

**Analysis of Steam Zoning With Exhaust – Smoke Stack and Water Swirled Into
Gas Turbine Technology**

Presented at Power Energy 2017-3191

**Power & Energy Conference June 29, 2017 Charlotte, Updated With United States
Patent Application 20220056842 Andersen; Leonard Morgensen February 24, 2022
METHOD AND APPARATUS FOR INCREASING USEFUL ENERGY/THRUST OF
A GAS TURBINE ENGINE BY ONE OR MORE ROTATING FLUID MOVING
(AGITATOR) PIECES DUE TO FORMATION OF A DEFINED STEAM REGION**

Leonard M. Andersen / Engineer

Water Swirled Into Gas Turbine Tech

**914-536-7101 Cellphone / 800-428-4801 5 PM to 5
AM at 3 Story Office 46 Alexander Av / Yonkers NY**

www.lenandersen.com

**len@lenandersen.com - len.gasturbine@gmail.com
water-gas-turbine@lenandersen.com**

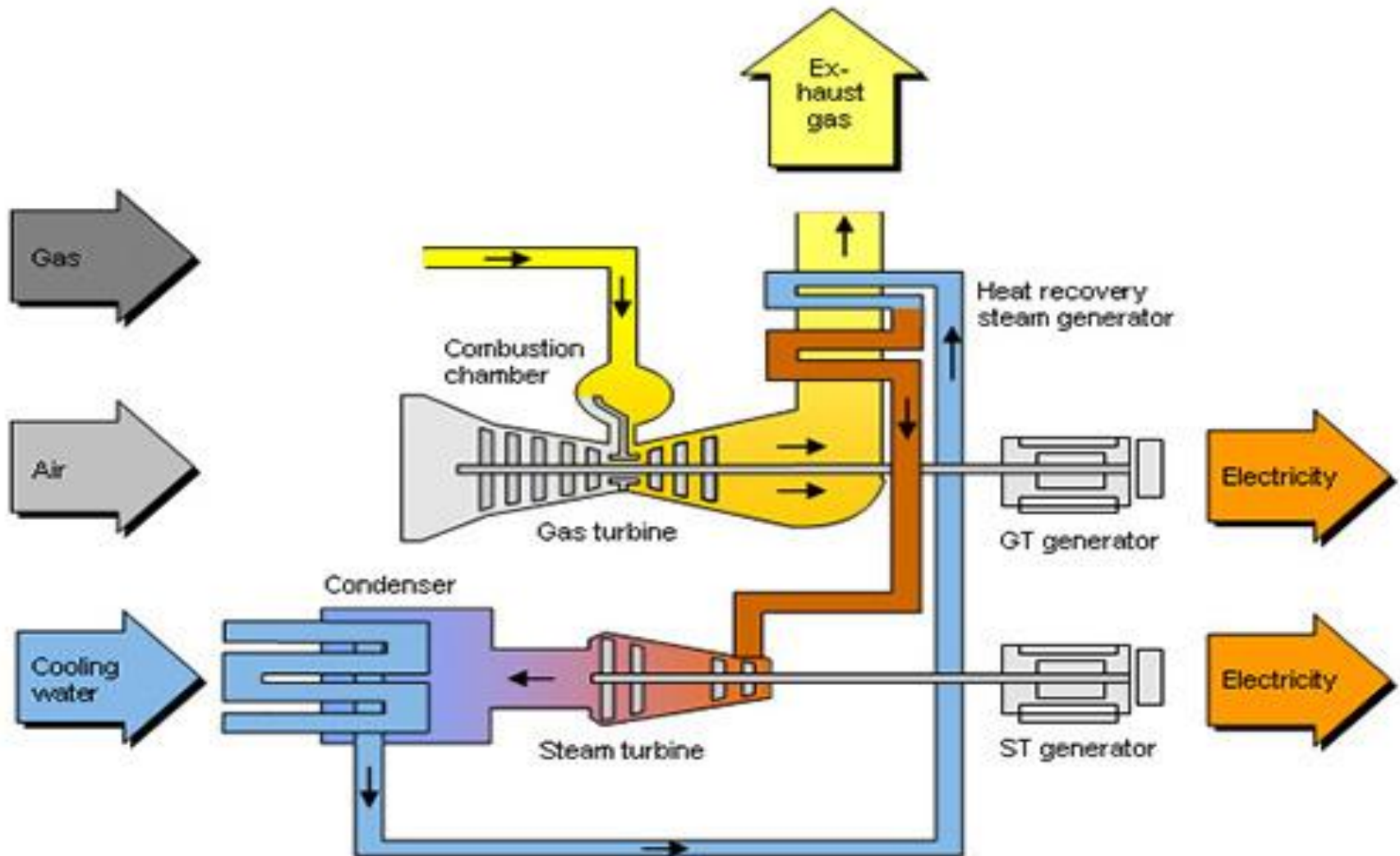
**POB 1529 / NY, NY 10116 (\$1500 per year Caller box at Large Post Office)
New York City – Across from Penn Station**

