



US00D905228S

(12) **United States Design Patent** (10) **Patent No.:** **US D905,228 S**  
**Shauver et al.** (45) **Date of Patent:** **\*\* Dec. 15, 2020**

(54) **MEDICAL FLUID TRANSFER SYSTEM**  
(71) Applicant: **ICU Medical, Inc.**, San Clemente, CA (US)  
(72) Inventors: **Erik Scott Shauver**, Tustin, CA (US); **Thomas F. Fangrow**, Mission Viejo, CA (US)

4,190,048 A 2/1980 Sampson  
4,262,671 A 4/1981 Kersten  
4,306,705 A 12/1981 Svensson  
4,336,802 A 6/1982 Stone et al.  
4,367,736 A 1/1983 Gupton  
D268,206 S 3/1983 Kosako  
(Continued)

(73) Assignee: **ICU Medical, Inc.**, San Clemente, CA (US)  
(\*\*) Term: **15 Years**

FOREIGN PATENT DOCUMENTS  
CN 1707379 12/2005  
CN 101244297 8/2008  
(Continued)

(21) Appl. No.: **29/722,642**  
(22) Filed: **Jan. 31, 2020**

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

**Related U.S. Application Data**

(62) Division of application No. 29/695,207, filed on Jun. 17, 2019, now Pat. No. Des. 874,644, which is a division of application No. 29/571,547, filed on Jul. 19, 2016, now Pat. No. Des. 851,745.

*Primary Examiner* — Lilyana Bekic  
(74) *Attorney, Agent, or Firm* — Knobbe Martens Olson & Bear, LLP

(51) **LOC (12) Cl.** ..... **24-01**  
(52) **U.S. Cl.**  
USPC ..... **D24/108; D24/111**  
(58) **Field of Classification Search**  
USPC ..... D24/107–108, 111, 169, 231–232  
CPC ..... A61J 1/20; A61J 1/2003  
See application file for complete search history.

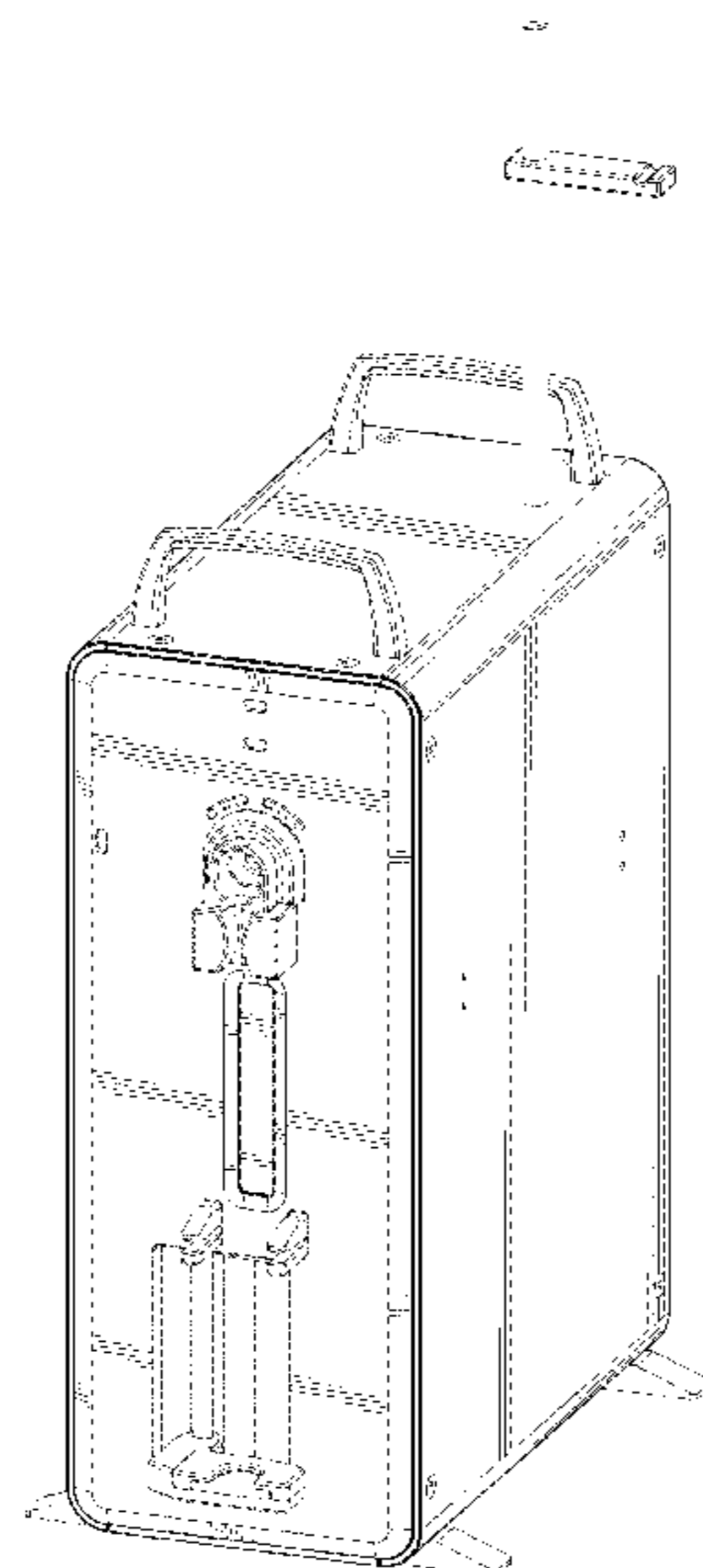
(57) **CLAIM**  
The ornamental design for a medical fluid transfer system, as shown and described.

(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  
D236,163 S 7/1975 Manno  
4,005,710 A 2/1977 Zeddies et al.  
4,084,606 A 4/1978 Mittleman

**DESCRIPTION**  
FIG. 1 is a front perspective view of a medical fluid transfer system;  
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.

**1 Claim, 6 Drawing Sheets**



(56)

