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(12) **United States Design Patent**  
**Lock et al.**

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(54) **REARVIEW DEVICE**

(71) Applicant: **Gentex Corporation**, Zeeland, MI (US)  
(72) Inventors: **Nigel T. Lock**, Holland, MI (US);  
**Mark R. Roth**, Grand Rapids, MI (US)

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

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(58) **Field of Classification Search**  
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D21/433, 495; D6/300  
CPC ..... B60R 1/006; B60R 1/008; B60R 1/02;  
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See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

2,131,888 A 10/1938 Harris  
2,166,303 A \* 7/1939 La Hodny ..... B60R 1/12  
359/839  
2,632,040 A 3/1953 Rabinow  
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

(Continued)

**FOREIGN PATENT DOCUMENTS**

DE 102010064082 A1 6/2012  
EP 0513476 11/1992

(Continued)

**OTHER PUBLICATIONS**

International Searching Authority, International Search Report and  
Written Opinion for International Application No. PCT/US2013/  
037080, dated Aug. 29, 2013, 6 pages.

(Continued)

*Primary Examiner* — Lakiya G Rogers

*Assistant Examiner* — Altaira J Swangin

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

(57) **CLAIM**

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

**DESCRIPTION**

FIG. 1 is a front perspective view of a rearview device of the  
present disclosure;

FIG. 2 is a rear perspective view of the rearview device of  
FIG. 1;

FIG. 3 is a front elevational view of the rearview device of  
FIG. 1;

FIG. 4 is a rear elevational view of the rearview device of  
FIG. 1;

FIG. 5 is a first side view of the rearview device of FIG. 1;

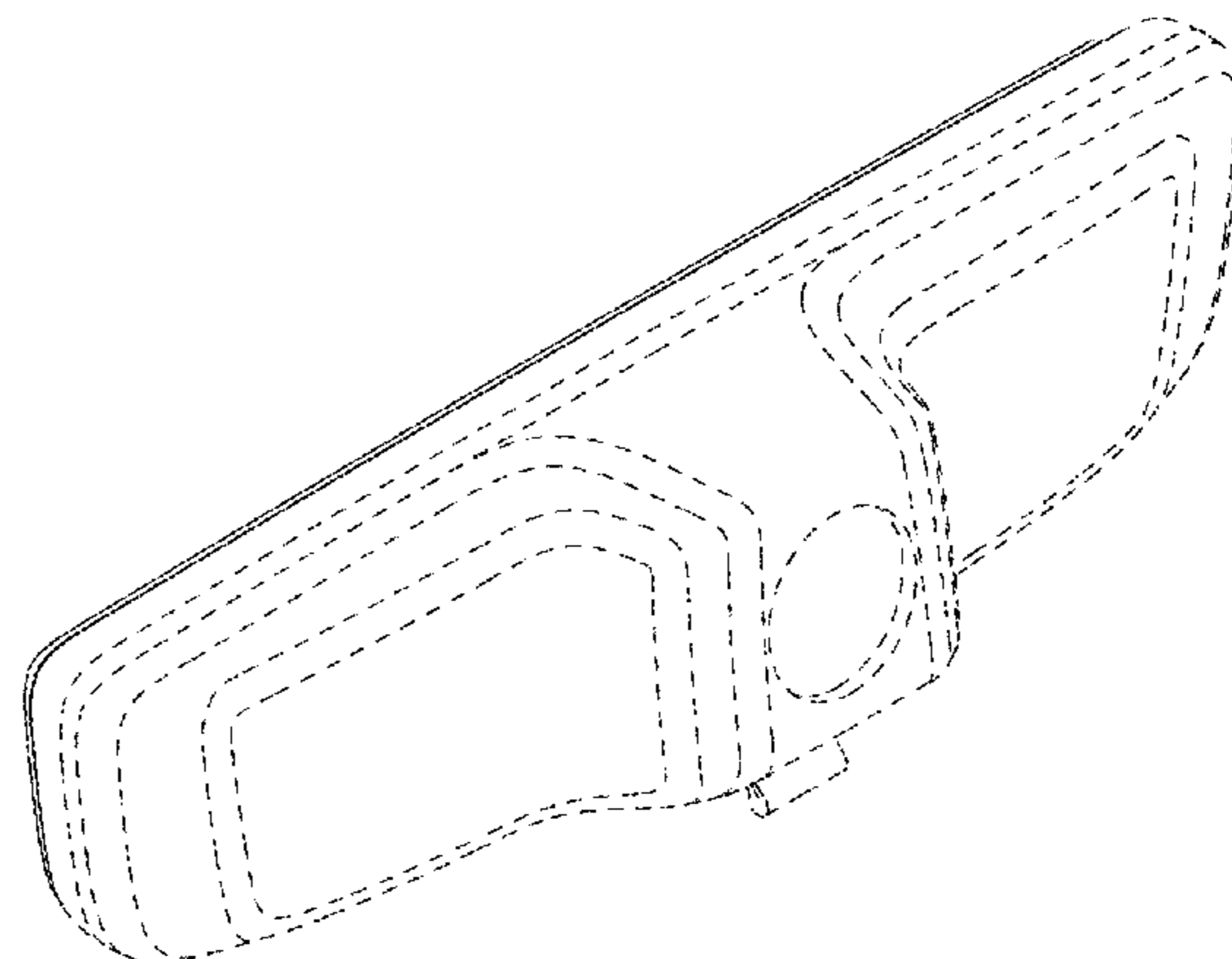
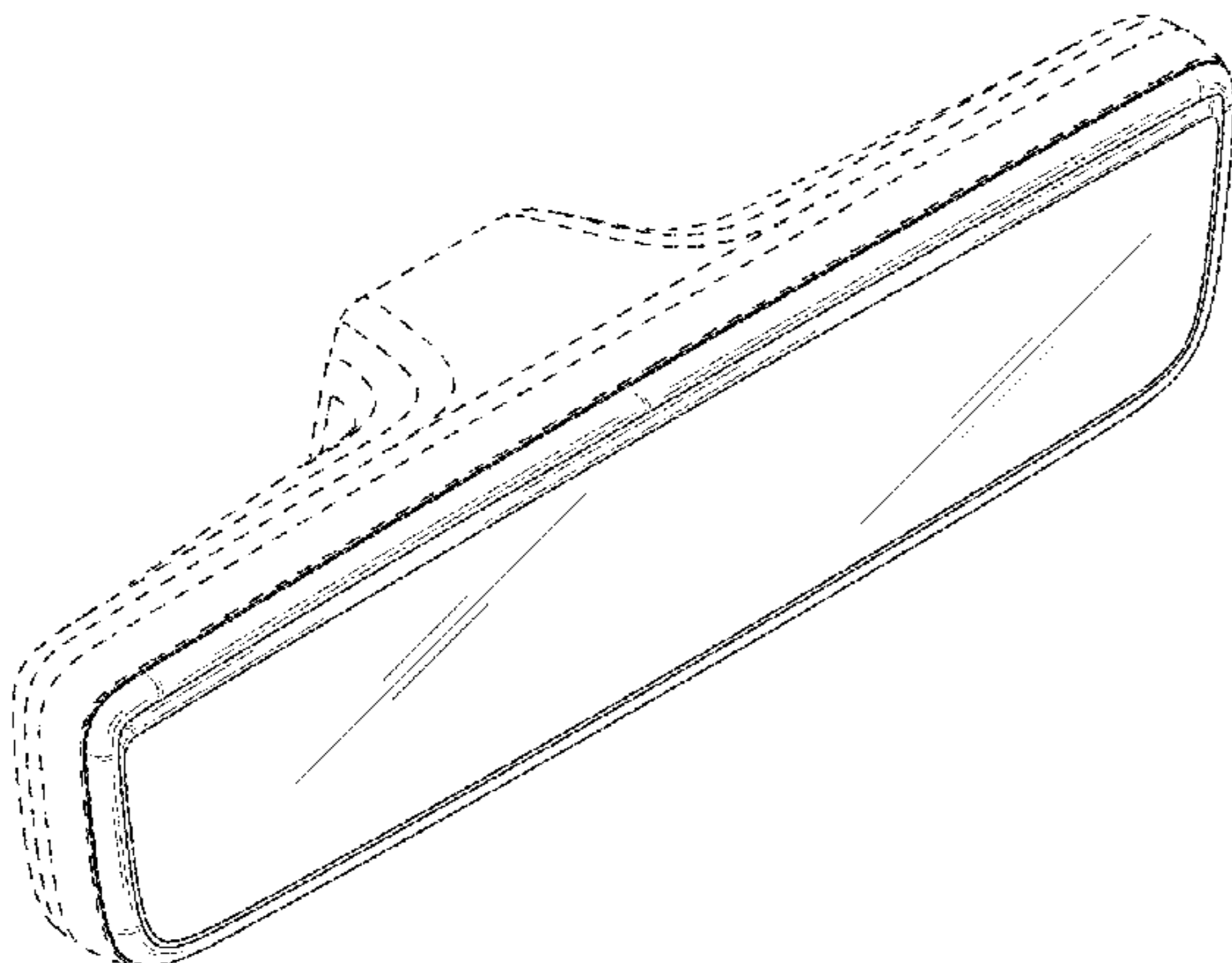
FIG. 6 is a second side view of the rearview device of FIG.  
1;

