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(54) Title: COMPOSITIONS, METHODS, AND SYSTEMS FOR CAPTURING CARBON DIOXIDE FROM A GAS STREAM

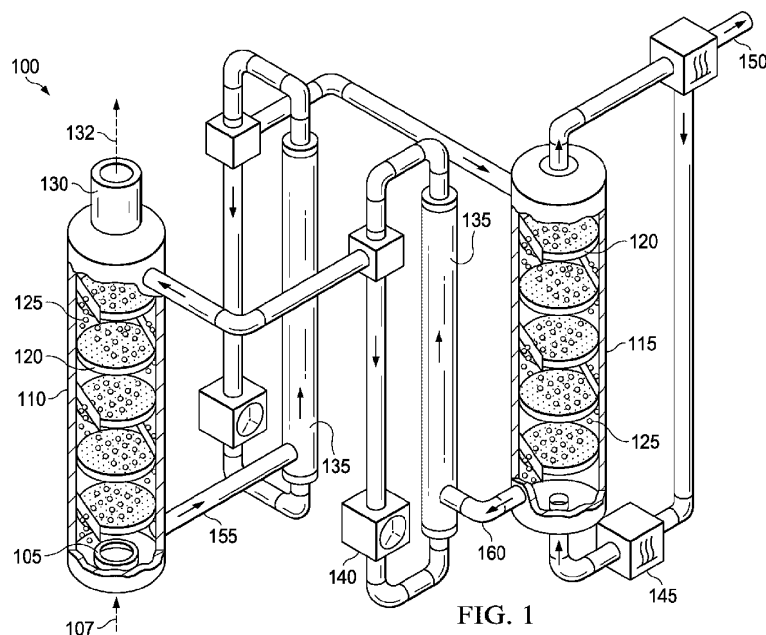


FIG. 1

(57) Abstract: The present disclosure relates to a solid adsorbent for capturing carbon dioxide (CO₂) from a gas stream comprising CO₂, the solid adsorbent comprising an amine covalently bonded to a polymer resin (e.g., a polystyrene resin), wherein the solid adsorbent has a CO₂ uptake capacity of greater than about 7 wt. % at a temperature of about 40 °C, and wherein the solid adsorbent has a CO₂ uptake capacity of less than about 1.5 wt. % at a temperature of about 100 °C, as measured when the gas stream further comprises a concentration of the CO₂ of about 4 vol. %, by volume of the gas stream.

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