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(12) **United States Design Patent** (10) **Patent No.:** **US D845,851 S**
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(54) **REARVIEW DEVICE**
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3,179,845 A 4/1965 Kulwiec
3,280,701 A 10/1966 Donnelly et al.
3,581,276 A 5/1971 Newman
(Continued)

FOREIGN PATENT DOCUMENTS

DE 102010064082 A1 6/2012
EP 0513476 11/1992
(Continued)

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

OTHER PUBLICATIONS

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D21/433, 495; D6/300
CPC B60R 1/006; B60R 1/008; B60R 1/02;
B60R 1/10; B60Q 1/2665
See application file for complete search history.

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(57) **CLAIM**

I claim the ornamental design for a rearview device, as
shown and described.

DESCRIPTION

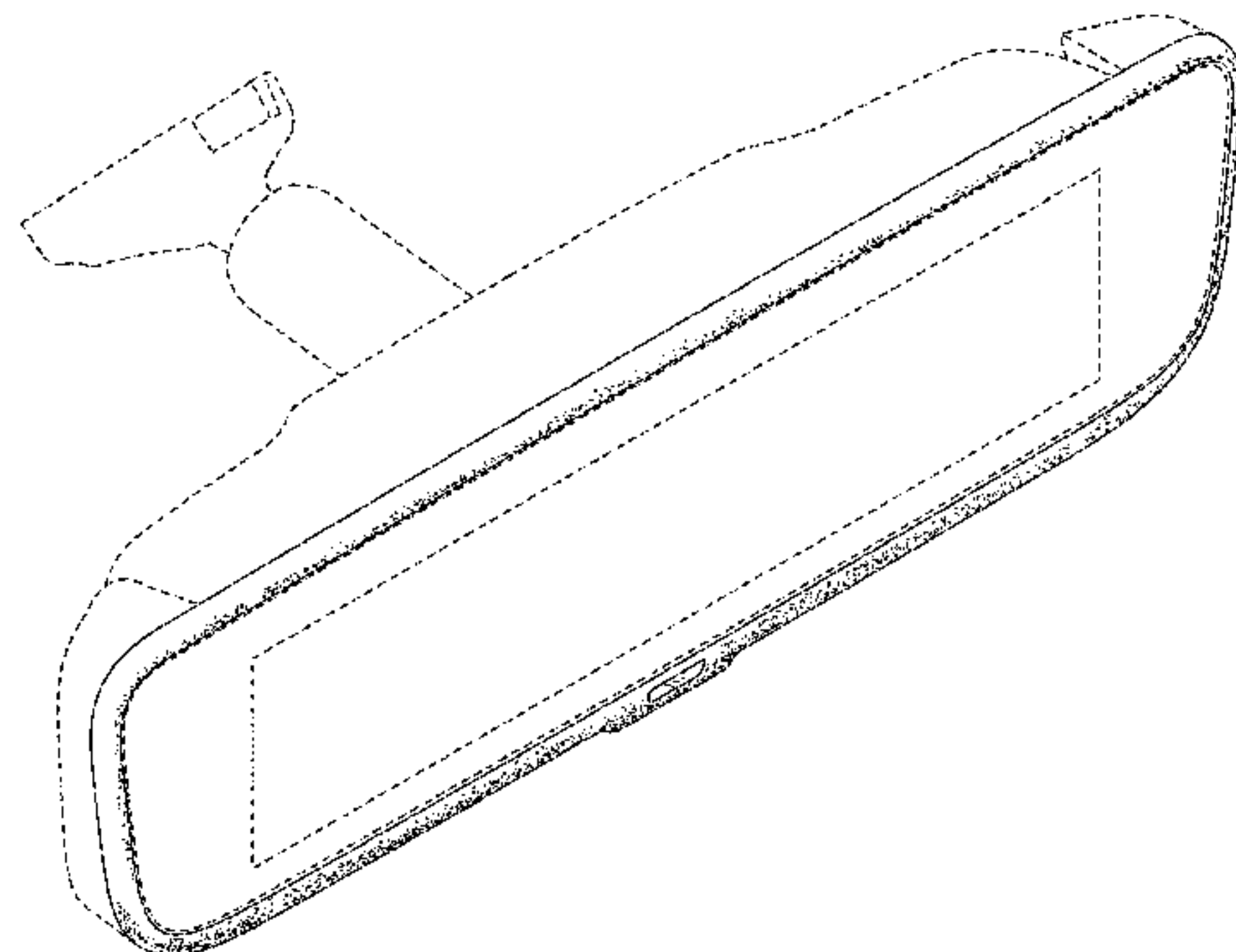
(56) **References Cited**

U.S. PATENT DOCUMENTS

2,131,888 A 10/1938 Harris
2,632,040 A 3/1953 Rabinow
2,661,177 A * 12/1953 Hofer B60R 1/086
248/291.1
2,827,594 A 3/1958 Rabinow
2,839,964 A * 6/1958 Ponce B60R 1/086
359/606
2,843,017 A * 7/1958 Ponce B60R 1/086
359/606
2,900,872 A * 8/1959 Mazur B60R 1/086
359/606
2,964,999 A * 12/1960 Mazur B01J 8/245
359/606

FIG. 1 is a front perspective view of the rearview device of
the present disclosure;
FIG. 2 is a front elevational view of the rearview device of
FIG. 1;
FIG. 3 is a side elevational view of the rearview device of
FIG. 1;
FIG. 4 is a top plan view of the rearview device of FIG. 1;
and,
FIG. 5 is a bottom plan view of the rearview device of FIG.
1.
The broken lines shown in FIGS. 1-5 represent unclaimed
portions of the article and form no part of the claimed
design.

