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61/810,339 10 April 2013 (10.04.2013) US(71) Applicant: **EXXONMOBIL RESEARCH AND ENGINEERING COMPANY** [US/US]; 1545 Route 22 East, P.O. Box 900, Annandale, NJ 08801-0900 (US).(72) Inventors: **SUNDARAM, Narasimhan**; 3512 King Arthur Road, Annandale, VA 22003 (US). **GUPTA, Ramesh**; 57 Lawrence Drive, Berkeley Heights, NJ 07922 (US). **THOMANN, Hans**; 26 Gatehouse Road, Bedminster, NJ 07921 (US). **CARAM, Hugo, S.**; 1236 Deerfield Drive, Allentown, PA 18104 (US). **STARCHER, Loren, K.**; 3410 Castlebrook Court, Sugar Land, TX 77478 (US). **MITTRICKER, Franklin, F.**; 14777 Presilla Drive, Jamul, CA 91935 (US). **WESTON, Simon, Christopher**; 3 Spring Brook Drive, Annandale, NJ 08801-1642 (US).**WEIGEL, Scott, J.**; 246 Elm Road, Allentown, PA 18104 (US).(74) Agents: **MIGLIORINI, Robert, A.** et al.; Exxonmobil Research And Engineering Company, 1545 Route 22 East, P.O. Box 900, Annandale, NJ 08801-0900 (US).

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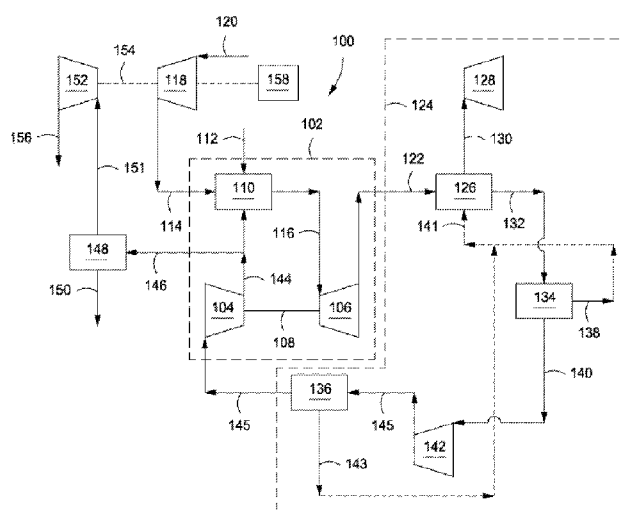
(54) Title: INTEGRATION OF PRESSURE SWING ADSORPTION WITH A POWER PLANT FOR CO₂ CAPTURE/UTILIZATION AND N₂ PRODUCTION

Fig. 1

(57) Abstract: Systems and methods are provided for combined cycle power generation while reducing or mitigating emissions during power generation. Recycled exhaust gas from a power generation combustion reaction can be separated using a swing adsorption process so as to generate a high purity CO₂ stream while reducing/minimizing the energy required for the separation and without having to reduce the temperature of the exhaust gas. This can allow for improved energy recovery while also generating high purity streams of carbon dioxide and nitrogen.



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