360° Stand G-Rotator Fan - Specification

A. Introduction

The 360° Stand G-Rotator Fan specification is based on the original invention document which is invented with State-of-the-Art with unique look-and-feel stand fan and intended to replace the existing stand fans with the new fan on motor that rotating around the axle axis vertically to the Ground Base with many great utilities attachable and detachable on the top. The top level can be a heater, air evaporating cooler, air humidifier, stand light and can be any other night lights or light projectors. The G-Rotator Fan comes with a chargeable battery at the bottom as the base which also comes with the on-brake caster wheels with locking mechanism that locks the stand from moving and allows moving by a press-and-hold handle on the stand tube pole for safety purposes.

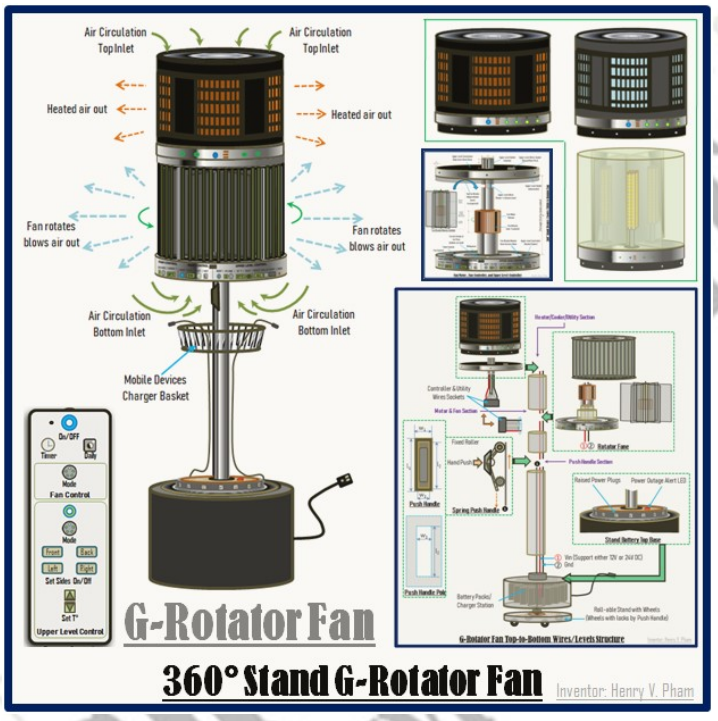

Figure-A: 360° Stand G-Rotator Fan -- Overview

Figure above shows the overview of the 360° Stand G-Rotator Fan with 3 main sections; the bottom section is the chargeable battery which can be charged while using with prevent overloading and working even when power is outage with plus of power outage alert option. The main middle section is the rotator fan which connects the outer rotator motor that rotating around the pole on its motor. The top section level is utility device which can be a heater, AE cooler, air humidifier, Quadrant light, Star Night light or other utilities; plus the mobile devices USB charger basket right below the fan. The G-Rotator Fan provides the standard control with the same remote control which can control the heater, cooler, air humidifier, quadrant light, star night light, galaxy projector or any other utilities on the top level with at least 4 different modes and 4 different sides, front, back, left and right. With this standard the users can buy separate utility modules from different vendors, and it can be controlled with the same G-Rotator Fan. The G-Rotator Fan is perfect stand fan for both indoor and outdoor fan with heater and

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cooler; the Air Evaporating (AE) cooler or Air Humidifier is perfect for mobile cooler which can be used cold water or ice or with new chem-reactive Evaporating Technology.

G-Rotator Fan with chargeable battery provides the best utility for home and office. Beside the main fan functions and features, the G-Rotator Fan can prevent heater from overloaded of the electrical power usage and provide plug-and-play utility modules like heater, cooler, air humidifier, LED/Fluorescent Quadrant light and other utilities plus the built-in Power Outage alert which can be easily built-in on the battery and detect the power plug and alert with sound and/or alert LED light right on top of the battery. With these great features and functions plus attachable and detachable device support on top level, the G-Rotator Fan is great promise for future of stand fans with heater, AE cooler, air humidifier, light and other utilities which can save the consumers' money and spaces with all-in-one fan.

B. Heater, Cooler & Other Utilities

Figure-B1: 360° Stand G-Rotator Fan - Heater, Cooler & Light Introduction shows a sample of the 3 most common utilities which are shown in the figure above with heater, AE cooler and Quadrant light.

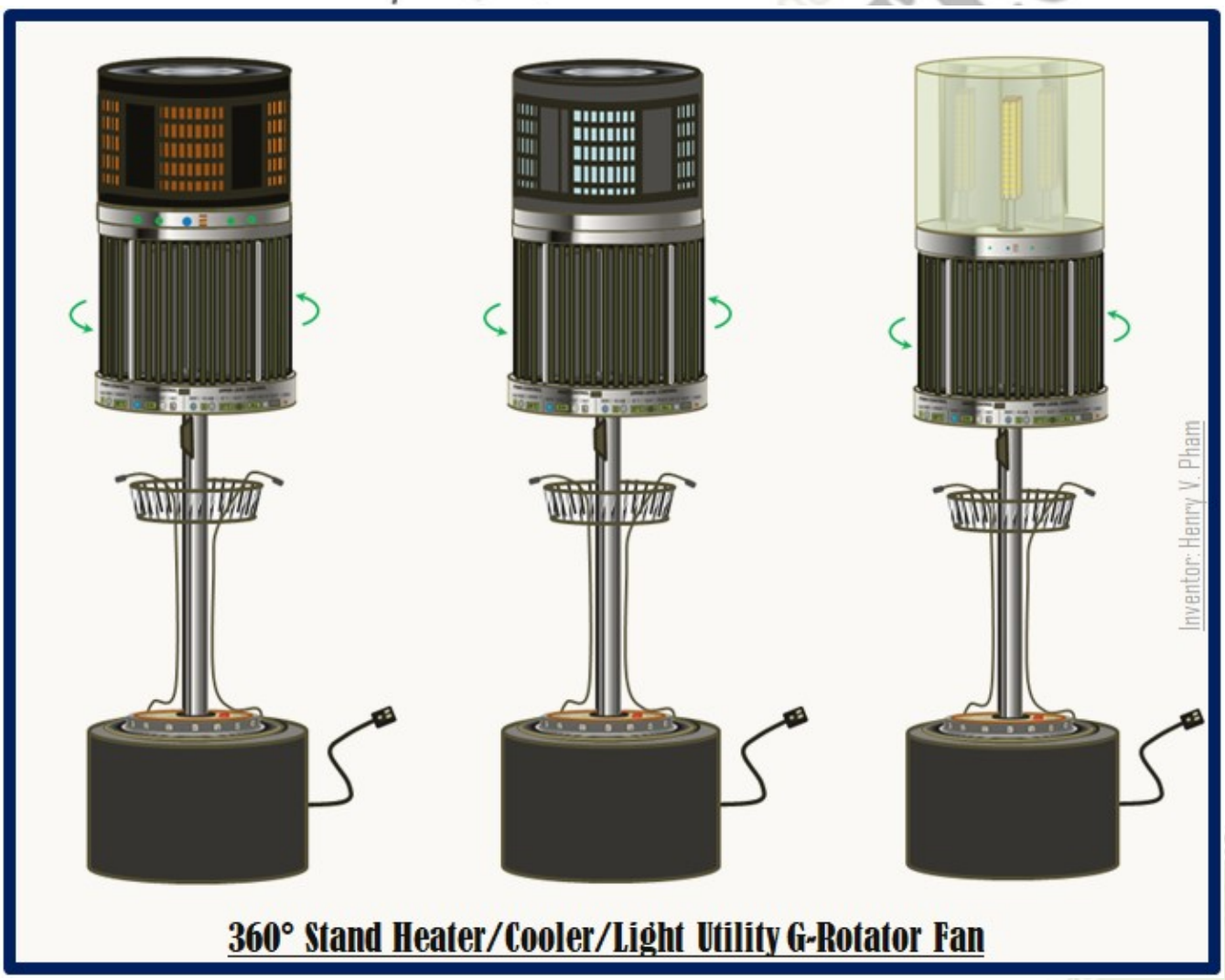

Figure-B1: 360° Stand G-Rotator Fan - Heater, Cooler & Light Introduction

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The G-Rotator Fan can come with many different utilities such as heater, AE cooler, LED/Fluorescent light, star night light, galaxy projector, and power outage alert plus additional add-on features like motion detection light which can be built-in additionally around the edge of the fan base. The G-Rotator Fan is built with the fan rotating on its vertical axle axis with the new fan blade shape for more air distribution which is ground base, and the blades rotating does not affect by the gravity to distribute the air around more in volume and faster in air distribution.

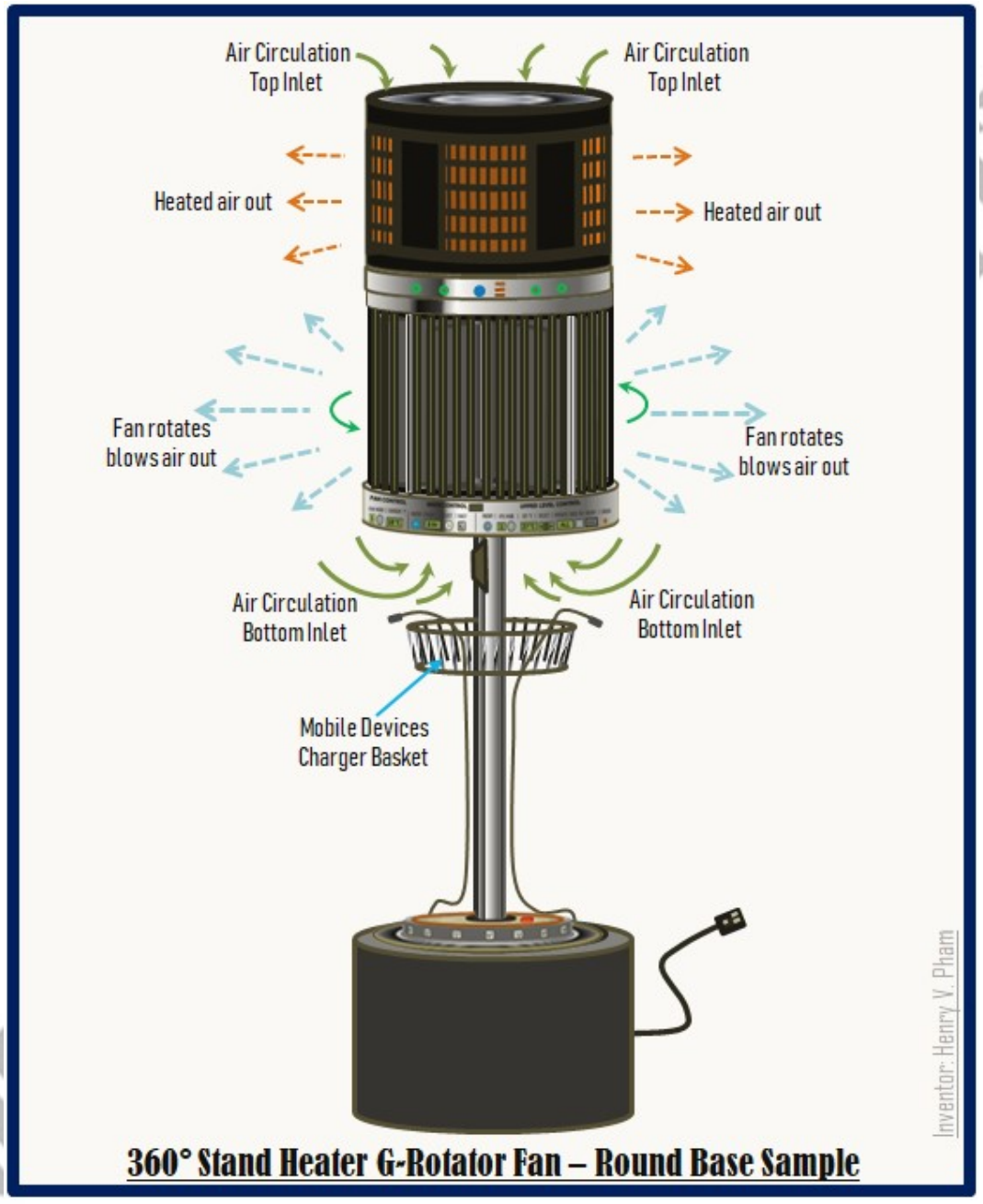

Figure-B2: 360° Stand G-Rotator Fan – Heater

Figure-B2: 360° Stand G-Rotator Fan - Heater shows the fan with heater on top and the expected air distribution directions as shown in light-blue arrows for the fan air vector outward direction, orange

vector arrows for the heater air distribution, and top and bottom dark-green arrows showing the air circulation directions. The fan is recommended to build with 4-sides air-vent of the fan to allow the users to close any of the 4 quadrants with safety protection or safe air-vent that prevents children from putting their fingers into the fan blades; plus similar safety protection for heater or cooler. The heater air blowing with heated air out directions is recommended downward in 10°-20° angle, and the fan blade module will deliver the cooled air outward. The fan blade module is recommended to rotate in counter-clockwise direction, and the fan blade shape is shown in later section of this invention document.

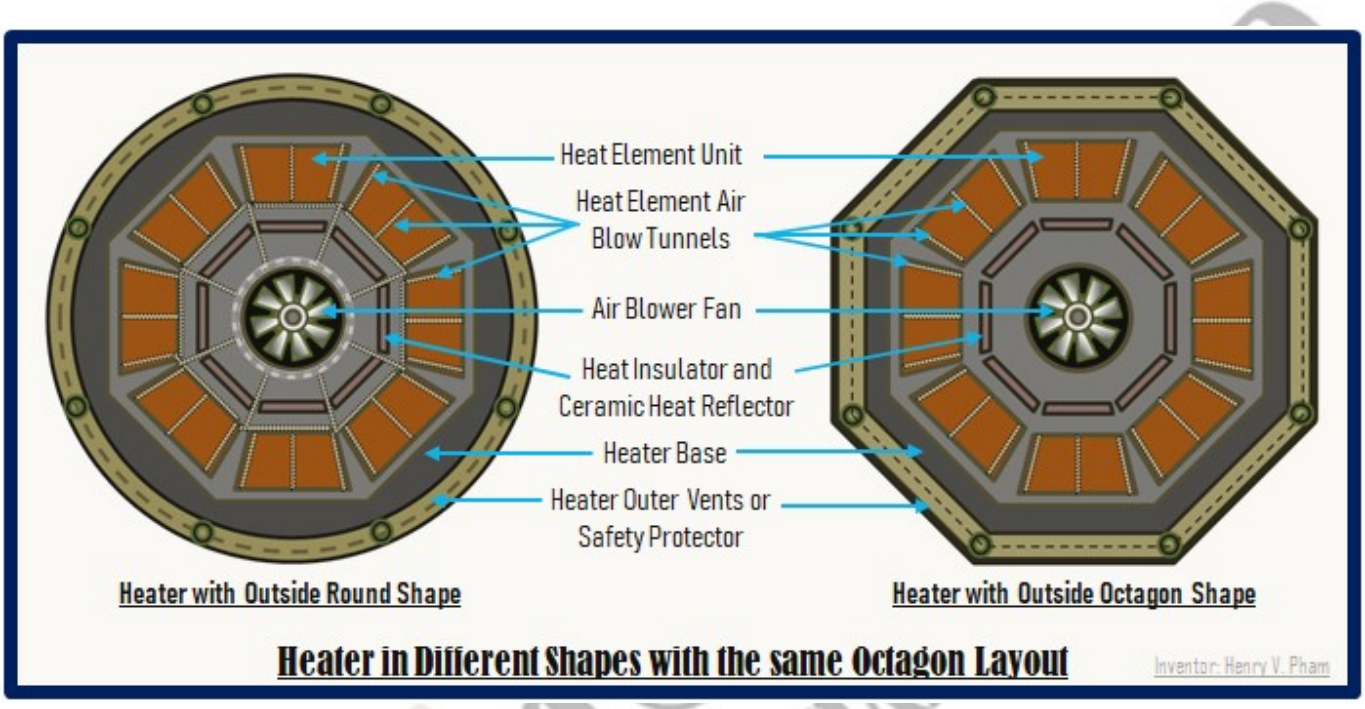

Figure-B3: 360° Stand G-Rotator Fan – Heater Layout Structure

Figure-B3: 360° Stand G-Rotator Fan – Heater Layout Structure shows the heater in 2 shapes sample with 8 different heating units and 2 heating-units in 1 control for one side in 90° space quadrant for convenience to build and to control. The figure above shows the heater fan in the center which blows the hot air slowly outward through the air channels of the heating units. G-Rotator Fan provides with great shape in circle which allows the heater to build in 4-quadrant sides with 8 different heating units as recommended and each unit can be controlled by the fan remote control or from the fan buttons. The G-Rotator Fan provides 4 different modes with 2 mode-wires. When the heater power is turned on, the heater will turn on all 4-sides heating units with the lowest power (mode-default or 2-sense-mode-wires off); and the 2 mode-wires provides 3 different binary values (1, 2, and 3) which can be used for 3 modes (mode-1 for Low heating power, mode-2 for Medium heating power, and mode-3 for High heating power). Note that the heater can be built-in with memorized function for the last settings for more convenience, and the fan manufacturers can provide more wires to have more modes to control the heater. The heater is required to have the Heater/Cooler wire connected and set to 'ON' to indicate the utility is temperature related control. The G-Rotator Fan provides 4 different control sides with the 4 side-wires to allow the users to

turn on/off any heating unit on 4 different sides. Note that there is 1 feedback sense wire is recommended for the heater to send back to the main fan controller for any error, such as one or more heating units is broken. The heating elements are shown in red-orange, and the strong metal which is used for air driving channels is shown in white lanes. Note that the heating element with about 300 °C can provide enough heating temperature, and the strong metal can be nickel which can handle high heat with over 1400 °C and tungsten metal can handle over 3400 °C which are great to use in heater. Please see the references section at the bottom of this invention document for more details about the heating elements, electric heater and ceramic heater.

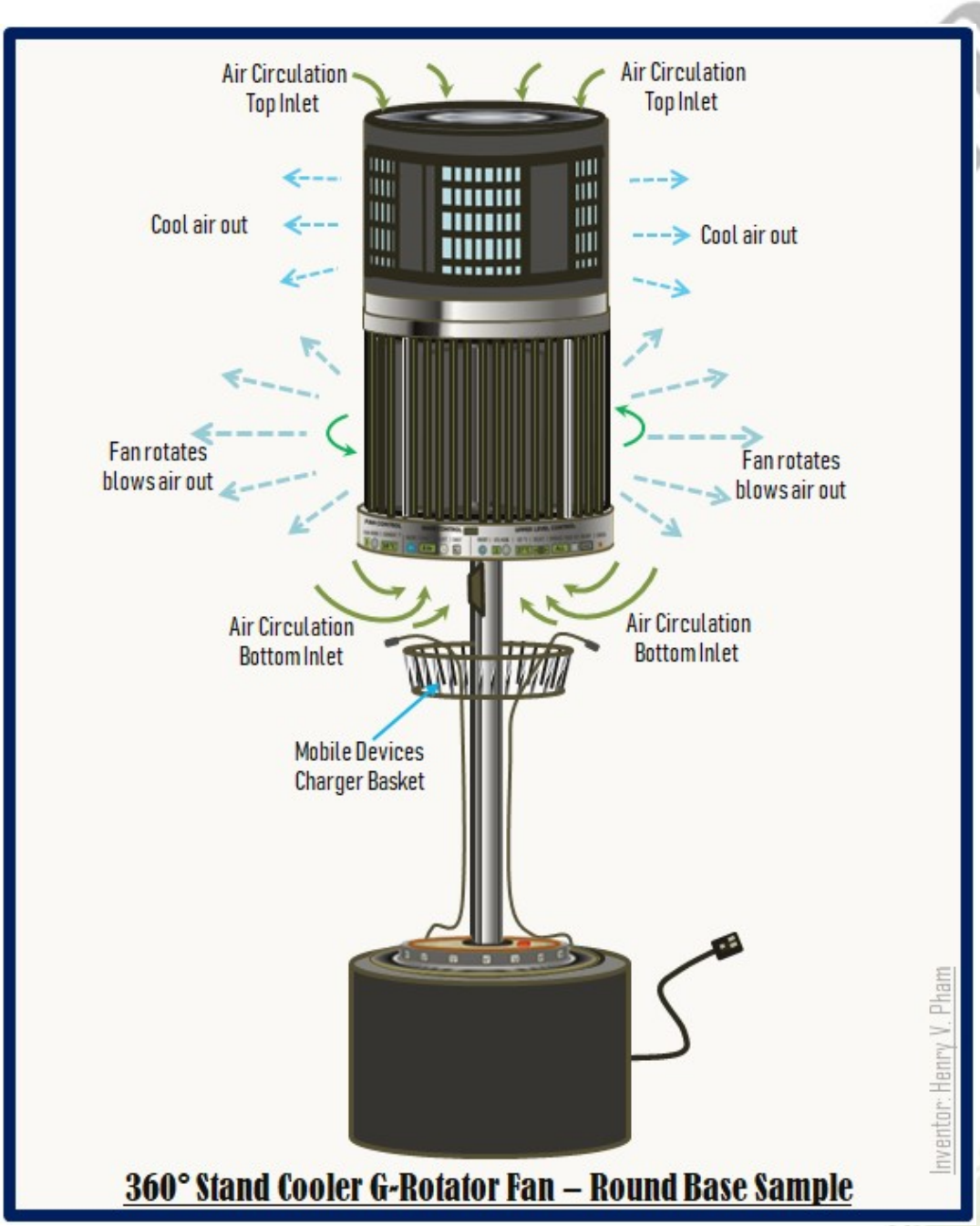

Figure-B4: 360° Stand G-Rotator Fan – Cooler

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Figure-B4: 360° Stand G-Rotator Fan – Cooler shows the fan with AE cooler on top, and the air distribution expected as shown in light-blue arrows for the fan air vector outward direction, light-blue vector arrows for the cooler air distribution, and top and bottom dark-green arrows showing the air circulation directions. The cooler air blowing with cooled air out direction is recommended downward in 10°-20° angle; and the fan blade module will deliver the cooled air outward. The G-Rotator Fan provides portable and mobile plug-and-play cooler which is used water for air evaporating (AE) technology for cooler; note that air humidifier can be built similar with the air evaporating technology.

