



US00D921202S

(12) **United States Design Patent** (10) **Patent No.:** **US D921,202 S**  
**Al-Ali et al.** (45) **Date of Patent:** **\*\* Jun. 1, 2021**

(54) **HOLDER FOR A BLOOD PRESSURE DEVICE**

5,377,676 A 1/1995 Vari et al.  
D359,546 S 6/1995 Savage et al.  
5,431,170 A 7/1995 Mathews  
5,436,499 A 7/1995 Namavar et al.

(71) Applicant: **Masimo Corporation**, Irvine, CA (US)

(Continued)

(72) Inventors: **Ammar Al-Ali**, San Juan Capistrano, CA (US); **Chad A. DeJong**, Los Angeles, CA (US); **Kesu Wang**, Irvine, CA (US); **Valery G. Telfort**, Irvine, CA (US)

FOREIGN PATENT DOCUMENTS

EP 3 430 980 1/2019  
EP 3 488 776 5/2019

(Continued)

(73) Assignee: **MASIMO CORPORATION**, Irvine, CA (US)

OTHER PUBLICATIONS

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

International Search Report and Written Opinion received in PCT Application No. PCT/US2020/028542 dated Sep. 7, 2020 in 19 pages.

(21) Appl. No.: **29/702,174**

*Primary Examiner* — Nathan M Johnston

(22) Filed: **Aug. 16, 2019**

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

(51) **LOC (13) Cl.** ..... **24-01**

(52) **U.S. Cl.**  
USPC ..... **D24/165**

(58) **Field of Classification Search**  
USPC ..... D24/164, 165, 169, 186, 127, 128;  
600/310, 323, 335, 340; D13/107, 108;  
D14/217, 434; D8/72, 349, 380; D10/52  
CPC ..... A61B 5/002; A61B 5/02028; A61B 5/022;  
A61B 5/024; A61B 5/026; A61B 5/029;  
A61B 5/4884; A61B 2560/0456  
See application file for complete search history.

(57) **CLAIM**

The ornamental design for a holder for a blood pressure device, as shown and described.

**DESCRIPTION**

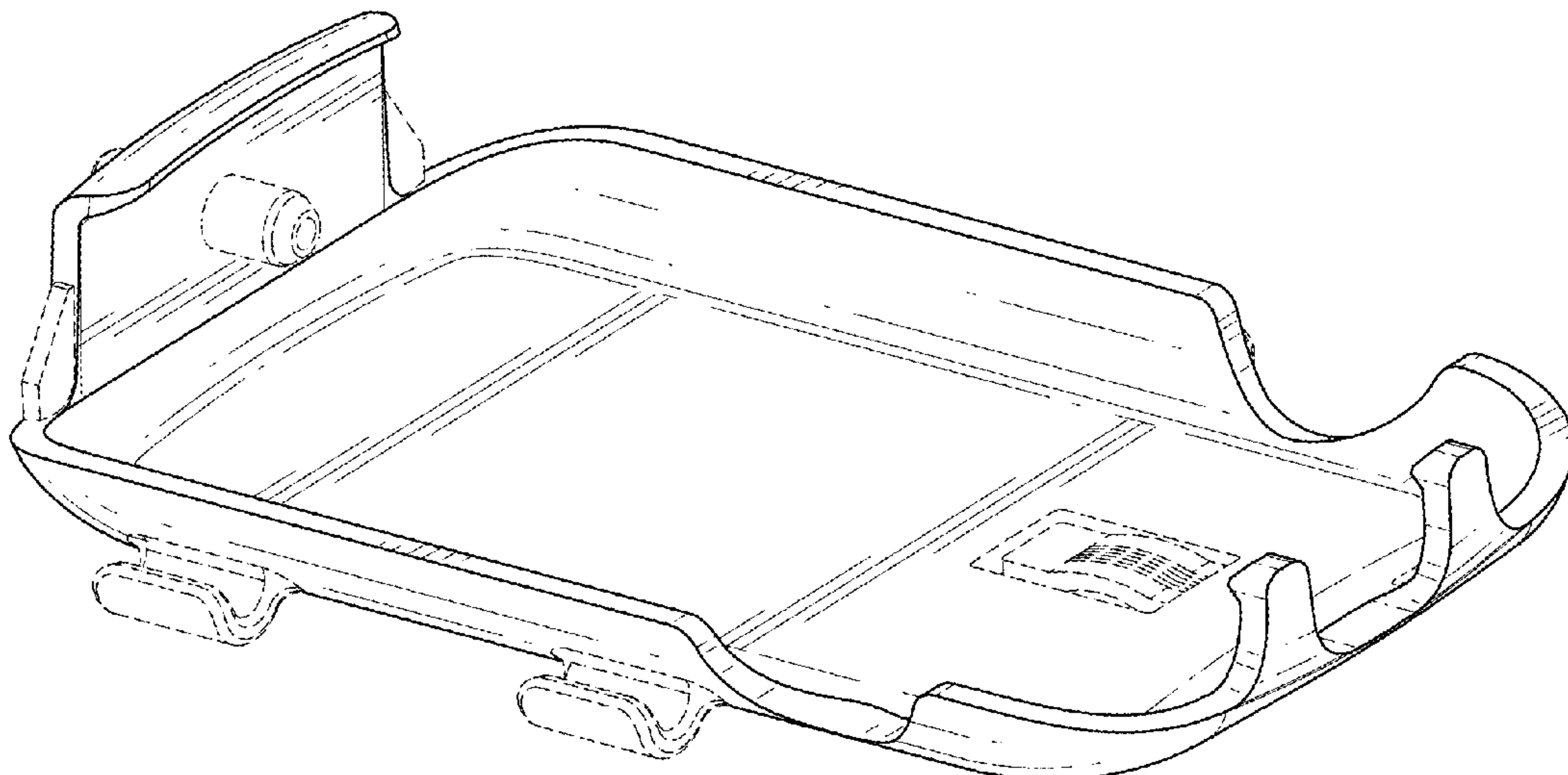
FIG. 1 is a perspective view of a holder for a blood pressure device embodying our new design; FIG. 2 is another perspective view thereof; FIG. 3 is top view thereof; FIG. 4 is bottom view thereof; FIG. 5 is a side view thereof; FIG. 6 is another side view thereof; FIG. 7 is a front view thereof; FIG. 8 is a rear view thereof; and, FIG. 9 is another perspective view thereof. Broken lines, where shown, are used to illustrate portions of the holder for a blood pressure device or environmental subject matter that form no part of the claimed design.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,960,128 A 10/1990 Gordon et al.  
4,964,408 A 10/1990 Hink et al.  
D324,570 S 3/1992 Arioka et al.  
D334,973 S \* 4/1993 Valentine ..... D24/227  
D346,798 S \* 5/1994 Nagele ..... D13/108  
5,319,355 A 6/1994 Russek  
5,337,744 A 8/1994 Branigan  
5,341,805 A 8/1994 Stavridi et al.  
D353,195 S 12/1994 Savage et al.  
D353,196 S 12/1994 Savage et al.