## References Cited

## U.S. PATENT DOCUMENTS

D268,284 S	3/1983	Manno et al.	6,302,864 B1	10/2001	Nowosielski
4,397,335 A	8/1983	Doblar et al.	6,425,497 B1	7/2002	Chu et al.
4,410,321 A	10/1983	Pearson et al.	6,474,375 B2	11/2002	Spero et al.
4,423,741 A	1/1984	Levy	6,485,472 B1	11/2002	Richmond
4,519,792 A	5/1985	Dawe	6,551,299 B2	4/2003	Miyoshi et al.
4,534,758 A	8/1985	Akers et al.	6,558,365 B2	5/2003	Zinger et al.
4,559,043 A	12/1985	Whitehouse et al.	6,572,256 B2	6/2003	Seaton et al.
4,561,856 A	12/1985	Cochran	6,585,229 B2	7/2003	Cote, Sr. et al.
4,666,429 A	5/1987	Stone	6,590,167 B2	7/2003	Clare
4,670,007 A	6/1987	Wheeldon et al.	6,599,273 B1	7/2003	Lopez
4,683,916 A	8/1987	Raines	6,623,455 B2	9/2003	Small et al.
4,755,172 A	7/1988	Baldwin	6,629,956 B1	10/2003	Polidoro et al.
4,759,756 A	7/1988	Forman et al.	6,651,956 B2	11/2003	Miller
4,768,568 A	9/1988	Fournier et al.	6,663,586 B2	12/2003	Verkaart et al.
4,778,450 A	10/1988	Kamen	6,689,108 B2	2/2004	Lavi et al.
4,819,684 A	4/1989	Zaugg et al.	6,699,230 B2	3/2004	Jaafar et al.
4,863,429 A	9/1989	Baldwin	6,711,460 B1	3/2004	Reese
D305,165 S	12/1989	Rudolph et al.	6,726,672 B1	4/2004	Hanly et al.
4,922,975 A	5/1990	Polaschegg	6,793,651 B1	9/2004	Bennett et al.
4,936,841 A	6/1990	Aoki et al.	6,813,868 B2	11/2004	Baldwin et al.
4,969,874 A	11/1990	Michel et al.	6,854,620 B2	2/2005	Ramet
4,972,876 A	11/1990	Kabata et al.	6,908,459 B2	6/2005	Harding et al.
4,976,590 A	12/1990	Baldwin	6,915,823 B2	7/2005	Osborne et al.
4,995,268 A	2/1991	Ash et al.	6,948,522 B2	9/2005	Newbrough et al.
5,024,347 A	6/1991	Baldwin	6,953,450 B2	10/2005	Baldwin et al.
5,037,390 A	8/1991	Raines et al.	6,985,870 B2	1/2006	Martucci et al.
5,114,580 A	5/1992	Ahmad et al.	6,991,002 B2	1/2006	Osborne et al.
D328,952 S	8/1992	Arioka	6,994,315 B2	2/2006	Ryan et al.
5,176,658 A	1/1993	Ranford	6,997,917 B2	2/2006	Niedospial, Jr. et al.
5,224,937 A	7/1993	van der Heiden et al.	7,006,894 B2	2/2006	De La Huerga
5,254,096 A	10/1993	Rondelet et al.	7,017,623 B2	3/2006	Tribble et al.
5,256,155 A	10/1993	Yerlikaya et al.	7,086,431 B2	8/2006	D'Antonio et al.
5,288,290 A	2/1994	Brody	7,108,024 B2	9/2006	Navarro
5,300,044 A	4/1994	Classey et al.	7,117,902 B2	10/2006	Osborne
D348,101 S	6/1994	Poli et al.	7,128,105 B2	10/2006	Tribble et al.
5,334,211 A	8/1994	Shiber	7,163,031 B2	1/2007	Graves et al.
5,336,201 A	8/1994	von der Decken	7,163,035 B2	1/2007	Khan et al.
D352,778 S	11/1994	Irvin	7,175,615 B2	2/2007	Hanly et al.
5,378,231 A	1/1995	Johnson et al.	7,194,336 B2	3/2007	DiGianfilippo et al.
5,405,333 A	4/1995	Richmond	7,260,447 B2	8/2007	Osborne
5,423,791 A	6/1995	Bartlett	7,317,967 B2	1/2008	DiGianfilippo et al.
5,431,201 A	6/1995	Torchia et al.	7,343,224 B2	3/2008	DiGianfilippo et al.
5,439,451 A	8/1995	Collinson et al.	7,343,943 B2	3/2008	Khan et al.
5,466,220 A	11/1995	Brenneman	7,351,226 B1	4/2008	Herskowitz
5,609,572 A	3/1997	Lang	7,354,426 B2	4/2008	Young
5,645,538 A	7/1997	Richmond	7,392,638 B2	7/2008	Baldwin et al.
5,647,845 A	7/1997	Haber et al.	7,396,051 B2	7/2008	Baldwin et al.
5,676,346 A	10/1997	Leinsing	7,398,183 B2	7/2008	Holland et al.
5,685,866 A	11/1997	Lopez	7,398,802 B2	7/2008	Baker
5,776,345 A	7/1998	Truitt et al.	7,418,981 B2	9/2008	Baker et al.
5,782,816 A	7/1998	Werschmidt et al.	7,442,186 B2	10/2008	Blomquist
5,807,312 A	9/1998	Dzwonkiewicz	7,454,314 B2	11/2008	Holland et al.
5,810,792 A	9/1998	Fangrow, Jr. et al.	7,488,311 B2	2/2009	Domkowski et al.
5,871,110 A	2/1999	Grimard et al.	7,499,581 B2	3/2009	Tribble et al.
5,871,500 A	2/1999	Jepson et al.	7,527,619 B2	5/2009	Domkowski et al.
D408,079 S	4/1999	Ellis	7,530,211 B2	5/2009	McErlean et al.
5,897,526 A	4/1999	Vaillancourt	7,530,974 B2	5/2009	Domkowski et al.
5,904,666 A	5/1999	DeDecker et al.	7,538,858 B2	5/2009	Mackey
5,910,252 A	6/1999	Truitt et al.	D594,120 S	6/2009	Berberich et al.
5,935,106 A	8/1999	Olsen	D596,291 S	7/2009	Berberich et al.
5,947,951 A	9/1999	Ortiz et al.	7,566,326 B2	7/2009	Duchon et al.
5,968,014 A	10/1999	Neffel et al.	7,590,021 B2	9/2009	Michalak et al.
5,989,237 A	11/1999	Fowles et al.	7,610,115 B2	10/2009	Rob et al.
6,059,747 A	5/2000	Bruggeman et al.	7,630,788 B1	12/2009	Reese
6,110,153 A	8/2000	Davis et al.	7,630,789 B2	12/2009	Broadfield et al.
6,123,685 A	9/2000	Reynolds	7,632,261 B2	12/2009	Zinger et al.
6,132,404 A	10/2000	Lopez	7,654,976 B2	2/2010	Peterson et al.
6,152,900 A	11/2000	Mayer	7,681,606 B2	3/2010	Khan et al.
6,171,484 B1	1/2001	Schnell et al.	7,685,026 B1	3/2010	McGrady et al.
6,179,823 B1	1/2001	Niedospial, Jr.	D616,092 S	5/2010	Domkowski et al.
6,193,675 B1	2/2001	Kraus et al.	7,717,897 B2	5/2010	Burg et al.
6,202,708 B1	3/2001	Bynum	D620,108 S	7/2010	Eitenmueller et al.
6,221,041 B1	4/2001	Russo	7,753,085 B2	7/2010	Tribble et al.
6,245,048 B1	6/2001	Fangrow, Jr. et al.	7,758,560 B2	7/2010	Connell et al.
6,287,289 B1	9/2001	Niedospial, Jr.	7,789,850 B2	9/2010	Roger
			7,814,731 B2	10/2010	Bender et al.
			7,850,051 B2	12/2010	Py et al.
			7,867,215 B2	1/2011	Akerlund et al.
			7,882,863 B2	2/2011	Pestotnik et al.

