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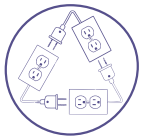

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Iron Man Thrust Boots

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Abstract

Iron Man Thrust Boots or Iron Man Jet Boots is one of the hard tasks to work on it (because of its compactness and complex design) with today's technology but it's not impossible either. To start with Iron Man Thrust Boots consist of major components that are Thrust, Fuel, Control, Stability and Steering. Thrust can be attained by hybrid thruster technology and gyro stabilizers, hydrogen can be used for the fuel and flight can be accomplished with an advanced control systems that works similar to the aircraft that run on auto pilot.

Keywords

Compact; Explosive resistant; Hard, Heavy armor; Jet boots; Thrust boots; Thrust; Impervious; Resistant

Introduction

Rocket boots are one of those things that come up again and again in science fiction because the fundamental idea is so basic and desirable yet more stylish than a jetpack.

As far as our body's ability to withstand the force our legs are actually capable of withstanding about 453.6 kg (4448.29 N) of force when you jump, according to Dr. Silverberg. The human body should be able to endure most rocket boot thrust. The weak point would be the knees, so, ideally, rocket boots would be thigh-highs, with the thrust coming from about halfway between the knee and foot. We would need some additional sensors in the foot bed and major joints (hip, knee, ankle, etc.,) so that you can both control the rockets aligned and keep them from overpowering the human with thrust, but the math would be the same.

To lift 1kg of the ground the force required is 10 Newton and let's say if Iron man suit has 200-350 kg (with user in it) it would require at least 2000-3500 N to lift him up and to achieve flight at high speeds would need high trust, at least 5000N [1].

Working Principle

Thrust

We would need a system in the suit to shunt some of the plasma from the source to the boots and fire it out the bottom with magnetic nozzles. The main addition needed is a way to heat the plasma up even more before ejections. This can be done with an ion cyclotron resonance frequency booster, which is a type of particle accelerator that uses magnetic fields and is circular. Then, additional thermal energy is converted to kinetic energy and thrust out the bottom of the boot (Figure 1).

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Fuel

Since both the rocket and the reactor need hydrogen as fuel and they can get it from the same source. Water has two hydrogen molecules (H_2O) and can be separated by taking help of electrolysis.

Based on the Physicist Ben Tippett calculations on these assumptions and results one would be burning about a liter of water per hour of running the reactor at full capacity. This would empty the container fast. But as long as enough water in the container is kept one would have all the fuel and does not need giant tank which is good because a giant tank would make the whole mechanism pretty hard to steer [2-8].

Control

It's great to have thousands of pounds of thrust under the feet but it does not do any good unless you can steer.

A brief introduction on how actual aircraft control themselves; Actual fixed wing aircraft (i.e. not helicopters) have a huge advantage because some are naturally stable. This means everything is put in place such that the plane will fly in a straight line without any pilot input, and if it's really finely tuned it will neither ascend nor descend. This is what people mean when they try to reassure nervous passengers that the plane "wants" to be in the air. Therefore any change in the motion of the aircraft must be directly controlled by the operator, especially before the invention of computers.

Some aircrafts are naturally unstable. A paper airplane model of the F-22 would not fly in a straight line like a Cessna would. But computers, in this case called a control system, can handle the discrepancy with the use of control laws. Control laws are a set of physics calculations which take in a lot of information about the aircraft and its surrounding environment and in turn make adjustments to the various control surfaces across the aircraft. These control systems come standard on all modern aircraft and work so well that according to aeronautical engineer Jacob Stump, every modern aircraft flies better than even the best aircraft available in the 1970s [9-11].

High school physics books tell us that planes fly because of the airfoil shaped wing that create a pressure differential on the top and bottom creating lift. And this is all well and good, but the Iron Man armor has no wings. Well neither did the Apollo Saturn V rocket, and that thing was huge. All it takes is enough thrust in the right direction and you can get in the air.

But before control, we must have stability and this is where all the computers and control surfaces discussed above are used.

Flying stable is a good step in the right direction, but mobility is even better. Operator can use repulsors in his hands which could easily provide enough force to twist and turn him, provided his legs and torso also moved accordingly. The suit will be more likely lock Operators legs into the appropriate position during flight. Operators' legs need to be rigid and directly behind his torso, where most of the weight is, in order to prevent operator from spinning like a pinwheel instead of flying straight ahead. Leave it to Iron Man flight administrator to make adjustments from there.

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Micro thrusters

Micro Thrusters and repulsors aid in horizontal flight, stability and maneuvering based on the repulsor/chemical hybrid thruster technology and with 'gyro stabilizer' (Figure 2).

Plasma actuators

Plasma actuators can be integrated into the Iron Man Suit and they can be used to both assist in creating "lift" as well as to explain exactly how Iron Man manages to yaw and roll in a suit which from outward appearances isn't very aerodynamic. The plasma actuators can be distributed evenly across his suit.

Iron Man Repulsors Hypothesis

The repulsors is the principal point which simply channel immense quantities of energy (electricity) and like the ion propulsion system would fire ions out in the opposite direction, but instead of using a heavy gas like Xenon, the repulsor uses so much electricity that it can simply use the air in-front of, and around it while still creating a much more powerful thrust than the Ion engine. In this case, we're talking about lot of energy. Palladium Arc Reactor runs at three gigajoules per second that would be more than enough, if engineered properly, to easily propel a man through the air for X amount of time.

Repulsors can also be used for horizontal flight and they repel what they hit and also they aid in horizontal flight and vertical thrust. Same concept for flight the gyro-stabilized repulsion keeps user inside the Iron Man Suit up while the boots provide forward thrust. This force field creates a more aerodynamic shape around the armor [12-16].

