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# United States Patent [19] Chiu

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[54] **ACOUSTIC WAVE ENHANCED SPIN COATER**

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### Related U.S. Application Data

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[51] **Int. Cl.**<sup>7</sup> ..... **B05C 13/00**

[52] **U.S. Cl.** ..... **118/52; 118/57; 118/500**

[58] **Field of Search** ..... **118/52, 57, 500; 427/240; 384/535, 536**

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### [57] ABSTRACT

A method and an apparatus are disclosed to improve the planarization of a coating upon a substrate, in particular to improve the planarization of a photoresist or spin-on-glass coating upon a semiconductor wafer. This is achieved by coupling an ultrasonic wave generator to either the chuck or the spindle of the chuck. Ultrasonic waves emanating from the ultrasonic generator are induced into the coating, vibrating it. The vibration causes coating material to fill in the valleys of the coating, thus planarizing the surface of the coating.

**2 Claims, 2 Drawing Sheets**

