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(54) **SYSTEM AND METHOD FOR EFFICIENTLY SEPARATING HYDROGEN GAS FROM A MIXED GAS SOURCE**

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(58) **Field of Classification Search** ..... 95/45, 95/55, 56; 96/4, 8, 9, 10, 11  
See application file for complete search history.

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(57) **ABSTRACT**

A hydrogen purification system that is used to separate hydrogen gas from a source gas. The hydrogen purification system has a hydrogen separator into which the source gas is permitted to flow. Within the hydrogen separator is at least one hydrogen permeable tube that is made of a hydrogen permeable material. A support tube is provided for each hydrogen permeable tube. A support tube is coaxially aligned with the hydrogen permeable tube, wherein a gap space exists between the hydrogen permeable tube and the support tube in an area of overlap. The source gas is introduced into the gap space. The source gas spreads thinly over the hydrogen permeable tube in the gap space. Hydrogen from the source gas passes through the hydrogen permeable tube in a highly efficient manner and is collected.

**16 Claims, 6 Drawing Sheets**