The repulsor technology lets user repel or tractor objects and this is a large part of what allows horizontal flight. The force field may also play part in the flight as it can also be used in aquatic modes to make the suit have a better profile for rapid speeds underwater and one notable version had a "super cavitation spike" to improve efficiency in flight by changing how air is directed around the suit and thrusters. Repulsor Technology uses lot of energy to run. Each rockets use repulsors and it uses 1/12th of the palladium.

Iron Man Boots Design Hypothesis

On the other hand we also have technology called Variable Specific Impulse Magneto plasma Rocket (VASIMR) also known as VASIMR which is much better than the ion thrusters, we can use ion thrusters but a technology which we know today is a VASIMR rocket, similar to the ion, uses electricity and a gas, the gas is ionized then turned to plasma which heats up depending on how you use it, it can either act like a ion thruster or a rocket propelled thruster. The advantage of the VASIMR is the very low fuel consumption. The gas used is hydrogen, an advanced suit like the iron man can simply extract the hydrogen from the air through electrolysis, the water is condensed as the suit pressurizes ram air to form water, and the hydrogen gas is produced and directly sent to the rocket boots [17-18]. Iron Man thrust boots Drawings (Figure 3 and 4).

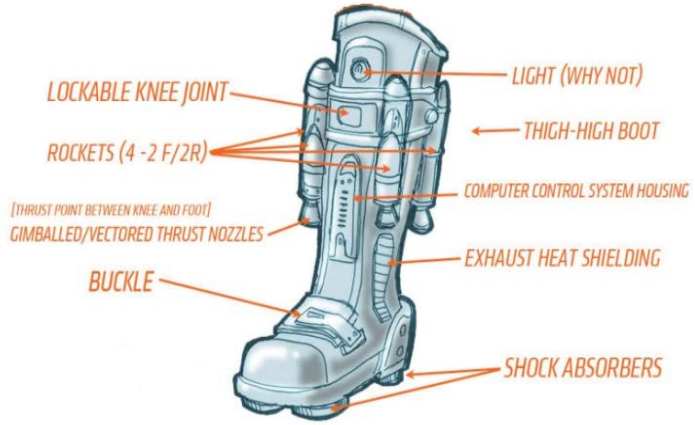

Figure 1: Figure depicts Silverberg Rocket boot design concept (permission was granted by Prof. Silverman to use this illustration in this article).

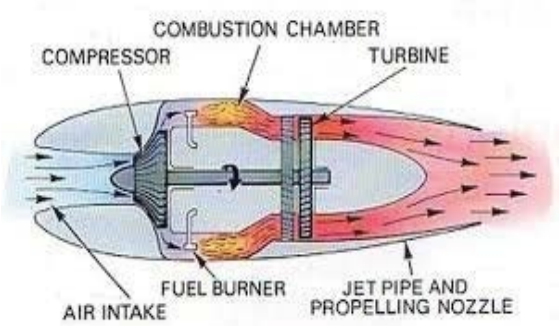

Figure 2: Figure depicts the concept of Micro Thrusters when taking horizontal flight.

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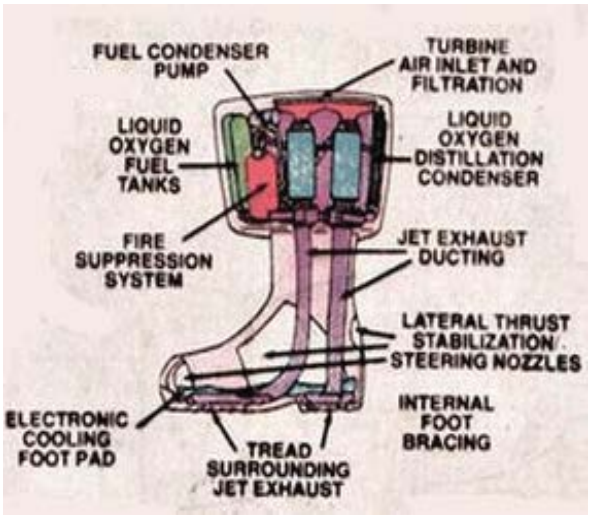

Figure 3: Figure depicts various components of Iron Man Thrust Boots.

Figure 4: Figure depicts un-plated Iron Man Thrust Boots (Design Concept).

Conclusion

What is claimed in this is

- A Iron Man Thrust Boots apparatus comprising full leg clothing article constructed at least in part from a strong material capable of protecting the wearer from projectiles; at least has Thrust, Fuel, Control, Stability and at least one sensor associated with Thrust Boots and capable of detecting the body movement and automatically adjusting the operator to keep them from overpowering the operator with thrust and preventing operator from spinning like a pinwheel instead of flying straight ahead.
- The Thrust Boots apparatus of claim 1, wherein said projectiles comprise bullets.
- The Thrust Boots apparatus of claim 1, wherein said strong material is Titanium/Steel alloy.
- The Thrust Boots apparatus of claim 1, further comprising of at least thrusters, plasma actuators which permits operator flight.
- The Thrust Boots apparatus of claim 1, further comprising means for cooling down clothing article and its operator.
- The Thrust Boots apparatus of claim 1, further comprising at least one computer capable of controlling the function to make automatic adjustments while on the flight.
- The Thrust Boots apparatus of claim 1, further comprising at least one computer capable of controlling the function to make automatic flight such as autopilot in ordinary aircraft.
- The Thrust Boots apparatus of claim 1, wherein the mechanism is performed by a computer based on the information received by said computer from said at least one sensor.
- The Thrust Boots apparatus of claim 1, wherein said power source comprises at least arc reactor/battery.
- The Thrust Boots apparatus of claim 2, wherein plasma actuators that allow driving the operator.

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