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

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(54) **LIGHT EMITTING PANEL ASSEMBLIES FOR USE IN AUTOMOTIVE APPLICATIONS AND THE LIKE**

(56) **References Cited**

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**Mark D. Miller**, Parma, OH (US);  
**Thomas A. Hough**, Lakewood, OH (US)

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(73) **Assignee:** **Solid State Opto Limited (VG)**

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

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This patent is subject to a terminal disclaimer.

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(74) *Attorney, Agent, or Firm*—Renner, Otto, Boisselle & Sklar, LLP

**Related U.S. Application Data**

(60) Continuation of application No. 10/005,090, filed on Dec. 5, 2001, now Pat. No. 6,508,563, which is a continuation of application No. 09/703,088, filed on Oct. 31, 2000, now Pat. No. 6,367,940, which is a continuation of application No. 09/167,949, filed on Oct. 7, 1998, now Pat. No. 6,158,867, which is a division of application No. 08/585,062, filed on Jan. 16, 1996, now Pat. No. 5,895,115.

(51) **Int. Cl.**<sup>7</sup> ..... **G01D 11/28**

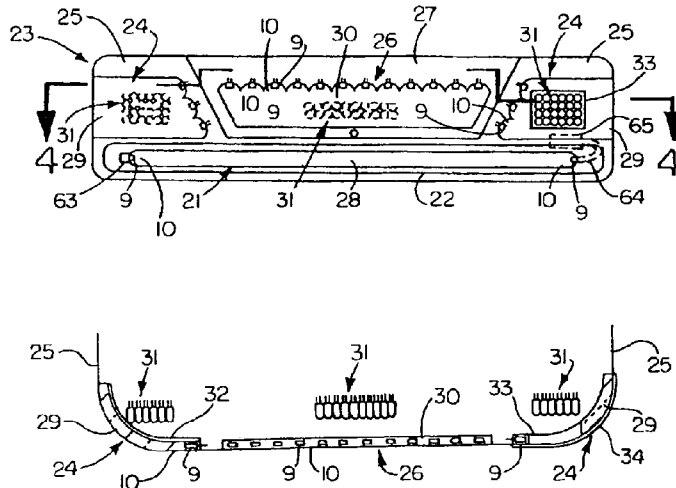
(52) **U.S. Cl.** ..... **362/29; 362/85; 362/26; 362/30; 362/487; 362/543**

(58) **Field of Search** ..... **362/278, 503, 362/540, 85, 511, 543, 545, 487, 459, 26, 27, 29, 30; 40/556**

(57) **ABSTRACT**

Light emitting panel assemblies include in one form of the invention a light emitting panel member made of a transparent resiliently deformable elastomeric material that absorbs impact without breakage for use in automotive lighting applications of various types. In another form of the invention, a rigid light emitting panel member may be used with dome switches for switch area lighting or to backlight control buttons/key pads. Also, a rigid light emitting panel member may be used as a structural member, and two or more such light emitting panel members may be stacked together and used to light an instrument panel or the like.

**33 Claims, 5 Drawing Sheets**



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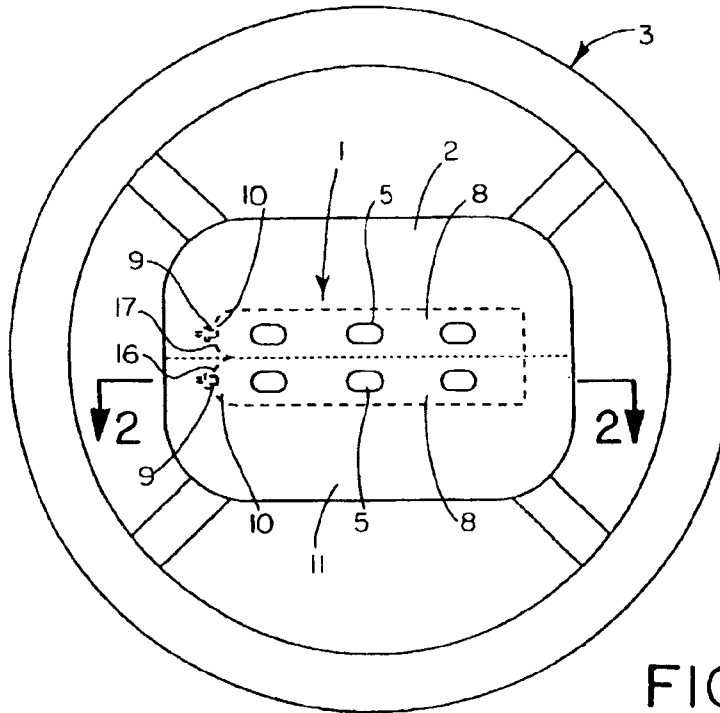


