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**Gill et al.**

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(54) **AIR DIFFUSER**  
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3,610,885 A 10/1971 Zingg  
3,821,454 A 6/1974 Lobel  
3,828,760 A 8/1974 Farber et al.  
4,106,486 A 8/1978 Lee  
D249,924 S 10/1978 Fischer  
4,148,250 A 4/1979 Miki et al.

(Continued)

**FOREIGN PATENT DOCUMENTS**

CN 2253170 Y 4/1997  
CN 1218653 A 6/1999

(Continued)

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**OTHER PUBLICATIONS**

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(58) **Field of Classification Search**  
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(57) **CLAIM**

The ornamental design for an air diffuser, as shown and  
described.

(56) **References Cited**

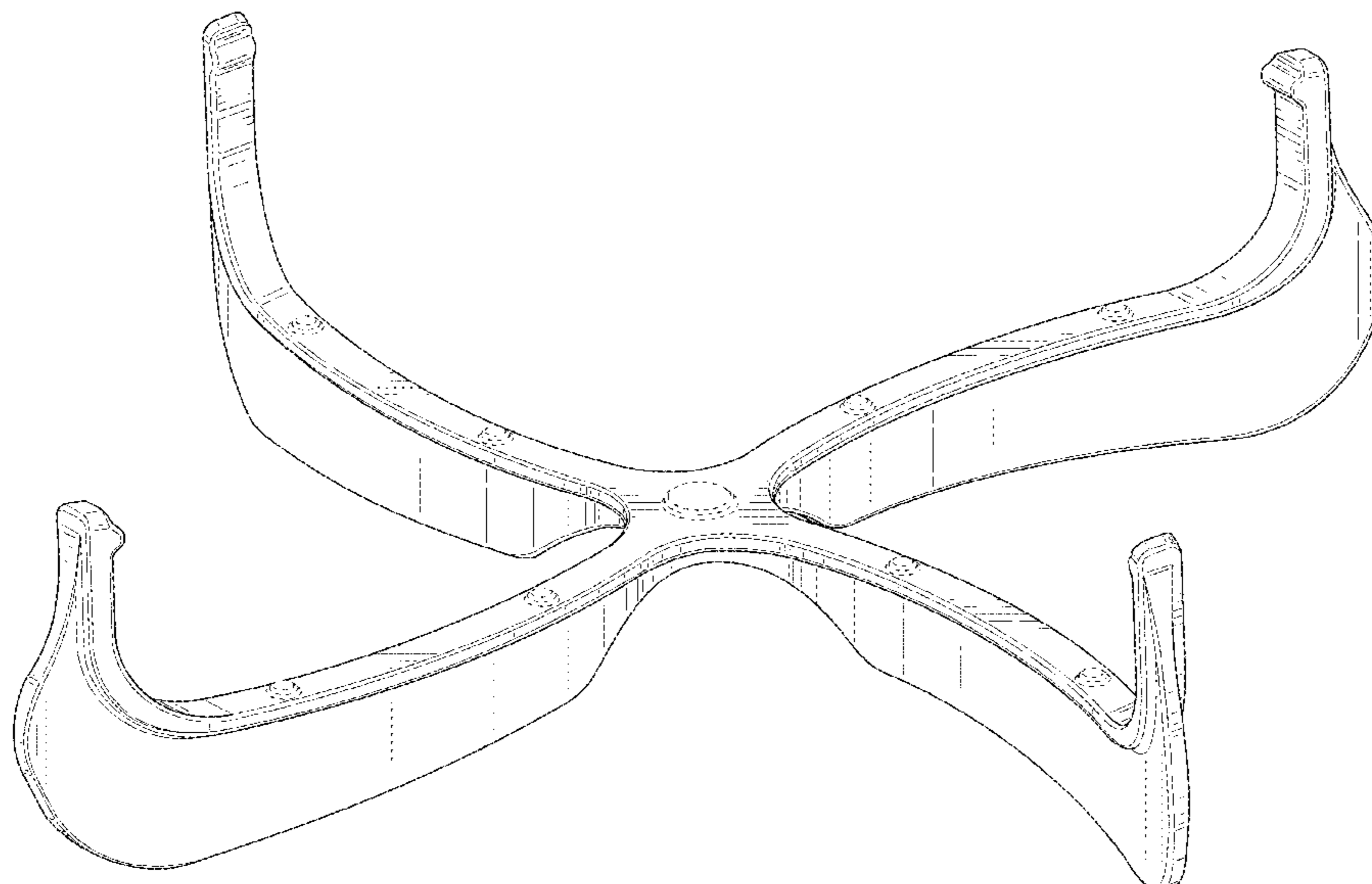
**DESCRIPTION**

**U.S. PATENT DOCUMENTS**

2,055,972 A 9/1934 Fritsche  
1,986,088 A 1/1935 Wild  
1,994,268 A 3/1935 Bartels  
D105,670 S 8/1937 Nelson  
2,313,968 A 10/1937 Reich  
2,378,950 A 10/1937 Reich  
2,188,757 A 8/1938 Moon  
2,253,833 A 12/1939 Volks  
2,785,277 A 3/1957 Jepson  
3,076,405 A 2/1963 Lang  
3,122,134 A 2/1964 Reeves  
3,514,301 A 5/1970 Berger  
3,529,582 A 9/1970 Hurko et al.

FIG. 1 is a perspective view of an air diffuser, showing our  
new design;  
FIG. 2 is a front elevation view thereof;  
FIG. 3 is a rear elevation view thereof;  
FIG. 4 is side elevation view thereof;  
FIG. 5 is another side elevation 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 depict portions of the air  
diffuser that form no part of the claimed design.

**1 Claim, 5 Drawing Sheets**



(56)

References Cited

U.S. PATENT DOCUMENTS

4,162,741 A	7/1979	Walker et al.		6,135,013 A	10/2000	Barrena
D255,751 S	7/1980	Daenen		6,158,606 A	12/2000	Oliver
4,210,072 A	7/1980	Pedrini		6,173,643 B1	1/2001	Qian et al.
4,241,288 A	12/1980	Aoshima et al.		6,178,876 B1	1/2001	Kao
4,268,741 A	5/1981	O'Brien		6,191,393 B1	2/2001	Park
4,374,318 A	2/1983	Gilliom		6,201,217 B1	3/2001	Moon et al.
4,484,063 A	11/1984	Whittenburg et al.		6,242,025 B1	6/2001	Lesky et al.
4,509,412 A	4/1985	Whittenburg et al.		6,252,206 B1	6/2001	Leukhardt, III et al.
4,591,698 A	5/1986	Chang		6,255,630 B1	7/2001	Barnes et al.
4,728,762 A	3/1988	Roth et al.		6,257,124 B1	7/2001	Chen
D296,643 S	7/1988	Mueller		6,262,396 B1	7/2001	Witt et al.
4,771,162 A	9/1988	Schatz		6,267,046 B1	7/2001	Wanat
D300,108 S	3/1989	Iwahashi		6,268,592 B1	7/2001	Hu et al.
4,848,217 A	7/1989	Koziol		6,269,737 B1	8/2001	Rigney et al.
4,889,972 A	12/1989	Chang		6,271,504 B1	8/2001	Barritt
D309,078 S	7/1990	Kokubo		6,283,014 B1	9/2001	Ng et al.
5,000,085 A	3/1991	Archer		6,283,015 B1	9/2001	Kwon et al.
D316,007 S *	4/1991	Wagner .....	D7/366	6,320,166 B1	11/2001	Park
5,008,508 A *	4/1991	Skерker .....	A47J 43/18 219/732	6,320,166 B1	11/2001	Park
				6,355,914 B1	3/2002	Stockley
5,012,071 A	4/1991	Henke		6,384,381 B2	5/2002	Witt et al.
5,029,519 A	7/1991	Boyen		D458,078 S	6/2002	Lin
5,031,519 A	7/1991	Toida et al.		6,399,925 B1	6/2002	Pickering et al.
5,036,179 A	7/1991	Westerberg et al.		6,414,254 B1	7/2002	McNair
5,048,400 A	9/1991	Ueda et al.		6,425,320 B1	7/2002	Chameroy et al.
5,092,229 A	3/1992	Chen		6,443,053 B1	9/2002	Rossi
5,097,753 A	3/1992	Naft		6,450,085 B1	9/2002	Riesselman
5,105,725 A	4/1992	Haglund		6,450,361 B1	9/2002	Mendelson et al.
D328,549 S *	8/1992	Skерker .....	D7/388	6,454,225 B1 *	9/2002	Jaworski ..... A47G 7/025 248/153
5,205,274 A	4/1993	Smith et al.		6,455,085 B1	9/2002	Duta
5,251,542 A	10/1993	Itoh		D464,233 S	10/2002	Pai
5,355,777 A	10/1994	Chen et al.		6,467,645 B2	10/2002	Park
5,416,950 A	5/1995	Dornbush et al.		6,486,453 B1	11/2002	Bales et al.
5,445,061 A	8/1995	Barradas		6,494,337 B1	12/2002	Moroni
5,485,780 A	1/1996	Koether et al.		6,509,550 B1	1/2003	Li
5,513,558 A	5/1996	Erickson et al.		6,513,420 B1	2/2003	Park
5,526,734 A	6/1996	Harrison		6,523,459 B1	2/2003	Chameroy et al.
5,549,039 A	8/1996	Ito et al.		6,528,772 B1	3/2003	Graves et al.
5,567,458 A	10/1996	Wu		6,540,097 B1	4/2003	Beck et al.
5,588,352 A	12/1996	Harrison		6,545,252 B2	4/2003	Wang
5,590,583 A	1/1997	Harrison		6,552,309 B1	4/2003	Kish et al.
5,615,607 A	4/1997	Delaquis et al.		6,559,427 B1	5/2003	Barnes et al.
5,619,983 A	4/1997	Smith		6,565,903 B2	5/2003	Ng et al.
5,632,403 A	5/1997	Deng		6,573,483 B1	6/2003	DeCobert et al.
D380,504 S	7/1997	Yang		6,604,453 B2	8/2003	Niese
5,649,476 A	7/1997	Montagnino et al.		6,615,706 B1	9/2003	Wu
5,676,044 A	10/1997	Lara, Jr.		6,615,708 B1	9/2003	Lin
5,699,722 A	12/1997	Erickson et al.		6,631,824 B2	10/2003	Park
5,740,721 A	4/1998	Bizard et al.		6,669,047 B2	10/2003	Wooderson et al.
5,768,976 A	6/1998	Suk		6,648,162 B1	11/2003	Wooderson et al.
D397,261 S *	8/1998	Sellers .....	D6/403	6,617,554 B2	12/2003	Moon et al.
5,839,357 A	11/1998	Ha et al.		6,657,167 B2	12/2003	Loveless
5,865,104 A	2/1999	Sham et al.		6,695,319 B1	2/2004	Anota et al.
5,896,808 A	4/1999	Graur		D487,212 S	3/2004	Park
5,932,130 A	8/1999	Taino		6,698,337 B1	3/2004	Park
5,957,038 A	9/1999	Shimazaki		6,705,209 B2	3/2004	Yang et al.
5,967,021 A	10/1999	Yung		6,723,963 B2	4/2004	Ronda
6,006,939 A	12/1999	Wai		6,730,881 B1	5/2004	Arntz et al.
6,014,986 A	1/2000	Baumgarten		6,730,882 B2	5/2004	Atkinson
6,019,029 A	2/2000	Chan		6,730,889 B1	5/2004	Jones-Lawlor
6,023,050 A	2/2000	Violi		6,732,636 B1	5/2004	Germano
6,060,698 A	5/2000	Petrides et al.		6,736,131 B2	5/2004	Yamamoto et al.
6,066,837 A	5/2000	McCormick et al.		6,740,855 B1	5/2004	DeCobert et al.
6,067,896 A	5/2000	Elorza		6,742,445 B2	6/2004	Backus et al.
6,070,518 A	6/2000	Kao		6,747,250 B1	6/2004	Cha
6,082,249 A	7/2000	Su		6,755,319 B2	6/2004	Park
6,083,543 A	7/2000	Kim et al.		6,758,132 B1	7/2004	Kuo et al.
6,097,016 A	8/2000	Hirata et al.		6,777,651 B1	8/2004	Boyer
6,103,291 A	8/2000	Fernandez Tapia		6,782,805 B2	8/2004	Backus et al.
6,104,004 A	8/2000	Ragland et al.		6,782,806 B2	8/2004	Backus et al.
6,105,808 A	8/2000	Mendonca		6,802,429 B1	10/2004	Wildman
D430,776 S	9/2000	Pai		6,809,297 B2	10/2004	Moon et al.
6,116,151 A	9/2000	Fickert et al.		6,812,433 B1	11/2004	Barritt
6,125,737 A	10/2000	Chang		6,815,644 B1	11/2004	Muegge et al.
6,135,012 A	10/2000	Kao		6,831,254 B2	12/2004	Barritt
				6,837,150 B2	1/2005	Backus et al.
				6,841,762 B2	1/2005	Suzuki
				6,845,707 B1	1/2005	Xu et al.
				6,851,351 B2	2/2005	Payen et al.



