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Goldstein et al.

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(54) **CONNECTION-VERIFICATION IN OPTICAL MEMS CROSSCONNECTS VIA MIRROR-DITHER**

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Related U.S. Application Data

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(51) **Int. Cl.**[7] **G02B 6/12**

(52) **U.S. Cl.** **385/13**; 385/17; 385/18; 385/19

(58) **Field of Search** 385/16–19, 12–14; 359/212, 223, 225; 250/216, 234

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Assistant Examiner—Fayez Assai

(57) **ABSTRACT**

Integrated connection-verification system for use in a micro-electro-mechanical system (MEMS) crossconnect device. The system uses application of a dithering signal such as a sinusoidal bias to an electrode plate associated with a micro-mirror switching element to dither the micro-mirror. The optical signal from the dithering micro-mirror is fed through a beam splitter, a portion of the optical signal thus being directed to a photodetector. If intensity modulation in the optical signal corresponding to the frequency of the dithering signal is detected by the photodetector associated with the micro-mirror, the connection path between the desired input and output ports is verified.

11 Claims, 9 Drawing Sheets

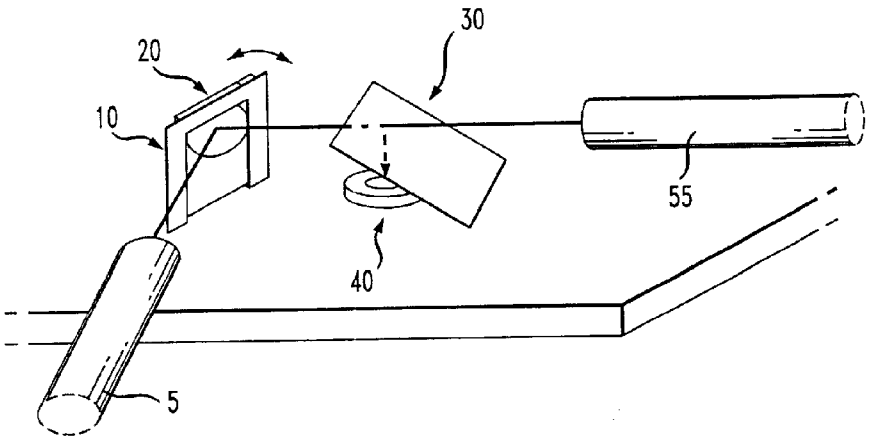

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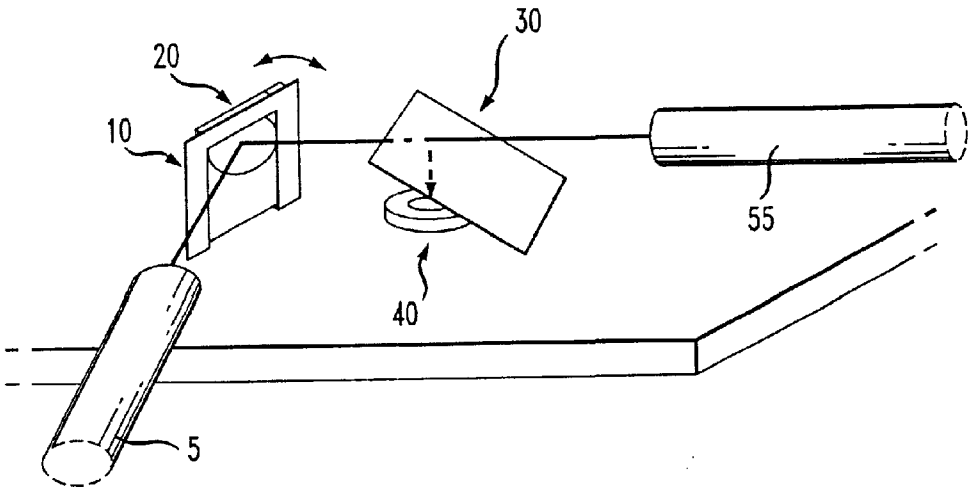
FIG. 1



