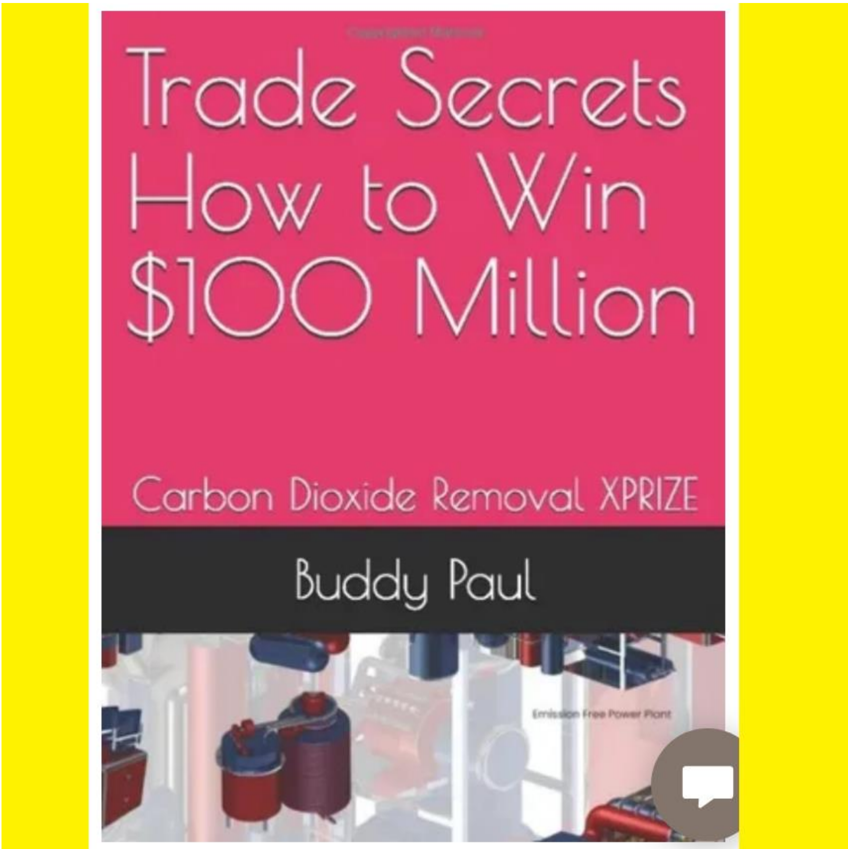
Trade Secrets How to Win $100 Million
Carbon Dioxide Removal XPRIZE
Buddy Paul
Emission Free Power Plant

Trade Secrets

How to Win $100 Million Carbon Dioxide Removal XPRIZE

By

BRPauL

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Pollution Controls @ Senoia, Georgia United States

Registered Pollution Controls Team for XPRIZE of $100 million prize Carbon Dioxide Removable funded by the Musk Foundation is seeking help. Let us get over this now then we can spell the beans or let the cat out of the bag. Both monetarily and physical contributions can be made here https://www.paypal.com/donate?hosted_button_id=UP3KG7ZG9EWHL And yes, all Authors proceeds are donated to Pollutions Controls XPRIZE (PCX) venture and afterwards funds go to environmental needs to help make life better for the next generation of humanity and earths inhabitants.

To win the XPRIZE, one must enter and provide and demonstrate the viability of durable, low cost, scalable, and sustainable carbon removal solutions. We need a portfolio of solutions that can reach a combined installed capacity of 2.5 billion tons of CO_2 removal per year by 2030.

Objectives of the Competition: increase the global supply of cost-effective, durable carbon removal solutions, prove the scientific / technical viability of a diversity of high-quality carbon removal, solutions that can be deployed and maintained sustainably, including both existing and new solutions, accelerate the scaling and equitable deployment of proven carbon removal solutions and inspire the next generation of talent and innovators in carbon removal.

Grand Prizes (US$80M Total) After 4 years, judges will select the winners: US$50 million paid to the single Grand Prize Winner, US$30 million to be distributed among up to 3 runners up.

Milestone Prizes (US$15M Total) After 1 year of competition the judges will review all submissions received by that time and award up to 15 Milestone Prizes of US$1 million each. At the discretion of the judges, these awards may be granted on a conditional basis, subject to the team's demonstrated commitment to continuing to develop and advance their solutions and to compete for the Grand Prize.

Solutions In-Scope for the Prize: Any carbon negative project is eligible to win prize money provided it removes CO_2 from the air or oceans and sequesters it in a durable way. Teams may compete in any of the major carbon removal pathways listed below, or some combination of the pathways. This list of pathways is not intended to be exhaustive.

These are the main avenues Pollution Controls (PCX) XPRIZE Team will be focusing on Air: direct air capture (DAC) plus sequestration. Oceans: algae, kelp, plankton, direct seawater removal, ocean alkalinity enhancement. Land: Trees, agricultural solutions, soils, soil microbes and fungi, roots, grasslands, large-scale outdoor natural ecosystem solutions, biochar. Rocks: Mineralization, enhanced weathering, mine tailings, subsurface geologic sequestration combined with CO_2 removal from the air and/or the ocean.

Things that PCX cannot endeavor are pathways which result exclusively in short-term re-release of CO_2 without sequestration, e.g., CO_2 to fuel. Solutions must demonstrate long-term, durable sequestration of CO_2. Utilization-only technologies that demonstrate conversion of CO_2 but not removal of CO_2 from the air and/or the ocean. Solutions that may capture CO_2 from the air and/or the ocean but cannot demonstrate net negative emissions. Solutions that remove CO2 but are not net negative on a lifecycle basis, e.g., enhanced oil recovery. Solutions whose CO2 benefits are only theoretical or cannot be directly measured with adequate precision over the course of the competition.

PollutionControls.org (PCO) founder has several US and other countries patents that he has proportionally donated to this cause with the concerns to future investors. Novel Solutions vs. Solutions That Already Exist there is no restriction on existing solutions competing for the prize, provided they can meet all the competition requirements. Similarly, there is no restriction on never-before-demonstrated carbon removal solutions competing for the prize, provided they can meet all the competition requirements.

PCX main location Senoia, Ga other Demonstration Locations for PCX Teams may demonstrate their carbon removal solution at any location of their choosing throughout the competition. Teams must be prepared to have XPRIZE visit their project site as needed throughout the competition and in the final year of the competition to validate the team's performance claim. The demonstration will account for a large portion of PCX funding.

PCX Net-Negative CO2 Removal Solutions must demonstrate net-negative and durable CO2 removal to be considered in-scope. It is the responsibility of PCX team to prove through their demonstrations and a life cycle analysis that they meet this requirement. Negative emissions may be established on a net basis over the lifetime of the demonstrated carbon removal project. In addition, PCX team must demonstrate how the sequestered carbon will be maintained (on a net basis) for at least 100 years to ensure that more carbon is removed than re-emitted. Finally, PCX team must demonstrate how they will achieve net negative CO2 removal in the 1 Mt/yr. and Gt/yr. scenarios.

PCX durable CO2 removal. The durability threshold for the competition is 100 years. This means that to be considered removed, CO2 must be sequestered (on a net basis) over at least 100 years. A cradle-to-grave life cycle analysis will be required to validate claims of 100-year durability in addition to net negativity. Establishing 100-year durability should be a function of inherent verifiable and quantifiable durability of the CO2 removal solution (i.e., the stability of the sequestered carbon) and any required repetition, long-term management, and/or monitoring that may be required to ensure that removed CO2 remains sequestered on net through 100 years. For example, CO2 mineralized into rock may be known to be inherently stable (e.g., geologic sequestration), but any monitoring and verification requirements during that 100 years must still be explained and costed. Similarly, a standing forest may be known to have much more dynamic CO2 flux over time and less inherent durability, so proposed methods of ensuring long-term net sequestration through 100 years and any associated costs must be explained in detail.

PCX and other interested teams and individuals are encouraged to collaborate and share skills. A team may recruit additional experts and can add new members to their team at any time throughout the competition. Teams may also merge with other teams during the competition. Teams must notify XPRIZE of a merger before it takes place. In the case of mergers, teams must register under one legal entity and assign one team leader. Additional details regarding team mergers are provided in the Competitor Agreement. Throughout the registration period, XPRIZE will host a series of webinars and other programming for all Registered Teams. XPRIZE webinars will allow teams to get to know each other and to receive important competition updates. Participation in these programs, while not mandatory, is strongly encouraged. While global in focus, the competition will be conducted in English. All teams must be prepared to communicate with XPRIZE and make their submissions in English.

PCX Competition Calendar. The competition takes place in two phases over 4 years. Dates are provided for planning purposes and are subject to change.

PHASE ONE: PROOF OF CONCEPT

(YEAR 1, 2021-2022)

$15M Milestone Prizes Announced

April 22, 2022

PHASE TWO: FULL DEMONSTRATION

(YEARS 2-4, 2022-2025)

$80M Grand Prizes Announced

April 22, 2025

Teams are required to register for the competition in the Prize Operations Platform (POP) and share a brief overview of their carbon removal concept with the community. Registration for the prize will remain open through December 1, 2023. To be eligible for a Milestone Prizes, teams must register by December 1, 2021.

Teams who do not win a Milestone Prize are eligible to compete for the Grand Prizes. Teams may still register to compete in Phase 2 of the competition even if they do not compete in Phase 1.

Phase 1 - Proof of Concept: To be eligible to win a Milestone Prize, teams are required to submit a proposal for their carbon removal solution and participation in the prize, including data and evidence of progress to date, cost modelling, and pathway to achieving full scale. Submissions are due on February 1, 2022.

Phase 2 - Full Demonstration: To be eligible to win a Grand Prize, teams must demonstrate their entire carbon removal solution end-to-end in the final year of competition. Demonstrations must qualify for a site visit, during which XPRIZE will verify each Finalist team's performance. Teams must apply for a site visit by the Finalist Submission Deadline (Feb 1, 2024) by submitting data and evidence of their carbon removal solution's ongoing operations, a cost model, and evidence that the competition's sustainable scalability criteria are met. Twenty (20) teams will be granted site visits, which will be conducted between May 2024 - January 2025. Qualifying for a site visit signifies a team as a XPRIZE Carbon Removal Finalist.

Winner Selection: In February 2025, Finalists will have an opportunity to submit a final data set and updated cost model to XPRIZE judges before being considered for the Grand Prizes. The Grand Prize Winners will be announced on Earth Day, April 22, 2025.

To win, the prize teams must demonstrate CO2 removal at the kt/y scale, model costs at the Mt/y scale, and present a plan to reach Gt/y scale. PCX plans to win, join them now at XPRICE or Pollution Controls Facebook (PCF) team at https://www.facebook.com/groups/400390114392414. Decisions of Judging Panel are Final. The preceding information is comments by the founder of PollutionControls.org in response to the DRAFT FOR PUBLIC REVIEW & COMMENT. Most important is the following PCX team comment: Any novel ideas, concepts and innovations submitted by the PCX team, PCF team and series books written by this author be judicated in favor to booster PCX commitment to achieve the goal of 1 giga ton per year of Carbon Dioxide Removal competition.

Now you know how to win, it is easy just join the PCX or PCF teams. That concludes the first chapter, next chapters will detail out reason why PCX can achieve victory. Prize will be distributed to the PCX and PCF team members in accordance with a Pollution Controls point system (PCS) of donations and participation of members. Afterwards members may elect to continue their support to the cause by opting winnings to PCO 501(c)(3) program.

First the capture of 1 giga ton of Carbon Dioxide (GtCO2) from the ambient atmospheric will require a lot of work. To reference the amount that will be required just to move the air will be the base line. Then innovative ways to reduce the work including natures methods will be employed by PCX.

Horsepower required to capture GtCO2 can expressed as: PBHP = q dpinWG / µ 6356 to keep simple we will use: hp=q/6356.

q=air flow Cubic foot per minute.

Volume of air required for (1) GtCO2 = GtCO2 2427

Atmospheric Air volume = 2427 giga ton.

Weight of air per cubic foot .0807 lbs.

Weight of air in pounds = 2427*2200 = 5,339,400,000,000,000

Volume of air in cubic feet = GtCO2/.0807= 66,163,568,773,234,200 CF.

So, Total Horsepower = 66,163,568,773,234,200/6356 = 10,409,623,784,335 HP, KW 7,762,456,455,979. Total electricity cost if powered from the grid: $931,494,774,717. For 1 giga ton per year.

For 1000 tons per year $931,495.

Factor in the requirement for GtCO2 capture is over one year period then the HP to do the job is reduced by /52560 = 19,805,220 Operational Horsepower required.

Visualization of how much this is by comparing this requirement to 1,261 Boing B737-800 at its cruising altitude. Another way is (25) 600 Mega-Watt Power Plants. To give an estimate on the cost for this operation is approximately $14,768,752,770 (15) Billion US dollars.

Cost of electricity for the first year of 1Kt/CO2 is $931,495.

As you can see just capturing the air is costly and other methods of cost reduction is necessary. One suggestion is simply planting a tree. Some trees are two-part solution it captures and sequesters the CO2 for over 100 years. You may get them from our PCX team member Michael Errico Landscape Architect P.C. has offered at cost to benefit PCX. PCX and PCF members will receive 1 PCS point for ever tree planted and 1 additional PCS point for each tree registered in the Centennial Sequester Covenants program (CSC). Non-Pollution Controls Members are encouraged to ascertain trees from MELApc.COM http://melapc.net or http://erricolandscapearchitect.com. Please register all trees to CSC.

Centennial Sequester Covenants program (CSC) is designed to ensure Carbon Dioxide captured by trees are sequestered for 100 years. Register/post the date you planted the tree or trees include Photos. https://www.facebook.com/groups/938370990257622 Thanks.

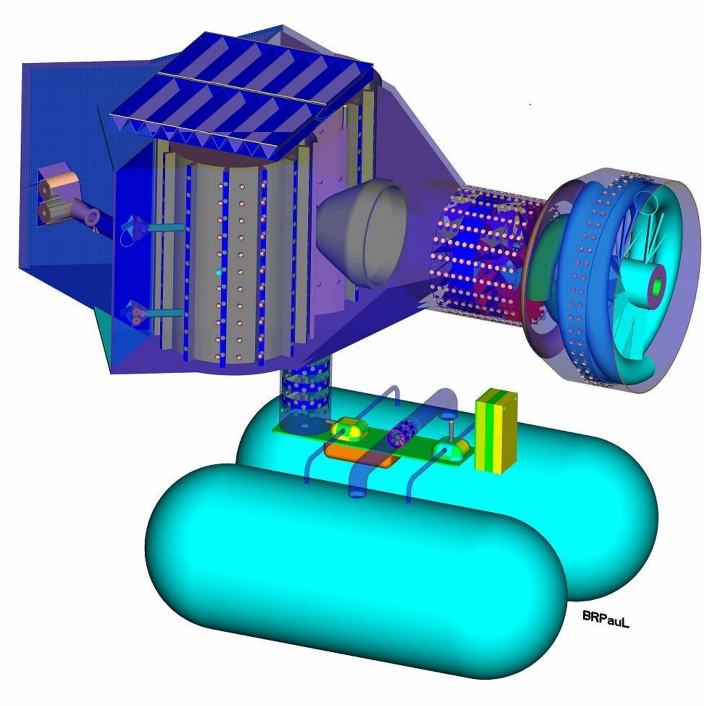
Other items Mike is working on is a list of trees to plant that will provide maximum CO2 sequester and flourish for 100 tears. These trees will have increased CSC value 2 points. This list may occur later in this book or in next series. Other items to be listed are foliage that can contribute to maximum CO2 capture, provide food, medicinal benefits to accommodate cost reduction and plant remains to be processed as part of CO2 sequestration in organized 100-year landfills.

Solar Wind Electrolyzer Electrical Turbine (SWEET) was designed in 2014 which now can be utilized CO2 capturing machine. With some small modifications to the original patent will yield negative cost operation capture CO2 and sequester.

The original patent an apparatus to reduce water into the base elements hydrogen and oxygen utilizing solar, wind, hydraulic, pneumatic, kinetic, magnetic repulsion, and combustion energy. SWEET may be used as illustrated as an assembly, individually or grouped as a power take off or electrical generator. SWEET may be used in a static state or as a propulsion device. Generated commodity products include water, oxygen, hydrogen, electricity, environmental pollution control, and mechanical power. SWEET has the capability of withstanding high velocity winds than conventional wind generators may not.