1 Claim, 5 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

3,586,422 A *	6/1971	Kagami	B60R 1/086 359/606	5,282,077 A	1/1994	Byker	
3,663,819 A	5/1972	Hicks et al.		5,289,321 A	2/1994	Secor	
3,837,129 A	9/1974	Losell		5,294,376 A	3/1994	Byker	
D239,932 S *	5/1976	Kim	D12/187	5,296,924 A	3/1994	Blancard et al.	
4,109,235 A	8/1978	Bouthors		D346,356 S	4/1994	Leu	
4,139,801 A	2/1979	Linares		5,304,980 A	4/1994	Maekawa	
4,151,526 A	4/1979	Hinachi et al.		5,329,206 A	7/1994	Slotkowski et al.	
4,193,668 A *	3/1980	Skinner	B60R 1/02 359/606	5,336,448 A	8/1994	Byker	
4,214,266 A	7/1980	Myers		5,347,261 A	9/1994	Adell	
4,236,099 A	11/1980	Rosenblum		5,347,459 A	9/1994	Greenspan et al.	
4,257,703 A	3/1981	Goodrich		5,355,146 A	10/1994	Chiu et al.	
4,258,979 A	3/1981	Mahin		5,379,104 A	1/1995	Takao	
4,277,804 A	7/1981	Robison		5,379,146 A	1/1995	Defendini	
4,286,308 A	8/1981	Wolff		5,381,309 A	1/1995	Borchardt	
4,310,851 A	1/1982	Pierrat		5,386,285 A	1/1995	Asayama	
4,319,806 A *	3/1982	Brandenburg	B60R 1/086 359/606	5,396,054 A	3/1995	Krichever et al.	
4,357,558 A	11/1982	Massoni et al.		5,402,170 A	3/1995	Parulski et al.	
4,376,909 A	3/1983	Tagami et al.		5,408,357 A *	4/1995	Beukema	B60R 1/12 345/7
4,436,371 A *	3/1984	Wood	B60R 1/086 359/603	5,414,461 A	5/1995	Kishi et al.	
4,479,173 A	10/1984	Rumpakis		5,416,318 A	5/1995	Hegy	
4,499,451 A	2/1985	Suzuki et al.		5,418,610 A	5/1995	Fischer	
D283,998 S	5/1986	Tanaka		5,421,940 A	6/1995	Cornils et al.	
4,599,544 A	7/1986	Martin		5,424,952 A	6/1995	Asayama	
4,630,904 A	12/1986	Pastore		5,426,294 A	6/1995	Kobayashi et al.	
4,638,287 A	1/1987	Umebayashi et al.		5,428,464 A	6/1995	Silverbrook	
4,645,975 A	2/1987	Meitzler et al.		5,430,450 A	7/1995	Holmes	
4,665,321 A	5/1987	Chang et al.		5,434,407 A	7/1995	Bauer et al.	
4,665,430 A	5/1987	Hiroyasu		5,448,397 A	9/1995	Tonar	
4,692,798 A	9/1987	Seko et al.		5,451,822 A	9/1995	Bechtel et al.	
4,716,298 A	12/1987	Etoh		5,452,004 A	9/1995	Roberts	
4,727,290 A	2/1988	Smith et al.		5,469,298 A	11/1995	Suman et al.	
4,740,838 A	4/1988	Mase et al.		5,471,515 A	11/1995	Fossum et al.	
4,768,135 A	8/1988	Kretschmer et al.		5,475,441 A	12/1995	Parulski et al.	
D300,312 S *	3/1989	Skogler	D12/188	5,475,494 A	12/1995	Nishida et al.	
4,862,037 A	8/1989	Farber et al.		5,481,268 A	1/1996	Higgins	
4,891,559 A	1/1990	Matsumoto et al.		5,483,346 A	1/1996	Butzer	
4,902,108 A	2/1990	Byker		5,483,453 A	1/1996	Uemura et al.	
4,910,591 A	3/1990	Petrossian et al.		5,485,155 A	1/1996	Hibino	
4,930,742 A	6/1990	Schofield et al.		5,485,378 A	1/1996	Franke et al.	
4,934,273 A	6/1990	Endriz		5,488,496 A	1/1996	Pine	
4,967,319 A	10/1990	Seko		5,508,592 A	4/1996	Lapatovich et al.	
5,005,213 A	4/1991	Hanson et al.		5,515,448 A	5/1996	Nishitani	
5,008,946 A	4/1991	Ando		5,521,760 A *	5/1996	De Young	B60R 1/086 248/467
5,027,200 A	6/1991	Petrossian et al.		5,523,811 A	6/1996	Wada et al.	
5,036,437 A	7/1991	Macks		5,530,421 A	6/1996	Marshall et al.	
5,052,163 A	10/1991	Czekala		5,535,144 A	7/1996	Kise	
5,066,112 A	11/1991	Lynam et al.		5,537,003 A	7/1996	Bechtel et al.	
5,069,535 A	12/1991	Baucke et al.		5,541,590 A	7/1996	Nishio	
5,072,154 A	12/1991	Chen		5,541,724 A	7/1996	Hoashi	
5,073,012 A	12/1991	Lynam		5,550,677 A	8/1996	Schofield et al.	
5,076,673 A	12/1991	Lynam et al.		5,554,912 A	9/1996	Thayer et al.	
5,086,253 A	2/1992	Lawler		5,574,443 A	11/1996	Hsieh	
5,096,287 A	3/1992	Kakinami et al.		5,574,463 A	11/1996	Shirai et al.	
5,115,346 A	5/1992	Lynam		5,576,975 A	11/1996	Sasaki et al.	
5,121,200 A	6/1992	Choi et al.		5,587,929 A	12/1996	League et al.	
5,124,549 A	6/1992	Michaels et al.		5,592,146 A	1/1997	Kover, Jr. et al.	
5,128,799 A	7/1992	Byker		5,602,542 A	2/1997	Windmann et al.	
5,151,824 A	9/1992	O'Farrell		5,614,788 A	3/1997	Mullins et al.	
5,158,638 A	10/1992	Osanami et al.		5,615,023 A	3/1997	Yang	
5,166,681 A	11/1992	Bottesch et al.		5,617,085 A	4/1997	Tsutsumi et al.	
5,182,502 A	1/1993	Slotkowski et al.		5,621,460 A	4/1997	Hatlestad et al.	
5,187,383 A	2/1993	Taccetta et al.		5,634,709 A	6/1997	Iwama	
5,197,562 A	3/1993	Kakinami et al.		5,642,238 A	6/1997	Sala	
5,230,400 A	7/1993	Kakainami et al.		5,646,614 A	7/1997	Abersfelder et al.	
5,235,178 A	8/1993	Hegy		5,649,756 A	7/1997	Adams et al.	
5,243,417 A	9/1993	Pollard		5,650,765 A	7/1997	Park	
5,253,109 A *	10/1993	O'Farrell	B60R 1/088 250/206	5,660,454 A	8/1997	Mori et al.	
5,278,693 A	1/1994	Theiste		5,666,028 A	9/1997	Bechtel et al.	
5,280,380 A	1/1994	Byker		5,670,935 A	9/1997	Schofield et al.	
				5,679,283 A	10/1997	Tonar	
				5,680,123 A	10/1997	Lee	
				5,682,267 A	10/1997	Tonar	
				5,684,473 A	11/1997	Hibino et al.	
				5,689,370 A	11/1997	Tonar	
				5,707,129 A	1/1998	Kobayashi	
				5,708,410 A *	1/1998	Blank	B60K 35/00 340/438

(56)