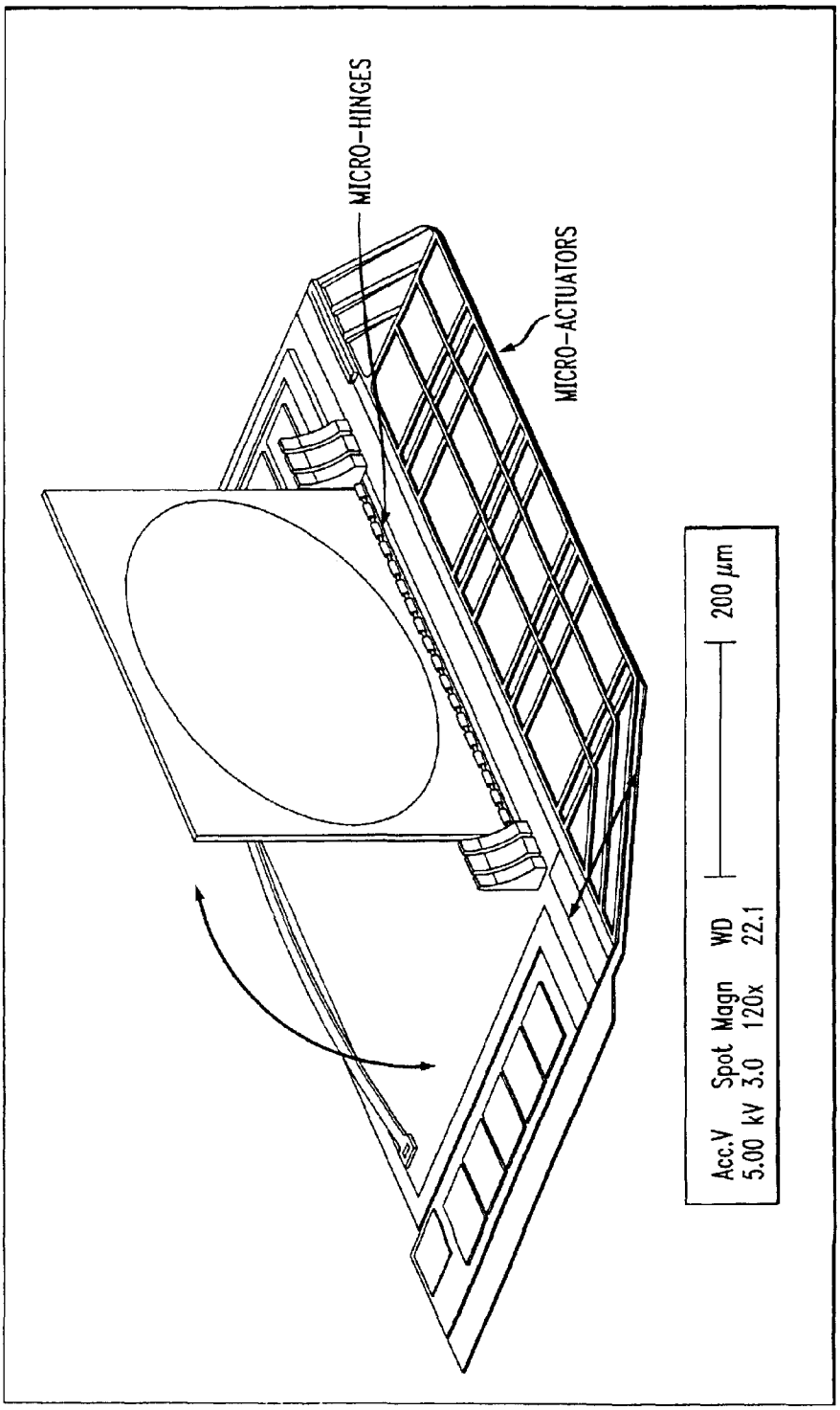
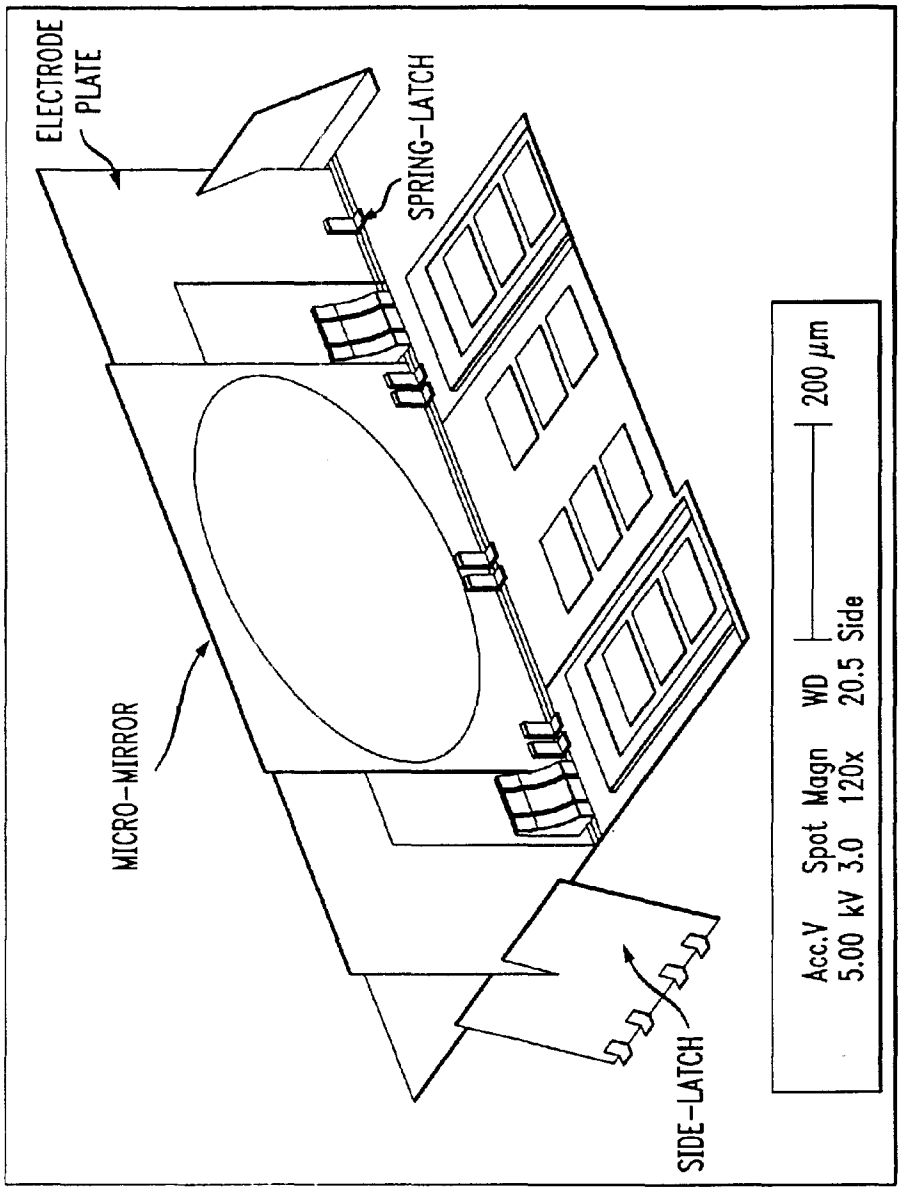


FIG. 2

FIG. 3



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