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# United States Patent [19]

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**Yokoyama et al.**

[45] Date of Patent: **Dec. 17, 1996**

[54] **SURFACE LIGHT SOURCE DEVICE**

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**Tsuyoshi Ishikawa**, Tokyo-to, both of  
Japan

[73] Assignee: **Enplas Corporation**, Kawaguchi, Japan

[21] Appl. No.: **982,942**

[22] Filed: **Nov. 30, 1992**

[30] **Foreign Application Priority Data**

Nov. 28, 1991	[JP]	Japan	3-105334	U
Dec. 2, 1991	[JP]	Japan	3-341747	U
Feb. 20, 1992	[JP]	Japan	4-016237	U
Mar. 25, 1992	[JP]	Japan	4-024601	U
Mar. 25, 1992	[JP]	Japan	4-024608	U
Oct. 9, 1992	[JP]	Japan	4-296666	U

[51] Int. Cl.<sup>6</sup> ..... **F21V 8/00**

[52] U.S. Cl. .... **362/31; 362/26; 362/327; 362/330; 385/901; 349/62**

[58] Field of Search ..... 362/26, 27, 31, 362/327, 330, 331, 333, 339; 359/49, 48; 385/901, 129, 130, 131

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*Primary Examiner*—Ira S. Lazarus

*Assistant Examiner*—Alan B. Cariaso

*Attorney, Agent, or Firm*—Cushman, Darby & Cushman

[57] **ABSTRACT**

A surface light source device which comprises a light-conducting member consisting of a sheet of transparent material, a linear light source disposed adjacent to an edge surface of the light-conducting member, a diffusion plate disposed on a front surface of the light-conducting member and a reflective plate disposed on a rear side of the light-conducting member. The rear surface of the light-conducting member has depressions or projections. These depressions or projections have rough surfaces. By selecting the shape of the depressions or projections, and controlling the roughness of the rough surfaces, an enhanced uniform brightness distribution is provided.

