



US008309375B2

(12) **United States Patent**
Shimizu et al.

(10) **Patent No.:** **US 8,309,375 B2**
(45) **Date of Patent:** **Nov. 13, 2012**

(54) **LIGHT EMITTING DEVICE AND DISPLAY**

(75) Inventors: **Yoshinori Shimizu**, Tokushima (JP);
Kensho Sakano, Anan (JP); **Yasunobu**
Noguchi, Tokushima (JP); **Toshio**
Moriguchi, Anan (JP)

(73) Assignee: **Nichia Corporation**, Anan-shi (JP)

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

(21) Appl. No.: **12/942,792**

(22) Filed: **Nov. 9, 2010**

(65) **Prior Publication Data**

US 2011/0053299 A1 Mar. 3, 2011

Related U.S. Application Data

(62) Division of application No. 12/548,614, filed on Aug. 27, 2009, now Pat. No. 8,148,177, which is a division of application No. 12/028,062, filed on Feb. 8, 2008, now Pat. No. 7,682,848, which is a division of application No. 10/609,402, filed on Jul. 1, 2003, now Pat. No. 7,362,048, which is a division of application No. 09/458,024, filed on Dec. 10, 1999, now Pat. No. 6,614,179, which is a division of application No. 09/300,315, filed on Apr. 28, 1999, now Pat. No. 6,069,440, which is a division of application No. 08/902,725, filed on Jul. 29, 1997, now Pat. No. 5,998,925.

(30) **Foreign Application Priority Data**

Jul. 29, 1996 (JP) P 08-198585
Sep. 17, 1996 (JP) P 08-244339
Sep. 18, 1996 (JP) P 08-245381
Dec. 27, 1996 (JP) P 08-359004
Mar. 31, 1997 (JP) P 09-081010

(51) **Int. Cl.**
H01L 21/00 (2006.01)

(52) **U.S. Cl.** **438/21**; 438/27; 257/E33.044;
257/E33.059; 257/99

(58) **Field of Classification Search** 438/21-27;
257/98, E33.044, E33.059; 349/69-105
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,510,732 A 5/1970 Amans
(Continued)

FOREIGN PATENT DOCUMENTS

DE 3804293 A1 8/1989
(Continued)

OTHER PUBLICATIONS

U.S. Office Action issued in co-pending U.S. Appl. No. 12/575,155, dated Apr. 19, 2011.

(Continued)

Primary Examiner — Charles Garber

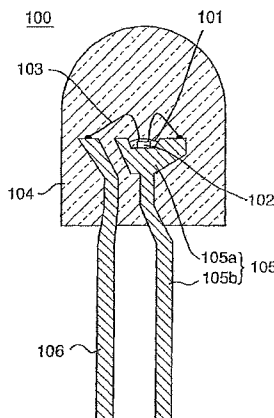
Assistant Examiner — Abdulfattah Mustapha

(74) *Attorney, Agent, or Firm* — Birch, Stewart, Kolasch & Birch, LLP

(57) **ABSTRACT**

A method for manufacturing a light emitting device comprises: preparing a light emitting component having an active layer of a semiconductor, the active layer comprising a gallium nitride based semiconductor containing indium and being capable of emitting a blue color light; preparing a phosphor capable of absorbing a part of the blue color light emitted from the light emitting component and emitting a yellow color light, wherein selection of the phosphor is controlled based on an emission wavelength of the light emitting component; and combining the light emitting component and the phosphor so that the blue color light from the light emitting component and the yellow color light from the phosphor are mixed to make a white color light.