Electrical Generation New Combine Cycle

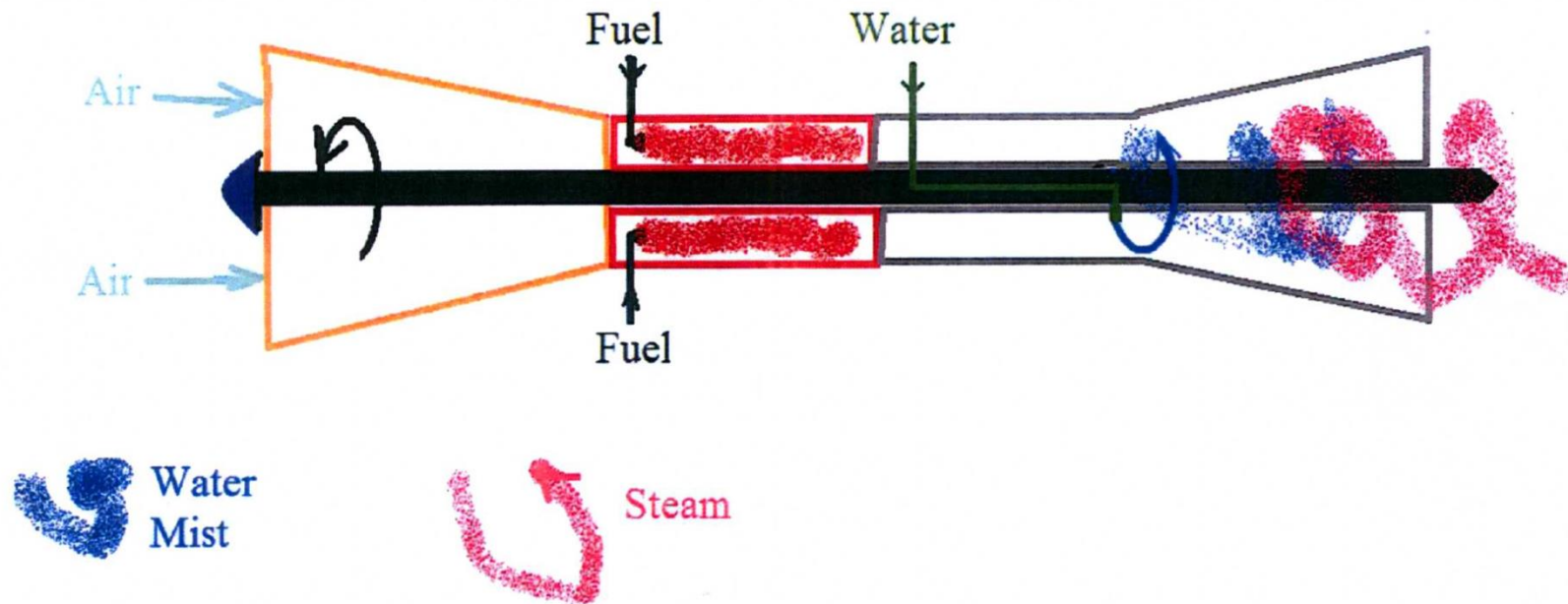
This Technology is to have droplets of water mixed into the hot part of the gas turbine with the droplets of water traveling in a curved pattern after the combustion section.

