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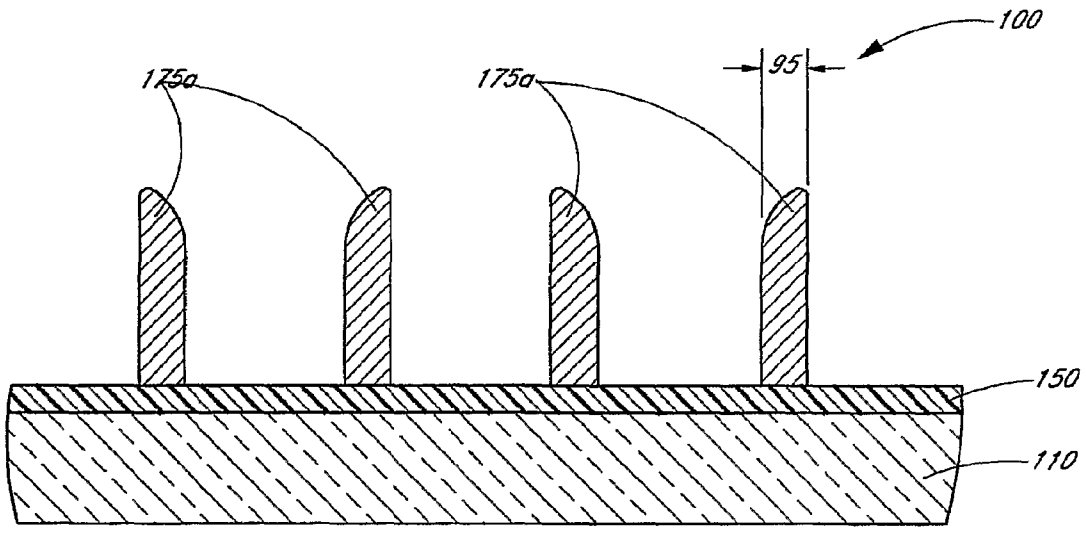
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(54) Title: MASK MATERIAL CONVERSION



(57) Abstract: The dimensions of mask patterns, such as pitch-multiplied spacers, are controlled by controlled growth of features in the patterns after they are formed. To form a pattern of pitch-multiplied spacers 175a, a pattern of mandrels is first formed overlying a semiconductor substrate 110. Spacers are then formed on sidewalls of the mandrels by depositing a blanket layer of material over the mandrels and preferentially removing spacer material from horizontal surfaces. The mandrels are then selectively removed, leaving behind a pattern of freestanding spacers. The spacers comprise a material, such as polysilicon and amorphous silicon, known to increase in size upon being oxidized. The spacers are oxidized to grow them to a desired width 95. After reaching the desired width, the spacers 175a can be used as a mask to pattern underlying layers 150 and the substrate 110. Advantageously, because the spacers 175a are grown by oxidation, thinner blanket layers can be deposited over the mandrels, thereby allowing the deposition of more conformal blanket layers and widening the process window for spacer formation.

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