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Quinn

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(54) **SHIELDING FOR INTEGRATED CAPACITORS**

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(73) Assignee: **Xilinx, Inc.**, San Jose, CA (US)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 137 days.

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(21) Appl. No.: **12/276,289**

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(Continued)

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(51) **Int. Cl.**
H01L 21/02 (2006.01)

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(52) **U.S. Cl.** **257/532; 257/499; 257/528**

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(58) **Field of Classification Search** 257/296,
257/306, 307, 309, 532; 361/306.1, 306.2
See application file for complete search history.

(57) **ABSTRACT**

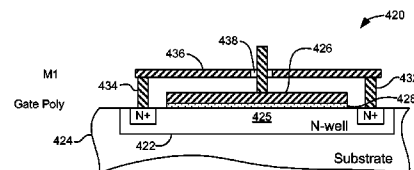
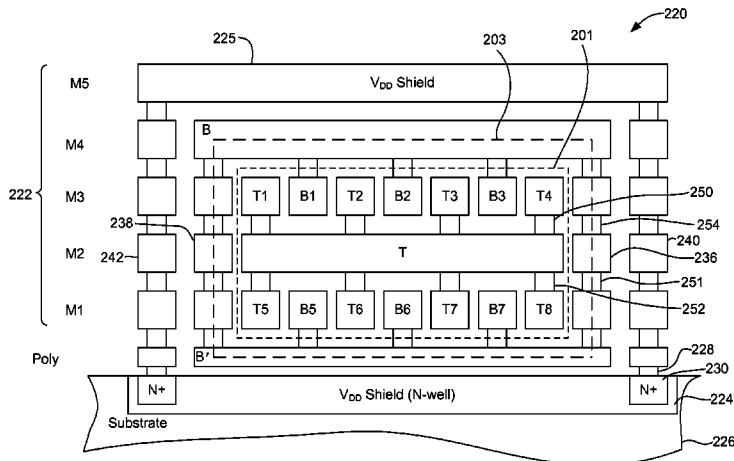
A capacitor in an integrated circuit ("IC") includes a core capacitor portion having first conductive elements electrically connected to and forming a part of a first node of the capacitor formed in a first layer and second conductive elements electrically connected to and forming a part of a second node of the capacitor formed in the first layer. The first and second conductive elements alternate in the first conductive layer. Third conductive elements electrically connected to and forming a part of the first node are formed in a second layer adjacent to the first layer. The capacitor also includes a shield capacitor portion having fourth conductive elements formed in at least first, second, third, and fourth layers. The shield capacitor portion is electrically connected to and forms a part of the second node of the capacitor and surrounds the first and third conductive elements.

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19 Claims, 9 Drawing Sheets



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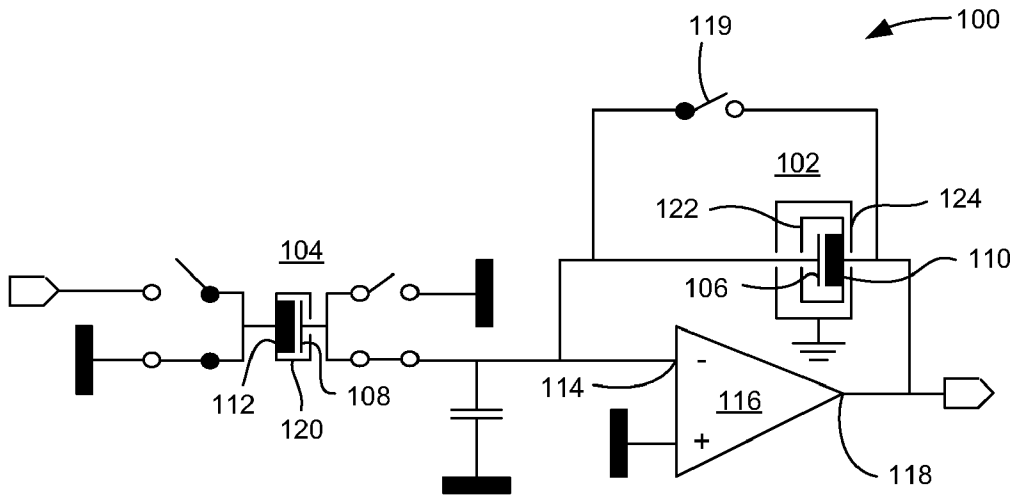