1. **Who?** Speaker Engineer
2. **What?** Combined cycle is a gas turbine front with a second turbine behind it. Currently it is a gas turbine with a steam boiler heated by hot “thrust gas” of the turbine making steam that goes through a steam turbine. Best efficiency obtained is 61 %. The “new tech” invention is the hot thrust gas has water droplets of a small size moving in curved path etc. mixed with said in a form that goes to steam quickly enough so that it enlarges said hot gas volume. The enlarged thrust gas flow makes an extractive turbine turn yielding lower capital cost and higher efficiency. Numbers indicated me as improved efficiency (fuel in / electricity out) are +17% gas fuel.
3. **When -** Now !

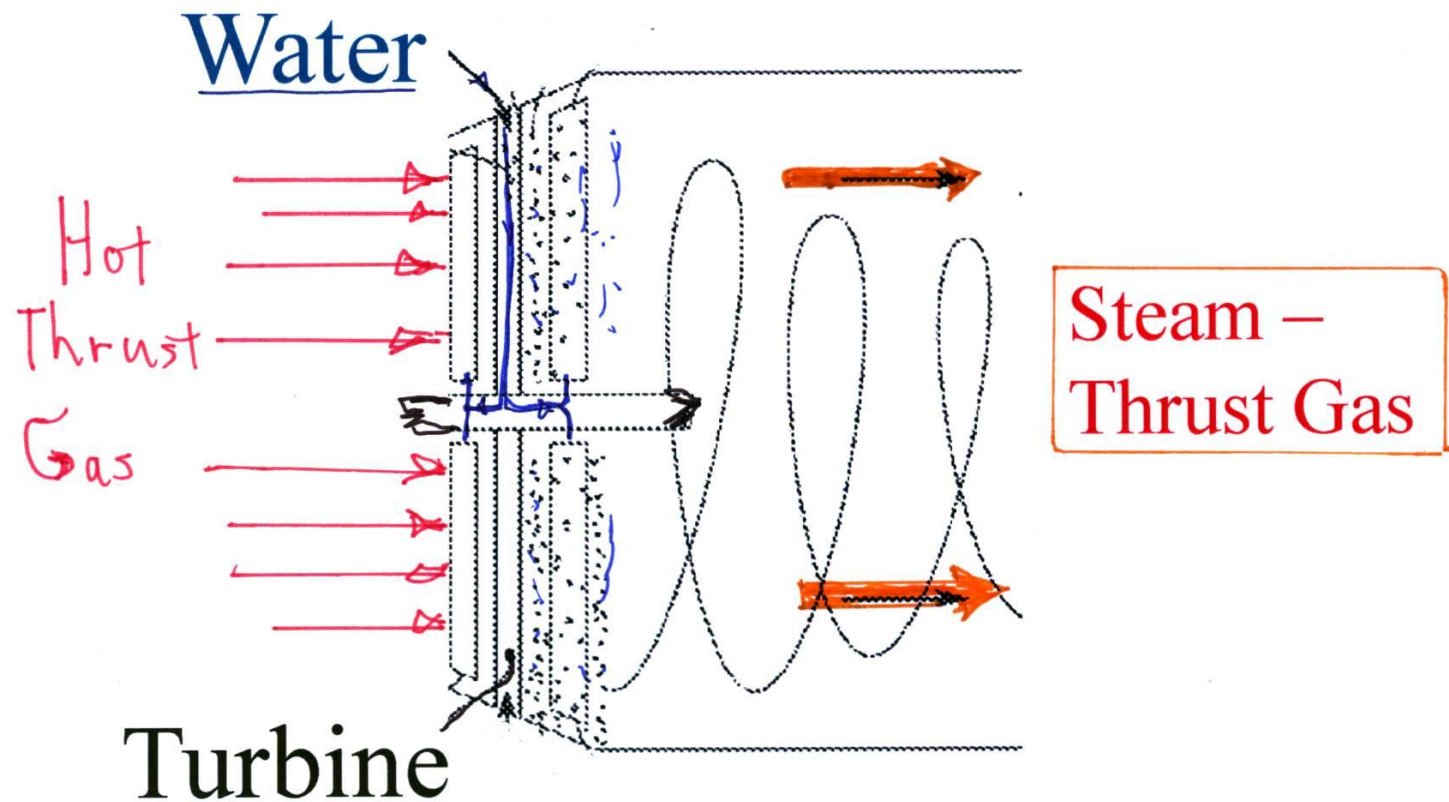
Current Prior to New Tech Combined Cycle Gas Turbine Electrical Generation



