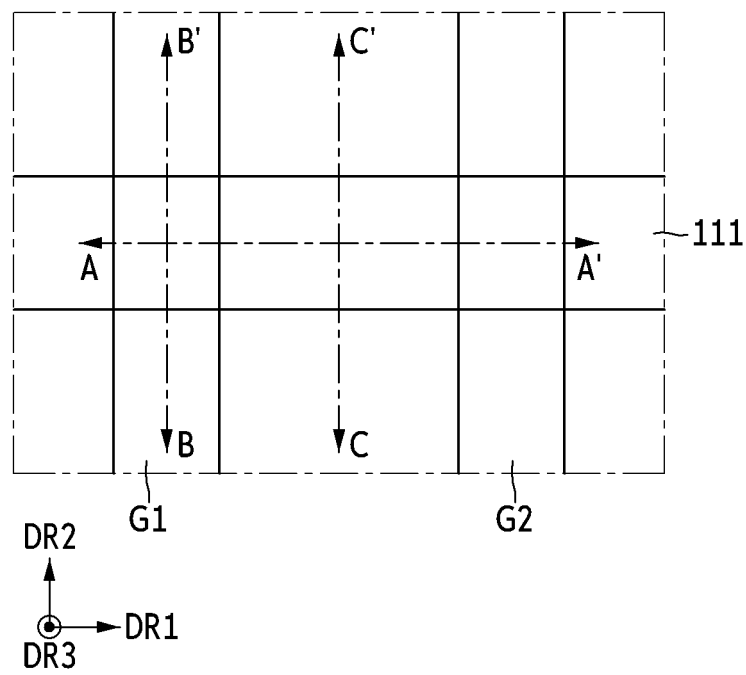


FIG. 1



This cross-sectional view shows a central vertical structure with a tapered top and a wider base. The top of the structure is defined by a layer 155, with regions 150 and 155 on either side. The central part of the structure is labeled 160, with sub-regions 161, 162, 163, and 160T. The base of the structure is labeled 170. The structure is surrounded by a material 100. On the left side, there are layers 141, 131, 121, and G1. On the right side, there are layers 142, 132, 122, and G2. The top of the structure is defined by a layer 185, with regions 180 and 142 on either side. The structure is surrounded by a material 100. The cross-section is taken along line A-A'.

