

(12) **United States Patent**
Lynam

(10) **Patent No.:** **US 8,550,642 B2**
(45) **Date of Patent:** ***Oct. 8, 2013**

(54) **EXTERIOR REARVIEW MIRROR ASSEMBLY**

(75) Inventor: **Niall R. Lynam**, Holland, MI (US)

(73) Assignee: **Donnelly Corporation**, Holland, MI (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **13/590,854**

(22) Filed: **Aug. 21, 2012**

(65) **Prior Publication Data**

US 2012/0314316 A1 Dec. 13, 2012

Related U.S. Application Data

(60) Division of application No. 13/336,018, filed on Dec. 23, 2011, now Pat. No. 8,267,534, which is a continuation of application No. 12/911,274, filed on Oct. 25, 2010, now Pat. No. 8,128,243, which is a continuation of application No. 12/851,045, filed on Aug. 5, 2010, now Pat. No. 7,934,843, which is a continuation of application No. 12/197,666, filed on Aug. 25, 2008, now Pat. No. 7,842,154, which is a division of application No. 10/709,434, filed on May 5, 2004, now Pat. No. 7,420,756.

(60) Provisional application No. 60/471,872, filed on May 20, 2003.

(51) **Int. Cl.**
G02B 5/08 (2006.01)

(52) **U.S. Cl.**
USPC 359/866

(58) **Field of Classification Search**

USPC 359/866
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,114,559	A	10/1914	Weed
1,672,559	A	6/1928	Doble
RE17,274	E	4/1929	Porter
2,135,262	A	11/1938	Schumacher
2,263,382	A	11/1941	Gotzinger
2,279,751	A	4/1942	Elwood
2,514,989	A	7/1950	Buren
2,580,014	A	12/1951	Gazda
2,636,419	A	4/1953	Kerr
2,778,273	A	1/1957	Fellmeth

(Continued)

FOREIGN PATENT DOCUMENTS

DE	2409748	9/1975
DE	2550095	5/1976

(Continued)

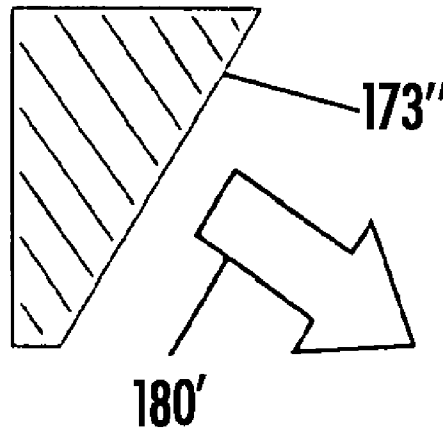
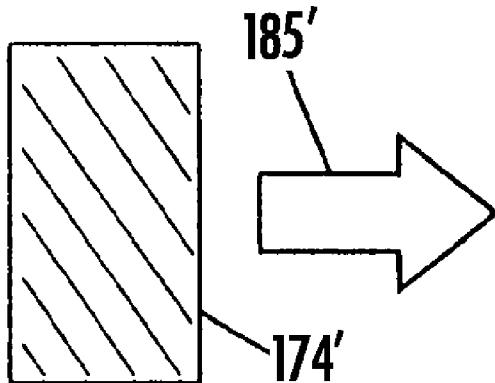
Primary Examiner — Alessandro Amari

(74) *Attorney, Agent, or Firm* — Gardner, Linn, Burkhardt & Flory, LLP

(57) **ABSTRACT**

An exterior rearview mirror assembly for a vehicle includes a bracket fixedly secured to the vehicle, a mirror casing secured to the bracket and defining a primary opening, and a primary mirror disposed within said primary opening for providing a view rearward of the motor vehicle through a primary field of view. The primary mirror defines a primary plane. A spotting mirror is spaced apart from the primary mirror and extends through a secondary plane different from the primary plane. A divider extends between the primary mirror and the spotting mirror to separate the primary and secondary mirrors visually.