FIG. 1

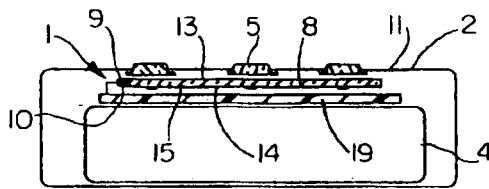


FIG. 2

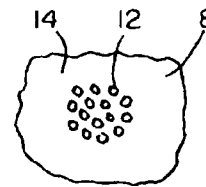


FIG. 2A

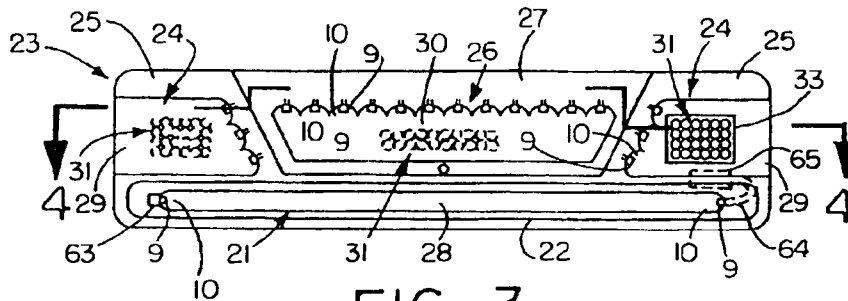
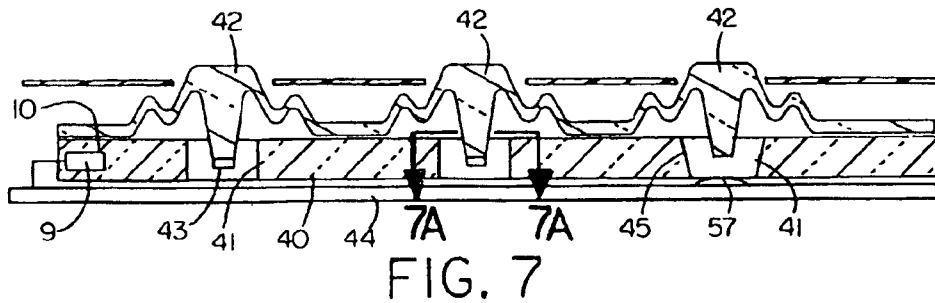
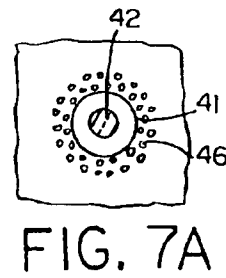
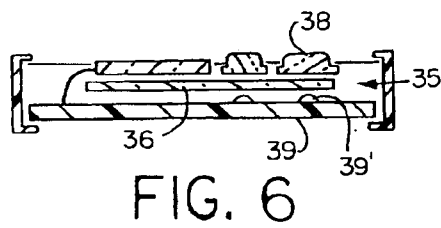
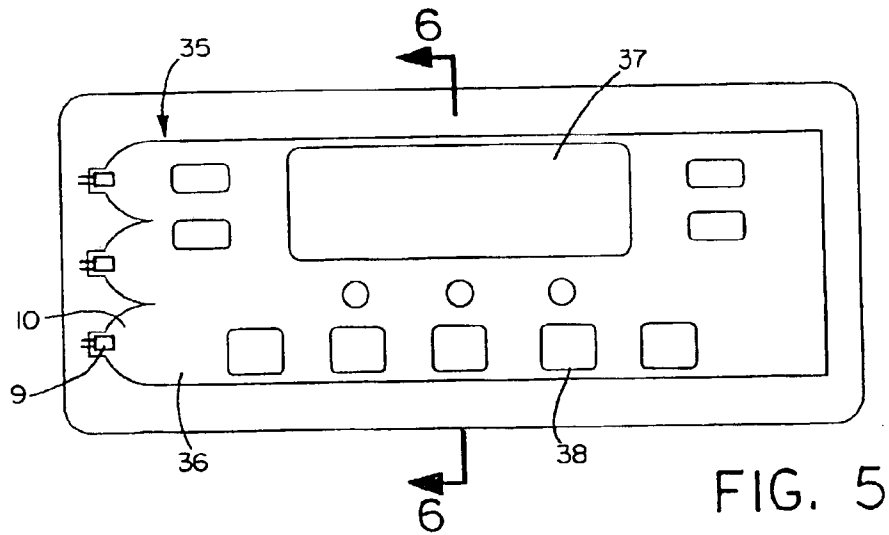