The cost of electrical energy and the need for renewable source has made this device a valuable commodity. It can enhance the harvest of electrical solar energy by captive collecting solar rays, internal reflection, and greater surface area utilization. Increased wind electrical generation production is accomplished with dual funnel collectors, vertical revolving blades, counter rotating turbines, centrifugal accelerator, and helical exhaust. Wind speed and pressure is increased with wedge entry and magnetic repulsion drivers. Additional air velocity and pressure is increased with taper cylinder, through funnel, cone, centrifugal, and helical combustion chambers. Water collection from the atmosphere compression and hydrogen oxygen combustion is collected stored and utilized as required. Pressurized air transfers water from canister to canister through counter rotating turbines generating electricity. The exhaust air from canister fill cycle is expelled in a vertical tower where counter rotating blades generate electricity as the air rises through the tower. All electrical current passes through the electrolyzer producing hydrogen for the combustion or commodity and oxygen. The current may be consumed, sent to the grid, or stored in batteries for future use. Future uses of stored energy in batteries are supplied to the grid through the electrolyzer producing additional hydrogen and oxygen. Controller programs controls and activates all electrical functions as required.

In accordance with the disclosure wind and solar will be harnessed to produce electricity, water, and mechanical power. Water will be reduced to the base component's elements hydrogen and oxygen. Hydrogen will provide the fuel source and means to clean the environment.



Solar Wind Electrolyzer Electrical Turbine

BRIEF DESCRIPTION OF THE DRAWINGS

FIG.1 is an isometric view of the present invention.

FIG.2 is an isometric view of an alternative angle the present invention.

FIG.3 is an exploded isometric view of the present invention.

FIG.4 is a unit exploded isometric view of the present invention.

FIG.5 is an isometric view cut-away of the present invention.

FIG.6 is an isometric view cut-away of the present invention.

FIG.7 is a unit exploded isometric view of the present invention.

FIG.8 is a unit cut-away view of the present invention.

FIG.9 is a unit cut-away view of the present invention.

FIG.10 is an isometric view cut-away of the present invention.

FIG.11 is a unit cut-away view of the present invention.

FIG.12 is a unit cut-away view of the present invention.

FIG.13 is an isometric view cut-away of the present invention.

FIG.14 is a unit exploded isometric view of the present invention.

FIG.15 is a unit exploded isometric view of the present invention.

FIG.16 is a unit exploded isometric view of the present invention.

FIG.17 is a unit exploded isometric view of the present invention.

FIG.18 is a unit isometric view of the present invention.

DETAIL DESCRIPTIONS OF THE INVENTION

In accordance with the disclosure wind and solar will be harnessed to produce electricity, water, and mechanical power. Water will be reduced to the base component's elements hydrogen and oxygen. Hydrogen will provide the fuel source and means to clean the environment.

Reference will now be made in detail to exemplary embodiment, example of which is illustrated in the accompanying drawings.

FIG. 1 illustrates a unit 100 isometric view orientations. Unit 100 includes the solar collector 102, solar housing 103. Unit 100 includes the pressure air supply tube 202, funnel housing 203, wind wedge 204, wind exit port 205, electrical coil 206, permanent magnet 207, and vertical cylinder revolving blades 208. Unit 100 includes the wind wedge 304 and 344. Unit 100 includes the pressure air supply inlet tube 402, reservoir 403 and 404, transfer tube 405, vertical water chamber 502, oxygen plate 602 and hydrogen plate 605.

FIG. 2 illustrates a unit 110 isometric view an alternative angle orientation. Unit 110 includes the solar collector 102, solar housing 103. Unit 110 includes the pressure air supply tube 202, funnel housing 203, wind wedge 204, wind exit port 205, electrical coil 206, permanent magnet 207, and helical turbine 250. Unit 100 includes the pressure air supply inlet tube 402, reservoir 403 and 404, transfer tube 405, 406, 408, vertical water chamber 502, and hydrogen plate 605.

FIG. 3 illustrates a unit 111 exploded isometric view orientations. Unit 111 includes the solar collector 102, solar housing 103 and photoelectric cell 104. Unit 111 includes the pressure air supply tube 202, funnel housing 203, wind wedge 204, wind exit port 205, electrical coil 206, permanent magnet 207, vertical cylinder revolving blades 208, combustion bell chamber 210, counter rotating turbine chamber 219, clockwise rotational turbine 220, counter clockwise rotational turbine 221, taper roller gears 222, 30 drive shaft 239, centrifugal accelerator 240, centrifugal inlet 241, centrifugal exhaust 242, helical turbine 250, helical inlet 251, and helical exhaust 252. Unit 111 includes the wind wedge 304, rotors 305, funnel taper tube 306, wind wedge 344, rotors 345, and funnel tube 346. Unit 111 includes the pressure air supply inlet tube 402, reservoir 403 and 404, transfer tube 406, 408, left blade water turbine 420, water flow chamber 423. Unit 111 includes the vertical water chamber 502, clockwise rotational bubble turbine 520, and counterclockwise rotational bubble turbine 521. Unit 111 includes the oxygen plate 602, left electrode plate 603, right electrode plate 604, hydrogen plate 605 and controller 700.

FIG. 4 a unit 112 exploded isometric view orientations. Unit 112 illustrates light 105 passing through solar collector 102- and one-way mirror film 101, light 105 is trapped Within solar housing 103 and film 101 until it is converted to electricity by the photoelectric cell 104. Acute angle of cell 104 allows internal reflection and maximum surface area exposure.

FIG. 5 a unit 120 cut-away isometric view orientations. Unit 120 illustrates air 200 entering wind wedges 204, the wedge 204 increases air velocity and pressure imparting motive force on vertical cylinder revolving blades 208. Air 200 continues to flow into funnel housing 203 and combustion bell chamber 210. Air 200 enters counter rotating turbine chamber 219 imparting clockwise rotational motive force on turbine 220, and counterclockwise motive force on turbine 221. Air 200 also enters centrifugal accelerator 240, helical turbine 250 before being exhausted out wind exit port 205.

FIG. 6 a unit 122 cut-away isometric view orientations. Unit 122 illustrates repulsion force from electrical coil 206 onto permanent magnet 207. Electrical coil 206 is energized at top dead center with magnet 207 for duration of 1 degree repulsion then electrical coil 206 reverts to electrical generation state. This repulsion may be engaged in low natural wind speed or at start up as required. Controller 700 controls all switching, durations and other electrical functions.

FIG. 7 a unit 124 exploded isometric view orientations. Unit 124 illustrates air 200 imparting clockwise rotational motive force on turbine 220 and turbine 220 imparting force to taper roller gears 222. Taper roller gears 222 impart counterclockwise motive force on turbine 221 along with the force from air 200. Turbine 220 is free to rotate around drive shaft 239; turbine 221 is attached to drive shaft 239 and rotates in unison with centrifugal accelerator 240. Both turbine 220 and 221 create electricity with magnets 207 and electrical coil 206 and may also act as repulsion motor as required.

FIG. 8 a unit 130 cut-away view illustrates air 200 entering wind wedge 304 rotating rotors 305, entering funnel taper tube 306. Hydrogen 600 is injected through orifice check valve 248 and is ignited with a spark from igniter. Combustion 201 increases the pressure and flow of air 200 in the direction shown and the rotors 305 prevent back flow. Ignition and hydrogen 600 injections are governed by controller 700.

FIG. 9 a unit 132 cut-away view illustrates air 200 entering wind wedge 344 rotating rotors 345, entering funnel tube 346. Hydrogen 600 is injected through orifice check valve 248 and is ignited with a spark from igniter 249. Combustion 201 increases the pressure and flow of air 200 in the direction shown and the rotors 345 prevent back flow. Ignition and hydrogen 600 injections are governed by controller 700.

FIG. 10 a unit 134 cut-away isometric view illustrates air 200 entering combustion bell chamber 210 and hydrogen 600 is injected through orifice check valve 248 and is ignited with a spark from igniter 249. Combustion 201 increases the pressure and flow of air 200 in the direction shown. Ignition and hydrogen 600 injections are governed by controller 700.

FIG. 11 a unit 136 cut-away view illustrates air 200 entering centrifugal accelerator 240 through centrifugal inlet 241. Hydrogen 600 is injected through orifice check valve 248 and is ignited with a spark from igniter 249. Combustion 201 increases the pressure and flow of air 200 in the direction shown and increases rotational velocity through centrifugal exhaust 242. Centrifugal accelerator 240 is attached to drive shaft 239 imparting extra motive on turbine 220 and 221. Ignition and hydrogen 600 injections are governed by controller 700.

FIG. 12 a unit 138 cut-away view illustrates air 200 entering helical turbine 250 through helical inlet 251. Hydrogen 600 is injected through orifice check valve 248 and is ignited with a spark from igniter 249. Combustion 201 increases the pressure and flow of air 200 in the direction shown and increases rotational velocity through helical exhaust 252. Helical turbine 250 create electricity with magnets 207 and electrical coil 206 and may also act as repulsion motor as required.

Ignition and hydrogen 600 injections are governed by controller 700 along with switching, durations, and other electrical functions.

FIG. 13 a unit 140 cut-away isometric view illustrates pressurized air 200 entering inlet tube 402 directional control valve 410 routs the air 200 through tube 405 to reservoir 403 where air is cooled and water 400 precipitates out. Collected water 400 is stored and transferred as required to reservoir 404. Cycle "A" illustrated in FIG 14-unit 142 transports water 400 from reservoir 403 to reservoir 404 utilizing pressurized air 200 through tube 412. Water 400 entering chamber 423 is directed toward turbine blades 420 by the cone cap 424. Water 400 flowing through chamber 423 imparts force on left blade water turbine 420 to rotate clockwise and right blade water turbine 421 to rotate counterclockwise generating electricity with coil 206 and magnet 207. As water 400 continues through tube 413 into reservoir 404, air 200 is displaced and is forced through tube 408 into directional control valve 411 then into discharge tube 409. Cycle "B" is reverse of cycle "A" whereas directional control valve 410 routs the air 200 through tube 406 to reservoir 404 where air is cooled and water 400 precipitates out. Water 400 now flows from reservoir 404 to reservoir 403 generating electricity in chamber 423. Displaced air 200 in reservoir 403 is forced through directional control valve 411 and discharged from tube 409. As programmed cycle "A" and "B" is then repeated. Directional control is governed by controller 700 along with other electrical functions.

FIG. 15 a unit 152 exploded isometric view illustrates pressurized air 200 entering water chamber 502 from discharge tube 409. As bubble air 200 raises through water 400 force is imparted on turbines 520 and 521 generating electricity from coil 206 and magnets 207. Taper roller bearings 522 reduce friction of counter rotation of turbines 520 and 521.

FIG. 16 a unit 160 exploded isometric views illustrates oxygen 620 productions when a positive current is applied to terminal 607 connected to lead electrode 606. Alternate electrode 606 material Silicon, Gallium Antimonide, Gallium Arsenide, Gallium Antimonide, Indium Antimonide, Gallium Phosphide, Indium Phosphide, Germanium, Gallium Nitride, Aluminum Nitride, Zinc Oxide, Silicon Carbide, Carbide, Multi-crystalline Silicone with Boron dopant, Mono-Crystalline Silicon with Boron dopant, Boron, Sapphire, Nickel, Titanium, Tin, Copper, Iron, Silver, Gold, Diamond with Boron dopant and Carbon-Lead composite. Hydrogen 600 is produced when electrolyte 601 connects the electrical current to sequential electrodes 606 in plates 602, 603, 604, and 605. As illustrated in FIG. 17 a negative terminal completes the electrical circuit through terminal 608 thus producing oxygen 620 and delivering it through orifice 609 for capture and storage as illustrated in FIG. 18 unit 164. Hydrogen 600 delivered through orifice 610 will be used as noted in this invention and stored as a commodity.

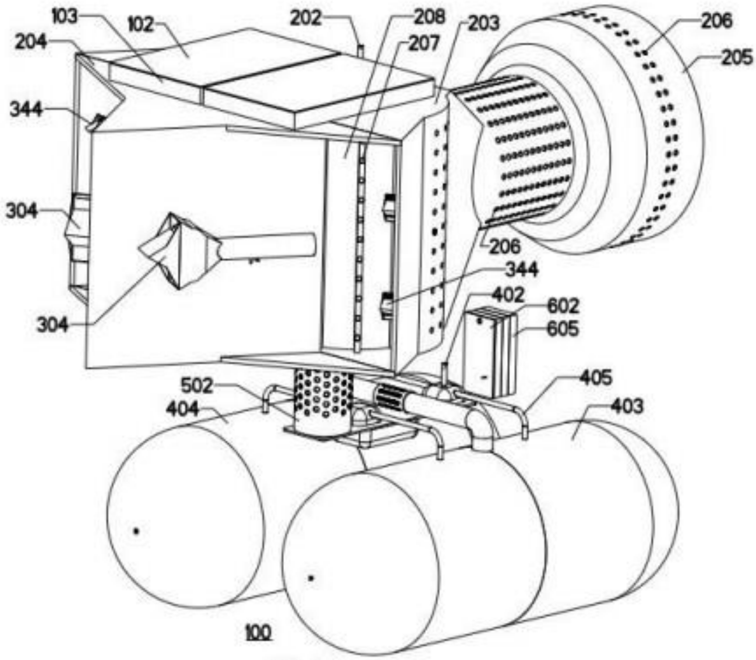


FIG 1

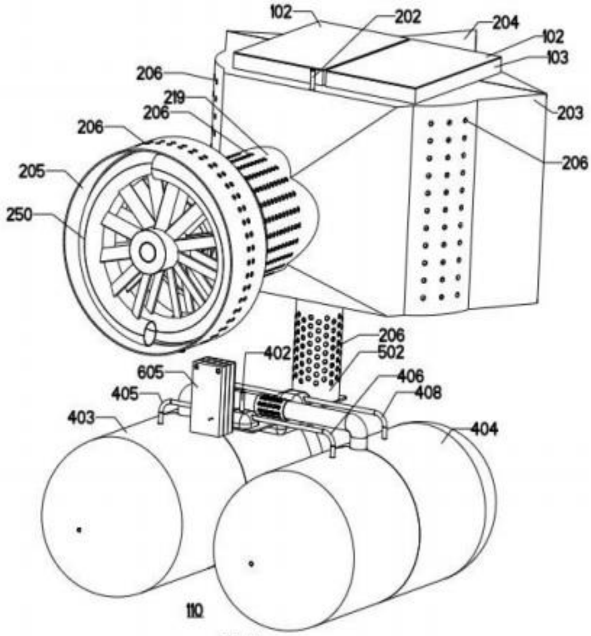

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FIG 2

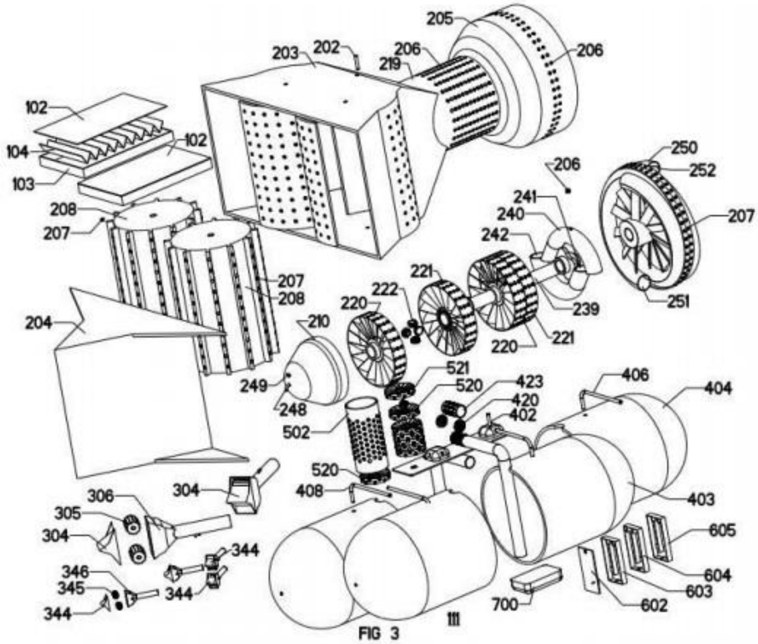
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FIG 3

