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(54) Title: METHOD FOR INCREASED CARBON CAPTURE IN AN ELECTROLYTIC PROCESS

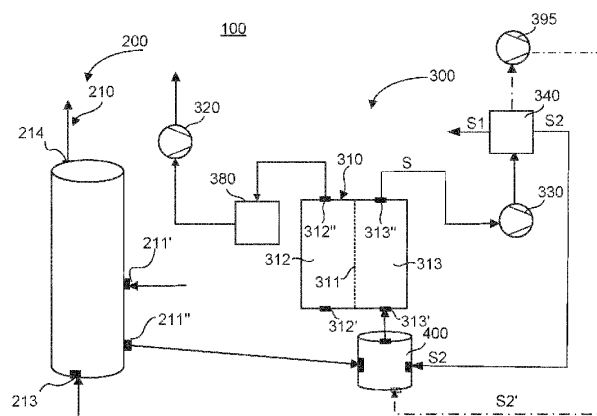


Fig. 2

(57) Abstract: A method of scrubbing a gas, comprising carbon dioxide to deplete the gas of carbon dioxide (CO₂), the method comprising the steps of scrubbing the gas in a scrubber (210) with a first alkaline, aqueous scrubbing liquid to dissolve carbon dioxide (CO₂) as hydrogen carbonate (HCO₃⁻) and/or as carbonate (CO₃²⁻) in the first alkaline, aqueous scrubbing liquid, thereby providing a first spent aqueous scrubbing liquid comprising hydrogen carbonate (HCO₃⁻) and/or carbonate (CO₃²⁻), feeding the first spent aqueous scrubbing liquid to an electrolytic cell (310) comprising an anode chamber (313) and a cathode chamber (312); regenerating the first spent aqueous scrubbing liquid in the electrolytic cell (310) by electrolysis, depleting the first spent aqueous scrubbing liquid of hydrogen carbonate (HCO₃⁻) and of carbonate (CO₃²⁻) in the anode chamber (313), the regeneration

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further comprising generating gaseous hydrogen in the cathode chamber (312) and a gaseous mixture of oxygen and carbon dioxide (CO₂) in the anode chamber (313) by electrolysis; and withdrawing regenerated alkaline, aqueous scrubbing liquid from the cathode chamber (312) and re-circulating it to the scrubber (210); wherein carbon dioxide (CO₂) and/or oxygen (O₂) withdrawn from the anode chamber (313) is compressed into liquid carbon dioxide and compressed oxygen (O₂), in a compression unit (330), wherein the method further comprises a step of separating the liquid carbon dioxide from gaseous oxygen, in a gas separator (340), into a first stream (S1) comprising carbon dioxide, and a secondary stream (S2) comprising oxygen containing less than 30% carbon dioxide, wherein said secondary stream (S2) is introduced into at least a portion of said first spent aqueous scrubbing liquid, prior to feeding said first spent aqueous scrubbing liquid into the anode chamber of the electrolytic cell (310).