19 Claims, 19 Drawing Sheets



U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

3,560,849 A	2/1971	Anderson	DE	9013615 U	1/1991
3,623,867 A	11/1971	Sauinier	EP	0 209 942 A1	1/1987
3,652,956 A	3/1972	Pinnow et al.	EP	0 383 215 A	8/1990
3,691,482 A	9/1972	Pinnow et al.	EP	0 500 937 A1	9/1992
3,699,478 A	10/1972	Pinnow et al.	EP	0-550-937 A1	9/1992
3,748,548 A	7/1973	Haisty et al.	EP	0 541 373 A2	11/1992
3,819,974 A	6/1974	Stevenson et al.	EP	0 667 383 A2	8/1995
3,842,306 A	10/1974	Henderson et al.	GB	1 305 111	1/1973
3,875,456 A	4/1975	Kano et al.	GB	2 000 173	1/1979
3,882,502 A	5/1975	Peabody et al.	GB	1589964	5/1981
4,001,628 A	1/1977	Ryan	JP	4717684	9/1972
4,298,820 A	11/1981	Bongers et al.	JP	49106283	12/1972
4,314,910 A	2/1982	Barnes	JP	5079379	11/1973
4,550,256 A	10/1985	Berkstresser et al.	JP	491221	1/1974
4,644,223 A	2/1987	de Hair et al.	JP	49112577	10/1974
4,716,337 A	12/1987	Huiskes et al.	JP	49-122292	11/1974
4,727,283 A	2/1988	van Kemenade et al.	JP	5043913 C1	4/1975
4,857,228 A	8/1989	Kabay et al.	JP	5245181	10/1977
4,905,060 A	2/1990	Chinone et al.	JP	53-7153	1/1978
4,992,704 A	2/1991	Stinson	JP	5331584	3/1978
5,006,908 A	4/1991	Matsuoka et al.	JP	5472484	11/1978
5,045,867 A	9/1991	Fuse	JP	5441660	12/1979
5,118,985 A	6/1992	Patton et al.	JP	55-4898 A	1/1980
5,202,777 A	4/1993	Sluzky et al.	JP	554898 A	1/1980
5,208,462 A	5/1993	O'Connor et al.	JP	59-30107 U	2/1984
5,221,984 A	6/1993	Furuyama et al.	JP	5950445	4/1984
5,247,533 A	9/1993	Okazaki et al.	JP	60144381	7/1985
5,257,049 A	10/1993	Van Peteghem	JP	60-185457	9/1985
5,369,289 A	11/1994	Tamaki et al.	JP	62189770	2/1986
5,408,120 A	4/1995	Manabe et al.	JP	61-158606	7/1986
5,471,113 A	11/1995	De Backer et al.	JP	62-20237 A	1/1987
5,512,210 A	4/1996	Sluzky et al.	JP	6220237 A	1/1987
5,550,657 A	8/1996	Tanaka et al.	JP	62167387	7/1987
5,578,839 A	11/1996	Nakamura et al.	JP	62-232827 A	10/1987
5,594,751 A	1/1997	Scott	JP	291980	9/1988
5,602,418 A	2/1997	Imai et al.	JP	01-189695 A	7/1989
5,630,741 A	5/1997	Potter	JP	01179471 A	7/1989
5,640,216 A	6/1997	Hasegawa et al.	JP	01-257993 A	10/1989
5,670,797 A	9/1997	Okazaki	JP	01-260707 A	10/1989
5,700,713 A	12/1997	Yamazaki et al.	JP	55-005533 A	1/1990
5,706,022 A	1/1998	Hato	JP	02-111922 A	4/1990
5,743,629 A	4/1998	Helstern et al.	JP	324692	3/1991
5,798,537 A	8/1998	Nitta	JP	03-152898 A	6/1991
5,801,435 A	9/1998	Otsuki	JP	4-80286 A	3/1992
5,816,677 A	10/1998	Kurematsu et al.	JP	463162	5/1992
5,825,125 A	10/1998	Lighthart et al.	JP	463163	5/1992
5,847,507 A *	12/1998	Butterworth et al. 313/512	JP	4-234481 A	8/1992
5,949,182 A	9/1999	Shealy et al.	JP	5-226676	3/1993
5,959,316 A	9/1999	Lowery	JP	05-142424 A	6/1993
5,966,393 A *	10/1999	Hide et al. 372/23	JP	05152609	6/1993
5,998,925 A	12/1999	Shimizu et al.	JP	5152609 A	6/1993
6,004,001 A	12/1999	Noll	JP	5-183189 A	7/1993
6,015,200 A	1/2000	Ogura	JP	05-63068 U	8/1993
6,066,861 A	5/2000	Hohn et al.	JP	563068	8/1993
6,069,440 A	5/2000	Shimizu et al.	JP	06-027327 A	2/1994
6,340,824 B1	1/2002	Komoto et al.	JP	06-82633 A	3/1994
6,538,371 B1	3/2003	Duggal et al.	JP	6-115158	4/1994
6,576,930 B2	6/2003	Reeh et al.	JP	06-139973 A	5/1994
6,600,175 B1	7/2003	Baretz et al.	JP	0 599 224 A1	6/1994
6,608,332 B2	8/2003	Shimizu et al.	JP	06-160635 A	6/1994
6,614,179 B1	9/2003	Shimizu et al.	JP	06-177423 A	6/1994
6,784,511 B1	8/2004	Kunihara et al.	JP	06177423	6/1994
6,812,500 B2	11/2004	Reeh et al.	JP	6208845	7/1994
7,026,756 B2	4/2006	Shimizu et al.	JP	06-231605 A	8/1994
7,071,616 B2	7/2006	Shimizu et al.	JP	06260680	9/1994
7,126,274 B2	10/2006	Shimizu et al.	JP	06268257	9/1994
7,215,074 B2	5/2007	Shimizu et al.	JP	6-296043 A	10/1994
7,329,988 B2	2/2008	Shimizu et al.	JP	7-99345 A	4/1995
7,362,048 B2	4/2008	Shimizu et al.	JP	07099345 A	4/1995
7,531,960 B2	5/2009	Shimizu et al.	JP	07-114904 A	5/1995
7,682,848 B2	3/2010	Shimizu et al.	JP	07-120754 A	5/1995
2001/0030326 A1	10/2001	Reeh et al.	JP	7-32638 U	6/1995
2006/0067668 A1	3/2006	Kita	JP	7-42152 A	7/1995
2008/0128735 A1	6/2008	Yoo et al.	JP	742152	7/1995
2009/0315014 A1	12/2009	Shimizu et al.	JP	07176794 A	7/1995
2009/0315015 A1	12/2009	Shimizu et al.	JP	07-235207 A	9/1995