References Cited

U.S. PATENT DOCUMENTS

5,708,857 A	1/1998	Ishibashi	6,049,171 A	4/2000	Stam et al.
5,710,565 A	1/1998	Shirai et al.	6,051,956 A	4/2000	Nakashimo
5,714,751 A	2/1998	Chen	6,060,989 A	5/2000	Gehlot
5,715,093 A	2/1998	Schierbeek et al.	6,061,002 A	5/2000	Weber et al.
5,729,194 A	3/1998	Spears et al.	6,062,920 A	5/2000	Jordan
5,736,816 A	4/1998	Strenke et al.	6,064,508 A	5/2000	Forgette et al.
5,742,026 A	4/1998	Dickinson	6,064,509 A	5/2000	Tonar et al.
5,745,050 A	4/1998	Nakagawa	6,067,111 A	5/2000	Hahn et al.
5,751,211 A	5/1998	Shirai et al.	6,068,380 A	5/2000	Lynn et al.
5,751,832 A	5/1998	Panter et al.	6,072,391 A	6/2000	Suzuki et al.
5,754,099 A	5/1998	Nishimura et al.	6,078,355 A	6/2000	Zengel
5,760,828 A	6/1998	Cortes	6,084,700 A	7/2000	Knapp
5,764,139 A	6/1998	Nojima et al.	6,097,023 A	8/2000	Schofield et al.
5,767,793 A	6/1998	Agravante et al.	6,102,546 A	8/2000	Carter
5,781,105 A	7/1998	Bitar et al.	6,106,121 A	8/2000	Buckley et al.
5,786,787 A	7/1998	Eriksson et al.	6,111,498 A	8/2000	Jobes et al.
5,790,298 A	8/1998	Tonar	6,111,683 A *	8/2000	Cammenga B60Q 1/2665 340/468
5,793,308 A	8/1998	Rosinski et al.	6,111,684 A	8/2000	Forgette
5,793,420 A	8/1998	Schmidt	6,115,651 A	9/2000	Cruz
5,796,094 A	8/1998	Schofield et al.	6,122,597 A	9/2000	Saneyoshi et al.
5,798,727 A	8/1998	Shirai et al.	6,128,576 A	10/2000	Nishimoto et al.
5,803,579 A	9/1998	Turnbull	6,130,421 A	10/2000	Bechtel et al.
5,808,778 A *	9/1998	Bauer B60R 1/088 359/265	6,130,448 A	10/2000	Bauer et al.
5,811,888 A	9/1998	Hsieh	6,132,072 A	10/2000	Turnbull
5,812,321 A	9/1998	Schierbeek et al.	6,140,933 A	10/2000	Bugno et al.
5,818,625 A	10/1998	Forgette et al.	6,144,158 A	11/2000	Beam
5,825,527 A *	10/1998	Forgette B60Q 1/2665 359/267	6,151,065 A	11/2000	Steed et al.
D400,481 S	11/1998	Stephens et al.	6,151,539 A	11/2000	Bergholz et al.
D401,200 S	11/1998	Huang	6,154,149 A	11/2000	Tychkowski et al.
5,837,994 A	11/1998	Stam et al.	6,157,294 A	12/2000	Urai et al.
5,841,126 A	11/1998	Fossum et al.	6,166,629 A	12/2000	Andreas
5,844,505 A	12/1998	Van Ryzin	6,166,698 A	12/2000	Turnbull et al.
5,845,000 A	12/1998	Breed et al.	6,166,848 A	12/2000	Cammenga et al.
5,850,176 A	12/1998	Kinoshita et al.	6,167,755 B1	1/2001	Damson et al.
5,867,214 A	2/1999	Anderson et al.	6,170,956 B1	1/2001	Rumsey et al.
5,877,897 A *	3/1999	Schofield H04N 7/183 348/E7.086	6,172,600 B1	1/2001	Kakinami et al.
5,883,605 A *	3/1999	Knapp B60R 1/088 345/102	6,172,601 B1	1/2001	Wada et al.
5,883,739 A	3/1999	Ashihara et al.	6,175,300 B1	1/2001	Kendrick
5,888,431 A	3/1999	Tonar et al.	6,184,781 B1	2/2001	Ramakesavan
5,896,119 A	4/1999	Evanicky et al.	6,185,492 B1	2/2001	Kagawa et al.
5,904,729 A	5/1999	Ruzicka	6,188,505 B1	2/2001	Lompfrey
5,905,457 A	5/1999	Rashid	6,191,704 B1	2/2001	Takenaga et al.
D410,607 S *	6/1999	Carter D12/187	6,193,378 B1	2/2001	Tonar et al.
5,912,534 A	6/1999	Benedict	6,193,912 B1	2/2001	Theiste
5,923,027 A	7/1999	Stam et al.	6,195,194 B1 *	2/2001	Roberts B60R 1/088 359/265
5,923,457 A	7/1999	Byker et al.	6,200,010 B1	3/2001	Anders
5,928,572 A	7/1999	Tonar et al.	6,218,934 B1	4/2001	Regan
5,935,613 A	8/1999	Benham et al.	6,222,177 B1	4/2001	Bechtel
5,940,011 A	8/1999	Agravante et al.	6,222,447 B1	4/2001	Schofield et al.
5,940,201 A *	8/1999	Ash B60R 1/088 359/267	6,224,716 B1	5/2001	Yoder
5,942,853 A	8/1999	Piscart	6,229,435 B1	5/2001	Knapp
5,949,331 A	9/1999	Schofield et al.	6,239,898 B1	5/2001	Byker
5,956,012 A	9/1999	Turnbull et al.	6,239,899 B1	5/2001	Devries et al.
5,956,079 A	9/1999	Ridgley	6,244,716 B1	6/2001	Steenwyk
5,956,181 A	9/1999	Lin	6,246,507 B1 *	6/2001	Bauer B60R 1/088 359/267
5,959,555 A	9/1999	Furuta	6,247,819 B1	6/2001	Turnbull
5,990,469 A	11/1999	Bechtel et al.	6,249,214 B1	6/2001	Kashiwazaki
5,998,617 A	12/1999	Srinivasa	6,249,369 B1	6/2001	Theiste et al.
6,002,511 A	12/1999	Varaprasad	6,250,766 B1	6/2001	Strumolo et al.
6,008,486 A	12/1999	Stam et al.	6,255,639 B1	7/2001	Stam et al.
6,009,359 A	12/1999	El-Hakim et al.	6,259,475 B1	7/2001	Ramachandran et al.
6,018,308 A	1/2000	Shirai	6,262,831 B1	7/2001	Bauer
6,020,987 A	2/2000	Baumann	6,262,832 B1	7/2001	Lompfrey
6,023,040 A	2/2000	Zahavi	6,265,968 B1	7/2001	Betzitza et al.
6,023,229 A	2/2000	Bugno et al.	6,268,803 B1	7/2001	Gunderson et al.
6,025,872 A	2/2000	Ozaki et al.	6,268,950 B1	7/2001	Ash
6,037,471 A	3/2000	Srinivasa	6,269,308 B1	7/2001	Kodaka et al.
6,043,452 A	3/2000	Bestenlehrer	6,281,632 B1	8/2001	Stam et al.
6,046,766 A	4/2000	Sakata	6,281,804 B1	8/2001	Haller et al.
			6,289,332 B2	9/2001	Menig et al.
			6,291,812 B1	9/2001	Bechtel
			6,300,879 B1	10/2001	Regan et al.
			6,304,173 B2	10/2001	Pala et al.
			6,313,457 B1	11/2001	Bauer
			6,313,892 B2	11/2001	Gleckman
			6,317,057 B1	11/2001	Lee

(56)

References Cited

U.S. PATENT DOCUMENTS

6,317,248 B1	11/2001	Agrawal et al.	6,542,085 B1	4/2003	Yang	
