What is a pressure-foil?

A pressure-foil is a rotating thrust-producing apparatus -- a unique and efficient propulsion method which causes a useful force that pushes, pulls, lifts, or stops. The thrust generated via pressure foiling can be used to propel vehicles, ships, trains, and aircraft.

Was the idea of pressure foiling patented?

Yes. The United States patent was issued to Steven Quinn in 1994 with patent number ***5,328,333*** – ***"Rotating Thrust-Producing Apparatus" –***

Why is pressure-foil propulsion better than conventional propulsion?

1. **No propeller slippage:** Conventional propellers begin to slip through the air at a certain rotational speed, thus losing thrust on the propeller blades beyond a limiting RPM. Pressure Foils do not have this limitation because rarefaction, or evacuation, of the air, is the goal. The Pressure Foil relies on air evacuation to create force, not the pushing against the air to develop reaction force as in conventional propellers.

2. **No retreating blade stall:** Retreating Blade Stall occurs on all helicopters at a specific forward speed that matches the backward velocity of the retreating blade. This dangerous effect causes the retreating blade to stall and lose lift. The Pressure Foil has no such limitation because the upward thrust is equal around the entire periphery regardless of the forward airspeed of the helicopter.

3. **Direct propulsion:** All automobiles rely on tires pushing against the road to provide force. In rain, mud, snow, and ice, this is not the best method to propel a car forward because of poor traction. The Pressure Foil moves the vehicle directly, similar to pushing an aircraft, thus eliminating transmission systems.

4. **Smaller diameter rotor:** Standard air propellers, especially helicopter rotors, demand a large radius to produce the thrust needed. Pressure Foils require substantially less rotor diameter to perform the same job.

Would you explain the difference between conventional propulsion vs. pressure-foil propulsion using an example?

Imagine two railroad tracks, track "A" (conventional track) and track "B" (pressure-foil track), running north and south. Both sets of tracks have one flatbed train car resting on them. The track rails and train wheels are frictionless. Each train car also has a wall erected in the middle of the train car running east and west.

Two baseball pitchers are standing on the tracks throwing baseballs at either side of each wall at a rate of one baseball every five seconds. These baseballs striking the walls keep the cars motionless on the track because their effects are canceling. The goal for two groups of thinkers is to move the railroad car northward. The baseballs represent the millions of trillions of air molecules that strike the surface in a given time frame. The walls represent the reaction surface of any object that needs thrust applied to it. The pitchers represent the energy to move the air molecules.

The conventional group decides that the only way to move the car north is to hire another pitcher. This new pitcher would also throw baseballs from south to north, thereby doubling the number of balls hitting the south face of the wall and thus overcoming the effect of the pitcher throwing from north to south, thus causing the car to move northward. (The extra hired pitcher symbolizes rockets, jets, or conventional propellers.)

The pressure-foil group decides that if they hired a batter to stand on the railroad car, on the north side of the wall, to just slightly deflect (foul bunt) away the balls thrown from the north to the south so that the balls just missed the wall, the car would begin to move northward. (The hired batter symbolizes the pressure foil method of generating force.)

When using the pressure-foil method to move the railroad car, there is no need for another pitcher and no need to double the balls striking the southern face of the wall. In this way, we need less effort to move the car northward.