

Triode Plasma Chamber

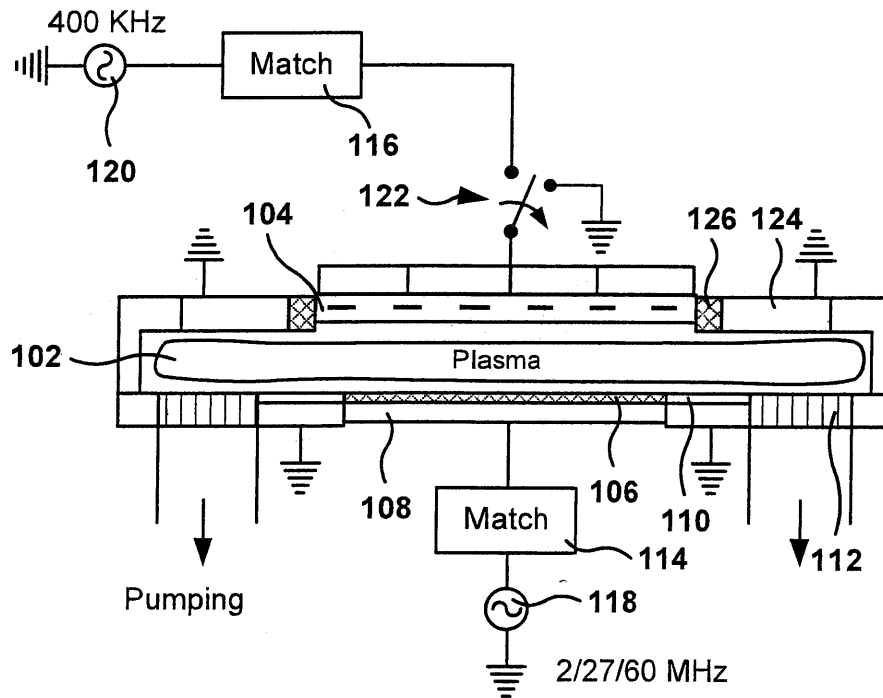


Fig. 1

Three Resonant Circuits

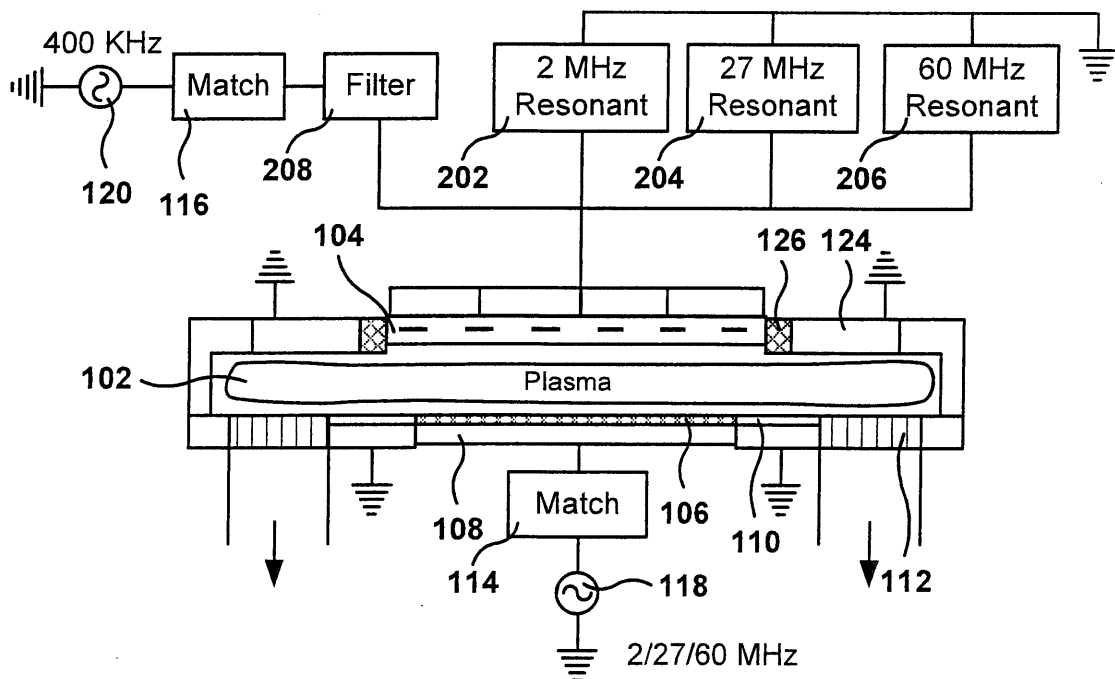


Fig. 2A

Three Resonant Circuits & No power on Top Electrode

