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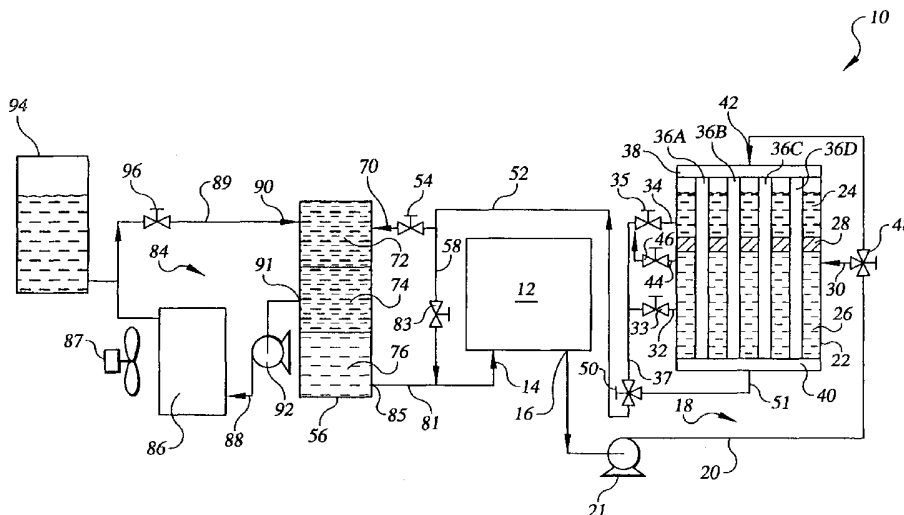
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(54) Title: FREEZE TOLERANT FUEL CELL POWER PLANT WITH A DIRECT CONTACT HEAT EXCHANGER



(57) Abstract: A freeze tolerant fuel cell power plant (10) includes at least one fuel cell (12), a coolant loop (18) including a freeze tolerant accumulator (22) for storing and separating a water immiscible fluid and water coolant, a direct contact heat exchanger (56) for mixing the water immiscible fluid and the water coolant within a mixing region (72) of the heat exchanger (56), a coolant pump (21) for circulating the coolant through the coolant loop (18), a radiator loop (84) for circulating the water immiscible fluid through the heat exchanger (56), and a radiator (86) for removing heat from the coolant. The plant (10) utilizes the water immiscible fluid during steady-state operation to cool the fuel cell and during shut down of the plant to displace water from the fuel cell (12) to the freeze tolerant accumulator (22).

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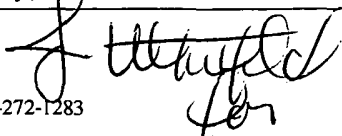
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C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/0039873 A (CUNDIT et al) 27 February 2003 (27.02.2003), entire reference.	1-15
Y	JP 08-138714 A (OSAKA GAS) 31 May 1996 (31.05.1996), abstract and figures.	1-15
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