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(12) **United States Patent**  
**Parker**

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(54) **LIGHT EMITTING PANEL ASSEMBLIES**  
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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 282 days.

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(21) Appl. No.: **11/244,544**  
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US 2006/0028817 A1 Feb. 9, 2006

**Related U.S. Application Data**  
(60) Division of application No. 10/784,527, filed on Feb. 23, 2004, now Pat. No. 7,160,015, which is a division of application No. 09/256,275, filed on Feb. 23, 1999, now Pat. No. 6,712,481, which is a continuation-in-part of application No. 08/778,089, filed on Jan. 2, 1997, now Pat. No. 6,079,838, which is a division of application No. 08/495,176, filed on Jun. 27, 1995, now Pat. No. 5,613,751.

(51) **Int. Cl.**  
**F21V 7/04** (2006.01)  
(52) **U.S. Cl.** ..... **362/601; 362/612; 362/613; 362/623; 362/609; 362/231**  
(58) **Field of Classification Search** ..... 362/601, 362/602, 603, 606, 607, 612, 613, 618, 619, 362/620, 623-627, 231, 26, 609  
See application file for complete search history.

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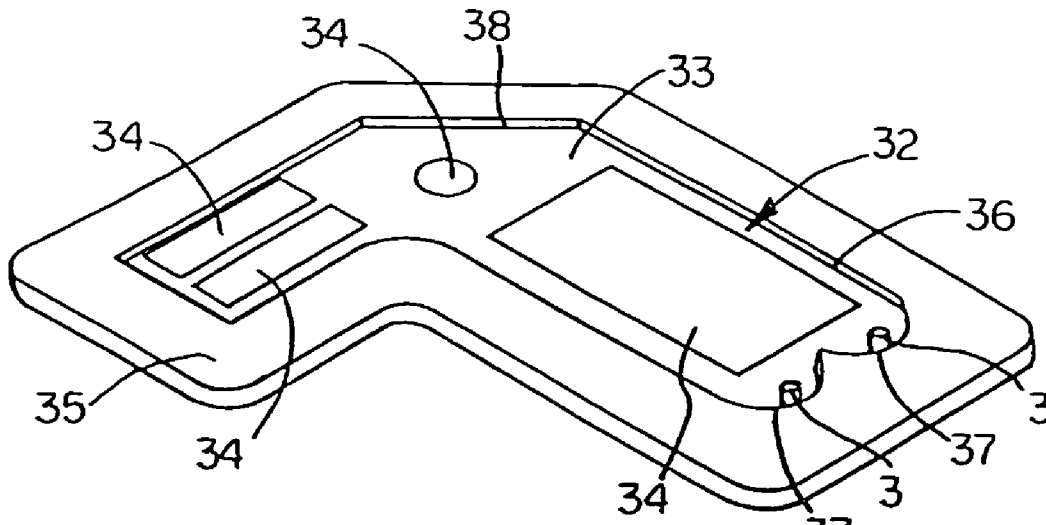
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(57) **ABSTRACT**

Light emitting assemblies include a tray that forms a cavity or recess containing one or more light sources. A sheet, film or substrate is positioned over the cavity or recess for controlling the light emitted from the assembly. The tray acts as a back, side or edge reflector, and has one or more secondary reflective or refractive surfaces.