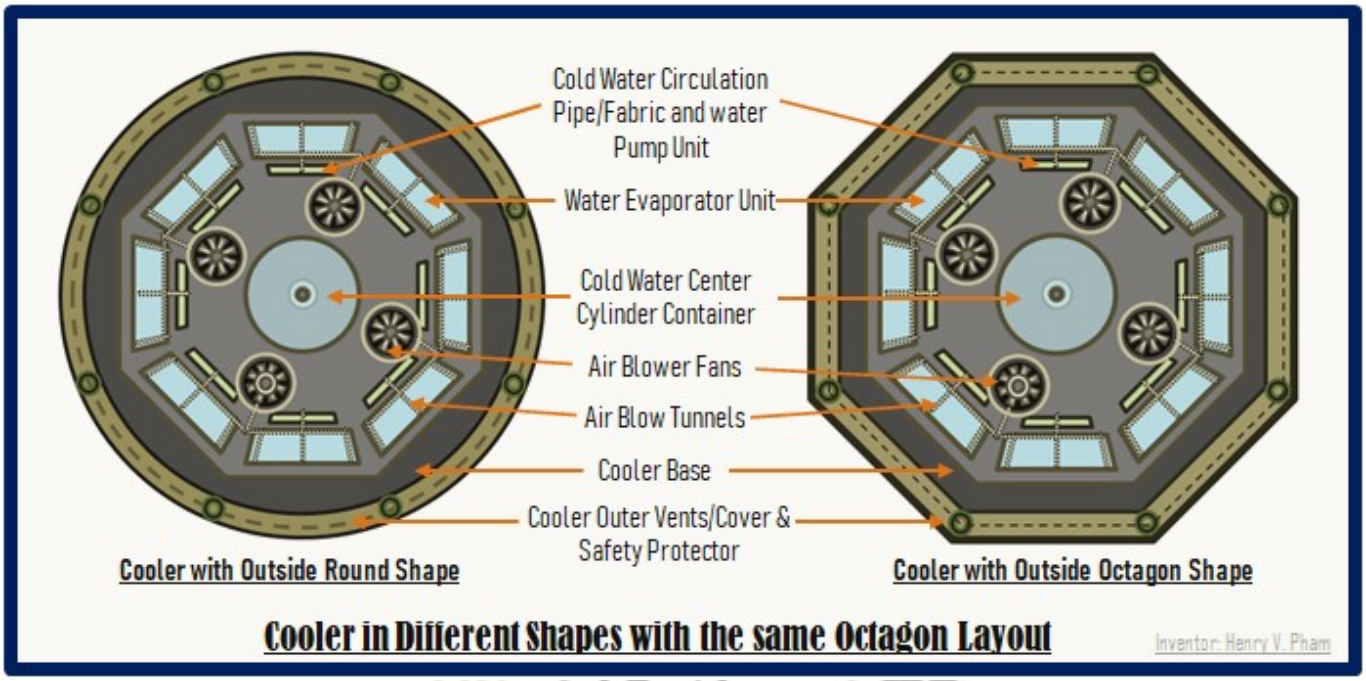

Figure-B5: 360° Stand G-Rotator Fan – Cooler Layout Structure

Figure-B5: 360° Stand G-Rotator Fan – Cooler Layout Structure shows the cooler in 2 shapes sample with 8 different cooling units and 2 cooling units in 1 control for one side in 90° circle space for convenience to build and to control. The figure above shows 4 cooler fans in the middle of a pair cooling units which blow the cool air slowly outward through the air channels of the cooling units. The AE cooler layout provides the center space for intake cold water or intake ice which is recommended with at least 3" diameter and 6" high to provide at least 1 litter of water. The water goes through the water fountain with fabric and air blower mechanism to distribute cool air out, and a water pump to reuse the water for water circulation of the air evaporating cooling technology; this layout structure and controller would be similar for the air humidifier. The air evaporating cooling technology is available, and the references section at the bottom of this invention document show more details about the Evaporative Cooler and Water Cooling technology. The air cooler is very common in our life and available in current market which can be built with cold water evaporating units. However, G-Rotator Fan provides with great shape in circle which allows the cooler to build in 4-quadrant sides with 8 different cooling units as recommended, and each unit can be controlled by the fan remote control or from the fan buttons. The G-Rotator Fan provides 4 different modes with 2 mode-wires. When the cooler power is turned on, the cooler will turn on all 4-

sides cooling units with the lowest mode (mode-default or 2-sense-mode-wires off); and the 2 mode-wires provides 3 different binary values (1, 2, and 3) that can be built and counted with Logic Gates which can be used for 3 modes (mode-1 for Low cooling power, mode-2 for Medium cooling power, and mode-3 for High cooling power). The cooler can be built-in with memorized function for last settings for more convenience and the fan manufacturers can provide more wires to have more modes to control the cooler. The cooler is required to have the Heater/Cooler wire connected and set to 'ON' to indicate the utility is temperature related control. The G-Rotator Fan provides 4 different control sides with 4 side-wires to allow the users to turn on/off any cooling unit on 4 different sides as recommended. Note that there is 1 feedback sense wire is recommended for the cooler to send back to the main fan controller for any error, such as one or more cooling units is broken.

The heater and cooler can be built with the same modes and functions, and make sure to test all features and functions of the heater and cooler when switching during developing the G-Rotator Fan to support multiple detachable utilities; there are 4 different modes and 4 control sides as mentioned above. The default mode (mode-default or 2-sense-mode-wires off) can be controlled as a default standby or auto maintaining thermal condition when the heater or cooler is turned on or the main fan controller with thermal sensor that detecting and reached the satisfied temperature set by the users. The other 3 modes are Low, Medium and High can be controlled by the users manually; for auto mode, when the main fan controller requests the heater of the cooler to increase power to different higher mode to reach the temperature set by the users with these 3 different modes. The heater and cooler should be built with LED indicators around the base for power, different modes, operating sides, Front side, Back side, Left side and Right side.

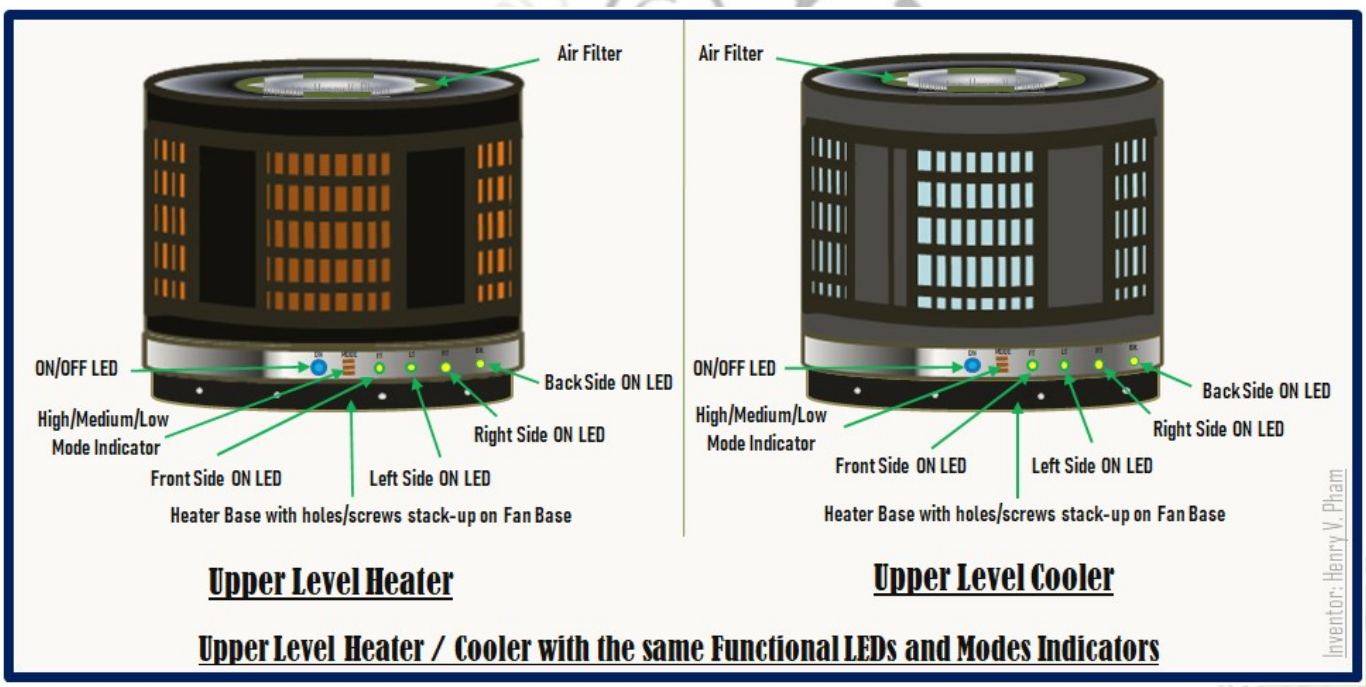

Figure-B6: 360° Stand G-Rotator Fan – Heater & Cooler Functions

Figure-B6: 360° Stand G-Rotator Fan – Heater & Cooler Functions shows the heater and cooler with the same LEDs indicators and similar functions that can be controlled by the main fan buttons or by remote control. The heater and cooler connector base with 1" high and the diameter smaller than the main unit by at least ½ inch to fit on the top fan base which is shown in later section that come with screw holes to stack up on the top base of the fan and secure with screws. The top of the heater and cooler should have at least 4 air filters to protect the dust from the intake of air circulation.

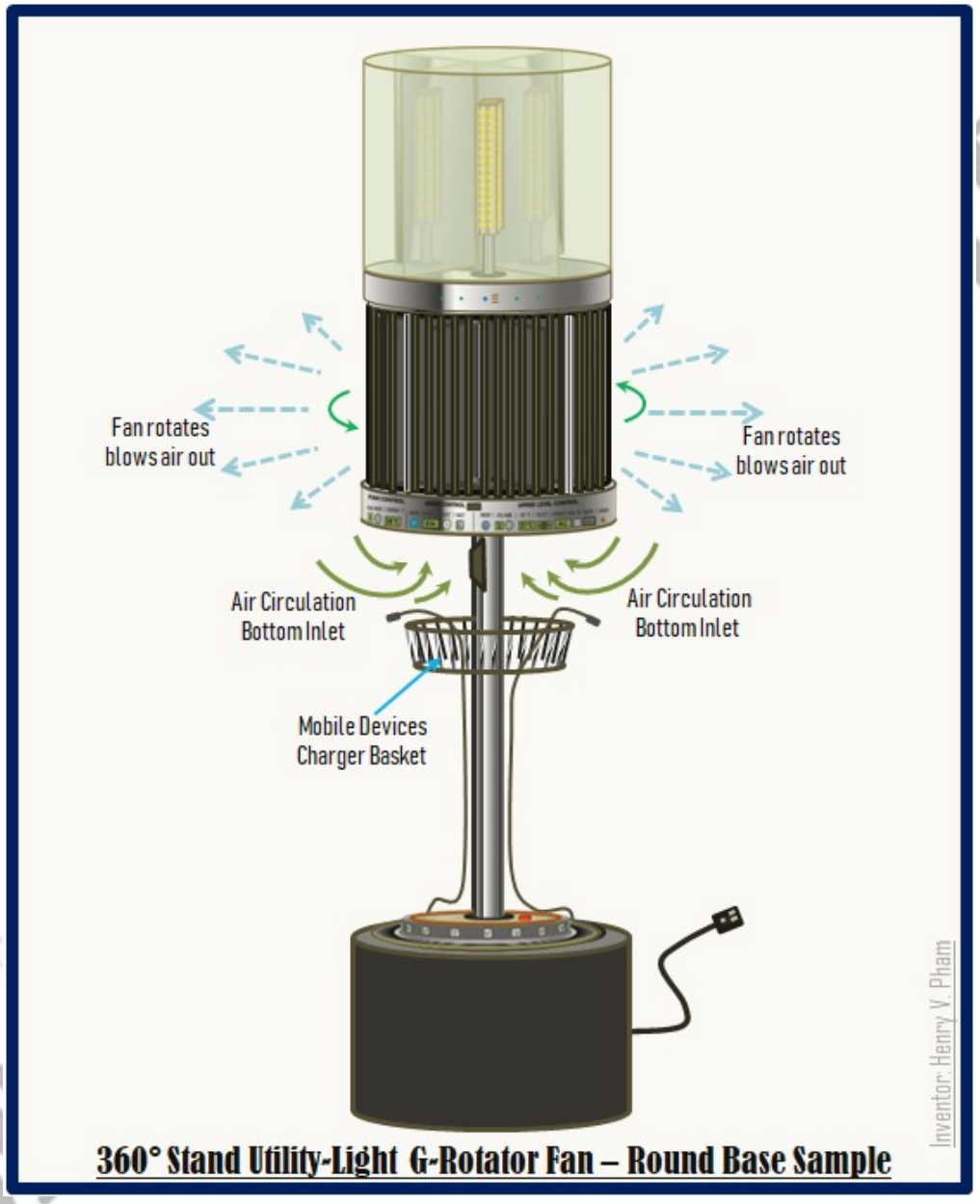

Figure-B7: 360° Stand G-Rotator Fan – Quadrant Light

Figure-B7: 360° Stand G-Rotator Fan – Quadrant Light shows the quadrant light that fits well with the same functions, similar power modes, similar 4-sides control with the same remote control and the main fan buttons as recommended. While the fan provides the air distribution as mentioned above, the Quadrant Light is designed with these great functions and features of the great layout of 4 light tubes or LEDs bars

on each quadrant with independent power control and same power modes, would come with 4 different LEDs bars or Fluorescent light tubes. When the light power is turned on, the quadrant light will turn on all 4-sides lighting units with the lowest power (mode-default or 2-sense-mode-wires off); and the 2 mode-wires provides 3 different binary values (1, 2, and 3) that can be built and counted with Logic Gates which can be used for 3 modes (mode-1 for Low lighting intensity power, mode-2 for Medium lighting intensity power, and mode-3 for High lighting intensity power). The G-Rotator Fan can also build with Motion Night Lights option as shown in this figure which can be built right under the main controller base with 4 motion sensors around on the edge for 4 motion night lights with a manual switch on/off for all lights to provide the users with the lights on motion even when the G-Rotator Fan has not yet on or does not have the utility light. Note that the light can be built with the stand fan with memorized last settings for more convenience and the fan manufacturers can provide more wires to have more modes to control the light.

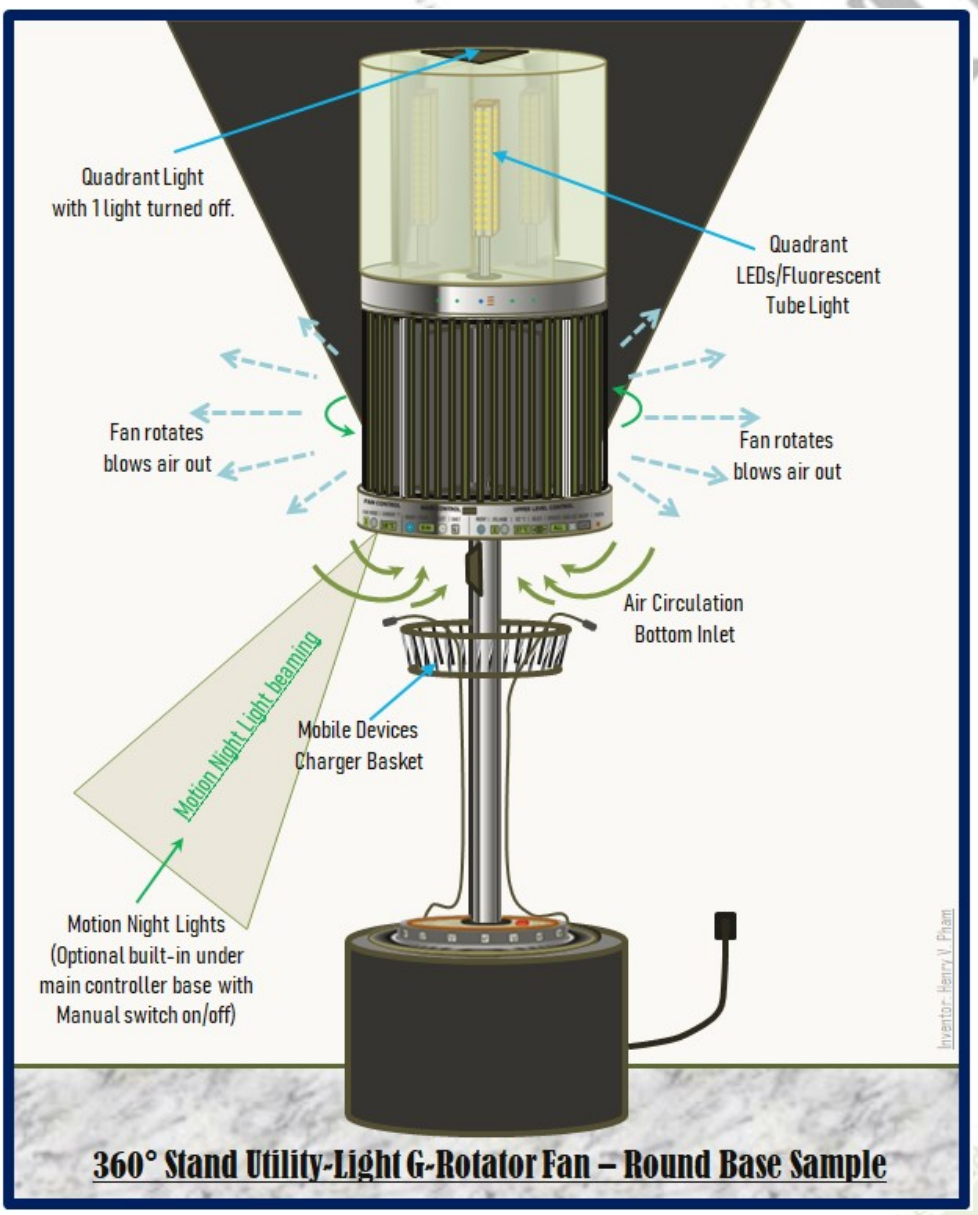

Figure-B8: 360° Stand G-Rotator Fan – Quadrant Light with 1 Side Off

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It is important that the light should be built without or omitted the Heater/Cooler wire to indicate the utility is no temperature related control. The G-Rotator Fan provides 4 different control sides with 4 side-wires to allow the users to turn on/off any unit on 4 different quadrant sides. Note that there is 1 feedback sense wire is recommended for the light to send back to the main fan controller for any error, such as one or more light tubes or light bars is needed to replace.

Figure-B8: 360° Stand G-Rotator Fan – Quadrant Light with 1 Side Off shows a quadrant light sample with one back side with the light off. The stand Quadrant Light can be used indoor or outdoor with great control feature of 4-corner lights which provides the users with more convenience to control the portable light to turn on or off the light in any 4-quadrant corners with plus of providing a mobile USB charger station.

Figure-B9: 360° Stand G-Rotator Fan – Quadrant Light Layout Structure shows the light with 4-LED bars at 4-quadrants in semi-transparent within the light transparent cylinder glass cover. The LEDs bar sample is shown on the right of the figure in square bar with arrays of LEDs on 4-surfaces of the LEDs bar; the LEDs bar or Fluorescent light can be in right-triangle, cylinder or any other shape.

