CLAIMS:

1. Plating apparatus, comprising:

a vessel for holding a bath of plating liquid;

a head adapted to hold a work piece in the vessel;

an apparatus component on the head; and

a component cleaning assembly including:

an arm;

a component contactor on the arm; and

an arm actuator linked to the arm for moving the arm from a first position where the contactor is spaced apart from the component, and a second position where the contactor is in physical contact with the component.

2. The plating apparatus of claim 1 further comprising a fluid duct in the arm leading to the contactor.

3. The plating apparatus of claim 2 further comprising a nozzle at the contactor, with the fluid duct connecting to the nozzle.

4. The plating apparatus of claim 3 with the contactor having a central opening and with the nozzle within the central opening.

5. The plating apparatus of claim 1 further comprising:

a head lifter attached to the head for lifting and lowering the head;

a rotor in the head, with the component comprising an annular component on the rotor;

and with the contactor on the arm having a fixed vertical position relative to the vessel.

6. The plating apparatus of claim 1 further comprising a return duct in the arm.

7. The plating apparatus of claim 1 with the contactor on an outer end of the arm and with an inner end of the arm pivotally attached to a frame at a side of the vessel.

8. The plating apparatus of claim 7 with the frame comprising a liquid collection opening connected to a vacuum source, and with the first position of the arm at least partially within the liquid collection opening.

9. The plating apparatus of claim 1 wherein the contactor comprises a bristle brush.

10. The plating apparatus of claim 1 wherein the contactor comprises a sponge, a felt pad, a plastic or rubber blade or cup, or a fiber mesh pad.

11. The plating apparatus of claim 1 further comprising a liquid catch cup attached to the arm.

12. The plating apparatus of claim 1 further comprising a contactor spin motor on or in the arm and attached to the contactor.

13. Apparatus for cleaning a seal in a plating apparatus, comprising:

a rinse ring;

a pivot arm having an outer end movable horizontally in an arc from the rinse ring to a position under the seal;

a pivot arm actuator attached to the pivot arm;

a scrubber on the outer end of the arm;

a fluid outlet on the arm associated with the scrubber; and

a fluid collector on the arm.

14. The apparatus of claim 13 with the fluid collector comprising a return duct leading from a position adjacent to the fluid outlet to the rinse ring.

15. A method of cleaning a component of a plating apparatus, comprising:

moving a component cleaning contactor into contact with the component;

applying a cleaning liquid onto the seal adjacent to the seal contactor;

collecting used cleaning liquid;

rotating the seal while the seal is in contact with the seal contactor; and

moving the seal contactor away from the seal.

16. The method of claim 15 wherein the contactor comprises a brush, and further comprising brushing the component with the brush.

17. The method of claim 15 further comprising detecting a condition of the component via a detector adjacent to the contactor.

Claims:

1. Plating apparatus, comprising:

a vessel for holding a bath of plating liquid;

a rinsing frame on the vessel;

a head having a rotor for holding and rotating a work piece;

a seal on the rotor;

a head lifter attached to the head; and

a seal cleaning assembly including a pivot arm having a first end and a second end, a contactor on the second end of the pivot arm, and an arm actuator linked to the pivot arm for moving the pivot arm from a retracted position to a deployed position, with the contactor in physical contact with the seal when the head lifter holds the rotor at a first position over the vessel and the pivot arm is in the deployed position; and

with the first end of the pivot arm pivotally supported inside of the rinsing frame in both the deployed position and in the retracted position.

2. The apparatus of claim 1 with the frame comprising a liquid collection opening connected to a vacuum source, and with the pivot arm at least partially within the liquid collection opening when the pivot arm is in the retracted position.

3. The apparatus of claim 1 wherein the pivot arm comprises a single segment.

4. The apparatus of claim 1 with the pivot arm at a fixed vertical position relative to the vessel.

5. The apparatus of claim 1 wherein an entire circumference of the seal is contacted by the contactor by positioning the pivot arm in the deployed position and by rotating the rotor.

6. An electroplating apparatus, comprising:

a vessel holding a bath of plating liquid;

a rinsing frame on the vessel;

a head including work piece holder;

a head lifter attached to the head;

a component cleaning assembly having a pivot arm with a first end and a second end;

a contactor on the second end of the pivot arm, and a pivot arm actuator linked to the pivot arm for moving the pivot arm from a retracted position to a deployed position, and with the first end of the pivot arm pivotally supported inside of the rinsing frame in both the retracted position and in the deployed position.

7. The apparatus of claim 6 with the contactor on a top surface of the second end of the pivot arm for physically contacting a down-facing component on the head.

8. The apparatus of claim 6 with the head further including:

a rotor and a rotation motor for rotating the rotor;

a seal around a perimeter of the rotor; and

with the contactor aligned under the seal when the pivot arm is in the deployed position.

9. An electroplating apparatus, comprising:

a plating bath vessel;

a rinsing frame on the vessel;

a head including a rotor having a seal and a work piece holder, and a motor for rotating the motor;

a head lifter attached to the head;

a component cleaning assembly for cleaning the seal while the rotor is rotating, including a contactor on an upper surface of an outer end of a pivot arm, and a pivot arm actuator attached to the pivot arm, with the pivot arm movable via the pivot arm actuator from a retracted position to a deployed position wherein the contactor is in physical contact with the seal on the rotating rotor, to clean the seal; and

the pivot arm is pivotally supported in both the deployed and retracted positions inside of the rinsing frame.

10. The apparatus of claim 9 with the pivot arm having a fixed vertical position relative to the vessel.

11. The apparatus of claim 9 with the contactor comprising a brush, a pad or a blade.

12. The apparatus of claim 9 further including a contactor spin motor on or in the pivot arm and attached to the contactor.

13. The apparatus of claim 9 wherein the pivot arm comprises a single segment.

14. The plating apparatus of claim 9 further comprising a fluid duct in the pivot arm leading to the contactor.

15. The plating apparatus of claim 9 further including a detector on the pivot arm for detecting a condition of the seal.

16. The plating apparatus of claim 9 with the contactor below the seal when the contactor is in physical contact with the seal.