

# United States Patent [19]

Kazar

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[54] **ORNAMENTAL LIGHT DISPLAY APPARATUS**

[75] Inventor: **Dennis M. Kazar, Austin, Tex.**

[73] Assignees: **Laser Link, Inc., Austin, Tex.;  
William K. Wells, Jr., Reston, Va.**

[21] Appl. No.: **315,450**

[22] Filed: **Feb. 23, 1989**

### Related U.S. Application Data

[63] Continuation of Ser. No. 871,035, Sep. 8, 1986, Pat. No. 4,870,325, Continuation of Ser. No. 810,304, Dec. 18, 1985.

[51] Int. Cl.<sup>5</sup> ..... **H04B 37/02**

[52] U.S. Cl. .... **315/178; 315/183;  
315/210; 315/250; 315/324**

[58] Field of Search ..... **315/178, 182, 183, 210,  
315/250, 312, 323, 324; 362/231, 800, 803, 806;  
340/700, 701, 702, 800**

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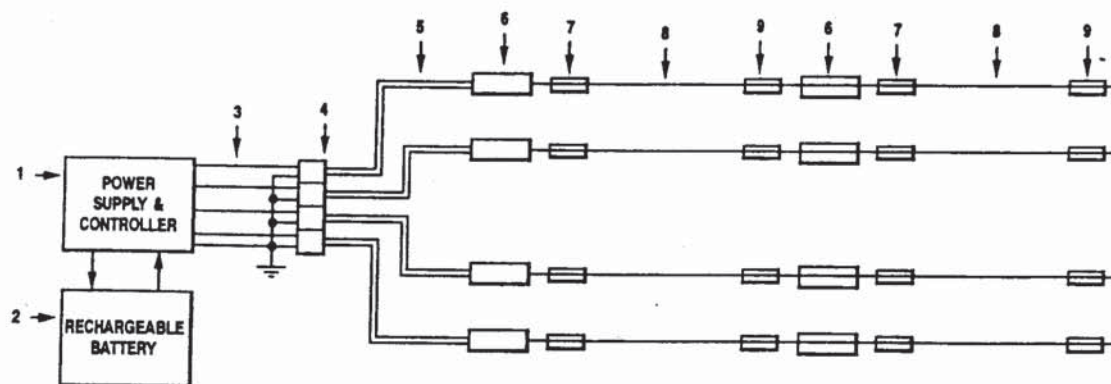
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*Primary Examiner*—Robert J. Pascal  
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### [57] ABSTRACT

Ornamental and decorative light display utilizing LEDs constructed of two or more individual diodes. Each diode or portion of a diode is alternately selected and energized at a sufficient frequency that colors can blend to produce another color. The system provides for an extremely large configuration of LEDs to be driven at a low average power and at the same time to allow the user to select individual lights to be constantly illuminated or flash in response on oscillating voltage source or allow multicolored patterns to be generated using bicolor LEDs.

