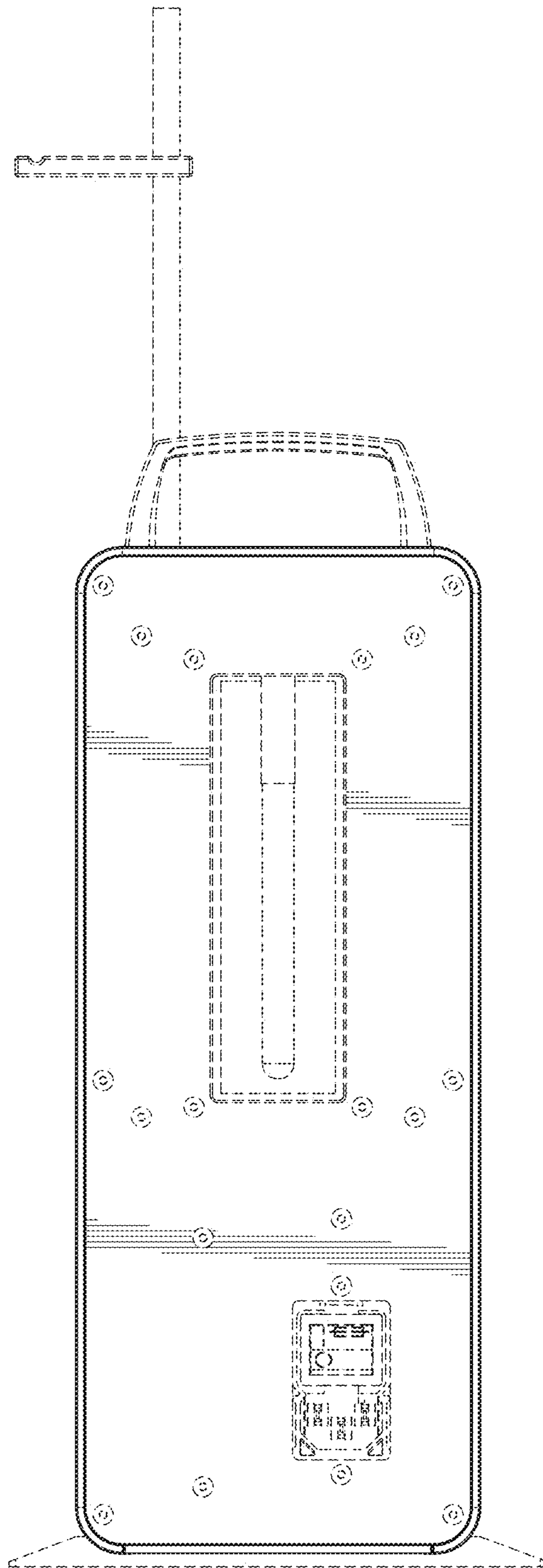


FIG. 3

