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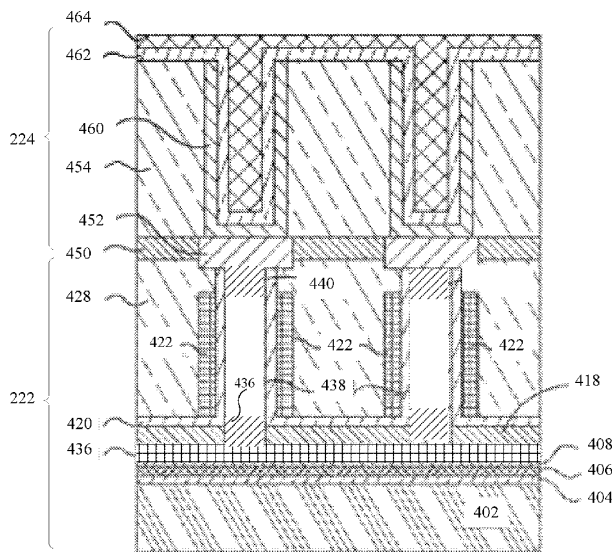


FIG. 4

(57) Abstract: Embodiments of the present technology may include semiconductor processing methods and systems. Methods include flowing a deuterium-containing precursor and a silicon containing precursor into a processing region of a processing chamber. Methods include contacting a semiconductor device disposed in the processing region with the deuterium-containing precursor and the silicon containing precursor. Methods include forming a deuterium-containing dielectric film over or on the semiconductor device at a processing temperature of greater than or about 350 °C. Methods include passivating the target region with deuterium from the deuterium-containing dielectric film. Methods include where the deuterium-containing dielectric film is spaced apart from or adjacent to the target region.

[Continued on next page]

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