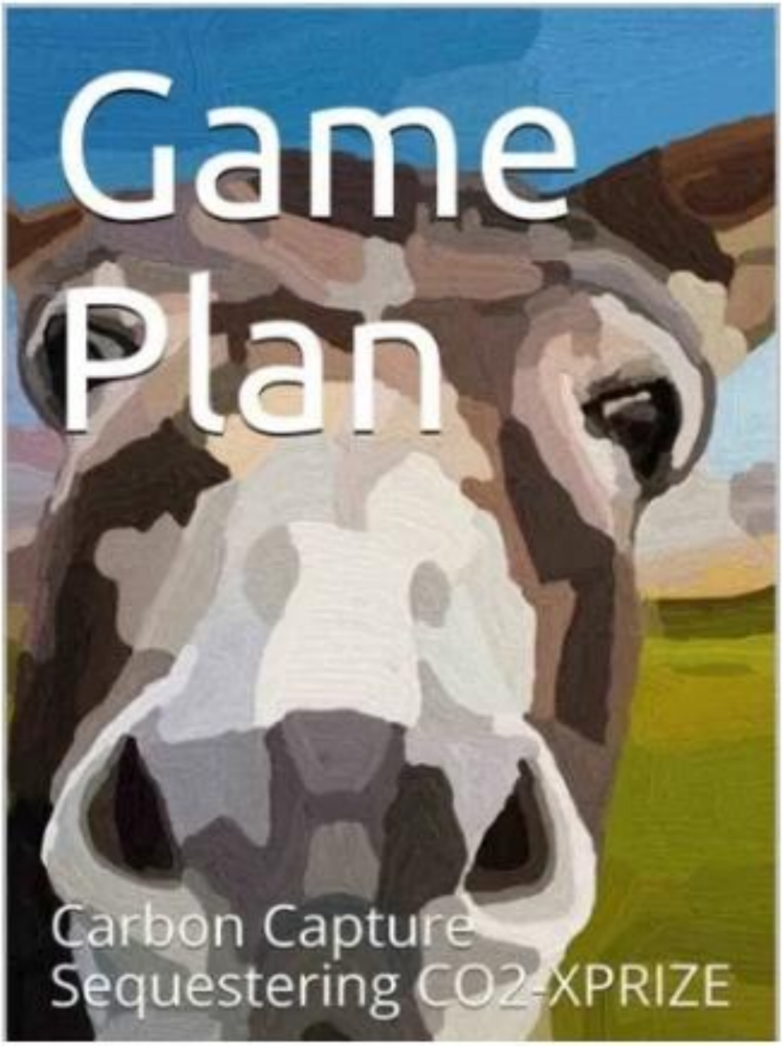


Join our Book Club

Game Plan

Carbon Capture Sequestering

CO2-XPRIZE

By BRPauL

Pollution Controls Senoia United States XPRIZE CARBON REMOVAL | MUSK FOUNDATION Registered Team's game plan for carbon capture and sequestering carbon dioxide (CO_2).

Having a silver bullet to do this may be wishful thinking and Pollutions Controls is open minded in thinking and invest in many ways and means. In no order listed below a brief overview of each way with full definition of means later along with a carbon fiber silver bullet.

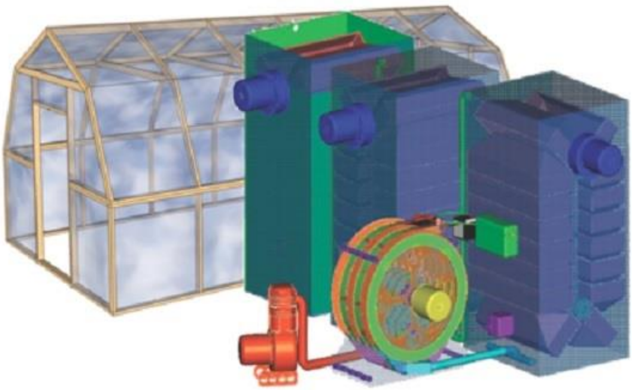
Join our Book Club

Planting trees and foliage is also nature's way of capturing CO2 with concerns to make this process beneficial to Pollution Controls team. Tree species and foliage selection is key. Trees with over 100-year lifetime expectancy. Foliage that has high CO2 absorption rate with and without food benefits. Item 1 planting trees. Item 2 planting foliage.

Entering planted trees into a Centennial Sequester Covenants along with selecting Cities with Historical sites that protect them also if possible. Upon a reasonable reason for removal, wood & leaves from trees be placed in useful products or buried in planed biochar environmental landfill. Item 3 planed environmental landfill. Item 4 Bio char Environmental Landfill (BEL).

An average tree can absorb around 21 kilograms or 46 pounds of CO2 per year, this figure is only achieved when the tree is fully grown. Over a lifetime of 100 years, one tree could absorb over two tons (4400 Lbs.) of CO2.

Constructing CO2 concentrated hybrid greenhouses built with captured CO2 building materials. Recycling upon life of structure to be place back into greenhouse structure or placed into environmental landfill. Item 5 hybrid greenhouses.



Planting tree seedlings and foliage in this high CO2 concentration will help with their growth and capture more CO2 than conventional environment or regular green house. Item 6 controlled CO2 environmental plants.

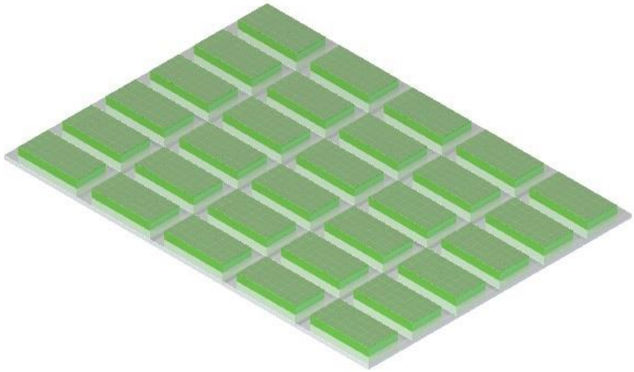
Plants that produce healthy food substance and fruit will be sold to offset operational cost and maintenance of these green houses. Other by products containing the

captured CO2 will go it new environmental land fields or BEL.

The amount of CO2 sequestered in the fruits of the high concentration CO2 greenhouse sold and consumed by humans is yet to be determined. But to me it is a greatly beneficial way to sequester CO2 along with composting and animal nutrition. Item 7 consumption.

Documenting the sale of seedling and plants to be transplanted with the understanding of their destination to be in a new environment landfill or BEL incentive will help accomplish the overall goal of sequestering. Item 8 sale documentation.

Locating multi high level CO2 concentration green houses on plan new environmental landfills or BEL's will ensure carbon sequestered in the form of foliage and selected trees will be comply with centennial sequestration. Item 9 multi-function locations.



Algae and bio growth in CO_2 bubble up containers will provide building materials for many different products. Microbes will also be an asset. Item 10 multi type containers.

Producing biochar, a charcoal that is produced by pyrolysis of biomass in the absence of oxygen. It will be used as a soil ameliorant for both carbon sequestration and soil health benefits. Biochar is a stable solid that is rich in carbon and can endure in soil for thousands of years and be an additive for other products. New BEL.s will be created to house a sustainable path to gigaton per year (Gt/y) scale and future gigatons levels. Water (H_2O)

and other minerals from Direct Air Capture will help in plant growth/CO_2 capture. Item 11 Biochar.

By far planting a tree appears to be the most economical way to capture and sequester CO_2. With plenty of natural rainfall, fertile land and sunlight nature's way gets first prize. Pollution Controls will have to settle for the XPRIZE.

Other than natures natural ways, tree and foliage program, Direct Air Capture (DAC) adds other choices.

Aspiration ambient air from the atmosphere, compression and thermal drop temperature will enable phase change precipitation of CO_2 directly from the atmosphere. This liquid CO_2 can be transformed into many useful items and long-term sequestration products. Item 12 DAC precipitation.

Scrubbers using soda lime (a mixture of chemicals including calcium hydroxide, sodium hydroxide and potassium hydroxide) or amines (a derivative of ammonia) to lock

onto CO_2 molecules will be evaluated and employed accordingly. My guess, lithium hydroxide scrubber producing lithium carbonate and water will be our second choice DCA plan. $LiOH + CO2 \rightarrow Li2CO3 + H2O$ or first choice for arid lands. Item 13 DAC chemicals.

Anhydrous hydroxide is preferred for its one gram of anhydrous lithium hydroxide can remove .450 liters (.82 grams) of carbon dioxide gas.

Direct air capture compressing plan for Item 12. With structure in place to facilitate CO2 precipitation conventional compressing of ambient air is Step 1. After accomplishing CO2 phase change capture, recycling compressed air as well as thermal properties will ensure low-cost sequestering. Offset of capital investment of $30.00 per Ton of CO2 captured from electrical generation before ½ life or less of unit makes CO2 capture an asset. Adding in the market value of the CO2 makes it a lucrative venture. Captured atmospheric CO2 sales for over $100.00 per Ton.

To capture 1 gram of CO2 it will take 44 cubic feet (ft^3) of air compressed to 75 pounds per square inch and temperature to be minus 70 degrees Fahrenheit.

To ensure continuous CO2 Precipitation, Holding Chamber will maintain an 80 PSI

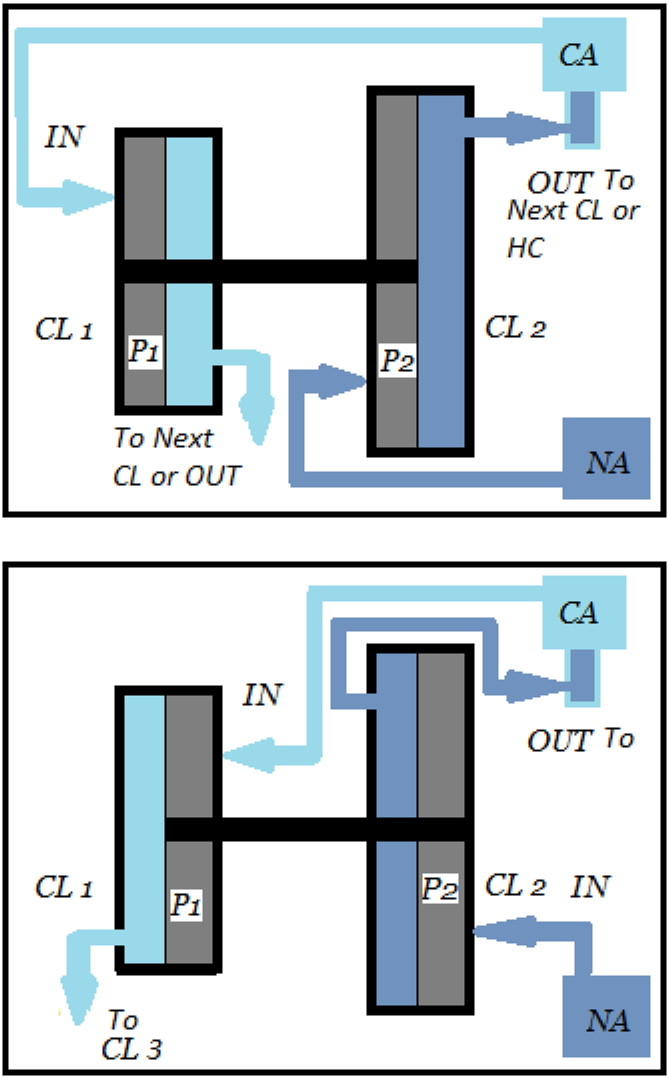
pressure and -76°F temperature with 115 ft³ air volume.

The following quantitative procedure are based on 1 gram of CO2 sequestered prior to exhausting 55 moles Clean Air (CA) from the Holding Chamber (HC).

Adding back 55 moles Normal Air (NA).

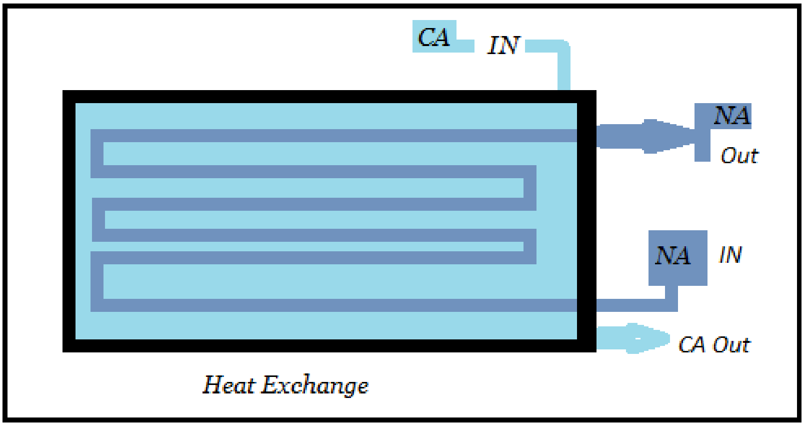
Following examples are based 1 equal mole equations of gas flowing into and out of holding chambers.

Pressure exchange, Out-gas 1 mole CA from HC into a cylinder 1 (CL1) with 15.96" diameter and stroke of 1". Out-gas from HC with gas-state 80 psi at -76°F Creates Force to drive NA gas of 1 mole in CL2 with Piston (P2) 16.16" dia. and 1" stroke into Holding Chamber. The In-gas sent to HC start state 68 psi at -68°F compressed to 80 psi.



Pressure Exchange

Heat Exchange, between every cylinder to cylinder or cylinder to holding chamber a heat exchange will ensure equilibrium temperature balance CA and NA gases.



Heat Exchange Compressor Depressor

HECD_New.xlsx/_xprize/Data XFile

This Excel file displays a step-by-step analogy of the complete cycle of capture, distill and discharge back to atmosphere.

Join our Book Club

Piston	Clean Air	Normal Air	1 Mole	Temp	Newton /
#	CA Psi	CA Out	I G L	-76	Meter ²
-	NA Psi	NA IN	ft³/mole	°F	Pascals
P1	80	Out	0.11583189	-68	551580.6
P2	78	IN	0.11880193	-68	537791.1
P3	76	Out	0.12441873	-60	524001.6
P4	74	IN	0.12778140	-60	510212
P5	72	Out	0.13395967	-52	496422.5
P6	70	IN	0.13778709	-52	482633
P7	68	Out	0.14462307	-44	468843.5
P8	66	IN	0.14900559	-44	455054
P9	64	Out	0.15661940	-36	441264.5
P10	62	IN	0.16167164	-36	427475
P11	60	Out	0.17021523	-28	413685.4
P12	58	IN	0.17608472	-28	399895.9
P13	56	Out	0.18575333	-20	386106.4
P14	54	IN	0.19263309	-20	372316.9
P15	52	Out	0.20368191	-12	358527.4
P16	50	IN	0.21182919	-12	344737.9
P17	48	Out	0.22459858	-4	330948.3
P18	46	IN	0.23436374	-4	317158.8
P19	44	Out	0.24931828	4	303369.3
P20	42	IN	0.26119058	4	289579.8
P21	40	Out	0.27898193	12	275790.3
P22	38	IN	0.29366519	12	262000.8
P23	36	Out	0.31523749	20	248211.3
P24	34	IN	0.33378088	20	234421.7
P25	32	Out	0.36055695	28	220632.2
P26	30	IN	0.38459408	28	206842.7
P27	28	Out	0.41882482	36	193053.2
P28	26	IN	0.45104212	36	179263.7
P29	24	Out	0.49651532	44	165474.2

P30	22	IN	0.54165307	44	151684.7
P31	20	Out	0.60528201	52	137895.1
P32	18	IN	0.67253557	52	124105.6
P33	16	Out	0.76843205	60	110316.1
P34	16.5	IN	0.74514623	60	113763.5
ATM	14.696				

Piston	in³/ft³=	Force In	Area =	Factor	Temp
#	1728.00	Pounds	Lbs./in²	IGL	Kelvin
-	in³	Lbs./in²	Diameter		
P1	200.16	16012.60	15.96397	0.0033	217.5944
P2	205.29	16012.60	16.16734	0.0034	217.5944
P3	215.00	16339.66	16.54512	0.0035	222.0389
P4	220.81	16339.66	16.76721	0.0036	222.0389
P5	231.48	16666.73	17.16777	0.0038	226.4833
P6	238.10	16666.73	17.4113	0.0039	226.4833
P7	249.91	16993.79	17.83798	0.0041	230.9278
P8	257.48	16993.79	18.10624	0.0042	230.9278
P9	270.64	17320.85	18.56307	0.0044	235.3722
P10	279.37	17320.85	18.86009	0.0046	235.3722
P11	294.13	17647.92	19.35201	0.0048	239.8167
P12	304.27	17647.92	19.68284	0.0050	239.8167
P13	320.98	17974.98	20.216	0.0053	244.2611
P14	332.87	17974.98	20.58697	0.0055	244.2611
P15	351.96	18302.04	21.16914	0.0058	248.7056
P16	366.04	18302.04	21.58837	0.0060	248.7056
P17	388.11	18629.10	22.22954	0.0064	253.15
P18	404.98	18629.10	22.70765	0.0066	253.15
P19	430.82	18956.17	23.42092	0.0071	257.5944
P20	451.34	18956.17	23.97208	0.0074	257.5944
P21	482.08	19283.23	24.77507	0.0079	262.0389

P22	507.45	19283.23	25.41869	0.0083	262.0389
P23	544.73	19610.29	26.33576	0.0089	266.4833
P24	576.77	19610.29	27.09927	0.0095	266.4833
P25	623.04	19937.36	28.16527	0.0102	270.9278
P26	664.58	19937.36	29.08896	0.0109	270.9278
P27	723.73	20264.42	30.3559	0.0119	275.3722
P28	779.40	20264.42	31.50181	0.0128	275.3722
P29	857.98	20591.48	33.05166	0.0141	279.8167
P30	935.98	20591.48	34.52133	0.0153	279.8167
P31	1045.93	20918.55	36.49268	0.0171	284.2611
P32	1162.14	20918.55	38.46667	0.0190	284.2611
P33	1327.85	21245.61	41.11778	0.0218	288.7056
P34	1287.61	21245.61	40.48999	0.0211	288.7056
ATM					

Piston	Flow	Orifice
#	In PSI	Día
-		
P1		0.391
P2	1.949	
P3		0.398
P4	1.946	
P5		0.405
P6	1.943	
P7		0.411
P8	1.939	
P9		0.418
P10	1.935	
P11		0.425

P12	1.931	
P13		0.431
P14	1.926	
P15		0.438
P16	1.92	
P17		0.445
P18	1.913	
P19		0.452
P20	1.905	
P21		0.458
P22	1.895	
P23		0.465
P24	1.882	
P25		0.472
P26	1.867	
P27		0.478
P28	1.846	
P29		0.485
P30	1.818	
P31		0.492
P32	1.778	
P33		0.499
P34	1.789	
ATM		

The Excel file contains operational functions, and they can also be found online at these sites.

Ideal Gas Law Calculator PV = nRT (calculatorsoup.com)
Gas Flow Orifice Calculator | Lenox Laser, Laser Drilled Flow Orifices

Flowrate Calculation for an Orifice Flowmeter (efunda.com)

Calculator: Air Flow Rate through an Orifice Company (USA)

Specific Heat Calculator (omnicalculator.com)

Join our Book Club

Physics calculators (omnicalculator.com)
Thermal Conductivity Calculator (omnicalculator.com)

Unlike most machinery this design produces Power which can be converted into useful electrical energy.

15924.41874	*Force in lbs. for 1 Inch/s Travel*	
33000	*Force hp*	*1ft 1 minute*
1327.034895	*Travel 12 in / 1 foot*	*Force*
79622.0937	*60 sec/ 1 minute*	
2.4	***Force as Horsepower***	

The Excel file below reflects Horsepower generated in the harvest of 1 Ton CO2.

Piston	Force out	Force in	Force Δ	psi
#		Total		
-	fr p'-p''	fr p''-p'	Δ p'-p''	
P1	800.63		390.0505 1	1.948717 9
P2		410.5794 9		
P3	859.9823		418.3697 5	1.945945 9

Join our Book Club

P4		441.61252		
P5	925.9292		449.73706	1.9428571
P6		476.19218		
P7	999.6347		484.67135	1.9393939
P8		514.96331		
P9	1082.553		523.8161	1.9354839
P10		558.73717		
P11	1176.528		567.97889	1.9310345
P12		608.54881		
P13	1283.927		618.18709	1.9259259
P14		665.73995		
P15	1407.849		675.76769	1.92
P16		732.08167		
P17	1552.425		742.46432	1.9130435
P18		809.96107		
P19	1723.288		820.61332	1.9047619
P20		902.67466		
P21	1928.323		913.4162	1.8947368
P22		1014.9069		

P23	2178.922		1025.3748	1.8823529
P24		1153.5467		
P25	2492.17		1163.0125	1.8666667
P26		1329.1571		
P27	2894.917		1336.1156	1.8461538
P28		1558.8016		
P29	3431.914		1559.9609	1.8181818
P30		1871.953		
P31	4183.709		1859.4263	1.7777778
P32		2324.2829		
P33	1731.65		2375.4563	1.7889485
P34		-643.8063	Force Lbs.	Distance
Total			15924.419	In/s1
HP =	2.412791	33000	79622.094	Ft/1m
Reference	Base	60	Moles Air	Capture
1.36	Grams CO2		453.59	g/Lbs.
332.63	T/Seconds	2,200.00	731,795	TS
Days	8.47	3,600.00	203.28	hrs.

8.47	days/Ton	each unit	
43	Tons /Year		
kt/y scale	23.2	Units	Req'd
mt/y	2,321	Units	Req'd
gt/y	2,320,548	Units	Req'd

The power generated could run other facility operations to reduce overhead or sold back to the grid.

1809.593039	at 1 sec per 1.36 grams		
203.2764148	Selling Elec at .10 KW		
367847.5852	367.8476	$36.78	Made

Another example of 2 second cycle and a $.05 KW price.

