



US00D673322S

(12) **United States Design Patent**
Van De Ven et al.

(10) **Patent No.:** **US D673,322 S**
(45) **Date of Patent:** **** Dec. 25, 2012**

(54) **LIGHT ENGINE FOR A LIGHTING DEVICE**

(56)

References Cited

(75) Inventors: **Antony Paul Van De Ven**, Hong Kong
(CN); **Wai Kwan Chan**, Hong Kong
(CN)

(73) Assignee: **Cree, Inc.**, Durham, NC (US)

(**) Term: **14 Years**

(21) Appl. No.: **29/403,280**

(22) Filed: **Oct. 4, 2011**

U.S. PATENT DOCUMENTS

| | | | | | |
|-----------|---|---|---------|------------------|--------|
| D188,916 | S | * | 9/1960 | Harling | D26/71 |
| D207,867 | S | * | 6/1967 | Pettengill | D26/70 |
| 3,755,697 | A | | 8/1973 | Miller | |
| 3,787,752 | A | | 1/1974 | Delay | |
| 4,090,189 | A | | 5/1978 | Fisler | |
| 4,717,868 | A | | 1/1988 | Peterson | |
| 4,918,487 | A | | 4/1990 | Coulter, Jr. | |
| 5,151,679 | A | | 9/1992 | Dimmick | |
| 5,175,528 | A | | 12/1992 | Choi et al. | |
| 5,345,167 | A | | 9/1994 | Hasegawa et al. | |
| 5,631,190 | A | | 5/1997 | Negley | |
| 5,661,645 | A | | 8/1997 | Hochstein | |

(Continued)

Related U.S. Application Data

(63) Continuation of application No. 12/621,970, filed on
Nov. 19, 2009.

(51) **LOC (9) Cl.** **26-99**

(52) **U.S. Cl.** **D26/113**

(58) **Field of Classification Search** D26/141,
D26/71, 72, 74, 75, 76, 78, 113, 118, 119,
D26/120, 121, 122, 123, 62, 63, 64, 65, 66,
D26/67, 68, 69, 70, 60, 61, 51, 52, 53, 54,
D26/55, 56, 57, 24, 25, 26, 27, 28, 29, 30,
D26/142, 144, 145, 152, 153, 155, 138, 139,
D26/140, 58, 124, 125, 126, 127, 128, 129,
D26/130, 131, 2, 116, 88, 84, 82, 83, 85,
D26/86, 87, 89, 90, 91, 92; D13/134, 179,
D13/180; 362/490, 491, 473, 418, 419, 420,
362/321, 322, 323, 324, 325, 373, 345, 363,
362/364, 365, 372, 253, 294, 374, 375, 371,
362/362, 326, 311.06, 249.02, 235, 236,
362/308, 309, 310; D23/418, 366; 239/44,
239/43, 4, 45

See application file for complete search history.

FOREIGN PATENT DOCUMENTS

EP 1 881 259 1/2008

(Continued)

OTHER PUBLICATIONS

“Assist Recommends . . . LED Life For General Lighting: Definition
of Life”, vol. 1, Issue 1, Feb. 2005.

(Continued)

Primary Examiner — Kevin Rudzinski

(74) *Attorney, Agent, or Firm* — Burr & Brown

(57)