6,320,612 B1	11/2001	Young	6,542,182 B1	4/2003	Chutorash	
6,324,295 B1	11/2001	Avionique et al.	6,545,598 B1	4/2003	De Villeroche	
D451,869 S	12/2001	Knapp et al.	6,545,794 B2 *	4/2003	Ash	B60R 1/088 359/265
6,329,925 B1	12/2001	Skiver et al.	6,550,943 B2	4/2003	Strazzanti	
6,330,511 B2	12/2001	Ogura et al.	6,553,130 B1	4/2003	Lemelson et al.	
6,335,548 B1	1/2002	Roberts	6,558,026 B2	5/2003	Strazzanti	
6,335,680 B1	1/2002	Matsuoka	6,559,761 B1	5/2003	Miller et al.	
6,344,805 B1	2/2002	Yasui et al.	6,572,233 B1	6/2003	Northman et al.	
6,348,858 B2	2/2002	Weis et al.	6,580,373 B1	6/2003	Ohashi	
6,349,782 B1	2/2002	Sekiya et al.	6,581,007 B2	6/2003	Hasegawa et al.	
6,356,206 B1	3/2002	Takenaga et al.	6,583,730 B2	6/2003	Lang et al.	
6,356,376 B1	3/2002	Tonar et al.	6,575,643 B2	7/2003	Takashashi	
6,357,883 B1	3/2002	Strumolo et al.	6,587,573 B1	7/2003	Stam et al.	
6,359,274 B1	3/2002	Nixon	6,591,192 B2	7/2003	Okamura et al.	
6,363,326 B1	3/2002	Scully	6,594,583 B2	7/2003	Ogura et al.	
6,369,701 B1	4/2002	Yoshida et al.	6,594,614 B2	7/2003	Studt et al.	
6,379,013 B1	4/2002	Bechtel et al.	D478,537 S *	8/2003	Ono	D12/187
6,392,783 B1	5/2002	Lompfrey	6,606,183 B2	8/2003	Ikai et al.	
6,396,040 B1	5/2002	Hill	6,611,202 B2	8/2003	Schofield et al.	
6,396,397 B1	5/2002	Bos et al.	6,611,227 B1	8/2003	Nebiyeloul-Kiffe	
6,402,328 B1	6/2002	Bechtel	6,611,610 B1	8/2003	Stam et al.	
6,403,942 B1	6/2002	Stam	6,611,759 B2	8/2003	Brosche	
6,407,468 B1	6/2002	Levesque et al.	6,612,708 B2	9/2003	Chu	
6,407,847 B1	6/2002	Poll et al.	6,614,387 B1	9/2003	Deadman	
6,408,247 B1	6/2002	Ichikawa et al.	6,614,579 B2	9/2003	Roberts et al.	
6,412,959 B1	7/2002	Tseng	6,616,764 B2	9/2003	Kramer et al.	
6,415,230 B1	7/2002	Maruko et al.	6,617,564 B2	9/2003	Ockerse et al.	
6,420,800 B1	7/2002	Levesque	6,618,672 B2	9/2003	Sasaki et al.	
6,421,081 B1	7/2002	Markus	6,630,888 B2	10/2003	Lang et al.	
6,424,272 B1	7/2002	Gutta et al.	6,631,316 B2	10/2003	Stam et al.	
6,424,273 B1	7/2002	Gutta et al.	6,635,194 B2	10/2003	Kloepfner	
6,424,892 B1	7/2002	Matsuoka	6,636,258 B2	10/2003	Strumolo	
6,426,485 B1	7/2002	Buljajewski	6,642,840 B2	11/2003	Lang et al.	
6,428,172 B1	8/2002	Hutzel et al.	6,642,851 B2	11/2003	DeLine et al.	
6,429,594 B1	8/2002	Stam	6,648,477 B2	11/2003	Hutzel et al.	
6,433,680 B1	8/2002	Ho	6,650,457 B2	11/2003	Busscher et al.	
6,437,688 B1	8/2002	Kobayashi	6,657,767 B2	12/2003	Bonardi	
6,438,491 B1	8/2002	Farmer	6,665,592 B2	12/2003	Kodama	
6,441,872 B1	8/2002	Ho	6,670,207 B1	12/2003	Roberts	
6,441,943 B1	8/2002	Roberts	6,670,910 B2	12/2003	Delcheccolo et al.	
6,442,465 B2	8/2002	Breed et al.	6,674,370 B2	1/2004	Rodewald et al.	
6,443,585 B1	9/2002	Saccomanno	6,675,075 B1	1/2004	Engelsberg et al.	
6,443,602 B1	9/2002	Tanabe et al.	6,677,986 B1	1/2004	Pöchmüller	
6,447,128 B1	9/2002	Lang et al.	6,683,539 B2	1/2004	Trajkovic et al.	
6,447,130 B2	9/2002	Chu	6,683,969 B1	1/2004	Nishigaki et al.	
6,452,533 B1	9/2002	Yamabuchi et al.	6,690,268 B2	2/2004	Schofield et al.	
6,463,369 B2	10/2002	Sadano et al.	6,690,413 B1	2/2004	Moore	
6,465,962 B1	10/2002	Fu et al.	6,693,517 B2	2/2004	McCarty et al.	
6,465,963 B1	10/2002	Turnbull	6,693,518 B2	2/2004	Kumata	
6,466,701 B1	10/2002	Ejiri et al.	6,693,519 B2	2/2004	Keirstead	
6,469,739 B1	10/2002	Bechtel et al.	6,693,524 B1	2/2004	Payne	
6,471,362 B1	10/2002	Carter	6,700,692 B2	3/2004	Tonar	
6,472,977 B1	10/2002	Pochmuller	6,717,610 B1	4/2004	Bos et al.	
6,473,001 B1	10/2002	Blum	6,727,808 B1	4/2004	Uselmann et al.	
6,476,731 B1	11/2002	Miki et al.	6,727,844 B1	4/2004	Zimmermann et al.	
6,476,855 B1	11/2002	Yamamoto	6,731,332 B1	5/2004	Yasui et al.	
6,483,429 B1	11/2002	Yasui et al.	6,734,807 B2	5/2004	King	
6,483,438 B2	11/2002	DeLine et al.	6,737,964 B2	5/2004	Samman et al.	
6,487,500 B2	11/2002	Lemelson et al.	6,738,088 B1	5/2004	Uskolovsky et al.	
6,491,416 B1	12/2002	Strazzanti	6,744,353 B2	6/2004	Sjonell	
6,498,620 B2	12/2002	Schofield et al.	6,746,122 B2	6/2004	Knox	
6,501,387 B2	12/2002	Skiver et al.	D493,131 S	7/2004	Lawlor et al.	
6,504,142 B2	1/2003	Nixon	D493,394 S	7/2004	Lawlor et al.	
6,507,779 B2	1/2003	Breed et al.	6,768,566 B2	7/2004	Walker	
6,512,624 B2	1/2003	Tonar	6,772,057 B2	8/2004	Breed et al.	
6,515,581 B1	2/2003	Ho	6,774,988 B2	8/2004	Stam et al.	
6,515,597 B1	2/2003	Wada et al.	6,781,738 B2	8/2004	Kikuchi et al.	
6,520,667 B1 *	2/2003	Mousseau	6,816,145 B1	11/2004	Evanicky	
		B60R 1/12 359/603	6,816,297 B1	11/2004	Tonar	
6,521,916 B2	2/2003	Roberts	D499,678 S	12/2004	Bradley	
6,522,969 B2	2/2003	Kannonji	6,846,098 B2	1/2005	Bourdelaies et al.	
6,523,976 B1	2/2003	Turnbull	6,847,487 B2	1/2005	Burgner	
D471,847 S	3/2003	Rumsey et al.	6,853,413 B2	2/2005	Larson	
6,535,126 B2	3/2003	Lin et al.	6,861,809 B2	3/2005	Stam	
			6,870,656 B2	3/2005	Tonar et al.	
			6,902,284 B2	6/2005	Hutzel et al.	
			6,902,307 B2	6/2005	Strazzanti	

