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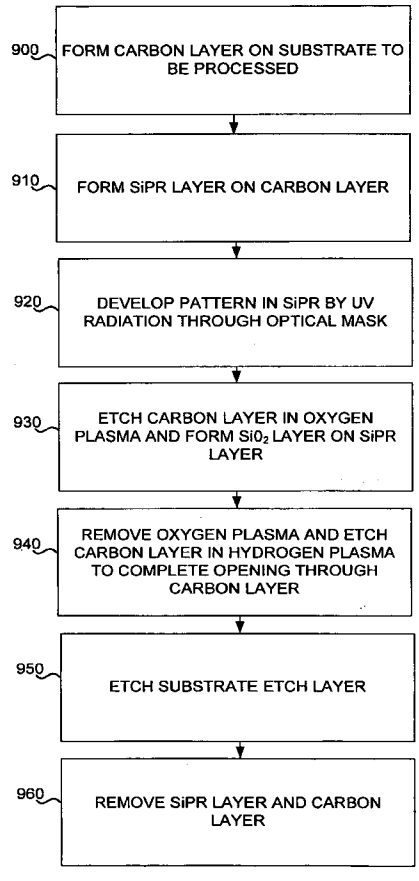
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(54) Title: METHOD AND APPARATUS FOR PROVIDING MASK IN SEMICONDUCTOR PROCESSING



(57) Abstract: Disclosed is a method for processing a two layer mask for use in fabrication of semiconductor devices whereby the critical dimension (CD) of a semiconductor device being fabricated with the mask can be controlled. After forming a carbon mask layer, preferably by a spin-on process, and a silicon containing photoresist layer on the carbon mask, a two-step process forms openings in the carbon mask layer, as required for subsequent device fabrication. The structure is placed in a plasma processing chamber, and an oxygen plasma is employed to partially etch the carbon layer. The oxygen plasma reacts with silicon in the photoresist to form a hard silicon oxide layer on the surface of the photoresist. A hydrogen plasma is then employed to complete the etch through the carbon layer with a reduced critical dimension.

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