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(54) Title: REACTOR HAVING DYNAMIC SPARGER

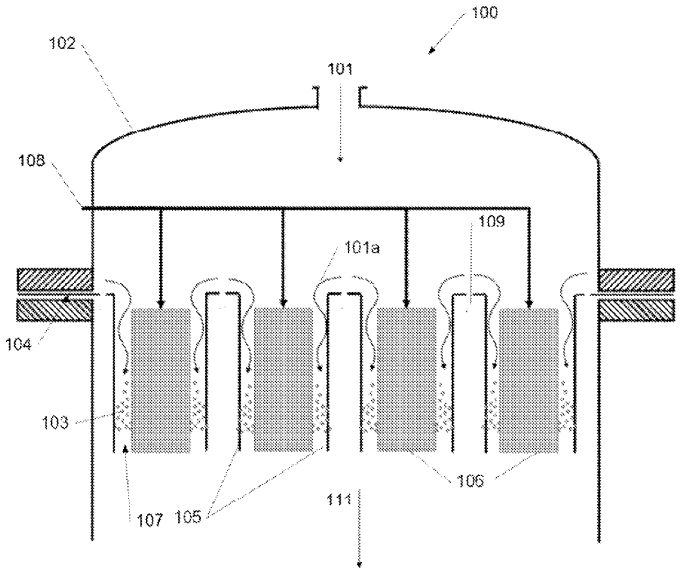


FIG. 1

(57) Abstract: Systems and methods relating to dynamic spargers for generating fine bubbles within reactors such as biological and chemical reactors. A sparger system is positioned within a reactor and comprises a support plate, multiple annular shrouds engaged with the support plate, and spargers positioned within the annular shrouds defining a gap between an interior surface of the annular shroud and an exterior surface of the corresponding sparger. Liquid flows through the defined gap between an interior surface of the annular shroud and an exterior surface of the sparger. Acceleration of the liquid through the gap shears bubbles at the exterior surface of the sparger creating bubbles or fine bubbles.

[Continued on next page]

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