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United States Patent [19]**Sugimoto et al.**[11] **Patent Number:** **5,762,709**[45] **Date of Patent:** **Jun. 9, 1998**[54] **SUBSTRATE SPIN COATING APPARATUS**[75] **Inventors:** **Kenji Sugimoto; Katsushi Yoshioka; Seiichiro Okuda; Tsuyoshi Mitsuhashi**, all of Kyoto, Japan[73] **Assignee:** **Dainippon Screen Mfg. Co., Ltd.**, Japan[21] **Appl. No.:** **680,983**[22] **Filed:** **Jul. 16, 1996**[30] **Foreign Application Priority Data**

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[51] **Int. Cl.⁶** **B05C 11/02**[52] **U.S. Cl.** **118/52; 118/56; 118/319; 118/320; 118/500**[58] **Field of Search** **118/52, 56, 319, 118/320, 500**[56] **References Cited****U.S. PATENT DOCUMENTS**

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[57]

ABSTRACT

A substrate spin coating apparatus for forming a coating film on the upper surface of a spinning substrate includes a spin chuck for supporting and spinning the substrate while holding same substantially in horizontal posture. A scatter preventive cup surrounds lateral and lower regions of the spin chuck, and defines an opening in an upper central region thereof for allowing entry of air flows. An exhaust vent is provided for downwardly exhausting the air flows, and a nozzle is provided for supplying a coating solution through the opening of the scatter preventive cup to the upper surface of the substrate. The scatter preventive cup includes an air passage formed in a bottom region thereof and opening toward a lower surface of the substrate. An air flow adjusting unit is connected to the air passage for adjusting an air flow to a predetermined temperature and supplying the adjusted air flow to the air passage.

18 Claims, 5 Drawing Sheets