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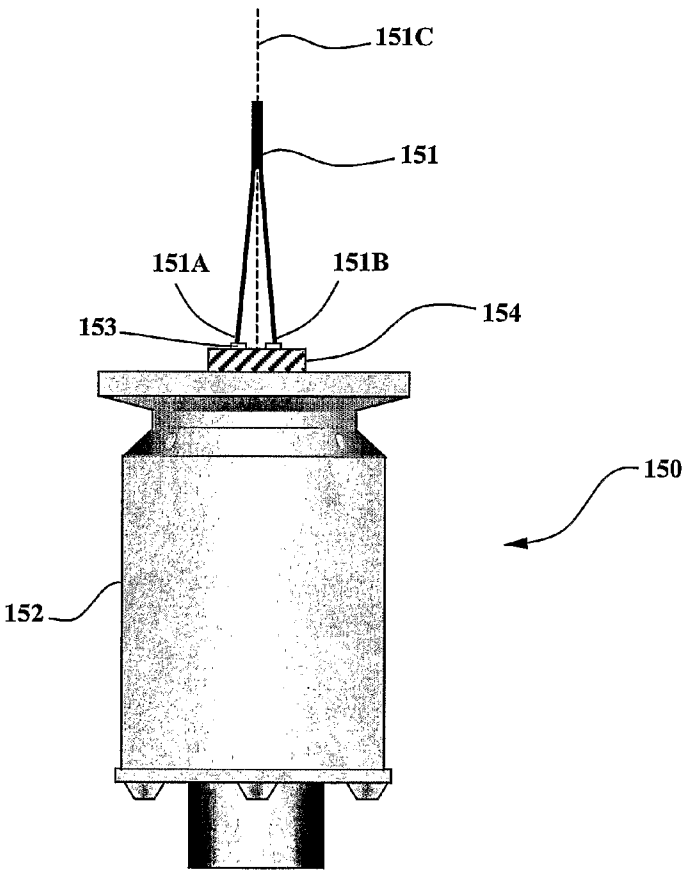
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[Continued on next page]

(54) Title: APPARATUS AND PROCESS FOR SENSING TARGET GAS SPECIES IN SEMICONDUCTOR PROCESSING SYSTEMS



(57) Abstract: A gas detector and process for detecting a target gas species, such as a fluorine-containing species in a gas containing same, e.g., an effluent of a semiconductor processing tool undergoing etch cleaning with HF, NF_3, etc. The gas detector in one aspect employs a nickel-containing filament that is sensitive to the fluorine-containing species, which can function both as a sensing component and as a heat source when elevated temperature sensing is required. The gas detector in one aspect employs an elongated gas sensor element that can be vertically mounted on a support structure. Vertical mounting of such elongated gas sensor element on the support structure significantly improves the signal strength, reduces the response time, minimizes the footprint of the gas detector, and provides structural flexibility for accommodating thermal expansion/contraction of such gas sensor element.

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