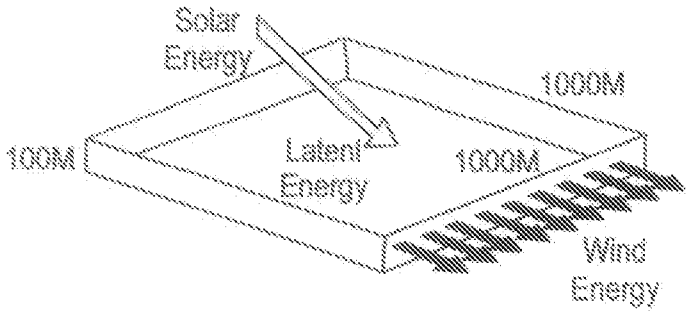


FIG. 1

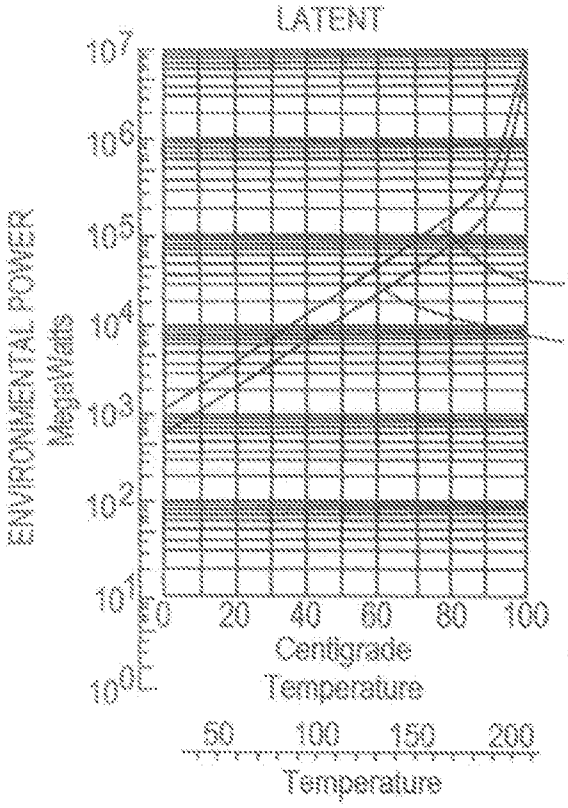


FIG. 2

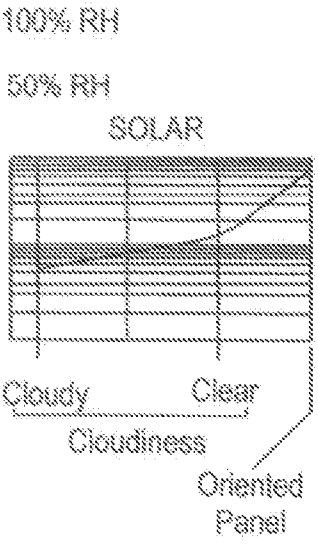


FIG. 3

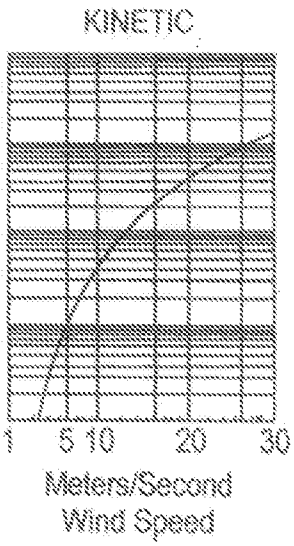


FIG. 4

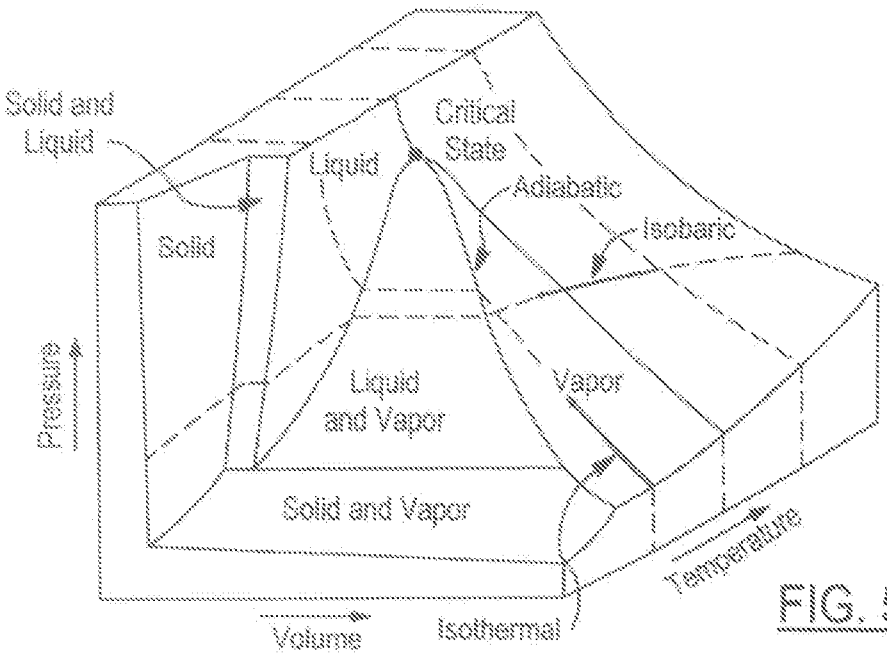

Solid and Liquid
Liquid
Critical State
Adiabatic
Isobaric
Solid
Pressure
Liquid and Vapor
Vapor
Solid and Vapor
Temperature
Volume
Isothermal

