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Gill et al.

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(54) **MEDICAL PUMP**

8,256,984 B2 9/2012 Fathallah et al.
D669,096 S * 10/2012 Katsura D15/7
2003/0217962 A1 11/2003 Childers et al.

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(Continued)

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FOREIGN PATENT DOCUMENTS

EP 1722310 A1 11/2006
GB 2020735 A 11/1979

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(Continued)

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

OTHER PUBLICATIONS

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(58) **Field of Classification Search**

USPC D24/107, 108, 111, 185, 186

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See application file for complete search history.

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(57)

CLAIM

The ornamental design for a medical pump, as shown and
described.

(56) **References Cited**

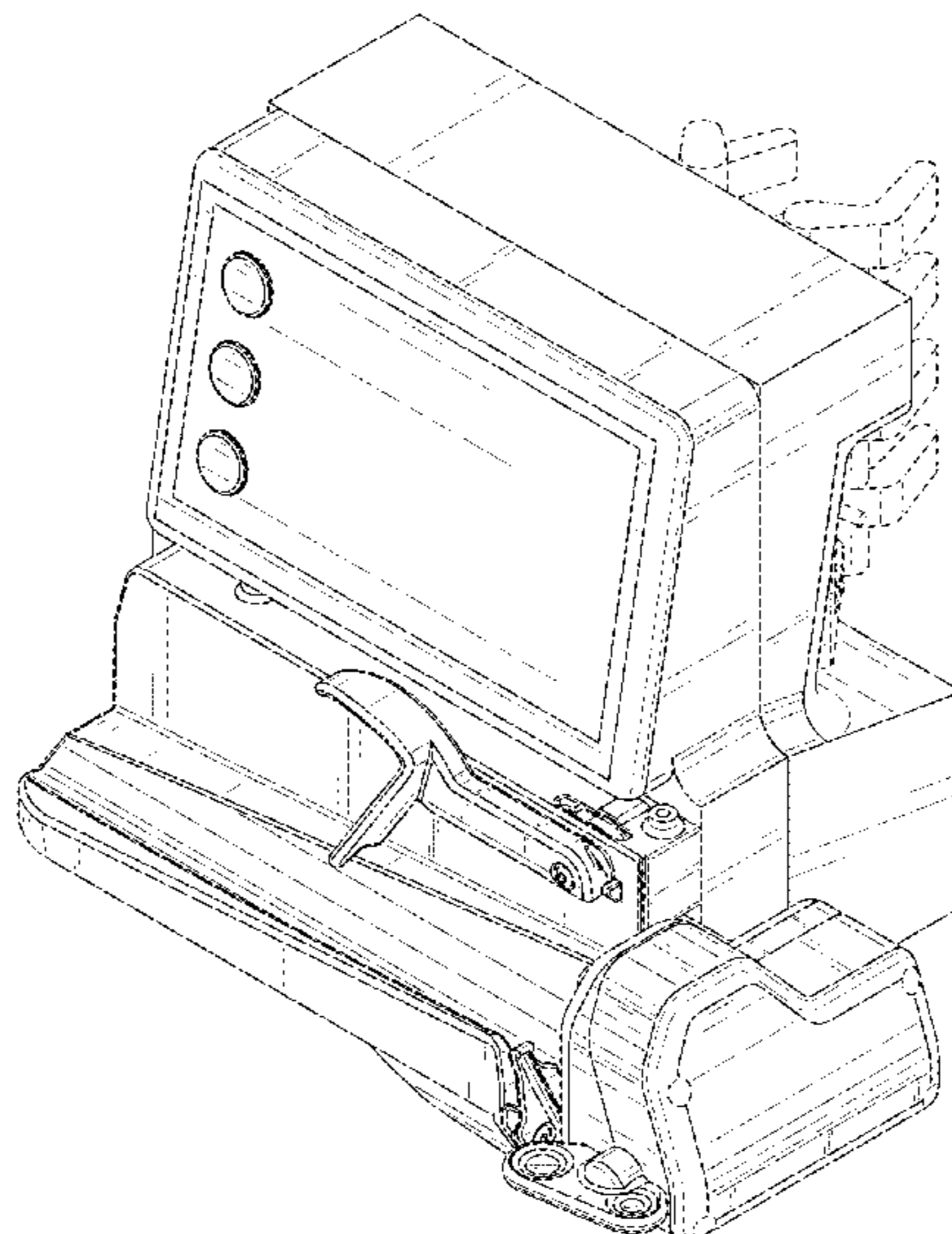
DESCRIPTION

U.S. PATENT DOCUMENTS

D263,997 S * 4/1982 Preussner D24/111
D309,662 S * 7/1990 Gorton D24/111
D353,667 S * 12/1994 Tsubota et al. D24/111
D360,259 S 7/1995 Ijiri et al.
5,482,446 A 1/1996 Williamson et al.
5,505,709 A * 4/1996 Funderburk et al. 604/155
D390,654 S * 2/1998 Alsberg et al. D24/111
D393,072 S * 3/1998 Rogler D24/186
5,954,697 A * 9/1999 Srisathapat et al. 604/155
6,228,047 B1 5/2001 Dadson
D446,860 S 8/2001 Mezière et al.
D512,151 S * 11/2005 Ward et al. D24/186
D556,910 S 12/2007 Reihanifam et al.
D576,281 S 9/2008 Reihanifam et al.

FIG. 1 is a front, top, and right side perspective view of the
medical pump, showing the new design;
FIG. 2 is a front side elevational view thereof; is a rear, top and
right side perspective view thereof;
FIG. 3 is a rear side elevational view thereof; is a top plan view
thereof;
FIG. 4 is a left side elevational view thereof;
FIG. 5 is a right side elevational view thereof;
FIG. 6 is a top plan view thereof; and,
FIG. 7 is a bottom plan view thereof.
The broken lines in the drawings illustrate portions of the
medical pump which form no part of the claimed design.

1 Claim, 7 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2005/0029277	A1 *	2/2005	Tachibana	221/9
2011/0184383	A1	7/2011	Hasegawa	
2011/0313789	A1	12/2011	Kamen	
2012/0035581	A1 *	2/2012	Travis	604/500
2012/0083760	A1 *	4/2012	Ledford et al.	604/500
2012/0185267	A1	7/2012	Kamen	
2013/0177455	A1	7/2013	Kamen	
2013/0182381	A1	7/2013	Gray	
2013/0184676	A1	7/2013	Kamen	
2013/0188040	A1	7/2013	Kamen	
2013/0191513	A1	7/2013	Kamen	
2013/0197693	A1	8/2013	Kamen	
2013/0204188	A1	8/2013	Kamen	
2014/0243745	A1 *	8/2014	Ueda et al.	604/151
2015/0018766	A1 *	1/2015	Nakanishi et al.	604/151
2015/0023808	A1 *	1/2015	Zhu	417/63
2015/0151057	A1 *	6/2015	Nakanishi	604/151

FOREIGN PATENT DOCUMENTS

WO	WO02/100262	A1	12/2002
WO	WO2006/086723	A2	8/2006
WO	WO2009/055639	A2	4/2009
WO	WO2011/021098	A1	2/2011
WO	WO2013/095459	A1	6/2013
WO	WO2013/096713	A2	6/2013
WO	WO2013/096718	A2	6/2013
WO	WO2013/096722	A2	6/2013
WO	WO2013/096909	A2	6/2013

OTHER PUBLICATIONS

International Search Report & Written Opinion, dated Oct. 1, 2013, received in International patent application No. PCT/US2012/071490 (J76WO) 20 pgs.