**27 Claims, 4 Drawing Sheets**



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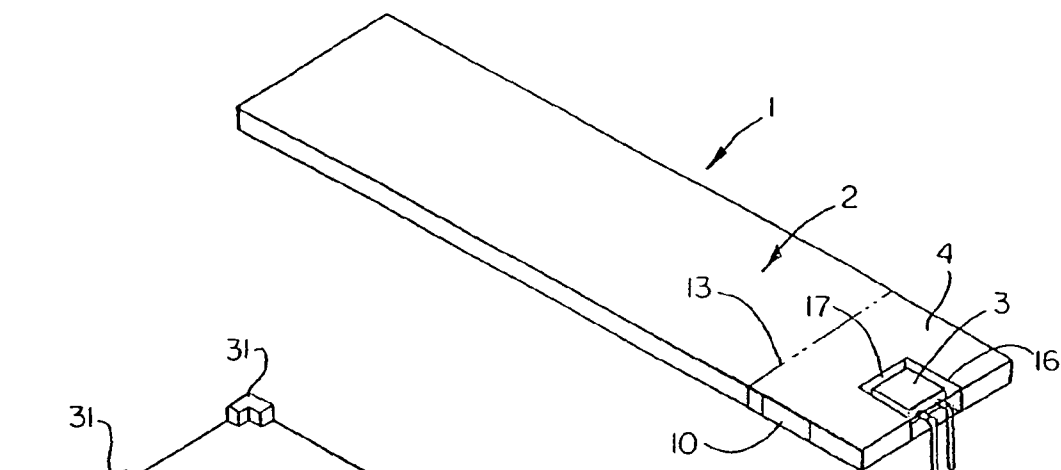


