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(54) Title: SOLUBILITY SWITCH TOPOGRAPHIC FILL MATERIALS AND METHODS

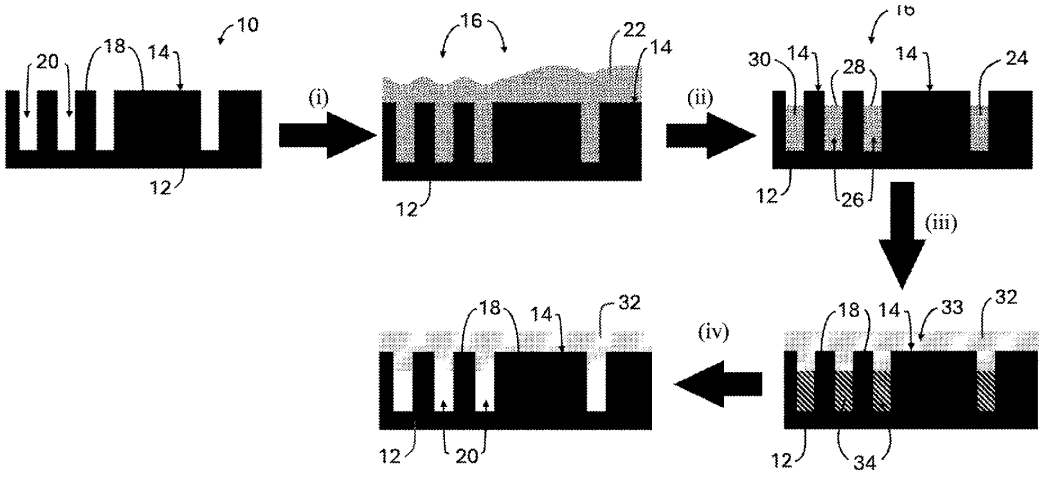


Fig. 1

(57) Abstract: Materials and methods are described for filling deep trenches and other topography using a single coating of a topographic fill material and a single develop back step while maintaining a thickness that can be controlled and is sufficient to fill very deep topographies to the extent needed for lithographic patterning. The materials are designed for selective changes to their solubility, and the methods involve using this feature to achieve selective removal of desired amounts of the topographic fill material at various stages of the process. This allows more efficient processing and higher throughput for lithographic applications in which a photoresist is applied over deep topography while addressing the problems of resist cracking, bending, peeling, or scumming.

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