FIG. 7 is a top plan view of the rearview device of FIG. 1;  
and,

FIG. 8 is a bottom plan view of the rearview device of FIG.  
1.

The broken lines are included for the purpose of illustrating  
unclaimed portions of the article and form no part of the  
claimed design.

**1 Claim, 4 Drawing Sheets**



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(56)

## References Cited

### U.S. PATENT DOCUMENTS

			5,235,178 A	8/1993	Hegy	
			5,243,417 A	9/1993	Pollard	
			5,253,109 A *	10/1993	O'Farrell .....	B60R 1/088 250/206
2,900,872 A *	8/1959	Mazur .....	B60R 1/086			
			359/606			
2,964,999 A *	12/1960	Mazur .....	B01J 8/245			
			359/606			
3,179,845 A	4/1965	Kulwiec				
3,280,701 A	10/1966	Donnelly et al.				
3,508,815 A *	4/1970	Julbert .....	B60R 1/04			
			248/467			
3,581,276 A	5/1971	Newman				
3,586,422 A *	6/1971	Kagami .....	B60R 1/086			
			359/606			
3,663,819 A	5/1972	Hicks et al.				
3,837,129 A	9/1974	Losell				
4,109,235 A	8/1978	Bouthors				
4,139,801 A	2/1979	Linares				
4,151,526 A	4/1979	Hinachi et al.				
4,193,668 A *	3/1980	Skinner .....	B60R 1/02			
			359/606			
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				
4,286,308 A	8/1981	Wolff				
4,310,851 A	1/1982	Pierrat				
4,319,806 A *	3/1982	Brandenburg .....	B60R 1/086			
			359/606			
4,357,558 A	11/1982	Massoni et al.				
4,376,909 A	3/1983	Tagami et al.				
4,479,173 A	10/1984	Rumpakis				
4,499,451 A	2/1985	Suzuki et al.				
D283,998 S	5/1986	Tanaka				
4,599,544 A	7/1986	Martin				
4,630,904 A	12/1986	Pastore				
4,638,287 A	1/1987	Umebayashi et al.				
4,645,975 A	2/1987	Meitzler et al.				
4,665,321 A	5/1987	Chang et al.				
4,665,430 A	5/1987	Hiroyasu				
4,692,798 A	9/1987	Seko et al.				
4,716,298 A	12/1987	Etoh				
4,727,290 A	2/1988	Smith et al.				
4,740,838 A	4/1988	Mase et al.				
4,768,135 A	8/1988	Kretschmer et al.				
D300,312 S *	3/1989	Skogler .....	D12/188			
4,862,037 A	8/1989	Farber et al.				
4,891,559 A	1/1990	Matsumoto et al.				
4,902,108 A	2/1990	Byker				
4,910,591 A	3/1990	Petrossian et al.				
4,930,742 A	6/1990	Schofield et al.				
4,934,273 A	6/1990	Endriz				
4,967,319 A	10/1990	Seko				
5,005,213 A	4/1991	Hanson et al.				
5,008,946 A	4/1991	Ando				
5,027,200 A	6/1991	Petrossian et al.				
5,036,437 A	7/1991	Macks				
5,052,163 A	10/1991	Czekala				
5,066,112 A	11/1991	Lynam et al.				
5,069,535 A	12/1991	Baucke et al.				
5,072,154 A	12/1991	Chen				
5,073,012 A	12/1991	Lynam				
5,076,673 A	12/1991	Lynam et al.				
5,086,253 A	2/1992	Lawler				
5,096,287 A	3/1992	Kakinami et al.				
5,115,346 A	5/1992	Lynam				
5,121,200 A	6/1992	Choi et al.				
5,124,549 A	6/1992	Michaels et al.				
5,128,799 A	7/1992	Byker				
5,151,824 A	9/1992	O'Farrell				
5,158,638 A	10/1992	Osanami et al.				
5,166,681 A	11/1992	Bottesch et al.				
5,182,502 A	1/1993	Slotkowski et al.				
5,187,383 A	2/1993	Taccetta et al.				
5,197,562 A	3/1993	Kakinami et al.				
5,230,400 A	7/1993	Kakinami et al.				
			5,278,693 A	1/1994	Theiste	
			5,280,380 A	1/1994	Byker	
			5,282,077 A	1/1994	Byker	
			5,289,321 A	2/1994	Secor	
			5,294,376 A	3/1994	Byker	
			5,296,924 A	3/1994	Blancard et al.	
			D346,356 S	4/1994	Leu	
			5,304,980 A	4/1994	Maekawa	
			5,329,206 A	7/1994	Slotkowski et al.	
			5,336,448 A	8/1994	Byker	
			5,347,261 A	9/1994	Adell	
			5,347,459 A	9/1994	Greenspan et al.	
			5,355,146 A	10/1994	Chiu et al.	
			5,379,104 A	1/1995	Takao	
			5,379,146 A	1/1995	Defendini	
			5,381,309 A	1/1995	Borchardt	
			5,386,285 A	1/1995	Asayama	
			5,396,054 A	3/1995	Krichever et al.	
			5,402,170 A	3/1995	Parulski et al.	
			5,408,357 A	4/1995	Beukema	
			5,414,461 A	5/1995	Kishi et al.	
			5,416,318 A	5/1995	Hegy	
			5,418,610 A	5/1995	Fischer	
			5,421,940 A	6/1995	Cornils et al.	
			5,424,952 A	6/1995	Asayama	
			5,426,294 A	6/1995	Kobayashi et al.	
			5,428,464 A	6/1995	Silverbrook	
			5,430,450 A	7/1995	Holmes	
			5,434,407 A	7/1995	Bauer et al.	
			5,448,397 A	9/1995	Tonar	
			5,451,822 A	9/1995	Bechtel et al.	
			5,452,004 A	9/1995	Roberts	
			5,469,298 A	11/1995	Suman et al.	
			5,471,515 A	11/1995	Fossum et al.	
			5,475,441 A	12/1995	Parulski et al.	
			5,475,494 A	12/1995	Nishida et al.	
			5,481,268 A	1/1996	Higgins	
			5,483,346 A	1/1996	Butzer	
			5,483,453 A	1/1996	Uemura et al.	
			5,485,155 A	1/1996	Hibino	
			5,485,378 A	1/1996	Franke et al.	
			5,488,496 A	1/1996	Pine	
			5,508,592 A	4/1996	Lapatovich et al.	
			5,515,448 A	5/1996	Nishitani	
			5,521,760 A *	5/1996	De Young .....	B60R 1/086 248/467
			5,523,811 A	6/1996	Wada et al.	
			5,530,421 A	6/1996	Marshall et al.	
			5,535,144 A	7/1996	Kise	
			5,537,003 A	7/1996	Bechtel et al.	
			5,541,590 A	7/1996	Nishio	
			5,541,724 A	7/1996	Hoashi	
			5,550,677 A	8/1996	Schofield et al.	
			5,554,912 A	9/1996	Thayer et al.	
			5,574,443 A	11/1996	Hsieh	
			5,574,463 A	11/1996	Shirai et al.	
			5,576,975 A	11/1996	Sasaki et al.	
			5,587,929 A	12/1996	League et al.	
			5,592,146 A	1/1997	Kover, Jr. et al.	
			5,602,542 A	2/1997	Windmann et al.	
			5,614,788 A	3/1997	Mullins et al.	
			5,615,023 A	3/1997	Yang	
			5,617,085 A	4/1997	Tsutsumi et al.	
			5,621,460 A	4/1997	Hatlestad et al.	
			5,634,709 A	6/1997	Iwama	
			5,642,238 A	6/1997	Sala	
			5,646,614 A	7/1997	Abersfelder et al.	
			5,649,756 A	7/1997	Adams et al.	
			5,650,765 A	7/1997	Park	
			5,660,454 A	8/1997	Mori et al.	
			5,666,028 A	9/1997	Bechtel et al.	
			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	

