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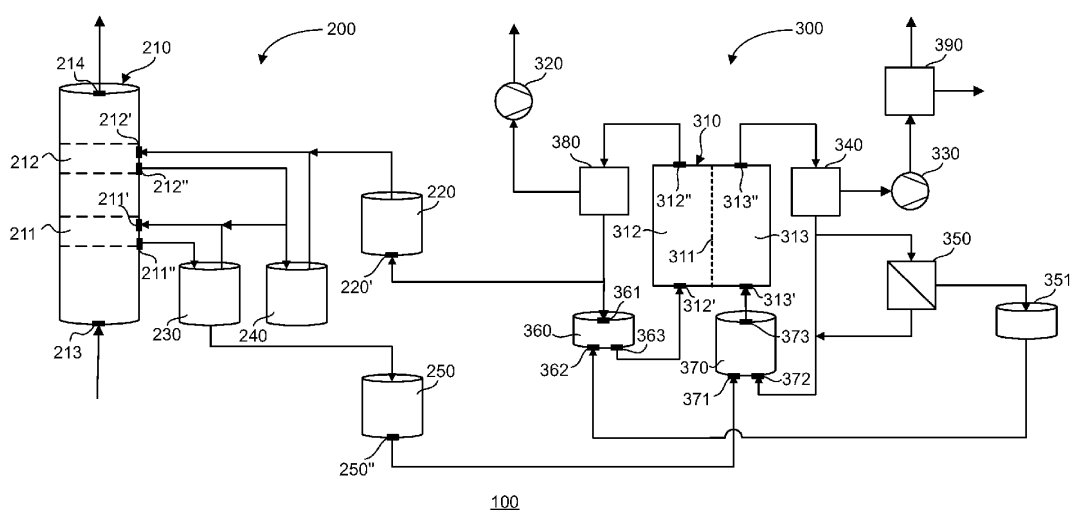
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(54) Title: CO₂ CAPTURE PROCESS WITH ELECTROLYTIC REGENERATION

Fig. 2



(57) Abstract: A method of scrubbing a gas, such as flue gas or exhaust 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⁻), the first spent aqueous scrubbing liquid having a pH from about 7 to about 9; - feeding the first spent aqueous scrubbing liquid to an anode chamber of an electrolytic cell (310) comprising the anode chamber (313) and a cathode chamber (312) separated by a membrane (311); - regenerating the first spent aqueous scrubbing liquid in the electrolytic cell (310) by electrolysis, the electrolysis increasing the pH of the first spent aqueous scrubbing liquid in the cathode

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chamber (312), the electrolysis further depleting the first spent aqueous scrubbing liquid of hydrogen carbonate (HCO_3^-) and of carbonate (CO_3^{2-}) in the anode chamber (313) by decreasing the pH, the regeneration further comprising generating gaseous hydrogen in the cathode chamber (312) and a gaseous mixture of oxygen and carbon dioxide (CO_2) 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liquid from the cathode chamber (312) and re-circulating it to the scrubber (210); wherein: - the gaseous hydrogen is withdrawn from the cathode chamber (312); and - the gaseous mixture of oxygen and carbon dioxide is withdrawn from the anode chamber (313).