



US006243507B1

(12) **United States Patent**
Goldstein et al.

(10) **Patent No.:** US 6,243,507 B1
(45) **Date of Patent:** Jun. 5, 2001

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

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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.: **09/472,682**

(22) Filed: **Dec. 27, 1999**

Related U.S. Application Data

(60) Provisional application No. 60/137,840, filed on Jun. 7, 1999.

(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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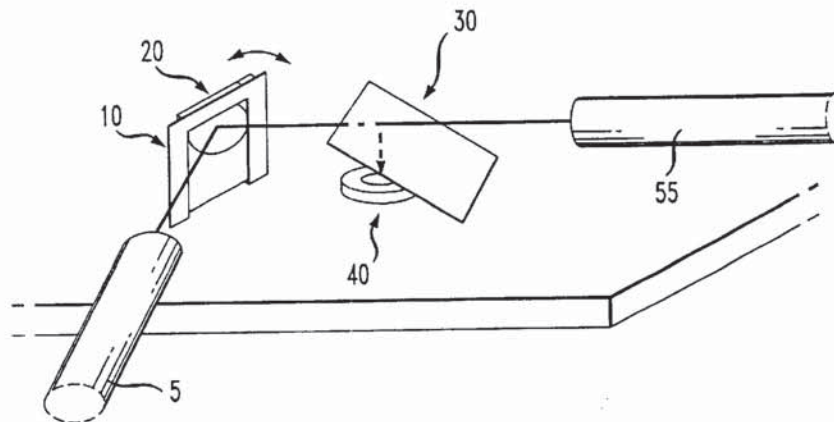
Primary Examiner—Darren Schuberg