1 mole per 2 Seconds		2		
1 gram per 55 moles		55		
Time req'd for 1 gram		110	s/g	
110	sec	Per gram		
grams/lbs	453	grams	1 lbs	
Seconds / lb.=	49830	per lbs		
minutes/ lb.	830.5	per lbs		
Hr./lb.	13.84167	per lbs		
Electrical Watts Generated =				1810
$0.05 per kw	0.09048	Hr. / 14 lbs		

Join our Book Club

Ton / lbs =			
hr.	2200	158.9404	Hours
Days	24	6.6225166	Days
Capture 1 ton CO2 Generates $			$14.38

Another efficient capture device that will be employed is a modified version of my patented COHM. The previous electrical generation will be electrolyzed to produce the hydrogen. The carbon dioxide and oxygen will be atmospheric air. Other than items listed in patent nitrogen and other gases will be in the exhaust. This will be a carbon negative combustion engine and the exhaust will then be furthered distilled with a similar device as depicted earlier. The actual device will be different as explained below to accommodate carbon capture from atmosphere in compliance with the XPRIZE criteria.

CARBON OXYGEN HYDROGEN MOTOR

A carbon oxygen hydrogen motor comprises an enclosure, a combustion chamber, and a plurality of injectors. A rotational crank is positioned within the enclosure and connected with a piston. The piston is positioned within the combustion chamber and connected to the rotational crank by a rod. A stream of hydrogen gas, oxygen gas, and carbon dioxide gas enter into the combustion chamber through the plurality of injectors. A spark plug, which is connected to the combustion chamber, ignites hydrogen gas, oxygen gas, and carbon dioxide gas inside the combustion chamber causing a reaction. The reaction moves the piston upward. After the reaction has taken place, the piston moves downward. The downward motion of the piston ejects all of the byproducts from the reaction through a ejecting valve located in the combustion chamber. Since the piston is connected with the rotational crank, the rotational crank rotates in cycles creating mechanical energy.

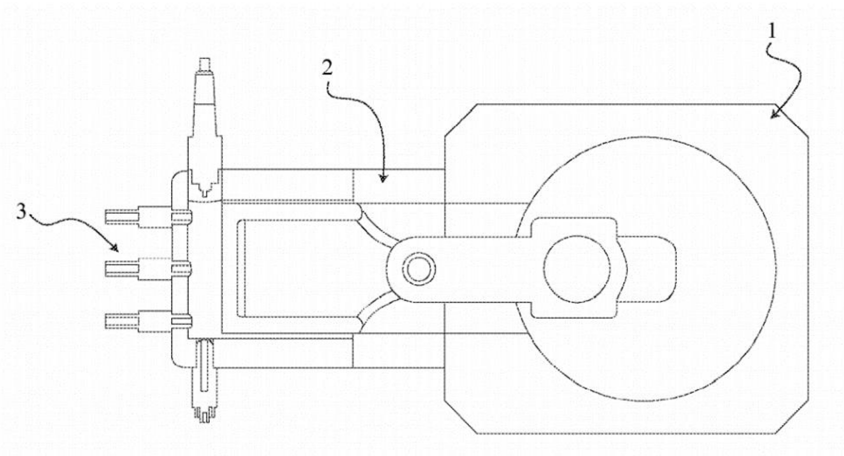


Fig 1

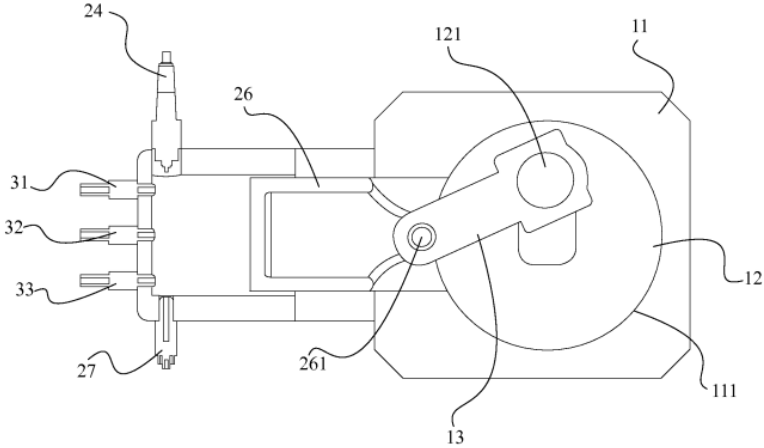


FIG. 2

Join our Book Club

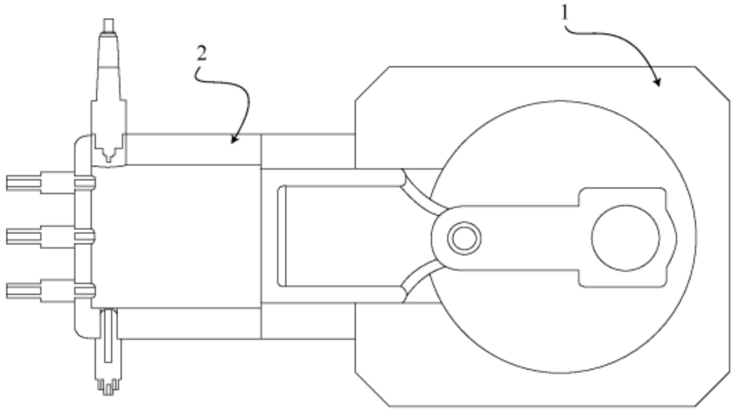


FIG. 3

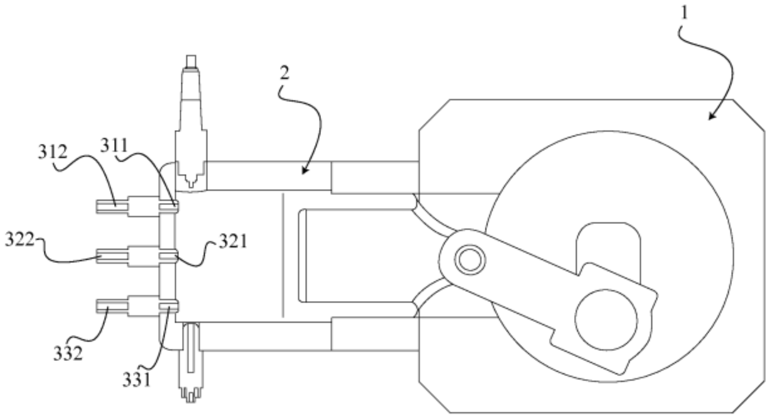


FIG. 4

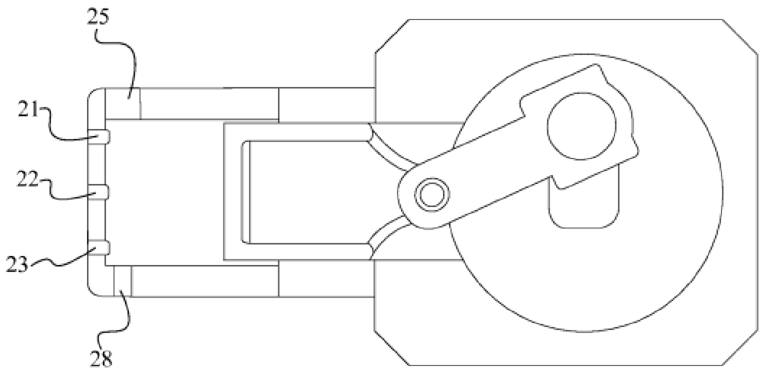


FIG. 5

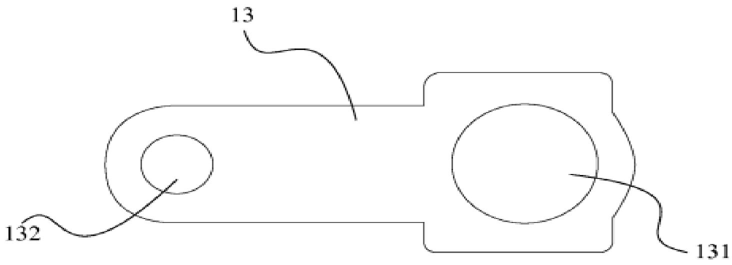


FIG. 6

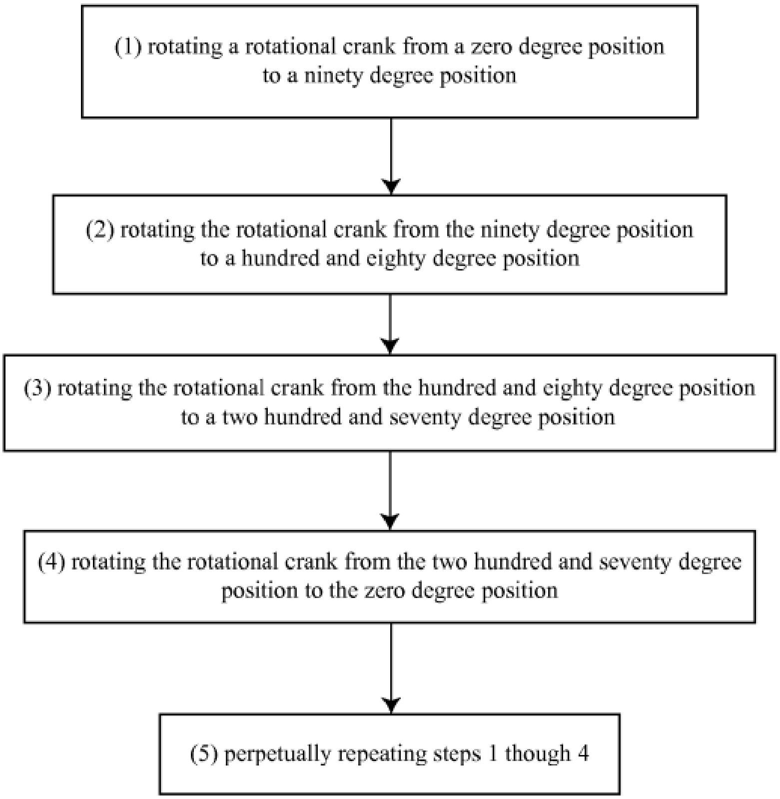

(1) rotating a rotational crank from a zero degree position to a ninety degree position
(2) rotating the rotational crank from the ninety degree position to a hundred and eighty degree position
(3) rotating the rotational crank from the hundred and eighty degree position to a two hundred and seventy degree position
(4) rotating the rotational crank from the two hundred and seventy degree position to the zero degree position
(5) perpetually repeating steps 1 though 4

FIG. 7

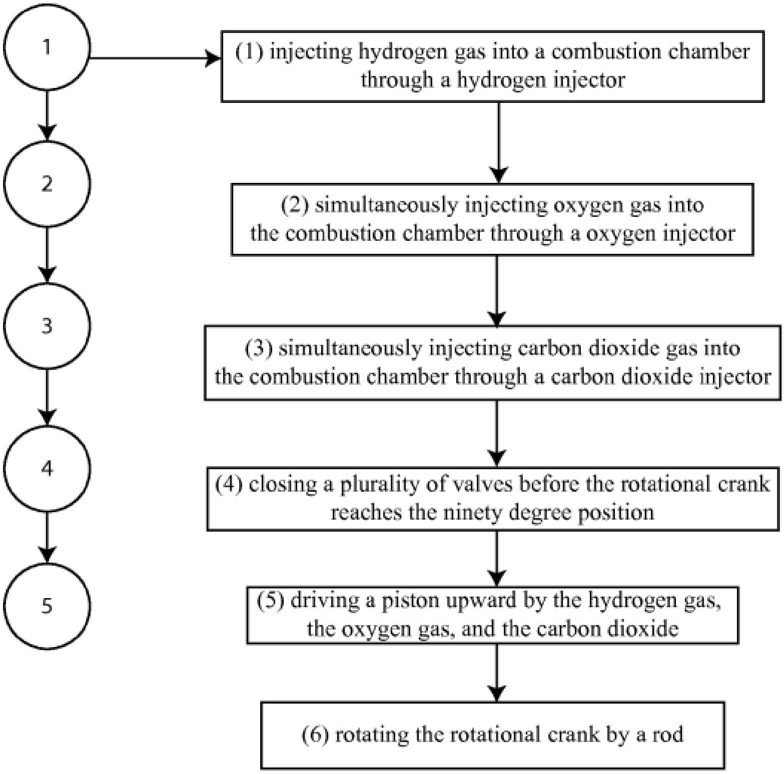

1
2
3
4
5
(1) injecting hydrogen gas into a combustion chamber through a hydrogen injector
(2) simultaneously injecting oxygen gas into the combustion chamber through a oxygen injector
(3) simultaneously injecting carbon dioxide gas into the combustion chamber through a carbon dioxide injector
(4) closing a plurality of valves before the rotational crank reaches the ninety degree position
(5) driving a piston upward by the hydrogen gas, the oxygen gas, and the carbon dioxide
(6) rotating the rotational crank by a rod

FIG. 8

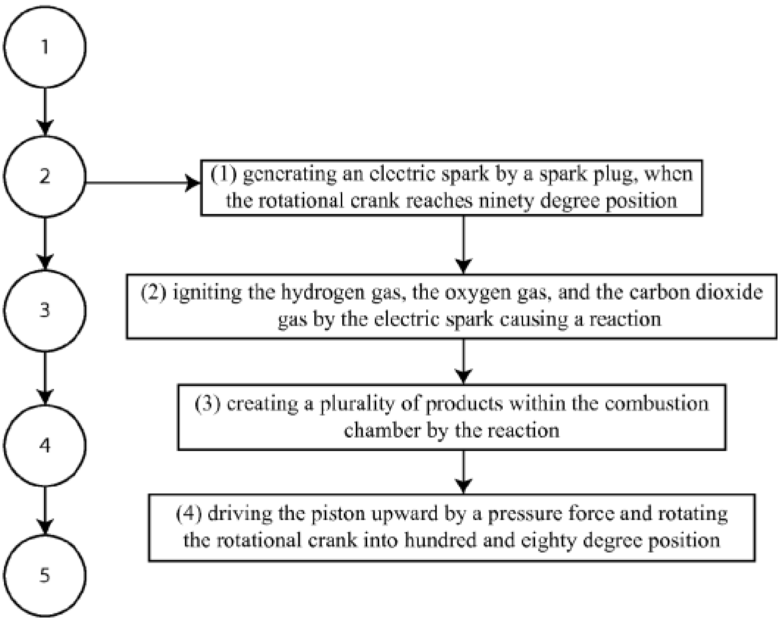

1
2
3
4
5
(1) generating an electric spark by a spark plug, when the rotational crank reaches ninety degree position
(2) igniting the hydrogen gas, the oxygen gas, and the carbon dioxide gas by the electric spark causing a reaction
(3) creating a plurality of products within the combustion chamber by the reaction
(4) driving the piston upward by a pressure force and rotating the rotational crank into hundred and eighty degree position

FIG. 9

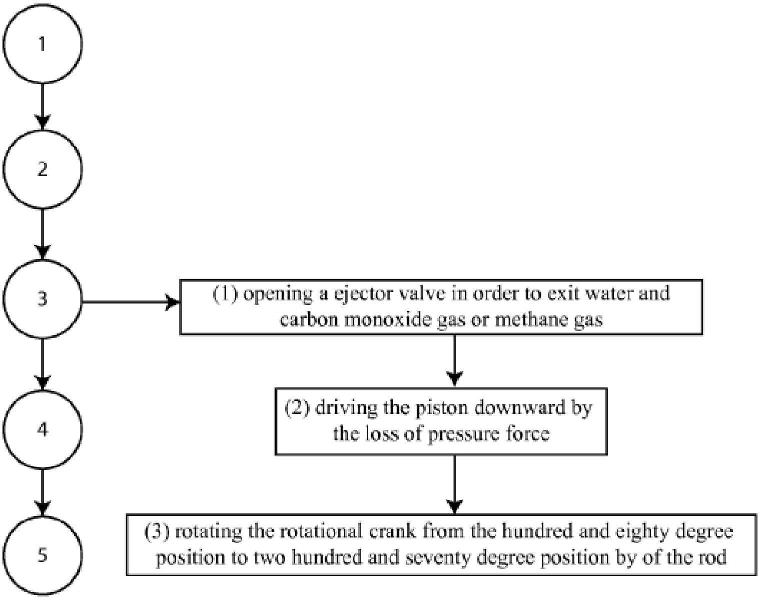

1
2
3
4
5
(1) opening a ejector valve in order to exit water and carbon monoxide gas or methane gas
(2) driving the piston downward by the loss of pressure force
(3) rotating the rotational crank from the hundred and eighty degree position to two hundred and seventy degree position by of the rod

FIG. 10

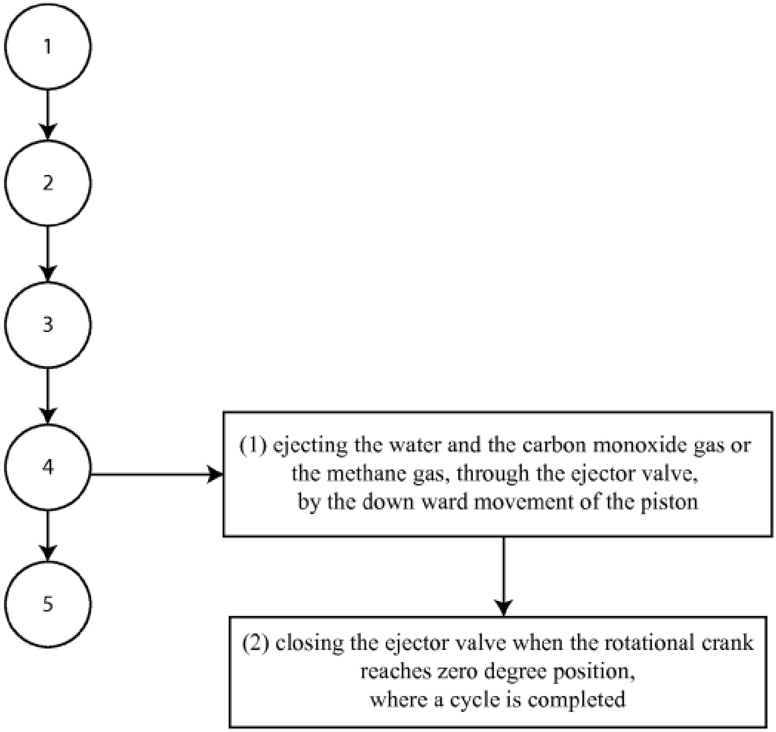

1
2
3
4
5
(1) ejecting the water and the carbon monoxide gas or the methane gas, through the ejector valve, by the down ward movement of the piston
(2) closing the ejector valve when the rotational crank reaches zero degree position, where a cycle is completed

FIG. 11

Increasing amount of carbon dioxide in the atmosphere and the increasing gasoline prices force the modern researchers to create alternative energy producing methods or more efficient energy methods, such as hybrid engines and electric engines. The present invention, a carbon oxygen hydrogen motor, is an apparatus provides means to enhance the amount of energy that can be achieved with a specific amount of fuel. The invention has the means to control the environmental effects of greenhouse gasses by reducing the amount of carbon dioxide in the atmosphere. The invention also operates without using gasoline. The specific amount of fuel used in the invention is carbon dioxide gas, oxygen gas, and hydrogen gas. Generated pressure from the invention is used to drive a mechanical device or generator creating energy.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view of the invention in zero-degree position.

FIG. 2 is a view of the invention in ninety-degree position.

FIG. 3 is a view of the invention in hundred- and eighty-degree position.

FIG. 4 is a view of the invention in two-hundred-and-seventy-degree position.

FIG. 5 is a view of the invention showing a plurality of openings.

FIG. 6 is a view of a rod in the invention showing a first opening and second opening.

FIG. 7 is a flow chart illustrating the overall process that is followed by the present invention.

FIG. 8 is a flow chart illustrating the process follows by the first step of the present invention.

FIG. 9 is a flow chart illustrating the process follows by the second step of the present invention.

FIG. 10 is a flow chart illustrating the process follows by the third step of the present invention.

FIG. 11 is a flow chart illustrating the process follows by the fourth step of the present invention.

The invention comprises an enclosure 1, a combustion chamber 2, and a plurality of injectors 3. The enclosure 1 is connected to the combustion chamber 2 and the plurality of injectors 3 is positioned on the combustion chamber 2. The enclosure 1 comprises a housing 11, a rotational crank 12, and a rod 13. The housing 11 comprises a crank opening 111 and the rotational crank 12 is positioned within the crank opening 111. The rotational crank 12 comprises a rod connector 121 which is positioned stationary on the rotational crank 12. In reference to FIG. 6, the rod 13 comprises a first opening 131 and a second opening 132. The first opening 131 of the rod 13 is concentrically connected with the rod connector 121 but the connection between the rod 13 and the rod connector 121 allows the rod 13 to freely move around the rod connector 121.

In reference to FIG. 2, the combustion chamber 2 is connected to the enclosure 1, and the combustion chamber 2 is completed with a hermetic sealed. The combustion chamber 2 comprises a plurality of

openings, a spark plugs 24, a piston 26, and a ejector valve 27. The piston 26 is positioned inside the combustion chamber 2. The piston 26 comprises a piston connector 261. The piston connector 261 is traversed through the second opening 132 connecting the rotational crank 12 to the piston 26. The connection between the second opening 132 and the piston connector 261 allows the rod 13 to freely move around the piston connector 261. Since the rotational crank 12 and the piston 26 is interconnected by the rod 13, a single up and down motion of the piston 26 rotates the rotational crank 12 360 degrees inside the crank opening 111. The plurality of openings is positioned around the combustion chamber 2 so that the plurality of injector, the spark plugs 24, and the ejector valve 27 can be connected to the combustion chamber 2. The plurality of openings creates a tunnel connecting inside of the combustion chamber 2 and outside surface of the combustion chamber 2.