(56)

References Cited

U.S. PATENT DOCUMENTS

6,872,921 B1	3/2005	DeCobert et al.	7,968,824 B2	6/2011	Lee et al.
6,874,408 B2	4/2005	Backus et al.	D640,896 S	7/2011	Molayem
6,877,633 B2	4/2005	Niese	8,006,685 B2	8/2011	Bolton et al.
6,903,310 B1	6/2005	Lee	D645,703 S	9/2011	Sadtler
6,917,017 B2	7/2005	Moon et al.	8,011,293 B2	9/2011	McFadden et al.
6,933,477 B2	8/2005	Becker et al.	D646,525 S	10/2011	Molayem
6,935,223 B2	8/2005	Kobayashi	D651,456 S	1/2012	Moon et al.
6,936,795 B1	8/2005	Moon et al.	8,096,436 B2	1/2012	Rhetat et al.
6,936,801 B1	8/2005	Head	8,096,440 B2	1/2012	Rhetat et al.
6,941,857 B2	9/2005	McLemore	D658,949 S	5/2012	Tsui
D514,383 S	2/2006	Vetter	8,205,543 B2	6/2012	Rhetat et al.
7,009,147 B1	3/2006	Schulte	8,247,751 B2	8/2012	Jagannathan
7,012,220 B2	3/2006	Boyer et al.	D667,255 S	9/2012	Reiner
7,012,221 B2	3/2006	Li	8,258,435 B2	9/2012	Bonuso et al.
7,021,203 B2	4/2006	Backus et al.	D668,109 S	10/2012	Börjesson
7,021,204 B2	4/2006	Backus et al.	D669,730 S	10/2012	Mandil
7,053,337 B2	5/2006	Ragan et al.	8,276,507 B1	10/2012	Walker
7,060,943 B2	6/2006	Hwang	8,286,548 B2	10/2012	Krishnan et al.
7,081,601 B2	7/2006	Boyer et al.	8,299,404 B2	10/2012	Van Der Weij
7,082,871 B2	8/2006	Schultz	D671,354 S	11/2012	Ou et al.
7,086,326 B2	8/2006	Yokoyama	8,302,800 B2	11/2012	Hasegawa
7,126,088 B2	10/2006	Horton et al.	8,304,695 B2	11/2012	Bonuso et al.
D532,644 S	11/2006	Ball	8,330,083 B2	12/2012	Moon et al.
7,148,451 B2	12/2006	Miyake et al.	8,338,757 B2	12/2012	Isoda et al.
7,154,069 B1	12/2006	Gordon	8,378,265 B2	2/2013	Greenwood et al.
7,156,087 B1	1/2007	Churchill et al.	8,381,712 B1	2/2013	Simms, II
7,157,675 B2	1/2007	Imura	D677,515 S	3/2013	Cloutier
7,166,822 B1	1/2007	Chang et al.	8,393,262 B1	3/2013	Molayem
D549,517 S	8/2007	Moran	8,461,488 B2	6/2013	Jeong et al.
7,276,677 B1	10/2007	Shelton	D686,452 S	7/2013	Nordwall
7,285,751 B2	10/2007	Li et al.	8,517,205 B2	8/2013	Thelen
D555,777 S	11/2007	Aveldson et al.	8,544,381 B2	10/2013	Cartigny et al.
7,322,279 B2	1/2008	Cartigny et al.	8,546,731 B2	10/2013	Pellerin et al.
7,322,280 B2	1/2008	Seurat Guiochet et al.	8,561,525 B2	10/2013	Bauchot et al.
7,325,481 B2	2/2008	Helm	D693,643 S	11/2013	Moon et al.
7,368,688 B2	5/2008	Kim et al.	8,578,293 B2	11/2013	Breunig et al.
7,373,874 B2	5/2008	Seurat Guiochet et al.	8,581,137 B2	11/2013	Egenter
7,377,208 B2	5/2008	Ho et al.	8,618,447 B2	12/2013	De' Longhi
D573,466 S	7/2008	White et al.	8,637,797 B2	1/2014	Imura
7,411,159 B2	8/2008	Oosterling	D699,514 S	2/2014	Lovley, II et al.
7,412,922 B2	8/2008	McLemore	8,640,908 B2	2/2014	Yang et al.
D581,200 S	11/2008	Lee	8,674,270 B2	3/2014	Anderson et al.
D581,201 S	11/2008	Lee	8,689,680 B2	4/2014	Park
7,451,691 B2	11/2008	Robertson	8,709,905 B2	4/2014	Crayfourd
7,451,692 B2	11/2008	Baraille et al.	D703,993 S	5/2014	Garman
7,468,495 B2	12/2008	Carbone et al.	8,714,391 B2	5/2014	Milanesi
7,523,696 B2	4/2009	Seurat Guiochet et al.	8,726,792 B2	5/2014	Shealy et al.
D592,445 S	5/2009	Sorenson et al.	8,733,574 B2	5/2014	Heidrich et al.
7,530,302 B2	5/2009	Stephanou	D707,078 S	6/2014	Rivera et al.
7,565,862 B2	7/2009	Cartigny et al.	8,739,690 B2	6/2014	Chameroy et al.
D602,283 S *	10/2009	Glenn ..... D6/403	8,747,933 B1	6/2014	McGinn
7,605,349 B2	10/2009	Gaynor et al.	8,766,144 B2	7/2014	McLoughlin et al.
D604,098 S	11/2009	Hamlin	8,777,038 B2	7/2014	Wen
7,619,186 B2	11/2009	Cavada et al.	8,783,498 B2	7/2014	Li
D606,799 S	12/2009	Saunders	8,783,947 B2	7/2014	Ferron et al.
7,624,674 B2	12/2009	Chameroy et al.	D710,647 S	8/2014	Mandil et al.
7,637,206 B2	12/2009	Seurat Guiochet et al.	8,800,803 B2	8/2014	Stellwag
7,669,521 B2	3/2010	Cartigny et al.	8,808,772 B2	8/2014	Lubrina et al.
7,703,385 B2	4/2010	Seurat Guiochet et al.	8,813,989 B2	8/2014	Hoffmann et al.
D616,246 S	5/2010	Filho et al.	8,820,220 B2	9/2014	Thelen et al.
7,718,928 B2	5/2010	He et al.	8,847,129 B2	9/2014	Kim et al.
D616,731 S *	6/2010	Hart ..... A01G 9/12 D8/363	8,869,829 B2	10/2014	Hasegawa
7,726,508 B2	6/2010	Hasegawa	8,887,939 B2	11/2014	Chameroy et al.
7,762,420 B2	7/2010	Auwarter et al.	D719,398 S	12/2014	Deters
D622,100 S	8/2010	Carlini	D720,571 S	1/2015	Deters
7,766,003 B2	8/2010	Kim	8,931,402 B2	1/2015	Chameroy et al.
7,775,390 B2	8/2010	De Bastos Reis Portugal et al.	8,931,659 B2	1/2015	Rhetat et al.
7,800,022 B2	9/2010	Kim	8,944,272 B2	2/2015	Chameroy et al.
7,838,799 B2	11/2010	Freedman	8,944,273 B2	2/2015	Chameroy et al.
7,875,836 B2	1/2011	Imura et al.	D723,323 S	3/2015	Carlson
D632,129 S	2/2011	Chen	8,973,770 B2	3/2015	He et al.
D637,861 S	5/2011	Degnan	8,985,372 B2	3/2015	Yang et al.
7,935,914 B2	5/2011	Imura	8,991,307 B2	3/2015	Grozinger et al.
7,964,824 B2	6/2011	Moon	D727,095 S	4/2015	Bak
			9,018,566 B2	4/2015	Wang
			D728,301 S	5/2015	Hack
			9,027,468 B2	5/2015	Rhetat et al.
			9,035,223 B2	5/2015	Noguchi et al.
			9,055,618 B2	6/2015	Bunzel et al.



(56)

