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(54) **Title:** MASSIVE OVERLAY METROLOGY SAMPLING WITH MULTIPLE MEASUREMENT COLUMNS

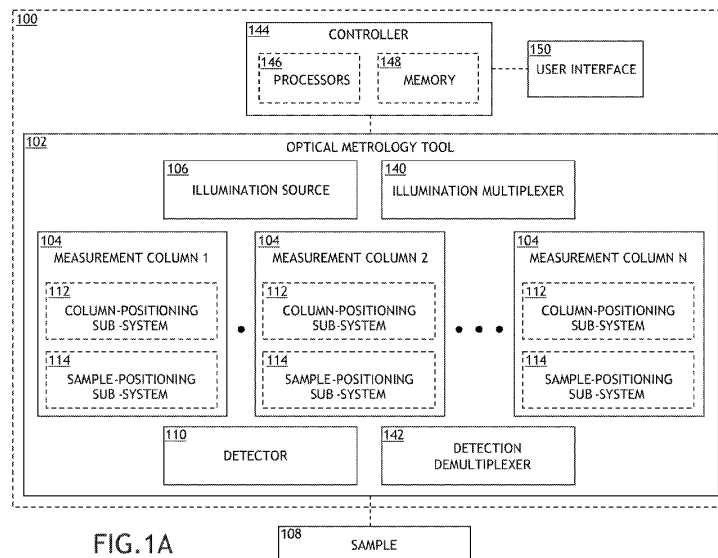


FIG. 1A

(57) **Abstract:** A multi-column metrology tool may include two or more measurement columns distributed along a column direction, where the two or more measurement columns simultaneously probe two or more measurement regions on a sample including metrology targets. A measurement column may include an illumination sub-system to direct illumination to the sample, a collection sub-system including a collection lens to collect measurement signals from the sample and direct it to one or more detectors, and a column-positioning sub-system to adjust a position of the collection lens. A measurement region of a measurement column may be defined by a field of view of the collection lens and a range of the positioning system in the lateral plane. The tool may further include a sample-positioning sub-system to scan the sample along a scan path different than the column direction to position metrology targets within the measurement regions of the measurement columns for measurements.

[Continued on next page]

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