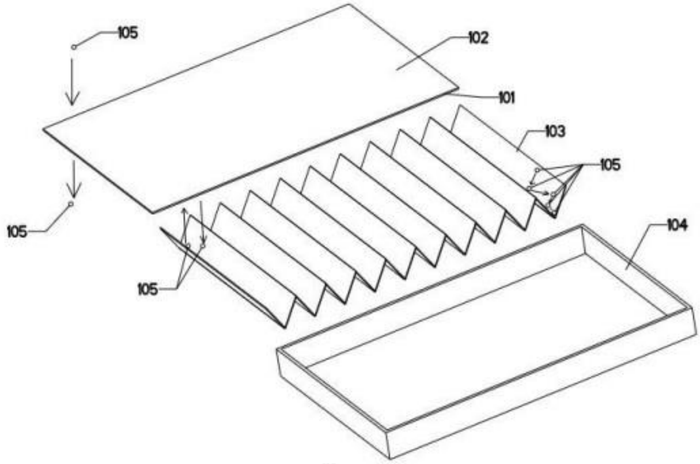

FIG 4

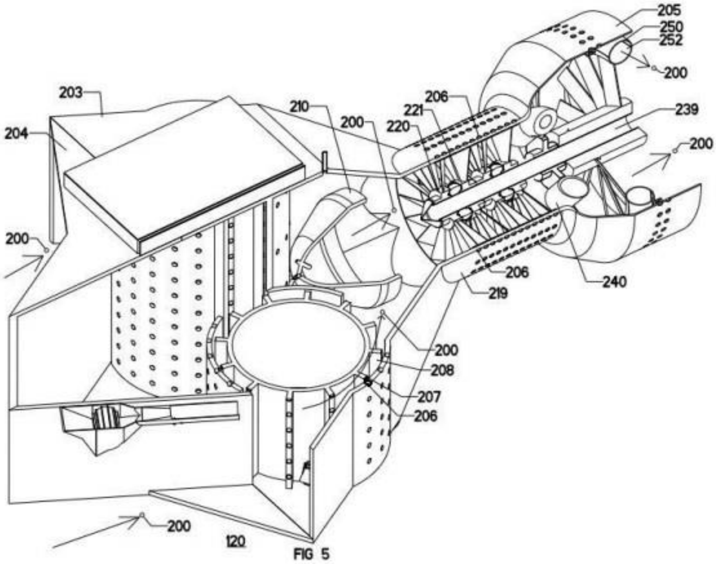
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FIG 5

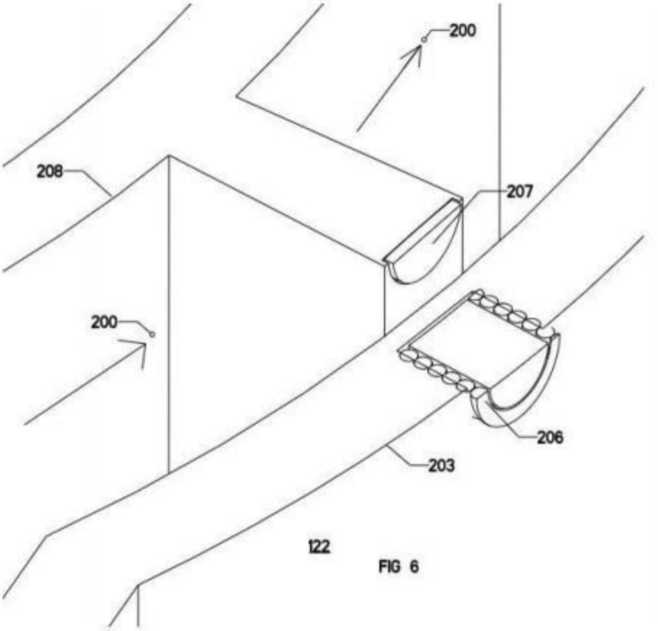

FIG 6

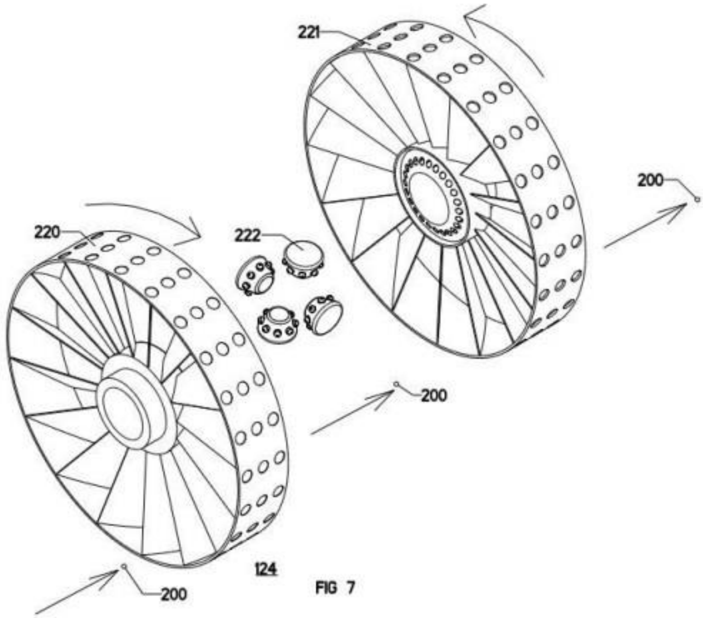

FIG 7

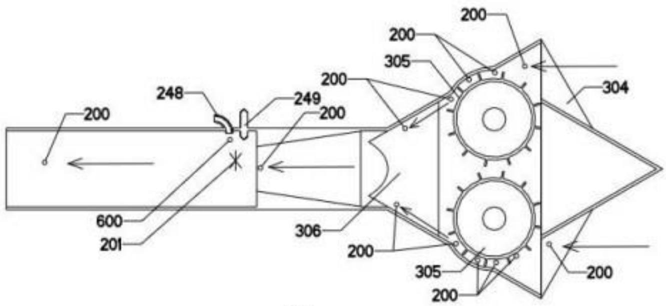

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FIG 8

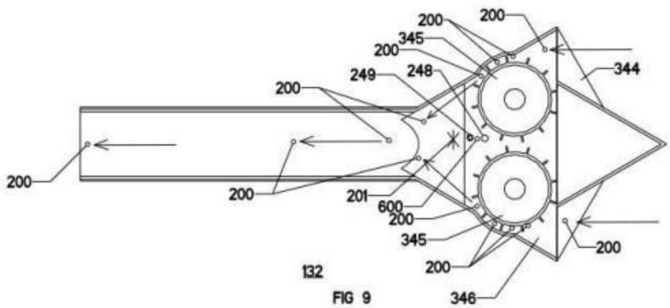

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FIG 9

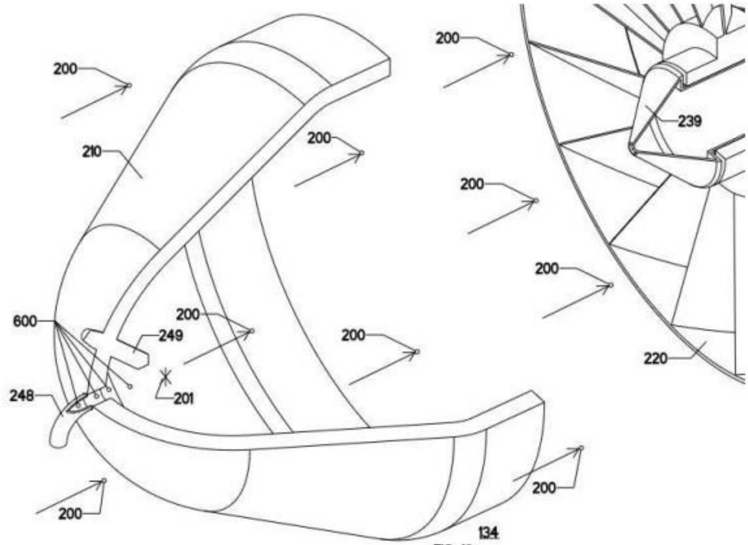
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FIG 10

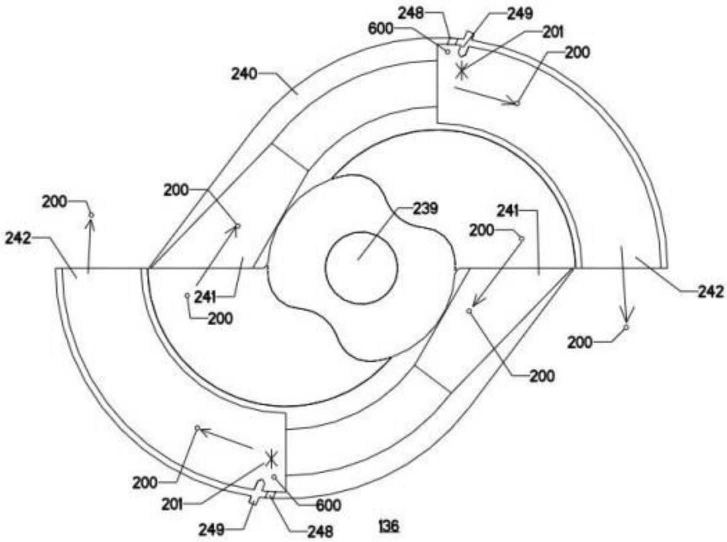
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FIG 11

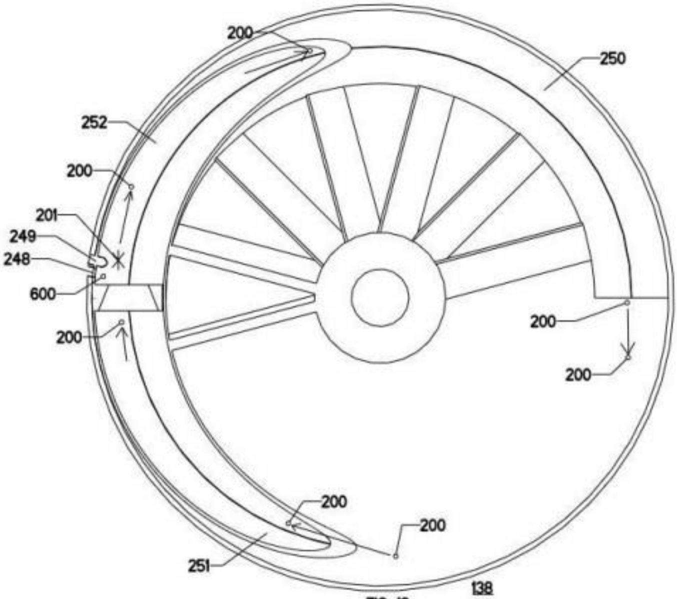

FIG 12

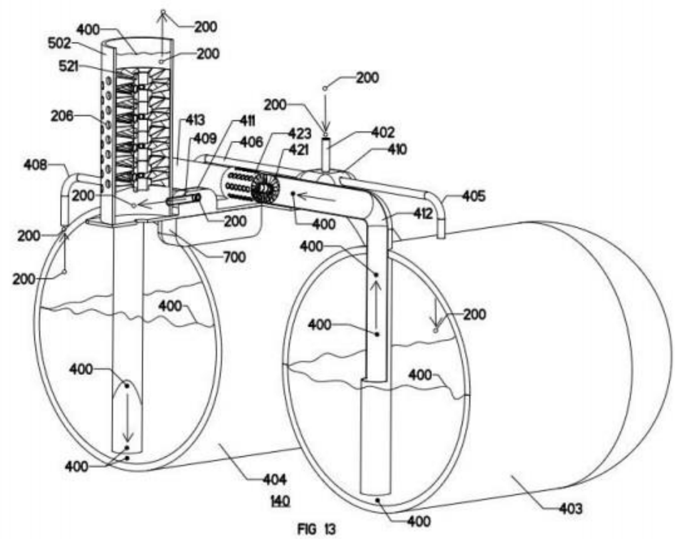

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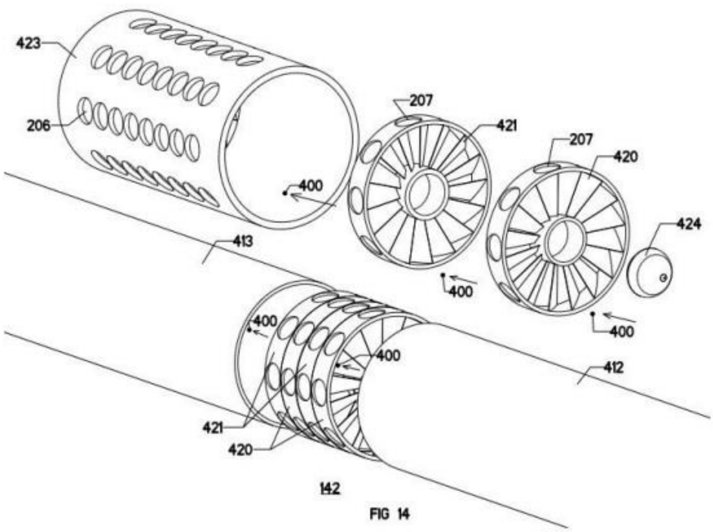
FIG 13



142

FIG 14

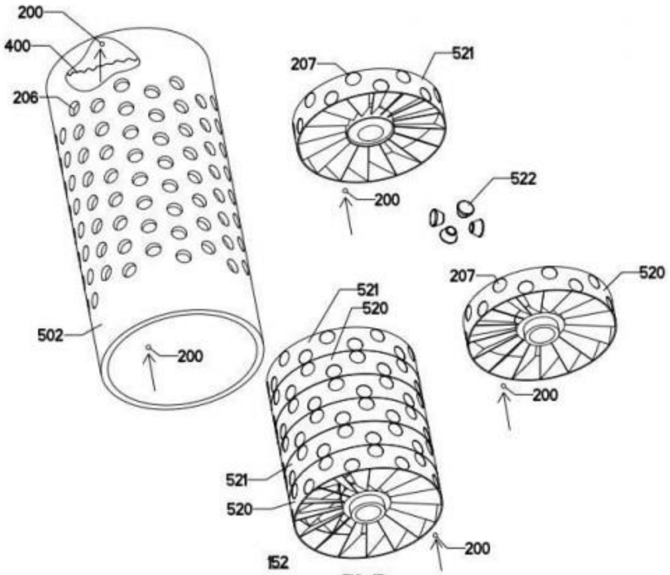

200
400
206
502
200
207
521
200
522
207
520
200
521
520
521
520
200
152

FIG 15

Teams will be judged based on their Fully Considered Cost, their Operational performance, and against the Sustainable Scalability requirements. Teams who meet or exceed the ambitious Operational and Sustainability requirements will be ranked by their "Fully considered Cost" of CO2 removal. The teams with the lowest cost - after meeting or exceeding the Operational and Sustainable Scaling requirements will win. In the event of a tie, or where a winner cannot be selected due to uncertainties in the cost model, judges will use the Operational and Sustainable Scaling requirements, and in particular the scale demonstrated during the competition, in their final selection of winners. Teams that can best control and reduce uncertainties in their measurements and calculations will have a competitive advantage.

Scale down versions shown Fig 8&9 will be used in the first year of compition. The scale down version will cost more and cosume more energy to CO2 capture than future upscale version. This is not a bad thing where as upscalling will lower the energy to CO2 capture where it counts the most.

Locating the SWEET in a constant windy area with plenty of sun light is ideal, but it also has internal combustion that can create it's of air flow. Combustion of Hydrogen not only provides a motive source but plays a important roll of sequestering CO2.

The configration changes sited earlier is adding a hirh pressure turbin section deverting some air flow to the Pollution Controls Mitigating System (PCMS). PCMS will be simular to the patented MITIGATING SYSTEM TO REMOVE CONTAMINANTS FROM AN EXHAUST GAS AND GENERATE ELECTRICAL POWER. The following disclosure modification input air flow will be from the SWEET instead of Flue gas as design. This change will make the PCMS In accordance with this compition rules.

Some items depicted will not be required becouse direct air capteure is inhearietenly cleaner than flus gas. Beter understanding of the orignal configration items will be benifical. Current configration abstrack will follow. Then we will review changes.

ABSTRACT

A mitigating system to remove contaminants from an exhaust gas and generate electrical power utilizes a first and second particle acquisition tower (PAT) unit, a first and second carbon dioxide precipitator (CAP) unit, a clean air turbine (CAT) unit, and a first and second gravity enhance separator (AGES) unit. The first PAT unit receives and purify the exhaust gas as the first AGES unit is in fluid communication with the first PAT unit. The exhaust gas is then respectively discharge and purified through the first CAP unit, the CAT unit, the second PAT unit as the second AGES unit is in fluid communication with the second PAT unit. Then the exhaust gas is discharged and purified through the second CAP unit and released into atmosphere as clean exhaust gas. Additionally, the exhaust gas is able to produce electricity as the exhaust gas bypasses within the CAT unit.

