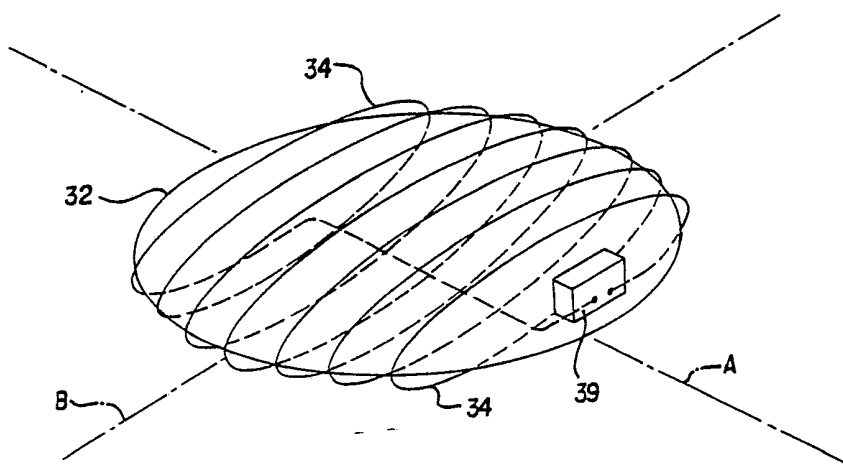




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(54) Title: ELECTROMAGNETIC DEVICE FOR MOVING AND/OR LIFTING ABOVE THE EARTH'S SURFACE AND EFFICIENT SPACE TRAVEL



(57) Abstract

A transporting, levitating device or space travel vehicle (32) which moves and/or lifts above the surface of the earth or other terrestrial body and performs effectively in space by means of generating an electromagnetic field which effectively interacts with the earth's, other planet's, satellite's, or the universe's electromagnetic field(s). The electromagnetic device functions as a result of a mathematical relationship of lines of force of the electromagnetic field of the vehicle effectively covering a large enough area, having for example a cross-sectional area across of fifty miles, of another supporting or influencing, surrounding, preexisting electromagnetic field, which may itself be weak in a small area, whereby the desired moving and/or lift capability is achieved for the electromagnetic device by interacting over said large area electromagnetically (magnetically).

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**ELECTROMAGNETIC DEVICE FOR MOVING AND/OR
LIFTING ABOVE THE EARTH'S SURFACE AND EFFICIENT SPACE TRAVEL**

BACKGROUND of INVENTION

1. Technical Field

5 The present invention relates generally to electromagnetic levitation devices for moving and/or lifting relative to its electromagnetic field interacting with the earth's or other terrestrial body's or the universe's electromagnetic field(s).

10 **2. Background Art**

 There have been many claimed designs for achieving electromagnetic efficient and realistic travel in the air space surrounding a terrestrial body or space travel generally by the electromagnetic field generated by the device interacting with the earth's or other terrestrial
15 body's or the universe's electromagnetic field(s). The National Aeronautical & Space Administration (NASA) of the U.S., others, and even the fictional cartoon character "Dick Tracy" have proposed such devices, but none were efficiently
20 operable or practical.

 These and other such devices of the prior art have not work efficiently or practically as a result of the prior lack of appreciation of the importance of producing a large electromagnetic field with a relatively small input power and
25 the mechanics of the proper mathematical interactions of the device's emitted gyroscopic particles making up its electromagnetic field (magnetic) with those of the moving and/or lifting entity (planet-space-universe, etc.).

 Additionally, the present invention utilizes in one
30 exemplary embodiment the combination of a buoyant body or "air" ship and an electromagnetic field generator, which embodiment includes a synergistic inter-relationship and action between the produced magnetic field and the internally contained lifting gas (e.g. helium), which inter-action
35 enhances the lifting force or buoyancy of the lifting gas.

3. Objects of the Invention

 Accordingly, it is a very basic object of the present invention to obviate the inefficient designs of the prior art

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by providing an electromagnetic device that will efficiently move and/or lift above the earth or other terrestrial body and/or efficiently travel in space regardless of the weakness or the strength or gauss of the supporting bodies' or space's electromagnetic (magnetic) field(s) by using a greatly increased area and strength of interaction between the respective electromagnetic fields over a relatively large area using for example a relatively low power electrical input.

A further object is to provide a levitation, space travel system in which there is included a buoyant "air" ship or lifting sub-system, in which system there is a lift enhancing interaction between the generated electromagnetic field of the device and the contained lifting fluid or gas, assisting in the inherent levitation capabilities of the system, particularly while traveling in the terrestrial body's atmosphere.

