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(54) **Title:** ACTIVE TEMPERATURE CONTROL FOR RF WINDOW IN IMMERSSED ANTENNA SOURCE

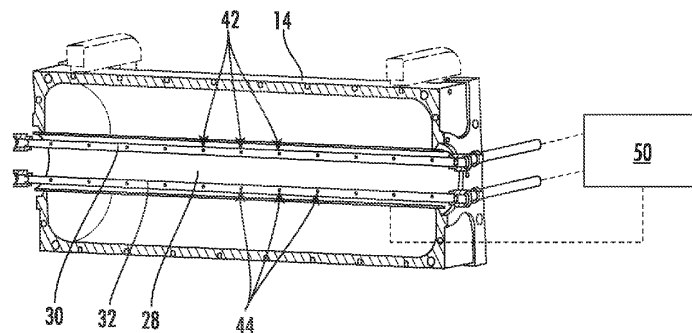


FIG. 2

(57) **Abstract:** A processing system including an ion source having a plasma chamber to house a plasma, an extraction assembly, disposed along a side of the plasma chamber, and including at least one extraction aperture, and an antenna assembly extending through the plasma chamber. The antenna assembly may include a dielectric enclosure and a plurality of conductive antennas extending through the dielectric enclosure, the conductive antennas having respective gas ports formed therein for delivering a gas into the dielectric enclosure. The processing system may further include a temperature regulation system coupled to the conductive antennas and to the dielectric enclosure for monitoring a temperature of the dielectric enclosure and regulating the gas delivered to the conductive antennas for regulating the temperature of the dielectric enclosure.

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