Hydrocarbon power plants are a commonly used form of electrical energy production. However, the environmental impacts of these power plants have been questioned repeat edly. In the process of generating electricity, the power plants release exhaust gas that is harmful to the environment where the exhaust gas accelerates the air pollution process. It is also known that an adequate Supply of oxygen in the air is essential for Survival. However, the exhaust gas rapidly increases the carbon dioxide concentration in the atmo sphere, leading to global warming and ocean acidification as the carbon dioxide dissolves in water to form carbonic acid. It is the object of the present invention to provide a system which can simultaneously reduce the amount of hydrocar bon per watt and improve the air quality while generating electrical power. More specifically, the present invention utilizes an artificial gravity enhance separator (AGES) unit, a particulate acquisition tower (PAT) nit, a carbon dioxide precipitator (CAP) unit, a clean air turbine (CAT) unit and at least one lift tower so that the present invention can efficiently function as a complete system. When exhaust gas is enters into the present invention, the exhaust gas is entered into the PAT unit, where the exhaust gas is mixed with fluids to lower the temperature. As the exhaust gas continues its assent the particles adhere to the fluid. The exhaust gas without particles exits from the PAT unit as the light weight partials flow out with the fluid at an upper location of the PAT unit while heavy particles flow out with the fluid at a bottom of the PAT unit. The fluid solution with mixed particles is placed into a rotating chamber of the AGES unit. The chamber's rotation creates centrifugal force separating the particles according to weight. After a time of rotation, the chambers valves expel heaviest particles first and then the lighter particles follow next. The exhaust gas without par ticles flows into a closed chamber of the CAP unit that surrenders different elements or compound with the correct pressure and temperature. More specifically the CAP unit separates carbon dioxide from other elements present in the exhaust gas without particles. The carbon dioxide turns into a liquid form while the remaining exhaust gas stays in a gas form. With different pressure and temperature in the CAP unit can separate and segregate many different elements and compounds. The liquid carbon dioxide is placed within the lift towers, where additional electricity is created by the placement of the carbon dioxide. The exhaust gas exit from the CAP unit is then circulated through the CAT unit as the exhaust gas is further purified while the exhaust heat can be incorporated into energy production. The purified gas is then able to generate additional power through the lift towers as the enclosed tower facilitates a cascade tower operation to maximize the power generation and further filter, separate or capture CO and or other compounds. With this process, the microorganisms contained within the lift tower are also able to benefit from the CO as the Lift Tower can further promote the plant growth in green house cultivating farms and reduce the CO to oxygen. Each unit of the present invention is able to operate as a system or can be paired with additional units to accommodate the environmental needs, functions or output requirements.

All illustrations of the drawings are for the purpose of describing selected versions of the present invention and are not intended to limit the scope of the present invention.

In accordance with the disclosure flu gas entering the mitigation system is transformed into useful environmental products through the present invention, where the present invention is a mitigating system that may be used by coal, natural gas or any hydro-carbon power plant to remove contaminants from exhaust gas and to generate electrical power. In reference to FIG. 1A and FIG. 1B, the present invention comprises a first particle acquisition tower (PAT) unit 2, a second particle acquisition tower (PAT) unit 3., a first carbon dioxide precipitator (CAP) unit 4, a second carbon dioxide precipitator (CAP) unit 5, a first artificial gravity enhance separator (AGES) unit 8, a second artificial gravity enhance separator (AGES) unit 9, and a clean air turbine (CAT) unit 10. These components are in fluid communication as a system so that the exhaust gas able to travel through the present invention as the exhaust gas goes through many different purifying processes and electricity generating processes. In reference to the general configuration of the present invention, an external exhaust outlet 1 is in fluid communication with the first PAT unit 2, wherein the external exhaust outlet 1 emits the exhaust gas. Then the first PAT unit 2 is in fluid communication with the first CAP unit 4. The first AGES unit 8 is in fluid communication with the first PAT unit 2 so that the first AGES unit 8 is able to operate in conjunction with the first PAT unit 2. The first CAP unit 4 is in fluid communication with the CAT unit 10 as the CAT unit 10 is in fluid communication with the second PAT unit 3. The second PAT unit 3 is in fluid communication with the second CAP unit 5, and the second AGES unit 9 is in fluid communication with the second PAT unit 3 so that the second AGES unit 9 is able to operate in conjunction with the second PAT unit 3. As the final stage, the purified exhaust gas is released into the atmosphere from the second CAP unit 5.

The first PAT unit 2 and the second PAT unit 3 remove particles from the exhaust gas and in doing so reduce the temperature of the exhaust gas. In reference to FIG. 2, FIG. 3, and FIG. 4, the first PAT unit 2 and the second PAT unit 3 each comprise a vessel 11, a first tower inlet 12, a second tower inlet 13, a heavy particle outlet 14, a light particle outlet 15, a tower outlet 16, and a plurality of control baffles 17. The exact positioning of the first PAT unit 2 and the second PAT unit 3 in relation to the other components of the present invention are described later. The vessel 11 that is preferably shaped into a cylindrical form functions as the main component of the first PAT unit 2 and the second PAT unit 3. The first tower inlet 12, the second tower inlet 13, the heavy particle outlet 14, the light particle outlet 15, and the tower outlet 16 are in fluid communication with the vessel 11. The plurality of control baffles 17 is internally connected along the vessel 11 in such a way that each of the plurality of control baffles 17 is evenly distributed along the vessel 11. The plurality of control baffles 17 provides a serious of filters so that unnecessary particles can be strained as the exhaust fluid mixture travels within the vessel 11. The heavy particle outlet 14, that discharges a heavy particle mixture away from the first PAT unit 2 and the second PAT unit 3. and the tower outlet 16 which discharges particle free exhaust gas from the first PAT unit 2 and the second PAT unit 3 are oppositely positioned from each other across the vessel 11. The first tower inlet 12 and the second tower inlet 13 are adjacently positioned with a first outer baffle 18 of the plurality of control baffles 17 and the heavy particle outlet 14. The light particle outlet 15 is adjacently positioned with a second outer baffle 19 of the plurality of control baffles 17 and the tower outlet 16 as the light particle outlet 15 discharges a light particle mixture away from the first PAT unit 2 and the second PAT unit 3. The exhaust fluid mixture that is present within the vessel 11 allows the heavy particle mixture and the light particle mixture discharge as a two stage purification process. More specifically, the first tower inlet 12 of the first PAT unit 2 receives exhaust gas from the external exhaust outlet 1 while the second tower inlet 13 of the first PAT unit 2 receives clean fluid from the first AGES unit 8. As a result, the exhaust fluid mixture can be formed within the vessel 11 of the first PAT unit 2 in order to filter out the heavy particle mixture and the light particle mixture. Similarly, the first tower inlet 12 of the second PAT unit 3 receives exhaust gas from the CAT unit 10 while the second tower inlet 13 of the second PAT unit 3 receives clean fluid from the second AGES unit 9. As a result, the exhaust fluid mixture can be formed within the vessel 11 of the second PAT unit 3 in order to filter out the heavy particle mixture and the light particle mixture.

The first CAP unit 4 and the second CAP unit 5 separate carbon dioxide from other elements present in the exhaust gas as the carbon dioxide turns into a liquid form while the remaining exhaust gas stays in a gas form. In reference to FIG. 5 and FIG. 6, the first CAP unit 4 and the second CAP unit 5 each comprise a storage tank 21, a tank inlet 22, a precipitator outlet 23, a tank outlet 24, an inlet valve 25, a first outlet valve 26, and a second outlet valve 27. The exact positioning of the first CAP unit 4 and the second CAP unit 5 in relation to the other components of the present invention are described later. The tank inlet 22 is in fluid communi cation with the storage tank 21 through the inlet valve 25 as the inlet valve 25 operates in between an opened-position and a closed-position. Similarly, the tank outlet 24 is in fluid communication with the storage tank 21 through the first outlet valve 26, where the first outlet valve 26 functions similar to the inlet valve 25. Additionally, the tank inlet 22 and the tank outlet 24 are oppositely positioned from each other across the storage tank 21. The precipitator outlet 23, which removes the liquid carbon dioxide from the storage tank 21, is in fluid communication with the storage tank 21 through the second outlet valve 27 and positioned in between the tank inlet 22 and the tank outlet 24.

In reference to FIG. 7, FIG. 8, and FIG. 9, the first AGES unit 8 and the second AGES unit 9, that cleans the heavy particles mixture and the light particle mixture in order to produce clean fluid, each comprise a holding chamber 31, a chamber opening 32, a plurality of release valves 33, an outer collector 34, a particle discharge duct 36, a fluid discharge duct 37, a base unit 38, a drive shaft 39, and a support stand 40. More specifically, the holding chamber 31 rotation of the first AGES unit 8 and the second AGES unit 9 create centrifugal force in such a way that the centrifugal force separates heavy and light particles according to weight so that the heavy and light particle can be removed from the heavy particle mixture and the light particle mixture. The chamber opening 32 is concentrically positioned on the holding chamber 31 so that the holding chamber 31 is able to receive the heavy particle mixture and the light particle mixture from the first PAT unit 2 and the second PAT unit 3. The outer collector 34 is adjacently connected around the holding chamber 31, where the discharge slot 35 is peri metrically and internally positioned within the outer collec tor 34. The lurality of release valves 33 is in fluid com munication with the holding chamber 31 and the outer collector 34 through the discharge slot 35 so that the heavy and light particles can be collected within the discharge slot 35 as they are released through the plurality of release valves 33. The particle discharge duct 36 is externally connected to the outer collector 34 in such a way that the particle discharge duct 36 is in fluid communication with the dis charge slot 35. As a result, the particle discharge duct 36 is able to remove the heavy and light particles from the outer collector 34. The support stand 40 is externally connected to the outer collector 34 opposite of the chamber opening 32 and connected to the base unit 38 opposite of the holding chamber 31. More specifically, the base unit 38 is concen trically positioned below the holding chamber 31 as the support stand 40 provides a fixed anchor for the base unit 38 and holding chamber 31. The drive shaft 39 is concentrically positioned in between the base unit 38 and the holding chamber 31 and connected with the holding chamber 31 so that the drive shaft 39 is able to provide rotational motive force for the holding chamber 31 according to the system specification. In other words, the drive shaft 39 functions as the rotating mechanism of the present invention as the drive shaft 39 creates centrifugal force required to separate the heavy and light particles.

Since the first PAT unit 2 is in fluid communication with the first CAP unit 4, the first AGES unit 8 is in fluid communication with the first PAT unit 2, and the first CAP unit 4 is in fluid communication with the CAT unit 10, the present invention is able to carry out the first phase of the purifying process and electricity generating processes as the exhaust gas travels from the external exhaust outlet 1 to the CAT unit 10.

The external exhaust outlet 1 is in fluid communication with the first tower inlet 12 of the first PAT unit 2 so that the exhaust gas can flow into the first PAT unit 2. Additionally, the fluid discharge duct 37 of the first AGES unit 8 is in fluid communication with the second tower inlet 13 of the first PAT unit 2 in order to supply clean fluid from the first AGES unit 8. Then the exhaust fluid mixture is created with the exhaust gas of the external exhaust outlet 1 and the clean fluid of the first AGES unit 8 so that the temperature of the exhaust gas can be decreased to form the light particle mixture and the heavy particle mixture within the vessel 11. The heavy particle outlet 14 and the light particle outlet 15 of the first PAT unit 2 are in fluid communication with the holding chamber 31 of the first AGES unit 8 through the chamber opening 32 of the first AGES unit 8. As a result, the first AGES unit 8 respectively receives the light particle mixture and the heavy particle mixture through the light particle outlet 15 and heavy particle outlet 14 of the first PAT unit 2. Then the first AGES unit 8 is able to separates the heavy and light particles away from the holding chamber 31 so that clean fluid can be supplied back to the second tower inlet 13 of the first PAT unit 2 through the fluid discharge duct 37 of the first AGES unit 8.

When the holding chamber 31 of the first AGES unit 8 is filled with the heavy particle mixture and the light particle mixture, the holding chamber 31 of the first AGES unit 8 is rotated for a period of time by the drive shaft 39 of the first AGES unit 8 so that the heavy particles can be collected adjacent to the plurality of release valves 33 of the first AGES unit 8 while the light particles are collected toward the center of the holding hamber 31 of the first AGES unit 8. With the activation of the plurality of release valves 33 of the first AGES unit 8, the heavy particles are released into the discharge slot 35 of the first

AGES unit 8. Then the plurality of release valves 33 of the first AGES unit 8 is momentarily closed to allow the complete discharge of the heavy particles through the particle discharge duct 36 of the first AGES unit 8. The continuous rotation of the holding chamber 31 of the first AGES unit 8 allows the light particles to collect next to the plurality of release valves 33. Then the plurality of release valves 33 of the first AGES unit 8 is re-opened to release the light particles, where the light particles flow the same path as did the heavy particles. Then the holding chamber 31 of the first AGES unit 8 is left with clean fluid which can be resupplied back to the first PAT unit 2. The first AGES unit 8 continuously operates within the present invention along with the efficient time intervals so that the first PAT unit 2 is continuously able to clean the exhaust gas mixture.

The tower outlet 16 of the first PAT unit 2 is in fluid communication with the tank inlet 22 and the inlet valve 25 of the first CAP unit 4 so that particle free exhaust gas can be discharged into the first CAP unit 4. Once the particle free exhaust gas enters into the first CAP unit 4 through the opened-position of the inlet valve 25 of the first CAP unit 4. the internal pressure within the first CAP unit 4 increase as the first outlet valve 26 and the second outlet valve 27 of the first CAP unit 4 are in the closed-position. When the internal pressure increases, particle free exhaust gas becomes liquid at the liquidation pressure of the carbon dioxide. The pre cipitator outlet 23 of the first CAP unit 4 is in fluid communication with at least one first lift tower 6 so that the liquid carbon dioxide can be discharged into the at least one first lift tower 6 through the second outlet valve 27. More specifically, the liquid carbon dioxide flows into the at least one first lift tower 6 as the second outlet valve 27 of the first CAP unit 4 is switched into the opened-position. Since the tank outlet 24 of the first CAP unit 4 is in fluid communi cation with the a combustion exhaust inlet 41 of the CAT unit 10, the remaining exhaust gas exists through the first outlet valve 26 and tank outlet 24 of the first CAP unit 4 into the combustion exhaust inlet 41 along with the simultane ously release of liquid carbon dioxide.

The CAT unit 10 is a series of air purifying units as each unit provides a unique functionality to the CAT unit 10. In reference to FIG. 10-25, the CAT unit 10 comprises a plurality of turbine units 42, a heat collector unit 50, a combustion unit 55, an electrolysis unit 59, and an inter connected lift tower system 66 as the plurality of turbine units 42 comprises an impeller segment unit 43, a hydrogen turbine unit 44, an impeller-accelerator unit 45, a steam turbine unit 46, an accelerator unit 47, a drive axle 49, and a turbine generator 48. Each of the plurality of turbine units 42, which comprises a first opening, a second opening, an inner-turbine, a first gear, and a second gear, is engaged with one another as the rotational speed of the inner-turbine increases along the plurality of turbine units 42. Addition ally, the rotational energy is transferred from one of the plurality of turbine units 42 to another as the drive axle 49 is rotatably engaged with the impeller segment unit 43, the hydrogen turbine unit 44, the impeller-accelerator unit 45, the steam turbine unit 46, the accelerator unit 47, and the turbine generator 48 through the first gear and the second gear of the plurality of turbine units 42. As a result, the turbine generator 48 is able to harvest the transferred rotational energy to generate electricity within the present invention.

The impeller segment unit 43, which harnesses the rota tional speed of the exhaust gas from the first CAP unit 4, is in fluid communication with the combustion exhaust inlet 41 as shown in FIG. 1B. In reference to FIG. 11 and FIG. 12, the exhaust gas is entered into a turbine chamber of the inner-turbine through the first opening of the impeller segment unit 43. Then the turbine chamber of the impeller segment unit 43 with the exhaust gas is able to rotate around the drive axle 49 and forces the exhaust gas out through the second opening of the impeller segment unit 43, using speed and centrifugal force. Then the exhaust gas is able to travel into the hydrogen turbine unit 44 as the impeller segment unit 43 is in fluid communication with the hydrogen turbine unit 44. When the drive axle 49 is rotated along with the inner-turbine of the impeller segment unit 43, the first gear that is attached to the inner-turbine of the impeller segment unit 43 increases the rotation speed of the second gear. The second gear of the impeller segment unit 43 is attached with an idler driver so that the idler driver is able transfer the rotational speed from the second gear of the impeller seg ment unit 43 to the hydrogen turbine unit 44.

