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(54) **METHOD AND APPARATUS FOR WATER
DEGASIFICATION AND DISTILLATION**

5,205,906 A * 4/1993 Grutsch et al. 159/47.3
5,248,395 A * 9/1993 Rastelli et al. 205/10
5,445,714 A * 8/1995 Myers 202/176

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* cited by examiner

(*) **Notice:** Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
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(57) **ABSTRACT**

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203/2; 203/39; 203/49; 203/22; 203/DIG. 8;
210/748; 210/760; 210/774
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203/100, 2, 4, 40, 49, 22, 27, DIG. 8, 39;
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175, 200, 265; 210/748, 760, 774; 95/241,
244

A method and apparatus for water degasification and distillation in an apparatus having a container for a reservoir of water to be degassed and distilled, a relatively small boiler adjoining the container and having a feed water conduit connecting the container and boiler so that a selected water level in the container will fill the boiler to the same level, a coiled tube condenser within the container immersed in the water therein, the condenser coil having a vertically disposed longitudinal axis, a second conduit in the boiler connecting the space above the water level therein to the inlet of the condenser so that steam flows from the boiler to the condenser, an outlet on the condenser extending through a container wall for discharging the condensed steam as degassed distilled water, a heater in the boiler for heating the water therein, a motor driven stirrer axially of the coiled tube condenser for generating a swirling movement of the reservoir water with formation of steam bubbles therein and an ozone generating device in the boiler for purifying the steam. Optionally, an oversized filter is mounted at the outlet of the condenser.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,640,769 A * 2/1987 Weihoff 210/180
4,735,728 A * 4/1988 Wemhoff 210/668
4,940,134 A * 7/1990 Aoki et al. 202/202
5,203,970 A 4/1993 Ellis, Jr.

4 Claims, 4 Drawing Sheets

**NOTE THE BODY OF THE PATENT
EXPLAINS HOW THE WATER RECYCLES
THROUGH THE BOILER IN GREATER
DETAIL. DETAIL