FIG. 3

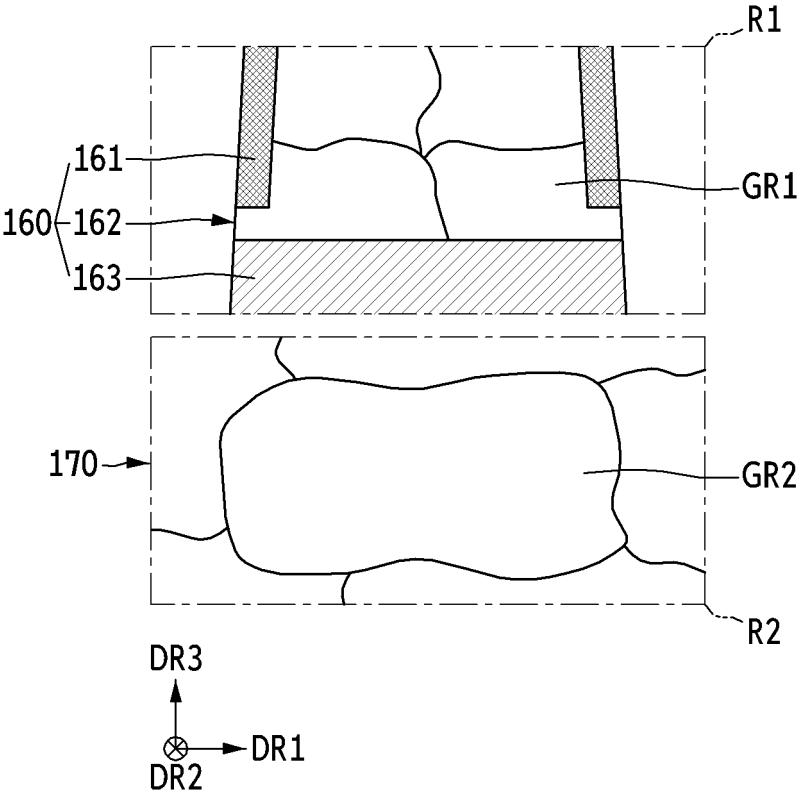


FIG. 4

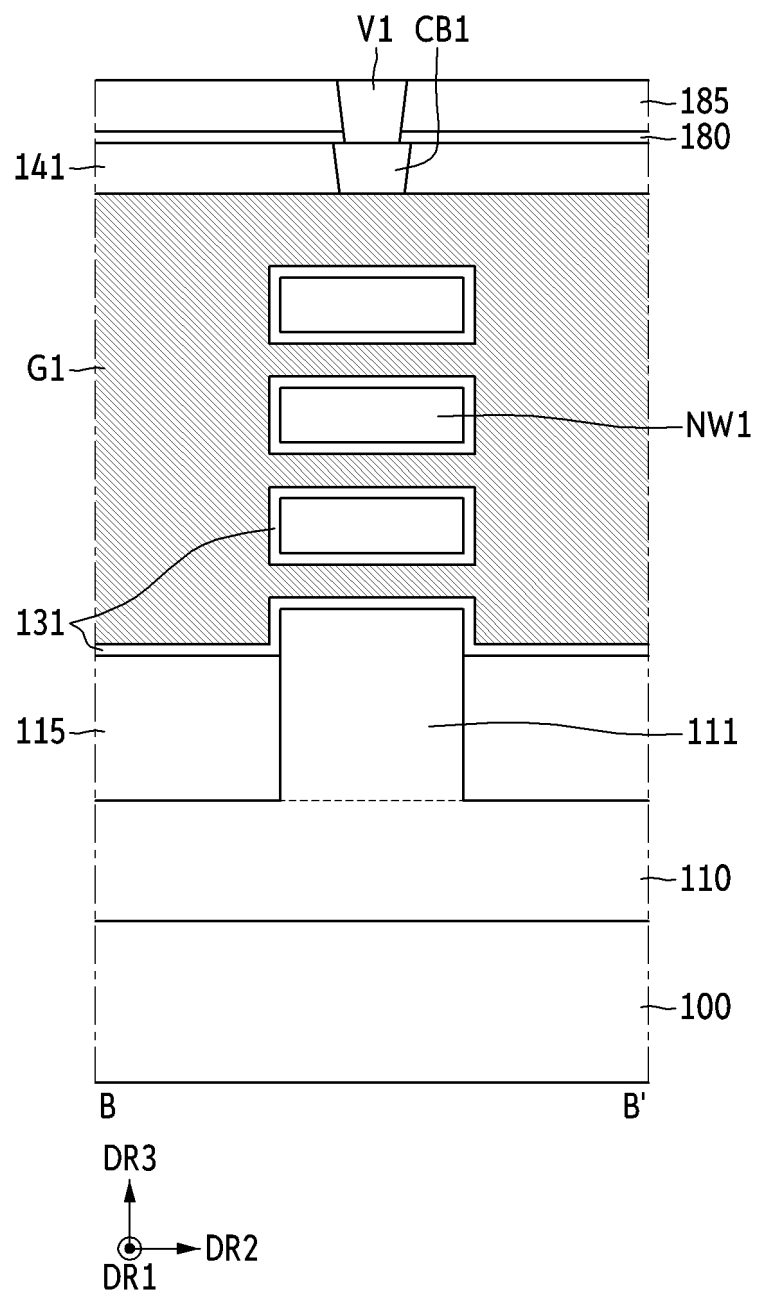


FIG. 5

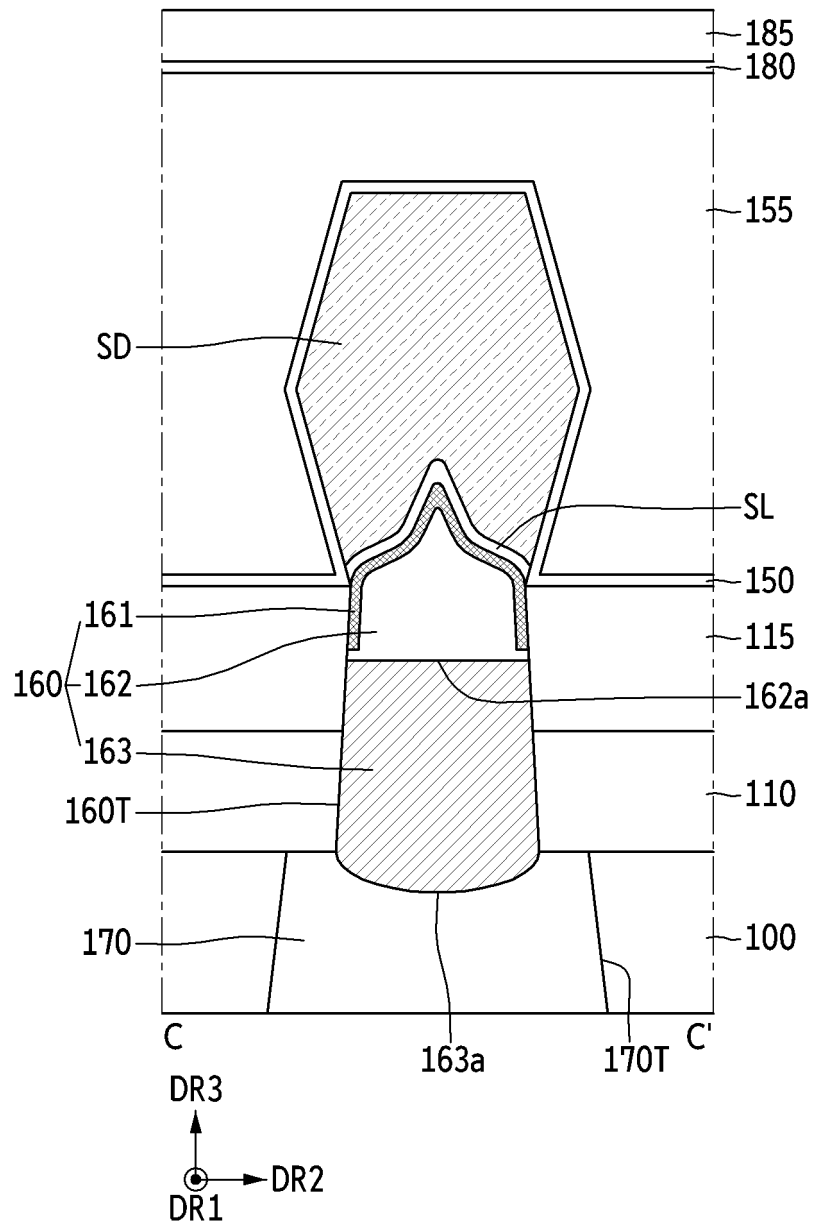


FIG. 6

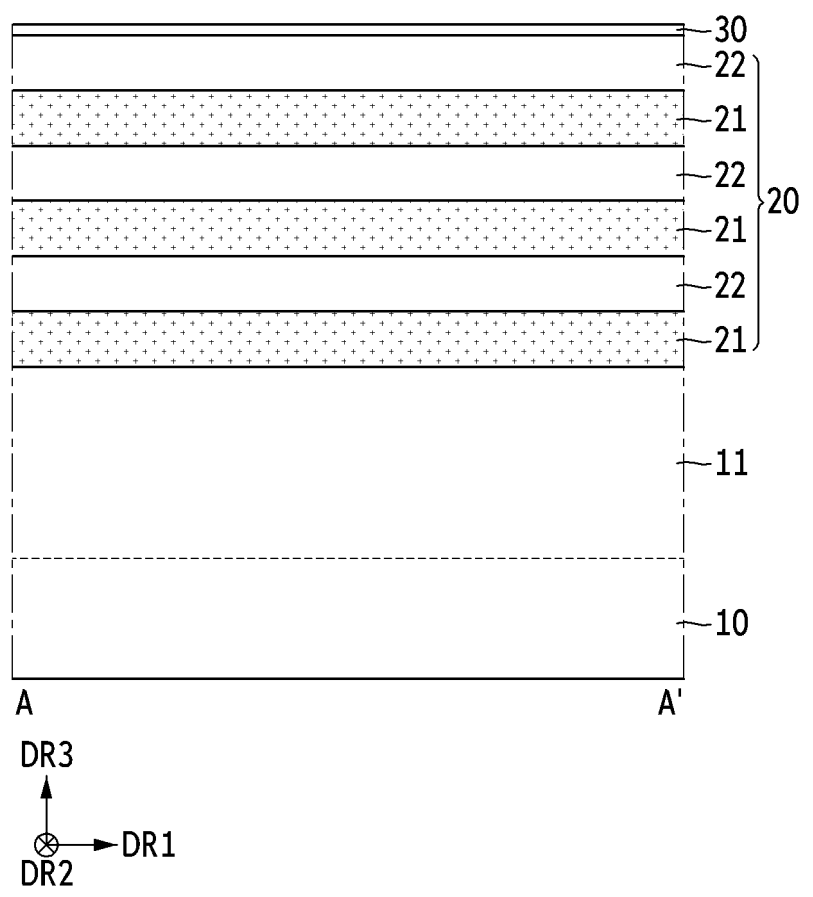


FIG. 7

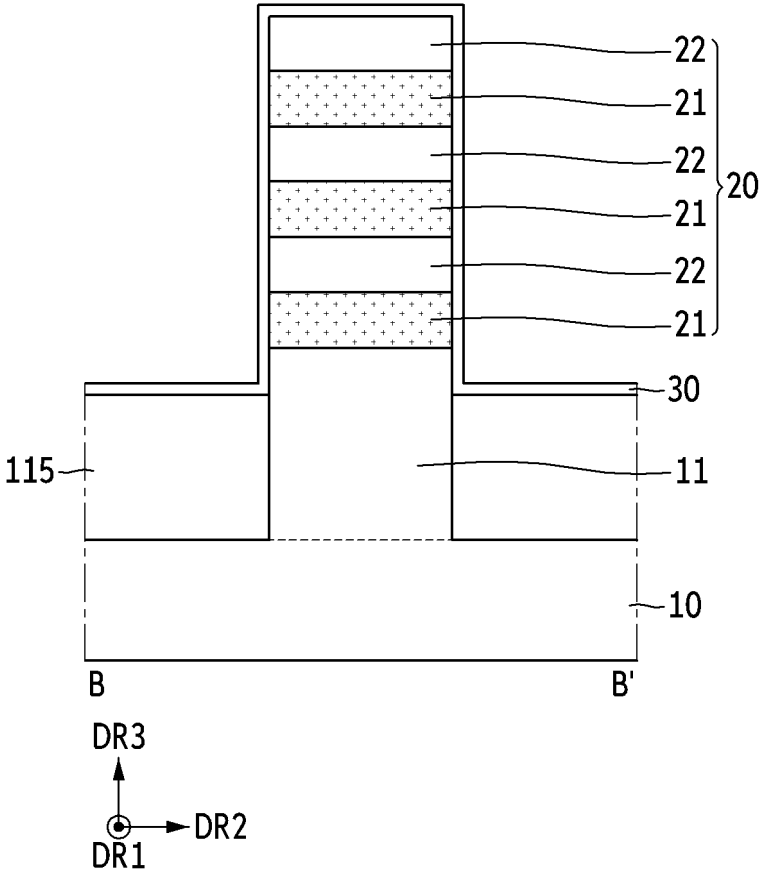


FIG. 8

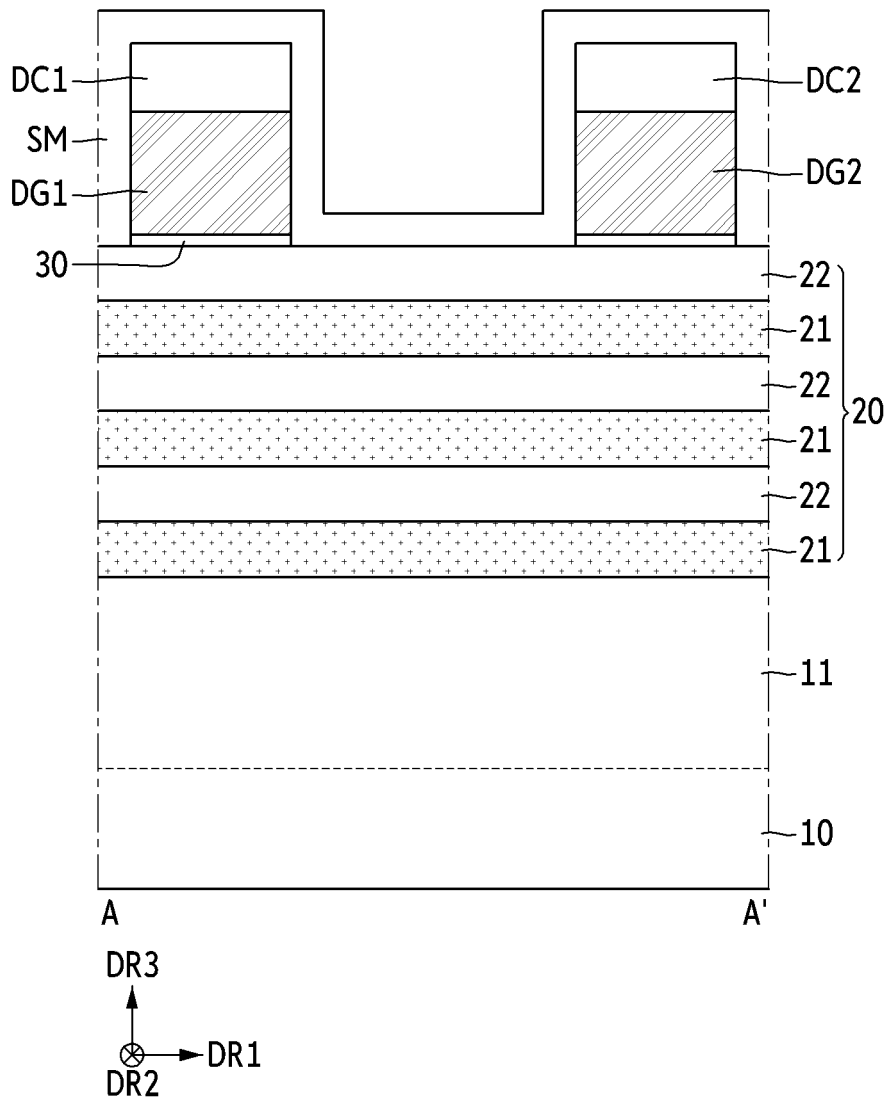


FIG. 9

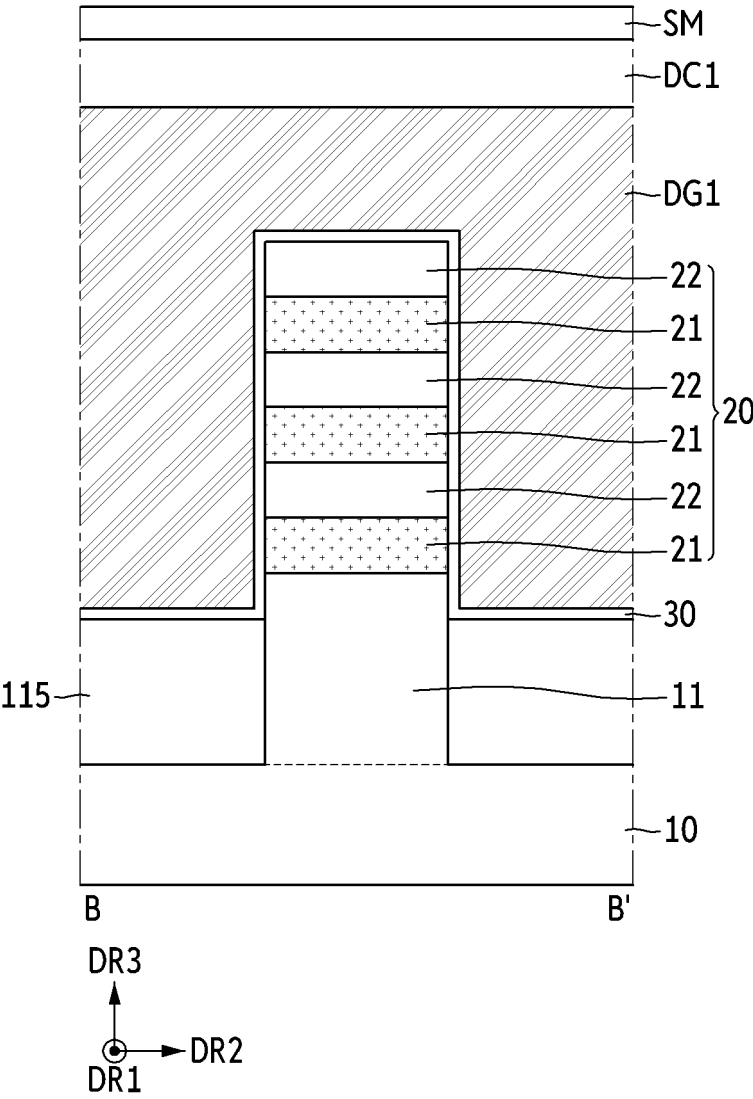


FIG. 10

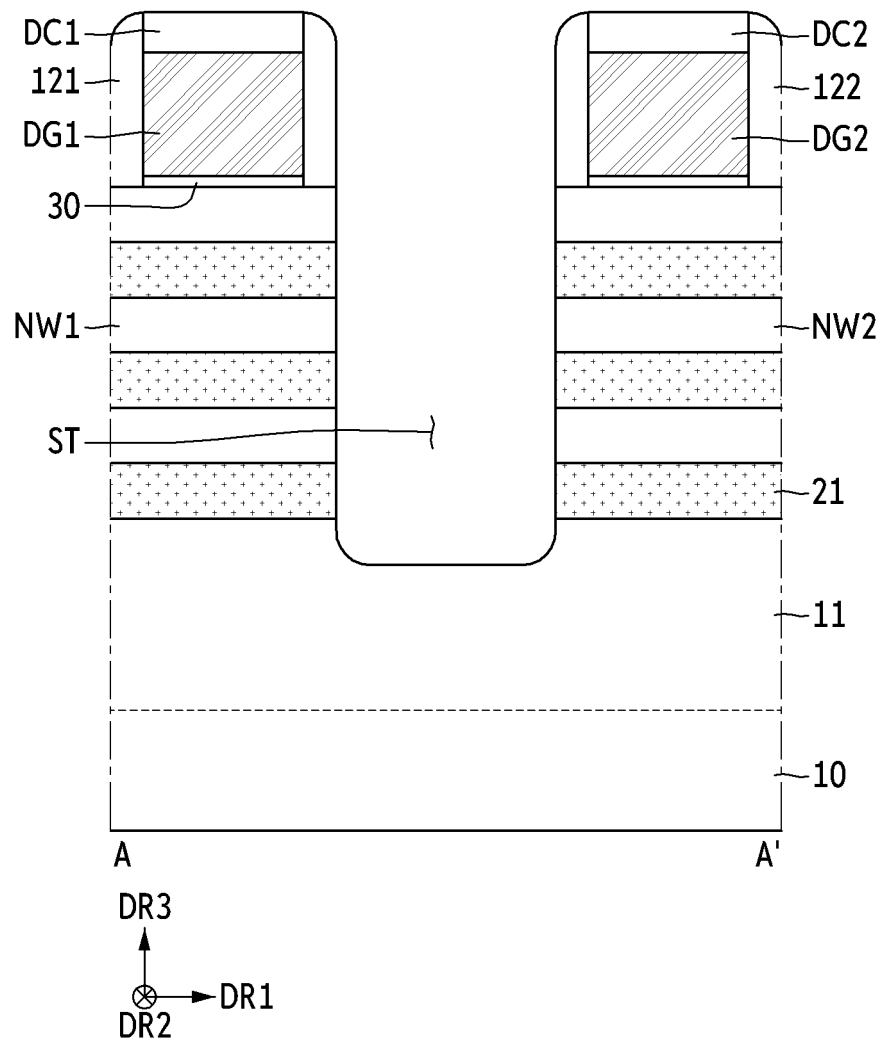


FIG. 11

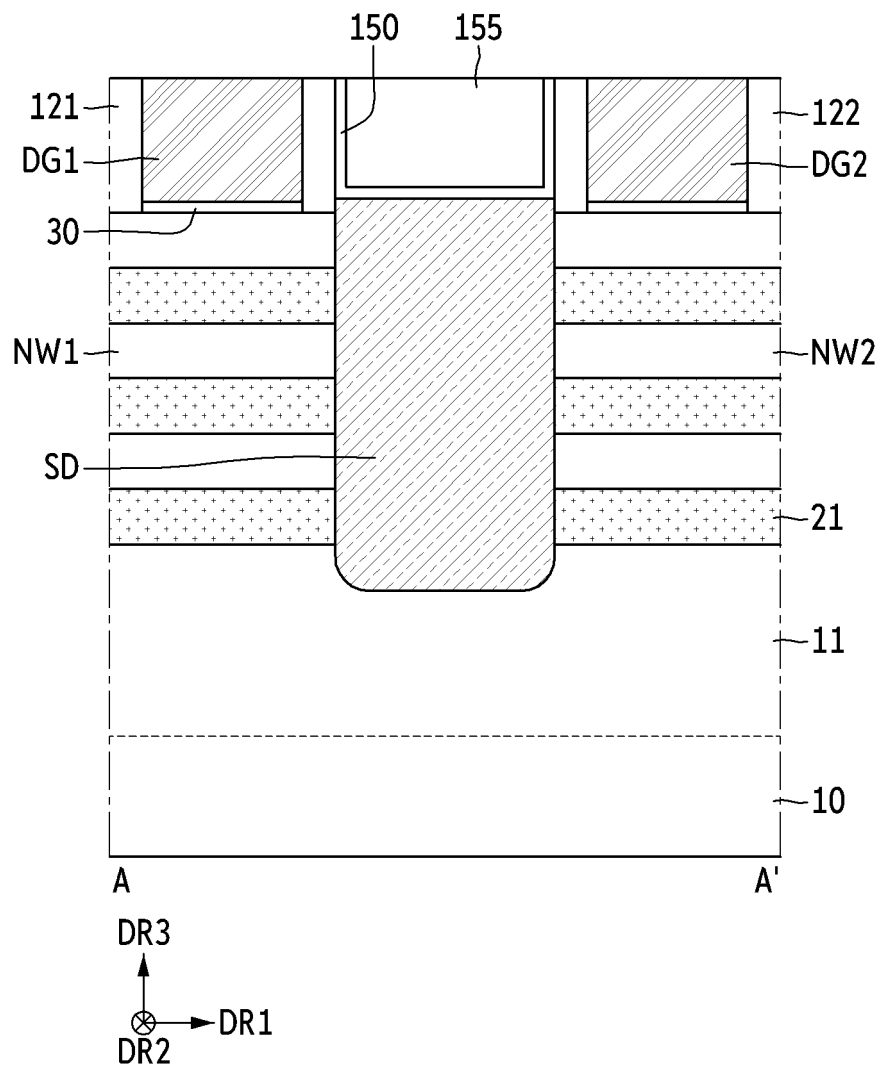


FIG. 12

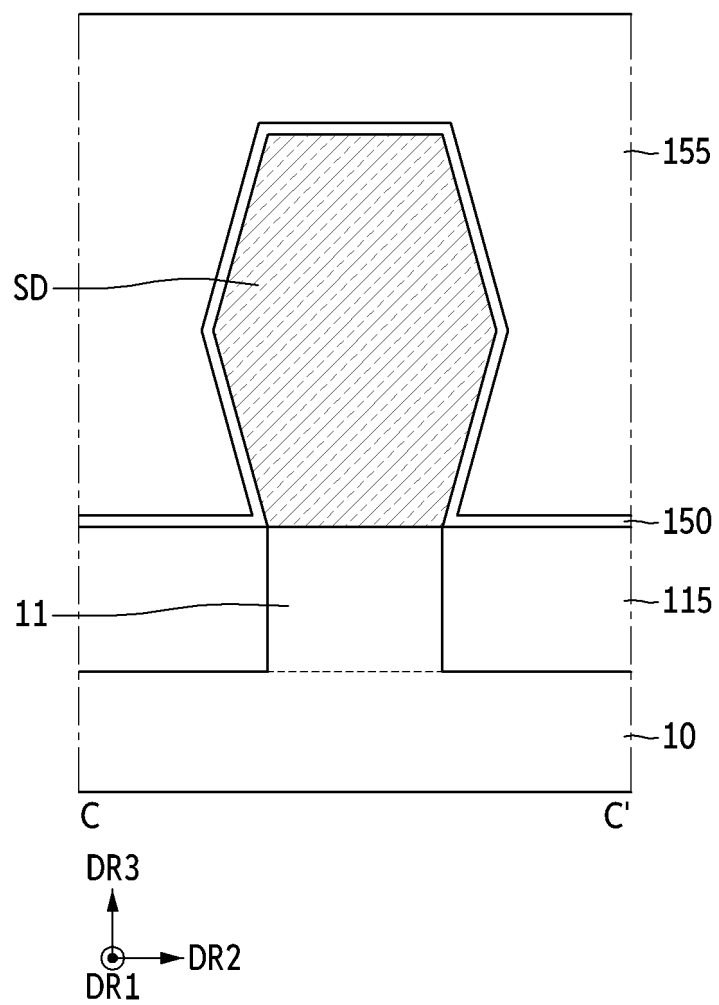


FIG. 13

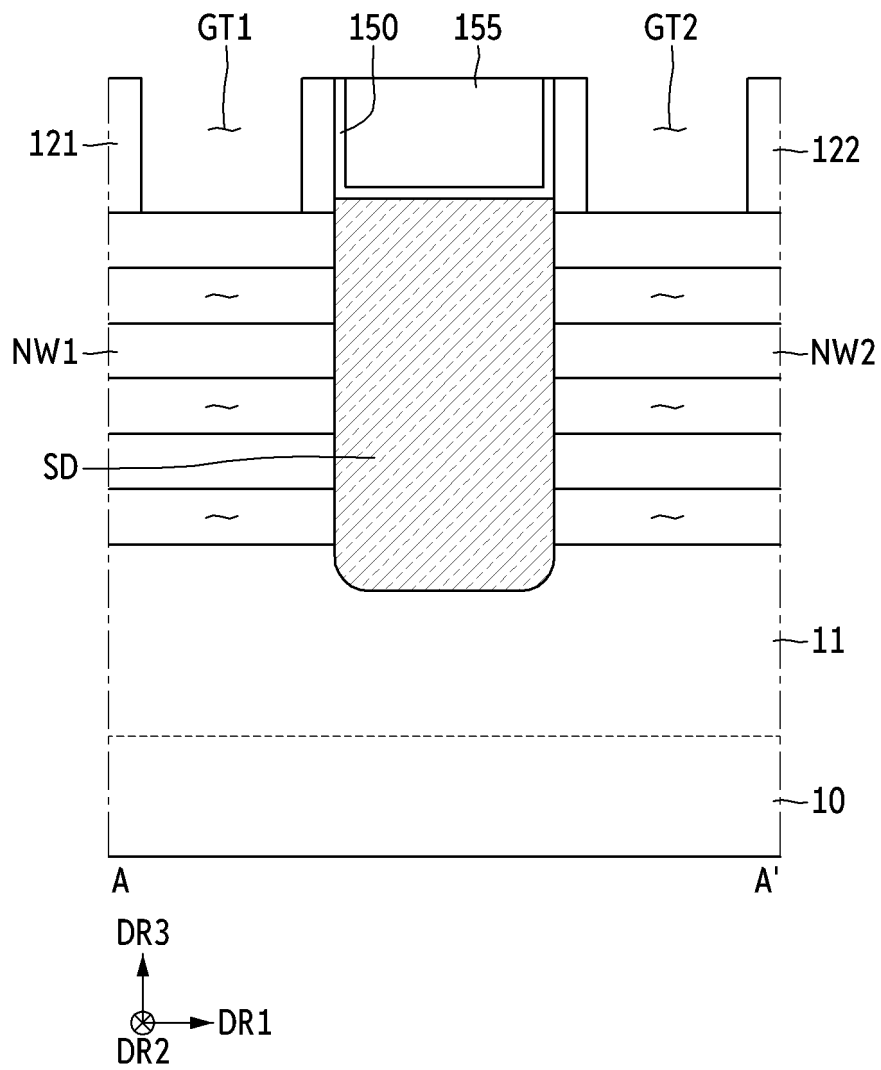
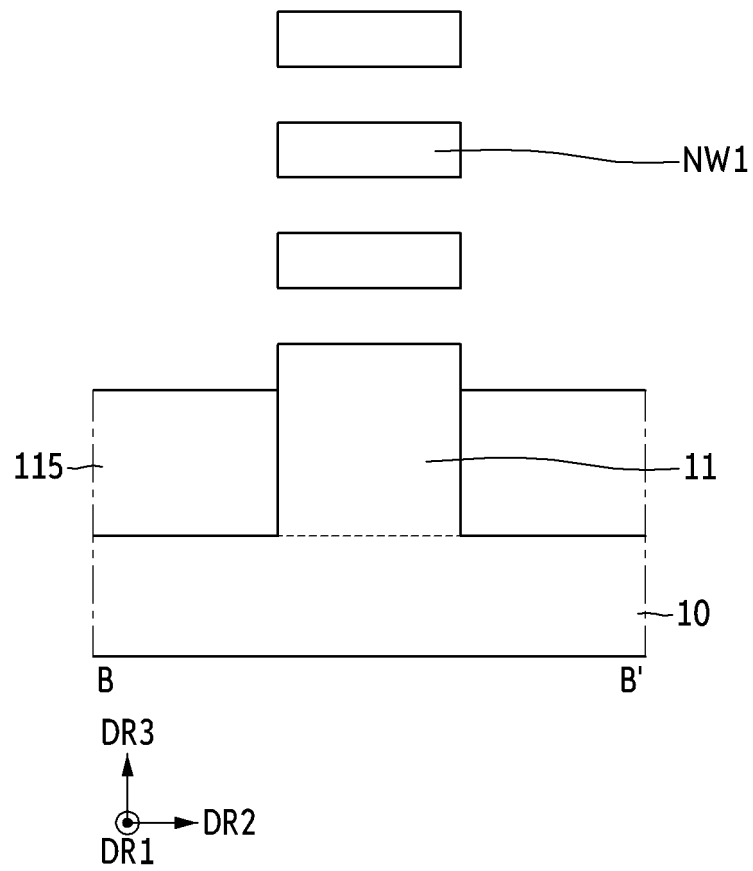


FIG. 14



This cross-sectional view shows a central channel region 150, which is a trench filled with a material having diagonal hatching. The channel is bounded by a gate stack 155. On either side of the channel, there are source/drain regions 141 and 142, which are filled with a material having diagonal hatching. The source/drain regions are separated from the channel by a gate stack 155. The gate stack consists of a gate oxide layer 121 and 122, a gate electrode layer 131 and 132, and a gate capping layer 141 and 142. The device is built on a substrate 11, which is shown as a dashed line. A dashed line 10 indicates the bottom of the device. A coordinate system is shown at the bottom left, with DR1 pointing right, DR2 pointing down, and DR3 pointing up.