The hydrogen turbine unit 44 increases the speed of the exhaust gas as the exhaust gas travels through the hydrogen turbine unit 44. In reference to FIG. 13 and FIG. 14, the exhaust gas from the impeller segment unit 43 enters into a turbine chamber of the inner-turbine through the first open ing of the hydrogen turbine unit 44. Then the turbine chamber of the hydrogen turbine unit 44 with the exhaust gas is able to rotate around the drive axle 49 and forces the exhaust gas out through an orifice of the hydrogen turbine unit 44, using speed and centrifugal force. Then the exhaust gas is enters into a combustion tube of the hydrogen turbine unit 44 since the combustion tube forms a vacuum from the last combustion event. This vacuum now pulls the exhaust gas into the combustion tube, where the exhaust gas mixes with hydrogen and oxygen gases that are discharged from the electrolysis unit 59 while a spark from the combustion unit 55 ignites the new mixture within the combustion tube to create a burst of energy. The electrolysis unit 59, which produces hydrogen and oxygen from water, comprises a separator tank 60, a hydro gen outlet 61, a hydrogen injector 62, an oxygen outlet 63, an oxygen injector 64, and a water inlet 65 as shown in FIG. 23. For the proper functionality of the electrolysis unit 59. the hydrogen outlet 61 and the oxygen outlet 63 are in fluid communication with the separator tank 60 as the water inlet 65 is positioned on the separator tank 60. The water inlet 65 is connected with an external water source so that water can continuously be supplied to the separator tank 60 in order to isolate hydrogen and oxygen. The hydrogen outlet 61 is in fluid communication with the hydrogen injector 62 while the hydrogen injector 62 traverses into the combustion tube so that hydrogen outlet 61 can be in fluid communication with the hydrogen turbine unit 44. Similarly, the oxygen outlet 63 is in fluid communication with the oxygen injector 64 while the oxygen injector 64 traverses into the combustion tube so that oxygen outlet 63 can be in fluid communication with the hydrogen turbine unit 44. As a result, the electrolysis unit 59 is able to Supply hydrogen to the hydrogen injector 62 via the hydrogen outlet 61 and oxygen to the oxygen injector 64 via the oxygen outlet 63 as hydrogen and oxygen get discharged into the combustion tube. Optionally, the present invention may also use pressurized canisters of hydrogen and oxygen in place of the electrolysis unit 59.

The combustion unit 55, which creates the necessary spark for the combustion tube, comprises a controller unit 56, a spark plug wire 57, and a spark plug 58 as shown in FIG. 22. The controller unit 56 controls all electrical inter faces and provides the spark for combustion while the spark plug wire 57 is the conductor between controller unit 56 and spark plug 58. More specifically, the spark plug wire 57 is electrically connected between the controller unit 56 and the spark plug 58 as the spark plug 58 is traversed into the combustion tube.

Once the spark is created by the spark plug 58, the energy burst from the combustion of hydrogen and oxygen mix ignites any unburned exhaust carbon mono oxide and other vapors of the exhaust gas. The burst also promotes the inner-turbine of the hydrogen turbine unit 44 to rotate in Such a way the exhaust gas is able to discharge into the impeller-accelerator unit 45 through the second opening of the hydrogen turbine unit 44 as the hydrogen turbine unit 44 is in fluid communication with the impeller accelerator unit 45. When the drive axle 49 is rotated along with the inner-turbine of the hydrogen turbine unit 44, the first gear that is attached to the inner-turbine of the hydrogen turbine unit 44 increases the rotation speed of the second gear. The second gear of the hydrogen turbine unit 44 is attached with an idler driver so that the idler driver is able transfer the rotational speed from the second gear of the hydrogen turbine unit 44 to the impeller-accelerator unit 45.

The impeller-accelerator unit 45 increases the speed of the exhaust gas as the exhaust gas travels through the impeller accelerator unit 45. In reference to FIG. 15 and FIG. 16, the exhaust gas from the hydrogen turbine unit 44 enters into a turbine chamber of the inner-turbine through the first open ing of the impeller-accelerator unit 45. Then the turbine chamber of the impeller-accelerator unit 45 with the exhaust gas is able to rotate around the drive axle 49 and forces the exhaust gas out through the second opening of the impeller accelerator unit 45, using speed and centrifugal force. The turbine chamber of the impeller-accelerator unit 45 increases the rotational velocities produce due a negative pressure at the first opening of the impeller-accelerator unit 45 and a positive pressure at the second opening of the impeller accelerator unit 45. As a result, the exhaust gas continuously flows through the impeller-accelerator unit 45 to the steam turbine unit 46 as the impeller-accelerator unit 45 is in fluid communication with the steam turbine unit 46. When the drive axle 49 is rotated along with the inner-turbine of the impeller-accelerator unit 45, the first gear that is attached to the inner-turbine of the impeller-accelerator unit 45 increases the rotation speed of the second gear. The second gear of the impeller-accelerator unit 45 is attached with an idler driver so that the idler driver is able transfer the rotational speed from the second gear of the impeller accelerator unit 45 to the steam turbine unit 46.

High pressure steam from the heat collector unit 50 is applied to the steam turbine unit 46 so that the exhaust gas can be accelerated within the steam turbine unit 46 as it flows from the impeller-accelerator unit 45. In reference to FIG. 17 and FIG. 18, the exhaust gas from the impeller accelerator unit 45 enters into a turbine chamber of the inner-turbine through the first opening of the steam turbine unit 46. Then the turbine chamber of the steam turbine unit 46 with the exhaust gas is able to rotate around the drive axle 49 and forces the exhaust gas out through an orifice of the steam turbine unit 46, using speed and centrifugal force. Then the exhaust gas is deposited into a steam expansion tube of the steam turbine unit 46 as high pressure steam from the heat collector unit 50 propels the exhaust gas, increasing the rotational speed of the inner-turbine. Then the exhaust gas is able to exist into the accelerator unit 47 through the second opening of the Steam turbine unit 46 as the accel erator unit 47 is in fluid communication with the steam turbine unit 46. When the drive axle 49 is rotated along with the inner-turbine of the steam turbine unit 46, the first gear that is attached to the inner-turbine of the steam turbine unit 46 increases the rotation speed of the second gear. The second gear of the steam turbine unit 46 is attached with an idler driver so that the idler driver is able transfer the rotational speed from the second gear of the steam turbine unit 46 to the accelerator unit 47.The heat collector unit 50, which discharges high pressure steam to the steam turbine unit 46, comprises a pump 51, a water orifice 52, a heat collecting tube 53, and a steam ejector 54 as shown in FIG. 21. A continuous flow of water is entered into the heat collector unit 50 through the water orifice 52 as the water orifice 52 is positioned on the pump 51. The heat collecting tube 53 is in fluid communication with the pump 51 so that water can be discharged into the heat collecting tube 53 from the pump 51. When water is entered into the heat collecting tube 53, the temperature of water increases as heat energy is transferred into the captive water within the heat collecting tube 53, creating high pressure steam. More specifically, the heat collecting tube 53 is perimetrically positioned around the impeller segment unit 43, the hydrogen turbine unit 44, the impeller-accelerator unit 45, the steam turbine unit 46, and the accelerator unit 47 so that the heat energy can be drawn from those com ponents to the captive water within the heat collecting tube 53. Then the captive water within the heat collecting tube 53 goes through a phase change due to the increasing temperature and becomes high pressure steam. The Steam ejector 54 is in fluid communication with the heat collecting tube 53 and steam turbine unit 46 and positioned opposite of the pump 51. Due to the positioning of the steam ejector 54, high pressure Steam can be ejected into the steam expansion tube to increase the rotational speed for the inner turbine of the steam turbine. Simultaneously, the heat collector unit 50 functions as a cooling system for the plurality of turbine units 42 as the heat energy is drawn away from the plurality of turbine units 42 to maintain an optimal operating temperature.

The accelerator unit 47 increases the speed of the exhaust gas as the exhaust gas travels through the accelerator unit 47. In reference to FIG. 19 and FIG. 20, the exhaust gas from the steam turbine unit 46 enters a turbine chamber of the inner turbine through the first opening of the accelerator unit 47. Then the turbine chamber of the accelerator unit 47 with the exhaust gas can rotate around the drive axle 49 and forces the exhaust gas out through the second opening of the accelerator unit 47, using speed and centrifugal force. Then the exhaust gas is discharged into the interconnected lift tower system 66 as the accelerator unit 47 is in fluid communication with the interconnected lift tower system 66. When the drive axle 49 is rotated along with the inner turbine of the accelerator unit 47, the first gear that is attached to the inner turbine of the accelerator unit 47 increases the rotation speed of the second gear. The second gear of the accelerator unit 47 is engaged with the turbine generator 48 so that the turbine generator 48 is able covert the rotational energy of the second gear into production of electrical power or mechanical power while the exhaust gas is continuously discharged into the interconnected lift tower system 66.

The interconnected lift tower system 66 further purifies the exhaust gas as the exhaust gas is traveled through the interconnected lift tower system 66 while creating electricity. The interconnected lift tower system 66 comprises at least one tower 67, an outlet duct 73, and a tower generator 74, where the at least one tower 67 can comprise additional towers to accommodate for larger system. In reference to the general configuration of the interconnected lift tower system 66, the at least one tower 67 is in fluid communication with the accelerator unit 47 so that the exhaust gas from the accelerator unit 47 can be discharged into the interconnected lift tower system 66. The outlet duct 73 is in fluid communication with the at least one tower 67 opposite of the accelerator unit 47 while the tower generator 74 is engaged with the at least one tower 67.

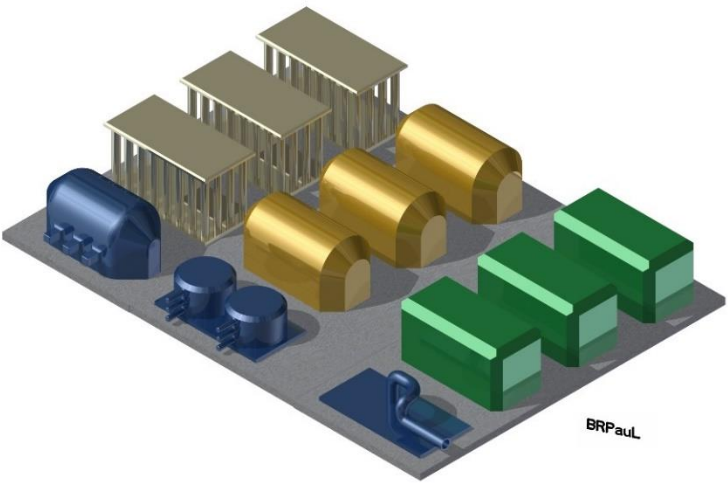
In reference to FIG. 24 and FIG. 25, the at least one tower 67 comprises a housing 68, a multi-plenum conveyor System 69, a rotor shaft 70, a lift tower inlet 71, and a lift tower outlet 72 so that the at least one tower 67 can interact with the outlet duct 73 and the tower generator 74. More specifically, the multi plenum conveyor system 69 is internally positioned within the housing 68 and connected to the housing 68 through the rotor shaft 70. The tower generator 74 is axially connected with the rotor shaft 70 so that the multi-plenum conveyor system 69 and the rotor shaft 70 can power the tower generator 74. The lift tower inlet 71 is traversed through the housing 68 to accept an outlet of the accelerator unit 47. In other words, the lift tower inlet 71 is in fluid communication with the accelerator unit 47 so that the exhaust gas can be discharged into the housing 68. The lift tower outlet 72 is also traversed through the housing 68 so that the outlet duct 73 can be in fluid communication with the housing 68. The outlet duct 73 is positioned atop the multi-plenum conveyor system 69 while the lift tower inlet 71 is oppositely positioned of the lift tower outlet 72, across the multi plenum conveyor system 69.

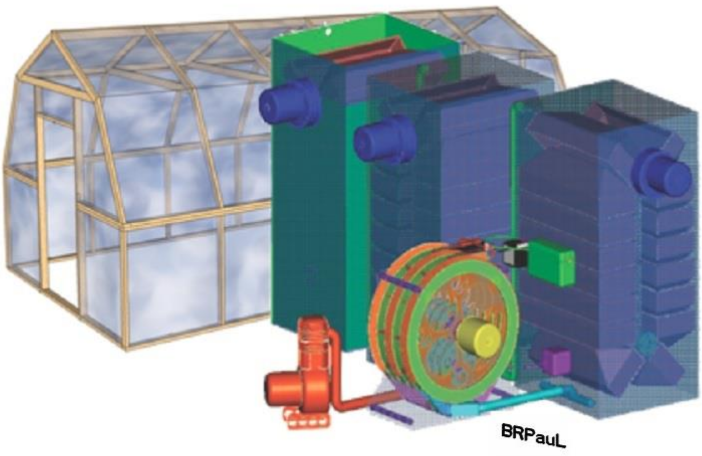
When the exhaust gas is discharged from the accelerator unit 47, the exhaust gas is discharged into a body of water contained within the housing 68. The steam in the exhaust gas condenses into water and the remaining exhaust gas is collected in a lower plenum of the multi-plenum conveyor system 69 as the lift tower inlet 71 is positioned below the multi plenum conveyor system 69 that includes multiple plenums.

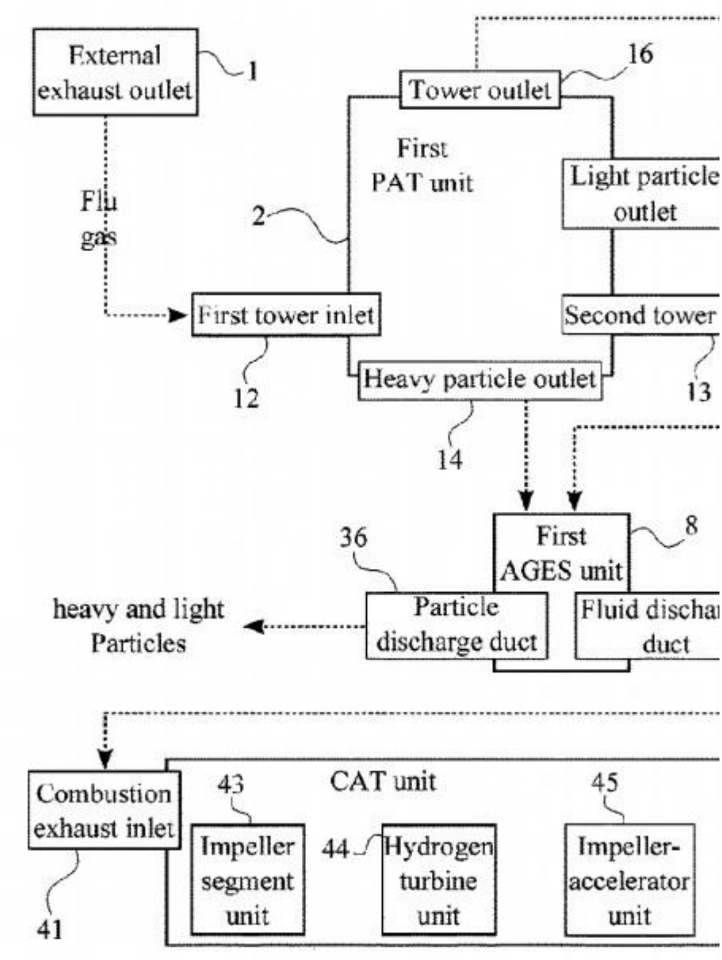
The captured exhaust gas in the lower plenum displaces the water within the lower plenum and lift is created within the multi plenum conveyor system 69. Since the lower plenum is attached to a conveyor System of the multi-plenum conveyor system 69 and rotates the rotor shaft 70 and applies force to the tower generator 74, the tower generator 74 can create electrical power or a mechanical take off. Since multiple plenums are attached to the conveyor System and only the lower plenum is filled with the exhaust gas, the multi-plenum conveyor system 69 begins its upward movement while an adjacent plenum to the lower plenum is moves downward so that the exhaust gas can be filled. This cascade effect may be duplicated additional times until the delta pressure of the exhaust gas is not overcome the head of water pressure. When an exhaust gas filled plenum reaches above the rotor shaft 70, the exhaust gas is displaced by the water and the descending cycle of the plenum begins forming a continuous moving loop. As a result of the continuous moving loop, the tower generator 74 can continuously generate electricity within the present invention. The exhaust gas now at the top of the at least tower is still under pressure and starts its exit through the outlet duct 73.

