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(54) **CRAFT USING AN INERTIAL MASS
REDUCTION DEVICE**

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CPC B64G 1/409
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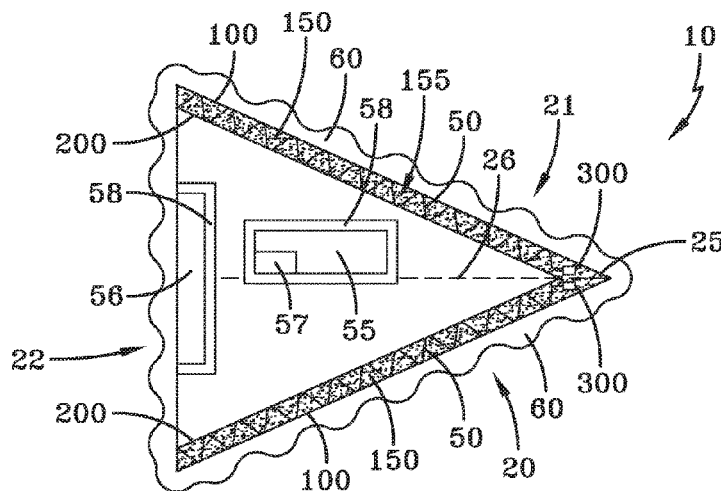
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(57) **ABSTRACT**

A craft using an inertial mass reduction device comprises of
an inner resonant cavity wall, an outer resonant cavity, and
microwave emitters. The electrically charged outer resonant
cavity wall and the electrically insulated inner resonant
cavity wall form a resonant cavity. The microwave emitters
create high frequency electromagnetic waves throughout the
resonant cavity causing the resonant cavity to vibrate in an
accelerated mode and create a local polarized vacuum
outside the outer resonant cavity wall.

4 Claims, 1 Drawing Sheet



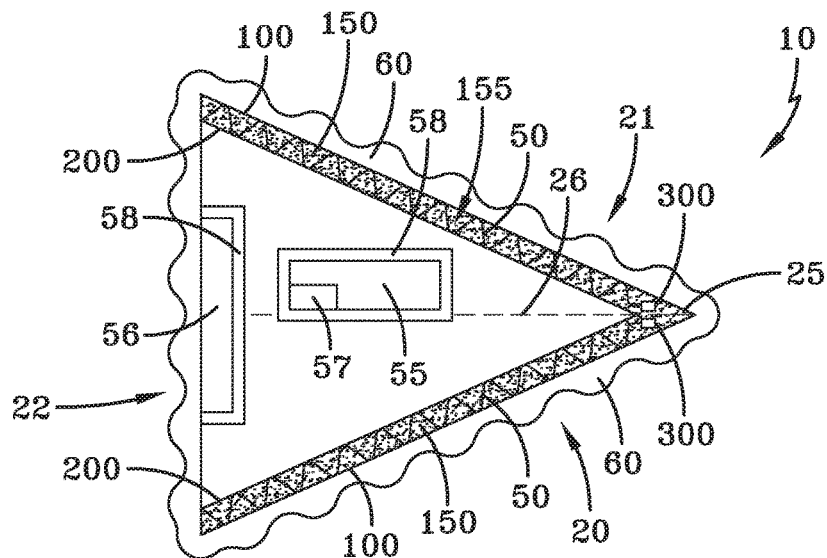


FIG-1

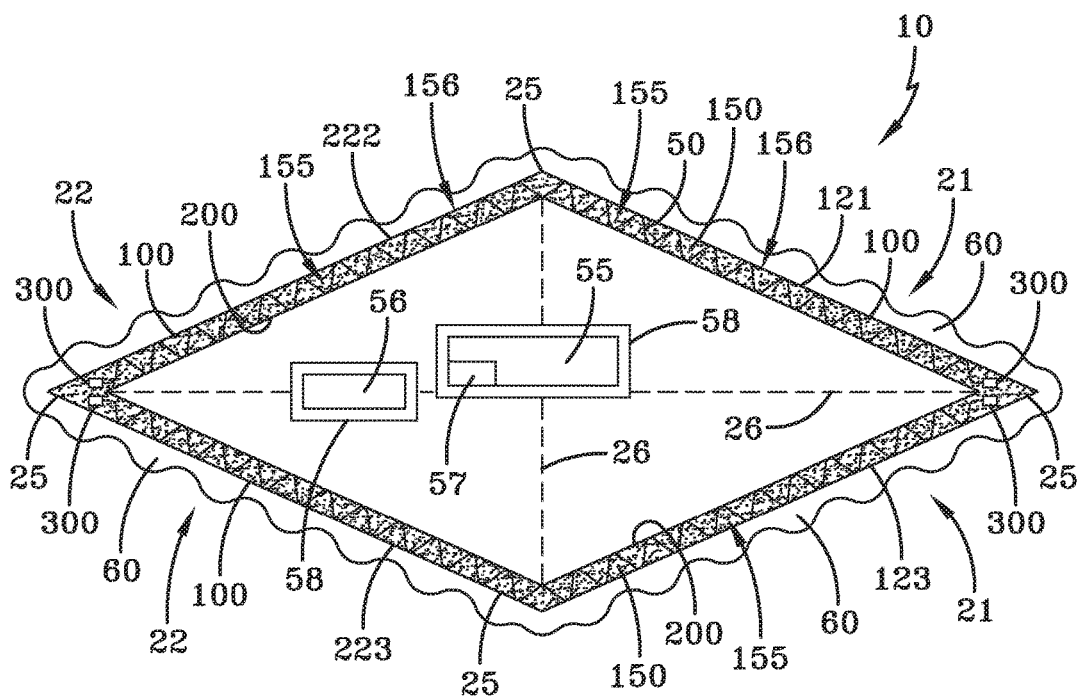


FIG-2

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CRAFT USING AN INERTIAL MASS REDUCTION DEVICE

STATEMENT OF GOVERNMENT INTEREST

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without payment of any royalties thereon or therefor.