## References Cited

## U.S. PATENT DOCUMENTS

9,057,526 B2	6/2015	Barritt	9,909,764 B2	3/2018	Bach
D737,623 S	9/2015	Hu et al.	9,924,830 B1	3/2018	Glucksman et al.
D738,676 S	9/2015	Accoceberry	D814,232 S	4/2018	Barquin et al.
9,119,501 B2	9/2015	Xie	D815,491 S	4/2018	Hollinger
9,125,513 B2	9/2015	Kim	9,930,990 B1	4/2018	Gupta et al.
9,138,106 B2	9/2015	Walker	D817,658 S *	5/2018	Cute ..... D6/403
D743,201 S	11/2015	Aderka	D817,697 S	5/2018	Zhao
9,177,460 B2	11/2015	Fissler	9,961,721 B2	5/2018	Guilleminot et al.
9,191,998 B2	11/2015	Hegedis et al.	9,962,029 B2	5/2018	Baraille et al.
9,220,362 B2	12/2015	Eades et al.	9,980,605 B2	5/2018	De Haas et al.
9,237,829 B2	1/2016	Alet Vidal et al.	D821,140 S	6/2018	Mirchandani et al.
D749,906 S	2/2016	Lee	D821,805 S	7/2018	Lee
D750,421 S	3/2016	Ho	10,016,085 B2	7/2018	Sapire
9,271,595 B2	3/2016	Lee	10,021,889 B2	7/2018	Vinett
9,295,354 B2	3/2016	Sloot et al.	10,034,578 B2	7/2018	Ahmed
D754,469 S	4/2016	Deters	D824,717 S	8/2018	Allen
9,301,644 B2	4/2016	Payen et al.	D826,638 S	8/2018	Zhang
9,314,134 B2	4/2016	Molnar	10,045,651 B2	8/2018	Huang
9,320,381 B2	4/2016	Chameroy et al.	10,051,986 B2	8/2018	Schultz et al.
9,339,145 B1	5/2016	Owczarzak	10,051,995 B2	8/2018	Buckley et al.
9,341,382 B2	5/2016	Kim	10,057,946 B2	8/2018	Mills et al.
9,351,495 B2	5/2016	McFadden	10,058,210 B2	8/2018	Palermo
9,353,954 B2	5/2016	Linnewiel	10,060,632 B2	8/2018	Lim et al.
9,414,713 B2	8/2016	Jinzhao	10,064,518 B2	9/2018	Xiao et al.
9,433,036 B2	8/2016	Kurtimoto et al.	10,076,206 B2	9/2018	Chameroy et al.
9,439,530 B2	9/2016	Logan et al.	D832,023 S	10/2018	Barberi et al.
D769,058 S	10/2016	Lee	D832,030 S	10/2018	Veldeman
9,456,713 B2	10/2016	Backaert et al.	10,088,371 B2	10/2018	Kaiser et al.
9,470,423 B2	10/2016	Jacob et al.	D833,204 S	11/2018	Lee
9,474,412 B2	10/2016	Fung et al.	10,117,546 B2	11/2018	Le Grand
D770,221 S	11/2016	Lee	10,123,656 B2	11/2018	Shanmugam
D772,648 S	11/2016	Palermo	10,130,205 B2	11/2018	Fung et al.
9,480,364 B2	11/2016	McKee et al.	D834,889 S	12/2018	Moon et al.
D774,350 S	12/2016	Mandil	10,154,750 B2	12/2018	Allemand et al.
D774,356 S	12/2016	Maiorana et al.	D838,535 S	1/2019	Garman
9,526,367 B2	12/2016	Anota et al.	D838,548 S	1/2019	Meller
9,585,509 B2	3/2017	Wassmus et al.	D842,649 S	3/2019	Mishan
9,596,954 B2	3/2017	Park	10,231,565 B2	3/2019	Song et al.
D784,076 S	4/2017	Constantieux	D845,072 S	4/2019	Colston et al.
9,615,691 B2	4/2017	Xiao	D846,335 S	4/2019	Yang et al.
9,615,692 B2	4/2017	Hoffmann et al.	10,244,883 B2	4/2019	Chameroy et al.
9,615,694 B2	4/2017	Yoshidome	D850,200 S	6/2019	Jiang
9,629,499 B2	4/2017	Kim	2002/0179587 A1	12/2002	Hui
9,629,500 B2	4/2017	Chance	2002/0185012 A1	12/2002	Yokoyama
9,636,618 B2	5/2017	Fung et al.	2003/0034027 A1	2/2003	Yamamoto et al.
9,642,487 B1	5/2017	McGinn	2003/0127447 A1	7/2003	Lin
9,648,975 B2	5/2017	Imura	2004/0035845 A1	2/2004	Moon et al.
9,648,985 B2	5/2017	Huang et al.	2004/0045446 A1	3/2004	Park
9,681,770 B2	6/2017	Backaert et al.	2004/0055474 A1	3/2004	Lekic et al.
9,681,773 B2	6/2017	McKee et al.	2004/0124197 A1	7/2004	Hasegawa
9,706,871 B2	7/2017	Matthijs	2004/0222208 A1	11/2004	Ko
9,717,364 B2	8/2017	Sladeczek	2005/0011370 A1	1/2005	Xu et al.
9,737,936 B2	8/2017	Linglin et al.	2005/0034716 A1	2/2005	Harbin
9,750,089 B2	8/2017	Wiedemann et al.	2005/0089318 A1	4/2005	Lai et al.
D797,492 S	9/2017	Shieh	2005/0223906 A1	10/2005	Xu
9,756,980 B1	9/2017	Li et al.	2005/0284305 A1	12/2005	Angue
9,763,531 B2	9/2017	Baraille et al.	2006/0081235 A1	4/2006	Lundh et al.
D801,106 S	10/2017	Mirchandani et al.	2007/0045284 A1	3/2007	Balk et al.
9,775,461 B2	10/2017	Yang et al.	2007/0095215 A1	5/2007	Ho et al.
9,795,250 B2	10/2017	Huang	2007/0125768 A1	6/2007	Kim et al.
9,801,491 B2	10/2017	Cohade et al.	2007/0158335 A1	7/2007	Mansbery
D802,987 S	11/2017	Corlay	2007/0199557 A1	8/2007	Von Kaenel, Jr.
9,814,355 B2	11/2017	Winter et al.	2007/0295221 A1	12/2007	Seurat Guiochet et al.
9,841,261 B2	12/2017	Raghavan et al.	2008/0022861 A1	1/2008	Ferron
9,854,932 B2	1/2018	Tiruvallur	2008/0078371 A1	4/2008	Boscaino
9,854,941 B2	1/2018	Bonaccorso	2008/0078755 A1	4/2008	Jeon et al.
9,861,231 B2	1/2018	Kim	2008/0083730 A1	4/2008	Dolgov et al.
9,867,234 B2	1/2018	Thomann et al.	2008/0095905 A1	4/2008	Sells et al.
9,872,582 B2	1/2018	Song et al.	2008/0099008 A1	5/2008	Bolton et al.
9,877,610 B2	1/2018	Bucher et al.	2008/0105137 A1	5/2008	Genslak et al.
D809,340 S	2/2018	Poon	2008/0142498 A1	6/2008	He et al.
9,883,768 B2	2/2018	Starflinger	2008/0163764 A1	7/2008	Payen et al.
9,888,811 B2	2/2018	Zwanenburg et al.	2008/0206420 A1	8/2008	McFadden
9,895,028 B2	2/2018	Gerard et al.	2008/0213447 A1	9/2008	Payen et al.
9,900,936 B2	2/2018	Imm et al.	2008/0216671 A1	9/2008	Chen
			2008/0223224 A1	9/2008	Martin
			2008/0290090 A1	11/2008	Kindler et al.
			2008/0314258 A1	12/2008	Martin
			2009/0011101 A1	1/2009	Doherty et al.



(56)

## References Cited

## U.S. PATENT DOCUMENTS

2009/0013988	A1	1/2009	Kim et al.	2015/0040775	A1	2/2015	Shieh
2009/0064868	A1	3/2009	Cartossi	2015/0083107	A1	3/2015	Busch et al.
2009/0095166	A1	4/2009	Jian	2015/0122137	A1	5/2015	Chang
2009/0134140	A1	5/2009	Vern Der Weij	2015/0136769	A1	5/2015	Quinn et al.
2009/0223380	A1	9/2009	Van Aken	2015/0201788	A1	7/2015	Douma et al.
2009/0223386	A1	9/2009	Edwards	2015/0201806	A1	7/2015	Yoshidome
2009/0250452	A1	10/2009	Tse	2015/0208845	A1	7/2015	Robbins et al.
2010/0089248	A1	4/2010	Jones	2015/0208858	A1	7/2015	Robbins et al.
2010/0136194	A1	6/2010	Schutte	2015/0223627	A1	8/2015	Li et al.
2010/0147159	A1	6/2010	Fossati	2015/0226438	A1	8/2015	Ozyurt et al.
2010/0147824	A1	6/2010	Bonuso et al.	2015/0250187	A1	9/2015	Sakane et al.
2010/0206289	A1	8/2010	Larsen et al.	2015/0257208	A1	9/2015	Li et al.
2010/0282097	A1	11/2010	Schulte	2015/0292750	A1	10/2015	Delrue et al.
2011/0003048	A1	1/2011	Sugimoto et al.	2015/0305093	A1	10/2015	Smith et al.
2011/0095015	A1	4/2011	Kao	2015/0313399	A1	11/2015	Park
2011/0168158	A1	4/2011	Barkhouse	2015/0351578	A1	12/2015	Song et al.
2011/0120319	A1	5/2011	Chang	2015/0366402	A1	12/2015	Wu et al.
2011/0126719	A1	6/2011	Valance	2016/0007644	A1	1/2016	Hack et al.
2011/0146653	A1	6/2011	Kitatani	2016/0007789	A1	1/2016	Tiruvallur
2011/0147376	A1	6/2011	Ueda et al.	2016/0029829	A1	2/2016	Klein
2011/0248020	A1	10/2011	Yuan	2016/0033141	A1	2/2016	Rizzuto
2011/0268153	A1	11/2011	He et al.	2016/0037955	A1	2/2016	Kim
2012/0000317	A1	1/2012	McLemore	2016/0045067	A1	2/2016	Liao
2012/0003364	A1	1/2012	Kling et al.	2016/0051077	A1	2/2016	Sloot et al.
2012/0009317	A1	1/2012	McLemore	2016/0051078	A1	2/2016	Jenkins et al.
2012/0012584	A1	1/2012	Chameroy et al.	2016/0051086	A1	2/2016	De' Longhi
2012/0024164	A1	2/2012	Park et al.	2016/0081509	A1	3/2016	Delrue et al.
2012/0024169	A1	2/2012	Hsu	2016/0100707	A1	4/2016	Huang
2012/0040067	A1	2/2012	Baraille et al.	2016/0100713	A1	4/2016	De Haas et al.
2012/0048843	A1	3/2012	Feng et al.	2016/0113442	A1	4/2016	De Haas et al.
2012/0125313	A1	5/2012	Van Der Weij	2016/0120363	A1	5/2016	Zwanenburg et al.
2012/0174797	A1	7/2012	Froza	2016/0120364	A1	5/2016	De Haas et al.
2012/0181363	A1	7/2012	Huang	2016/0123660	A1	5/2016	Peng
2012/0192726	A1	8/2012	Clearman et al.	2016/0165676	A1	6/2016	Imm et al.
2012/0217236	A1	8/2012	Takagi	2016/0174749	A1	6/2016	Eades et al.
2012/0217252	A1	8/2012	Jung	2016/0174764	A1	6/2016	Xiao
2012/0222665	A1	9/2012	Ahmed	2016/0174771	A1	6/2016	Benoit et al.
2012/0318149	A1	12/2012	Ahmed	2016/0183722	A1	6/2016	Fisher
2013/0019759	A1	1/2013	Tumenbatur et al.	2016/0206139	A1	6/2016	Johnson
2013/0074702	A1	3/2013	Difante	2016/0206140	A1	6/2016	Johnson et al.
2013/0092145	A1	4/2013	Murphy et al.	2016/0192808	A1	7/2016	Van Der Burg et al.
2013/0104875	A1	5/2013	Schultz et al.	2016/0198882	A1	7/2016	Linglin
2013/0180413	A1	7/2013	Tjerkgaast et al.	2016/0198883	A1	7/2016	Wang et al.
2013/0180986	A1	7/2013	He et al.	2016/0206131	A1	7/2016	Chien
2013/0196038	A1	8/2013	Liu	2016/0219653	A1	7/2016	Kim et al.
2013/0255509	A1	10/2013	He et al.	2016/0220057	A1	8/2016	Smith et al.
2013/0276643	A1	10/2013	Krolick et al.	2016/0235078	A1	8/2016	Farina et al.
2013/0298781	A1	11/2013	Ganuza et al.	2016/0235239	A1	8/2016	Patadia
2013/0305933	A1	11/2013	Heidrich et al.	2016/0253080	A1	9/2016	Ban et al.
2013/0333685	A1	12/2013	Jeong et al.	2016/0270596	A1	9/2016	Allemand et al.
2014/0021191	A1	1/2014	Moon et al.	2016/0278563	A1	9/2016	Choudhary
2014/0083306	A1	3/2014	Lee	2016/0278565	A1	9/2016	Chameroy et al.
2014/0083992	A1	3/2014	Linnewiel	2016/0281994	A1	9/2016	Nuessler
2014/0102315	A1	4/2014	Park	2016/0309956	A1	10/2016	Glucksman
2014/0157994	A1	6/2014	Ryan et al.	2016/0316525	A1	10/2016	Vainionpaa
2014/0175085	A1	6/2014	Yang et al.	2016/0316968	A1	11/2016	Linglin
2014/0199459	A1	7/2014	Jackson et al.	2016/0324359	A1	11/2016	Aboujassoum et al.
2014/0201688	A1	7/2014	Guilleminot et al.	2016/0327280	A1	11/2016	Smith et al.
2014/0220196	A1	8/2014	Veloo	2016/0345766	A1	12/2016	Sapire
2014/0227411	A1	8/2014	Popeil et al.	2016/0353913	A1	12/2016	Chameroy et al.
2014/0245898	A1	9/2014	Froza	2016/0353914	A1	12/2016	Chameroy et al.
2014/0251158	A1	9/2014	Yang et al.	2016/0353915	A1	12/2016	Chameroy et al.
2014/0318385	A1	10/2014	Kim	2016/0353916	A1	12/2016	Chameroy et al.
2014/0318386	A1	10/2014	Kim	2016/0360922	A1	12/2016	Xiao et al.
2014/0318387	A1	10/2014	Kim	2016/0367061	A1	12/2016	Chou
2014/0318388	A1	10/2014	Kim	2016/0374510	A1	12/2016	Albizuri Landazabal
2014/0318389	A1	10/2014	Kim	2017/0000293	A1	1/2017	Sladecsek et al.
2014/0322417	A1	10/2014	Kim	2017/0020334	A1	1/2017	Sorenson et al.
2014/0348987	A1	11/2014	Cheng et al.	2017/0055770	A1	3/2017	Case
2014/0353316	A1	12/2014	Lin	2017/0065127	A1	3/2017	Bonaccorso
2014/0360384	A1	12/2014	Kim	2017/0071034	A1	3/2017	Metz
2014/0366746	A1	12/2014	Tsai	2017/0079475	A1	3/2017	Buckley et al.
2014/0370176	A1	12/2014	Imura et al.	2017/0089590	A1	3/2017	Bruin-Slot et al.
2014/0377417	A1	12/2014	Martinez	2017/0099977	A1	4/2017	Liu
2015/0000535	A1	1/2015	Yoshidome et al.	2017/0099984	A1	4/2017	Koetz
				2017/0099990	A1	4/2017	Magnouloux et al.
				2017/0099995	A1	4/2017	Magnouloux
				2017/0119192	A1	5/2017	Sanserverino
				2017/0172335	A1	6/2017	Colas et al.