11 Claims, 16 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

2,890,539	A	6/1959	Holt	D297,926	S	10/1988	Kesler
2,911,177	A	11/1959	West	4,793,690	A	12/1988	Gahan et al.
3,104,274	A	9/1963	King	4,799,768	A	1/1989	Gahan
3,131,250	A	4/1964	Ely	4,824,231	A	4/1989	Quintana
3,146,296	A	8/1964	Fischer	4,826,289	A	5/1989	Vandenbrink et al.
3,170,985	A	2/1965	Katulich	4,828,379	A	5/1989	Parsons et al.
3,175,463	A	3/1965	Seashore	4,853,283	A	8/1989	Skolnick
3,266,016	A	8/1966	Maruyama et al.	4,859,046	A	8/1989	Traynor et al.
3,267,806	A	8/1966	Azegami	4,882,466	A	11/1989	Friel
3,280,701	A	10/1966	Donnelly et al.	4,882,565	A	11/1989	Gallmeyer
3,337,285	A	8/1967	Travis	4,906,075	A	3/1990	Matsumiya
3,338,655	A	8/1967	Young	4,906,085	A	3/1990	Sugihara et al.
3,375,053	A	3/1968	Ward	4,913,542	A	4/1990	Adolfsson
3,389,952	A	6/1968	Tobin, Jr.	4,917,485	A	4/1990	Baldwin, Sr.
3,404,935	A	10/1968	Creager	4,929,074	A	5/1990	Urban
3,408,136	A	10/1968	Travis	4,932,769	A	6/1990	Goosen
3,424,517	A	1/1969	Budreck	4,932,770	A	6/1990	Caravaty
3,563,638	A	2/1971	Panozzo	4,944,581	A	7/1990	Ichikawa
3,601,614	A	8/1971	Platzer, Jr.	4,948,242	A	8/1990	Desmond et al.
3,610,739	A	10/1971	Seashore	4,989,964	A	2/1991	Meise
3,667,833	A	6/1972	Baldwin, Sr.	5,005,962	A	4/1991	Edelman
3,708,222	A	1/1973	Stern	5,014,167	A	5/1991	Roberts
3,759,647	A	9/1973	Schrenk et al.	5,022,747	A	6/1991	Polanyi et al.
3,764,201	A	10/1973	Haile	5,033,835	A	7/1991	Platzer, Jr.
3,773,882	A	11/1973	Schrenk	5,044,739	A	9/1991	do Espirito Santo
3,806,232	A	4/1974	Gray	5,050,977	A	9/1991	Platzer, Jr.
3,826,563	A	7/1974	Davis	5,052,792	A	10/1991	McDonough
3,881,811	A	5/1975	French	5,066,112	A	11/1991	Lynam et al.
3,884,606	A	5/1975	Schrenk	5,073,012	A	12/1991	Lynam
3,909,117	A	9/1975	Takahashi et al.	5,076,673	A	12/1991	Lynam et al.
4,193,668	A	3/1980	Skinner	5,078,480	A	1/1992	Warszawski
4,200,359	A	4/1980	Lawson	5,080,492	A	1/1992	Platzer, Jr.
4,223,983	A	9/1980	Bloom	5,085,907	A	2/1992	Smith
4,258,979	A	3/1981	Mahin	5,107,374	A	4/1992	Lupo et al.
4,264,144	A	4/1981	McCord	5,115,346	A	5/1992	Lynam
4,268,120	A	5/1981	Jitsumori	5,115,352	A	5/1992	do Espirito Santo
4,281,899	A	8/1981	Oskam	5,117,346	A	5/1992	Gard
4,293,191	A	10/1981	Kim	5,118,540	A	6/1992	Hutchison