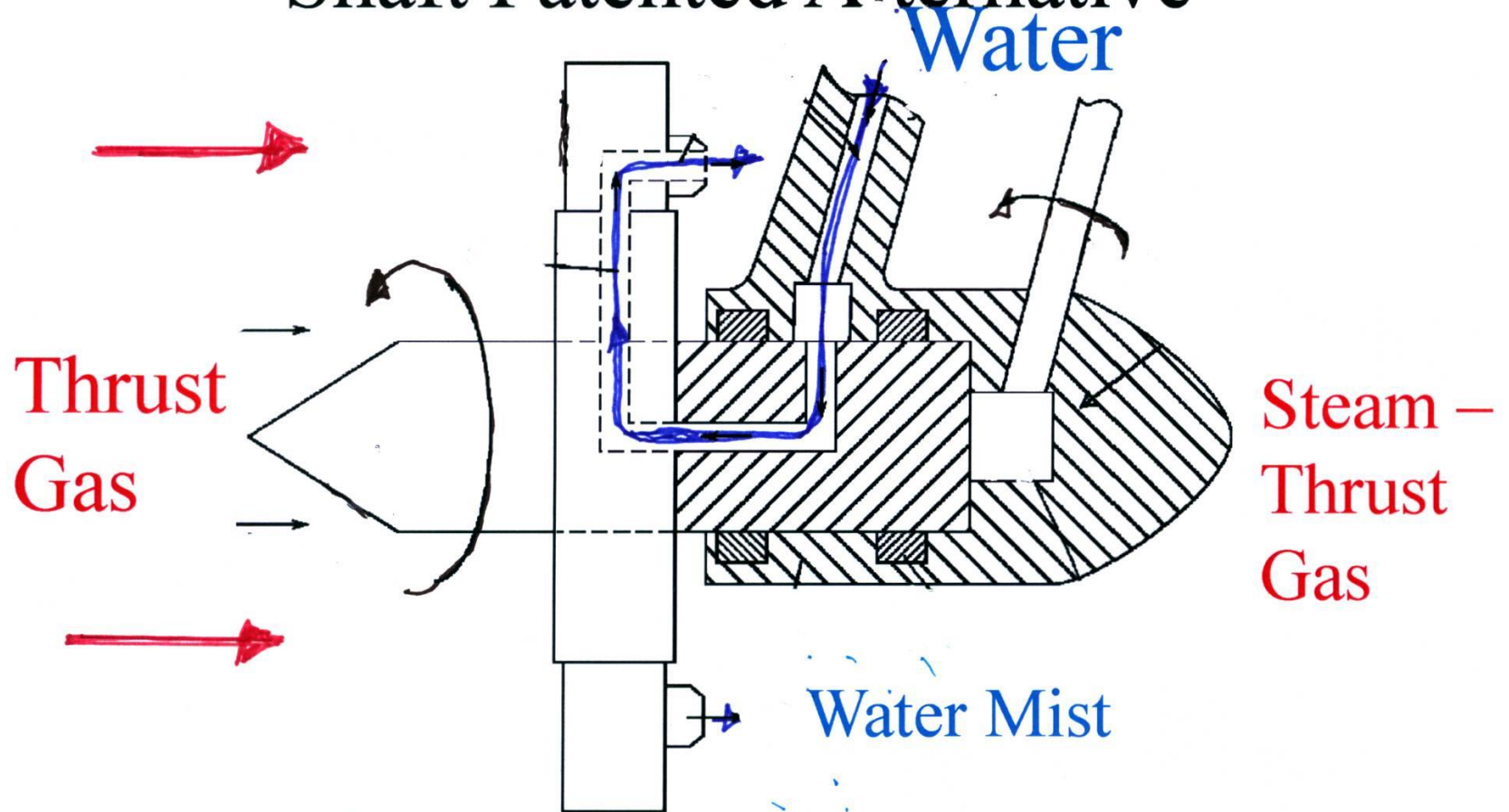
The System Water Into Turbine (Hot End) Part of A Gas Turbine Engine Schematic!