FIG. 16

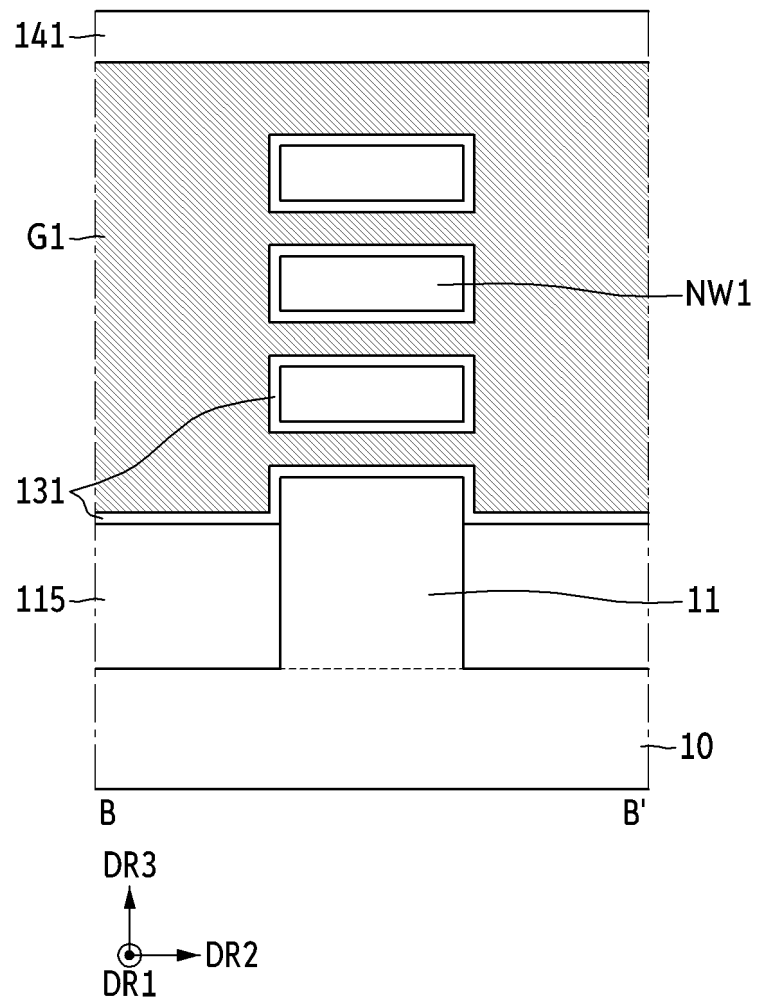


FIG. 17

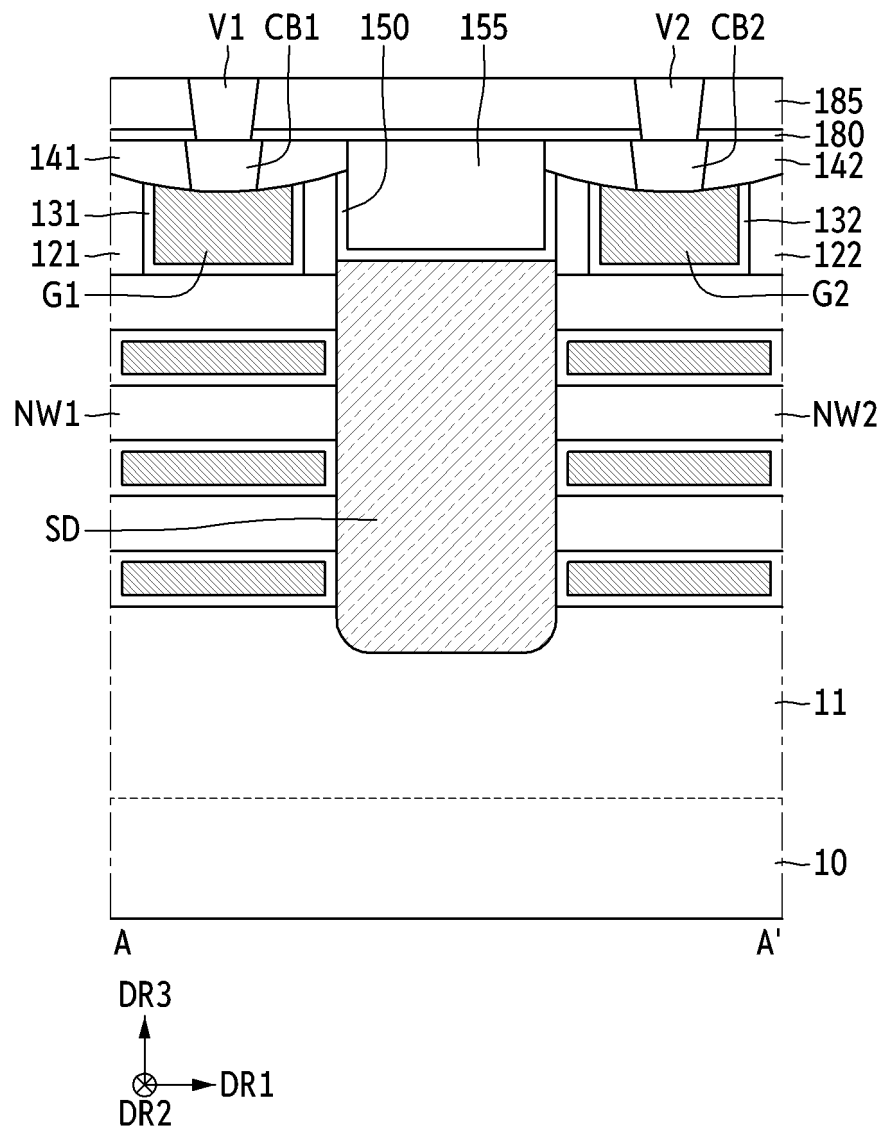


FIG. 18

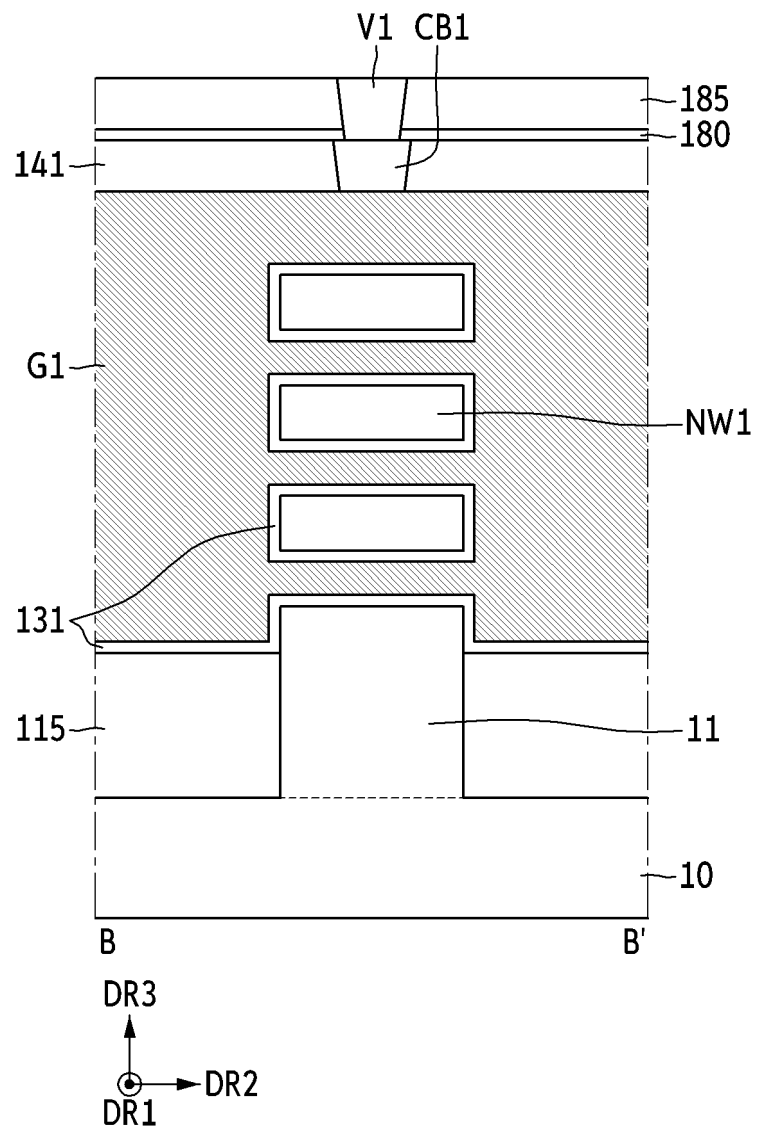


FIG. 19

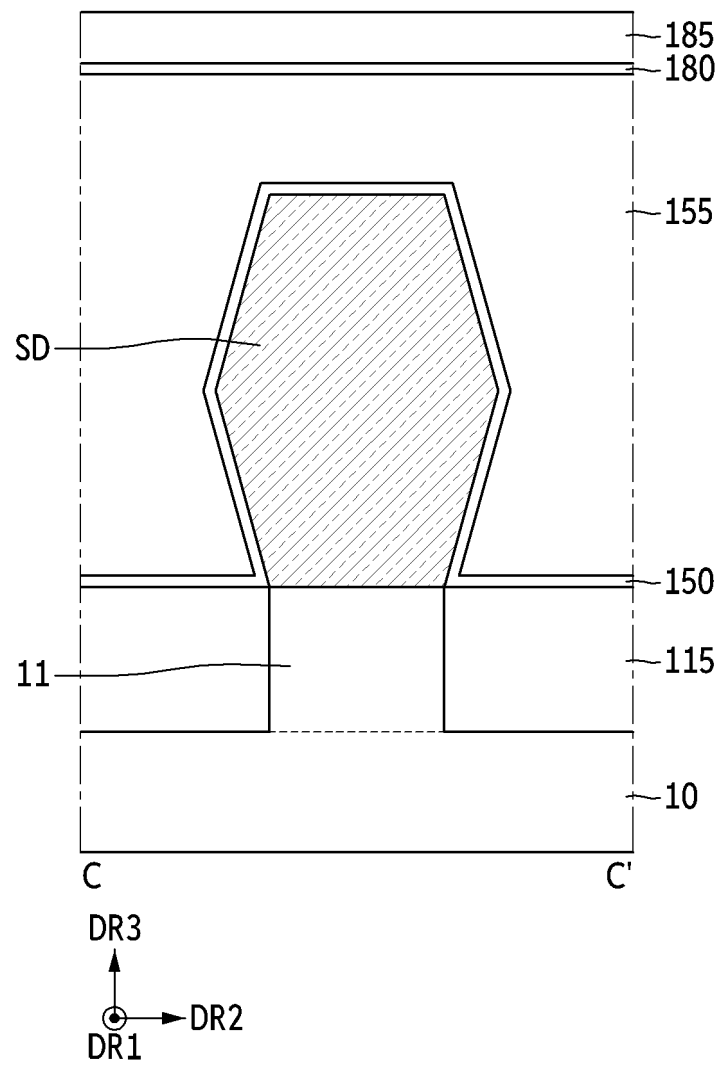


FIG. 20

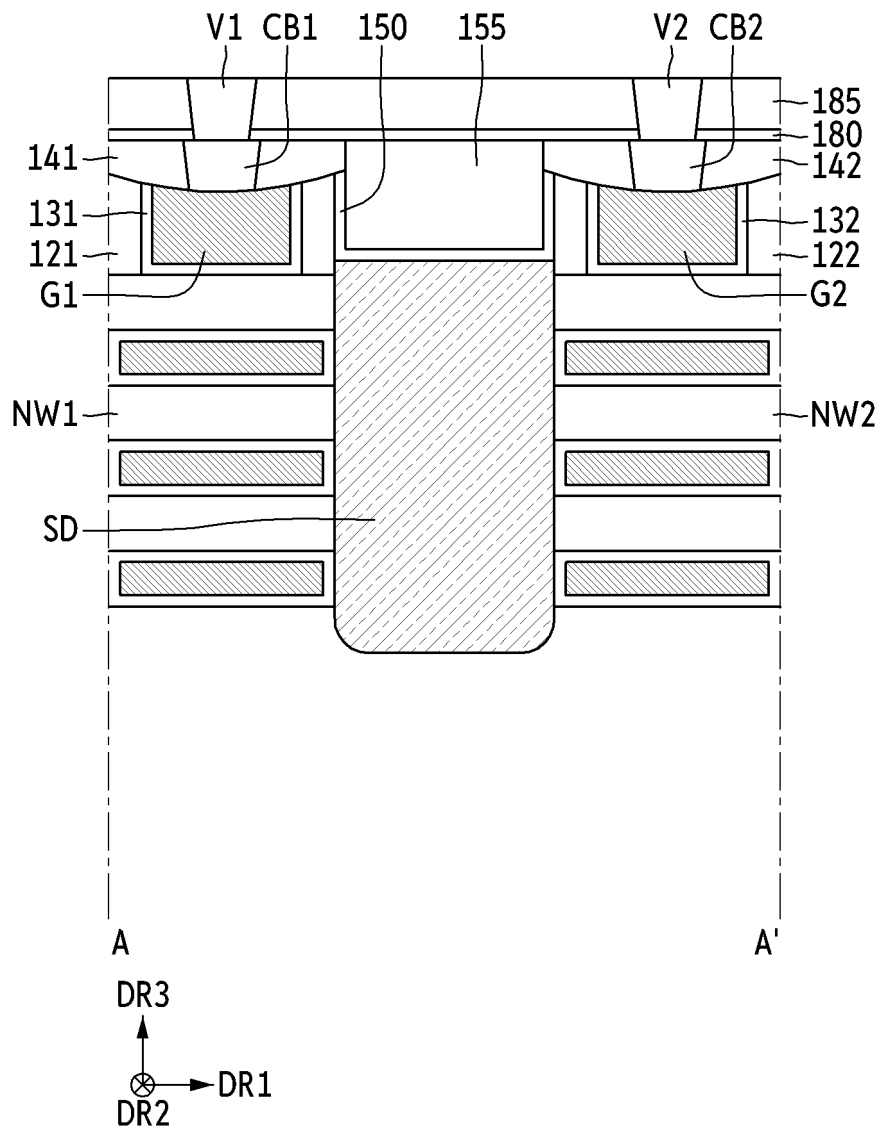


FIG. 21

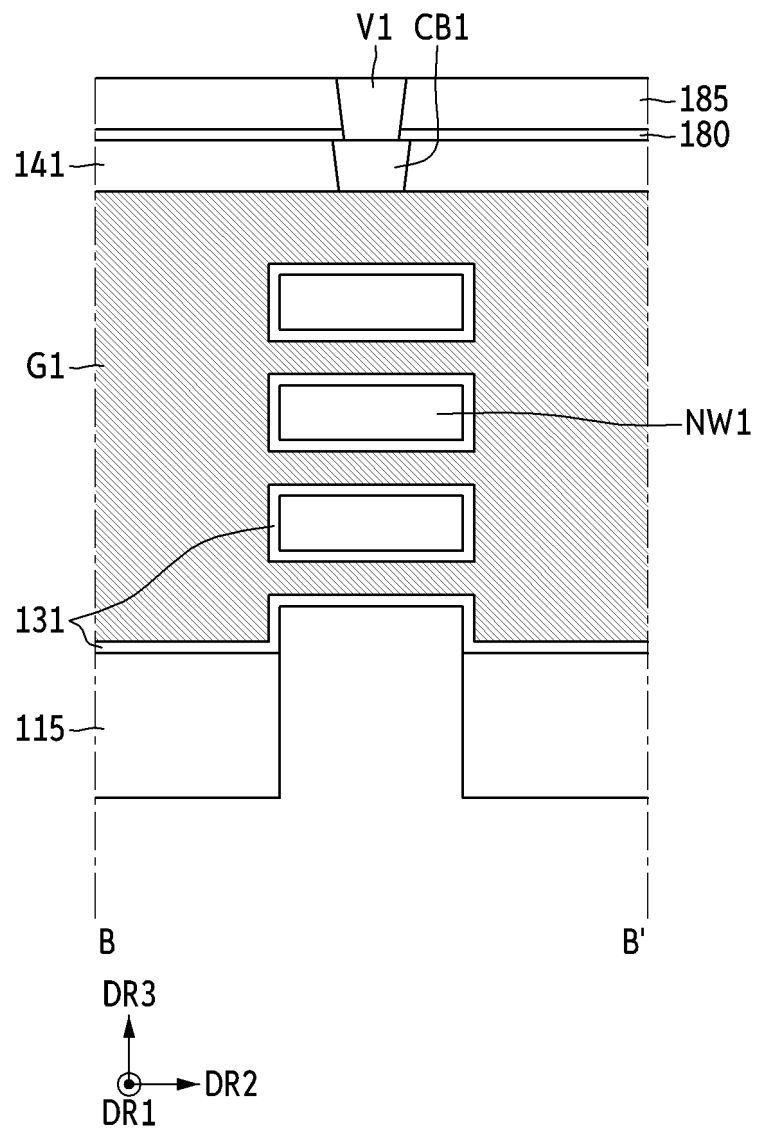
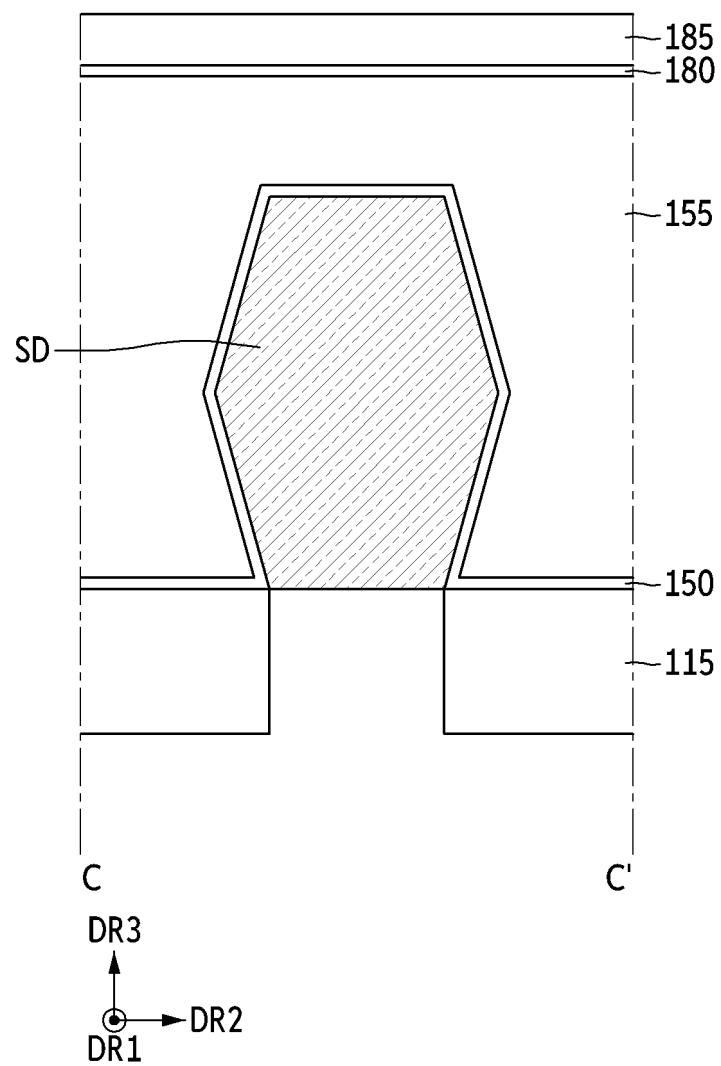


FIG. 22



[illegible]