4,303,308	A	12/1981	Kobrin	5,140,455	A	8/1992	Varaprasad et al.
4,306,770	A	12/1981	Marhauer	5,142,407	A	8/1992	Varaprasad et al.
4,311,362	A	1/1982	LaPorte	5,151,816	A	9/1992	Varaprasad et al.
4,311,363	A	1/1982	Marsalka et al.	5,151,824	A	9/1992	O'Farrell
4,325,609	A	4/1982	Alford	5,166,833	A	11/1992	Shyu
4,331,382	A	5/1982	Graff	5,178,448	A	1/1993	Adams et al.
4,350,412	A	9/1982	Steenblik et al.	5,179,471	A	1/1993	Caskey et al.
4,385,804	A	5/1983	Tamura et al.	5,183,099	A	2/1993	Bechu
4,435,042	A	3/1984	Wood et al.	5,189,537	A	2/1993	O'Farrell
4,436,371	A	3/1984	Wood et al.	5,193,029	A	3/1993	Schofield et al.
4,436,372	A	3/1984	Schmidt et al.	5,207,492	A	5/1993	Roberts
4,439,013	A	3/1984	Hagn et al.	5,225,943	A	7/1993	Lupo
4,449,786	A	5/1984	McCord	5,233,461	A	8/1993	Dornan et al.
4,470,665	A	9/1984	Blom	5,237,458	A	8/1993	Polanyi et al.
4,499,451	A	2/1985	Suzuki et al.	5,237,459	A	8/1993	Strauss
4,526,446	A	7/1985	Adams	5,239,405	A	8/1993	Varaprasad et al.
4,549,786	A	10/1985	Albers et al.	5,247,395	A	9/1993	Martinez
4,555,166	A	11/1985	Enomoto	5,253,109	A	10/1993	O'Farrell et al.
4,575,202	A	3/1986	McGuire	5,262,894	A	11/1993	Wheatley et al.
4,588,267	A	5/1986	Pastore	5,285,060	A	2/1994	Larson et al.
4,609,266	A	9/1986	Blom	5,295,021	A	3/1994	Swanson
4,623,222	A	11/1986	Itoh et al.	5,296,973	A	3/1994	Burke
4,629,296	A	12/1986	White	5,313,335	A	5/1994	Gray et al.
4,630,904	A	12/1986	Pastore	5,327,288	A	7/1994	Wellington et al.
4,666,264	A	5/1987	Yamabe	5,354,965	A	10/1994	Lee
4,674,849	A	6/1987	Stewart	5,355,245	A	10/1994	Lynam
4,674,850	A	6/1987	Blom	5,361,172	A	11/1994	Schissel et al.
4,678,294	A	7/1987	Van Nostrand	5,371,659	A	12/1994	Pastrick et al.
4,679,906	A	7/1987	Brandenburg	5,406,414	A	4/1995	O'Farrell et al.
4,712,879	A	12/1987	Lynam et al.	5,412,512	A	5/1995	Zebold et al.
4,715,701	A	12/1987	Urban	5,424,875	A	6/1995	Davis, II
4,721,364	A	1/1988	Itoh et al.	5,432,643	A	7/1995	Huang
4,727,302	A	2/1988	Mizuta et al.	5,437,931	A	8/1995	Tsai et al.
4,733,336	A	3/1988	Skogler et al.	5,446,576	A	8/1995	Lynam et al.
4,737,188	A	4/1988	Bahls	5,481,409	A	1/1996	Roberts
				5,483,386	A	1/1996	Carson
				5,497,305	A	3/1996	Pastrick et al.
				5,497,306	A	3/1996	Pastrick
				5,509,606	A	4/1996	Breithaupt et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