**1 Claim, 5 Drawing Sheets**





(56)

References Cited

U.S. PATENT DOCUMENTS

D361,840	S	8/1995	Savage et al.	6,640,117	B2	10/2003	Makarewicz et al.
D362,063	S	9/1995	Savage et al.	6,658,276	B2	12/2003	Kiani et al.
D363,120	S	10/1995	Savage et al.	6,661,161	B1	12/2003	Lanzo et al.
5,456,252	A	10/1995	Vari et al.	D486,785	S *	2/2004	Shindo ..... D13/107
5,479,934	A	1/1996	Imran	6,697,656	B1	2/2004	Al-Ali
5,482,036	A	1/1996	Diab et al.	6,697,658	B2	2/2004	Al-Ali
5,494,043	A	2/1996	O'Sullivan et al.	RE38,476	E	3/2004	Diab et al.
5,533,511	A	7/1996	Kaspari et al.	RE38,492	E	4/2004	Diab et al.
5,561,275	A	10/1996	Savage et al.	6,735,379	B2	5/2004	Salmon et al.
5,590,649	A	1/1997	Caro et al.	6,738,652	B2	5/2004	Mattu et al.
5,602,924	A	2/1997	Durand et al.	6,760,607	B2	7/2004	Al-Ali
5,638,816	A	6/1997	Kiani-Azarbayjany et al.	6,788,965	B2	9/2004	Ruchti et al.
5,638,818	A	6/1997	Diab et al.	6,816,241	B2	11/2004	Grubisic
5,645,440	A	7/1997	Tobler et al.	6,822,564	B2	11/2004	Al-Ali
5,671,914	A	9/1997	Kalkhoran et al.	6,850,787	B2	2/2005	Weber et al.
D385,283	S *	10/1997	Snyder ..... D13/108	6,850,788	B2	2/2005	Al-Ali
5,726,440	A	3/1998	Kalkhoran et al.	6,876,931	B2	4/2005	Lorenz et al.
D393,830	S	4/1998	Tobler et al.	6,920,345	B2	7/2005	Al-Ali et al.
5,743,262	A	4/1998	Lepper, Jr. et al.	6,934,570	B2	8/2005	Kiani et al.
5,747,806	A	5/1998	Khalil et al.	6,943,348	B1	9/2005	Coffin, IV
5,750,994	A	5/1998	Schlager	6,956,649	B2	10/2005	Acosta et al.
5,758,644	A	6/1998	Diab et al.	6,961,598	B2	11/2005	Diab
5,760,910	A	6/1998	Lepper, Jr. et al.	6,970,792	B1	11/2005	Diab
D404,357	S *	1/1999	Foster ..... D13/108	6,985,764	B2	1/2006	Mason et al.
5,890,929	A	4/1999	Mills et al.	6,990,364	B2	1/2006	Ruchti et al.
5,919,134	A	7/1999	Diab	6,998,247	B2	2/2006	Monfre et al.
D417,189	S *	11/1999	Amero, Jr. .... D13/107	7,003,338	B2	2/2006	Weber et al.
5,987,343	A	11/1999	Kinast	7,015,451	B2	3/2006	Dalke et al.
5,997,343	A	12/1999	Mills et al.	7,027,849	B2	4/2006	Al-Ali
6,002,952	A	12/1999	Diab et al.	D526,719	S	8/2006	Richie, Jr. et al.
6,010,937	A	1/2000	Karam et al.	7,096,052	B2	8/2006	Mason et al.
6,027,452	A	2/2000	Flaherty et al.	7,096,054	B2	8/2006	Abdul-Hafiz et al.
6,040,578	A	3/2000	Malin et al.	D529,616	S	10/2006	Deros et al.
6,066,204	A	5/2000	Haven	7,133,710	B2	11/2006	Acosta et al.
D428,387	S *	7/2000	Malloy ..... D13/107	7,142,901	B2	11/2006	Kiani et al.
6,115,673	A	9/2000	Malin et al.	7,225,006	B2	5/2007	Al-Ali et al.
6,124,597	A	9/2000	Shehada et al.	RE39,672	E	6/2007	Shehada et al.
6,128,521	A	10/2000	Marro et al.	7,254,429	B2	8/2007	Schurman et al.
6,129,675	A	10/2000	Jay	7,254,431	B2	8/2007	Al-Ali et al.
6,144,868	A	11/2000	Parker	7,254,434	B2	8/2007	Schulz et al.
6,152,754	A	11/2000	Gerhardt et al.	7,274,955	B2	9/2007	Kiani et al.
6,184,521	B1	2/2001	Coffin, IV et al.	D554,263	S	10/2007	Al-Ali et al.
6,232,609	B1	5/2001	Snyder et al.	7,280,858	B2	10/2007	Al-Ali et al.
6,241,683	B1	6/2001	Macklem et al.	7,289,835	B2	10/2007	Mansfield et al.
6,255,708	B1	7/2001	Sudharsanan et al.	7,292,883	B2	11/2007	De Felice et al.
6,280,381	B1	8/2001	Malin et al.	D557,814	S *	12/2007	Glenn ..... D24/217
6,285,896	B1	9/2001	Tobler et al.	7,341,559	B2	3/2008	Schulz et al.
6,308,089	B1	10/2001	von der Ruhr et al.	7,343,186	B2	3/2008	Lamego et al.
6,317,627	B1	11/2001	Ennen et al.	D566,282	S *	4/2008	Al-Ali ..... D24/185
6,321,100	B1	11/2001	Parker	7,356,365	B2	4/2008	Schurman
6,334,065	B1	12/2001	Al-Ali et al.	7,371,981	B2	5/2008	Abdul-Hafiz
6,360,114	B1	3/2002	Diab et al.	7,373,193	B2	5/2008	Al-Ali et al.
6,368,283	B1	4/2002	Xu et al.	7,377,794	B2	5/2008	Al-Ali et al.
6,411,373	B1	6/2002	Garside et al.	D571,478	S *	6/2008	Horacek ..... D24/217
6,415,167	B1	7/2002	Blank et al.	D571,720	S *	6/2008	Yang ..... D13/107
6,430,437	B1	8/2002	Marro	7,395,158	B2	7/2008	Monfre et al.
6,430,525	B1	8/2002	Weber et al.	7,415,297	B2	8/2008	Al-Ali et al.
6,463,311	B1	10/2002	Diab	D576,546	S *	9/2008	Yang ..... D13/107
6,470,199	B1	10/2002	Kopotic et al.	7,438,683	B2	10/2008	Al-Ali et al.
6,487,429	B2	11/2002	Hockersmith et al.	7,483,729	B2	1/2009	Al-Ali et al.
6,505,059	B1	1/2003	Kollias et al.	D587,657	S	3/2009	Al-Ali et al.
6,525,386	B1	2/2003	Mills et al.	7,500,950	B2	3/2009	Al-Ali et al.
6,526,300	B1	2/2003	Kiani et al.	7,509,494	B2	3/2009	Al-Ali
6,534,012	B1	3/2003	Hazen et al.	7,510,849	B2	3/2009	Schurman et al.
6,542,764	B1	4/2003	Al-Ali et al.	7,514,725	B2	4/2009	Wojtczuk et al.
6,580,086	B1	6/2003	Schulz et al.	7,519,406	B2	4/2009	Blank et al.
6,584,336	B1	6/2003	Ali et al.	D592,507	S	5/2009	Wachman et al.
6,587,196	B1	7/2003	Stippick et al.	7,530,942	B1	5/2009	Diab
6,587,199	B1	7/2003	Luu	D601,258	S *	9/2009	Bell ..... D24/169
6,595,316	B2	7/2003	Cybulski et al.	7,593,230	B2	9/2009	Abul-Haj et al.
6,597,932	B2	7/2003	Tian et al.	7,596,398	B2	9/2009	Al-Ali et al.
6,606,511	B1	8/2003	Ali et al.	7,606,608	B2	10/2009	Blank et al.
6,635,559	B2	10/2003	Greenwald et al.	7,620,674	B2	11/2009	Ruchti et al.
6,639,668	B1	10/2003	Trepagnier	D606,659	S	12/2009	Kiani et al.
6,640,116	B2	10/2003	Diab	7,629,039	B2	12/2009	Eckerbom et al.
				7,640,140	B2	12/2009	Ruchti et al.
				7,647,083	B2	1/2010	Al-Ali et al.
				D609,193	S	2/2010	Al-Ali et al.
				D614,305	S	4/2010	Al-Ali et al.