BACKGROUND

There are four known fundamental forces which control matter and, therefore, control energy. The four known forces are strong nuclear forces, weak nuclear forces, electromagnetic force, and gravitational force. In this hierarchy of forces, the electromagnetic force is perfectly positioned to be able to manipulate the other three. A stationary electric charge gives rise to an electric (electrostatic) field, while a moving charge generates both an electric and a magnetic field (hence the electromagnetic field). Additionally, an accelerating charge induces electromagnetic radiation in the form of transverse waves, namely light. Mathematically, as well as physically, electromagnetic field intensity can be represented as the product of electric field strength and magnetic field strength. Electromagnetic fields act as carriers for both energy and momentum, thus interacting with physical entities at the most fundamental level.

Artificially generated high energy electromagnetic fields, such as those generated with a high energy electromagnetic field generator (HEEMFG), interact strongly with the vacuum energy state. The vacuum energy state can be described as an aggregate/collective state, comprised of the superposition of all quantum fields' fluctuations permeating the entire fabric of spacetime. High energy interaction with the vacuum energy state can give rise to emergent physical phenomena, such as force and matter fields' unification. According to quantum field theory, this strong interaction between the fields is based on the mechanism of transfer of vibrational energy between the fields. The transfer of vibrational energy further induces local fluctuations in adjacent quantum fields which permeate spacetime (these fields may or may not be electromagnetic in nature). Matter, energy, and spacetime are all emergent constructs which arise out of the fundamental framework that is the vacuum energy state.

Everything that surrounds us, ourselves included, can be described as macroscopic collections of fluctuations, vibrations, and oscillations in quantum mechanical fields. Matter is confined energy, bound within fields, frozen in a quantum of time. Therefore, under certain conditions (such as the coupling of hyper-frequency axial spin with hyper-frequency vibrations of electrically charged systems) the rules and special effects of quantum field behavior also apply to macroscopic physical entities (macroscopic quantum phenomena).

Moreover, the coupling of hyper-frequency gyrational (axial rotation) and hyper-frequency vibrational electrodynamics is conducive to a possible physical breakthrough in the utilization of the macroscopic quantum fluctuations vacuum plasma field (quantum vacuum plasma) as an energy source (or sink), which is an induced physical phenomenon.

The quantum vacuum plasma (QVP) is the electric glue of our plasma universe. The Casimir Effect, the Lamb Shift, and Spontaneous Emission, are specific confirmations of the existence of QVP.

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It is important to note that in region(s) where the electromagnetic fields are strongest, the more potent the interactions with the QVP, therefore, the higher the induced energy density of the QVP particles which spring into existence (the Dirac Sea of electrons and positrons). These QVP particles may augment the obtained energy levels of the HEEMFG system, in that energy flux amplification may be induced.

It is possible to reduce the inertial mass and hence the gravitational mass, of a system/object in motion, by an abrupt perturbation of the non-linear background of local spacetime (the local vacuum energy state), equivalent to an accelerated excursion far from thermodynamic equilibrium (analogous with symmetry-breaking induced by abrupt changes of state/phase transitions). The physical mechanism which drives this diminution in inertial mass is based on the negative pressure (hence repulsive gravity) exhibited by the polarized local vacuum energy state (local vacuum polarization being achieved by a coupling of accelerated high frequency vibration with accelerated high frequency axial rotation of an electrically charged system/object) in the close proximity of the system/object in question. In other words, inertial mass reduction can be achieved via manipulation of quantum field fluctuations in the local vacuum energy state, in the immediate proximity of the object/system. Therefore it is possible to reduce a craft's inertia, that is, its resistance to motion/acceleration by polarizing the vacuum in the close proximity of the moving craft.

Polarization of the local vacuum is analogous to manipulation/modification of the local space tie topological lattice energy density. As a result, extreme speeds can be achieved.

If we can engineer the structure of the local quantum vacuum state, we can engineer the fabric of our reality at the most fundamental level (thus affecting a physical system's inertial and gravitational properties). This realization would greatly advance the fields of aerospace propulsion and power generation.

The physical equation which describes the maximum intensity achieved by the high energy electromagnetic field generator (HEEMFG) system is described by the magnitude of the Poynting vector, which in non-relativistic for (accounting for all three modes of motion) can be written as:

$$S_{max} = f_G (\sigma^2 / \epsilon_0) [R_r \omega + R_v v + v_R] \quad (\text{Equation 1}),$$

where f_G is the HEEMFG system geometric shape factor (equal to 1 for a disc configuration), σ is the surface charge density (total electric charge divided by surface area of the HEEMFG system), ϵ_0 is the electrical permittivity of free space, R_r is the radius of rotation (disc radius), ω is the angular frequency of rotation in rad/s, R_v is the vibration (harmonic oscillation) amplitude, v is the angular frequency of vibration in Hertz, and the term v_R is the curvilinear translation speed (acquired via a propulsive unit of either chemical, nuclear or magneto-plasma-dynamic (VASIMR) type attached to the HEEMFG system—the integrated unit being the craft).

Therefore, if we consider only rotation, given a disc configuration, with $\sigma=50,000$ Coulombs/m², a disc (spinning/axially rotating) radius of 2 m and an angular speed of 30,000 RPM, an generate an electromagnetic (EM) field intensity (S_{max} is the rate of energy flow per unit area, or energy flux) value on the order of 10^{24} Watts/m² (this value does not account for any QVP interactions).

Furthermore, if we couple the high frequency of rotation with high vibration (harmonic oscillation) frequencies in the range of 10^9 to 10^{18} Hertz (and above) we can obtain S_{max} intensity values in the range 10^{24} to 10^{28} Watts/m² (and

beyond). These extremely high EM field intensity values emphasize the novelty of this concept, especially suited for the design of energy generation machinery with power output levels much higher than those currently achievable.

For the case of an accelerating angular frequency of vibration ($a_{max}=R_v v^2$), neglecting rotation and curvilinear translation, Equation 1 becomes (note intrinsic significance of acceleration):

$$S_{max}=f_G(G^2/\epsilon_0) [(R_v v^2) t_{op}] \quad (\text{Equation 2}),$$

where t_{op} is the operational time for which the charged electrical system is accelerating in its vibration.