(56)

## References Cited

## U.S. PATENT DOCUMENTS

2017/0181564 A1 6/2017 He et al.  
 2017/0199658 A1 7/2017 Stoufer et al.  
 2017/0231415 A1 8/2017 Cheng et al.  
 2017/0231430 A1 8/2017 Moon et al.  
 2017/0245674 A1 8/2017 Imura  
 2017/0245683 A1 8/2017 Chen et al.  
 2017/0245686 A1 8/2017 Man  
 2017/0251872 A1 9/2017 Li et al.  
 2017/0251874 A1 9/2017 Sladeczek  
 2017/0280914 A1 10/2017 Kumar et al.  
 2017/0290452 A1 10/2017 Guillaume et al.  
 2017/0295993 A1 10/2017 Li et al.  
 2017/0303740 A1 10/2017 Bonaccorso  
 2017/0332823 A1 11/2017 Sanseverino  
 2017/0360238 A1 12/2017 Bogazzi  
 2017/0360254 A1 12/2017 Muhr et al.  
 2017/0360255 A1 12/2017 Karau  
 2017/0367514 A1 12/2017 In 'T Groen et al.  
 2017/0370595 A1 12/2017 Yang et al.  
 2018/0000285 A1 1/2018 Backus et al.  
 2018/0007738 A1 1/2018 Knappenberger et al.  
 2018/0007744 A1 1/2018 Nonaka et al.  
 2018/0028017 A1 2/2018 Wu  
 2018/0035698 A1 2/2018 McNerney et al.  
 2018/0073739 A1 3/2018 Dumenil  
 2018/0078089 A1 3/2018 Sauer et al.  
 2018/0103796 A1 4/2018 Park  
 2018/0110355 A1 4/2018 Huang et al.  
 2018/0116264 A1 5/2018 De Winter et al.  
 2018/0116438 A1 5/2018 He et al.  
 2018/0125293 A1 5/2018 McNerney et al.  
 2018/0125294 A1 5/2018 Conte et al.  
 2018/0140126 A1 5/2018 Van Dillen  
 2018/0143086 A1 5/2018 Stoufer et al.  
 2018/0153329 A1 6/2018 Glucksman et al.  
 2018/0160840 A1 6/2018 De' Longhi  
 2018/0160849 A1 6/2018 Hebert, Jr. et al.  
 2018/0177322 A1 6/2018 Kim  
 2018/0177343 A1 6/2018 Bonaccorso  
 2018/0184843 A1 7/2018 Kim et al.  
 2018/0184848 A1 7/2018 De' Longhi  
 2018/0192825 A1 7/2018 Popeil et al.  
 2018/0199756 A1 7/2018 Huang  
 2018/0206672 A1 7/2018 Grace et al.  
 2018/0206677 A1 7/2018 Ivarsson et al.  
 2018/0220498 A1 8/2018 Jeon et al.  
 2018/0220842 A1 8/2018 Delrue et al.  
 2018/0228318 A1 8/2018 Zwanenburg et al.  
 2018/0238560 A1 8/2018 Deng et al.  
 2018/0255967 A1 9/2018 Haas et al.  
 2018/0255971 A1 9/2018 Moon et al.  
 2018/0263084 A1 9/2018 Yoshino et al.  
 2018/0266697 A1 9/2018 Dash et al.  
 2018/0271321 A1 9/2018 Delrue et al.  
 2018/0271323 A1 9/2018 Zhang et al.  
 2018/0279832 A1 10/2018 Ohta et al.  
 2018/0289212 A1 10/2018 Sladeczek et al.  
 2018/0296019 A1 10/2018 Kim et al.  
 2018/0303285 A1 10/2018 Cheng  
 2018/0317691 A1 11/2018 Huang  
 2018/0317692 A1 11/2018 Huang  
 2018/0317693 A1 11/2018 Huang  
 2018/0325313 A1 11/2018 De' Longhi et al.  
 2018/0325318 A1 11/2018 De Longhi et al.  
 2018/0325322 A1 11/2018 De'Longhi et al.  
 2018/0333004 A1 11/2018 DeLonghi  
 2018/0333005 A1 11/2018 Fritz et al.  
 2018/0344085 A1 12/2018 Dutter  
 2018/0347829 A1 12/2018 Martini et al.  
 2018/0353007 A1 12/2018 Eberhart et al.  
 2018/0353010 A1 12/2018 Delrue et al.  
 2018/0359823 A1 12/2018 Shin et al.  
 2019/0000267 A1 1/2019 Li et al.  
 2019/0008316 A1 1/2019 Kim et al.  
 2019/0021142 A1 1/2019 Mizuta et al.

2019/0045964 A1 2/2019 Gill et al.  
 2019/0045973 A1 2/2019 Gill et al.  
 2019/0053521 A1 2/2019 Tian et al.  
 2019/0059647 A1 2/2019 Floessholzer  
 2019/0069719 A1 3/2019 Huang et al.  
 2019/0082876 A1 3/2019 Shi et al.  
 2020/0093329 A1 3/2020 Glucksman

## FOREIGN PATENT DOCUMENTS

CN 2389593 Y 8/2000  
 CN 2450993 Y 10/2001  
 CN 2469839 Y 1/2002  
 CN 2479871 Y 3/2002  
 CN 1139352 C 2/2004  
 CN 1148142 C 5/2004  
 CN 1158963 C 7/2004  
 CN 2719176 y 8/2005  
 CN 1883351 A 12/2006  
 CN 2855256 Y 1/2007  
 CN 2904903 Y 5/2007  
 CN 1981682 A 6/2007  
 CN 1985727 A 6/2007  
 CN 1989884 A 7/2007  
 CN 100998476 A 7/2007  
 CN 101023842 A 8/2007  
 CN 101053485 A 10/2007  
 CN 200987595 y 12/2007  
 CN 101099635 A 1/2008  
 CN 101108064 A 1/2008  
 CN 101112291 A 1/2008  
 CN 101112292 A 1/2008  
 CN 101112293 A 1/2008  
 CN 101142448 A 3/2008  
 CN 101185556 A 5/2008  
 CN 100401957 C 7/2008  
 CN 101209179 A 7/2008  
 CN 101209180 A 7/2008  
 CN 201079267 Y 7/2008  
 CN 100425186 C 10/2008  
 CN 100428906 C 10/2008  
 CN 101273834 A 10/2008  
 CN 201139427 y 10/2008  
 CN 101322614 A 12/2008  
 CN 201197609 Y 2/2009  
 CN 100464682 C 3/2009  
 CN 100469289 C 3/2009  
 CN 201207144 Y 3/2009  
 CN 101432608 A 5/2009  
 CN 101438929 A 5/2009  
 CN 100496350 C 6/2009  
 CN 100522018 C 8/2009  
 CN 100531628 C 8/2009  
 CN 100534363 C 9/2009  
 CN 101518409 A 9/2009  
 CN 100559999 C 11/2009  
 CN 201365839 Y 12/2009  
 CN 100588351 C 2/2010  
 CN 101669761 A 3/2010  
 CN 101766443 A 7/2010  
 CN 101791190 A 8/2010  
 CN 101828856 A 9/2010  
 CN 101856086 A 10/2010  
 CN 201602600 U 10/2010  
 CN 201624512 U 11/2010  
 CN 101936550 A 1/2011  
 CN 101940273 A 1/2011  
 CN 101420893 B 2/2011  
 CN 101977536 A 2/2011  
 CN 201888709 U 7/2011  
 CN 201929758 U 8/2011  
 CN 201948771 U 8/2011  
 CN 102178445 A 9/2011  
 CN 102178464 A 9/2011  
 CN 201958652 U 9/2011  
 CN 101305890 b 11/2011  
 CN 102240164 A 11/2011  
 CN 102307500 A 1/2012  
 CN 102313306 A 2/2012



(56)