JP	7-335942		12/1995
JP	08007614 A		1/1996
JP	8-78727 A		3/1996
JP	863119		3/1996
JP	8170077		7/1996
JP	09-027642 A		1/1997
JP	09027642 A		1/1997
JP	9-116225 A		5/1997
JP	10036835 A		2/1998
JP	11-500584		1/1999
JP	2000-512806 A		9/2000
JP	2001-320094 A		11/2001
JP	2002-270020 A		9/2002
WO	WO-97/50132 A1		12/1997
WO	WO-98/12757 A1		3/1998

OTHER PUBLICATIONS

U.S. Office Action issued in co-pending U.S. Appl. No. 12/548,614 on Jun. 27, 2011.

U.S. Office Action issued in co-pending U.S. Appl. No. 12/689,681 on Jun. 23, 2011.

Office Action in co-pending U.S. Appl. No. 12/575,155 on Sep. 30, 2011.

Request for Invalidation with Notification of Acceptance of Request for Invalidation of Chinese Patent No. 03159595.2 dispatched on Aug. 10, 2011.

Yao Go et al., Synthesis and Luminescence Gallium Nitride LED Blue Light Conversion Materials, *Acta Physico-Chimica Sinica*, vol. 19, No. 3, Mar. 2003, p. 226-229.

Office Action dated Jul. 7, 2010 for U.S. Appl. No. 12/548,614.

Office Action dated Jun. 16, 2010 for U.S. Appl. No. 12/548,621.

Office Action dated Nov. 10, 2010 for U.S. Appl. No. 12/575,162.

Office Action dated Nov. 15, 2010 for U.S. Appl. No. 12/548,614.

U.S. Office Action issued in U.S. Appl. No. 12/559,042 on Mar. 16, 2011.

"White LED lamp: Efficient light-emitting; Manufacture cost half", *Nikkei Sangyo Shimbun*, Sep. 13, 1996, Published by Nihon Keizai Shimbunsha.