**32 Claims, 12 Drawing Sheets**



Santa's Best and Polygroup  
Exhibit 1004

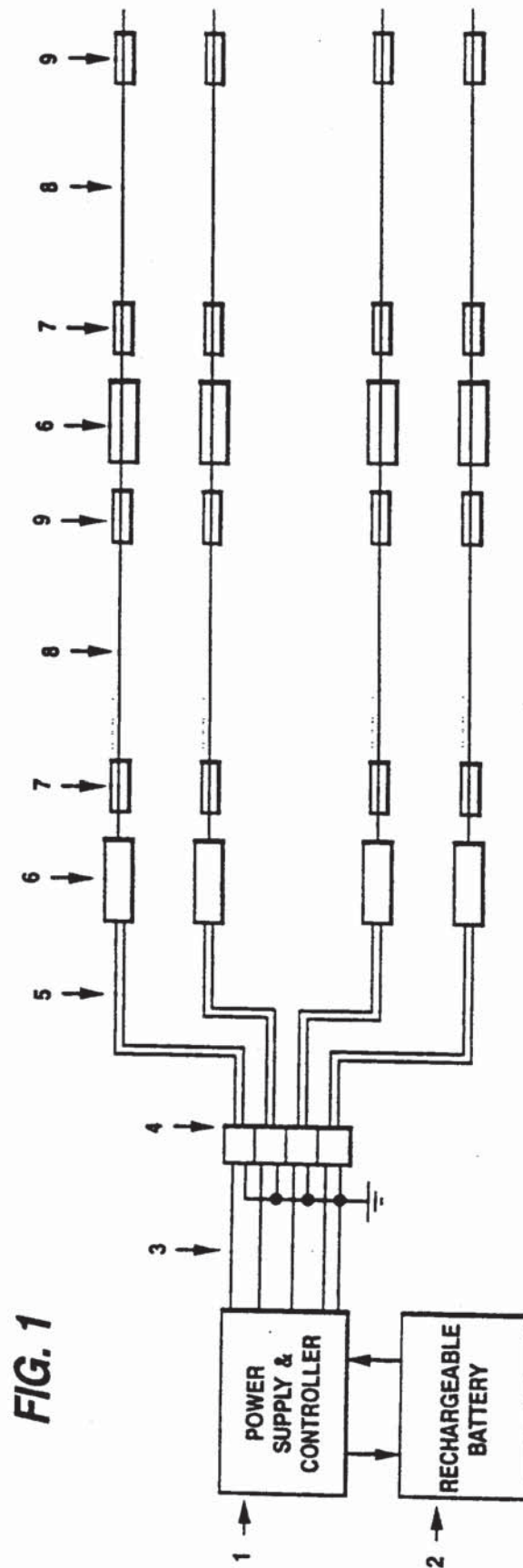


