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(54) Title: ION-EXCHANGE DEVICE AND REGENERATION METHOD OF ION-EXCHANGE MATERIAL THEREOF

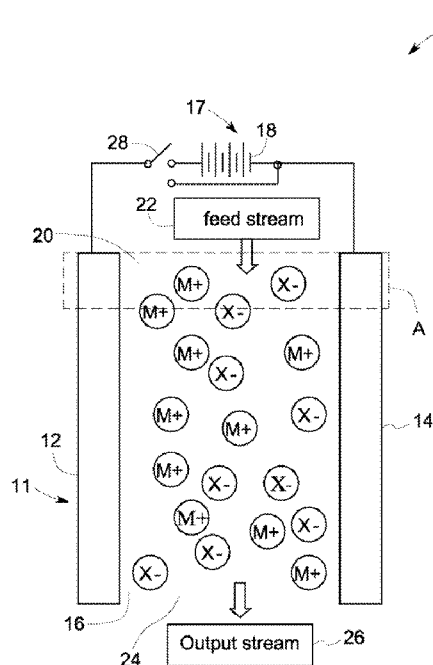


FIG. 1

(57) Abstract: An electrochemical device (10) comprises an electrochemical cell (11). The electrochemical cell comprises a composite cation-exchange member (12) including a conductive base and a cation-exchange material in physical contact with the conductive base, a composite anion-exchange member (14) including a conductive base and an anion-exchange material in physical contact with the conductive base; and a compartment (16) between the composite cation-exchange and anion-exchange members. The compartment composes an inlet for introducing a feed stream, and an outlet for exiting of an output stream out of the compartment. The electrochemical device comprises a control device (17) configured to transmit an electrical current to the composite cation-exchange and anion-exchange members at a regeneration stage in a manner that the conductive base on the composite cation-exchange member loses electrons and the conductive base on the composite anion-exchange member gains electrons.



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