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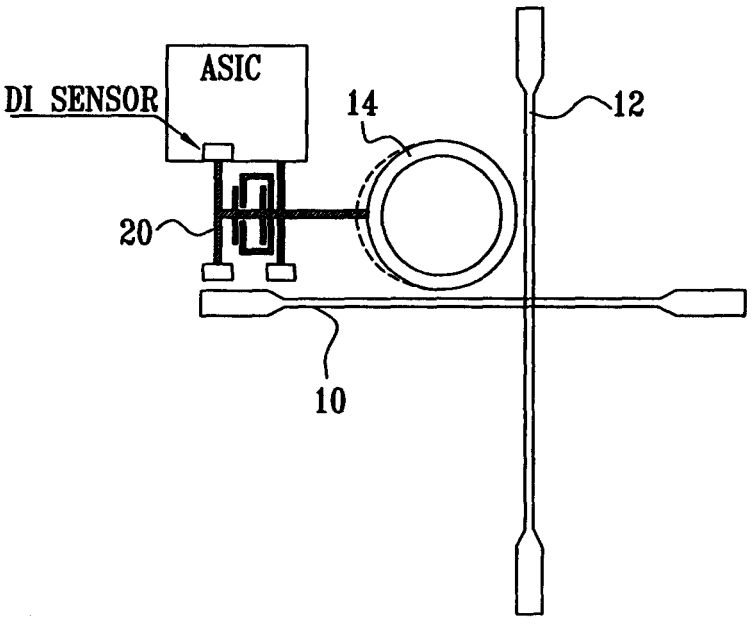
(54) Title: OPTICAL MICRORING RESONATOR, OPTICAL MULTIPLEXER AND OPTICAL SWITCHING APPARATUS USING DEFORMABLE WAVEGUIDE SEGMENTS



(57) Abstract: Micro-Electro-Mechanical System (MEMS) devices are described which perform functions in optical circuits by means of bending or stressing of waveguide sections of the circuit, in the plane of the device substrate. The devices utilize sections of suspended waveguide which are bent or stressed by means of micro-actuators. One example of such a device is a variable ring resonator (14) for use as a variable filter, in which a section of the resonator ring is stretched. Another example is a dispersion correction circuit in which one arm (254) of a split waveguide circuit is stretched to change the optical path difference between the arms. A third example is a bi-stable latching switch, operated by bending of interlocking arms (310, 318) attached to the substrate at only one end.

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