



US00D797627S

(12) **United States Design Patent** (10) **Patent No.:** **US D797,627 S**
Faust et al. (45) **Date of Patent:** **** Sep. 19, 2017**

(54) **REARVIEW MIRROR DEVICE**

FOREIGN PATENT DOCUMENTS

(71) Applicant: **Gentex Corporation**, Zeeland, MI (US)

DE 102010064082 A1 6/2012
EP 0513476 11/1992

(72) Inventors: **Brandon J. Faust**, Wyoming, MI (US);
Nigel T. Lock, Holland, MI (US)

(Continued)

(73) Assignee: **GENTEX CORPORATION**, Zeeland, MI (US)

Palalau et al., "FPD Evaluation for Automotive Application," Proceedings of the Vehicle Display Symposium, Nov. 2, 1995, pp. 97-103, Society for Information Display, Detroit Chapter, Santa Ana, CA.

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

(Continued)

(21) Appl. No.: **29/544,183**

(22) Filed: **Oct. 30, 2015**

Primary Examiner — Phillip S Hyder

(51) **LOC (10) Cl.** **12-06**

(74) *Attorney, Agent, or Firm* — Price Heneveld LLP; Bradley D. Johnson

(52) **U.S. Cl.**
USPC **D12/187**

(58) **Field of Classification Search**
USPC D12/187, 188, 189, 190, 191; D14/251
CPC B60R 1/04; B60R 1/08; B60R 2001/1215;
B60R 2001/1223
See application file for complete search history.

(57) **CLAIM**

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

DESCRIPTION

(56) **References Cited**

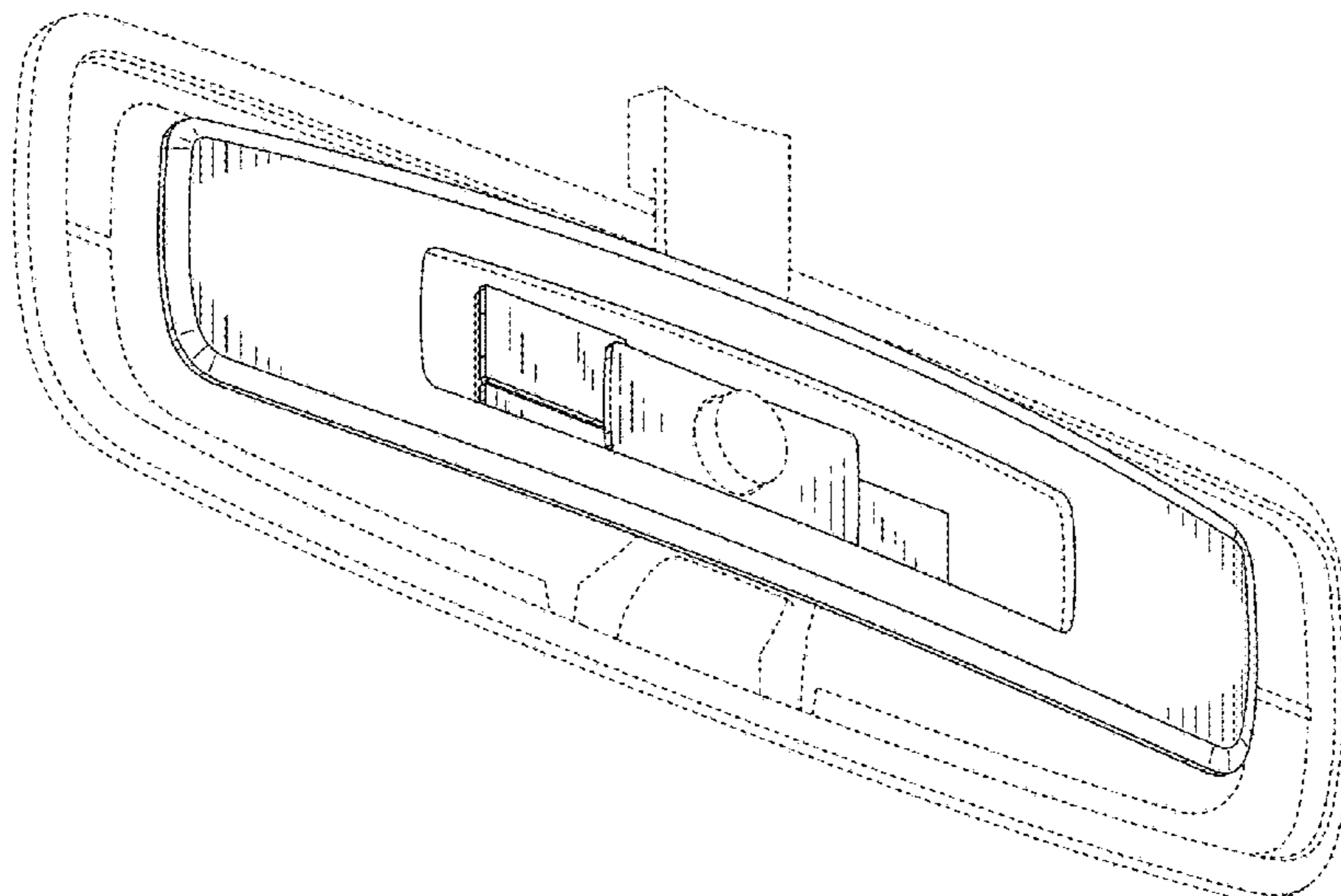
U.S. PATENT DOCUMENTS

2,131,888 A	10/1938	Harris
2,632,040 A	3/1953	Rabinow
2,827,594 A	3/1958	Rabinow
3,179,845 A	4/1965	Kulwicz
3,581,276 A	5/1971	Newman
3,663,819 A	5/1972	Hicks et al.
4,109,235 A	8/1978	Bouthors
4,139,801 A	2/1979	Linares
4,151,526 A	4/1979	Hinachi et al.
4,214,266 A	7/1980	Myers
4,236,099 A	11/1980	Rosenblum
4,257,703 A	3/1981	Goodrich
4,258,979 A	3/1981	Mahin
4,277,804 A	7/1981	Robison

(Continued)

FIG. 1 is a front perspective view of a rearview mirror device of the present disclosure;
FIG. 2 is a rear perspective view of the rearview mirror device of FIG. 1;
FIG. 3 is a front elevational view of the rearview mirror device of FIG. 1;
FIG. 4 is a rear elevational view of the rearview mirror device of FIG. 1;
FIG. 5 is a side elevational view of the rearview mirror device of FIG. 1;
FIG. 6 is a top plan view of the rearview mirror device of FIG. 1; and,
FIG. 7 is a bottom plan view of the rearview mirror device of FIG. 1.
The broken lines depict portions of the rearview mirror device in which the design is embodied that are not considered part of the claimed design.

