

What is claimed is:

1. A gravity and buoyancy engine comprising:
 - a gravity chamber;
 - 5 at least one air lock chamber;
 - a buoyancy chamber;
 - at least one electricity producing system;
 - at least one buoyant object;
 - at least one vertical motion transfer assembly;
 - 10 the air lock chamber being in communication in between the gravity chamber and the buoyancy chamber;
 - the vertical motion transfer assembly positioned within the gravity chamber;
 - at least one electricity producing system linked to the vertical motion transfer assembly; and
 - 15 the buoyant object being mounted to the vertical motion transfer assembly.
2. A gravity and buoyancy engine as claimed in claim 1 comprising:
 - the vertical motion transfer assembly further comprising at least one link
 - 20 chain, at least one first shaft, a first gear, at least one second shaft, a second gear, and a buoyant object chain ledge;
 - the first shaft being rotatably connected with the electricity producing system;
 - the first gear being connected with the first shaft;
 - 25 the second gear being connected with the second shaft;
 - the link chain being rotatably connected in between the first gear and the second gear; and
 - the buoyant object chain ledge being connected with the link chain.
3. A gravity and buoyancy engine as claimed in claim 2 comprising:
 - a transmission;
 - the at least one electricity producing system being a generator;

the generator further comprising a generator input shaft; and
the transmission being operatively connected between the first shaft and
the generator input shaft, wherein the transmission governs the rotation of the
generator input shaft relative to the rotation of the first shaft.

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4. A gravity and buoyancy engine as claimed in claim 2 comprising:

the at least one electricity producing system comprising an alternator and
an alternator input pulley;

the vertical motion transfer assembly further comprising at least one
alternator belt; and

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the alternator belt being rotatably connected between the alternator input
pulley and a desired shaft selected from the group consisting of the first shaft and
the second shaft.

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5. A gravity and buoyancy engine as claimed in claim 2 comprising:

the vertical motion transfer assembly further comprising at least one
accessory belt drive;

a pressure control system;

a pump input shaft;

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the accessory belt drive comprising at least one first sheave, at least one
second sheave, and at least one accessory belt;

the first sheave being mounted to the first shaft, opposite the first gear
across the first shaft;

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the second sheave being mounted to the second shaft opposite the second
gear across the second shaft;

at least one accessory belt being rotatably connected between the first
sheave and the second sheave; and

the pump input shaft being rotatably connected between the accessory belt
and the pressure control system.

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6. A gravity and buoyancy engine as claimed in claim 1 comprising:

the at least one vertical motion transfer assembly being a plurality of vertical motion transfer assemblies;

the plurality of vertical motion transfer assemblies being distributed across the gravity chamber; and

5 the buoyant object being suspended in between the buoyant object chain ledge of an arbitrary transfer assembly and the buoyant object ledge of an adjacent transfer assembly, wherein the arbitrary transfer assembly and the adjacent transfer assembly are from the plurality of vertical motion transfer assemblies.

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7. A gravity and buoyancy engine as claimed in claim 6 comprising:

a plurality of tensioner pulley assemblies; and

each of the plurality of tensioner pulley assemblies being rotatably connected in between a, wherein the corresponding arbitrary transfer assembly

15 and the corresponding adjacent transfer assembly are from the plurality of vertical motion transfer assemblies.

8. A gravity and buoyancy engine as claimed in claim 1 comprising:

20 the air lock chamber comprising a transfer channel; at least one pressurized chamber, a pressure control system, at least one valve, and a plurality of airlock doors;

the transfer channel being connected in between the vertical motion transfer assembly and the buoyancy chamber;

the pressurized chamber being positioned within the transfer channel;

25 the pressurized chamber being delineated by a first door and a second door, wherein the first door and the second door are from the plurality of airlock doors; and

the pressure control system being in fluid communication with the pressurized chamber through the valve.

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9. A gravity and buoyancy engine as claimed in claim 8 comprising:

each of the plurality of airlock doors comprising a panel and an inflatable seal;

each of the plurality of airlock doors being hingedly connected to a lateral sidewall of the transfer channel;

5 the inflatable seal being perimetrically mounted around the panel; and
 the inflatable seal being in fluid communication with the pressure control system.