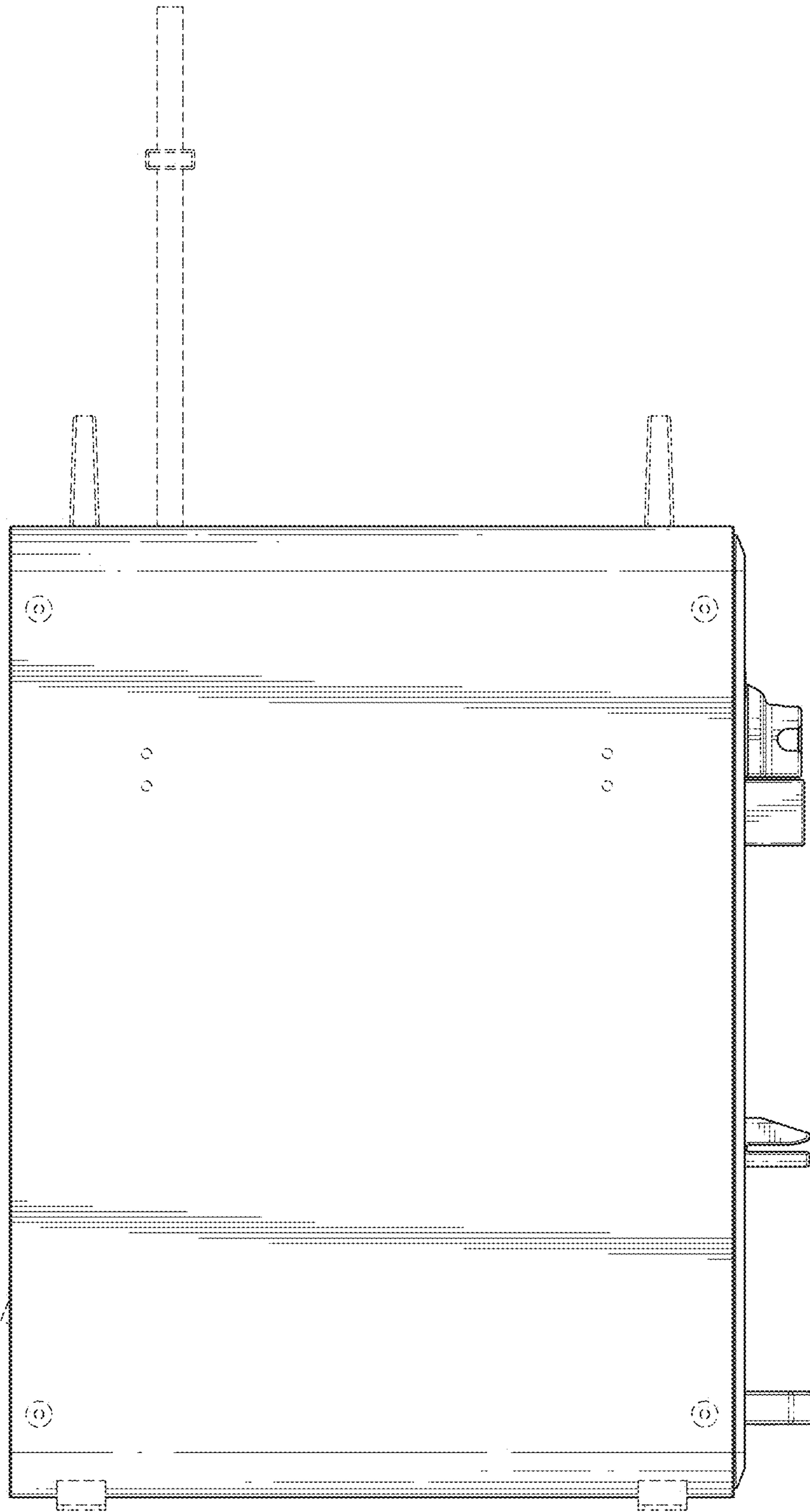


FIG. 4

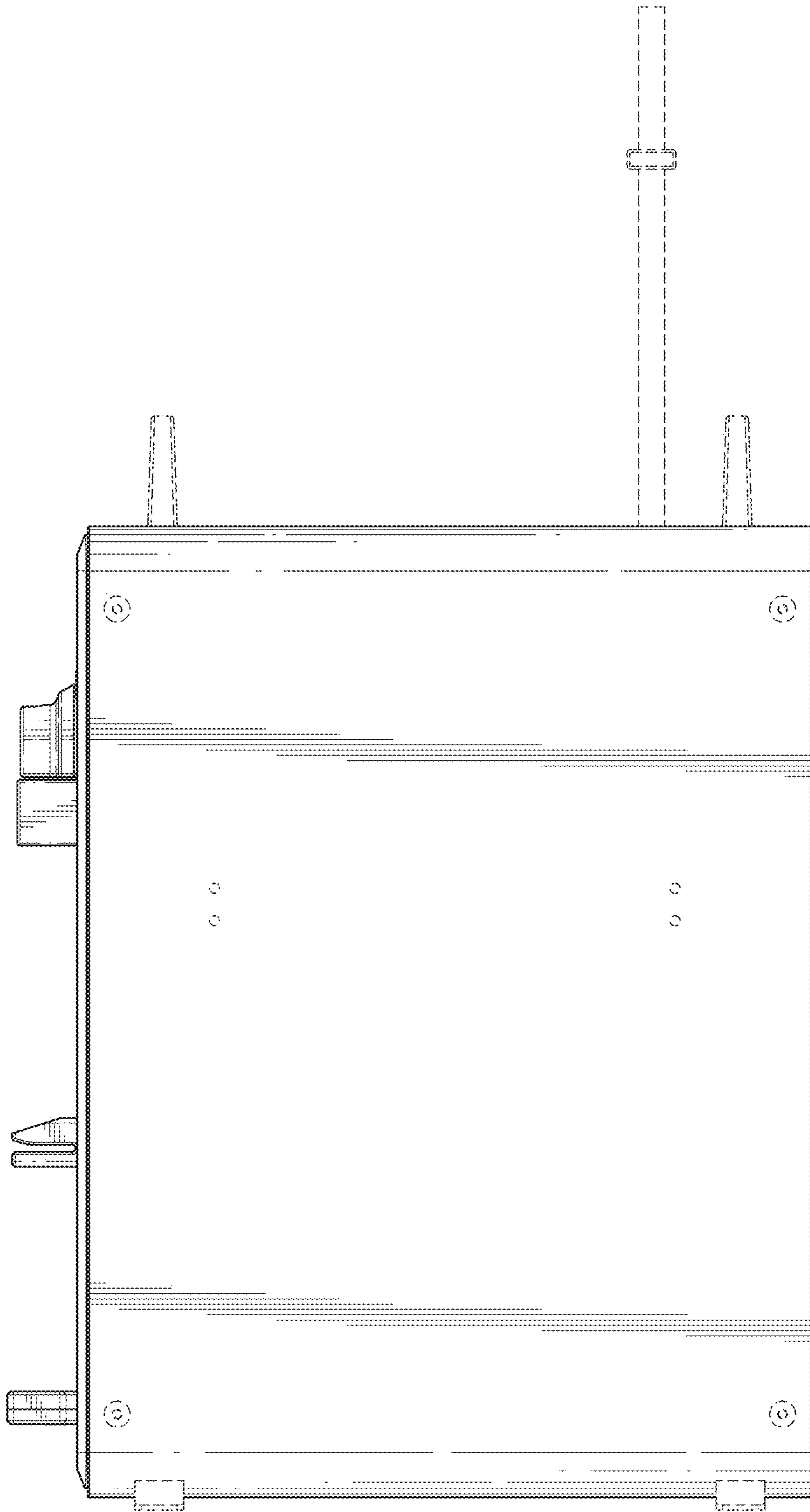


