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Baretz et al.

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(54) **SOLID STATE WHITE LIGHT EMITTER AND DISPLAY USING SAME**

JP 5-152609 * 6/1993 257/98

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(75) Inventors: **Bruce Baretz**, West Milford, NJ (US);
Michael A. Tischler, Danbury, CT (US)

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(73) Assignee: **Advanced Technology Materials, Inc.**, Danbury, CT (US)

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(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

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Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1212 days.

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(21) Appl. No.: **08/621,937**

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(22) Filed: **Mar. 26, 1996**

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(51) **Int. Cl.**⁷ **H01L 33/00**

(List continued on next page.)

(52) **U.S. Cl.** **257/100; 257/88; 257/98; 257/99**

Primary Examiner—Jerome Jackson
(74) *Attorney, Agent, or Firm*—Steven J. Hultquist; Margaret Chappuis

(58) **Field of Search** 257/88, 98, 99, 257/100

(57) **ABSTRACT**

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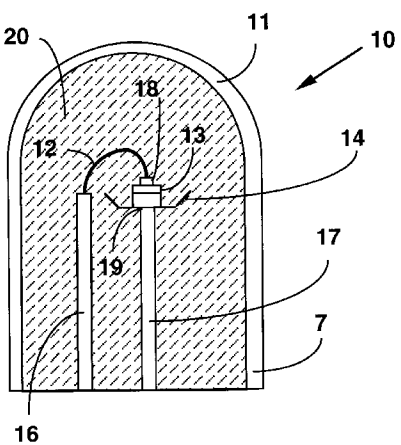
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A light emitting assembly comprising a solid state device coupleable with a power supply constructed and arranged to power the solid state device to emit from the solid state device a first, relatively shorter wavelength radiation, and a down-converting luminophoric medium arranged in receiving relationship to said first, relatively shorter wavelength radiation, and which in exposure to said first, relatively shorter wavelength radiation, is excited to responsively emit second, relatively longer wavelength radiation. In a specific embodiment, monochromatic blue or UV light output from a light-emitting diode is down-converted to white light by packaging the diode with fluorescent organic and/or inorganic fluorescers and phosphors in a polymeric matrix.