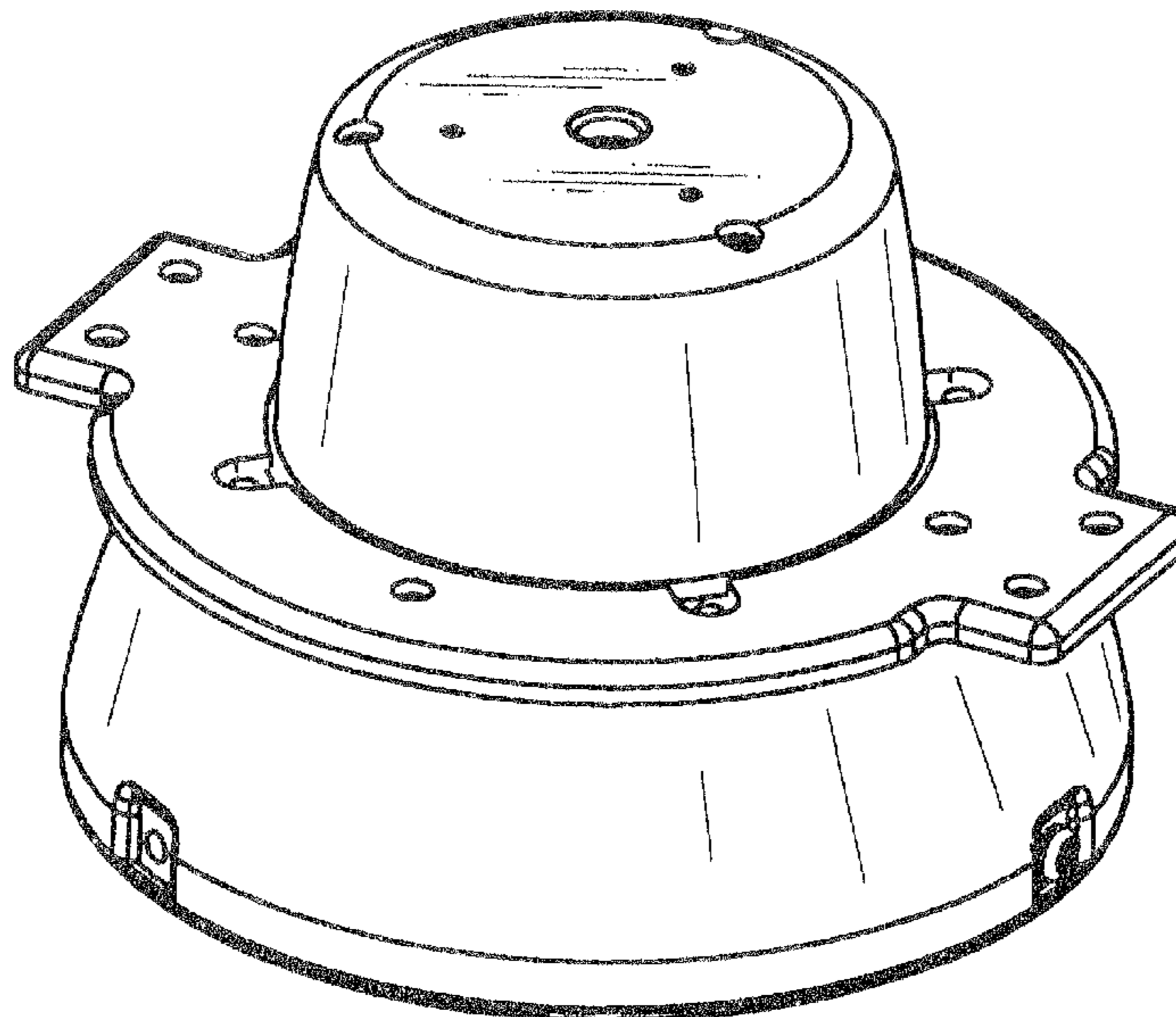
CLAIM

The ornamental design for a light engine for a lighting device,
as shown and described.

DESCRIPTION

The single FIGURE is a perspective view of a light engine for
a lighting device in accordance with my new design.