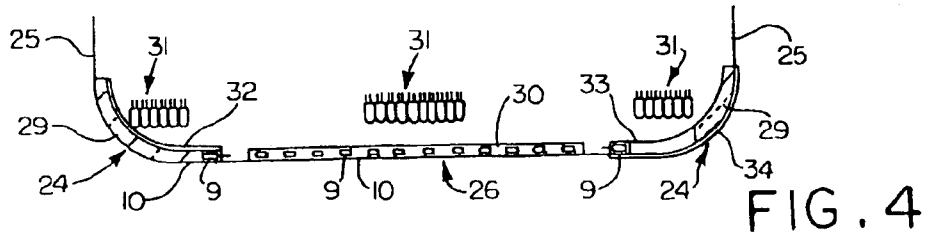
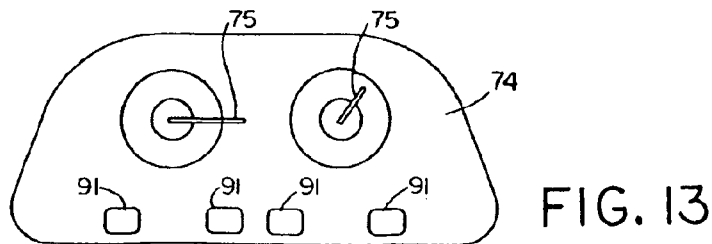
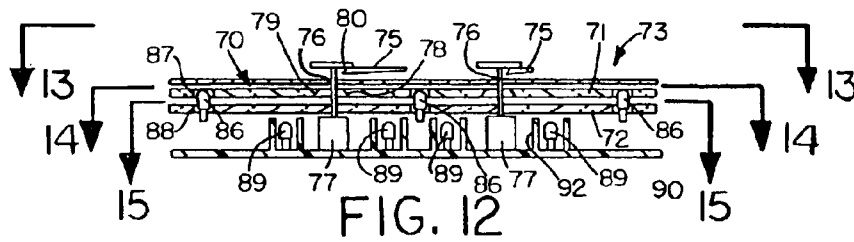
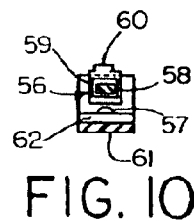
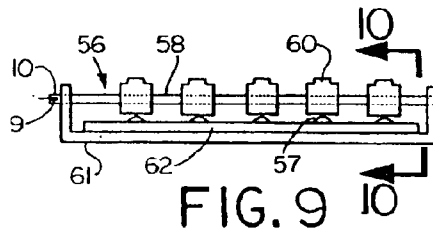
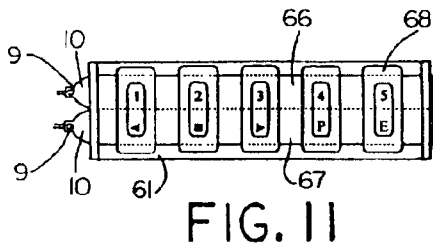
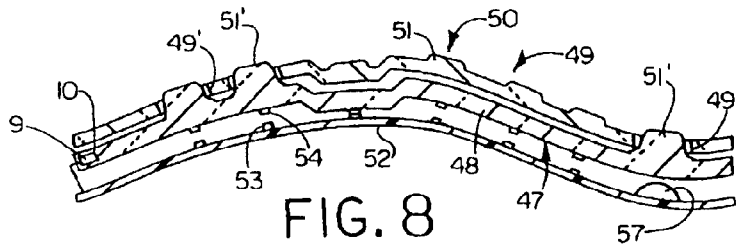


FIG. 3





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