In reference to FIG. 5, the plurality of openings comprises a hydrogen injector chamber opening 21, an oxygen injector chamber opening 22, a carbon dioxide injector chamber opening 23, a spark plug chamber opening 25, and a ejector valve chamber opening 28. The hydrogen injector chamber opening 21, the oxygen injector chamber opening 22, and the carbon dioxide injector chamber opening 23 are adjacently positioned on the combustion chamber 2, below the piston 26. The spark plug chamber opening 28 is positioned perpendicular to the hydrogen injector chamber opening 21, and the ejector valve chamber opening 28 is oppositely positioned from the spark plug chamber opening 28.

The plurality of injectors 3 comprises a hydrogen injector 31, an oxygen injector 32, and a carbon

dioxide injector 33. The hydrogen injector 31 is hermetically traversed through the hydrogen injector chamber opening 21. The hydrogen injector 31 comprises a hydrogen injector inside opening 311 and a hydrogen injector outside opening 312. The hydrogen injector inside opening 311 is positioned within the combustion chamber 2 and the hydrogen injector outside opening 312 is positioned outside of the combustion chamber 2. The oxygen injector 32 is hermetically traversed through the oxygen injector chamber opening 22. The oxygen injector 32 comprises an oxygen injector inside opening 321 and an oxygen injector outside opening 322. The oxygen injector inside opening 321 is positioned within the combustion chamber 2 and the oxygen injector outside opening 322 is positioned outside of the combustion chamber 2. The carbon dioxide injector 33 is hermetically traversed through the carbon dioxide injector chamber opening 23. The carbon dioxide injector 33 comprises a carbon dioxide injector inside opening 331 and a carbon dioxide injector outside opening 332. The carbon dioxide injector inside opening 331 is positioned within the combustion chamber 2 and the carbon dioxide injector outside opening 332 is positioned outside of the combustion chamber 2. In reference to FIG. 1, At zero-degree position, the plurality of injectors 3 are always opened to the combustion chamber 2. The zero-degree position occurs within the present invention, when the rod connector 121 makes a zero-degree angle with the piston connector 261, and the piston 26 is positioned next to the plurality of injectors 3. Then the hydrogen injector 31, the oxygen injector 32, and the carbon dioxide injector 33 supply a stream of hydrogen gas, oxygen gas, and carbon dioxide gas into the combustion chamber 2, respectively. In reference to FIG. 1 and

FIG. 2, the stream of hydrogen gas, oxygen gas, and carbon dioxide gas enter the combustion chamber 2 until the rotational crank 12 moves from the zero-degree position to ninety-degree position. The ninety-degree position occurs within the present invention, when the rod connector 121 makes a ninety-degree angle with the piston connector 261 in the clockwise direction, and the piston 26 is positioned away from the plurality of injectors 3.

The spark plugs 24 is inserted within the spark plug chamber opening 25. The spark plugs 24 functions as a traditional electric spark plug so that the spark plug is able 24 create an electric spark inside the combustion chamber 2. When the rotational crank 12 is at ninety-degree position, the spark plugs 24 creates the electric spark inside the combustion chamber 2. Then the electric spark ignites the hydrogen gas, oxygen gas, and carbon dioxide gas inside the combustion chamber 2 creating a reaction. Before the spark plug 24 creates the electric spark, the plurality of injectors 3 is closed so that the stream of hydrogen gas, oxygen gas, and carbon dioxide gas are stopped. The plurality of injectors 3 needs to be completely closed before the rotational crank 12 reaches ninety-degree position so that the reaction does not take place inside the plurality of valves. The reaction can be done with two different methods which are identify as a first method and second method hereafter. For the first method and the second method to take place, precise amount of reactant entities have to be present inside the combustion chamber 2. The first method includes four parts hydrogen gas, one part of oxygen gas, and one part of carbon dioxide gas as the reactant entities. Then the first method yields heat, pressure, water, and carbon monoxide gas as

product entities. The balance chemical equation for the first method is listed below.

$4H+O+CO_2 \rightarrow 2H_2O+CO$

The second method includes ten parts of hydrogen gas, one part of oxygen gas, and one part of carbon dioxide gas as the reactant entities. Then the second method yields heat, pressure, water, and methane gas as the product entities. The balance chemical equation for the second method is listed below.

$10H+O+CO_2 \rightarrow 3H_2O+CH_4$

The pressure and heat from the reaction drive the piston 26 upward transferring motive forces to the rotational crank 12 through the rod 13. The heat and pressure continuously push the piston 26 until the reaction is finished. In reference to FIG. 3, when the rotational crank 12 moves to hundred- and eighty-degree position, the combustion chamber 2 is filled with water and carbon monoxide gas or methane gas. The hundred- and eighty-degree position occurs within the present invention, when the rod connector 121 makes a hundred- and eighty-degree angle with the piston connector 261 in the clockwise direction, and the piston 26 is positioned away from the plurality of injectors 3.

At the hundred- and eighty-degree position, the ejector valve 27 opens and allows the water and the carbon monoxide gas or methane gas to exhaust out from the combustion chamber 2. The ejector valve 27 is inserted within the ejector valve chamber opening 28, and the ejector valve 27 is only open from the hundred- and eighty-degree position to zero-degree position of the rotational crank 12 in the clockwise direction. The piston 26 starts to move downward, when the rotational

crank 12 is at the hundred- and eighty-degree position. In reference to FIG. 4, the downward force of the piston 26 and two hundred seventy-degree position of the rotational crank 12, eject the water and the carbon monoxide gas or methane gas through the ejector valve 27. The two hundred seventy-degree position occurs within the present invention, when the rod connector 121 makes a two hundred seventy-degree angle with the piston connector 261 in the clockwise direction. Ejected water and the carbon monoxide gas or methane gas disseminated into an appropriate vessel. The ejected water from the first method and second method can be filtered to be potable or electrolyzed using a salt solution. The carbon monoxide gas from the first method may be used as fuel itself or be further refine into any desired hydrocarbon compound so that the carbon monoxide gas can be used for different application. The heat from the first method and second method is utilized or allowed to escape from the combustion chamber 2 so that the invention is not overheated. Once the rotational crank 12 moves to zero-degree position, the ejector valve 27 is closed completing a cycle. After the rotational crank 12 moves to the zero-degree position, another cycle starts with the invention creating a continues pattern.

The carbon dioxide gas, oxygen gas, and hydrogen gas are used to achieve optimal energy output from the present invention. The invention can also operate as a static heat generator or be utilized in a combustion engine or turbine.

Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing

from the spirit and scope of the invention as hereinafter claimed.

The heat exchange patent will be a rapid device to help with the gt/y requirement it will have more operational cost and capital investment than the first item sited. Again, details below are the patents original design XPRTZE unit will be a little different.

Heat Exchange Turbine Generator

The invention relates generally to an apparatus to control the growing amount of carbon dioxide emission. Heat Exchange Turbine Generator (HETG) can cope with this need and in so doing generate useful electrical energy. The HETG can recycle its cryogenic state enabling carbon sequestering economically. The need to control the growing amount of carbon dioxide is becoming a bigger task than before with today's industrial methods and consumer lifestyle needs. The increased population density demands an economically way of mitigating this problem in a sound environmental way without creating more CO2 along with creating a power plant with local connection or to the electrical grid. Recycling of the thermal attribute will be beneficial to carbon sequestering while keeping CO2 production and operating price low.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG.1 is an isometric view.

FIG.2 is an exploded isometric view.

FIG.3 is a cut-away isometric view.

FIG.4 is an alternative cut-away isometric view.

Pressurized hot air with carbon dioxide enters the HETG. Heat is transferred into the body as the air flows through; motive force is transmitted to the turbine generating rotation and electrical current. The exit of the gas from the turbine to the next chamber lowers the temperature as well as the pressure per square inch. The air temperature at the exit of the HETG is ideal to condense the carbon dioxide to a liquid state for sequestering. The cold air now void of CO2 is compressed chilled and returned to the HETG to accommodate the incoming heat exchange from hot air input. 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 hot entry plate 101, hot entry case 102, hot exit case 103, separator plate 104, cold exit case105, cold entry case 106, cold entry plate 107, Liquid CO2 and air exit orifice 132, chilled compressed air entry orifice 133 and generator 122.FIG. 2 illustrates an exploded unit 170 isometric view orientations. Unit 170includes drive shaft 121, generator 122, hot air entry orifice

131, cold air entry 133, ambient air exit orifice 134, disseminating chamber 140, injector orifice 141, transition chamber 144, injector orifice 147, collector chamber 148, transition chamber 149, hot turbine 151, cold turbine 152, and transition orifice 161.FIG. 3 illustrates a unit 180 isometric cutaway view orientations. Unit 180 reflects overall reaction with hot air 201 mixed with carbon dioxide 202 entering the HETG unit180 through orifice 131 and entering disseminating chamber 140. In chamber 140 heat is transferred into case 102 and disseminates mix gas 201,202 through injectors 141propelling turbine blade 151. Blade 151 is attached to drive shaft 121 and drive shaft 121rotates generator 122 creating electricity. As blade 151 rotates mix gas 201, 202continues through ejector orifice 142 into collector chamber 143 where mix gas 201, 202has a pressure drops reducing its temperature and transferring heat to case 103. Mix gas201,202 continues through orifice 161 into transition chamber 144. In chamber 144 mix gas 201, 202 are further reduced in temperature from case 105,106 creating the ideal condition for the condensing to liquid carbon dioxide 202 for sequestering. Liquid carbon dioxide 202 and gas 201 exits HETG 180 through orifice 132. Liquid carbon dioxide 202is disposed appropriately and gas 201 is compressed and chilled. Cold compressed air201 re-enters HETG unit 180 through orifice 133 and enters disseminating chamber 145.In chamber 145 cold is transferred into case 106 and disseminates gas 201 through injectors 146 propelling turbine blade 152. Blade 152 is attached to drive shaft 121. As5 blade 152 rotates gas 201 continues through ejector orifice 147 into collector chamber148 where gas 201 has a pressure drop reducing its temperature and transferring cold to case 105. Gas 201 continues

through transition orifice 162 into transition chamber 149. In chamber 149, gas 201 receives heat from case 103, 102 and exits HETG unit 180 through orifice 134.

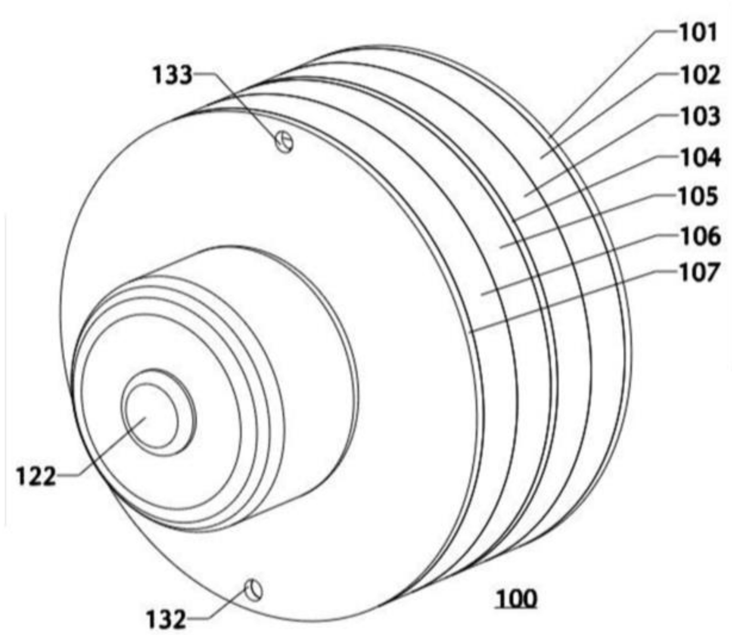


Fig 1

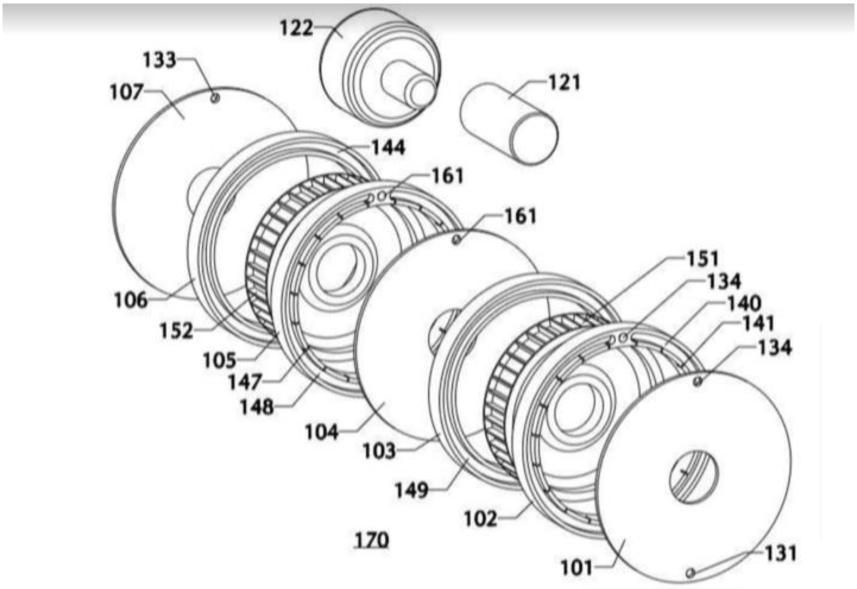

122
133
107
121
144
161
161
151
134
140
141
134
106
152
105
147
148
104
103
149
102
170
101
131

FIG. 2

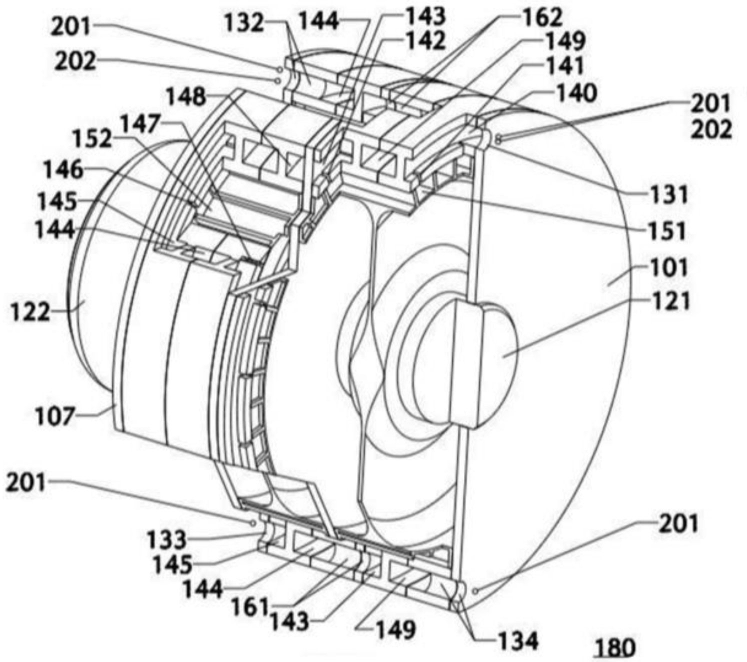

201
202
132
144
143
142
162
149
141
140
201
202
148
147
152
146
145
144
131
151
101
121
122
107
201
133
145
144
161
143
149
134
201
180

Fig 3

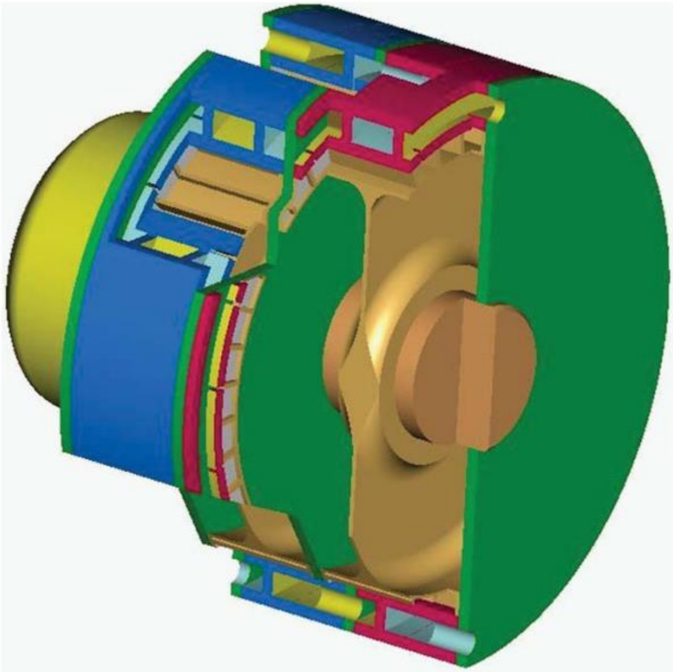


Fig 4

Not a device to capture CO2 but to produce power required to operate other equipment so the CO2 footprint will be eliminated to accomplish pure CO2 capture without generating more CO2.

The following will be modified to accommodate the needs for XPRIZE.

New Internal Combustion Engine

The new internal combustion engine (NICE) is a device that uses Hydrogen and Oxygen to produce a mechanical force through internal combustion.

It works like a standard 4 or 2 stroke combustion engines except it has a single stroke combustion cycle. It does not have an intake or exhaust valves. Power is produced on the down stroke from combustion and power is produce on the return stroke with a vacuum.

FIG. 1 is the combustion chamber in accordance with the present invention.

FIG. 2 through FIG. 6 show the piston cycle positions in accordance with the present invention.

FIG. 7 is a perspective view of the new internal combustion engine.

FIG. 8 is an exploded perspective view thereof; and FIG. 9 is an exploded perspective view thereof.

