

- [54] HOLLOW CATHODE
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- [21] Appl. No.: 729,028
- [22] Filed: Apr. 30, 1985
- [51] Int. Cl.⁴ H01J 43/08
- [52] U.S. Cl. 313/153; 313/103 CM; 313/339; 313/346 R
- [58] Field of Search 313/153, 103 CM, 356, 313/346 R, 336, 362.1, 313, 339

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[57] ABSTRACT

A long life high current density hollow cathode electron beam source for use in various E-beam apparatus which uses an ionizable gas within the hollow cathode. Bombardment of an electron emissive surface within the hollow cathode by energetic gas ions causes electrons to be emitted by secondary emission *rather than* thermionic emission effects. Once initialized by an external ionization voltage the device is essentially self sustaining and operates near room temperature, rather than at thermionic emission temperatures, and with reduced voltages.

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9 Claims, 5 Drawing Figures