FIG. 5

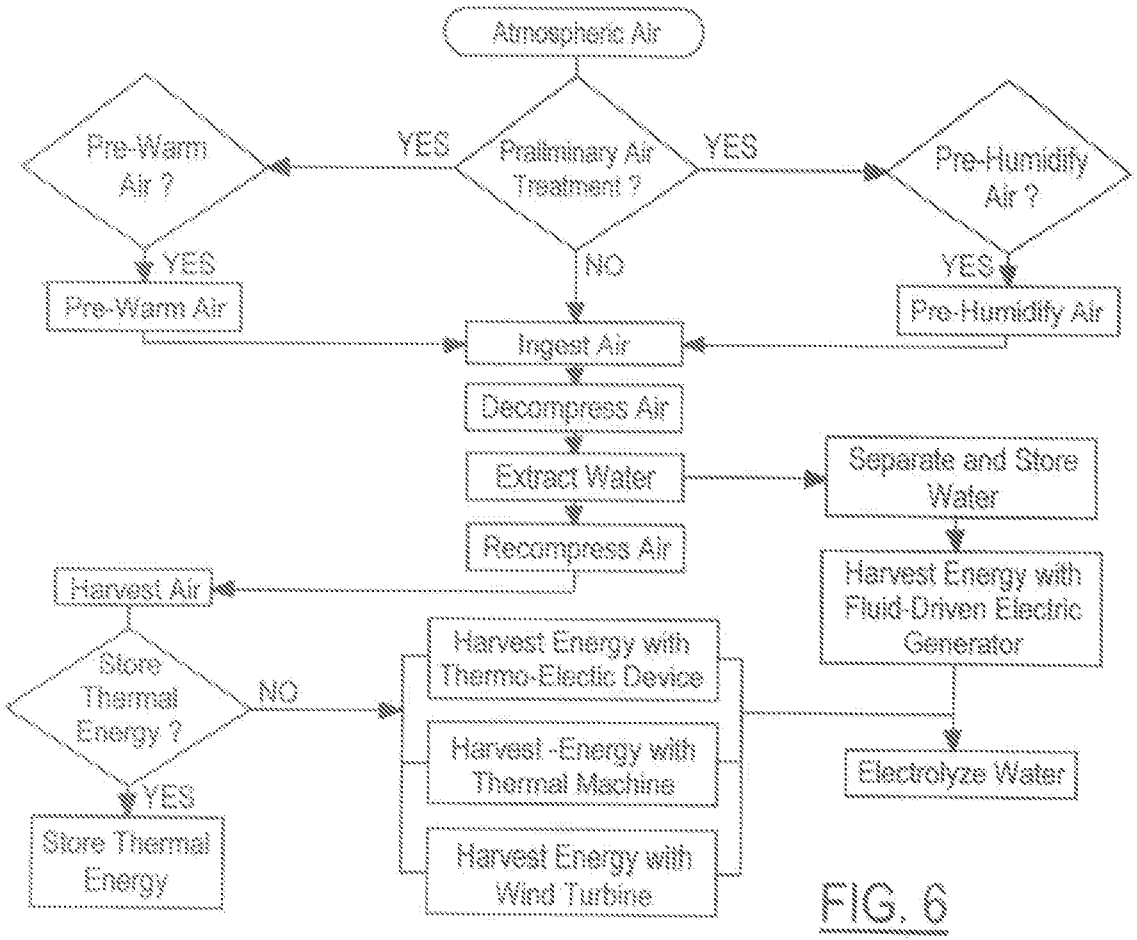

Atmospheric Air
Pre-Warm Air ?
YES
Preliminary Air Treatment ?
YES
Pre-Humidify Air ?
YES
Pre-Warm Air
NO
YES
Pre-Humidify Air
Ingest Air
Decompress Air
Extract Water
Separate and Store Water
Recompress Air
Harvest Air
Harvest Energy with Fluid-Driven Electric Generator
Store Thermal Energy ?
NO
Harvest Energy with Thermo-Electric Device
Harvest -Energy with Thermal Machine
Harvest Energy with Wind Turbine
Electrolyze Water
YES
Store Thermal Energy

