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(54) **INSULATOR-BASED DEP WITH IMPEDANCE MEASUREMENTS FOR ANALYTE DETECTION**

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(58) **Field of Classification Search** 204/547, 204/643

See application file for complete search history.

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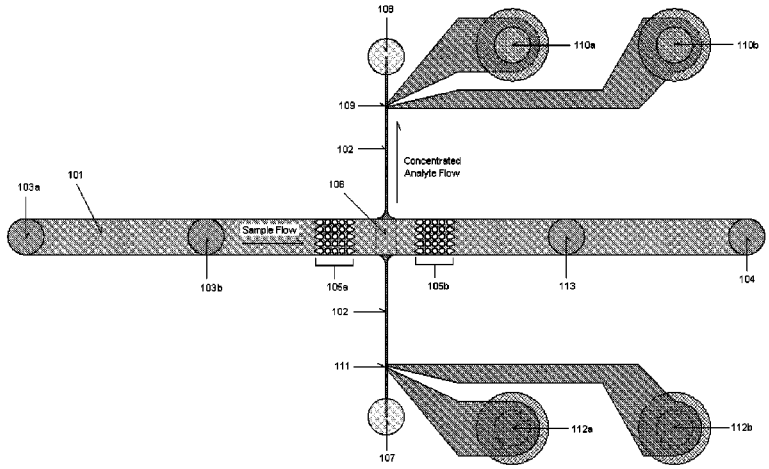
(57) **ABSTRACT**

Disclosed herein are microfluidic devices for assaying at least one analyte specie in a sample comprising at least one analyte concentration area in a microchannel having insulating structures on or in at least one wall of the microchannel which provide a nonuniform electric field in the presence of an electric field provided by off-chip electrodes; and a pair of passivated sensing electrodes for impedance detection in a detection area. Also disclosed are assay methods and methods of making.

15 Claims, 10 Drawing Sheets