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(54) Title: MICROFLUIDIC SAMPLE HANDLING

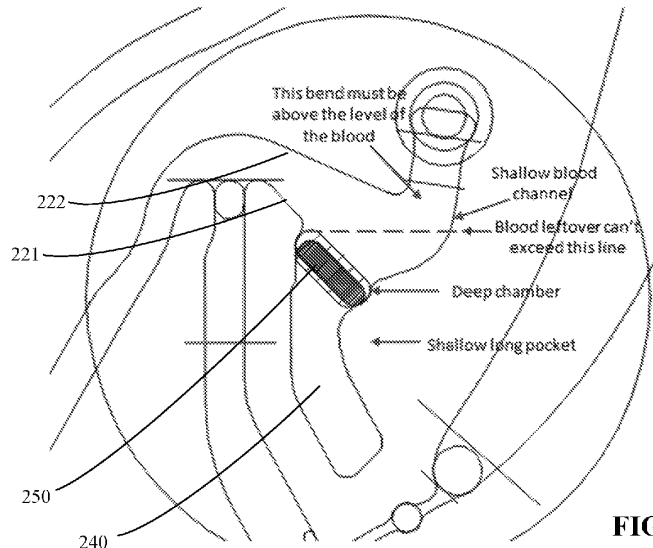


FIG. 2B

(57) Abstract: Structures, devices and methods for handling fluids are provided. A valve includes a first channel having a first inlet connected to an upstream chamber. The first inlet of the first channel has a cross-section perpendicular to a flow direction that is the same as or smaller than the upstream chamber and thus forms a hydrophobic junction with the upstream chamber at the first inlet. The valve also includes a compartment connected to a first outlet of the first channel. The compartment has a cross-section perpendicular to the flow direction that is larger than the first outlet of the first channel, and thus forms a hydrophilic junction at the first outlet of the first channel.

[Continued on next page]

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