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(54) **Title:** NON-INVASIVE QUANTITATIVE MULTILAYER ASSESSMENT METHOD AND RESULTING MULTILAYER COMPONENT

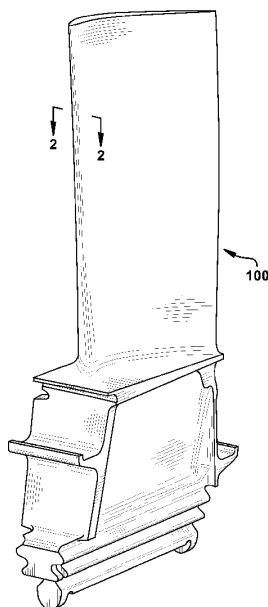


FIG. 1

(57) **Abstract:** An automated system is provided. The system includes: a manipulator coupled to: an opening forming device configured to create an opening having a predefined geometry partially into a multilayer component at a selected location on a surface of the multilayer component, where the multilayer component includes a plurality of material layers including at least a substrate and a bond coat, and where the opening exposes each of the plurality of material layers; and an imaging device configured to create an image of the exposed plurality of material layers in the opening; and a processor configured to calculate at least a thickness of the bond coat of the exposed plurality of material layers from the image and based on the predefined geometry of the opening. Methods of using the system to analyze layer thickness of a multilayer component and repair a multilayer component are also provided.

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