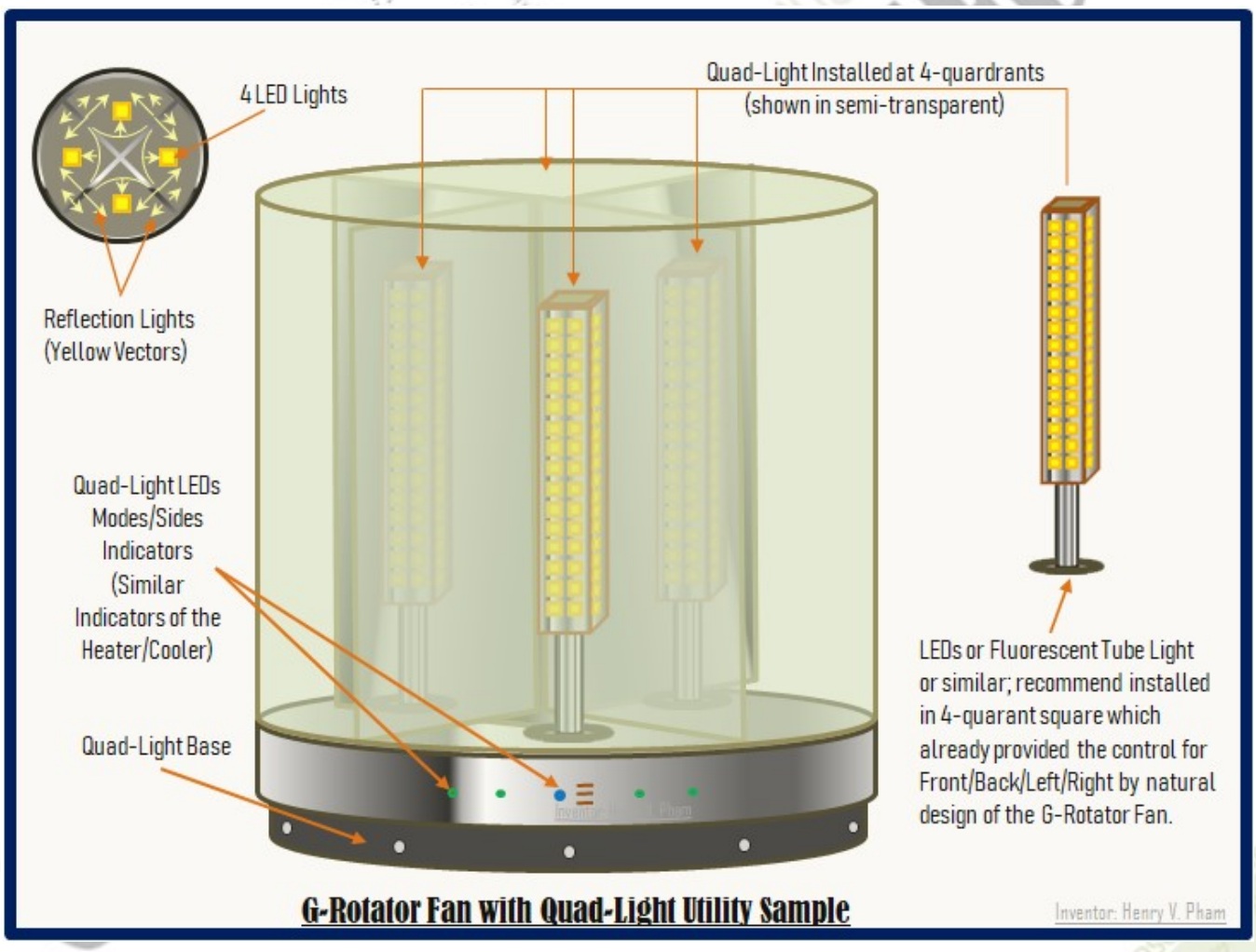

Figure-B9: 360° Stand G-Rotator Fan – Quadrant Light Layout Structure

The light base is also required with the same dimension as the heater and cooler that needs to fit on the top base of the fan to provide plug-and-play utility module. With this standard, the users can buy separate Quadrant Light from different vendors, and it can be controlled with the same G-Rotator Fan buttons and remote control as recommended. The LED indicators for modes and operating sides are shown similar to the heater and cooler above; however, the LED indicators for operating sides are not required for the light since the quadrant light has its own LEDs bar or light tube that are visible.

Figure-B10: 360° Stand G-Rotator Fan – Quadrant Light Reflection & High Intensity shows the light with 4-LED bars at 4-quadrants, and each quadrant has the light reflectors on both walls and the light quadrant reflector cylinder at the middle to provide complete light reflection of the LEDs bar or light tube to 90° angle space for each quadrant light tube; the LEDs bar or light tube is recommended to installed at center of the light quadrant reflector cylinder for full reflection of the light.

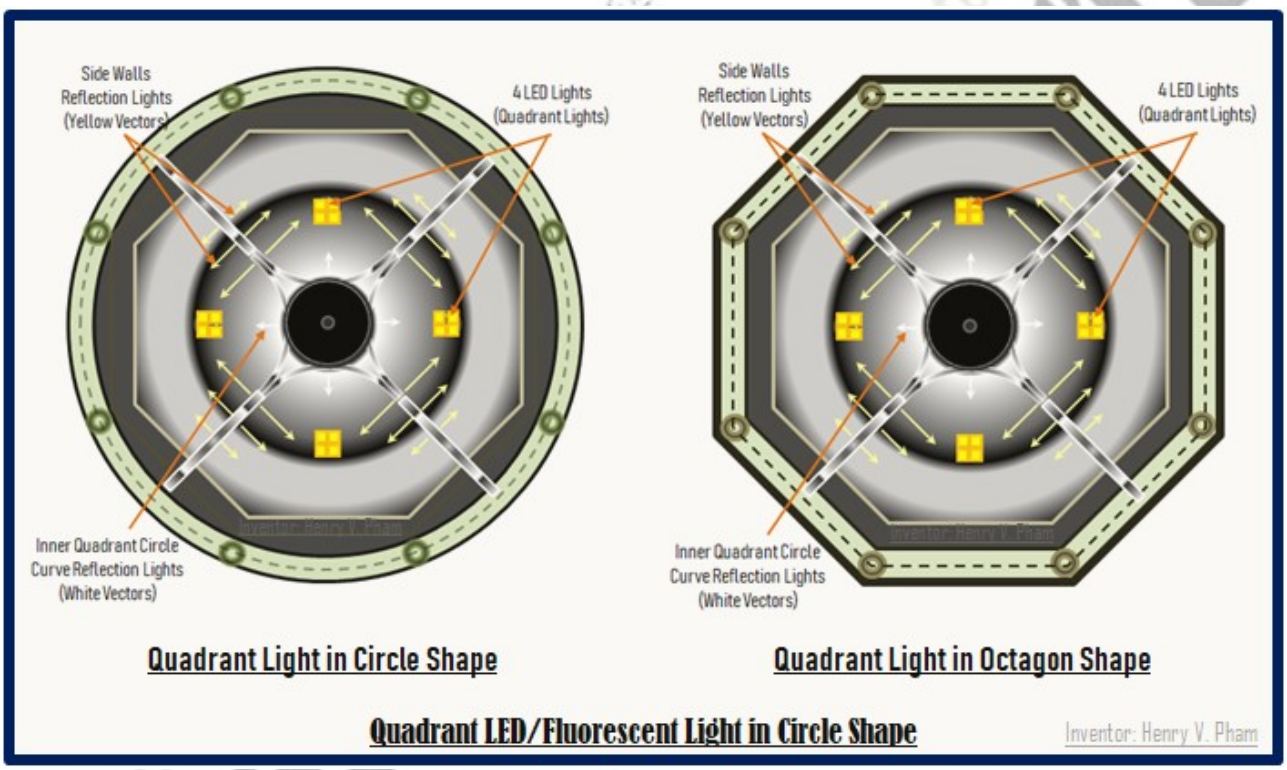

Figure-B10: 360° Stand G-Rotator Fan – Quadrant Light Reflection & High Intensity

C. Fan Blades, Fan Protection & Fan Motor

Figure-C1: 360° Stand G-Rotator Fan –Fan Blades shows the top view of a sample of rotator fan blade module with 8 blades module and 5 blades fan module. The fan blade shape is important; the bottom of the blade should be built with curved surface and the inner curved surface should be higher or larger compare to the outer edge of the blade; the blade should be built with some θ angle against the center; and the bottom curved surface should be built with some α angle to take the air from the bottom in and the upper blade portion would deliver the air out; the details of the blade shape in angle will be shown in next figure. The G-Rotator Fan is invented with the fan module rotating around on the stand pole axis, and the

blade of the fan module is required to be in a new shape not like the traditional fan that rotating around on the axle axis vertically to the gravity force. The rotator fan module in this invention is installed on the outer rotator motor; the inner coils stator of the motor that built on the fan tube would spin the outer rotator of the motor with electromagnetic field forces distribute evenly in 360° counter-clockwise directional derivative vectors forces when electric power is applied. The fan blade on this G-Rotator Fan could deliver more air volume per blade compare to the traditional fan.

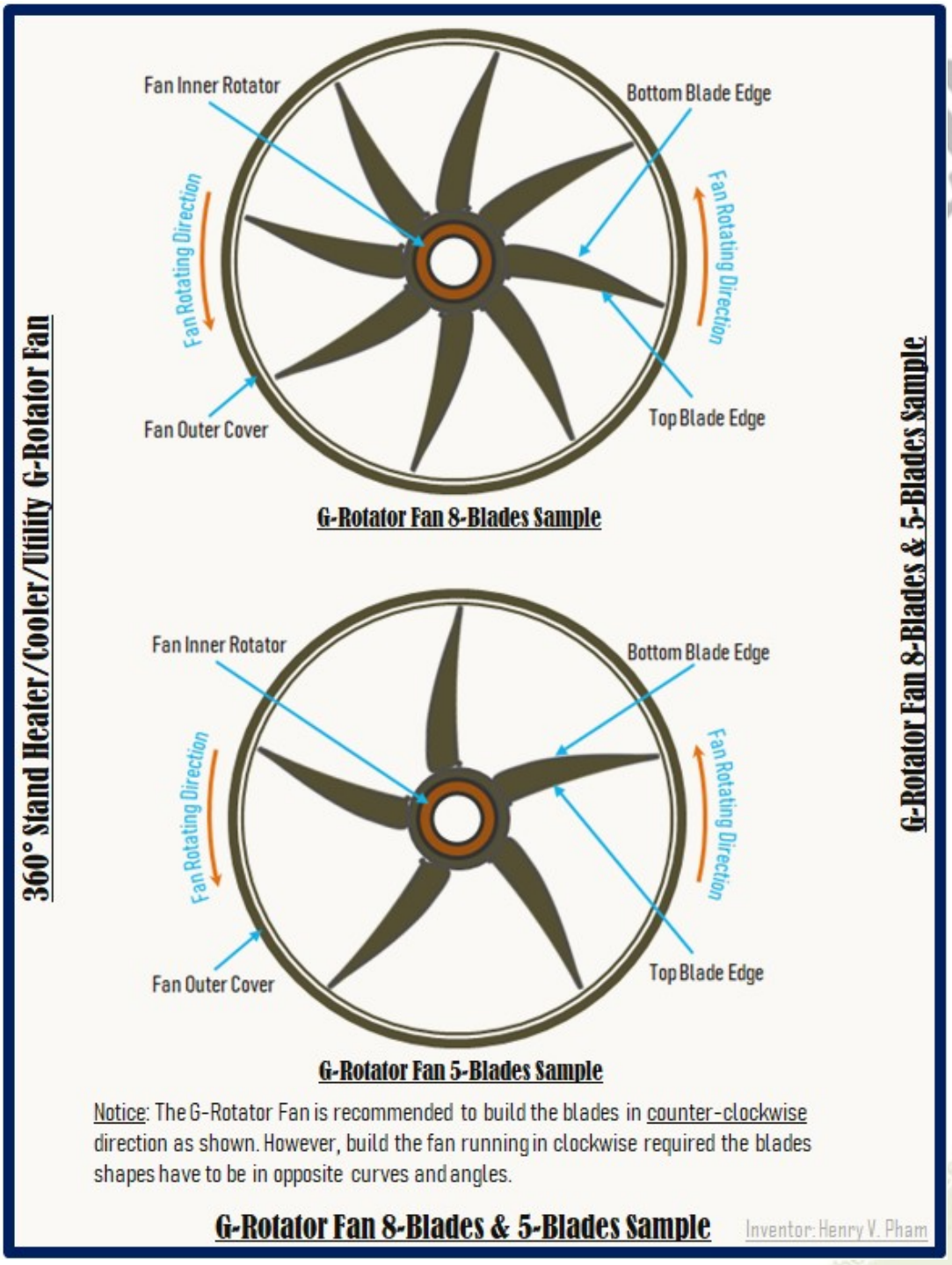

Figure-C1: 360° Stand G-Rotator Fan –Fan Blades

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The G-Rotator Fan is recommended to build the blades in counter-clockwise direction as shown in this figure. However, the manufacturers can build the fan with the motor running in clockwise but it would be required that the blades shapes have to be in opposite curves and angles. The fan inner rotator would be built in cylinder shape with at least 4 track locks that fit right on the outer rotator motor with additional screws to tie the fan module in place.

Figure-C2: 360° Stand G-Rotator Fan –Fan Blade Shape shows the rotator fan blade shape in 3 different views. The drawing on the left shows the side view of the blade shape with the following recommendations for the common stand fan with the high about 5 feet. The high 'h' about 8 inches; blade curved high 't' about 3 inches; the inner curved surface 'α' angle with 10° <= α <= 25°; the twist bottom inner and outer edges curved surface 'v' length with 1" <= v <= 2.5". The drawing in the middle shows the top view of the blade with the width 'w' of the blade about 6 inches; the 'θ' angle with 10° <= θ <= 25°. The right drawing shows the blade in 3D view with the partial inner fan rotator cylinder on the right, and the blade on the left; the upper blade with flat surface vertically and against the center by θ angle; the bottom outer blade with shorter or less curved surface compare to the inner curved surface. Note that the inner curved surface is designed to take more air up from the inlet air at the air filter area along the inner brim of the fan controller base, and the upper blade flat surface with some θ angle against the center is designed to deliver the air outward from inside. The G-Rotator Fan is invented with new rotator fan attached on the outer rotator motor which is required to have the blade shape different from the traditional fan blade; however, the manufacturers can adjust the fan blade shape and dimension for the best performance of the fan to deliver more air with desired speeds of the fan.

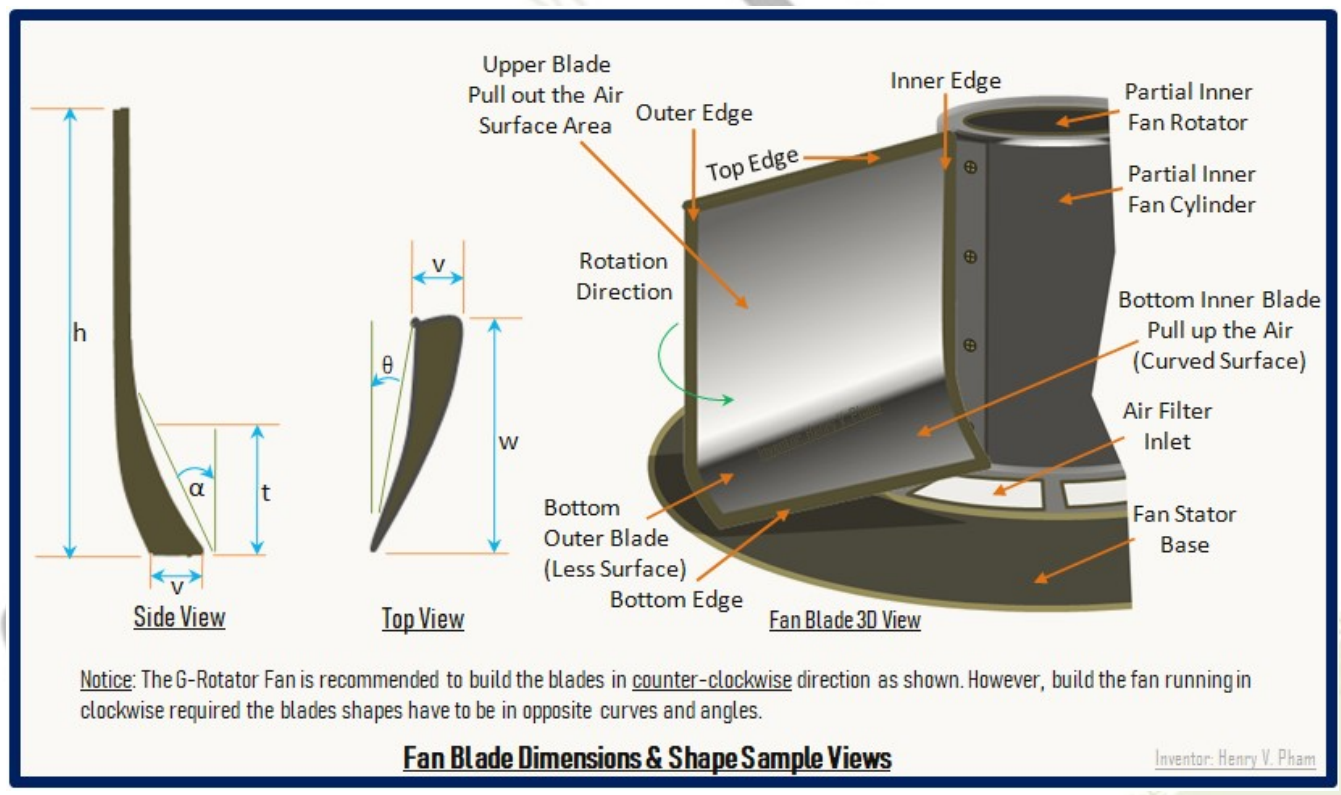

Figure-C2: 360° Stand G-Rotator Fan –Fan Blade Shape

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Given the fan blade module diameter with 16 inches or 8 inches radius; the outer rotator motor diameter or inner fan blade module diameter with approximately 4 inches or 2 inches radius; the maximum air volume 'V_f' of the entire fan module, 'V_{18}' air volume per blade for 8 blades module, and 'V_{15}' air volume per blade for 5 blades module can carry at a time can be calculated as following.

$$V_f = 8\pi\,(8^2 - 2^2) in^3 = 1508\, in^3;\ V_{18} = \frac{1508}{8} in^3 = 189\, in^3; \text{ and } V_{15} = \frac{1508}{5} in^3 = 302\, in^3;$$

The G-Rotator Fan with the fan module rotating around the pole axis where the axis points straightly to the center of the earth and hold the gravity force which makes the fan module spinning without affecting of the gravity. However, the outer rotator of the motor can be built with additional bearing ring to reduce the friction of the fan blade module when it is spinning. Note that the fan blade and the fan blade module should be built with plastic lightweight material, and the electric motor by design of nature would have electromagnetic forces distribute evenly and pushing the outer rotator ring spinning around evenly and smoothly with standard tolerance of the motor.

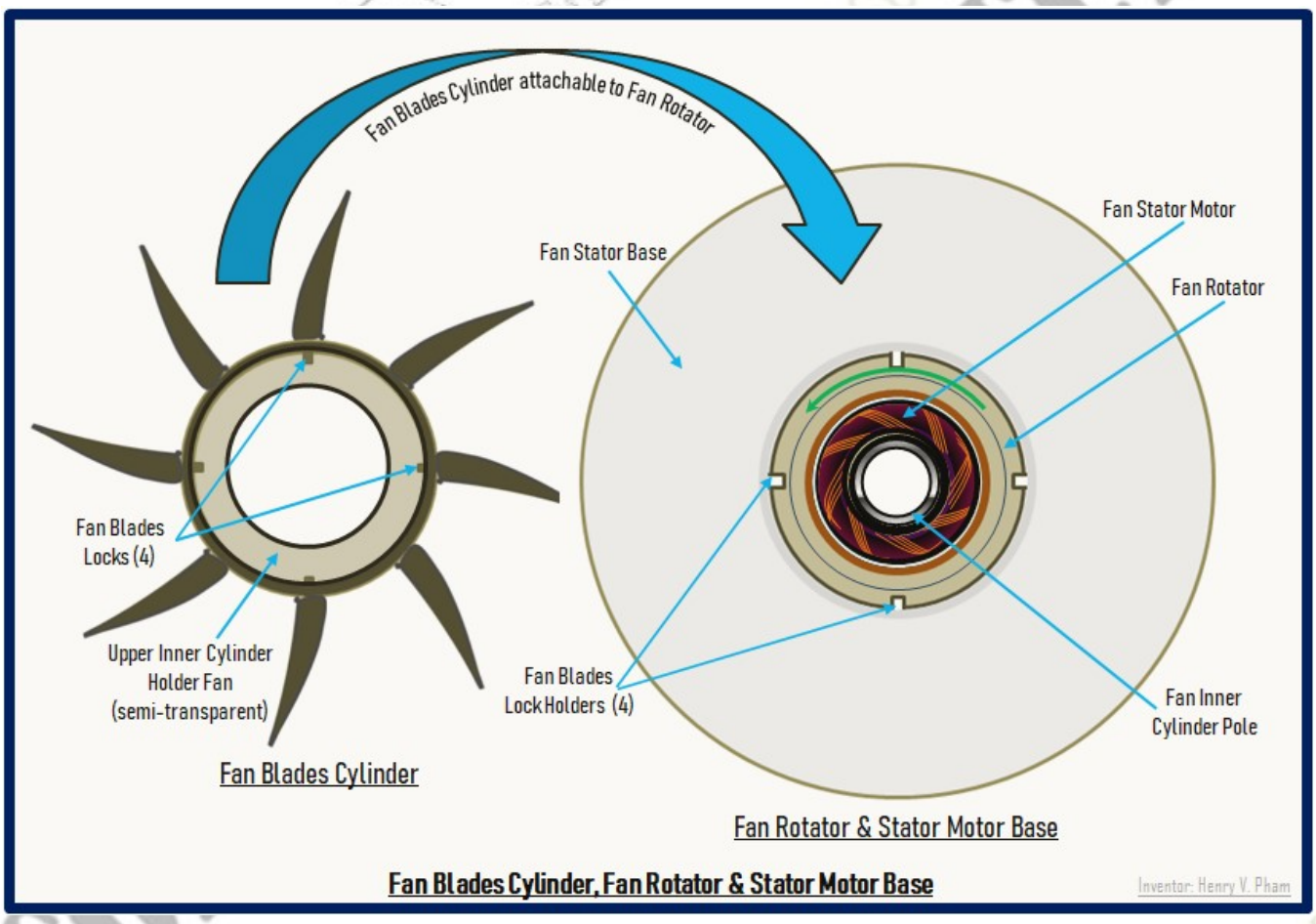

Figure-C3: 360° Stand G-Rotator Fan –Rotator Fan Blade & Motor

Figure-C3: 360° Stand G-Rotator Fan –Rotator Fan Blade & Motor shows the top view of the fan blade module and outer rotator motor. The fan stator motor is shown with coil wires on the inner cylinder pole, and the outer rotator with 4 track locks is used to push the fan module in place and tied on the fan rotator. The

best tolerance, not too loose would make the coil stator motor and the rotator rotating smoothly with suggestion of electric power applying to the motor starting slowly and stepping gradually up to reach the speed required to prevent shock and vibration; however, to reduce shock and vibration when the fan rotating, another rotator fan rotating in revert direction is suggested to compensate momentum in both directions for larger fan blade module.