1 Claim, 6 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

4,286,308 A	8/1981	Wolff	5,515,448 A	5/1996	Nishitani
4,310,851 A	1/1982	Pierrat	5,523,811 A	6/1996	Wada et al.
4,357,558 A	11/1982	Massoni et al.	5,530,421 A	6/1996	Marshall et al.
4,376,909 A	3/1983	Tagami et al.	5,535,144 A	7/1996	Kise
4,479,173 A	10/1984	Rumpakis	5,537,003 A	7/1996	Bechtel et al.
4,499,451 A	2/1985	Suzuki et al.	5,541,590 A	7/1996	Nishio
D283,998 S	5/1986	Tanaka	5,541,724 A	7/1996	Hoashi
4,599,544 A	7/1986	Martin	5,550,677 A	8/1996	Schofield et al.
4,630,904 A	12/1986	Pastore	5,554,912 A	9/1996	Thayer et al.
4,638,287 A	1/1987	Umebayashi et al.	5,574,443 A	11/1996	Hsieh
4,645,975 A	2/1987	Meitzler et al.	5,574,463 A	11/1996	Shirai et al.
4,665,321 A	5/1987	Chang et al.	5,576,975 A	11/1996	Sasaki et al.
4,665,430 A	5/1987	Hiroyasu	5,587,929 A	12/1996	League et al.
4,692,798 A	9/1987	Seko et al.	5,592,146 A	1/1997	Kover, Jr. et al.
4,716,298 A	12/1987	Etoh	5,602,542 A	2/1997	Widmann et al.
4,727,290 A	2/1988	Smith et al.	5,614,788 A	3/1997	Mullins et al.
4,740,838 A	4/1988	Mase et al.	5,615,023 A	3/1997	Yang
4,768,135 A	8/1988	Kretschmer et al.	5,617,085 A	4/1997	Tsutsumi et al.
4,862,037 A	8/1989	Farber et al.	5,621,460 A	4/1997	Hatlestad et al.
4,891,559 A	1/1990	Matsumoto et al.	5,634,709 A	6/1997	Iwama
4,910,591 A	3/1990	Petrossian et al.	5,642,238 A	6/1997	Sala
4,930,742 A	6/1990	Schofield et al.	5,646,614 A	7/1997	Abersfelder et al.
4,934,273 A	6/1990	Endriz	5,650,765 A	7/1997	Park
4,967,319 A	10/1990	Seko	5,660,454 A	8/1997	Mori et al.
5,005,213 A	4/1991	Hanson et al.	5,666,028 A	9/1997	Bechtel et al.
5,008,946 A	4/1991	Ando	5,670,935 A	9/1997	Schofield et al.
5,027,200 A	6/1991	Petrossian et al.	5,680,123 A	10/1997	Lee
5,036,437 A	7/1991	Macks	5,684,473 A	11/1997	Hibino et al.
5,072,154 A	12/1991	Chen	5,707,129 A	1/1998	Kobayashi
5,086,253 A	2/1992	Lawler	5,708,410 A	1/1998	Blank et al.
5,096,287 A	3/1992	Kakinami et al.	5,708,857 A	1/1998	Ishibashi
5,121,200 A	6/1992	Choi	5,710,565 A	1/1998	Shirai et al.
5,124,549 A	6/1992	Michaels et al.	5,714,751 A	2/1998	Chen
5,166,681 A	11/1992	Bottesch et al.	5,715,093 A	2/1998	Schierbeek et al.
5,182,502 A	1/1993	Slotkowski et al.	5,729,194 A	3/1998	Spears et al.
5,187,383 A	2/1993	Taccetta et al.	5,736,816 A	4/1998	Strenke et al.
5,197,562 A	3/1993	Kakinami et al.	5,745,050 A	4/1998	Nakagawa
5,230,400 A	7/1993	Kakinami et al.	5,751,211 A	5/1998	Shirai et al.
5,235,178 A	8/1993	Hegyi	5,751,832 A	5/1998	Panter et al.
5,243,417 A	9/1993	Pollard	5,754,099 A	5/1998	Nishimura et al.
5,289,321 A	2/1994	Secor	5,760,828 A	6/1998	Cortes
5,296,924 A	3/1994	Blancard et al.	5,764,139 A	6/1998	Nojima et al.
D346,356 S	4/1994	Leu	5,767,793 A	6/1998	Agravante et al.
5,304,980 A	4/1994	Maekawa	5,781,105 A	7/1998	Bitar et al.
5,329,206 A	7/1994	Slotkowski et al.	5,786,787 A	7/1998	Eriksson et al.
5,347,261 A	9/1994	Adell	5,793,308 A	8/1998	Rosinski et al.
5,347,459 A	9/1994	Greenspan et al.	5,793,420 A	8/1998	Schmidt
5,355,146 A	10/1994	Chiu et al.	5,796,094 A	8/1998	Schofield et al.
5,379,104 A	1/1995	Takao	5,798,727 A	8/1998	Shirai et al.
5,381,309 A	1/1995	Borchardt	5,811,888 A	9/1998	Hsieh
5,386,285 A	1/1995	Asayama	5,812,321 A	9/1998	Schierbeek et al.
5,396,054 A	3/1995	Krichever et al.	D400,481 S	11/1998	Stephens et al.
5,402,170 A	3/1995	Parulski et al.	D401,200 S	11/1998	Huang
5,408,357 A	4/1995	Beukema	5,837,994 A	11/1998	Stam et al.
5,414,461 A	5/1995	Kishi et al.	5,841,126 A	11/1998	Fossum et al.
5,416,318 A	5/1995	Hegyi	5,844,505 A	12/1998	Van Ryzin
5,418,610 A	5/1995	Fischer	5,845,000 A	12/1998	Breed et al.
5,424,952 A	6/1995	Asayama	5,850,176 A	12/1998	Kinoshita et al.
5,426,294 A	6/1995	Kobayashi et al.	5,867,214 A	2/1999	Anderson et al.
5,428,464 A	6/1995	Silverbrook	5,877,897 A	3/1999	Schofield et al.
5,430,450 A	7/1995	Holmes	5,883,739 A	3/1999	Ashihara et al.
5,434,407 A	7/1995	Bauer et al.	5,896,119 A	4/1999	Evanicky et al.
5,451,822 A	9/1995	Bechtel et al.	5,904,729 A	5/1999	Ruzicka
5,452,004 A	9/1995	Roberts	5,905,457 A	5/1999	Rashid
5,469,298 A	11/1995	Suman et al.	5,912,534 A	6/1999	Benedict
5,471,515 A	11/1995	Fossum et al.	5,923,027 A	7/1999	Stam et al.
5,475,441 A	12/1995	Parulski et al.	5,935,613 A	8/1999	Benham et al.
5,475,494 A	12/1995	Nishida et al.	5,940,011 A	8/1999	Agravante et al.
5,481,268 A	1/1996	Higgins	5,942,853 A	8/1999	Piscart
5,483,346 A	1/1996	Butzer	5,949,331 A	9/1999	Schofield et al.
5,483,453 A	1/1996	Uemura et al.	5,956,079 A	9/1999	Ridgley
5,485,155 A	1/1996	Hibino	5,956,181 A	9/1999	Lin
5,485,378 A	1/1996	Franke et al.	5,959,555 A	9/1999	Furuta
5,488,496 A	1/1996	Pine	5,990,469 A	11/1999	Bechtel et al.
5,508,592 A	4/1996	Lapatovich et al.	6,008,486 A	12/1999	Stam et al.
			6,009,359 A	12/1999	El-Hakim et al.
			6,018,308 A	1/2000	Shirai
			6,025,872 A	2/2000	Ozaki et al.
			6,046,766 A	4/2000	Sakata