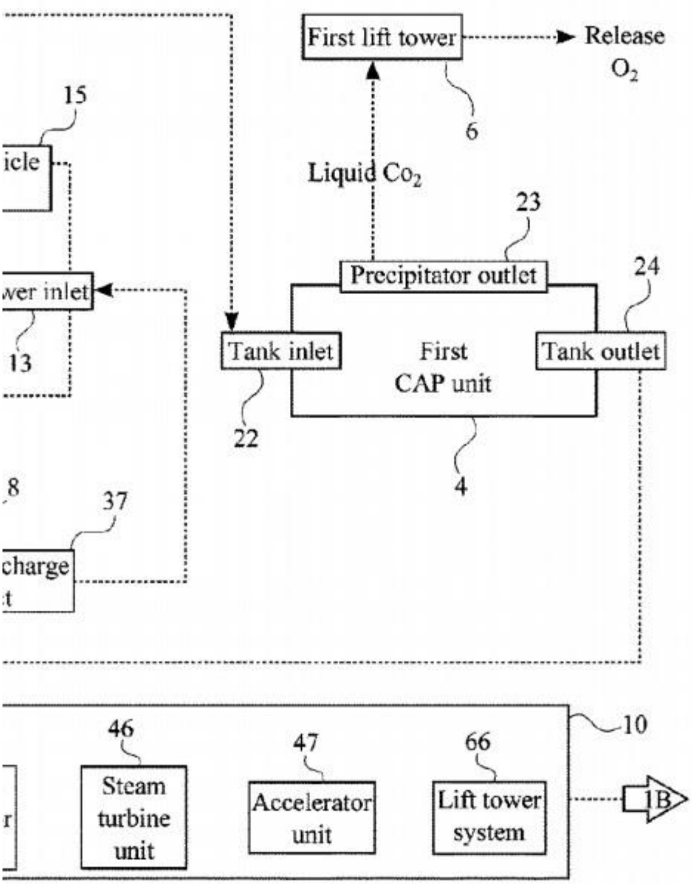
The at least one tower 67 maintains a lower temperature and it may be used to support aquatic life for CO2 reduction. The at least one tower 67 along with additional towers in series configuration that receive the exhaust gas can be discharged into the atmosphere or a closed in greenhouse to reduce the CO and promote plant growth. The Solid particulates formed in the water within the housing 68 may be used as food and Soil enrichment. If the Source has environmental hazard, the Solid particulates they may formed within the housing 68 is filtered out and disposed of accordingly.

In reference to FIG. 1B, the outlet duct 73 is in fluid communication with the first tower inlet 12 of the second PAT unit 3 so that the exhaust gas can flow into the second PAT unit 3. Additionally, the fluid discharge duct 37 of the second AGES unit 9 is in fluid communication with the second tower inlet 13 of the second PAT unit 3. Then the exhaust fluid mixture is created within the vessel 11 so that the temperature of the exhaust gas can be decreased to form the light particle mixture and the heavy particle mixture once again. The heavy particle outlet 14 and the light particle outlet 15 of the second PAT unit 3 are in fluid communication with the holding chamber 31 of the second AGES unit 9 through the chamber opening 32 of the second AGES unit 9. As a result, the second AGES unit 9 receives the light particle mixture and the heavy particle mixture through the light particle outlet 15 and heavy particle outlet 14 of the second PAT unit 3 respectively. Then the second AGES unit 9 is able to separates the heavy and light particles away from the holding chamber 31 so that clean fluid can be supplied back to the second tower inlet 13 of the second PAT unit 3 through the fluid discharge duct 37 of the second AGES unit 9. The Second PAT unit 3 and the second AGES unit 9 implement the same functionality as the first PAT unit 2 and the first AGES unit 8 respectively. The tower outlet 16 of the second PAT unit 3 is in fluid communication with the tank inlet 22 and the inlet valve 25 of the Second CAP unit 5 so that particle free exhaust gas can be discharged into the second CAP unit 5. Once the particle free exhaust gas enters the second CAP unit 5 through the opened position of the inlet valve 25 of the second CAP unit 5, the second CAP unit 5 functions similar to the first CAP unit 4, where the liquid carbon dioxide flows into at least one second lift tower 7 as the precipitator outlet 23 of the second CAP unit 5 is in fluid communication with at least one second lift tower 7. However, the remaining exhaust gas is existed from the present invention into the atmosphere as the tank outlet 24 of the second CAP unit 5 is in fluid communication with a release duct 80.




BRPauL


External exhaust outlet
1
Flu gas
2
First PAT unit
Tower outlet
16
Light particle outlet
First tower inlet
Second tower
12
13
Heavy particle outlet
14
First AGES unit
8
36
Particle discharge duct
Fluid dischar duct
heavy and light Particles
Combustion exhaust inlet
41
CAT unit
43
Impeller segment unit
44
Hydrogen turbine unit
45
Impeller-accelerator unit


First lift tower
Release
O_2
6
15
icle
Liquid Co_2
23
24
Precipitator outlet
wer inlet
Tank inlet
First
CAP unit
Tank outlet
13
22
4
8
37
charge
t
10
46
47
66
Steam
turbine
unit
Accelerator
unit
Lift tower
system
r
1B

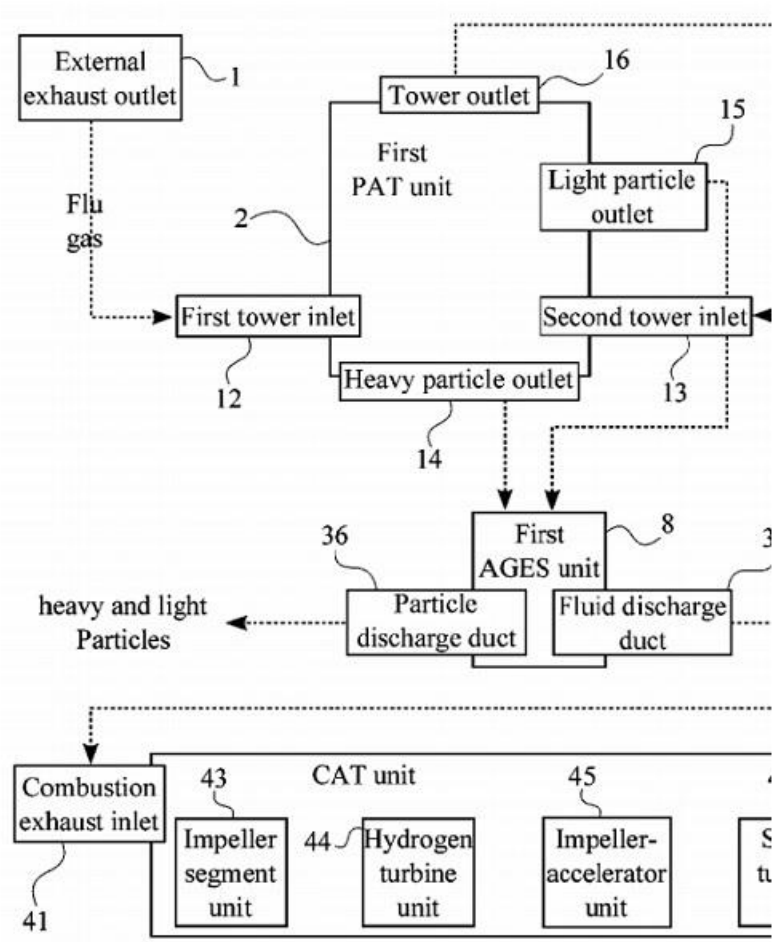

External exhaust outlet
1
Flu gas
Tower outlet
16
15
First PAT unit
2
Light particle outlet
First tower inlet
Second tower inlet
12
Heavy particle outlet
13
14
36
First AGES unit
8
heavy and light Particles
Particle discharge duct
Fluid discharge duct
Combustion exhaust inlet
43
CAT unit
45
Impeller segment unit
44
Hydrogen turbine unit
Impeller-accelerator unit
41

FIG. 1A

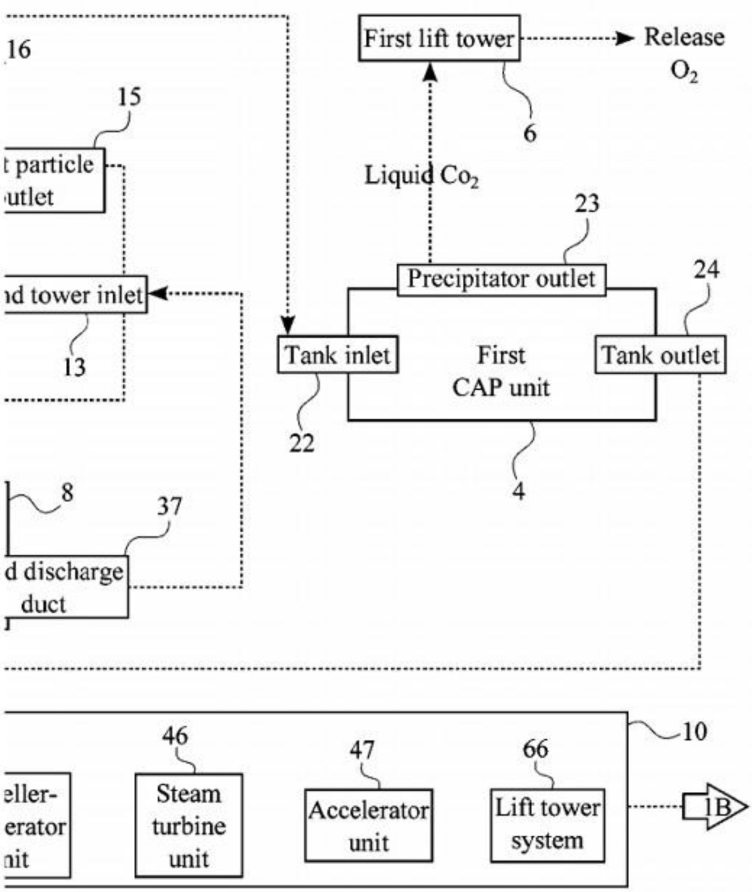

16
15
t particle
utlet
d tower inlet
13
8
37
d discharge
duct
First lift tower
Release
O_2
6
Liquid Co_2
23
Precipitator outlet
24
Tank inlet
First
CAP unit
Tank outlet
22
4
10
46
47
66
eller-
erator
nit
Steam
turbine
unit
Accelerator
unit
Lift tower
system
1B

FIG. 1A

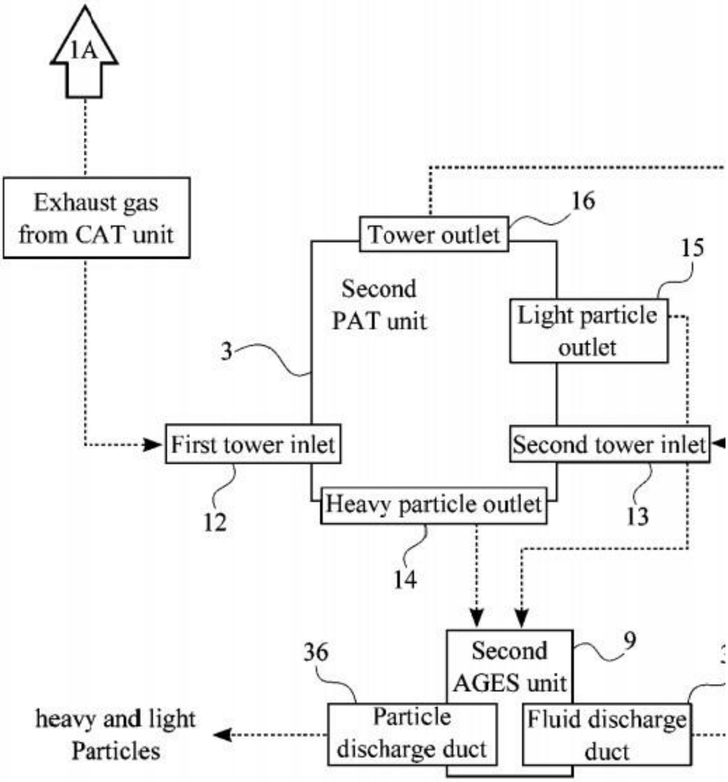

1A
Exhaust gas from CAT unit
16
Tower outlet
15
Second PAT unit
Light particle outlet
3
First tower inlet
Second tower inlet
12
Heavy particle outlet
13
14
Second AGES unit
9
36
heavy and light Particles
Particle discharge duct
Fluid discharge duct

FIG. 1B

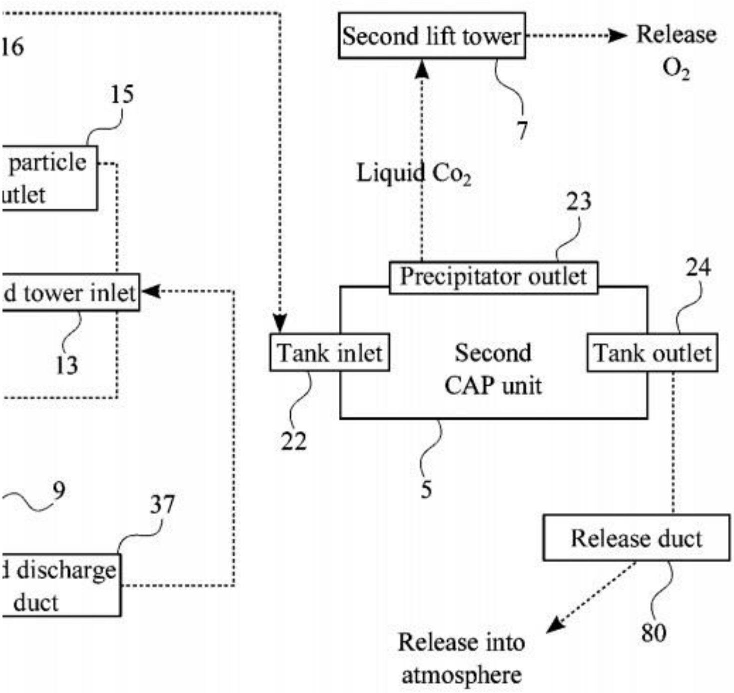

16
15
particle
utlet
d tower inlet
13
9
37
d discharge
duct
Second lift tower
Release
O2
7
Liquid Co2
23
Precipitator outlet
24
Tank inlet
Second
CAP unit
Tank outlet
22
5
Release duct
80
Release into
atmosphere