Figure-C4: 360° Stand G-Rotator Fan –Fan Air Vents shows the air vents installed in 8-sections with 3 closed air vents sections at the bottom and 5 opened air vents sections on top which allow the users to close the air in more angles from any of the 4 quadrant spaces as recommended. Safety is always a concern for fan and moving parts, and the G-Rotator Fan is also required to have safe air vent around the fan module. The air vent can be built as common vents which can control manually by hands, and the air vent in this fan is recommended to divide into 8 sections, 2 sections for each side, Front, Back, Left or Right side. The G-Rotator Fan with the fan module in circle shape, and the inner racks that connect every single vent together as an array of vents of the air vent are installed similar to the common vent but in curve shape.

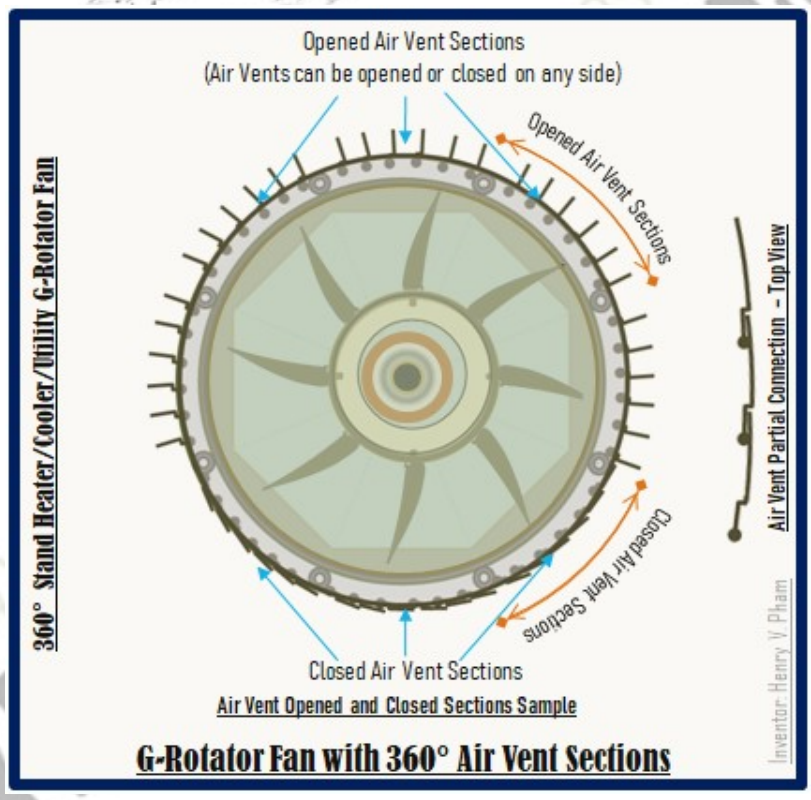

Figure-C4: 360° Stand G-Rotator Fan –Fan Air Vents

D. Fan Base, Fan Controller & Remote Control

Figure-D1: 360° Stand G-Rotator Fan – Fan Top & Bottom Bases Layout Structure shows the layout structure of the top base and bottom base of the rotator fan with outer rotator motor side view, the bottom base of the rotator fan, and the top connector base of the fan as shown. The figure shows the pole diameter 'd_p' with default recommended in this invention document is 2.5 inches; the outer rotator motor diameter 'd_m' with 4 inches; the length 't' of the motor with 4 inches; note that the motor coil wires can be built around

the inner core pole with 2 inches diameter or smaller for the inner stator motor coil wires, and the connector cylinder from the motor to the top base should be larger with 2.5 inches diameter to keep the motor in place from the top and to match with the main fan tube diameter. Note that other dimensions on the top base will be described more detail in the utility connection and structure section.

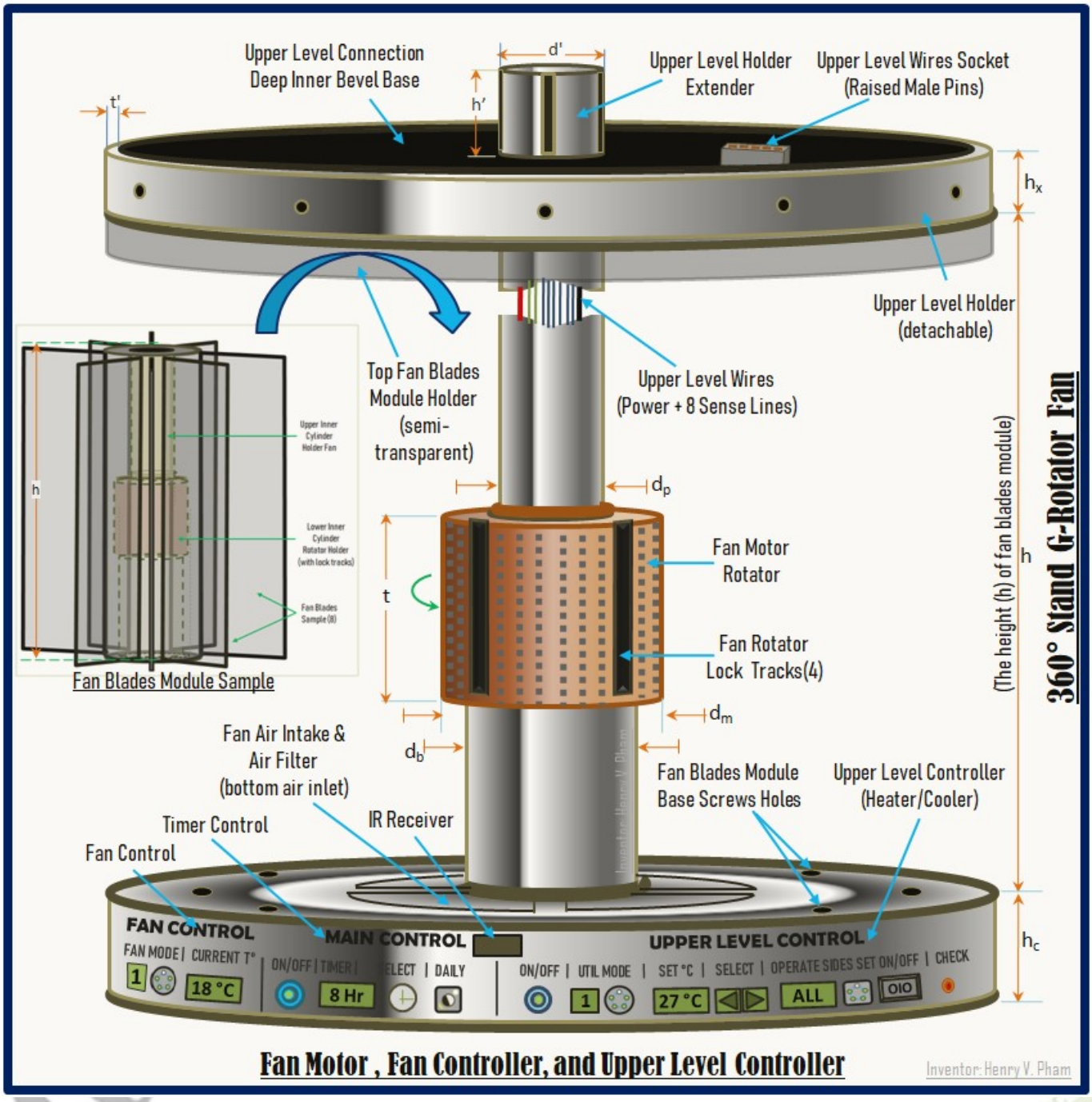

Figure-D1: 360° Stand G-Rotator Fan – Fan Top & Bottom Bases Layout Structure

The motor is recommended to install right at the middle of the top and bottom bases. The bottom larger cylinder right below the motor diameter 'd_b' with 3.5 inches or smaller than the outer motor by ½ inch in diameter or ¼ inch on each side; this larger cylinder would provide the motor inner core with more

spaces for wiring and the wires to the upper levels and provide more stabilizing for rotator fan momentum and enough space for intake air with air filters on the bottom fan base.

The drawing on the left of this figure shows a sample of the fan module in semi-transparent with the motor in the middle; and the top fan blade module holder that is shown in semi-transparent which is used to stack up the rotator fan module cover before installing the top base for the upper level. The bottom fan base shows inner brim with air filters which are recommended with 4 air filters with at least 2 inches deoradii or brim width and separated by ½ inch between each filter.

The fan circuit controller can be built within the round base which can be in curved or brim circuit shape or whichever convenience; the controller base with diameter of the outer fan 18 inches, and high 'h_c' with 2 inches which is enough space for circuit board, wires, IR Receiver sensor and thermal sensor. The IR Receiver is recommended to install right in front to receive input IR from the remote control better, and the thermal sensor can be on the back edge of the controller base. The circuit board controller would have 2 power wires, 2 mode-wires, 4 side-control-wires, 1 Heater/Cooler indicator wire, and 1 feedback wire from the upper level utility as shown on top part of the rotator fan cylinder.

The G-Rotator Fan controller is divided into 3 sections, the Main Control section, the Fan Control and the Upper Level Control section. The Main Control is used to control the main power of the entire fan include the upper utility, and allow to set timer with the clock button which provides cycling from 1-8 hours selection and display on the timer digital display; the main control also provides a 'DAILY' button which allows the user to set the fan repeatedly with the same functions every day and it takes effect when the user pressed the daily button and repeat every 24 hours interval or daily duty. The Fan Control is used to control the fan speed modes with the Pentaround button, the button with 5 states with initial state on top and cycle around from 0-3 modes; fan speed mode-0 or default mode with zero RPM is provided to allow upper level utility, heater, cooler or other utility to run without air distribution or hold the fan blade module from spinning; other modes (1-3) are used to control fan blade module speed. The fan speeds is recommended with at least 3 running modes, 60 RPM, 120 RPM, and 240 RPM; note that the fan blades have large surface area compare to the traditional fan blades; however, the fan manufacturers can add more speed modes for faster and stronger air distribution. The fan control section also has the current temperature 'CURRENT T°' digital display to show the current temperature reading from the thermal sensor; note that the symbol 'T°' stands for Temperature Degree regardless Celsius or Fahrenheit; the main controller will check for the temperature setting by users against the current temperature reading from the thermal sensor to control the upper level heater or cooler; note that other utilities without temperature related, this temperature setting function will be ignored and the 'T°' digital display would be off. The Upper Level Control provides ON/OFF button to control utility power, utility set-mode with a Pentaround button to cycle around the supported modes with a digital display, utility set-temperature for heater and cooler with an up/down button to select a temperature value from the supported range, utility set-operating-side with a Pentaround button to cycle around the supported sides with a button to turn a side operating mode to on/off, utility feedback LED to indicate for any error on the

upper level utility. Note that the supported temperature range is recommended with [10°C – 30°C] or [50°F – 86°F] for both heater and cooler and the heater or cooler should handle within its own limit.

To have all these buttons and features for the users to control the fan, heater, cooler and other utilities, the main circuit controller is designed to connect all these buttons and the digital display together to perform the functions as required. Figure-D2: 360° Stand G-Rotator Fan – Main Functions & Circuit Controller shows the main circuit controller with wires that connected to the motor for the fan, to the Main Control section buttons and the displays, to the Fan Control section buttons and the displays, and to the Upper Level Control buttons and the displays as followings.

1. The power 'ON/OFF' button on the Main Control section is the main power button, then the main controller allow the user to control the fan and the upper utility. The main controller allows setting timer via the 'SELECT' clock button and the 'TIMER' digital display will respond to the clock button for the selected hour in the defined range. The 'DAILY' button is connected to the main circuit board to provide the daily schedule setting. The timer can be built with IC-555 with 1Hz frequency plus IC Counter chip to have seconds, hours and daily schedule. To simplify the circuit with timer, The IC-555 Timer chip is recommended to have more pins to accept the output frequency/timing counter as an input; and the input pin and output pin as a pair for the predefined base-counter. Recommend to have at least 1 base-10 for frequency/timing counter to second count since the lowest frequency is 0.10 Hertz/cycles per second; and 2 pairs for base-60 counters for minutes and hours, and 1 pair base-24 for day counter. The output of seconds connect to the input of minute; 60 seconds counts (ticks) for one minute count and similar for the hour counter and day counter. This would simplify circuit wiring and IC chips where requires timer. Visit https://en.wikipedia.org/wiki/555_timer_IC for more info about IC-555. Please see the References Section in this invention document for more details.
2. For the Fan Control section, the main controller provides 3 voltage lines connected to the rotator fan motor, and the fan motor speeds can be controlled by these 3 voltage lines by switching voltage line to the motor one at a time for each motor speed. Note that the motor can be built with separate resistors with one for each voltage line for the preset power motor speeds as shown in the figure below, or the controller circuit board can be built with resistors and provide 3 different voltages on 3 different voltage lines for 3 different motor speeds. When the main power is on, the fan speed modes can be selected via the 'SELECT' button on the Fan Control section and the fan speed modes will be displayed on the digital display next to the 'SELECT' button. The fan is built with the main function of distribute the hot or cool air around the area, and the Temperature Sensor on most right connection port is connected to the main controller which allows the controller to read the current temperature and display the temperature value as shown on the Fan Control section. Note that the temperature or thermal sensor is common, widely use and available in current market.
3. The Upper Level Control would come with power button, utility control modes selection, operating side selections and controlling, and the feedback wire which provides the Check Error signal indicator on/off from the upper level utility; the utility should be built with Built-in Self Test to support feedback condition. The power 'ON/OFF' button is used to turn on or off the utility. When the utility is powered on,

the main controller will check the 'T° Heater or Cooler' wire line which is set by the heater or cooler and this wire line will be omitted for other utilities that are not related to the temperature control. Note that when this 'T° Heater or Cooler' wire line is omitted, the main controller will turn off the setting temperature display and ignore temperature setting input from the user. The utility set mode is provided with a 'SET' Pentaround button which allows the user to cycle around the available modes and the controller will responds and set the value on the digital display accordingly. If the upper level is attached with a heater or cooler, the main controller will allow the user to select by a Left/Right arrows button which is shown in this figure or can be customized the Up/Down or [+]/[-] button for selecting a temperature value with recommended range [10°C – 30°C] or [50°F – 86°F] for both heater and cooler and the controller will set the setting temperature value on the Temperature Display field. The Upper Level Control section also provides the 'SELECT' button to select the operating side of the utility and the Front/Back/Left/Right side is displayed on the side selection display field; the controller allow the user to turn on or off an operating side by the 'ON/OFF' button next to the select button. Note that the 'OPERATE SIDE' field in this figure shows 'ALL' by default when all sides are operating; and shown number of current active operating sides when one or more sides are turned off; however, the manufacturer can customize and arrange these buttons and fields when space is allowed for convenient layout. All these buttons and display fields are connected to the communication ports of the main controller. The G-Rotator Fan is designed to provide the main controller with a check line to check for the heater, cooler, quadrant light or any upper level utility that reports Check Error or Maintenance-Required that is built and notified by the utility; the 'CHECK' red LED indicator will be on when this condition happened. Some conditions may happen when the heater may report one or more heating units are not working; the cooler or humidifier may report Out of Water; the Quadrant Light may report one or more Light Tubes are burnt out, etc…

Figure-D2: 360° Stand G-Rotator Fan – Main Functions & Circuit Controller shows the wires socket with 10 wires is required for the upper level utility as shown on the top left drawing. The power wires are recommended as labeled 1 for input voltage line V_{in} & 10 for ground with support at least 12V power for heater; the modes control lines 2 & 3 are used as a binary with logic gate to have 3 different values (1, 2, and 3) with recommendation of line 3 as a low significant bit line and the main controller can use these 3 lines to increase or decrease performance High/Low mode; the sides control lines 4, 5, 6 and 7 are used to control operating sides set to 'ON' to indicate a side Front, Back, Left or Right is operating or 'OFF' to indicate a side is off or not operating with recommendation of line 4 for Front side, 5 for Right side, 6 for Back side and 7 for Left side in circle started at the front for circle logical order; note that the utility would have its own LEDs to indicate which side is on duty active operation. Heater and cooler are required to set T° Heater/Cooler line 8 to high or on to indicate the utility is temperature related control. For more user friendly, wire line 9 is provided to allow the heater, cooler, light or other utilities to set to 'ON' to indicate the utility is needed attention for Check Error, Maintenance Required or for any failures of the upper level utility. To standard fan support, the G-Rotator Fan is recommended to build the Upper Level Base Wires Socket with standard size and with correct wires order for plug-and-play feature so other vendors can build similar Heater, Cooler, Quadrant Light and other upper level utilities to work with the G-Rotator Fan;

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and the consumer can save money and space with all-in-one feature. The connection of the Upper Level Base Wires Socket which is built-in on the base of the upper level utility with the connection from the top base of the fan will be shown more detail in the next section.

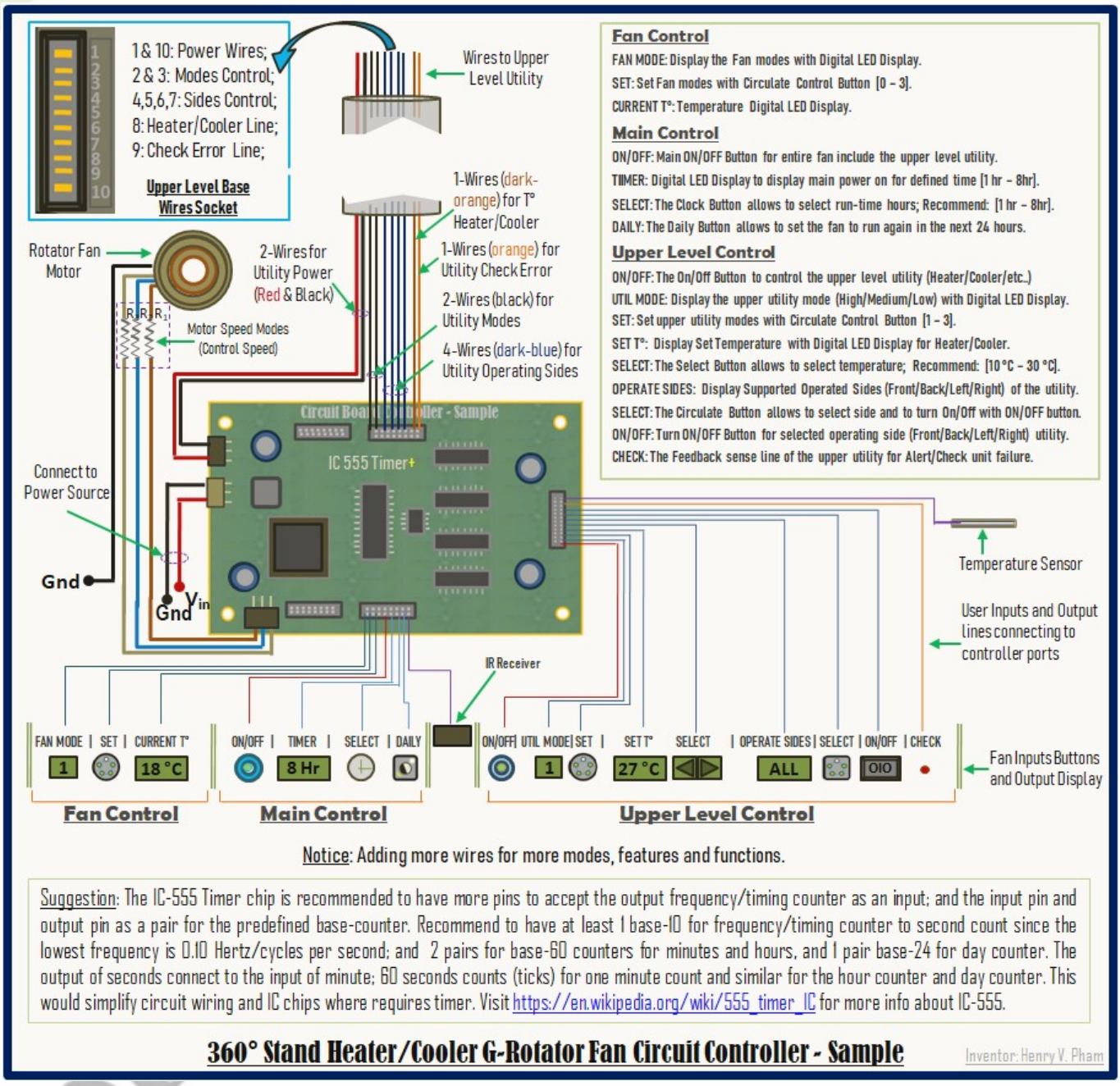

Figure-D2: 360° Stand G-Rotator Fan – Main Functions & Circuit Controller

Figure-D3: 360° Stand G-Rotator Fan – Remote Control shows a remote control sample to control the fan including the heater, cooler, light and any other utilities that compatible with the G-Rotator Fan as recommended. Similar with the functions and buttons as mentioned in the main controller, the remote control would come with a main power button, a timer 'Clock' button to set number of hours from 1-8 as recommended for the G-Rotator Fan to operate; and a 'Daily' button to set repeatedly for the fan to turn

back on and operate next day with the same settings. Note that the fan is also recommended to memorize the settings for next time operation for both fan and the upper level utility. The Fan Control section provides a mode button with recommended (0-3) modes, where mode-0 is to stop the fan when no air distribution is needed and the other modes are used for Low, Medium and High fan power rotating mode. The Upper Level Control section also provides power ON/OFF button to control the heater, cooler, light or other upper level utilities with the 'Mode' Pentaround button to circle through the available modes; this section on the remote control also has 4 buttons to turn a operating side of the upper level utility on or off for 4 sides, Front, Back, Left and Right; the setting temperature for either heater or cooler can be set with a 'Set T°' button.