These and other objects of the present invention are provided, applying some of the teachings of U.S. patent application Serial No. 179,474 filed August 18, 1980, and its related U.S. & foreign applications (note PCT International Publication No. WO 83/00963 dated March 17, 1983), and its related U.S. disclosure document, which teachings are included in the book entitled The Energy Machine of Joseph Newman (3rd ed.; Newman Publishing Co., Route 1, Box 2, Lucedale, MS 39452 USA; 1984-86), and combining them with the mechanics of generating a relatively large area electromagnetic field from a device that will functionally interact with relatively large areas of the electromagnetic (magnetic) field(s) of other bodies or space. The device preferably has sensing capabilities that automatically keep a check on the relative strength(s) of the electromagnetic field(s) of the bodies and/or space within the functional area of the device and, as a result thereof, also automatically adjust the generated electromagnetic field coming from the device for maintaining the proper, requisite electromagnetic interaction between generated field of the

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device and the supporting or influencing entities' electromagnetic (magnetic) field(s).

5 Another object of the invention is to properly mechanically interface the gyroscopic particles moving in the device's electromagnetic field with the gyroscopic particles moving in the supporting entities' electromagnetic field(s).

These and other advantages and objects of the invention will become more apparent from a review of the drawings and specification hereof.

BRIEF DESCRIPTION of the DRAWINGS

The novel features of the invention are set out with particularity in the appended claims, but the invention will be understood more fully and clearly from the following detailed description of the preferred, exemplary embodiments of the invention as set forth in the accompanying drawings, in which:

Figure 1 is a side view of a first, exemplary embodiment of an electromagnetic (magnetic) levitating and/or motion device of the present invention for, for example, planetary and space travel.

Figure 2 is a top, plan view of an electromagnetic (magnetic) levitating and/or motion device for planetary and space travel.

Figure 3 is a top, plan view of another embodiment of an electromagnetic (magnetic) levitating and/or motion device for planetary and space travel.

Figure 4 is a graph illustrating the coil power output line and the line of constant ampere turns and total constant magnetic field strength in plotting the current in the coil or the watts required to sustain a magnetic field (vertical axis) against the number of turns in the coil (horizontal axis), which analysis is used in the consideration of the present invention.

Figure 5 is a perspective view of still another exemplary, embodiment of an electromagnetic (magnetic) levitating and/or motion device for, for example, planetary and space travel; while

Figure 6 is a top, plan view of the embodiment of Figure 5.

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BEST MODES For Carrying Out The INVENTION

Referring first to **Figure 1**, a first exemplary embodiment of an electromagnetic (magnetic) levitating and/or motion device **2** for, for example, planetary and/or space travel, according to the present invention, is illustrated as viewed from the side. Although the device **2**, is shown in the form of a dish or saucer, it could be made of numerous designs in other forms. An exemplary cargo or human area **3** is located for example in the center of the device **2**.

Conducting medium or permanent magnets or super conducting electromagnetic field producing elements are schematically or generally illustrated as dots **4**. The interior area of the dots **4** could also be filled with helium or some other light gas in place of, and lighter than, air and thereby have even more lifting capability in an atmospheric environment above a terrestrial body, as is more specifically discussed with respect to the embodiment of **Figures 5 & 6**.

Referring now to **Figure 2**, a top view of a second exemplary embodiment **12**, similar to the device **2** of **Figure 1**, is illustrated, with the electromagnetic field producing means **14** being of a conducting medium of numerous parallel means of relatively great length, resulting in covering or cutting across a significantly large area of the preexisting electromagnetic field of the supporting entity (planet, space, etc.). The parallel field generator means **14** has a relatively small input current and relatively high input voltage or uses super-conductive principles, running all in the same direction simultaneously through the parallel means **14**.

One single conductor **15** on one end of the device **12** can be the initial input feed for all of the parallel conducting means **14** for the same polarity from an electrical energy source (not illustrated), for example a DC power source; with likewise one single conducting means **16** on the other end of the device **12** being the initial return route to the energy source. When the direction of the current, no matter how infinitesimally small, is reversed from the energy

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source by for example a commutator system, conductor means 15 then becomes the return path to the energy source, and conductor means 16 becomes the carrying or input path from the energy source, reversing the polarity of the electromagnetic field generated by the current flowing through the parallel elements 14.

For a full understanding and appreciation of this invention, one should master the teachings in PCT International Publication No. WO 83/00963 and its related disclosures and the book entitled The Energy Machine of Joseph Newman, all referred to above. Following those teachings and the disclosures hereof, one can build an electromagnetic device that will travel over land, air, water and/or space, by interacting with significantly large areas of the preexisting electromagnetic fields(s) of the earth, planets, or space, even though they be weak in considering only a small area, and as a result cause the device to levitate and/or move.

Preferably, but not absolutely essential in this design, relatively small diameter conducting wire of relatively great length and high voltage (hydraulic pressure) applied or relatively small diameter super conducting material be used for the field generating elements 14 (4), whereby a strong electromagnetic field will result with relatively small current and wattage or power input. The purpose is to achieve the greatest area of electromagnetic field with the smallest weight factor that is practical.

For example, if the conducting parallel medium 14 was made of "40" gauge copper wire, each one would have a resistance of more than one hundred thousand (100,000) ohms for a saucer 12 with a slightly more than a twenty (20) mile diameter. For a slightly more than a one hundred (100) mile diameter, each parallel line 14 would have a resistance of five hundred thousand (500,000) ohms, allowing for only a small current flow even with high voltage.

