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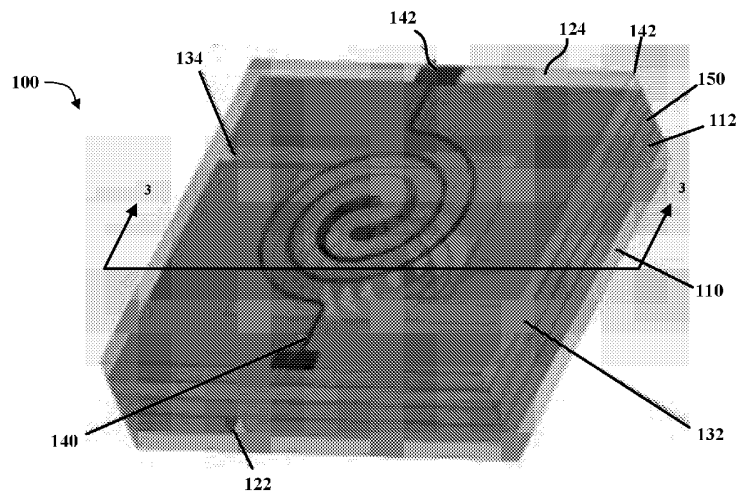


FIG. 2

(57) Abstract: An integrated microfluidic photoionization detector (PID) is provided including a microfluidic ionization chamber a microfluidic ultraviolet radiation chamber that is configured to generate ultraviolet photons. An ultrathin transmissive window is disposed between the microfluidic ionization chamber and the microfluidic ultraviolet radiation chamber that permits the ultraviolet photons to pass from the microfluidic ultraviolet radiation chamber into the microfluidic ionization chamber. Detection systems for one or more VOC analytes are also provided that include a gas chromatography (GC) unit including at least one gas chromatography column and an integrated microfluidic photoionization detector (PID) disposed downstream of the gas chromatography (GC) unit.

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