## References Cited

## FOREIGN PATENT DOCUMENTS

CN	102349791	A	2/2012	CN	204016055	U	12/2014
CN	202151310	U	2/2012	CN	204016056	U	12/2014
CN	102368936	A	3/2012	CN	204049362	U	12/2014
CN	202184614	U	4/2012	CN	204091768	U	1/2015
CN	101692958	B	5/2012	CN	104323708	A	2/2015
CN	202207075	U	5/2012	CN	104367182	A	2/2015
CN	202234720	U	5/2012	CN	204133165	U	2/2015
CN	202234761	U	5/2012	CN	204133291	U	2/2015
CN	202312886	U	7/2012	CN	204158183	U	2/2015
CN	102670079	A	9/2012	CN	104433841	A	3/2015
CN	202408428	U	9/2012	CN	204192406	U	3/2015
CN	202408455	U	9/2012	CN	104490294	A	4/2015
CN	102755120	A	10/2012	CN	102917623	B	5/2015
CN	102824120	A	12/2012	CN	104613515	A	5/2015
CN	202619362	U	12/2012	CN	104622274	A	5/2015
CN	102100481	B	1/2013	CN	104676681	A	6/2015
CN	102883641	A	1/2013	CN	104688019	A	6/2015
CN	202636678	U	1/2013	CN	104706212	A	6/2015
CN	103006045	A	4/2013	CN	104754992	A	7/2015
CN	103006092	A	4/2013	CN	104757872	A	7/2015
CN	202858889	U	4/2013	CN	104814665	A	8/2015
CN	103142128	A	6/2013	CN	104856561	A	8/2015
CN	103142151	A	6/2013	CN	104856563	A	8/2015
CN	103169371	A	6/2013	CN	204580991	U	8/2015
CN	103179884	A	6/2013	CN	104873098	A	9/2015
CN	202960194	U	6/2013	CN	104887063	A	9/2015
CN	202981682	U	6/2013	CN	204636063	U	9/2015
CN	203000535	U	6/2013	CN	104983318	A	10/2015
CN	103188947	A	7/2013	CN	104997394	A	10/2015
CN	103188970	A	7/2013	CN	204697804	U	10/2015
CN	103220947	A	7/2013	CN	105011741	A	11/2015
CN	103222807	A	7/2013	CN	105030035	A	11/2015
CN	203041954	U	7/2013	CN	105054772	B	11/2015
CN	203041955	U	7/2013	CN	105054773	B	11/2015
CN	102342739	B	8/2013	CN	204734374	U	11/2015
CN	203122175	U	8/2013	CN	204743846	U	11/2015
CN	103299132	A	9/2013	CN	204765197	U	11/2015
CN	203195497	U	9/2013	CN	204797615	U	11/2015
CN	203195499	U	9/2013	CN	204797616	U	11/2015
CN	103375826	A	10/2013	CN	103813738	B	12/2015
CN	203234602	U	10/2013	CN	105105624	A	12/2015
CN	203234613	U	10/2013	CN	105105626	A	12/2015
CN	102319018	B	11/2013	CN	105167591	B	12/2015
CN	203302862	U	11/2013	CN	105167592	A	12/2015
CN	103445669	A	12/2013	CN	105193301	A	12/2015
CN	102397005	B	1/2014	CN	204839219	U	12/2015
CN	103491830		1/2014	CN	204889693	U	12/2015
CN	203407931	U	1/2014	CN	105212693	B	1/2016
CN	103649643	A	3/2014	CN	105212730	A	1/2016
CN	103750730	A	4/2014	CN	105231811	A	1/2016
CN	203539138	U	4/2014	CN	105231812	A	1/2016
CN	203597772	U	5/2014	CN	105231813	A	1/2016
CN	203615383	U	5/2014	CN	105266565	A	1/2016
CN	203634023	U	6/2014	CN	105266577	A	1/2016
CN	203647141	U	6/2014	CN	204995259	U	1/2016
CN	203662545	U	6/2014	CN	105286496	A	2/2016
CN	103892696	A	7/2014	CN	105286498	A	2/2016
CN	103948308	A	7/2014	CN	105286627	A	2/2016
CN	203693372	U	7/2014	CN	105326332	A	2/2016
CN	203723888	U	7/2014	CN	105342454	A	2/2016
CN	104000478	A	8/2014	CN	205018878	U	2/2016
CN	203762926	U	8/2014	CN	105380512	A	3/2016
CN	203776718	U	8/2014	CN	105380513	A	3/2016
CN	203776719	U	8/2014	CN	105380514	A	3/2016
CN	203776729	U	8/2014	CN	105411378	A	3/2016
CN	203828675	U	9/2014	CN	105411379	A	3/2016
CN	203873602	U	10/2014	CN	105433778	A	3/2016
CN	203885286	U	10/2014	CN	105433779	A	3/2016
CN	203953373	U	11/2014	CN	105451610	A	3/2016
CN	203970073	U	12/2014	CN	105455628	A	4/2016
CN	203970160	U	12/2014	CN	105455664	A	4/2016
CN	203987492	U	12/2014	CN	105455671	A	4/2016
CN	203987520	U	12/2014	CN	105476461	A	4/2016
CN	203987550	U	12/2014	CN	105476464	A	4/2016
CN	203987551	U	12/2014	CN	105476472	A	4/2016
				CN	105476491	A	4/2016
				CN	105496184	A	4/2016
				CN	105496185	A	4/2016
				CN	105496224	A	4/2016

(56)

## References Cited

## FOREIGN PATENT DOCUMENTS

CN	205126014	U	4/2016	CN	106388572	A	2/2017
CN	105534269	A	5/2016	CN	106419486	A	2/2017
CN	105559571	A	5/2016	CN	106419521	A	2/2017
CN	105595792	A	5/2016	CN	106419524	A	2/2017
CN	105595803	A	5/2016	CN	102805554	B	3/2017
CN	205197727	U	5/2016	CN	106473623	A	3/2017
CN	205214967	U	5/2016	CN	106490967	A	3/2017
CN	205215045	U	5/2016	CN	106510449	A	3/2017
CN	102440681	B	6/2016	CN	206026100	U	3/2017
CN	102783908	B	6/2016	CN	206044349	U	3/2017
CN	103648337	B	6/2016	CN	106551617	A	4/2017
CN	105615638	A	6/2016	CN	106580074	A	4/2017
CN	105615639	A	6/2016	CN	206062888	U	4/2017
CN	105615686	A	6/2016	CN	206102391	U	4/2017
CN	105640299	A	6/2016	CN	206119969	U	4/2017
CN	105640302	A	6/2016	CN	106618154	A	5/2017
CN	105640309	A	6/2016	CN	106667244	A	5/2017
CN	105640351	A	6/2016	CN	106691171	A	5/2017
CN	105662112	A	6/2016	CN	206166726	U	5/2017
CN	105662125	A	6/2016	CN	106805744	A	6/2017
CN	105662126	A	6/2016	CN	106805746	A	6/2017
CN	105662127	A	6/2016	CN	106805747	A	6/2017
CN	105708312	A	6/2016	CN	106805749	A	6/2017
CN	205322075	U	6/2016	CN	106805750	A	6/2017
CN	104605727	B	7/2016	CN	106805752	A	6/2017
CN	105725730	A	7/2016	CN	106820951	A	6/2017
CN	105725829	A	7/2016	CN	106820954	A	6/2017
CN	105768859	A	7/2016	CN	106821017	A	6/2017
CN	105768860	A	7/2016	CN	106852641	A	6/2017
CN	103908166	B	8/2016	CN	106859298	A	6/2017
CN	105816023	A	8/2016	CN	106913201	A	7/2017
CN	105832176	A	8/2016	CN	106923655	A	7/2017
CN	105852667	A	8/2016	CN	106943000	A	7/2017
CN	105852668	A	8/2016	CN	106943002	A	7/2017
CN	105902144	A	8/2016	CN	106955017	A	7/2017
CN	105902150	A	8/2016	CN	106974548	A	7/2017
CN	205410811	U	8/2016	CN	106983360	A	7/2017
CN	205425108	U	8/2016	CN	107019418	A	8/2017
CN	205433281	U	8/2016	CN	107019419	A	8/2017
CN	205433317	U	8/2016	CN	107019420	A	8/2017
CN	205433320	U	8/2016	CN	107019423	A	8/2017
CN	105919411	A	9/2016	CN	107048976	A	8/2017
CN	105919417	A	9/2016	CN	107048991	A	8/2017
CN	105935244	A	9/2016	CN	107048993	A	8/2017
CN	105935258	A	9/2016	CN	107105914	A	8/2017
CN	105972653	A	9/2016	CN	104334066	B	9/2017
CN	205568641	U	9/2016	CN	107136910	A	9/2017
CN	205568772	U	9/2016	CN	107136911	A	9/2017
CN	205597052	U	9/2016	CN	107149395	A	9/2017
CN	105982529	A	10/2016	CN	107149398	A	9/2017
CN	105996737	A	10/2016	CN	105142473	B	10/2017
CN	105996752	A	10/2016	CN	107224188	A	10/2017
CN	105996753	A	10/2016	CN	107224197	A	10/2017
CN	106037448	A	10/2016	CN	107232962	A	10/2017
CN	106037457	A	10/2016	CN	107259978	A	10/2017
CN	106037458	A	10/2016	CN	107290094	A	10/2017
CN	106073481	A	11/2016	CN	107296485	A	10/2017
CN	106073517	A	11/2016	CN	107296486	A	10/2017
CN	106108627	A	11/2016	CN	107296487	A	10/2017
CN	106108631	A	11/2016	CN	107296488	A	10/2017
CN	106166030	A	11/2016	CN	107296489	A	10/2017
CN	205671926	U	11/2016	CN	107296490	A	10/2017
CN	205671927	U	11/2016	CN	107296493	A	10/2017
CN	106175412	A	12/2016	CN	107296494	A	10/2017
CN	106175476	A	12/2016	CN	104643954	B	11/2017
CN	106213979	A	12/2016	CN	107307729	A	11/2017
CN	106235878	A	12/2016	CN	107307730	A	11/2017
CN	205831665	U	12/2016	CN	107361637	A	11/2017
CN	106264085	A	1/2017	CN	107397431	A	11/2017
CN	106264095	A	1/2017	CN	107411540	A	12/2017
CN	106343895	A	1/2017	CN	107440490	A	12/2017
CN	205860134	U	1/2017	CN	107468052	A	12/2017
CN	106377158	A	2/2017	CN	107495849	A	12/2017
CN	106377159	A	2/2017	CN	107495856	A	12/2017
CN	106388565	A	2/2017	CN	107510356	A	12/2017
				CN	107510379	A	12/2017
				CN	206687606	U	12/2017
				CN	106213986	B	1/2018
				CN	107550258	A	1/2018



(56)