Close inspection of Equation 2 results in an important realization, namely: strong local interaction with the high energetics of the quantum vacuum fields' fluctuations superposition (macroscopic vacuum energy state) is possible in a laboratory environment, by application of high frequency gyration (axial spin) and/or high frequency vibration of minimally charged objects (order of unity surface charge density), in an acceleration mode. In this manner, a high degree of local vacuum energy polarization can be achieved.

To illustrate this fact, considering a high end microwave frequency on the order of 10^{11} Hertz, a surface charge density on the order of 1 C/m^2 and an operational time on the order of the inverse of the vibrational amplitude, we obtain an energy flux value of 10^{33} W/m^2 . This exceptionally high power intensity induces a pair production avalanche, thereby ensuring complete polarization of the local vacuum state.

Local polarization of the vacuum in the close proximity of a craft equipped with an HEEMFG system would have the effect of cohering the highly energetic and random quantum vacuum fields' fluctuations, which virtually block the path of an accelerating craft, in such a manner that the resulting negative pressure of the polarized vacuum allows less labored motion through it (as noted by H. David Fröning).

Spontaneous electron-positron pair production out of the vacuum is a strong indicator of vacuum polarization being achieved. Julian Schwinger (Nobel prize winning physicist) gives a value of the electric field (E) on the order of 10^{18} V/m , for this phenomenon to take place. The mass production rate $(dm/dt)_{pp}$ of particle/anti-particle pairs can be expressed in terms of S_{max} (energy flux), namely:

$$2\gamma(dm/dt)_{pp}c^2=S_{max}A_S \quad (\text{Equation 3}),$$

where A_S is the surface area from which the energy flux emanates, c is the speed of light in free space, and γ is the relativistic stretch factor $[1-(v^2/c^2)]^{-1/2}$. Note that the pair production rate increases with increasing energy flux from the craft's generated electromagnetic field. Therefore, the level, to which the vacuum is polarized, thus allowing less labored motion through it, strictly depends on the artificially generated electromagnetic energy flux.

If we consider the boundary condition in the close proximity of the craft where the energy density of the artificially generated electromagnetic (EM) field equals the local energy density of the polarized vacuum (caused in part by the local zero-point vacuum fluctuations on the order of $10^{-15} \text{ Joules/cm}^3$ and in part by the artificial EM field interacting with the local vacuum energy state) we can write the approximate equivalence:

$$(S_{max}/c)=[(h^*v_v^4)/8\pi^2c^3] \quad (\text{Equation 4}),$$

where c is the speed of light in free space, (h^*) is Planck's constant divided by (2π) and (v_v) is the frequency of quantum fluctuations in the vacuum (modeled as harmonic oscillators). Furthermore, given that the left side of Equation 4 is on the order of $(\epsilon_0 E^2)$ where E is the artificially

generated electric field (strength), considering the Schwinger value of (E) for the onset of spontaneous pair production, we obtain a (v_v) value on the order of 10^{22} Hertz, which matches our expectations, since the Dirac virtual pair production, results in total annihilation, yielding gamma rays, which occupy the electromagnetic frequency spectrum of 10^{19} Hertz and above.

A recent paper, by the inventor, published in the International Journal of Space Science and Engineering (Pais, S. C., Vol. 3, No. 1, 2015) considers the conditional possibility of superluminal craft propulsion in a Special Relativity framework. It is observed that under certain physical conditions, the singularity expressed by the relativistic stretch factor 'gamma' as the craft's speed (v) approaches the speed of light (c), is no longer present in the physical picture. This involves the instantaneous removal of energy-mass from the system (craft) when the craft's speed reaches $(v=c/2)$. The author discusses the possibility of using exotic matter (negative mass/negative energy density) to bring about this effect. This may not have to be the only alternative. The artificial generation of gravity waves in the locality of the craft, can result in energy-mass removal (gravity waves are propagating fluctuations in gravitational fields, whose amplitude and frequency are a function of the motion of the masses involved).

Moreover, it is feasible to remove energy-mass from the system by enabling vacuum polarization, as discussed by Harold Puthoff; in that diminution of inertial (and thus gravitational) mass can be achieved via manipulation of quantum field fluctuations in the vacuum. In other words, it is possible to reduce a craft's inertia, that is, its resistance to motion/acceleration by polarizing the vacuum in the close proximity of the moving craft. As a result, extreme speeds can be achieved.

Vacuum energy state can be thought of as a chaotic system comprised of random, highly energetic fluctuations in the collective quantum fields which define it. Considering Ilya Prigogine's Nobel Prize work on far from equilibrium thermodynamics (the Prigogine effect), a chaotic system can self-organize if subjected to three conditions, namely: the system must be non-linear, it must experience an abrupt excursion far from thermodynamic equilibrium, and it must be subjected to an energy flux (order from chaos).

An artificially generated high energy/high frequency electromagnetic field (such as the fields an HEEMFG can produce) can fulfill all three conditions simultaneously (especially in an accelerated vibration/rotation mode), when strongly interacting with the local vacuum energy state. These interactions are induced by the coupling of hyper-frequency axial rotation (spin) and hyper-frequency vibration (harmonic oscillations/abrupt pulsations) of electrically charged systems (high energy electromagnetic field generators), placed on the outside of the craft in strategic locations.

In this manner, local vacuum polarization, namely the coherence of vacuum fluctuations within the immediate proximity of the craft's surface (outside vacuum boundary) is achieved, allowing for 'smooth sailing' through the negative pressure (repulsive gravity) of the 'void' (the void within the vacuum). It may be stated that the void 'sucks in' the craft.

It is of extreme importance that the craft has the ability to control the accelerated modes of vibration and spin of the electrically charged surfaces, in particular the rapid rates of change of accelerated-decelerated-accelerated vibration and/or accelerated-decelerated-accelerated gyration (axial spin) of the electrified surfaces. In this manner we can delay the onset of relaxation to thermodynamic equilibrium, thus

generating a physical mechanism which may induce anomalous effects (such as inertial or gravitational mass reduction). Furthermore, it is possible to enable the Gertsenshtein Effect, namely the production of high frequency gravitational waves by high frequency electromagnetic radiation, in this manner modifying the gravitational fields in close proximity to the craft, resulting in its propulsion.