These exemplary diameters at first may seem unwieldy large to the unthinking individual, but in space a diameter of one hundred (100) miles would be relatively less in

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proportion to the vastness of space, than a grain of salt is to the oceans of the world. As a result the living and/or cargo area 13 (3) could be of the largest area desirable; even including such large cross-sectional dimensions which would allow the building of a small, all sustaining, beautiful world with trees, animals, flowers, crops, streams, rivers, buildings, etc., with no pollution. Of course the diameter of the device 12 (2) would simply be increased according to the need.

At first one might think that such a massive device would use high current and power to create its needed large area electromagnetic field. In addition to the past teachings referred to above, the graph of **Figure 4** is provided, utilizing the known scientific equation for the production of an electromagnetic field using a current flowing through a coil, which graph clearly proves that the power or current input can be infinitesimally small but yet produce a large, sustained electromagnetic field. **Figure 4** shows the results of a coil, but the same effects apply if the coil was straightened out into the equivalent of the parallel lines 14 in **Figure 2**.

The fact that the invention will work is easily verified by the previous disclosures and by simply taking for example some "40" gauge magnetic copper wire and letting it hang between two supports about for example eight feet away, with an orientation so that the "40" gauge wire is at right angles to the earth's electromagnetic (magnetic) field and then putting about three hundred (300) volts to its ends (positive and negative). One will then observe that the magnetic "40" gauge wire will rise at an angle from the earth's surface when the current goes in one direction; and then will be attracted down at an angle to the earth's surface, when the current goes in the opposite direction. If momentary contact is made, only about one hundred (100) milliamps (M.A.) of current will flow, but the magnetic "40" gauge wire will rise or lower about a quarter of an inch.

For a given strength electromagnetic field, the lighter the conducting medium 14 (4) creating the

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electromagnetic (magnetic) field, the greater will be the ability of that conducting medium 14 (4) to lift and move itself and an additional load 13 (3), when interacting with the earth's or any other universal electromagnetic field.

5 The mechanical basis of the lift capability of the device 12 (2) is not unlike the history of the steel ship. Conventional ship builders thought such was impossible, because everyone knew that a hunk of steel would sink and that a hunk of wood would float when placed in the medium of
10 water. Of course, those negative, so called "experts" were proven wrong, because when the hunk of steel was made thin and spread out over a large area of the water's surface, not only would the steel be supported by the water, but it could also carry a massive cargo load.

15 The same type mechanical effect applies to the device 12 (2) relative to the earth's or other universal electromagnetic field. A tremendously strong, intense electromagnetic field restricted within a small area of the earth's magnetic field, for example a ten (10) foot diameter
20 and only one foot thick device would not lift very much cargo 13 (3). However, if that same tremendously strong electromagnetic field was spread out over a very large area, thereby reducing its strength in a given small area of for example ten feet, the electromagnetic field interacting with
25 a very large area within the earth's electromagnetic field would then lift an impressive cargo 13 (3) on the device 12 (2). This is because the earth's electromagnetic (magnetic) field is very weak in a small area but is tremendously strong over a very large area.

30 It is noted that the art did not have the ability by conventional means before the teachings referred to above to build a device to produce an electromagnetic field as large in area and strength as is the earth's. That has now changed.

35 The ability to utilize the teachings of the present invention most exactly will automatically relate into a mathematical formula, whereby to lift a given cargo load 13 (3) from earth would require a given strength and area

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electromagnetic field emitted from the device 12 (2) and properly mechanically interacting with a given area of the earth's electromagnetic (magnetic) field. Because the strength of the earth's electromagnetic field varies over the earth's surface and at varying heights above the earth's surface, the derived mathematical equations will have to have appropriate safety margins; and even more so above the moon and some other planets.

The device 12 (2) for safety and practical reasons should have sensing capabilities that automatically keep a check on the strength of a body's or space's electromagnetic field within the functional area of device, and, as a result thereof, also automatically adjust the electromagnetic field coming from the conducting medium 14 (4) of the device 12 (2) for maintaining the proper electromagnetic interaction between the device and the supporting or influencing entities' electromagnetic (magnetic) field(s).

Based on tests and applicant's teachings, the device 12 (2) should lift off into space with less energy input at the earth's North and South electromagnetic poles, where a compass would point straight down toward the earth's center.

Example: prior teachings teach that, if current goes through a conductor in one direction and is attracted to a magnet, then, if the direction of the current is reversed, the conductor will be repelled from the magnet; or, if the current remains in the same direction through the conductor and it is attracted to a magnet and then the poles of the magnet are reversed, the conductor will be repelled from the magnet.

However, applicant's teachings of the mechanics of the gyroscopic particles in his prior work already stated and the facts of test prove that the above paragraph of conventional teachings is not true of all tests.

In fact, if a conductor of "40" gauge magnetic wire is placed to hang down just within the straighter lines of force emitted from the poles of a magnet, the conductor will be repelled no matter if the poles of the magnet are reversed or if the direction of the current in the conductor is reversed.