## References Cited

## FOREIGN PATENT DOCUMENTS

CN	107616686	A	1/2018	CN	108244997	A	7/2018
CN	107647763	A	2/2018	CN	108244998	A	7/2018
CN	107647769	A	2/2018	CN	108244999	A	7/2018
CN	107647771	A	2/2018	CN	108245000	A	7/2018
CN	107647772	A	2/2018	CN	108261055	A	7/2018
CN	107647777	A	2/2018	CN	108261056	A	7/2018
CN	107660996	A	2/2018	CN	108261061	A	7/2018
CN	107660997	A	2/2018	CN	108272336	A	7/2018
CN	107684336	A	2/2018	CN	108272338	A	7/2018
CN	107684337	A	2/2018	CN	108294616	A	7/2018
CN	107684338	A	2/2018	CN	108309035	A	7/2018
CN	107684339	A	2/2018	CN	108324096	A	7/2018
CN	107684340	A	2/2018	CN	106388570	B	8/2018
CN	107684341	A	2/2018	CN	106419517	B	8/2018
CN	107684342	A	2/2018	CN	108354444	A	8/2018
CN	107692806	A	2/2018	CN	108354466	A	8/2018
CN	107702838	A	2/2018	CN	108378678	A	8/2018
CN	107713732	A	2/2018	CN	108378690	A	8/2018
CN	107713733	A	2/2018	CN	108402888	A	8/2018
CN	107713734	A	2/2018	CN	108402889	A	8/2018
CN	107726388	A	2/2018	CN	108402920	A	8/2018
CN	106419522	B	3/2018	CN	108420304	A	8/2018
CN	107752726	A	3/2018	CN	108433517	A	8/2018
CN	107752748	A	3/2018	CN	108433529	A	8/2018
CN	107752751	A	3/2018	CN	108451351	A	8/2018
CN	107752788	A	3/2018	CN	108451388	A	8/2018
CN	107773021	A	3/2018	CN	108464732	A	8/2018
CN	107773026	A	3/2018	CN	207754989	U	8/2018
CN	107773029	A	3/2018	CN	207755036	U	8/2018
CN	107773090	A	3/2018	CN	106539491	B	9/2018
CN	107788820	A	3/2018	CN	107019415	B	9/2018
CN	107788827	A	3/2018	CN	107019416	B	9/2018
CN	107811499	A	3/2018	CN	108477987	A	9/2018
CN	107811517	A	3/2018	CN	108497908	A	9/2018
CN	107811518	A	3/2018	CN	108497914	A	9/2018
CN	107822492	A	3/2018	CN	108497918	A	9/2018
CN	107822494	A	3/2018	CN	108497942	A	9/2018
CN	107822496	A	3/2018	CN	108523647	A	9/2018
CN	107836981	A	3/2018	CN	108523649	A	9/2018
CN	107836986	A	3/2018	CN	108552969	A	9/2018
CN	107836988	A	3/2018	CN	108552989	A	9/2018
CN	207084680	U	3/2018	CN	108567309	A	9/2018
CN	107874584	A	4/2018	CN	108567321	A	9/2018
CN	107874599	A	4/2018	CN	108567322	A	9/2018
CN	107874601	A	4/2018	CN	108577514	A	9/2018
CN	107874602	A	4/2018	CN	106264094	B	10/2018
CN	107898351	A	4/2018	CN	108606627	A	10/2018
CN	107928388	A	4/2018	CN	108618592	A	10/2018
CN	107928395	A	4/2018	CN	108618593	A	10/2018
CN	107951369	A	4/2018	CN	108618594	A	10/2018
CN	107951376	A	4/2018	CN	108618595	A	10/2018
CN	107951407	A	4/2018	CN	108618597	A	10/2018
CN	107969907	A	5/2018	CN	108618651	A	10/2018
CN	107969908	A	5/2018	CN	108634771	A	10/2018
CN	107981713	A	5/2018	CN	108634777	A	10/2018
CN	107997571	A	5/2018	CN	108634807	A	10/2018
CN	108013742	A	5/2018	CN	108652431	A	10/2018
CN	108013743	A	5/2018	CN	108652432	A	10/2018
CN	108030404	A	5/2018	CN	108670021	A	10/2018
CN	108041976	A	5/2018	CN	108670023	A	10/2018
CN	108095570	A	6/2018	CN	108703644	A	10/2018
CN	108113501	A	6/2018	CN	108703645	A	10/2018
CN	108143256	A	6/2018	CN	108703675	A	10/2018
CN	108143259	A	6/2018	CN	106580073	B	11/2018
CN	108143260	A	6/2018	CN	108720548	A	11/2018
CN	108143261	A	6/2018	CN	108720577	A	11/2018
CN	108143262	A	6/2018	CN	108720581	A	11/2018
CN	108143263	A	6/2018	CN	108720584	A	11/2018
CN	108143264	A	6/2018	CN	108720585	A	11/2018
CN	108158429	A	6/2018	CN	108720586	A	11/2018
CN	108209547	A	6/2018	CN	108720633	A	11/2018
CN	104207651	B	7/2018	CN	108732958	A	11/2018
CN	106175423	A	7/2018	CN	108771466	A	11/2018
CN	108244994	A	7/2018	CN	108784323	A	11/2018
CN	108244995	A	7/2018	CN	108784324	A	11/2018
				CN	108784330	A	11/2018
				CN	108784401	A	11/2018
				CN	108814274	A	11/2018
				CN	108836104	A	11/2018



(56)

## References Cited

## FOREIGN PATENT DOCUMENTS

CN	108836105	A	11/2018	WO	2017050693	A2	3/2017
CN	108836107	A	11/2018	WO	2017063872	A1	4/2017
CN	108836108	A	11/2018	WO	2017072068	al	5/2017
CN	108836131	A	11/2018	WO	2017074119	A1	5/2017
CN	108851966	A	11/2018	WO	2017076797	A1	5/2017
CN	108851969	A	11/2018	WO	2017081420	A1	5/2017
CN	108888087	A	11/2018	WO	2017085026	A1	5/2017
CN	108888099	A	11/2018	WO	2017085671	A1	5/2017
CN	108903620	A	11/2018	WO	2017085673	A1	5/2017
CN	108903621	A	11/2018	WO	2017086543	A1	5/2017
CN	106419520	B	12/2018	WO	2017092062	A1	6/2017
CN	106419526	B	12/2018	WO	2017092063	A1	6/2017
CN	108926239	A	12/2018	WO	2017094968	A1	6/2017
CN	108926249	A	12/2018	WO	2017097790	A1	6/2017
CN	108937520	A	12/2018	WO	2017104892	A1	6/2017
CN	108937525	A	12/2018	WO	2017104894	A1	6/2017
CN	108937556	A	12/2018	WO	2017104895	A1	6/2017
CN	108937558	A	12/2018	WO	2017104896	A1	6/2017
CN	108937559	A	12/2018	WO	2017104898	A1	6/2017
CN	108937560	A	12/2018	WO	2017104900	A1	6/2017
CN	108955959	A	12/2018	WO	2017105076	A2	6/2017
CN	108968659	A	12/2018	WO	2017111425	A1	6/2017
CN	108968660	A	12/2018	WO	2017121691	A1	7/2017
CN	108968662	A	12/2018	WO	2017127655	A1	7/2017
CN	108968663	A	12/2018	WO	2017144795	A1	8/2017
CN	108968667	A	12/2018	WO	2017149519	A1	9/2017
CN	108968668	A	12/2018	WO	2017152518	A1	9/2017
CN	108968669	A	12/2018	WO	2017153360	A1	9/2017
CN	108991918	A	12/2018	WO	2017158068	A1	9/2017
CN	108991919	A	12/2018	WO	2017166317	A1	10/2017
CN	109008595	A	12/2018	WO	2017177007	A1	10/2017
CN	109008598	A	12/2018	WO	2017177423	A1	10/2017
CN	208259529	U	12/2018	WO	2017178229	A1	10/2017
CN	106562666	B	1/2019	WO	2017178650	A1	10/2017
CN	106606293	B	1/2019	WO	2017178739	A1	10/2017
CN	106724784	B	1/2019	WO	2017179804	A1	10/2017
CN	106820956	B	1/2019	WO	2017191377	A1	11/2017
CN	106820957	B	1/2019	WO	2017191395	A1	11/2017
CN	107019417	B	1/2019	WO	2017195777	A1	11/2017
CN	109247837	A	1/2019	WO	2017197482	A1	11/2017
CN	106388566	B	3/2019	WO	2017198815	A1	11/2017
CN	107174116	B	3/2019	WO	2017198848	A1	11/2017
CN	107174117	B	3/2019	WO	2017201530	A1	11/2017
CN	109393957	A	3/2019	WO	2017202641	A1	11/2017
CN	105640308	A	6/2019	WO	2017209465	A1	12/2017
EP	1767860	A1	3/2007	WO	2017211045	A1	12/2017
JP	2014200627	A	10/2014	WO	2017213330	A2	12/2017
JP	2014204770	A	10/2014	WO	2017213423	A1	12/2017
WO	8911773	A1	11/1989	WO	2017215926	A1	12/2017
WO	9837796	A1	9/1998	WO	2017215988	A1	12/2017
WO	9952328	A1	10/1999	WO	2018004226	A1	1/2018
WO	0044096		7/2000	WO	2018007218	A1	1/2018
WO	0049839	A1	8/2000	WO	2018014806	A1	1/2018
WO	2006122643	A1	11/2006	WO	2018015695	A1	1/2018
WO	2009043812	A1	4/2009	WO	2017077571	A1	2/2018
WO	2015006891	A1	1/2015	WO	2018018670	A1	2/2018
WO	2015028940	A1	3/2015	WO	2018023863	A1	2/2018
WO	2015081549	A1	6/2015	WO	2018024781	A1	2/2018
WO	2016007002	A1	1/2016	WO	2018024782	A1	2/2018
WO	2016028549	A1	2/2016	WO	2018024783	A1	2/2018
WO	2016091063	A1	6/2016	WO	2018026041	A1	2/2018
WO	2016141009	A1	9/2016	WO	2018026906	A1	2/2018
WO	2016148492	A1	9/2016	WO	2018026928	A1	2/2018
WO	2016154114	A1	9/2016	WO	2018032540	A1	2/2018
WO	2016165198	al	10/2016	WO	2018032541	A1	2/2018
WO	2016171385	A1	10/2016	WO	2018032542	A1	2/2018
WO	2016182975	A1	11/2016	WO	2018032589	A1	2/2018
WO	2016189440		12/2016	WO	2018032648	A1	2/2018
WO	2016193008	A1	12/2016	WO	2018037177	A1	3/2018
WO	2016193643	A1	12/2016	WO	2018040250	A1	3/2018
WO	2017005533	A1	1/2017	WO	2018041536	A1	3/2018
WO	2017039091	A1	3/2017	WO	2018045643	A1	3/2018
WO	2017045387	A1	3/2017	WO	2018050520	A1	3/2018
WO	2017049635	A1	3/2017	WO	2018050838	A1	3/2018
WO	2017049717	A1	3/2017	WO	2018050838	A1	3/2018
				WO	2018055838	A1	4/2018
				WO	2018058569	A1	4/2018
				WO	2018058740	A1	4/2018
				WO	2018059994	A1	4/2018
				WO	2018060260	A1	4/2018



(56)

References Cited

FOREIGN PATENT DOCUMENTS

WO	2018060273	A1	4/2018
WO	2018060331	A1	4/2018
WO	2018065424	A1	4/2018
WO	2018068376	A1	4/2018
WO	2018068425	A1	4/2018
WO	2018068976	A1	4/2018
WO	2018076164	A1	5/2018
WO	2018076166	A1	5/2018
WO	2018076415	A1	5/2018
WO	2018082131	A1	5/2018
WO	2018090287	A1	5/2018
WO	2018093004	A1	5/2018
WO	2018095247	A1	5/2018
WO	2018095420	A1	5/2018
WO	2018095949	A1	5/2018
WO	2018120561	A1	5/2018
WO	2017104893	A1	6/2018
WO	2018099233	A1	6/2018
WO	2018102128	A1	6/2018
WO	2018107522	A1	6/2018
WO	2018107973	A1	6/2018
WO	2018116056	A1	6/2018
WO	2018116057	A1	6/2018
WO	2018121166	A1	7/2018
WO	2018121199	A1	7/2018
WO	2018133993	A1	7/2018
WO	2018137832	A1	8/2018
WO	2018140954	A1	8/2018
WO	2018147640	A1	8/2018
WO	2018165698	A1	9/2018
WO	2018197720	A1	11/2018
WO	2018207221	A1	11/2018
WO	2018220659	A1	12/2018
WO	2018223713	A1	12/2018
WO	2019032876	A1	2/2019
WO	2019032878	A1	2/2019

OTHER PUBLICATIONS

U.S. Appl. No. 29/659,577, filed Aug. 9, 2018; Restriction Requirement dated Oct. 1, 2019; pp. 1-8.  
 U.S. Appl. No. 29/660,495, filed Aug. 21, 2018; Food Preparation Device and Parts Thereof; Notice of Allowance dated Oct. 25, 2019; pp. 1-9.  
 U.S. Appl. No. 29/660,472, filed Aug. 21, 2018; Restriction Requirement dated Oct. 1, 2019; pp. 1-8.  
 U.S. Appl. No. 29/660,481, filed Aug. 21, 2018; Notice of Allowance dated Sep. 26, 2019; pp. 1-8.

