An exemplary rotatable hanger assembly includes a mounting portion, a close-loop frame, a control device, and a number of hooks. The close-loop frame is connected to the mounting portion, and includes a carrier belt movable along the close-loop frame. The control device includes a first drive unit connected to the carrier belt to drive the carrier belt to move along the close-loop frame. The hooks are connected to the carrier belt and configured to have garments hung therefrom. Thus, the hooks are capable of moving along the close-loop frame when the carrier belt moves along the close-loop frame, thereby allowing aspects of the garments relative to the position of the sun to change.
FIG. 3

Control device

First drive unit

Gears

First motors

Memory

Display

Second drive unit

Pulleys

Second motors
ROTATABLE HANGER ASSEMBLY

BACKGROUND

[0001] 1. Technical Field
[0002] The present disclosure relates to a movable hanger assembly and, more particularly, to a rotatable hanger assembly that can be used for drying articles such as garments.

[0003] 2. Description of Related Art
[0004] After washing, garments are hung on hangers to be dried, and the hangers are suspended from a supporting bar or the like. The supporting bar usually defines a number of fixing holes, to allow the hangers to extend therethrough and prevent the hangers from being moved by wind and gathering at one part of the supporting bar during drying. However, because each garment stays in one preset position along the hangers are positioned on the supporting bar, typically, only the part of each garment which is facing the sun may be dried quickly. Efficient and complete drying of each garment in a short time is difficult to achieve.

[0005] Therefore, what is needed is a means to solve the problems described above.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Many aspects of the present disclosure can be better understood with reference to the following drawings. The elements in the drawings are not necessarily drawn to scale, the emphasis instead being placed upon clearly illustrating the principles of the present disclosure. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the views, and all the views are schematic.

[0007] FIG. 1 is an isometric view of a rotatable hanger assembly, in accordance with an exemplary embodiment.

[0008] FIG. 2 is a plan view of parts of an interior of a close-loop frame of the rotatable hanger assembly of FIG. 1.

[0009] FIG. 3 is a block diagram of parts of a control device of the rotatable hanger assembly of FIG. 1.

DETAILED DESCRIPTION

[0010] Referring to FIGS. 1-2, an exemplary embodiment of a rotatable hanger assembly 1 is illustrated. The rotatable hanger assembly 1 includes a mounting portion 30 that can be mounted to a fixed object (e.g., a ceiling), a close-loop frame 10, a control device 40 (shown in FIG. 3), and a number of hooks 11. In this embodiment, the close-loop frame 10 is generally in the shape of an athletics track. The close-loop frame 10 is connected to the mounting portion 30, and includes a carrier belt 12 capable of moving along a close-loop frame 10. The control device 40 includes a first drive unit 41 connected to the carrier belt 12 for driving the carrier belt 12 to move along the close-loop frame 10. The hooks 11 are connected to the carrier belt 12, and a hanger 13 can be suspended from each hook 11. When the carrier belt 12 is driven to move along the close-loop frame 10, the hooks 11 and therefore the hangers 13 are moved along the close-loop frame 10 by the carrier belt 12, thereby allowing the garments hung on the hangers 13 to show different aspects to the rays of the sun.

[0011] In the embodiment, the close-loop frame 10 defines a close-loop groove 100. The close-loop groove 100 is generally in the shape of an athletics track, corresponding to the shape of the close-loop frame 10. The carrier belt 12 and the first drive unit 41 are received in the close-loop groove 100. The first drive unit 41 includes a plurality of first motors 411, and a plurality of gears 412 respectively driven by the first motors 411. Each gear 412 has a drive shaft (not shown), and the first motors 411 are respectively attached to the drive shafts of the gears 412 to drive the drive shafts of the gears 412 to rotate. The carrier belt 12 includes an internally-toothed surface 120 to engage with the gears 412. When the control device 40 controls the first motors 411 to rotate, the gears 412 rotate with the first motors 411 and cause the carrier belt 12 to move within the close-loop groove 100.

[0012] In the embodiment, each hook 11 includes a first component 110 to hang the hanger 13 from. Each hook 11 further includes a second component 111 extending from a top of the first component 110. The carrier belt 12 defines a plurality of fixing holes (not shown), to allow the second components 111 to extend therethrough such that the hooks 11 are connected to the carrier belt 12. However, the manner of connection and interaction between the hooks 11 and the carrier belt 12 is not limited and can be varied according to need.

[0013] In the embodiment, each hook 11 is a weight-sensitive hook 11, which can measure the weight of a garment hung therefrom and transmit the measured weight periodically to the control device 40. In the embodiment, each weight-sensitive hook 11 includes a wireless communication module (not shown), which can wirelessly communicate with the control device 40 via a wireless network such as WiFi (wireless fidelity). The control device 40 further includes a memory 42. The control device 40 determines the current total weight of all the garments hung on the hangers 13 according to the measured weights received from the weight-sensitive hooks 11, and then stores the current total weight in the memory 42. A most recent previously determined current total weight is a historical weight, and each time the current total weight is determined and stored, the current total weight replaces the historical weight so that the historical weight is updated. The control device 40 further compares the current total weight to the historical weight; and if the current total weight is less than the historical weight, the control device 40 determines that the garments are not completely dried and controls the carrier belt 12 to keep on moving.

[0014] In the embodiment, the time interval for transmitting the measurements of the weights of the garments by the weight-sensitive hooks 11 is set by a user via a remote control device (not shown). In this case, the control device 40 further includes a display 43. When a button of the remote control device is pressed by the user to set the time interval, the remote control device generates an instruction signal in response. The remote control device transmits the instruction signal to the control device 40. The control device 40 displays the time interval according to the instruction signal on the display 43 for the user to view, and controls the carrier belt 12 to move along the close-loop groove 100 for the set time interval.