(56)

References Cited

U.S. PATENT DOCUMENTS

7,697,966 B2	4/2010	Monfre et al.	8,663,106 B2	3/2014	Stivoric et al.
7,698,105 B2	4/2010	Ruchti et al.	8,666,468 B1	3/2014	Al-Ali
RE41,317 E	5/2010	Parker	8,670,811 B2	3/2014	O'Reilly
RE41,333 E	5/2010	Blank et al.	RE44,823 E	4/2014	Parker
D616,993 S	6/2010	Muis et al.	RE44,875 E	4/2014	Kiani et al.
7,729,733 B2	6/2010	Al-Ali et al.	8,688,183 B2	4/2014	Bruinsma et al.
7,761,127 B2	7/2010	Al-Ali et al.	8,690,799 B2	4/2014	Telfort et al.
7,764,982 B2	7/2010	Dalke et al.	8,702,627 B2	4/2014	Telfort et al.
D621,516 S	8/2010	Kiani et al.	8,712,494 B1	4/2014	MacNeish, III et al.
7,791,155 B2	9/2010	Diab	8,715,206 B2	5/2014	Telfort et al.
RE41,912 E	11/2010	Parker	8,716,629 B2	5/2014	Klewer et al.
7,880,626 B2	2/2011	Al-Ali et al.	8,723,677 B1	5/2014	Kiani
7,904,133 B2	3/2011	Gehman et al.	8,740,792 B1	6/2014	Kiani et al.
7,909,772 B2	3/2011	Popov et al.	8,755,535 B2	6/2014	Telfort et al.
D636,726 S *	4/2011	Hiramura ..... D13/108	8,755,872 B1	6/2014	Marinow
7,919,713 B2	4/2011	Al-Ali et al.	D709,439 S *	7/2014	Ferber ..... D13/103
7,937,128 B2	5/2011	Al-Ali	8,764,671 B2	7/2014	Kiani
7,937,129 B2	5/2011	Mason et al.	8,768,423 B2	7/2014	Shakespeare et al.
7,941,199 B2	5/2011	Kiani	8,771,204 B2	7/2014	Telfort et al.
7,957,780 B2	6/2011	Lamego et al.	8,781,544 B2	7/2014	Al-Ali et al.
7,962,188 B2	6/2011	Kiani et al.	8,790,268 B2	7/2014	Al-Ali
7,976,472 B2	7/2011	Kiani	8,801,613 B2	8/2014	Al-Ali et al.
7,990,382 B2	8/2011	Kiani	D712,827 S *	9/2014	Maeda ..... D13/108
8,008,088 B2	8/2011	Bellott et al.	8,821,397 B2	9/2014	Al-Ali et al.
RE42,753 E	9/2011	Kiani-Azarbayjany et al.	8,821,415 B2	9/2014	Al-Ali et al.
8,028,701 B2	10/2011	Al-Ali et al.	8,830,449 B1	9/2014	Lamego et al.
8,048,040 B2	11/2011	Kiani	8,840,549 B2	9/2014	Al-Ali et al.
8,050,728 B2	11/2011	Al-Ali et al.	8,852,094 B2	10/2014	Al-Ali et al.
RE43,169 E	2/2012	Parker	8,852,994 B2	10/2014	Wojtczuk et al.
8,118,620 B2	2/2012	Al-Ali et al.	8,897,847 B2	11/2014	Al-Ali
8,130,105 B2	3/2012	Al-Ali et al.	D719,658 S	12/2014	McDougall et al.
8,182,443 B1	5/2012	Kiani	8,911,377 B2	12/2014	Al-Ali
8,190,223 B2	5/2012	Al-Ali et al.	D724,222 S *	3/2015	Chung ..... D24/169
8,203,438 B2	6/2012	Kiani et al.	8,989,831 B2	3/2015	Al-Ali et al.
8,203,704 B2	6/2012	Merritt et al.	8,998,809 B2	4/2015	Kiani
8,219,172 B2	7/2012	Schurman et al.	D728,468 S *	5/2015	Ferber ..... D13/103
8,224,411 B2	7/2012	Al-Ali et al.	9,066,666 B2	6/2015	Kiani
8,233,955 B2	7/2012	Al-Ali et al.	9,066,680 B1	6/2015	Al-Ali et al.
D666,305 S *	8/2012	Benarieh ..... D24/232	9,095,316 B2	8/2015	Welch et al.
8,255,026 B1	8/2012	Al-Ali	9,106,038 B2	8/2015	Telfort et al.
8,265,723 B1	9/2012	McHale et al.	9,107,625 B2	8/2015	Telfort et al.
8,274,360 B2	9/2012	Sampath et al.	9,131,881 B2	9/2015	Diab et al.
8,280,473 B2	10/2012	Al-Ali	9,138,180 B1	9/2015	Coverston et al.
8,315,683 B2	11/2012	Al-Ali et al.	9,153,112 B1	10/2015	Kiani et al.
8,315,687 B2	11/2012	Cross et al.	9,192,329 B2	11/2015	Al-Ali
RE43,860 E	12/2012	Parker	9,192,351 B1	11/2015	Telfort et al.
D671,888 S *	12/2012	Dyson ..... D13/108	9,195,385 B2	11/2015	Al-Ali et al.
8,346,330 B2	1/2013	Lamego	D745,167 S	12/2015	Canas et al.
8,353,842 B2	1/2013	Al-Ali et al.	9,211,095 B1	12/2015	Al-Ali
8,355,766 B2	1/2013	MacNeish, II et al.	9,218,454 B2	12/2015	Kiani et al.
8,374,665 B2	2/2013	Lamego	9,245,668 B1	1/2016	Vo et al.
8,401,602 B2	3/2013	Kiani	9,267,572 B2	2/2016	Barker et al.
8,414,499 B2	4/2013	Al-Ali et al.	D752,229 S	3/2016	Chen et al.
8,418,524 B2	4/2013	Al-Ali	9,277,880 B2	3/2016	Poeze et al.
8,428,967 B2	4/2013	Olsen et al.	9,307,928 B1	4/2016	Al-Ali et al.
8,430,817 B1	4/2013	Al-Ali et al.	9,323,894 B2	4/2016	Kiani
8,437,825 B2	5/2013	Dalvi et al.	D755,392 S	5/2016	Hwang et al.
8,455,290 B2	6/2013	Siskavich	D755,393 S *	5/2016	Amsler ..... D24/167
8,457,707 B2	6/2013	Kiani	9,326,712 B1	5/2016	Kiani
8,471,713 B2	6/2013	Poeze et al.	9,392,945 B2	7/2016	Al-Ali et al.
8,473,020 B2	6/2013	Kiani et al.	9,408,542 B1	8/2016	Kinast et al.
8,509,867 B2	8/2013	Workman et al.	D767,485 S *	9/2016	To ..... D13/103
8,515,509 B2	8/2013	Bruinsma et al.	D767,487 S *	9/2016	Huang ..... D13/107
8,523,781 B2	9/2013	Al-Ali	9,436,645 B2	9/2016	Al-Ali et al.
D692,145 S	10/2013	Al-Ali et al.	9,445,759 B1	9/2016	Lamego et al.
8,571,617 B2	10/2013	Reichgott et al.	9,474,474 B2	10/2016	Lamego et al.
8,571,618 B1	10/2013	Lamego et al.	9,480,435 B2	11/2016	Olsen
8,571,619 B2	10/2013	Al-Ali et al.	9,510,755 B2	12/2016	Fong et al.
8,577,431 B2	11/2013	Lamego et al.	9,510,779 B2	12/2016	Poeze et al.
8,584,345 B2	11/2013	Al-Ali et al.	9,517,024 B2	12/2016	Kiani et al.
8,588,880 B2	11/2013	Abdul-Hafiz et al.	9,532,722 B2	1/2017	Lamego et al.
8,630,691 B2	1/2014	Lamego et al.	9,560,996 B2	2/2017	Kiani
8,639,319 B2	1/2014	Hugh et al.	9,579,039 B2	2/2017	Jansen et al.
8,641,631 B2	2/2014	Sierra et al.	9,622,692 B2	4/2017	Lamego et al.
8,652,060 B2	2/2014	Al-Ali	D788,312 S	5/2017	Al-Ali et al.
			9,649,054 B2	5/2017	Lamego et al.
			9,697,928 B2	7/2017	Al-Ali et al.
			D794,803 S	8/2017	Thom
			D795,184 S *	8/2017	Jung ..... D13/108



(56)