(56)

References Cited

U.S. PATENT DOCUMENTS

6,912,001 B2	6/2005	Okamoto et al.	8,142,059 B2	3/2012	Higgins-Luthman et al.
6,913,375 B2	7/2005	Strazzanti	8,162,518 B2	4/2012	Schofield
6,923,080 B1	8/2005	Dobler et al.	8,194,133 B2	6/2012	DeWind et al.
6,930,737 B2	8/2005	Weindorf et al.	8,201,800 B2	6/2012	Filipiak
6,934,080 B2	8/2005	Saccomanno et al.	8,203,433 B2	6/2012	Deuber et al.
6,946,978 B2	9/2005	Schofield	8,217,830 B2	7/2012	Lynam
6,958,495 B2 *	10/2005	Nishijima B60R 1/12 257/88	8,222,588 B2	7/2012	Schofield et al.
6,968,273 B2	11/2005	Ockerse	8,237,909 B2	8/2012	Ostreko et al.
7,012,543 B2	3/2006	DeLine et al.	8,258,433 B2	9/2012	Byers et al.
7,038,577 B2	5/2006	Pawlicki et al.	8,282,226 B2	10/2012	Blank et al.
7,042,616 B2	5/2006	Tonar et al.	8,325,028 B2 *	12/2012	Schofield B60C 23/0401 340/425.5
7,046,448 B2	5/2006	Burgner	8,482,683 B2	7/2013	Hwang et al.
7,064,882 B2	6/2006	Tonar	8,520,069 B2	8/2013	Haler
7,175,291 B1	2/2007	Li	8,559,092 B2	10/2013	Bugno et al.
7,255,465 B2 *	8/2007	DeLine B60Q 1/2665 340/815.4	8,564,662 B2	10/2013	Busch et al.
7,262,406 B2	8/2007	Heslin et al.	8,779,910 B2	7/2014	DeLine et al.
7,265,342 B2	9/2007	Heslin et al.	D729,714 S *	5/2015	Roth D12/187
D553,061 S	10/2007	Schmidt et al.	D730,255 S *	5/2015	Roth D12/187
7,285,903 B2	10/2007	Cull et al.	D730,256 S *	5/2015	Hamlin D12/187
7,287,868 B2 *	10/2007	Carter B60R 1/088 359/603	D731,376 S *	6/2015	Hamlin D12/187
7,292,208 B1	11/2007	Park et al.	D739,320 S *	9/2015	Minikey, Jr. D12/187
7,311,428 B2	12/2007	DeLine et al.	9,134,585 B2	9/2015	Tonar et al.
7,321,112 B2	1/2008	Stam et al.	D746,195 S *	12/2015	Sloterbeek D12/187
7,324,261 B2	1/2008	Tonar et al.	D746,744 S *	1/2016	Sloterbeek D12/187
7,342,707 B2	3/2008	Roberts	9,316,347 B2 *	4/2016	Roth F16M 13/02
7,360,932 B2	4/2008	Uken et al.	D755,097 S *	5/2016	Lin D12/187
7,417,221 B2	8/2008	Creswick et al.	D761,169 S *	7/2016	Roth D12/187
7,417,717 B2	8/2008	Pack	D761,170 S *	7/2016	Roth D12/187
7,446,650 B2	11/2008	Scholfield et al.	D761,174 S *	7/2016	Hamlin D12/187
7,467,883 B2	12/2008	DeLine et al.	D761,708 S *	7/2016	Hamlin D12/187
7,468,651 B2	12/2008	DeLine et al.	D763,151 S *	8/2016	Hamlin D12/187
7,505,047 B2	3/2009	Yoshimura	9,550,457 B2 *	1/2017	Green G02F 1/1339
7,533,998 B2	5/2009	Schofield et al.	9,557,584 B2 *	1/2017	Uken B60K 35/00
7,548,291 B2	6/2009	Lee et al.	9,573,525 B2 *	2/2017	Minikey, Jr. B60R 1/04
7,565,006 B2	7/2009	Stam et al.	D783,480 S *	4/2017	Sloterbeek D12/187
7,567,291 B2	7/2009	Bechtel et al.	9,612,500 B2 *	4/2017	Tonar
7,579,940 B2	8/2009	Schofield et al.	D786,755 S *	5/2017	Sloterbeek D12/187
7,592,563 B2	9/2009	Wissenbach	9,637,053 B2 *	5/2017	Schofield B60R 1/025
7,619,508 B2	11/2009	Lynam et al.	9,676,334 B2 *	6/2017	Cammenga B60R 1/04
7,653,215 B2	1/2010	Stam	9,694,749 B2 *	7/2017	Lynam B60R 1/003
7,658,521 B2	2/2010	DeLine et al.	9,694,751 B2 *	7/2017	Lundy, Jr. B60R 1/088
7,663,798 B2	2/2010	Tonar	9,718,357 B2 *	8/2017	DeLine B60K 28/063
7,683,326 B2	3/2010	Stam et al.	D797,626 S *	9/2017	Hamlin D12/187
7,688,495 B2	3/2010	Tonar et al.	D800,618 S *	10/2017	Roth D12/187
7,706,046 B2	4/2010	Bauer et al.	9,783,115 B2 *	10/2017	Uken B60R 1/12
7,711,479 B2	5/2010	Taylor et al.	9,827,912 B2 *	11/2017	Olesen B60R 1/04
7,719,408 B2	5/2010	Deward et al.	D809,984 S *	2/2018	Hamlin D12/187
7,720,580 B2	5/2010	Higgins-Luthman	D817,238 S *	5/2018	Lock D12/187
7,746,534 B2	6/2010	Tonar et al.	9,994,156 B2 *	6/2018	Minikey, Jr. B60R 1/12
7,815,326 B2	10/2010	Blank et al.	9,995,854 B2 *	6/2018	Hamlin B60R 1/088
7,817,020 B2	10/2010	Turnbull et al.	10,029,614 B2 *	7/2018	Larson B60R 1/04
7,821,696 B2	10/2010	Tonar et al.	2001/0019356 A1	9/2001	Takeda et al.
7,830,583 B2	11/2010	Neuman et al.	2001/0022616 A1	9/2001	Rademacher et al.
7,864,399 B2	1/2011	McCabe et al.	2001/0026316 A1	10/2001	Senatore
7,877,175 B2	1/2011	Higgins-Luthman	2001/0045981 A1	11/2001	Gloger et al.
7,881,496 B2	2/2011	Camilleri et al.	2002/0040962 A1	4/2002	Schofield et al.
7,881,839 B2	2/2011	Stam et al.	2002/0044065 A1 *	4/2002	Quist B60R 1/12 340/815.4
7,888,629 B2	2/2011	Heslin et al.	2002/0191127 A1	12/2002	Roberts et al.
7,914,188 B2	3/2011	DeLine et al.	2003/0002165 A1	1/2003	Mathias et al.
7,972,045 B2	7/2011	Schofield	2003/0007261 A1	1/2003	Hutzel et al.
7,978,393 B2	7/2011	Tonar et al.	2003/0016125 A1	1/2003	Lang et al.
7,994,471 B2	8/2011	Heslin et al.	2003/0016287 A1	1/2003	Nakayama et al.
8,031,225 B2	10/2011	Watanabe et al.	2003/0025596 A1	2/2003	Lang et al.
8,035,881 B2	10/2011	Luten et al.	2003/0025597 A1	2/2003	Schofield
8,045,760 B2	10/2011	Stam et al.	2003/0030546 A1	2/2003	Tseng
8,059,235 B2	11/2011	Utsumi et al.	2003/0030551 A1	2/2003	Ho
8,063,753 B2	11/2011	DeLine et al.	2003/0030724 A1	2/2003	Okamoto
8,090,153 B2	1/2012	Schofield et al.	2003/0035050 A1	2/2003	Mizusawa
8,095,310 B2	1/2012	Taylor et al.	2003/0043269 A1	3/2003	Park
8,100,568 B2	1/2012	DeLine et al.	2003/0052969 A1	3/2003	Satoh et al.
8,116,929 B2	2/2012	Higgins-Luthman	2003/0058338 A1	3/2003	Kawauchi et al.
8,120,652 B2	2/2012	Bechtel et al.	2003/0067383 A1	4/2003	Yang
			2003/0076415 A1	4/2003	Strumolo
			2003/0080877 A1	5/2003	Takagi et al.
			2003/0085806 A1	5/2003	Samman et al.
			2003/0088361 A1	5/2003	Sekiguchi
			2003/0090568 A1	5/2003	Pico

(56)

References Cited

U.S. PATENT DOCUMENTS

2003/0090569 A1 5/2003 Poechmueller
 2003/0090570 A1 5/2003 Takagi et al.
 2003/0098908 A1 5/2003 Misaiji et al.
 2003/0103141 A1 6/2003 Bechtel et al.
 2003/0103142 A1 6/2003 Hitomi et al.
 2003/0117522 A1 6/2003 Okada
 2003/0122929 A1 7/2003 Minaudo et al.
 2003/0122930 A1 7/2003 Schofield et al.
 2003/0133014 A1 7/2003 Mendoza
 2003/0137586 A1 7/2003 Lewellen
 2003/0141965 A1 7/2003 Gunderson et al.
 2003/0146831 A1 8/2003 Berberich et al.
 2003/0169158 A1 9/2003 Paul, Jr.
 2003/0179293 A1 9/2003 Oizumi
 2003/0202096 A1 10/2003 Kim
 2003/0202357 A1 10/2003 Strazzanti
 2003/0214576 A1 11/2003 Koga
 2003/0214584 A1 11/2003 Ross, Jr.
 2003/0214733 A1 11/2003 Fujikawa et al.
 2003/0222793 A1 12/2003 Tanaka et al.
 2003/0222983 A1 12/2003 Nobori et al.
 2003/0227546 A1 12/2003 Hilborn et al.
 2004/0004541 A1 1/2004 Hong
 2004/0027695 A1 1/2004 Lin
 2004/0032321 A1 2/2004 McMahan et al.
 2004/0036768 A1 2/2004 Green
 2004/0051634 A1 3/2004 Schofield et al.
 2004/0056955 A1 3/2004 Berberich et al.
 2004/0057131 A1 3/2004 Hutzel et al.
 2004/0064241 A1 4/2004 Sekiguchi
 2004/0066285 A1 4/2004 Sekiguchi
 2004/0075603 A1 4/2004 Kodama
 2004/0080404 A1 4/2004 White
 2004/0080431 A1 4/2004 White
 2004/0085196 A1 5/2004 Milelr et al.
 2004/0090314 A1 5/2004 Iwamoto
 2004/0090317 A1 5/2004 Rothkop
 2004/0096082 A1 5/2004 Nakai et al.
 2004/0098196 A1 5/2004 Sekiguchi
 2004/0107030 A1 6/2004 Nishira et al.
 2004/0107617 A1 6/2004 Shoen et al.
 2004/0109060 A1 6/2004 Ishii
 2004/0114039 A1 6/2004 Ishikura
 2004/0119668 A1 6/2004 Homma et al.
 2004/0125905 A1 7/2004 Vlasenko et al.
 2004/0202001 A1* 10/2004 Roberts B60Q 9/00
 362/494
 2005/0099693 A1 5/2005 Schofield et al.
 2005/0140855 A1 6/2005 Utsumi
 2005/0237440 A1 10/2005 Sugimura et al.
 2006/0007550 A1* 1/2006 Tonar B60R 1/088
 359/604
 2006/0115759 A1 6/2006 Kim et al.
 2006/0139953 A1 6/2006 Chou et al.
 2006/0158899 A1 7/2006 Ayabe et al.
 2007/0146481 A1 6/2007 Chen et al.
 2007/0171037 A1 7/2007 Schofield et al.
 2008/0068520 A1 3/2008 Minikey, Jr. et al.
 2008/0192132 A1 8/2008 Bechtel et al.
 2008/0247192 A1 10/2008 Hoshi et al.
 2008/0294315 A1 11/2008 Breed
 2008/0302657 A1 12/2008 Luten et al.
 2009/0015736 A1 1/2009 Weller et al.
 2009/0141516 A1 6/2009 Wu et al.
 2009/0296190 A1 12/2009 Anderson et al.
 2010/0110553 A1 5/2010 Anderson et al.
 2010/0201896 A1* 8/2010 Ostreko B60R 1/12
 349/1
 2010/0277786 A1 11/2010 Anderson et al.
 2010/0289995 A1 11/2010 Hwang et al.
 2011/0168687 A1 7/2011 Door
 2011/0176323 A1 7/2011 Skiver et al.
 2011/0181727 A1* 7/2011 Weller B60R 1/12
 348/148
 2011/0317015 A1 12/2011 Seto et al.