FIG. 1

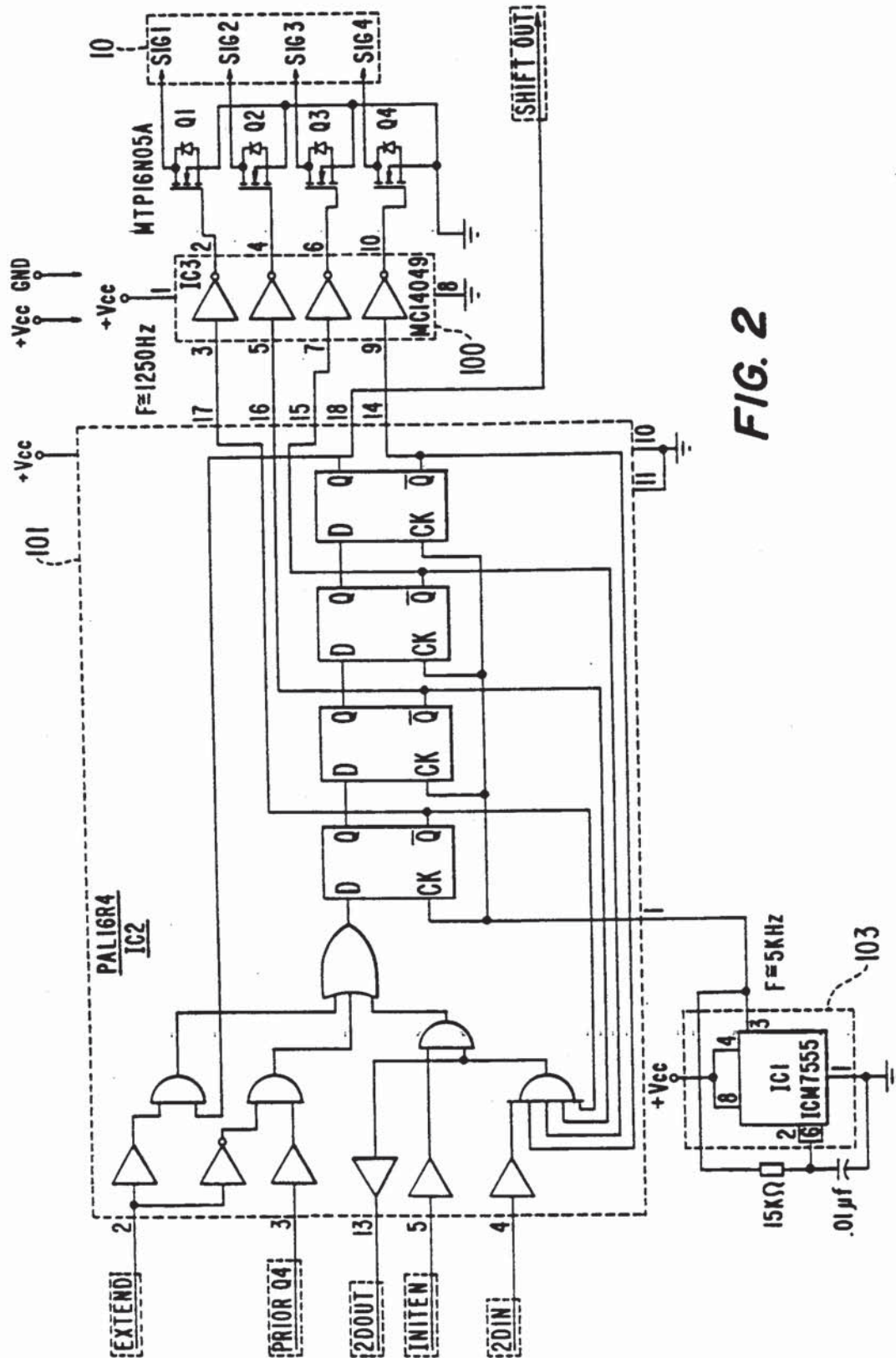


FIG. 2

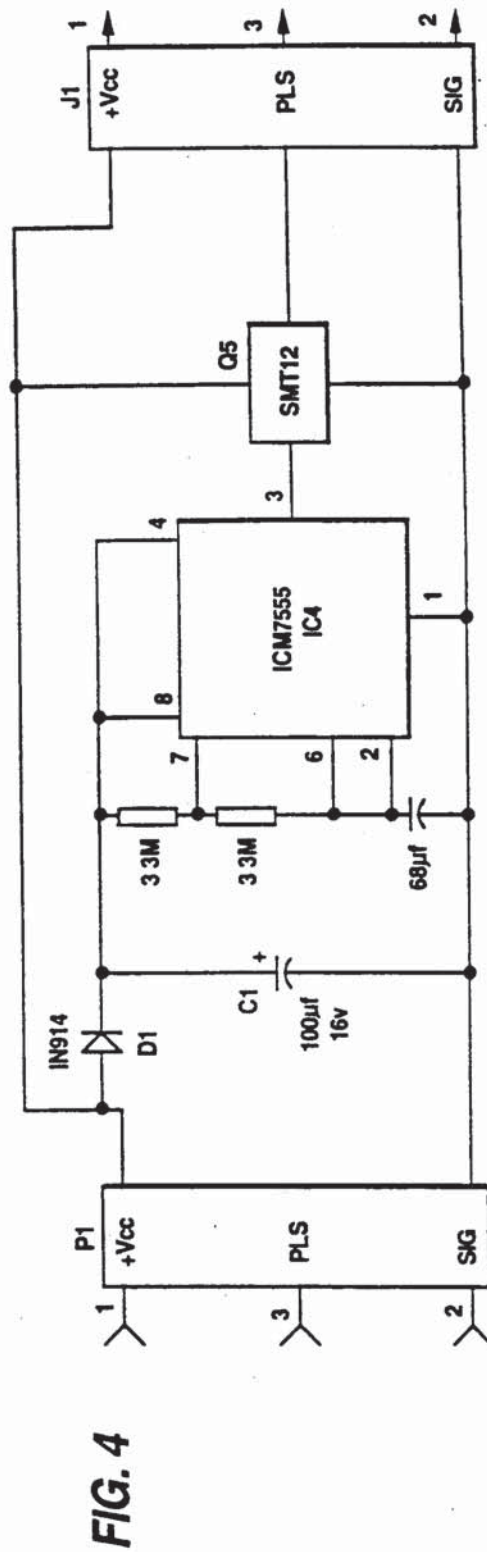
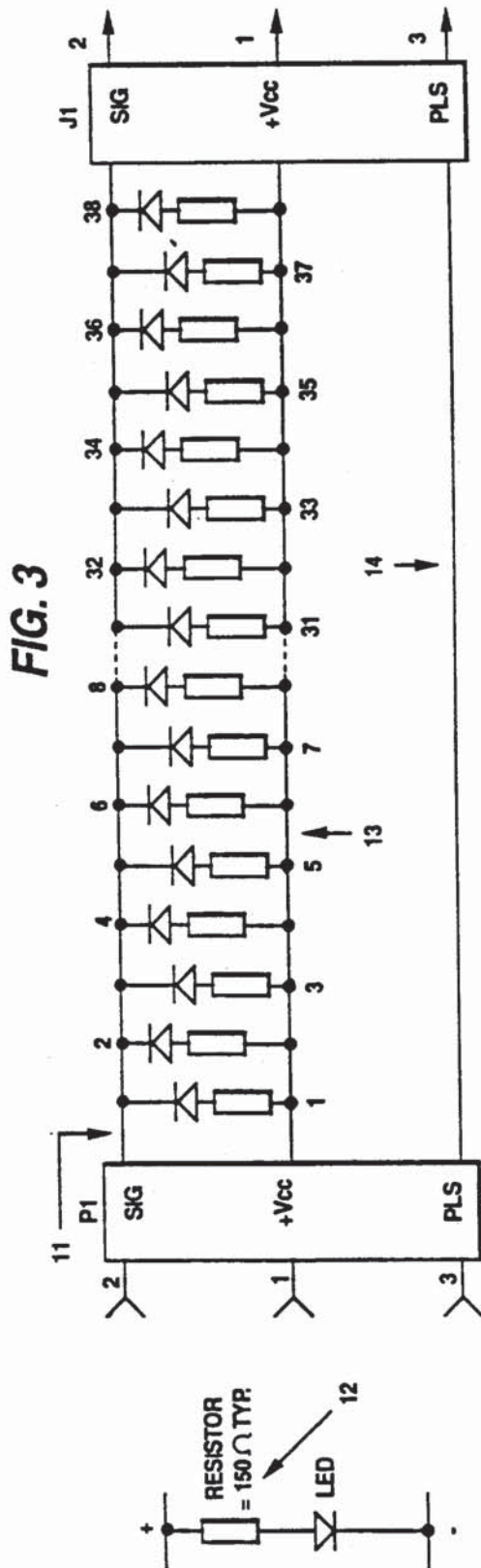
