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(54) **METHOD AND APPARATUS FOR OBTAINING ENHANCED PRODUCTION RATE OF THERMAL CHEMICAL REACTIONS**

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Related U.S. Application Data

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(58) **Field of Search** 423/648.1, 650, 423/651, 652, 655, 656, 659; 518/728; 585/250

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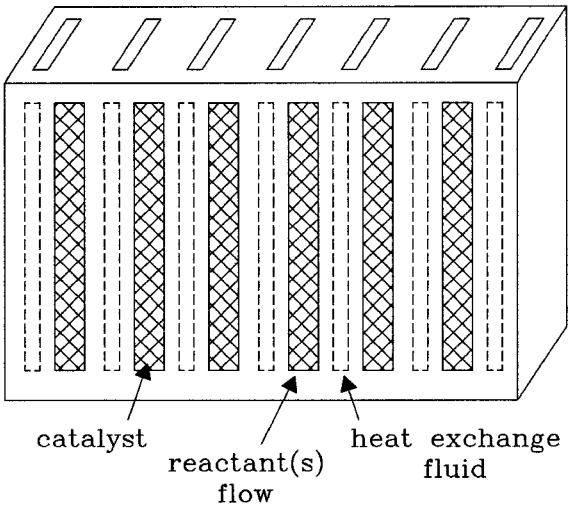
(57) **ABSTRACT**

Reactors and processes are disclosed that can utilize high heat fluxes to obtain fast, steady-state reaction rates. Porous catalysts used in conjunction with microchannel reactors to obtain high rates of heat transfer are also disclosed. Reactors and processes that utilize short contact times, high heat flux and low pressure drop are described. Improved methods of steam reforming are also provided.

63 Claims, 8 Drawing Sheets