



# Burner for Improved Combustion of Fuels

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**Patent Status:**

Patent Pending

## Description of Technology

Researchers at the University of Wyoming have designed an efficient fuel burner that permits the combustion of a variety of fuel compositions and flow rates, with low soot and pollutant production. The burner is designed to operate using minimal electricity and operator control for long periods of time. The design can be constructed and operated across a range of size scales.

This burner has the ability to mix fuel gas with air prior to combustion, eliminating the need to control the air source through pumping or pressurizing. Porous media within the burner design actively premixes the fuel and air within a swirl chamber before combustion and promotes heat recirculation. Under various operating conditions this process preheats incoming fuel and air and stabilizes the flame at the surface of the burner. The burner design can be modified to also allow for a submerged flame.

## Applications

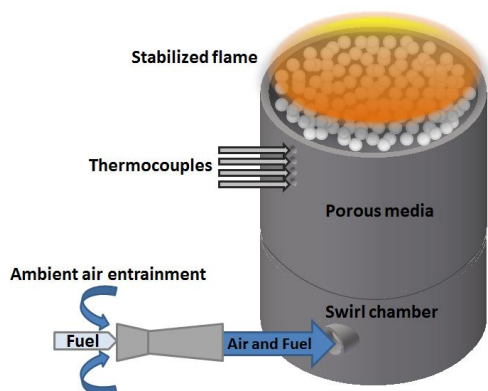
This burner design has various commercial uses including use as a camp stove or home stove since the burner size can be changed for each application. The burner also has huge potential within the oil and gas industry for cleaner more efficient flare gas burning.

## Features & Benefits

- Combustion of a variety of fuel gas compositions and flow rates allowed
- Minimal electricity for burner operation required
- Minimal operator control needed over long periods of time
- Heat recirculation promotes efficient fuel conversion and flame stability
- No pumping or pressurizing the air source is necessary
- Low soot and pollutant levels produced
- Fuel and air pre-mix within design
- A variety of size scales can be constructed
- Safety measures built into design

## Market Opportunity

This burner design can be particularly valuable for burning flare gas at locations with little to no electricity or other auxiliary resources for actively pumping air and controlling flare gas combustion.



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