One Round Chamber - Claim

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The purpose of the '**One Round Chamber**' invention is the devices tester chamber with multi-level load drum rotating back-and-forth in 360° in one round circle to keep the wires in shortest length without twisting to provide greatest capacity of loading for testing devices with temperature and humidity environment plus vibration control option. The One Round Chamber with USB Virtual Keyboard and the Expendable Monitor Switch provides the users with full control locally and remotely to configure, view, and debug the test node PCs. This claim shows the overview figure, which can be used as the representing invention drawing that would show on the patent frame, and the following functions and features of this invention which was submitted on 2025/12/23 with U.S. PCT/US24/61100 and International PCT/IB2025/000695 Patent Numbers.

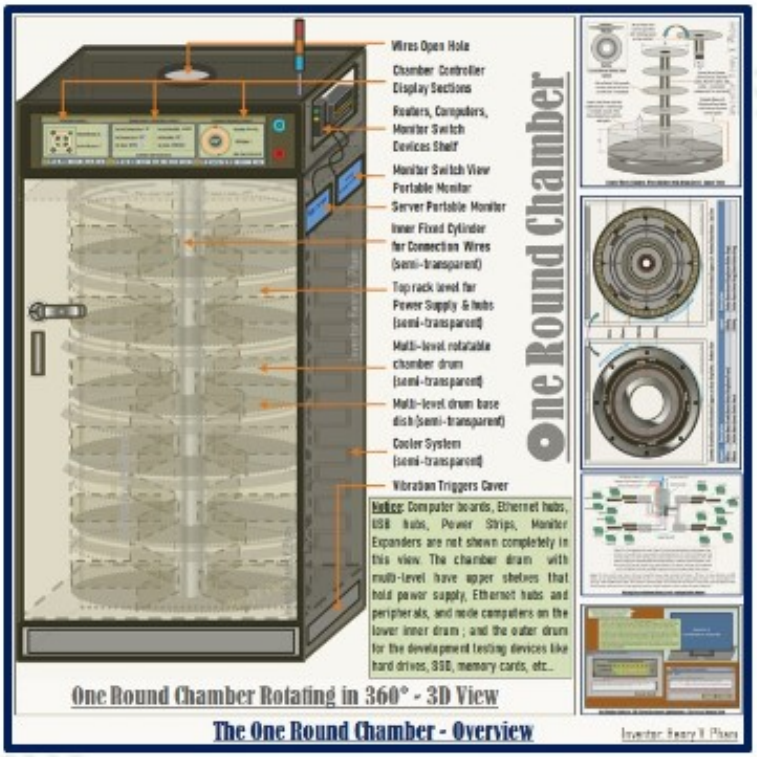

Figure-A: One Round Chamber -- Overview

1. The main apparatus for the One Round Chamber, comprising:

   The multi-level devices loading drum that rotating back-and-forth in one round 360° to support convection testing environment for all devices with electrical and devices connections wiring in the center wires cylinder that prevent twisting wires with plus vibration control option; wherein, the devices testing chamber provides portable layout with top shelf to store computer server, monitor switch, Ethernet router, switches and other utility devices; plus new designed monitor switch and USB Virtual keyboard to allow the users configure, monitor and control the chamber remotely, plus Q-Liftier & Carrier to support deploying and repairing chambers easier.

2. An main additional digital control and display apparatus for the One Round Chamber, comprising:

   The Chamber Display Controller, on top front of the chamber, comes with recommendation of 3 sections, Vibration Control, Temperature & Humidity Control, and Chamber Rotation Control that would connect to the Microcontroller to control chamber testing environment and chamber mechanicals and communicating with computer server which allows application software running on the server to control

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and operate the chamber; plus the side layout to support portable monitors for computer server and for the device test node computer.

3. The rotation drum base of claim 1, comprising:

   The drum base comes with Rotation Latch and Rotation Lock; the Rotation Latch is installed right at center of the front door on the rotator drum base to indicate the drum rotating at the front center position, and the Rotation Lock is installed right at center of the back of the chamber on the chamber stator base and used to lock the drum from rotating further and keep the drum rotating within in one round of 360° back-and-forth with detection of touch sensors.

