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## Apparatus for Removal of Minute Particles from a Surface Using Thermophoresis to Prevent Particle Redeposition

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**Allen**

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(54) **APPARATUS FOR REMOVAL OF MINUTE PARTICLES FROM A SURFACE USING THERMOPHORESIS TO PREVENT PARTICLE REDEPOSITION**

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**B23K 26/00** (2006.01)  
(52) **U.S. Cl.** ..... **219/121.6; 219/121.84; 156/345.5; 156/345.51; 156/345.52; 134/105**  
(58) **Field of Classification Search** ..... **219/60, 219/65, 121.6, 121.84; 134/902, 105; 156/345.5, 156/345.51**  
See application file for complete search history.

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(57) **ABSTRACT**

A method and apparatus for removing minute particles from a surface of a sample are provided that prevent redeposition of the particles onto the surface. By combining thermophoresis with laser assisted particle removal (LAPR), the methods and apparatus remove minute particles (for example, micrometer and nanometer sizes) and assure that they will not redeposit.

**5 Claims, 5 Drawing Sheets**