FIG. 6

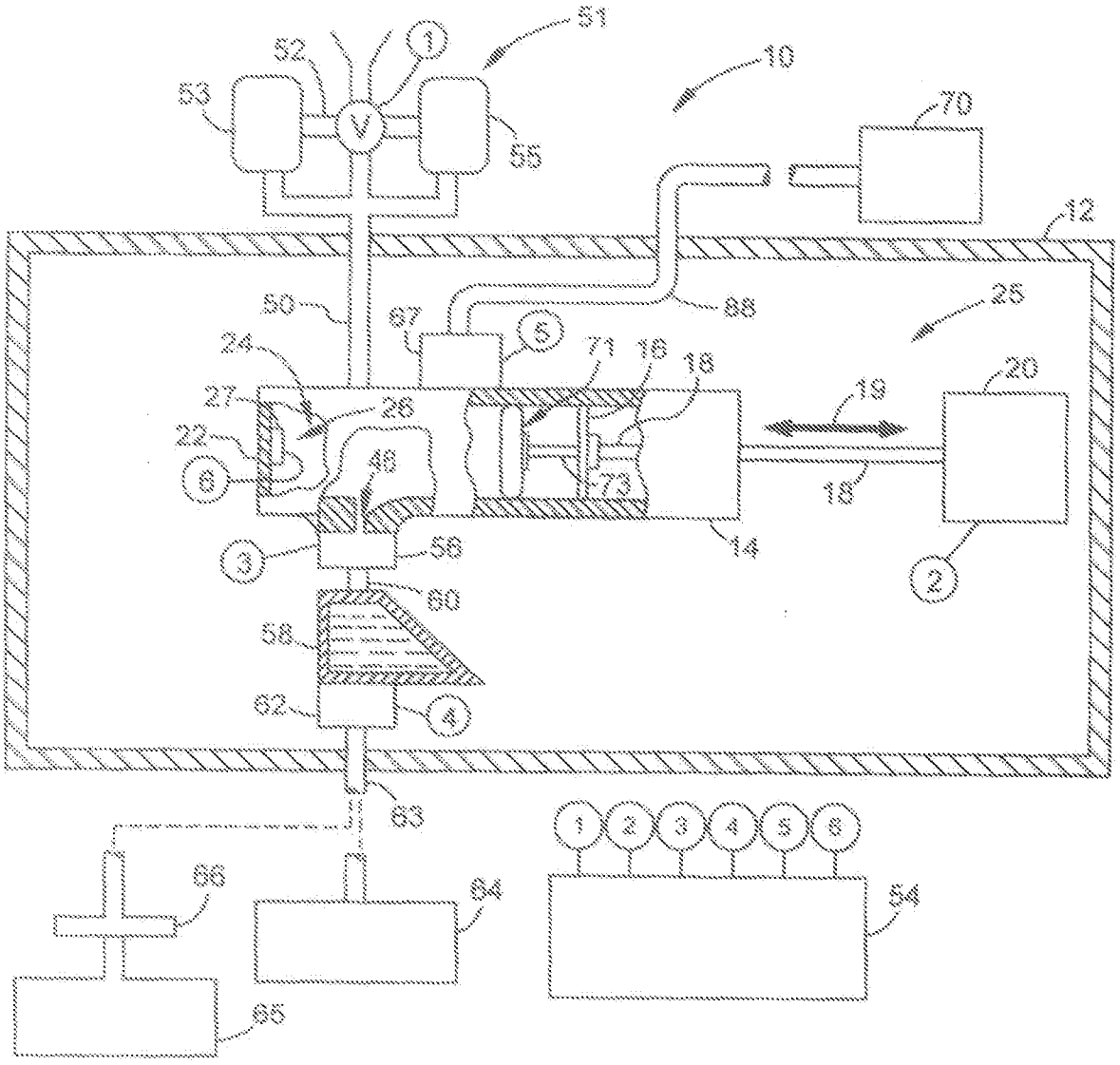

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FIG. 7

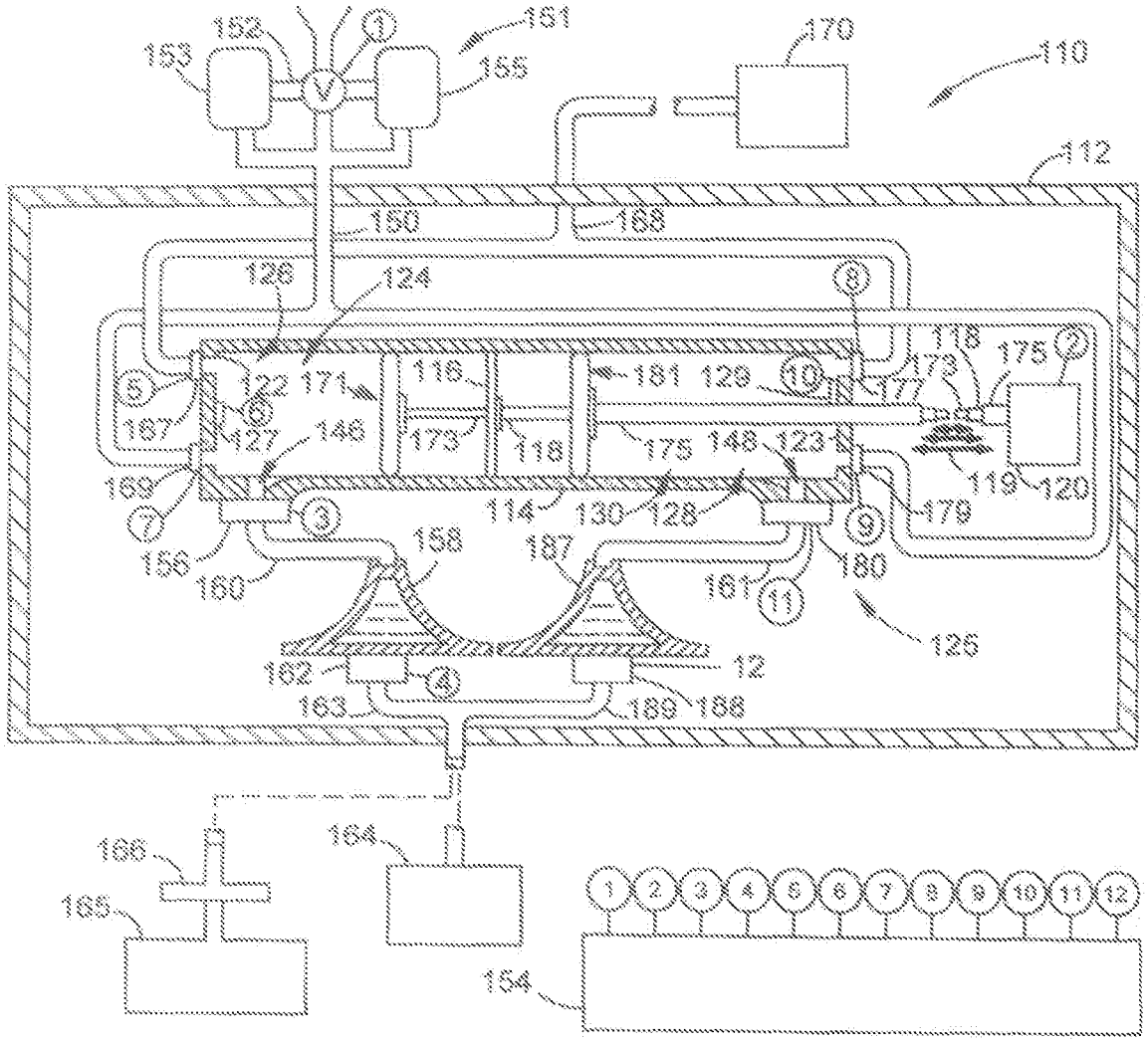

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154

FIG. 8

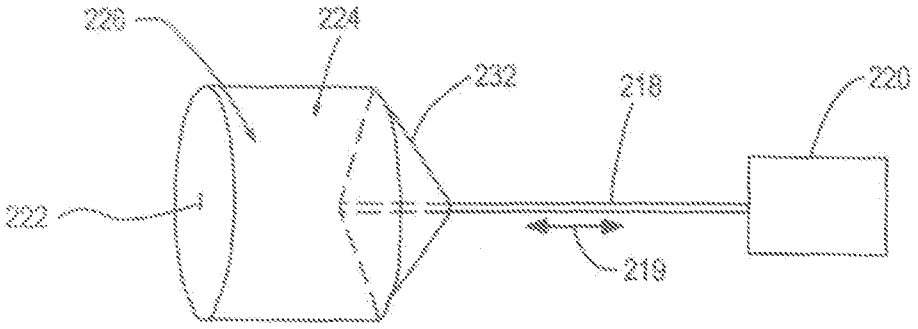

226
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FIG. 9

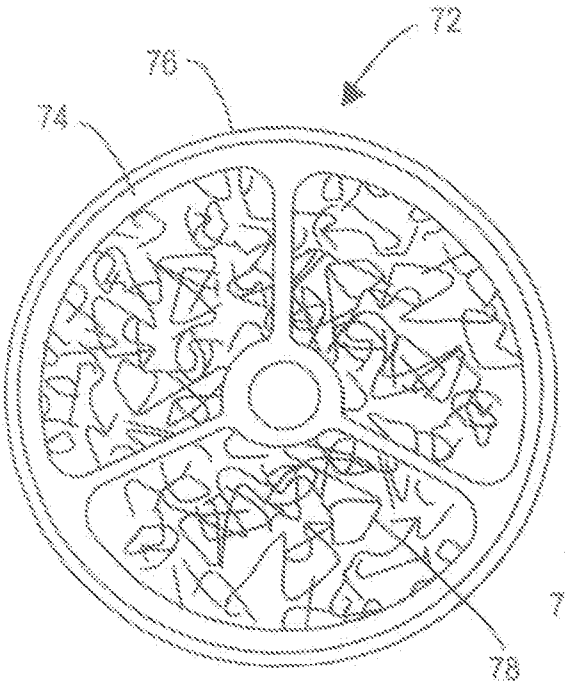


FIG. 10