(56)

References Cited

U.S. PATENT DOCUMENTS

5,684,473 A	11/1997	Hibino et al.	6,051,956 A	4/2000	Nakashimo
5,689,370 A	11/1997	Tonar	6,060,989 A	5/2000	Gehlot
5,707,129 A	1/1998	Kobayashi	6,061,002 A	5/2000	Weber et al.
5,708,410 A *	1/1998	Blank ..... B60K 35/00 340/438	6,062,920 A	5/2000	Jordan
5,708,857 A	1/1998	Ishibashi	6,064,508 A	5/2000	Forgette et al.
5,710,565 A	1/1998	Shirai et al.	6,064,509 A	5/2000	Tonar et al.
5,714,751 A	2/1998	Chen	6,067,111 A	5/2000	Hahn et al.
5,715,093 A	2/1998	Schierbeek et al.	6,068,380 A	5/2000	Lynn et al.
5,729,194 A	3/1998	Spears et al.	6,072,391 A	6/2000	Suzuki et al.
5,736,816 A	4/1998	Strenke et al.	6,078,355 A	6/2000	Zengel
5,742,026 A	4/1998	Dickinson	6,084,700 A	7/2000	Knapp
5,745,050 A	4/1998	Nakagawa	6,097,023 A	8/2000	Schofield et al.
5,751,211 A	5/1998	Shirai et al.	6,102,546 A	8/2000	Carter
5,751,832 A	5/1998	Panter et al.	6,106,121 A	8/2000	Buckley et al.
5,754,099 A	5/1998	Nishimura et al.	6,111,498 A	8/2000	Jobes et al.
5,760,828 A	6/1998	Cortes	6,111,683 A	8/2000	Cammenga
5,764,139 A	6/1998	Nojima et al.	6,111,684 A	8/2000	Forgette
5,767,793 A	6/1998	Agravante et al.	6,115,651 A	9/2000	Cruz
5,781,105 A	7/1998	Bitar et al.	6,122,597 A	9/2000	Saneyoshi et al.
5,786,787 A	7/1998	Eriksson et al.	6,128,576 A	10/2000	Nishimoto et al.
5,790,298 A	8/1998	Tonar	6,130,421 A	10/2000	Bechtel et al.
5,793,308 A	8/1998	Rosinski et al.	6,130,448 A	10/2000	Bauer et al.
5,793,420 A	8/1998	Schmidt	6,132,072 A	10/2000	Turnbull
5,796,094 A	8/1998	Schofield et al.	6,140,933 A	10/2000	Bugno et al.
5,798,727 A	8/1998	Shirai et al.	6,144,158 A	11/2000	Beam
5,803,579 A	9/1998	Turnbull	6,151,065 A	11/2000	Steed et al.
5,808,778 A *	9/1998	Bauer ..... B60R 1/088 359/265	6,151,539 A	11/2000	Bergholz et al.
5,811,888 A	9/1998	Hsieh	6,154,149 A	11/2000	Tychkowski et al.
5,812,321 A	9/1998	Schierbeek et al.	6,157,294 A	12/2000	Urai et al.
5,818,625 A	10/1998	Forgette et al.	6,166,629 A	12/2000	Andreas
5,825,527 A	10/1998	Forgette et al.	6,166,698 A	12/2000	Turnbull et al.
D400,481 S	11/1998	Stephens et al.	6,166,848 A	12/2000	Cammenga et al.
D401,200 S	11/1998	Huang	6,167,755 B1	1/2001	Damson et al.
5,837,994 A	11/1998	Stam et al.	6,170,956 B1	1/2001	Rumsey et al.
5,841,126 A	11/1998	Fossum et al.	6,172,600 B1	1/2001	Kakinami et al.
5,844,505 A	12/1998	Van Ryzin	6,172,601 B1	1/2001	Wada et al.
5,845,000 A	12/1998	Breed et al.	6,175,300 B1	1/2001	Kendrick
5,850,176 A	12/1998	Kinoshita et al.	6,184,781 B1	2/2001	Ramakesavan
5,867,214 A	2/1999	Anderson et al.	6,185,492 B1	2/2001	Kagawa et al.
5,877,897 A	3/1999	Schofield et al.	6,188,505 B1	2/2001	Lompfrey
5,883,739 A	3/1999	Ashihara et al.	6,191,704 B1	2/2001	Takenaga et al.
5,888,431 A	3/1999	Tonar et al.	6,193,378 B1	2/2001	Tonar et al.
5,896,119 A	4/1999	Evanicky et al.	6,193,912 B1	2/2001	Theiste
5,904,729 A	5/1999	Ruzicka	6,195,194 B1	2/2001	Roberts et al.
5,905,457 A	5/1999	Rashid	6,200,010 B1	3/2001	Anders
D410,607 S	6/1999	Carter	6,218,934 B1	4/2001	Regan
5,912,534 A	6/1999	Benedict	6,222,177 B1	4/2001	Bechtel
5,923,027 A	7/1999	Stam et al.	6,222,447 B1	4/2001	Schofield et al.
5,923,457 A	7/1999	Byker et al.	6,224,716 B1	5/2001	Yoder
5,928,572 A	7/1999	Tonar et al.	6,229,435 B1	5/2001	Knapp
5,935,613 A	8/1999	Benham et al.	6,239,898 B1	5/2001	Byker
5,940,011 A	8/1999	Agravante et al.	6,239,899 B1	5/2001	Devries et al.
5,940,201 A	8/1999	Ash et al.	6,244,716 B1	6/2001	Steenwyk
5,942,853 A	8/1999	Piscart	6,246,507 B1	6/2001	Bauer
5,949,331 A	9/1999	Schofield et al.	6,247,819 B1	6/2001	Turnbull
5,956,012 A	9/1999	Turnbull et al.	6,249,214 B1	6/2001	Kashiwazaki
5,956,079 A	9/1999	Ridgley	6,249,369 B1	6/2001	Theiste et al.
5,956,181 A	9/1999	Lin	6,250,766 B1	6/2001	Strumolo et al.
5,959,555 A	9/1999	Furuta	6,255,639 B1	7/2001	Stam et al.
5,990,469 A	11/1999	Bechtel et al.	6,259,475 B1	7/2001	Ramachandran et al.
5,998,617 A	12/1999	Srinivasa	6,262,831 B1	7/2001	Bauer
6,002,511 A	12/1999	Varaprasad	6,262,832 B1	7/2001	Lompfrey
6,008,486 A	12/1999	Stam et al.	6,265,968 B1	7/2001	Betzitza et al.
6,009,359 A	12/1999	El-Hakim et al.	6,268,803 B1	7/2001	Gunderson et al.
6,018,308 A	1/2000	Shirai	6,268,950 B1	7/2001	Ash
6,020,987 A	2/2000	Baumann	6,269,308 B1	7/2001	Kodaka et al.
6,023,040 A	2/2000	Zahavi	6,281,632 B1	8/2001	Stam et al.
6,023,229 A	2/2000	Bugno et al.	6,281,804 B1	8/2001	Haller et al.
6,025,872 A	2/2000	Ozaki et al.	6,289,332 B2	9/2001	Menig et al.
6,037,471 A	3/2000	Srinivasa	6,291,812 B1	9/2001	Bechtel
6,043,452 A	3/2000	Bestenlehrer	6,300,879 B1	10/2001	Regan et al.
6,046,766 A	4/2000	Sakata	6,304,173 B2	10/2001	Pala et al.
6,049,171 A	4/2000	Stam et al.	6,313,457 B1	11/2001	Bauer
			6,313,892 B2	11/2001	Gleckman
			6,317,057 B1	11/2001	Lee
			6,317,248 B1	11/2001	Agrawal et al.
			6,320,612 B1	11/2001	Young
			6,324,295 B1	11/2001	Avionique et al.
			D451,869 S	12/2001	Knapp et al.