For the mathematical formalism of inertial (and thus gravitational) mass reduction consider that in a published Physical Review Letter (December 1989), Hayasaka and Takeuchi report the anomalous weight reduction of gyroscopes for right rotations only. At the time, the authors could not elucidate the physics behind these anomalous results. Several null result experiments followed (a recent one as well) which declared the Hayasaka et al. results null and void, or at least questionable—however all these experiments were flawed in their ability to entirely duplicate the Hayasaka et al. experimental procedure and set-up (especially the high vacuum chamber the test section was mounted inside).

Closer attention to the non-zero intercept of the Hayasaka et al. expression relating the gyro's weight diminution with respect to its mass, its angular rotational frequency and its effective rotor radius, yields the possibility of a local quantum vacuum effect, namely a negative pressure (repulsive gravity) condition being present. This is due to the non-zero intercept being of the same order of magnitude with the Fokker-Planck electron-proton thermal equilibration rate (f_{ep}), given an approximate Hydrogen atom number density of 40 atoms/m³, commensurate with the local quantum vacuum state.

Consider the Hayasaka et al. expression for gyro-weight reduction, written in SI units as:

$$\Delta W_R(\omega) = -2 \times 10^{-10} M r_{eq} \omega \text{ kg m s}^{-2} \quad (\text{Equation 5}),$$

where ΔW_R is the reduction in weight, M is the mass of the rotor (in kg), ω is the angular frequency of rotation (in rad/s), and r_{eq} is the equivalent gyro-radius (in m).

From this relationship we see that the units of the non-zero intercept (2×10^{-10}) are (1/s). This non-zero intercept is endemic of the physics of gyro-rotational acceleration, in particular, the physical mechanism of abrupt excursion far from thermodynamic equilibrium.

We can further hypothesize that if the gyro-rotor was to vibrate uniformly (instead of rotating), and its vibration (harmonic oscillation) was to accelerate in frequency (thus inducing a state of abrupt departure far from thermodynamic equilibrium), it is possible that the resulting physics would be similar to that describing the rotational acceleration, thus we may write (using a simple dimensional analysis):

$$\Delta W_R(v) = -f_{ep} M A_v \nu \text{ kg m s}^{-2} \quad (\text{Equation 6}),$$

where f_{ep} is the Fokker-Planck electron-proton thermal equilibration rate, A_v is the vibration amplitude and ν is frequency of vibration (in 1/s).

SUMMARY

The present invention is directed to a craft using an inertial mass reduction device. The craft includes an inner resonant cavity wall, an outer resonant cavity, and microwave emitters. The outer resonant cavity wall and the inner resonant cavity wall form a resonant cavity. The microwave emitters create high frequency electromagnetic waves throughout the resonant cavity causing the outer resonant cavity wall to vibrate in an accelerated mode and create a local polarized vacuum outside the outer resonant cavity wall.

It is a feature of the present invention to provide a craft, using an inertial mass reduction device, that can travel at extreme speeds.

DRAWINGS

These and other features, aspects and advantages of the present invention will become better understood with reference to the following description and appended claims, and accompanying drawings wherein:

FIG. 1 is an embodiment of the craft using an inertial mass reduction device; and

FIG. 2 is another embodiment of the craft using an inertial mass reduction device.

DESCRIPTION

The preferred embodiments of the present invention are illustrated by way of example below and in FIGS. 1-2. As shown in FIG. 1, the craft 10 using an inertial mass reduction device comprises of an outer resonant cavity wall 100, an inner resonant cavity 200, and microwave emitters 300. The outer resonant cavity wall 100 and the inner resonant cavity wall 200 form a resonant cavity 150. The microwave emitters 300 create high frequency electromagnetic waves 50 throughout the resonant cavity 150 causing the outer resonant cavity wall 100 to vibrate in an accelerated mode and create a local polarized vacuum 60 outside the outer resonant cavity wall 100.

In the description of the present invention, the invention will be discussed in a space, sea, air, or terrestrial environment; however, this invention can be utilized for any type of application that requires use of an inertial mass reduction device or use of a craft.

In the preferred embodiment, the resonant cavity 150 is filled with a noble gas 155. The gas xenon may be used; however, any noble gas 155 or the equivalent can be utilized. The gas is used for the plasma phase transition aspect of symmetry-breaking for amplification of the Prigogine effect. In addition, the resonant cavity 150 may be an annular duct. As shown in FIG. 1, the resonant cavity 150 may also surround a crew compartment 55, a power plant system 56, a cargo bay 57, or any other type of compartment. The crew compartment 55, power plant system 56, cargo bay 57, and the like can be guarded in a Faraday-type cage 58, against all EM radiation effects.

The craft 10, particularly the outer resonant cavity wall 100, may be electrically charged. In addition, the inner resonant cavity wall 200 may be electrically insulated, in order for the inner resonant cavity wall 200 not to vibrate. The craft 10 includes a main body 20 with a leading portion 21 and a trailing portion 22. Additionally, the craft 10 may include a frustum 25 or cone on its leading portion 21 of its main body 20. In one of the embodiments, the frustum 25 is rotatable about its own axis 26 or has the ability to rotate.

The microwave emitter(s) 300 may be an electromagnetic field generator. The preferred electromagnetic generator is the one described in U.S. patent application Ser. No. 14/807,943, entitled "Electromagnetic Field Generator and Method to Generate an Electromagnetic Field," filed on Jul. 24, 2015. The application is herein incorporated by reference, and has the same inventor. However, the microwave emitters 300 may be any type of microwave emitter or radio frequency emitter that is practicable.

As shown in FIGS. 1 and 2, the craft 10 has a plurality of microwave emitters 300. The microwave emitters 300 are arranged within the resonant cavity 150, and may be anten-

nas (high radio frequency emitter sources) in the electromagnetic (EM) spectrum range of 300 Megahertz to 300 Gigahertz. The plurality of microwave emitters **300** are arranged within the resonant cavity **150** such that the required electrical charge is present through the resonant cavity **150** in order to cause the outer resonant cavity wall **100** to vibrate in an accelerated mode.