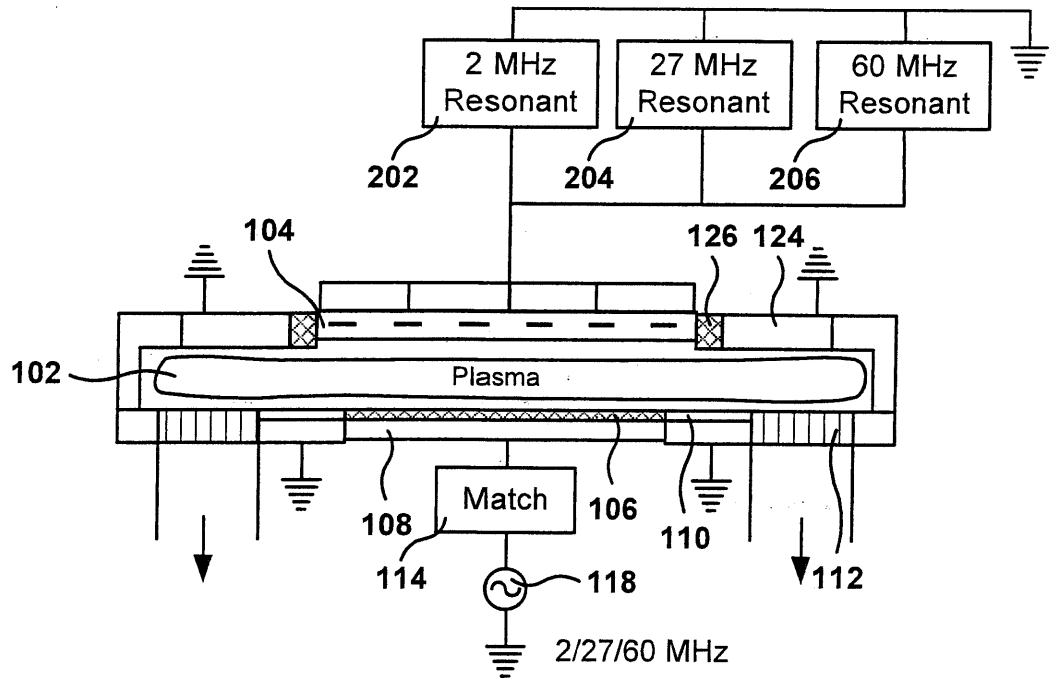


Fig. 2B

One Resonant Circuit

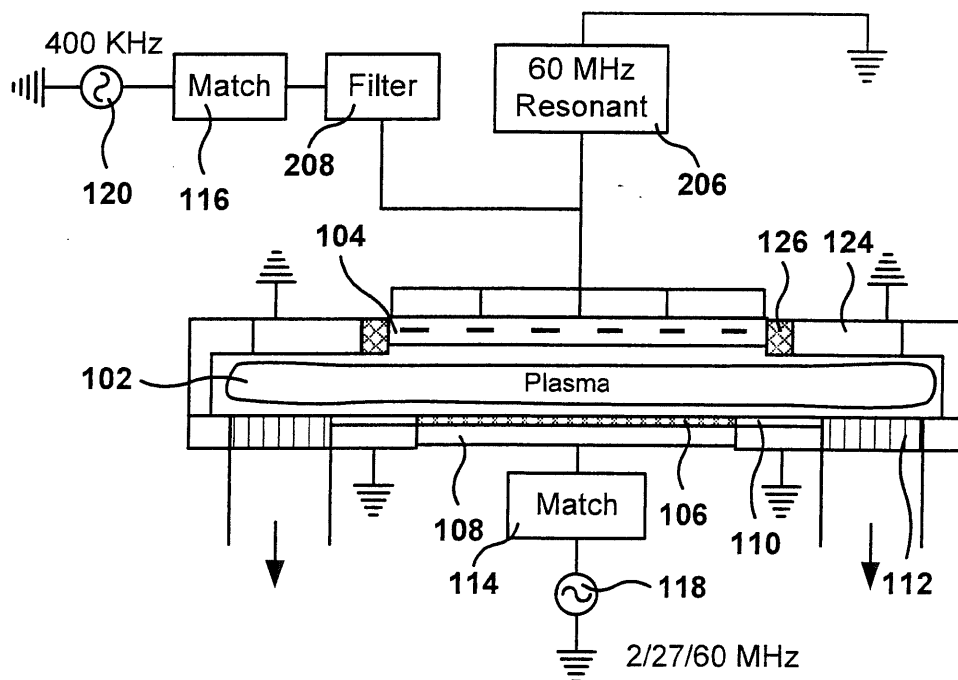


Fig. 2C

Two Resonant Circuits

