

Title: Development of an Eccentric Blade Rotor Rotary Engine

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The Eccentric Blade Rotor Rotary Engine is internally divided into a compression section, a combustion chamber, and a power section. Each rotor device of a compression/power section is made up of a rotor body and three swing blades. Each swing blade is pivotally connected to the rotor body and may swing about a pivot pin. The rotor body and the swing blades of the rotor device are each formed by jointing a left half and a right half. The left half and the right half have joint surfaces in which at least one recess is formed in an opposing manner to receive an elastic element. The elastic element provides an outward pushing force to the left half and the right half. Under the high temperature operation, the rotor body and the swing blades expand due to the heat and thus compress toward the centre, whereby sufficient looseness may be presented between the rotor body and the swing blades and a cylinder wall to ensure smooth operation. Each swing blade comprises a cylindrical roller mounted to a front end and a curved back, and each of the rollers is provided, at an inner side, with a support device that is capable of sustaining a counteracting force applied by a cylinder wall to the roller. Thus, the frictional force between the roller and the support device is reduced. Since this novel design delivers a more efficient engine that will help to reduce fuel consumption and CO2 emission in transportation industries.

Biography

Hsiao Kang Ma is Professor of Mechanical Engineering at National Taiwan University since 1987. Now he is chairman of Taiwan Carbon Capture Storage and Utilization Association. He also hosts as the advisor board member of ASPACC 2009-2015. His research is directed to energy systems and the associated environmental impacts with activity ranging from combustion to advanced energy systems. Research by Professor Ma has been documented in over 200 publications. He was Research Engineer of Energy and Environmental Research Co. (Irvine) in 1985-87. He received the Ph.D. degree from Mechanical Engineering Dept. of the University of Illinois at Chicago in 1985.

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