(56)

## References Cited

## U.S. PATENT DOCUMENTS

6,329,925	B1	12/2001	Skiver et al.	6,553,130	B1	4/2003	Lemelson et al.
6,330,511	B2	12/2001	Ogura et al.	6,558,026	B2	5/2003	Strazzanti
6,335,548	B1	1/2002	Roberts	6,559,761	B1	5/2003	Miller et al.
6,335,680	B1	1/2002	Matsuoka	6,572,233	B1	6/2003	Northman et al.
6,344,805	B1	2/2002	Yasui et al.	6,580,373	B1	6/2003	Ohashi
6,348,858	B2	2/2002	Weis et al.	6,581,007	B2	6/2003	Hasegawa et al.
6,349,782	B1	2/2002	Sekiya et al.	6,583,730	B2	6/2003	Lang et al.
6,356,206	B1	3/2002	Takenaga et al.	6,575,643	B2	7/2003	Takashashi
6,356,376	B1	3/2002	Tonar et al.	6,587,573	B1	7/2003	Stam et al.
6,357,883	B1	3/2002	Strumolo et al.	6,591,192	B2	7/2003	Okamura et al.
6,359,274	B1	3/2002	Nixon	6,594,583	B2	7/2003	Ogura et al.
6,363,326	B1	3/2002	Scully	6,594,614	B2	7/2003	Studt et al.
6,369,701	B1	4/2002	Yoshida et al.	D478,537	S *	8/2003	Ono ..... D12/187
6,379,013	B1	4/2002	Bechtel et al.	6,606,183	B2	8/2003	Ikai et al.
6,392,783	B1	5/2002	Lompfrey	6,611,202	B2	8/2003	Schofield et al.
6,396,040	B1	5/2002	Hill	6,611,227	B1	8/2003	Nebiyeloul-Kifle
6,396,397	B1	5/2002	Bos et al.	6,611,610	B1	8/2003	Stam et al.
6,402,328	B1	6/2002	Bechtel	6,611,759	B2	8/2003	Brosche
6,403,942	B1	6/2002	Stam	6,612,708	B2	9/2003	Chu
6,407,468	B1	6/2002	Levesque et al.	6,614,387	B1	9/2003	Deadman
6,407,847	B1	6/2002	Poll et al.	6,614,579	B2	9/2003	Roberts et al.
6,408,247	B1	6/2002	Ichikawa et al.	6,616,764	B2	9/2003	Kramer et al.
6,412,959	B1	7/2002	Tseng	6,617,564	B2	9/2003	Ockerse et al.
6,415,230	B1	7/2002	Maruko et al.	6,618,672	B2	9/2003	Sasaki et al.
6,420,800	B1	7/2002	Levesque	6,630,888	B2	10/2003	Lang et al.
6,421,081	B1	7/2002	Markus	6,631,316	B2	10/2003	Stam et al.
6,424,272	B1	7/2002	Gutta et al.	6,635,194	B2	10/2003	Kloepfner
6,424,273	B1	7/2002	Gutta et al.	6,636,258	B2	10/2003	Strumolo
6,424,892	B1	7/2002	Matsuoka	6,642,840	B2	11/2003	Lang et al.
6,426,485	B1	7/2002	Buljajewski	6,642,851	B2	11/2003	Deline et al.
6,428,172	B1	8/2002	Hutzel et al.	6,648,477	B2	11/2003	Hutzel et al.
6,429,594	B1	8/2002	Stam	6,650,457	B2	11/2003	Busscher et al.
6,433,680	B1	8/2002	Ho	6,657,767	B2	12/2003	Bonardi
6,437,688	B1	8/2002	Kobayashi	6,665,592	B2	12/2003	Kodama
6,438,491	B1	8/2002	Farmer	6,670,207	B1	12/2003	Roberts
6,441,872	B1	8/2002	Ho	6,670,910	B2	12/2003	Delcheccolo et al.
6,441,943	B1	8/2002	Roberts	6,674,370	B2	1/2004	Rodewald et al.
6,442,465	B2	8/2002	Breed et al.	6,675,075	B1	1/2004	Engelsberg et al.
6,443,585	B1	9/2002	Sacomanno	6,677,986	B1	1/2004	Pöchmüller
6,443,602	B1	9/2002	Tanabe et al.	6,683,539	B2	1/2004	Trajkovic et al.
6,447,128	B1	9/2002	Lang et al.	6,683,969	B1	1/2004	Nishigaki et al.
6,447,130	B2	9/2002	Chu	6,690,268	B2	2/2004	Schofield et al.
6,452,533	B1	9/2002	Yamabuchi et al.	6,690,413	B1	2/2004	Moore
6,463,369	B2	10/2002	Sadano et al.	6,693,517	B2	2/2004	McCarty et al.
6,465,962	B1	10/2002	Fu et al.	6,693,518	B2	2/2004	Kumata
6,465,963	B1	10/2002	Turnbull	6,693,519	B2	2/2004	Keirstead
6,466,701	B1	10/2002	Ejiri et al.	6,693,524	B1	2/2004	Payne
6,469,739	B1	10/2002	Bechtel et al.	6,700,692	B2	3/2004	Tonar
6,471,362	B1	10/2002	Carter	6,717,610	B1	4/2004	Bos et al.
6,472,977	B1	10/2002	Pochmuller	6,727,808	B1	4/2004	Uselmann et al.
6,473,001	B1	10/2002	Blum	6,727,844	B1	4/2004	Zimmermann et al.
6,476,731	B1	11/2002	Miki et al.	6,731,332	B1	5/2004	Yasui et al.
6,476,855	B1	11/2002	Yamamoto	6,734,807	B2	5/2004	King
6,483,429	B1	11/2002	Yasui et al.	6,737,964	B2	5/2004	Samman et al.
6,483,438	B2	11/2002	Deline et al.	6,738,088	B1	5/2004	Uskolovsky et al.
6,487,500	B2	11/2002	Lemelson et al.	6,744,353	B2	6/2004	Sjonell
6,491,416	B1	12/2002	Strazzanti	6,746,122	B2	6/2004	Knox
6,498,620	B2	12/2002	Schofield et al.	D493,131	S	7/2004	Lawlor et al.
6,501,387	B2	12/2002	Skiver et al.	D493,394	S	7/2004	Lawlor et al.
6,504,142	B2	1/2003	Nixon	6,768,566	B2	7/2004	Walker
6,507,779	B2	1/2003	Breed et al.	6,772,057	B2	8/2004	Breed et al.
6,512,624	B2	1/2003	Tonar	6,774,988	B2	8/2004	Stam et al.
6,515,581	B1	2/2003	Ho	6,781,738	B2	8/2004	Kikuchi et al.
6,515,597	B1	2/2003	Wada et al.	6,816,145	B1	11/2004	Evanicky
6,520,667	B1	2/2003	Mousseau	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	Bourdelaïs 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
6,542,085	B1	4/2003	Yang	6,870,656	B2	3/2005	Tonar et al.
6,542,182	B1	4/2003	Chutorash	6,902,284	B2	6/2005	Hutzel et al.
6,545,598	B1	4/2003	De Villeroche	6,902,307	B2	6/2005	Strazzanti
6,545,794	B2	4/2003	Ash	6,912,001	B2	6/2005	Okamoto et al.
6,550,943	B2	4/2003	Strazzanti	6,913,375	B2	7/2005	Strazzanti
				6,923,080	B1	8/2005	Dobler et al.
				6,930,737	B2	8/2005	Weindorf et al.
				6,934,080	B2	8/2005	Sacomanno et al.
				6,946,978	B2	9/2005	Schofield

(56)