References Cited

U.S. PATENT DOCUMENTS

9,717,458 B2	8/2017	Lamego et al.	10,524,738 B2	1/2020	Olsen
9,724,016 B1	8/2017	Al-Ali et al.	10,531,813 B2	1/2020	O'Neill et al.
9,724,024 B2	8/2017	Al-Ali	10,532,174 B2	1/2020	Al-Ali
9,724,025 B1	8/2017	Kiani et al.	10,537,285 B2	1/2020	Shreim et al.
9,749,232 B2	8/2017	Sampath et al.	10,542,903 B2	1/2020	Al-Ali et al.
9,750,442 B2	9/2017	Olsen	10,555,678 B2	2/2020	Dalvi et al.
9,750,461 B1	9/2017	Telfort	10,568,553 B2	2/2020	O'Neil et al.
9,775,545 B2	10/2017	Al-Ali et al.	RE47,882 E	3/2020	Al-Ali
9,778,079 B1	10/2017	Al-Ali et al.	10,575,780 B2	3/2020	Van Den Ende et al.
9,782,077 B2	10/2017	Lamego et al.	10,595,726 B2	3/2020	Cronin et al.
9,787,568 B2	10/2017	Lamego et al.	10,608,817 B2	3/2020	Haider et al.
9,808,188 B1	11/2017	Perea et al.	D880,477 S	4/2020	Forrest et al.
9,839,379 B2	12/2017	Al-Ali et al.	10,617,302 B2	4/2020	Al-Ali et al.
9,839,381 B1	12/2017	Weber et al.	10,617,335 B2	4/2020	Al-Ali et al.
9,847,749 B2	12/2017	Kiani et al.	10,637,181 B2	4/2020	Al-Ali et al.
9,848,800 B1	12/2017	Lee et al.	D884,165 S *	5/2020	deBock ..... D24/128
9,861,298 B2	1/2018	Eckerbom et al.	D887,548 S	6/2020	Abdul-Hafiz et al.
9,861,305 B1	1/2018	Weber et al.	D887,549 S	6/2020	Abdul-Hafiz et al.
9,877,650 B2	1/2018	Muhsin et al.	10,667,751 B2	6/2020	Kaskoun et al.
9,891,079 B2	2/2018	Dalvi	10,667,764 B2	6/2020	Ahmed et al.
9,907,473 B2	3/2018	Tran	D890,708 S	7/2020	Forrest et al.
9,924,897 B1	3/2018	Abdul-Hafiz	10,721,785 B2	7/2020	Al-Ali
D815,743 S	4/2018	Liao et al.	10,750,984 B2	8/2020	Pauley et al.
9,936,917 B2	4/2018	Poeze et al.	D895,122 S	9/2020	Benedikter et al.
D818,129 S	5/2018	Heine et al.	10,758,164 B2	9/2020	Derkx
9,955,937 B2	5/2018	Telfort	10,799,128 B2	10/2020	Paulussen et al.
9,955,939 B2	5/2018	Sezan et al.	2001/0034477 A1	10/2001	Mansfield et al.
9,965,946 B2	5/2018	Al-Ali et al.	2001/0039483 A1	11/2001	Brand et al.
D820,865 S	6/2018	Muhsin et al.	2002/0010401 A1	1/2002	Bushmakina et al.
9,986,952 B2	6/2018	Dalvi et al.	2002/0058864 A1	5/2002	Mansfield et al.
D822,215 S	7/2018	Al-Ali et al.	2002/0133080 A1	9/2002	Apruzzese et al.
D822,216 S	7/2018	Barker et al.	2003/0013975 A1	1/2003	Kiani
10,010,276 B2	7/2018	Al-Ali et al.	2003/0018243 A1	1/2003	Gerhardt et al.
10,062,958 B2	8/2018	Ganton et al.	2003/0144582 A1	7/2003	Cohen et al.
10,086,138 B1	10/2018	Novak, Jr.	2003/0156288 A1	8/2003	Barnum et al.
10,111,591 B2	10/2018	Dyell et al.	2003/0212312 A1	11/2003	Coffin, IV et al.
D833,624 S	11/2018	Dejong et al.	2004/0106163 A1	6/2004	Workman, Jr. et al.
10,123,729 B2	11/2018	Dyell et al.	2005/0055276 A1	3/2005	Kiani et al.
D835,282 S	12/2018	Barker et al.	2005/0107714 A1	5/2005	Matsumura et al.
D835,283 S	12/2018	Barker et al.	2005/0234317 A1	10/2005	Kiani
D835,284 S	12/2018	Barker et al.	2006/0073719 A1	4/2006	Kiani
D835,285 S	12/2018	Barker et al.	2006/0189871 A1	8/2006	Al-Ali et al.
10,143,383 B2	12/2018	Tseng et al.	2007/0073116 A1	3/2007	Kiani et al.
10,149,616 B2	12/2018	Al-Ali et al.	2007/0167850 A1	7/2007	Russell et al.
10,154,815 B2	12/2018	Al-Ali et al.	2007/0180140 A1	8/2007	Welch et al.
10,159,412 B2	12/2018	Lamego et al.	2007/0244377 A1	10/2007	Cozad et al.
10,188,348 B2	1/2019	Al-Ali et al.	2008/0064965 A1	3/2008	Jay et al.
RE47,218 E	2/2019	Al-Ali	2008/0094228 A1	4/2008	Welch et al.
RE47,244 E	2/2019	Kiani et al.	2008/0221418 A1	9/2008	Al-Ali et al.
RE47,249 E	2/2019	Kiani et al.	2008/0288026 A1	11/2008	Cross et al.
10,205,291 B2	2/2019	Scruggs et al.	2009/0036759 A1	2/2009	Ault et al.
10,226,187 B2	3/2019	Al-Ali et al.	2009/0093687 A1	4/2009	Telfort et al.
10,231,657 B2	3/2019	Al-Ali et al.	2009/0095926 A1	4/2009	MacNeish
10,231,670 B2	3/2019	Blank et al.	2009/0247984 A1	10/2009	Lamego et al.
RE47,353 E	4/2019	Kiani et al.	2009/0275813 A1	11/2009	Davis
D847,372 S *	4/2019	Crawford ..... D24/227	2010/0004518 A1	1/2010	Vo et al.
10,279,247 B2	5/2019	Kiani	2010/0030040 A1	2/2010	Poeze et al.
10,292,664 B2	5/2019	Al-Ali	2010/0099964 A1	4/2010	O'Reilly et al.
10,299,720 B2	5/2019	Brown et al.	2010/0234718 A1	9/2010	Sampath et al.
10,327,337 B2	6/2019	Triman et al.	2010/0249542 A1	9/2010	Thijs et al.
10,327,713 B2	6/2019	Barker et al.	2010/0270257 A1	10/2010	Wachman et al.
10,332,630 B2	6/2019	Al-Ali	2011/0028806 A1	2/2011	Merritt et al.
10,383,520 B2	8/2019	Wojtczuk et al.	2011/0028809 A1	2/2011	Goodman
10,383,527 B2	8/2019	Al-Ali	2011/0040197 A1	2/2011	Welch et al.
10,388,120 B2	8/2019	Muhsin et al.	2011/0082711 A1	4/2011	Poeze et al.
D864,120 S	10/2019	Forrest et al.	2011/0087081 A1	4/2011	Kiani et al.
10,441,181 B1	10/2019	Telfort et al.	2011/0118561 A1	5/2011	Tani et al.
10,441,196 B2	10/2019	Eckerbom et al.	2011/0137297 A1	6/2011	Kiani et al.
10,448,844 B2	10/2019	Al-Ali et al.	2011/0172498 A1	7/2011	Olsen et al.
10,448,871 B2	10/2019	Al-Ali	2011/0230733 A1	9/2011	Al-Ali
10,456,038 B2	10/2019	Lamego et al.	2011/0237924 A1	9/2011	McGusty et al.
10,463,340 B2	11/2019	Telfort et al.	2012/0123231 A1	5/2012	O'Reilly
10,471,159 B1	11/2019	Lapotko et al.	2012/0130204 A1	5/2012	Basta et al.
10,499,825 B2	12/2019	Solosko et al.	2012/0165629 A1	6/2012	Merritt et al.
10,505,311 B2	12/2019	Al-Ali et al.	2012/0209084 A1	8/2012	Olsen et al.
			2012/0226117 A1	9/2012	Lamego et al.
			2012/0283524 A1	11/2012	Kiani et al.
			2013/0023775 A1	1/2013	Lamego et al.
			2013/0041591 A1	2/2013	Lamego

(56)