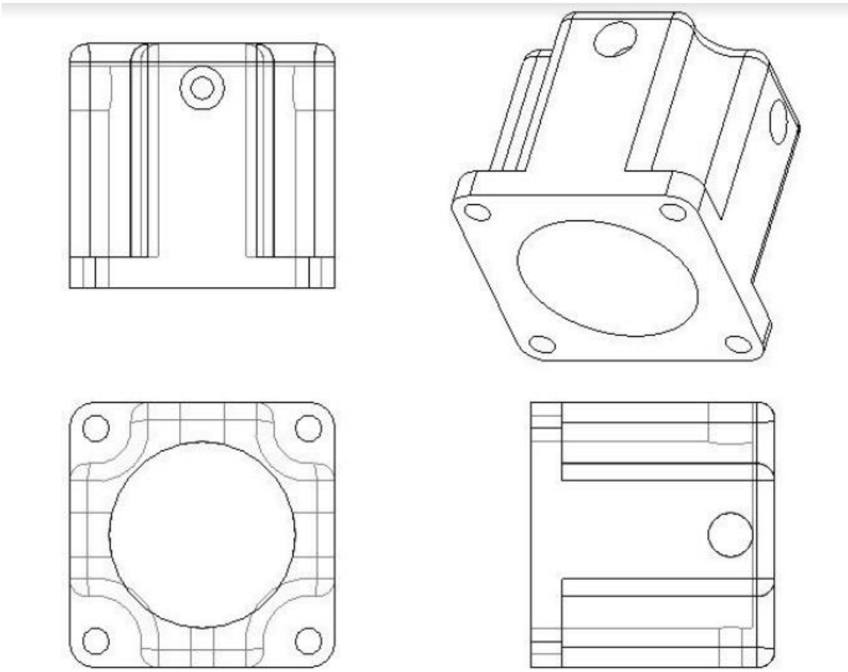


FIG. 1

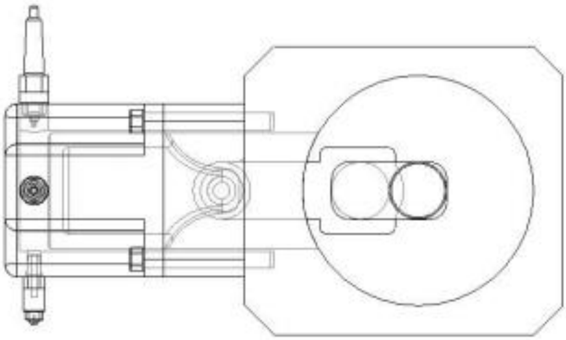


FIG. 2

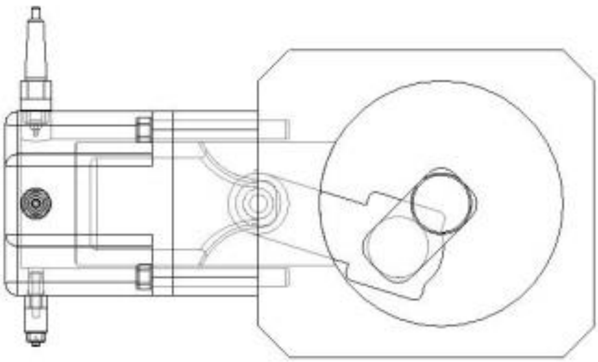


FIG. 3

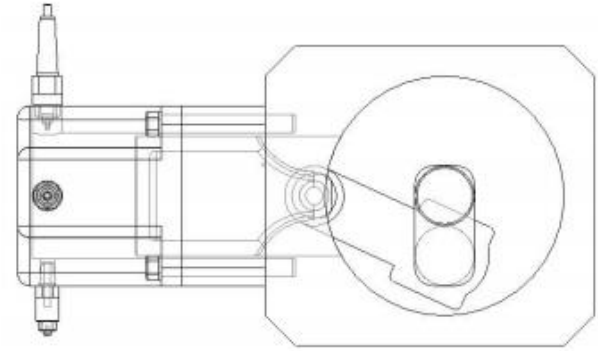


FIG. 4

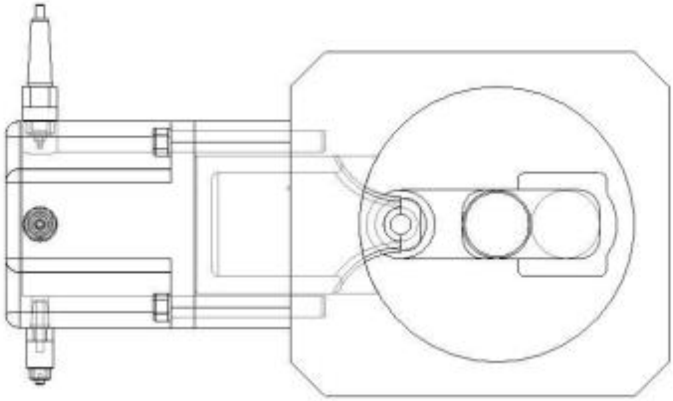


FIG. 5

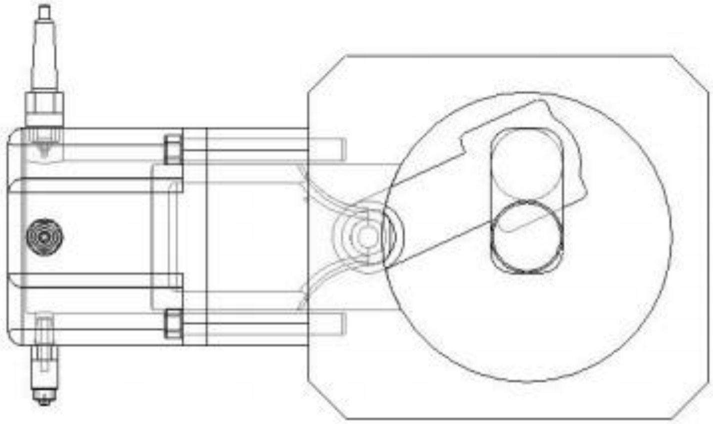


FIG. 6

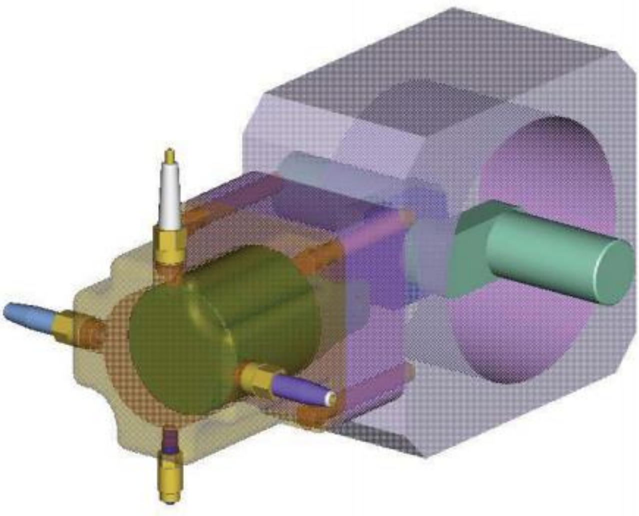


FIG. 7

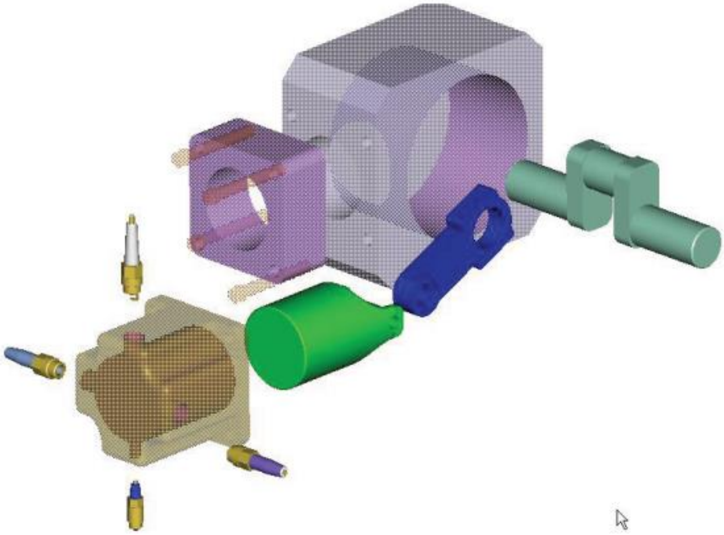


FIG. 8

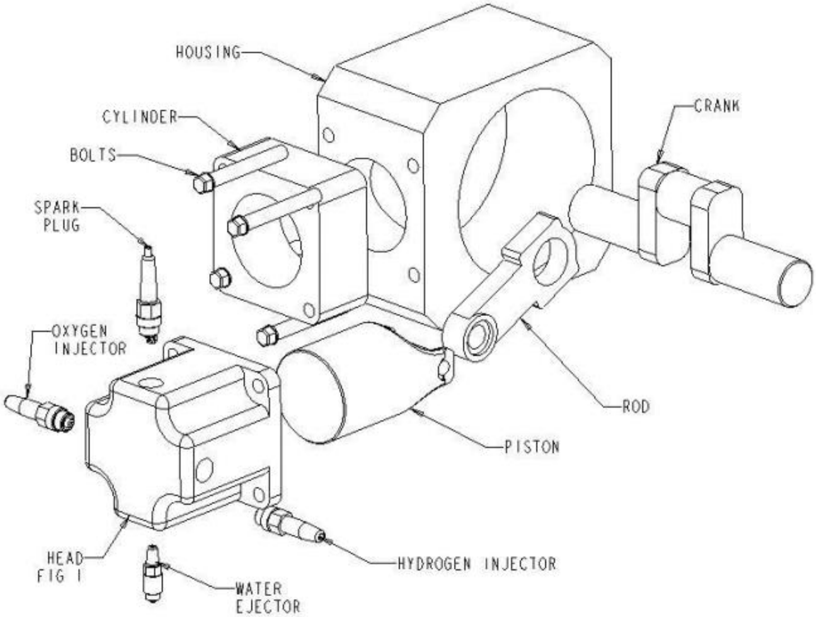

HOUSING
CYLINDER
BOLTS
SPARK PLUG
OXYGEN INJECTOR
CRANK
ROD
PISTON
HEAD FIG 1
HYDROGEN INJECTOR
WATER EJECTOR

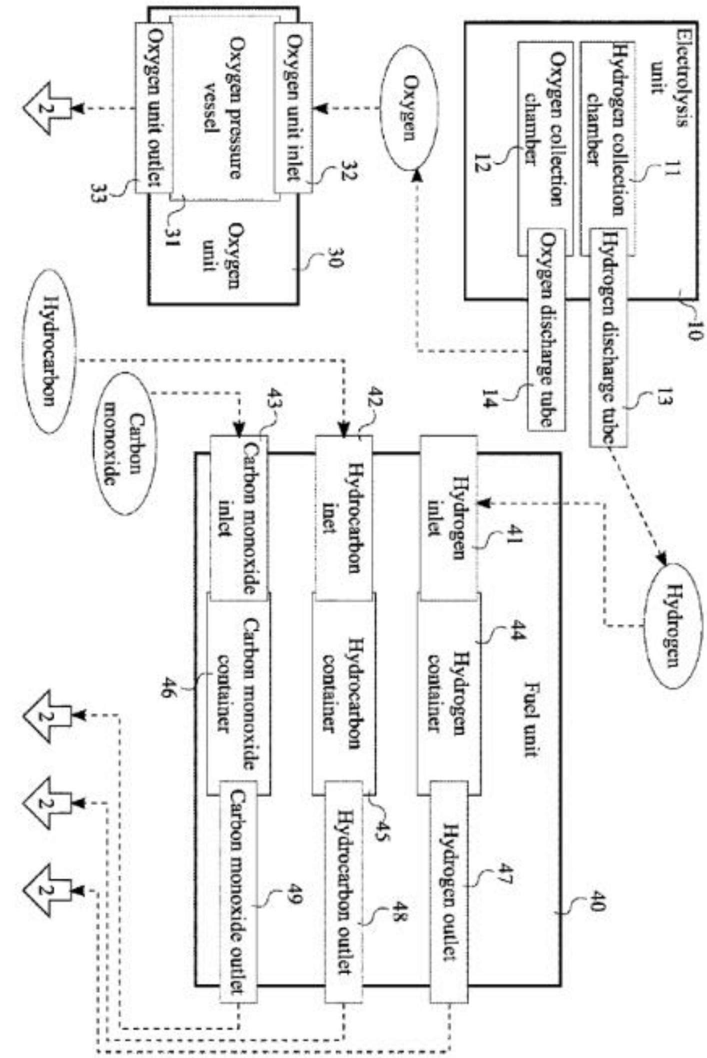
FIG. 9

CAPTIVE OXYGEN FUEL REACTOR

Finally, the device that will make not just mine but anyone's Carbon Capture device a carbon free power supply motive source.

The only real change to be noted is Hydrogen will become the only fuel used. The design does allow other types of hydrocarbon fuels to be utilized but to make it a XPRIZE contender electrolyzed hydrogen from water will be used. It will not be a capture device itself it will be power for other devices and sequester tons CO2.

A system of captive oxygen fuel reactor to efficiently generate electricity from hydrocarbon fuel utilizes a flow of oxygen and a flow of hydrogen from an electrolysis unit and a flow of carbon monoxide to complete a fuel oxidizer reaction within a heat exchanger unit. The fuel oxidizer reaction emits a flow of steam and a flow of carbon dioxide from the heat exchanger unit re-direct them through a steam rotary piston motor unit, a carbon dioxide rotary piston motor unit, a steam carousel motor unit, a carbon dioxide carousel motor unit, and a dual drum motor unit to generate electrical current. The exhaust gases within the system are properly discharged and stored within respective storage containers for the use of the system or other possible requirements.


Electrolysis unit
Hydrogen collection chamber
Oxygen collection chamber
Hydrogen discharge tube
Oxygen discharge tube
10
11
12
13
14
Oxygen
Hydrogen
Oxygen unit inlet
Oxygen pressure vessel
Oxygen unit outlet
Oxygen unit
30
31
32
33
Hydrocarbon
Carbon monoxide
Carbon monoxide inlet
Hydrocarbon inet
Hydrogen inlet
Fuel unit
Hydrogen container
Hydrocarbon container
Carbon monoxide container
Hydrogen outlet
Hydrocarbon outlet
Carbon monoxide outlet
40
41
42
43
44
45
46
47
48
49
2
2
2
2

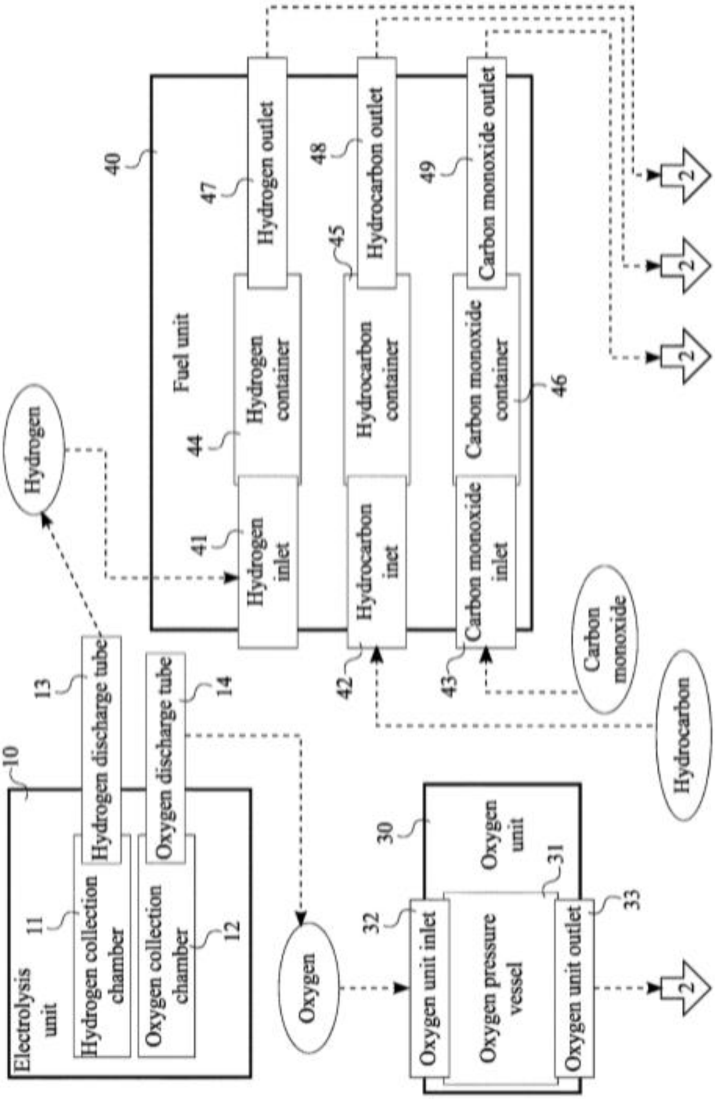
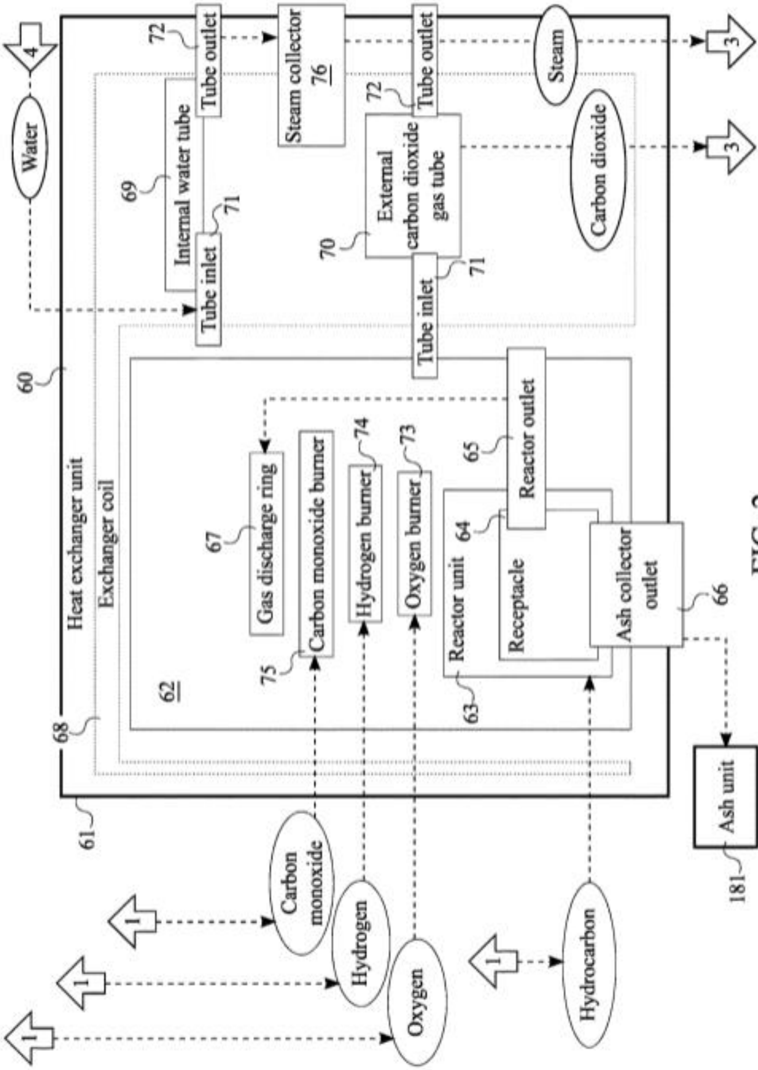
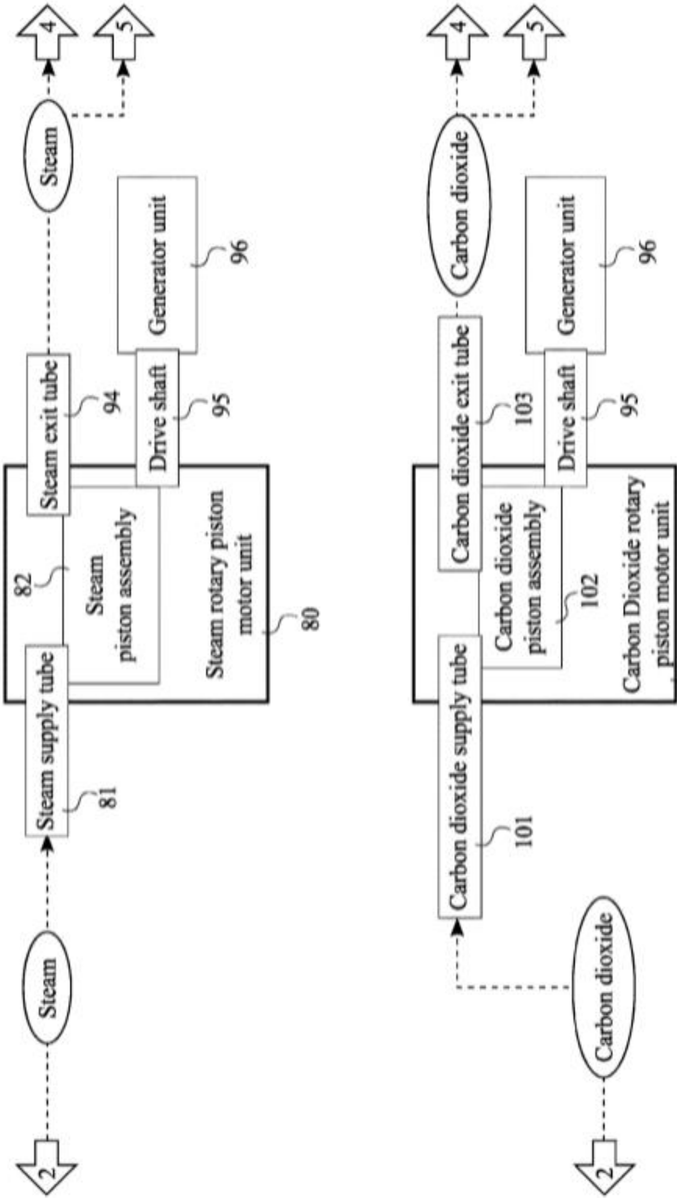

Electrolysis unit
10
Hydrogen collection chamber
11
Oxygen collection chamber
12
Hydrogen discharge tube
13
Oxygen discharge tube
14
Hydrogen
Oxygen
Oxygen unit
30
Oxygen unit inlet
32
Oxygen pressure vessel
31
Oxygen unit outlet
33
Fuel unit
40
Hydrogen inlet
41
Hydrogen container
44
Hydrogen outlet
47
Hydrocarbon inet
42
Hydrocarbon container
45
Hydrocarbon outlet
48
Carbon monoxide inlet
43
Carbon monoxide container
46
Carbon monoxide outlet
49
Carbon monoxide
Hydrocarbon
2
2
2
2

FIG. 1


Heat exchanger unit
Exchanger coil
Water
Internal water tube
Tube inlet
Tube outlet
Steam collector
76
External carbon dioxide gas tube
Steam
Carbon dioxide
Gas discharge ring
Carbon monoxide burner
Hydrogen burner
Oxygen burner
Reactor outlet
Reactor unit
Receptacle
Ash collector outlet
Ash unit
Carbon monoxide
Hydrogen
Oxygen
Hydrocarbon
62
60
61
63
64
65
66
67
68
69
70
71
72
73
74
75
181
1
3
4
FIG. 2



2
Steam
Steam supply tube
81
82
Steam piston assembly
Steam rotary piston motor unit
80
Steam exit tube
94
Drive shaft
95
Generator unit
96
Steam
4
5
2
Carbon dioxide
Carbon dioxide supply tube
101
Carbon dioxide piston assembly
102
Carbon Dioxide rotary piston motor unit
100
Carbon dioxide exit tube
103
Drive shaft
95
Generator unit
96
Carbon dioxide
4
5

FIG. 3

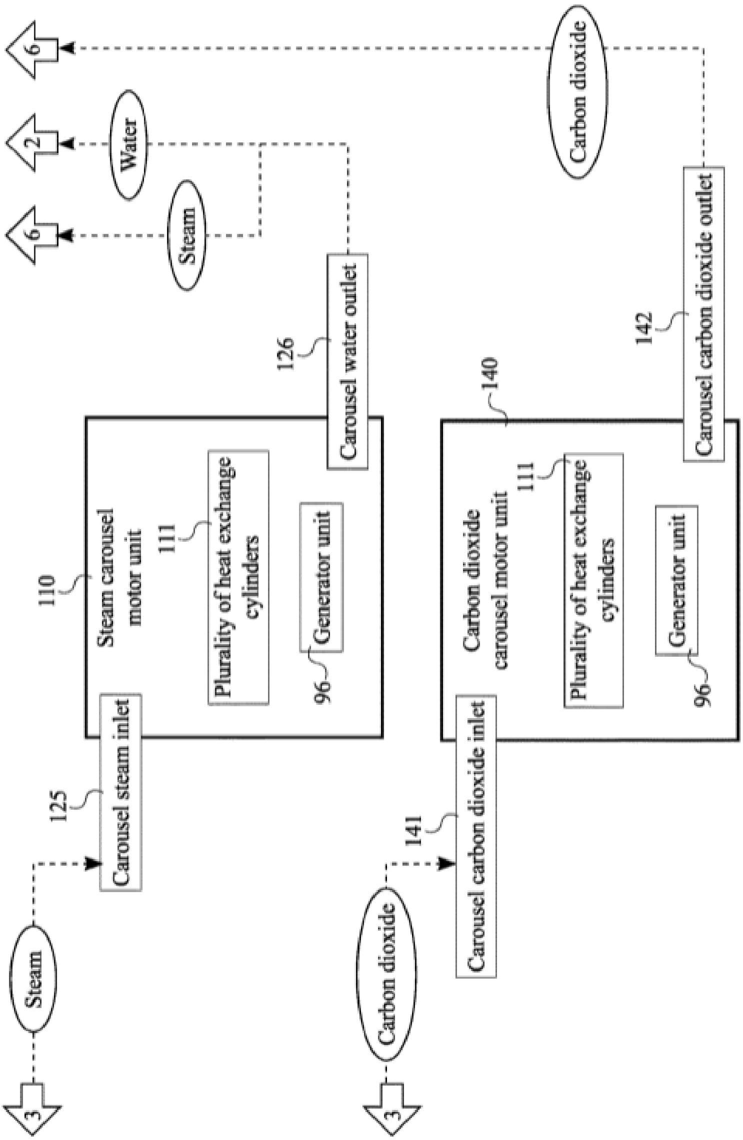

3
Steam
125
Carousel steam inlet
110
Steam carousel motor unit
111
Plurality of heat exchange cylinders
96
Generator unit
126
Carousel water outlet
Steam
Water
6
2
6
3
Carbon dioxide
141
Carousel carbon dioxide inlet
140
Carbon dioxide carousel motor unit
111
Plurality of heat exchange cylinders
96
Generator unit
142
Carousel carbon dioxide outlet
Carbon dioxide
6