U.S. Appl. No. 29/660,489, filed Aug. 21, 2018; Ex Parte Quayle Action dated Sep. 30, 2019; pp. 1-8.  
 U.S. Appl. No. 29/679,920, filed Feb. 11, 2019; User Interface for a Food Preparation Device; Notice of Allowance dated Oct. 23, 2019; pp. 1-10.  
 U.S. Appl. No. 29/679,917, filed Feb. 11, 2019; Notice of Allowance dated Sep. 25, 2019; pp. 1-9.  
 Notification of Transmittal of the International Search Report of the International Searching Authority, or the Declaration. PCT/US2018/046077, dated Dec. 19, 2018, 7 pages.  
 Notification of Transmittal of the International Search Report of the International Searching Authority, or the Declaration; PCT/US2018/046079; dated Jan. 2, 2019, 7 pages.  
 Notification of Transmittal of the Written Opinion of the International Searching Authority, or the Declaration. PCT/US2018/046077, dated Dec. 19, 2018, 10 pages.  
 Notification of Transmittal of the Written Opinion of the International Searching Authority, or the Declaration; PCT/US2018/046079; dated Jan. 2, 2019, 10 pages.  
 WO2018122652A1; Jul. 5, 2018; English Abstract Only (3 Pages).  
 U.S. Appl. No. 29/679,923, filed Feb. 11, 2019; Restriction Requirement dated May 13, 2020; 8 pages.  
 U.S. Appl. No. 29/679,924, filed Feb. 11, 2019; Restriction Requirement dated May 13, 2020; 8 pages.  
 U.S. Appl. No. 29/679,925, filed Feb. 11, 2019; Restriction Requirement dated May 13, 2020; 8 pages.  
 U.S. Appl. No. 29/679,922, filed Feb. 11, 2019; Restriction Requirement dated May 13, 2020; 8 pages.  
 U.S. Appl. No. 29/659,576, filed Aug. 9, 2018; Restriction Requirement dated May 19, 2020; 8 pages.  
 DeLonghi, [online]; [retrieved on Mar. 18, 2019]; retrieved from the Internet <https://www.delonghi.com/en-us/products/kitchen/kitchen-appliances/low-oil-fryer-and-multicooker/multifry-fh11631bk-0125392006?TabSegment=support#supportDeLonghi>, "FH1163 FH1363 MultiFry", DeLonghi Instruction Manual, www.delonghi.com, 5712511041/05.15, pp. 1-11.  
 Gill et al.; U.S. Appl. No. 16/059,876, filed Aug. 9, 2018; Cooking Device and Components Thereof.  
 Gill et al.; U.S. Appl. No. 16/059,874, filed Aug. 9, 2018; Cooking Device and Components Thereof.  
 U.S. Appl. No. 29/653,863, filed Jun. 19, 2018; Restriction Requirement dated Jun. 2, 2020; 7 pages.  
 Ninja Kitchen; "Ninja Foodi: Pro Grill"; Announced Aug. 15, 2019 [online]; Site visited Jun. 15, 2020; 14 pages; Available from Internet URL: <https://direct.ninjakitchen.com/16/products/ninja-foodi-grill-ag302/16/microsite/ogxvii/?opt=2>.  
 U.S. Appl. No. 29/733,284, filed Apr. 30, 2020; Non-Final Office Action dated Jun. 25, 2020; 10 pages.

