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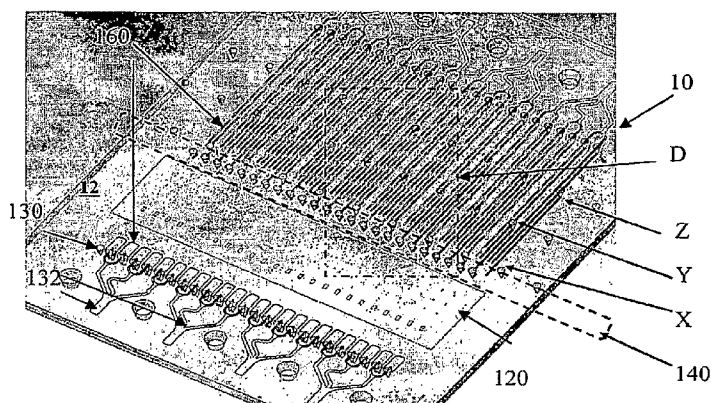
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(54) Title: ACTUATION OF PARALLEL MICROFLUIDIC ARRAYS



(57) Abstract: An improved actuator for use in a microfluidic particle sorting system utilizes a staggered packing scheme for a plurality of actuators used to selectively deflect a particle in an associated sorting channel from a stream of channels. An actuator block may be provided for housing a two-dimensional array of actuators, each configured to align with an actuation port in an associated sorting chip containing a plurality of sorting channels. The actuator block may include a built-in stressing means to pre-stress each actuator housed by the block. An actuator comprising a piezo-electric stack may employ contact-based electrical connection rather than soldered wires to improve packing density. The actuator may be an external actuator. That is, the external actuator is external to the substrate in which the sorting channels are formed.

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