Water Swirled In Before End Of Main Shaft Patented Alternative

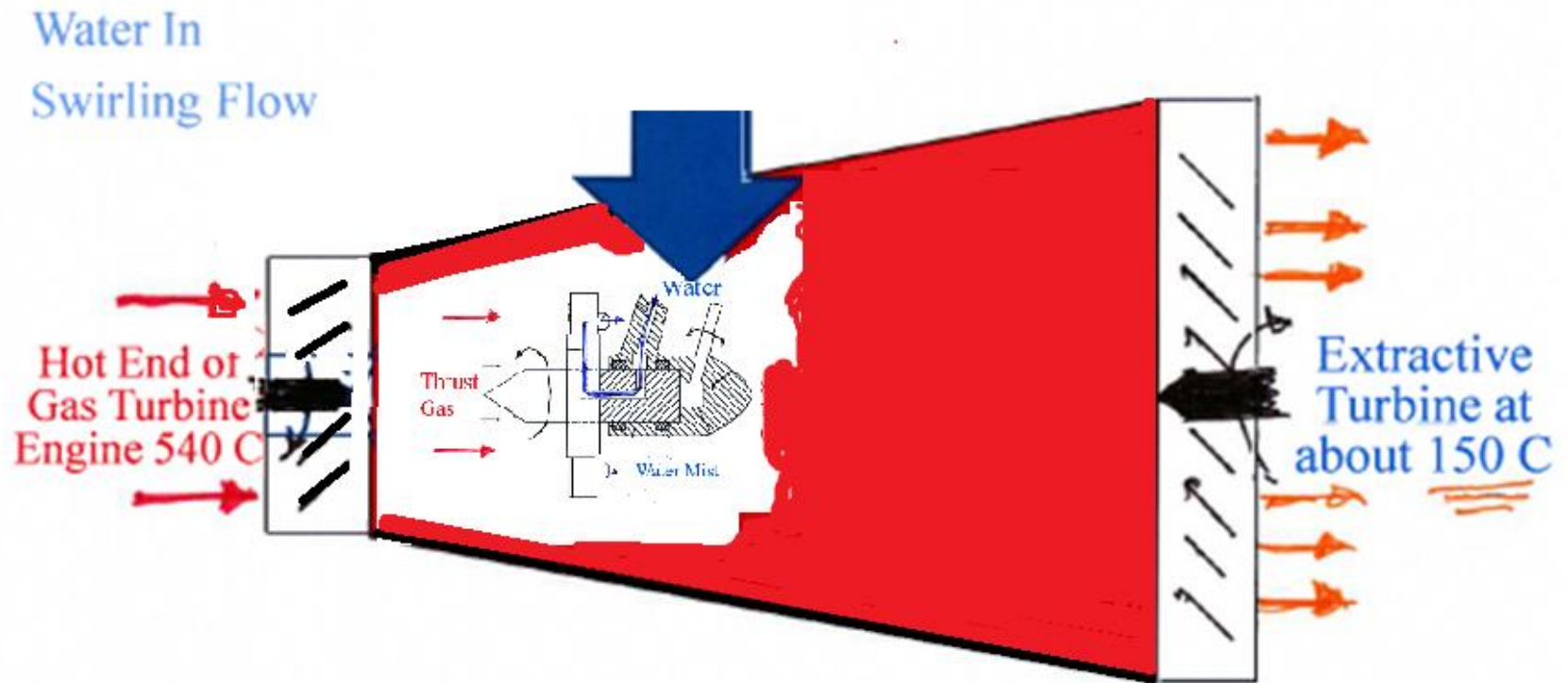


Water Swirled In After End Of Main Shaft Patented Alternative