FIG. 5

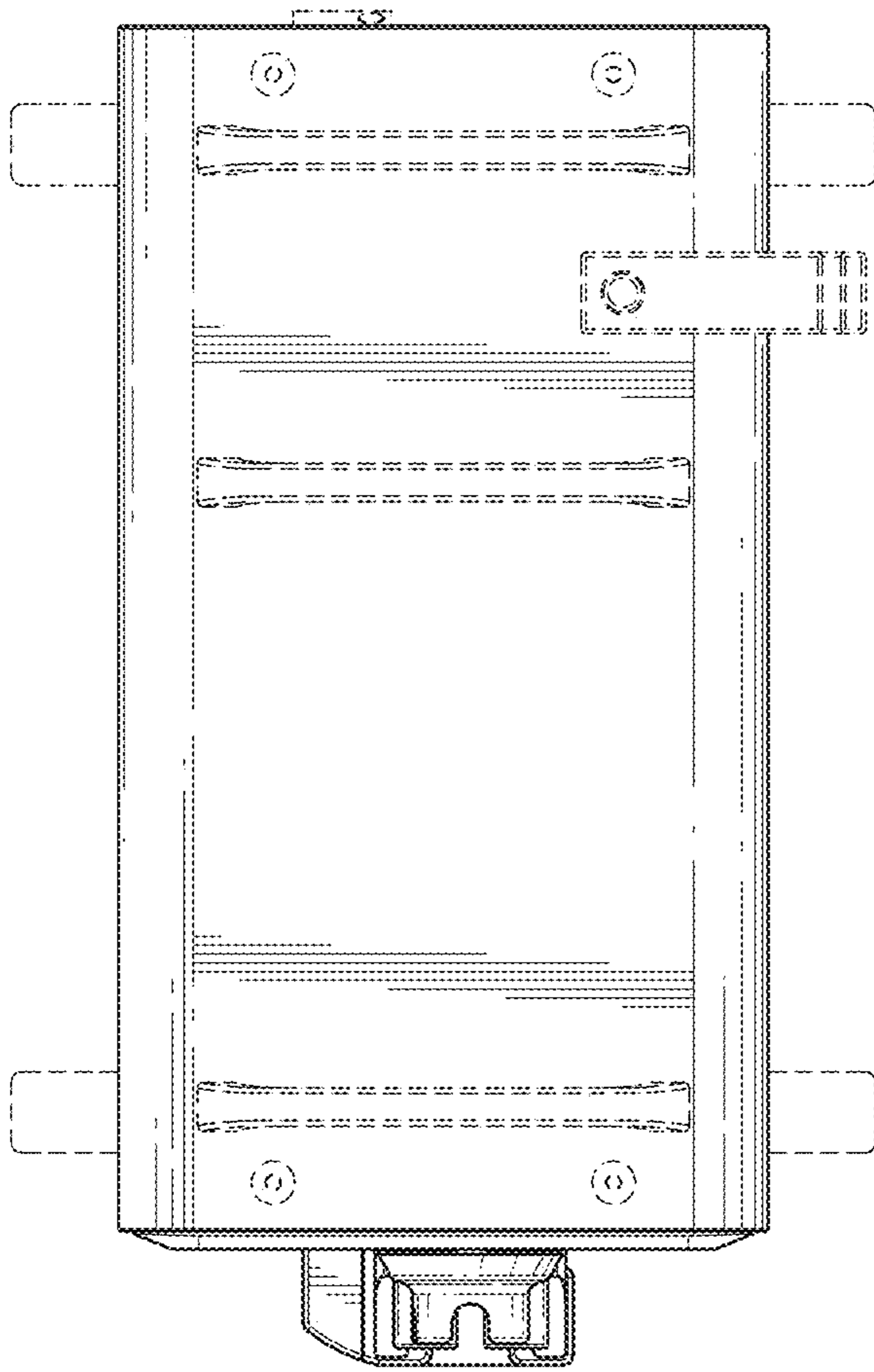