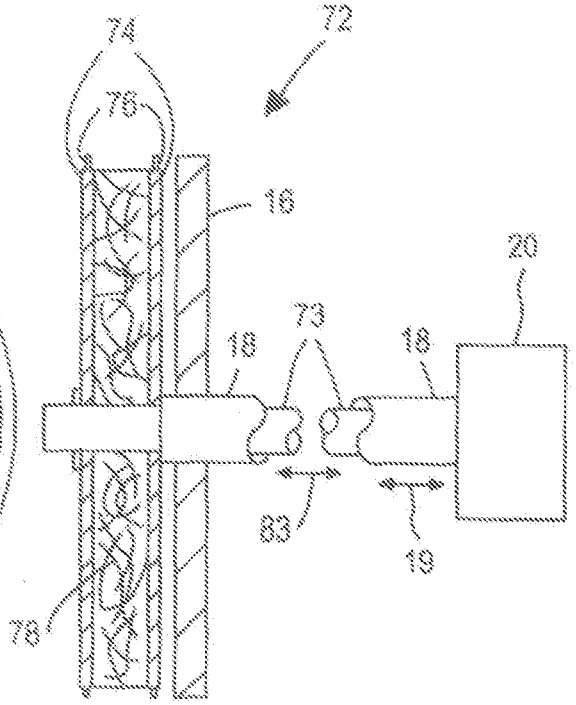


FIG. 11

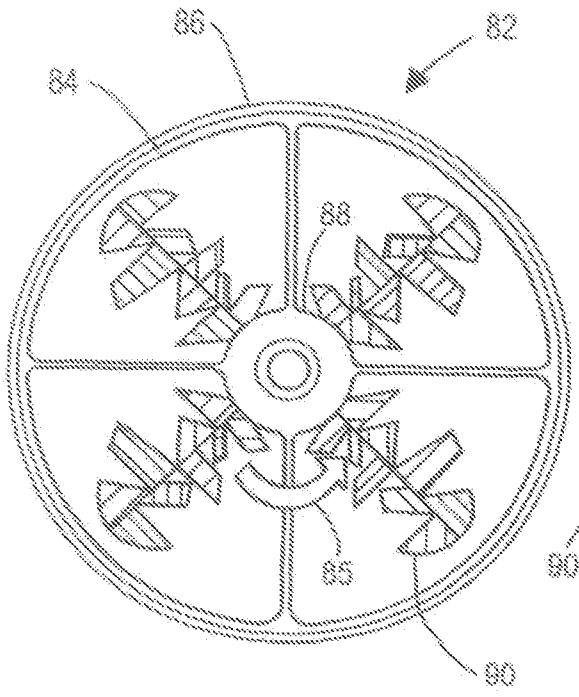


FIG. 12

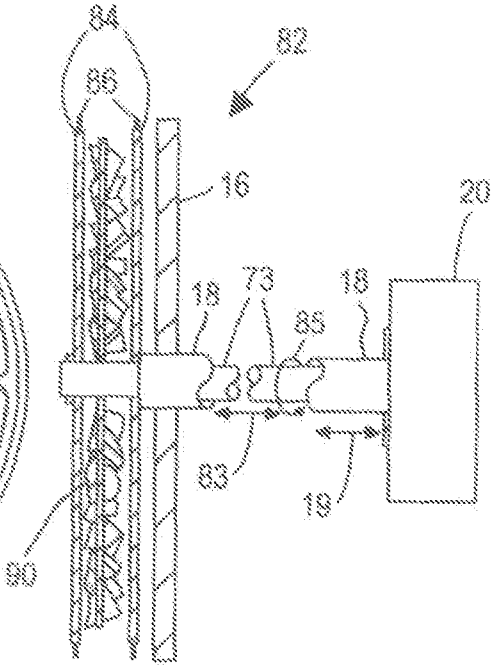


FIG. 13

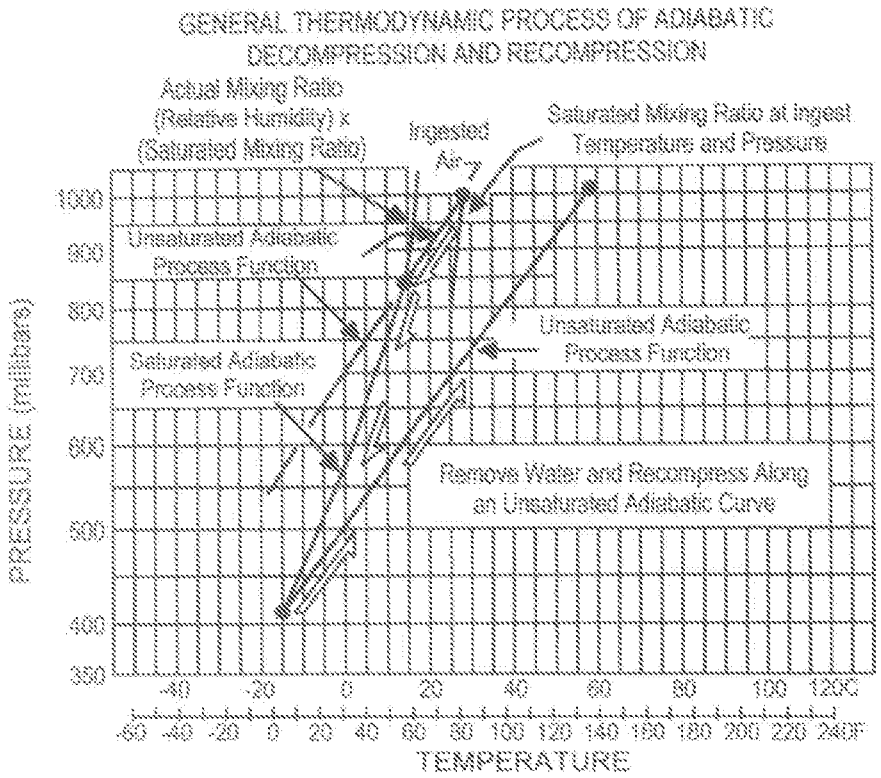

GENERAL THERMODYNAMIC PROCESS OF ADIABATIC DECOMPRESSION AND RECOMPRESSION
Actual Mixing Ratio (Relative Humidity) x (Saturated Mixing Ratio)
Ingested Air
Saturated Mixing Ratio at Ingest Temperature and Pressure
Unsaturated Adiabatic Process Function
Unsaturated Adiabatic Process Function
Saturated Adiabatic Process Function
Remove Water and Recompress Along an Unsaturated Adiabatic Curve
PRESSURE (millibars)
1000
900
800
700
600
500
400
350
-40 -20 0 20 40 60 80 100 120C
-60 -40 -20 0 20 40 60 80 100 120 140 160 180 200 220 240F
TEMPERATURE