References Cited

U.S. PATENT DOCUMENTS

6,968,273 B2	11/2005	Ockerse	8,217,830 B2	7/2012	Lynam
7,012,543 B2	3/2006	Deline et al.	8,222,588 B2	7/2012	Schofield et al.
7,038,577 B2	5/2006	Pawlicki et al.	8,237,909 B2	8/2012	Ostreko et al.
7,042,616 B2	5/2006	Tonar et al.	8,258,433 B2	9/2012	Byers et al.
7,046,448 B2	5/2006	Burgner	8,282,226 B2	10/2012	Blank et al.
7,064,882 B2	6/2006	Tonar	8,325,028 B2 *	12/2012	Schofield ..... B60C 23/0401 340/425.5
7,175,291 B1	2/2007	Li	8,482,683 B2	7/2013	Hwang et al.
7,255,465 B2	8/2007	Deline et al.	8,520,069 B2	8/2013	Haler
7,262,406 B2	8/2007	Heslin et al.	8,559,092 B2 *	10/2013	Bugno ..... B60R 1/088 359/265
7,265,342 B2	9/2007	Heslin et al.	8,564,662 B2	10/2013	Busch et al.
D553,061 S	10/2007	Schmidt et al.	8,779,910 B2	7/2014	DeLine et al.
7,285,903 B2	10/2007	Cull et al.	8,864,322 B2 *	10/2014	Cammenga ..... B60R 1/088 359/273
7,287,868 B2	10/2007	Carter	D729,714 S *	5/2015	Roth ..... D12/187
D555,056 S *	11/2007	Skilliter, III ..... D12/187	D739,320 S *	9/2015	Minikey, Jr. .... D12/187
7,292,208 B1	11/2007	Park et al.	9,134,585 B2 *	9/2015	Tonar ..... B60R 1/088
7,311,428 B2	12/2007	Deline et al.	9,174,578 B2 *	11/2015	Uken ..... B60R 1/088
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	D761,169 S *	7/2016	Roth ..... D12/187
7,360,932 B2	4/2008	Uken et al.	D761,170 S *	7/2016	Roth ..... D12/187
7,417,221 B2	8/2008	Creswick et al.	D763,151 S *	8/2016	Hamlin ..... D12/187
7,417,717 B2	8/2008	Pack	9,475,431 B2 *	10/2016	Brummel ..... B60R 1/04
7,446,650 B2	11/2008	Schofield et al.	9,550,457 B2 *	1/2017	Green ..... G02F 1/1339
7,467,883 B2	12/2008	Deline et al.	9,573,525 B2 *	2/2017	Minikey, Jr. .... B60R 1/04
7,468,651 B2	12/2008	Deline et al.	9,612,500 B2 *	4/2017	Tonar
7,505,047 B2	3/2009	Yoshimura	9,694,751 B2 *	7/2017	Lundy, Jr. .... B60R 1/088
7,533,998 B2	5/2009	Schofield et al.	2001/0019356 A1	9/2001	Takeda et al.
7,548,291 B2	6/2009	Lee et al.	2001/0022616 A1	9/2001	Rademacher et al.
7,565,006 B2	7/2009	Stam et al.	2001/0026316 A1	10/2001	Senatore
7,567,291 B2	7/2009	Bechtel et al.	2001/0045981 A1	11/2001	Gloger et al.
7,579,940 B2	8/2009	Schofield et al.	2002/0040962 A1	4/2002	Schofield et al.
7,592,563 B2	9/2009	Wissenbach	2002/0044065 A1	4/2002	Quist et al.
7,619,508 B2	11/2009	Lynam et al.	2002/0191127 A1	12/2002	Roberts et al.
7,653,215 B2	1/2010	Stam	2003/0002165 A1	1/2003	Mathias et al.
7,658,521 B2	2/2010	Deline et al.	2003/0007261 A1	1/2003	Hutzel et al.
7,663,798 B2	2/2010	Tonar	2003/0016125 A1	1/2003	Lang et al.
7,683,326 B2	3/2010	Stam et al.	2003/0016287 A1	1/2003	Nakayama et al.
7,688,495 B2	3/2010	Tonar et al.	2003/0025596 A1	2/2003	Lang et al.
7,706,046 B2	4/2010	Bauer et al.	2003/0025597 A1	2/2003	Schofield
7,711,479 B2	5/2010	Taylor et al.	2003/0030546 A1	2/2003	Tseng
7,719,408 B2	5/2010	Deward et al.	2003/0030551 A1	2/2003	Ho
7,720,580 B2	5/2010	Higgins-Luthman	2003/0030724 A1	2/2003	Okamoto
7,746,534 B2	6/2010	Tonar et al.	2003/0035050 A1	2/2003	Mizusawa
7,815,326 B2	10/2010	Blank et al.	2003/0043269 A1	3/2003	Park
7,817,020 B2	10/2010	Turnbull et al.	2003/0052969 A1	3/2003	Satoh et al.
7,821,696 B2	10/2010	Tonar et al.	2003/0058338 A1	3/2003	Kawauchi et al.
7,830,583 B2	11/2010	Neuman et al.	2003/0067383 A1	4/2003	Yang
7,864,399 B2	1/2011	McCabe et al.	2003/0076415 A1	4/2003	Strumolo
7,877,175 B2	1/2011	Higgins-Luthman	2003/0080877 A1	5/2003	Takagi et al.
D633,019 S *	2/2011	De Wind ..... D12/187	2003/0085806 A1	5/2003	Samman et al.
7,881,496 B2	2/2011	Camilleri et al.	2003/0088361 A1	5/2003	Sekiguchi
7,881,839 B2	2/2011	Stam et al.	2003/0090568 A1	5/2003	Pico
7,888,629 B2	2/2011	Heslin et al.	2003/0090569 A1	5/2003	Poehmueller
D633,423 S *	3/2011	De Wind ..... D12/187	2003/0090570 A1	5/2003	Takagi et al.
7,914,188 B2	3/2011	Deline et al.	2003/0098908 A1	5/2003	Misaiji et al.
7,972,045 B2	7/2011	Schofield	2003/0103141 A1	6/2003	Bechtel et al.
7,978,393 B2	7/2011	Tonar et al.	2003/0103142 A1	6/2003	Hitomi et al.
7,994,471 B2	8/2011	Heslin et al.	2003/0117522 A1	6/2003	Okada
D647,017 S *	10/2011	De Wind ..... D12/187	2003/0122929 A1	7/2003	Minaudo et al.
3,031,225 A1	10/2011	Watanabe et al.	2003/0122930 A1	7/2003	Schofield et al.
8,035,881 B2	10/2011	Luten et al.	2003/0133014 A1	7/2003	Mendoza
8,045,760 B2	10/2011	Stam et al.	2003/0137586 A1	7/2003	Lewellen
8,059,235 B2	11/2011	Utsumi et al.	2003/0141965 A1	7/2003	Gunderson et al.
8,063,753 B2	11/2011	Deline et al.	2003/0146831 A1	8/2003	Berberich et al.
8,090,153 B2	1/2012	Schofield et al.	2003/0169158 A1	9/2003	Paul, Jr.
8,095,310 B2	1/2012	Taylor et al.	2003/0179293 A1	9/2003	Oizumi
8,100,568 B2	1/2012	Deline et al.	2003/0202096 A1	10/2003	Kim
8,116,929 B2	2/2012	Higgins-Luthman	2003/0202357 A1	10/2003	Strazzanti
8,120,652 B2	2/2012	Bechtel et al.	2003/0214576 A1	11/2003	Koga
8,142,059 B2	3/2012	Higgins-Luthman et al.	2003/0214584 A1	11/2003	Ross, Jr.
8,162,518 B2	4/2012	Schofield	2003/0214733 A1	11/2003	Fujikawa et al.
8,194,133 B2 *	6/2012	DeWind ..... B60K 35/00 348/148	2003/0222793 A1	12/2003	Tanaka et al.
8,201,800 B2	6/2012	Filipiak	2003/0222983 A1	12/2003	Nobori et al.
8,203,433 B2	6/2012	Deuber et al.	2003/0227546 A1	12/2003	Hilborn et al.
			2004/0004541 A1	1/2004	Hong
			2004/0027695 A1	1/2004	Lin

(56)

References Cited

U.S. PATENT DOCUMENTS

2004/0032321 A1 2/2004 McMahon 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 Hutzet 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 et al.  
 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 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 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 et al.  
 2011/0317015 A1 12/2011 Seto et al.  
 2012/0026616 A1\* 2/2012 Rawlings ..... B60R 1/04  
 359/876  
 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.  
 2013/0279014 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  
 2016/0306250 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  
 2017/0124982 A1\* 5/2017 Roth ..... B60R 1/08  
 2017/0259742 A1\* 9/2017 Timoneda ..... B60Q 1/2665

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. 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. 37-71, 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 Vetronics 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.

