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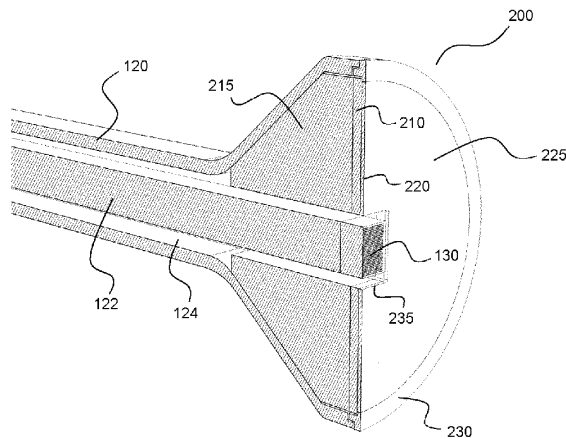


FIG. 1B

(57) Abstract: An ultrasound-based surgical system is provided for image guidance and mechanical ablation for minimally invasive procedures, particularly procedures which require the removal of tissue. The system includes a device having an elongate body portion that supports a therapeutic ultrasound transducer assembly containing a piezoelectric composite and an annular array of electrodes. The electrodes can be driven to generate focused ultrasound pulses for ablating tissue via cavitation. The device can be controlled to scan the focused ultrasound pulses within an elongate axial region for performing line ablation. An electrical isolation layer is formed over an annular array of electrodes to prevent arcing within a backing when high-voltage electrical pulses are delivered to the annular array of electrodes to generate ultrasound pulses for cavitation. The elongate body may support an imaging transducer assembly within a central aperture of the therapeutic ultrasound transducer assembly to facilitate image guidance during ablative procedures.

[Continued on next page]

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