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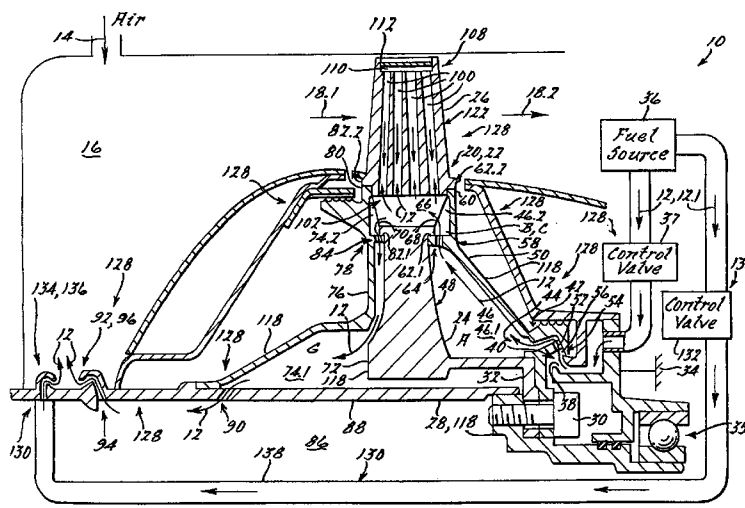
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(54) Title: GAS TURBINE ENGINE COOLING SYSTEM AND METHOD



(57) Abstract: Fuel (12) supplied to a rotary fluid trap (42) is centrifugally accelerated within a first cavity (46) adjacent a first side (48) of a rotor (24), and is then directed through a plurality of first passages (66) extending through the rotor (24) between and proximate to the blades (26), and shaped so as to at least partially conform to the shape of the blades (26). Second passages (100) extend within the blades (26) from the first passages (66) and terminate within associated cavities (110) proximate to the tips (112) of the blades (26). Relatively cooler fuel (12.2) in the first passages (66) is thermosiphon exchanged for relatively hotter fuel (12.3) in the second passages (100) so as to cool the blades (26). The heated fuel (12.3) flows into a second cavity (74) adjacent to a second side (72) of the rotor (24) and is discharged from the rotating frame of reference directly into the combustion chamber (16) through a second rotary fluid trap (96). A separate fuel distribution circuit (130) is used for starting and warm-up.

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