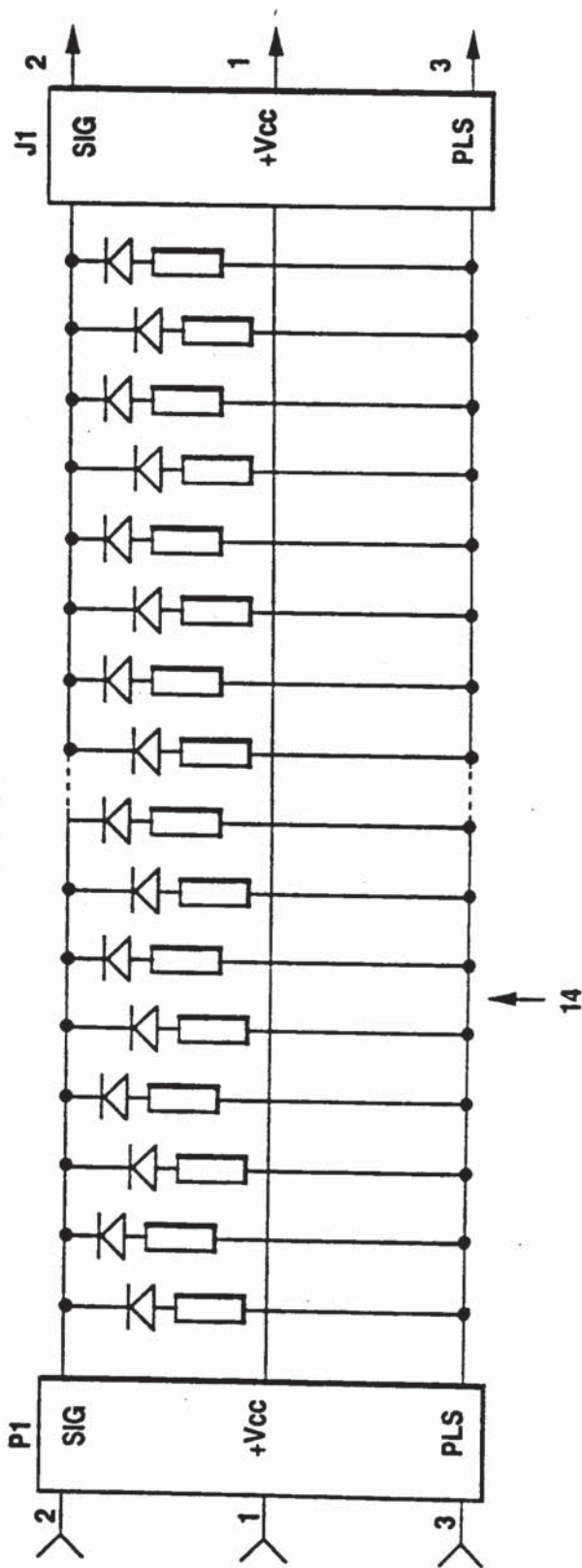


FIG. 5





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