References Cited

U.S. PATENT DOCUMENTS

2013/0060147 A1 3/2013 Welch et al.  
 2013/0096405 A1 4/2013 Garfio  
 2013/0296672 A1 11/2013 O'Neil et al.  
 2013/0345921 A1 12/2013 Al-Ali et al.  
 2014/0166076 A1 6/2014 Kiani et al.  
 2014/0180160 A1 6/2014 Brown et al.  
 2014/0187973 A1 7/2014 Brown et al.  
 2014/0243612 A1 8/2014 Li et al.  
 2014/0275871 A1 9/2014 Lamego et al.  
 2014/0275872 A1 9/2014 Merritt et al.  
 2014/0316217 A1 10/2014 Purdon et al.  
 2014/0316218 A1 10/2014 Purdon et al.  
 2014/0323897 A1 10/2014 Brown et al.  
 2014/0323898 A1 10/2014 Purdon et al.  
 2015/0005600 A1 1/2015 Blank et al.  
 2015/0011907 A1 1/2015 Purdon et al.  
 2015/0025400 A1 1/2015 Nishioka et al.  
 2015/0073241 A1 3/2015 Lamego  
 2015/0080754 A1 3/2015 Purdon et al.  
 2015/0099950 A1 4/2015 Al-Ali et al.  
 2015/0106121 A1 4/2015 Muhsin et al.  
 2016/0007861 A1 1/2016 Tseng et al.  
 2016/0196388 A1 7/2016 Lamego  
 2016/0367173 A1 12/2016 Dalvi et al.  
 2017/0024748 A1 1/2017 Haider  
 2017/0042488 A1 2/2017 Muhsin  
 2017/0055896 A1 3/2017 Al-Ali  
 2017/0173632 A1 6/2017 Al-Ali  
 2017/0251974 A1 9/2017 Shreim et al.  
 2017/0296124 A1 10/2017 Creemers et al.  
 2017/0311891 A1 11/2017 Kiani et al.  
 2017/0360329 A1 12/2017 Derkx et al.  
 2018/0049656 A1 2/2018 Paulussen et al.  
 2018/0103874 A1 4/2018 Lee et al.  
 2018/0125444 A1 5/2018 Kahlman et al.  
 2018/0146867 A1 5/2018 Torihama et al.  
 2018/0184926 A1 7/2018 Doi et al.  
 2018/0235567 A1 8/2018 Bezemer et al.  
 2018/0242926 A1 8/2018 Muhsin et al.  
 2018/0247353 A1 8/2018 Al-Ali et al.  
 2018/0247712 A1 8/2018 Muhsin et al.  
 2018/0256087 A1 9/2018 Al-Ali et al.  
 2018/0296161 A1 10/2018 Shreim et al.  
 2018/0300919 A1 10/2018 Muhsin et al.  
 2018/0310822 A1 11/2018 Lndorf et al.  
 2018/0310823 A1 11/2018 Al-Ali et al.

2018/0317826 A1 11/2018 Muhsin et al.  
 2018/0333053 A1 11/2018 Verkruijsse et al.  
 2018/0360373 A1 12/2018 Aarts et al.  
 2019/0015023 A1 1/2019 Monfre  
 2019/0117070 A1 4/2019 Muhsin et al.  
 2019/0142280 A1 5/2019 Bongers et al.  
 2019/0200941 A1 7/2019 Chandran et al.  
 2019/0239787 A1 8/2019 Pauley et al.  
 2019/0298195 A1 10/2019 De Groot et al.  
 2019/0320906 A1 10/2019 Olsen  
 2019/0374139 A1 12/2019 Kiani et al.  
 2019/0374173 A1 12/2019 Kiani et al.  
 2019/0374713 A1 12/2019 Kiani et al.  
 2020/0021930 A1 1/2020 Lswanto et al.  
 2020/0060869 A1 2/2020 Telfort et al.  
 2020/0069281 A1 3/2020 Chan et al.  
 2020/0085310 A1 3/2020 Zahner et al.  
 2020/0086133 A1 3/2020 Wang et al.  
 2020/0111552 A1 4/2020 Ahmed  
 2020/0113435 A1 4/2020 Muhsin  
 2020/0113488 A1 4/2020 Al-Ali et al.  
 2020/0113496 A1 4/2020 Scruggs et al.  
 2020/0113497 A1 4/2020 Triman et al.  
 2020/0113520 A1 4/2020 Abdul-Hafiz et al.  
 2020/0138288 A1 5/2020 Al-Ali et al.  
 2020/0138368 A1 5/2020 Kiani et al.  
 2020/0163597 A1 5/2020 Dalvi et al.  
 2020/0196877 A1 6/2020 Vo et al.  
 2020/0253474 A1 8/2020 Muhsin et al.  
 2020/0253544 A1 8/2020 Belur Nagaraj et al.  
 2020/0345252 A1 11/2020 Huijbregts et al.

FOREIGN PATENT DOCUMENTS

EP 3 566 644 11/2019  
 EP 3 578 096 12/2019  
 EP 3 598 950 1/2020  
 EP 3 626 159 3/2020  
 WO WO 2010/020945 2/2010  
 WO WO 2013/124750 8/2013  
 WO WO 2017/093150 6/2017  
 WO WO 2020/002133 1/2020  
 WO WO 2020/002290 1/2020  
 WO WO 2020/002461 1/2020  
 WO WO 2020/078842 4/2020  
 WO WO 2020/078962 4/2020  
 WO WO 2020/214826 10/2020  
 WO WO 2020/216694 10/2020

