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(54) **CHIP-BASED DEVICE FOR PARALLEL SORTING, AMPLIFICATION, DETECTION, AND IDENTIFICATION OF NUCLEIC ACID SUBSEQUENCES**

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CPC **B01L 7/525** (2013.01); **B01L 3/502792** (2013.01); **B01L 3/502761** (2013.01); **B01L 2200/0652** (2013.01); **B01L 2300/087** (2013.01); **B01L 2300/0864** (2013.01); **B01L 2300/0867** (2013.01); **B01L 2300/1822** (2013.01); **B01L 2300/1827** (2013.01); **B01L 2400/0415** (2013.01); **B01L 2400/0421** (2013.01); **B01L 2400/0454** (2013.01); **C12Q 1/686** (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

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(57) **ABSTRACT**

An apparatus for chip-based sorting, amplification, detection, and identification of a sample having a planar substrate. The planar substrate is divided into cells. The cells are arranged on the planar substrate in rows and columns. Electrodes are located in the cells. A micro-reactor maker produces micro-reactors containing the sample. The micro-reactor maker is positioned to deliver the micro-reactors to the planar substrate. A microprocessor is connected to the electrodes for manipulating the micro-reactors on the planar substrate. A detector is positioned to interrogate the sample contained in the micro-reactors.

10 Claims, 6 Drawing Sheets