(56)

## References Cited

## U.S. PATENT DOCUMENTS

7,895,053 B2	2/2011	Holland et al.	8,679,075 B2	3/2014	Lurvey et al.
7,900,658 B2	3/2011	Osborne et al.	8,684,994 B2	4/2014	Lev et al.
7,913,720 B2	3/2011	Tribble et al.	8,700,421 B2	4/2014	Feng et al.
7,963,201 B2	6/2011	Willoughby et al.	8,701,696 B2	4/2014	Guala
7,963,954 B2	6/2011	Kavazov	8,702,675 B2	4/2014	Imai
7,967,202 B2	6/2011	Durrell et al.	8,720,496 B2	5/2014	Huwiler et al.
7,981,381 B2	7/2011	Lurvey et al.	8,721,612 B2	5/2014	Domkowski et al.
7,997,304 B2	8/2011	Ranalletta et al.	8,721,614 B2	5/2014	Takemoto et al.
8,034,041 B2	10/2011	Domkowski et al.	8,721,627 B2	5/2014	Alpert
8,037,659 B2	10/2011	Osborne et al.	8,753,325 B2	6/2014	Lev et al.
8,065,161 B2	11/2011	Howard et al.	8,763,798 B2	7/2014	Paul
8,075,545 B2	12/2011	Moy et al.	8,795,231 B2	8/2014	Chong et al.
8,091,727 B2	1/2012	Domkowski	8,801,689 B2	8/2014	Moy et al.
8,091,860 B2	1/2012	Thompson et al.	8,821,436 B2	9/2014	Mosler et al.
8,104,644 B2	1/2012	Py et al.	8,834,444 B2	9/2014	Domkowski
8,117,809 B2	2/2012	McErlean et al.	8,852,147 B2	10/2014	Callan et al.
8,140,351 B2	3/2012	Tribble et al.	8,863,788 B2	10/2014	Ranalletta et al.
8,141,601 B2	3/2012	Fehr et al.	8,864,725 B2	10/2014	Ranalletta et al.
8,151,835 B2	4/2012	Khan et al.	8,864,737 B2	10/2014	Hasegawa et al.
8,162,903 B2	4/2012	Reilly et al.	8,870,832 B2	10/2014	Raday et al.
8,162,914 B2	4/2012	Kraushaar et al.	8,882,739 B2	11/2014	Domkowski et al.
8,162,915 B2	4/2012	Brandenburger et al.	8,894,627 B2	11/2014	Garfield et al.
D660,423 S	5/2012	Hermle	8,911,421 B2	12/2014	Domkowski et al.
8,172,823 B2	5/2012	Rondeau et al.	D721,803 S	1/2015	Dubach
8,182,744 B2	5/2012	Mlodzinski et al.	8,926,554 B2	1/2015	Okuda et al.
8,197,459 B2	6/2012	Jansen et al.	8,958,112 B2	2/2015	Matsui et al.
8,206,367 B2	6/2012	Warren et al.	D724,198 S	3/2015	Oostman et al.
D664,647 S	7/2012	Becker	8,973,622 B2	3/2015	Lopez et al.
D664,648 S	7/2012	Becker	8,979,792 B2	3/2015	Lev et al.
D664,649 S	7/2012	Becker	9,033,006 B2	5/2015	Perazzo et al.
8,209,941 B2	7/2012	Osborne et al.	9,043,019 B2	5/2015	Eliuk et al.
8,216,207 B2	7/2012	Moy et al.	9,056,164 B2	6/2015	Tate et al.
8,220,503 B2	7/2012	Tribble et al.	9,057,363 B2	6/2015	Capone
8,220,504 B2	7/2012	Hartman et al.	9,057,370 B2	6/2015	Mundt et al.
8,221,382 B2	7/2012	Moy et al.	9,060,923 B2	6/2015	Hossainy
8,225,824 B2	7/2012	Eliuk et al.	9,061,130 B2	6/2015	Truitt et al.
8,225,826 B2	7/2012	Horppu et al.	9,076,115 B2	7/2015	Utech et al.
8,231,567 B2	7/2012	Tennican et al.	9,079,686 B2	7/2015	Domkowski et al.
8,231,749 B2	7/2012	Dent et al.	9,089,474 B2	7/2015	Cederschiöld
8,241,265 B2	8/2012	Moy et al.	9,101,717 B2	8/2015	Mansour et al.
8,267,129 B2	9/2012	Doherty et al.	9,114,242 B2	8/2015	Fangrow, Jr. et al.
8,267,912 B2	9/2012	Ferris	9,123,077 B2	9/2015	Silkaitis et al.
8,287,513 B2	10/2012	Ellstrom et al.	9,132,062 B2	9/2015	Fangrow
8,328,082 B1	12/2012	Bochenko et al.	9,132,063 B2	9/2015	Lev et al.
8,336,587 B2	12/2012	Rosenquist et al.	9,139,316 B2	9/2015	Husnu et al.
8,353,318 B2	1/2013	Ranalletta et al.	9,144,646 B2	9/2015	Barron, III et al.
8,356,644 B2	1/2013	Chong et al.	9,149,576 B2	10/2015	Bullington et al.
8,356,645 B2	1/2013	Chong et al.	9,198,832 B2	12/2015	Moy et al.
8,357,137 B2	1/2013	Yandell	9,211,231 B2	12/2015	Mansour et al.
8,374,887 B1	2/2013	Alexander	9,212,762 B2	12/2015	Duncan
8,380,536 B2	2/2013	Howard et al.	9,220,661 B2	12/2015	Garfield et al.
8,381,776 B2	2/2013	Horppu	9,227,048 B2	1/2016	Frattoni
8,382,696 B2	2/2013	Beiriger et al.	9,241,875 B2	1/2016	Davis et al.
8,386,070 B2	2/2013	Eliuk et al.	9,242,039 B2	1/2016	Valk et al.
8,403,905 B2	3/2013	Yow	9,270,890 B2	2/2016	Okuma et al.
8,409,165 B2	4/2013	Niedospial, Jr. et al.	9,345,640 B2	5/2016	Mosier et al.
8,414,554 B2	4/2013	Garfield et al.	9,345,641 B2	5/2016	Kraus et al.
8,414,556 B2	4/2013	Garfield et al.	9,345,643 B2	5/2016	Okiyama
8,425,487 B2	4/2013	Beiriger et al.	9,381,135 B2	7/2016	Reynolds et al.
8,430,859 B2	4/2013	McConnell	9,381,137 B2	7/2016	Garfield et al.
8,449,521 B2	5/2013	Thorne, Jr. et al.	9,381,296 B2	7/2016	Arrizza et al.
8,506,548 B2	8/2013	Okiyama	9,382,021 B2	7/2016	Tribble et al.
8,522,832 B2	9/2013	Lopez et al.	9,393,362 B2	7/2016	Cozmi et al.
8,543,416 B2	9/2013	Palmroos et al.	9,402,786 B2	8/2016	Petrone
8,551,037 B2	10/2013	Suchecky et al.	9,466,088 B2	10/2016	Perazzo et al.
8,562,583 B2	10/2013	Akerlund et al.	9,474,690 B2	10/2016	Ranalletta et al.
8,567,235 B2	10/2013	Bojan et al.	9,475,019 B2	10/2016	Kaucky et al.
8,571,708 B2	10/2013	Rob et al.	9,481,477 B2	11/2016	Kjar
8,562,584 B2	11/2013	Beiriger et al.	D774,192 S	12/2016	Fuchs
8,602,067 B2	12/2013	Kuhni et al.	D775,325 S	12/2016	Larson et al.
8,608,723 B2	12/2013	Lev et al.	9,511,989 B2	12/2016	Lopez et al.
8,622,985 B2	1/2014	Ellstrom	9,561,893 B2	2/2017	Root et al.
8,636,720 B2	1/2014	Truitt et al.	9,572,923 B2	2/2017	Howard et al.
8,639,525 B2	1/2014	Levine et al.	9,579,255 B2	2/2017	Eliuk et al.
8,660,860 B2	2/2014	Wehba et al.	9,629,955 B2	4/2017	Bresina et al.
			9,744,102 B2	8/2017	Kubo
			9,770,388 B2	9/2017	Noike et al.
			9,775,778 B2	10/2017	Qiu et al.
			9,801,787 B2	10/2017	Py

(56)