FIG. 4

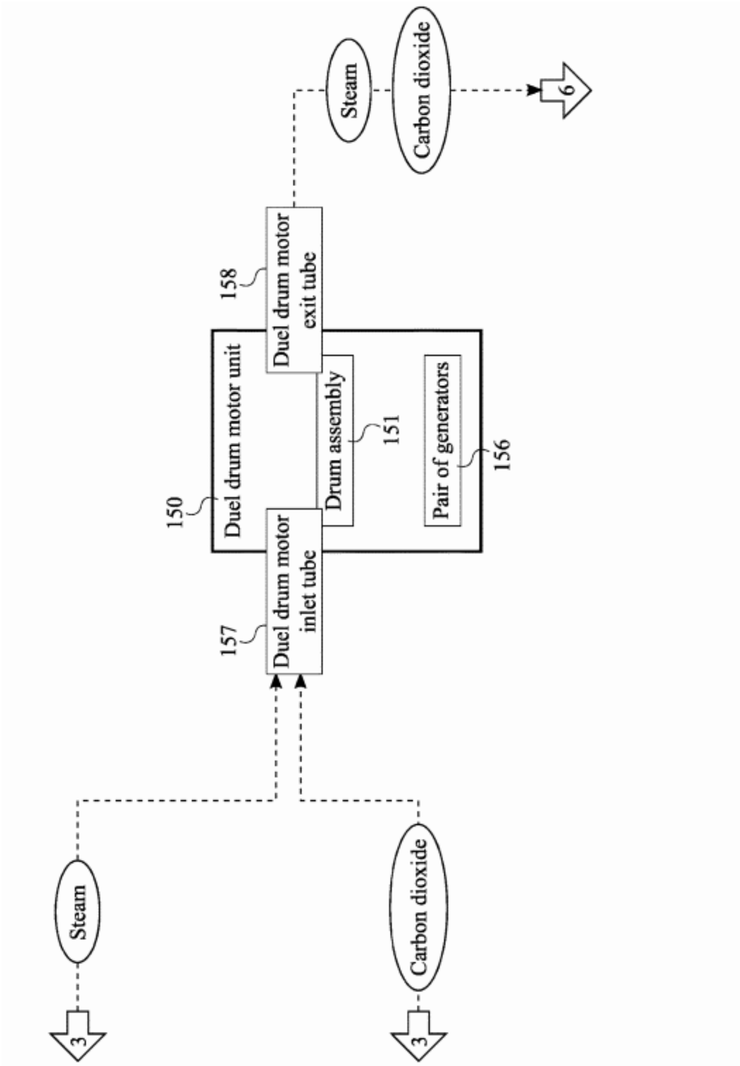

Steam
Carbon dioxide
3
3
Duel drum motor inlet tube
157
Duel drum motor unit
150
Drum assembly
151
Pair of generators
156
Duel drum motor exit tube
158
Steam
Carbon dioxide
6

FIG. 5

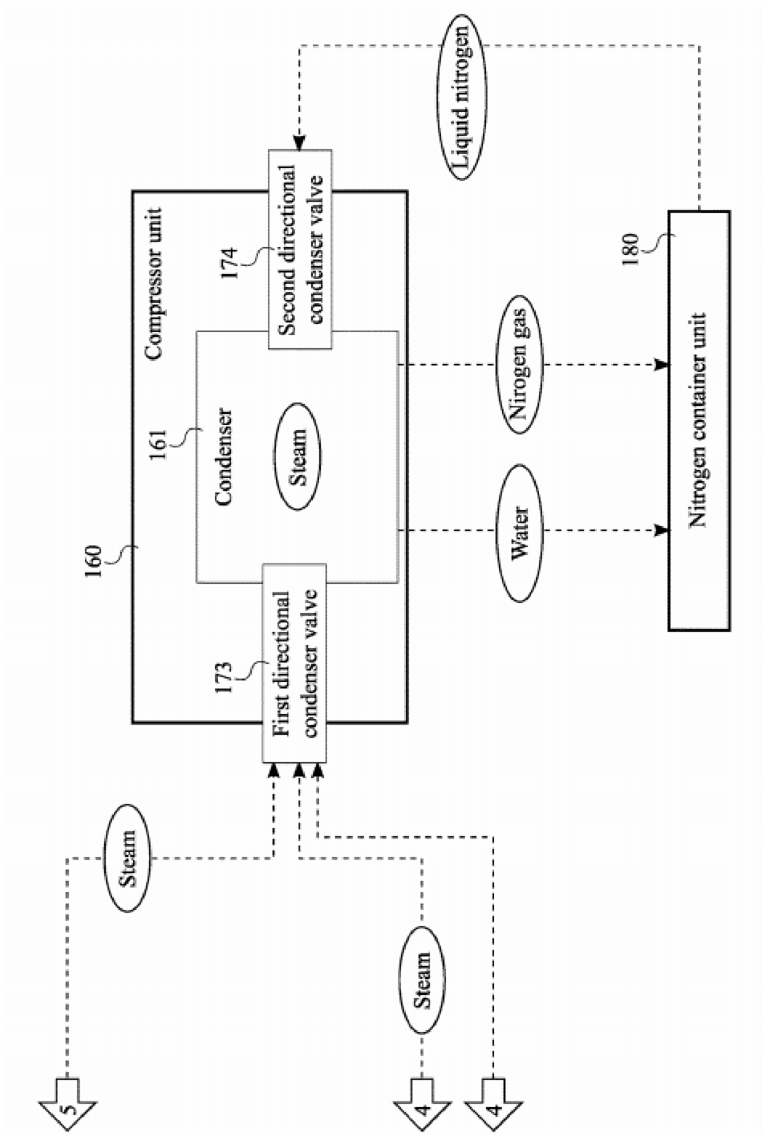

Compressor unit
160
161
Condenser
Steam
174
Second directional condenser valve
173
First directional condenser valve
Liquid nitrogen
Nirogen gas
Water
180
Nitrogen container unit
Steam
Steam
5
4
4

FIG. 6

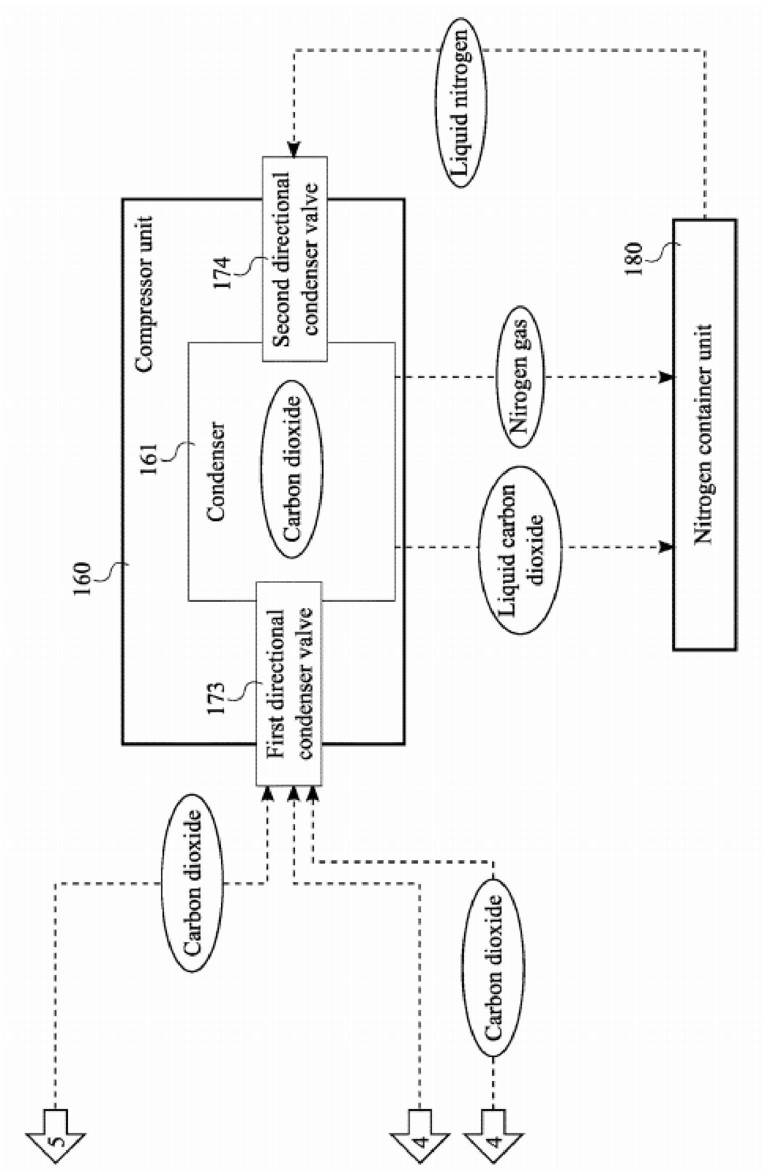

Liquid nitrogen
Compressor unit
174
Second directional condenser valve
160
161
Condenser
Carbon dioxide
173
First directional condenser valve
Nirogen gas
Liquid carbon dioxide
180
Nitrogen container unit
Carbon dioxide
Carbon dioxide
5
4
4