FIG. 14

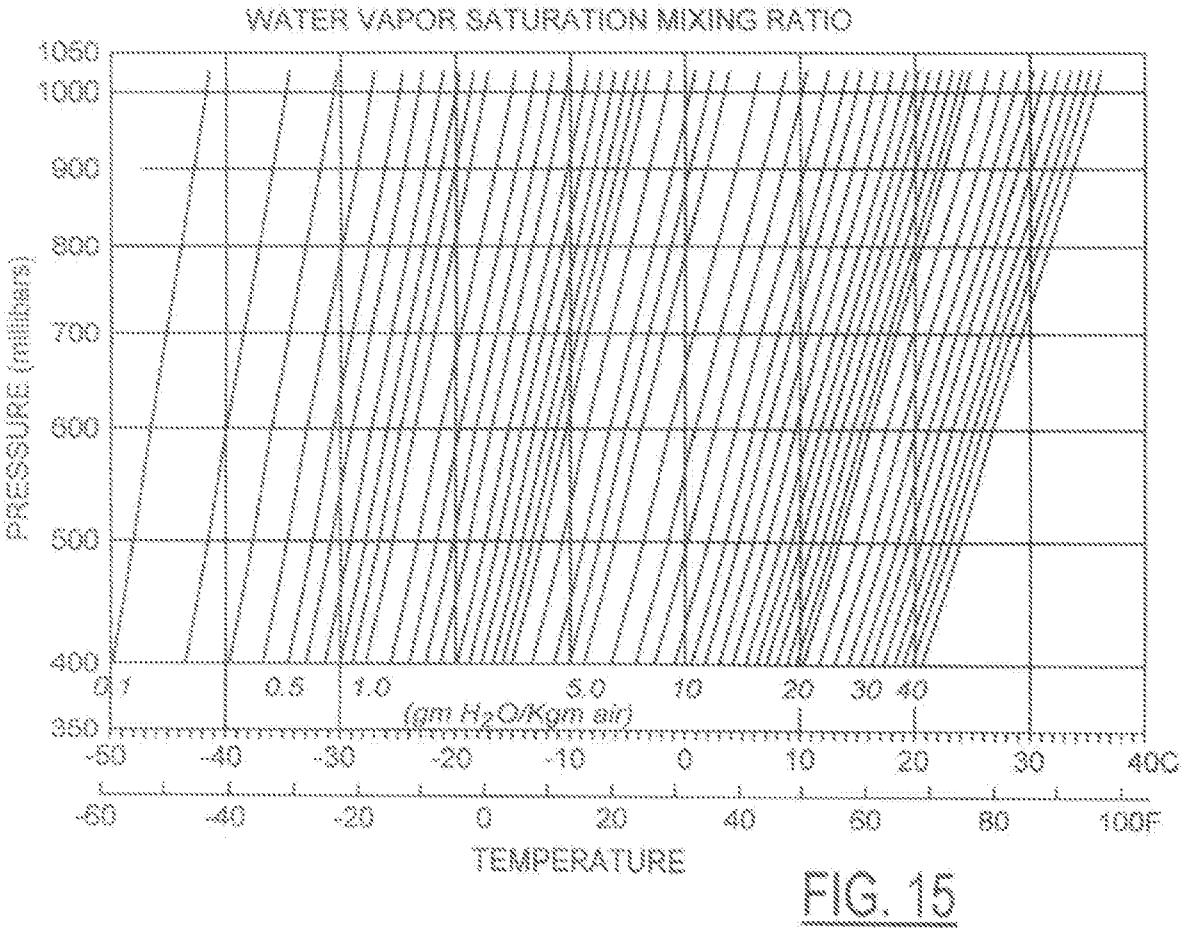

WATER VAPOR SATURATION MIXING RATIO
PRESSURE (millibars)
1050
1000
900
800
700
600
500
400
350
0.1 0.5 1.0 5.0 10 20 30 40
(gm H2O/Kgm air)
-50 -40 -30 -20 -10 0 10 20 30 40C
-60 -40 -20 0 20 40 60 80 100F
TEMPERATURE

FIG. 15

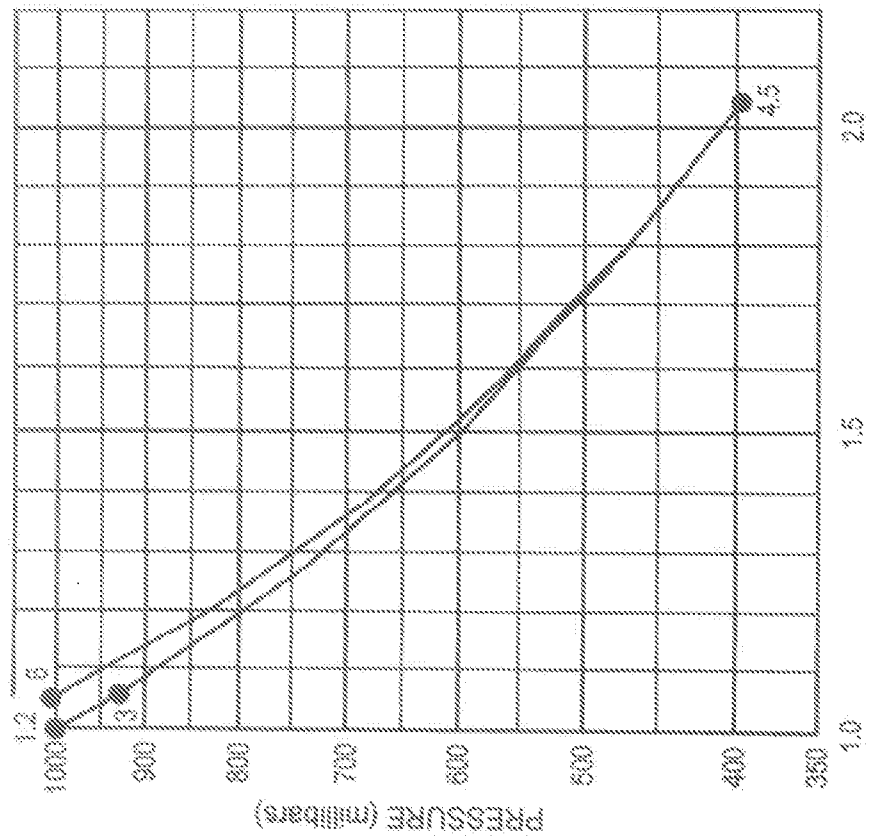

PRESSURE (millibars)
1000
900
800
700
600
500
400
350
1.0
1.5
2.0
VOLUME (V / V0)
1.2
6
3
4.5