(56)

References Cited

U.S. PATENT DOCUMENTS

6,049,171	A	4/2000	Stam et al.	6,438,491	B1	8/2002	Farmer
6,060,989	A	5/2000	Gehlot	6,441,872	B1	8/2002	Ho
6,061,002	A	5/2000	Weber et al.	6,442,465	B2	8/2002	Breed et al.
6,067,111	A	5/2000	Hahn et al.	6,443,585	B1	9/2002	Saccomanno
6,072,391	A	6/2000	Suzuki et al.	6,443,602	B1	9/2002	Tanabe et al.
6,078,355	A	6/2000	Zengel	6,447,128	B1	9/2002	Lang et al.
6,097,023	A	8/2000	Schofield et al.	6,452,533	B1	9/2002	Yamabuchi et al.
6,102,546	A	8/2000	Carter	6,463,369	B2	10/2002	Sadano et al.
6,106,121	A	8/2000	Buckley et al.	6,465,962	B1	10/2002	Fu et al.
6,111,498	A	8/2000	Jobes et al.	6,466,701	B1	10/2002	Ejiri et al.
6,115,651	A	9/2000	Cruz	6,469,739	B1	10/2002	Bechtel et al.
6,122,597	A	9/2000	Saneyoshi et al.	6,472,977	B1	10/2002	Pochmuller
6,128,576	A	10/2000	Nishimoto et al.	6,473,001	B1	10/2002	Blum
6,130,421	A	10/2000	Bechtel et al.	6,476,731	B1	11/2002	Miki et al.
6,130,448	A	10/2000	Bauer et al.	6,476,855	B1	11/2002	Yamamoto
6,140,933	A	10/2000	Bugno et al.	6,483,429	B1	11/2002	Yasui et al.
6,144,158	A	11/2000	Beam	6,483,438	B2	11/2002	Deline et al.
6,151,065	A	11/2000	Steed et al.	6,487,500	B2	11/2002	Lemelson et al.
6,151,539	A	11/2000	Bergholz et al.	6,491,416	B1	12/2002	Strazzanti
6,154,149	A	11/2000	Tyckowski et al.	6,498,620	B2	12/2002	Schofield et al.
6,157,294	A	12/2000	Urai et al.	6,501,387	B2	12/2002	Skiver et al.
6,166,628	A	12/2000	Andreas	6,507,779	B2	1/2003	Breed et al.
6,166,698	A	12/2000	Turnbull et al.	6,515,581	B1	2/2003	Ho
6,167,755	B1	1/2001	Damson et al.	6,515,597	B1	2/2003	Wada et al.
6,172,600	B1	1/2001	Kakinami et al.	6,520,667	B1	2/2003	Mousseau
6,172,601	B1	1/2001	Wada et al.	6,522,969	B2	2/2003	Kannonji
6,175,300	B1	1/2001	Kendrick	D471,847	S	3/2003	Rumsey et al.
6,184,781	B1	2/2001	Ramakesavan	6,542,085	B1	4/2003	Yang
6,185,492	B1	2/2001	Kagawa et al.	6,542,182	B1	4/2003	Chutorash
6,191,704	B1	2/2001	Takenaga et al.	6,545,598	B1	4/2003	De Villeroche
6,200,010	B1	3/2001	Anders	6,550,943	B2	4/2003	Strazzanti
6,218,934	B1	4/2001	Regan	6,553,130	B1	4/2003	Lemelson et al.
6,222,447	B1	4/2001	Schofield et al.	6,558,026	B2	5/2003	Strazzanti
6,249,214	B1	6/2001	Kashiwazaki	6,559,761	B1	5/2003	Miller et al.
6,250,766	B1	6/2001	Strumolo et al.	6,572,233	B1	6/2003	Northman et al.
6,255,639	B1	7/2001	Stam et al.	6,575,643	B2	6/2003	Takahashi
6,259,475	B1	7/2001	Ramachandran et al.	6,580,373	B1	6/2003	Ohashi
6,265,968	B1	7/2001	Betzitza et al.	6,581,007	B2	6/2003	Hasegawa et al.