AAMI and FDA, Infusing Patients Safely: Priority Issues from the AAMI/FDA Infusion Device Summit, Symposium, Oct. 5-6, 2010, pp. 1-48, Aami, Arlington, VA, USA., www.aarmi.org.

Care Everywhere, Gateway User Manual: V1.0.13 W/CQI 1.6: For Use with the Sigma Spectrum Pump: Care Everywhere Document No. CE-100-003-IFU, manual, pp. 1-55, CareEverywhere LLC, 9 Tech Circle, Natick, MA, USA., Release 1.0.9 (Initial Release) www.sigmampumps.com.

Fresenius Kabi AG, Agilia® Product Line, 1 pg., Sep. 24, 2013, Germany, www.fresenius-kabi.com/5316.htm.

Fresenius Kabi AG, Alyx™, 1 pg, Sep. 24, 2013, Germany, www.fresenius-kabi.com/8825.htm.

Fresenius Kabi AG, Amicus™, 2 pgs, Sep. 24, 2013, Germany, www.fresenius-kabi.com/8823.htm.

Fresenius Kabi AH, Amika®, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/8934.htm.

Fresenius Kabi AG, Applix Smart, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/2202.htm.

Fresenius Kabi AG, Applix Vision, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/2224.htm.

Fresenius Kabi AG, Aurora™, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/8829.htm.

Fresenius Kabi AG, Autopheresis-C™, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/8827.htm.

Fresenius Kabi AG, C.A.T.S Plus, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/2246.htm.

Fresenius Kabi AG, com.tec®, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabicom/2306.htm.

Fresenius Kabi AG, CompoDock®, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/2324.htm.

Fresenius Kabi AG, CompoGuard®, 3 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/2308.htm.

Fresenius Kabi AG, CompoLab TS, 1 pg., Sep. 24, 2013, Germany, www.fresenius-kabi.com/6921.htm.

Fresenius Kabi AG, Compomat® G4, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/2320.htm.

Fresenius Kabi AG, CompoMat® G5 & CompoSure, 3 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/6931.htm.

Fresenius Kabi AG, CompoSeal® Mobilea II, 1 pg., Sep. 24, 2013, Germany, www.fresenius-kabi.com/6945.htm.

Fresenius Kabi AG, CompoSeal® Universal, 1 pg., Sep. 24, 2013, Germany, www.fresenius-kabi.com/2326.htm.

Fresenius Kabi AG, HemoLight® Plus, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/6953.htm.

Fresenius Kabi AG, HemoSeal®, 1 pg., Sep. 24, 2013, Germany, www.fresenius-kabi.com/6961.htm.

Fresenius Kabi AG, Injectomat Agilia, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/8173.htm.

Fresenius Kabi AG, Injectomat MC Agilia, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/6195.htm.

Fresenius Kabi AG, Injectomat TIVA Agilia, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/6197.htm.

Fresenius Kabi AG, Link+ Agilia, 1 pg., Sep. 24, 2013, Germany, www.fresenius-kabi.com/8924.htm.

Fresenius Kabi AG, MRI Guard Agilia, 1 pg., Sep. 24, 2013, Germany, www.fresenius-kabi.com/8926.htm.

Fresenius Kabi AG, Orchestra® Base A, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/1630.htm.

Fresenius Kabi AG, Orchestra® Base Intensive, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/1669.htm.

Fresenius Kabi AG, Orchestra® Base Primea, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/1676.htm.

Fresenius Kabi AG, Orchestra® Module DPS, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/1699.htm.

Fresenius Kabi AG, Orchestra® Module DPS+, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/1707.htm.

Fresenius Kabi AG, Orchestra® Module DPS Visio, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/1714.htm.

Fresenius Kabi AG, Orchestra® Module MVP MS, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/1682.htm.

Fresenius Kabi AG, Orchestra® Module MVP PT, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/1691.htm.

Fresenius Kabi AG, Orchestra® Module MVP ST, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/2026.htm.

Fresenius Kabi AG, Pilot Enteral, 2 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/2238.htm.

Fresenius Kabi AG, PlaquetaMix®, 1 pg., Sep. 24, 2013, Germany, www.fresenius-kabi.com/6963.htm.

Fresenius Kabi AG, Vacuum Pump Bora, 1 pg., Sep. 24, 2013, Germany, www.fresenius-kabi.com/2249.htm.

Fresenius Kabi AG, Volumat Agilia, 3 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/VolumatAgilia.htm.

Fresenius Kabi AG, Volumat MC Agilia, 3 pgs., Sep. 24, 2013, Germany, www.fresenius-kabi.com/VolumatMCAgilia.htm.

National Patient Safety Agency, Design for Patient Safety: A Guide to the Design of Electronic Infusion Devices, Ref: 0976 Mar. 2010, ISBN: 978-1-906624-10-1, pp. 1-96, Edition 1, National Patient Safety Agency, National Reporting and Learning Service, Helen Hamlyn Centre, Royal College of Art, London, USA. www.nrls.npsa.nhs.uk.

“Alaris Syringe Pumpes,” Technical Service Manual, 2006, Cardinal Health Inc., accessed at http://frankshospitalworkshop.com/equipment/documents/infusion_pumps/service_manuals/Cardinal_Alaris—Service_Manual.pdf.

“Asena GH Syringe Pump with Gaurdrails Safety Software,” Directions for Use, 2003, Alaris Medical Systems, accessed at http://video.rch.org.au/bme_rch/1PB1453N01.pdf on Apr. 16, 2014.

“Alaris GP Volumetric Pump,” Technical Service Manual, 2008, Cardinal Health Inc., accessed at http://frankshospitalworkshop.com/equipment/documents/infusion_pumps/service_manuals/CardinalHealth_Alaris_GP—Service_manual.pdf on Apr. 16, 2014.

“Alaris GQ Volumetric Pump,” Directions for Use, 2011, Carefusion Corporation, accessed at <http://www.carefusion-products.com/assets/supportdocs/DFUs/1000DF00440.pdf> on Apr. 16, 2014.

“Gemini PC-2 Volumetric Infusion Pump/Controller,” Operator’s Manual, 1994, IMED Corporation, accessed at <http://www.triumphmed.com/manuals/GEMINI-PC-2v3.44.pdf> on Apr. 16, 2014.

(56)

References Cited

OTHER PUBLICATIONS

“Gemini PC-4 Volumetric Infusion Pump/Controller,” Maintenance Manual, Nov. 1, 1995, IMED Corporation, accessed at http://frankshospitalworkshop.com/equipment/documents/infusion_pumps/service_manuals/Imed_Gemini_PC-4_Infusion_Pump—Service_mannal.pdf on Apr. 16, 2014.

Photograph of a pump product by Carefusion Corporation, Alaris PC, accessed at <http://www.carefusion.com/medical-products/infusion/devices/> on Apr. 16, 2014.