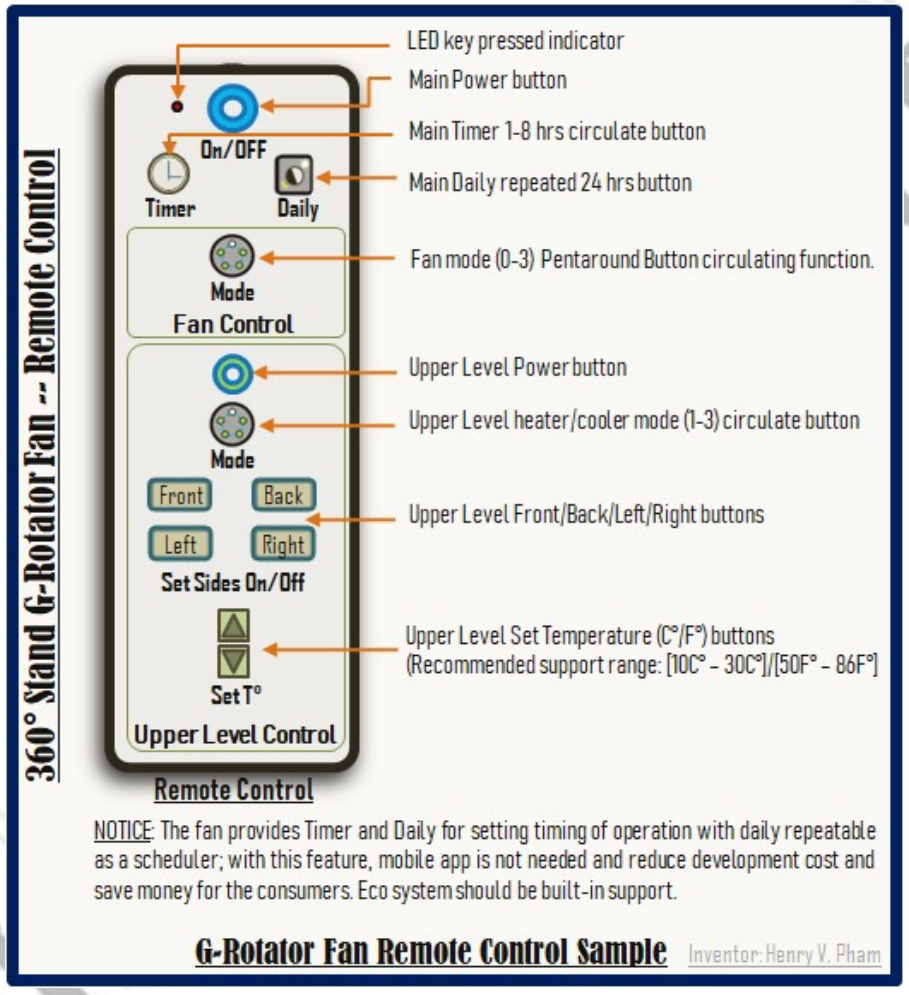

Figure-D3: 360° Stand G-Rotator Fan – Remote Control

E. Fan Bases Connections & Fan Structure

The G-Rotator Fan is designed for air distribution and support heater, cooler, stand light, and other utility to fit on upper level with the same controller and the same remote control to save space and money for the consumers.

360° Stand G-Rotator Fan - Specification

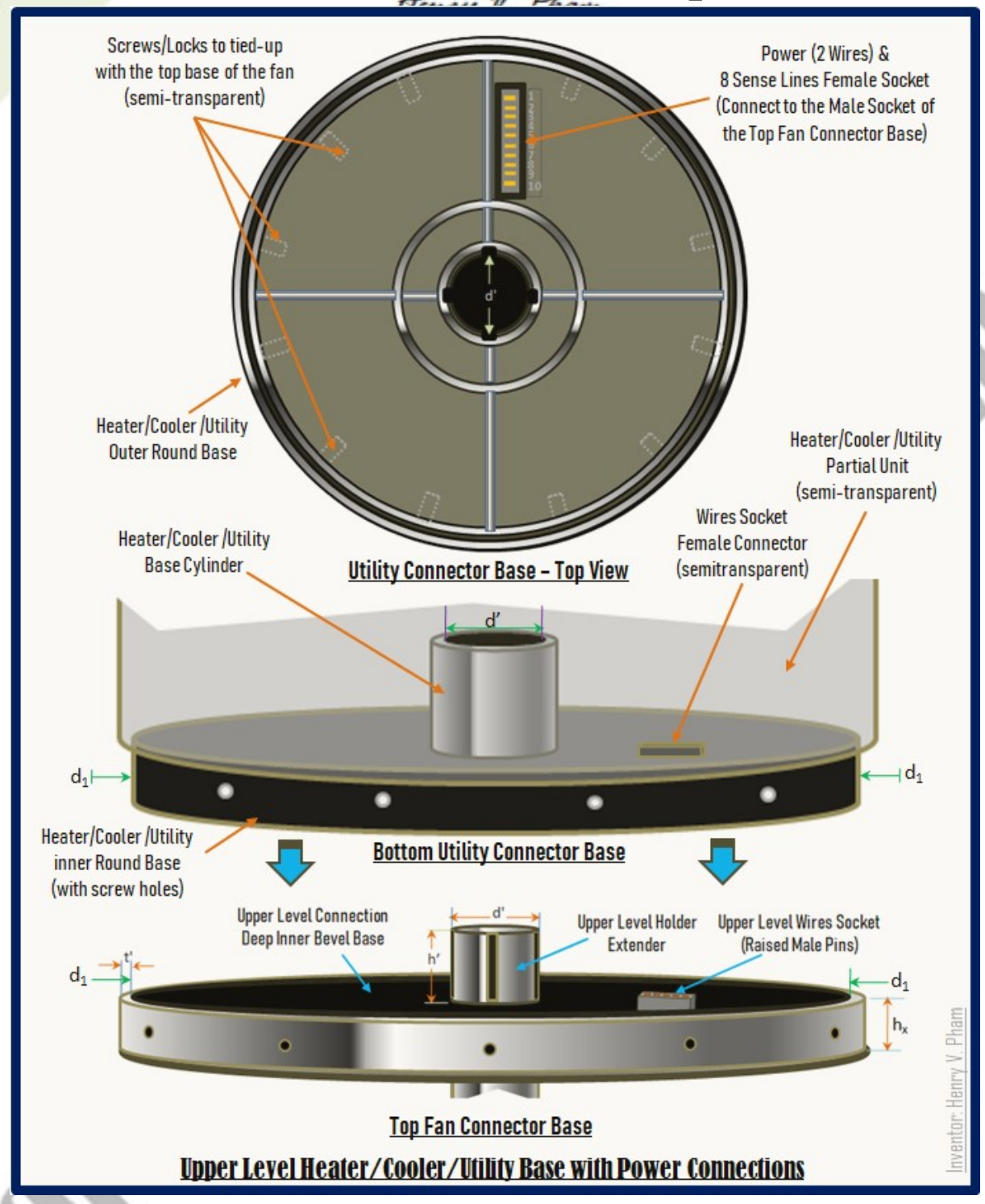

Figure-E1: 360° Stand G-Rotator Fan – Fan Top Base to Upper Level Connections

Figure-E1: 360° Stand G-Rotator Fan – Fan Top Base to Upper Level Connections shows a top view and a 3D view of the Upper Level Connection Base. The inner cylinder of the base is connected through the fan cylinder with the diameter 2.5 inches main tube; and this inner cylinder of this base can be smaller with at least 2 inches in diameter and at least 2 inches high to protect the upper level utility as recommended; the Utility Connector Base would be connected to the top Fan Connector Base and tied with screws. The inner

cylinder comes with 4 tracks locks which are used to connect the upper level base. The Power & Sense Lines Socket is recommended facing to front with standard socket to provide the standard plug-and-play Heater/Cooler or utility module. The G-Rotator Fan is recommended with the top Fan Base with 'h_x' about 1 inch, 't'' thickness about ¼ inch, the high 'h'' of the extended cylinder with 4 raised track locks and about ¼ inch thick at least 2 inches, the outer diameter 'd'' about 1.75 inches or less to fit the inner diameter 'd'' of the Utility Connector Base connected cylinder, and the inner base diameter 'd_1' is the outer diameter of the lower Utility Connector Base. The Upper Level Wires Socket is male connector and recommended to raise at least 1 inch for safety purposes, and the wires socket would be fit on the female connector socket on the bottom of the Utility Connector Base. The Female Wires Socket is shown in top drawing of the figure with 10 wires as mentioned above; the most outer pin is the power wire, the most inner pin is the ground wire to provide power for the utility which could be 12V or higher; note that the wires numbers are labeled from 1-10 start from the outer most with the wires were recommended in earlier sections; 1, 2 and 3 for modes control; 4,5,6 and 7 for operating sides control; 8 for heater/cooler indicator; and 9 for feedback error wire.

Figure-E2: 360° Stand G-Rotator Fan – Upper Level to Bottom Base Structure shows G-Rotator Fan connections and wiring between one to another level. The bottom base comes with the chargeable battery and the caster wheels base with the diameter at least similar to the fan and the utility base diameter with 18 inches by default dimensions as shown in this invention document. The bottom base is expected and highly recommended to be heavier than top sections including the rotator fan motor, fan module, and the utility to balance and compensated in weight for the stand utility and for safety purpose. The caster wheels base would be connected to the battery with the caster wheels brake lock/unlock mechanical hook in the inner cylinder, and battery would be connected with screws from the caster wheels base which will be shown more detail in later sections. The chargeable battery comes with the inner cylinder with diameter recommended 2.5 inches and 12 inches high to provide the inner wires for power lines and for the connectors and built with array of battery packs; with the current battery technology and the dimension given, the battery could provide up to 10,000 Watts and could last for entire night when power outage. The battery should be built with waterproof and come with power ring strip raised at least 2 inches high with child safety protection as a plus for safety purposes. The power outage alert can be built-in with the battery base with voltage regulator circuit which can check the power plug input AC voltage and trigger with audible alert once every 10 seconds for the first 5 minutes, then once every 30 seconds for the next 15 minutes, and once every 5 minutes duration for maximum of 1 hour; however, the alert LED light should be flashing every 10 seconds until the power is connected or out of battery. The battery with (1) and (2) power wires are prewired inside the inner cylinder and provided female socket for the upper section. The Rotator Fan base comes with power wires socket to connect to the handle tube section, and the fan module is installed on the outer rotator motor as mentioned above; and the Fan Module Cover will be installed and screwed tied on the top base of the main controller; then the Top Fan Connector Base will be tied on the Fan Module Cover which comes with the screw holes to connect the fan cover with the top fan connector base.

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360° Stand G-Rotator Fan - Specification

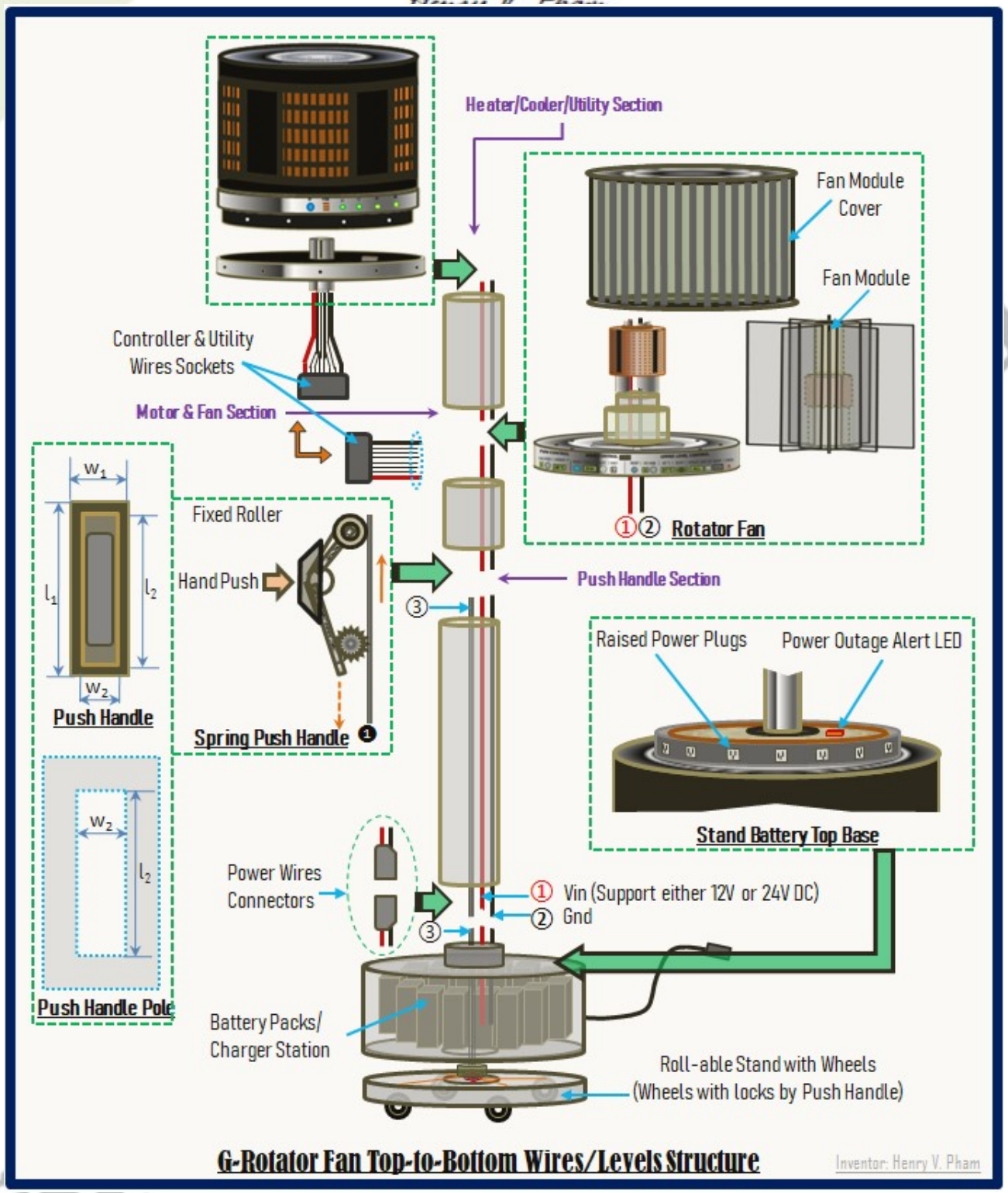

Figure-E2: 360° Stand G-Rotator Fan – Upper Level to Bottom Base Structure

The upper level utility is now can be installed on top of the Top Fan Connector Base with the wires socket connected to provide power and control lines for the heater, cooler, quadrant light or other utilities. The G-Rotator Fan is expected to be heavy and would come with the caster wheels base that

have on-brake wheels ready which needs man power to lift up the lock by the Spring Push Handle as shown in this figure which handles pulling the hook (3) up the lift the lock of the caster wheels and allow the user to move the stand fan; the push handle would be built with a torsion spring or similar. This is a plus feature to provide the users with more convenience to move the stand fane around on the floor; and this will be described more in the next section.

F. Fan Bottom Base with Helper Legs & Caster Wheels

Figure-F1: 360° Stand G-Rotator Fan – Caster Wheel with Brake Sample shows a sample of the on-brake caster wheels which are locked or on braked by default while it is standing. The caster wheel is recommended with at least 1 inch width and 2 inches diameter; and the brake is installed at 45° angle compares to the ground level as shown in the figure. The brake is recommended with the triangle shape with 45° angle and the 2-bars with 1 inch and ½ inch; the short one is the brake leg with shoe put right at 45° angle of the wheel to push on brake for both directions. The 2-arms spring would be installed at the pivot and push on the triangle brake on the longer bar as shown; and longer bar would be connected to a cable which is pulled from the top cylinder to unlock the brake. Note that the wheel cylinder connector would be at least 5/8 inch diameter, 3/16 thickness and 1 inch high and provided with a hole enough for a cable.

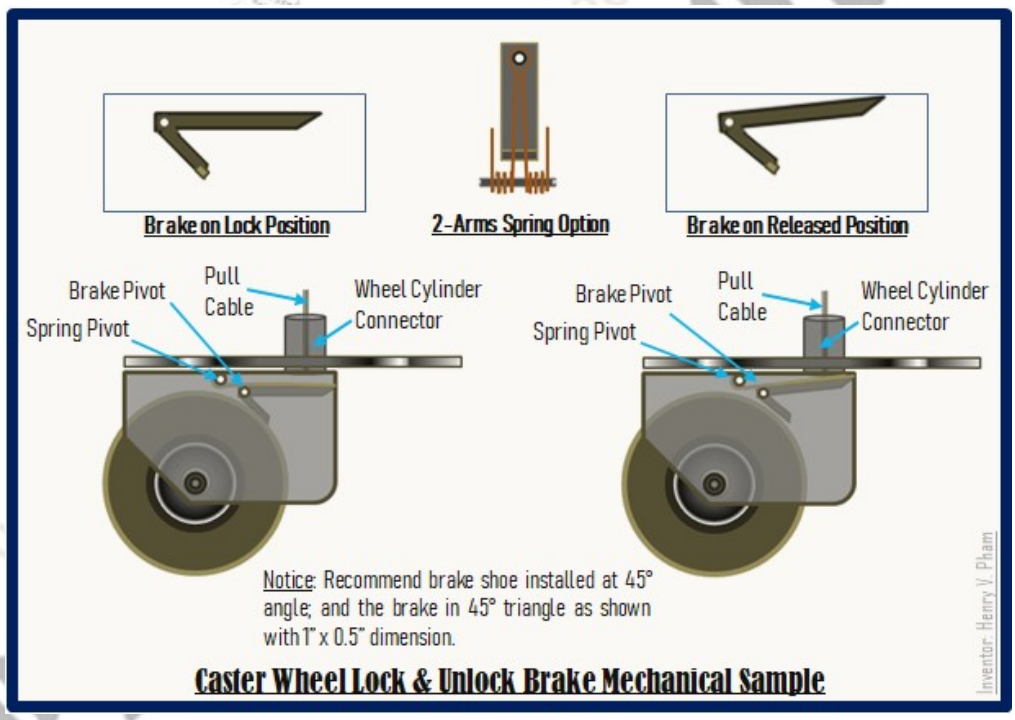

Figure-F1: 360° Stand G-Rotator Fan – Caster Wheel with Brake Sample

Figure-F2: 360° Stand G-Rotator Fan – Additional Supporting Parts shows additional supporting springs and double extension pulley which may need to double the length of the pushing handle on the handle tube section as shown in the previous section. The caster wheels mechanical would use different kinds of springs; torsion spring is recommended to use for hand push holder, wheel brake, helper legs ring or similar; and the 2-arm spring is also recommended to use for balance the forces on both sides of the part with 2-arm pushing on one side when possible.

