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(54) **Title:** A METHOD AND SYSTEM FOR DETERMINING THE LOCATION OF ARTEFACTS AND/OR INCLUSIONS IN A GEMSTONE, MINERAL, OR SAMPLE THEREOF

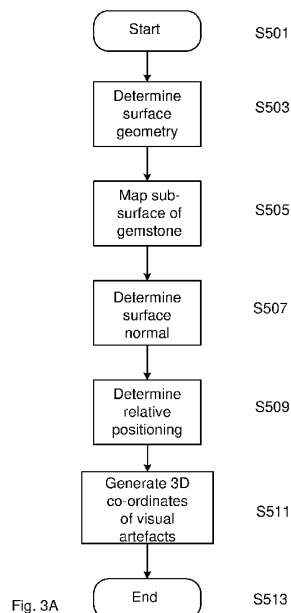


Fig. 3A

(57) **Abstract:** A method and system for determining a location of artefacts and/or inclusions in a gemstone, mineral or sample thereof, the method comprising the steps of: surface mapping a gemstone, mineral or sample thereof to determine surface geometry associated with at least a portion of a surface of the gemstone, mineral or sample thereof; sub-surface mapping the gemstone, mineral or sample thereof using an optical beam that is directed at the surface along an optical beam path, wherein the optical beam is generated by an optical source using an optical tomography process; determining a surface normal at the surface at an intersection point between the optical beam path and the determined surface geometry; determining relative positioning between the surface normal and the optical beam path; and determining the location of artefacts and/or inclusions in the gemstone, mineral or sample thereof based on the sub-surface mapping step and the determined relative positioning.

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