“Alaris PC Unit, Models 8000 and 8015” and “Alaris Pump Module, Model 8100,” Technical Service Manual, Mar. 2007, Cardinal Health, Inc., accessed at http://frankshospitalworkshop.com/equipment/documents/infusion_pumps/service_manuals/CardinalHealth_Alaris_8100—Service_manual on Apr. 16, 2014.

“Alaris SE Pump Models 7130/7131 and 7230/7231,” Directions for Use, Nov. 2010, Carefusion.

Corporation, accessed at http://www.carefusion.com/pdf/Infusion/clinical_documentation/user_manuals/12155838.pdf on Apr. 16, 2014.

“Volumetric Infusion Pump ARGUS 707 V,” Service Manual, Mar. 28, 2006, ARGUS Medical AG, accessed at http://www.helse-mr.no/ftp/eqspublic/legemiddelprosessen/docs/doc_15163/attachments/Argus%20%20707%20infusjonspumpe.pdf on Apr. 16, 2014.

“Volumetric Infusion Pump ARGUS 708 V,” Service Manual, Mar. 28, 2006, ARGUS Medical AG, accessed at http://www.internetmed.com/sites/default/files/Argus_708—Service_manual.pdf on Apr. 16, 2014.

“Auto Syringe AS40A Model AS40A Infusion Pump,” Operation Manual, 1993, Baxter Healthcare Corporation, accessed at <http://www.triumphmed.com/manuals/BAXTER-AS40A.pdf> on Apr. 16, 2014.

“Auto Syringe AS50 Model AS50 Infusion Pump,” Operator’s Manual, May 2002, Baxter Healthcare Corporation, accessed at http://www.lhsc.on.ca/Health_Professionals/CCTC/eduquic/as50.pdf on Apr. 16, 2014.

“Colleague CX Volumetric Infusion Pump,” Addendum to Operator’s Manual, 2001, Baxter Healthcare Corporation, accessed at <http://www.triumphmed.com/manuals/Baxter-Colleague-CX.pdf> on Apr. 16, 2014.

“Flo-Gard 6301 Dual Channel Volumetric Infusion Pump,” Operator’s Manual, 1999, Baxter Healthcare Corporation, accessed at <http://www.meql.com/Manuals/Baxter-6301-Operators-Manual.pdf> on Apr. 16, 2014.

“Sigma Spectrum,” Operator’s Manual, May 15, 2008, Sigma International, accessed at <http://www.meql.com/Manuals/Sigma-Spectrum-User-Manual.pdf> on Apr. 16, 2014.

“Sigma International Model Spectrum Infusion Pump,” Service Manual, Aug. 2008, SIGMA International, Inc., accessed at <http://photos.medwrench.com/equipmentManuals/3519-3759.pdf> on Apr. 17, 2014.

Photograph of a pump product by Smiths Medical, CADD-Solis Ambulatory Infusion Pump, accessed at <http://www.smiths-medical.com/catalog/ambulatory-pumps-sets/cadd-ambulatory-infusion-pumps/cadd-solis/cadd-solis-ambulatory-infusion.html> on Apr. 16, 2014 (image on website at least as early as Nov. 16, 2008).

“Production Engineering—Medical Equipment Division,” Images on website since at least Sep. 17, 2008, PEMED, accessed at <http://www.permed.com/surgery/pumps/pumps.htm> on Apr. 18, 2014.

“Curlin 6000 CMS Ambulatory Infusion System,” 2008, B. Braun Medical Inc., accessed at <http://zivotbezstreva.cz/wp-content/uploads/2013/10/Curlin-6000-male.pdf> on Apr. 16, 2014.

“Delphia IVantage Volumetric Ambulatory Infusion System,” 2006, Delphia Corporation, accessed at <https://delphi.com/shared/pdf/ppd/medical/IVantage-Volumetric-Ambulatory-Infusion-Product-Sheet.pdf> on Apr. 16, 2014.

“Syringe Pumps Range when accuracy matters,” Smiths Medical International Ltd, accessed at http://www.smiths-medical.com/upload/products/pdf/SMI_syring_pumps_range9.pdf on Apr. 16, 2014 (file on website at least as early as Oct. 21, 2007).

“Model 500 and Micro 505 Volumetric Infusion Pump,” Instruction Manual, 2002, Graseby Medical Limited, accessed at <http://isurplus.com.au/manuals/Graseby%20500%20&%203000%20Infusion%20Pump%20User%20Manual.pdf> on Apr. 16, 2014.

“Micro Macro Plum XL with DataPort,” System Operating Manual, Aug. 1997, Abbott Laboratories, accessed at <http://www.elitemedicalmall.com/manuals/Abott-PLUM-XLwDATAREPORT.pdf> on Apr. 16, 2014.

“LifeCare 4100 PCA Plus II Infuser with Microgram Delivery,” System Operating Manual, Oct. 1996, Abbott Laboratories, accessed at <http://www.meql.com/Manuals/Abbott-PCA-II-Plus-User-Manual.pdf> on Apr. 16, 2014.

“Gemstar,” Technical Service Manual, May 2007, Hospira, Inc., accessed at http://frankshospitalworkshop.com/equipment/documents/infusion_pumps/service_manuals/Abbott_Gemstar—Service_Manual.pdf on Apr. 16, 2014.

“LifeCare 5000 Plum Concurrent Flow Infusion System With DataPort,” System Operating Manual, Jul. 1998, Abbott Laboratories, accessed at <http://www.meql.com/Manuals/Abbott-Plum-5000-User-Manual.pdf> on Apr. 16, 2014.

“Plum XL 3 Multi-Line Infusion System,” System Operating Manual, Jan. 1997, Abbott Laboratories, accessed at <http://www.elitemedicalmall.com/manunals/Abbott-PLUM-XL-3.pdf> on Apr. 16, 2014.

“Abbott Plum A+,” System Operating Manual, May 2001, Abbott Laboratories, accessed at <http://www.elitemedicalmall.com/manuals/Abbott-Plum-A+-Op-Manual.pdf> on Apr. 16, 2014.

“On ‘Grey’s Anatomy’: A supporting role for Hospira,” Sep. 8, 2008, by Laura Bianchi in Crain’s Chicago Business, accessed at <http://www.chicagobusiness.com/article/20080906/ISSUE03/100030530/on-greys-anatomy-a-supporting-role-for-hospira#> on Apr. 16, 2014.

“Symbiq Infusion System with Hospira MedNet Software,” Nov. 2006, Hospira, accessed at http://www.hospira.ca/english/_docs/P06-05S9_Symbiq_Sets.pdf on Apr. 18, 2014.

“Monitors flex their muscles, hospitals reap rewards,” May 2007, Julie E. Williamson, accessed at <http://www.hpnonline.com/inside/2007-05/0705-or-monitors.html> on Apr. 18, 2014.

“The Incremental Commitment Model for System of Systems Development Tutorial,” p. 42, Jun. 18, 2007, Barry Boehm and Jo Ann Lane, accessed at <http://www.ieee-stc.org/proceedings/2007/pdfs/BB1686.pdf> on Apr. 18, 2014.

“Medication Management Systems,” p. 19, Sep. 2006, Hospira, accessed at http://media.corporate-ir.net/media_files/irol/17/175550/presentations/hsp0906.pdf on Apr. 17, 2014.