5,525,264	A	6/1996	Cronin et al.	6,176,602	B1	1/2001	Pastrick et al.
5,526,195	A	6/1996	Thomas	6,178,034	B1	1/2001	Allemand et al.
5,530,588	A	6/1996	Vivier	6,196,688	B1	3/2001	Caskey et al.
5,535,056	A	7/1996	Caskey et al.	6,198,409	B1	3/2001	Schofield et al.
5,550,677	A	8/1996	Schofield et al.	6,199,993	B1	3/2001	Mou
5,557,467	A	9/1996	McColgan et al.	6,201,642	B1	3/2001	Bos
5,559,640	A	9/1996	Vachss et al.	6,207,083	B1	3/2001	Varaprasad et al.
5,563,744	A	10/1996	Matsumiya	6,227,689	B1	5/2001	Miller
5,567,360	A	10/1996	Varaprasad et al.	6,245,262	B1	6/2001	Varaprasad et al.
5,575,552	A	11/1996	Faloon et al.	6,250,148	B1	6/2001	Lynam
5,579,133	A	11/1996	Black et al.	6,257,746	B1	7/2001	Todd et al.
5,587,236	A	12/1996	Agrawal et al.	6,260,608	B1	7/2001	Kim
5,587,699	A	12/1996	Faloon et al.	6,270,225	B1	8/2001	Goolsby
5,594,222	A	1/1997	Caldwell	6,276,821	B1	8/2001	Pastrick et al.
5,594,593	A	1/1997	Milner	6,286,965	B1	9/2001	Caskey et al.
5,610,756	A	3/1997	Lynam et al.	6,294,989	B1	9/2001	Schofield et al.
5,621,569	A	4/1997	Schlenke	6,310,611	B1	10/2001	Caldwell
5,621,577	A	4/1997	Lang et al.	6,315,419	B1	11/2001	Platzer, Jr.
5,644,442	A	7/1997	Lemere	6,318,870	B1	11/2001	Spooner et al.
5,649,756	A	7/1997	Adams et al.	6,320,282	B1	11/2001	Caldwell
5,668,663	A	9/1997	Varaprasad et al.	6,329,925	B1	12/2001	Skiver et al.
5,669,698	A	9/1997	Veldman et al.	6,341,523	B2	1/2002	Lynam
5,669,699	A	9/1997	Pastrick et al.	6,343,402	B1	2/2002	Smith et al.
5,669,704	A	9/1997	Pastrick	6,356,376	B1	3/2002	Tonar et al.
5,669,705	A	9/1997	Pastrick et al.	6,390,632	B1	5/2002	Palathingal
5,670,935	A	9/1997	Schofield et al.	6,396,397	B1	5/2002	Bos et al.
5,689,370	A	11/1997	Tonar et al.	6,398,377	B1	6/2002	Chou
5,691,855	A	11/1997	Lupkas	6,409,354	B1	6/2002	Richard
5,715,093	A	2/1998	Schierbeek et al.	6,420,036	B1	7/2002	Varaprasad et al.
5,722,836	A	3/1998	Younker	6,428,172	B1	8/2002	Hutzel et al.
5,724,187	A	3/1998	Varaprasad et al.	6,441,964	B1	8/2002	Chu et al.
5,751,489	A	5/1998	Caskey et al.	6,445,287	B1	9/2002	Schofield et al.
5,760,962	A	6/1998	Schofield et al.	6,449,082	B1	9/2002	Agrawal et al.
5,784,211	A	7/1998	Mingledorff	6,472,979	B2	10/2002	Schofield et al.
5,786,772	A	7/1998	Schofield et al.	6,498,620	B2	12/2002	Schofield et al.
5,788,357	A	8/1998	Muth et al.	6,501,387	B2	12/2002	Skiver et al.
5,790,298	A	8/1998	Tonar	6,511,192	B1	1/2003	Henion et al.
5,790,327	A	8/1998	Lee et al.	6,512,624	B2	1/2003	Tonar et al.