FIG. 1

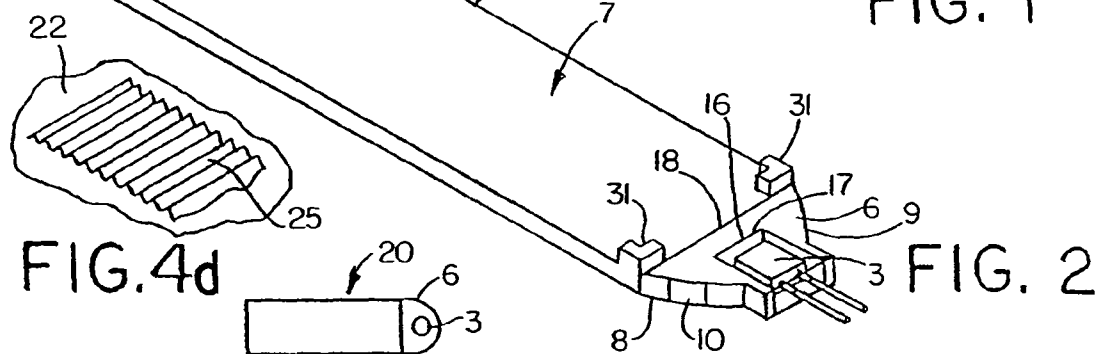


FIG. 2

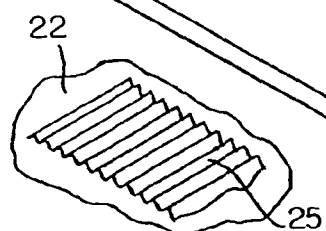


FIG. 4d

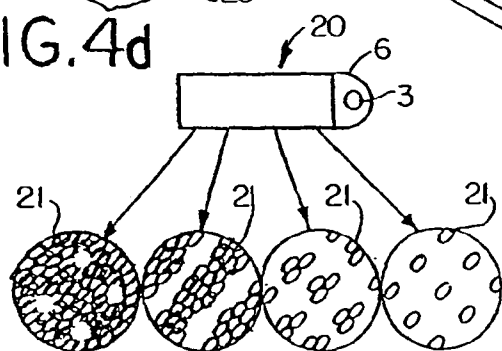


FIG. 4a

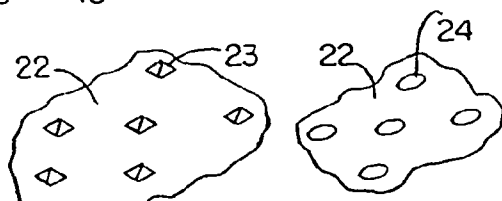


FIG. 4b

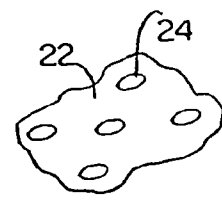


