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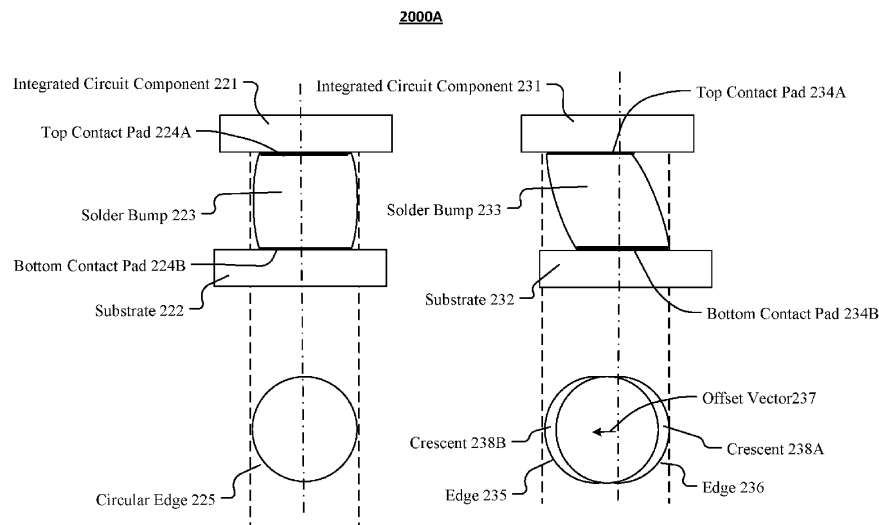


FIG. 2A

(57) Abstract: In one embodiment, an automatic high-speed X-ray system may generate a high-resolution X-ray image of an inspected sample at a direction substantially orthogonal to a plane of the inspected sample. The system may determine a first cross-sectional shape of a first portion of a first element of interest in the inspected sample based on grayscale values of the X-ray image associated with the first element of interest. The system may determine a second cross-sectional shape of a second portion of the first element of interest in the inspected sample. The second cross-sectional shape may be determined based on the grayscale values of the X-ray image associated with the first element of interest. The system may determine one or more first metrological parameters associated with the first element of interest in the inspected sample based a comparison of the first cross-sectional shape and the second cross-sectional shape.

[Continued on next page]

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