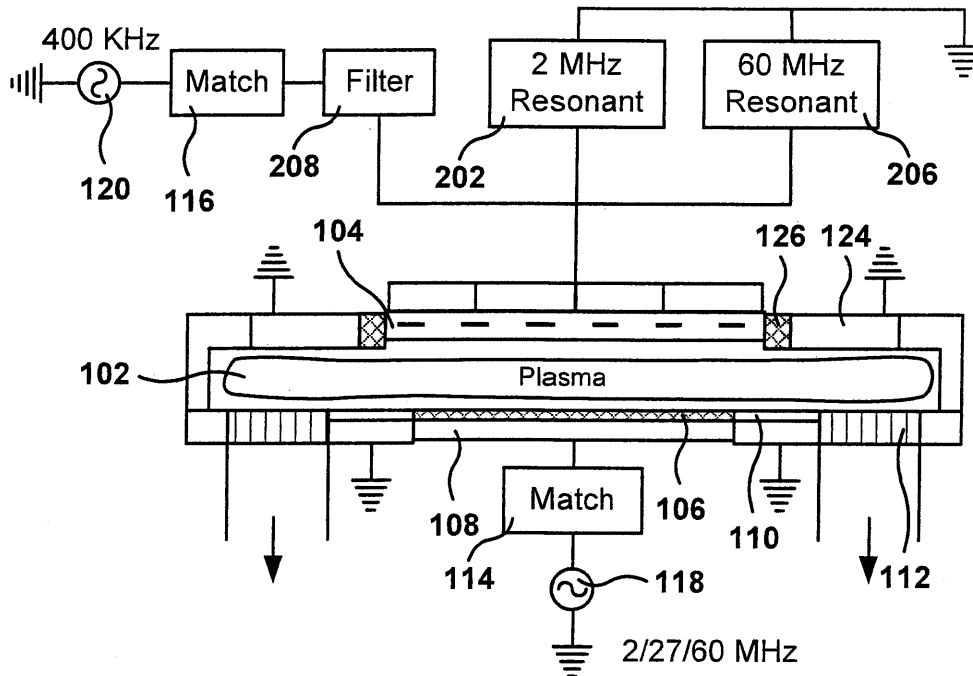


Fig. 2D

Two Resonant Circuits and no Power on Top Electrode

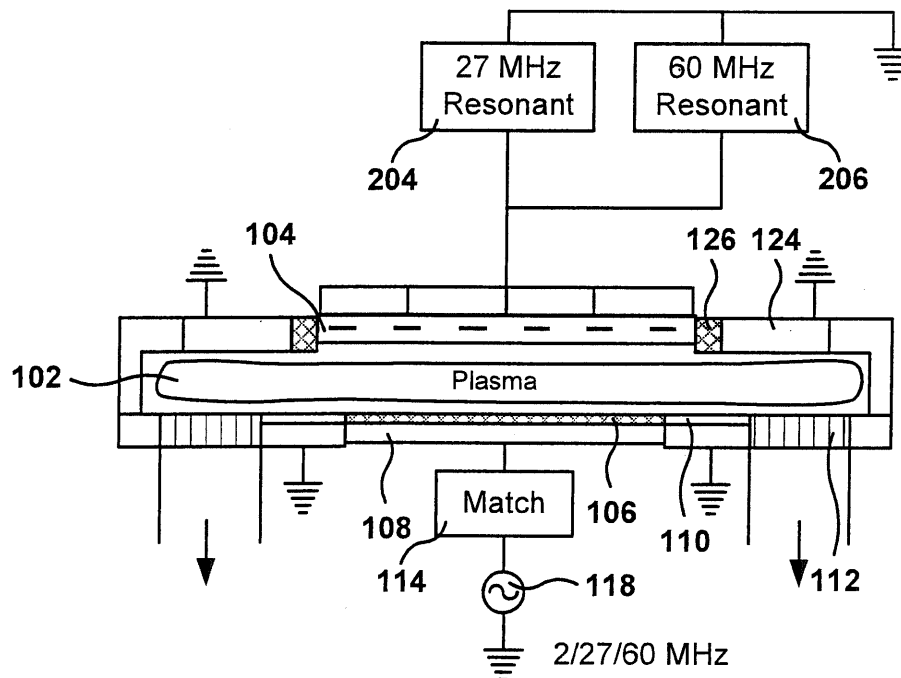
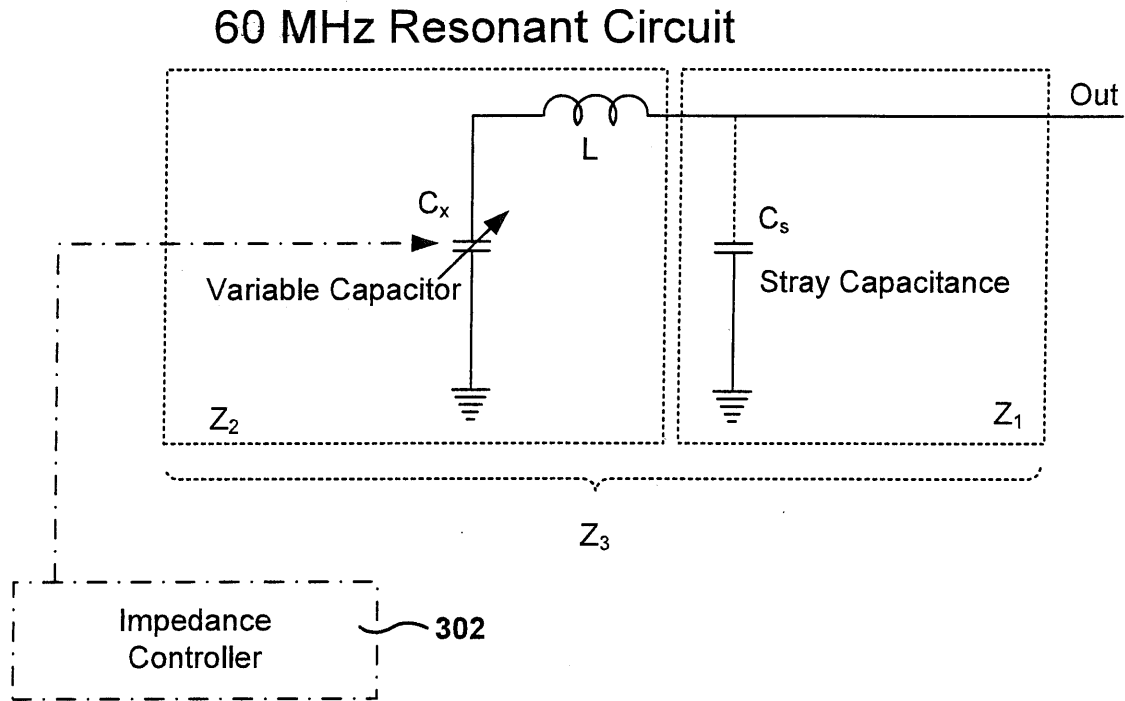


