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(54) Title: EXTENDED CATHODE AND REPELLER LIFE BY ACTIVE MANAGEMENT OF HALOGEN CYCLE

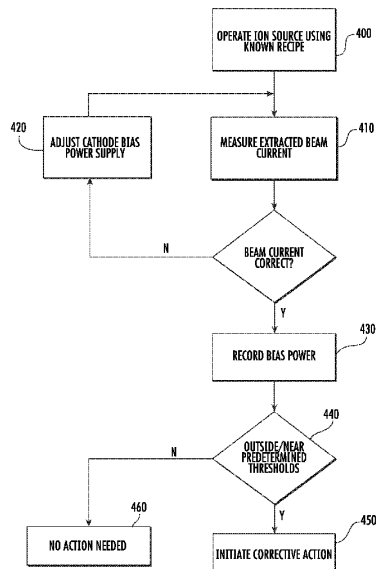


FIG. 4

(57) Abstract: A system and method for extending the life of a cathode and repeller in an IHC ion source is disclosed. The system monitors the health of the cathode by operating using a known set of parameters and measuring the bias power used to generate the desired extracted beam current or the desired current from the arc voltage power supply. Based on the measured bias power, the system may determine whether the cathode is becoming too thin, and may take a corrective action. This corrective action may be to alert the operator; to operate the IHC ion source using a predetermined set of parameters; or to change the dilution used within the IHC source. By performing these actions, the life of the cathode may be more than doubled.

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