“leon leon plus Modern anaesthesia work stations,” May 2006, Heinen + Löwenstein Medical Technology, accessed at <http://www.dodhsagencies.com/brochures/Anesthesia/Leon.pdf> on Apr. 16, 2014.

“Superior Technology for Precise Breathing,” created Oct. 22, 2008 Heinen + Löwenstein Medical Technology, accessed at http://www.diagnos.pl/uploads/pdf/169/elisa_sonata_enlisch_221008.pdf on Apr. 18, 2014.

“Medfusion 2001 Syringe Pump,” Operations Manual, Oct. 1996, Medexinc, accessed at <http://www.triumphmed.com/manuals/MEDFUSION-2001.pdf> on Apr. 16, 2014.

“Operations Manual for Medfusion 2010 Syringe Pump,” Oct. 1996, Medexinc, accessed at <http://www.triumphmed.com/manuals/MEDFUSION-2010.pdf> on Apr. 16, 2014.

“3850 MRidium MRI Infusion System,” Operation Manual, 2006, IRadimed Corporation, accessed at http://www.iradimed.com/en-us/technical_support/MRidium%201124-3A.pdf on Apr. 16, 2014.

“Sabratek 3030 Volumetric Infusion Pump,” Operation Manual, 1996, Sabratek Corporation, accessed at <http://www.triumphmed.com/manuals/Sabratek-3030-Op-Manual.pdf> on Apr. 16, 2014.

Photograph of pump products by Abbott, Abbott Lifecare III and Abbott Lifecare 4, accessed at <http://www.msdistributors.com/biomed/meh/LIFECARE.HTM> on Apr. 16, 2014 (image on website at least as early as Mar. 6, 2001).

“Horizon NXT,” Operation Manual, 1999, B. Braun Medical Inc., accessed at <http://www.triumphmed.com/manuals.BBraun-Horizon-NXT.pdf> on Apr. 16, 2014.

(56)

References Cited

OTHER PUBLICATIONS

“Perfusor compact,” Service Manual, approved by B. Braun on Mar. 16, 2006 and created on Mar. 17, 2006, B. Braun, accessed at http://frankshospitaiworkshop.com/equipment/documents/infusion_pumps/service_manuals/B.Braunn_Perfusor_Co_Impact—Service_manual.pdf on Apr. 16, 2014.

“B. Braun Space,” created Oct. 19, 2004, B. Braun Melsungen Ag, accessed at http://info.bb Braun ee/Extranet/Infusioonipumbad/Tutvustavad%20materjalid/Perfusor-space-tehniline_data.pdf on Apr. 16, 2014.

“LifeCare PCA for use with Hospira MedNet Software,” System Operating Manual, Jan. 2006, Hospira, accessed at <http://www.meql.com/Manuals/Abbott-Hospira-PCA-III-Mednet-User-Manual.pdf> on Apr. 16, 2014.

“Omni-flow 4000 Plus IV Medication Management System,” System Operating Manual, Aug. 1996, Abbott Laboratories, accessed at <http://www.elitemedicalmail.com/manuals/Abbott-Omniflow-Op-Manual.pdf> on Apr. 16, 2014.

Photograph of pump product by Kendall, SCD Model 5325, accessed at <http://www.msdonline.com/biomed/meh/kendall.htm> on Apr. 16, 2014 (image on website at least as early as Nov. 29, 2006).

Photograph of pump product by Abbott, Provider 5500 Ambulatory Pump, accessed at <http://www.ms distributors.com/BioMed/MEH/abbottpt.htm> (image on website at least as early as Mar. 6, 2001).

“Model AP12 Single—Syringe Pump,” Mediaid Inc., created Feb. 15, 2008, accessed at http://www.mediaidinc.com/Brochures/M-AP12_IndiOval_English_HR.pdf on Apr. 17, 2014.

“Syringe Pumps AP 12 / 22,” Operating Manual, created Jan. 11, 2007, Ascor S. A. , accessed at http://www.ascor.com.pl/eng/pdf/AP_AP22_OM36_070111_GB.pdf on Apr. 18, 2014.

“Biomedical Rental Equipment—Enteral Pumps and Accessories,” created Oct. 13, 2003, MSD, accessed at http://www.ms distributors.com/Drill_Downs/enteral%20pumps%20and%20accessories.pdf on Apr. 17, 2014.

TIVA Anesthesia Syringe Pump earliest May 12, 2011 http://www.foures.fr/eng/GF_FT/GF_FT_phoenixanes.pdf.

Becton Dickinson Program 2 <http://www.dotmed.com/listing/pump-iv-infusion/fresenius/program-2/103134>.

U.S. Appl. No. 61/297,544, filed Jan. 22, 2010.

U.S. Appl. No. 61/578,674, filed Dec. 21, 2011.

U.S. Appl. No. 61/578,649, filed Dec. 21, 2011.

U.S. Appl. No. 61/578,658, filed Dec. 21, 2011.

U.S. Appl. No. 61/651,322, filed May 24, 2012.

U.S. Appl. No. 61/679,117, filed Aug. 3, 2012.

U.S. Appl. No. 61/738,447, filed Dec. 18, 2012.

U.S. Appl. No. 61/740,474, filed Dec. 21, 2012.

U.S. Appl. No. 29/457,521, filed Jun. 11, 2013.

U.S. Appl. No. 61/843,574, filed Jul. 8, 2013.

U.S. Appl. No. 61/860,398, filed Jul. 31, 2013.

U.S. Appl. No. 61/894,801, filed Oct. 23, 2013.

U.S. Appl. No. 29/471,856, filed Nov. 6, 2013.

U.S. Appl. No. 29/471,858, filed Nov. 6, 2013.

U.S. Appl. No. 29/471,864, filed Nov. 6, 2013.

U.S. Appl. No. 61/900,431, filed Nov. 6, 2013.

U.S. Appl. No. 61/904,123, filed Nov. 14, 2013.

U.S. Appl. No. 29/477,242, filed Dec. 20, 2013.

U.S. Appl. No. 29/477,236, filed Dec. 20, 2013.

U.S. Appl. No. 29/477,237, filed Dec. 20, 2013.

U.S. Appl. No. 29/477,233, filed Dec. 20, 2013.

U.S. Appl. No. 29/477,232, filed Dec. 20, 2013.

U.S. Appl. No. 29/477,231, filed Dec. 20, 2013.

U.S. Appl. No. 61/942,986, filed Feb. 21, 2014.

U.S. Appl. No. 61/953,036, filed Mar. 14, 2014.

U.S. Appl. No. 61/987,742, filed May 2, 2014.

U.S. Appl. No. 61/990,330, filed May 8, 2014.

U.S. Appl. No. 62/052,008, filed Sep. 18, 2014.

U.S. Appl. No. 62/086,356, filed Dec. 2, 2014.

U.S. Appl. No. 29/517,101, filed Feb. 10, 2015.

U.S. Appl. No. 29/517,095, filed Feb. 10, 2015.

U.S. Appl. No. 29/517,096, filed Feb. 10, 2015.

U.S. Appl. No. 29/517,097, filed Feb. 10, 2015.

U.S. Appl. No. 29/517,098, filed Feb. 10, 2015.

U.S. Appl. No. 29/517,099, filed Feb. 10, 2015.

U.S. Appl. No. 29/517,100, filed Feb. 10, 2015.

