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**Gordon**

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(54) **PRODUCTION OF AMMONIA FROM AIR AND WATER**

(76) **Inventor:** **Roger Gordon, Georgetown (CA)**

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See application file for complete search history.

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*Primary Examiner* — Stanley Silverman

*Assistant Examiner* — Syed Iqbal

(74) *Attorney, Agent, or Firm* — Doherty IP Law Group LLC

(57) **ABSTRACT**

A process for producing ammonia from air and water comprises producing nitrogen gas from air by pressure-swing-adsorption; producing hydrogen gas by electrolysis of water; compressing the nitrogen gas in a first cylinder to produce pressurized nitrogen gas; compressing the hydrogen gas in a second cylinder to produce pressurized hydrogen gas; compressing a mixture of the pressurized nitrogen and hydrogen gases in a third cylinder; heating the compressed mixture in the presence of a catalyst to react nitrogen and hydrogen to form ammonia; and extracting the ammonia from the mixture. A system for producing ammonia in the above process is also provided.

**20 Claims, 1 Drawing Sheet**

