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Manukonda et al.

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[54] **STAIRCASE SIDEWALL SPACER FOR IMPROVED SOURCE/DRAIN ARCHITECTURE**

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Related U.S. Application Data

[63] Continuation of Ser. No. 499,783, Mar. 27, 1990, abandoned.

[51] Int. Cl.⁵ **H01L 21/336; H01L 27/092**

[52] U.S. Cl. **437/44; 437/29; 437/30; 437/34; 437/41; 437/56; 437/67; 357/23.3**

[58] Field of Search **437/27, 28, 29, 30, 437/34, 40, 41, 44, 56, 57, 238, 241, 235; 357/23.3; 156/643, 650, 651, 652, 653, 646**

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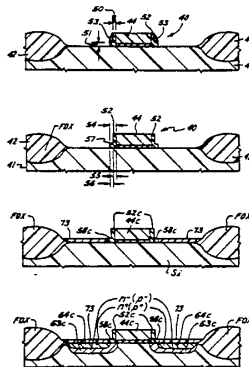
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[57] ABSTRACT

Selective etching of a conformal nitride layer overlying a conformal oxide layer and a subsequent etching of the oxide layer provide for a staircase shaped sidewall spacer which is used to align source and drain regions during implantation. Extent of the implanted n-/-n+ and/or p-/-p+ regions within the substrate can be tightly controlled due to the tight dimensional tolerances obtained by the footprint of the spacer. Further the source/drain profiles can be utilized with elevated polysilicon and elevated polysilicon having subsequent salicidation.