PCT/US15/16796, filed Feb. 27, 2015.

U.S. Appl. No. 62/168,343, filed May 29, 2015.

U.S. Appl. No. 29/531,366, filed Jun. 25, 2015.

U.S. Appl. No. 29/532,660, filed Jul. 9, 2015.

U.S. Appl. No. 29/538,153, filed Sep. 1, 2015.

U.S. Appl. No. 62/212,871, filed Sep. 1, 2015.

PCT/US15/49952, filed Sep. 14, 2015.

U.S. Appl. No. 14/853,300, filed Sep. 14, 2015.

U.S. Appl. No. 14/873,515, filed Oct. 2, 2015.

U.S. Appl. No. 14/931,928, filed Nov. 4, 2015.

U.S. Appl. No. 14/932,291, filed Nov. 4, 2015.

U.S. Appl. No. 14/938,083, filed Nov. 11, 2015.

U.S. Appl. No. 14/938,368, filed Nov. 11, 2015.

U.S. Appl. No. 14/939,586, filed Nov. 12, 2015.

U.S. Appl. No. 14/939,015, filed Nov. 12, 2015.

PCT/US215/63359, filed Dec. 2, 2015.

U.S. Appl. No. 14/956,648, filed Dec. 2, 2015.

U.S. Appl. No. 29/547,405, filed Dec. 3, 2015.

U.S. Appl. No. 29/547,402, filed Dec. 3, 2015.

U.S. Appl. No. 29/548,225, filed Dec. 11, 2015.

U.S. Appl. No. 29/552,303, filed Jan. 21, 2016.

U.S. Appl. No. 29/552,942, filed Jan. 27, 2016.

U.S. Appl. No. 29/552,943, filed Jan. 27, 2016.

U.S. Appl. No. 29/553,094, filed Jan. 28, 2016.

U.S. Appl. No. 62/288,132, filed Jan. 28, 2016.