**30 Claims, 9 Drawing Sheets**

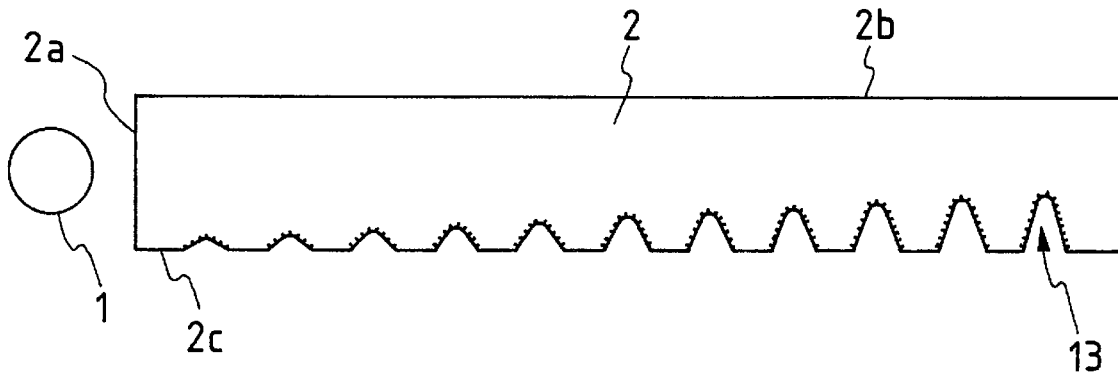


FIG. 1 PRIOR ART

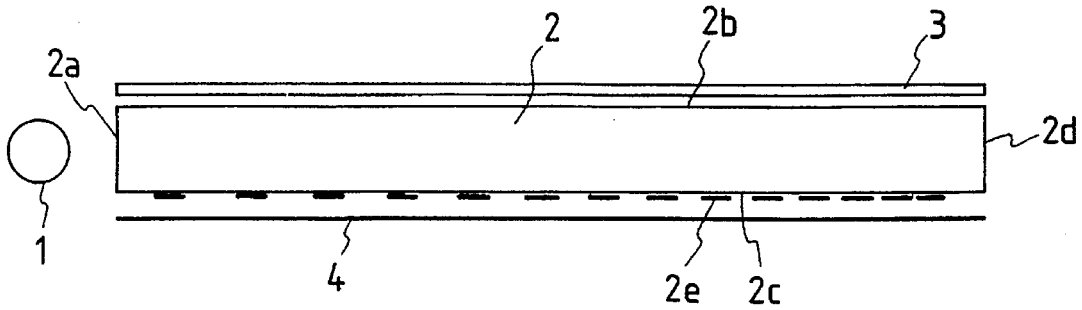


FIG. 2

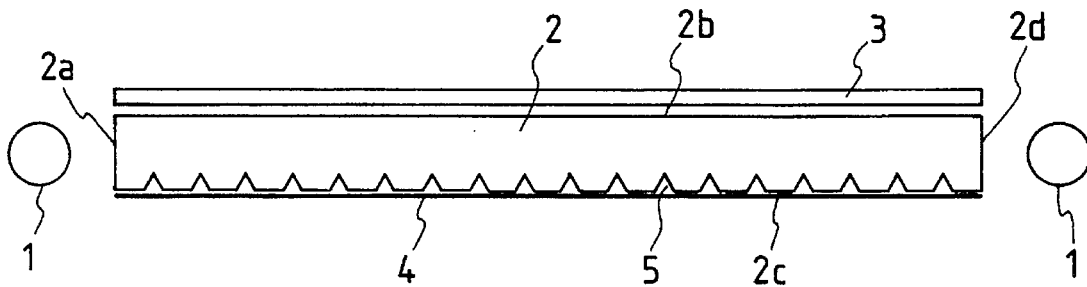


FIG. 3

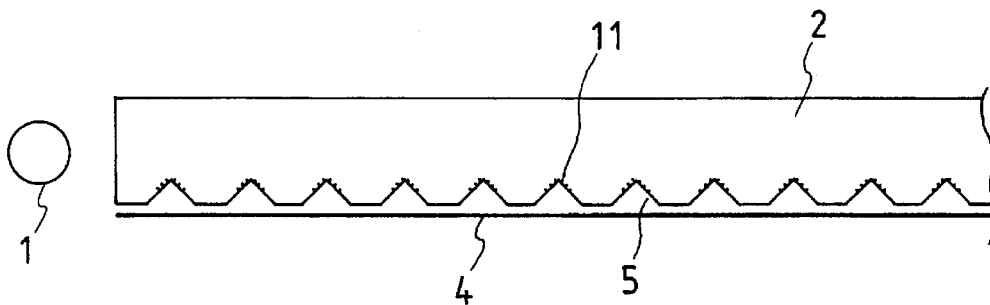


FIG. 4

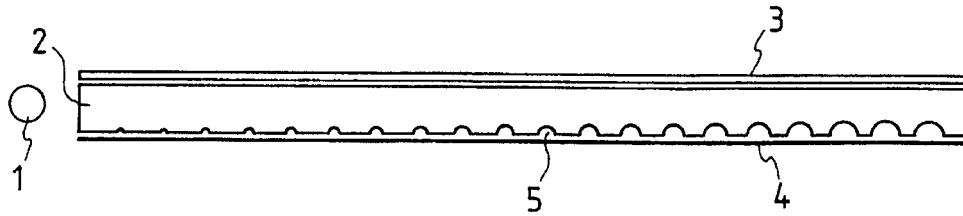


