

United States Patent [19]

[11] Patent Number: **4,630,895**

Abdala, Jr. et al.

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[54] **LCD LIGHTGUIDE**

[75] Inventors: **Julio Abdala, Jr., Miami; Bernard V. Gasparaitis, Tamarac, both of Fla.**

[73] Assignee: **Motorola, Inc., Schaumburg, Ill.**

[21] Appl. No.: **741,912**

[22] Filed: **Jun. 6, 1985**

[51] Int. Cl.⁴ **G02F 1/13**

[52] U.S. Cl. **350/345; 362/31; 362/104; 362/297**

[58] Field of Search **350/345; 362/31, 26, 362/27, 297, 298, 301, 104**

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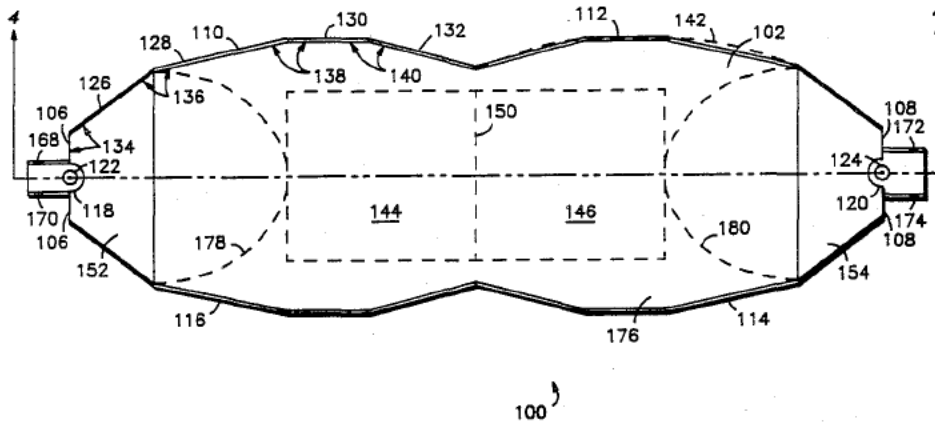
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Primary Examiner—L. T. Hix
Assistant Examiner—Brian W. Brown
Attorney, Agent, or Firm—Martin J. McKinley; Joseph T. Downey; Donald B. Southard

[57] **ABSTRACT**

A backlitged display system includes a liquid crystal display, a flat light guide behind the display, and light emitting diodes (LED's). The light guide is a molded slab of clear polycarbonate material with two planes depressed into its rear surface. Four segmented bordering surfaces are approximately arcuate in shape. The depressed planes, the segmented bordering surfaces, and the rear surface are coated with a reflective white paint. LED holders are integrally molded with the light guide. A central portion of the front surface is optionally textured. The display system provides thin construction with even light distribution across the width of the display, low power consumption, and good outdoor visibility at dusk or dawn.