\* cited by examiner



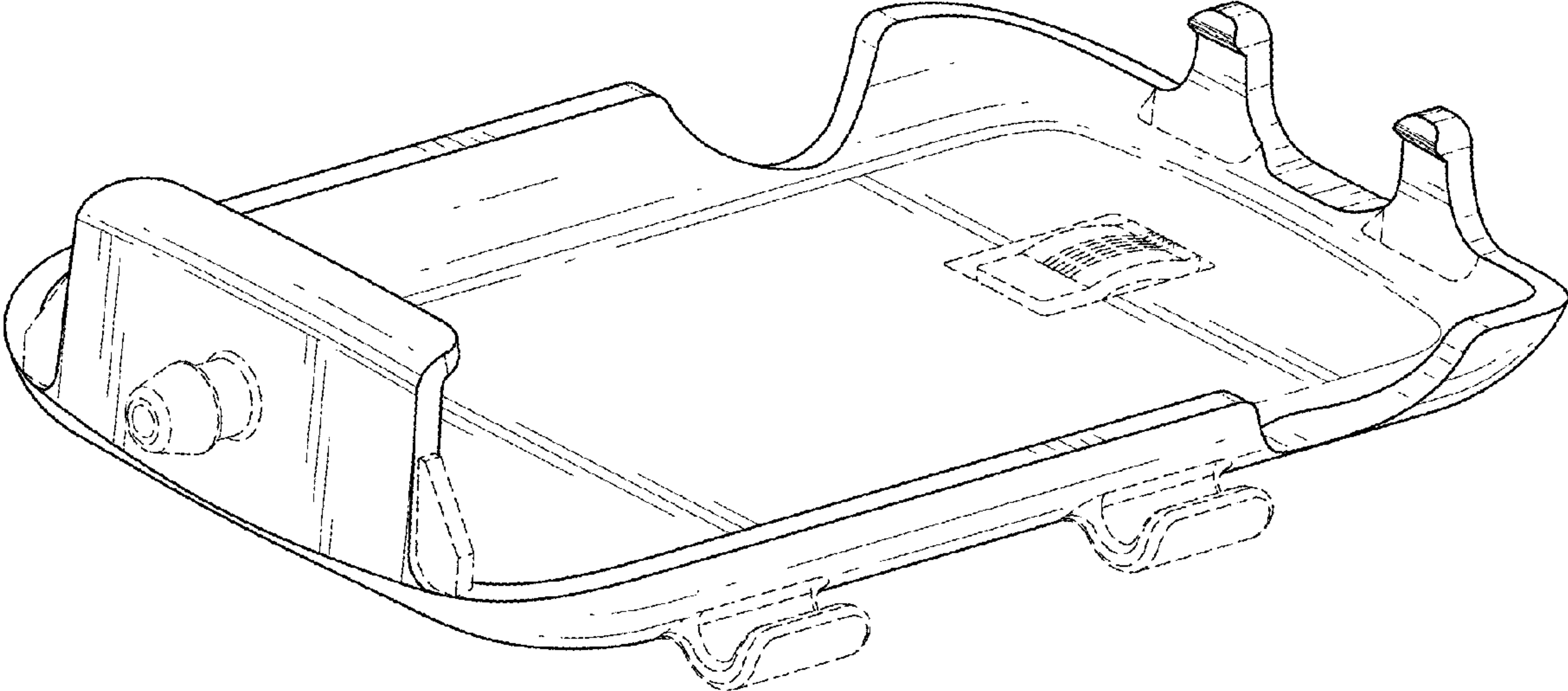


FIG. 1

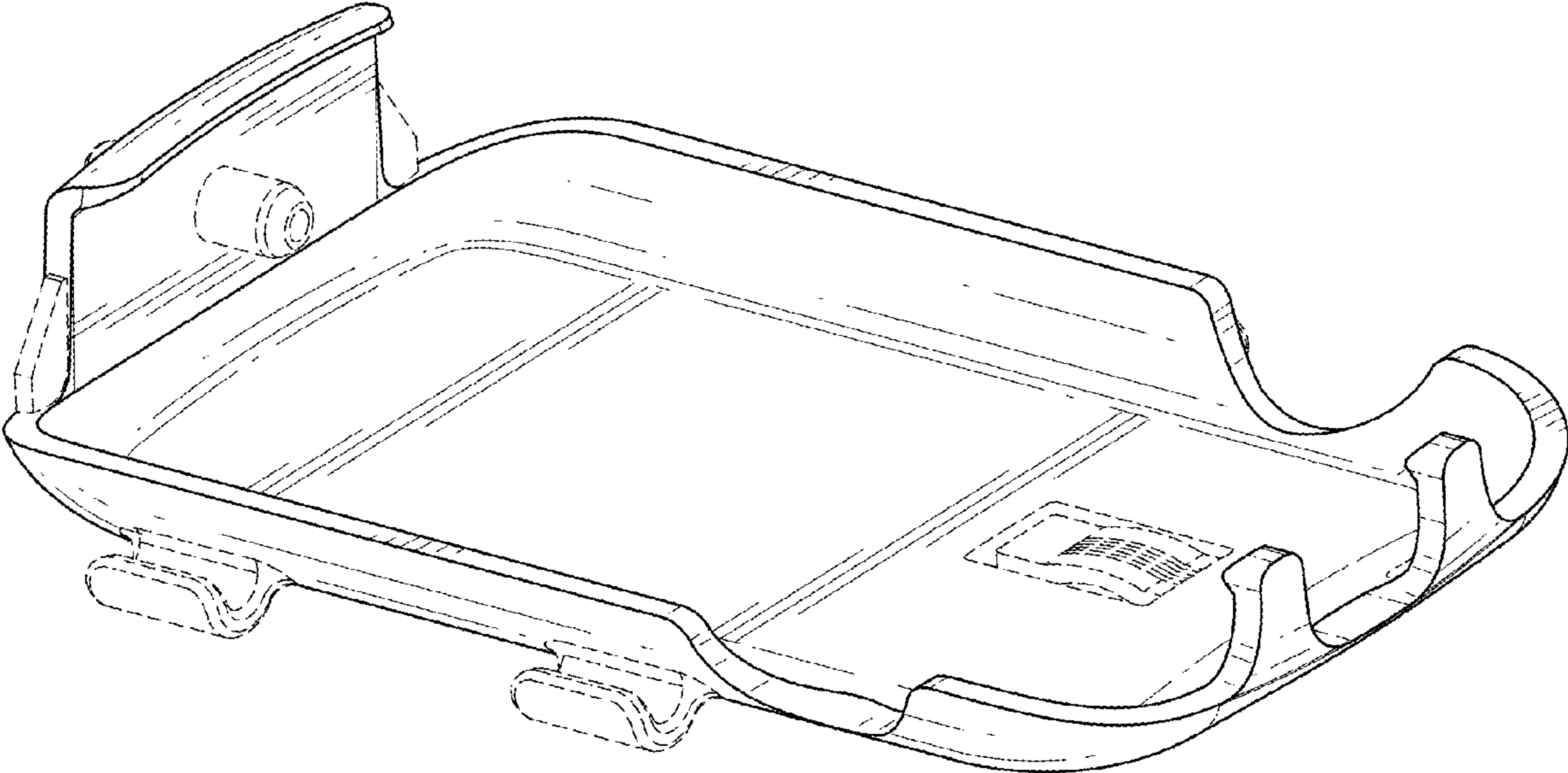


FIG. 2

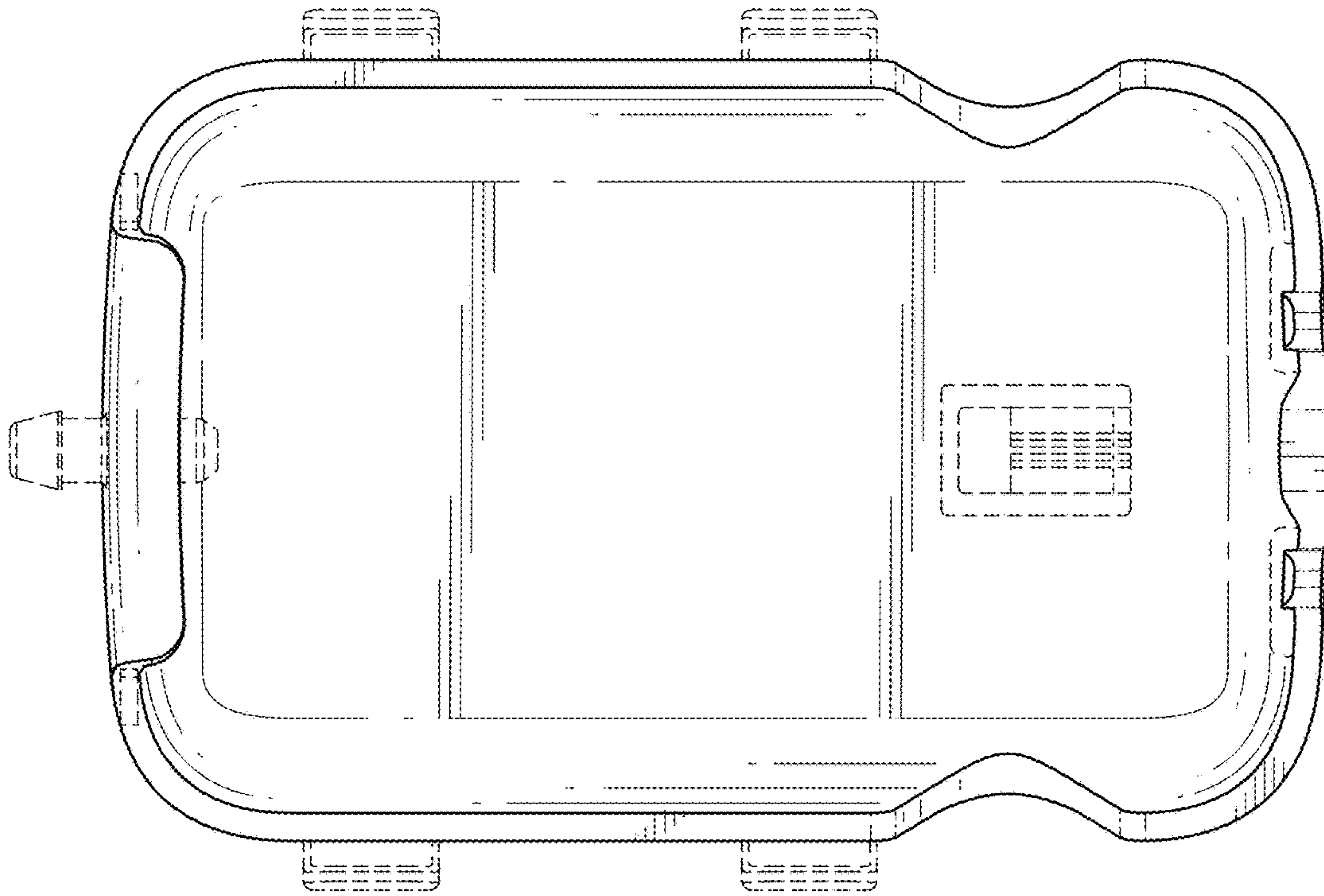