2012/0038964 A1* 2/2012 De Wind B60R 1/04
 359/265
 2012/0069444 A1* 3/2012 Campbell B60R 1/12
 359/630
 2012/0218655 A1* 8/2012 Steel B60R 1/12
 359/871
 2012/0218656 A1* 8/2012 Roth B60R 1/04
 359/872
 2012/0229882 A1 9/2012 Fish, Jr. et al.
 2012/0236388 A1* 9/2012 De Wind B60R 1/04
 359/267
 2012/0268961 A1* 10/2012 Cammenga B60R 1/088
 362/516
 2013/0028473 A1 1/2013 Hilldore et al.
 2013/0170013 A1 7/2013 Tonar et al.
 2013/0187017 A1* 7/2013 Roth B60R 1/04
 248/205.1
 2013/0279014 A1 10/2013 Fish, Jr. et al.
 2014/0022390 A1 1/2014 Blank et al.
 2014/0043479 A1 2/2014 Busch et al.
 2014/0192431 A1* 7/2014 Sloterbeek B60R 1/12
 359/871
 2014/0268350 A1* 9/2014 Lisowski B60R 1/088
 359/603
 2014/0347488 A1 11/2014 Tazaki et al.
 2016/0159287 A1* 6/2016 Minikey, Jr. B60R 1/04
 250/214 AL
 2016/0264054 A1* 9/2016 Uken B60R 1/088
 2016/0306250 A1* 10/2016 Hamlin G02F 1/157
 2016/0341963 A1* 11/2016 Minikey, Jr. B60R 1/04
 2017/0036603 A1* 2/2017 Brummel B60R 1/04
 2017/0120826 A1* 5/2017 Minikey, Jr. B60R 1/04
 2017/0136949 A1* 5/2017 Larson B60R 1/04
 2017/0259742 A1* 9/2017 Timoneda B60Q 1/2665
 2017/0297495 A1* 10/2017 Lundy, Jr. B60R 1/088
 2017/0297497 A1* 10/2017 De Wind B60R 1/12
 2017/0297498 A1* 10/2017 Larson B60R 1/12
 2018/0056878 A1* 3/2018 Weller B60R 1/12
 2018/0067279 A1* 3/2018 Veenman F21V 29/508
 2018/0079365 A1* 3/2018 Kuester B60R 1/04
 2018/0118115 A1* 5/2018 Kuester B60R 1/086
 2018/0178729 A1* 6/2018 Festerling, Jr. B60R 1/12

FOREIGN PATENT DOCUMENTS

EP 0899157 A1 3/1999
 EP 0899157 B1 10/2004
 EP 2845921 A2 3/2015
 GB 2338363 12/1999
 JP 1178693 3/1999
 JP 3070845 U 8/2000
 JP 2002096685 A 4/2002
 JP 2002120649 A 4/2002
 JP 2002200936 A 7/2002
 JP 2005148119 6/2005
 JP 2005327600 11/2005
 JP 2008139819 A 6/2008
 JP 2009542505 A 12/2009
 JP 2013244753 A 12/2013
 KR 20100123433 A 11/2010
 WO 9621581 7/1996
 WO 2007006104 A1 1/2007
 WO 2007103573 A2 9/2007
 WO 2010090964 8/2010
 WO 2011044312 A1 4/2011
 WO WO 2013055744 A1* 4/2013 B60R 1/04

OTHER PUBLICATIONS

Japanese Patent Office, Official Action for Japanese Application No. 2015-509030, dated Jan. 18, 2016, 15 pages.
 State Intellectual Property Office of the People's Republic of China, Notification of the First Office Action for Chinese Application No. 201380028888.3, dated Apr. 6, 2016, 15 pages.
 Palalau et al., "FPD Evaluation for Automotive Application," Proceedings of the Vehicle Display Symposium, Nov. 2, 1995, pp.

(56)

References Cited

OTHER PUBLICATIONS

97-103, Society for Information Display, Detroit Chapter, Santa Ana, CA.

Adler, "A New Automotive AMLCD Module," Proceedings of the Vehicle Display Symposium, Nov. 2, 1995, pp. 67-71, Society for Information Display, Detroit Chapter, Santa Ana, CA.

Sayer, et al., "In-Vehicle Displays for Crash Avoidance and Navigation Systems," Proceedings of the Vehicle Display Symposium, Sep. 18, 1996, pp. 39-42, Society for Information Display, Detroit Chapter, Santa Ana, CA.

Knoll, et al., "Application of Graphic Displays in Automobiles," SID 87 Digest, 1987, pp. 41-44, 5A.2.

Terada, et al., "Development of Central Information Display of Automotive Application," SID 89 Digest, 1989, pp. 192-195, Society for Information Display, Detroit Center, Santa Ana, CA.

Thomsen, et al., "AMLCD Design Considerations for Avionics and Vetrionics Applications," Proceedings of the 5th Annual Flat Panel Display Strategic and Technical Symposium, Sep. 9-10, 1998, pp. 139-145, Society for Information Display, Metropolitan Detroit Chapter, CA.

Knoll, et al., "Conception of an Integrated Driver Information System," SID International Symposium Digest of Technical Papers, 1990, pp. 126-129, Society for Information Display, Detroit Center, Santa Ana, CA.

Vincen, "An Analysis of Direct-View FPDs for Automotive Multi-Media Applications," Proceedings of the 6th Annual Strategic and Technical Symposium "Vehicular Applications of Displays and

Microsensors," Sep. 22-23, 1999, pp. 39-46, Society for Information Display, Metropolitan Detroit Chapter, San Jose, CA.

Zuk, et al., "Flat Panel Display Applications in Agriculture Equipment," Proceedings of the 5th Annual Flat Panel Display Strategic and Technical Symposium, Sep. 9-10, 1998, pp. 125-130, Society for Information Display, Metropolitan Detroit Chapter, CA.

Vijan, et al., "A 1.7-Mpixel Full-Color Diode Driven AM-LCD," SID International Symposium, 1990, pp. 530-533, Society for Information Display, Playa del Rey, CA.

Vincen, "The Automotive Challenge to Active Matrix LCD Technology," Proceedings of the Vehicle Display Symposium, 1996, pp. 17-21, Society for Information Display, Detroit Center, Santa Ana, CA.

Corsi, et al., "Reconfigurable Displays Used as Primary Automotive Instrumentation," SAE Technical Paper Series, 1989, pp. 13-18, Society of Automotive Engineers, Inc., Warrendale, PA.

Schumacher, "Automotive Display Trends," SID 96 Digest, 1997, pp. 1-6, Delco Electronics Corp., Kokomo, IN.

Knoll, "The Use of Displays in Automotive Applications," Journal of the SID 5/3 1997, pp. 165-172, 315-316, Stuttgart, Germany.

Donofrio, "Looking Beyond the Dashboard," SID 2002, pp. 30-34, Ann Arbor, MI.

Stone, "Automotive Display Specification," Proceedings of the Vehicle Display Symposium, 1995, pp. 93-96, Society for Information Display, Detroit Center, Santa Ana, CA.