(56)

**References Cited**

OTHER PUBLICATIONS

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.

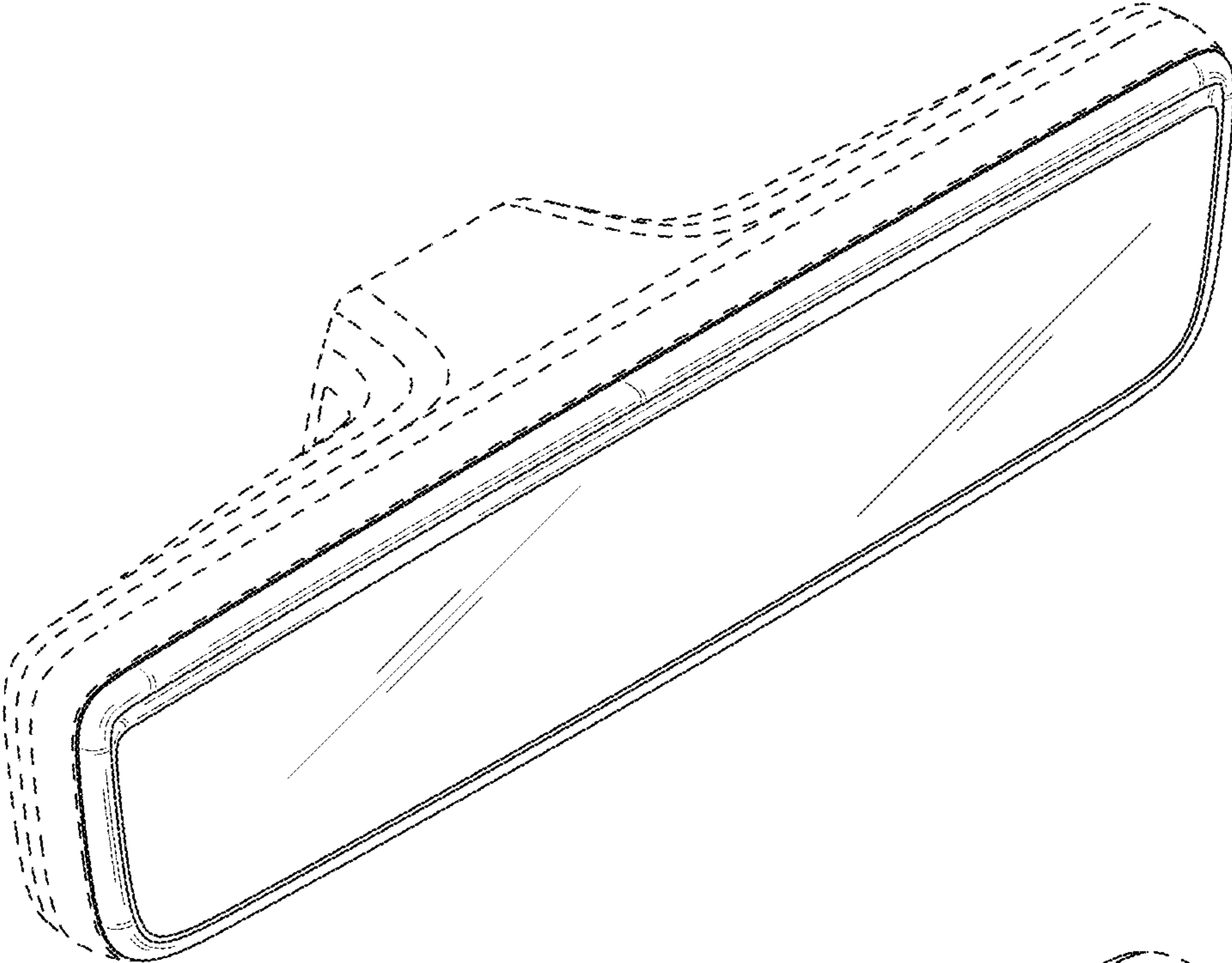
Schumacher, "Automotive Display Trends," SID 96 Digest, 1997, pp. 1-6, Delco Electronics Corp., Kokomo, IN.

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

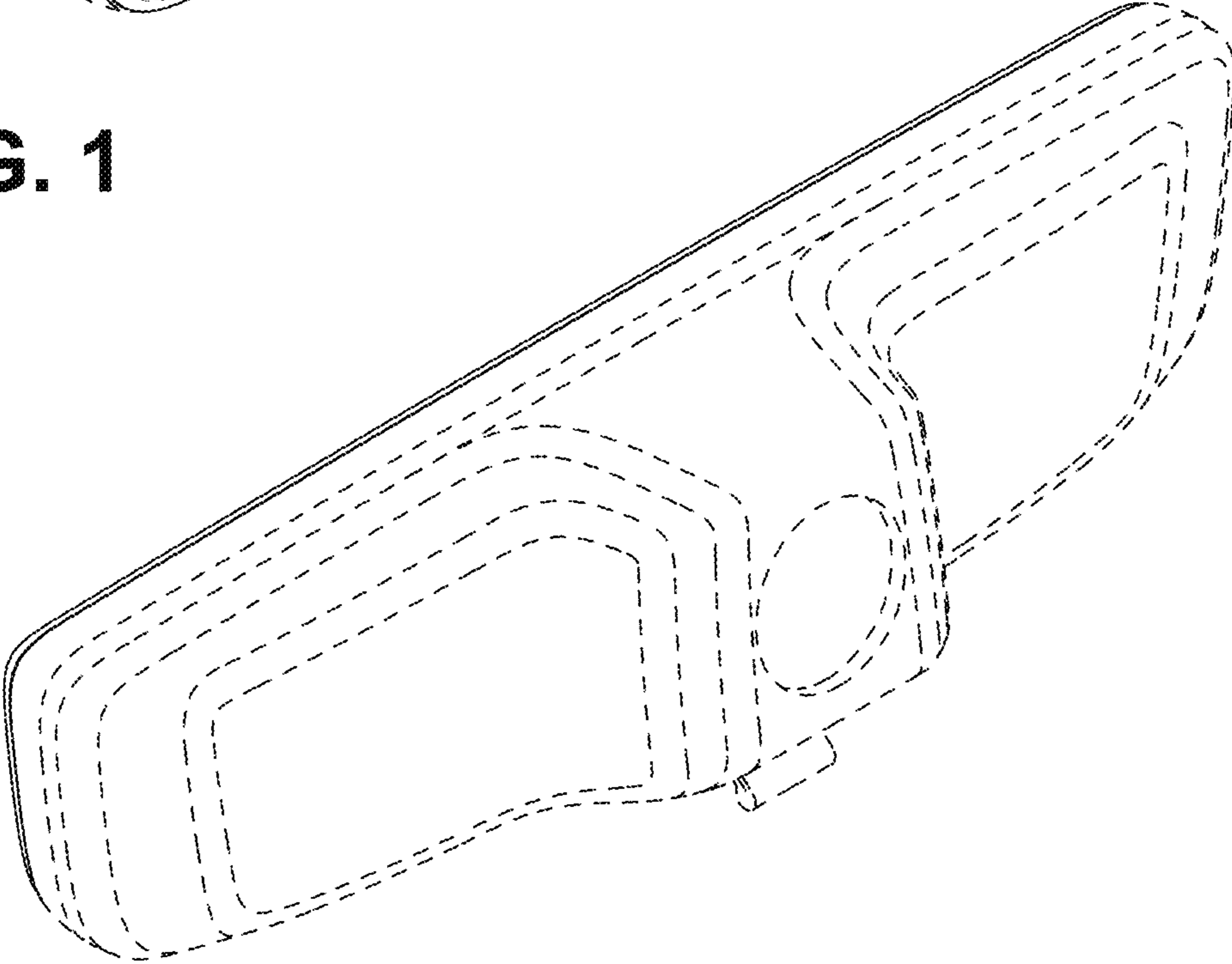
Donofrio, "Looking Beyond the Dashboard," SID 2002, pp. 30-34, Ann Arbor, MI.

