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## (12) United States Patent

### Jin et al.

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### (54) OPTICAL CROSSCONNECT SYSTEM COMPRISING RECONFIGURABLE LIGHT-REFLECTING DEVICES

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- (\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
- (21) Appl. No.: 09/197,800
- (22) Filed: Nov. 23, 1998
- (51) Int. Cl.<sup>7</sup> ...... G02B 6/26

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Primary Examiner—Frank G. Font

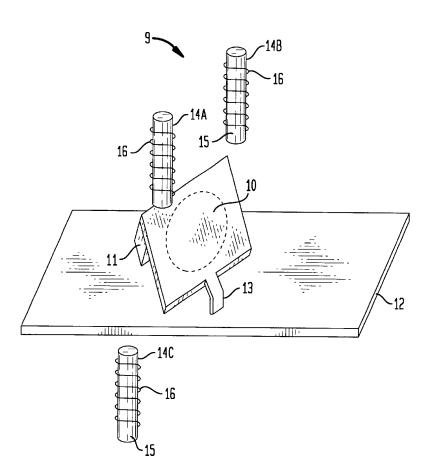
Assistant Examiner-Sang H. Nguyen

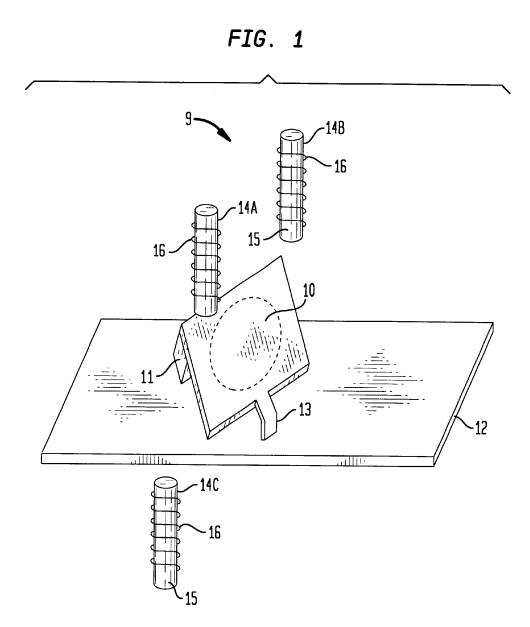
(74) Attorney, Agent, or Firm-Lowenstein Sandler PC

### (57) **ABSTRACT**

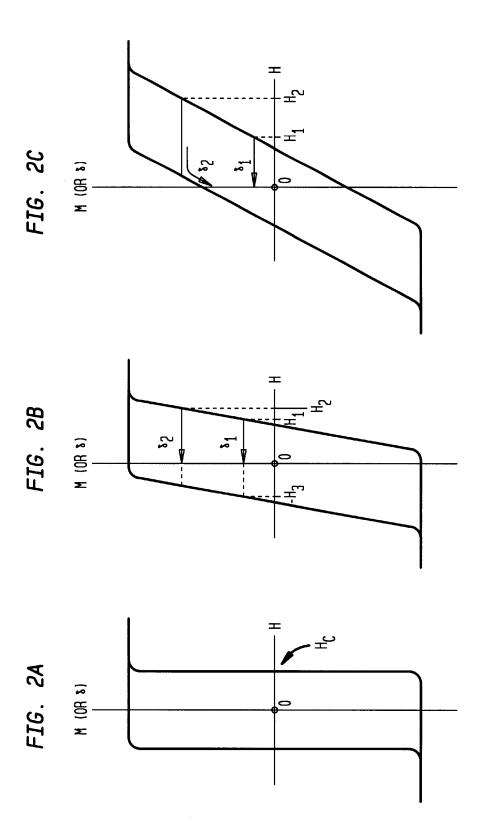
In accordance with the invention, an optical switching device comprises a light-reflecting mirror containing a magnetic component coupled to a substrate. One or more programmable magnets are provided for moving the mirror by interacting with the magnetic component. The programmable magnets move the mirror between or among selected positions and then maintain the mirror position without continuous power. Exemplary cross connects and  $2\times 2$  switches are described.

#### 9 Claims, 6 Drawing Sheets





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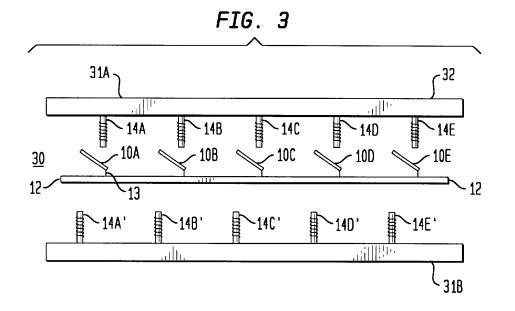


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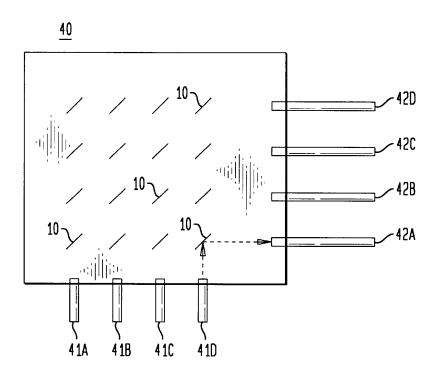
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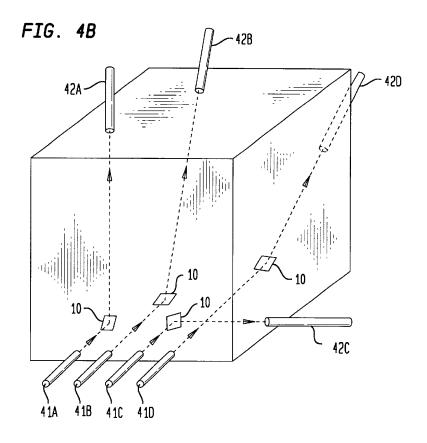
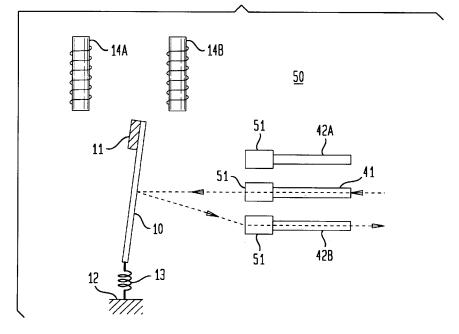


FIG. 5



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