1 Claim, 1 Drawing Sheet



US D673,322 S

Page 2

U.S. PATENT DOCUMENTS

| | | | | | |
|--------------|------|---------|-------------------|-------|------------|
| D384,430 | S * | 9/1997 | Lecluze | ..... | D26/24 |
| 5,736,881 | A | 4/1998 | Ortiz | | |
| D400,280 | S * | 10/1998 | Leen | ..... | D26/71 |
| 5,844,377 | A | 12/1998 | Anderson et al. | | |
| 5,912,477 | A | 6/1999 | Negley | | |
| 5,912,568 | A | 6/1999 | Kiley | | |
| D418,620 | S * | 1/2000 | Grossman | ..... | D26/71 |
| D425,024 | S * | 5/2000 | Klaus et al. | ..... | D13/134 |
| 6,150,771 | A | 11/2000 | Perry | | |
| 6,161,910 | A | 12/2000 | Reisenauer et al. | | |
| D437,439 | S * | 2/2001 | Tang | ..... | D26/63 |
| 6,222,172 | B1 | 4/2001 | Fossum et al. | | |
| 6,285,139 | B1 | 9/2001 | Ghanem | | |
| 6,329,760 | B1 | 12/2001 | Bebenroth | | |
| 6,340,868 | B1 | 1/2002 | Lys et al. | | |
| 6,350,041 | B1 | 2/2002 | Tarsa et al. | | |
| 6,362,578 | B1 | 3/2002 | Swanson et al. | | |
| 6,388,393 | B1 | 5/2002 | Illingworth | | |
| 6,400,101 | B1 | 6/2002 | Biebl et al. | | |
| 6,528,954 | B1 | 3/2003 | Lys et al. | | |
| 6,577,072 | B2 | 6/2003 | Saito et al. | | |
| 6,586,890 | B2 | 7/2003 | Min et al. | | |
| 6,600,175 | B1 | 7/2003 | Baretz et al. | | |
| 6,614,358 | B1 | 9/2003 | Hutchison et al. | | |
| 6,636,003 | B2 | 10/2003 | Rahm et al. | | |
| 6,724,376 | B2 | 4/2004 | Sakura et al. | | |
| 6,747,420 | B2 | 6/2004 | Barth et al. | | |
| 6,808,287 | B2 | 10/2004 | Lebens et al. | | |
| 6,836,081 | B2 | 12/2004 | Swanson et al. | | |
| 6,841,947 | B2 | 1/2005 | Berg-johansen | | |
| 6,873,203 | B1 | 3/2005 | Latham, II et al. | | |
| 6,987,787 | B1 | 1/2006 | Mick | | |
| 6,995,518 | B2 | 2/2006 | Havlik et al. | | |
| 7,038,399 | B2 | 5/2006 | Lys et al. | | |
| 7,071,762 | B2 | 7/2006 | Xu et al. | | |
| 7,108,238 | B2 * | 9/2006 | Gauci | ..... | 248/221.11 |
| 7,119,498 | B2 | 10/2006 | Baldwin et al. | | |
| 7,180,487 | B2 | 2/2007 | Kamikawa et al. | | |
| 7,202,608 | B2 | 4/2007 | Robinson et al. | | |
| D557,853 | S * | 12/2007 | Sandell | ..... | D26/71 |
| D558,374 | S * | 12/2007 | Sandell | ..... | D26/71 |
| D576,964 | S * | 9/2008 | Shaner | ..... | D13/179 |
| 7,458,706 | B1 * | 12/2008 | Liu et al. | ..... | 362/373 |
| 7,637,635 | B2 * | 12/2009 | Xiao et al. | ..... | 362/294 |
| D610,291 | S * | 2/2010 | Yoshinobu et al. | ..... | D26/74 |
| D618,376 | S * | 6/2010 | Redfern et al. | ..... | D26/92 |
| D625,038 | S * | 10/2010 | Yoo | ..... | D26/85 |
| D627,502 | S * | 11/2010 | Zheng et al. | ..... | D26/72 |
| D627,911 | S * | 11/2010 | Mo et al. | ..... | D26/72 |
| 7,862,214 | B2 | 1/2011 | Trott et al. | | |
| D633,099 | S | 2/2011 | Van de Ven et al. | | |
| 7,914,902 | B2 * | 3/2011 | Kao et al. | ..... | 428/598 |
| D636,922 | S * | 4/2011 | Yoshida et al. | ..... | D26/74 |
| D646,011 | S * | 9/2011 | Rashidi | ..... | D26/74 |
| 2007/0247414 | A1 | 10/2007 | Roberts | | |
| 2008/0030993 | A1 | 2/2008 | Narendran et al. | | |