"Simens SMT-TOPLED fur die Oberflachenmontage" Frank Moller et al. *Simens Components*, 29 Hfet 4, Assume Dec. 1991.

"Proceedings of the Institute of Phosphor Society", Translation of pp. 1, 5 to 14 of the 264th Proceedings of the Institute of Phosphor Society, Nov. 29, 1996.

"Nichia Chemical starts the sample shipment of white light emitting diode", *News Report*, translation of p. 15 of *Nikkei Electronics* Sep. 23, 1996 (No. 671).

"GaNpn Contact Blue/Ultraviolet light Emitting Diode", H. Amano et al., *Applied Physics*, vol. 20, No. 2, pp. 163-166, Dec. 1991.

"Phosphors Based on Rare-Earths, A New Era in Fluorescent Lighting", B.M.J. Smets, *Materials Chemistry and Physics*, 16 pp. 283-299, Assume Dec. 1987.

"Proceedings of the Institute of Phosphor Society", Translation, of pp. 1, 5 to 14 of the 264th Proceedings of the Institute of Phosphor Society, Nov. 29, 1996.

"A New Phosphor for Flying-Spot Cathode-Ray Tubes for Color Television: Yellow Emitting.", G. Blasse et al., *App. Phys. Lett.* vol. 11, No. 2, pp. 53-55, Assume Dec. 1967.

Y. Nayatani, *Color Research & Application*, vol. 20, No. 3, Jun. 1995, pp. 143-155.

Wustlich Mikro-/Opto-Elektronik GMBH (1994/1995), Assume Dec. 1995.

W.W. Holloway, Jr. et al., "Optical Properties of Cerium-Activated Garnet Crystals", *Journal of the Optical Society of America*, vol. 59, No. 1, pp. 60-63, Assume Dec. 1969.

W.W. Holloway, Jr. et al., "On the Fluorescence of Cerium—Activated Garnet Crystals", *Physics Letters*, vol. 25A, No. 8, Oct. 23, 1967, pp. 614-615.

W.J. Miniscalco et al., "Measurements of Excited-State Absorption in Ce³⁺:YAG", *J. Appl. Phys.* vol. 49, No. 12, Dec. 1978, pp. 6109-6111.

Takashi Matsuoka et al., "Growth and Properties of a Wide-Gap

Tadao Miura, *Electronics Engineering*, "High-intensity White Backlighting for LCD of Car Audios", Jul. 1996, vol. 38, No. 7, pp. 55-58.

T. Nagatomo et al., "Ga_{1-x}In_xN Blue Light-Emitting Diodes", *Proc. Electrochem. Soc.*, vol. 93-10, pp. 136-141, Assume Dec. 1993.

Shuji Nakamura, "Zn-doped InGa_N growth and InGa_N/AlGa_N double-heterostructure blue-light-emitting diodes", *Journal of Crystal Growth*, 145, pp. 911-917, Assume Dec. 1994.

Shuji Nakamura, "InGa_N/AlGa_N blue-light-emitting diodes", *J. Vac. Sci. Technol. A* 13(3), May/June. 1995, pp. 705-710.

Shuji Nakamura, "High-Power InGa_N/AlGa_N Double-Heterostructure Blue-Light-Emitting Diodes", *IEDM 94, IEEE*, pp. 567-570, Assume Dec. 1994.

Shuji Nakamura et al., "Si-Doped InGa_N Films Grown on Ga_N Films", *Jpn. J. Appl. Phys.* vol. 32, pp. L16-L19, Part 2, No. 1A/B, Jan. 15, 1993.

Shuji Nakamura et al., "P-GaN/N-InGa_N/N-GaN Double-Heterostructure Blue-Light-Emitting Diodes", *Jpn. J. Appl. Phys.* vol. 32, pp. L8-L11, Part 2, No. 1A/B, 15, Jan. 1993.

Shigeo Shionoya et al. (editors), "Phosphor Handbook", pp. 505-508, CRC Press, Assume Dec. 1999.