\* cited by examiner



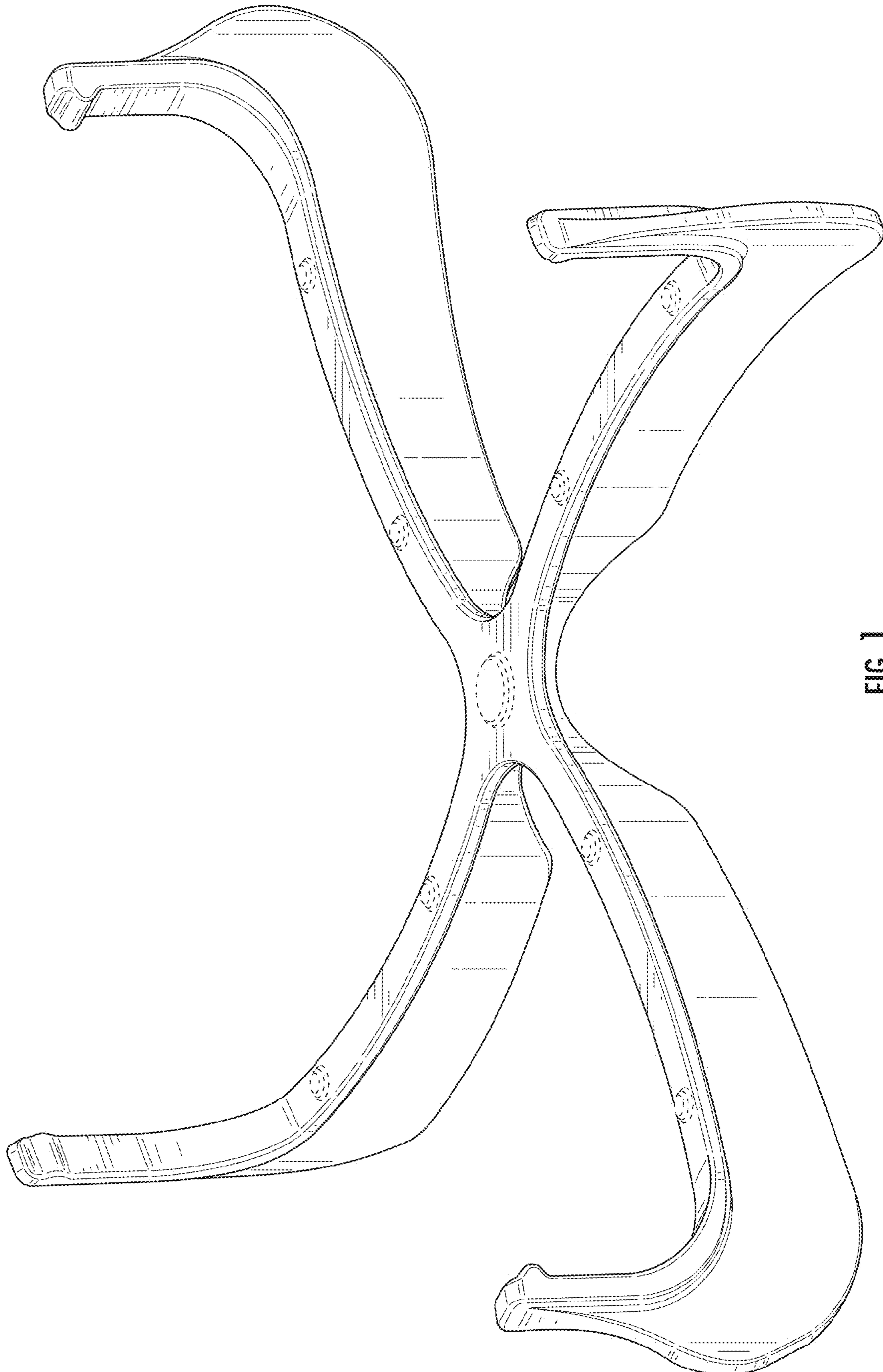


FIG. 1



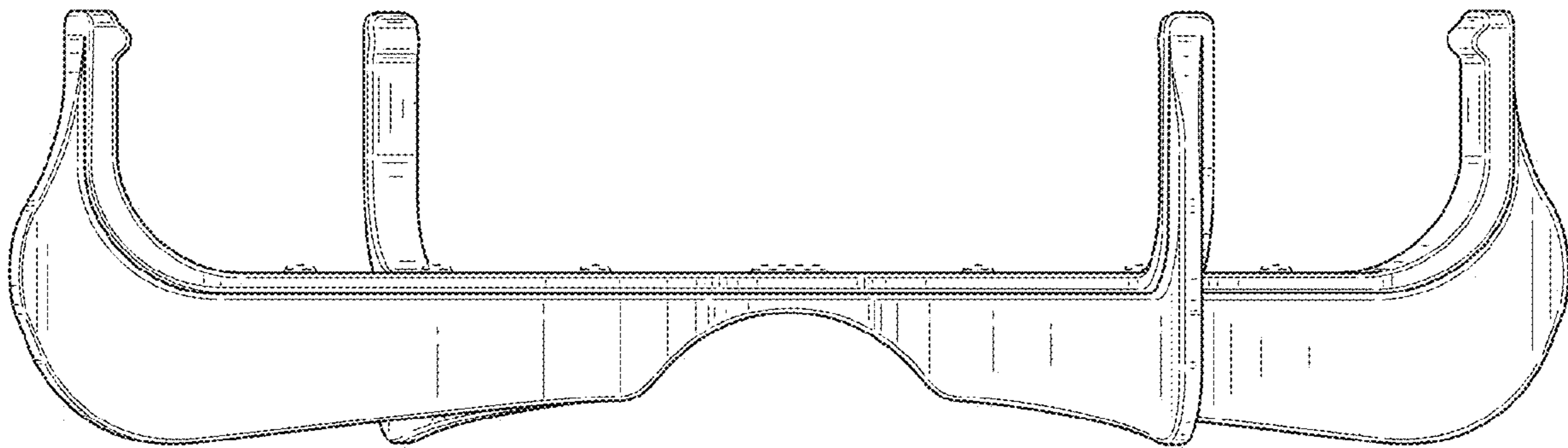


FIG. 2

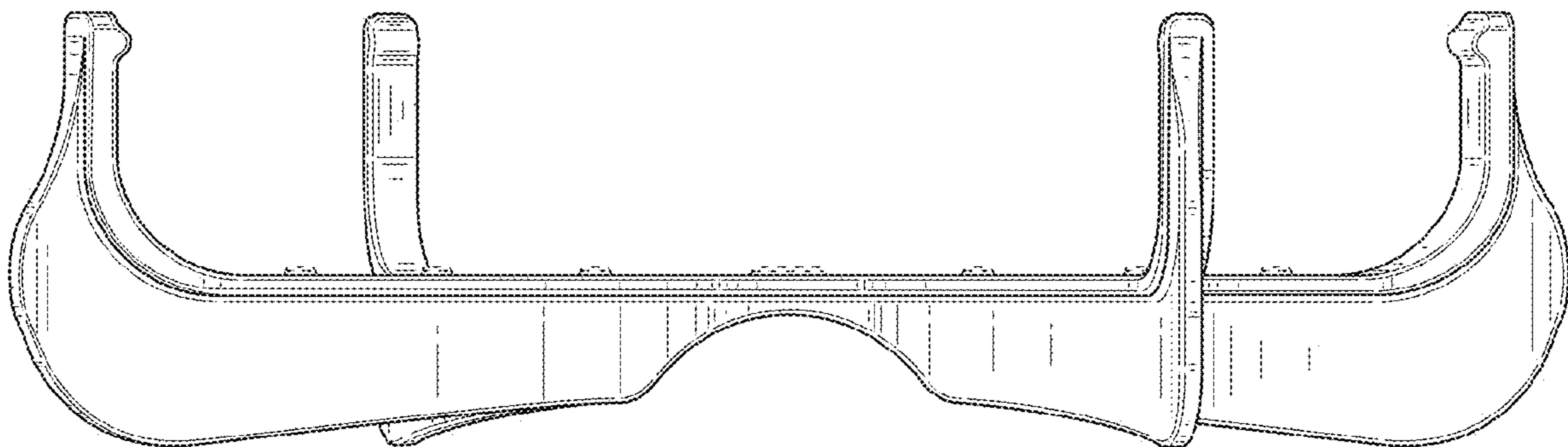


FIG. 3



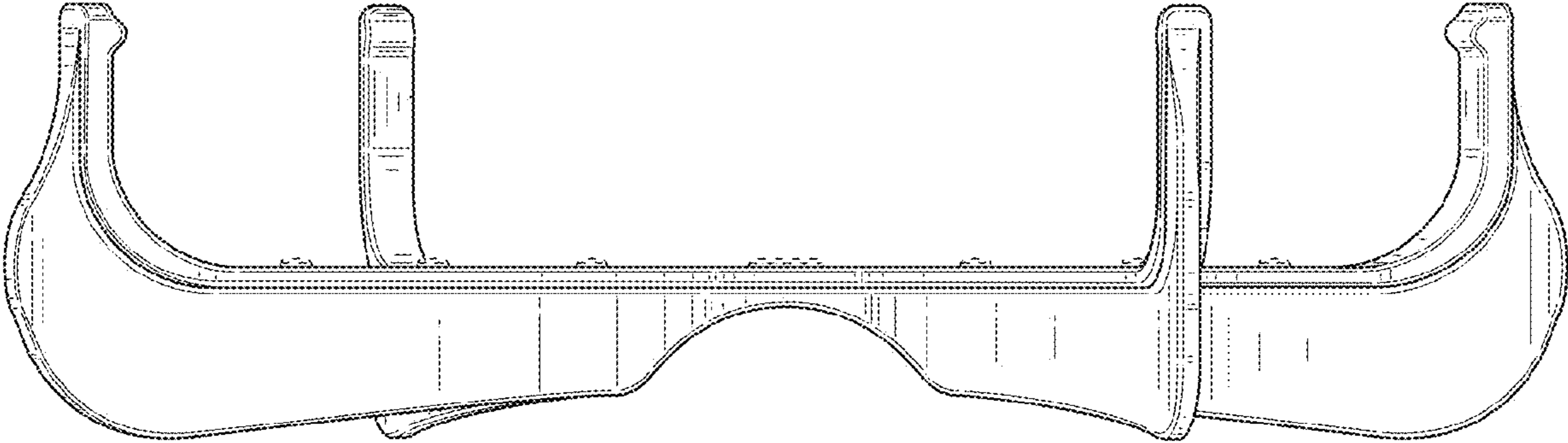


FIG. 4

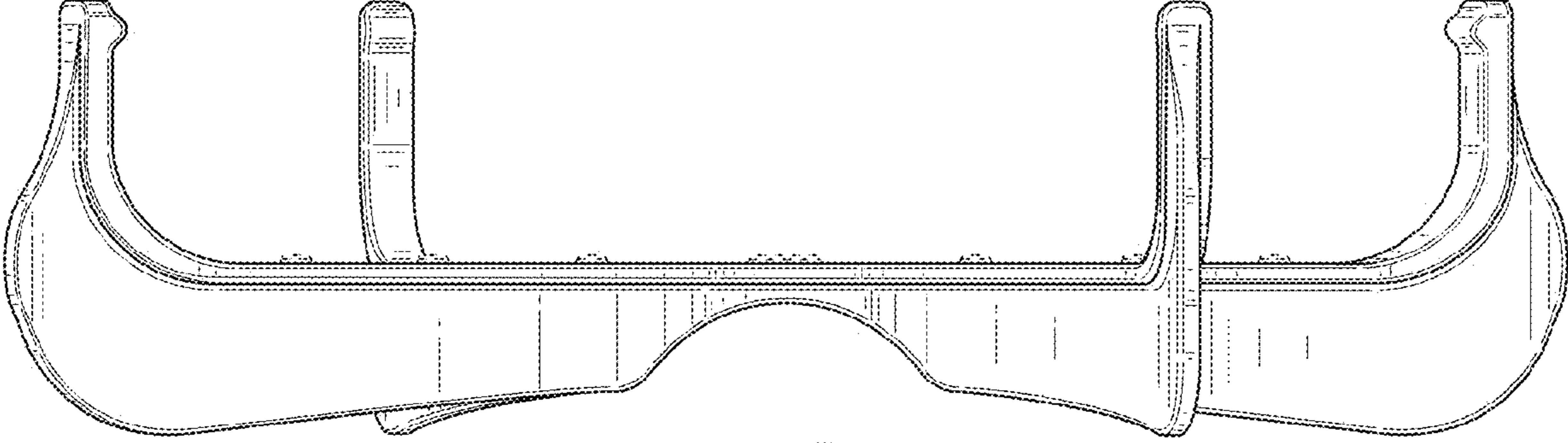


FIG. 5



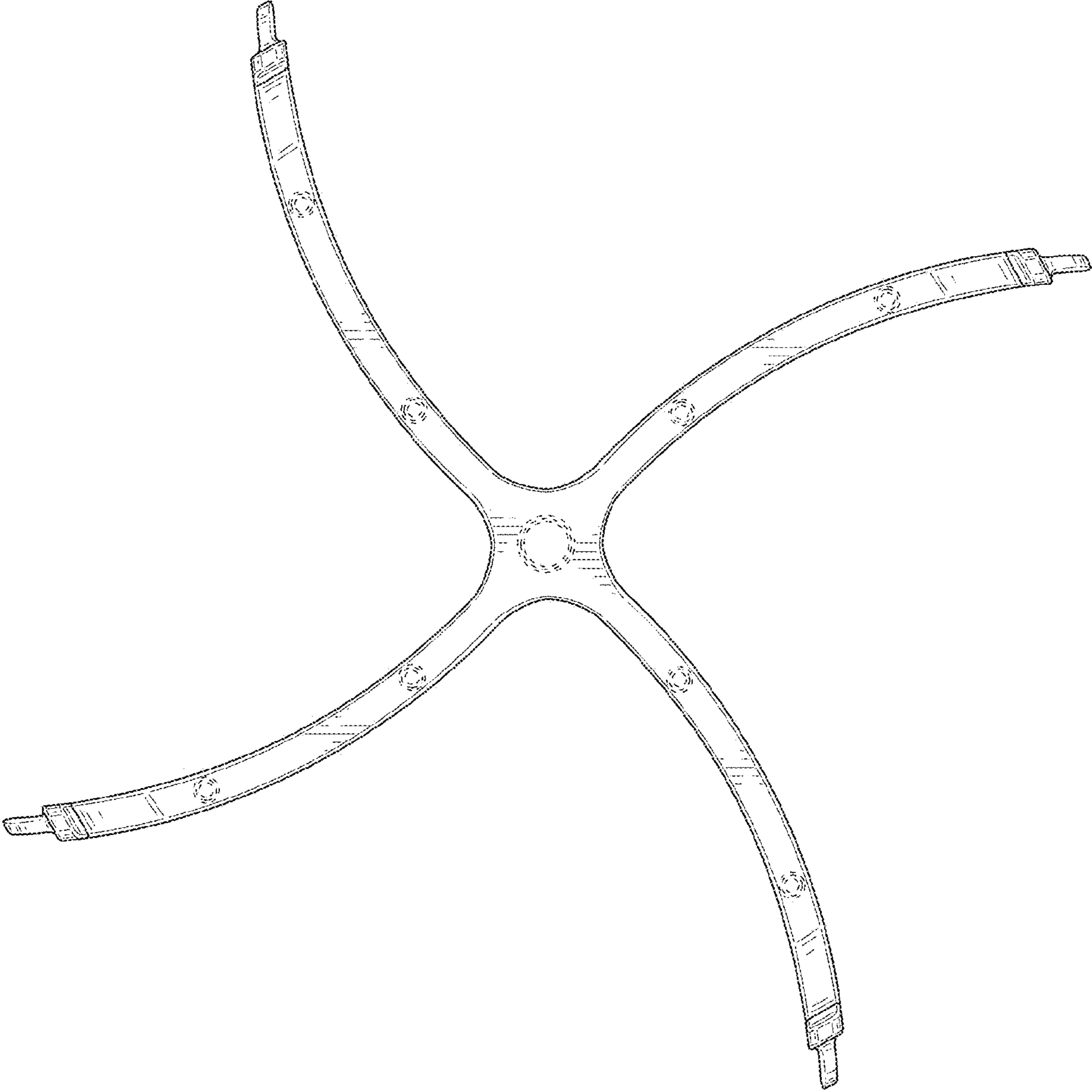


FIG. 6

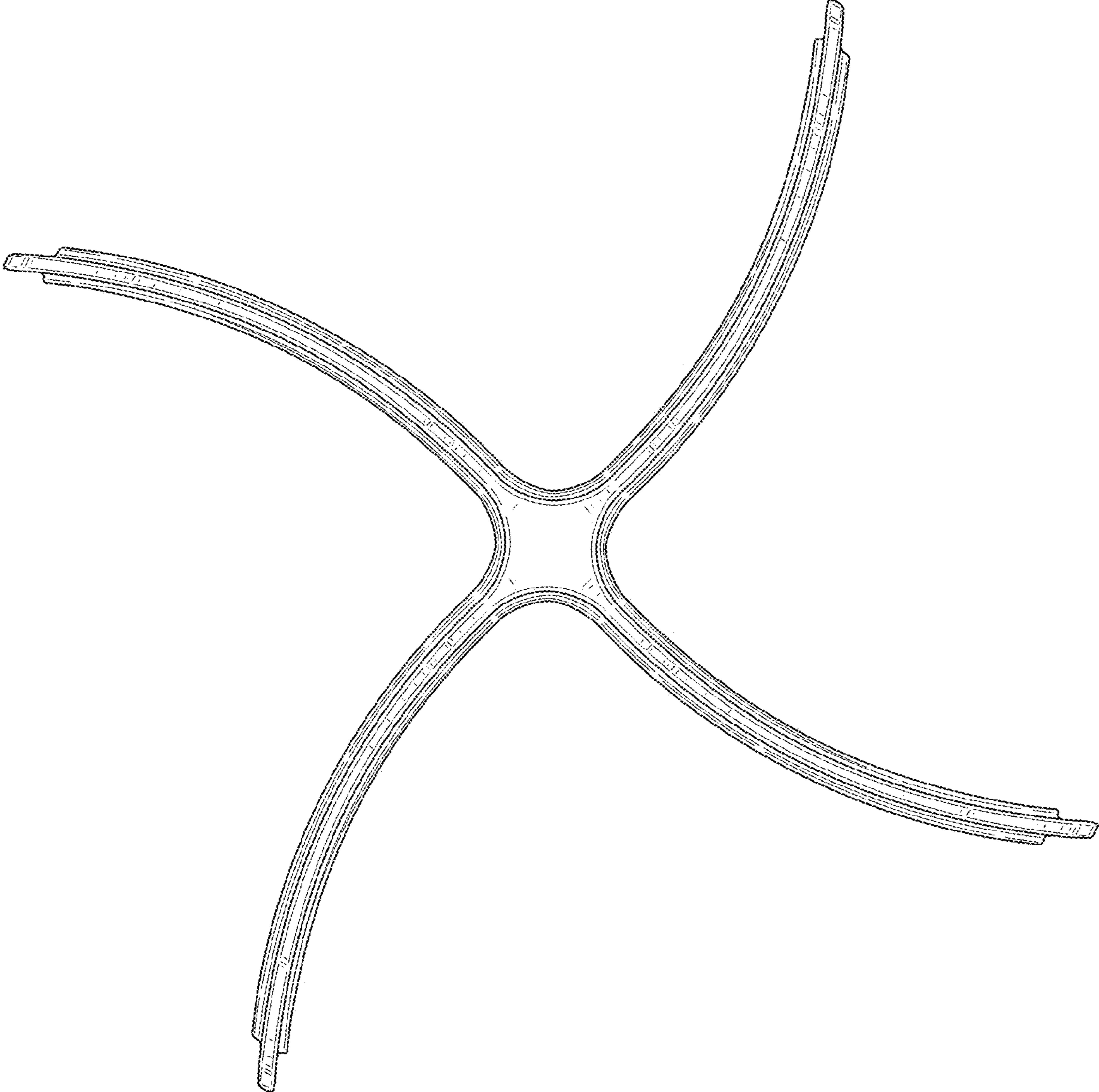


FIG. 7