* cited by examiner

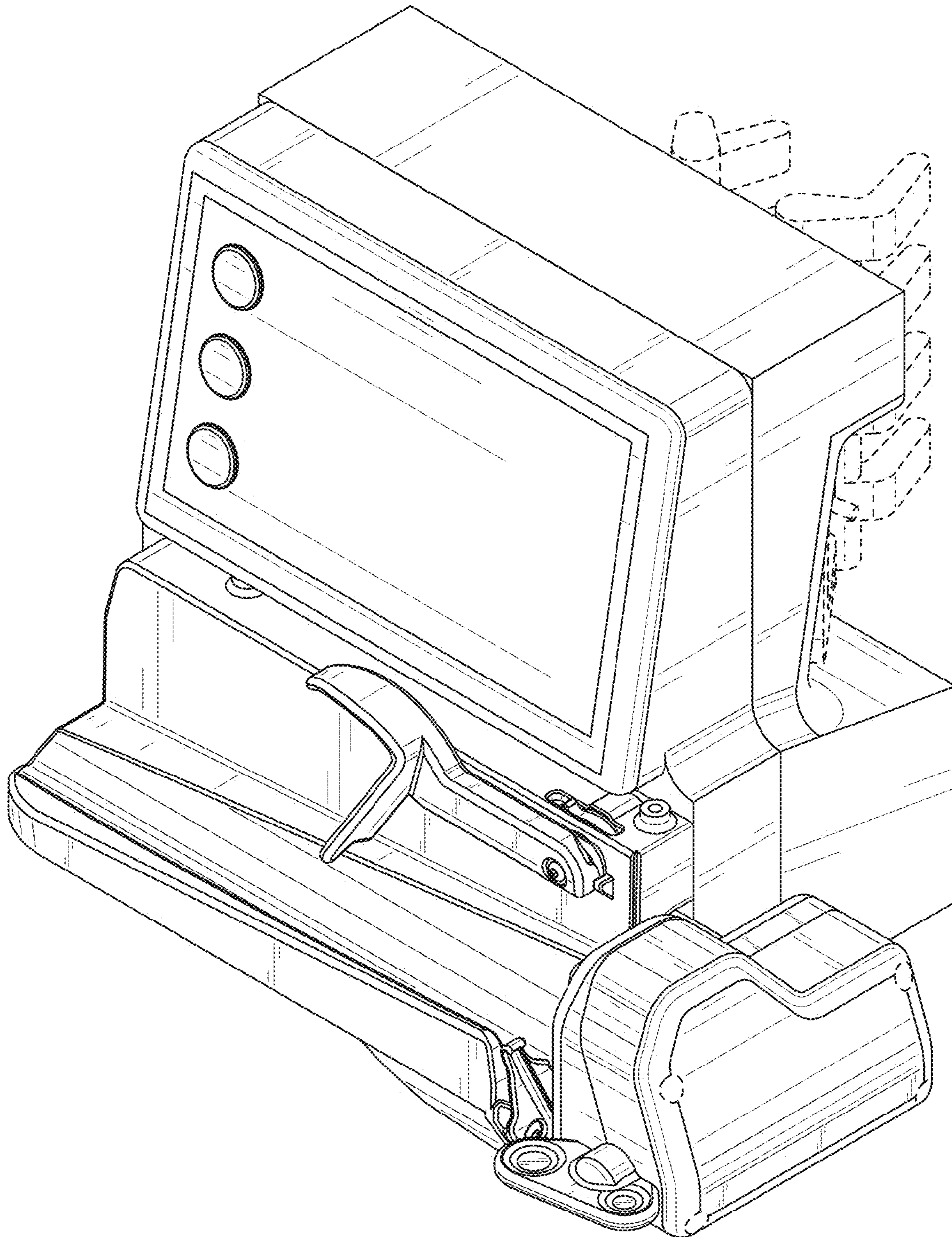


FIG. 1

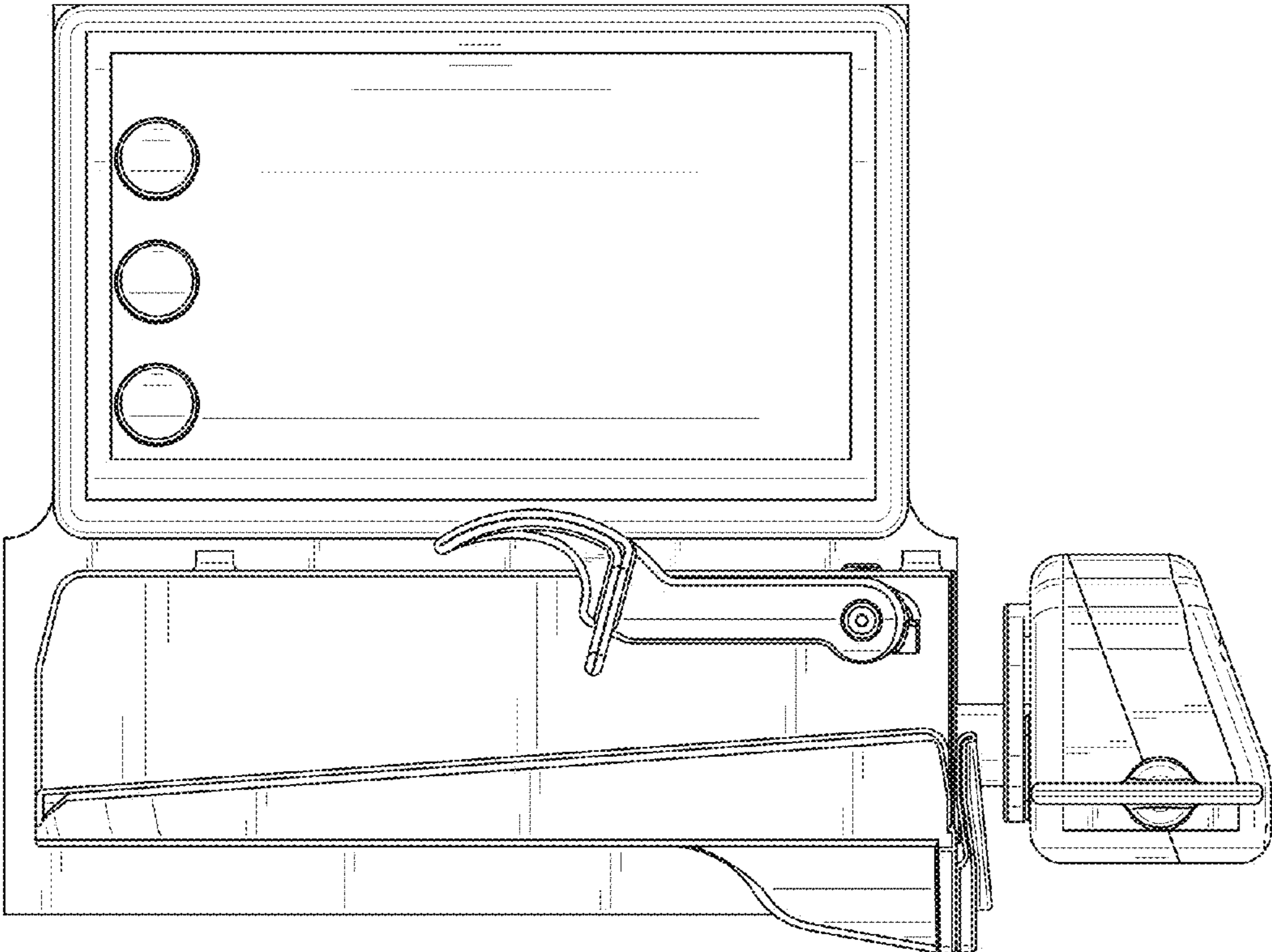


FIG. 2