## References Cited

## U.S. PATENT DOCUMENTS

9,802,171 B2	10/2017	Konrad, Jr. et al.	2007/0287953 A1	12/2007	Ziv et al.
9,802,172 B2	10/2017	Konrad, Jr. et al.	2008/0059228 A1	3/2008	Bossi et al.
D803,396 S	11/2017	Oberkircher et al.	2008/0065006 A1	3/2008	Roger et al.
9,827,163 B2	11/2017	Lopez et al.	2008/0077116 A1	3/2008	Dailey et al.
9,827,680 B2	11/2017	Davey et al.	2008/0086094 A1	4/2008	Peters
D804,651 S	12/2017	Loonan	2008/0114328 A1	5/2008	Doherty et al.
9,849,236 B2	12/2017	Hachey et al.	2008/0125897 A1	5/2008	Digianfilippo et al.
9,883,987 B2	2/2018	Lopez et al.	2008/0169043 A1	7/2008	Osborne et al.
9,930,297 B2	3/2018	Alexander et al.	2008/0169044 A1	7/2008	Osborne et al.
9,931,276 B2	4/2018	Lopez et al.	2008/0172024 A1	7/2008	Yow
10,106,278 B2	10/2018	Chang et al.	2008/0177222 A1	7/2008	De Marco et al.
10,143,985 B2	12/2018	Brown et al.	2008/0195416 A1	8/2008	Tribble et al.
D837,983 S	1/2019	Fangrow	2008/0199353 A1	8/2008	Mlodzinski et al.
10,181,186 B2	1/2019	Kriheli et al.	2008/0269680 A1	10/2008	Ibranyan et al.
10,188,849 B2	1/2019	Fangrow	2009/0012449 A1	1/2009	Lee et al.
10,189,616 B2	1/2019	Kraft	2009/0050216 A1	2/2009	Trocki et al.
D846,146 S	4/2019	Amos et al.	2009/0067973 A1	3/2009	Eliuk et al.
10,259,608 B2	4/2019	Fianchini et al.	2009/0069743 A1	3/2009	Krishnamoorthy et al.
D851,745 S	6/2019	Shauver et al.	2009/0082649 A1	3/2009	Muller et al.
10,307,338 B2	6/2019	Hellenbrand	2009/0088687 A1	4/2009	Yardimci et al.
10,314,764 B2	6/2019	Lopez et al.	2009/0099547 A1	4/2009	Radmer
10,314,765 B2	6/2019	Lopez et al.	2009/0101576 A1	4/2009	Rohde et al.
10,315,174 B2	6/2019	Konrad, Jr. et al.	2009/0126825 A1	5/2009	Eliuk et al.
10,327,987 B1	6/2019	Bochenko et al.	2009/0135196 A1	5/2009	Holland et al.
10,327,988 B2	6/2019	Tribble et al.	2009/0145509 A1	6/2009	Baker et al.
10,336,477 B2	7/2019	Perazzo et al.	2009/0149743 A1	6/2009	Barron et al.
10,417,758 B1	9/2019	Alexander	2009/0154764 A1	6/2009	Khan et al.
10,420,927 B2	9/2019	Fangrow	2009/0163860 A1	6/2009	Patrick et al.
10,494,126 B2	12/2019	Joplin	2009/0177149 A1	7/2009	Childers et al.
10,503,873 B2	12/2019	Prince et al.	2009/0198215 A1	8/2009	Chong et al.
10,512,885 B2	12/2019	Janders et al.	2009/0223592 A1	9/2009	Procyshyn et al.
D874,644 S	2/2020	Shauver et al.	2009/0223990 A1	9/2009	Bailey et al.
10,554,937 B2	2/2020	Alexander et al.	2009/0254031 A1	10/2009	Lee
10,556,062 B2	2/2020	Simpson et al.	2009/0270832 A1	10/2009	Vancaillie et al.
10,576,211 B2	3/2020	Hang et al.	2009/0306621 A1	12/2009	Thome, Jr. et al.
2001/0029360 A1	10/2001	Miyoshi et al.	2010/0024904 A1	2/2010	Hoffman et al.
2002/0017328 A1	2/2002	Loo	2010/0049157 A1	2/2010	Fangrow
2002/0085952 A1	7/2002	Ellingboe et al.	2010/0121246 A1	5/2010	Peters et al.
2002/0087144 A1	7/2002	Zinger et al.	2010/0130933 A1	5/2010	Holland et al.
2002/0095121 A1	7/2002	Norton et al.	2010/0245056 A1	9/2010	Braun et al.
2002/0115980 A1	8/2002	Niedospial, Jr. et al.	2010/0276034 A1	11/2010	Gonnelli et al.
2002/0189712 A1	12/2002	Safabash	2010/0280430 A1	11/2010	Caleffi et al.
2003/0023226 A1	1/2003	Lopez	2010/0286606 A1	11/2010	Ding
2003/0153895 A1	8/2003	Leinsing	2011/0004143 A1	1/2011	Beiriger et al.
2003/0236500 A1	12/2003	Scheu	2011/0062703 A1	3/2011	Lopez et al.
2004/0031756 A1	2/2004	Suzuki et al.	2011/0067781 A1	3/2011	Osborne
2004/0035743 A1	2/2004	Tighe et al.	2011/0087164 A1	4/2011	Mosler et al.
2004/0073161 A1	4/2004	Tachibana	2011/0152757 A1	6/2011	Beck et al.
2004/0087888 A1	5/2004	Digianfilippo et al.	2011/0175347 A1	7/2011	Okiyama
2004/0116891 A1	6/2004	Curutcharry	2011/0178493 A1	7/2011	Okiyama
2004/0118477 A1	6/2004	Desmond	2011/0196304 A1	8/2011	Kramer et al.
2004/0225274 A1	11/2004	Jansen et al.	2011/0204144 A1	8/2011	Waugh et al.
2005/0033260 A1	2/2005	Kubo et al.	2011/0229517 A1	9/2011	Strahlendorf et al.
2005/0096627 A1	5/2005	Howard	2011/0276031 A1	11/2011	Hoang et al.
2005/0131357 A1	6/2005	Denton et al.	2011/0305545 A1	12/2011	Davis et al.
2005/0230575 A1	10/2005	Zelenski et al.	2012/0157914 A1	1/2012	Stroup
2005/0252572 A1	11/2005	Khan et al.	2012/0067429 A1	3/2012	Mosler et al.