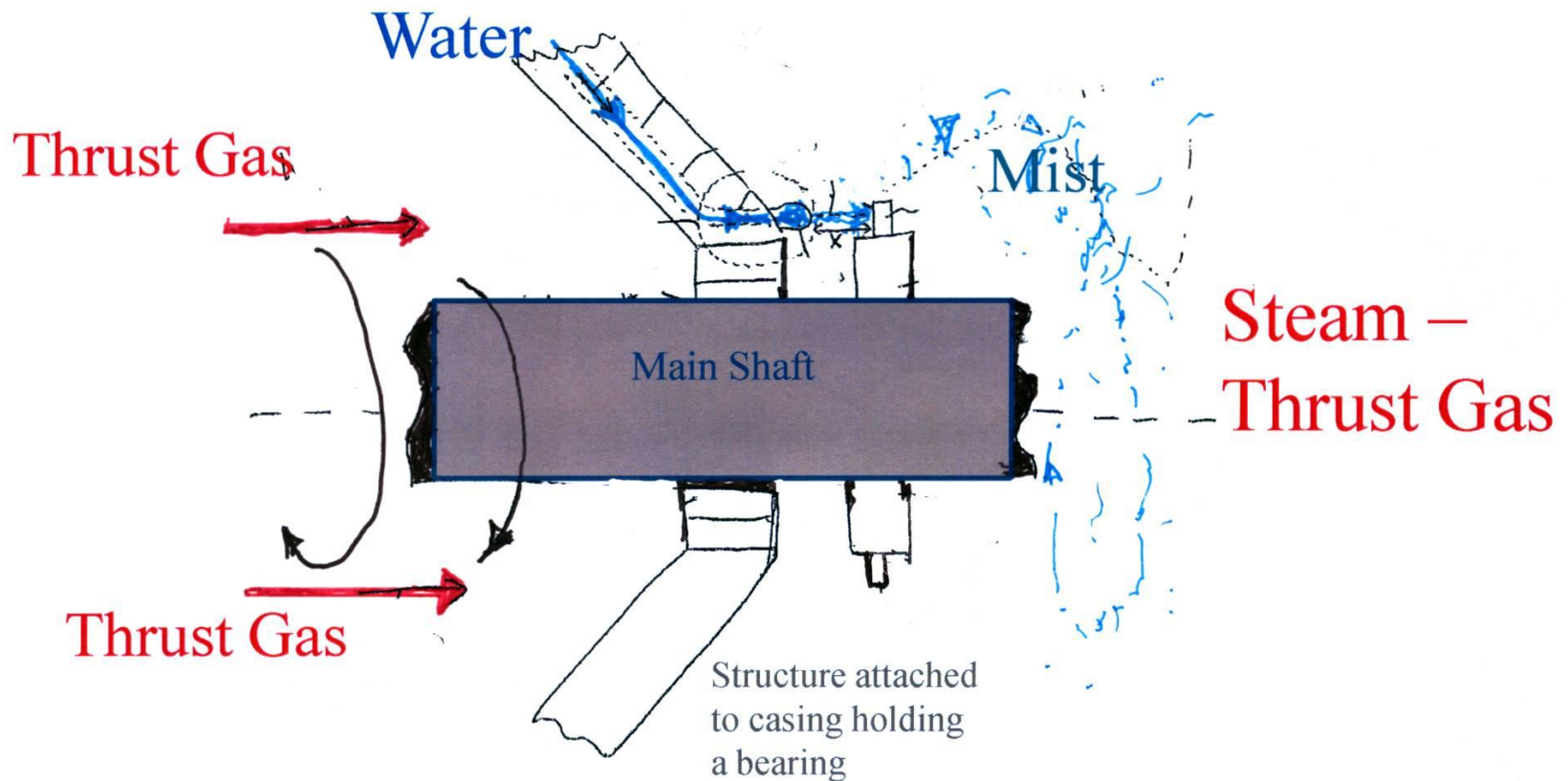


Combined Gas Turbine Issued Patents

Steam Expansion Chamber

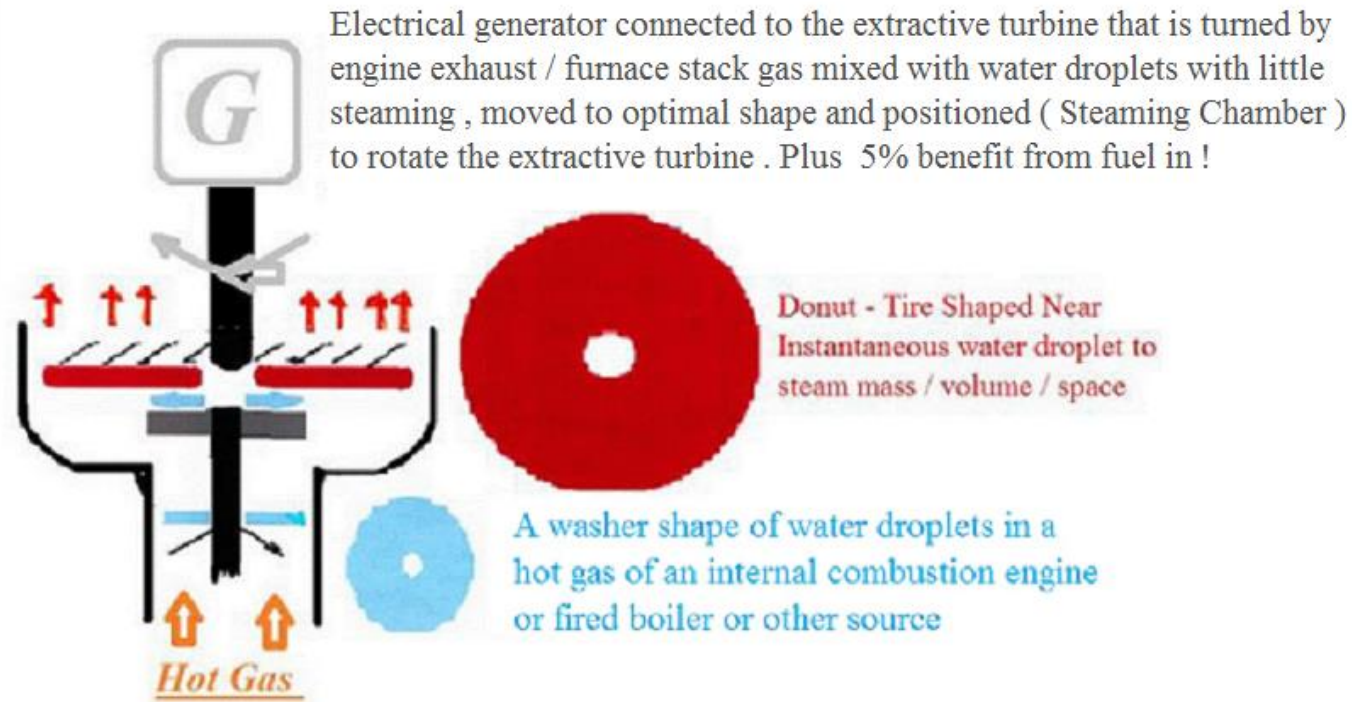