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26 Claims, 3 Drawing Sheets



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FIGURE 1

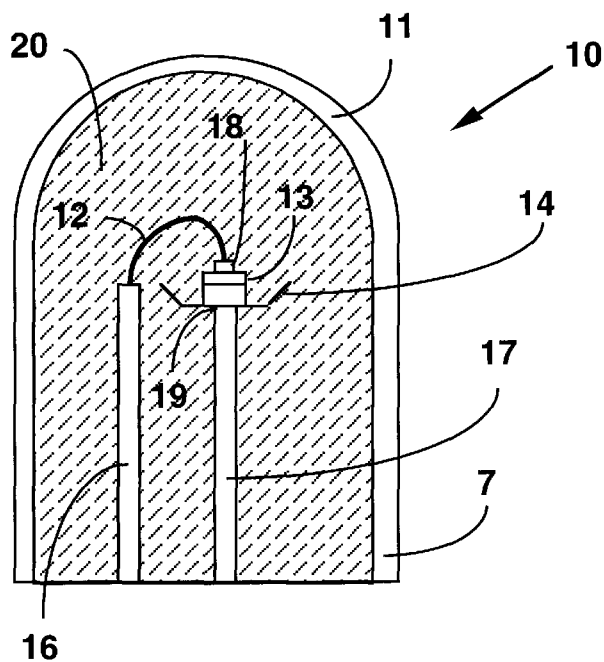


FIGURE 2

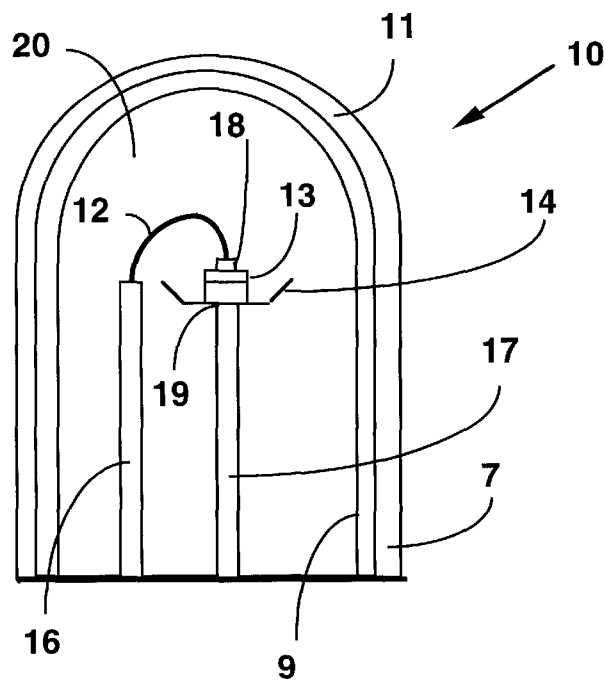


FIGURE 3