Sato et al., *Japanese Journal of Applied Physics*, vol. 35, Jul. 1, 1996, pp. L838-L839.

S. Nakaura et al., *Japanese Journal of Applied Physics Part 2*, vol. 31, No. 10B, pp. L1457-1459, Assume Dec. 1992.

R. W. G. Hunt, *Color Research & Application*, vol. 16, No. 3, pp. 146-165, Assume Dec. 1991.

Proceedings of Illumination National Convention in 1983, p. 12, Assume Dec. 1983.

Phosphor Handbook, 1st Edition, pp. 233-240 and 275-277, Assume Dec. 1987.

P. Schlouer et al. "Luminescence Conversion of Blue Light Emitting Diodes", *Applied Physics Letter*, vol. 46, p. 417-418, Feb. 1997.

Nikkei Sangyo Shin-bun of Sep. 13, 1996.

Nakamura, *SPIE*, vol. 3002, pp. 26-35, assume Dec. 1997.

Mitsubishi Electric Company Technical Report, vol. 48, No. 9, pp. 1121-1124, Assume Dec. 1974.

M.F. Yan et al., Preparation of Y₃Al₅O₁₂-Based Phosphor Powders, *J. Electrochem. Soc.*, vol. 134, No. 2, Feb. 1987.

M. Ikeda, *Journal of the Illumination Society*, vol. 71, No. 10, pp. 612-617 and English Abstract, Assume Dec. 1987.

M. Ikeda et al., *Color Research & Application*, vol. 16, No. 2, Apr. 1991, pp. 72-80.

M. Ikeda et al., *Color Research & Application*, vol. 14, No. 4, Aug. 1989, pp. 198-206.

Kozo Osamura et al., "Preparation and Optical properties of Ga_{1-x}In_xN thin films", *Journal of Applied Physics*, vol. 46, No. 8, Aug. 1975, pp. 3432-3437.

Journal of the Television Society, vol. 47, No. 5, pp. 753-764, Assume Dec. 1993.

J.M. Robertson, et al., "Colourshift of the Ce³⁺ Emission in Monocrystalline Epitaxially Grown Garnet Layers", *Philips J. Res.* 36, pp. 15-30, Assume Dec. 1981.

Office Action issued Feb. 28, 2006, in U.S. Appl. No. 10/677,382 (U.S. Patent 7,026,756).

Notice of Allowance and Examiner's Comments on Allowance issued Feb. 13, 2008, in connection with U.S. Appl. No. 10/609,402 (U.S. Patent 7,362,048).

Notice of Allowance and Examiner's Comments on Allowance issued Feb. 11, 2009, in U.S. Appl. No. 11/682,014 (U.S. Patent 7,531,960).

Notice of Allowance and Examiner's Comments on Allowance issued Mar. 10, 2006, in U.S. Appl. No. 10/864,544 (U.S. Patent 7,126,274).

Notice of Allowance and Examiner's Comments on Allowance issued Sep. 7, 2006, in U.S. Appl. No. 11/208,729 (U.S. Patent 7,215,074).

Notice of Allowance and Examiner's Comments on Allowance issued May 4, 2005, in U.S. Appl. No. 10/609,503 (U.S. Patent 7,071,616).