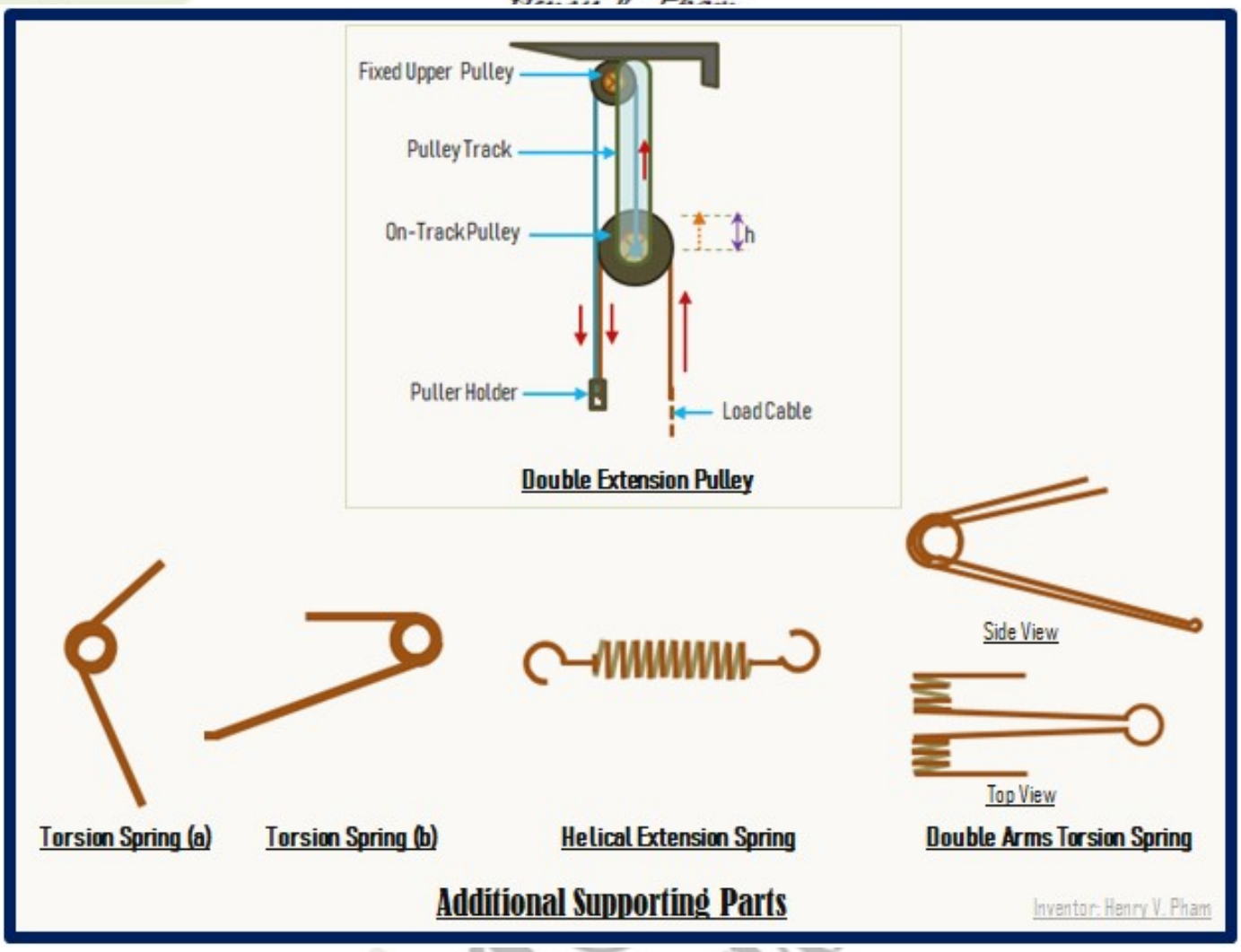

Figure-F2: 360° Stand G-Rotator Fan – Additional Supporting Parts

Figure-F3: 360° Stand G-Rotator Fan – Supported Mass Center Point Offset shows a sample for both base shapes with the caster wheels starting at the worst position with 2 wheels tilt to the left and the other 2 wheels tilt to the right and move to position on the right which forces the 2 wheels on the right now tilt to the left which make the support mass center point off from the stand center half of the wheel diameter. To have to strong protection for the stand, the gear help legs are introduced in this invention as an option for additional support. Figure-F4: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Mechanism Overview shows an overview of the mechanical that demonstrate a method of lock and unlock the caster wheels and the helper legs. The caster wheels and the gear helper legs are shown together in the same mechanical to simplify the parts that need for the lock and unlock the caster wheels and the helper legs function.

360° Stand G-Rotator Fan - Specification

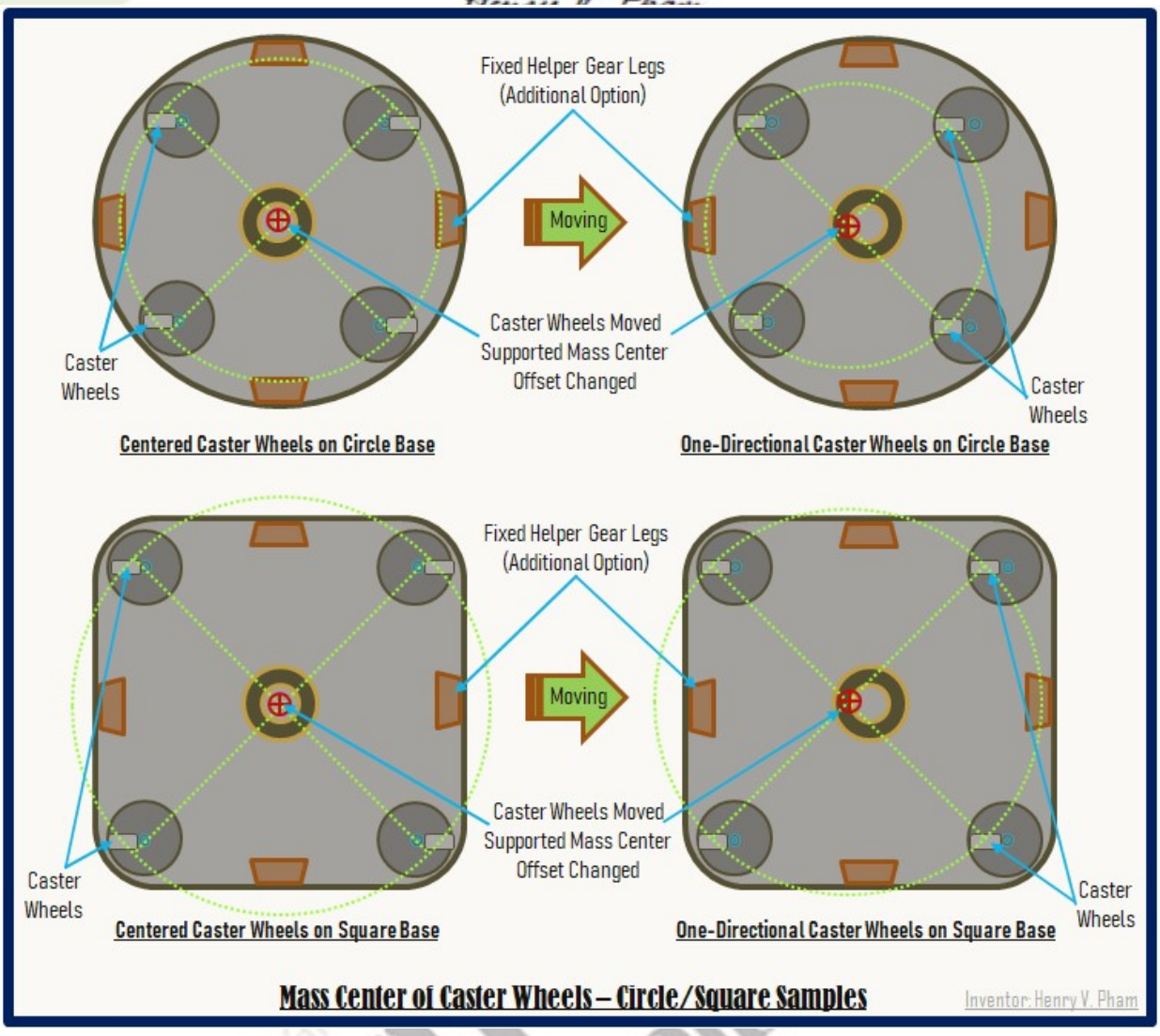

Figure-F3: 360° Stand G-Rotator Fan – Supported Mass Center Point Offset

Figure-F4: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Mechanism Overview shows mechanicals of both caster wheels brake released and the gear ring legs moving upward. The caster wheels mechanical is more simple which is released the brake with a pulling of the brake cable. The gear ring legs mechanical comes with gears sets and a latch lock. The gear ring is needed to unlocked before it can move upward which needs a delay in length with the dimension at least the thickness of the ring which is about 1/8 inch; with this requirement, the wheel brake cables may also need to delay with the same dimension 1/8 which can be used additional delay puller with spring and the minimum lock block as shown on the top right drawing of this figure. The delay sliding gear B1 in purple provides enough gap to remove the latch to unlock the ring leg before its teeth can turn the small gear B2 to start rolling the legs up. The small gear A1 is attached and fixed on the axle of the gear A2; when gear B2 turns, it turns the small gear A1 and gear A2 will turn with the same turning angle with more teeth which rolls the gear bar faster. Given small gear B2 and small gear A1 have the same dimension with 7 teeth and the bigger gear A2 with 25 teeth; when the small gears turns 2 teeth, the bigger gear A2 would turn at least 7 teeth which

are enough to move the gear leg up to 1 inch; given one gear tooth with 0.2 inch width; however, the teeth number of gear turns can be multiply by using a set of Gears A or similar where the small gear with radius r_1 turns n teeth, the larger gear with radius r_2 turns $n(r_2/r_1)$ teeth. Note that a set of gear A'B' which is shown on the most top left drawing of this figure can be used to connect between the 2 gear sets Gears-A and Gears-B to prevent gears axles overlap each others. For gear stand size, the references at the bottom of this invention document provide the links for gears details. The latch is connected to an extension spring which is used to pull the latch back to its initial position to lock the ring legs; the gear bar is installed on a bar track and pulled out by the leg cable; and the ring legs is installed around inside the wheels base and pushed downward by the torsion springs or 2-arm springs. Note that the ring legs can be optional, and can be built with separate mechanical to lift the ring legs up manually. However, the fan manufacturers can customize to use the springs and gears with similar mechanical method to release the wheels brakes and roll up the ring helper legs to allow the stand moving freely on the floor.

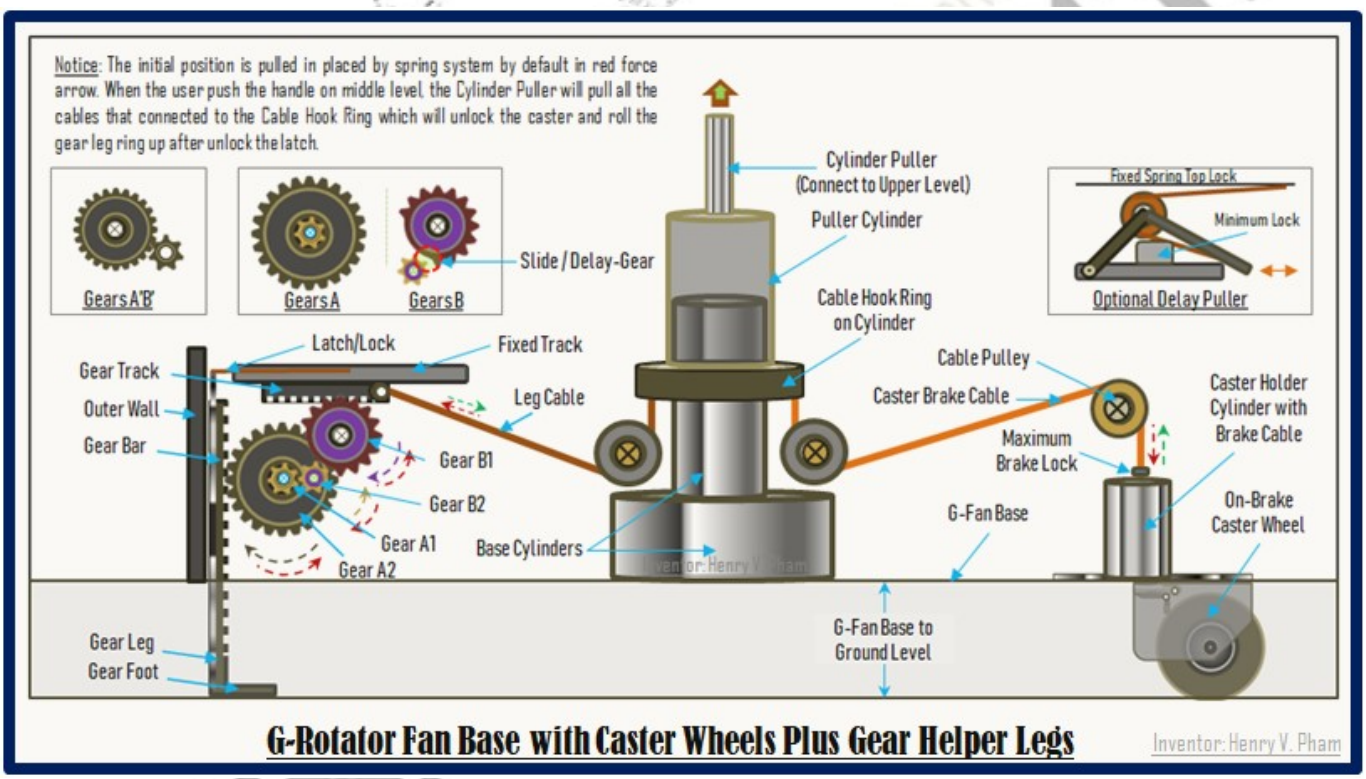

Figure-F4: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Mechanism Overview

The following steps are shown the movements of the cylinder puller when it pulls upward to release the caster wheels brakes and unlock the latch and roll the gear ring legs up. Figure-F5: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Step-1 shows step-1 with the puller started at initial position. Figure-F6: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Step-2 shows the cylinder puller is moved upward in step-2, the caster wheels are move to position-1 with the first move of releasing the brake; the latch is moved outward to position-1 to unlock the ring; and the gear bars and legs stay at position-0 with no moment yet.

360° Stand G-Rotator Fan - Specification

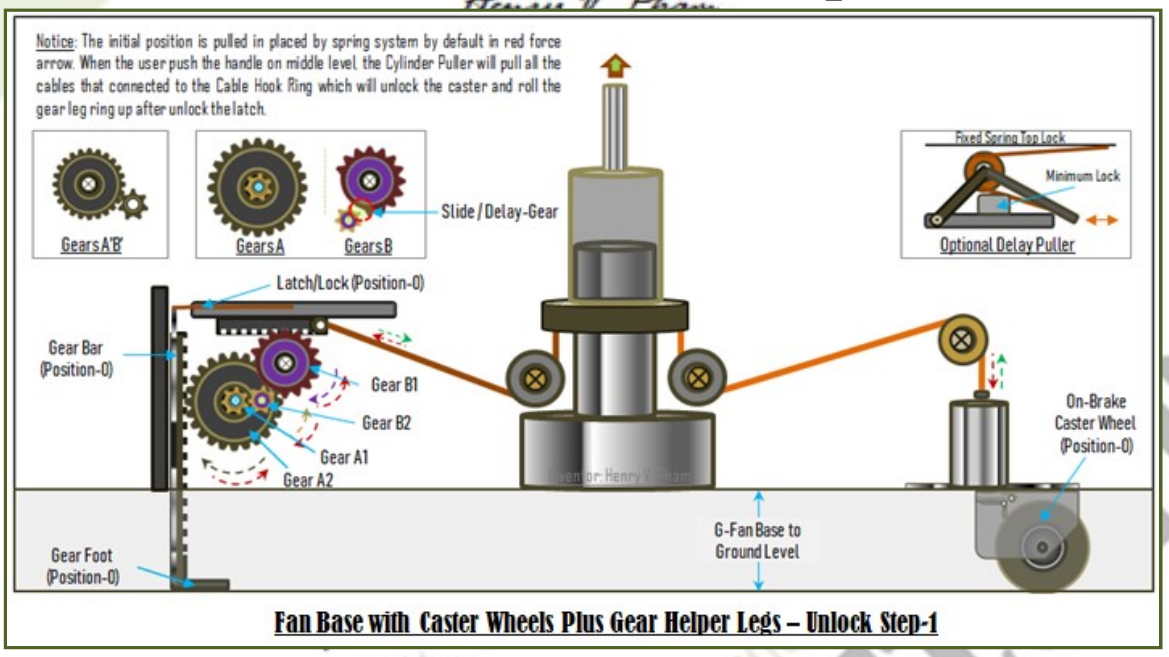

Figure-F5: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Step-1

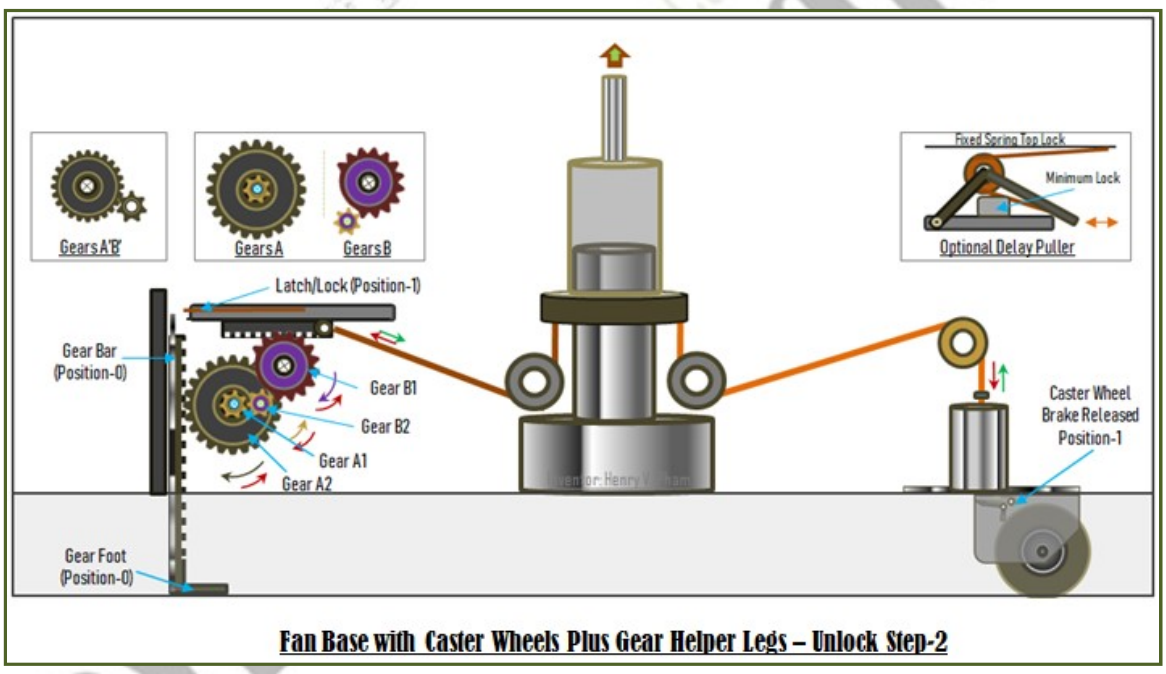

Figure-F6: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Step-2

When the cylinder puller is moved more upward in step-3, the caster wheels are move to position-2 with the second move of releasing the brake; the latch is continued to move outward to position-2; and the gear bars and legs move up to position-1 as shown in Figure-F7: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Step-3.