FIG. 1

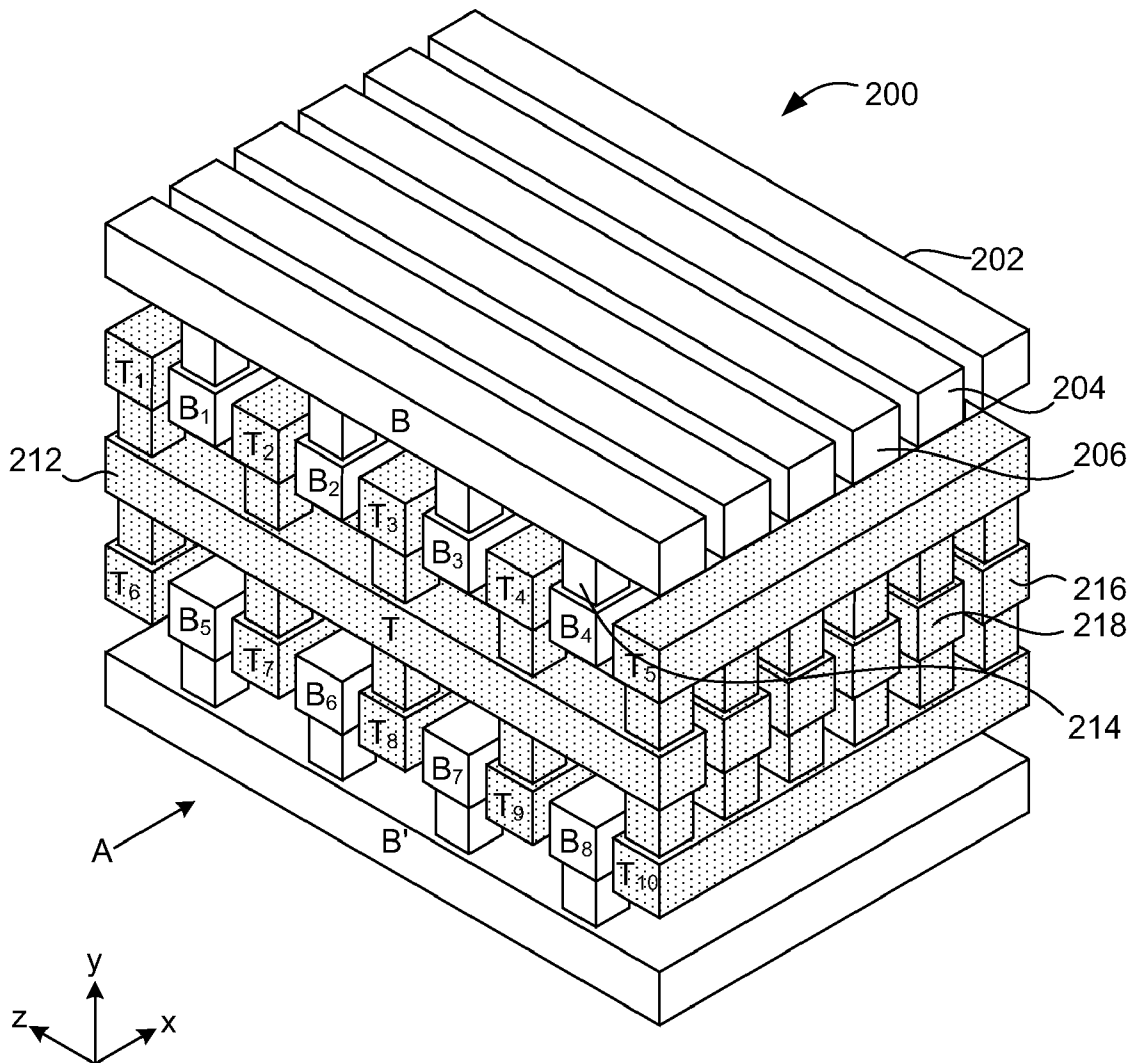


FIG. 2A