FIG. 7

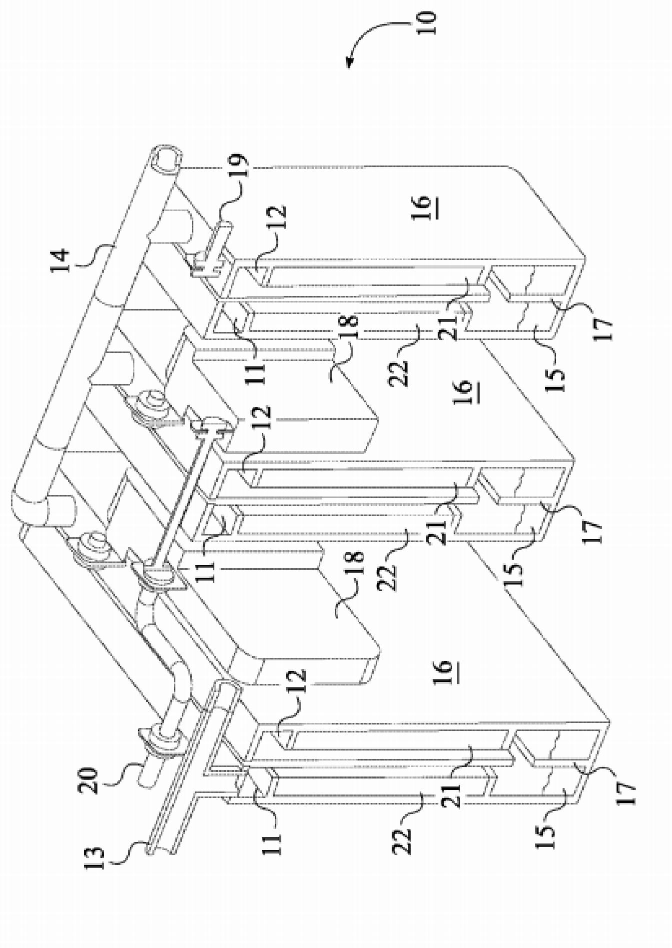


FIG. 8

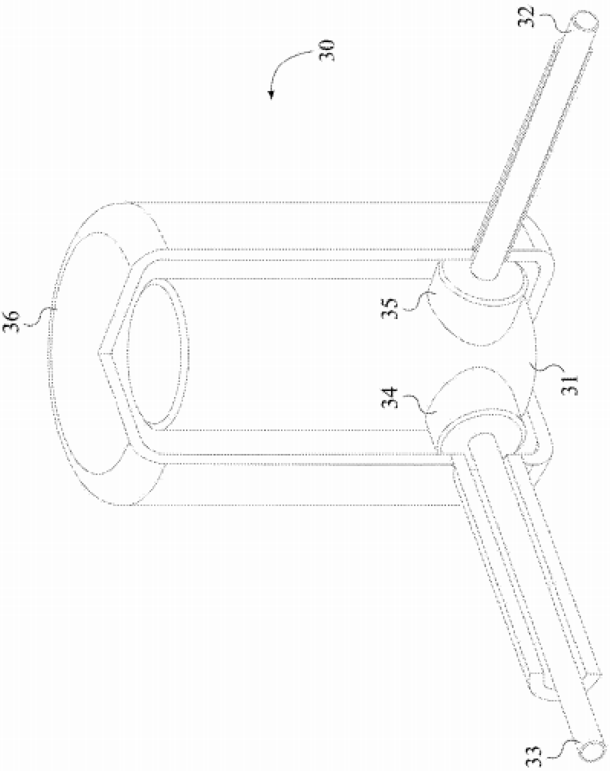


FIG. 9

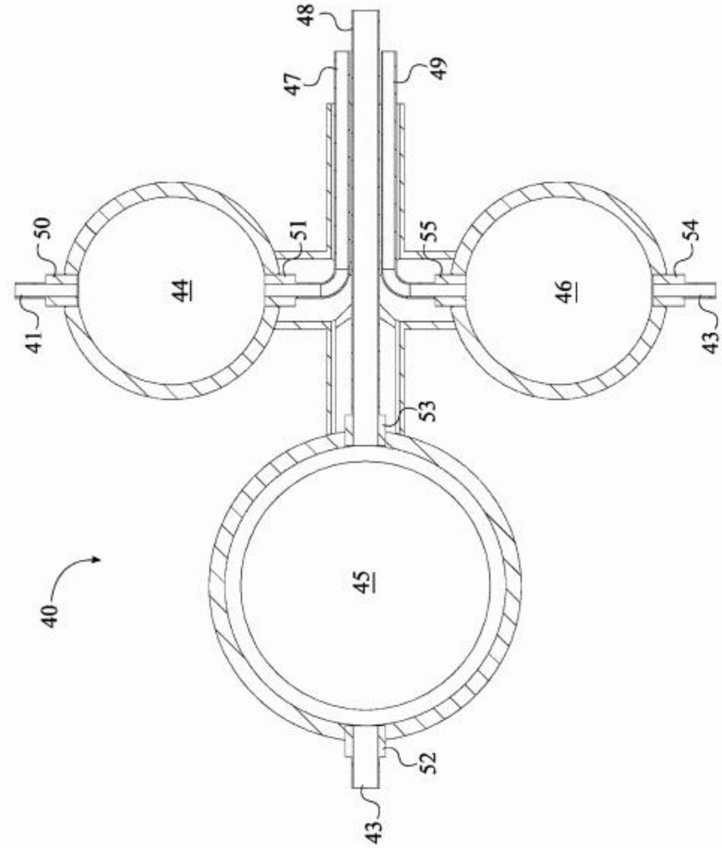


FIG. 10

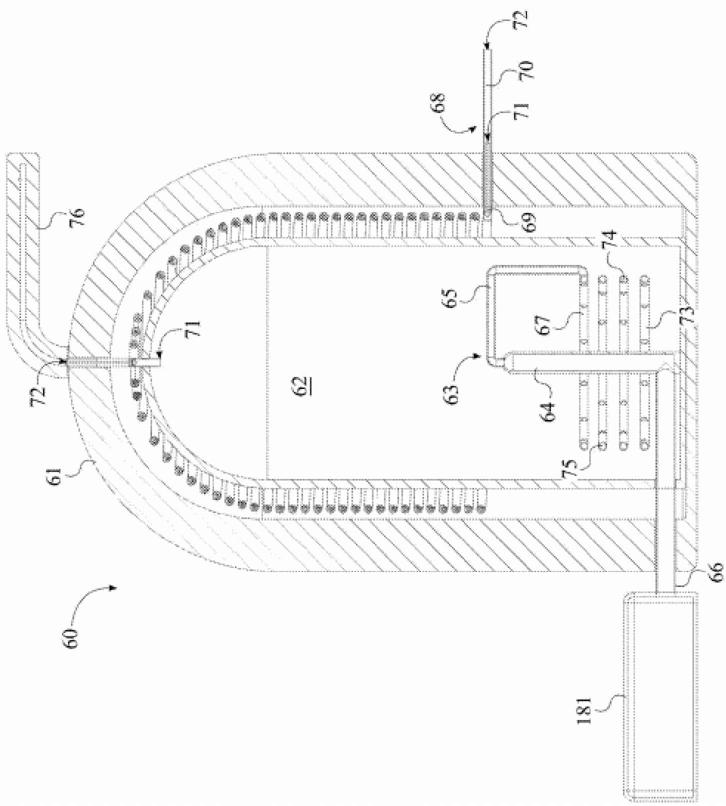


FIG. 11

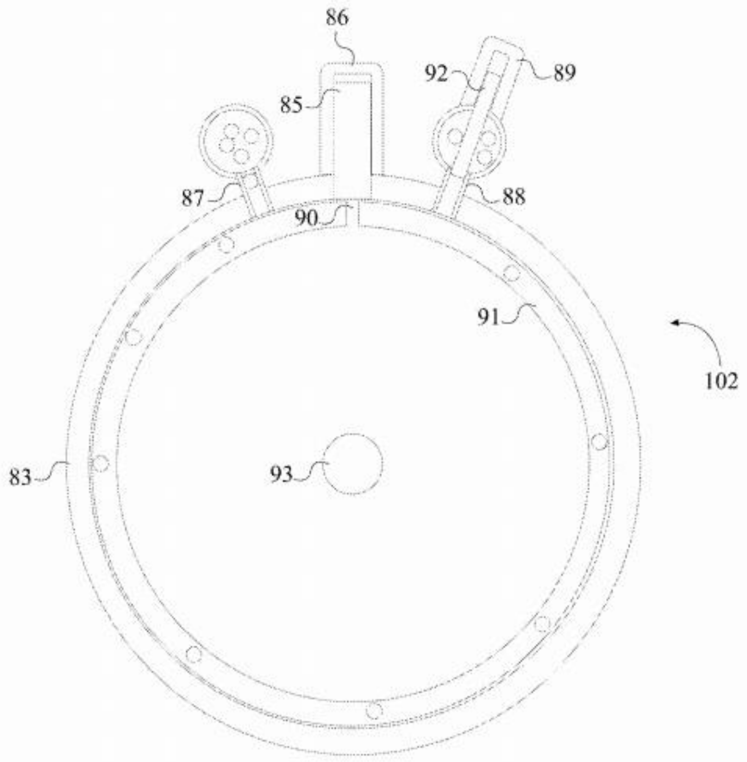


FIG. 12

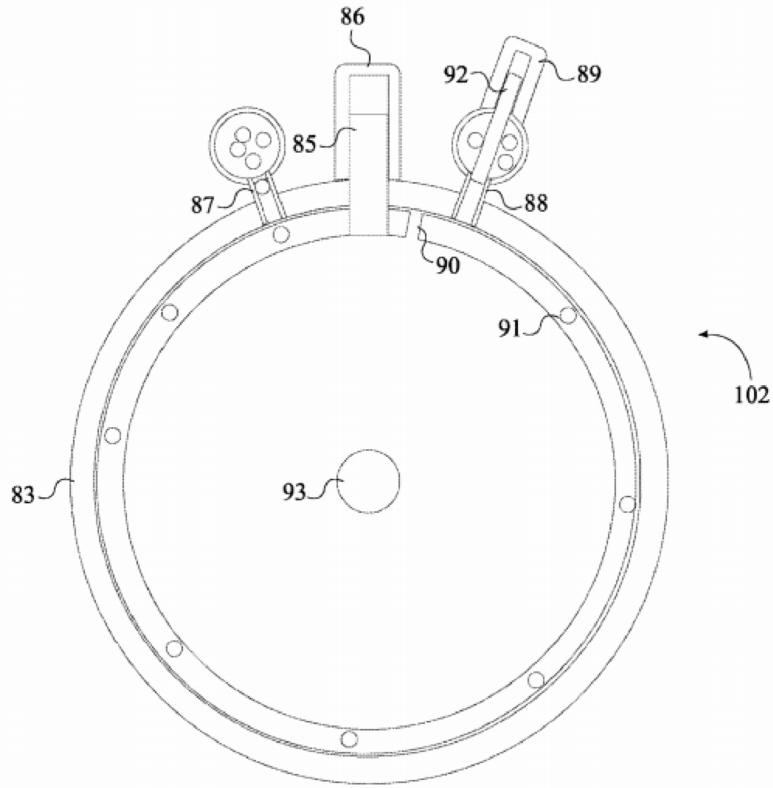


FIG. 13

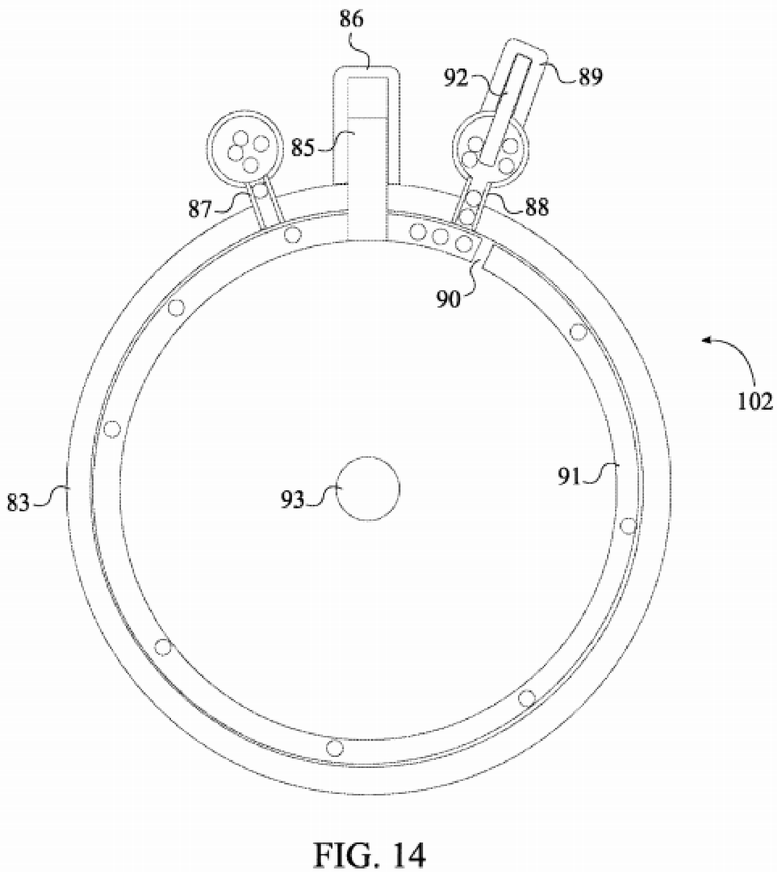


FIG. 14

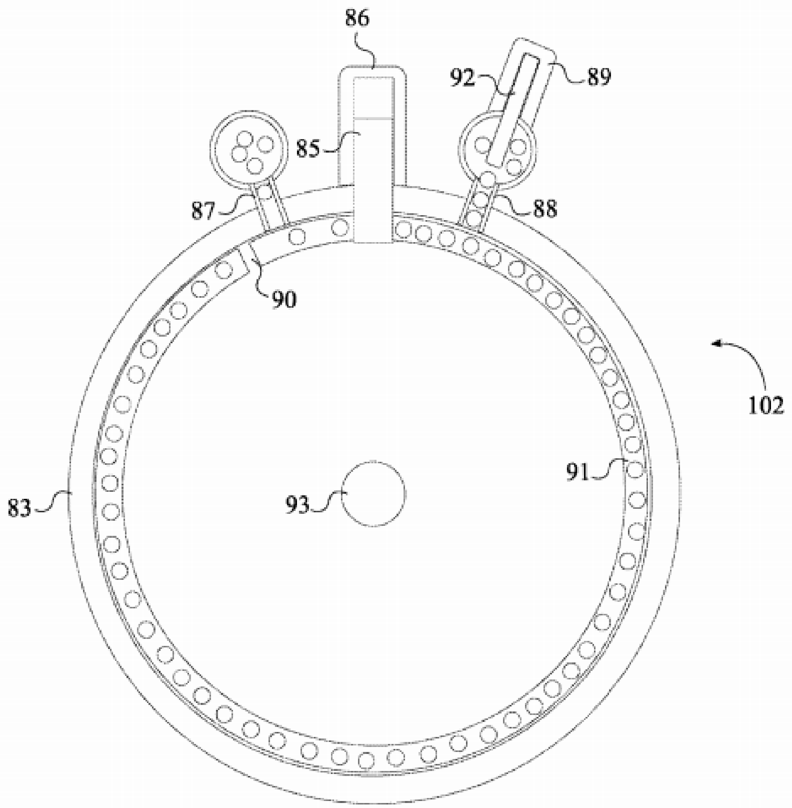


FIG. 15

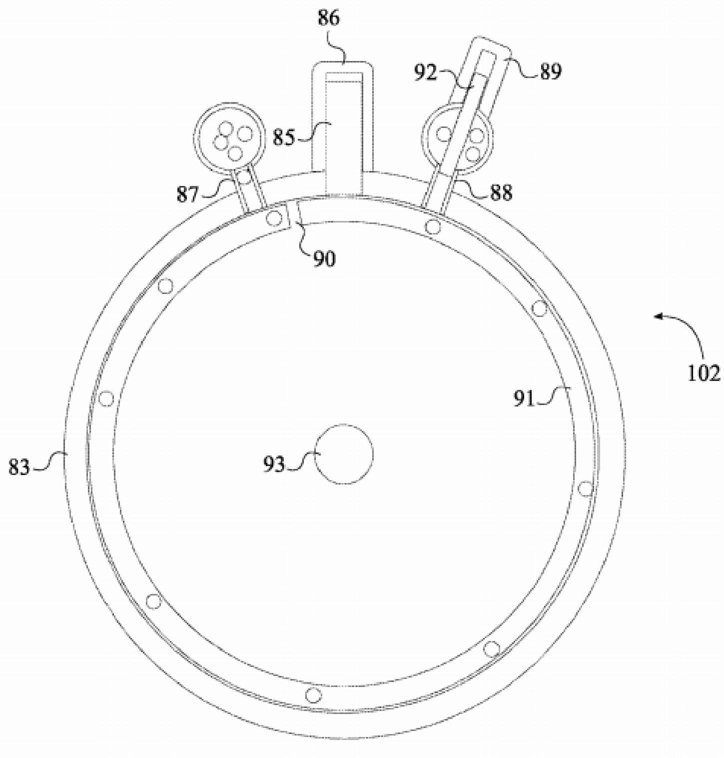


FIG. 16

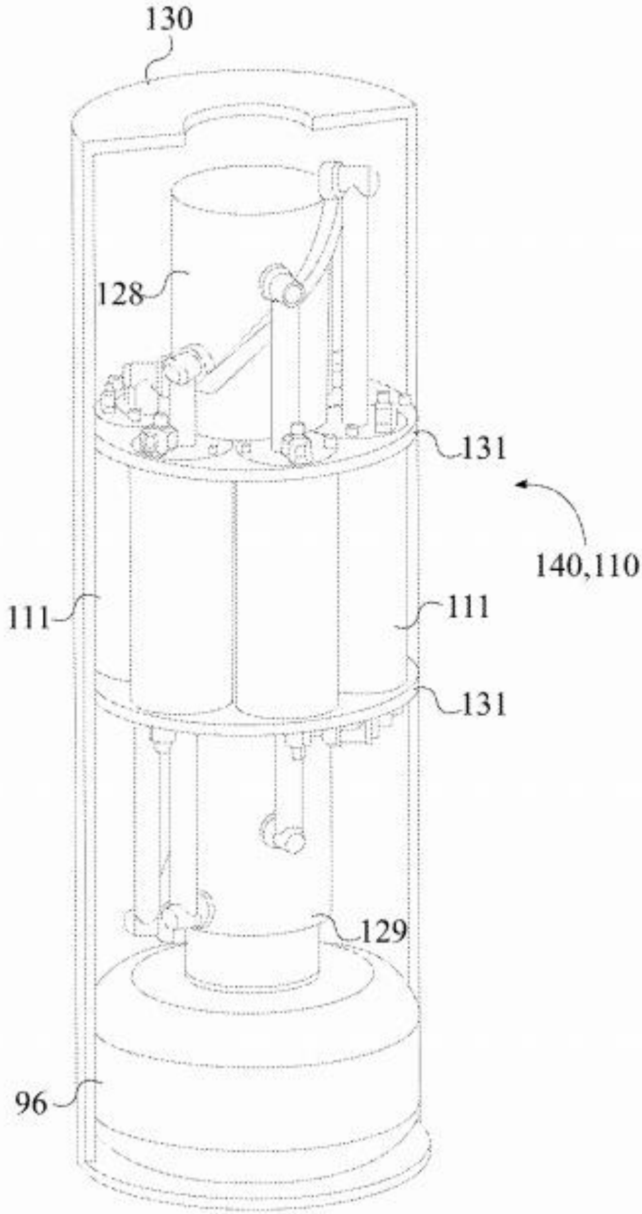


FIG. 17

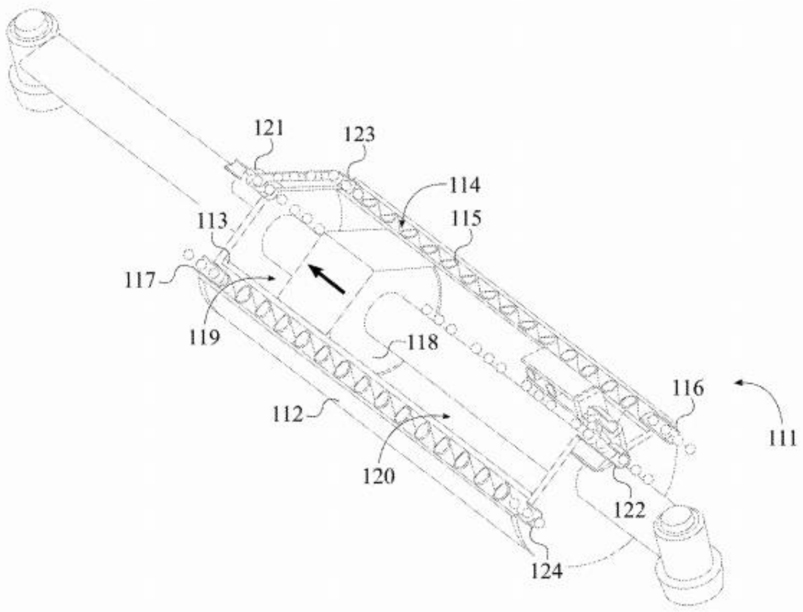


FIG. 18

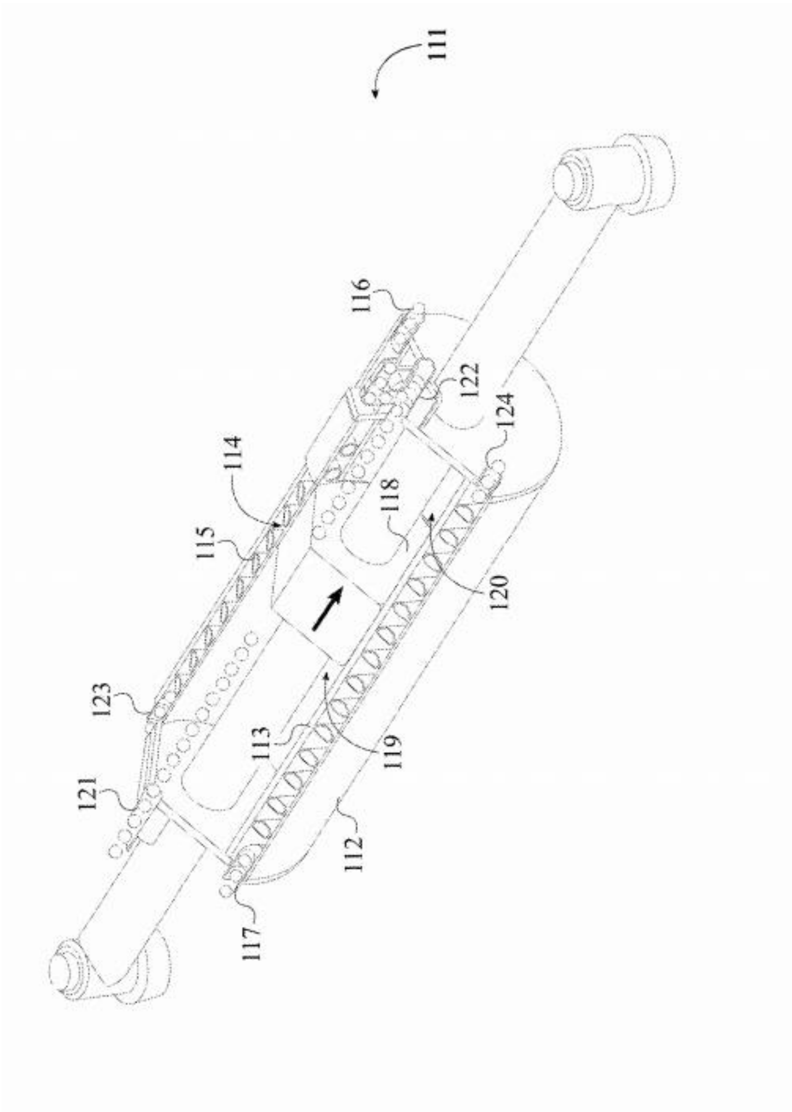


FIG. 19

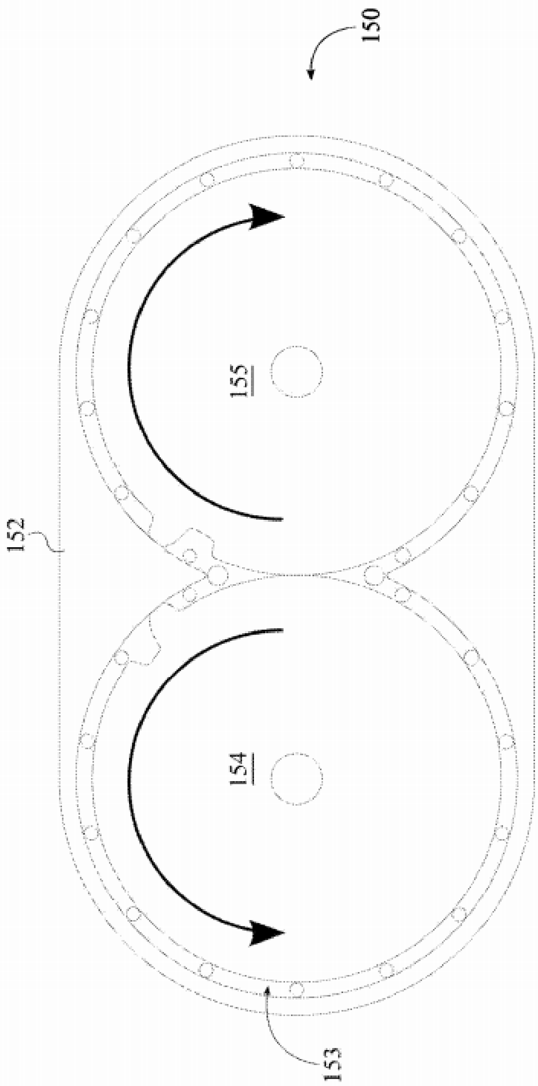


FIG. 20

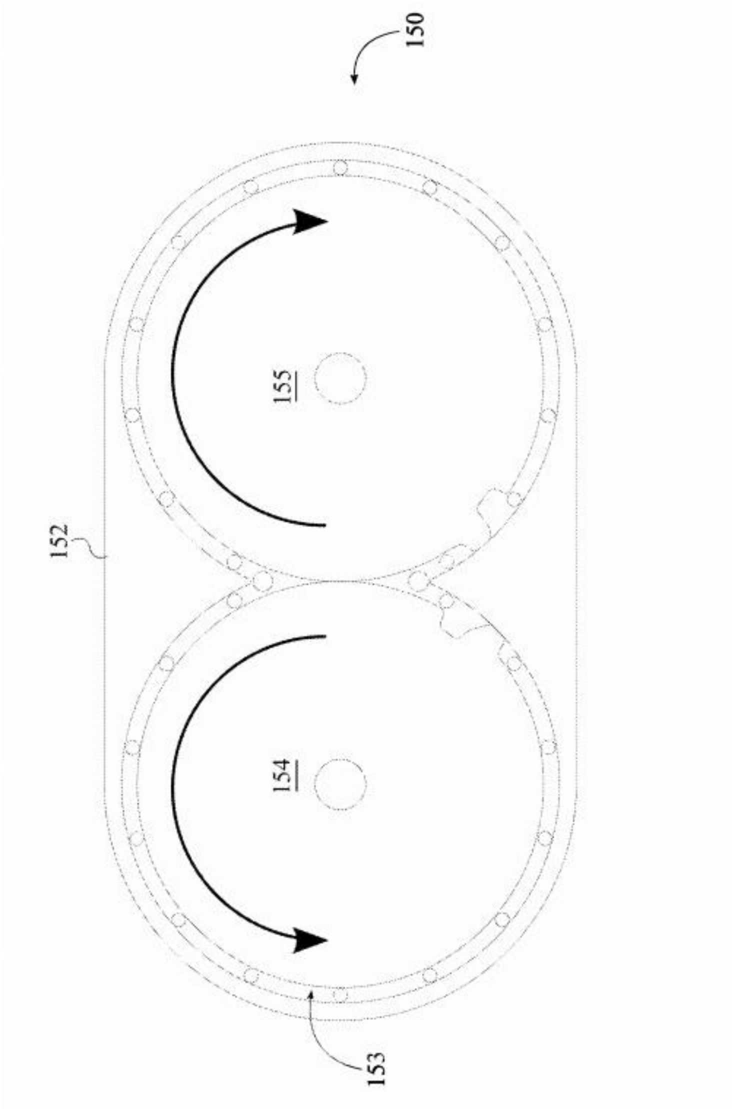


FIG. 21

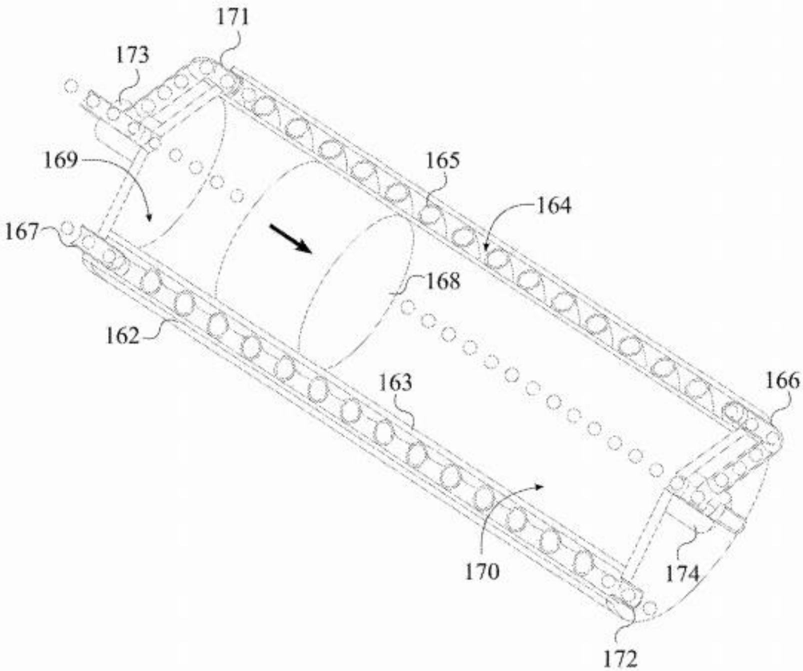


FIG. 22

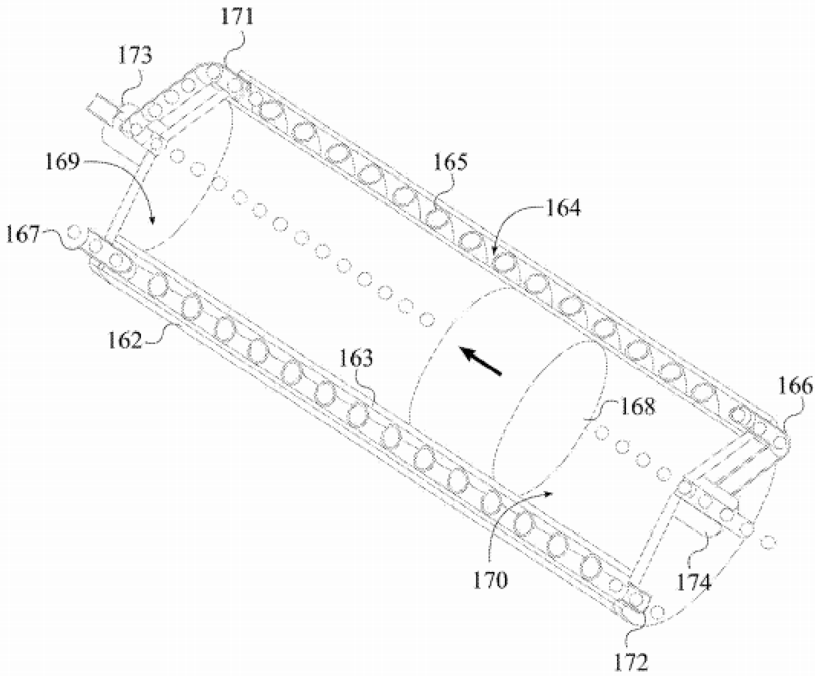


FIG. 23

The device relates generally to an apparatus to generate electricity efficiently from hydrocarbon fuels and control pollution emissions. The present invention may be used as an assembly, individually or grouped to fit the needs of the hydrocarbon fuel of choice. Generated commodity products include

electricity, heat, mechanical force, water, oxygen, hydrogen, nitrogen, carbon dioxide, and other elements within selected hydrocarbon fuels and atmosphere.

The capital cost of electrical energy production coupled with the increasing cost of fuel and the impact on the environment with conventional power generation from hydrocarbon fuels have made the present invention a valuable commodity. The present invention can enhance the quantity of electrical power generated from a given amount of fuel and improve the atmospheric condition. Efficient production of electricity is accomplished with the controlled reaction chamber metering fuel and oxygen, environmental containment, and revolutionary mechanical devices. By products of fuel combustion Such as water, and other elements and compounds are captured, stored, and utilized as required. Multi arrays of different geometric shapes maximize electrical production while employing different pressurized and temperature containments. The electrical current generated passes through an electrolyzer producing additional hydrogen and oxygen. The generated current may be consumed, sent to the grid, or stored in hydrogen for future peak use or sold as a hydrogen commodity. Further uses of stored energy in hydrogen may be used in Fuel-cell electrical generation or routed to the reactor to increase operating temperature to immediately satisfy peak load demand. Con troller programs control and activates all electrical functions as required.

FIG. 1 is a basic flow chart illustrating the electrolysis unit, the oxygen unit, and the fuel unit within the overall system of the present invention.

FIG. 2 is a basic flow chart illustrating the heat exchanger unit within the overall system of the present invention.

