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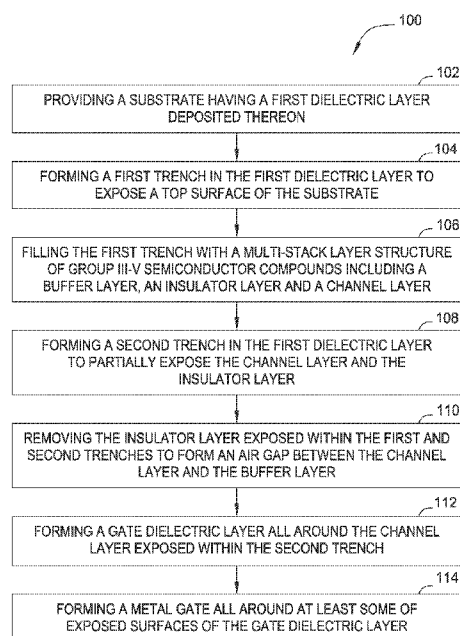
(54) **Title:** A METHOD OF FORMING III-V CHANNEL

FIG. 1

(57) **Abstract:** Embodiments of the present disclosure relate to semiconductor devices such as transistors used for amplifying or switching electronic signals. In one embodiment, a first trench is formed in a dielectric layer formed on a substrate to expose a surface of the substrate, a multi-stack layer structure is formed within the first trench, and a third semiconductor compound layer is formed on the second semiconductor compound layer, wherein the second semiconductor compound layer has an etching resistance against an etchant lower than that of the first and third semiconductor compound layers, a second trench is formed in the dielectric layer to partially expose at least the second semiconductor compound layer and the third semiconductor compound layer, and the second semiconductor compound layer is selectively removed so that the first semiconductor compound layer is isolated from the third semiconductor compound layer by an air gap.

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