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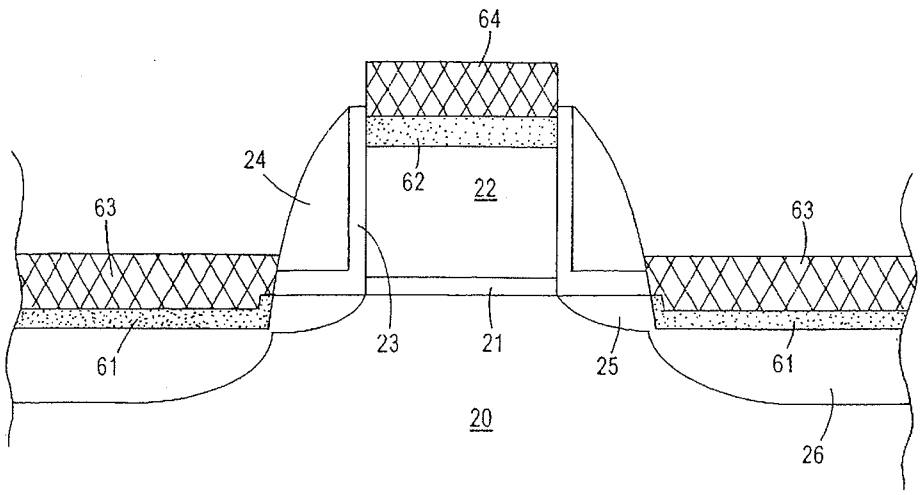
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(54) Title: NICKEL SILICIDE WITH REDUCED INTERFACE ROUGHNESS




(57) Abstract: Nickel silicide (63, 64) formation with significantly reduced interface roughness is achieved by forming a diffusion modulating layer (61, 62) between the underlying silicon (22, 26) and nickel silicide layers (63, 64). Embodiments include ion implanting nitrogen (31, 32) into the substrate (20) and gate electrode (22), depositing a thin layer of titanium or tantalum (40), depositing a layer of nickel (50), and then heating to form a diffusion modulating layer (61, 62) containing nitrogen at the interface between the underlying silicon (22, 26) and nickel silicide layers (63, 64).

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