Notice of Allowance and Examiner's Comments on Allowance

- Notice of Allowance and Examiner's Comments on Allowance issued Mar. 26, 2003, in U.S. Appl. No. 09/458,024 (U.S. Patent 6,614,179).
- Notice of Allowance and Examiner's Comments on Allowance issued Sep. 25, 2007, in U.S. Appl. No. 11/653,275 (U.S. Patent 5,998,925).
- Notice of Allowance and Examiner's Comments on Allowance issued Mar. 8, 1999, in U.S. Appl. No. 09/300,315 (U.S. Patent 6,069,440).
- Notice of Allowance and Examiner's Comments on Allowance issued Jan. 28, 1999, in U.S. Appl. No. 08/902,725 (U.S. Patent 5,998,925).
- Office Action issued Nov. 17, 2000, in U.S. Appl. No. 08/902,725 (U.S. Patent 5,998,925).
- Notice of Allowance and Examiner's Comments on Allowance issued Sep. 22, 2005, in U.S. Appl. No. 10/677,382 (U.S. Patent 7,026,756).
- Office Action issued Oct. 20, 2009, in Japanese Patent Application No. 2009-065948 with partial English translation.
- Office Action issued Apr. 4, 2007, in U.S. Appl. No. 11/653,275 (U.S. Patent 7,329,988 B2).
- Notice of Allowance and Examiner's Comments on Allowance issued Feb. 13, 2008, in U.S. Appl. No. 10/609,402 (U.S. Patent 7,362,048).
- Notice of Allowance and Examiner's Comments on Allowance issued Sep. 25, 2007, in U.S. Appl. No. 11/653,275 (U.S. Patent 7,329,988).
- Notice of Allowance and Examiner's Comments on Allowance issued Oct. 8, 1999, in U.S. Appl. No. 09/300,315 (U.S. Patent 6,069,440).
- Office Action issued Oct. 20, 2009, in Japanese Patent Application No. 2009-065948 with partial English translation.
- Hide et al., "White light from InGaN/conjugated polymer hybrid light-emitting diodes," Appl. Phys. Lett., vol. 70 (20), May 19, 1997, <http://apl.aip.org/apl/copyright.jsp>, pp. 2664-2666.
- Nakamura et al., "High-Brightness InGaN Blue, Green and Yellow Light-Emitting Diodes with Quantum Well Structures", Japanese Journal of Applied Physics, vol. 34, No. 7A, Part 2, Jul. 1, 1995, pp. L797-L799 XP000702022.
- Non-Final Office Action issued Aug. 2, 2010, in co-pending U.S. Appl. No. 12/559,042.
- Hoffman, Journal of Res., pp. 89-91 (1977).
- H. Shinoda et al., Color Research & Application, vol. 18, No. 5, Oct. 1993, pp. 326-333.
- G. Blasse et al., "Investigation of Some Ce³⁺-Activated Phosphors", Journal of Chemical Physics, vol. 47, No. 12, Dec. 15, 1967.
- E.F. Gibbons et al., "Some Factors Influencing the Luminous Decay characteristics of Y₃Al₅O₁₂:Ce³⁺", J. Electrochem. Soc., vol. 120, No. 6, Jun. 1973.
- D.J. Robbins et al., "Lattice Defects and Energy Transfer Phenomena in Y₃Al₅O₁₂:Ce³⁺", pp. 1004-1013, printed Jun. 19, 2001.
- Bando et al., Development and applications of highbright white LED lamps, Nov. 29, 1996, The 264th Proceedings of the Institute of Phosphor Society, pp. 4-16 of the English translation.
- Office Action issued Dec. 13, 2005, in U.S. Appl. No. 11/208,729 (U.S. Patent No. 7,215,074).
- Office Action issued Mar. 13, 2001, in U.S. Appl. No. 09/458,024 (U.S. Patent No. 6,614,179).
- Office Action issued Aug. 14, 2002, in U.S. Appl. No. 09/736,425 (U.S. Patent No. 6,608,332).
- Office Action issued Aug. 19, 2005, in U.S. Appl. No. 10/609,402 (U.S. Patent No. 7,362,048).
- Office Action issued Jul. 27, 2007, in U.S. Appl. No. 10/609,402 (U.S. Patent No. 7,362,048).
- Office Action issued Jan. 2, 2008, in U.S. Appl. No. 10/609,402 (U.S. Patent No. 7,362,048).
- Office Action issued Apr. 8, 2005, in U.S. Appl. No. 10/677,382 (U.S. Patent No. 7,026,756).
- Office Action issued Sep. 7, 2005, in U.S. Appl. No. 10/864,544 (U.S. Patent No. 7,126,274).
- U.S. Office Action, dated Jan. 9, 2012, for U.S. Appl. No. 12/947,470.
- U.S. Office Action, dated Mar. 13, 2012, for U.S. Appl. No. 13/210,027.
- U.S. Office Action issued in co-pending U.S. Appl. No. 12/689,681 on Dec. 5, 2011.
- U.S. Office Action issued in co-pending U.S. Appl. No. 12/689,681 on May 10, 2012.
- Singaporean Examination and Search Report issued on Jul. 2, 2012 in counterpart Singapore Patent Application No. 201007151-2.
- Singaporean Examination and Search Report issued on Jul. 5, 2012 in counterpart Singapore Patent Application No. 201007150-4.
- U.S. Office Action in co-pending U.S. Appl. No. 12/689,681 dated Sep. 7, 2012.