FIG. 24

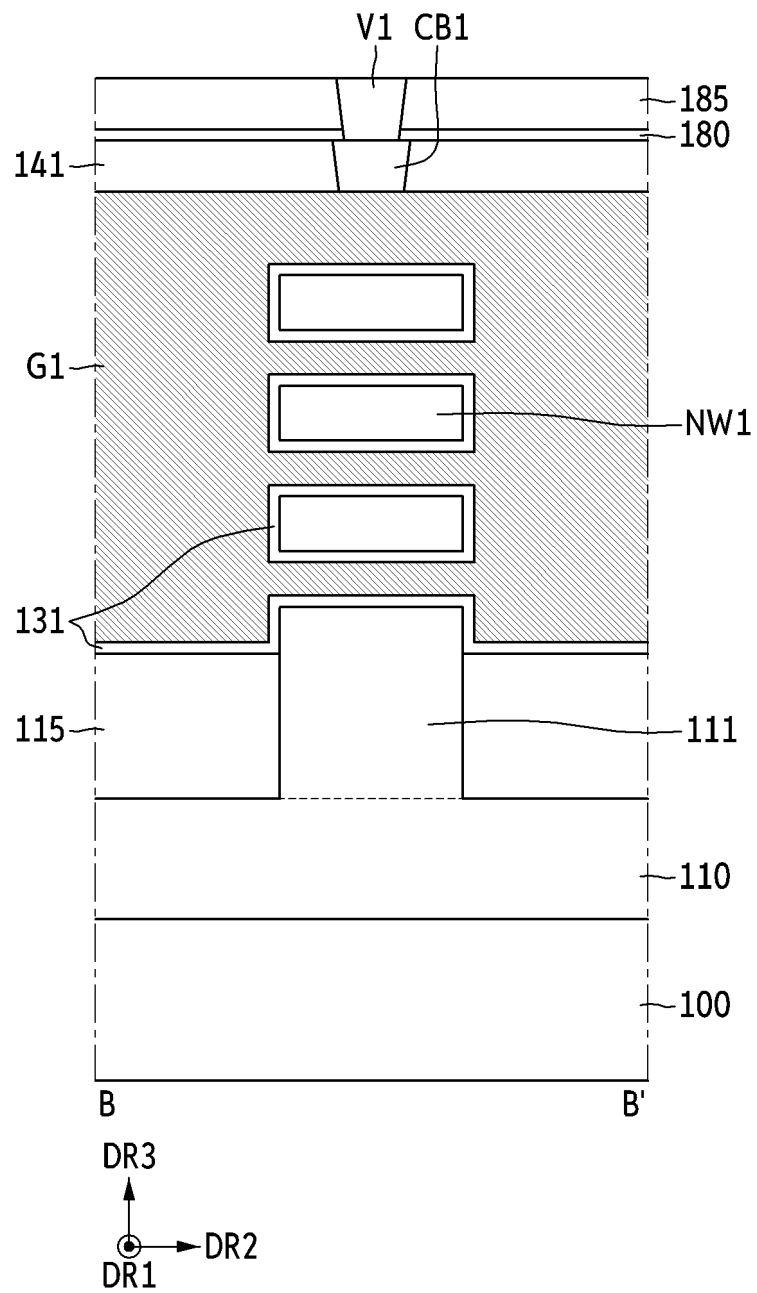


FIG. 25

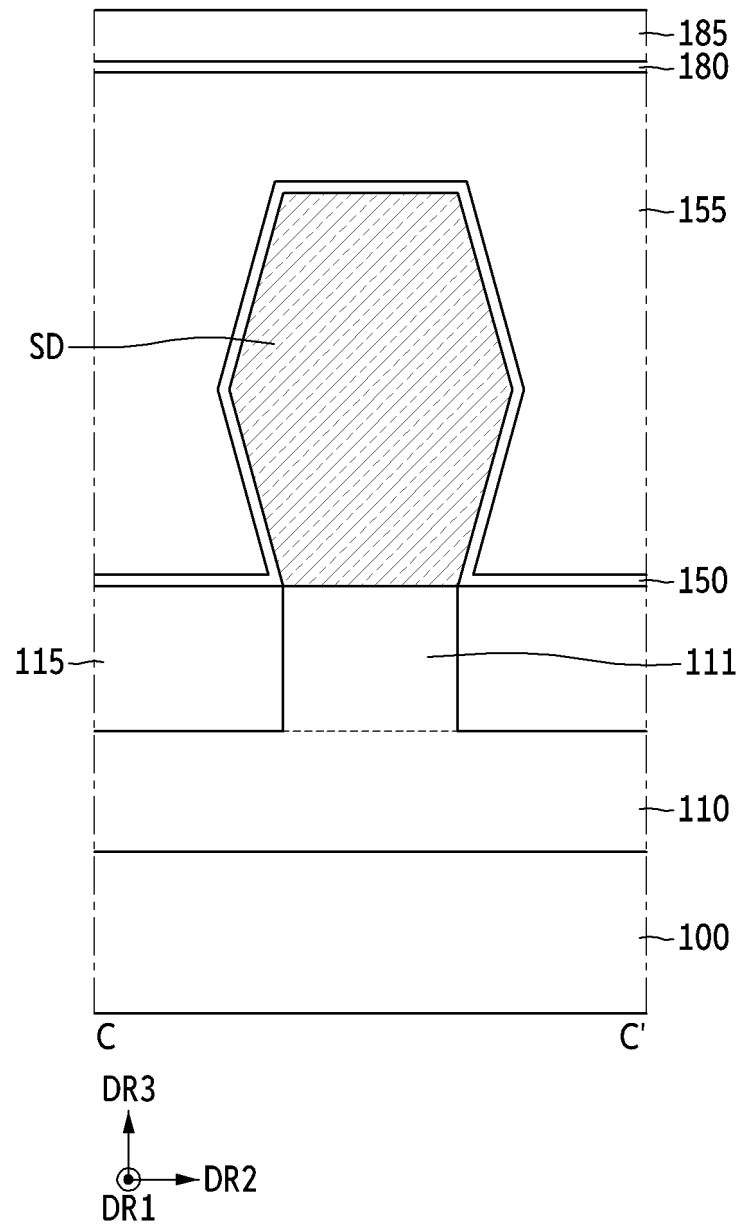


FIG. 26

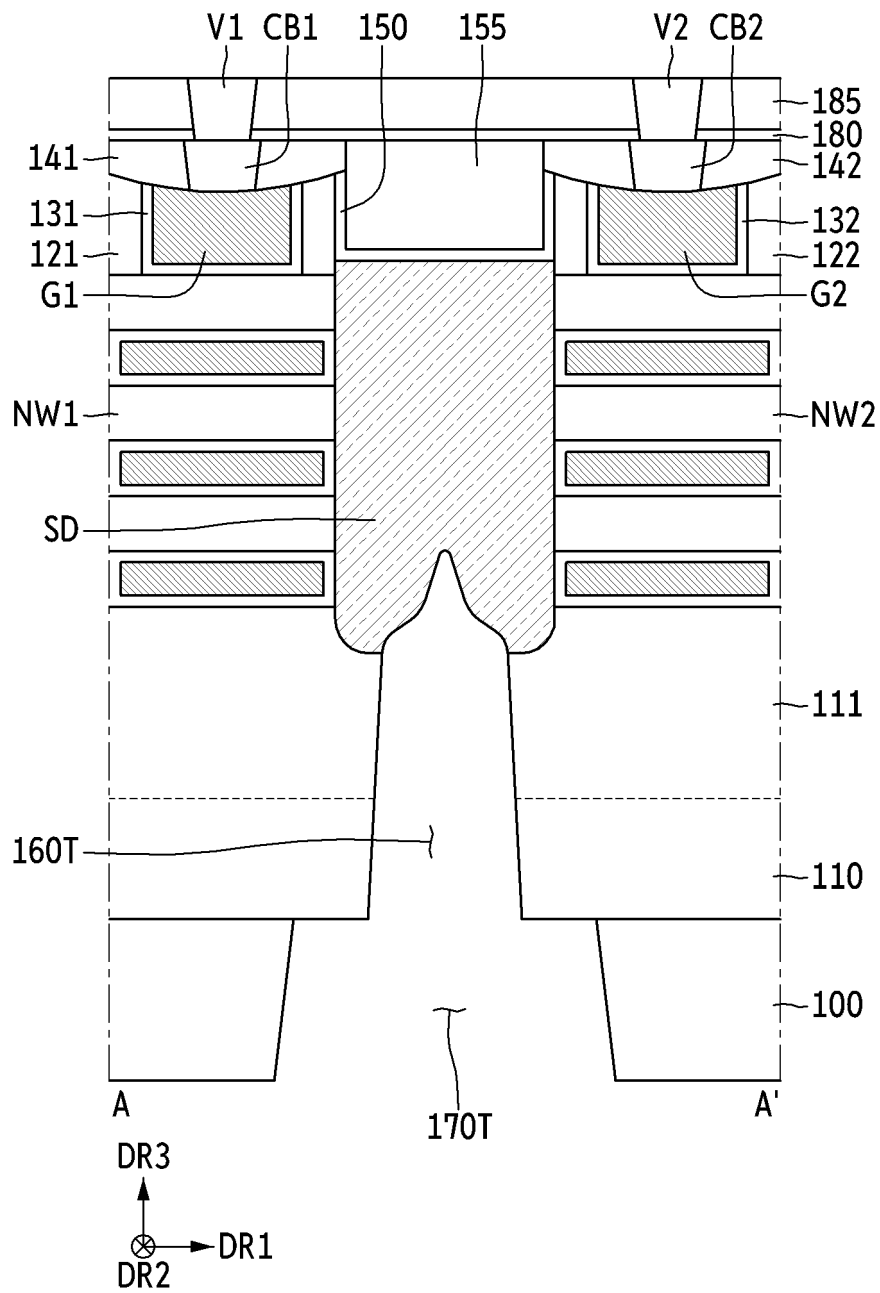


FIG. 27

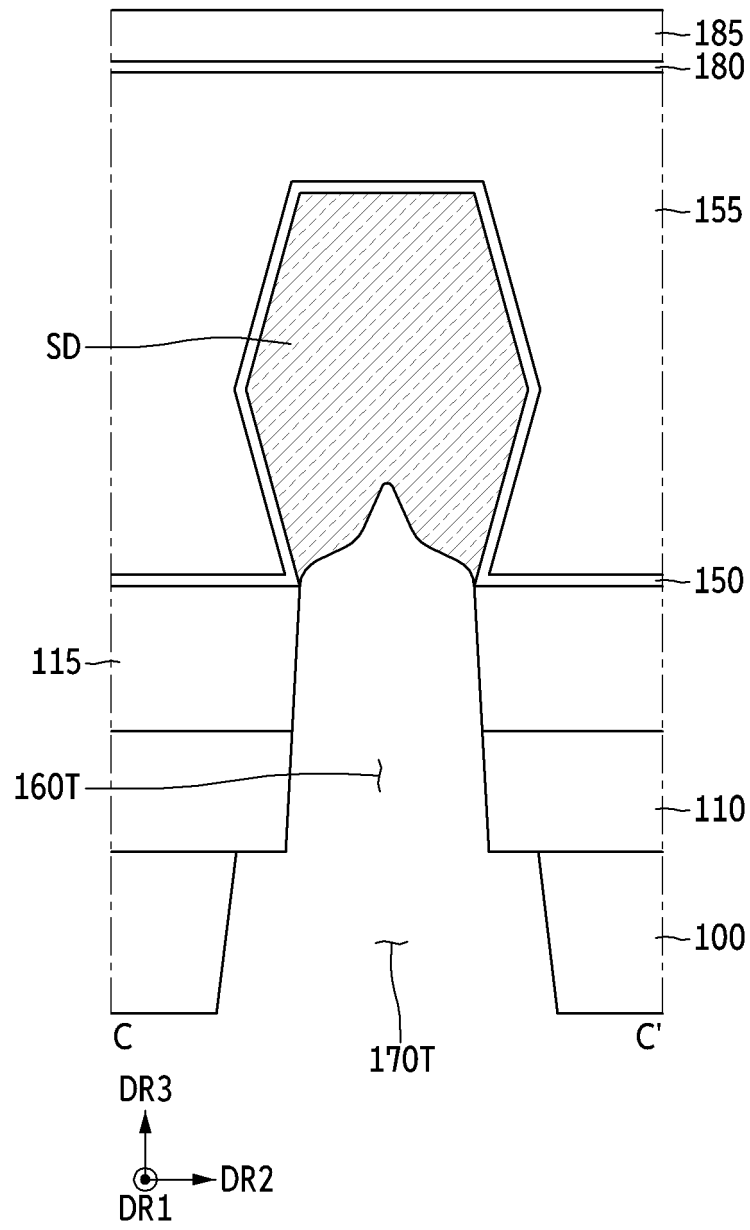


FIG. 28

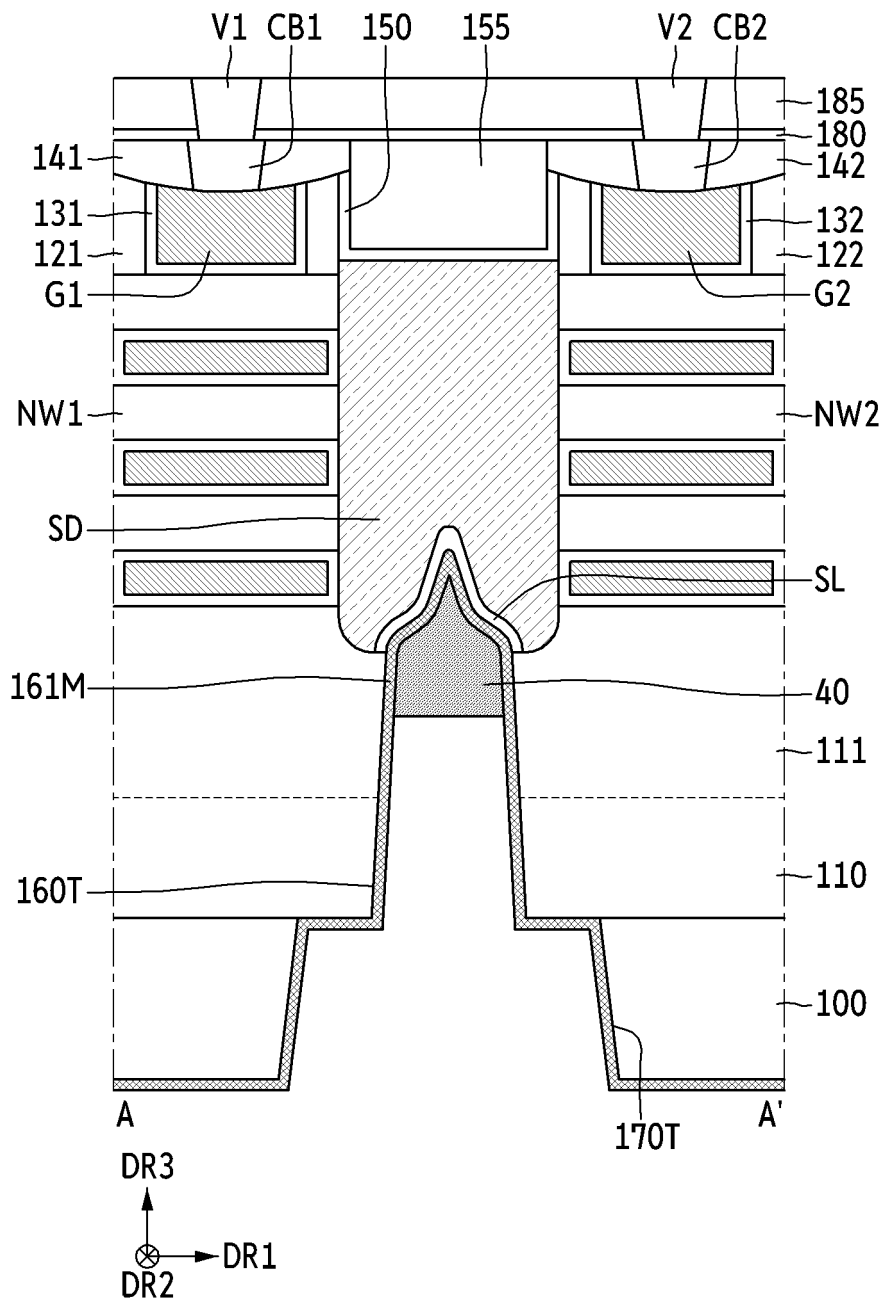


FIG. 29

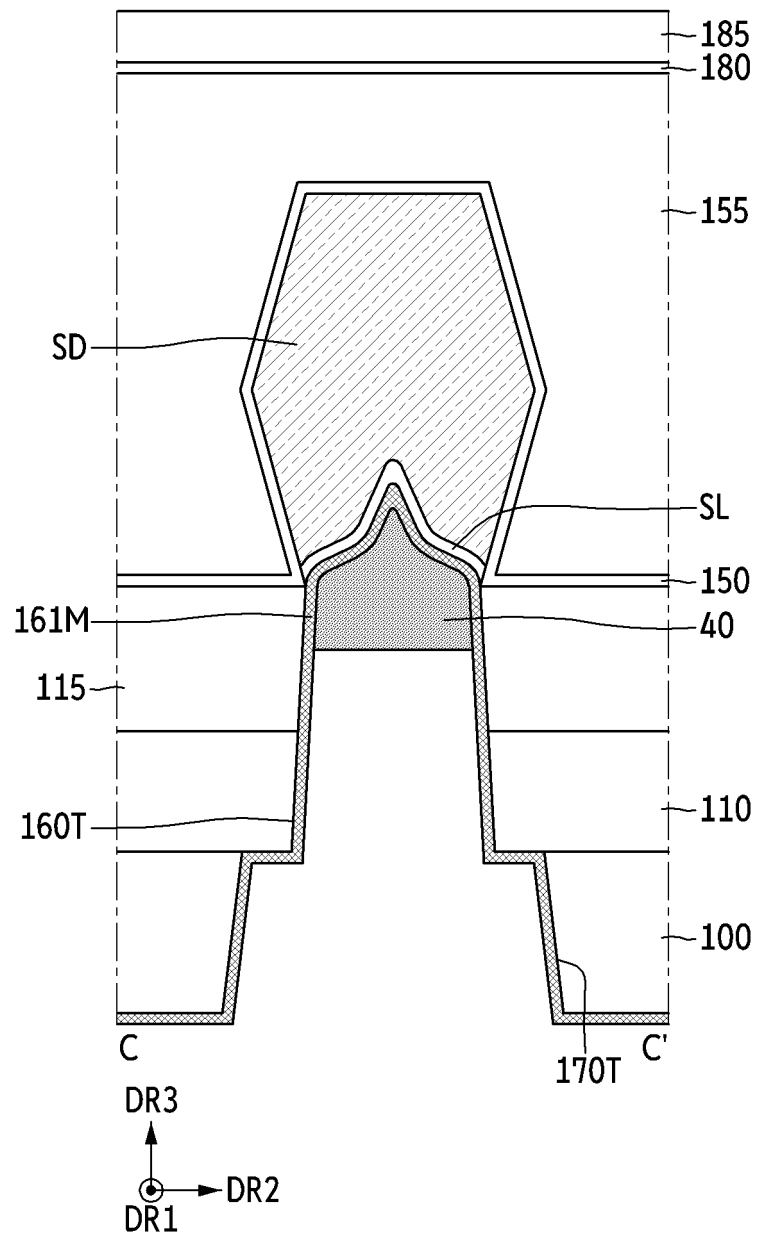


FIG. 30

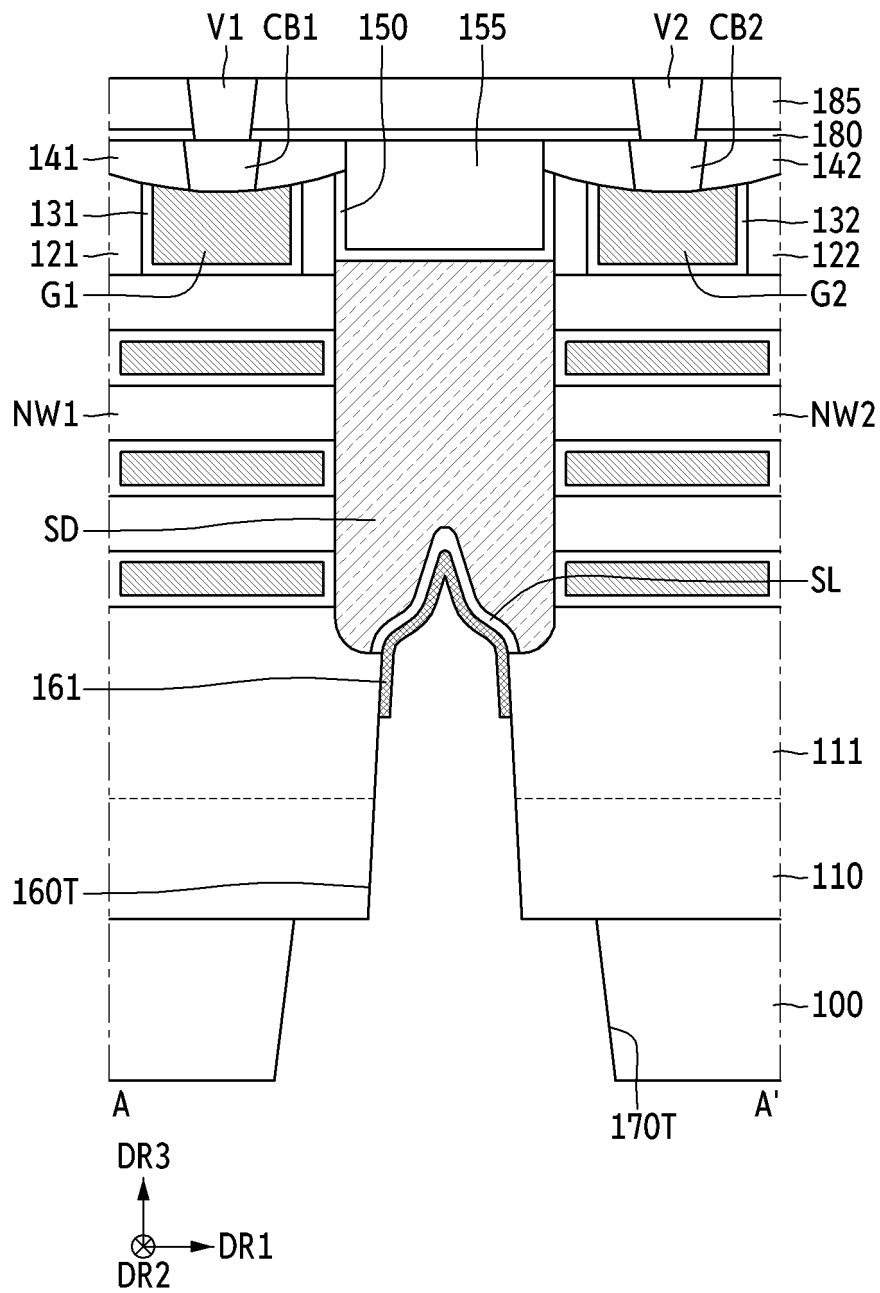


FIG. 31

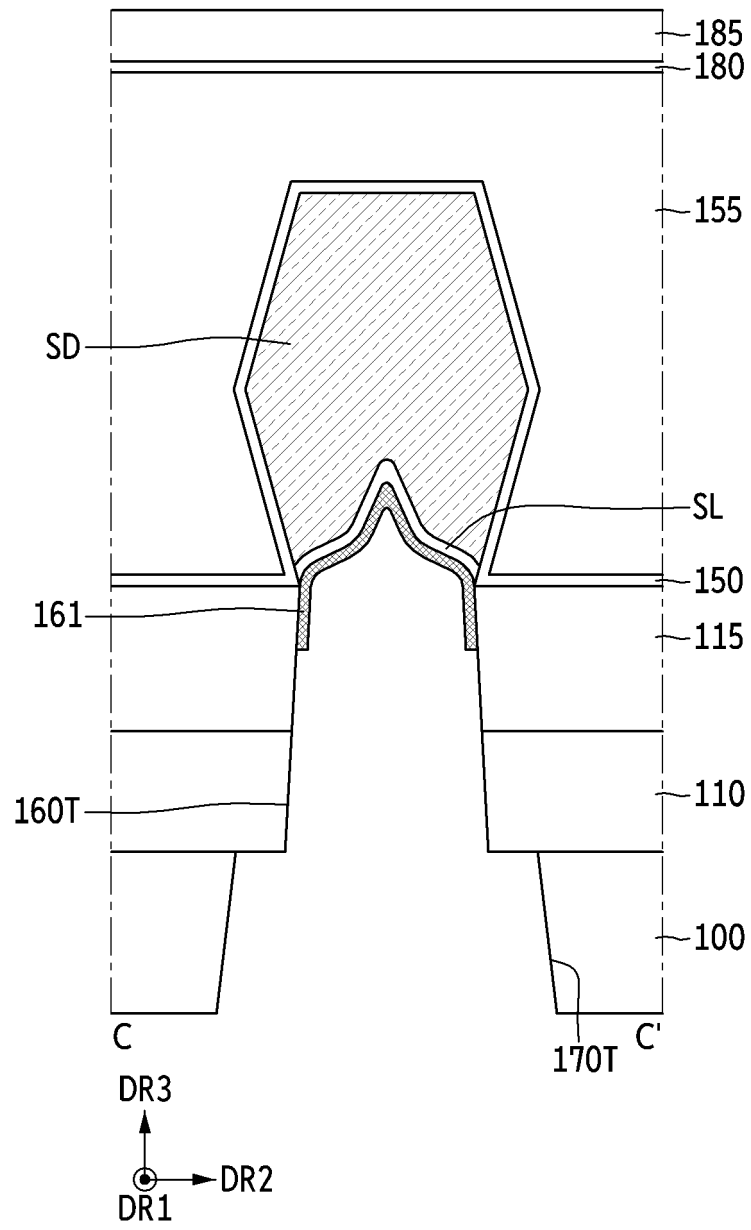


FIG. 32

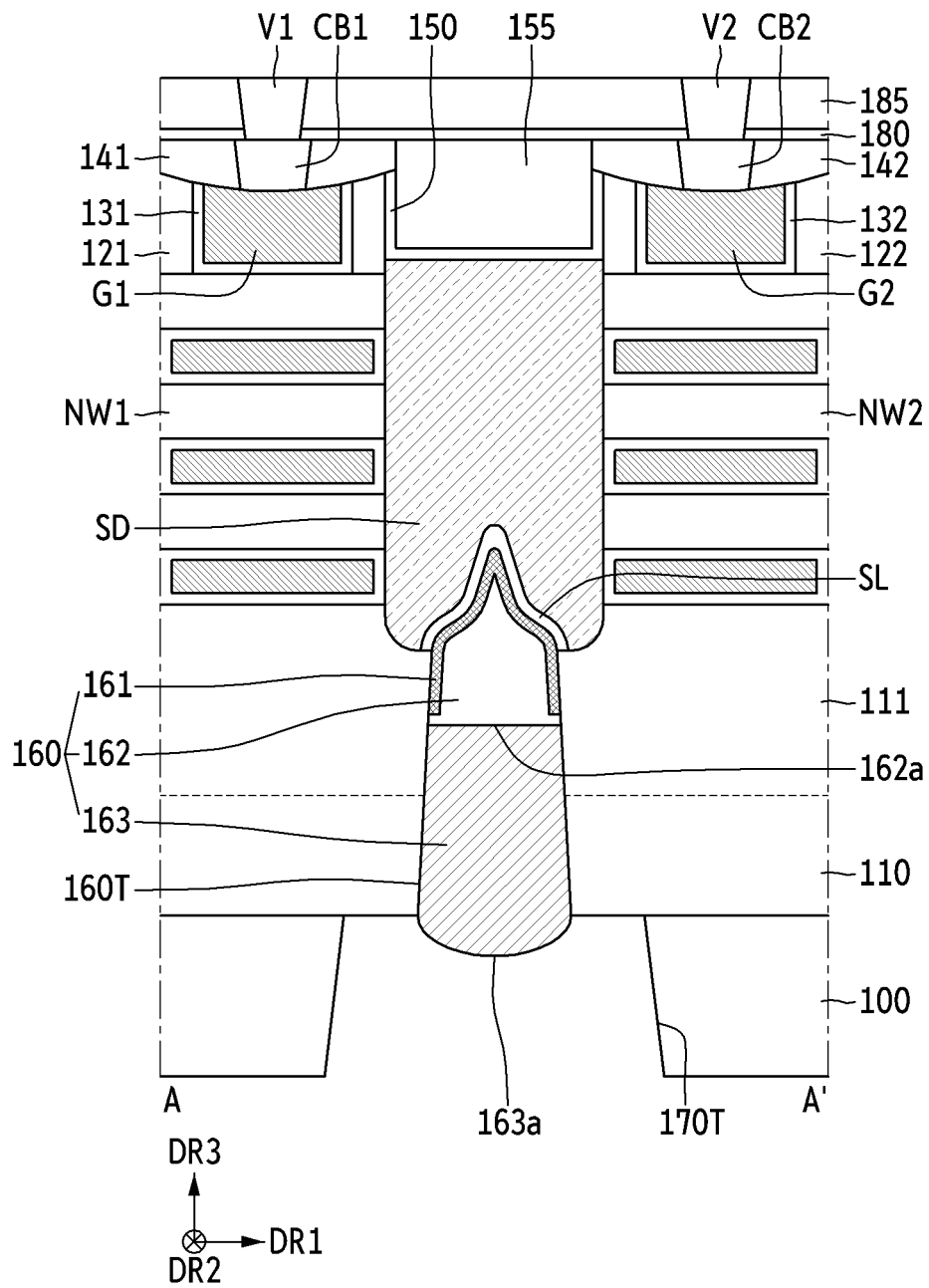


FIG. 33

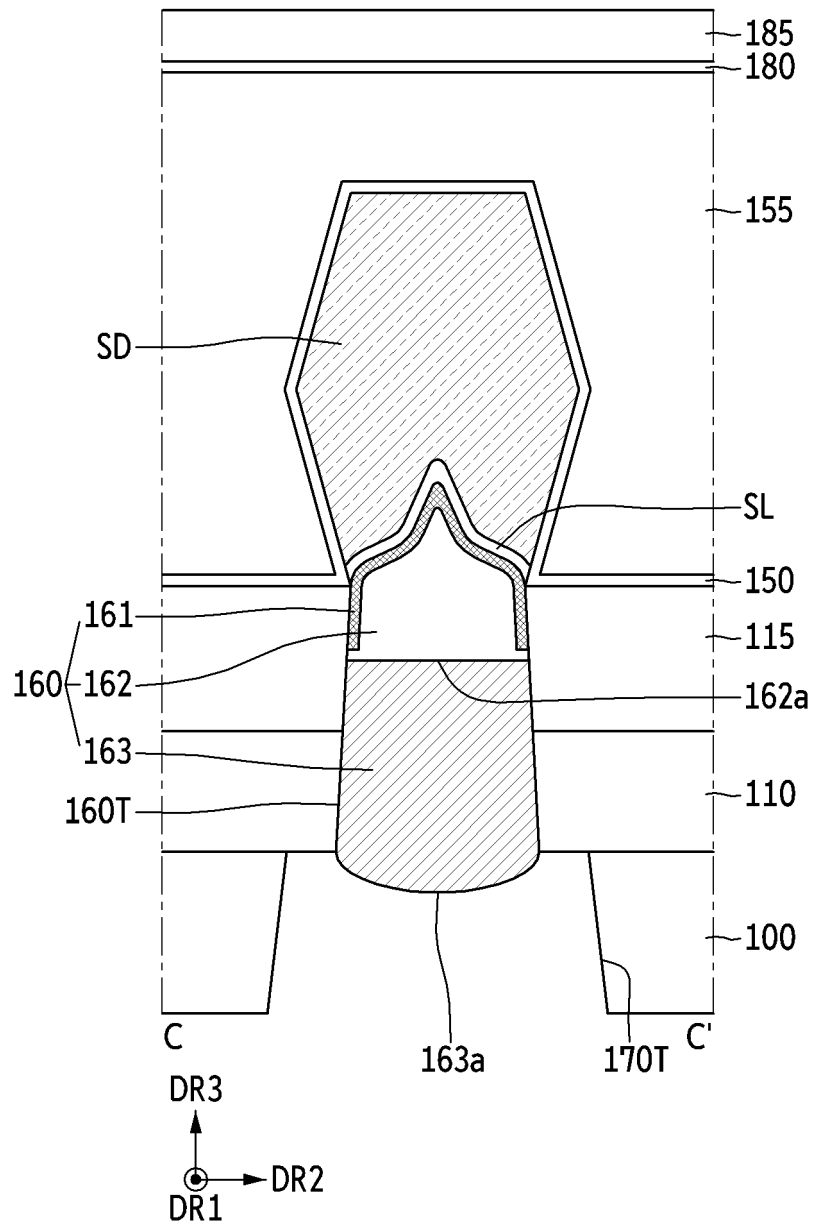
