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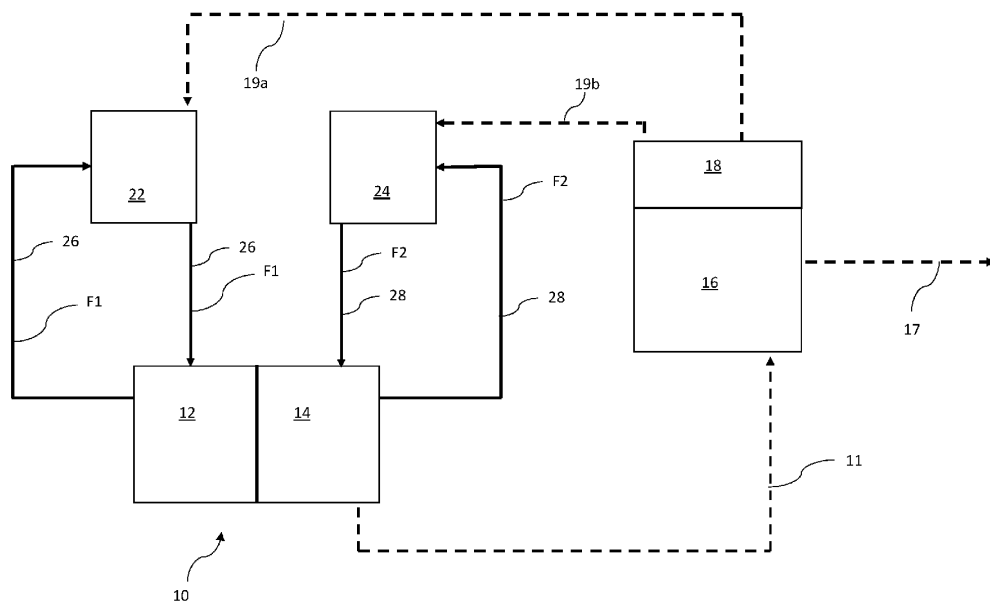


Fig. 1

(57) Abstract: A heat exchange system according to the current invention, comprises a Microbial Electrolysis Cell (MEC) with an anode side comprising an anode electrode and an anolyte, and a cathode side comprising a cathode electrode and a catholyte. The heat exchange system of the current invention further comprises an anolyte reservoir fluidly connected with the anode side of the MEC and a catholyte reservoir fluidly connected with the cathode side of the MEC wherein the anolyte reservoir and the anode side of the MEC are fluidly connected by an anolyte circuit in which anolyte is circulated and wherein the catholyte reservoir and the cathode side of the MEC are fluidly connected by a catholyte circuit in which a catholyte is circulated. The heat exchange system further comprises a heat storage system comprising a heat buffer tank to store at least a first portion of heat generated in the cathode side of the MEC. The heat exchange system being characterized in that the first portion of heat generated in the cathode side of the MEC comprises heat

[Continued on next page]

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generated by the cathode electrode and/or heat extracted from the catholyte of the cathode side of the MEC. The heat storage system further comprises a heat managing system configured to selectively feed a second portion of stored heat from the heat buffer tank to the anolyte reservoir and/or to the catholyte reservoir.