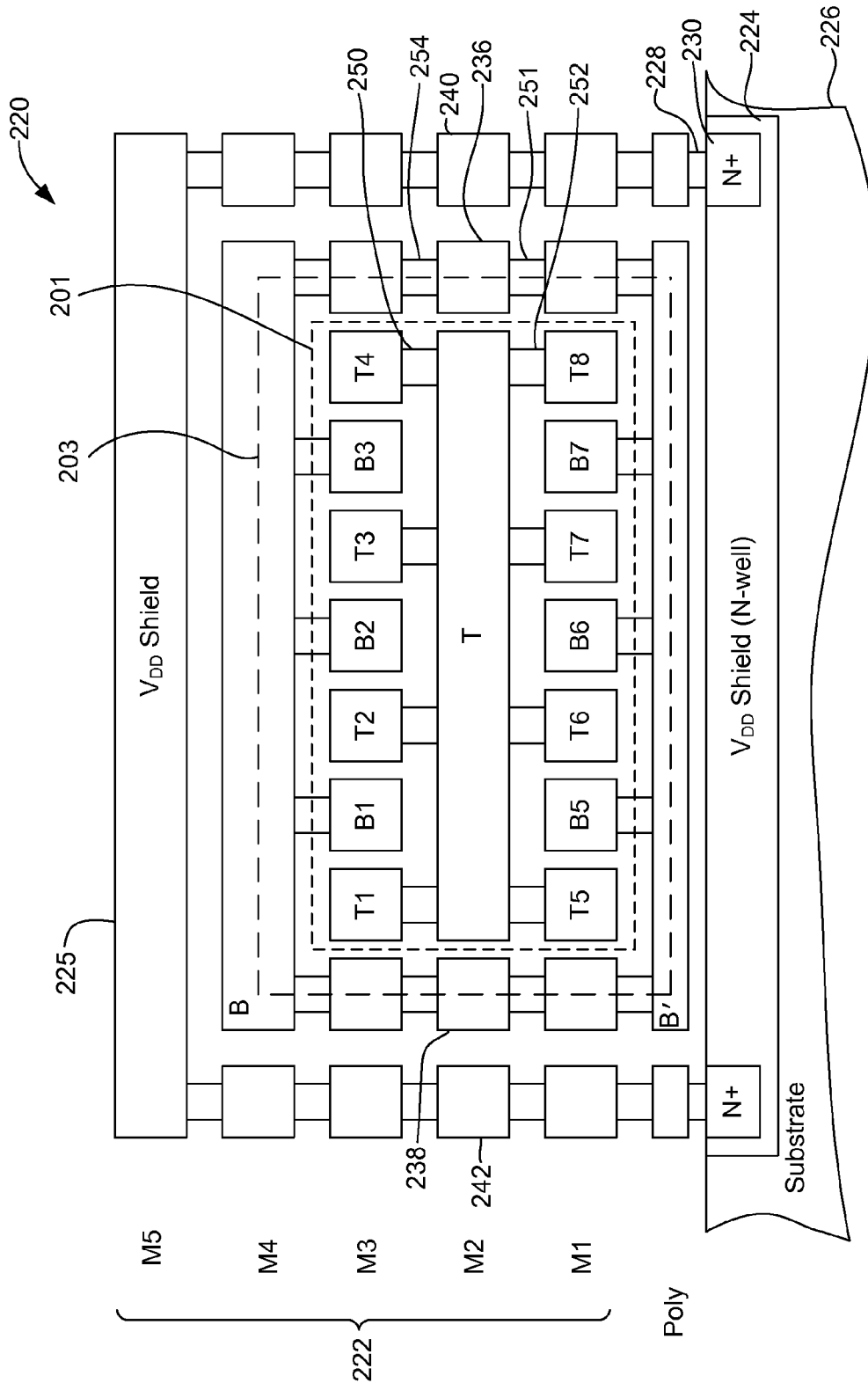


FIG. 2B

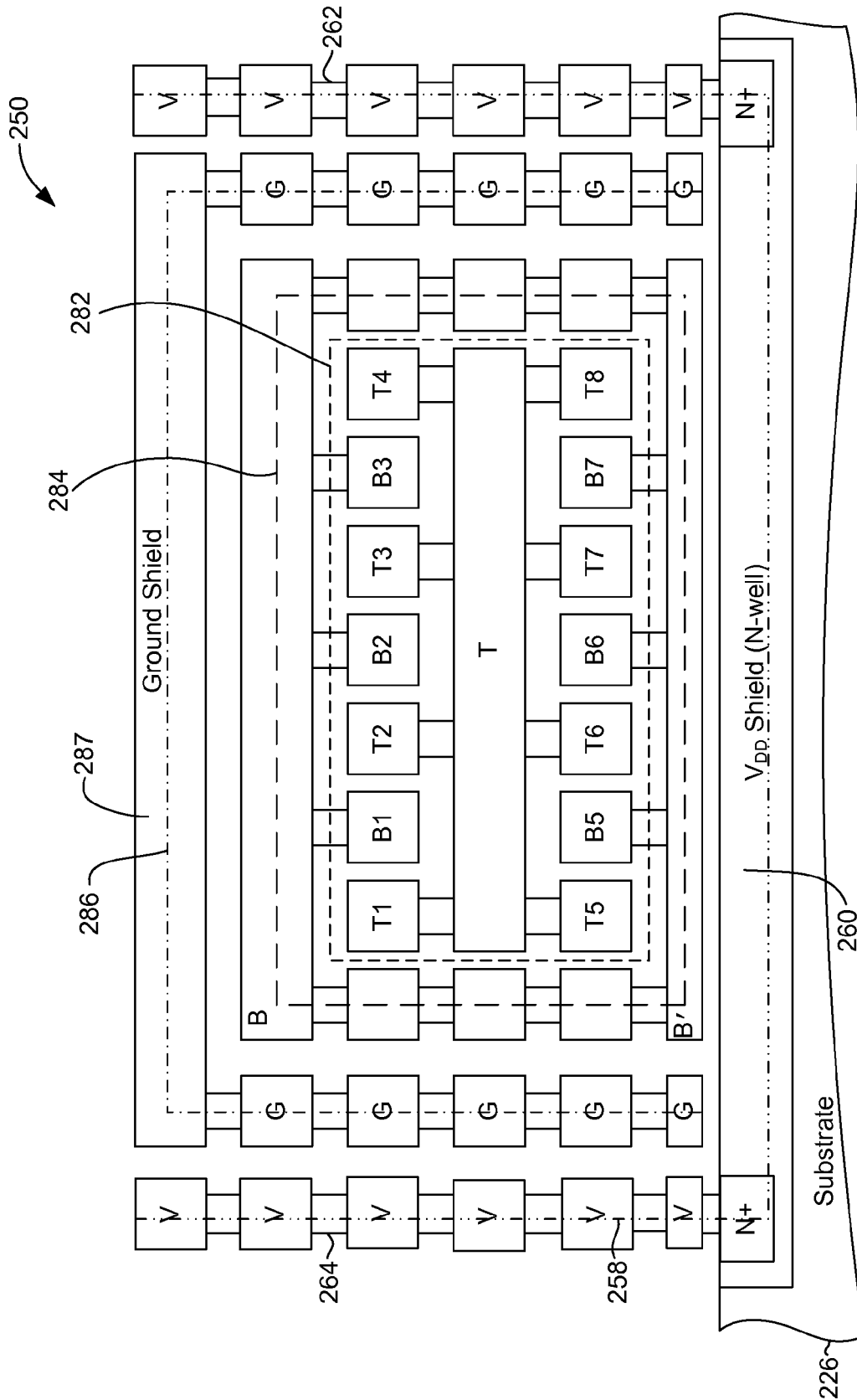


FIG. 2C

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