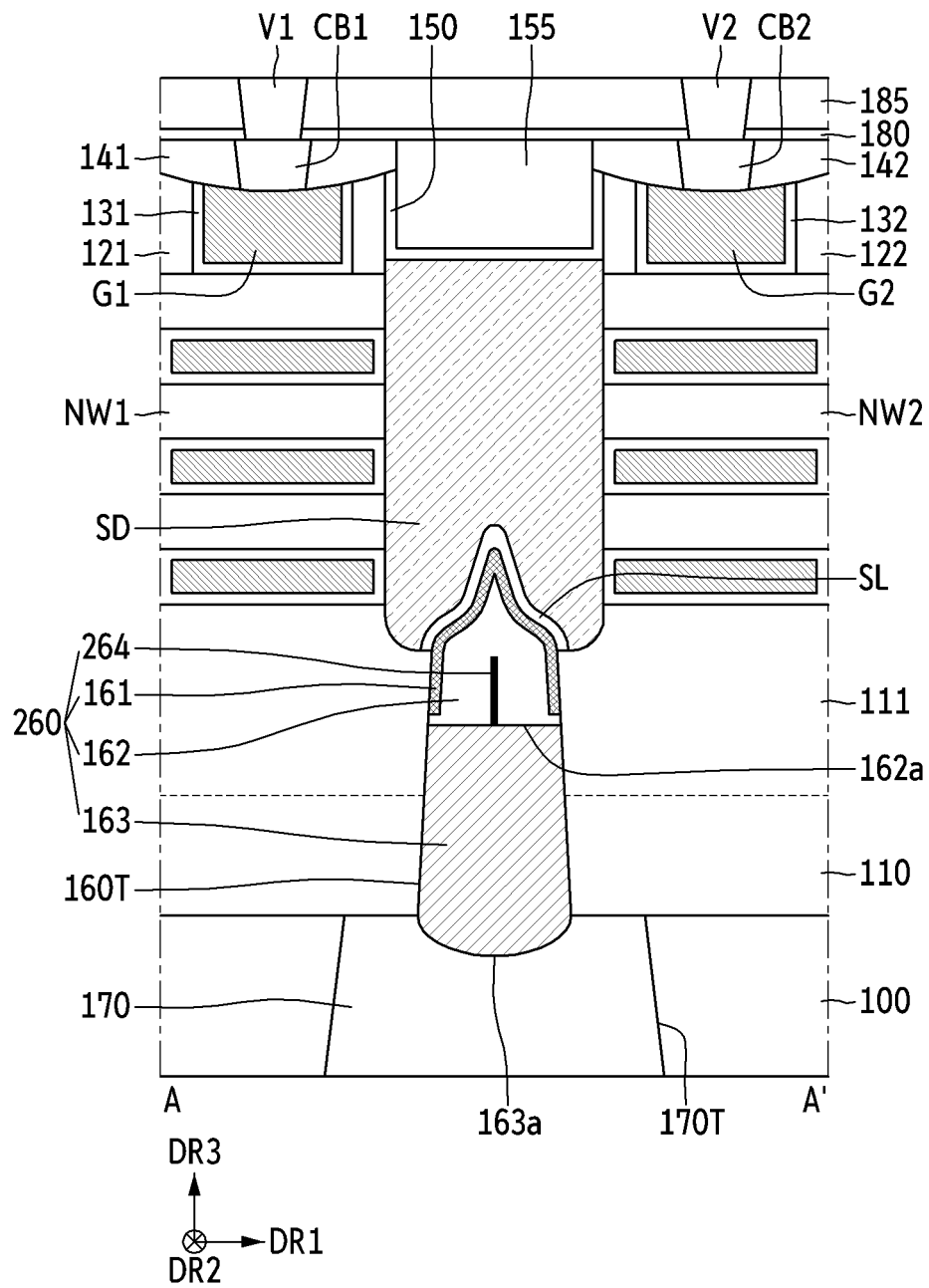
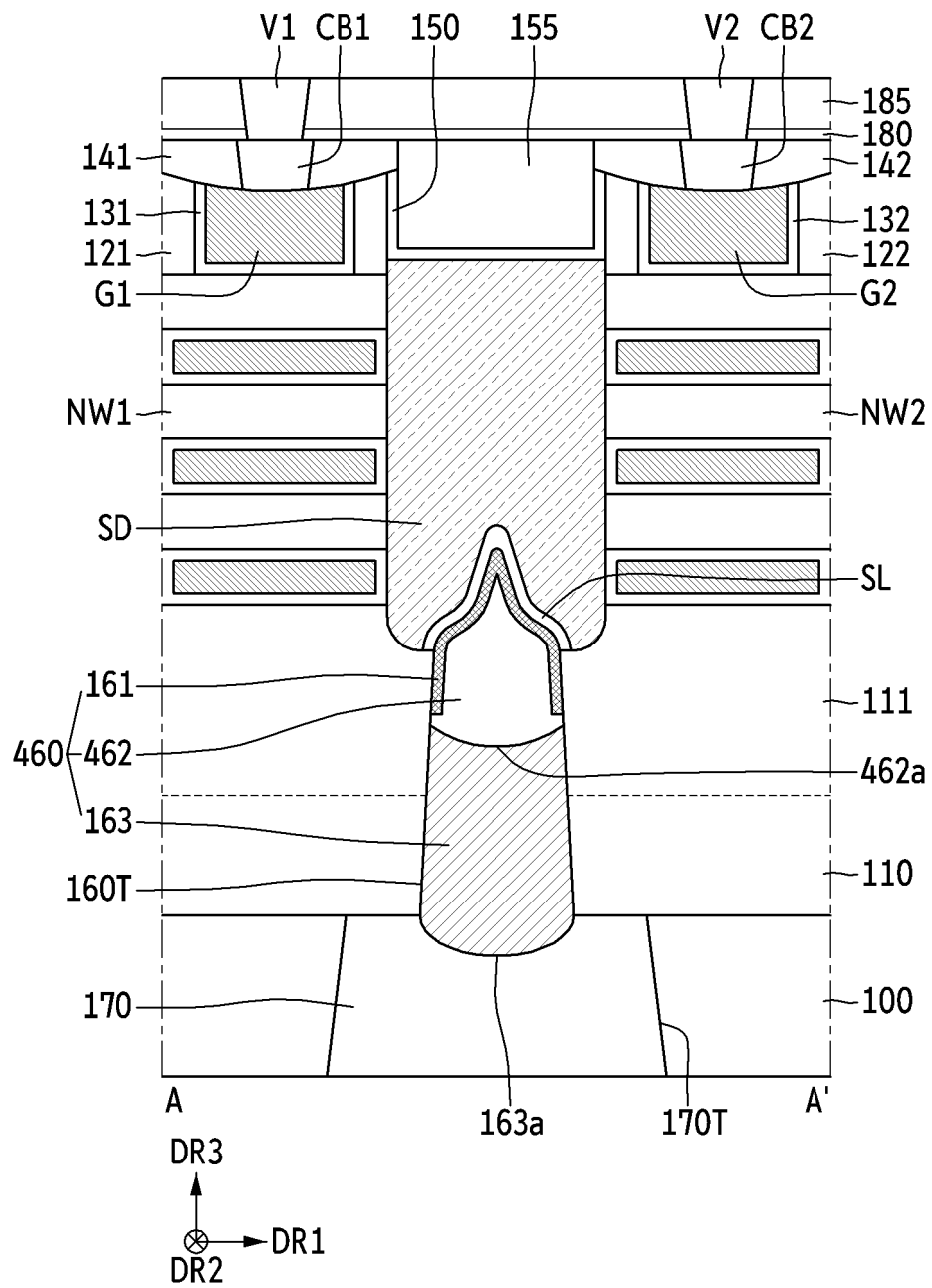


FIG. 34



This cross-sectional view shows a central channel region 150 surrounded by a gate stack 155. On the left and right sides, there are source/drain regions 121 and 122, respectively, which are doped with impurities (indicated by hatching). Above these regions are contact pads 131 and 132, and further up are gate electrodes 141 and 142. The top of the device is covered by a passivation layer 185. The channel