10. A gravity and buoyancy engine as claimed in claim 8 comprising:

10 the pressure control system comprising at least one hydraulic pump, at least one pneumatic pump, at least one pressurized tank, a plurality of airlock regulators, and a plurality of buoyancy regulators;

 the hydraulic pump being operatively coupled to the vertical motion transfer assembly, wherein the vertical motion transfer assembly provides the
15 operating power for the hydraulic pump;

 the hydraulic pump being in fluid communication with the buoyancy chamber;

 the pneumatic pump being operatively coupled to the vertical motion transfer assembly, wherein the vertical motion transfer assembly provides the
20 operating power for the pneumatic pump;

 the pressurized tank being in fluid communication with the pneumatic pump;

 the pressurized tank being in fluid communication with the airlock chamber through the plurality of airlock regulators; and

25 the pressurized tank being in fluid communication with the buoyancy chamber through the plurality of buoyancy regulators.

11. A gravity and buoyancy engine as claimed in claim 8 comprising:

30 The airlock chamber further comprising at least one bollard-receiving receptacle, at least one chamber bollard, and at least one chamber hatch;

the bollard-receiving receptacle normally traversing into a lateral sidewall of the transfer channel;

the bollard-receiving receptacle being positioned offset from the first door along the transfer channel;

5 the chamber bollard being slidably mounted within the bollard-receiving receptacle;

the chamber hatch being hingedly mounted to the lateral sidewall of the transfer channel; and

the chamber hatch being positioned over the bollard-receiving receptacle.

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12. A gravity and buoyancy engine as claimed in claim 8 comprising:

the airlock chamber further comprising a plurality of transfer guides;

the plurality of transfer guides being mounted onto a lateral sidewall of the transfer channel;

15 the plurality of transfer guides being distributed along the transfer channel;

the plurality of transfer guides protruding into the pressurized chamber;

and

the plurality of transfer guides being positioned offset from the plurality of airlock doors along the transfer channel.

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13. A gravity and buoyancy engine as claimed in claim 9 comprising:

a first plurality of bollards;

a second plurality of bollards;

the at least one pressurized chamber being a plurality of pressurized

25 chambers;

the plurality of pressurized chambers being serially distributed along the transfer channel;

the plurality of first bollards and the plurality of second bollards being slidably mounted onto the lateral sidewall of the transfer channel;

each of the first plurality of bollards being positioned offset from the first door of a corresponding chamber, wherein the corresponding chamber is from the plurality of pressurized chambers;

5 each of the second plurality of bollards being positioned opposite to the second door, across the first door of the corresponding chamber;

each of the second plurality of bollards being positioned offset from the second door of the corresponding chamber; and

each of the second plurality of bollards being positioned in between the first door and the second door of the corresponding chamber.

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14. A gravity and buoyancy engine as claimed in claim 1 comprising:

the buoyancy chamber further comprising a buoyancy channel, a staging door, a drainage platform, a reservoir, an inlet, and an outlet;

15 the staging door being hingedly mounted between the buoyancy channel and the gravity chamber,

the drainage platform being positioned withing the buoyancy channel, opposite the gravity chamber across the staging door;

the reservoir being in fluid communication with the drainage platform;

the inlet being integrated into the reservoir;

20 the outlet being integrated into the buoyancy channel;

the outlet being positioned offset from the drainage platform, across the buoyancy channel; and

the reservoir being in fluid communication with the buoyancy channel through the inlet and the outlet.

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15. A gravity and buoyancy engine as claimed in claim 14 comprising:

the buoyancy chamber further comprising a plurality of staging guides;

the plurality of staging guides being mounted onto a lateral sidewall of the buoyancy channel; and

30 the plurality of staging guides being distributed along the buoyancy channel.

the plurality of staging guides protruding into the buoyancy channel; and
the plurality of staging guides being positioned offset from the staging
door along the buoyancy channel.

- 5 16. A gravity and buoyancy engine as claimed in claim 1 comprising:
- the buoyant object being configured to enter the gravity chamber and
vertical motion transfer assembly via gravity after passing through the buoyancy
chamber;
- in response to the buoyant object engaging the vertical motion transfer
10 assembly, the buoyant object traversing through the gravity chamber toward the
airlock chamber;
- in response to the buoyant object moving toward the airlock chamber, the
vertical motion transfer assembly providing operating power to the electricity
producing system;
- 15 the buoyant object being configured to enter the air lock chamber via
gravity after passing through the gravity chamber and disengaging the vertical
motion transfer assembly;
- in response to the buoyant object entering the air lock chamber, the
buoyant object rolling along the air lock chamber via gravity so as to open
20 an airlock door;
- in response to the buoyant object passing through the airlock door,
the airlock door being biased to a closed position;
- the buoyant object being configured to enter the buoyancy chamber via
gravity after passing through the air lock chamber; and
- 25 in response to the buoyant object entering the buoyancy chamber, the
buoyant object ascending along the buoyancy chamber via buoyancy.