2005/0252574 A1	11/2005	Khan et al.	2012/0109077 A1	5/2012	Ryan
2005/0278194 A1	12/2005	Holland et al.	2012/0123298 A1	5/2012	Mendels et al.
2006/0048844 A1	3/2006	Merrill	2012/0302986 A1	11/2012	Brem et al.
2006/0064053 A1	3/2006	Bollish et al.	2013/0006214 A1	1/2013	Garfield et al.
2006/0089854 A1	4/2006	Holland et al.	2013/0018356 A1	1/2013	Prince et al.
2006/0089855 A1	4/2006	Holland et al.	2013/0053815 A1	2/2013	Mucientes et al.
2006/0100907 A1	5/2006	Holland et al.	2013/0085439 A1	4/2013	Sansoucy et al.
2006/0169348 A1	8/2006	Yigal	2013/0102772 A1	4/2013	Eshima et al.
2006/0259195 A1	11/2006	Eliuk et al.	2013/0180618 A1	7/2013	Py
2007/0007478 A1	1/2007	Leinsing et al.	2013/0211332 A1	8/2013	Beiriger et al.
2007/0017583 A1	1/2007	Fangrow	2013/0218121 A1	8/2013	Waller et al.
2007/0088252 A1	4/2007	Pestotnik et al.	2013/0220484 A1	8/2013	De Marco
2007/0088313 A1	4/2007	Zinger et al.	2013/0292004 A1	11/2013	Ducret et al.
2007/0106244 A1	5/2007	Mosler et al.	2014/0020790 A1	1/2014	Yuyama et al.
2007/0151984 A1	7/2007	Baker et al.	2014/0124087 A1	5/2014	Anderson et al.
2007/0169836 A1	7/2007	Djurle et al.	2014/0135732 A1	5/2014	Spronken et al.
2007/0214003 A1	9/2007	Holland et al.	2014/0136229 A1	5/2014	Levine et al.
2007/0244447 A1	10/2007	Capitaine et al.	2014/0150925 A1	6/2014	Sjogren et al.
			2014/0261727 A1	9/2014	Mansour et al.
			2014/0261860 A1	9/2014	Heath
			2014/0261877 A1	9/2014	Ivosevic et al.
			2014/0263614 A1	9/2014	Keefe et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2014/0276386 A1 9/2014 Mansour et al.  
 2014/0276649 A1 9/2014 Ivosevic et al.  
 2014/0299221 A1 10/2014 Lopez  
 2014/0323970 A1 10/2014 Duncan  
 2014/0350949 A1 11/2014 Utech et al.  
 2015/0000784 A1 1/2015 Jamaledine  
 2015/0008664 A1 1/2015 Tachizaki  
 2015/0025453 A1 1/2015 Ledford et al.  
 2015/0040987 A1 2/2015 Reichert et al.  
 2015/0040988 A1 2/2015 Reichert et al.  
 2015/0041531 A1 2/2015 Vavala et al.  
 2015/0045772 A1 2/2015 Reichert et al.  
 2015/0101707 A1 4/2015 Ranalletta et al.  
 2015/0119820 A1 4/2015 Kanamoto  
 2015/0123398 A1 5/2015 Sanders et al.  
 2015/0126958 A1 5/2015 Sanders et al.  
 2015/0133879 A1 5/2015 Kanamoto et al.  
 2015/0151041 A1 6/2015 Yodfat et al.  
 2015/0157536 A1 6/2015 Qiu et al.  
 2015/0161354 A1 6/2015 Blomquist  
 2015/0202382 A1 7/2015 Juretich et al.  
 2015/0202383 A1 7/2015 Juretich et al.  
 2015/0202384 A1 7/2015 Juretich et al.  
 2015/0202385 A1 7/2015 Juretich et al.  
 2015/0209230 A1 7/2015 Lev et al.  
 2015/0209233 A1 7/2015 Fukuoka  
 2015/0209495 A1 7/2015 Biset et al.  
 2015/0209510 A1 7/2015 Burkholz et al.  
 2015/0209572 A1 7/2015 Garfield et al.  
 2015/0250680 A1 9/2015 Browka et al.  
 2015/0250681 A1 9/2015 Lev et al.  
 2015/0257977 A1 9/2015 Bochenko et al.  
 2015/0265500 A1 9/2015 Russo et al.  
 2015/0297451 A1 10/2015 Mariei et al.  
 2015/0297453 A1 10/2015 Kim et al.  
 2015/0297454 A1 10/2015 Sanders et al.  
 2015/0297456 A1 10/2015 Mariei et al.  
 2015/0297459 A1 10/2015 Sanders et al.  
 2015/0297460 A1 10/2015 Mansour et al.  
 2015/0297839 A1 10/2015 Sanders et al.  
 2015/0297881 A1 10/2015 Sanders et al.  
 2015/0314066 A1 11/2015 Shimizu  
 2015/0320992 A1 11/2015 Bonnet et al.  
 2015/0346013 A1 12/2015 Feng et al.  
 2015/0359709 A1 12/2015 Kriheli et al.  
 2015/0366758 A1 12/2015 Noguchi et al.  
 2016/0000653 A1 1/2016 Kramer  
 2016/0001003 A1 1/2016 Perazzo et al.  
 2016/0038373 A1 2/2016 Ohlin  
 2016/0038374 A1 2/2016 Merhold et al.  
 2016/0051446 A1 2/2016 Lev et al.  
 2016/0051751 A1 2/2016 Silkaitis et al.  
 2016/0058666 A1 3/2016 Strahlendorf et al.  
 2016/0058667 A1 3/2016 Kriheli  
 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 Ali 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.  
 2016/0213861 A1 7/2016 Whitaker et al.  
 2016/0213862 A1 7/2016 Whitaker et al.  
 2016/0250102 A1 9/2016 Garfield et al.  
 2016/0256632 A1 9/2016 Fangrow  
 2016/0262981 A1 9/2016 Carrez et al.  
 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.

