



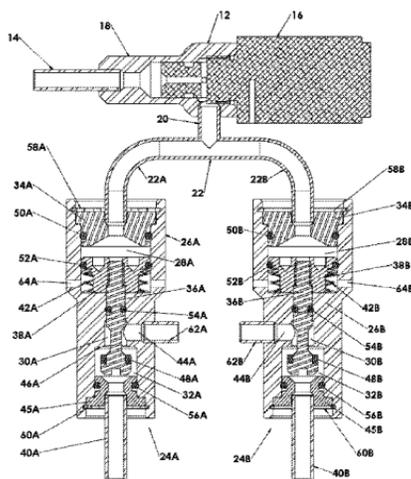
# Pneumatically Actuated Bi-propellant Valve Systems for Throttling Vortex Engine

## INTRODUCTION

Regulated pneumatic gas is supplied through a gas supply tube that is welded to a pilot valve housing which accommodates a solenoid valve. When the solenoid valve is electrically activated and opened, the pneumatic gas flows through a bifurcated channel, which is welded to the pilot valve housing, a fuel valve mechanism, and an oxidizer valve mechanism. The force of the pneumatic gas causes pistons to actuate respective poppets. Movement of the poppets results in the dispensing of fuel propellant from a fuel outlet chamber and the dispensing of oxidizer from an oxidizer outlet chamber. The fuel valve mechanism and oxidizer valve mechanism are positioned and oriented such that the exiting fuel and oxidizer are mixed in a vortex rocket engine.

## CONCEPT

The technology developed pertains generally to pneumatic valves. Specifically, it pertains to a valve system for mixing a fuel propellant and oxidizer in the injector housing of an engine.



## INVENTION OVERVIEW

The Government facilitates the use of non-carcinogenic gel propellants for the Army's Impinging Stream Vortex Engine. The commercial facilitates the use of non-carcinogenic gel propellants for the Impinging Stream Vortex Engine.

- Improved method for exiting fuel and oxidization when mixed in the engine.
- U.S. Patent Number: [8,505,577 B2](#)
- Application Number: 12,927,951
- Date of Patent: 13 Aug 2013

## POTENTIAL MARKET

- Commercial: Facilitates the use of non carcinogenic gel propellants for the Impinging Stream Vortex Engine.

## DOING BUSINESS WITH AMRDEC

AMRDEC is a leader in partnering with domestic firms. Successfully developed and implemented innovative tools to ease the technology transfer process such as:

- Patent License Agreements
- Cooperative Research and Development Agreements
- Test Services Agreements

## CONTACT INFORMATION

If you would like more information about this technology or about AMRDEC's technology program, contact:

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