FIG. 4c

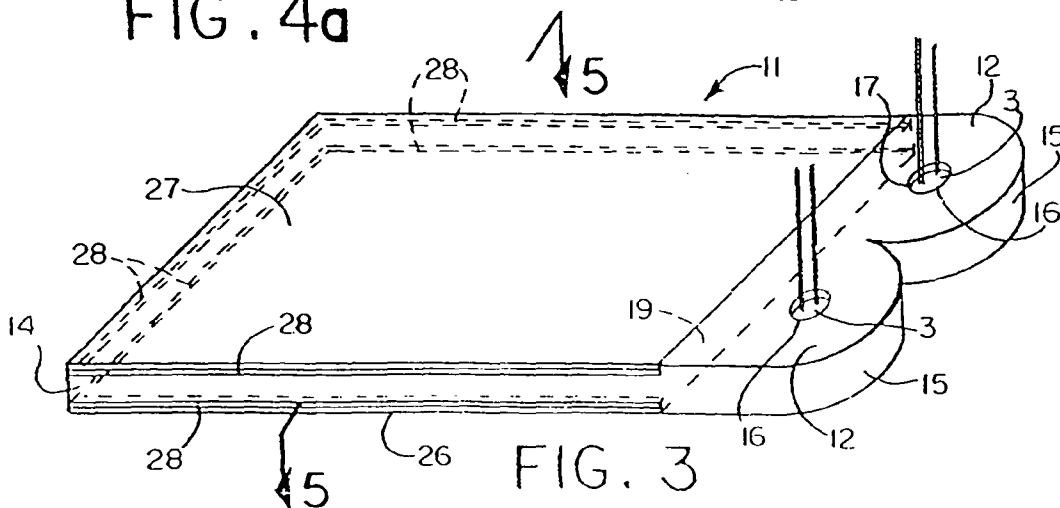
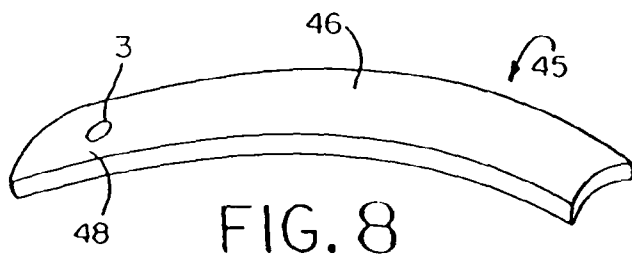
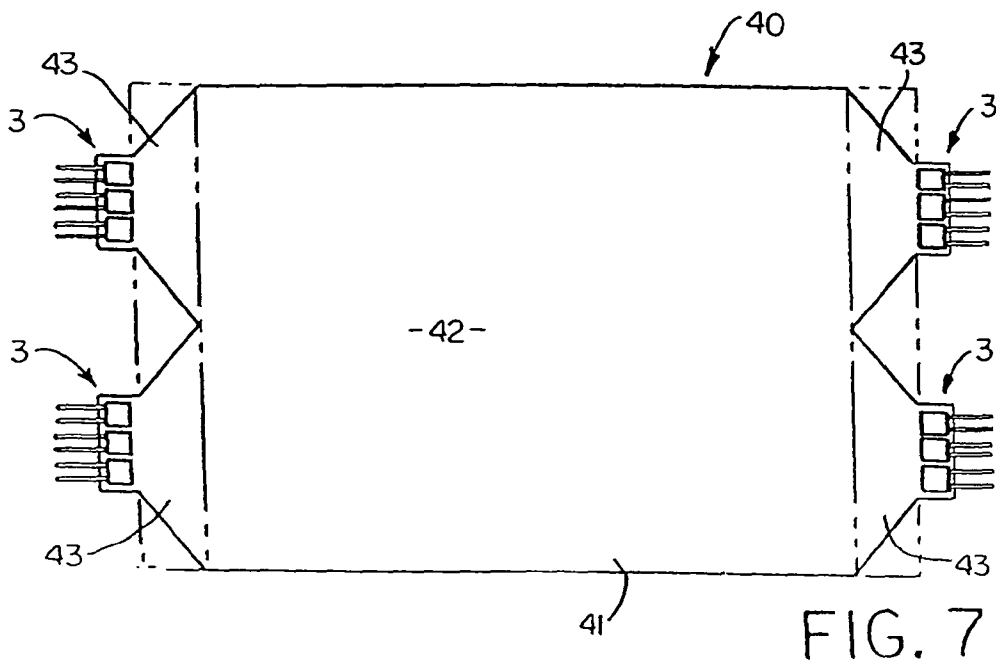
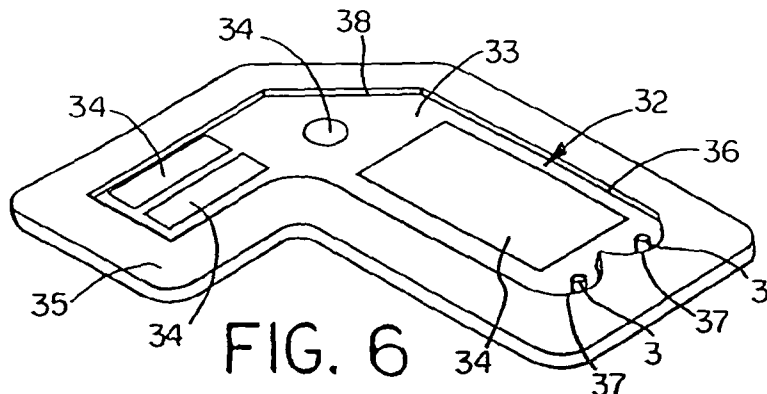
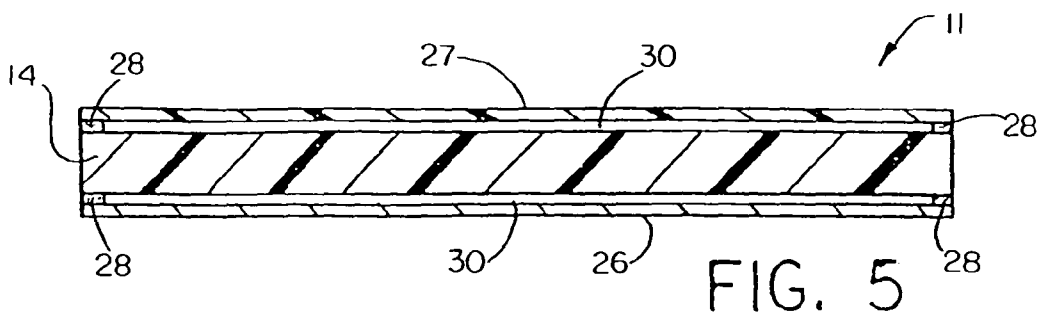
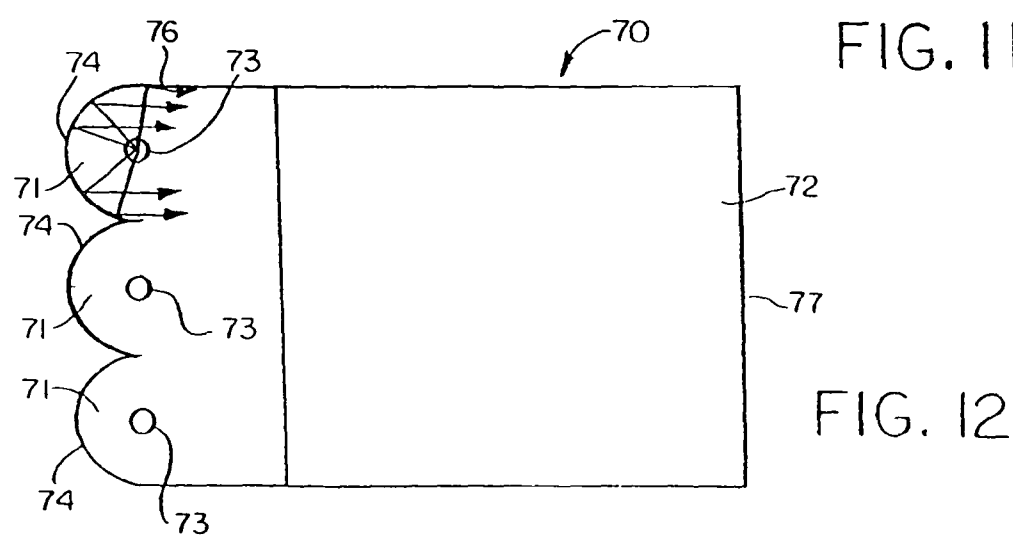