| | | | | | |
|--------------|------|--------|-------------------|-------|------------|
| 2008/0054281 | A1 | 3/2008 | Narendran et al. | | |
| 2008/0094829 | A1 | 4/2008 | Narendran et al. | | |
| 2008/0105887 | A1 | 5/2008 | Narendran et al. | | |
| 2008/0117500 | A1 | 5/2008 | Narendran et al. | | |
| 2008/0128718 | A1 | 6/2008 | Sumitani | | |
| 2008/0186704 | A1 | 8/2008 | Chou et al. | | |
| 2009/0034283 | A1 * | 2/2009 | Albright et al. | ..... | 362/545 |
| 2009/0046464 | A1 * | 2/2009 | Liu et al. | ..... | 362/294 |
| 2009/0059582 | A1 | 3/2009 | Kulkarni | | |
| 2009/0101930 | A1 | 4/2009 | Li | | |
| 2009/0147517 | A1 * | 6/2009 | Li et al. | ..... | 362/249.02 |
| 2010/0102697 | A1 | 4/2010 | Van de Ven | | |
| 2010/0225220 | A1 | 9/2010 | Tanaka et al. | | |
| 2011/0074265 | A1 * | 3/2011 | Van De Ven et al. | ..... | 313/46 |
| 2011/0075411 | A1 * | 3/2011 | Van De Ven et al. | ..... | 362/235 |
| 2011/0075414 | A1 * | 3/2011 | Van De Ven et al. | ..... | 362/235 |

FOREIGN PATENT DOCUMENTS

| | | |
|----|-------------|--------|
| WO | 2006/007388 | 1/2006 |
| WO | 2008/036873 | 3/2008 |
| WO | 2008/051957 | 5/2008 |
| WO | 2008/061082 | 5/2008 |

OTHER PUBLICATIONS

“Bright Tomorrow Lighting Competition (Lprize™)”, May 28, 2008, Document No. 08NT006643.

“ENERGY STAR® Program Requirements for Solid State Lighting Luminaires, Eligibility Criteria—Version 1.1”, Final: Dec. 19, 2008. Application Note: CLD-AP06.006, entitled Cree® XLamp® XR Family & 4550 LED Reliability, published at cree.com/xlamp, Sep. 2008.

DuPont, “DuPont™ Diffuse Light Reflector”, Publication K-20044, May 2008, 2 pages.

Furukawa Electric Co., Ltd., Data Sheet, “New Material for Illuminated Panels Microcellular Reflective Sheet MCPET”, updated Apr. 8, 2008, 2 pages.

Illuminating Engineering Society Standard LM-80-08, entitled “IES Approved Method for Measuring Lumen Maintenance of LED Light Sources”, Sep. 22, 2008, ISBN No. 978-0-87995-227-3.

Kim et al., “Strongly Enhanced Phosphor Efficiency in GaInN White Light-Emitting Diodes Using Remote Phosphor Configuration and Diffuse Reflector Cup” *Japanese Journal of Applied Physics* 44(21):L649-L651 (2005).

LEDs Magazine, Press Release May 23, 2007, “Furukawa America Debuts MCPET Reflective Sheets to Improve Clarity, Efficiency of Lighting Fixtures”, downloaded Jun. 25, 2009 from <http://www.ledsmagazine.com/press/15145>, 2 pages.

Philips Lumileds, Technology White Paper: “Understanding power LED lifetime analysis”, downloaded from <http://www.philipslumileds.com/pdfs/WP12.pdf>, Document No. WP12, Last Modified May 22, 2007.

MCPET—Microcellular Reflective Sheet Properties, <http://www.trocellen.com>, downloaded Jun. 25, 2009, 2 pages.

* cited by examiner