FIG. 17

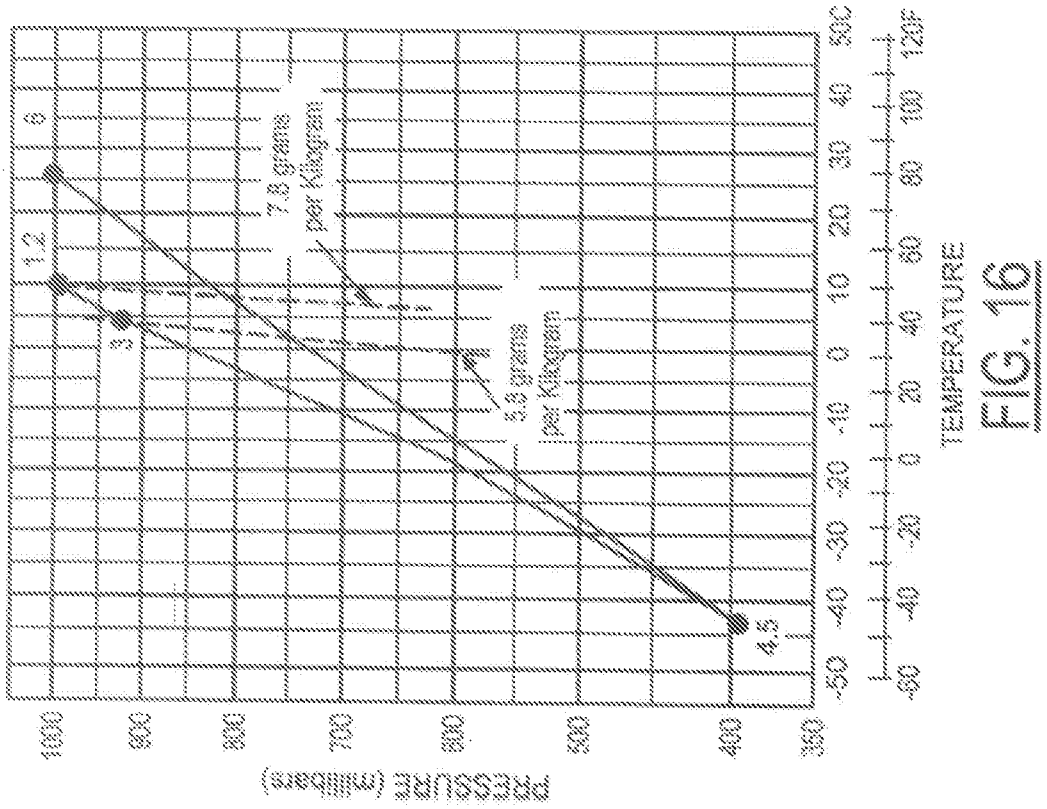

PRESSURE (millibars)
1000
900
800
700
600
500
400
350
TEMPERATURE
-50 -40 -30 -20 -10 0 10 20 30 40 50C
-60 -40 -20 0 20 40 60 80 100 120F
1.2
6
3
7.8 grams per Kilogram
5.5 grams per Kilogram
4.5

FIG. 16

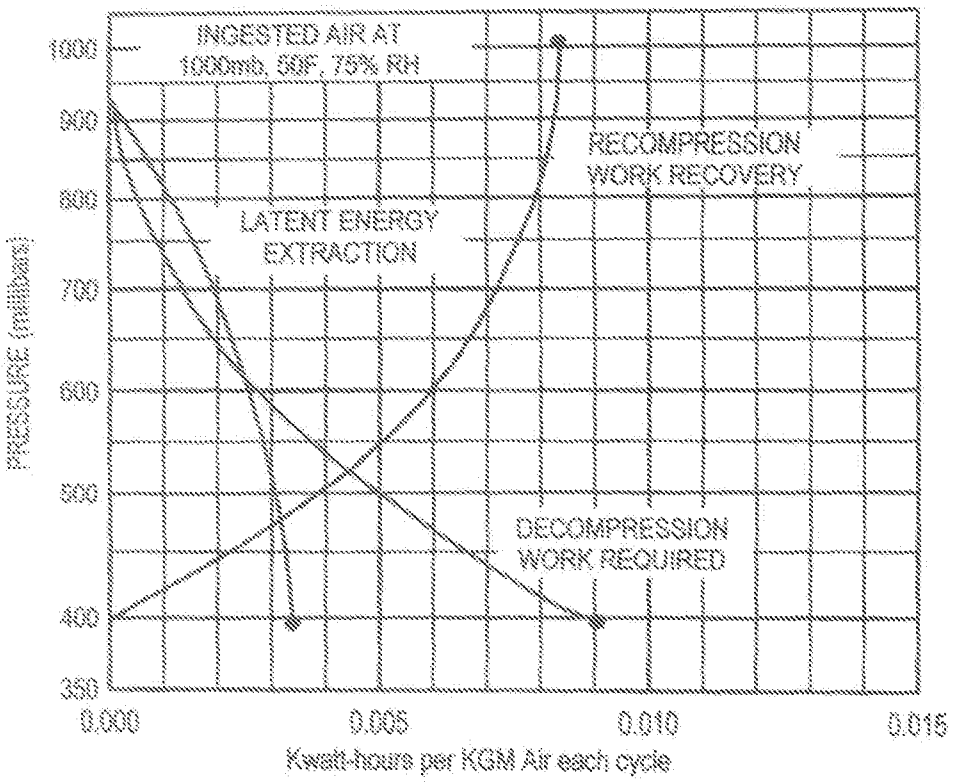

INGESTED AIR AT
1000mb, 50F, 75% RH
RECOMPRESSION
WORK RECOVERY
LATENT ENERGY
EXTRACTION
DECOMPRESSION
WORK REQUIRED
PRESSURE (millibars)
1000
900
800
700
600
500
400
350
0.000
0.005
0.010
0.015
Kwatt-hours per KGM Air each cycle

FIG. 18

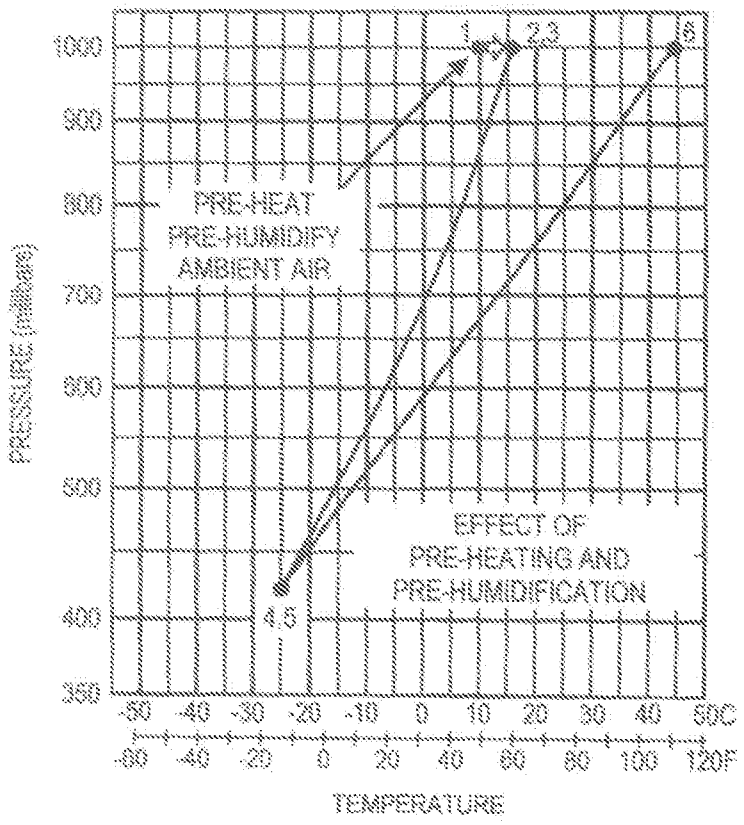

1
2,3
6
PRE-HEAT
PRE-HUMIDIFY
AMBIENT AIR
EFFECT OF
PRE-HEATING AND
PRE-HUMIDIFICATION
4,5
PRESSURE (millibars)
1000
900
800
700
600
500
400
350
-50 -40 -30 -20 -10 0 10 20 30 40 50C
-60 -40 -20 0 20 40 60 80 100 120F
TEMPERATURE