5,793,542	A	8/1998	Kondo et al.	6,522,451	B1	2/2003	Lynam
5,796,094	A	8/1998	Schofield et al.	6,537,138	B2	3/2003	Ohmori et al.
5,796,532	A	8/1998	Kanazawa	6,582,109	B2	6/2003	Miller
5,805,367	A	9/1998	Kanazawa	6,595,649	B2	7/2003	Hoekstra et al.
5,808,777	A	9/1998	Lynam et al.	6,615,438	B1	9/2003	Franco et al.
5,823,654	A	10/1998	Pastrick et al.	6,627,918	B2	9/2003	Getz et al.
5,825,527	A	10/1998	Forgette et al.	6,642,851	B2	11/2003	DeLine et al.
5,835,294	A	11/1998	Minegishi	6,648,477	B2	11/2003	Hutzel et al.
5,838,505	A	11/1998	Palathingal	6,669,109	B2	12/2003	Ivanov et al.
5,847,889	A	12/1998	Komiyama et al.	6,690,268	B2	2/2004	Schofield et al.
5,863,116	A	1/1999	Pastrick et al.	6,709,119	B2	3/2004	Gillich et al.
5,864,434	A	1/1999	Taylor	6,717,610	B1	4/2004	Bos et al.
5,877,897	A	3/1999	Schofield et al.	6,717,712	B2	4/2004	Lynam et al.
5,910,854	A	6/1999	Varaprasad et al.	6,719,215	B2	4/2004	Drouillard
5,922,176	A	7/1999	Caskey	6,731,205	B2	5/2004	Schofield et al.
5,929,786	A	7/1999	Schofield et al.	6,737,629	B2	5/2004	Nixon et al.
5,938,320	A	8/1999	Crandall	6,742,904	B2	6/2004	Bechtel et al.
5,980,050	A	11/1999	McCord	6,757,109	B2	6/2004	Bos
6,001,486	A	12/1999	Varaprasad et al.	D493,131	S	7/2004	Lawlor et al.
6,002,511	A	12/1999	Varaprasad et al.	D493,394	S	7/2004	Lawlor et al.
6,005,511	A	12/1999	Young et al.	6,824,281	B2	11/2004	Schofield et al.
6,005,724	A	12/1999	Todd	6,831,268	B2	12/2004	Bechtel et al.
6,007,207	A	12/1999	Liu	6,882,287	B2	4/2005	Schofield
6,030,084	A	2/2000	Schmidt	6,919,796	B2	7/2005	Boddy et al.
6,032,323	A	3/2000	Smith et al.	6,932,483	B2	8/2005	Strumolo et al.
6,033,078	A	3/2000	Su et al.	6,979,090	B1	12/2005	Wnuk
6,065,840	A	5/2000	Caskey et al.	7,001,032	B2	2/2006	Lo
6,074,068	A	6/2000	Palathingal	7,005,974	B2	2/2006	McMahon et al.
6,097,023	A	8/2000	Schofield et al.	7,025,469	B1	4/2006	Manfre' et al.
6,109,586	A	8/2000	Hoek	7,038,577	B2	5/2006	Pawlicki et al.
6,111,684	A	8/2000	Forgette et al.	7,097,312	B2	8/2006	Platzer, Jr.
6,116,743	A	9/2000	Hoek	7,106,392	B2	9/2006	You
6,124,647	A	9/2000	Marcus et al.	7,126,456	B2	10/2006	Boddy et al.
6,128,860	A	10/2000	Repp	7,167,294	B2	1/2007	Lynam et al.
6,154,306	A	11/2000	Varaprasad et al.	7,168,830	B2	1/2007	Pastrick et al.
				7,184,190	B2	2/2007	McCabe et al.
				7,195,381	B2	3/2007	Lynam et al.
				7,249,860	B2	7/2007	Kulas et al.
				7,255,451	B2	8/2007	McCabe et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