FIG. 1B

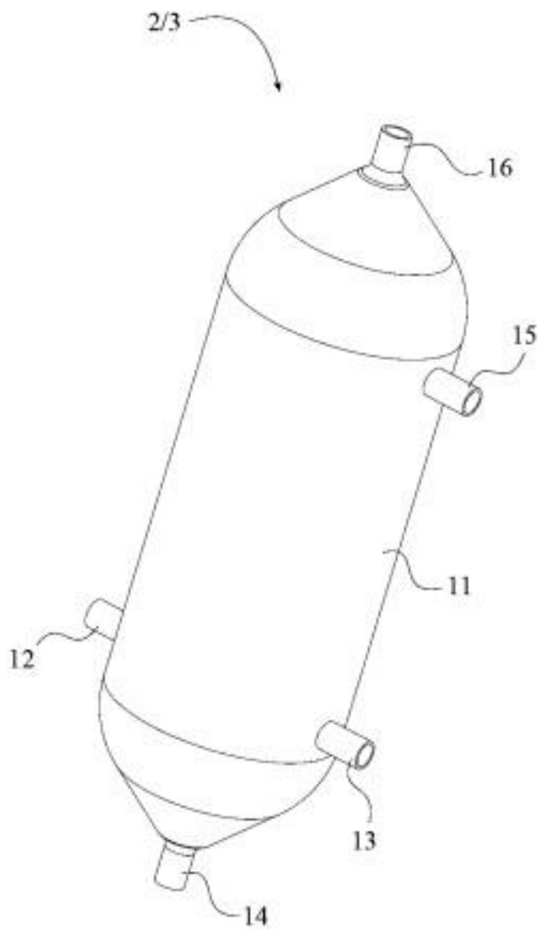


FIG. 2

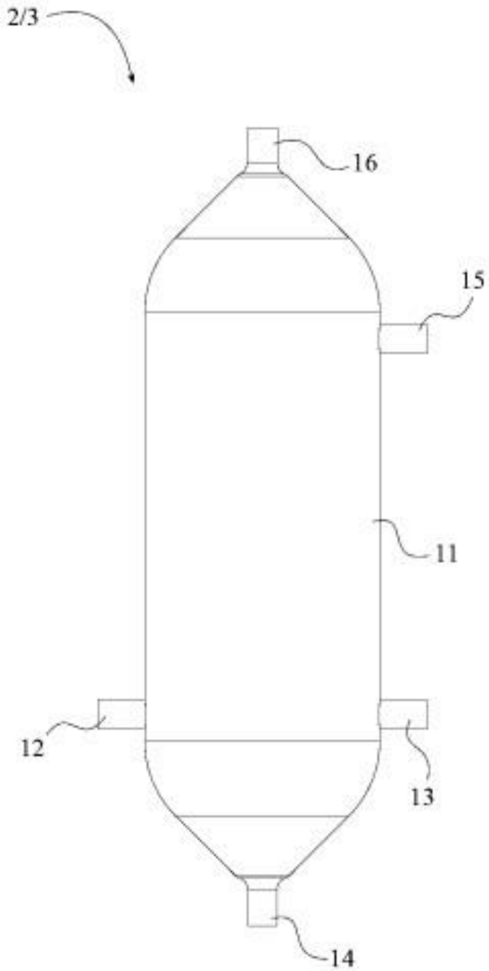


FIG. 3

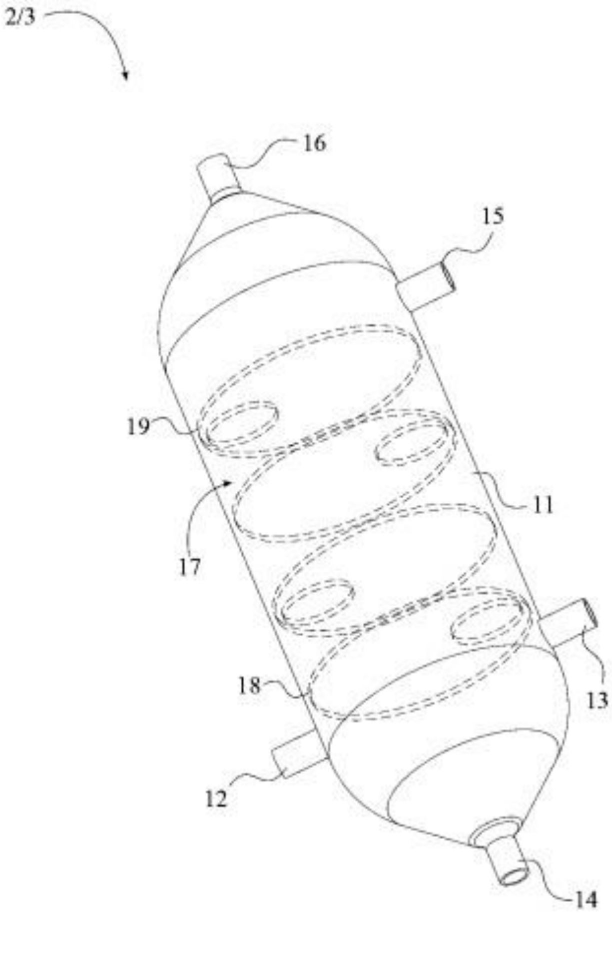


FIG. 4

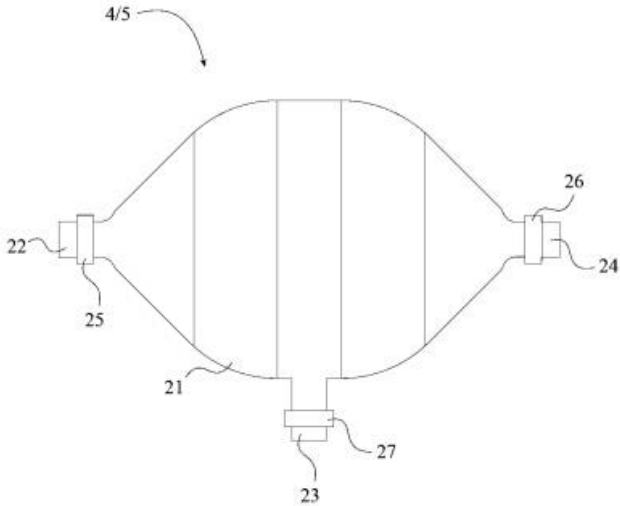


FIG. 5

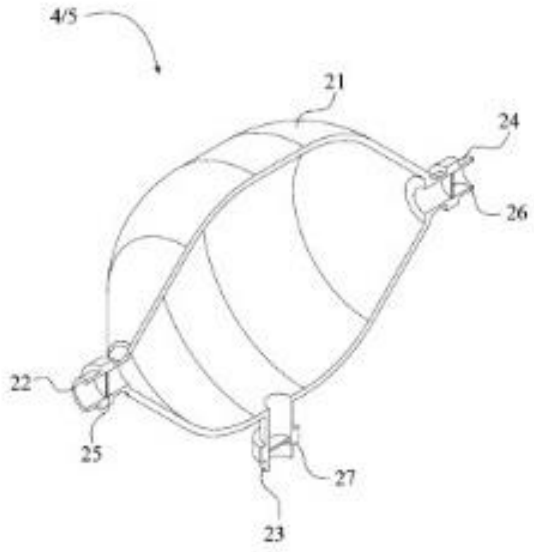


FIG. 6

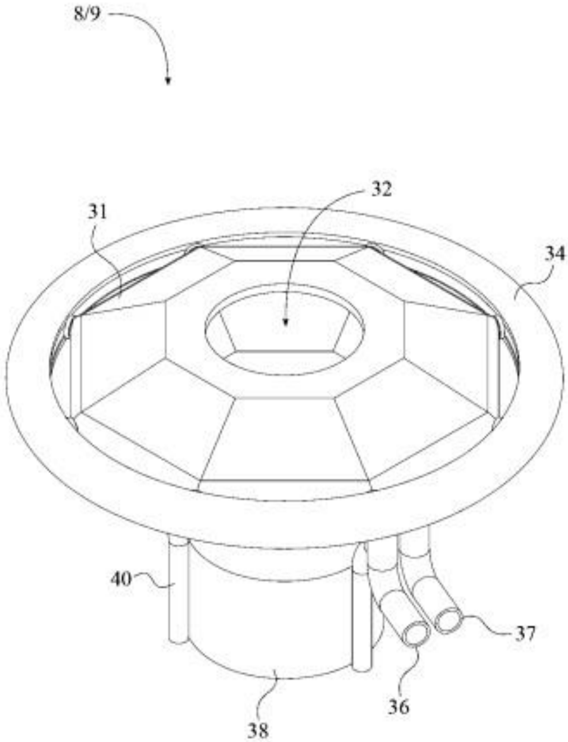


FIG. 7

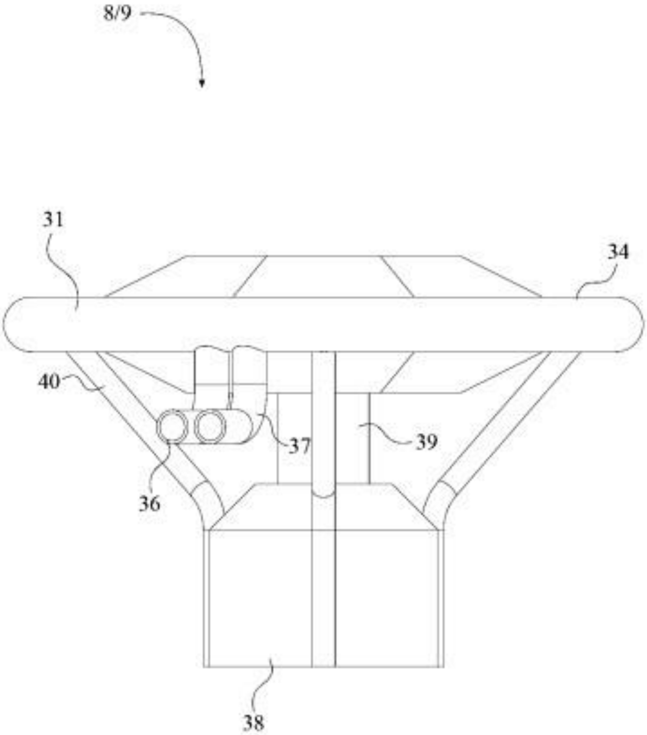


FIG. 8

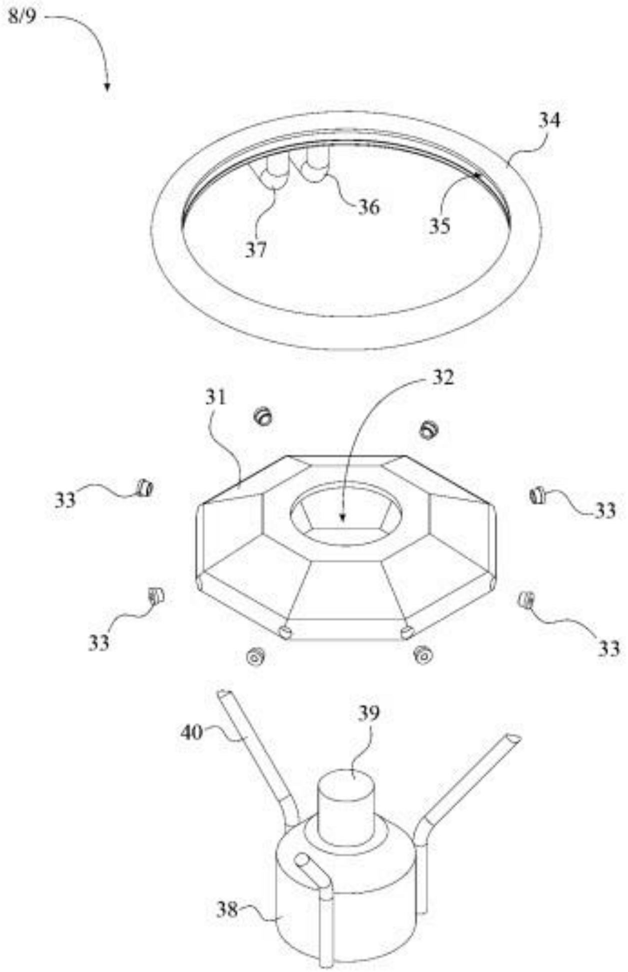


FIG. 9

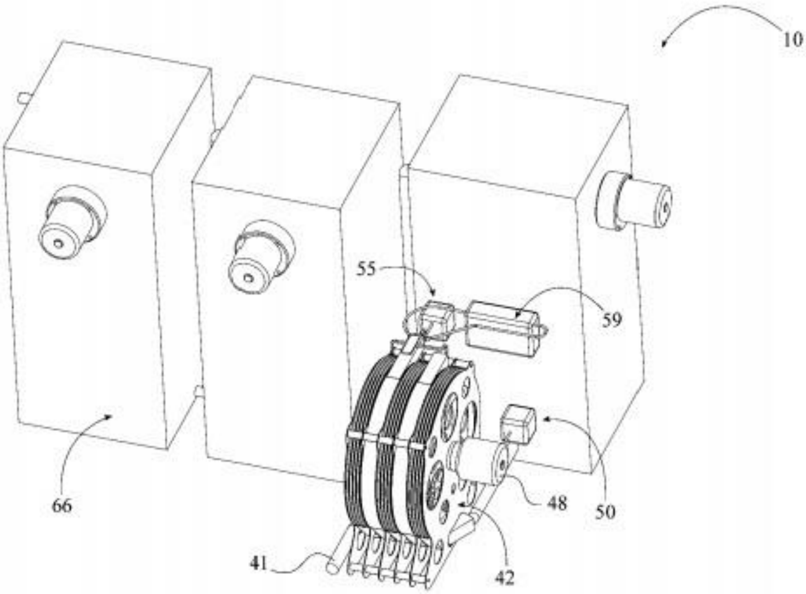


FIG. 10

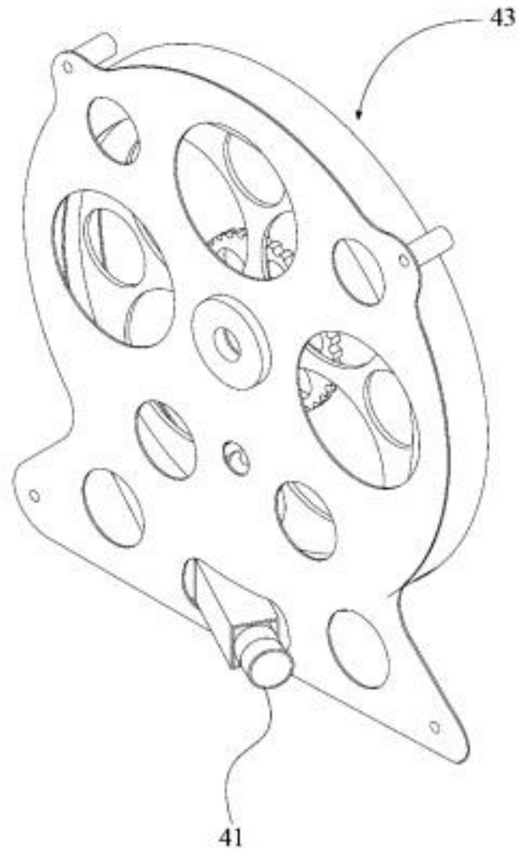


FIG. 11

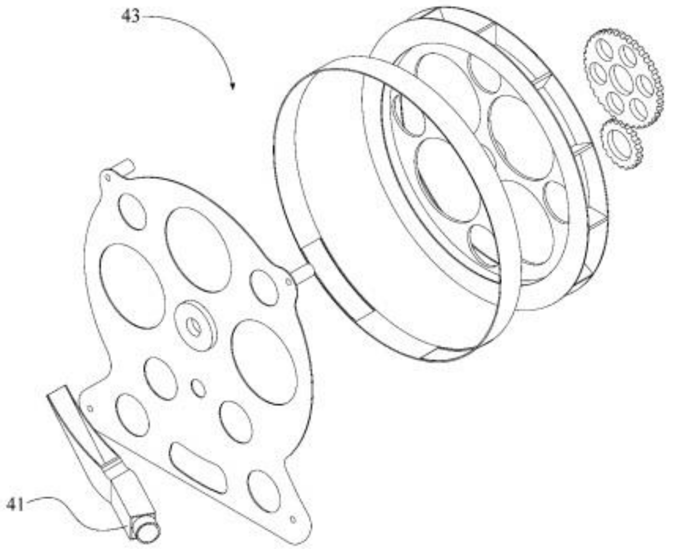


FIG. 12

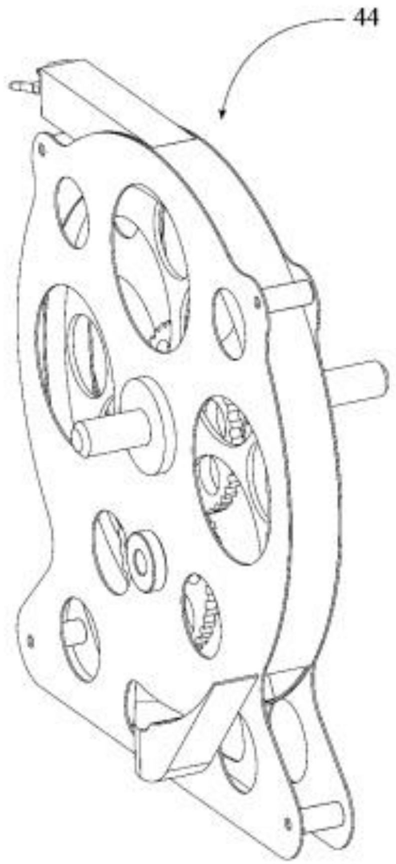


FIG. 13

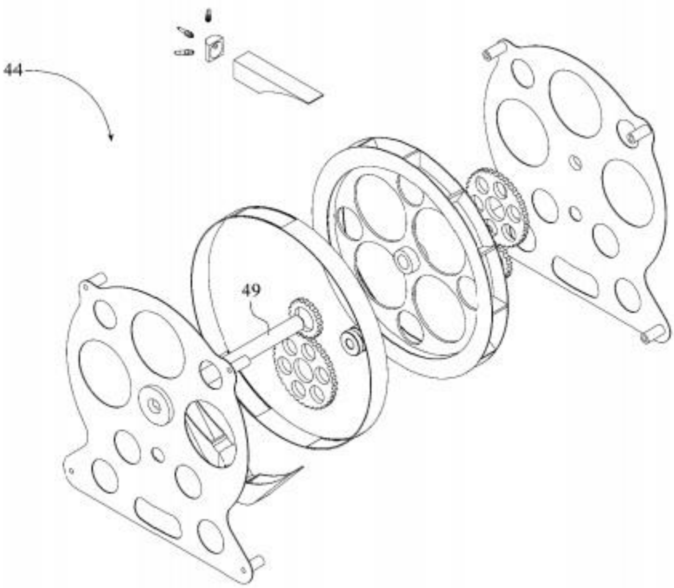


FIG. 14

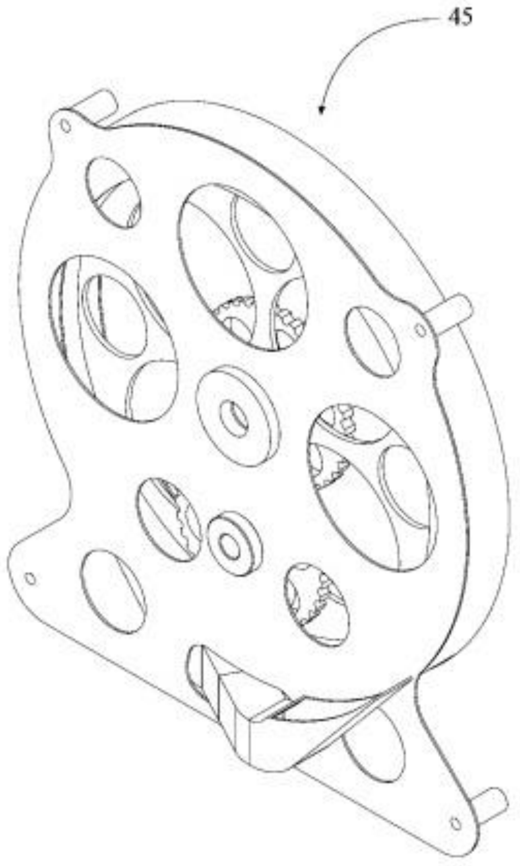