Fig. 2E

**Fig. 3A**

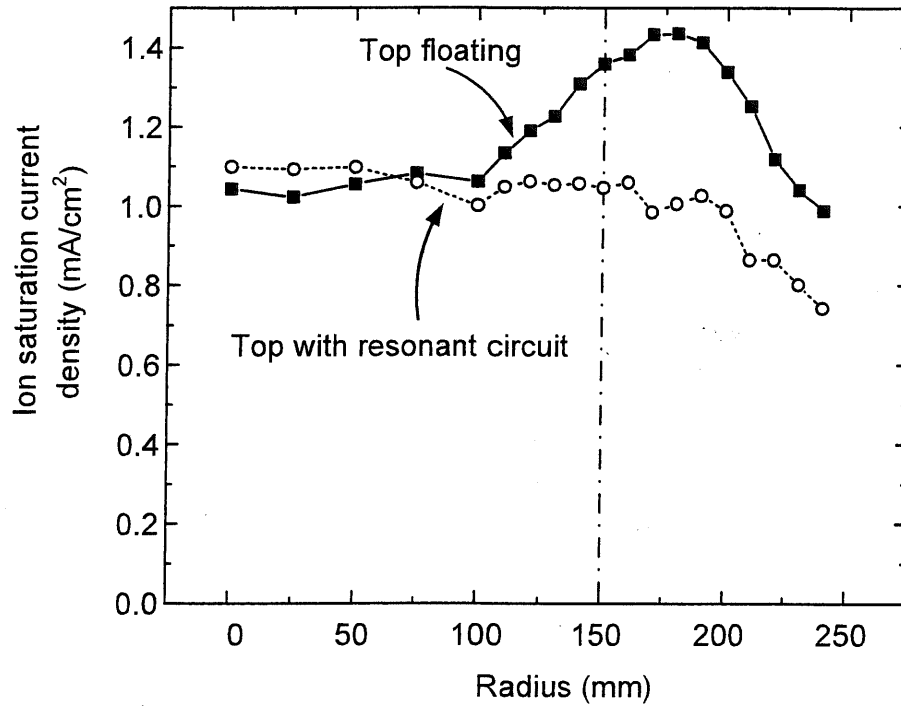
$$\begin{aligned}
 Z_1 &= -j \frac{1}{\omega C_s} \\
 Z_2 &= jL\omega - j \frac{1}{\omega C_x} \\
 Z_3 &= \frac{Z_1 Z_2}{Z_1 + Z_2} = \frac{-j \frac{1}{\omega C_s} \left(jL\omega - j \frac{1}{\omega C_x} \right)}{-j \frac{1}{\omega C_s} + j \left(L\omega - \frac{1}{\omega C_x} \right)} = \frac{j \frac{1}{\omega C_s} \left(L\omega - \frac{1}{\omega C_x} \right)}{\left(\frac{1}{\omega C_s} - \left(L\omega - \frac{1}{\omega C_x} \right) \right)}
 \end{aligned}$$

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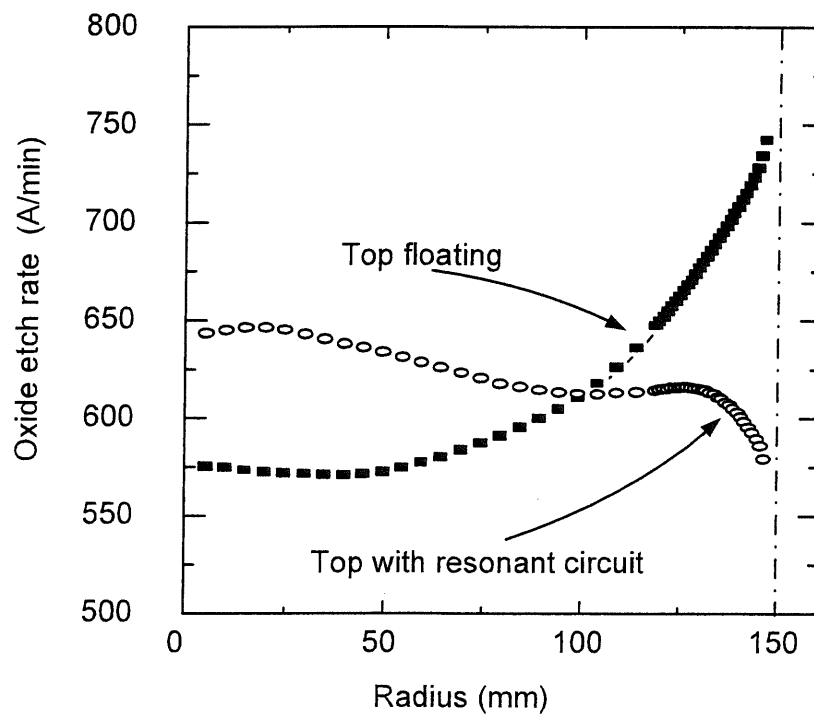
Resonance when denominator = 0 ($Z_3 \rightarrow \infty$)

