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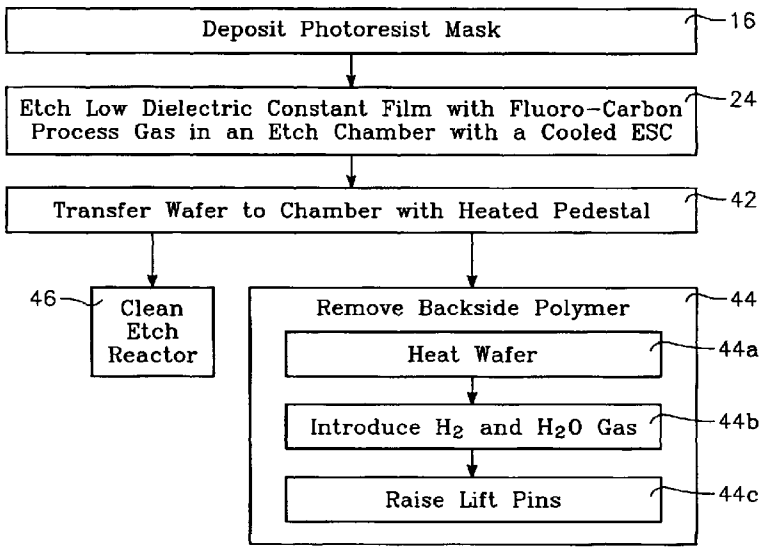
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Declaration under Rule 4.17:
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

[Continued on next page]

(54) Title: PLASMA DIELECTRIC ETCH PROCESS INCLUDING EX-SITU BACKSIDE POLUMER REMOVAL FOR LOW-DIELECTRIC CONSTANT MATERIAL



(57) Abstract: A plasma etch process for etching a porous carbon- doped silicon oxide dielectric layer using a photoresist mask is carried out first in an etch reactor by performing a f luoro-carbon based etch process on the workpiece to etch exposed portions of the dielectric layer while depositing protective f luoro-carbbn polymer on the photoresist mask. Then, in an ashing reactor, polymer and photoresist are removed by heating the workpiece to over 100 degrees C, exposing a peripheral portion of the backside of said workpiece, and providing products from a plasma of a hydrogen process gas to reduce carbon contained in polymer and photoresist on said workpiece until the polymer has been removed from a backside of said workpiece. The process gas preferably contains both hydrogen gas and water vapor, although the primary constituent is hydrogen gas. The wafer (workpiece) backside may be exposed by extending the wafer lift pins.

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