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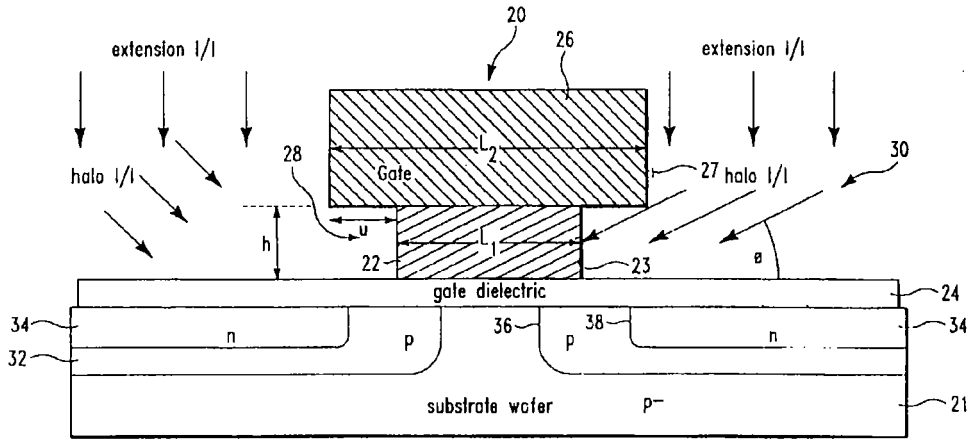
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(54) Title: FET WITH NOTCHED GATE AND METHOD OF MANUFACTURING THE SAME



(57) Abstract: An FET has a T-shaped gate. The FET has a halo diffusion self-aligned to the bottom portion of the T and an extension diffusion self aligned to the top portion. The halo is thereby separated from the extension implant, and this provides significant advantages. The top and bottom portions of the T-shaped gate can be formed of layers of two different materials, such as germanium and silicon. The two layers are patterned together. Then exposed edges of the bottom layer are selectively chemically reacted and the reaction products are etched away to provide the notch. In another embodiment, the gate is formed of a single gate conductor. A metal is conformally deposited along sidewalls, recess etched to expose a top portion of the sidewalls, and heated to form silicide along bottom portions. The silicide is etched to provide the notch.

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