6,268,803	B1	7/2001	Gunderson et al.	6,583,730	B2	6/2003	Lang et al.
6,269,308	B1	7/2001	Kodaka et al.	6,587,573	B1	7/2003	Stam et al.
6,281,632	B1	8/2001	Stam et al.	6,591,192	B2	7/2003	Okamura et al.
6,281,804	B1	8/2001	Haller et al.	6,594,583	B2	7/2003	Ogura et al.
6,289,332	B2	9/2001	Menig et al.	6,594,614	B2	7/2003	Studt et al.
6,300,879	B1	10/2001	Regan et al.	6,611,202	B2	8/2003	Schofield et al.
6,304,173	B2	10/2001	Pala et al.	6,611,227	B1	8/2003	Nebiyeloul-Kiffe
6,313,892	B2	11/2001	Gleckman	6,611,610	B1	8/2003	Stam et al.
6,317,057	B1	11/2001	Lee	6,611,759	B2	8/2003	Brosche
6,320,612	B1	11/2001	Young	6,614,387	B1	9/2003	Deadman
6,324,295	B1	11/2001	Avionique et al.	6,616,764	B2	9/2003	Kramer et al.
D451,869	S	12/2001	Knapp et al.	6,617,564	B2	9/2003	Ockerse et al.
6,329,925	B1	12/2001	Skiver et al.	6,618,672	B2	9/2003	Sasaki et al.
6,330,511	B2	12/2001	Ogura et al.	6,630,888	B2	10/2003	Lang et al.
6,335,680	B1	1/2002	Matsuoka	6,631,316	B2	10/2003	Stam et al.
6,344,805	B1	2/2002	Yasui et al.	6,636,258	B2	10/2003	Strumolo
6,348,858	B2	2/2002	Weis et al.	6,642,840	B2	11/2003	Lang et al.
6,349,782	B1	2/2002	Sekiya et al.	6,642,851	B2	11/2003	Deline et al.
6,356,206	B1	3/2002	Takenaga et al.	6,648,477	B2	11/2003	Hutzel et al.
6,356,376	B1	3/2002	Tonar et al.	6,665,592	B2	12/2003	Kodama
6,357,883	B1	3/2002	Strumolo et al.	6,670,207	B1	12/2003	Roberts
6,363,326	B1	3/2002	Scully	6,670,910	B2	12/2003	Delcheccolo et al.
6,369,701	B1	4/2002	Yoshida et al.	6,674,370	B2	1/2004	Rodewald et al.
6,379,013	B1	4/2002	Bechtel et al.	6,675,075	B1	1/2004	Engelsberg et al.
6,396,040	B1	5/2002	Hill	6,677,986	B1	1/2004	Pöchmüller
6,396,397	B1	5/2002	Bos et al.	6,683,539	B2	1/2004	Trajkovic et al.
6,403,942	B1	6/2002	Stam	6,683,969	B1	1/2004	Nishigaki et al.
6,408,247	B1	6/2002	Ichikawa et al.	6,690,268	B2	2/2004	Schofield et al.
6,412,959	B1	7/2002	Tseng	6,690,413	B1	2/2004	Moore
6,415,230	B1	7/2002	Maruko et al.	6,693,517	B2	2/2004	McCarthy et al.
6,421,081	B1	7/2002	Markus	6,693,518	B2	2/2004	Kumata
6,424,272	B1	7/2002	Gutta et al.	6,693,519	B2	2/2004	Keirstead
6,424,273	B1	7/2002	Gutta et al.	6,693,524	B1	2/2004	Payne
6,424,892	B1	7/2002	Matsuoka	6,717,610	B1	4/2004	Bos et al.
6,428,172	B1	8/2002	Hutzel et al.	6,727,808	B1	4/2004	Uselmann et al.
6,433,680	B1	8/2002	Ho	6,727,844	B1	4/2004	Zimmermann et al.
6,437,688	B1	8/2002	Kobayashi	6,731,332	B1	5/2004	Yasui et al.
				6,734,807	B2	5/2004	King
				6,737,964	B2	5/2004	Samman et al.
				6,738,088	B1	5/2004	Uskolovsky et al.
				6,744,353	B2	6/2004	Sjonell

(56)