As described, in one of its embodiments, the craft **10** utilizes microwave-induced vibration within a resonant annular cavity (the resonant cavity **150**). The manner and effectiveness with which the microwave energy couples with the outer resonant cavity wall **100** is called the cavity Q-factor (the inner resonant cavity wall **200** is electrically insulated and does not vibrate). This parameter can be written as the (energy stored/energy lost) ratio and is in the range of 10^4 to 10^9 (and beyond), depending on whether ordinary metal (Aluminum or Copper at room temperature) or cryogenically cooled superconducting material (Yttrium Barium Copper Oxide or Niobium) is used for the outer resonant cavity wall **100** and outside mold line skin of the craft. One must realize that the high energy/high frequency electromagnetic field generator responsible for the inertial mass diminution effect would generate a repulsive EM energy field while in earth's atmosphere, thereby repelling air molecules in its path of ascent/flight. Consequently, once in orbital space, by local vacuum polarization (quantum field fluctuations' modification/coherence), a repulsive gravity effect (recall the negative pressure of the polarized vacuum) would permit swift movement of the craft **10** (which can be, but without limitation, a cone or lenticular triangle/delta wing configuration).

It is possible to envision a hybrid aerospace/undersea craft (HAUC), which due to the physical mechanisms enabled with the inertial mass reduction device, can function as a submersible craft capable of extreme underwater speeds (lack of water-skin friction) and enhanced stealth capabilities (non-linear scattering of RF and sonar signals). This hybrid craft would move with great ease through the air/space/water mediums, by being enclosed in a vacuum plasma bubble/sheath, due to the coupled effects of EM field-induced air/water particles repulsion and vacuum energy polarization.

As shown in FIG. 2, in another embodiment of the invention, the trailing portion **22** of the craft **10** is a mirror image of the leading portion **21**. This includes all working components internal to the craft. As shown in FIG. 2, the leading portion **21** includes a top leading edge portion **121** and a bottom leading edge portion **123**, while the trailing portion **22** includes top trailing edge portion **222** and a bottom trailing edge portion **223**. Both the trailing portions **22** and leading portions **21** include an outer resonant cavity wall **100** and an inner resonant cavity wall **200** forming a

resonant cavity **150**, such the resonant cavity **150** shrouds, envelopes, or encapsulates the craft **10**. The outer resonant cavity wall **100**, inner resonant cavity wall **200**, and resonant cavity **150** that completely surrounds the craft **10** can be referred to as a resonant cavity shroud **156**. The microwave emitters **300** create high frequency electromagnetic waves throughout the entire resonant cavity shroud **156** causing the outer resonant cavity wall **100** (or a portion of the outer resonant cavity wall **100**) to vibrate and create a local polarized vacuum **60** outside the outer resonant cavity wall **100**.

In operation, in the preferred embodiment, the craft **10** may be powered to move in different directions by causing different sections of the resonant cavity shroud **156** to vibrate. For instance, to move upwards the top portion **156** (top leading edge portion **121** and top trailing edge portion **222**) of the resonant cavity shroud **156** is vibrated, thereby, causing the polarized vacuum field **60** to move the craft upward.

When introducing elements of the present invention or the preferred embodiment(s) thereof, the articles "a," "an," "the," and "said" are intended to mean there are one or more of the elements. The terms "comprising," "including," and "having" are intended to be inclusive and mean that there may be additional elements other than the listed elements.

Although the present invention has been described in considerable detail with reference to certain preferred embodiments thereof, other embodiments are possible. Therefore, the spirit and scope of the appended claims should not be limited to the description of the preferred embodiment(s) contained herein.

What is claimed is:

1. A craft using an inertial mass reduction device comprising:
 - an inner resonant cavity wall;
 - an outer resonant cavity wall, the inner resonant cavity wall and the outer resonant cavity wall forming a resonant cavity; and,
 - microwave emitters such that the microwave emitters create high frequency electromagnetic waves throughout the resonant cavity causing the outer resonant cavity wall to vibrate in an accelerated mode and create a local polarized vacuum outside the outer resonant cavity wall.
2. The craft of claim 1, wherein the resonant cavity is filled with a noble gas.
3. The craft of claim 1, wherein the outer resonant cavity wall is electrically charged.
4. The craft of claim 1, wherein the resonant cavity is axially rotated in an accelerated mode.

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Patent Assignment Abstract of Title

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Available Documents

Mail Room Date	Document Code	Document Description	Document Category	Page Count	
11-14-2018	ISSUE.NTF	Issue Notification	PROSECUTION	1	<input type="checkbox"/>
10-31-2018	NOA	Notice of Allowance and Fees Due (PTOL-85)	PROSECUTION	7	<input type="checkbox"/>
10-31-2018	SRFW	Search information including classification, databases and other search related notes	PROSECUTION	1	<input type="checkbox"/>
10-31-2018	IIFW	Issue Information including classification, examiner, name, claim, renumbering, etc.	PROSECUTION	3	<input type="checkbox"/>
10-31-2018	SRNT	Examiner's search strategy and results	PROSECUTION	1	<input type="checkbox"/>
10-31-2018	IFEE	Issue Fee Payment (PTO-85B)	PROSECUTION	1	<input type="checkbox"/>
08-21-2018	AP.B	Appeal Brief Filed	PROSECUTION	40	<input type="checkbox"/>
08-21-2018	N417	EFS Acknowledgment Receipt	PROSECUTION	2	<input type="checkbox"/>
08-21-2018	TRAN.LET	Transmittal Letter	PROSECUTION	3	<input type="checkbox"/>
08-20-2018	AP.B	Appeal Brief Filed	PROSECUTION	20	<input type="checkbox"/>
08-20-2018	AF/D.132	Affidavit-traversing rejectns or objectns rule 132	PROSECUTION	20	<input type="checkbox"/>
08-20-2018	TRAN.LET	Transmittal Letter	PROSECUTION	1	<input type="checkbox"/>
07-11-2018	CTAV	Advisory Action (PTOL-303)	PROSECUTION	3	<input type="checkbox"/>
07-11-2018	IMIS	Miscellaneous Internal Document	PROSECUTION	1	<input type="checkbox"/>
06-21-2018	N/AP	Notice of Appeal Filed	PROSECUTION	1	<input type="checkbox"/>
06-21-2018	WFEE	Fee Worksheet (SB06)	PROSECUTION	2	<input type="checkbox"/>
06-21-2018	N417	EFS Acknowledgment Receipt	PROSECUTION	2	<input type="checkbox"/>
06-21-2018	N/AP	Notice of Appeal Filed	PROSECUTION	1	<input type="checkbox"/>
05-24-2018	A.NE	Response After Final Action	PROSECUTION		

