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(54) Title: CO₂ CYCLE FOR CARBON CAPTURE

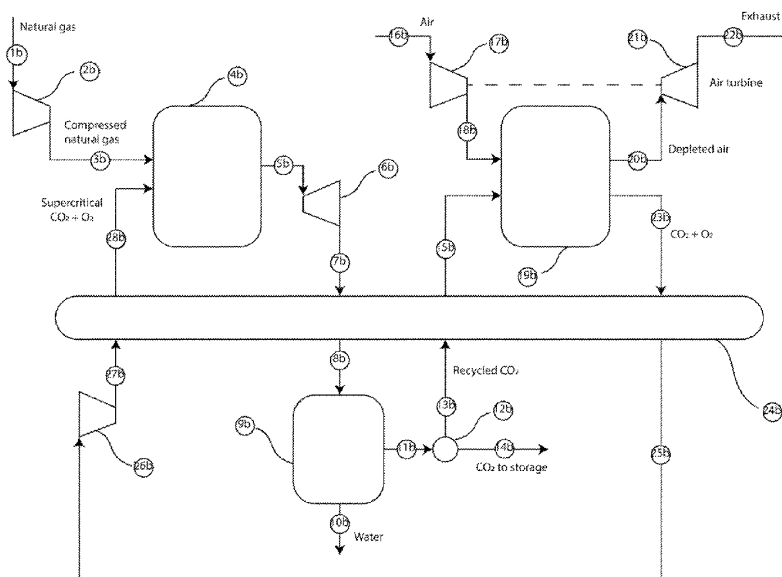


Fig. 15

(57) **Abstract:** Disclosed herein is a power production system, comprising a combustor configured to combust a fuel stream and an oxygen-enriched supercritical CO₂ stream to produce a combustion stream, a supercritical CO₂ turbine configured to expand the combustion stream to provide a first discharge stream, a condenser configured to receive the first discharge stream and provide a recycled CO₂ stream, a high-temperature air separation system, a compressor configured to receive the oxygen-enriched CO₂ stream to produce an oxygen-enriched supercritical CO₂ stream, and a recuperator configured to interact with the first discharge stream from the supercritical CO₂ turbine and reduce its temperature, the recycled CO₂ stream and increase its temperature, the oxygen-enriched CO₂ stream and reduce its temperature, and the oxygen-enriched supercritical CO₂ stream and increase its temperature. Also disclosed herein is a method of power generation.

[Continued on next page]

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