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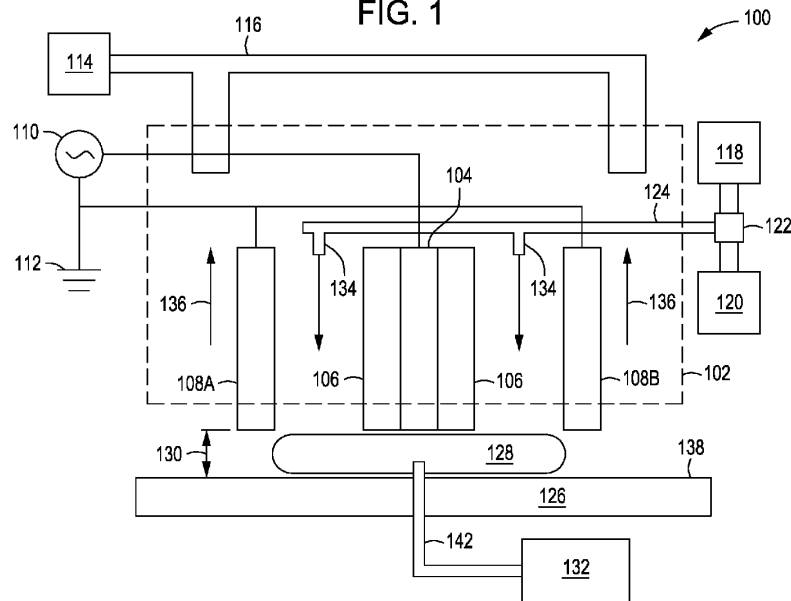
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(54) Title: METHODS AND APPARATUS FOR PHOTOMASK PROCESSING

FIG. 1



(57) Abstract: Methods and apparatus leverage dielectric barrier discharge (DBD) plasma to treat samples for surface modification prior to photomask application and for photomask cleaning. In some embodiments, a method of treating a surface with AP plasma includes igniting plasma over an ignition plate where the AP plasma is formed by one or more plasma heads of an AP plasma reactor positioned above the ignition plate, monitoring characteristics of the AP plasma with an optical emission spectrometer (OES) sensor to determine if stable AP plasma is obtained and, if so, moving the AP reactor over a central opening of an assistant plate where the central opening contains a sample under treatment and where the assistant plate reduces AP plasma arcing on the sample during treatment. The AP reactor scans back and forth over the central opening of the assistant plate while maintaining stabilized AP plasma to treat the sample.

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