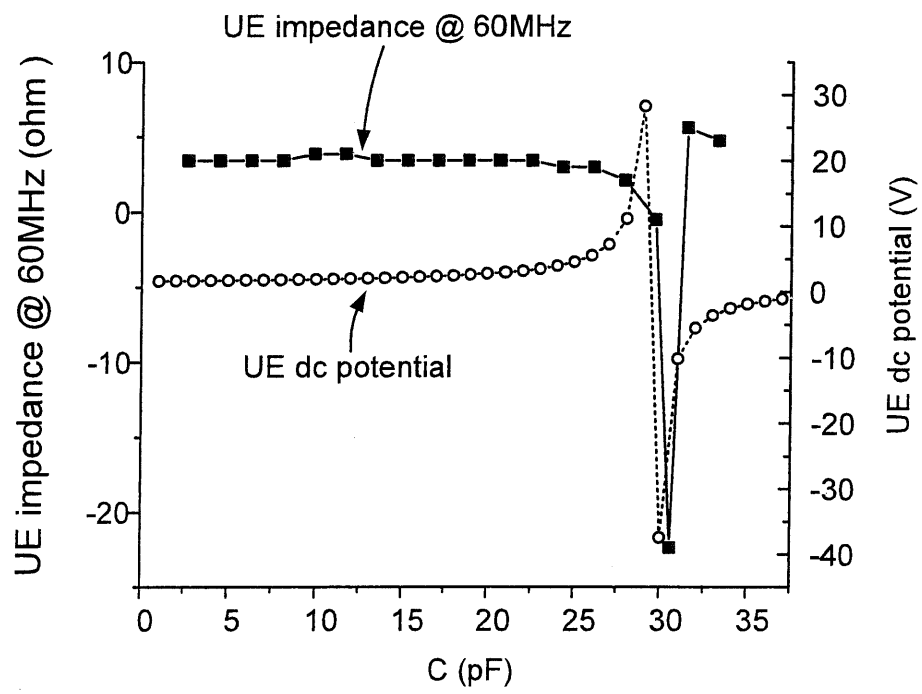
Fig. 3B

Ion density with 60 MHz Resonant Circuit

**Fig. 4A**

Etch Rate with 60 MHz Resonant Circuit