References Cited

U.S. PATENT DOCUMENTS

6,746,122 B2	6/2004	Knox	8,258,433 B2	9/2012	Byers et al.
D493,131 S	7/2004	Lawlor et al.	8,282,226 B2	10/2012	Blank et al.
D493,394 S	7/2004	Lawlor et al.	8,325,028 B2	12/2012	Schofield et al.
6,768,566 B2	7/2004	Walker	8,482,683 B2	7/2013	Hwang et al.
6,772,057 B2	8/2004	Breed et al.	8,508,831 B2 *	8/2013	De Wind B60R 1/04 340/425.5
6,774,988 B2	8/2004	Stam et al.	8,520,069 B2	8/2013	Haler
6,816,145 B1	11/2004	Evanicky	8,564,662 B2	10/2013	Busch et al.
D499,678 S	12/2004	Bradley	8,779,910 B2	7/2014	DeLine et al.
6,846,098 B2	1/2005	Bourdelaïs et al.	8,879,139 B2 *	11/2014	Fish, Jr. G02B 27/0149 359/265
6,847,487 B2	1/2005	Burgner	D729,714 S *	5/2015	Roth D12/187
6,853,413 B2	2/2005	Larson	D761,169 S *	7/2016	Roth D12/187
6,861,809 B2	3/2005	Stam	D761,170 S *	7/2016	Roth D12/187
6,902,284 B2	6/2005	Hutzel et al.	D761,171 S *	7/2016	Roth D12/187
6,902,307 B2	6/2005	Strazzanti	D763,151 S *	8/2016	Hamlin D12/187
6,912,001 B2	6/2005	Okamoto et al.	2001/0019356 A1	9/2001	Takeda et al.
6,913,375 B2	7/2005	Strazzanti	2001/0022616 A1	9/2001	Rademacher et al.
6,923,080 B1	8/2005	Dobler et al.	2001/0026316 A1	10/2001	Senatore
6,930,737 B2	8/2005	Weindorf et al.	2001/0045981 A1	11/2001	Gloger et al.
6,934,080 B2	8/2005	Saccomanno et al.	2002/0040962 A1	4/2002	Schofield et al.
6,946,978 B2	9/2005	Schofield	2002/0044065 A1	4/2002	Quist et al.
7,012,543 B2	3/2006	DeLine et al.	2002/0191127 A1	12/2002	Roberts et al.
7,038,577 B2	5/2006	Pawlicki et al.	2003/0002165 A1	1/2003	Mathias et al.
7,046,448 B2	5/2006	Burgner	2003/0007261 A1	1/2003	Hutzel et al.
7,175,291 B1	2/2007	Li	2003/0016125 A1	1/2003	Lang et al.
7,255,465 B2	8/2007	Deline et al.	2003/0016287 A1	1/2003	Nakayama et al.
7,262,406 B2	8/2007	Heslin et al.	2003/0025596 A1	2/2003	Lang et al.
7,265,342 B2	9/2007	Heslin et al.	2003/0025597 A1	2/2003	Schofield
D553,061 S	10/2007	Schmidt et al.	2003/0030546 A1	2/2003	Tseng
7,285,903 B2	10/2007	Cull et al.	2003/0030551 A1	2/2003	Ho
7,292,208 B1	11/2007	Park et al.	2003/0030724 A1	2/2003	Okamoto
7,311,428 B2	12/2007	Deline et al.	2003/0035050 A1	2/2003	Mizusawa
7,321,112 B2	1/2008	Stam et al.	2003/0043269 A1	3/2003	Park
7,360,932 B2	4/2008	Uken et al.	2003/0052969 A1	3/2003	Satoh et al.
7,417,221 B2	8/2008	Creswick et al.	2003/0058338 A1	3/2003	Kawauchi et al.
7,446,650 B2	11/2008	Schofield et al.	2003/0067383 A1	4/2003	Yang
7,467,883 B2	12/2008	Deline et al.	2003/0076415 A1	4/2003	Strumolo
7,468,651 B2	12/2008	Deline et al.	2003/0080877 A1	5/2003	Takagi et al.
7,505,047 B2	3/2009	Yoshimura	2003/0085806 A1	5/2003	Samman et al.
7,533,998 B2	5/2009	Schofield et al.	2003/0088361 A1	5/2003	Sekiguchi
7,548,291 B2	6/2009	Lee et al.	2003/0090568 A1	5/2003	Pico
7,565,006 B2	7/2009	Stam et al.	2003/0090569 A1	5/2003	Poehmueller
7,567,291 B2	7/2009	Bechtel et al.	2003/0090570 A1	5/2003	Takagi et al.
7,579,940 B2	8/2009	Schofield et al.	2003/0098908 A1	5/2003	Misaiji et al.
7,619,508 B2	11/2009	Lynam et al.	2003/0103141 A1	6/2003	Bechtel et al.
7,653,215 B2	1/2010	Stam	2003/0103142 A1	6/2003	Hitomi et al.
7,658,521 B2	2/2010	DeLine et al.	2003/0117522 A1	6/2003	Okada
7,683,326 B2	3/2010	Stam et al.	2003/0122929 A1	7/2003	Minaudo et al.
7,711,479 B2	5/2010	Taylor et al.	2003/0122930 A1	7/2003	Schofield et al.
7,719,408 B2	5/2010	Deward et al.	2003/0133014 A1	7/2003	Mendoza
7,720,580 B2	5/2010	Higgins-Luthman	2003/0137586 A1	7/2003	Lewellen
7,815,326 B2	10/2010	Blank et al.	2003/0141965 A1	7/2003	Gunderson et al.
7,877,175 B2	1/2011	Higgins-Luthman	2003/0146831 A1	8/2003	Berberich et al.
7,881,496 B2	2/2011	Camilleri et al.	2003/0169158 A1	9/2003	Paul, Jr.
7,881,839 B2	2/2011	Stam et al.	2003/0179293 A1	9/2003	Oizumi
7,888,629 B2	2/2011	Heslin et al.	2003/0202096 A1	10/2003	Kim
7,914,188 B2	3/2011	Deline et al.	2003/0202357 A1	10/2003	Strazzanti
7,972,045 B2	7/2011	Schofield	2003/0214576 A1	11/2003	Koga
7,994,471 B2	8/2011	Heslin et al.	2003/0214584 A1	11/2003	Ross, Jr.
8,031,225 B2	10/2011	Watanabe et al.	2003/0214733 A1	11/2003	Fujikawa et al.
8,045,760 B2	10/2011	Stam et al.	2003/0222793 A1	12/2003	Tanaka et al.
8,059,235 B2	11/2011	Utsumi et al.	2003/0222983 A1	12/2003	Nobori et al.
8,063,753 B2	11/2011	Deline et al.	2003/0227546 A1	12/2003	Hilborn et al.
8,090,153 B2	1/2012	Schofield et al.	2004/0004541 A1	1/2004	Hong
8,095,310 B2	1/2012	Taylor et al.	2004/0027695 A1	2/2004	Lin
8,100,568 B2	1/2012	Deline et al.	2004/0032321 A1	2/2004	McMahon et al.
8,116,929 B2	2/2012	Higgins-Luthman	2004/0036768 A1	2/2004	Green
8,120,652 B2	2/2012	Bechtel et al.	2004/0051634 A1	3/2004	Schofield et al.
8,142,059 B2	3/2012	Higgins-Luthman et al.	2004/0056955 A1	3/2004	Berberich et al.
8,162,518 B2	4/2012	Schofield	2004/0057131 A1	3/2004	Hutzel et al.
8,194,133 B2	6/2012	DeWind et al.	2004/0064241 A1	4/2004	Sekiguchi
8,201,800 B2	6/2012	Filipiak	2004/0066285 A1	4/2004	Sekiguchi
8,203,433 B2	6/2012	Deuber et al.	2004/0075603 A1	4/2004	Kodama
8,217,830 B2	7/2012	Lynam	2004/0080404 A1	4/2004	White
8,222,588 B2	7/2012	Schofield et al.	2004/0080431 A1	4/2004	White
8,237,909 B2	8/2012	Ostreko et al.			