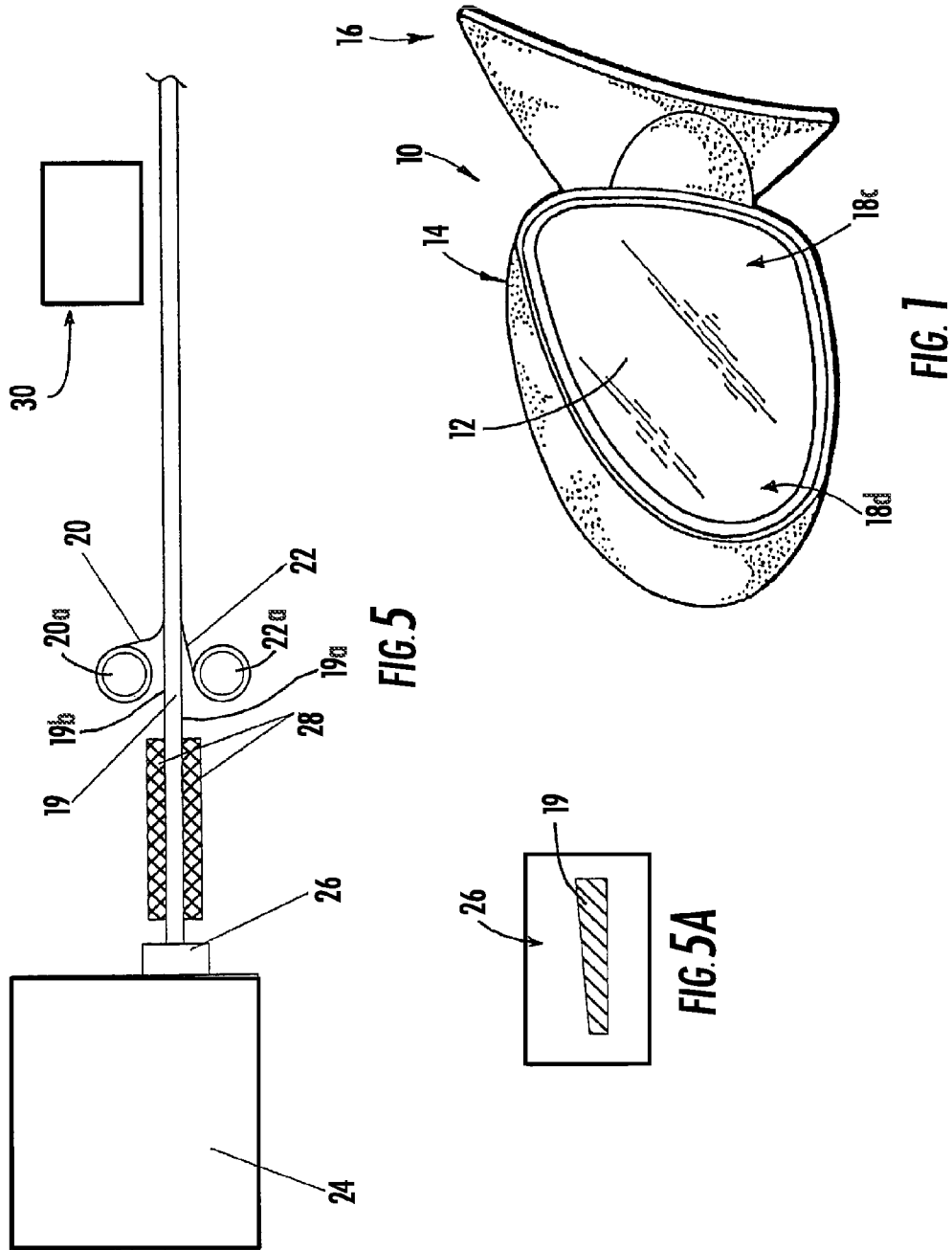
7,289,037 B2 10/2007 Uken et al.
 7,338,177 B2 3/2008 Lynam
 7,339,149 B1 3/2008 Schofield et al.
 7,345,680 B2 3/2008 David
 7,370,983 B2 5/2008 DeWind et al.
 7,377,675 B2 5/2008 Pastrick et al.
 7,391,563 B2 6/2008 McCabe et al.
 7,400,435 B2 7/2008 Byers et al.
 7,420,756 B2 9/2008 Lynam
 7,423,522 B2 9/2008 O'Brien et al.
 7,492,281 B2 2/2009 Lynam et al.
 7,526,103 B2 4/2009 Schofield et al.
 7,581,859 B2 9/2009 Lynam
 7,626,749 B2 12/2009 Baur et al.
 7,636,188 B2 12/2009 Baur et al.
 7,857,469 B2 12/2010 Sinelli et al.
 7,934,843 B2 5/2011 Lynam
 8,128,243 B2* 3/2012 Lynam 359/866
 8,267,534 B2 9/2012 Lynam
 2002/0036828 A1 3/2002 Wong
 2002/0048100 A1 4/2002 Hoek
 2002/0072026 A1* 6/2002 Lynam et al. 432/77
 2002/0105741 A1 8/2002 Platzer, Jr.
 2002/0159169 A1 10/2002 McCord
 2002/0159270 A1 10/2002 Lynam et al.
 2003/0026009 A1 2/2003 Vandenbrink
 2003/0026012 A1 2/2003 Pavao
 2003/0031023 A1 2/2003 Hutzel
 2003/0043589 A1 3/2003 Blank
 2003/0117731 A1 6/2003 Platzer, Jr.
 2004/0032638 A1 2/2004 Tonar et al.
 2004/0032675 A1 2/2004 Weller et al.
 2004/0032676 A1 2/2004 Drummond et al.
 2004/0114260 A1 6/2004 Bartnick
 2004/0165291 A1 8/2004 Platzer, Jr.
 2004/0257685 A1 12/2004 Minor et al.
 2004/0264011 A1 12/2004 Lynam
 2005/0078389 A1 4/2005 Kulas et al.
 2005/0083577 A1 4/2005 Varapasad et al.
 2005/0099693 A1 5/2005 Schofield et al.
 2005/0134983 A1 6/2005 Lynam
 2005/0232469 A1 10/2005 Schofield et al.
 2005/0248859 A1 11/2005 Platzer, Jr.
 2006/0050018 A1 3/2006 Hutzel et al.
 2006/0061008 A1 3/2006 Karner et al.
 2006/0125919 A1 6/2006 Camilleri et al.
 2006/0126150 A1 6/2006 Tonar et al.
 2006/0171704 A1 8/2006 Bingle et al.
 2006/0184297 A1 8/2006 Higgins-Luthman
 2006/0268440 A1 11/2006 Platzer, Jr.