FIG. 3 is a basic flow chart illustrating the steam rotary piston motor unit and the carbon dioxide rotary piston motor unit within the overall system of the present invention.

FIG. 4 is a basic flow chart illustrating the steam carousel motor unit and the carbon dioxide carousel motor unit within the overall system of the present invention.

FIG. 5 is a basic flow chart illustrating the dual drum motor unit within the overall system of the present invention.

FIG. 6 is a basic flow chart illustrating the compressor unit in relation to the flow of steam within the overall system of the present invention.

FIG. 7 is a basic flow chart illustrating the compressor unit in relation to the flow of carbon dioxide within the overall system of the present invention.

FIG. 8 is a perspective section view of the electrolysis unit of the present invention.

FIG. 9 is a perspective section view of the oxygen unit of the present invention.

FIG. 10 is a top section view of the fuel unit of the present invention.

FIG. 11 is a side section view of the heat exchanger unit of the present invention.

FIG. 12 is a side view of the steam piston assembly and the carbon dioxide piston assembly of the present invention, wherein the piston member is at 0-degree position.

FIG. 13 is a side view of the steam piston assembly and the carbon dioxide piston assembly of the present invention, wherein the piston member is at 10-degree position.

FIG. 14 is a side view of the steam piston assembly and the carbon dioxide piston assembly of the present invention, wherein the piston member is at 20-degree position.

FIG. 15 is a side view of the steam piston assembly and the carbon dioxide piston assembly of the present invention, wherein the piston member is at 340-degree position.

FIG. 16 is a side view of the steam piston assembly and the carbon dioxide piston assembly of the present invention, wherein the piston member is at 350-degree position.

FIG. 17 is a perspective section view of the carbon dioxide carousel motor unit and the steam carousel motor unit of the present invention.

FIG. 18 is a perspective section view of the heat exchanger cylinder of the of the carbon dioxide carousel motor unit and the steam carousel motor unit, showing the movement of the piston unit towards the first cap.

FIG. 19 is a perspective section view of the heat exchanger cylinder of the of the carbon dioxide carousel motor unit and the steam carousel

motor unit, showing the movement of the piston unit towards the second cap.

FIG. 20 is an internal view of the dual drum motor unit showing the first drum and the second drum, wherein the dual drum motor unit is at on-position.

FIG. 21 is an internal view of the dual drum motor unit showing the first drum and the second drum, wherein the dual drum motor unit is at off-position.

FIG. 22 is a perspective section view of the at least one condenser, showing the movement of the condenser piston unit towards the second condenser cap.

FIG. 23 is a perspective section view of the at least one condenser, showing the movement of the condenser piston unit towards the first condenser cap.

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. The present invention is a captive oxygen fuel reactor to efficiently generate electricity from hydrocarbon fuel.

The present invention comprises an electrolysis unit 10, an oxygen unit 30, a fuel unit 40, a heat exchanger unit 60, a steam rotary piston motor unit 80, a carbon dioxide rotary piston motor unit 100, a dual drum motor unit 150, and a compressor unit 160 as shown in FIG. 1-7. In reference to the general configuration of the present invention, the electrolysis unit 10 is in

series fluid communication with the oxygen unit 30 and the fuel unit 40 so that electrolysis unit 10 is able to supply a flow of oxygen to the oxygen unit 30 and a flow of hydrogen to the fuel unit 40. The fuel unit 40 and the oxygen unit 30 are collectively in fluid communication with the heat exchanger unit 60. As a result, the heat exchanger unit 60 can collect the flow of oxygen from the oxygen unit 30. Simultaneously, the heat exchanger unit 60 is also able to collect the flow of hydrogen, a flow of carbon monoxide, a flow of hydrocarbon from the fuel unit 40, wherein the flow of carbon monoxide and the flow of hydrocarbon are supplied to the fuel unit 40 from respective external sources. A fuel oxidizer reaction that takes place with the heat exchanger unit 60 converts the flow oxygen, the flow of hydrogen, the flow of carbon monoxide, and the flow of hydrocarbon into a flow of steam and a flow of carbon dioxide. The heat exchanger unit 60 is in fluid communication with the steam rotary piston motor unit 80 and the carbon dioxide rotary piston motor unit 100. More specifically, the steam rotary piston motor unit 80 and the carbon dioxide rotary piston motor unit 100 generate electrical current through the flow of steam and the flow of carbon monoxide. The steam rotary piston motor unit 80 is in series in fluid communication with the steam carousel motor unit 110 and the dual drum motor unit 150. As a result, the steam carousel motor unit 110 and the dual drum motor unit 150 are also able to generate electrical current with the flow of steam. Similarly, the carbon dioxide rotary piston motor unit 100 is in series in fluid communication with the carbon dioxide carousel motor unit 140 and the dual drum motor unit 150 to generate electrical current with the flow of carbon dioxide. The steam carousel motor unit 110, the carbon dioxide carousel motor unit 140, and the

dual drum motor unit 150 are in fluid communication with the com pressor unit 160 so that exhaust gases of the present invention can be separated and stored within the respective storage containers.

The electrolysis unit 10 houses a body of water and produces the flow oxygen and the flow of hydrogen using electrical current. In reference to FIG. 1 and FIG. 8, the electrolysis unit 10 comprises a body of electrolyte 15, an electrode case 16, a separator 17, a capacitor 18, a positive lead 19, a negative lead 20, a positive electrode 21, a negative electrode 22, a hydrogen collection chamber 11, an oxygen collection chamber 12, a hydrogen discharge tube 13, and an oxygen discharge tube 14. More specifically, the separator 17 divides the electrode case 16 into two halves so that the body of electrolyte 15, which is the body of water, can be separated within the electrode case 16. The positive lead 19 is electrically connected with the positive electrode 21 that is positioned within the electrode case 16. Similarly, the negative lead 20 is electrically connected with the negative electrode 22 that is positioned within the electrode case 16. The capacitor 18 is positioned external to the electrode case 16. The capacitor 18 is electrically charged and allows for an increased current flow with a reduced total Voltage Supply. When an electrical current is applied to the positive electrode 21 through the positive lead 19 and the negative electrode 22 through the negative lead 20, positive current breaks down the body of water producing the flow of oxygen. Then, the flow of oxygen is stored within the oxygen collection chamber 12. When an electrical current is applied to the positive electrode 21 through the positive lead 19 and the negative electrode 22 through the negative lead 20, negative current breaks down the

body of water producing the flow of hydrogen. Then, the flow of hydrogen is stored within the hydrogen collection chamber 11. In reference to FIG. 1, the oxygen discharge tube 14 is in fluid communication with the oxygen collection chamber 12 I -to supply the flow of oxygen from the electrolysis unit 10 to the oxygen unit 30. The hydrogen discharge tube 13 is in fluid communication with the hydrogen collection chamber 11 to supply the flow of hydrogen from the electrolysis unit 10 to the fuel unit 40.

The oxygen unit 30 regulates the flow of oxygen within the present invention before the flow of oxygen is discharged to the fuel unit 40. In reference to FIG. 1 and FIG. 9, the oxygen unit 30 comprises an oxygen pressure vessel 31, an oxygen unit inlet 32, an oxygen unit outlet 33, an oxygen discharge regulator 34, an oxygen storage regulator 35, and a casing 36. More specifically, the oxygen unit inlet 32 is in fluid communication with the oxygen pressure vessel 31 through the oxygen storage regulator 35. Similarly, the oxygen unit outlet 33 is in fluid communication with the oxygen pressure vessel 31 through the oxygen discharge regulator 34. The casing 36 encloses the oxygen pressure vessel 31, the oxygen storage regulator 35, and the oxygen discharge regulator 34 to provide environmental protection while allowing the oxygen unit inlet 32 and the oxygen unit outlet 33 to traverse through the casing 36. In reference to FIG. 1, the oxygen unit inlet 32 is in fluid communication with the oxygen discharge tube 14 of the electrolysis unit 10. As a result, the flow of oxygen from the oxygen collection chamber 12 can be discharged to the oxygen pressure vessel 31 via the oxygen unit inlet 32 and the oxygen storage regulator 35. Furthermore, the oxygen unit outlet 33 is in fluid communication with the heat

exchanger unit 60 to Supply the flow of oxygen from the oxygen pressure vessel 31 to the heat exchanger unit 60.

The fuel unit 40 collects all the necessary fuel compounds and re-directs said components into the heat exchanger unit 60, other than the flow of oxygen. In reference to FIG. 1 and FIG. 10, the fuel unit 40 comprises a hydrogen inlet 41, a hydrocarbon inlet 42, a carbon monoxide inlet 43, a hydrogen container 44, a hydrocarbon container 45, a carbon monoxide container 46, a hydrogen outlet 47, a hydrocarbon outlet 48, a carbon monoxide outlet 49, a hydrogen storage regulator 50, a hydrogen discharge regulator 51, a hydrocarbon storage regulator 52, a hydro carbon discharge regulator 53, a carbon monoxide storage regulator 54, and a carbon monoxide discharge regulator 55. More specifically, the hydrogen inlet 41 and the hydrogen outlet 47 are in fluid communication with the hydrogen container 44 through the hydrogen storage regulator 50 and the hydrogen discharge regulator 51 respectively. The hydrogen inlet 41 is in fluid communication with the hydro gen discharge tube 13 to collect the flow of hydrogen from the electrolysis unit 10. When the flow of hydrogen is discharged from the electrolysis unit 10, the flow of hydrogen is collected and stored with the hydrogen container 44 as shown in FIG. 1. Additionally, the hydrocarbon inlet 42 and the hydrocarbon outlet 48 are in fluid communication with the hydrocarbon container 45 through the hydrocarbon storage regulator 52 and the hydrocarbon discharge regulator 53 respectively. The hydrocarbon inlet 42 is in fluid communication with an external source of hydrocarbon, wherein the external source of hydrocarbon Supplies a body of hydrocarbon to the present invention. When the

body of hydrocarbon is discharged from the external source of hydrocarbon, the body of hydrocarbon is collected and stored with the hydrocarbon container 45 as shown in FIG. 1. Additionally, the carbon monoxide inlet 43 and the carbon monoxide outlet 49 are in fluid communication with the carbon monoxide container 46 through the carbon monoxide storage regulator 54 and the carbon monoxide discharge regulator 55 respectively. The carbon monoxide inlet 43 is in fluid communication with an external Source of carbon monoxide, wherein the external source of carbon monoxide Supplies a flow of carbon monoxide to the present invention. When the flow of carbon monoxide is discharged from the external source of carbon monoxide, the flow of carbon monoxide is collected and stored with the carbon monoxide container 46 as shown in FIG. 1. Furthermore, the hydrogen outlet 47 is in fluid communication with the heat exchanger unit 60 to supply the flow of hydrogen from the hydrogen container 44 to the heat exchanger unit 60. The hydrocarbon outlet 48 is in fluid communication with the heat exchanger unit 60 to supply the body of hydrocarbon from the hydrocarbon container 45 to the heat exchanger unit 60. The carbon monoxide outlet 49 is in fluid communication with the heat exchanger unit 60 to supply the flow of carbon monoxide from the carbon monoxide container 46 to the heat exchanger unit 60.

The heat exchanger unit 60 completes the fuel oxidizer reaction within the present invention. In reference to FIG. 2 and FIG. 11, the heat exchanger unit 60 comprises a reactor structure unit 61, a reactor chamber 62, a reactor unit 63, an exchanger coil 68, an oxygen burner 73, a hydrogen burner 74, a carbon monoxide burner 75, and a steam collector 76. More specifically, the

reactor unit 63, the oxygen burner 73, the hydrogen burner 74, and the carbon monoxide burner 75 are internally mounted within the reactor chamber 62. The reactor chamber 62 is enclosed by the reactor structure unit 61 forming a radial space in between the reactor chamber 62 and the reactor structure unit 61 so that the exchanger coil 68 is positioned in between the reactor chamber 62 and the reactor structure unit 61. In other words, the exchanger coil 68 is positioned within the radial space of the heat exchanger unit 60 so that the exchanger coil 68 can be separated from the reactor chamber 62 in order to maximize the functionality of the exchanger coil 68.

The hydrocarbon outlet 48 traverses into the reactor chamber 62 through the reactor structure unit 61 and is in fluid communication with the reactor unit 63 so that the body of hydrocarbon can be supplied from the hydrocarbon container 45 and deposited within the reactor unit 63. The reactor unit 63 comprises a receptacle 64, a reactor outlet 65, an ash collector outlet 66, and a gas discharge ring 67. The ash collector outlet 66 and the reactor outlet 65 are in fluid communication with the receptacle 64. The reactor outlet 65 is in fluid communication with the gas discharge ring 67. More specifically, the body of hydrocarbon is transformed into a flow of producer gas and a quantity of ash within the receptacle 64 as the body of hydrocarbon is temporarily stored within the receptacle 64. Then, the flow of producer gas is captured by the reactor outlet 65 and supplied to the gas discharge ring 67. As a result, the gas discharge ring 67 can release the flow of producer gas into the reactor chamber 62. The quantity of ash is collected by the ash collector outlet 66, which traverses from the reactor chamber 62 through the reactor structure unit 61, to deposit the quantity of

ash into an ash unit 181 of the present invention that is in fluid communication with the ash col lector outlet 66.

The oxygen unit outlet 33 traverses into the reactor chamber 62 through the reactor structure unit 61 and is in fluid communication with the oxygen burner 73. As a result, the flow of oxygen that is Supplied from the oxygen pressure vessel 31 can be released into the reactor chamber 62 through the oxygen burner 73.

The hydrogen outlet 47 traverses into the reactor chamber 62 through the reactor structure unit 61 and is in fluid communication with the hydrogen burner 74. As a result, the flow of hydrogen that is Supplied from the hydrogen container 44 can be released into the reactor chamber 62 through the hydrogen burner 74.

The carbon monoxide outlet 49 traverses into the reactor chamber 62 through the reactor structure unit 61 and is in fluid communication with the carbon monoxide burner 75. As a result, the flow of carbon monoxide that is supplied from the carbon monoxide container 46 can be released into the reactor chamber 62 through the carbon monoxide burner 75.

When the flow of producer gas, the flow of oxygen, the flow of hydrogen, and the flow of carbon monoxide are released into the reactor chamber 62, the heat exchanger unit 60 can complete the fuel oxidizer reaction. More specifically, the flow of producer gas, the flow of oxygen, the flow of hydrogen, and the flow of carbon monoxide react together and transform into a flow of heated carbon dioxide gas compound. The flow of heated carbon dioxide gas compound consists mostly of carbon dioxide with lesser

quantities of water, carbon monoxide, and other containments from the body of hydrocarbon. The exchanger coil 68 that is positioned in between the reactor chamber 62 and the reactor structure unit 61 comprises an internal water tube 69 and an external carbon dioxide gas tube 70.

The exchanger coil 68 is positioned external to the reactor chamber 62 so that the exchanger coil 68 can efficiently cool down the flow of heated carbon dioxide gas compound within the heat exchanger unit 60. The internal water tube 69 is radially enclosed by the external carbon dioxide gas tube 70. More specifically, a tube inlet 71 of the external carbon dioxide gas tube 70 traverses into the reactor chamber 62 from a top of the reactor structure unit 61. As a result, the tube inlet 71 of the external carbon dioxide gas tube 70 is in fluid communication with the reactor chamber 62 allowing the heated carbon dioxide gas compound to be discharged into the tube inlet 71 of the external carbon dioxide gas tube 70. Then, the heated carbon dioxide gas compound flows through the exchanger coil 68 and exits as a flow of carbon dioxide gas compound through a tube outlet 72 of the external carbon dioxide gas tube 70 that traverses through the reactor structure unit 61. The temperature difference between the heated carbon dioxide gas compound and the flow of carbon dioxide gas compound is accomplished through the thermal conduction that takes place between the internal water tube 69 and the external carbon dioxide gas tube 70. More specifically, a tube inlet 71 of the internal water tube 69 traverses through the reactor structure unit 61, adjacent to the tube outlet 72 of the external carbon dioxide gas tube 70, to supply a flow of water. The flow of water travels through the exchanger coil 68 and cools down the heated carbon dioxide gas compound. The flow of

water then exits from a tube outlet 72 of the internal water tube 69 that traverses into the reactor structure unit 61, adjacent to the tube inlet 71 of the external carbon dioxide gas tube 70. Due to the thermal conduction, the flow of water absorbs heat and goes through a phase change, thus yielding the flow of steam to be exited through the tube outlet 72 of the internal water tube 69. The steam collector 76 traverses into the reactor structure unit 61 and is in fluid communication with the tube outlet 72 of the internal water tube 69. As a result, the heat exchanger unit 60 can collect the flow of steam from the tube outlet 72 of the internal water tube 69.

The steam rotary piston motor unit 80 converts mechanical energy to the electrical energy with the flow of steam. As a result, the steam rotary piston motor unit 80 can produce electrical current within the present invention. In reference to FIG. 3, the steam rotary piston motor unit 80 comprises a steam Supply tube 81, a steam piston assembly 82, a steam exit tube 94, a drive shaft 95, and a generator unit 96. More **specifically, the steam supply tube 81 and the steam exit tube 94 are in fluid communication with the steam piston assembly 82 providing an input port and output port for the steam rotary piston motor unit 80. The generator unit 96 is operatively coupled with the steam piston assembly 82 by the drive shaft 95, wherein the generator unit 96 can convert the mechanical energy of the Steam piston assembly 82 into electrical current. Additionally, the steam supply tube 81 is in fluid communication with the steam collector 76 to supply the flow of steam from the reactor chamber 62 of the heat exchanger unit 60 to the steam rotary piston motor unit 80. Then, the steam piston assembly 82 unit can convert the flow of steam into mechanical energy that provides**

rotational motive force to the generator unit 96. Since the generator unit 96 is operatively coupled with the steam piston assembly 82, the generator unit 96 converts the mechanical energy into electrical current. Once the flow of steam travels through the steam piston assembly 82, the flow of steam discharges through the steam exit tube 94.

The carbon dioxide rotary piston motor unit 100 functions like the steam rotary piston motor unit 80 and converts mechanical energy into the electrical energy from the flow of carbon dioxide gas compound. As a result, the carbon dioxide rotary piston motor unit 100 can produce electrical current within the present invention. In reference to FIG. 3, the carbon dioxide rotary piston motor unit 100 comprises a carbon dioxide supply tube 101, a carbon dioxide piston assembly 102, a carbon dioxide exit tube 103, a drive shaft 95, and a generator unit 96. More specifically, the carbon dioxide supply tube 101 and the carbon dioxide exit tube 103 are in fluid communication with the carbon dioxide piston assembly 102 providing an input port and output port for the carbon dioxide rotary piston motor unit 100. The generator unit 96 is operatively coupled with the carbon dioxide piston assembly 102 by the drive shaft 95, wherein the generator unit 96 can convert the mechanical energy of the carbon dioxide piston assembly 102 into electrical current. Additionally, the carbon dioxide supply tube 101 is in fluid communication with the external carbon dioxide gas tube 70 to supply the flow of carbon dioxide from the exchanger coil 68 of the heat exchanger unit 60 to the carbon dioxide rotary piston motor unit 100. Then, the carbon dioxide piston assembly 102 unit can convert the flow of carbon dioxide into mechanical energy that provides rotational motive force to the generator unit 96. Since the generator unit 96 is operatively coupled

with the carbon dioxide piston assembly 102, the generator unit 96 converts the mechanical energy into electrical current. Once the flow of carbon dioxide travels through the carbon dioxide piston assembly 102, the flow of carbon dioxide discharges through the carbon dioxide exit tube 103. The steam piston assembly 82 and the carbon dioxide piston assembly 102 utilize the same functionality within the present invention.

The steam piston assembly 82 and the carbon dioxide piston assembly 102 rotate between multiple degrees of piston rotations so that the flow of steam and the flow of carbon dioxide gas compound can actuate the respective piston assembly. To define the multiple degrees of piston rotations, the flow of steam and the flow of carbon dioxide gas are described as a flow of low-pressure gas and a flow of high-pressure gas within the Steam piston assembly 82 and the carbon dioxide piston assembly 102. In reference to FIG. 12-16, the steam piston assembly 82 and the carbon dioxide piston assembly 102 each comprise a piston motor case 83, a piston member 84, a piston plunger 85, a piston solenoid 86, a piston exit tube 87, a piston entry tube 88, a piston supply solenoid 89, a piston partition 90. a piston chamber 91, a piston Supply plunger92, and a piston hub 93.

The piston motor case 83 is connected to the generator unit 96 and internally houses the piston member 84, forming the piston chamber 91 in between the piston motor case 83 and the piston member 84. The generator unit 96 is operatively coupled with the piston hub 93 through the drive shaft 95. When the piston member 84 rotates, the piston hub 93 and the drive shaft 95 collectively provides rotational motive force to the generator unit 96 to create electrical current. The piston

partition 90 is radially extended from the piston member 84 to the piston motor case 83 to function as a divider for the piston chamber 91. The piston entry tube 88 traverses into the piston chamber 91 and is in fluid communication with the piston chamber 91 so that the flow of low-pressure gas can enter into the piston chamber 91. More specifically, the piston entry tube 88 of the steam piston assembly 82 is in fluid communication with the steam Supply tube 81 through the piston Supply Solenoid 89 and the piston supply plunger 92. The piston entry tube 88 of the carbon dioxide piston assembly 102 is in fluid communication with the carbon dioxide supply tube 101 through the piston supply solenoid 89 and the piston supply plunger92. As a result, the flow of high-pressure gas can enter the piston chamber 91 through the piston entry tube 88. The piston plunger 85 is operatively coupled with the piston Solenoid 86 and is engaged with the piston member 84 through the piston chamber 91.

In reference to FIG. 12 shows the 0-degree position of the piston member 84 as the piston partition 90 is at 0-degree position and vertically positioned with the piston plunger 85. Furthermore, the piston plunger 85 is at a retracted position and is not engaged with the piston member 84. Simultaneously, the piston Supply plunger92 is at an extended position and blocks the flow of high-pressure gas from entering the piston chamber 91.

