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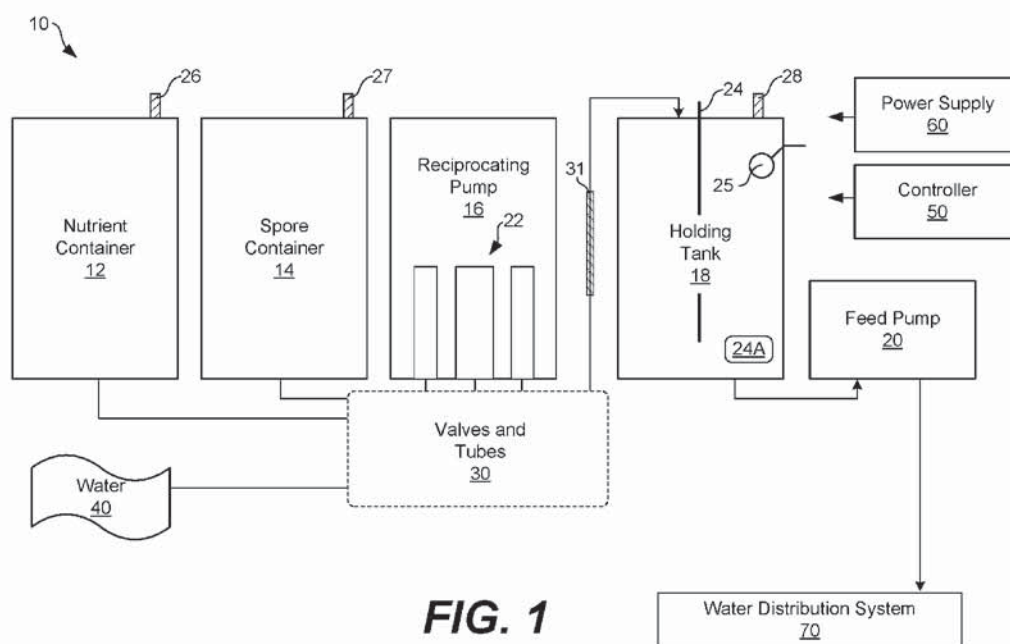
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(54) Title: METASTABLE STATE MIXING

**FIG. 1**

(57) **Abstract:** Metastable state spore incubation mixing systems are described. An example system includes a spore container to store spores, a nutrient container, an arrangement of valves and tubes, a reciprocating pump, a mixing tube, and a holding tank. In a drawing phase of the system, a controller can control the reciprocating pump to draw a ratioed volume of the spores, the nutrients, and water through the valves and tubes. During an expelling phase of the system, the controller can control flow control valves to direct the spores, nutrients, and water through the mixing tube and into the holding tank. The controller can also direct a heater to heat the mixture in the holding tank to a predetermined temperature. Once the mixture reaches the temperature, the controller can also direct the system through a number of other phases of operation, including cooling and purging phases.



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- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

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