18 Claims, 7 Drawing Figures



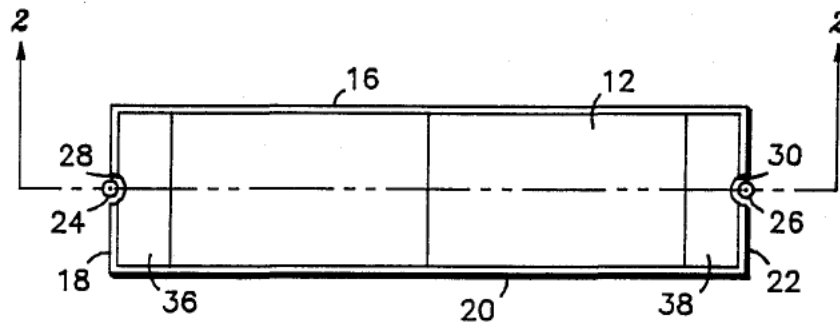


FIG. 1

-PRIOR ART-

10 ↑

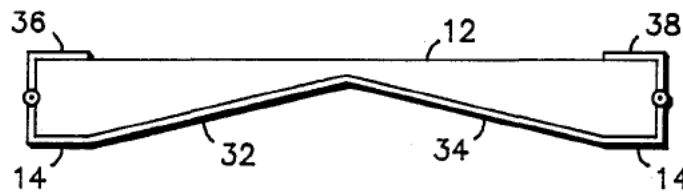


FIG. 2

-PRIOR ART-

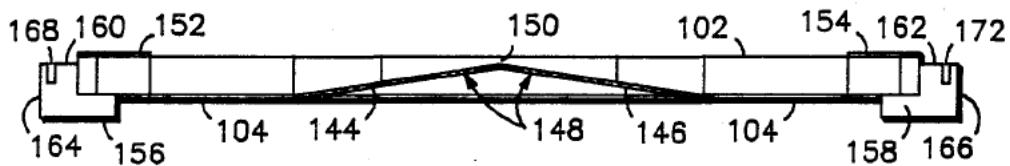


FIG. 4

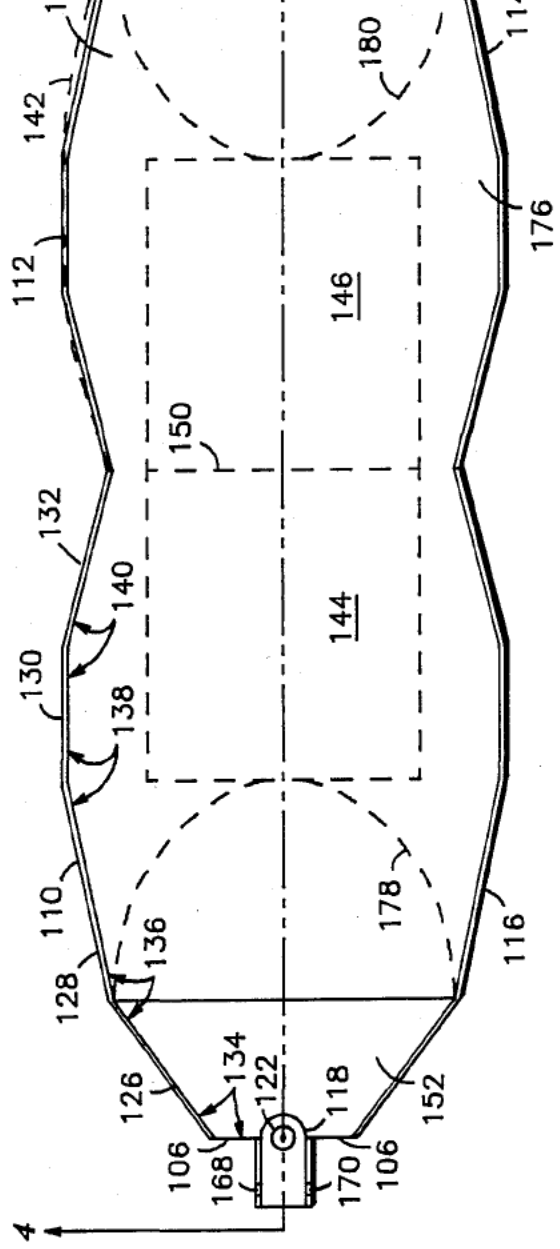


FIG. 3 100

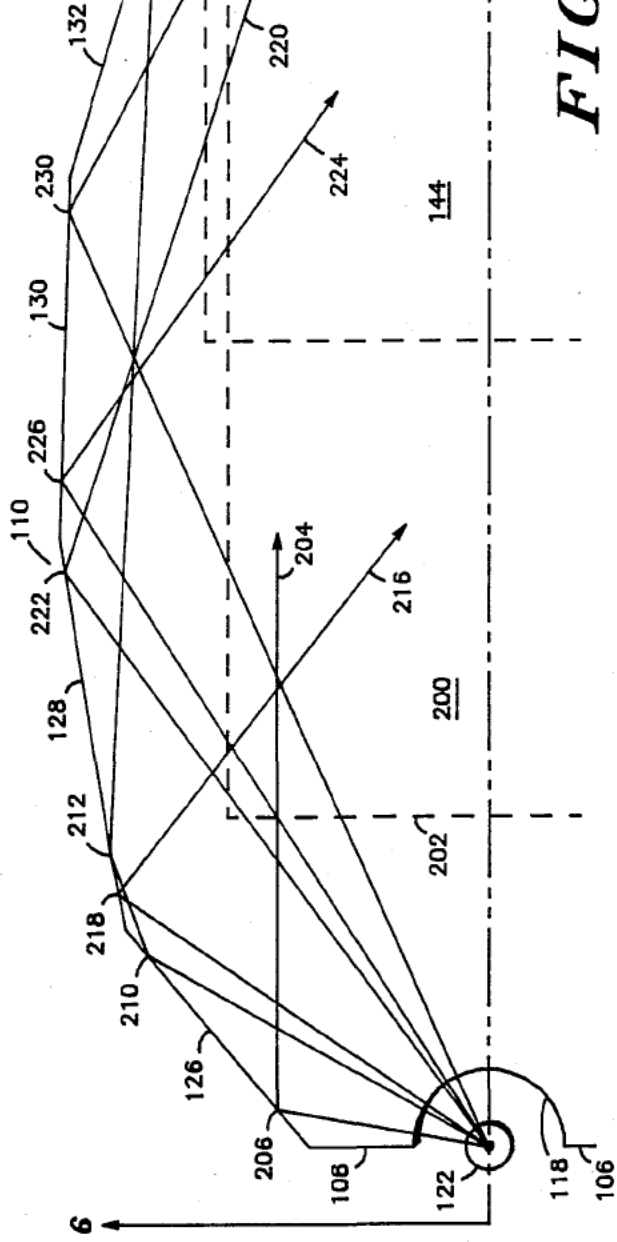
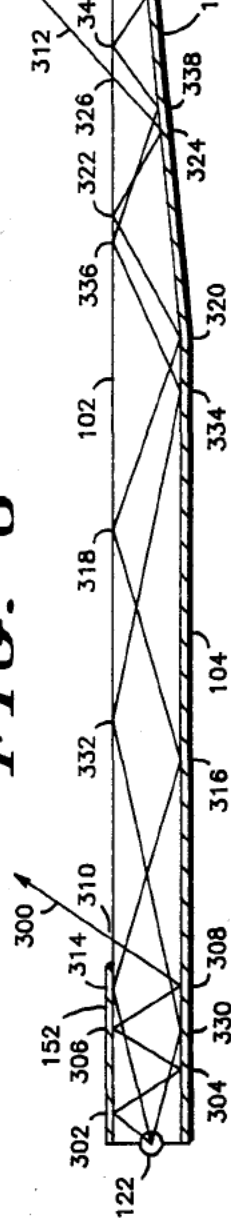