region 150 is defined by a gate stack 155. The source/drain regions 121 and 122 are connected to the channel region 150. The contact pads 131 and 132 are connected to the source/drain regions 121 and 122. The gate electrodes 141 and 142 are connected to the gate stack 155. The passivation layer 185 is on top of the gate electrodes 141 and 142. The device is shown in a cross-section along line A-A'.

FIG. 36



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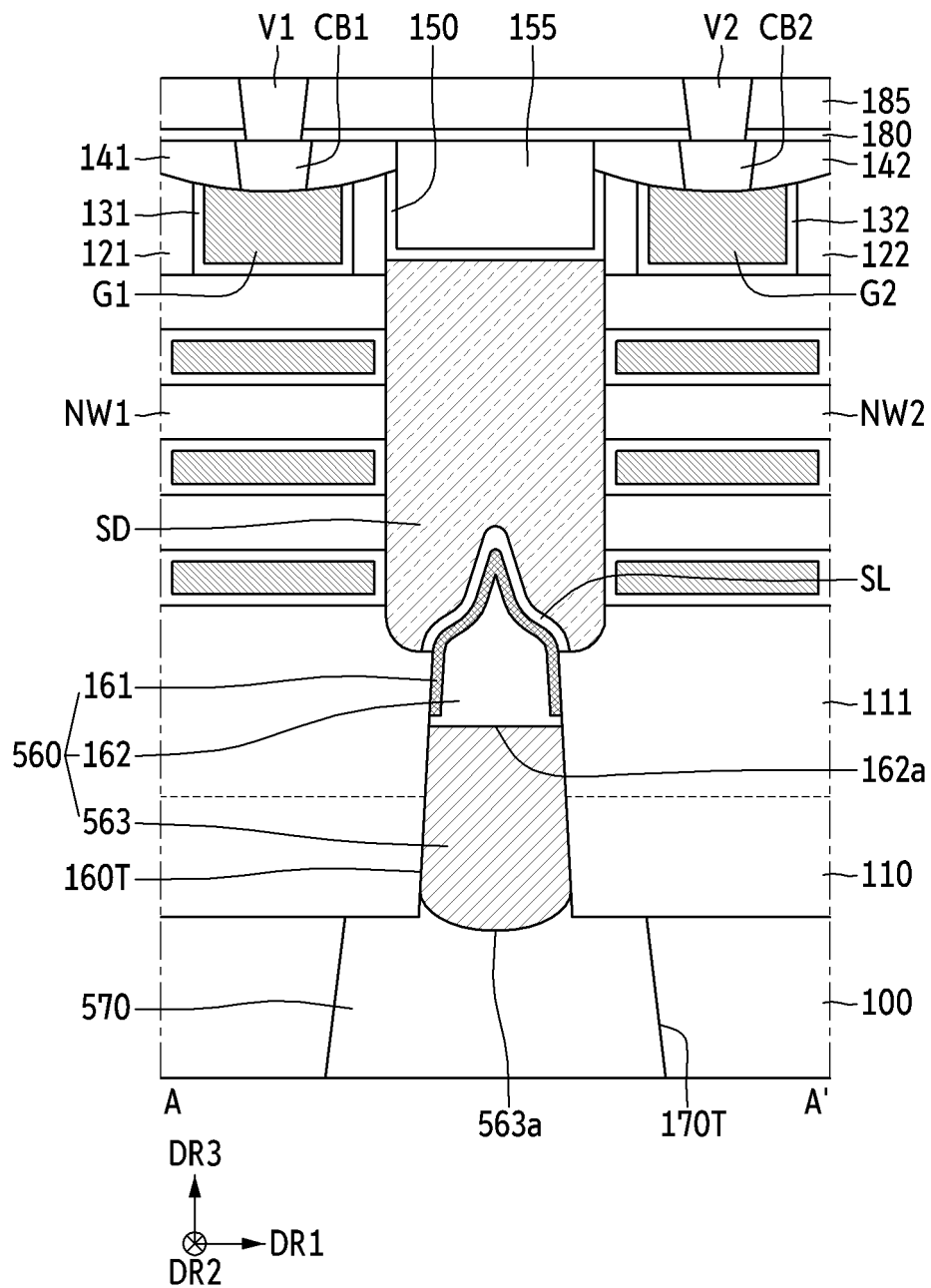