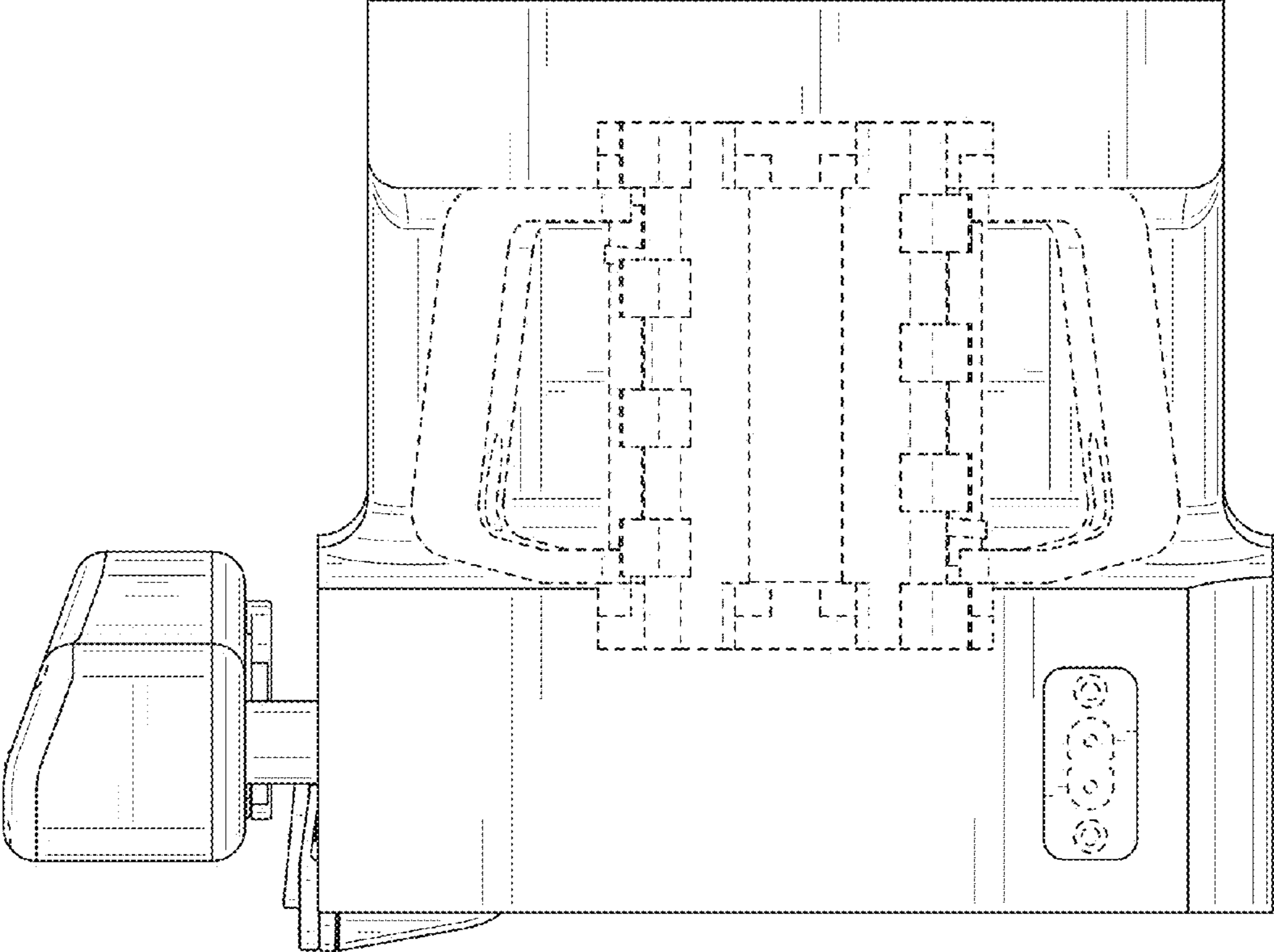


FIG. 3

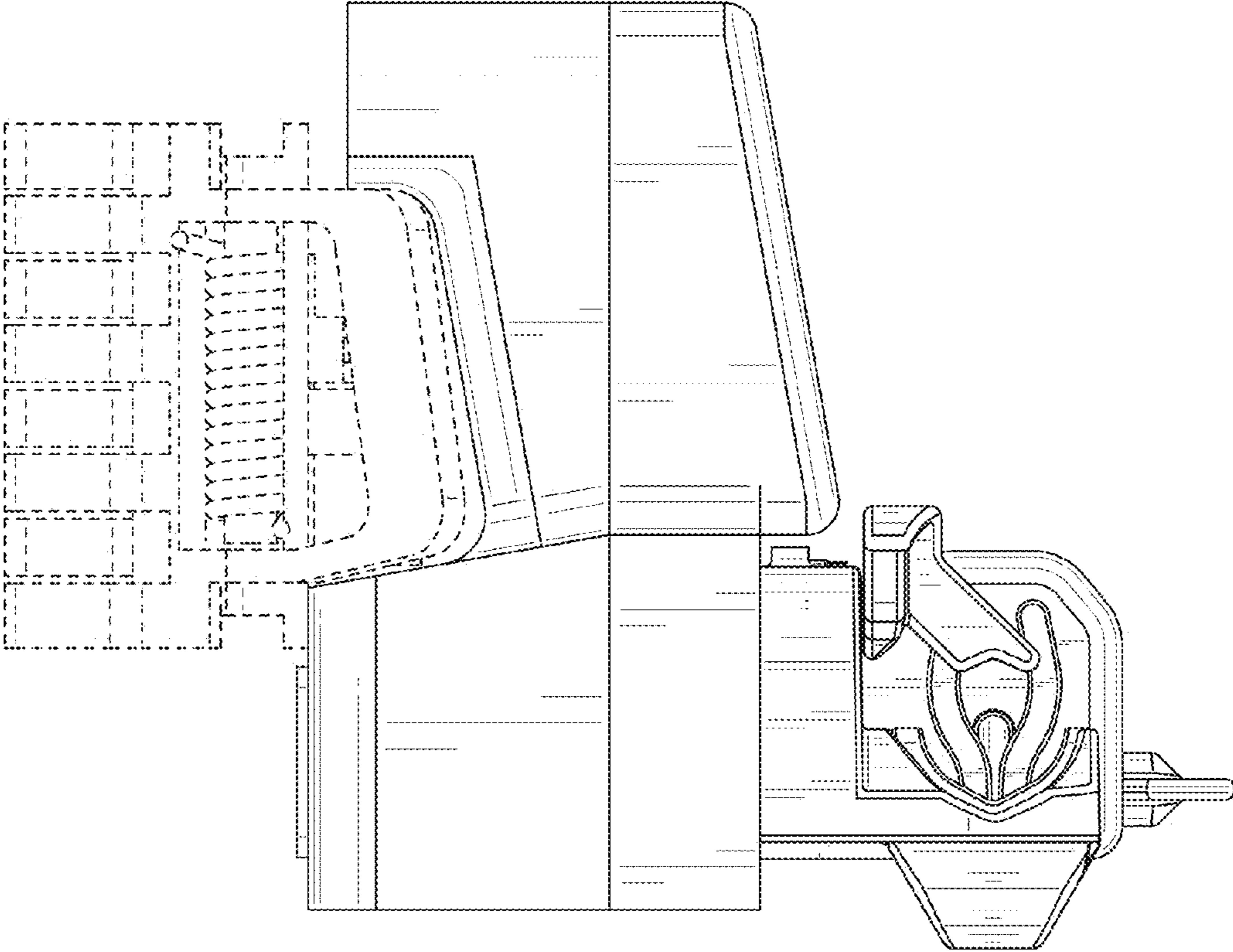


FIG. 4

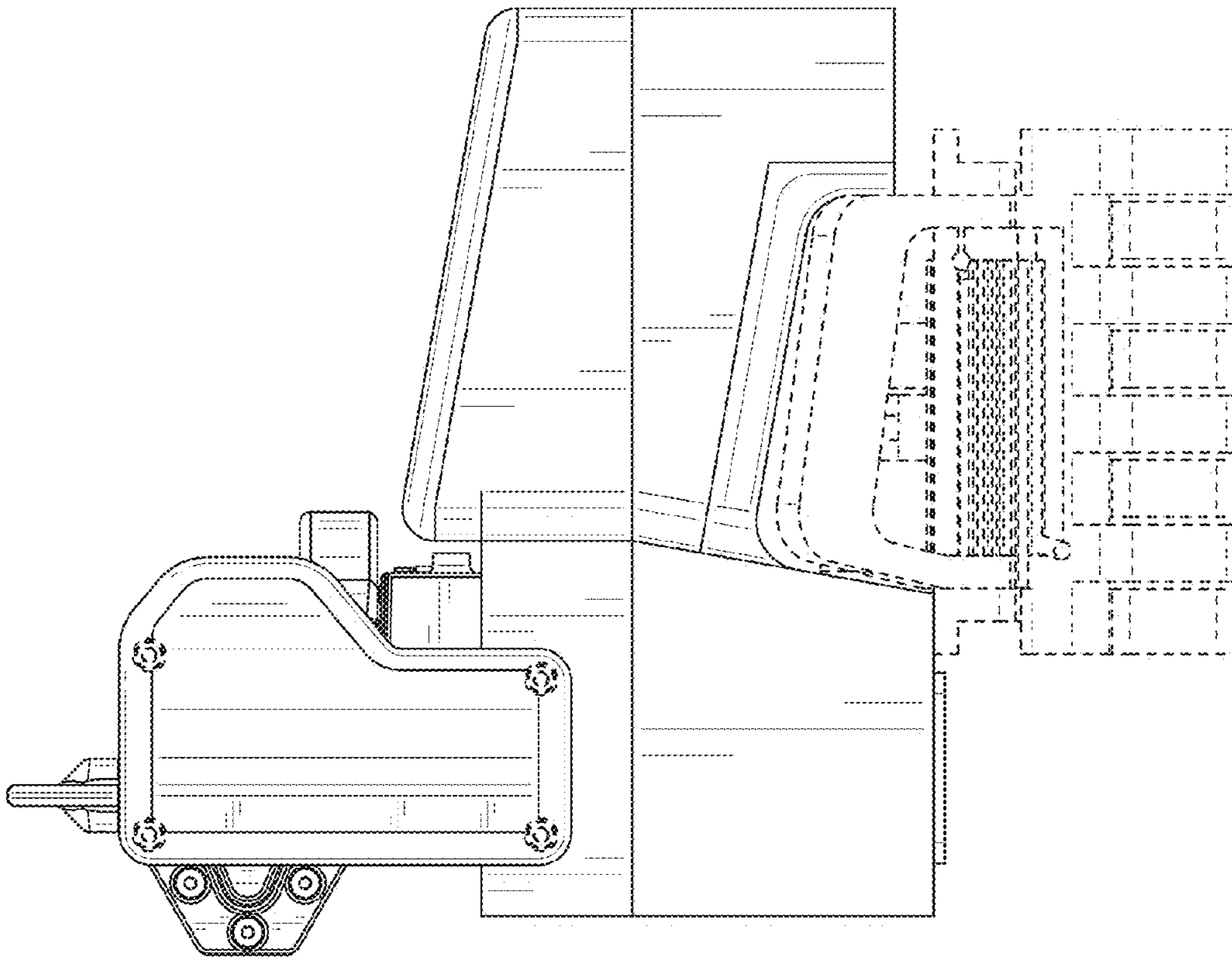