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

\* cited by examiner

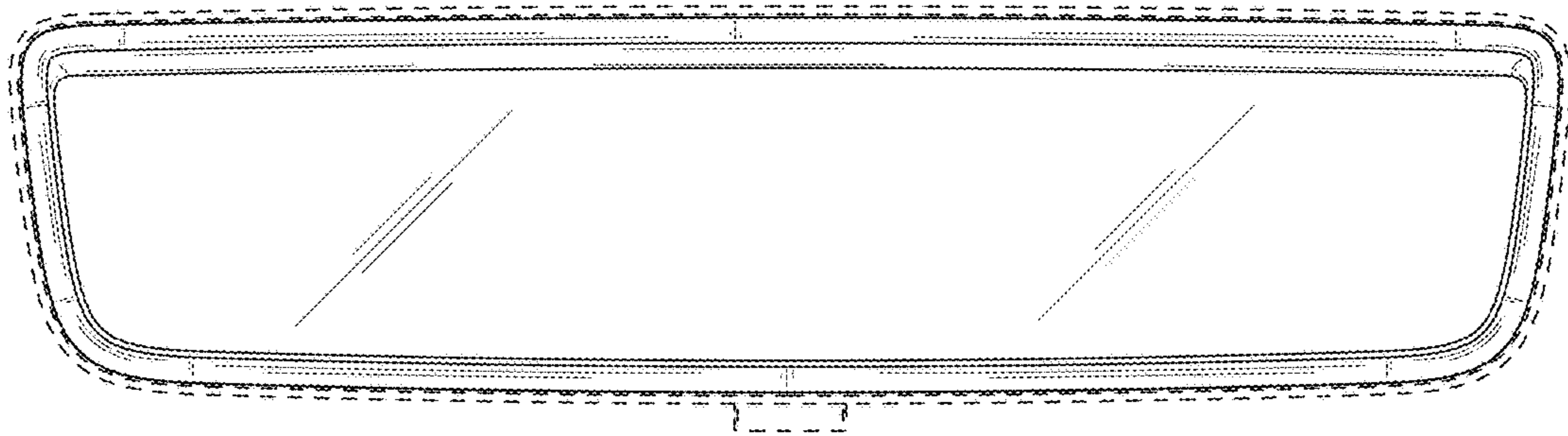


**FIG. 1**

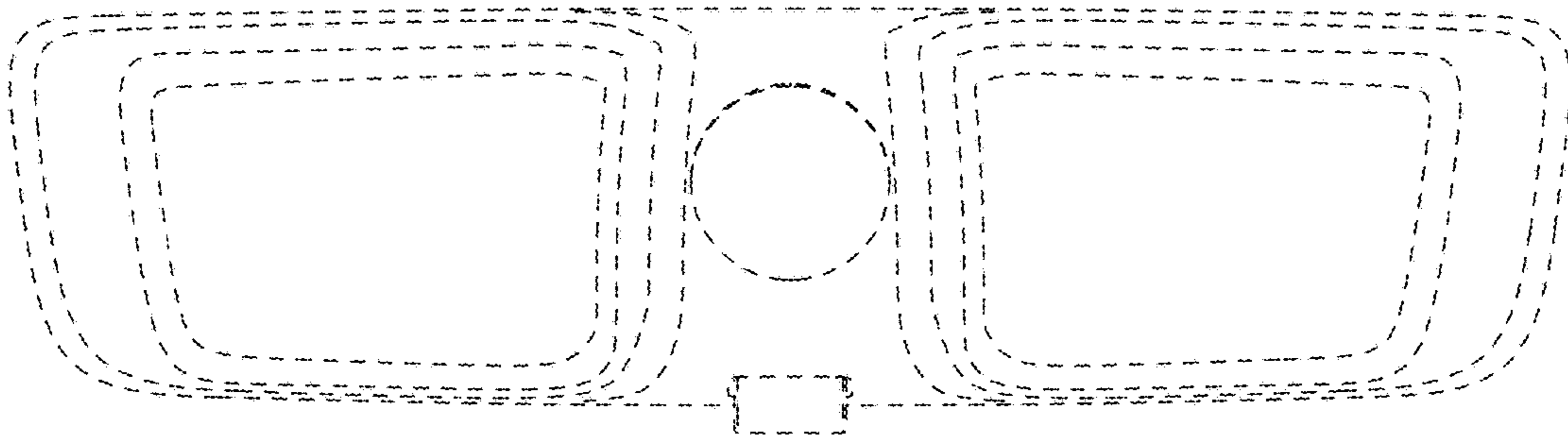


**FIG. 2**

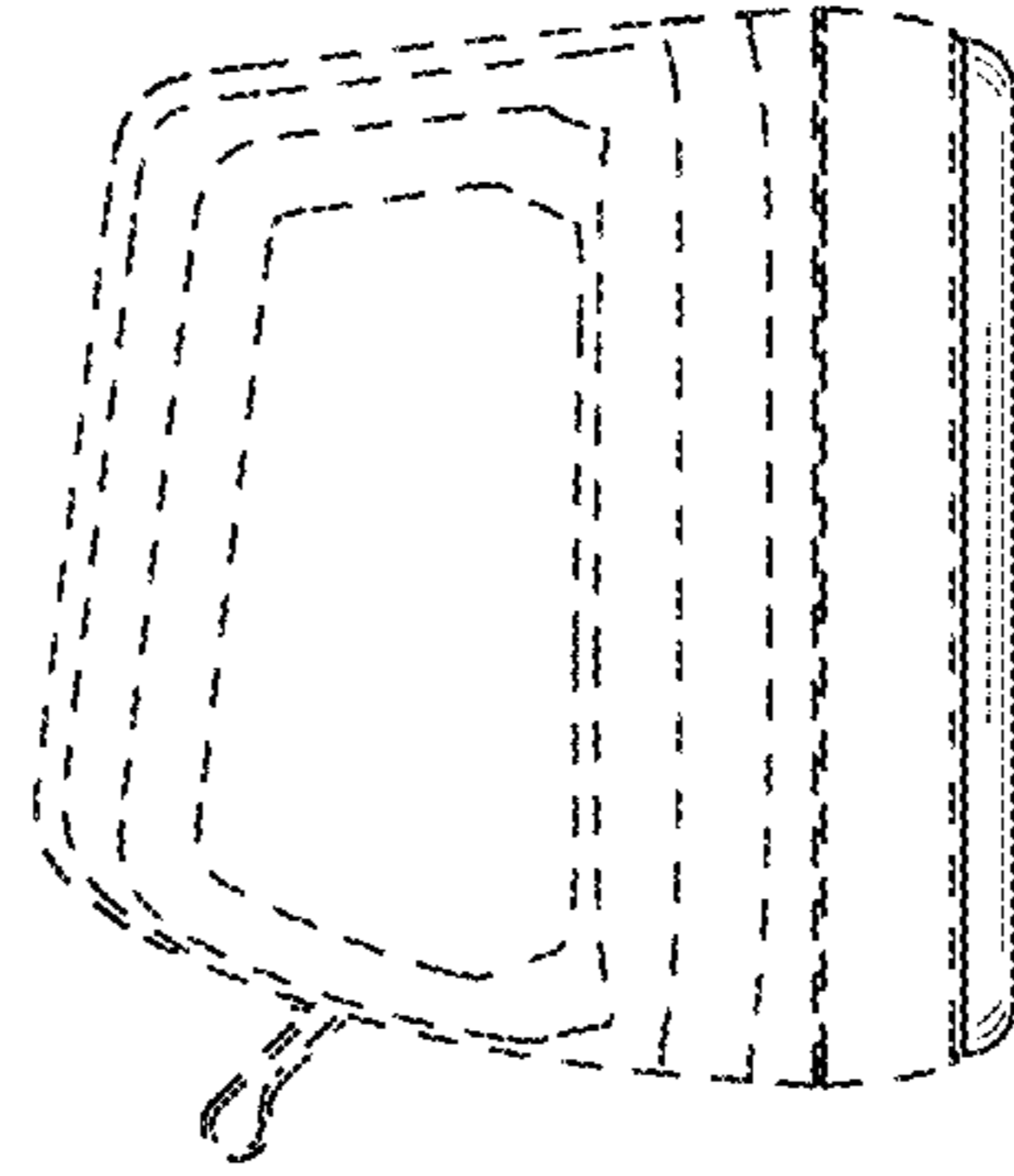




