

The United States of America



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Therefore, this

United States Patent

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A handwritten signature in black ink, reading "Jon W. Dudas". The signature is written in a cursive style with a large, looped initial 'J'.

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(54) **ROTARY VANE ENGINE AND
THERMODYNAMIC CYCLE**

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(*) **Notice:** Subject to any disclaimer, the term of this
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See application file for complete search history.

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(57) **ABSTRACT**

A heat engine having a rotary vane compressor and a rotary vane turbine operates in a highly efficient thermodynamic cycle which includes a power expansion phase up to ambient pressure and a limited temperature constant volume combustion followed by a constant pressure combustion and/or a constant temperature combustion. A compound propulsion engine utilizing the thermodynamic cycle has a primary stage having an axial compressor and a rotary vane turbine, and a secondary stage having an axial turbine and a rotary vane compressor, the two stages being aero-thermodynamically coupled to each other without provision of an inter-connecting drive shaft.

6 Claims, 10 Drawing Sheets