4. The multi-level devices loading drum of claim 1, comprising:

   The drum comes with multiple levels and rotating by the gear motors at the bottom with support of the top and bottom bearing roller rings plus top and bottom insulation rubber rings. The drum level base is recommended to divide into 8 sectors; each sector for one device test node computer with Power Supply, Ethernet and Monitor switches which can handle multiple devices which can be Hard Drives, Solid State Drives, Memory Cards, etc... Each sector comes with dividers for inner and outer section, where the inner section is used to install device test node computers, and the outer section is used for loading devices. Between the inner and outer sections, there are insulation panels that would provide testing devices connectors to connect the testing devices to the test node computers to support the chamber with temperature and humidity for the testing devices.

5. The center wires cylinder of claim 1, comprising:

   The center wires cylinder is also recommended to divide into multiple levels and stackable with wires holder disk on each level. The wires holder disk with smooth surface can be flat or curved disk which is used to hold the wires and allow the wires sliding while the drum is rotating around. The center wires cylinder is built with pre-cut holes to mount the power strips and connect the wires from these power strips to the test node computers and testing devices.

6. The chamber shelf of claim 1, comprising:

   The chamber shelf on top is used to store computer, Ethernet router, monitor switches and other utility devices with the center wires cylinder which is connected to the wires from the ceiling as recommended with electrical protection for safety purposes.

7. The utility and communication devices to the computer server of claim 1, comprising:

   The temperature and humidity sensors plus air cooler compressor controller are connected to the chamber Microcontroller to provide control commands from the host computer server, and the UART/Serial Cable which is connected from the Microcontroller to the host computer server that allows application software running on the computer server to control the chamber environments and other provided functions via Serial Communication Commands Protocol that is shown in the original invention document.

8. The Vibration Mechanical of claim 1 and 2, comprising:

   The Vibration Mechanical comes with 8 vibration patterns built on the chamber stator base which are divided into 4 inner circle patterns and 4 outer circle patterns and they are controlled ON/OFF

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independently which provide with total of 63 vibration combinations. Vibration Mechanical also comes with 8 vibrator triggers built on the drum rotator base and also divided into 4 inner circle triggers and 4 outer circle triggers. The vibration mechanical can be controlled ON/OFF by hand or motor, and the drum is recommended to rotate to its initial position where the Rotation Latch is installed when the chamber is stopped running.

9. The Monitor Switches of claim 1, comprising:

   The Monitor Switches comes with Master and Slave Switches with Hard and Soft buttons. The Master Switch with display ports connecting to a monitor to view a selected node computer and USB port for keyboard; and the switch connects to the computer server to support Soft buttons functions which is control by UI Application (Master & Slave Hard & Soft Monitor Switch with sample UI and Protocol provided in the original invention document) that enable the remote control for remote users. The Slave Switches with display ports, USB keyboard ports and communication ports connecting to the back ports of Master Switch, and each Slave Switch can be selected and controlled by remote users with running the UI Application on the computer server via the Master Switch. A webcam would be provided to view the monitor for the selected target node computer that allows the remote users to view and control. Both Master and Slave Switches would support hard button functions when the users is physically present to control manually. The Monitor Switch would have Left-and-Right expandable for wider support when the switch does not support enough ports and can be connected left and right switch to form the Hard & Soft Left-and-Right Expender Monitor Switch option. The monitor switch control protocol and Left-and-Right Connection protocol are provided in the original invention document.

10. The USB Virtual Keyboard of claim 1, comprising:

    The USB Virtual Keyboard is the HID device as a keyboard device which is connected to the target node computer and connecting through the Monitor Switch to provide a complete USB keyboard connection to the node computer that can control by remote users. The remote users can use their local keyboard to control the target node computer with the mouse click to focus on the USB Virtual Keyboard Application after connected to the selected target node computer via Monitor Switch. A webcam would be provided to view the monitor for the selected target node computer that allows the remote users to view and control.

11. The Q-Liftier & Carrier of claim 1, comprising:

    Q-Liftier & Carrier is used to support lifting up and carrying for deploying and repairing chambers easier which comes with drivable front wheels with drive handle and powered by battery. The Q-Liftier & Carrier is built with gear motors on lifting frames, and the frames would be adjustable to fit the size of the chambers with secured back side bars. This Q-Liftier & Carrier can be used for lifting and carrying other containers.

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