14 Claims, 7 Drawing Sheets



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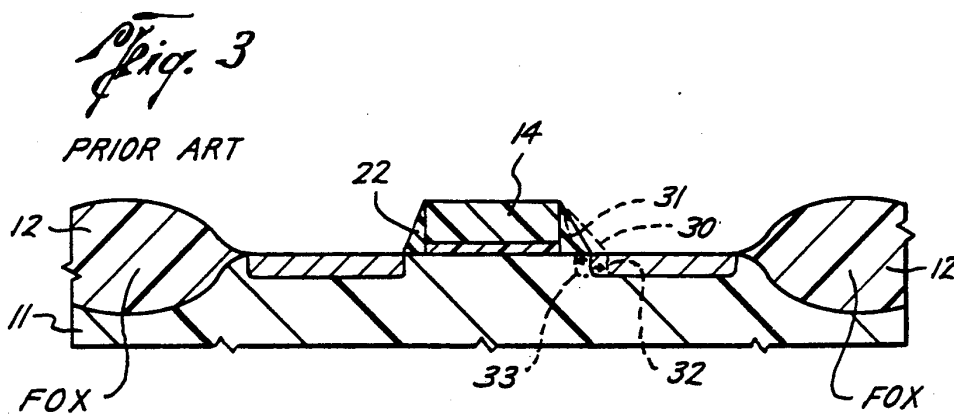
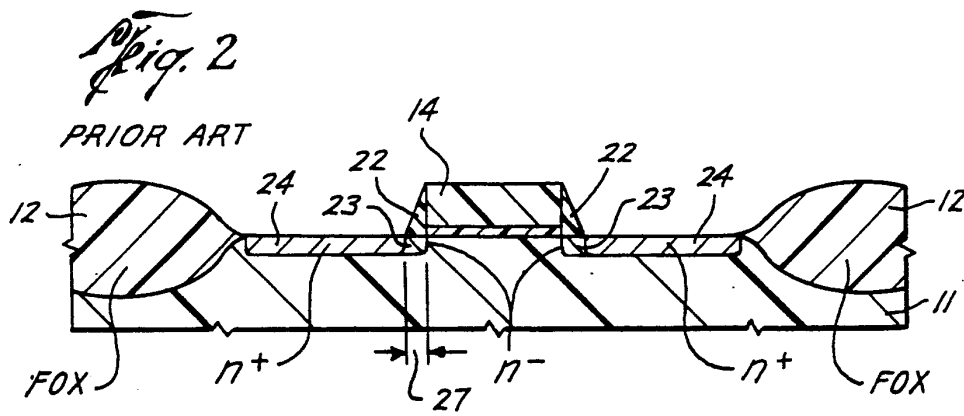
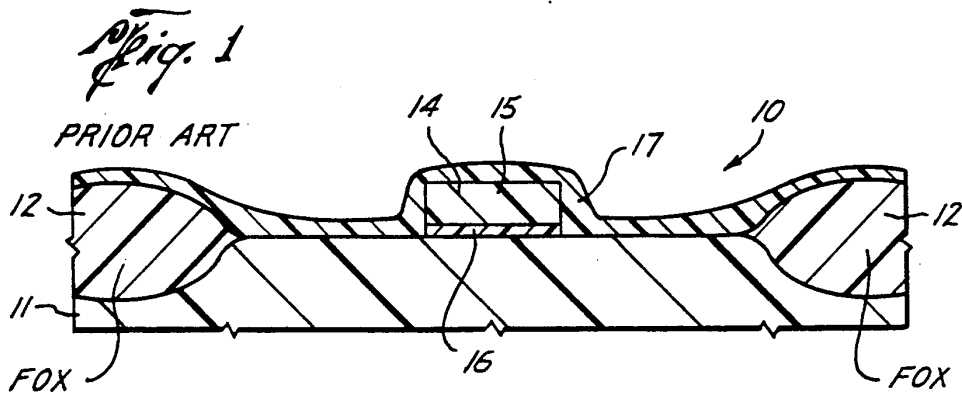
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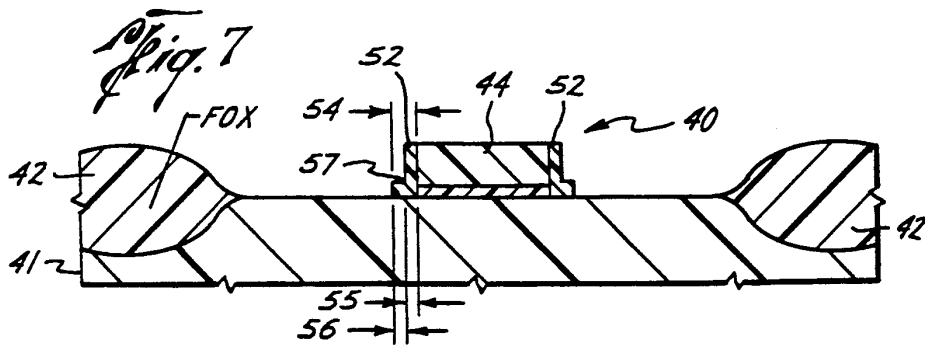
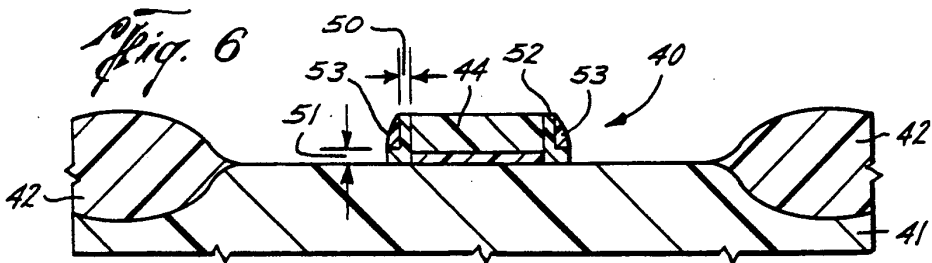
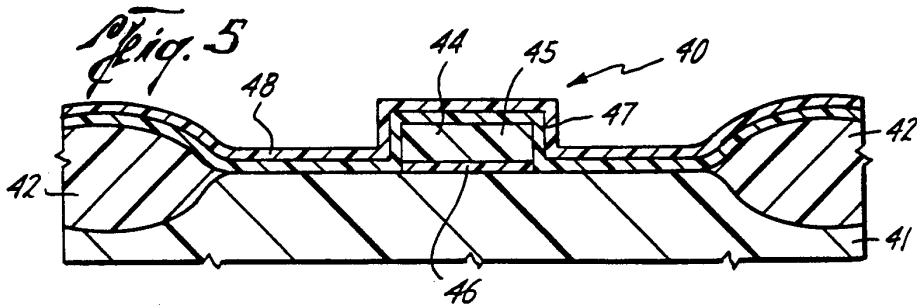
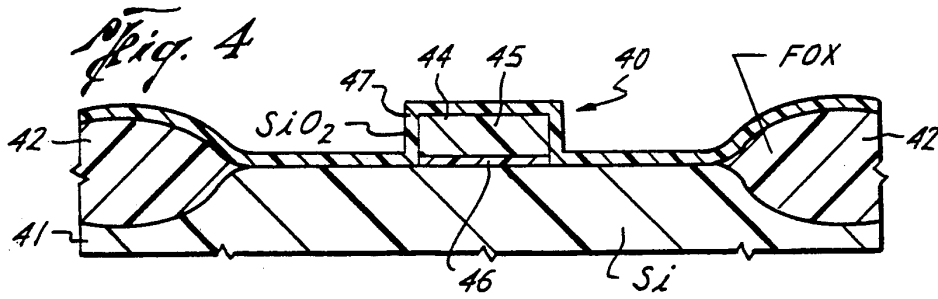
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