* cited by examiner

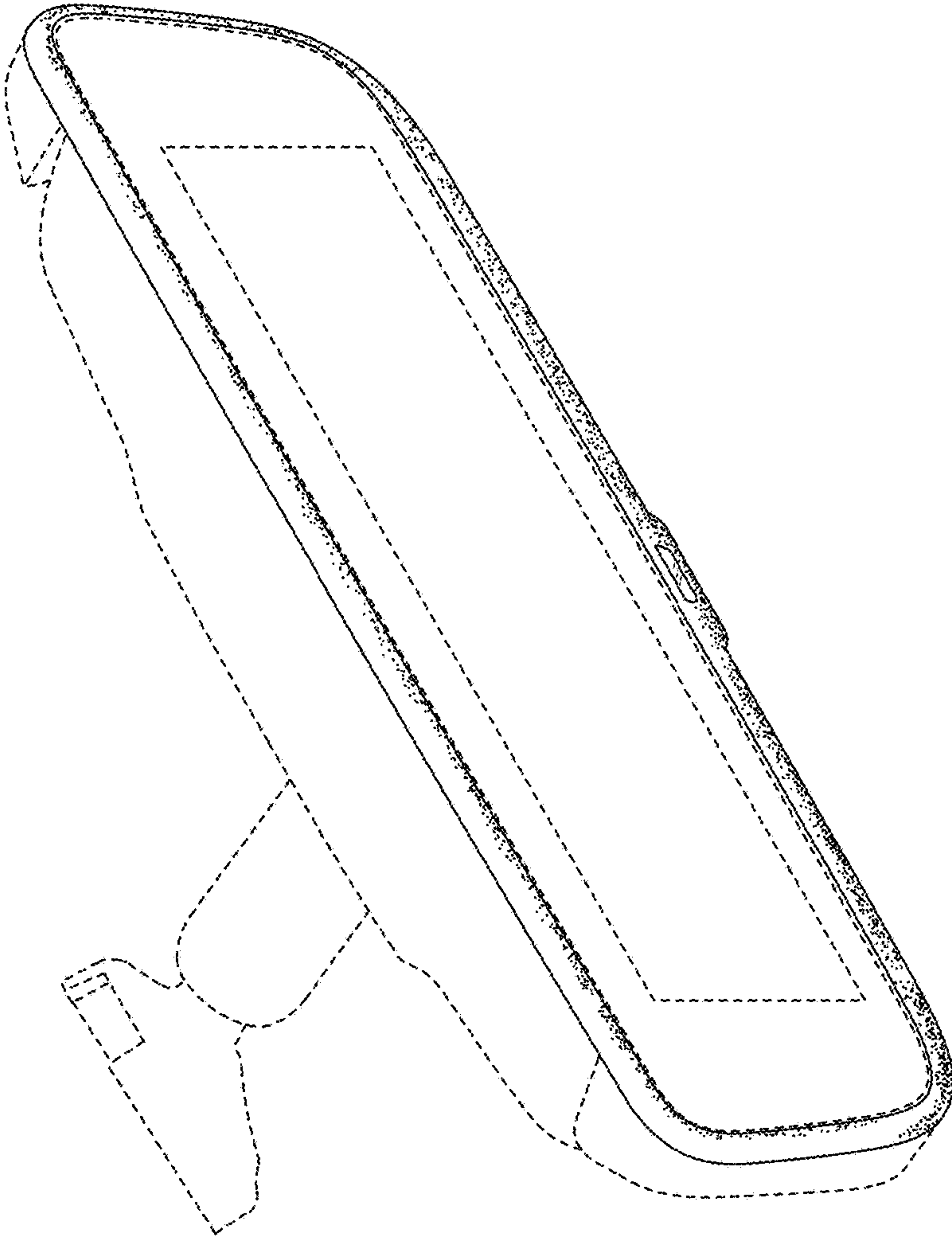


FIG. 1

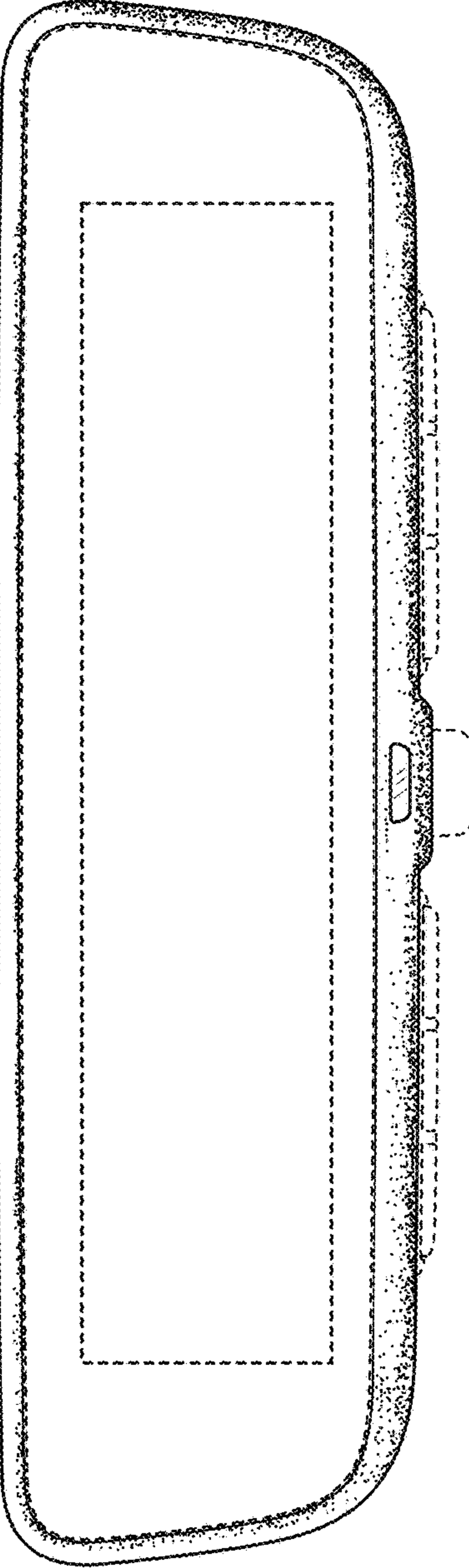


FIG. 2

