

Claims:

1. A method for manufacturing workpieces, at least a part of the surface of said workpieces being etched including etched by ion impact, comprising:

- 5 • providing a carousel base drivingly rotatable about a carousel axis;
- providing along the periphery of and on said carousel base at least two planetary carriers, each drivingly rotatable about a planetary axis parallel to said
- 10 carousel axis;
- generating a cloud comprising ions and having, considered in a cross-sectional plane perpendicular to said carousel and said planetary axes, a center axis in a center of an area of maximum ion density;
- 15 • directing said center axis so as to intersect with said carousel axis, considered in said cross-sectional plane;
- applying at least one workpiece to be etched on each of said planetary carriers, each of said planetary
- 20 carriers defining by rotating about its planetary axis for a diameter with respect to such planetary axis;
- said cloud comprising ions having an ion density dropping to 50% of maximum ion density of said ~~beam~~
- 25 cloud at a distance from said center axis which is at most equal to 50% of said diameter, considered in said cross-sectional plane, and at the locus of moving path of said planetary axes;

17. The apparatus of one of claims 12 to 16, further comprising a shielding member around said workpiece supports mounted on said planetary carriers, each having an opening directed radially outwards with respect to the
5 respective planetary axes.

18. The apparatus of one of claims 16 or 17, wherein said shielding members are of a metal and are operated electrically floatingly or are of a dielectric material.

19. The apparatus of one of claims 10 to 18, further
10 comprising an electric supply for biasing said workpiece supports so as to attract ions of said ~~beam~~ cloud.

20. The apparatus of claim 19 further comprising a bias control unit controlling said bias to be higher whenever a respective one of said supports is immersed in said cloud
15 than when said workpiece is not immersed in said cloud.

21. The apparatus of one of claims 10 to 20 comprising a
| diaphragm along said ~~beam~~ cloud being an electrically floating, metallic diaphragm or a dielectric diaphragm or acting as an anode.

20 22. The apparatus of one of claims 10 to 21, further comprising a coil arrangement generating a focusing magnetic field along said cloud.

23. The apparatus of one of claims 10 to 22, wherein said source is a plasma source and said cloud is a plasma.