**Fig. 4B**

**Fig. 4C**

2MHz resonance circuit

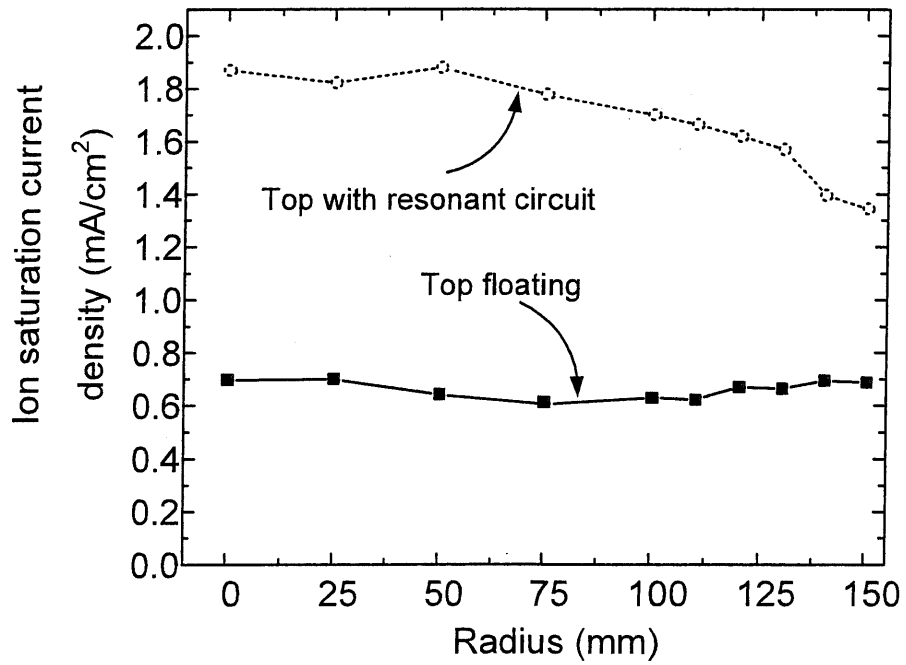


Fig. 5A

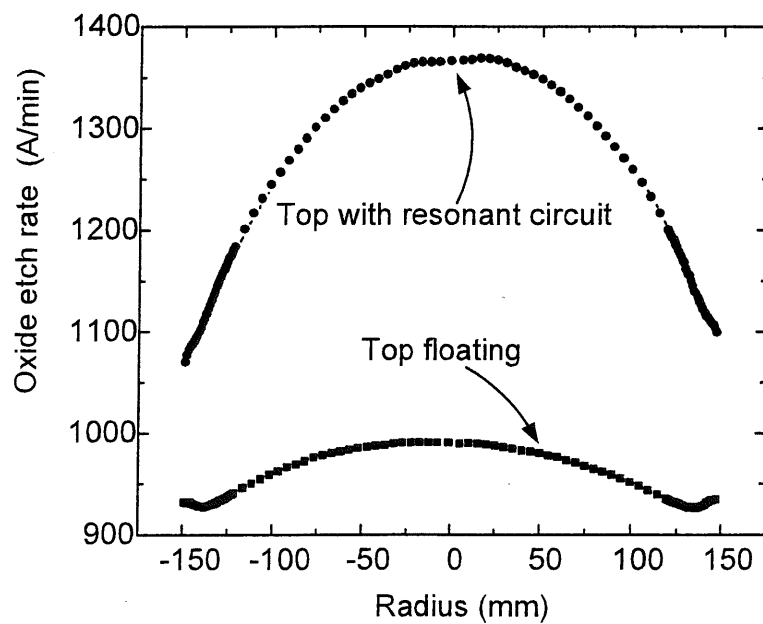


Fig. 5B

27MHz resonance circuit