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05-24-2018	CLM	Claims	PROSECUTION	1	<input type="checkbox"/>
05-24-2018	REM	Applicant Arguments/Remarks Made in an Amendment	PROSECUTION	3	<input type="checkbox"/>
05-24-2018	AF/D.132	Affidavit-traversing rejectns or objectns rule 132	PROSECUTION	1	<input type="checkbox"/>
05-24-2018	TRAN.LET	Transmittal Letter	PROSECUTION	1	<input type="checkbox"/>
05-24-2018	WFEE	Fee Worksheet (SB06)	PROSECUTION	1	<input type="checkbox"/>
03-30-2018	SRFW	Search information including classification, databases and other search related notes	PROSECUTION	1	<input type="checkbox"/>
03-30-2018	SRNT	Examiner's search strategy and results	PROSECUTION	1	<input type="checkbox"/>
03-30-2018	CTFR	Final Rejection	PROSECUTION	9	<input type="checkbox"/>
01-23-2018	A...	Amendment/Req. Reconsideration-After Non-Final Reject	PROSECUTION	1	<input type="checkbox"/>
01-23-2018	CLM	Claims	PROSECUTION	1	<input type="checkbox"/>
01-23-2018	REM	Applicant Arguments/Remarks Made in an Amendment	PROSECUTION	6	<input type="checkbox"/>
01-23-2018	REF.OTHER	Other Reference-Patent/App/Search documents	PROSECUTION	7	<input type="checkbox"/>
01-23-2018	REF.OTHER	Other Reference-Patent/App/Search documents	PROSECUTION	5	<input type="checkbox"/>
01-23-2018	REF.OTHER	Other Reference-Patent/App/Search documents	PROSECUTION	7	<input type="checkbox"/>
01-23-2018	REF.OTHER	Other Reference-Patent/App/Search documents	PROSECUTION	7	<input type="checkbox"/>
01-23-2018	REF.OTHER	Other Reference-Patent/App/Search documents	PROSECUTION	8	<input type="checkbox"/>
01-23-2018	REF.OTHER	Other Reference-Patent/App/Search documents	PROSECUTION	2	<input type="checkbox"/>
01-23-2018	N417	EFS Acknowledgment Receipt	PROSECUTION	2	<input type="checkbox"/>
01-23-2018	WFEE	Fee Worksheet (SB06)	PROSECUTION	1	<input type="checkbox"/>
01-22-2018	INTV.SUM.APP	Applicant Initiated Interview Summary (PTOL-413)	PROSECUTION	3	<input type="checkbox"/>
12-07-2017	M865E	Electronic Request for Interview with Examiner	PROSECUTION	1	<input type="checkbox"/>
11-28-2017	BIB	Bibliographic Data Sheet	PROSECUTION		

11-28-2017	SRFW	Search information including classification, databases and other search related notes	PROSECUTION	1	<input type="checkbox"/>
11-28-2017	SRNT	Examiner's search strategy and results	PROSECUTION	1	<input type="checkbox"/>
11-28-2017	CTNF	Non-Final Rejection	PROSECUTION	6	<input type="checkbox"/>
11-28-2017	1449	List of References cited by applicant and considered by examiner	PROSECUTION	4	<input type="checkbox"/>
11-02-2017	NTC.PUB	Notice of Publication	PROSECUTION	1	<input type="checkbox"/>
11-25-2016	NTC.PUB.DATE	Notice of New or Revised Publication Date	PROSECUTION	1	<input type="checkbox"/>
05-13-2016	WFEE	Fee Worksheet (SB06)	PROSECUTION	1	<input type="checkbox"/>
05-13-2016	APP.FILE.REC	Filing Receipt	PROSECUTION	3	<input type="checkbox"/>
04-28-2016	PA..	Power of Attorney	PROSECUTION	2	<input type="checkbox"/>
04-28-2016	OATH	Oath or Declaration filed	PROSECUTION	1	<input type="checkbox"/>
04-28-2016	IDS	Information Disclosure Statement (IDS) Form (SB08)	PROSECUTION	4	<input type="checkbox"/>
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04-28-2016	NPL	Non Patent Literature	PROSECUTION	4	<input type="checkbox"/>
04-28-2016	NPL	Non Patent Literature	PROSECUTION	17	<input type="checkbox"/>
04-28-2016	NPL	Non Patent Literature	PROSECUTION	24	<input type="checkbox"/>
04-28-2016	NPL	Non Patent Literature	PROSECUTION	4	<input type="checkbox"/>
04-28-2016	NPL	Non Patent Literature	PROSECUTION	6	<input type="checkbox"/>
04-28-2016	WFEE	Fee Worksheet (SB06)	PROSECUTION	2	<input type="checkbox"/>
04-28-2016	N417	EFS Acknowledgment Receipt	PROSECUTION	4	<input type="checkbox"/>
04-28-2016	ADS	Application Data Sheet	PROSECUTION	6	<input type="checkbox"/>
04-28-2016	SPEC	Specification	PROSECUTION	16	<input type="checkbox"/>
04-28-2016	CLM	Claims	PROSECUTION	1	<input type="checkbox"/>
04-28-2016	ABST	Abstract	PROSECUTION	1	<input type="checkbox"/>
04-28-2016	DRW	Drawings-only black and white line drawings	PROSECUTION	1	<input type="checkbox"/>

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15/141,270

Craft Using an Inertial Mass Reduction Device

PAX 205

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Correspondence Address

Name:

Department of the Navy

Address:

(Naval Air Warfare Center -Aircraft Division)
47076 Lijencreantz Road, B435
PATUXENT RIVER MD 20670

Customer Number:

21124

Attorney/Agent Information

Reg. #	Name	Phone
38161	Glut, Mark	301-757-0582

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1/1

MAY 24 2018

*Serial No.: 15/141,270***REMARKS**

Examiner rejected claims 1-4 "under 35 USC 112(a) or 35 USC 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement." Examiner stated the "claims(s) contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains ... to make and/or use the invention." Examiner asserted that "it is seen that for a high energy electromagnetic field to polarize a quantum vacuum as claimed would take ... [and] ... these levels are not feasible with current technology." Examiner further stated that "this claiming of this microwave emitter is not enabled ..."