FIG. 5

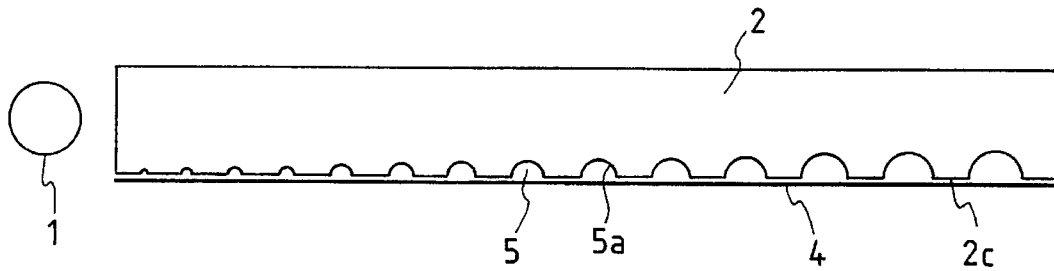


FIG. 6

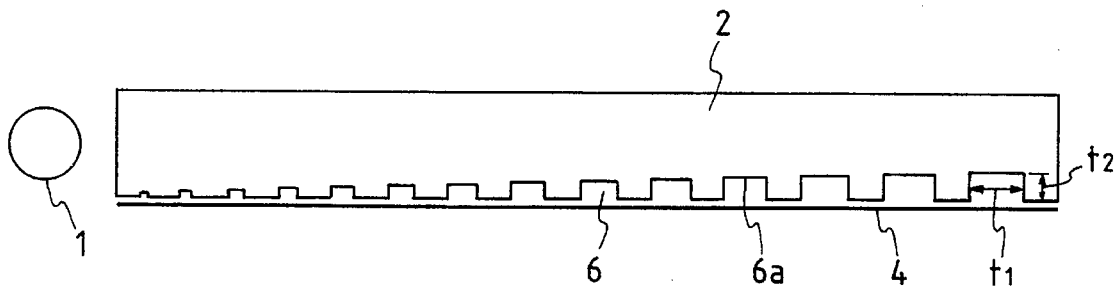


FIG. 7

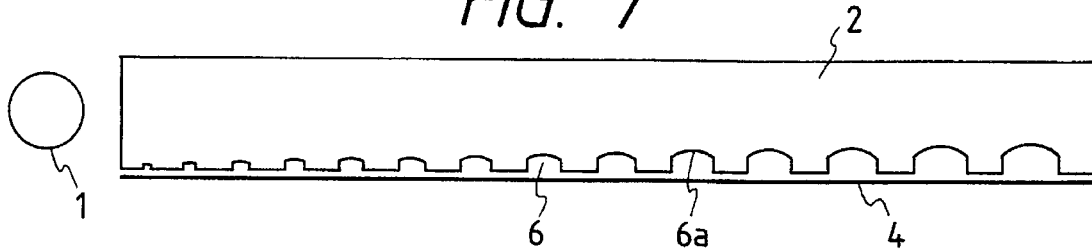


FIG. 8

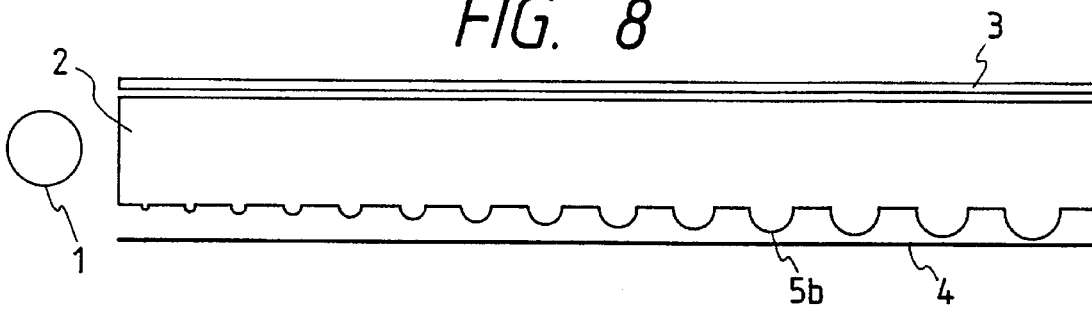


FIG. 9

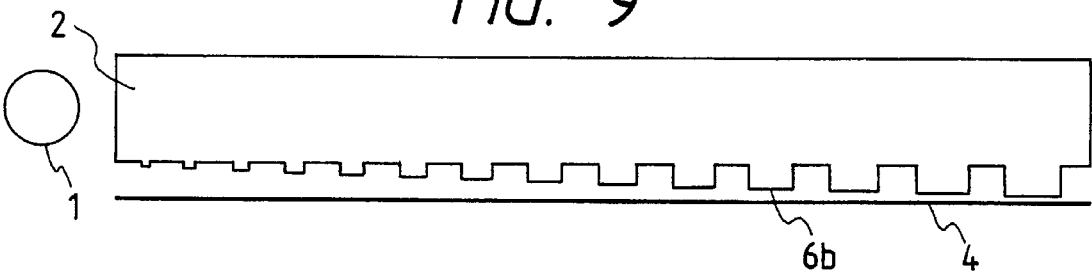