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This test has been repeated numerous times over a hundred (100) lb. permanent magnet one (1) foot long with a six (6) inch diameter. However, if the conductor is made longer to cover a wide distance extending out through the curved lines of force of the poles of the magnet, then the conductor will perform in accordance with conventional teachings. Applicant's mechanical teachings of the gyroscopic particles making up all matter and electromagnetic fields predict the observed results of continuous repulsion of electromagnetic fields, if the different fields have their gyroscopic particles make up at right angles to the plane of their spins, thereby giving an opposite result to gravity's continuous attraction.

The device 12 of Figure 2 would therefore be able to take off easier at the magnetic poles of the earth, as those areas of where a compass points straight down cover a sizeable area.

The device 12 could be made to travel to any point on the earth, simply by changing the angles of interactions between the gyroscopic particles making up the electromagnetic field coming from the conducting medium 14 and the gyroscopic particles making up the electromagnetic (magnetic) field of the earth. The reversing and/or changing of the generated electromagnetic field coming from conducting medium 14 of the device 12 would cause the device to rise at an angle away from the earth or to lower at an opposite direction toward the earth.

The test of placing a magnet in a floating dish above a larger magnet will quickly demonstrate that the floating magnet can be made to go to the equator or the poles or towards or away from the larger magnet simply by changing the angle of the smaller magnet in the floating dish.

It is obvious from the known facts of science and space and the teachings of the invention that the embodiments of Figures 1 - 3 will work even better in outer space than when close to the earth's surface.

The device 12 (2) or some inner portion or outer

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portion thereof could be made to spin for stability and for achieving a force not unlike the feeling of gravity.

5 **Figure 3** illustrates another, exemplary embodiment of the invention which has light-weight, permanent magnets or conducting or super conducting electromagnets 7 secured to a common means 8, which includes appropriate means to cause the electromagnets or permanent magnets 7 to all turn in unison, causing them to pivot to varying angles through an arc of three hundred and sixty (360) degrees relative to the electromagnetic (magnetic) field(s) of the supporting entity, 10 namely those of the earth, space, etc., thereby giving exceedingly versatile motion to the device 32.

15 The conducting and/or super conducting electromagnets 7 should be of light weight and long turns of conducting medium, so as to use lower current or power to produce and maintain a large electromagnetic field covering a large area, as has already been taught.

 It is noted that the conducting medium 4, 14 or 7 could be solid, liquid or gaseous in form.

20 A still further embodiment is illustrated in **Figures 5 & 6**, in which the device 32 includes a buoyant, "air" ship body of general saucer shape containing a lighter-than-air gas, for example helium, providing the device 32 with its own inherent lift when in an atmospheric environment.

25 A single, continuous coil of electrically conductive wire 34 is wrapped around the buoyant body with its two ends terminating at a power supply 39, which can for example be a DC source with a commutator sub-system to alternatively apply the flow of current through the coil 34 in alternating 30 directions. As is well known, such current flow through the coil 34 produces an electromagnetic field having an axis A, which will flip back and forth in its polarity, in conjunction with the changing of the direction of the current flow from the electrical power source 39 through the coil 34.

35 As the coil 34 generates its electromagnetic field, the generated field interacts with the surrounding, preexisting magnetic field(s), causing the device 32 to rotate about an axis B, the particular direction of rotation

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and the particular alignment of which depends on the net axis or polarity of the surrounding, preexisting field(s). Depending on the timing of the commutator sub-system in the power source 39, this will cause the device 32 to flip back-and-forth or, if the timing is right, to continuously rotate about the axis B, similar to a commutator of an electrical motor. Of course the commutator sub-system could be tied to the rotation of the device 32 to insure continuous rotation, if desired, similar in this respect to the action of a dynamotor. If such rotation is produced, it can be used to produce a simulation of gravity by the centripetal forces caused by the rotation. On the other hand, if so desired, the cargo and/or passenger area (comparable to area 3, 13) could be mounted on the body to allow it to remain relatively stationary with respect to the body, as the latter rotates.

Because the action of the electromagnetic field produced by the device 32 and its coil 34 is very similar to that described above, particularly with respect to the device 12 and its parallel elements 14, further discussion on it is deemed unnecessary in the interest of brevity.

However, not only is there inherent, supplemental lift in the device 32 by the inclusion of a buoyant, lighter-than-air body, the lifting capabilities of the device produced by the buoyant body is enhanced by an interaction between the electromagnetic field produced by the coil 34 and the contained gas. This synergistic interaction further supplements the lifting capacity of the device 34, at least when in an atmospheric environment and perhaps even enhances the interaction between the generated electromagnetic field and the surrounding, preexisting magnetic field from the earth or other near terrestrial body or that of the universe generally.

In using the term "lighter-than-air" it should be understood that such is a relative term, depending upon the make up of the atmosphere of the terrestrial body in which the device is being used. Hence, the word "air" in this context should not necessarily be taken literally, but only in the sense that the contained gas should be less dense than

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that of the atmosphere in which it is being used. Additionally, the contained gas is preferably one, for example a diamagnetic, which will inter-react synergistically with the generated electromagnetic field of the device.