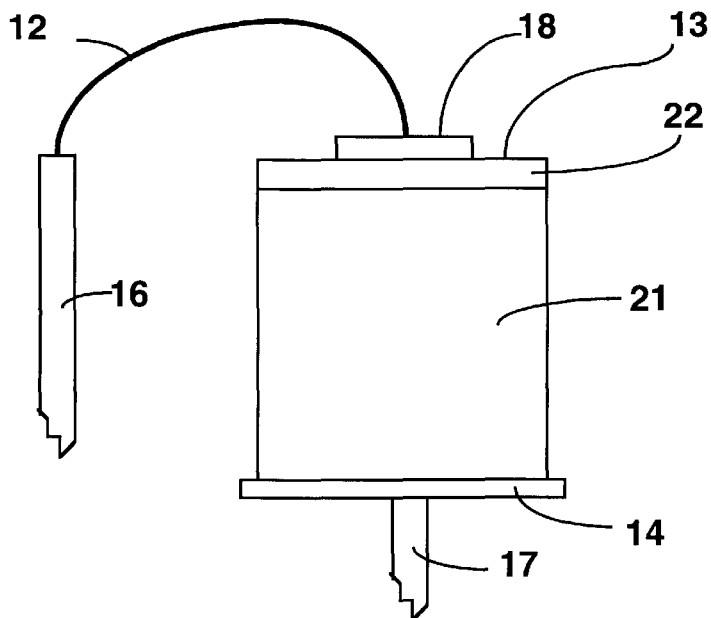


FIGURE 4

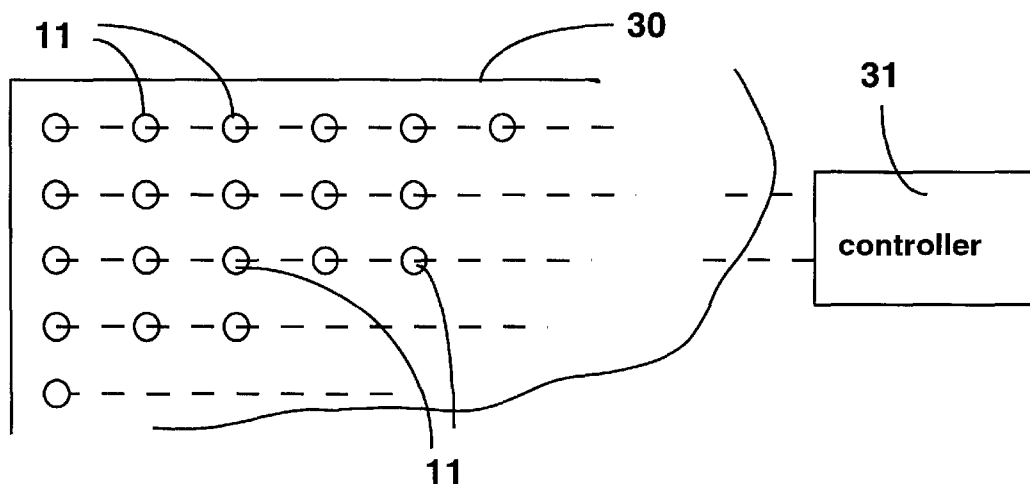


FIGURE 5

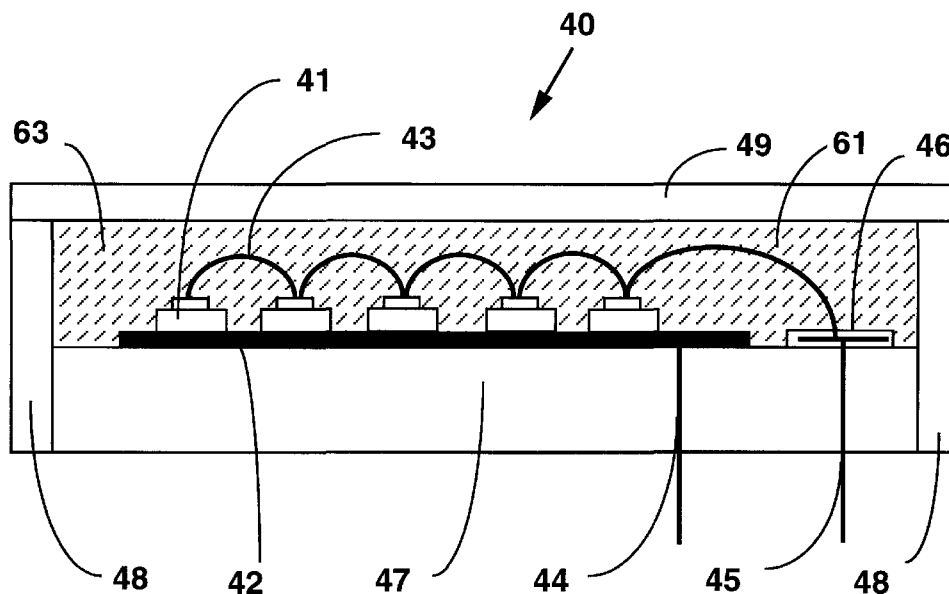
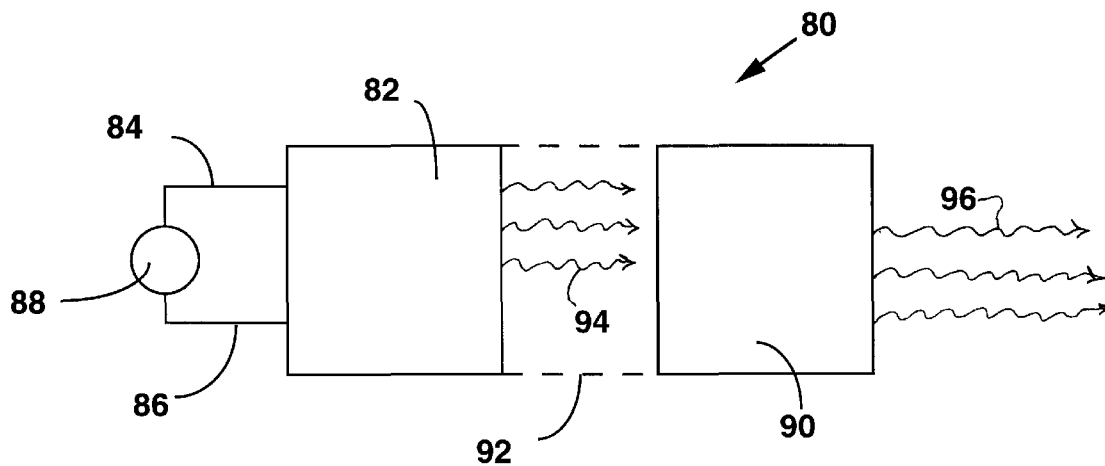


FIGURE 6



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