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(54) **Title:** APPARATUS AND METHOD FOR INDIRECT SURFACE CLEANING

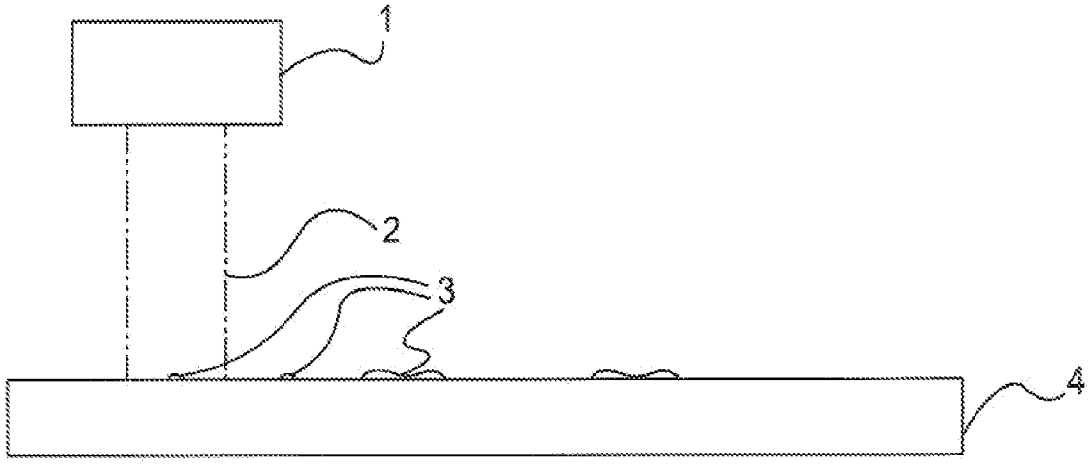



FIG. 1A

(57) **Abstract:** A method for laser surface cleaning of a target surface that has limited or no access to the environment directly above the surface to be cleaned. The method includes the ability to clean the surface with a reduced risk of substrate damage. The method includes direct laser excitation of a contaminated substrate surface and thermal transfer from the substrate to the contaminating particulate or contamination layer. The method also includes producing a thermally based removal and reducing a risk of substrate damage by keeping the temperature required to produce surface cleaning below the thermal damage level of the substrate material. In addition, the method includes reducing the risk of substrate damage by utilizing relatively long pulse-widths, providing for improved removal of small contaminants/particles, and directing the beam through a material disposed relative to the surface that is part of the substrates environmental enclosure.

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