Examiner rejected claims 1-4 "under 35 USC 112(b) or 35 USC 112 (pre-AIA), second paragraph, as "being indefinite for failing to point out and distinctly claim the subject matter ... the applicant regards as the invention." Examiner asserts that "the amount of magnetic field and electricity required for this craft to 'work' are on the many orders of magnitude beyond what is created ...and therefore indefinite ..."

Applicant hereby requests further examination and reconsideration of the application, in view of the foregoing remarks.

Please find a declaration from Dr. James Sheehy, Chief Technology Officer of the Naval Air Systems Command (dated May 11, 2017), a person skilled in the art indicating that amount of magnetic field and electricity required can be created, and thus the invention can be enabled. Furthermore, enablement is shown in an IEEE paper (K.J. Coakley et al, "Estimation of Q-Factors and Resonant Frequencies" IEEE

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DECLARATION UNDER 37 C.F.R. 1.132

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Pais)	
Serial No.: 15/141,270)	Group Art Unit: 3644
Filed: 04/28/2016)	Examiner: Philip Bonzell
For: A Craft Using an Inertial Mass)	
Reduction Device)	Att. Docket No.: PAX 205
)	

Commissioner of Patents and Trademarks
Washington, D.C. 20231

DECLARATION UNDER RULE 1.132

I, James Sheehy, declare and say as follows:

That I received a Doctor of Philosophy Degree (PhD) in physiological optics from the Pennsylvania State University, a Master's degree from the Rensselaer Polytechnic University in Human Factors Engineering (with research performed in energy efficient vehicles), and a Bachelor's degree from Kean University.

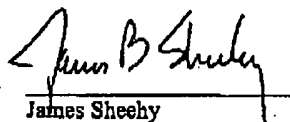
That I have served as a civilian employee of the United States Navy since 1985. During the course of my career at the Department of the Navy, I was a research and lab manager, and the Chief Scientist of the Naval Air Systems Command. I have directed all basic to advanced technology research while continuing to pursue research interests in perception, physiological optics, visual vestibular interactions, analog then digital sensors and displays for night vision / low light level devices, nonlinear materials and novel coatings for filters and lenses. As a result, I am well versed in the generation of electromagnetic fields and in physics in general (the subject matter of the above application).

That for the past eleven years I have been and am currently the Chief Technology Officer of the Naval Aviation Enterprise, and NAVAIR's Chief Scientist/CTO and technical authority, and spokesperson for all basic, applied, advanced research and transition. I was promoted to the Senior Executive Service in November 2001 and was awarded the Presidential Rank Award for sustained superior accomplishments in 2007.

That I am familiar with the above referenced patent application (and related amendment), as well as the development, usage and properties of the craft using an inertial mass reduction device. That as a result of my education and career, I am regarded as a subject matter expert and can be considered "a person of ordinary skill in the art" in the subject matter of the above patent application.

That the invention described in the above referenced patent application is enabled via the physics described in the patent application and the peer reviewed papers described in the Inventor Amendment dated January 23, 2018.

That I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 USC 1001.



James Sheehy

May 11, 2018

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MAY 24 2018

DECLARATION UNDER 37 C.F.R. 1.132

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Pais)	
Serial No.: 15/141,270)	Group Art Unit: 3644
Filed: 04/28/2016)	Examiner: Philip Bonzell
For: A Craft Using an Inertial Mass)	
Reduction Device)	Att. Docket No.: PAX 205
)	

Commissioner of Patents and Trademarks
Washington, D.C. 20231

DECLARATION UNDER RULE 1.132

I, James Sheehy, declare and say as follows:

That I received a Doctor of Philosophy Degree (PhD) in physiological optics from the Pennsylvania State University, a Master's degree from the Rensselaer Polytechnic University in Human Factors Engineering (with research performed in energy efficient vehicles), and a Bachelor's degree from Kean University.

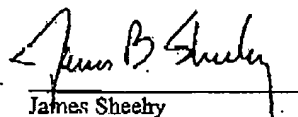
That I have served as a civilian employee of the United States Navy since 1985. During the course of my career at the Department of the Navy, I was a research and lab manager, and the Chief Scientist of the Naval Air Systems Command. I have directed all basic to advanced technology research while continuing to pursue research interests in perception, physiological optics, visual vestibular interactions, analog then digital sensors and displays for night vision / low light level devices, nonlinear materials and novel coatings for filters and lenses. As a result, I am well versed in the generation of electromagnetic fields and in physics in general (the subject matter of the above application).

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That I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 USC 1001.


James Sheehy

May 11, 2018

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)****Title of
Invention****A Craft Using an Inertial Mass Reduction Device**

As the below named inventor, I hereby declare that:

This declaration
is directed to:

The attached application, or

United States application or PCT international application number _____
filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001
by fine or imprisonment of not more than five (5) years, or both.**WARNING:**

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LEGAL NAME OF INVENTORInventor: Salvatore PaisDate (Optional): 04-27-2016Signature: _____

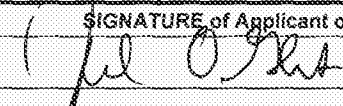

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Application Number			
Filing Date			
First Named Inventor	Pais		
Title	A Craft Using an Inertial Mass Reduction Device		
Art Unit			
Examiner Name			
Attorney Docket Number	PAX 205		
SIGNATURE of Applicant or Patent Practitioner			
Signature		Date	4/28/2016
Name	Mark Glut	Telephone	301-342-9565
Registration Number	38,161		

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Examiner Bonzell Philip J

Employment Information

Group:	Aeronautics, Agriculture, Fishing, Trapping, Vermin Destroying, Plant and Animal Husbandry, Weaponry, Nuclear Systems, and License and Review
Classes:	052 – Static structures (e.g., buildings) 074 – Machine element or mechanism 136 – Batteries: thermoelectric and photoelectric 244 – Aeronautics and astronautics 297 – Chairs and seats 701 – Data processing: vehicles, navigation, and relative location
Art Unit:	3642
Title:	Pat Examnr Computer Science
Phone:	(571) 270-3663
Email:	philip.bonzell@uspto.gov
Location:	Virginia
Degree:	Master's Degree
Service:	14 years
Grade:	GS-14

Grant Rate and Difficulty Ranking

3-Year Grant rate:	85% over 402 cases
Difficulty: ?	Very Easy
Difficulty Percentile: ?	18th 

With Examiner Bonzell, you have a 85% chance of getting an issued patent by 3 years after the first office action. Examiner Bonzell is a very easy examiner and in the 18th percentile across all examiners (with 100th percentile most difficult).