FIG. 19

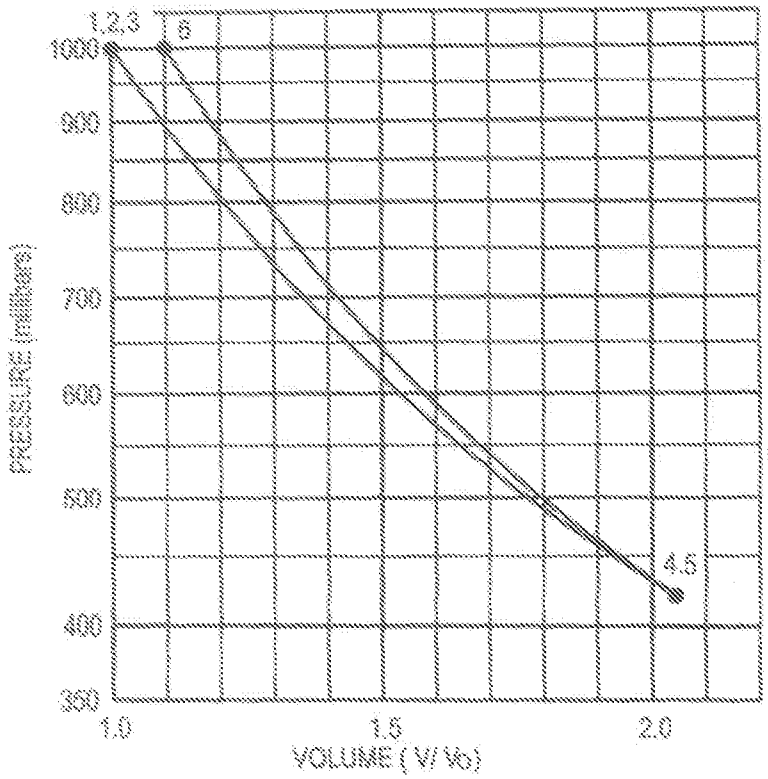

1,2,3
6
4,5
1000
900
800
700
600
500
400
350
PRESSURE (millibars)
1.0
1.5
2.0
VOLUME (V/ Vo)

FIG. 20

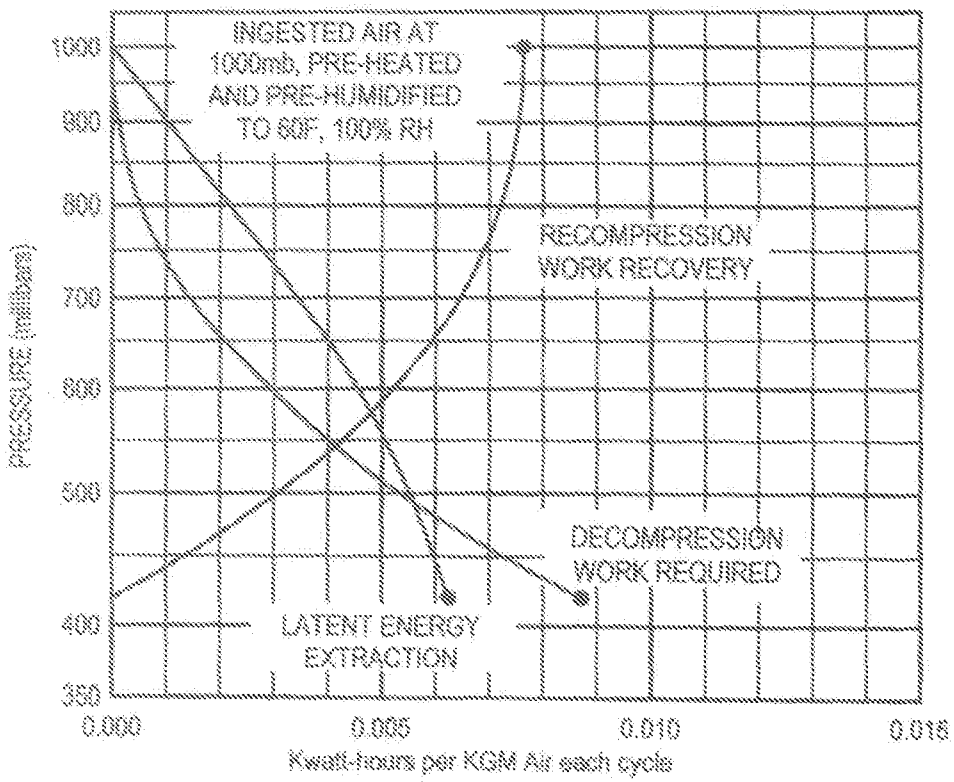

INGESTED AIR AT
1000mb, PRE-HEATED
AND PRE-HUMIDIFIED
TO 60F, 100% RH
RECOMPRESSION
WORK RECOVERY
DECOMPRESSION
WORK REQUIRED
LATENT ENERGY
EXTRACTION
1000
900
800
700
600
500
400
350
PRESSURE (millibars)
0.000
0.005
0.010
0.015
Kwatt-hours per KGM Air each cycle

FIG. 21