FIG. 5

FIG. 6



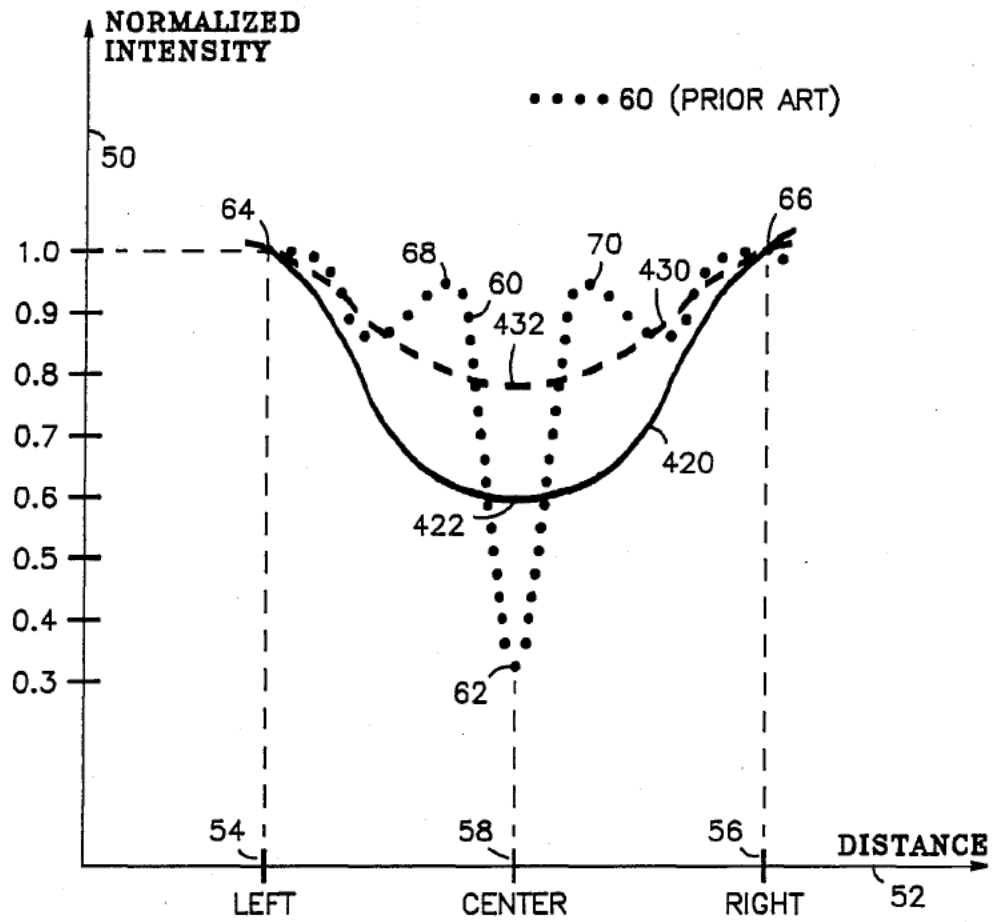


FIG. 7

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