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**Declarations under Rule 4.17:**

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(54) **Title:** DESALINATION SYSTEM WITH ENERGY RECOVERY AND RELATED PUMPS, VALVES AND CONTROLLER

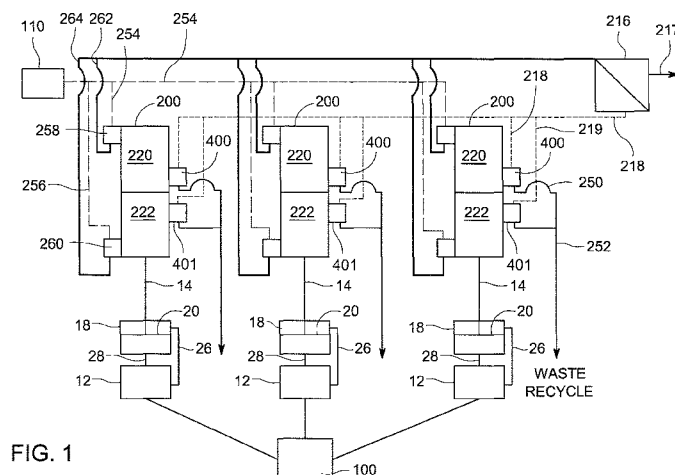


FIG. 1

(57) **Abstract:** A fluid pumping system with energy recovery features may be used to provide feed water to a reverse osmosis unit. The system includes an electronic controller unit (100) that regulates the output of three hydraulic pumps (12). Each hydraulic pump (12) drives the movement of a piston in a cylinder. The pistons collectively deliver a generally constant flow of high pressure feed water to the reverse osmosis unit. Concentrate valve bodies direct concentrate from the reverse osmosis unit to the back sides of the pistons to reduce the work required from the hydraulic pumps. The concentrate valve bodies are designed to open and close based upon the flow of concentrate through the valve bodies. The piston and cylinder are designed for exposure to sea water and RO brine.