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(54) **METHODS OF FABRICATING STRAINED SEMICONDUCTOR-ON-INSULATOR FIELD-EFFECT TRANSISTORS AND RELATED DEVICES**

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(58) **Field of Classification Search** 438/36, 438/37, 46, 87, 93; 257/63, 65, 219, 223, 257/229, 609
See application file for complete search history.

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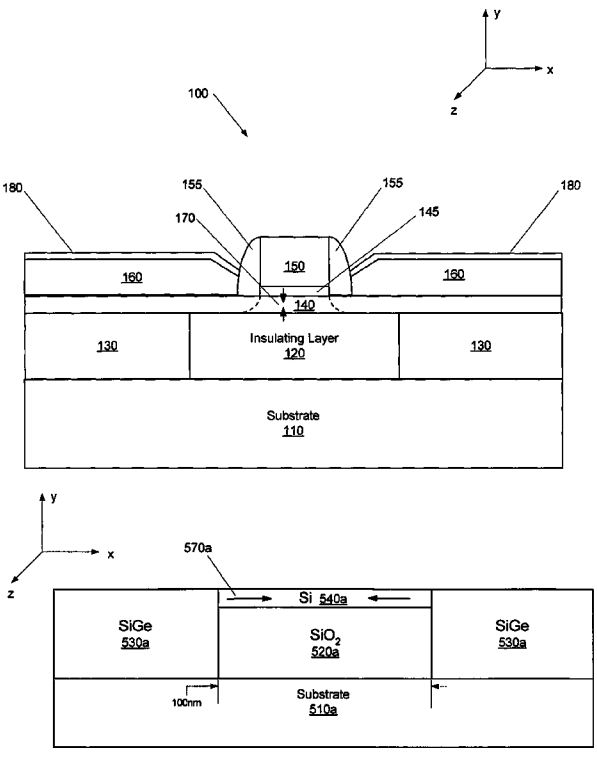
(57) **ABSTRACT**

A method of fabricating a semiconductor device includes forming a strained first semiconductor layer on an insulating layer that is between second semiconductor layers. The strained first semiconductor layer may be epitaxially grown from the second semiconductor layers to extend onto the insulating layer between the second semiconductor layers. The second semiconductor layers have a lattice constant that is different than that of the first semiconductor layer, such that strain may be created in the first semiconductor layer. Related devices are also discussed.

39 Claims, 9 Drawing Sheets