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**Cirrito et al.**

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(54) **PROCESS FOR PRODUCING OLEFINS AND DIOLEFINS**

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(List continued on next page.)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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**Related U.S. Application Data**

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(60) Continuation of application No. 09/276,874, filed on Mar. 26, 1999, now Pat. No. 6,419,856, which is a division of application No. 08/771,875, filed on Dec. 23, 1996, now Pat. No. 5,938,975.

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(51) **Int. Cl.**<sup>7</sup> ..... **C07C 4/02**; C10G 9/36; C10G 9/14

(57) **ABSTRACT**

(52) **U.S. Cl.** ..... **585/652**; 585/648; 585/650; 585/752; 208/130; 208/132

A process for producing olefins and diolefins. A flow of gas is compressed with a prime mover in a near adiabatic path. Resistance to the flow within the adiabatic path causes a temperature rise with respect to its pressure, where it enters a near adiabatic tunnel. At least one other gas is provided into the tunnel at a prescribed, independently controlled temperature and pressure. The compressed flow is commingled and mixed with at least one other gas. Hydrogen and oxygen are fed into the tunnel to produce steam. Steam is applied to at least one hydrocarbon for pyrolysis or thermal cracking to yield at least one of olefins and diolefins.

(58) **Field of Search** ..... 585/648, 650, 585/652, 752; 208/130, 132

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**18 Claims, 8 Drawing Sheets**

**Rocket Engine Power Source**