FIG. 38

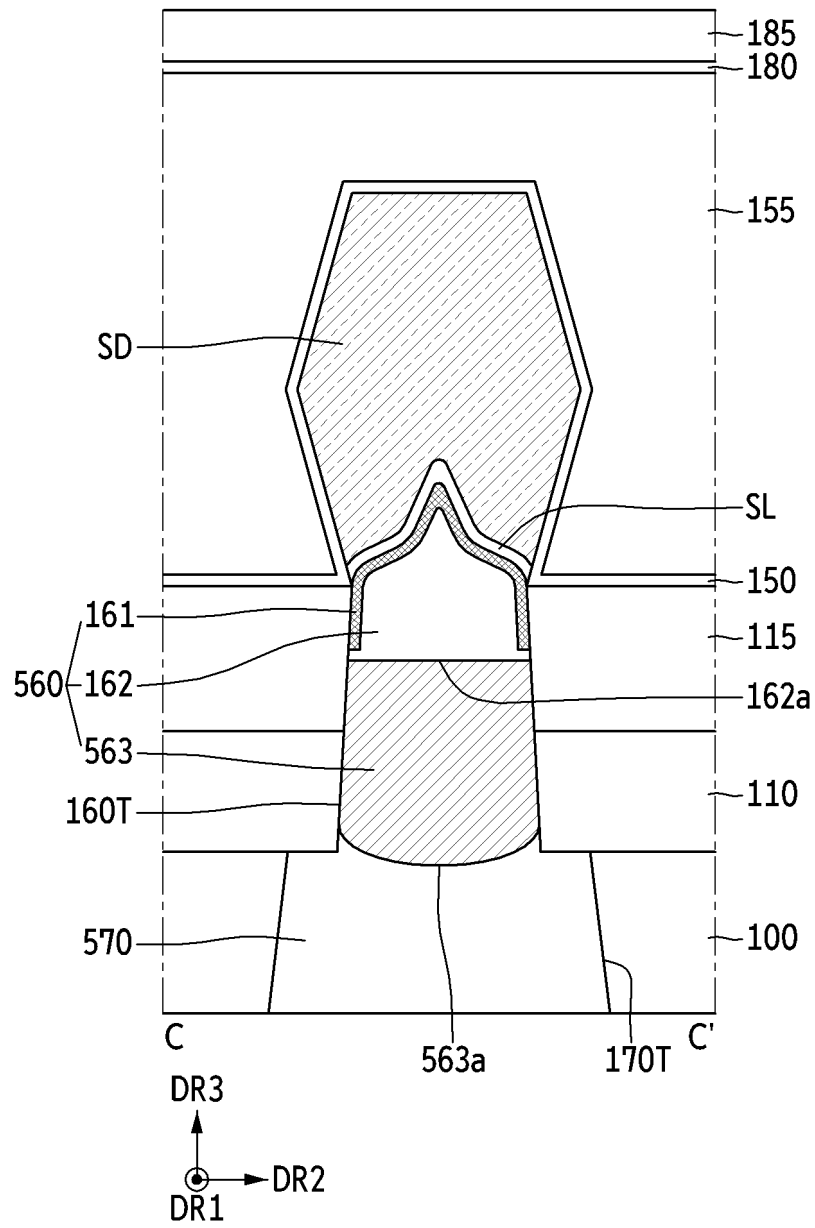


FIG. 39

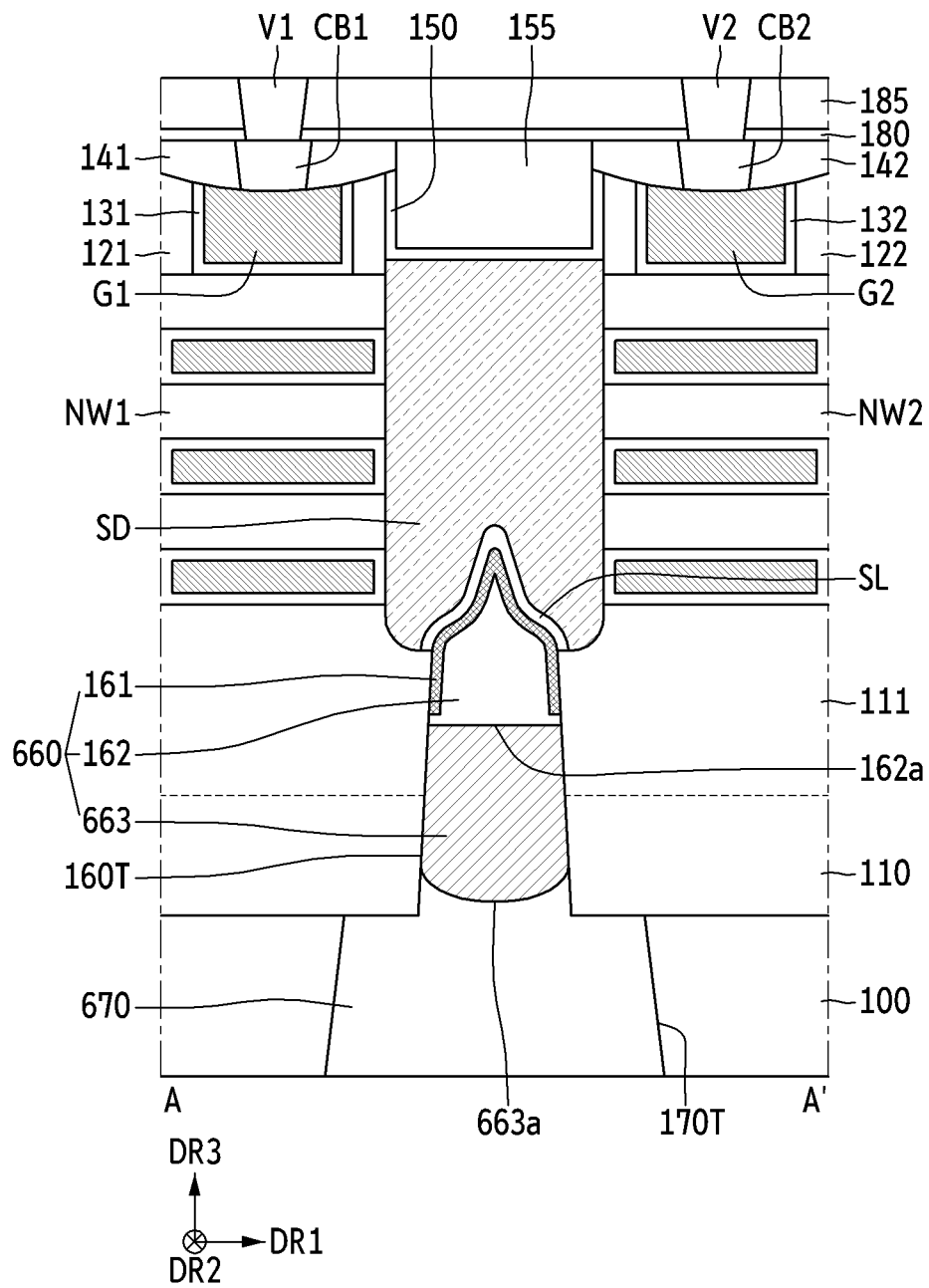


FIG. 40

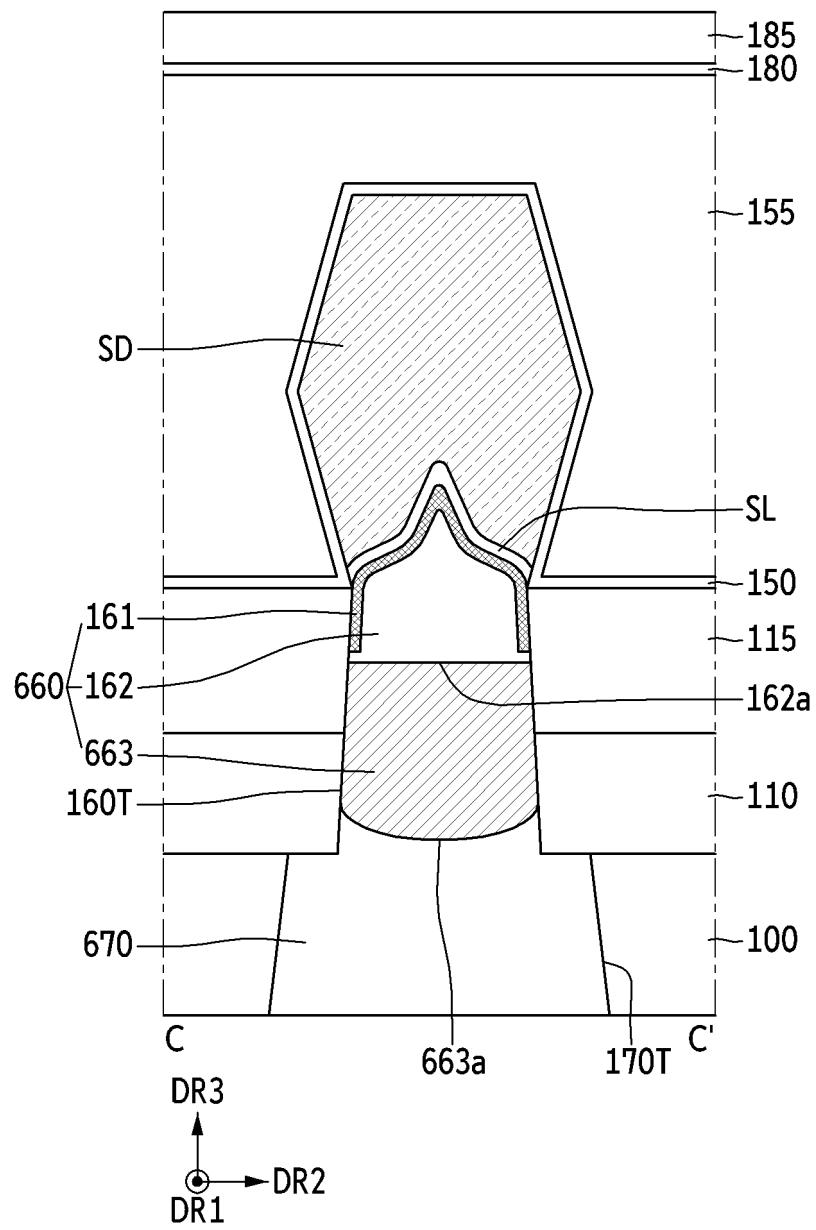


FIG. 41

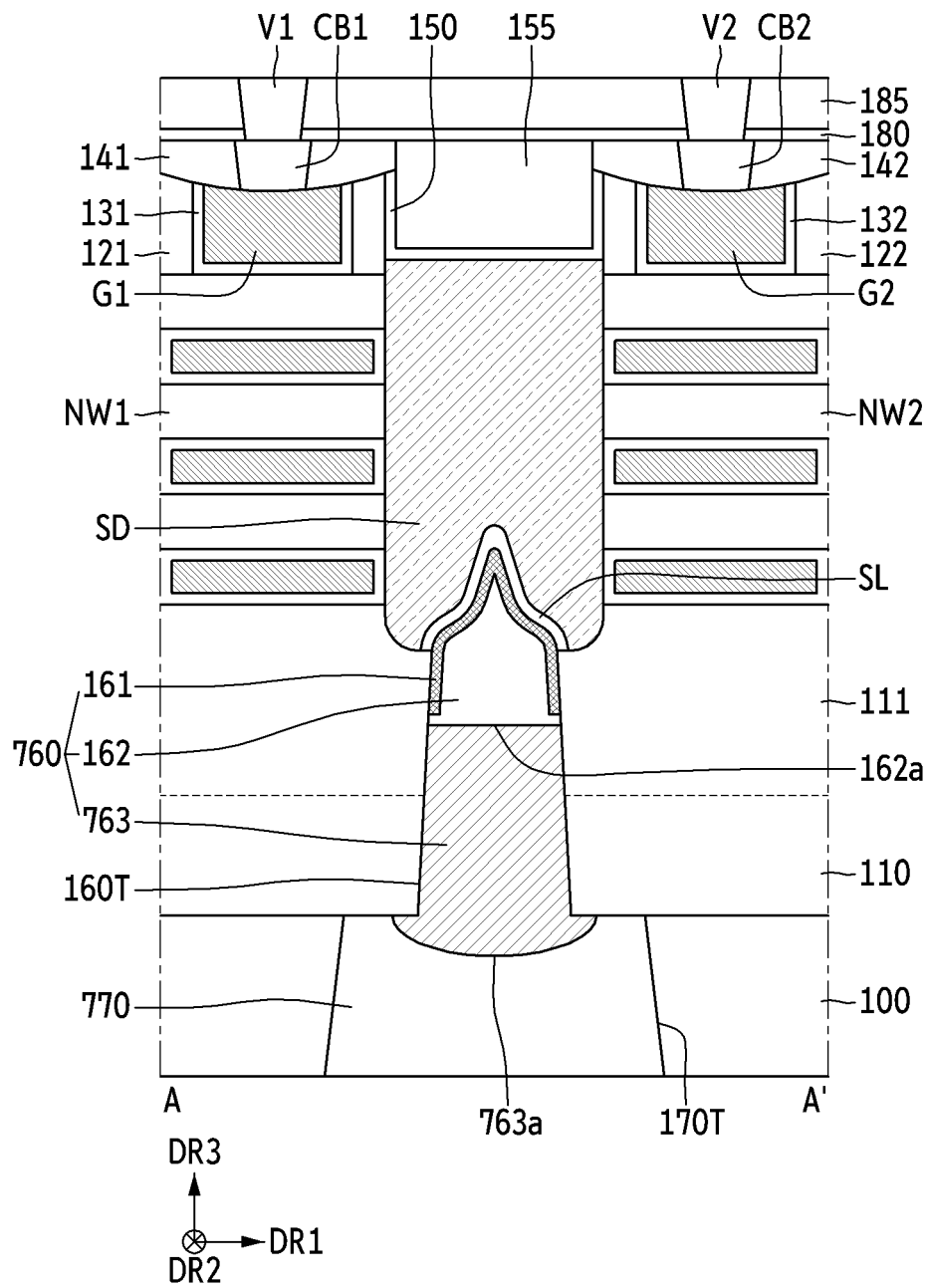


FIG. 42