FIG. 6

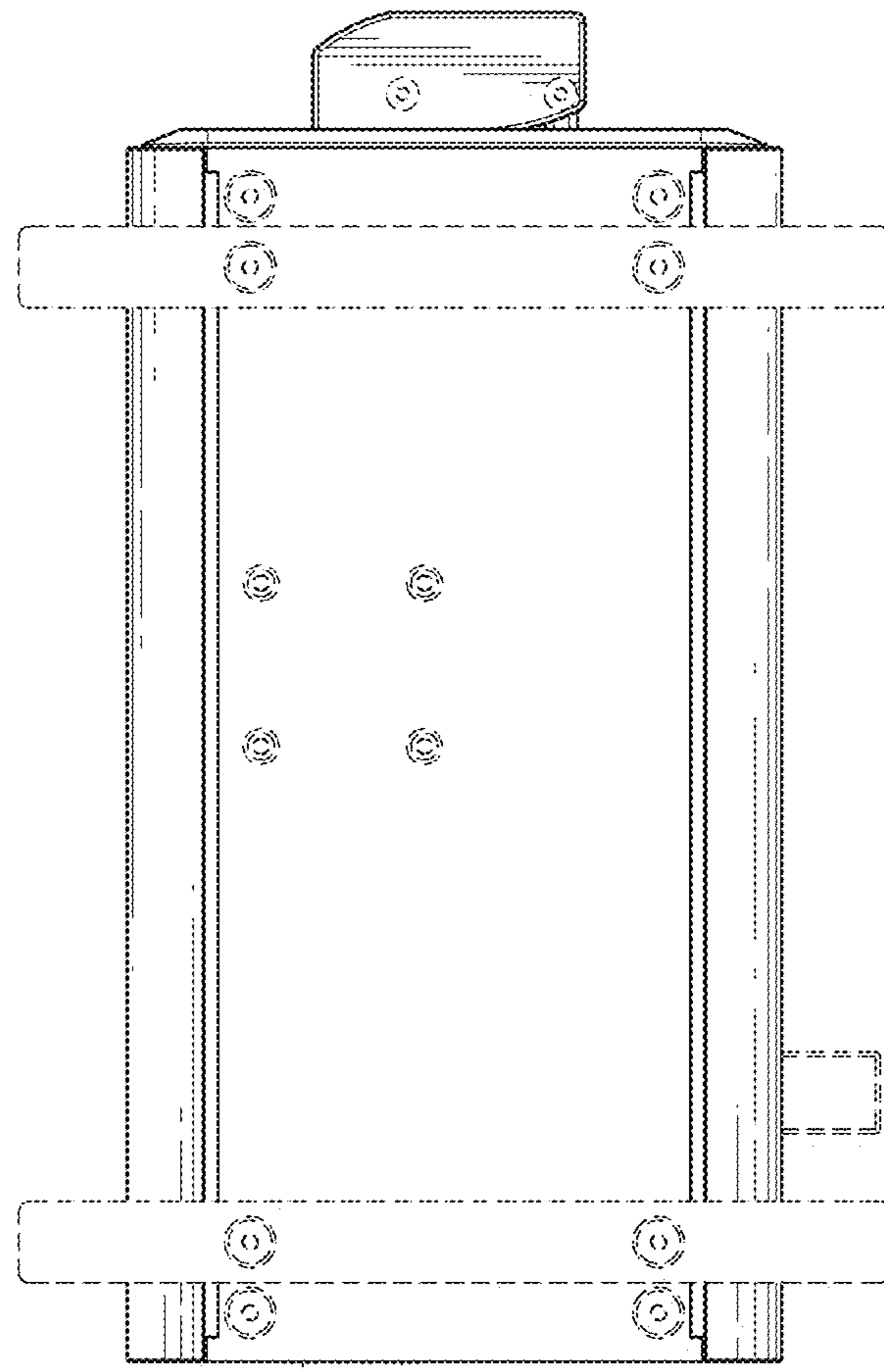


FIG. 7