(56)

References Cited

OTHER PUBLICATIONS

U.S. PATENT DOCUMENTS

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 et al.	
2005/0140855	A1	6/2005	Utsumi	
2005/0237440	A1	10/2005	Sugimura et al.	
2006/0007550	A1	1/2006	Tonar et al.	
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	Minikay, 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	
2009/0015736	A1	1/2009	Weller et al.	
2009/0141516	A1	6/2009	Wu et al.	
2010/0201896	A1	8/2010	Ostreko et al.	
2013/0028473	A1	1/2013	Hilldore et al.	
2013/0279014	A1	10/2013	Fish, Jr. et al.	
2014/0043479	A1	2/2014	Busch et al.	
2014/0192431	A1*	7/2014	Sloterbeek	B60R 1/12 359/871
2014/0347488	A1	11/2014	Tazaki et al.	

FOREIGN PATENT DOCUMENTS

EP	0899157	A1	3/1999
EP	0899157	B1	10/2004
GB	2338363		12/1999
JP	1178693		3/1999
JP	2002096685	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
WO	9621581		7/1996
WO	2007103573	A2	9/2007
WO	2010090964		8/2010

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 Vetrronics 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 May 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

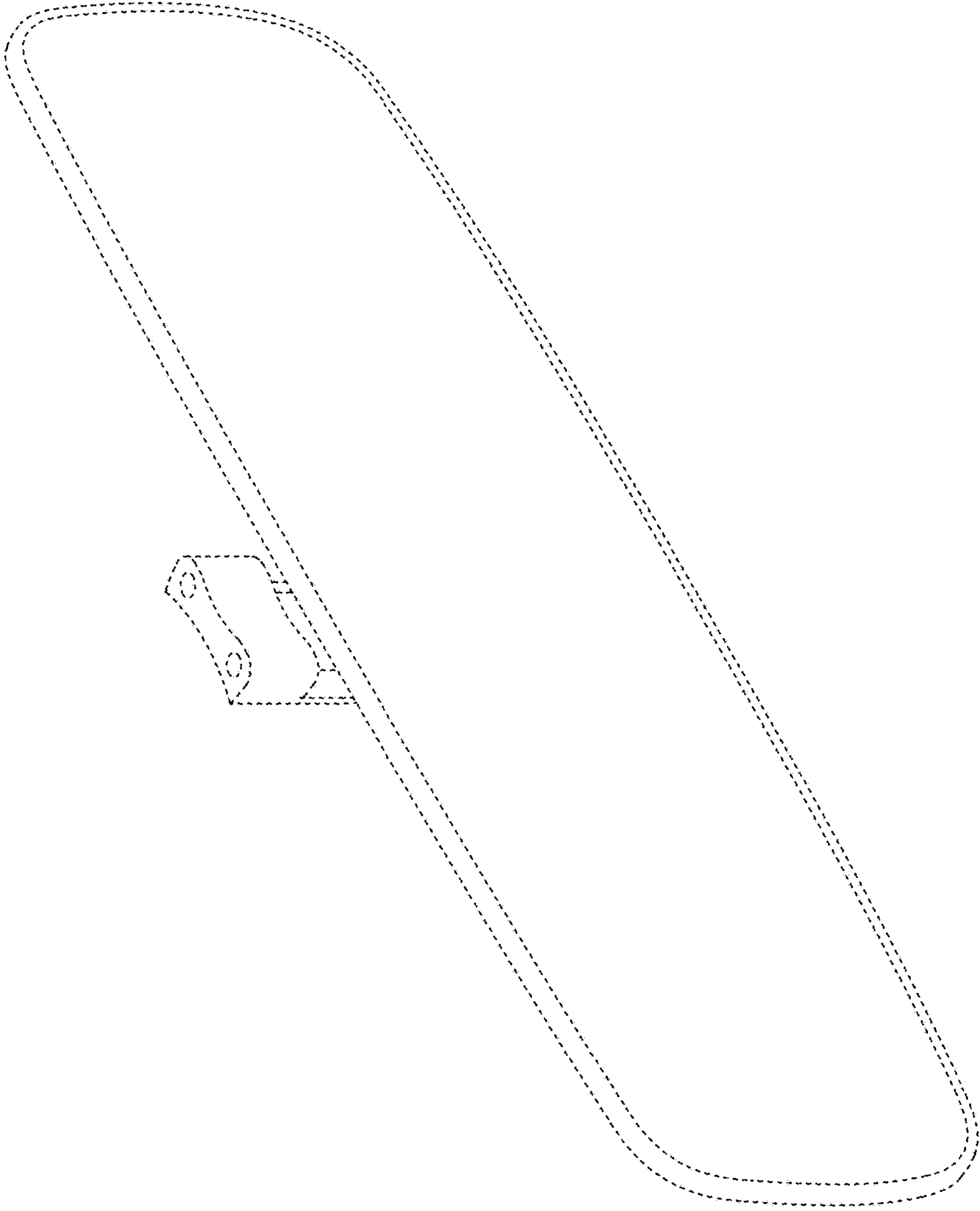


FIG. 1

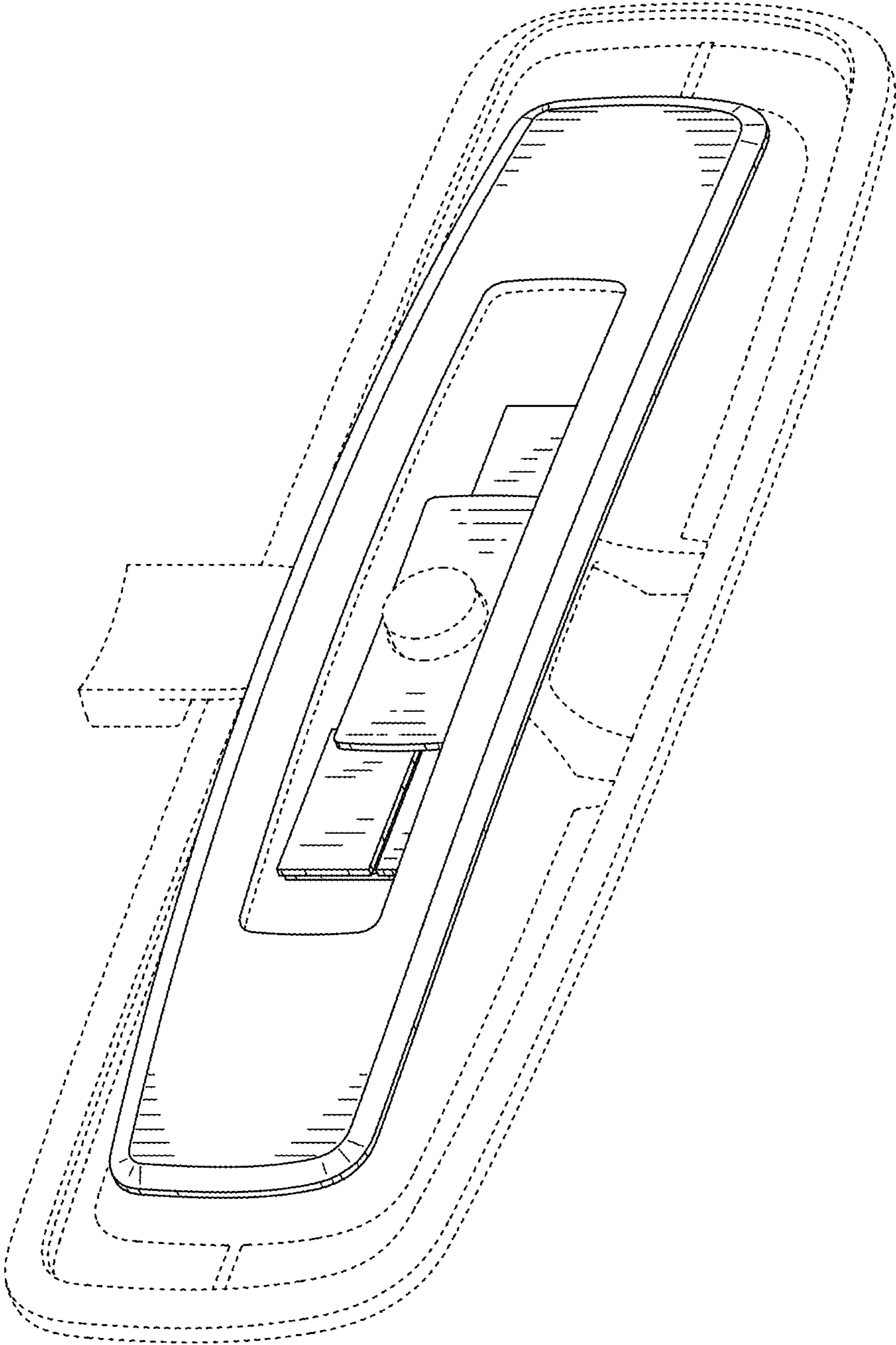


FIG. 2

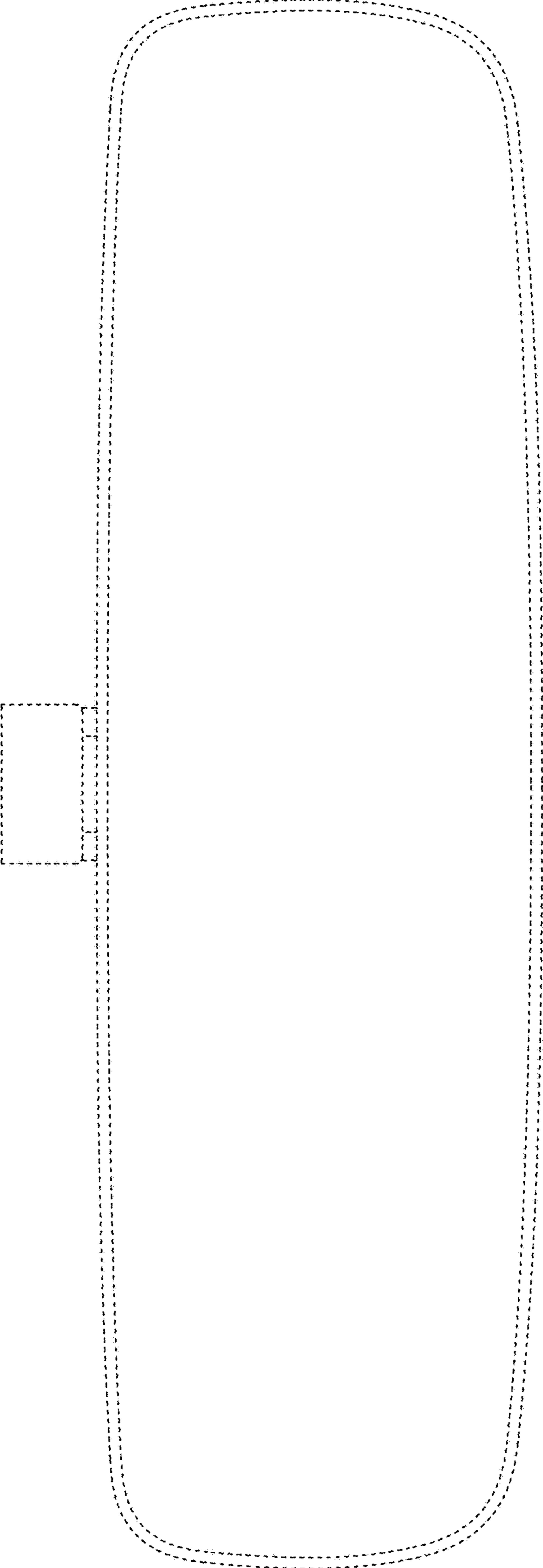


FIG. 3

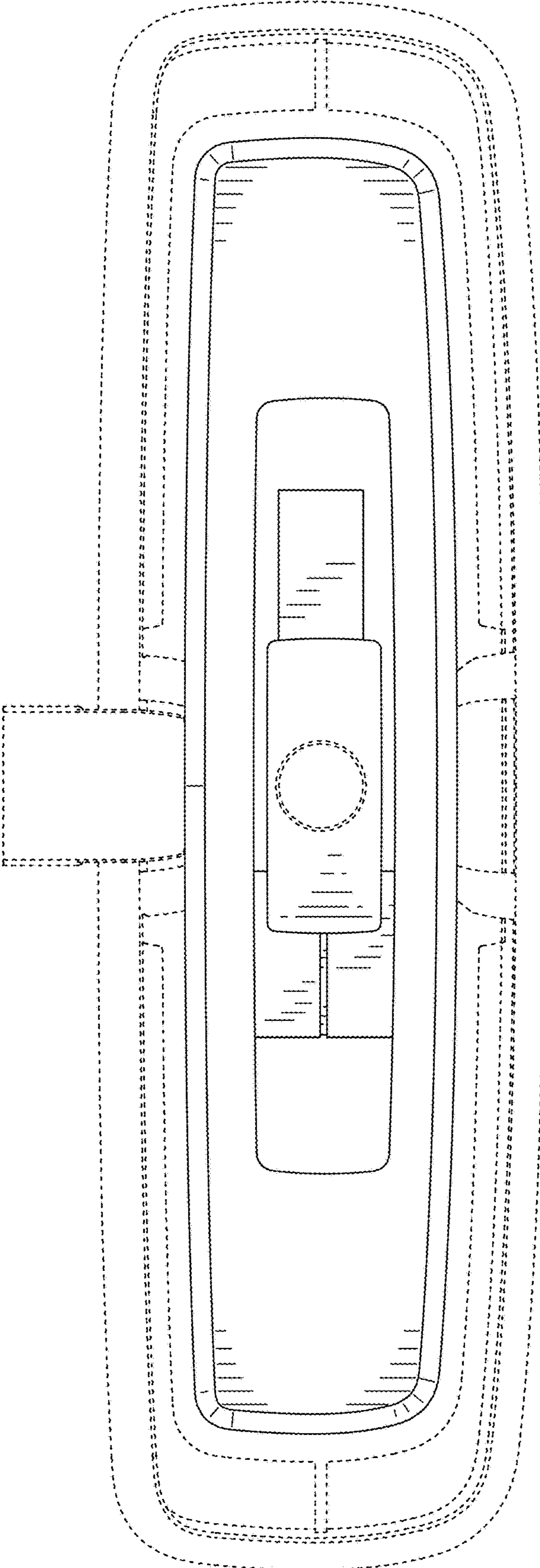


FIG. 4

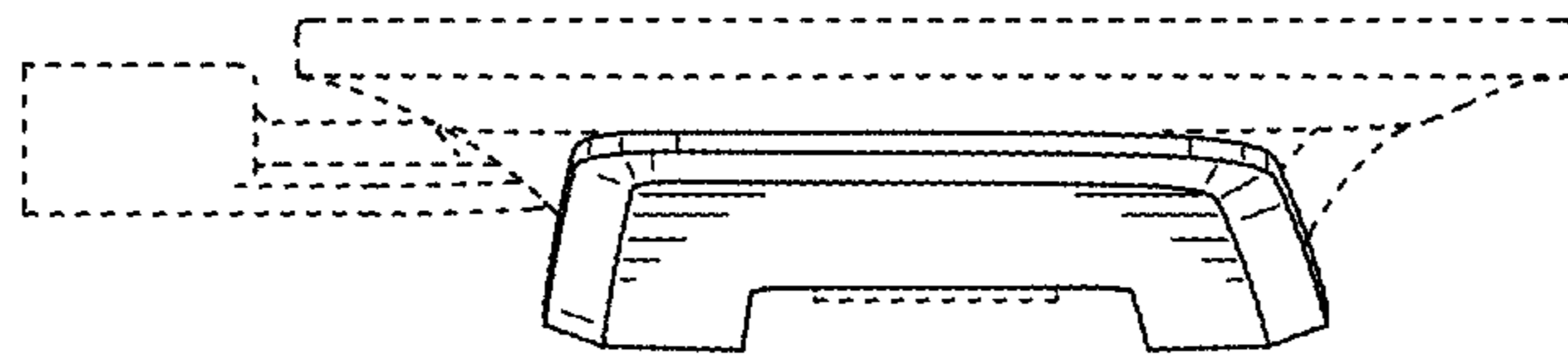


FIG. 5

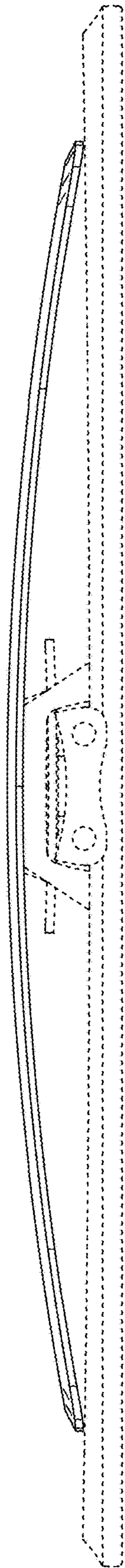


FIG. 6

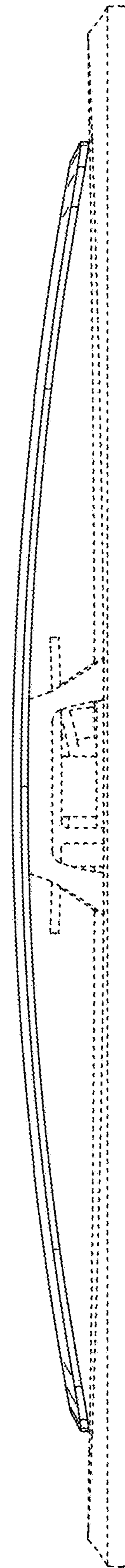


FIG. 7