5 It is noted in general that there are numerous other designs that can be built, such as for example using a circular, large conducting medium 4 (14/34) or made long like a cigar or any other shape, rather than that of the saucer or dish shapes shown. The devices 2, 12, 22 & 32 can be made
10 very massive by being assembled in outer space. Also, rather than a single, contiguous buoyant body in the device 32, a series of spaced or juxtaposed, connected buoyant bodies or balloons could be used, with for example a coil of wire around each one or with one single coil about the whole
15 assemblage.

 Although the present invention has been illustrated in terms of four preferred, exemplary embodiments, it will be obvious to one of ordinary skill in the art that numerous
20 modifications may be made without departing from the true spirit and scope of the invention, which is to be limited only by the appended claims.

 This invention, as does the rest of applicant's work, opens tremendous new hope and dreams and excitement for the immediate future of the human race.

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CLAIMS

1. A levitation device producing an electromagnetic (magnetic) field which interacts with the electromagnetic (magnetic) field of the earth or other terrestrial body or of the universe to cause motion and/or lift of the device, comprising:

field generation means for effectively producing an electromagnetic (magnetic) field in connection with the device over a relatively large area;

means to effectively interact the device's electromagnetic (magnetic) fields with the strength of the surrounding, preexisting electromagnetic (magnetic) field of the entity, causing motion and/or lift of the device.

2. A device as in Claim 1, wherein a conducting medium is spread out over a large area of the device which itself is designed with a large area to accommodate said conducting medium.

3. A device as in Claim 1, wherein a conducting medium is more restricted to the outer periphery of the device but producing an electromagnetic field of such great intensity that it spreads out effectively with the electromagnetic field of the entity, causing motion or lifting of the device.

4. A device as in Claim 1, wherein a conducting medium spins so as to have the mechanical qualities of a gyroscope, so that when the direction of the current was reversed in the conducting medium, so as to be attracted or repelled by the electromagnetic field of the entity causing motion and/or lifting of the device and said gyroscopic mechanical effect would keep the device from turning upside down and in fact said effect could be controlled to cause the device to pivot its direction mildly or sharply to the left or right.

5. A device as in Claim 1, wherein an electromagnetic (magnetic) medium is made pivotable so as to be able to change the angle of interaction of the electromagnetic field coming from the device and interacting with the electromagnetic field of the entity causing movement and/or

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lifting of the device and, as a result thereof, to be able to cause many varying directions of travel of the device.

5 6. A device as in **Claim 1**, wherein said effectively means to produce an electromagnetic field utilizes the teachings of the electromagnetic field being made up of the actual flow of matter in the form of spinning gyroscopic particles.

10 7. A device as in **Claim 1**, wherein said device means to effectively produce an electromagnetic field is designed as light as practical.

 8. A device as in **Claim 1**, wherein said device has an electromagnetic (magnetic) sensing means of the medium of the moving and/or lifting electromagnetic (magnetic) field in which the device travels.

15 9. A device as in **Claim 1**, wherein said device has a means that automatically changes the strength of the devices electromagnetic field to interact with the medium so as to allow wide range of speeds and motion of the device:

20 10. A device as in **Claim 1**, wherein by changing the polarity of the electromagnetic field of the device results in many varying directions of travel of the design.

25 11. A device as in **Claim 1**, having means to cause the gyroscopic particles making up the electromagnetic (magnetic) field coming from the device to have the spin plane of said gyroscopic particles to be effectively toward right angles to the spin plane of the gyroscopic particles making up a given area of the electromagnetic field of the supporting entity, thereby causing repulsion.

30 12. A device as in **Claim 1**, having a portion of the device filled with a gas lighter than air.

 13. A device as in **Claim 1**, having means to cause some portion of the device to effectively spin so to act as a stabilizer and/or giving the effect of gravity.

35 14. A device as in **Claim 1**, having dimensions of immense area, thereby giving means to carry a great cargo to the extent that a miniature world environment would be transported.

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5 15. A device as in Claim 1, wherein there is further included in association with said device a buoyant, lighter-than-air body containing a lighter-than-air gas, said body having inherent lift independent of the interaction between said magnetic fields.

 16. A device as in Claim 15, wherein said lighter-than-air gas interacts synergistically with the generated magnetic field enhancing its lift capabilities.

10 17. A device as in Claim 15, wherein said field generating means comprises at least one coil wrapped at least in part around said body.

 18. A device as in Claim 17, wherein said coil is one, single, very long coil.

15 19. A device as in Claim 1, wherein the device has a cross-section area extending across at least a mile.

