

AIRFOIL WITH THREE-PASS SERPENTINE COOLING CHANNEL AND MICROCIRCUIT

ABSTRACT OF THE DISCLOSURE

An airfoil, and in a disclosed embodiment a rotor blade, has a serpentine cooling path. To best account for the Coriolis effect, the paths of the serpentine cooling channel have trapezoidal cross-sections. An area of the rotor blade between
5 a smaller side of the trapezoidal-shaped paths, and a facing wall of the rotor blade has high thermal and mechanical stresses, and is a challenge to adequately cool. A microcircuit, which is a very thin cooling circuit having crossing pedestals, is embedded into the blade in this area. The microcircuit provides additional cooling, and addresses the challenges with regard to cooling these areas.

Figure 5