2017/0081168 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.  
 2017/0165435 A1 6/2017 Green  
 2017/0165436 A1 6/2017 Haddad 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.  
 2018/0055735 A1 3/2018 Lopez  
 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.  
 2018/0344572 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 Procyshyn 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.  
 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 ..... A61J 3/002  
 2020/0113784 A1 4/2020 Lopez  
 2020/0113785 A1 4/2020 Lopez  
 2020/0206492 A1 7/2020 Fangrow

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 1 563 819 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 2004-49497 2/2004  
 JP 2007-215775 A 8/2007

(56)

## References Cited

## FOREIGN PATENT DOCUMENTS

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 2007/079305		7/2007
WO	WO 2007/148708		12/2007
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
WO	WO 2015/077184		5/2015
WO	WO 2015/077466		5/2015
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

## OTHER PUBLICATIONS

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>.

U.S. Appl. No. 15/933,954, filed Mar. 23, 2018, Lopez et al.

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.

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 Kerekawawi, 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>.

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/smarteredit/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](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).

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].

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.

(56)

**References Cited**

OTHER PUBLICATIONS

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

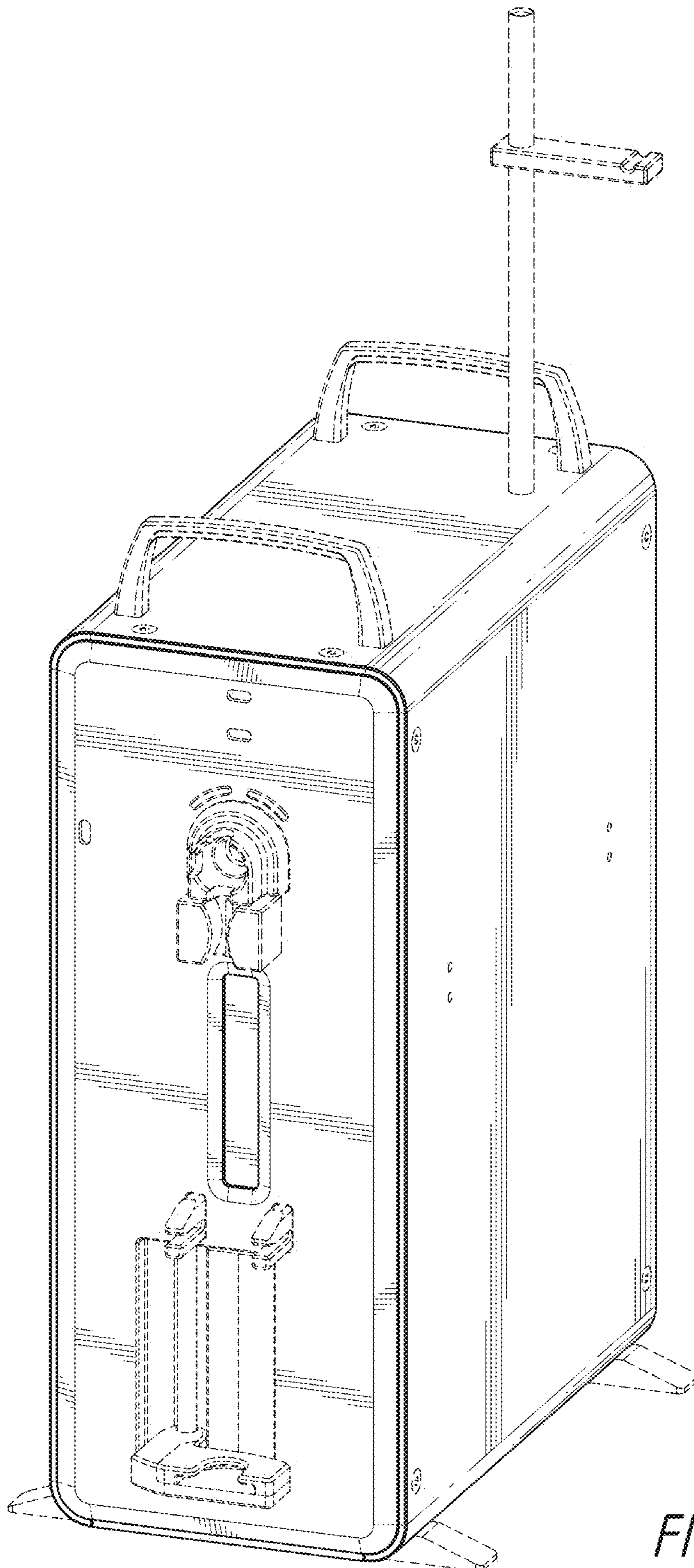


FIG. 1



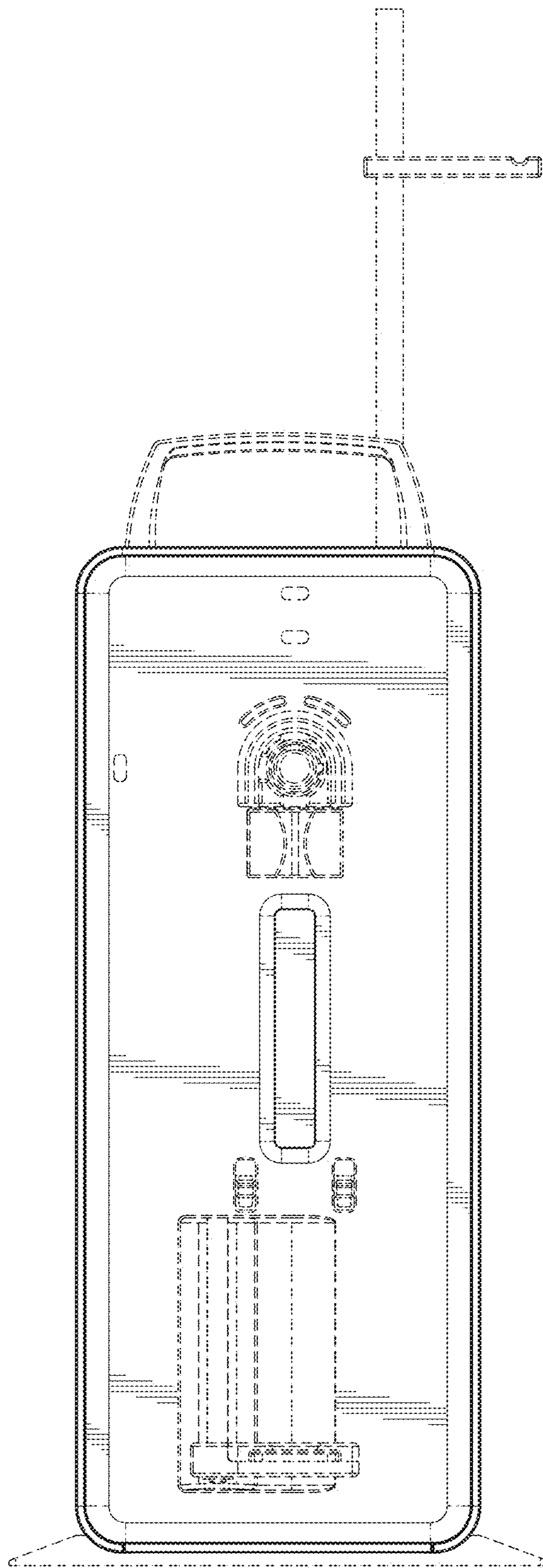


FIG. 2

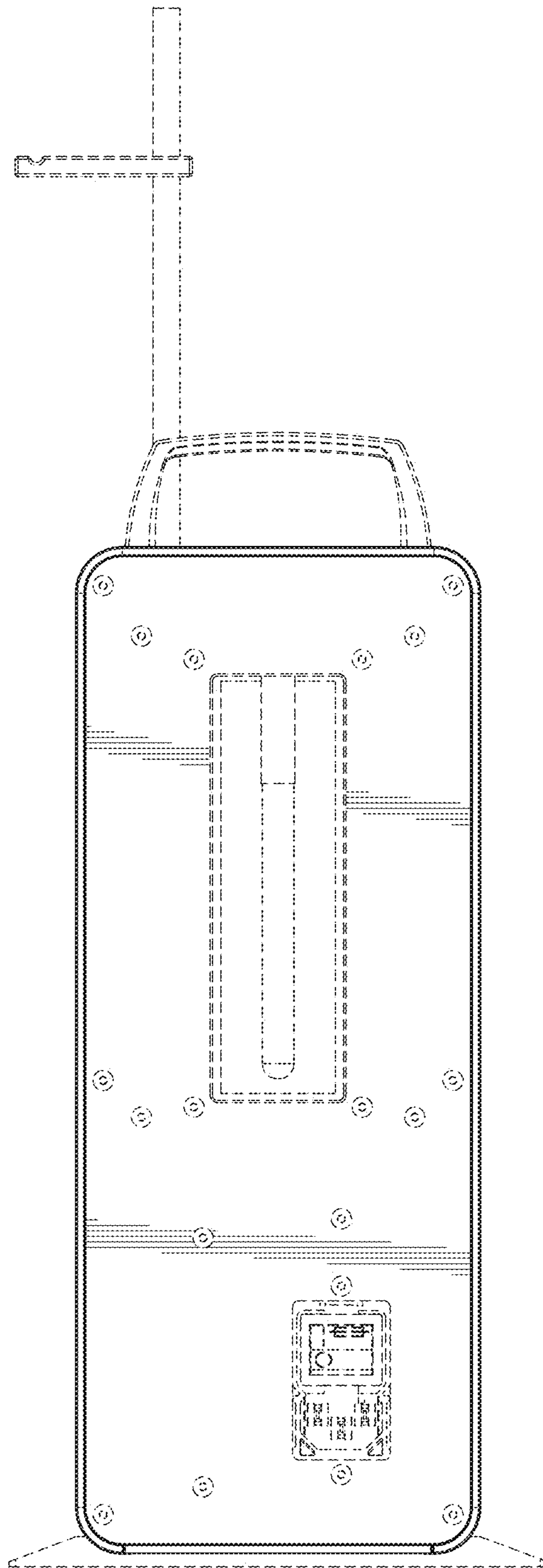


FIG. 3

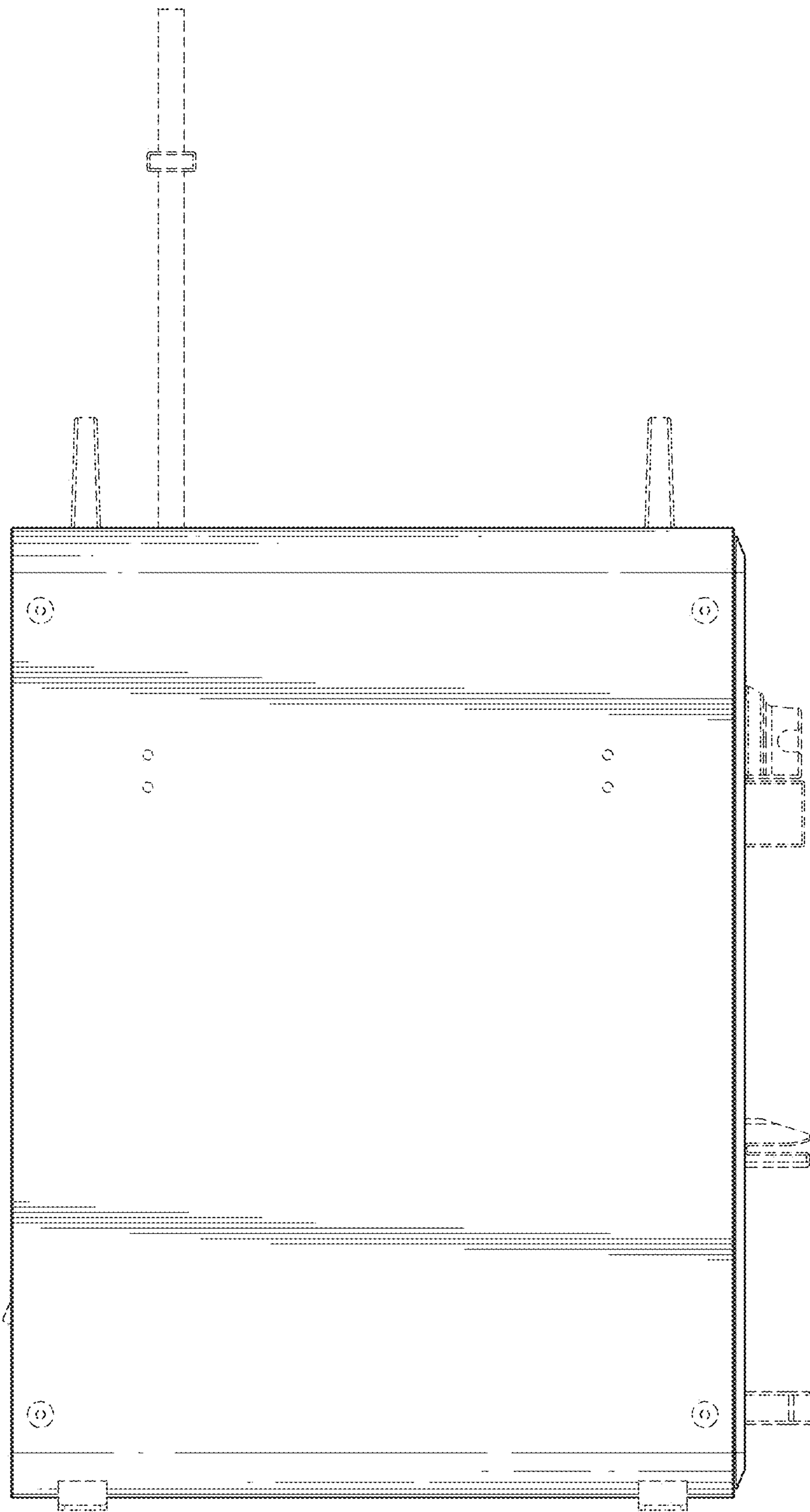


FIG. 4

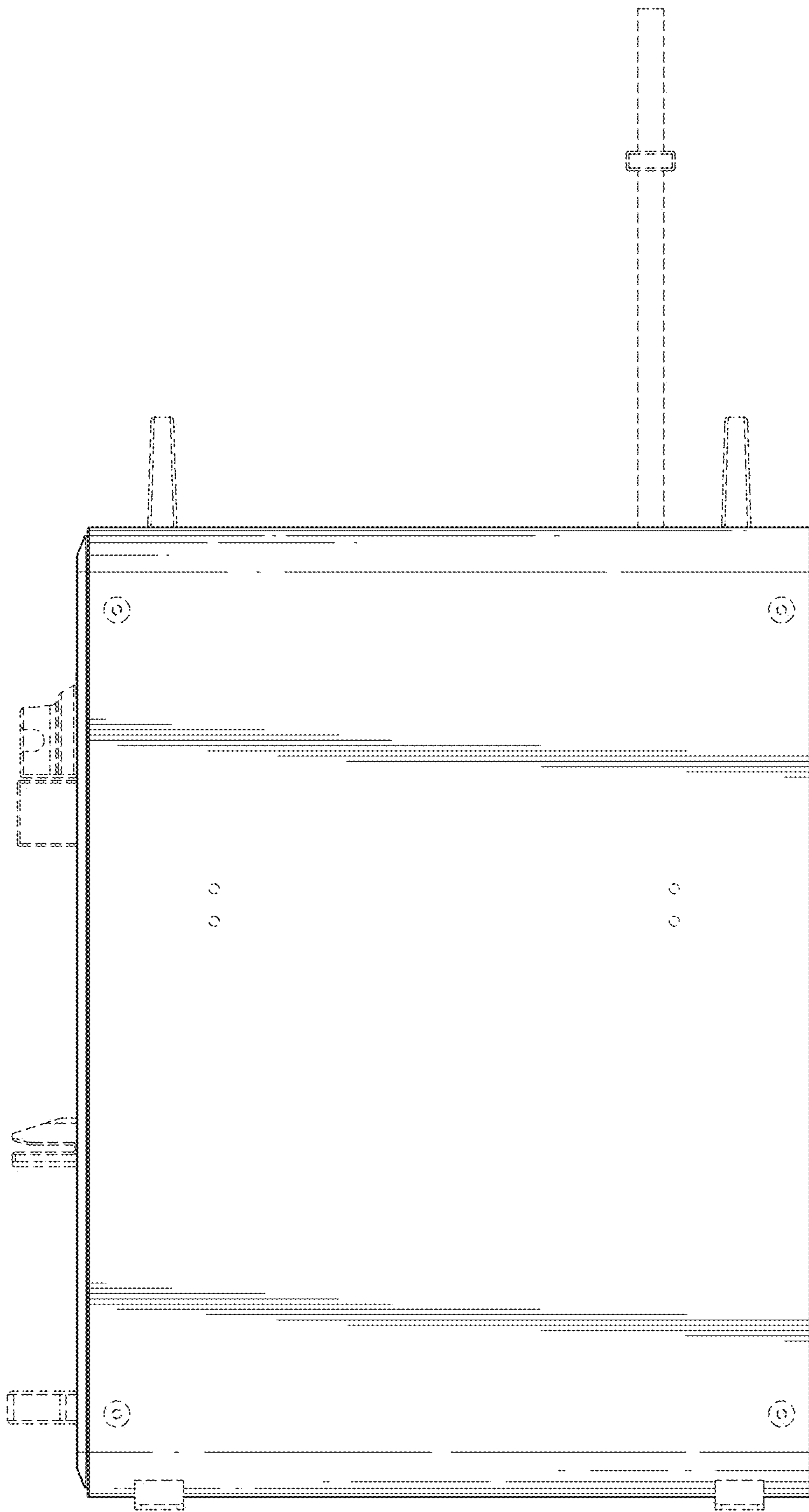


FIG. 5

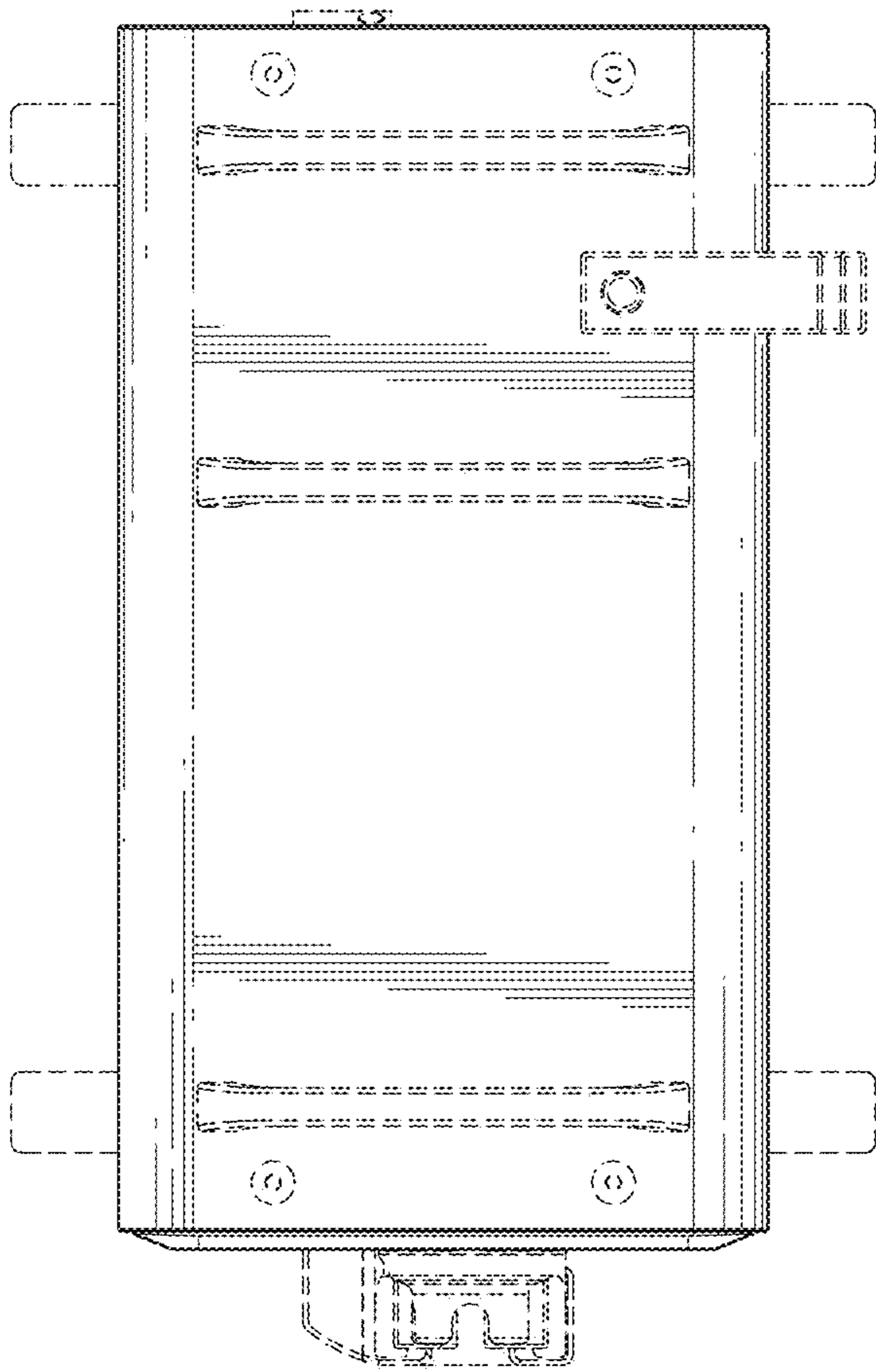


FIG. 6

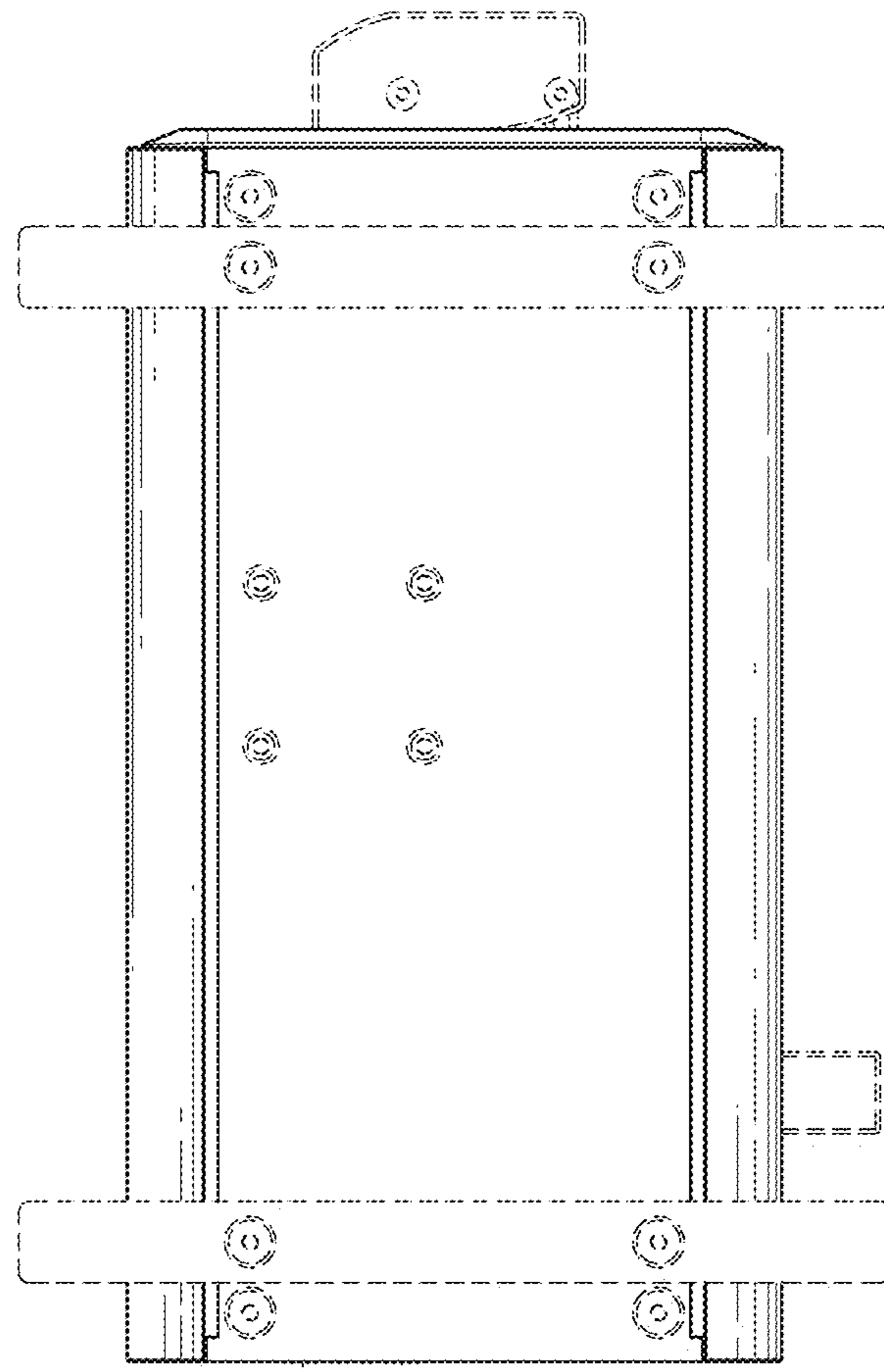


FIG. 7