Gas Turbine With Water Made Spray by on Main Shaft mist maker!



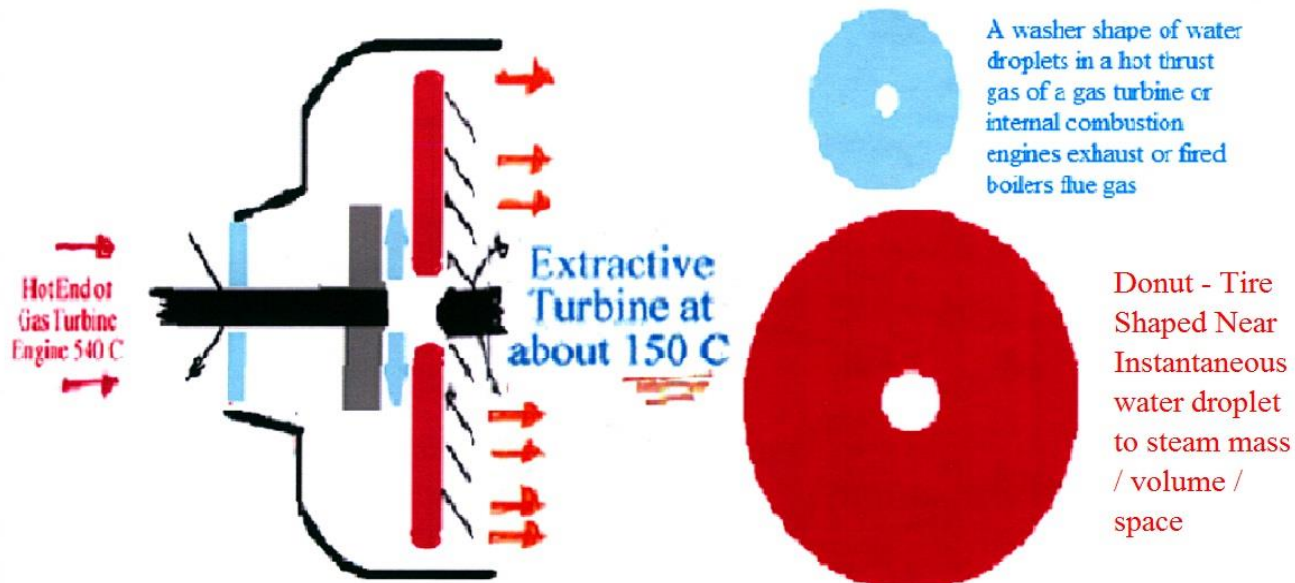
New Patent Ap Technology That is for Exhaust / Stack and Gas Turbines