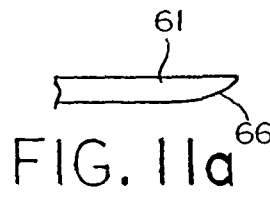
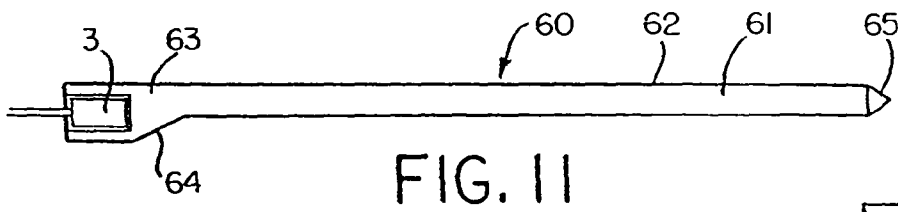
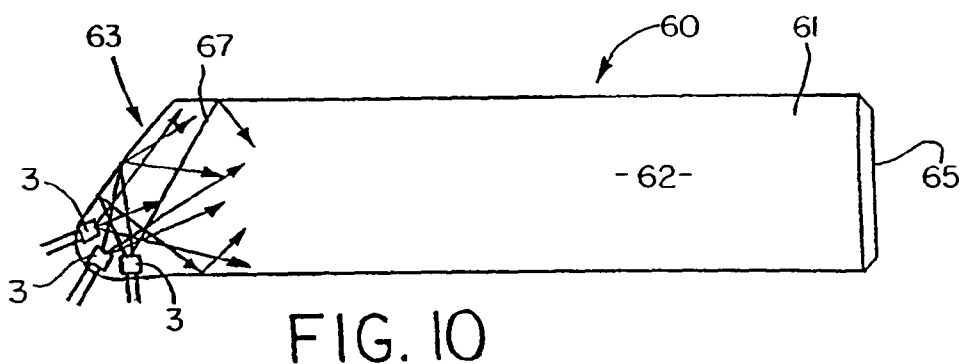
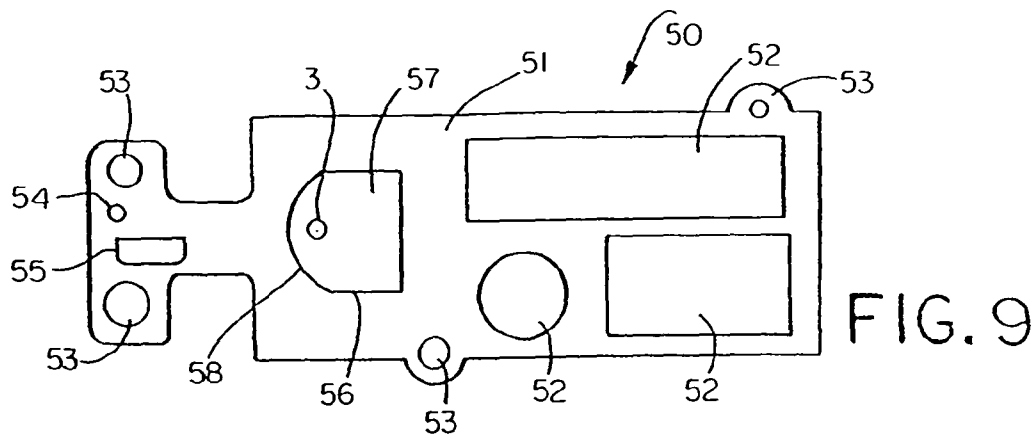


FIG. 3





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