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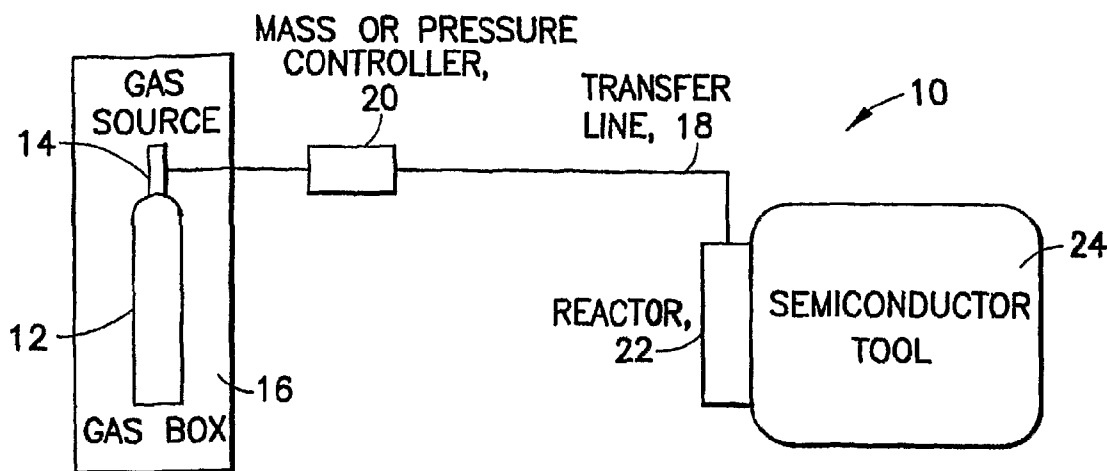
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(54) Title: BORON ION IMPLANTATION USING ALTERNATIVE FLUORINATED BORON PRECURSORS, AND FORMATION OF LARGE BORON HYDRIDES FOR IMPLANTATION



(57) Abstract: Methods of implanting boron-containing ions using fluorinated boron-containing dopant species that are more readily cleaved than boron trifluoride. A method of manufacturing a semiconductor device including implanting boron-containing ions using fluorinated boron-containing dopant species that are more readily cleaved than boron trifluoride. Also disclosed are a system for supplying a boron hydride precursor, and methods of forming a boron hydride precursor and methods for supplying a boron hydride precursor. In one implementation of the invention, the boron hydride precursors are generated for cluster boron implantation, for manufacturing semiconductor products such as integrated circuitry.

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