FIG. 5

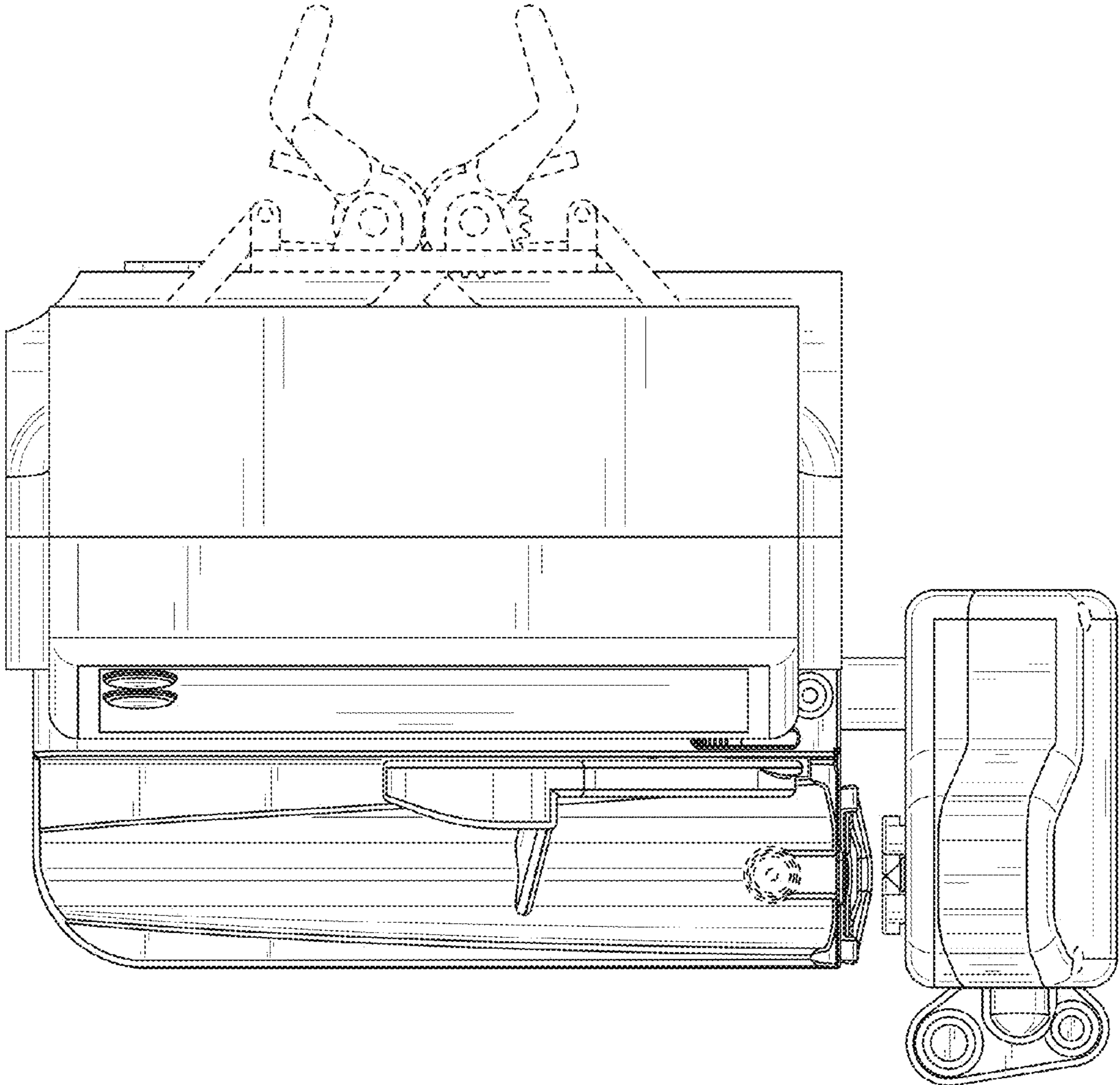


FIG. 6

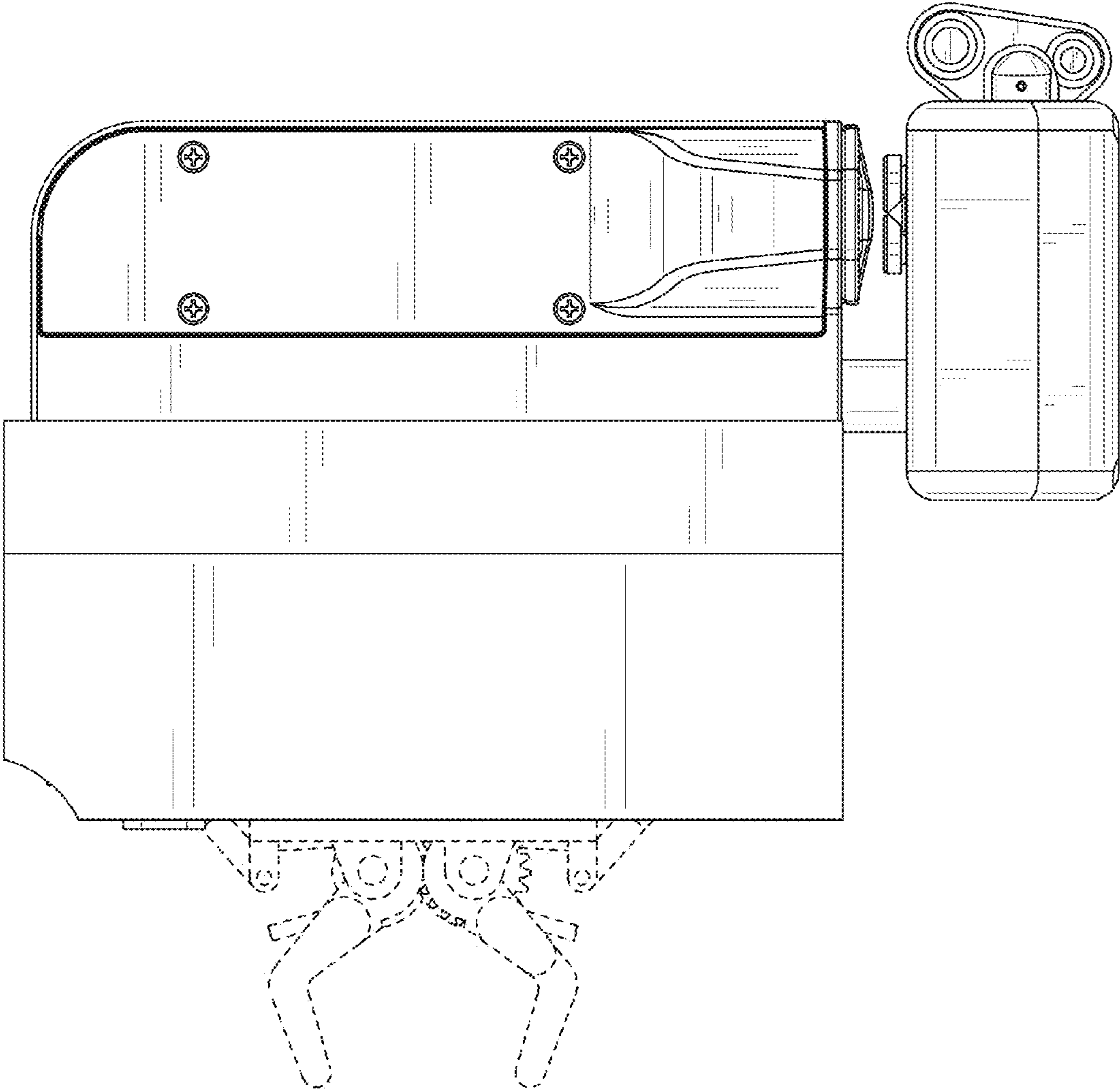


FIG. 7