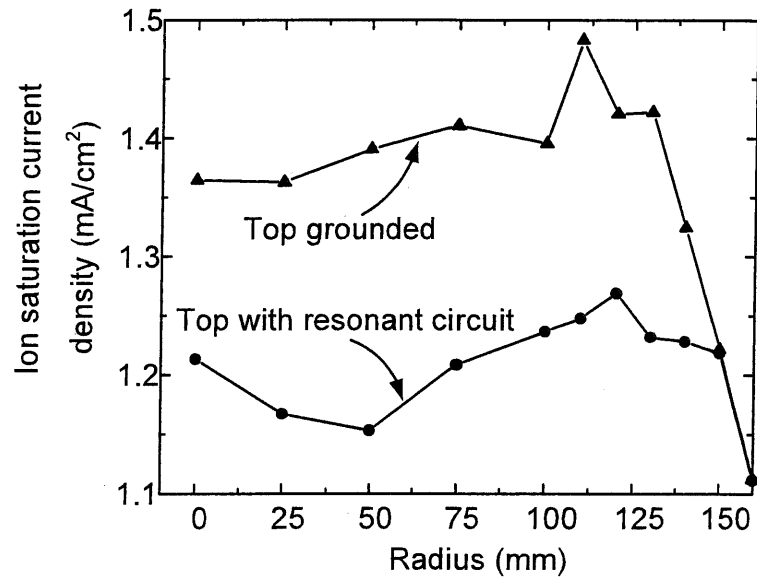


Fig. 6A

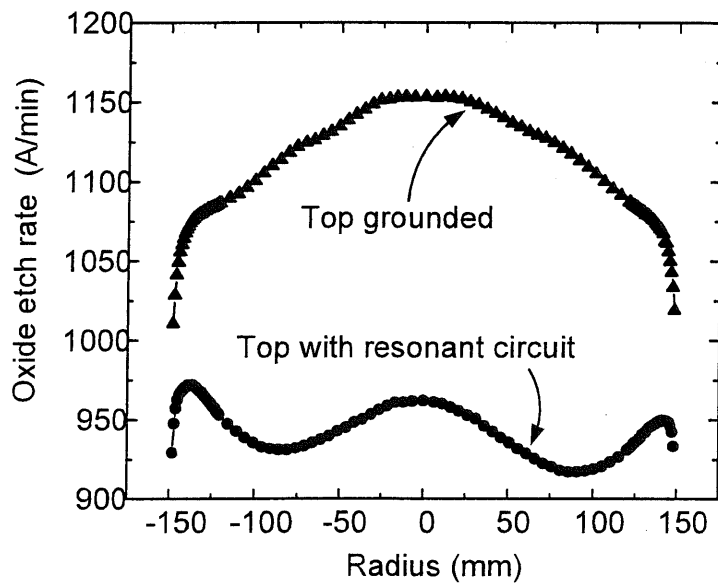


Fig. 6B

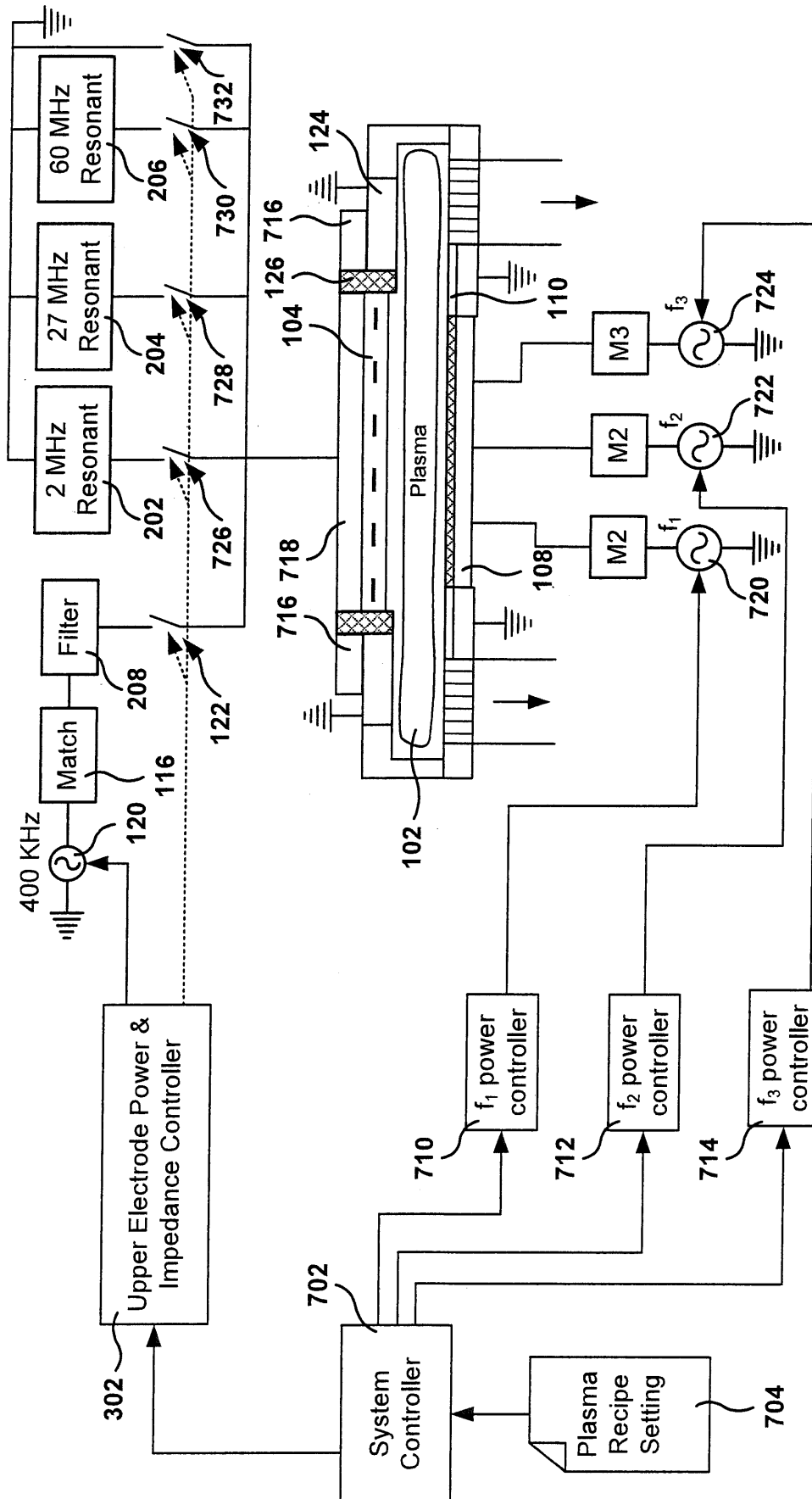


Fig. 7

