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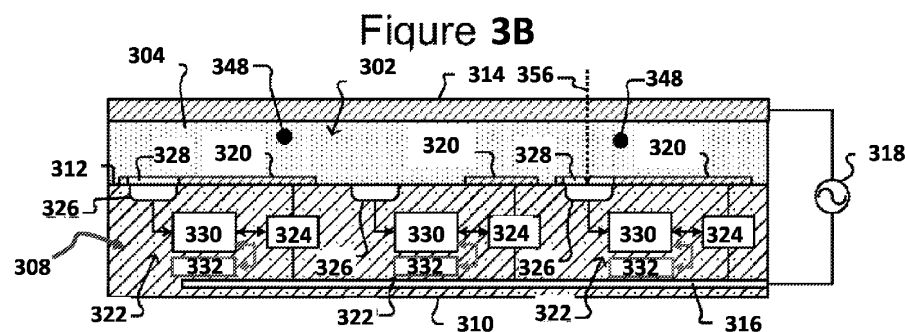
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(54) Title: MICROFLUIDIC DEVICE WITH PROGRAMMABLE SWITCHING ELEMENTS



(57) Abstract: Microfluidic devices having a circuit substrate with a control unit, a switching mechanism associated with a dielectrophoresis (DEP) electrode, and a memory unit are described. Switching instructions may be received, stored, and retrieved by the control unit and used to control the DEP electrode via the switching mechanism. Systems comprising the described microfluidic devices and methods of controlling the described microfluidic devices are included herein.