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The Writings of Prof. Bailey
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LETTER 6/15 "Physics of a Thermo-Dynamic Windmill"

Pg. 01

Kaz, I do not know if you ever read my **Electric Spacecraft Journal # 29** concept about a pyro-magnetic aircraft engine?

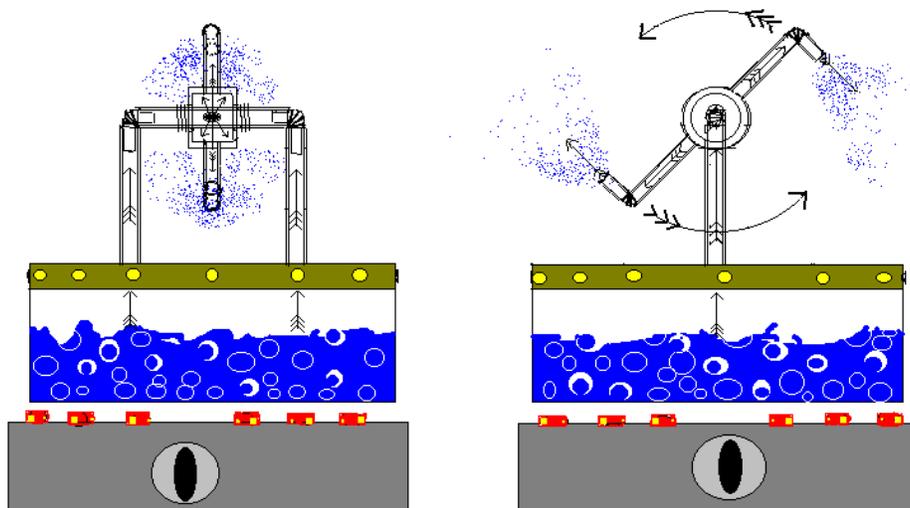
I will assume you never read the concept. I never find anyone who has.

Let's start at the simplest jet engine known.

This jet engine used "STEAM" and was invented 2000 years ago by Hero.

It had 2 reaction nozzles attached to a sphere. The sphere was filled with steam by 2 axle arms that were connected to a large steam boiler.

A fire roared under the boiler and kept it full of steam as water in the boiler became vapor.



THIS IS AN EXAMPLE OF AN "EXTERNALLY HEATED" JET ENGINE.

I know you are aware of the first steam engine!!!

The red letter question is "CAN" we build a wind heated version of the same simple engine???

First "HEAT" can only transfer from a "HOT" reservoir to a "COLD" one.

We know how to transfer the "KINETIC" energy of the wind.

All that is required is a large turbine blade.

But what about heat???

This is where conventional technology fails us.

A windmill blade is simply "UN-ABLE" to use heat from the wind.

Therefore, we must invest our heat energy in something other than an "OPEN DISC AREA" turbine blade!

The Hero steam engine uses a large "KETTLE OR BOILER".

Assuming wind will heat air in the same way a fire under a steam boiler will.

We now have to "MAXIMIZE" the temperature difference between the "INTERNAL WIND" and the "EXTERNAL WIND".

We also "MUST" use a wind chamber that works in the same way a large boiler tank does.

Therefore we substitute a hollow steel shell for the standard wind turbine blades.

The other problem is maximizing the internal and external temperature difference.

We want the trapped air on the "INSIDE" to be as "COLD" as possible!!!

We want the blown air on the "OUTSIDE" to be as "HOT" as possible.

This will simulate the fire under the Hero Steam kettle jet engine for our wind heated jet engine.

The answer to this problem is "SIMPLE"!

We use the windmill method known as the "DRAG CUP".

The drag cup windmill can be found on "MILLIONS" of wind speed indicators!

A drag cup has only 30% drag going point end into the wind. It has 130% drag going hollow cup into the wind.

In other words, if it is "CONVEX" to the wind it has only 30% drag.

If it is "CONCAVE" to the wind it has 130% drag.

This means only "ONE" thing to our steel shell holding our cold air.

When the steel shell is "BENT" convex, the wind flows around it easily. This also allows wind to be pulled through "SUCTION PORTS" by Bernoulli Effect. These suction ports are at the rim of our boiler tank and perpendicular to the wind flow.

This is "PHASE 1". It is the cooling phase of our jet engine boiler tank.

There is a strong suction!!!! PERIOD!

The suction can spin up a "SMALL INTAKE TURBINE".

This approach has been tested by me several times over the years.

WE KNOW HAVE COLD AIR BLOWING INTO OUR STEEL BOILER TANK.IT CAN BE AS LOW AS -70 DEGREES.