FIG. 3

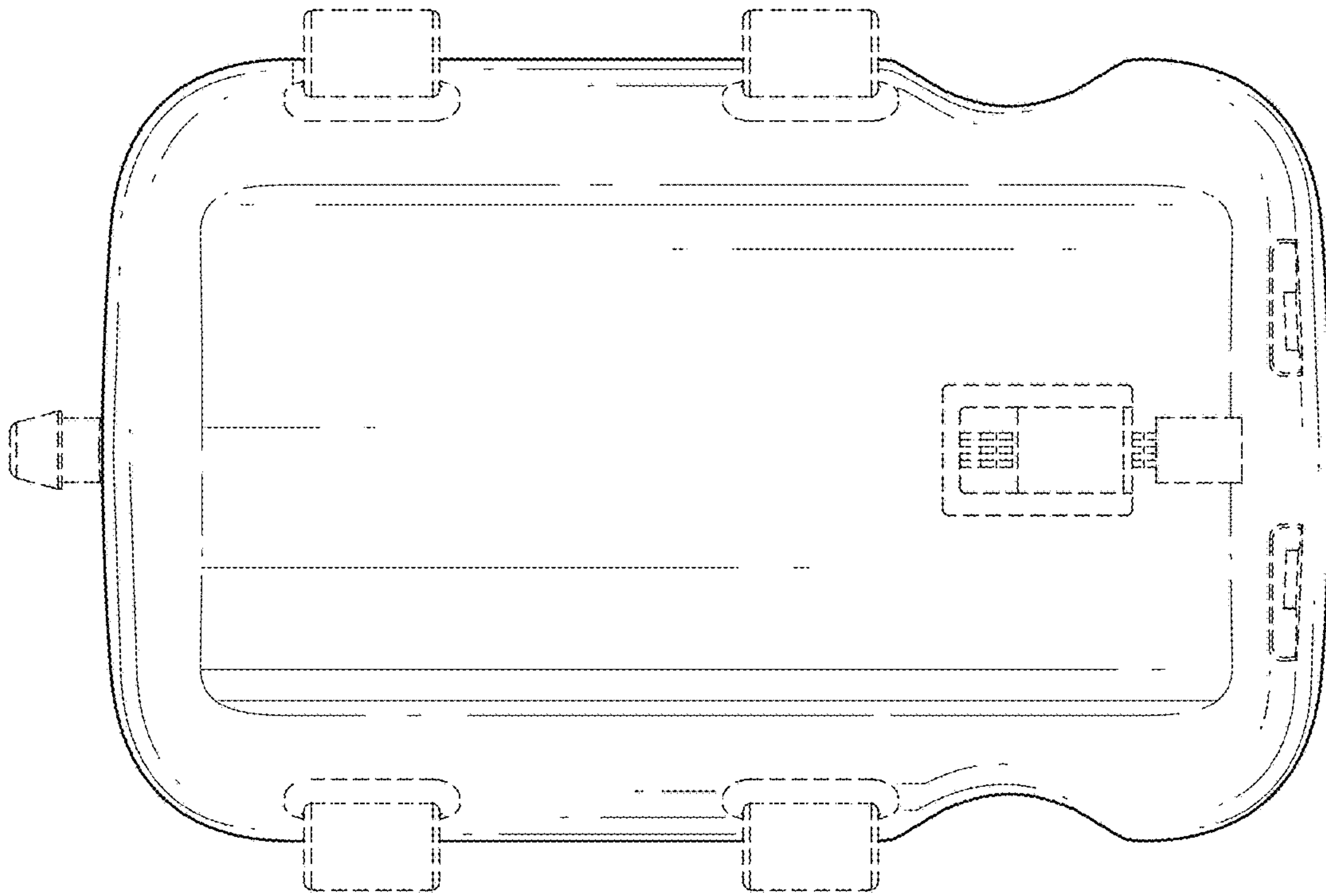
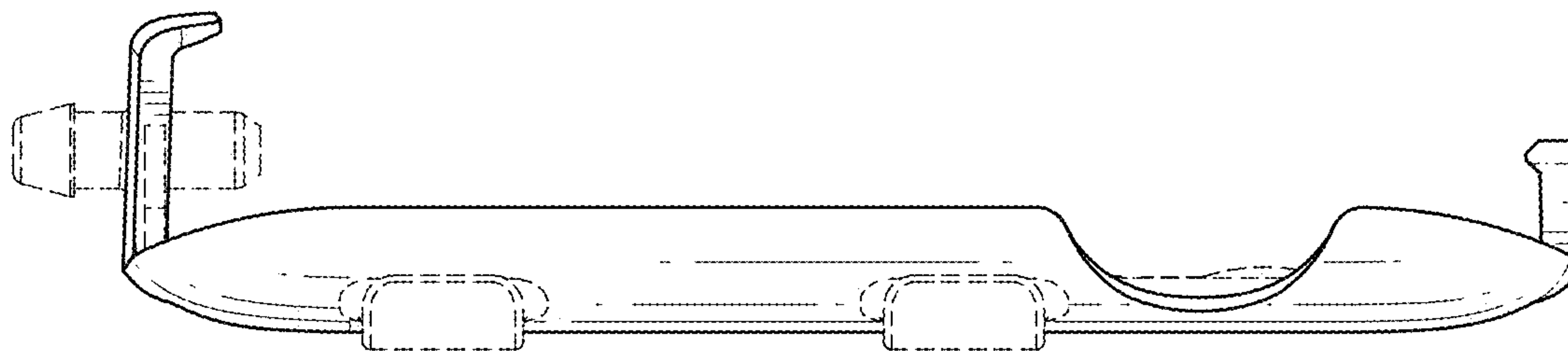
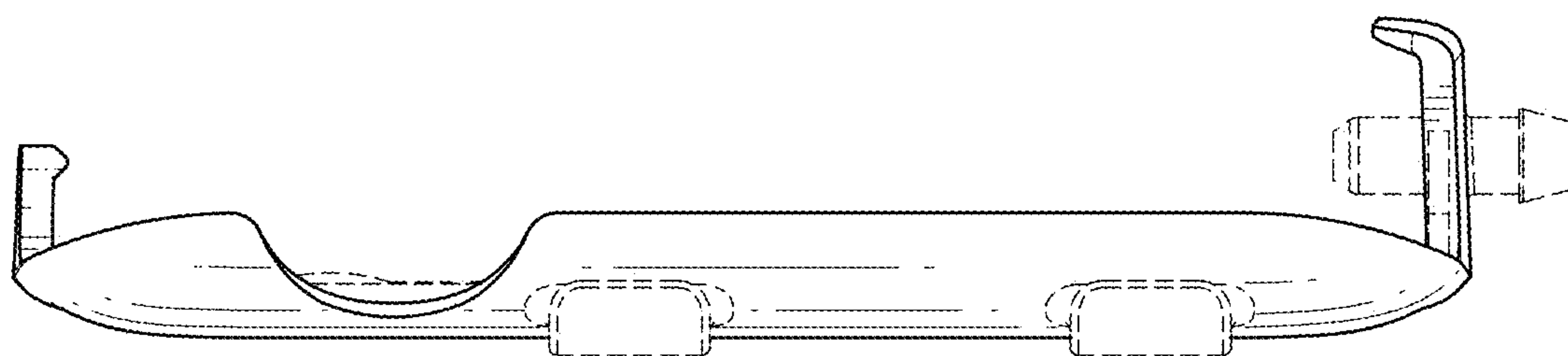