* cited by examiner

Fig. 1

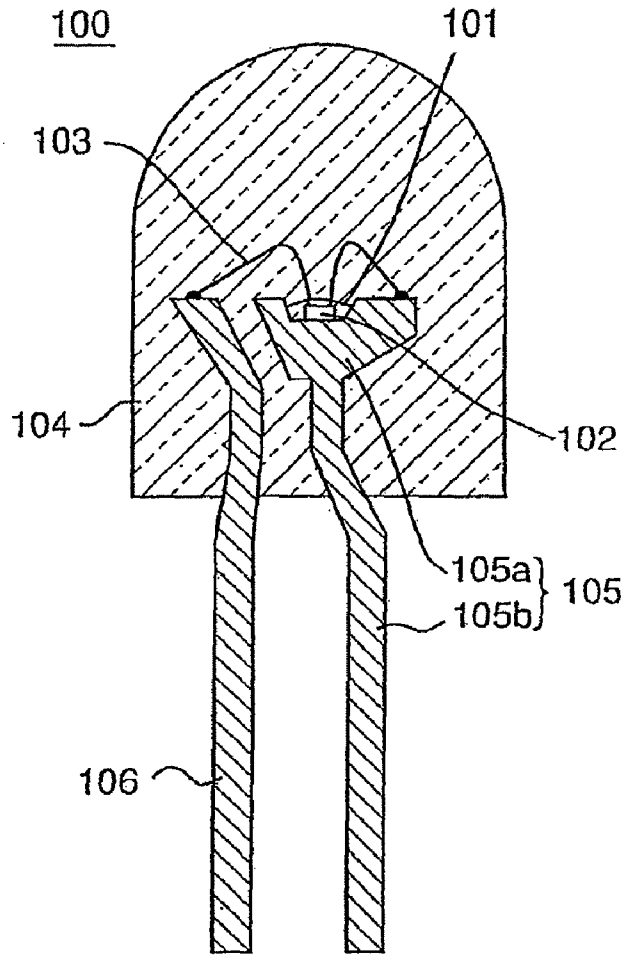
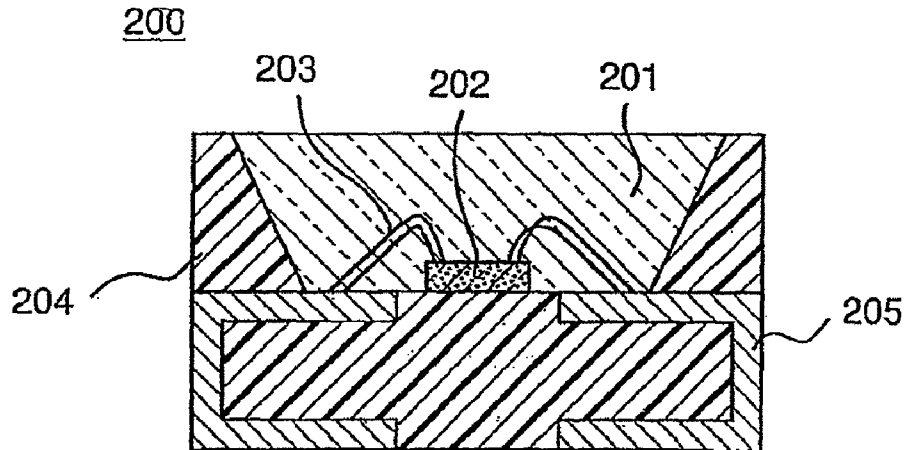


Fig. 2



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.