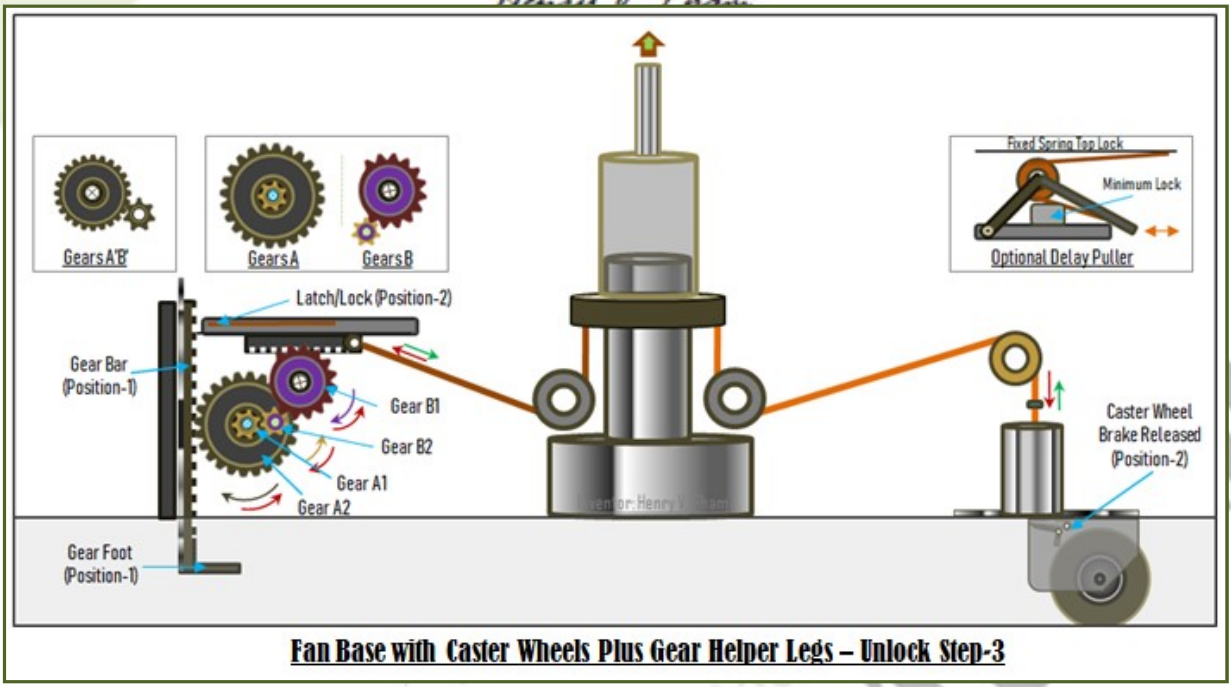

Figure-F7: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Step-3

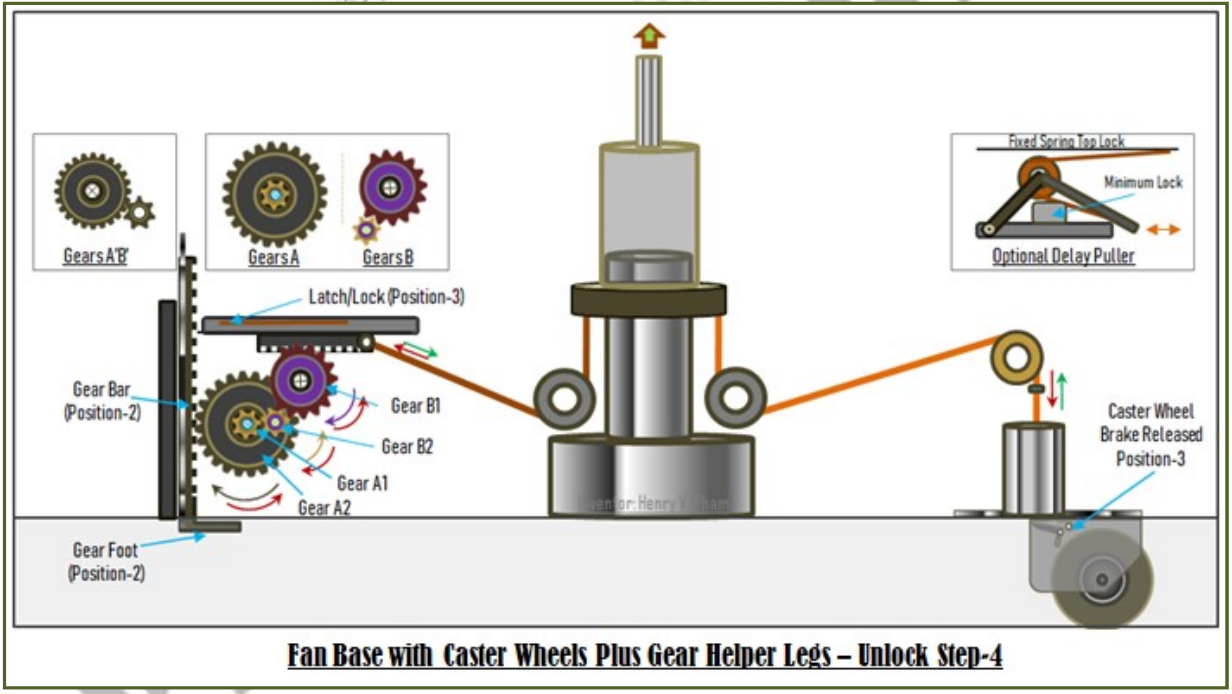

Figure-F8: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Step-4

When the cylinder puller is moved more upward in step-4, the caster wheels are move to position-3 with the second move of releasing the brake; the latch is continued to move outward to position-3; and the gear bars and legs move up to position-2 as shown in Figure-F8: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Lock/Unlock Step-4. Note that the latch, the ring legs and the caster wheels brakes will be pulled back by the springs as shown in the red arrows.

360° Stand G-Rotator Fan - Specification

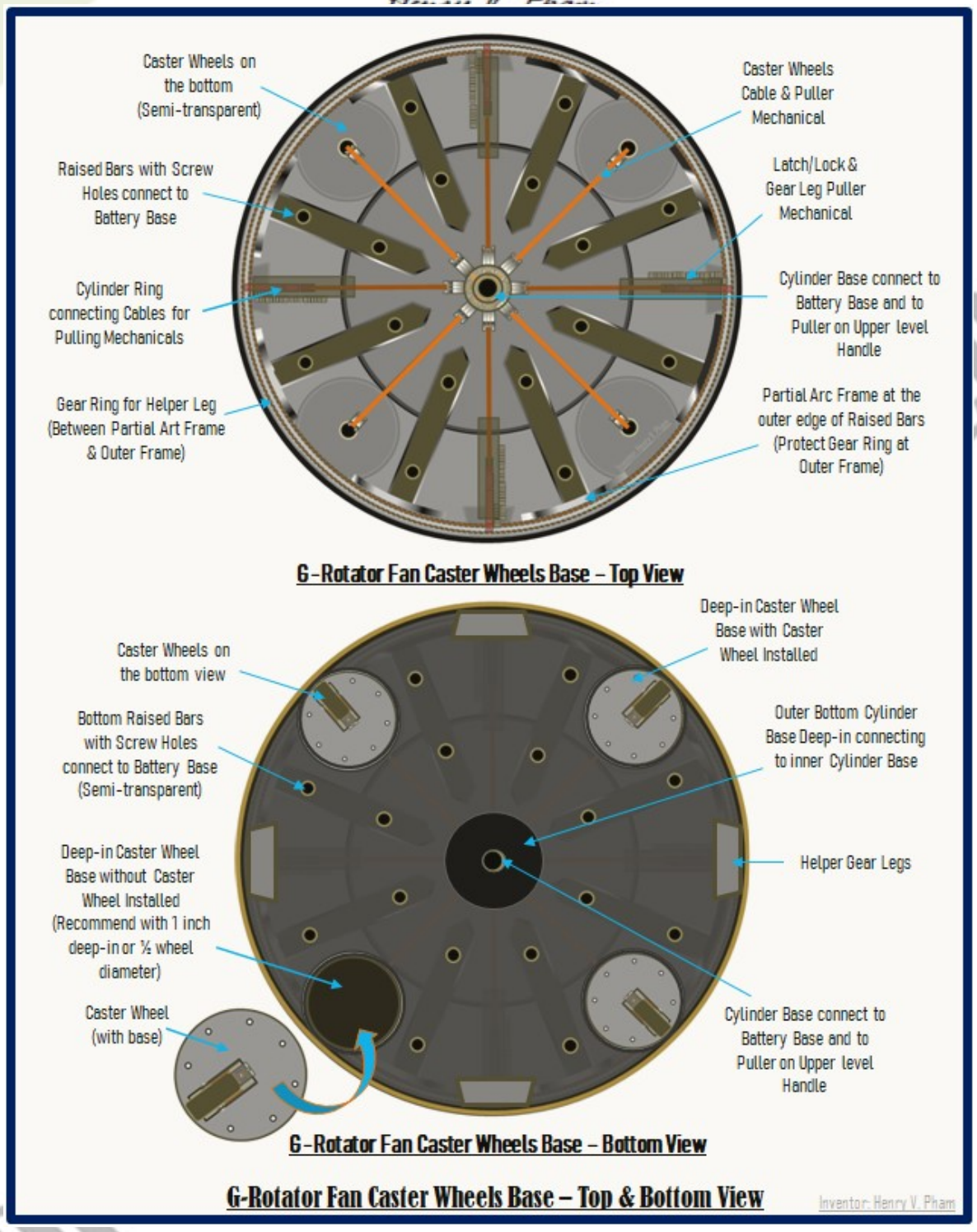

Figure-F9: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Mechanicals Layout

Figure-F9: 360° Stand G-Rotator Fan – Caster Wheels & Gear Helper Legs Mechanicals Layout shows the caster wheel base is built with 4 caster wheels brakes cables and 4 gears ring legs cables which are connected to the ring cylinder for all-in-one mechanical control. The base is built with raised bar which is shown on the top drawing of this figure with screw holes which are used to screw and connect to the battery base; the gear ring is installed inside around the base; and the center hole on the base provides the space to screw the

cylinder bolt to the upper section to tie the hook for the cylinder puller that connecting from the stand tube handle to the base cylinder. Note that to reduce the stressed cable overtime, the mechanical can use hook to pull when possible. The gear legs ring that is used to support the stand and is installed inside the bottom base around the base is shown in Figure-F10: 360° Stand G-Rotator Fan – Gear Helper Legs Ring. The high h_3 is recommended with 1 inch, and the high h_r is about 1.5 inch which is fit on the 2.5 inches outer high of the bottom base.

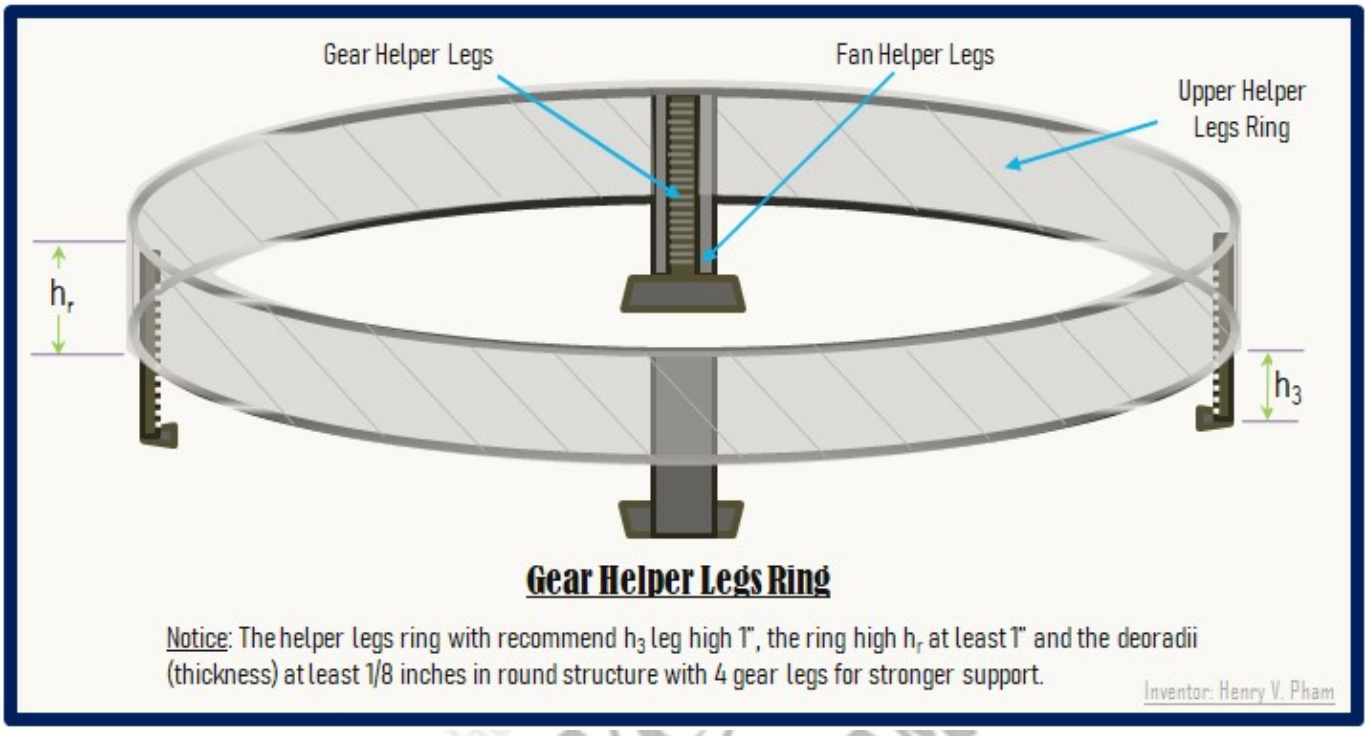

Figure-F10: 360° Stand G-Rotator Fan – Gear Helper Legs Ring

G. Fan Bottom Base, Battery & Parts Connections

Figure-G1: 360° Stand G-Rotator Fan –Wheels Base & Chargeable Battery Connections shows the battery provides the female power adapter through the inner cylinder, and the inner cylinder comes with thread which allows the upper section to connect together with screwed tube connector. The bottom base with cylinder puller is connected to the battery base. The bottom base is recommended with the followings dimensions, h_3 about 1 inch which is ½ diameter of the caster wheel; h_2 about 2.5 inches; h_r about 1.5 inches; d_1 about 1 inch; thickness t' at least ¼ inch and t at least ½ inch to fit the gear helper legs ring with at least 1/8 inch thick; and the battery high h_1 at least 8 inches. The battery and the wheels base connections are shown in this figure with the recommended dimensions; and it is required to have the weight heavier than the upper level utility include the fan.

360° Stand G-Rotator Fan - Specification

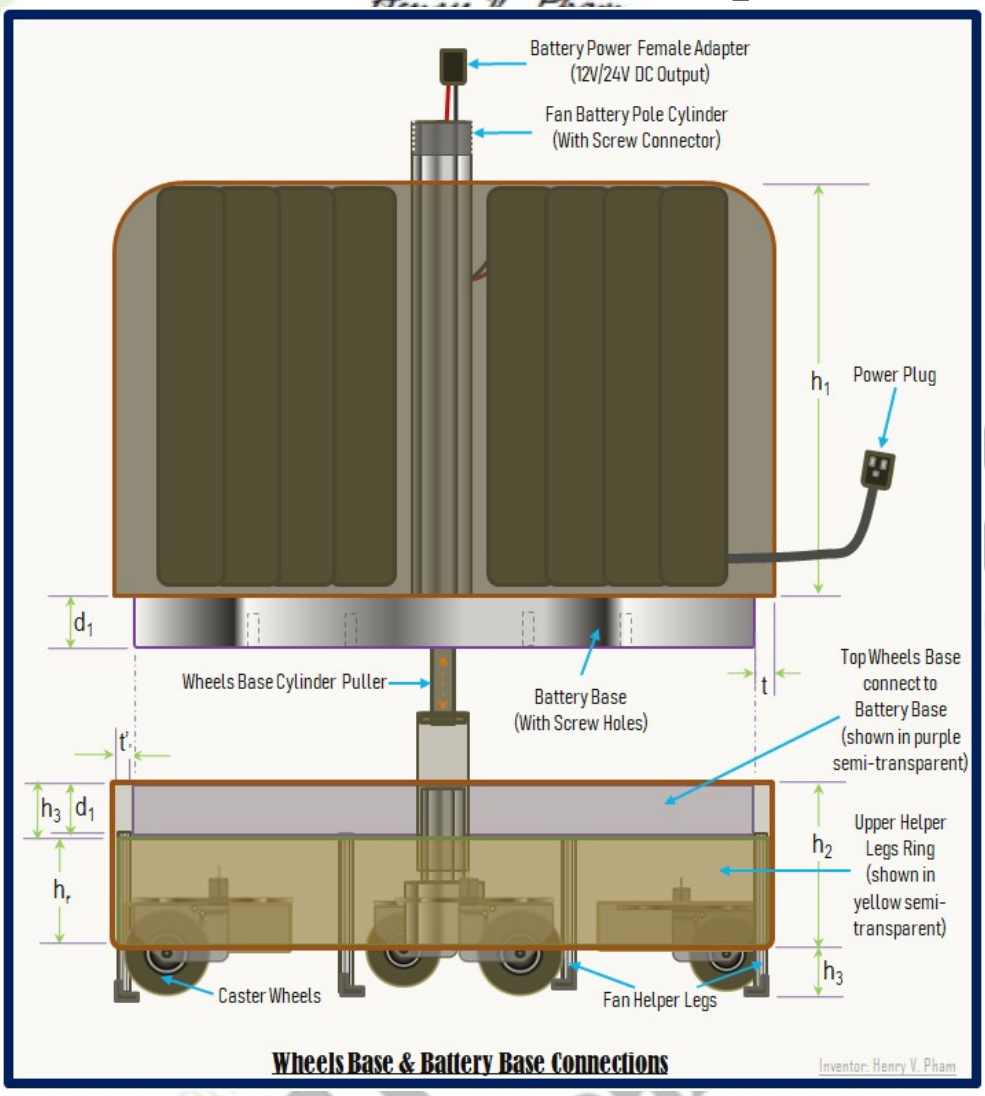

Figure-G1: 360° Stand G-Rotator Fan –Wheels Base & Chargeable Battery Connections

Figure-G2: 360° Stand G-Rotator Fan – Tubes Sections Connections shows the tube connector with inner diameter d_i and outer diameter d_o with the threads to tie with bottom tube connector to have separate sections and tubes for assembly easier. The top connector comes with inner threaded connector; and the threaded connector can be moved to the top where d_i is the inner thread diameter which has the same dimension of the diameter of the tube. The bottom connector comes with outer threaded connector and it is fixed on the tube as shown in this figure. The connector comes with a joint, and the joint is recommended with 4 track locks with the cylinder thickness at least ¼ inch; the top and bottom connector joints are shown in the middle drawing with top views of this figure. The battery base comes with the bottom connector which has female power adapter and the puller hook. The middle tube comes with bottom inner-threaded connector to connect to the battery base tube connector; and comes with top outer-threaded connected to connect to the fan base; note that the middle tube comes with the hook and the power adapter on both sides. The fan base comes with the bottom inner-threaded connector to connect to the middle tube.

360° Stand G-Rotator Fan - Specification

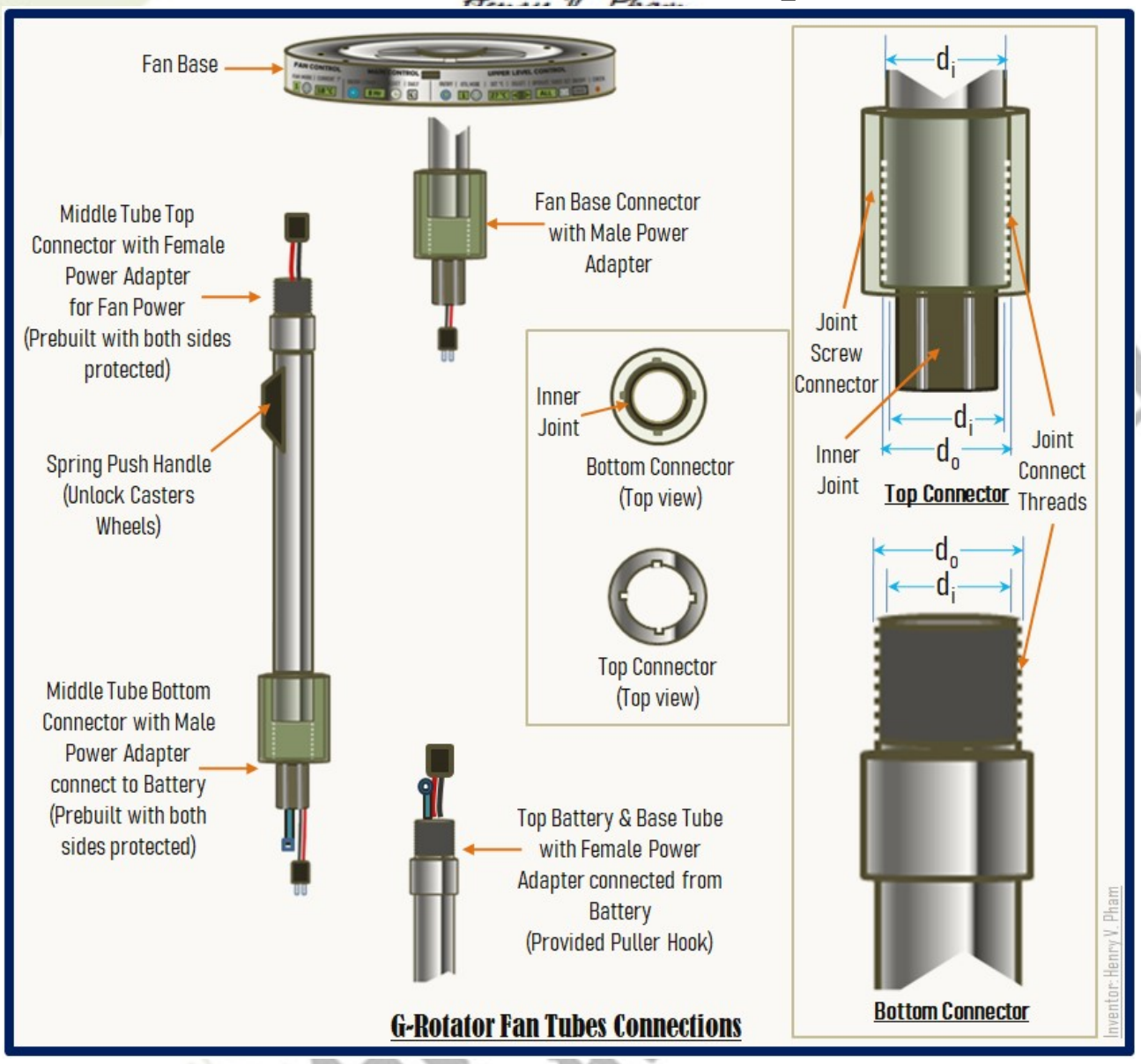

Figure-G2: 360° Stand G-Rotator Fan – Tubes Sections Connections

H. Important Things Checklist

1. The G-Rotator Fan for common size is recommended with 5 feet tall which includes 12 inches battery and caster wheels base; at least 2 feet tube for the handle; 10 inches high of rotator fan with 18 inches outer diameter; and 8 inches high & 16 inches diameter for fan module; plus 2 inches controller base; 8 inches high with 18 inches outer diameter of the utility, heater, cooler, quadrant light or other utilities; and the bottom base battery should be built with the same outer diameter of the utility or bigger. However, the bottom base and the utility can come with different shapes other than circle shape.
2. It is important to make the battery and the caster wheels base to be heavier than the total weight of the fan and heater, cooler or any utility in upper level.