FIG. 4

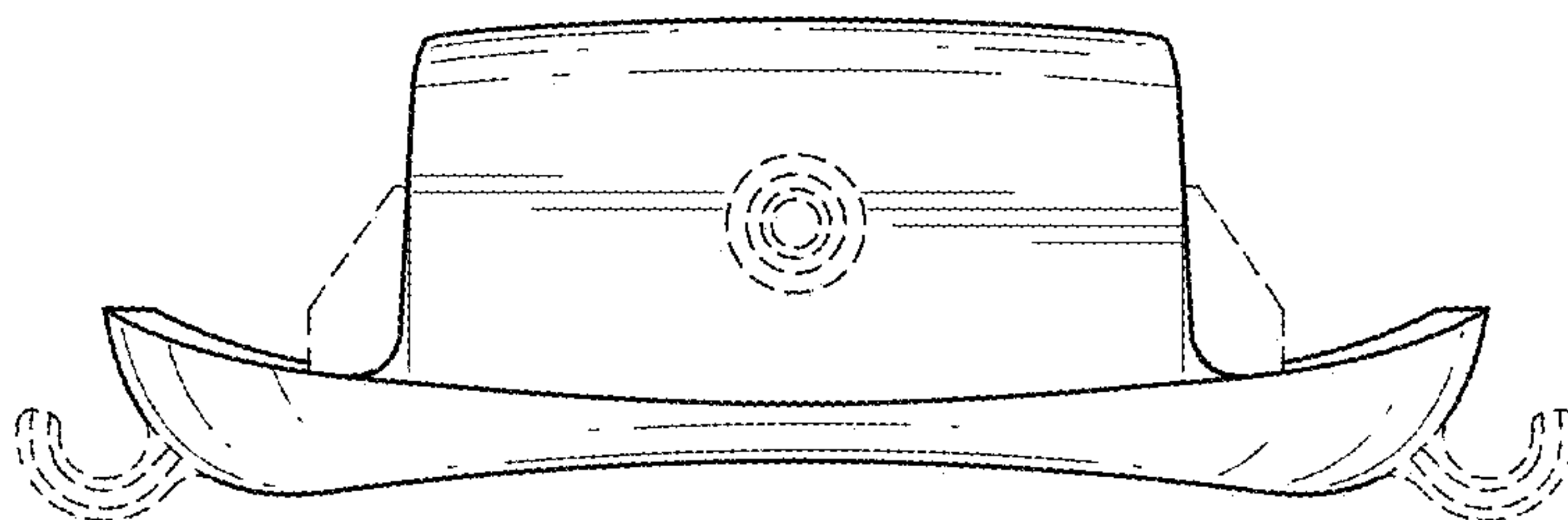


*FIG. 5*

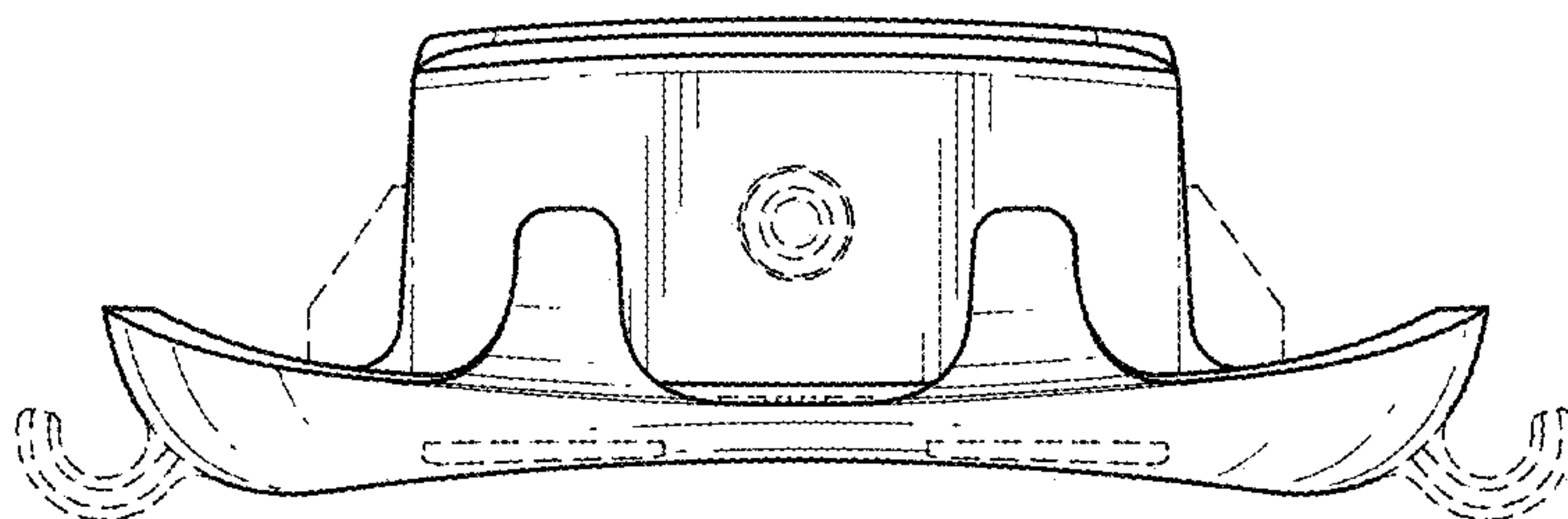


*FIG. 6*





*FIG. 7*



*FIG. 8*

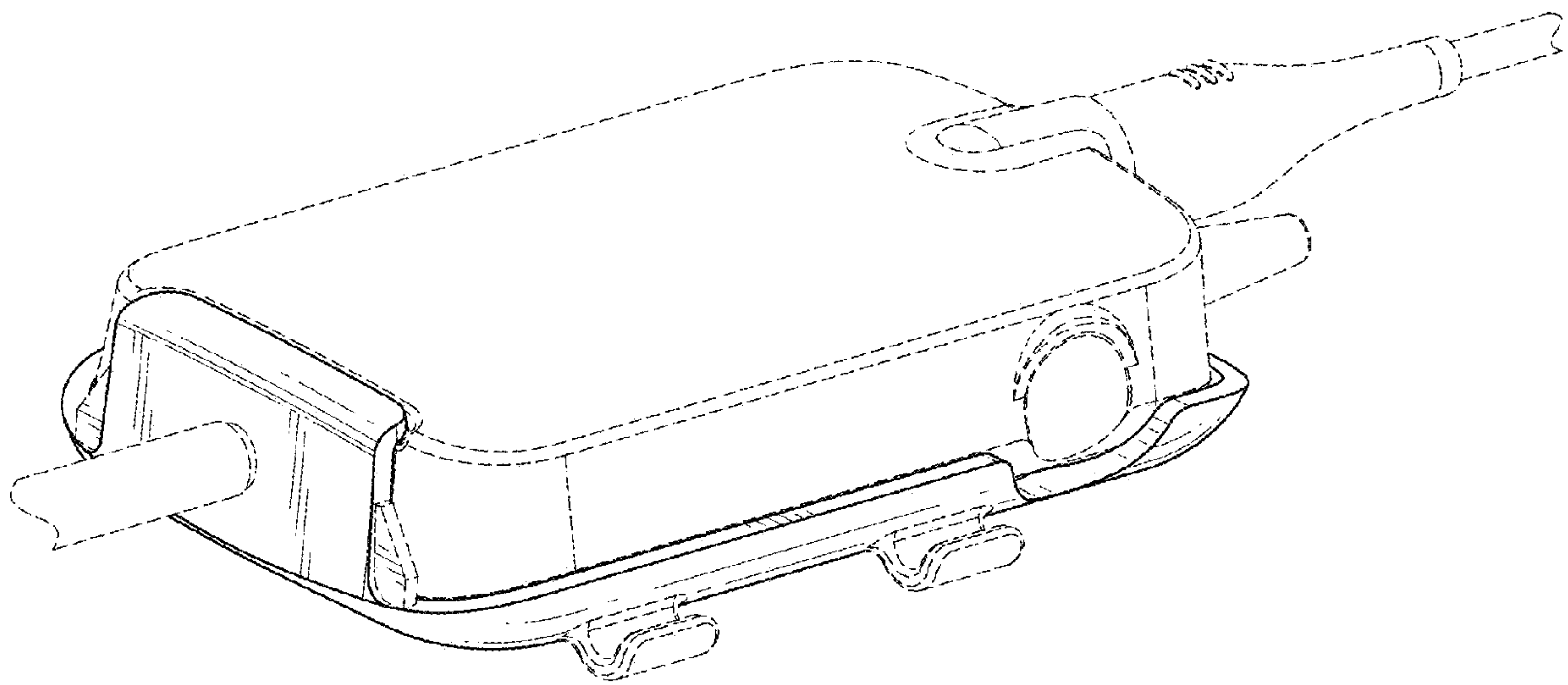


FIG. 9