 20. A device as in Claim 19, wherein said cross-section area extends across at least fifty miles.

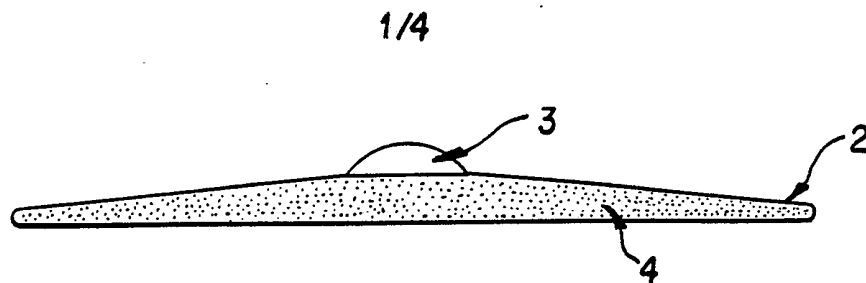


FIG. 1

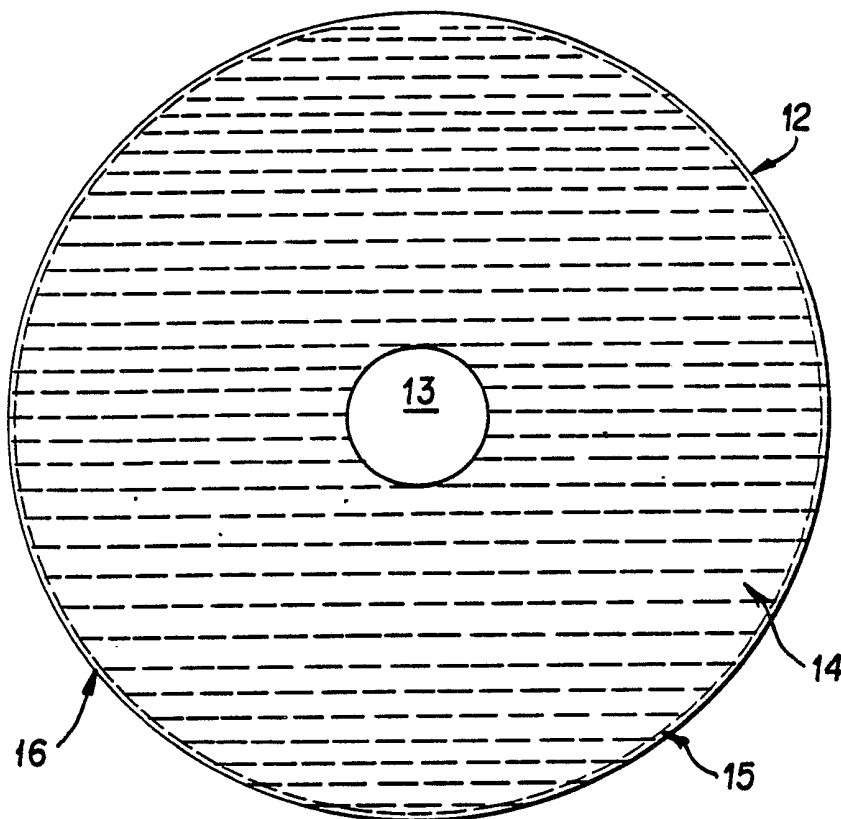


FIG. 2

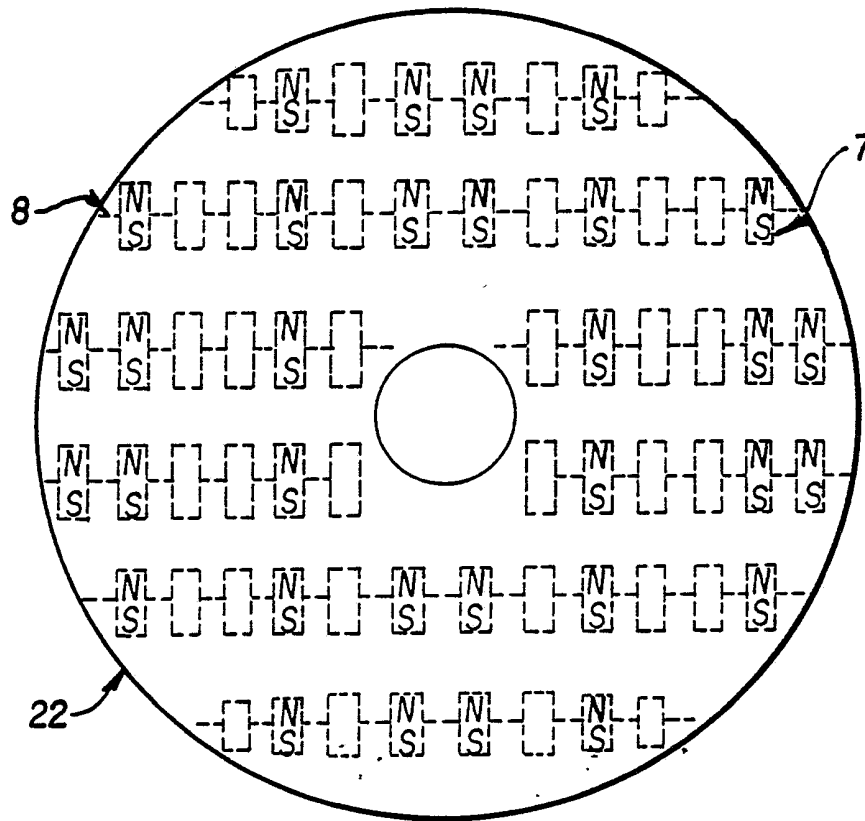


FIG. 3

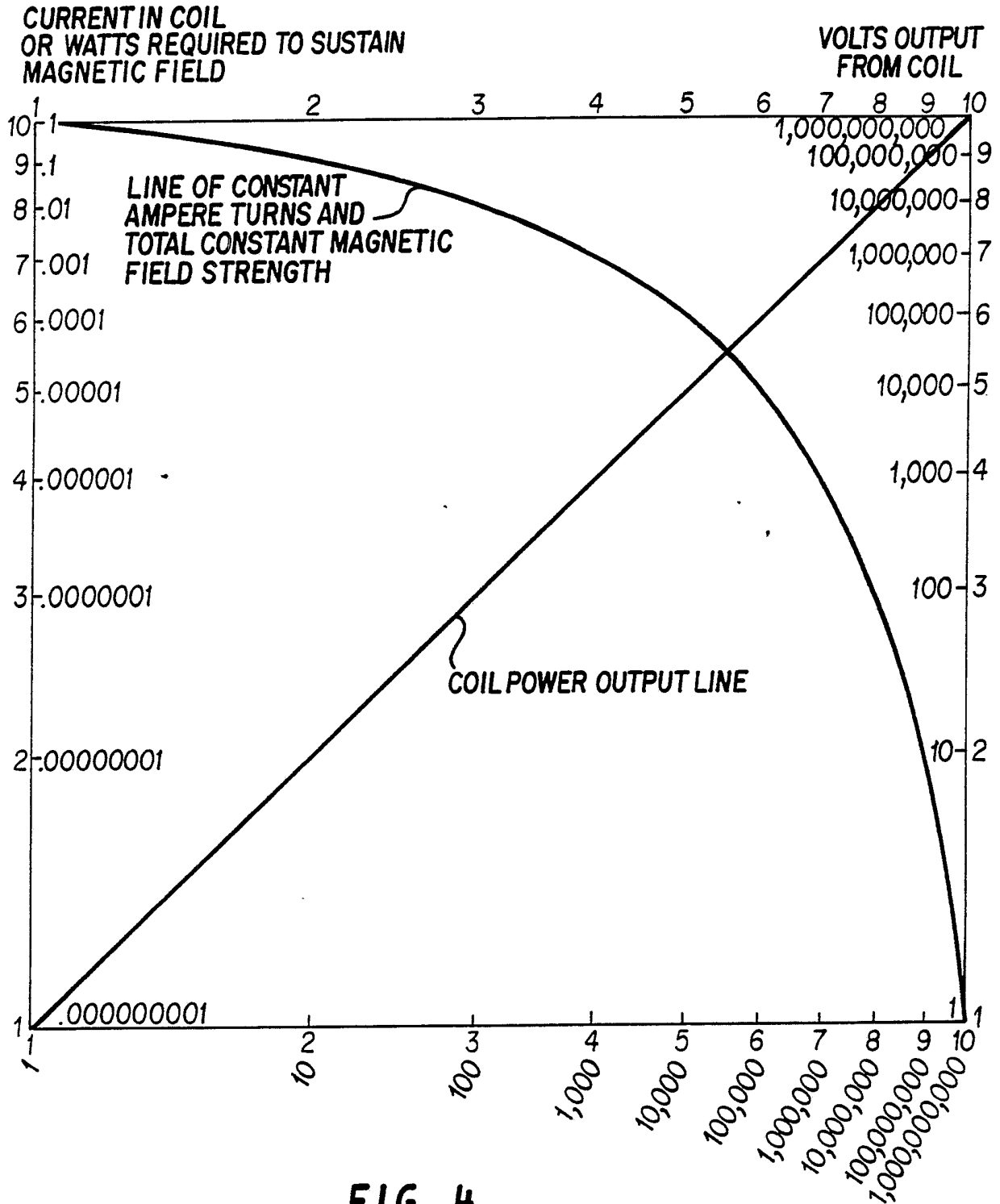
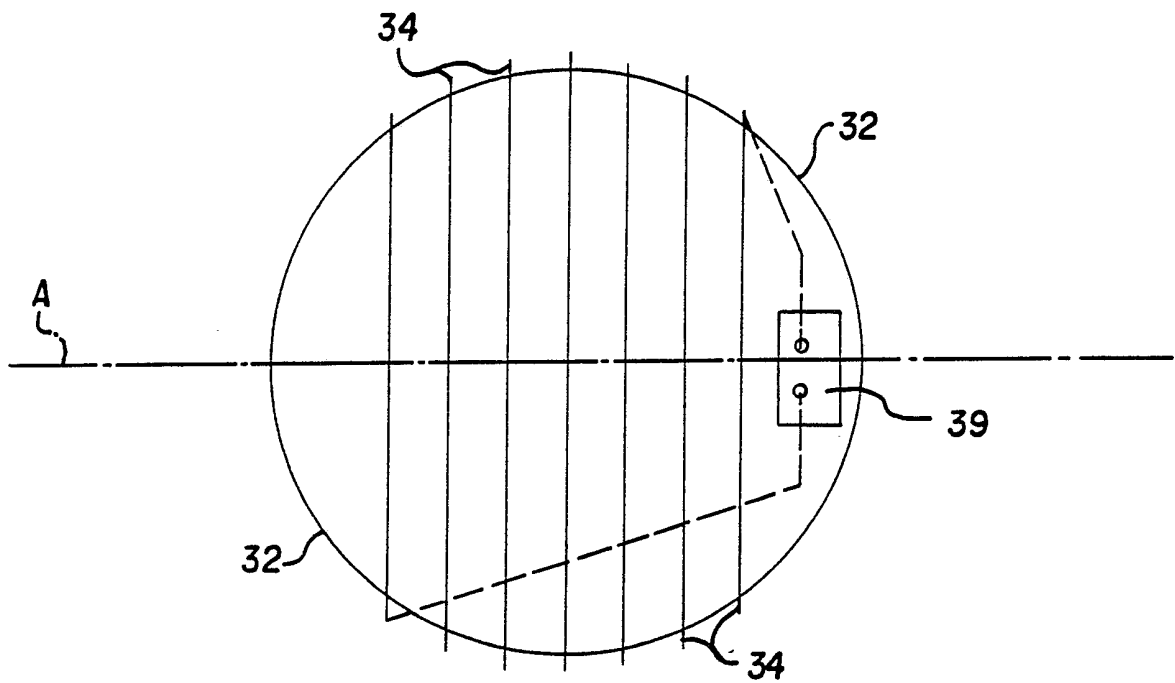
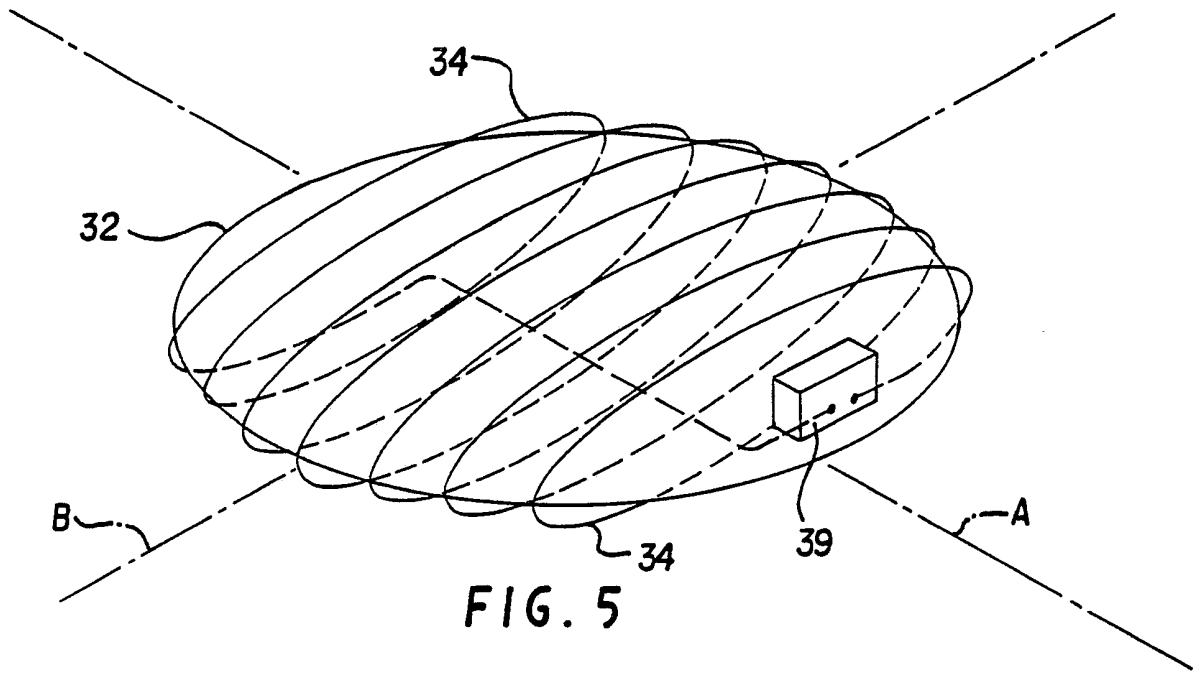


FIG. 4

4/4



INTERNATIONAL SEARCH REPORT

International Application No **PCT/US87/01696**

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ²		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int. Cl. ⁴	B64B 1/02	
U.S. Cl.	244/30	
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁴		
Classification System ¹	Classification Symbols	
U.S.	344/1R, 2, 158R, 166, 167, 171, 172, 4R, 23C, 24, 30, 31, 51, 53R, 62 310/90.5, 308, 309 455/620	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁶		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴		
Category ⁸	Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸
A	Italy, 533,751 published March 1958 Mattolin (See entire document)	1-20
<p>¹⁵ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"Z" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search ²	Date of Mailing of this International Search Report ³	
16 November 1987	04 DEC 1987	
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