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

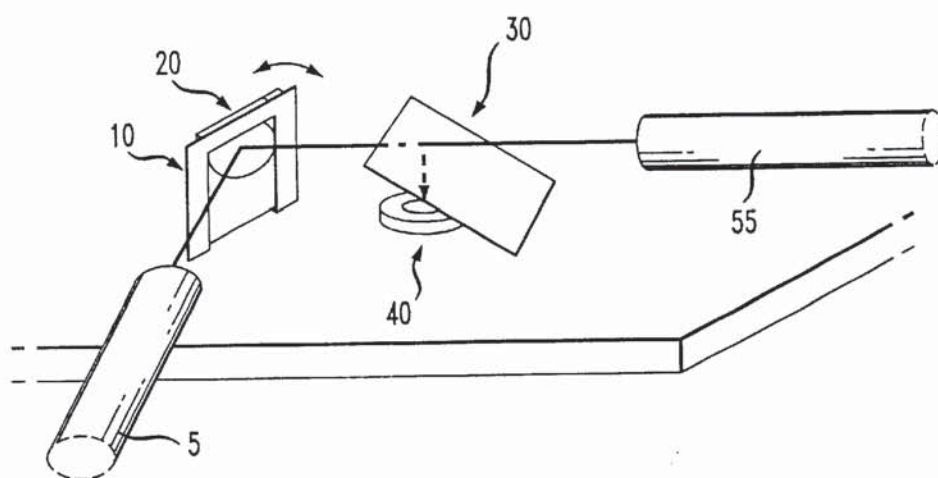


FIG. 2

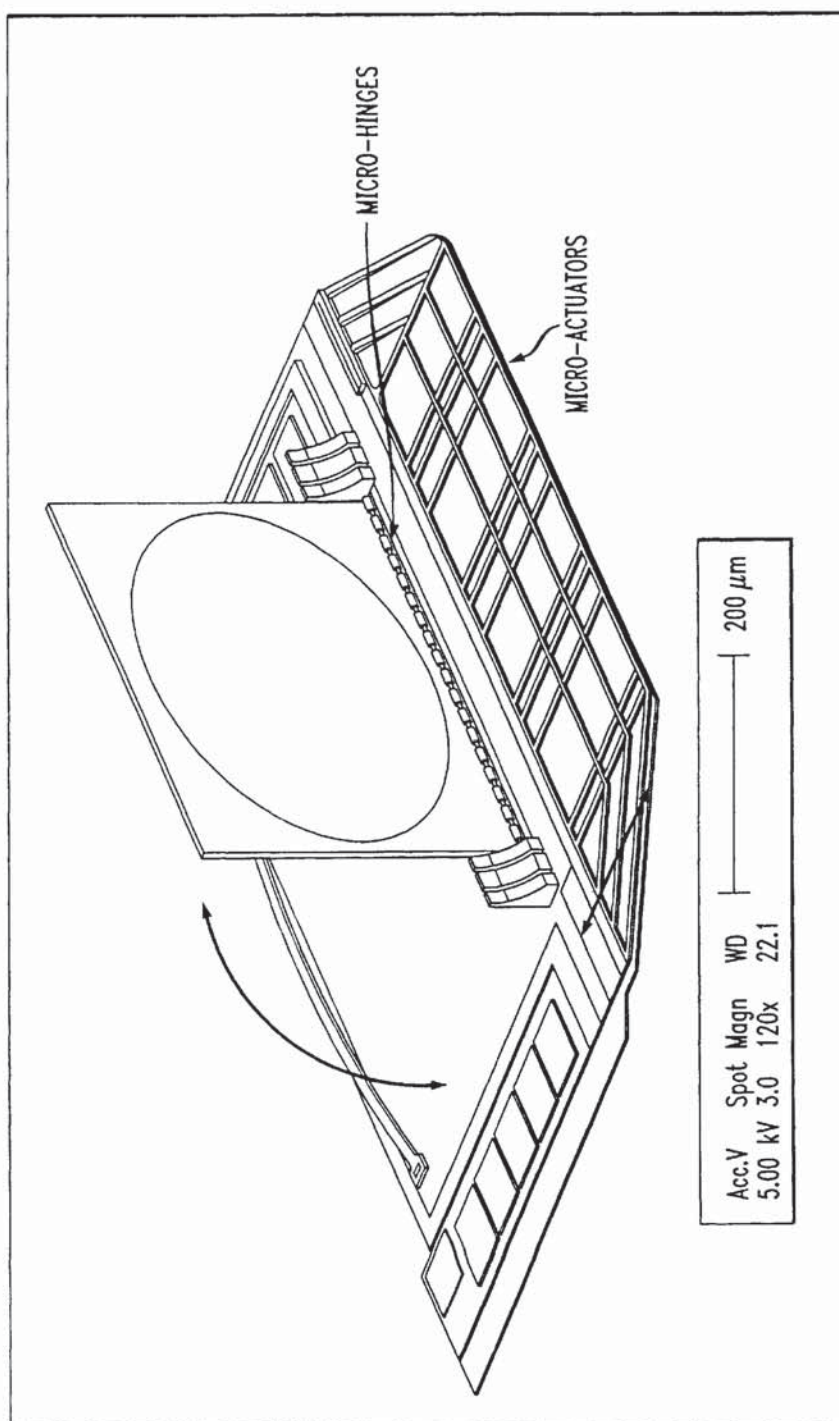
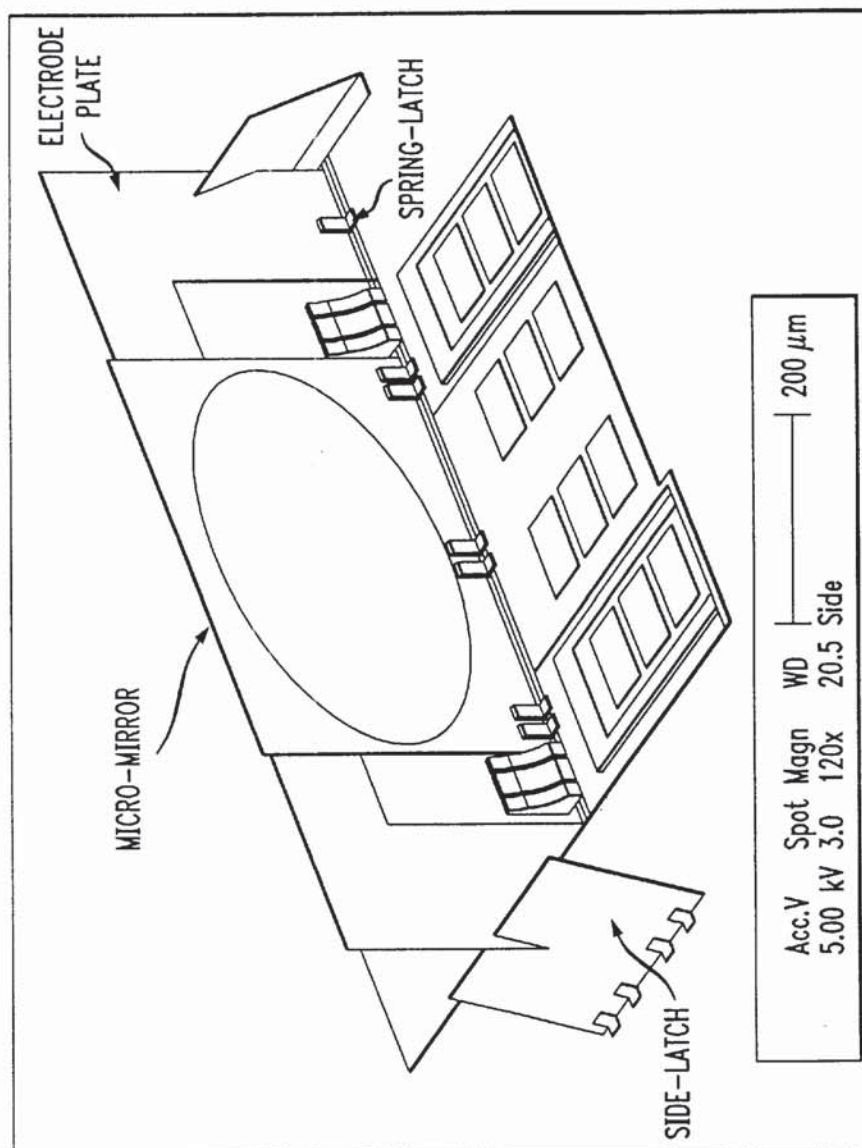


FIG. 3



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