In reference to FIG. 13 shows the 10-degree position of the piston member 84 as the piston partition 90 is at 10-degree position and angularly positioned with the piston plunger 85. Furthermore, the piston plunger 85 is at an extended position and is engaged with the piston member 84. Simultaneously, the piston Supply plunger 92 is at

an extended position and blocks the flow of high-pressure gas from entering the piston chamber 91.

In reference to FIG. 14 shows the 20-degree position of the piston member 84 as the piston partition 90 is at 20-degree position and angularly positioned with the piston plunger 85. Furthermore, the piston plunger 85 is at an extended position and is engaged with the piston member 84. Simultaneously, the piston Supply plunger 92 is at a retracted position and allows the flow of high-pressure gas to enter the piston chamber 91. The flow of high-pressure gas is then collected within a collection Zone of the piston chamber 91, where the collection space extends from the piston plunger 85 to the piston partition 90, thus creating rotational motive force.

In reference to FIG. 15 shows the 340-degree position of the piston member 84 as the piston partition 90 is at 340-degree position and angularly positioned with the piston plunger 85. Furthermore, the piston plunger 85 is at an extended position and is engaged with the piston member 84. Simultaneously, the piston Supply plunger 92 is at an extended position and prevents the flow of high-pressure gas from entering the piston chamber 91. Since the flow of high-pressure gas is collected within the collection Zone of ***the piston chamber 91, the flow of high-pressure gas continues to create rotational motive force.***

In reference to FIG. 16 shows the 350-degree position of the piston member 84 as the piston partition 90 is at 350-degree position and angularly positioned with the piston plunger 85. Furthermore, the piston plunger 85 is at a retracted position and eliminates the collection Zone of the piston chamber 91. In other words, the

collection Zone is eliminated within the piston chamber 91 due to that fact that the piston partition 90 positions in between the piston exit tube 87 and piston plunger 85. Simultaneously, the piston Supply plunger 92 is at an extended position and prevents the flow of high-pressure gas from entering the piston chamber 91. As a result, the flow of high-pressure gas within the piston chamber 91 discharges as the flow of low-pressure gas.

The piston exits tube 87 traverses into the piston chamber 91 and is in fluid communication with the piston chamber 91 so that the flow of high-pressure gas can discharge from the piston chamber 91 as the flow of low-pressure gas. Additionally, the piston exit tube 87 of the steam piston assembly 82 is in fluid communication with the steam exit tube 94 Similarly, the piston exit tube 87 of the carbon dioxide piston assembly 102 is in fluid communication with the carbon dioxide exit tube 103. As a result, the flow of high-pressure gas can discharge from the piston chamber 91 as the flow of low-pressure gas. For example, the flow of low-pressure gas that discharges from the steam piston assembly 82 and the carbon dioxide piston assembly 102 now has a low pressure, lower temperature, and higher density than the flow of high-pressure gas that enters the steam piston assembly 82 and the carbon dioxide piston assembly 102.

The steam carousel motor unit 110 generates linear mechanical force through the flow of Steam as the steam rotary piston motor unit 80 discharges the flow of steam. The linear mechanical force is then converted into electrical current through the steam carousel motor unit 110. In reference to FIG. 4 and FIG. 17, the steam

carousel motor unit 110 comprises a plurality of heat exchanger cylinders 111, a carousel steam inlet 125, a carousel water outlet 126, the generator unit 96, a clockwise drive 128, a counterclockwise drive 129, a carousel case 130, and a carousel baffle 131. More specifically, the carousel baffle 131 functions as the securing member as the plurality of heat exchanger cylinders 111 is connected to the carousel case 130 through the carousel baffle 131. The plurality of heat exchanger cylinders 111 is operatively coupled with the generator unit 96 by the clockwise drive 128 and the counterclockwise drive 129. The carousel steam inlet 125 and the carousel water outlet 126 traverse into the carousel case 130 and are in fluid communication with each other through the plurality of heat exchanger cylinders 111 within the carousel case 130. To capture the flow of steam from the steam rotary piston motor unit 80, the carousel steam inlet 125 is in fluid communication with the steam exit tube 94. As a result, the flow of steam is able to travel through the steam carousel motor unit 110 generating electrical current. The carousel water outlet 126 is in fluid communication with the carousel case 130 to provide a path for the flow of steam that exits the steam carousel motor unit 110. Additionally, the tube inlet 71 of the internal water tube 69 is in fluid communication with the carousel water outlet 126 to provide a path for the flow of water to the internal water tube 69 of the exchanger coil 68. Furthermore, the steam carousel motor unit 110 releases the flow of steam with higher pressure, lower temperature, and higher density characteristics compare to the flow of steam that enters the steam carousel motor unit 110.

The carbon dioxide carousel motor unit 140 generates linear mechanical force through the flow

of carbon dioxide gas compound as the carbon dioxide rotary piston motor unit 100 discharges the flow of carbon dioxide gas compound. The linear mechanical force is then converted into electrical current through the carbon dioxide carousel motor unit 140. In reference to FIG. 4 and FIG. 17, the carbon dioxide carousel motor unit 140 comprises a plurality of heat exchanger cylinders 111, a carousel carbon dioxide inlet 141, a carousel carbon dioxide outlet 142, a generator unit 96, a clockwise drive 128, a counterclockwise drive 129, a carousel case 130, and a carousel baffle 131. More specifically, the carousel baffle 131 functions as the securing member as the plurality of heat exchanger cylinders 111 is connected to the carousel case 130 through the carousel baffle 131. The plurality of heat exchanger cylinders 111 is operatively coupled with the generator unit 96 by the clockwise drive 128 and the counterclockwise drive 129. The carousel carbon dioxide inlet 141 and the carousel carbon dioxide outlet 142 traverse into the carousel case 130 and are in fluid communication with each other through the plurality of heat exchanger cylinders 111 within the carousel case 130. To capture the flow of carbon dioxide gas compound from the carbon dioxide rotary piston motor unit 100, the carousel carbon dioxide inlet 141 is in fluid communication with the carbon dioxide exit tube 103. As a result, the flow of carbon dioxide gas compound can travel through the carbon dioxide carousel motor unit 140 generating electrical current. The carousel carbon dioxide outlet 142 is in fluid communication with the carousel case 130 to provide a path for the flow of carbon dioxide compound gas that exits the carbon dioxide carousel motor unit 140. Furthermore, the carbon dioxide carousel motor unit 140 releases the flow of carbon dioxide gas compound with higher

pressure, lower temperature, and higher density characteristics compare to the flow of carbon dioxide gas compound that enters the carbon dioxide carousel motor unit 140.

Each of the plurality of heat exchanger cylinders 111 that is utilized within the steam carousel motor unit 110 and the carbon dioxide carousel motor unit 140 removes heat energy from the flow of steam. In reference to FIG. 18-19, each of the plurality of heat exchanger cylinders 111 comprises an outer casing 112, an inner casing 113, a heat exchange chamber 114, a heat exchange coil 115, a coil inlet 116, a coil outlet 117, a piston unit 118, a first chamber 119, a second chamber 120, a first directional valve 121, a second directional valve 122, a chamber inlet 123, and a chamber outlet 124. The outer casing 112 and the inner casing 113 are concentrically connected to each other and form the heat exchange chamber 114. The heat exchange coil 115 is radially positioned within the heat exchange chamber 114. The piston unit 118 is axially positioned within the inner casing 113 and forms the first chamber 119 and the second chamber 120 within the inner casing 113. A first cap of the inner casing 113 and the piston unit 118 delineate the first chamber 119 while a second cap of the inner casing 113 and the piston unit 118 delineate the second chamber 120. The first directional valve 121 is selectively in fluid communication with the first chamber 119 and the heat exchange chamber 114. The second directional valve 122 is selectively in fluid communication with the second chamber 120 and the heat exchange chamber 114. The chamber inlet 123 is in fluid communication with the first chamber 119. The chamber outlet 124 is in fluid communication with the heat exchange chamber 114.

In reference to FIG. 18, a secondary flow of steam is supplied to the second chamber 120 through the second directional valve 122 as the second directional valve 122 directs the secondary flow of steam into the second chamber 120. As a result, the secondary flow of steam imports force on the piston unit 118, creating movement towards the first cap. Due to the movement of the piston unit 118 and the blocked status of the first directional valve 121, a quantity of stored steam within the first chamber 119 is forced into the heat exchange chamber 114 through the chamber inlet 123. The quantity of stored steam then transfers heat energy to the heat exchange coil 115 as the coil inlet 116 of the heat exchanger coil 68 is in fluid communication with an external water source. Heat energy within the heat exchange coil 115 then converts water into a Supplementary flow of steam as the coil outlet 117 of the heat exchange coil 115 discharges the Supplementary flow of steam. Simultaneously, the quantity of stored steam that enters the heat exchange chamber 114 from the first chamber 119 is discharged through the chamber outlet 124 with higher pressure, lower temperature, and higher density than the quantity of stored steam that enters the plurality of heat exchanger cylinders 111.

In reference to FIG. 19, the flow of steam is supplied to the first chamber 119 through the first directional valve 121 as the first directional valve 121 is in fluid communication with the steam exit tube 94 via the carousel steam inlet 125. The first directional valve 121 then directs the flow of steam into the first chamber 119 and the heat exchange chamber 114 through the chamber inlet 123. As a result, the flow of steam imports force on the piston unit 118, creating movement towards the second cap. Due to the movement of the piston unit 118 and

the partially blocked status of the second directional valve 122, a quantity of stored steam within the second chamber 120 is forced into the heat exchange chamber 114 through the second directional valve 122. The quantity of stored Steam transfers heat energy to the heat exchange coil 115 as the coil inlet 116 of the heat exchanger coil 68 is in fluid communication with an external water source. Heat energy within the heat exchange coil 115 then converts water into a Supplementary flow of steam as the coil outlet 117 of the heat exchange coil 115 discharges the supplementary flow of steam with lower pressure, lower temperature, and higher density than the flow of steam that enters the second chamber 120. Simultaneously, the flow of steam that enters the heat exchange chamber 114 from the first chamber 119 is discharged through the chamber outlet 124.

In reference to FIG. 18, a secondary flow of steam is supplied to the second chamber 120 through the second directional valve 122 as the second directional valve 122 directs the secondary flow of steam into the second chamber 120. As a result, the secondary flow of steam imports force on the piston unit 118, creating movement towards the first cap. Due to the movement of the piston unit 118 and the blocked status of the first directional valve 121, a quantity of stored carbon dioxide gas compound within the first chamber 119 is forced into the heat exchange chamber 114 through the chamber inlet 123. The quantity of stored carbon dioxide gas compound transfers heat energy to the heat exchange coil 115 as the coil inlet 116 of the heat exchanger coil 68 is in fluid communication with an external water source. Heat energy within the heat exchange coil 115 then converts water into a Supplementary flow of steam as the coil outlet 117 of the heat exchange coil 115 discharges the

Supplementary flow of steam. Simultaneously, the quantity of stored carbon dioxide gas compound that enters the heat exchange chamber 114 from the first chamber 119 is discharged through the chamber outlet 124 with higher pressure, lower temperature, and higher density than the quantity of stored carbon dioxide gas compound that enters the plurality of heat exchanger cylinders 111.

In reference to FIG. 19, the flow of carbon dioxide gas compound is supplied to the first chamber 119 through the first directional valve 121 as the first directional valve 121 is in fluid communication with the carbon dioxide exit tube 103 via the carousel carbon dioxide inlet 141. The first directional valve 121 then directs the flow of carbon dioxide gas compound into the first chamber 119 and the heat exchange chamber 114 through the chamber inlet 123. As a result, the flow of carbon dioxide gas compound imports force on the piston unit 118, creating movement towards the second cap. Due to the movement of the piston unit 118 and the partially blocked status of the second directional valve 122, a quantity of stored steam within the second chamber 120 is forced into the heat exchange chamber 114 through the second directional valve 122. The quantity of stored steam transfers heat energy to the heat exchange coil 115 as the coil inlet 116 of the heat exchanger coil 68 is in fluid communication with an external water source. Heat energy within the heat exchange coil 115 then converts water into a supplementary flow of steam as the coil outlet 117 of the heat exchange coil 115 discharges the supplementary flow of steam with lower pressure, lower temperature, and higher density than the flow of steam that enters the second chamber 120. Simultaneously, the flow of carbon dioxide gas compound that enters the

heat exchange chamber 114 from the first chamber 119 is discharged through the chamber outlet 124.

The dual drum motor unit 150 captures the flow of steam and the flow of carbon dioxide gas compound to convert mechanical energy to the electrical energy within the present invention. In reference to FIG. 5, the dual drum motor unit 150 comprises a drum assembly 151, a pair of generators 156, a dual drum motor inlet tube 157, and a dual drum motor exit tube 158. The dual drum motor unit 150 is operatively coupled with the pair of generators 156. More specifically, dual drum motor unit 150 further comprises a motor case 152, drum chamber 153, a first drum 154, and a second drum 155. The first drum 154 and the second drum 155 are internally positioned with the motor case 152 and forms the drum chamber 153 that extends from the first drum 154 and the Second drum 155 to motor case 152. The first drum 154 and the second drum 155 are operatively coupled with one of the generators form the pair of generators 156. The first drum 154 is configured to rotate in counterclockwise direction while the second drum 155 is configured to rotate in clockwise direction. The dual drum motor inlet tube 157 and the dual drum motor exit tube 158 are in fluid communication with the drum assembly 151 through the motor case 152. Furthermore, the dual drum motor inlet tube 157 is in fluid communication with the steam exit tube 94 of the steam rotary piston motor unit 80 to capture the flow of steam and the carbon dioxide exit tube 103 of the carbon dioxide rotary piston motor unit 100 to capture the flow of carbon dioxide gas compound. When the flow of steam and the flow of carbon dioxide gas compound enter the drum assembly 151, the flow of steam and the flow of carbon dioxide gas compound are configured to

exit the dual drum motor unit 150 through the dual drum motor exit tube 158.

In reference to FIG. 20-21, the flow of steam and the flow of carbon dioxide gas compound are Supplied to the motor case 152 through the dual drum motor inlet tube 157. More specifically, when the drum assembly 151 is at an on position, the flow of steam and the flow of carbon dioxide gas compound are supplied to the drum chamber 153 through the dual drum motor inlet tube 157 while the flow rate is controlled through a control valve. Then the first drum 154 is rotated in counterclockwise direction and the second drum 155 is rotated in clockwise direction, rotating the respective generator from the pair of generators 156. Due to the continues flow rate of the flow of steam and the flow of carbon dioxide gas compound, the first drum 154 and the second drum 155 continue to rotate within the motor case 152 until the drum assembly 151 reaches an off-position. Then, the control valve prevents the flow of steam and the flow of carbon dioxide gas compound from entering the drum chamber 153 while allowing the pressurized steam and carbon dioxide within the drum chamber 153 to exit via the dual drum motor exit tube 158, completing a single cycle. The dual drum motor unit 150 continuously repeats the same process to complete multiple cycles within the dual drum motor unit 150 if the flow of steam and the flow of carbon dioxide gas compound are Supplied from the steam exit tube 94 and the carbon dioxide exit tube 103.

The compressor unit 160 collets the flow of steam and the flow of carbon dioxide gas compound so that the exhaust gases of the present invention can be separated and stored within the respective storage containers. More specifically,

the compressor unit 160 collects the flow of steam from the steam carousel motor unit 110 and the dual drum motor unit 150. The compressor unit 160 collects the flow of carbon dioxide from the carbon dioxide carousel motor unit 140 and the dual drum motor unit 150. In reference to FIG. 6-7, the compressor unit 160 comprises at least one condenser 161, a first directional condenser valve 173, and a second directional condenser valve 174, wherein the at least one con denser 161 is in fluid communication with the first directional condenser valve 173 and the second directional condenser valve 174. The at least one condenser 161 comprises an outer condenser casing 162, an inner condenser casing 163, a condenser heat exchange chamber 164, a condenser heat exchange coil 165, a condenser coil inlet 166, a condenser coil outlet 167, a condenser piston unit 168, a first condenser chamber 169, a second condenser chamber 170, a condenser chamber inlet 171, and a con denser chamber outlet 172. The outer condenser casing 162 and the inner condenser casing 163 are concentrically connected to each other and form the condenser heat exchange chamber 164. The condenser heat exchange coil 165 is radially positioned within the condenser heat exchange chamber 164. The condenser piston unit 168 is axially positioned within the inner condenser casing 163 and forms the first condenser chamber 169 and the second condenser chamber 170. A first condenser cap of the inner condenser casing 163 and the condenser piston unit 168 delineate the first condenser chamber 169 while a second condenser cap of the inner condenser casing 163 and the condenser piston unit 168 delineate the second condenser chamber 170. The first directional condenser valve 173 is selectively in fluid communication with the first condenser

chamber 169 and the condenser chamber inlet 171. The second directional condenser valve 174 is selectively in fluid communication with the second condenser chamber 170 and the condenser coil inlet 166. The condenser chamber outlet 172 is in fluid communication with the condenser heat exchange chamber 164. In reference to FIG. 6-7, the carousel water outlet 126 and the dual drum motor exit tube 158 are in fluid communication with the compressor unit 160 to collect the flow of steam. Similarly, the carousel carbon dioxide outlet 142 and the dual drum motor exit tube 158 are in fluid communication with the compressor unit 160 to collect the flow of carbon dioxide gas compound.

In reference to FIG. 6, FIG. 22, and FIG. 23, the flow of steam is supplied to the first condenser chamber 169 through the first directional condenser valve 173 as the first directional condenser valve 173 directs the flow of steam into the first condenser chamber 169. As a result, the flow of steam imports force on the condenser piston unit 168, creating movement towards the second condenser cap. Due to the movement of the condenser piston unit 168 and the blocked status of the second directional condenser valve 174, a quantity of stored nitrogen gas within the second condenser chamber 170 is forced into the condenser heat exchange coil 165 through the condenser coil inlet 166. When the con denser piston unit 168 positioned adjacent to the second condenser cap, a flow of nitrogen gas is Supplied to the second condenser chamber 170 through the second directional condenser valve 174 as the second directional con denser valve 174 is in fluid communication with a nitrogen container unit 180. The second directional condenser valve 174 then directs the flow of nitrogen into the second con denser chamber 170. As a result, the flow of

nitrogen imports force on the condenser piston unit 168, creating movement towards the first condenser cap. Due to the movement of the condenser piston unit 168 and the blocked status of the first directional condenser valve 173, a quantity of stored steam within the first condenser chamber 169 is forced into the condenser heat exchange chamber 164 through the first directional condenser valve 173. As a result, the quantity of stored steam transfers heat energy to the flow of nitrogen gas of the condenser heat exchange coil 165. Since heat energy is removed from the quantity of stored steam to the con denser heat exchange coil 165, the quantity of Stored steam converts into a supplementary flow of water within the condenser heat exchange chamber 164. The quantity of stored steam that enters the condenser heat exchange chamber 164 from the first condenser chamber 169 is then discharged through the condenser chamber outlet 172 with ideal pressure and temperature condenses to water. Simultaneously, the condenser coil outlet 167 of the condenser heat exchange coil 165 discharges the flow of nitrogen.

In reference to FIG. 7, FIG. 22, and FIG. 23, the flow of carbon dioxide gas compound is Supplied to the first con denser chamber 169 through the first directional condenser valve 173 as the first directional condenser valve 173 directs the flow of carbon dioxide gas compound into the first condenser chamber 169. As a result, the flow of carbon dioxide gas compound imports force on the condenser piston unit 168, creating movement towards the second condenser cap. Due to the movement of the condenser piston unit 168 and the blocked status of the second directional condenser valve 174, a quantity of stored nitrogen gas within the second condenser chamber 170 is forced into the

condenser heat exchange coil 165 through the condenser coil inlet 166. When the condenser piston unit 168 positioned adjacent to the second condenser cap, a flow of nitrogen gas is Supplied to the second condenser chamber 170 through the second directional condenser valve 174 as the second directional condenser valve 174 is in fluid communication with the nitrogen container unit 180. The second directional con denser valve 174 then directs the flow of nitrogen into the second condenser chamber 170. As a result, the flow of nitrogen imports force on the condenser piston unit 168, creating movement towards the first condenser cap. Due to the movement of the condenser piston unit 168 and the blocked status of the first directional condenser valve 173, a quantity of stored carbon dioxide gas compound within the first condenser chamber 169 is forced into the condenser heat exchange chamber 164 through the first directional condenser valve 173. As a result, the quantity of stored carbon dioxide gas compound transfers heat energy to the flow of nitrogen gas of the condenser heat exchange coil 165. Since heat energy is removed from the quantity of stored carbon dioxide gas compound to the condenser heat exchange coil 165, the quantity of stored carbon dioxide gas compound converts into a flow of liquid carbon dioxide gas compound within the condenser heat exchange chamber 164. The quantity of stored carbon dioxide gas compound that enters the condenser heat exchange chamber 164 from the first condenser chamber 169 is then discharged through the condenser chamber outlet 172 with ideal pressure and temperature condenses to the liquid carbon dioxide gas compound. Simultaneously, the condenser coil outlet 167 of the condenser heat exchange coil 165 discharges the flow of nitrogen.

Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope.

Next Plan Sequestering

Coming Soon

Clean Energy & More

Qualified Team Leader for Elon Musk Carbon Capture $100M XPRIZE Pollution Controls Team.

Join our Book Club

Find # 9.1

Please Share with Friends and family and encourage Joining our Book Club.

Game Plan by Buddy Paul

Buy Now or join Our Book Club

https://www.paypal.com/cgi-bin/webscr?cmd=_s-xclick&hosted_button_id=EA3R7B6ZA9PUW

or

https://www.paypal.com/cgi-bin/webscr?cmd=_s-xclick&hosted_button_id=T22N7KWXSH96E

Help All Global Pollution Solutions

Preview #Game Plan At https://solutionclimatechange.godaddysites.com