

The Office of Technology Management

UNIVERSITY OF TEXAS  ARLINGTON

Tech ID: UTA 07-04

Internal Detonation Reciprocating Engine

INVENTOR: Frank K. Lu, Philip K. Panicker, Donald R. Wilson, Jiun-Ming Li

TECHNOLOGY NEED

Internal combustion reciprocating engines are widely used in almost every facet of economy ranging from automobiles, power generators to pumps, and other power tools. Internal combustion reciprocating engines comprises of gasoline-powered engines that has efficiency of 30% and diesel powered engines with an average efficiency of 45%. Improvements in their efficiencies are always desirable for many significant reasons including economic gains, fuel conservation gains, and emission reduction.

INVENTION DESCRIPTION/SOLUTION

Researchers at The University of Texas at Arlington have developed a novel and highly efficient form of engine called, an "Internal Detonation Reciprocating Engine". This engine has significantly higher efficiency as compared to conventional internal combustion reciprocating engines. The developed internal detonation engines makes use of specially designed detonation enhancement device that can be embedded inside engine chamber. This device accelerates the flame and generates high-pressure detonation wave. Further, this high-pressure wave impacts the piston, producing more useful mechanical work and thus increasing the efficiency.

APPLICATIONS

- Automobile Industry
- Defense Agencies and Industries
- Energy industries
- Power Industries

KEY BENEFITS

- Suitable for multiple fuels including alternative fuels
- Flexible Configuration-Adaptable to single as well as multiple cylinder engines
- Suitable for retrofitting into existing available engines
- Reduction in Knocking
- Enhancement in the Fuel Efficiency
- Reduction in Engine Maintenance

STAGE OF DEVELOPMENT

Prototyped & Lab tested

INTELLECTUAL PROPERTY STATUS

Patent Granted



More about the Inventor:

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