Grant Rate

Grant Rate Timeline

Below is the grant rate timeline for Examiner Bonzell, where the timeline is relative to the date of the first office action. The three-year grant rate is the percentage of applications granted at three years after the first office action.



Federal Employee Profile — Philip J. Bonzell

Philip J. Bonzell

Title: Patent Examiner. (Job titles are sourced from the OPM. Keep in mind that the OPM has a limited set of job classifications with which to describe a wide variety of employees, so in some cases a generic job classification will be used if a more specific one is not available.)

Agency: Patent and Trademark Office

In 2018, Philip J. Bonzell was a Patent Examiner at the Patent and Trademark Office in Newport News, Virginia. began working at the Patent and Trademark Office in 2007 with a starting salary of \$61,893. Since then, 's salary has increased to \$132,851 in 2018.

Philip J. Bonzell is a GS-14 under the general schedule payscale.

Year	Occupation	Paygrade	Base Salary	Bonus	Location
2018	Patent Examining	GS-14	\$132,851	\$3,214	Newport News, Virginia
2017	Patent Examining	GS-14	\$128,944	\$2,247	Newport News, Virginia
2016	Patent Examining	GS-14	\$127,667	\$3,463	Chesapeake, Virginia
2015	Patent Examining	GS-14	\$122,571	\$3,023	Chesapeake, Virginia
2014	Patent Examining	GS-14	\$117,565	\$2,021	Chesapeake, Virginia
2013	Patent Examining	GS-14	\$112,647	\$4,399	Chesapeake, Virginia
2012	Patent Examining	GS-13	\$98,504	\$2,516	Alexandria, Virginia
2011	Patent Examining	GS-13	\$95,326	\$2,834	Alexandria, Virginia
2010	Patent Examining	GS-12	\$82,836	\$1,515	Alexandria, Virginia
2009	Patent Examining	GS-11	\$75,751	\$0	Alexandria, Virginia
2008	Patent Examining	GS-09	\$69,725	\$0	Alexandria, Virginia
2007	Patent Examining	GS-07	\$61,893	\$0	Alexandria, Virginia

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↑ **9%**

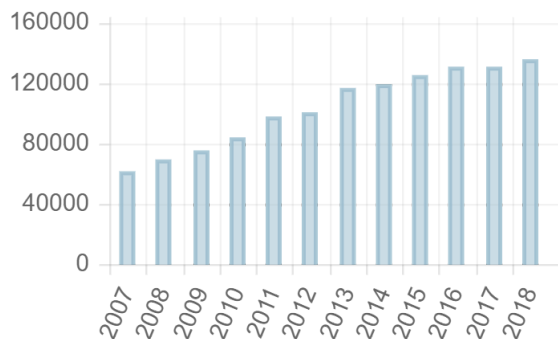
higher than the average Patent Examiner across all agencies.

Philip J. Bonzell's 2018 pay is

↑ **73%**

higher than the average pay of a GS employee at the Patent and Trademark Office.

Philip J. Bonzell's pay trend during his or her government career in the Patent and Trademark Office:



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Examiner Bonzell's grant rate is higher than that of Art Unit 3642 and higher than that of the USPTO.



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Grant Rate without Interview

Examiner Bonzell has granted 252 of 303 cases without any applicant-requested interviews for a grant rate of 83%.



Grant Rate with Interview

Examiner Bonzell has granted 89 of 99 cases with at least one applicant-requested interview for a grant rate of 90%.



Interview Benefit

With Examiner Bonzell, conducting an interview increases your chance of getting a patent granted by 8%.



Recent Dispositions



Number	Title	OA Rejections	Status	Patent-Plex
15513886	Rotorcraft Including Auxiliary Propulsor Positioned To Ingest Boundary Layer Flow	Rejection information available with a Premium Stats subscription. See our pricing.	Patented	View
15709649	Translatable Scoop For Auxiliary Power Units Air Intake		Patented	View
17095961	Cessna Tail-Cone Reinforcement Angle Splice, Installation Kit, And Method For Installation Thereof		Patented	View
15278636	Tandem Rigid Rotor System And Method		Patented	View
15709235	Aircraft Self-Rescue System		Patented	View
15712618	Aircraft Fuselage Apparatus Having Embedded Structural Batteries		Patented	View
15791833	Aircraft Component Comprising A Chiral Lattice		Abandoned	View
15523244	Multi-Rotor Aerial Vehicle		Patented	View
15853045	Wing And Propeller Design For Aircraft		Abandoned	View
15420465	Anti-Icing System And Aircraft		Patented	View
15710622	Rotorcraft Engine Inlet Configuration To Optimize Performance In Both Hover And High Speed Flight		Patented	View
15926678	Space Optimized Cabin Arrangement For A Vehicle As Well As A Passenger Cabin Having A Plurality Of Seats And Such A Cabin Arrangement		Patented	View
15710446	Unmanned Aerial Vehicle-Mounted Apparatus		Patented	View
15411228	Nacelle For An Aircraft Aft Fan		Abandoned	View
15710645	Hybrid Aircraft		Abandoned	View
16930542	Cessna Tail-Cone Reinforcement Angle Splice, Installation Kit, And Method For Installation Thereof		Patented	View
15770254	Flying Object		Patented	View
16129210	System For Producing Remote Sensing Data From Near Earth Orbit		Patented	View
15463283	Skin Panel With An Energy-Storing Layer For An Aircraft Or Spacecraft And Method For Manufacturing An Energy-Storing Layer For A Skin Panel		Patented	View
15786465	Rocket Engine Systems With An Independently Regulated Cooling System		Patented	View