2006/0279863 A1 12/2006 Starbuck
 2007/0058257 A1 3/2007 Lynam
 2007/0285789 A1 12/2007 Lindahl et al.
 2008/0212189 A1 9/2008 Baur et al.
 2008/0225421 A1 9/2008 Platzer
 2008/0304170 A1 12/2008 Zhao
 2008/0308219 A1 12/2008 Lynam
 2009/0040306 A1 2/2009 Foote et al.
 2009/0115631 A1 5/2009 Foote et al.
 2009/0237820 A1 9/2009 McCabe et al.
 2009/0268321 A1 10/2009 Wilson
 2010/0195228 A1 8/2010 Sinelli et al.
 2010/0296187 A1 11/2010 Lynam
 2011/0157732 A1 6/2011 Henion et al.
 2011/0170207 A1 7/2011 Lynam

FOREIGN PATENT DOCUMENTS

DE 2647592 4/1978
 DE 2915521 10/1980
 DE 3302735 8/1984
 DE 3329998 3/1985
 DE 3620228 12/1987
 DE 4026578 4/1992
 EP 0210757 2/1987
 EP 0310261 4/1989
 EP 0356099 2/1990
 EP 0551802 1/1992
 EP 0728618 8/1996
 EP 0729864 9/1996
 EP 0791503 8/1997
 EP 0917987 5/1999
 FR 2628042 3/1988
 GB 1279158 6/1972
 GB 2048189 12/1980
 GB 2092534 8/1982
 JP 0051637 4/1980
 JP 55076721 10/1980
 JP 362075619 4/1987
 JP 62105103 5/1987
 JP 1186443 7/1989
 JP 1208245 8/1989
 KR 2002092059 12/2002
 NL 7908257 6/1981
 TW 424057 3/2001
 WO WO 0181956 11/2001
 WO WO 2004026633 4/2004
 WO WO 2004047421 6/2004
 WO WO 2004103772 12/2004
 WO WO 2006124682 11/2006
 WO WO 2007005942 1/2007
 WO WO 2008051910 5/2008

* cited by examiner



Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.