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(54) Title: SHROUDED FLUID TURBINE WITH BOUNDARY LAYER ENERGISING ELEMENTS

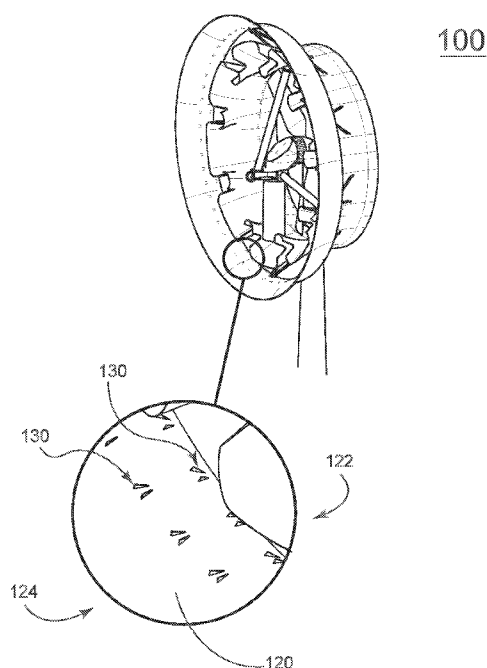


Figure 5

(57) Abstract: The present disclosure relates to fluid turbines having a turbine shroud assembly formed with mixing elements (e.g., both inwardly and outwardly curving elements) having airfoil cross sections. These airfoils form ringed airfoil shapes that provide a means of controlling the flow of fluid over the rotor assembly or over portions of the rotor assembly. The fluid dynamic performance of the ringed airfoils directly affects the performance of the turbine rotor assembly. The mass and surface area of the shrouds result in load forces on support structures. By delaying or eliminating the separation of the boundary layer over the ringed airfoils, boundary layer energizing members (e.g., vortex generators, flow control ports) on the ringed airfoils increase the power output of the fluid turbine system and allow for relatively shorter chord-length airfoil cross sections and therefore reduced mass and surface area of the shroud assemblies.



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