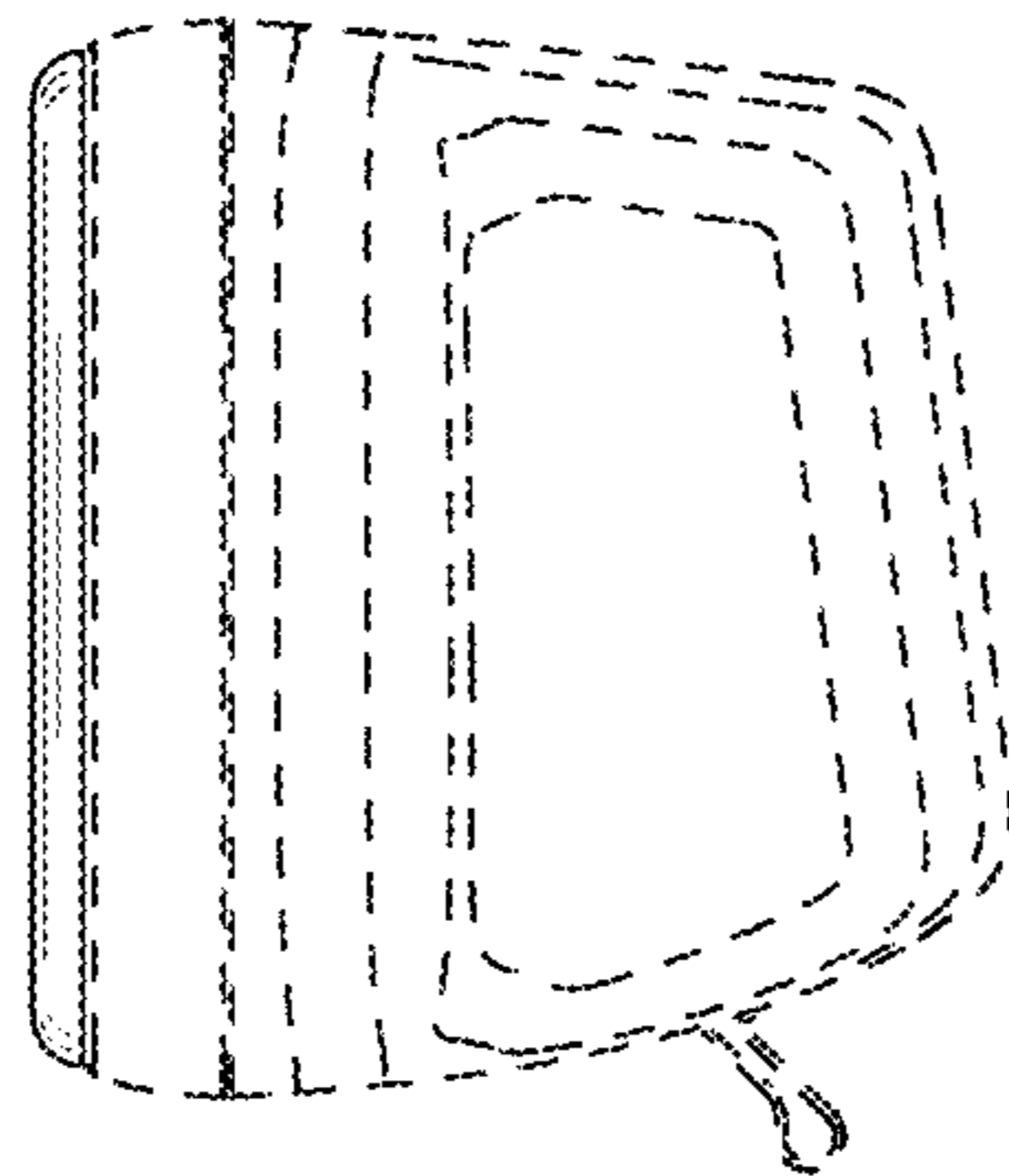
**FIG. 3**



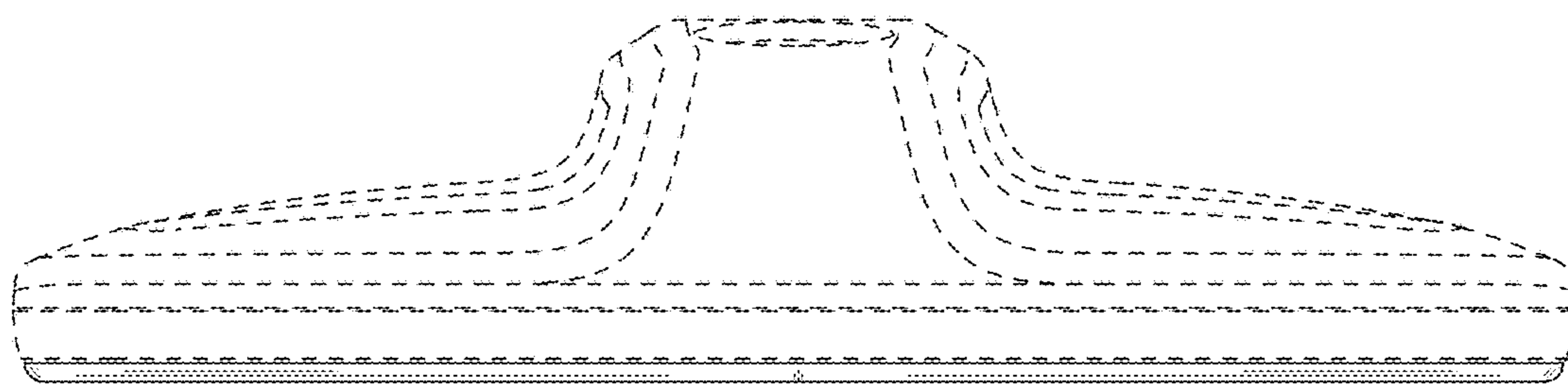
**FIG. 4**



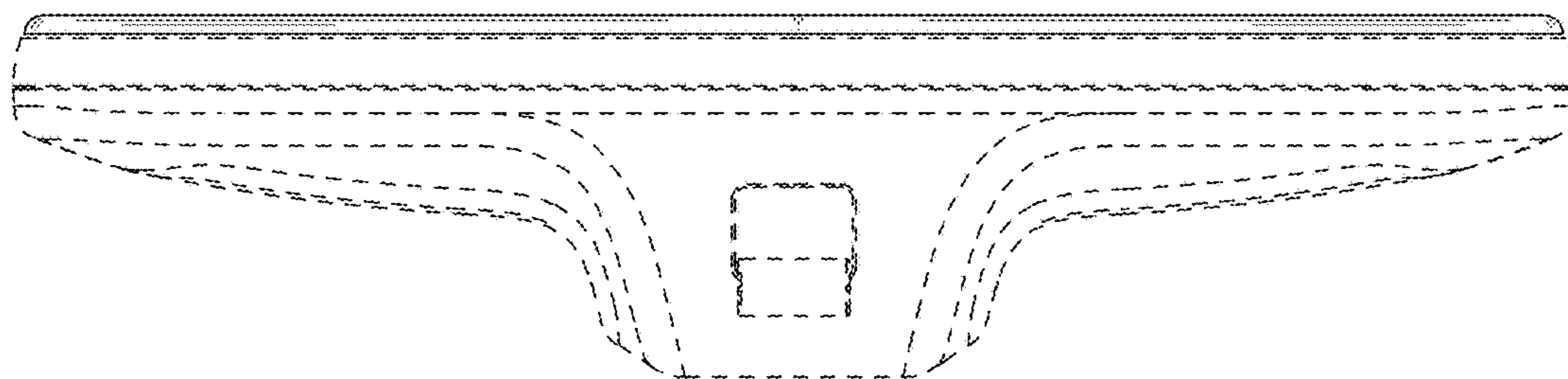
**FIG. 5**



**FIG. 6**



**FIG. 7**



**FIG. 8**