FIG. 15

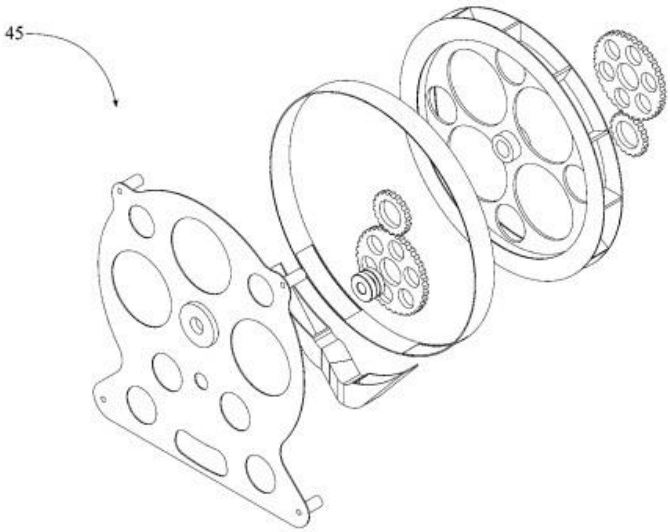


FIG. 16

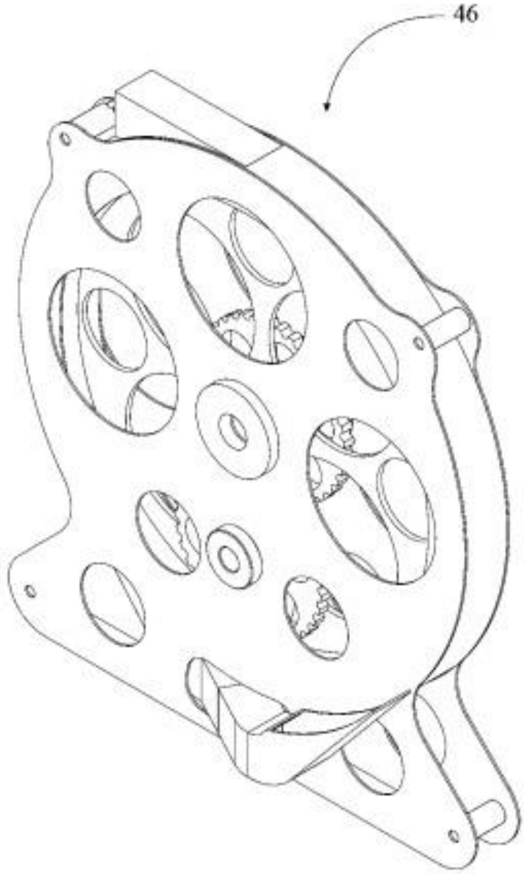


FIG. 17

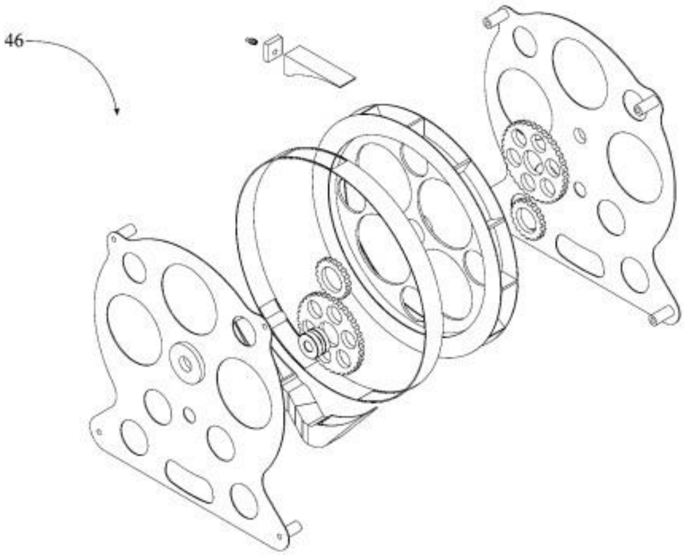


FIG. 18

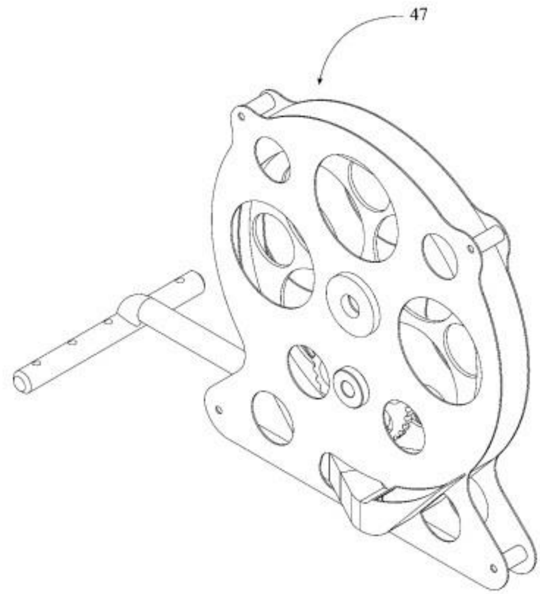


FIG. 19

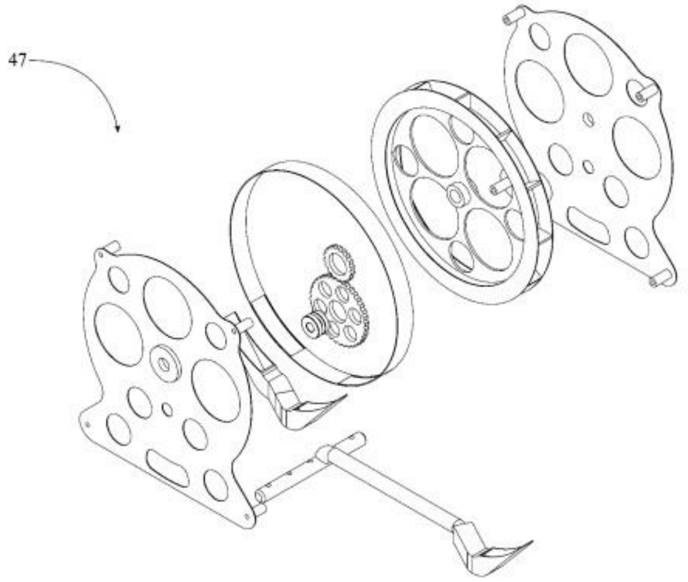


FIG. 20

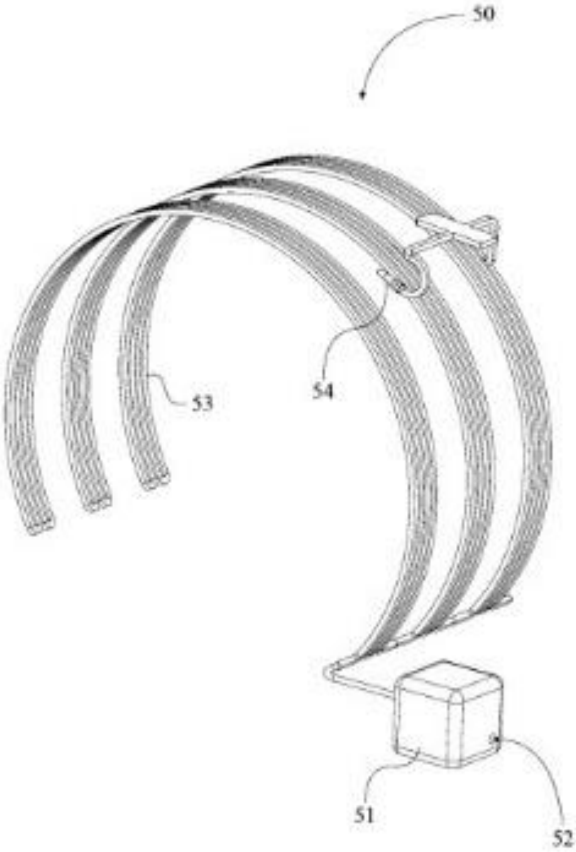


FIG. 21

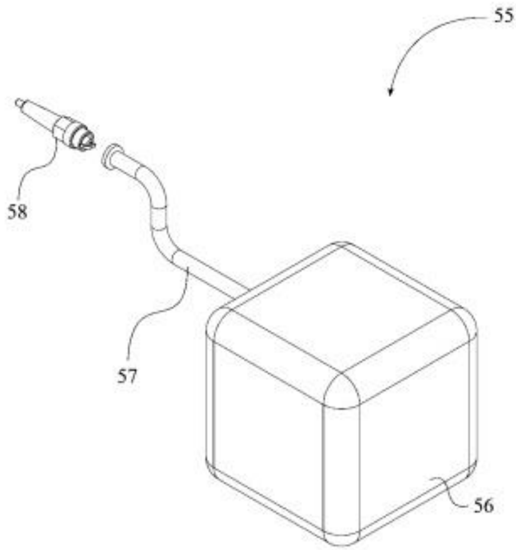


FIG. 22

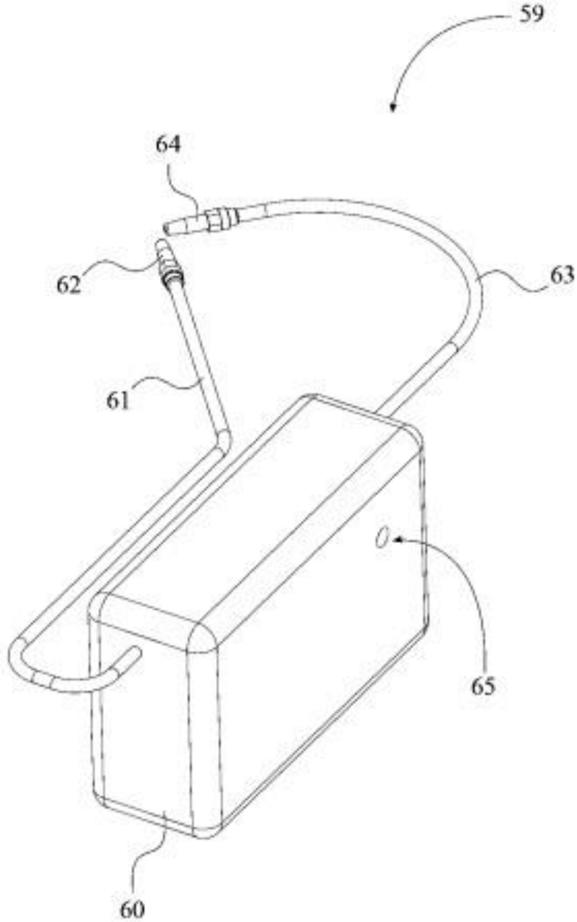


FIG. 23

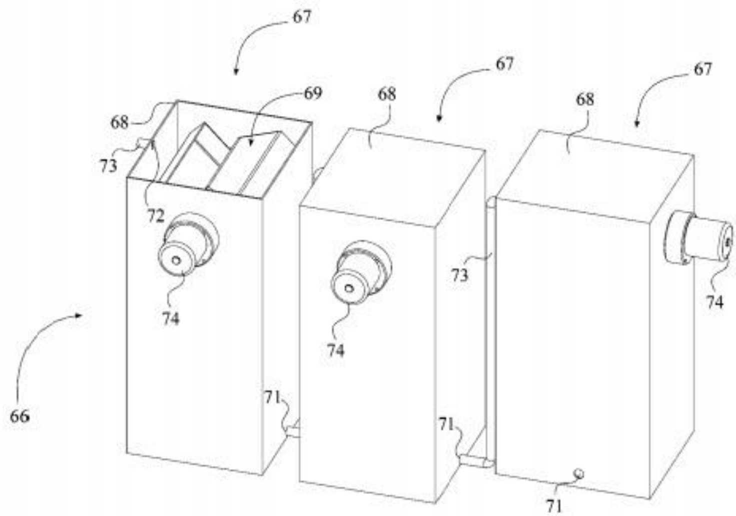


FIG. 24

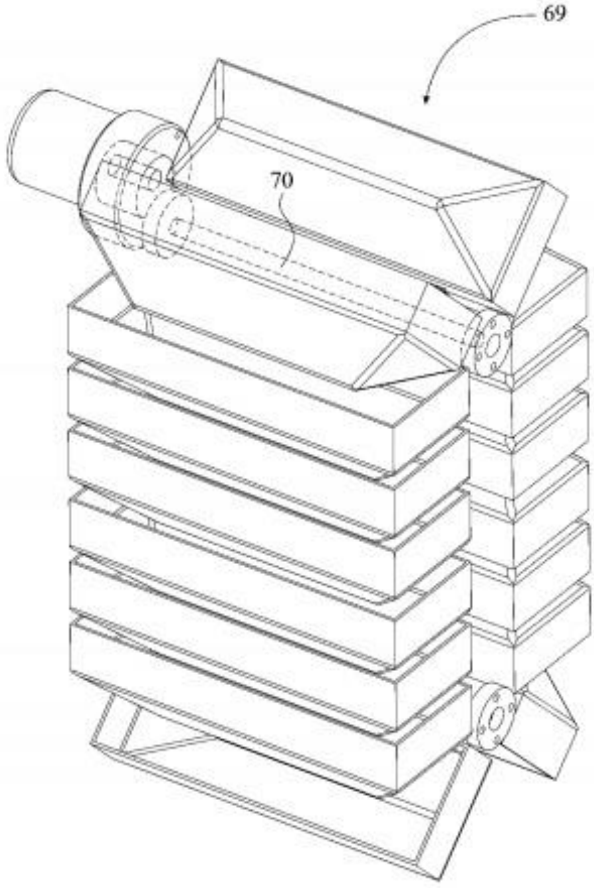


FIG. 25

More information to be revealed in the next book series #3, Where to put all that CO2 “Diamonds Whisky and Wine”. Coming soon.

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