Our tank has now filled with "COLD" air and is ready to be heated.

This is "PHASE 2", we know change the thin steel boiler plate from convex to concave.

This is no different then turning our drag cup in the wind, until it is hollow cup side to the wind stream.

We now are "RAMMING" all of the wind striking the steel boiler tank into the cupped or concave metal plate!!!

The plate will get very hot from this ramming. The wind in phase 1 was moving "EASILY" past our steel boiler tank.

Now in "PHASE 2" the wind is striking the center of our cup shaped steel tank with great force and being slowed down.

To see this place a "LARGE SPOON" under a stream of water in the sink and "FLIP IT" from convex to concave!!!

When the spoon is convex or pointed side up, the water flows over it "EASILY".

When the spoon is concave or hollow cup side up, the water will "SPRAY" everywhere!!!You can feel a large increase in the force from the water on the spoon.

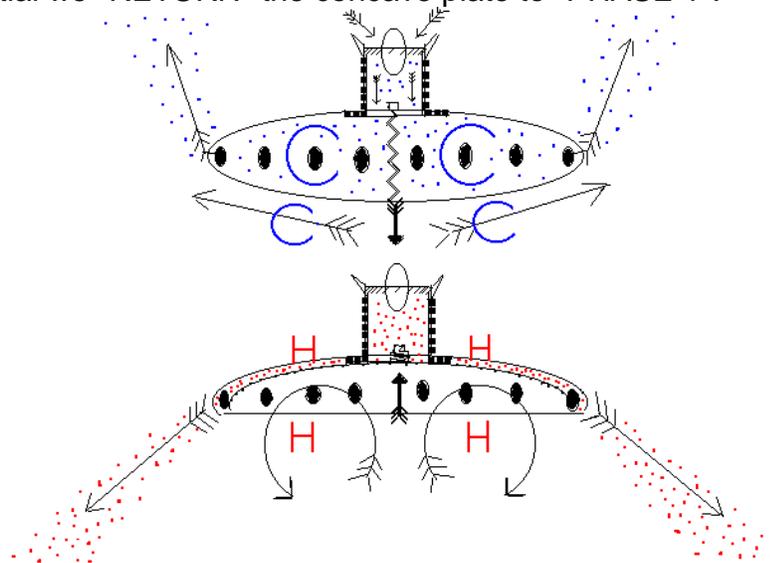
So now our steel boiler tank is "HOT" as the wind strikes its cup shaped surface.

The concave plate is pushed against the "BACK PLATE" of the boiler and hot air is expelled from the exhaust ports under great pressure!

Notice we are "CHANGING" the temperature of the convex, concave plate during the two phases!

We now have a strong force on the "CONCAVE" plate from the wind blowing against it.

It is essential we "RETURN" the concave plate to "PHASE 1".



In a short interval all of the cold air will be heated and expelled out of the exhaust ports.

The best way to oppose the great force generated by the wind striking the concave plate is with a "COUNTER-SPRING".

This counter-spring exactly balances the force of wind on the concave plate, so it can bend back to its normal "PHASE 1" convex or point end out shape.

We need a method to "INSTANTLY" tip the balance between convex and concave bending in steel boiler tank.

That is why we are using the intake turbine. It also will add a "SMALL" amount of extra pressure during the concave phase 2 heating.

The intake turbine drives a small generator that maintains a magnetic field.

This magnetic field can "ATTRACT" the "COLD" phase 1 convex plate and make it concave.

It can also turn off when the plate is "TOO HOT" during the concave phase.

So, we have harnessed the magnetic field to first pull our steel boiler plate to its concave position.

Then, we turn the magnetic field off and allow the "COUNTER-SPRING" to push the concave plate back out to its convex high external wind flow suction phase.

In simple terms, that is how you create a thermo-dynamic windmill. There is added energy from the fact that as the magnetized plate heats and cools it will generate power "PYRO-MAGNETICALLY".

This trapped cold air tank can be a square or a circle and spin to generate power like a homo-polar dynamo!

IT ALWAYS HAS HUNDREDS OF TINY EXHAUST PORTS ON ITS SIDE OR RIM. THESE PORTS CREATE SUCTION AS WIND BLOWS PERPENDICULAR TO THEM.THERE IS A LARGE AMOUNT OF EXPANSION FROM WIND BEING SUCKED THROUGH THE INTAKE TURBINE; THEREFORE THE INTAKE AIR IS COLD DURING PHASE 1.

The Repulsine is very similar in nature. It also has a heating and cooling phase. It is "ALSO" a thermo-dynamic wind mill.

GOOD LUCK ON YOUR RESEARCH EFFORT!