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(54) **HEAT TRANSFER AND ELECTRIC-POWER-GENERATING COMPONENT CONTAINING A THERMOELECTRIC DEVICE**

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(57) **ABSTRACT**

A heat transfer and electric-power-generating component is disclosed that utilizes microstructural architecture for enhanced heat transfer. The component includes a heat source, a microstructural heat sink; and a thermoelectric device disposed between the heat source and the microstructural heat sink. During operation, heat flows from the heat source to the heat sink through the thermoelectric device such that the thermoelectric device can convert a portion of the heat flow into electric power. In some of the preferred aspects of the invention, the heat sink is an ultra thin film desorber combustor, and the heat source is a microchannel combustor. The microstructural architecture can provide high rates of thermal transfer through the thermoelectric device, allowing for surprisingly high thermoelectric power generation from a compact and light weight component.

16 Claims, 2 Drawing Sheets