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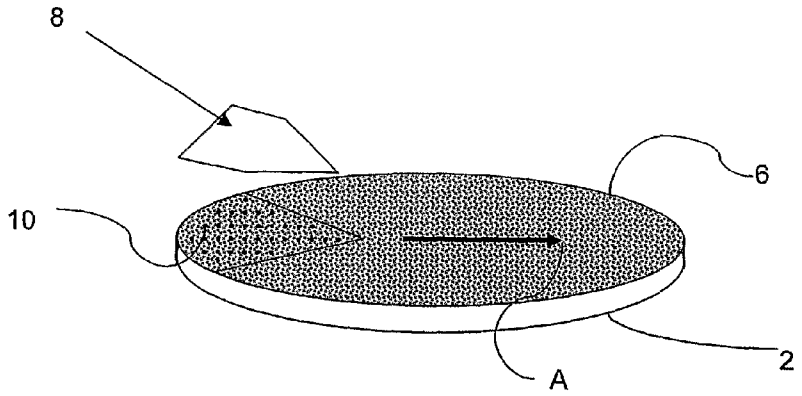
(54) **Title:** METHOD AND APPARATUS FOR CONTROLLING NUCLEATION IN SELF-ASSEMBLED FILMS



(57) **Abstract:** A method of forming a self-assembled film with periodic nanometer dimension features *(e.g.,* holes) on a substrate includes the steps of providing film precursors on the substrate, wherein the film precursors are maintained in an amorphous state. Where the film precursors are block copolymers, a heating member is provided. The substrate and the heating member are then moved relative to one another so as to raise the temperature of a portion of the film precursor on the substrate above its glass transition temperature. Relative movement between the substrate and heating member continues until a self-assembled crystalline film is formed over the surface of the substrate. In an alternative embodiment, a pH dispensing member is provided to dispense a pH adjusting agent onto the substrate that promotes self-assembly of a crystalline film.

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