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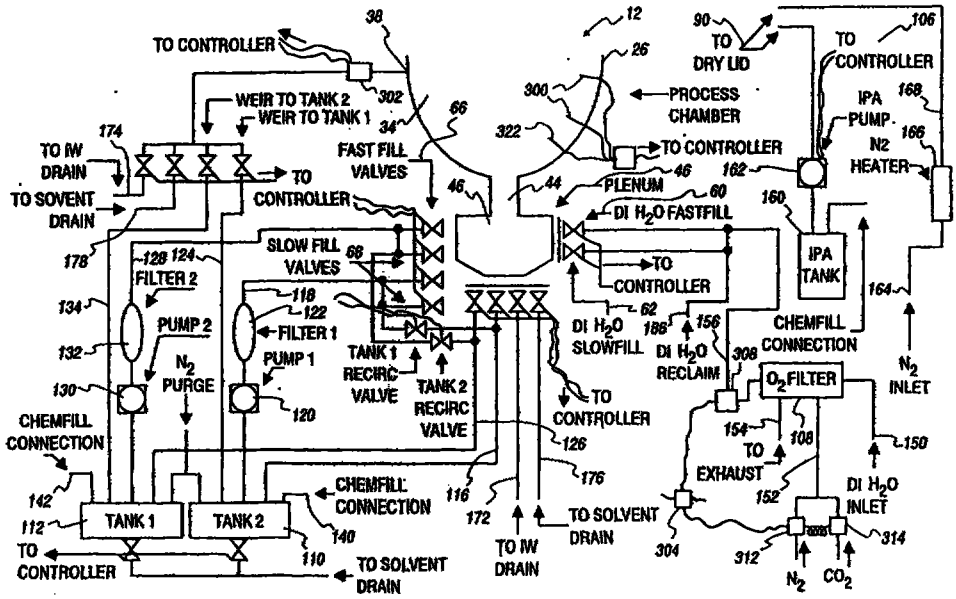
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(57) Abstract

Method and apparatus (10) for cleaning semiconductor devices (22) and other workpieces using an aqueous rinse solution which is de-oxygenated and hydrogen enriched by passing the aqueous rinse solution and treatment fluid through an osmotic membrane degasifier (108). In the preferred embodiment, only a single compact, forming gas, is employed to provide both functions of oxygen removal and hydrogen injection.