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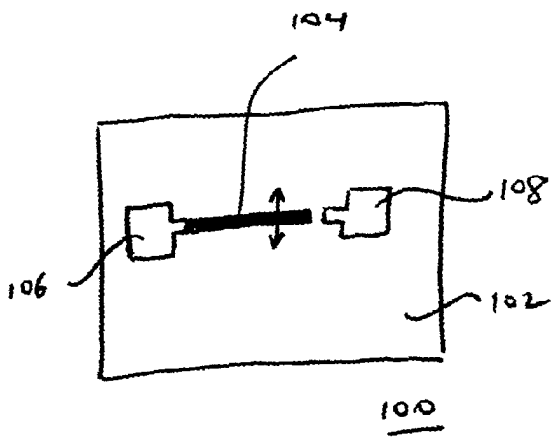
(54) Title: MICROMACHINED DISPLACEMENT SENSORS AND ACTUATORS



(57) Abstract: A micromachined displacement sensor chip (100) including a reference frame (102); at least one suspended waveguide element (104) having an in-plane degree of freedom being integrally formed with the reference frame (102); a light source being integrally formed with the reference frame and being optically coupled to the at least one suspended waveguide element at one end thereof (106); and a light sensor being integrally formed with the reference frame and being optically coupled to the at least one suspended waveguide element at another end thereof; such that when the at least one suspended waveguide element is subjected to an external force, an in-plane displacement of the at least one suspended waveguide element is monitorable by the light sensor due to light modulation.

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