Plus 5% energy from fuel as an augmentation for Internal combustion engines / furnaces / gas turbines / gas above 200 C technology! Patent Ap 20170306843 - METHOD AND APPARATUS FOR INCREASING USEFUL ENERGY/THRUST OF A GAS TURBINE ENGINE BY ONE OR MORE ROTATING FLUID MOVING (AGITATOR) PIECES DUE TO FORMATION OF A DEFINED STEAM REGION – Len Andersen / “Water Swirled into Gas Turbine Tech !



Gas Turbine Mode Normal

Plus 5% energy from fuel as an augmentation for gas turbines / Internal combustion engines / furnaces / gas above 200 C technology! Patent Ap 20170306843 - METHOD AND APPARATUS FOR INCREASING USEFUL ENERGY/THRUST OF A GAS TURBINE ENGINE BY ONE OR MORE ROTATING FLUID MOVING (AGITATOR) PIECES DUE TO FORMATION OF A DEFINED STEAM REGION – Len Andersen / “Water Swirled into Gas Turbine Tech !



Plus Lower Cost Electricity

- The most obvious advantage is more electricity out per unit of fuel in. The less obvious advantage is the efficiency of smaller of electrical power generation plant. About the same for One to Five Hundred Mega Watt , therefore more plants result in less loss on electrical distribution. Less expensive faster start and shut down than combined cycle steam turbine units !

Decision Factors

1. Seventeen % gas – Nineteen % liquid up in fuel to electricity or mechanical energy output compared to combined cycle now in use before latest Pending patent (third). This would reduce carbon dioxide emissions by 17 – 19 % with additional emissions reduction with having less distance from electrical generation to electrical consumption.
Augmentation for fired Boilers and Internal Combustion Engines.
2. Low capital cost combined cycle units, smaller and in greater numbers.
Natural gas fields availabilities expands that possibility.
3. The efficiency of gas turbine electrical generator units 1 to 400 MW is nearly the same which would greatly reduce electrical distribution losses.
Lower start up and shut down cost than other combines c !
4. Pursuant to patent allowed 17 March use in ships, trains combined cycle gas turbines systems and aircraft +30 % happening.
5. Lighter per KW capacity than some internal combustion systems.

Gas Turbine Engineer - Owner Leonard M Andersen / Resume

Engineer +20 years of experience in Gas Turbines etc.,

**Presented “New Tech Combined Cycle Gas Turbines (CCGT) - Analysis of
Water Swirled Into Gas Turbine Technology” Power Energy 2017-3191 at
ASME Power & Energy Conference June 29, 2017 Charlotte, NC**

Three patents Gas Turbine Combined Cycle Technology

One Lubrication

Two Petroleum Extraction

Five in Welding !

Professional Experience

Gas Turbine Engineer - Welding Inspector - Engineer Metropolitan Area Canada Russia Houston

Journalist World Petroleum Congress Journalist (credentials applied for) World Petroleum Congress 22nd
World Petroleum Congress Istanbul, July 09-13 2017 !

Engineer / Welding Inspector CWI / Construction Project Manager Employed October 2000 to May 2014

New York City Department of Transportation 2000 to 2014

Education

Turbo Expo Etc. Gas Turbine Short Courses

Registered Representative (Stock Broker) Course resulting in passing SEC Tests Security Training Corporation

BSCHE Chemical Engineering Degree, University of Arizona, Tucson, Arizona

**Analysis of Steam Zoning With Exhaust – Smoke
Stack and Water Swirled Into Gas Turbine
Technology – Thank You for Listening !**

Leonard M. Andersen

**Gas Turbine Engineer –BSCChE AWS CWI (
Certified Welding Inspector)**

**len@lenandersen.com POB 1529 New York , NY 10116 (
\$1500 per year Caller Box NYC / Most Secure Service At
Large NYC Post Office)**

**914-536-7101 Cell Phone / 914-237-7689 Home /
800-428-4801 www.gasturbineandersen.com
www.lenandersen.com – Office – 5 PM – 5 AM
46 Alexander Avenue Yonkers NY**