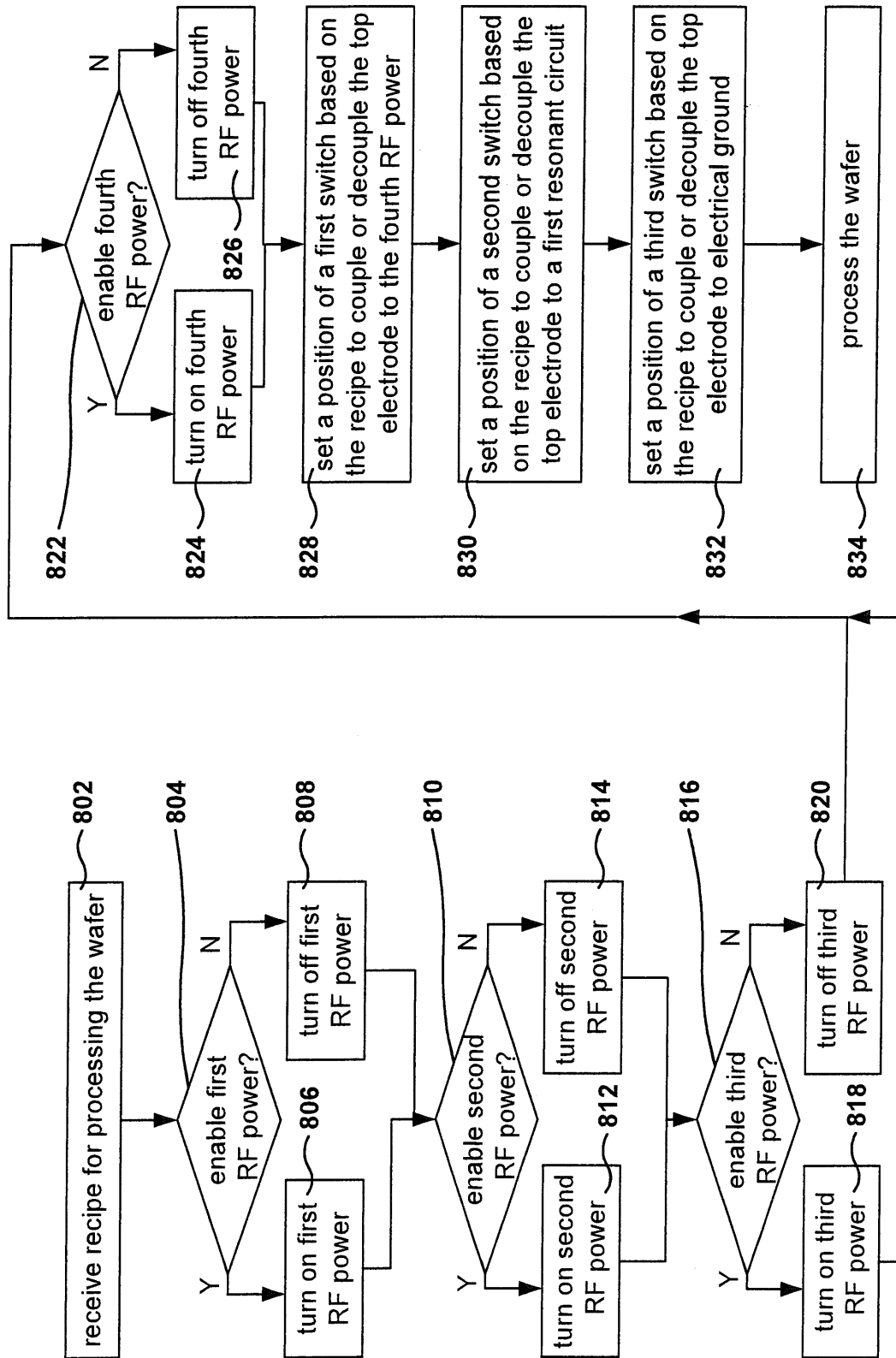


Fig. 8a

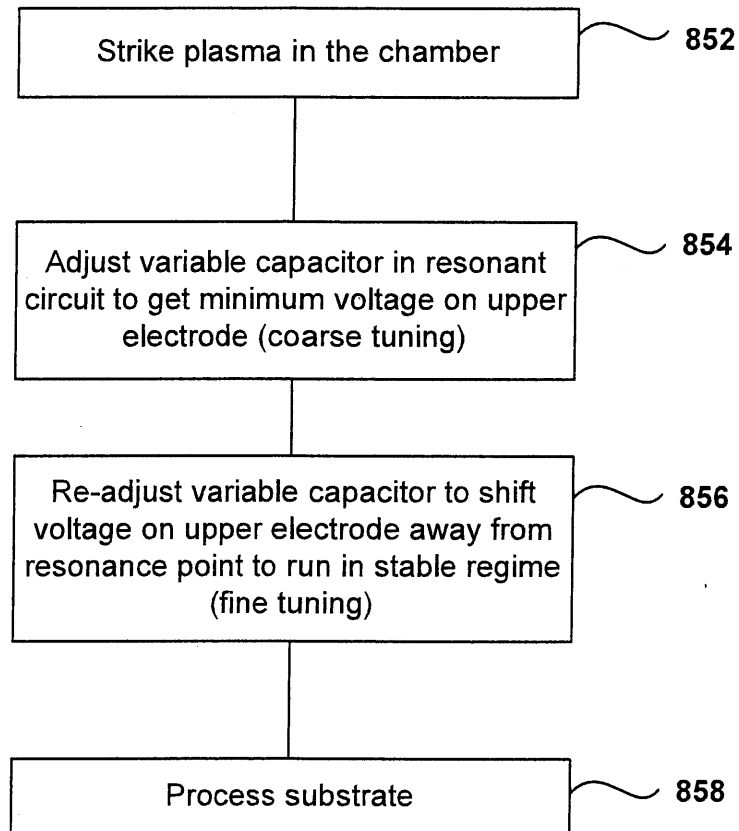
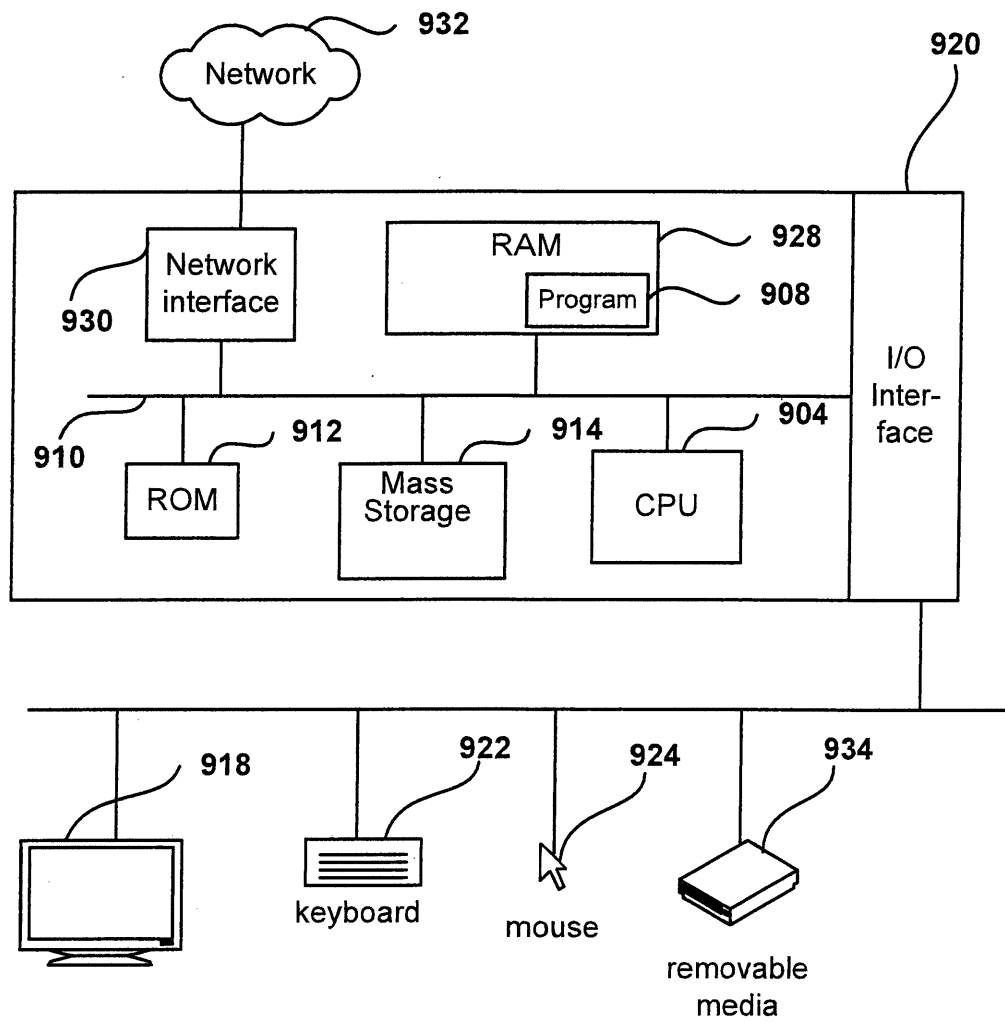


Fig. 8B

**Fig. 9**