FIG. 10

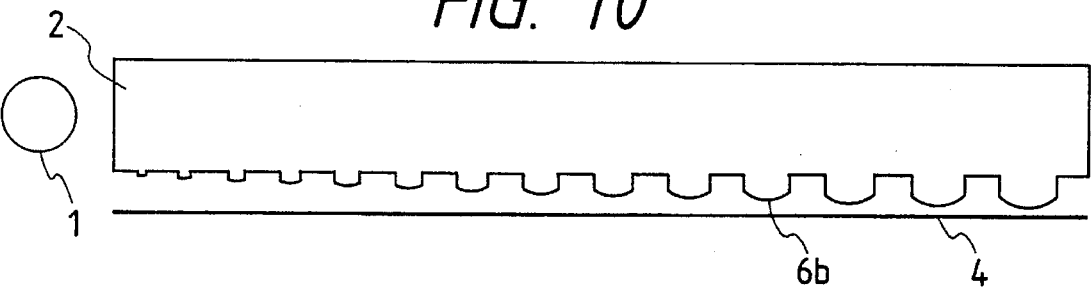


FIG. 11

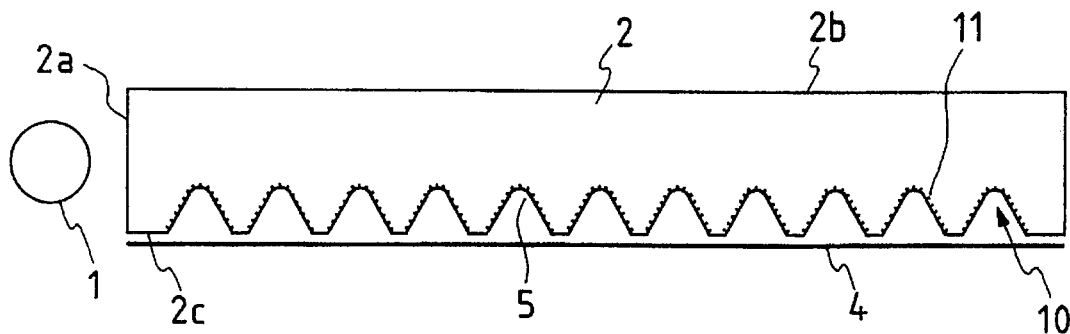


FIG. 12

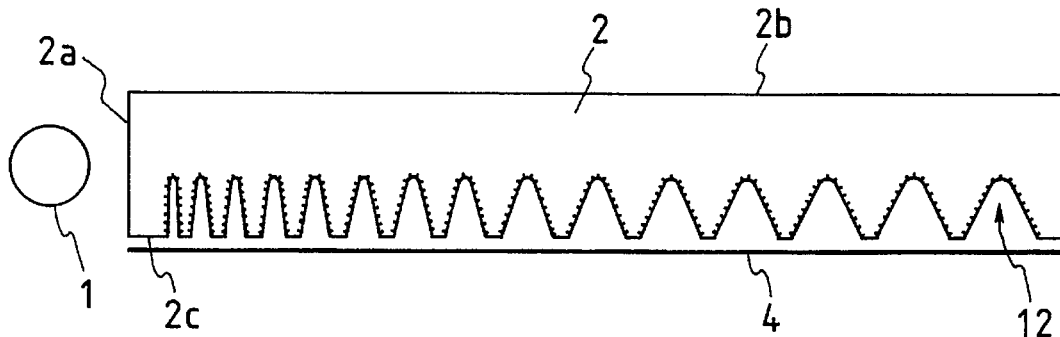
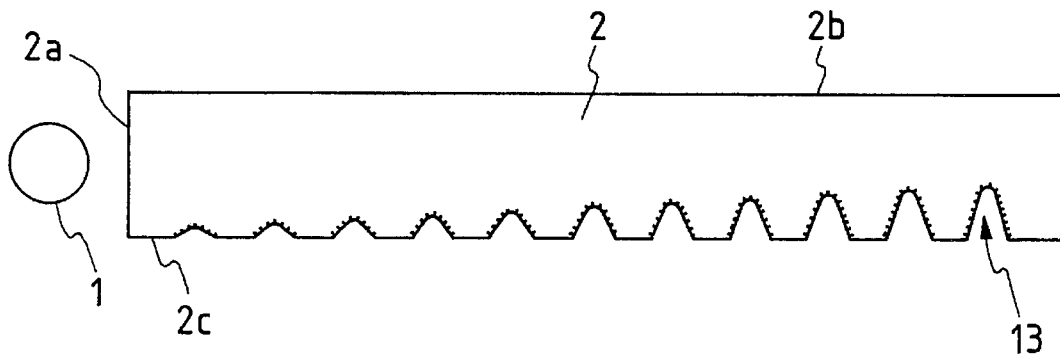


FIG. 13



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