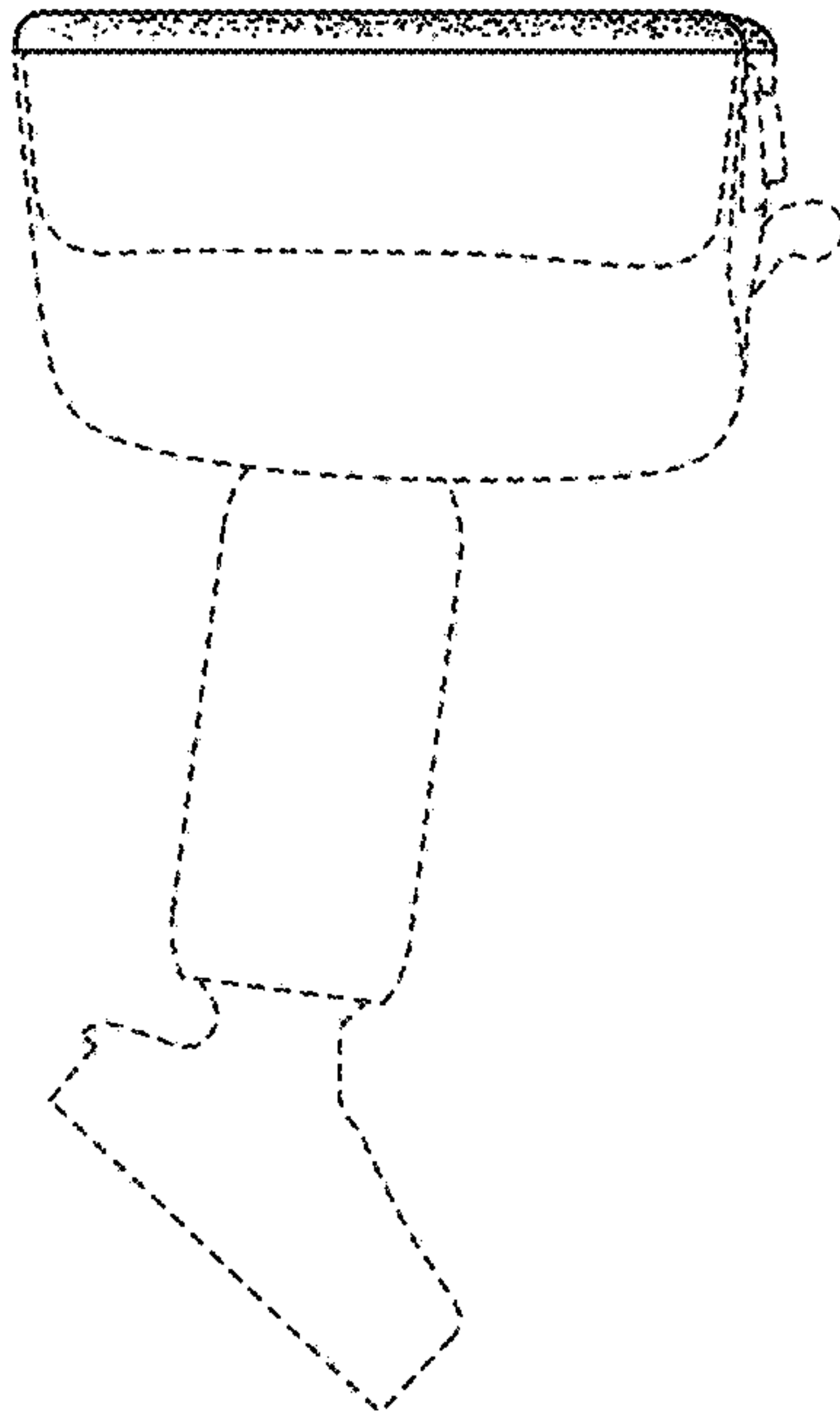


FIG. 3

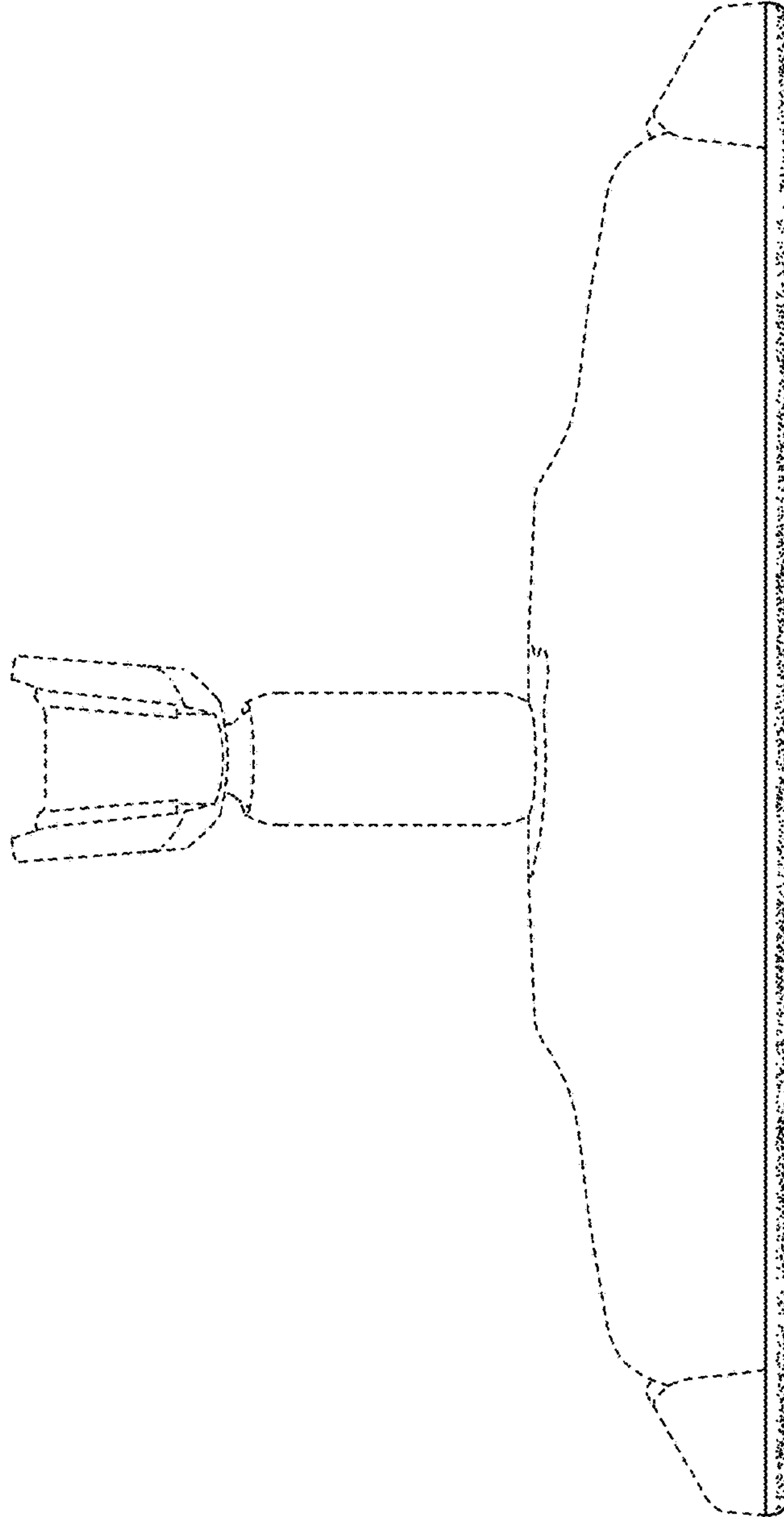


FIG. 4

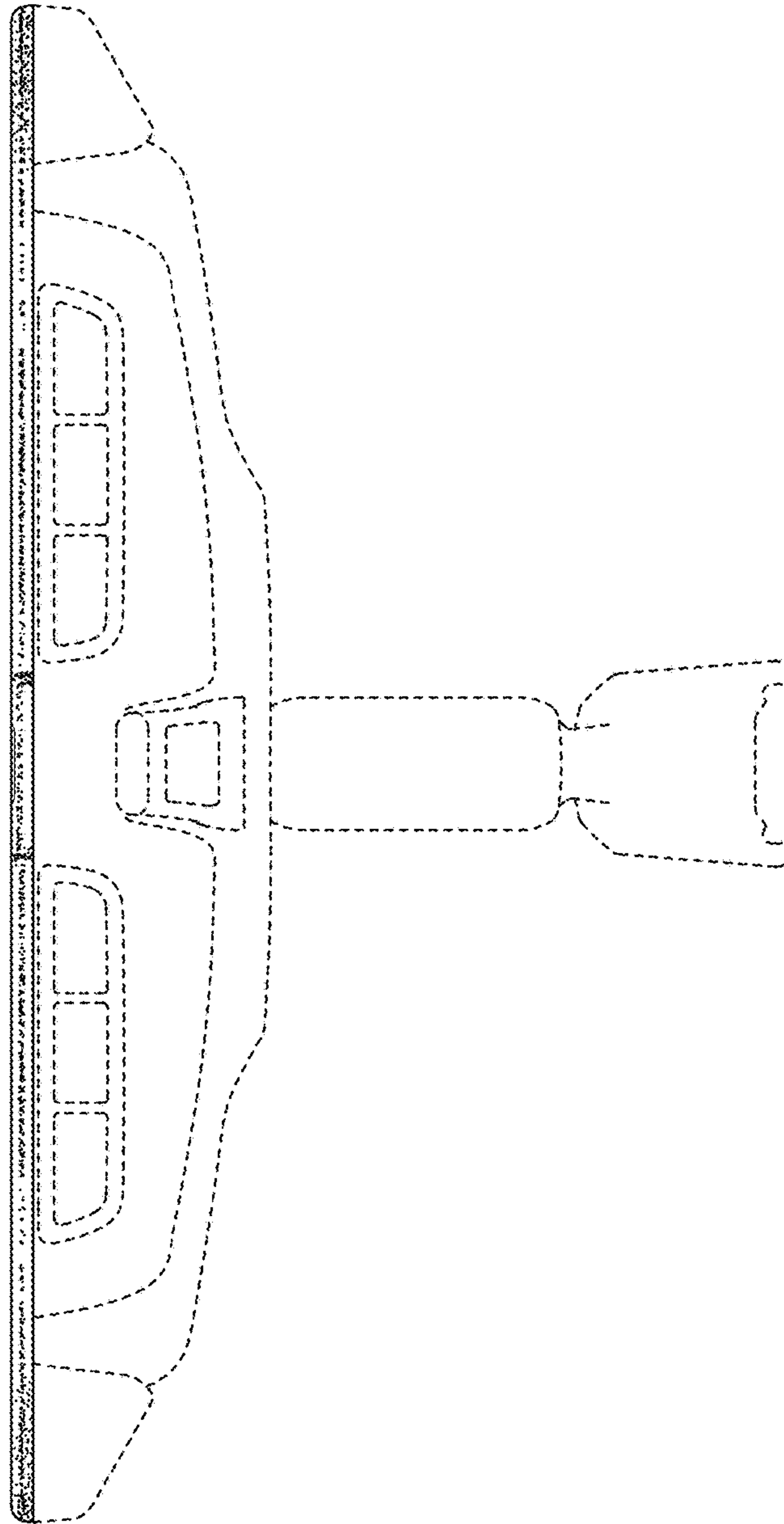


FIG. 5