

#### US005849084A

## United States Patent [19]

### Hayes et al.

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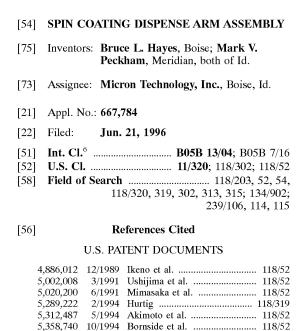
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### [57] ABSTRACT

An apparatus is disclosed for dispensing liquids on to a rotating surface. The apparatus includes first and second dispense lines connected to at least one liquid source to permit the dispensing of liquids from the first and second dispense lines on to a rotating surface. In a preferred embodiment, the first and second dispense lines are tubular and have first and second dispense tube disposed within the interior region of the first and second dispense lines, respectively. The first and second dispense tubes define first and second annular regions with the dispense lines, which are preferably connected by a fluid channel. A heat exchanger is attached to the first and second annular region to enable a heat transfer medium to be circulated through the first and second annular regions and the fluid channel. Also in a preferred embodiment, a solvent dispense line is disposed between the first and second dispense lines and a vapor solvent bath is provided containing a purge section including a cleaning member to allow excess coating liquid to be rinsed from the first and second dispense lines.

#### 14 Claims, 5 Drawing Sheets



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