3. Make sure the heater and cooler wire is active and controllable only for heater and cooler and not for any other non-temperature related control; and the main controller will ignore any set temperature inputs for non-temperature related control to prevent changing modes of the non-temperature related utility when allows setting temperature; and make sure to test all features and functions of the heater and cooler plus other utilities when switching during developing the G-Rotator Fan to support multiple detachable utilities.
4. The G-Rotator Fan is built for air distribution and can be built with other add-on devices options with space available like power outage alert, motion night lights, plus optional smoke detector and carbon monoxide detector.
5. Remote control should be able to control the fan, heater, cooler, quadrant light or any other utilities that are compatible with the G-Rotator Fan, and the remote control is recommended to use 2 AAA batteries pack which is common battery and easy to find and buy.
6. Make sure the tubes are built with separated sections with threaded connectors with cables, hooks, wires and power adapter on both sides of the tubes of the connector bases for tubes connection easier and for convenience of assembly and delivery.
7. Make sure to build the upper level wires socket with standard size and with the same wires order to allow other utilities fit on and work with the G-Rotator Fan.
8. The heater and cooler can be built with standby mode at the initial state when it is first turned on; the heater can keep the heating element warm; the cooler can keep the cooling unit operating in lowest performance mode; the quadrant light can keep on dim mode as the initial mode before ready to set to operating mode 1 for Low, mode 2 for Medium and mode 3 for High. This initial mode is first operating state of power on or when the main controller set mode to zero or both mode lines to 'OFF'. However, the main controller can be built with memorized functions with the 'DAILY' schedule for the utility to operate with the same settings for functioning as it was.

I. Summary

The 360° Stand G-Rotator Fan is invented with State-of-the-Art with unique look-and-feel stand fan and intended to replace the existing stand fans. The top level can be a heater, air evaporating cooler, air humidifier, standing light or other utilities. The G-Rotator Fan comes with a chargeable battery at the bottom as the base charger station and prevents overloading of power usage which also comes with the on-brake caster wheels locking mechanism that blocks the stand from moving and allow moving by a press-and-hold handle on the stand tube pole for safety purposes. The G-Rotator Fan provides a standard control with the same remote control which can control the heater, cooler, air humidifier, quadrant light, star night light, galaxy projector or any other utilities on the top level with at least 4 different modes and 4 different sides, front, back, left and right. The G-Rotator Fan is perfect stand fan for both indoor and outdoor fan with heater and cooler. With these great features and functions plus attachable and detachable device support on top level, the G-Rotator Fan is great promise for future of stand fan with heater, cooler, air humidifier, light and other utilities which can save the consumers' money, space with all-in-one fan.

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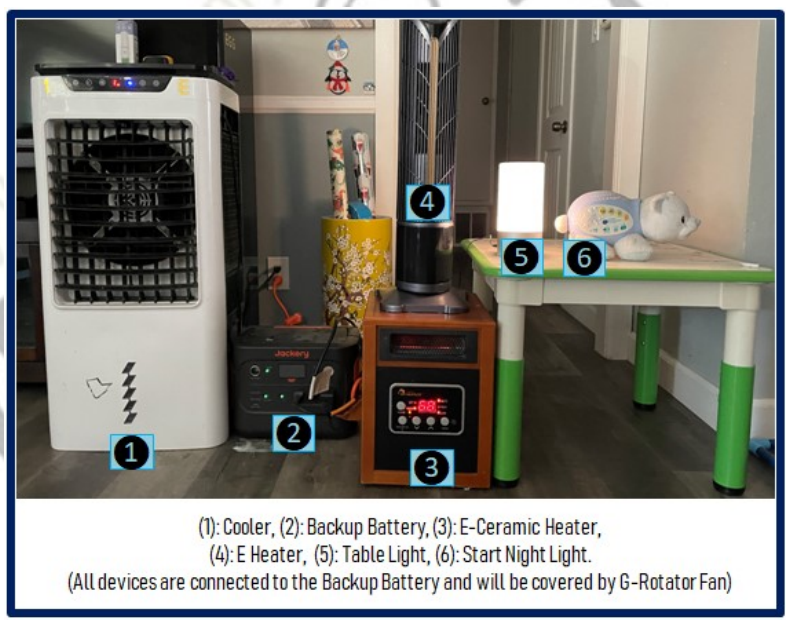
360° Stand G-Rotator Fan - Specification

J. References

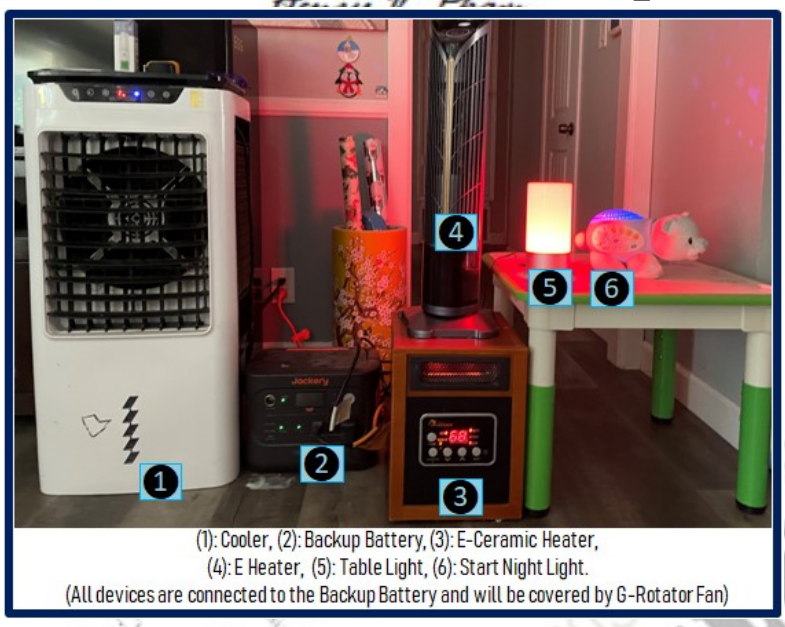
1. https://en.wikipedia.org/wiki/Ceramic_heater shows ceramic heater with current ceramic heating technology which is available in the current market for references.
2. https://en.wikipedia.org/wiki/Electric_heating shows electric heating with current electric heating technology which is available in the current market for references. For more detail about heating element, the https://en.wikipedia.org/wiki/Heating_element shows the existing heating elements.
3. https://en.wikipedia.org/wiki/Evaporative_cooler shows evaporative cooler with current evaporating cooling technology which can be used for Air Evaporating Cooler (AE Cooler) for references.
4. https://en.wikipedia.org/wiki/Water_cooling shows references of certain chemical compounds, when dissolved in water, can make the resulting solution cooler through an endothermic reaction, which absorbs heat from the surroundings.
5. https://en.wikipedia.org/wiki/Gear shows a gear or gearwheel which can be useful for checking the standard gear size and number of teeth recommended for references.
6. The snapshots below show an example for references of the existing evaporative cooler, heaters, table-light and star night light are connected to a backup battery to prevent overloading and all these will be replaced by the 360° Stand G-Rotator Fan. The snapshots below show the utilities that are connected to the backup battery; these utilities/devices are cooler, heaters, table lamp/light, star night light and plus small devices like motion night light and power outage alert are not shown. The G-Rotator Fan provides the main fan and all these utilities devices would be attachable, detachable and replaceable on top of the fan with the same remote control to control each individual utility device's functions and modes as a standard.



(1): Cooler, (2): Backup Battery, (3): E-Ceramic Heater,
(4): E Heater, (5): Table Light, (6): Start Night Light.
(All devices are connected to the Backup Battery and will be covered by G-Rotator Fan)

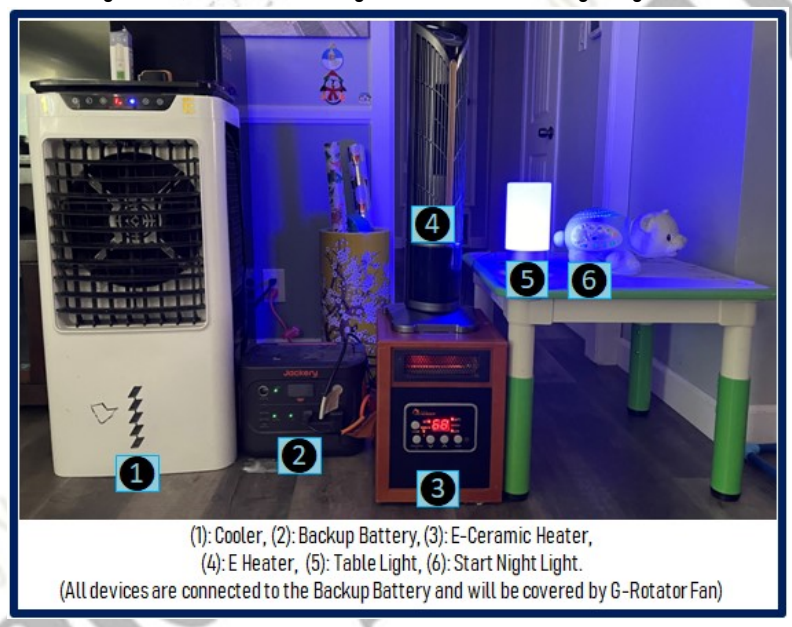
Reference 1A: Existing Cooler, Heaters, Table Light Mode-1 and Star Night Light connected to a Battery

360° Stand G-Rotator Fan - Specification



(1): Cooler, (2): Backup Battery, (3): E-Ceramic Heater,
(4): E Heater, (5): Table Light, (6): Start Night Light.
(All devices are connected to the Backup Battery and will be covered by G-Rotator Fan)

Reference 1B: Existing Cooler, Heaters, Table Light Mode-2 and Star Night Light connected to a Battery



(1): Cooler, (2): Backup Battery, (3): E-Ceramic Heater,
(4): E Heater, (5): Table Light, (6): Start Night Light.
(All devices are connected to the Backup Battery and will be covered by G-Rotator Fan)

Reference 1C: Existing Cooler, Heaters, Table Light Mode-3 and Star Night Light connected to a Battery

7. https://en.wikipedia.org/wiki/ 555_timer_IC shows the IC-555 timer chip which can be used for timer as mentioned for Daily Schedule for references. The below recommendation to improve IC-555 timer to simplify the circuit. To simplify the circuit with timer, The IC-555 Timer chip is recommended to have more pins to accept the output frequency/timing counter as an input; and the input pin and output pin as a pair for the predefined base-counter. Recommend to have at least 1 base-10 for frequency/timing counter to second count since the lowest frequency is 0.10 Hertz/cycles per second; and 2 pairs for base-60 counters for minutes and hours, and 1 pair base-24 for day counter. The output of seconds connect to the input of minute; 60 seconds counts (ticks) for one minute count and

similar for the hour counter and day counter. This would simplify circuit wiring and IC chips where requires timer.

Improve IC-555 Timer And Idea for Recursive IC Chip Suggestions

☆☆☆

Suggestions:

+ **Improve IC-555** : The IC-555 Timer chip is recommended to have more pins to accept the output frequency/timing counter as an input; and the input pin and output pin as a pair for the predefined base-counter. Recommend to have at least 1 base-10 for frequency/timing counter to second count since the lowest frequency is 0.10 Hertz/cycles per second; and 2 pairs for base-60 counters for minutes and hours, and 1 pair base-24 for day counter. The output of seconds connect to the input of minute; 60 seconds counts (ticks) for one minute count and similar for the hour counter and day counter. This would simplify circuit wiring and IC chips where requires timer. Visit https://en.wikipedia.org/wiki/555_timer_IC for more info about IC-555.

+ **Plus more advanced Recursive IC (R-IC) chip**: Based on the idea the IC-555 suggestion above, we can build Recursive IC chip which can recursively take input and process for an output, then use the output as the next input to repeat the same process until the condition reached. When the condition is reached as the recursive function requirement, the final output pin will be triggered for the final output. This would the be real Recursive IC chip with programmable feature which allows loading/reloading Recursive Functions or Recursive Algorithms to calculate common Recursive Functions or Recursive Algorithms faster, and this would be great promise for the future of Advanced Integrate Circuit (IC) Chip Technology. We then can use the R-IC chip in real-life applications to find a Prime Number in Mathematics; find Mass Center Point of Triangle in Recursive Geometry; detect error, gain or lost for adjustment functions with output feedback in Control System and much more...

-- Henry V. Pham

References 2A: Timer IC-555 Recommendation

8. The 360° Stand G-Rotator Fan is registered for trademark as 'G-Rotator Fan' with the U.S. Trademark number 99577046 which can be found on the www.uspto.gov website.

360° Stand G-Rotator Fan - Specification

Biography

About myself, my full name is Henry Viet Pham, original name was 'Viet Hong Pham', changed in 1996 when I obtained U.S. citizenship, and currently live in Anaheim, California. I am a divorced single father of 3 sons, Alexander Le Pham (born in 2009) & Andrew Le Pham (born in 2012) who were born during my old marriage which was divorced in year 2013, and Harry Quoc Pham (born in 2018) who was born during my marriage with my ex-wife Celine Nguyet Tran and divorced in February 2025. I was born in Vietnam at Da Nang city in 1972/08/23 then moved to my grandfather's hometown with the family right after the South Vietnam collapsed in 1975 and grown up at Thach An thorp, Binh My commune, Binh Son district, Quang Ngai province, Vietnam. When I was 9 years old in fifth grade in 1981, the local school requested to adjust birth date year to 1971 to match education age; my father used the original Birth Certification before 1975 for the HO for POW program paperwork for immigration to live in United States. Then, I came to United States in 1991 as a military and political immigrant with my father and family members. My father Nu Pham (1935-2018) who served as a Senior Lieutenant-Colonel in the South Vietnam military during Vietnam War in 1975, and my mother is Thong Thi Tran (born in 1935) with my sisters are Nguyet Thi Pham, Jessie Nga Pham and Tiffany Tuyen Pham, and my brothers are Duc Hong Pham, Kevin Tri Pham, Danny Phuc Pham, and Andy Quy Pham.

About Education, I came to United States after finished my high school at TPTH Binh Son in 1989 at Quang Ngai, Vietnam; and I continued my education right after came to U.S. and I got my Bachelor Degree in Electrical and Computer Engineering at Calpoly Pomona, California in 1998. I am interested in Engineering and Science with more specific in Computer Programming, Physics, Mathematics plus Philosophy, and I have done many researches and self-study since I graduated in 1998 and continue researching and inventing with total of 18 inventions which have been submitted for patents from June 2021 to January 2026, and I still have many other inventions to work on and open the Cloud OS Company for business.

About my works and inventions, I have 28 years plus of professional experience in high technology industry since 1998. I have worked for Eden Airport Ground Service Company in Los Angeles International

Airport in 1995; worked for Caltrans (California Department of Transportation District 9) in 1997; worked for Raytheon, a defense company from May 1998 to 2005; worked for Marshal 8e6, an internet security company from January 2006 to 2010; worked for Pace America, a Satellite Set Top Box in 2010; and worked for Western Digital, a storage technology company, from June 2010 to January 2026. I am the sole inventor of a total of 18 inventions which have been submitted from June 2021 to January 2026 as followings.

1. Invention Title: New Way to protect WiFi Network from Hackers -- First submission with U.S. Patent #: 29/788,607; Submitted on 2021/07/01 with USPTO Confirmation # 1396; then Resubmitted on 2024/02/27 to WIPO International office with Initial U.S. PCT Patent #: PCT/US24/17533 and International Patent #: PCT/IB2024/000110 with USPTO Confirmation # 9715;
2. Invention Title: THE G-CODE -- First submission with U.S. Patent #: 29/806,573; Submitted on 2021/09/03 with USPTO Confirmation # 6641; then Resubmitted on 2022/02/17 to WIPO with Initial U.S. PCT Patent #: PCT/US22/70704 and International Patent #: PCT/IB2022/000112 with USPTO Confirmation # 8530;
3. Invention Title: The Cloud OS - Operating System -- Initial U.S. PCT Patent #: PCT/US21/71689; and International Patent #: PCT/IB2021/000683; Submitted on 2021/10/02 with USPTO Confirmation # 2919;
4. Invention Title: The LPS - Local Positioning System -- Initial U.S. PCT Patent #: PCT/US21/72562; and International Patent #: PCT/IB2021/000949; Submitted on 2021/11/23 with USPTO Confirmation # 4809;
5. Invention Title: Greatest Performance Hard Drive (G-Drive) -- Initial U.S. PCT Patent #: PCT/US21/72563; and International Patent #: PCT/IB2021/000961; Submitted on 2021/11/23 with USPTO Confirmation # 7441;
6. Invention Title: Cell eMap Live Updates System -- Initial U.S. PCT Patent #: PCT/US22/79368; and International Patent #: PCT/IB2022/000685; Submitted on 2022/11/07 with USPTO Confirmation # 1421;
7. Invention Title: LPS Navigation System -- Initial U.S. PCT Patent #: PCT/US22/79369; and International Patent #: PCT/IB2022/000671; Submitted on 2022/11/07 with USPTO Confirmation # 2843;
8. Invention Title: Emergency Traffic Lights Routing System -- Initial U.S. PCT Patent #: PCT/US22/82343; and International Patent #: PCT/IB2022/000791; Submitted on 2022/12/23 with USPTO Confirmation # 5870;
9. Invention Title: G-ROUTING ALGORITHM METHODOLOGY -- Initial U.S. PCT Patent #: PCT/US22/82347; and International Patent #: PCT/IB2022/000800; Submitted on 2022/12/23 with USPTO Confirmation # 6674;
10. Invention Title: Parallel Transforming Percentage Theorem -- Initial U.S. PCT Patent #: PCT/US23/77057; and International Patent #: PCT/IB2023/000611; Submitted on 2023/10/23 with USPTO Confirmation # 8830;
11. Invention Title: Auto Following Motion Security Camera -- Initial U.S. PCT Patent #: PCT/US24/13660; and International Patent #: PCT/IB2024/000177; Submitted on 2024/01/31 with USPTO Confirmation # 7016;
12. Invention Title: Wall Security Camera System -- Initial U.S. PCT Patent #: PCT/US24/13663; and International Patent #: PCT/IB2024/000096; Submitted on 2024/01/31 with USPTO Confirmation # 8953;
13. Invention Title: OH SMART AIRPORT -- Initial U.S. PCT Patent #: PCT/US24/43532; and International Patent #: PCT/IB2024/000451; Submitted on 2024/08/23 with USPTO Confirmation # 7659;

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14. Invention Title: Touch Slide & Landing Board for Aircraft Carrier -- Initial U.S. PCT Patent #: PCT/US24/52509; and International Patent #: PCT/IB2024/000586; Submitted on 2024/10/23 with USPTO Confirmation # 8106;
15. Invention Title: Cybercopter Flyer -- Initial U.S. PCT Patent #: PCT/US24/52515; and International Patent #: PCT/IB2024/000800; Submitted on 2024/10/23 with USPTO Confirmation # 6976;
16. Invention Title: Hybrid Air & Rubber Cells Layer Tire -- Initial U.S. PCT Patent #: PCT/US24/61635; and International Patent #: PCT/IB2024/000780; Submitted on 2024/12/23 with USPTO Confirmation # 5672;
17. Invention Title: One Round Chamber -- Initial U.S. PCT Patent #: PCT/US25/61100; and International Patent #: [WAITING 4 WIPO #]; Submitted on 2025/12/23 with USPTO Confirmation # 4867;
18. Invention Title: 360° Stand G-Rotator Fan -- Initial U.S. PCT Patent #: PCT/US26/12287; and International Patent #: PCT/IB2026/000045; Submitted on 2026/01/23 with USPTO Confirmation # 4148;

My other inventions are listed as followings, 'Emergency Cylinder Helical Stair' for personal and emergency purposes, 'Personal One Step Escalator' for personal use like elevator in compact space, and 'Smart Cart Gear Belt System' for Smart Cart Exchanger were part of the "OH SMART AIRPORT" invention. "Transpond License Plate" which is intended to use for tracking license plate within a desired distance; "Auto Tracking Target Network Security Cameras System" which is intended to use in the crowd areas like airport to follow and track the suspect/target for crowd security camera system; "Robot Medical Doctor" which is intended to help family doctors and hospital to check up patients faster with better medical statistic data with built-in Machine Intelligence (MI); and direct business related inventions, "Matrix Base Keyboard" to prevent wire/wireless keystrokes logger plus 'USB Virtual Keyboard' and 'Master & Slave Hard & Soft Monitor Switch' were part of the "One Round Chamber" plus the 'Q-Liftier & Carrier' which can be used for lifting and carrying.

About my business, the Cloud OS Company with the websites www.TheCloudOSCenter.com or www.TheCloudOSCompany.com business uses mainly Invention #3: The Cloud OS – Operating System, Invention #5: Greatest Performance Hard Drive (G-Drive) with the website www.TheGreatestDrive.com, and Invention #9: G-ROUTING ALGORITHM METHODOLOGY. The Cloud OS Company business brings the world to the next level of World Computing Infrastructure Modern with the main purposes to secure users' data and secure entire computer networking around the world or the World eWeb with the new technology of Neighbor-to-neighbor checking methodology and Neighbor-to-neighbor routing technology, and applying the new dynamic protocol technology for data transferring with the high secure of the 4K Number Encryption. And there are my other 3 businesses related websites www.TheGCODECreator.com which is used for the G-CODE labels/profiles/products/logos creator application; www.ThePatrolCircle.com which is used to patrol the points of interests for security camera system with Patrol Circle Unmanned Aircraft; and www.TheCybercopterFlyer.com which is used for Cybercopter Flyer, the Cybercopter flyer is intended to replace the current helicopters and for future of aviation transportation in circle shape like UFO flyers which can support both turbofan and turbojet engines with cell fuel and solar energy.

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