[0015] In an alternative embodiment, the control device 40 may directly (automatically) control the carrier belt 12 to keep on moving continuously during a set time period. In this case, optionally, the hooks 11 need not measure the weights of the garments hung therefrom in order to allow the control device 40 to determine whether the garments are completely dried. That is, the hooks 11 need not be weight-sensitive hooks. After the time period is set by a user, the control device 40 controls the carrier belt 12 to begin to move at the start time.
of the set time period, and further controls the carrier belt 12 to stop moving at the end time of the set time period.

In the embodiment, the rotatable hanger assembly 1 further includes two connecting assemblies 20 at opposite ends of the mounting portion 30, respectively, for coupling the close-loop frame 10 to the mounting portion 30. In the embodiment, each connecting assembly 20 is connected to the close-loop frame 10 via a corresponding fixing bar 200. The connecting assembly 20 is configured to adjust the height of the close-loop frame 10. The control device 40 further includes a second drive unit 44 located in the mounting portion 30 for driving the connecting assemblies 20 to move upwards or downwards, thereby moving the close-loop frame 10 upwards or downwards together with the connecting assemblies 20.

In the embodiment, each connecting assembly 20 includes a plurality of connecting units 21 rotatably connected to each other, and each of the connecting units 21 includes two connecting bars 22. Each connecting bar 22 includes two end portions 221 and a center portion 222. Each two adjacent connecting bars 22 that cross each other at the center portions 222 thereof are rotatably connected to each other at the center portions 222. In addition, in general, each connecting bar 22 is connected to another connecting bar 22 at one of its end portions 221 (e.g., an upper one of its end portions 221 as shown in FIG. 1), and is also connected to still another connecting bar 22 at the other one of its end portions 221 (e.g., a lower one of its end portions 221 as shown in FIG. 1).

In the embodiment, each connecting assembly 20 further includes a pair of connecting cables 23 extending downward from each of the end portions of the mounting portion 30. One of the connecting cables 23 is attached to the junction of a bottom end portion 221 of one of two upper connecting bars 22 and a top end portion 221 of the corresponding next-to-upper connecting bar 22, and the other connecting cable 23 is attached to the junction of a bottom end portion 221 of the other one of the two upper connecting bars 22 and a top end portion 221 of the corresponding next-to-upper connecting bar 22. The two pairs of connecting cables 23 may be driven to move by the second drive unit 44. For example, the second drive unit 44 includes two second motors 441 respectively arranged at the opposite ends of the mounting portion 30, and two pairs of pulleys 442 respectively arranged at the opposite ends of the mounting portion 30. Each pair of pulleys 442 are rotateably driven by the corresponding second motor 441. For each pair of connecting cables 23 at a respective end of the mounting portion 30, one of the connecting cables 23 is wound around one of the pulleys 442, and the other connecting cable 23 is wound around the other pulley 442. When the control device 40 controls the second motors 441 to rotate forwards or backwards, the four pulleys 442 rotate with the second motors 441 and cause the connecting cables 23 to move upwards or downwards as the case may be. Thereby, each pair of connecting bars 22 connected to the corresponding connecting cables 23 are driven to rotate relative to each other. As a result, the close-loop frame 10 is moved upwards or downwards correspondingly. In the embodiment, users can control the second drive unit 44 via the remote control device.

In an alternative embodiment, each connecting assembly 20 may be replaced altogether by two connecting cables (not shown) similar to the connecting cables 23. In this case, for each pair of the connecting cables, one connecting cable is connected to one pulley 442 of the corresponding pair of pulleys 442 and to the corresponding fixing bar 200, and the other connecting cable is connected to the other pulley 442 of the corresponding pair of pulleys 442 and to the corresponding fixing bar 200. Thus, the two pairs of connecting cables are capable of directly lifting or lowering the close-loop frame 10.

Although the present disclosure has been specifically described on the basis of the exemplary embodiments thereof, the disclosure is not to be construed as being limited thereto. Various changes or modifications may be made to the embodiments without departing from the scope and spirit of the disclosure.

What is claimed is:
1. A rotatable hanger assembly comprising:
a mounting portion;
a close-loop frame coupled to the mounting portion, and comprising a carrier belt movable along the close-loop frame;
a control device comprising a first drive unit connected to the carrier belt to drive the carrier belt to move along the close-loop frame; and
a plurality of hooks connected to the carrier belt and configured to have garments hung therefrom, the hooks thereby moving along the close-loop frame when the carrier belt moves along the close-loop frame to allow aspects of the garments relative to the position of the sun to change.
2. The rotatable hanger assembly as described in claim 1, wherein the close-loop frame defines a close-loop groove shaped corresponding to the shape of the close-loop frame, the close-loop groove has the carrier belt and the first drive unit received therein, and the carrier belt is driven by the first drive unit to move within and along the close-loop groove.
3. The rotatable hanger assembly as described in claim 2, wherein the control device controls the carrier belt to move within and along the close-loop groove within a predetermined time period.
4. The rotatable hanger assembly as described in claim 2, wherein each hook is a weight-sensitive hook configured for measuring the weight of a garment hung therefrom and transmitting the measured weight periodically to the control device, and the control device is configured for determining a current total weight of all the garments according to the measured weights received from the weight-sensitive hooks, comparing the current total weight to a reference value, and controlling the carrier belt to move within and along the close-loop groove if the current total weight is less than the reference value.
5. The rotatable hanger assembly as described in claim 4, further comprising a wireless network, wherein the weight-sensitive hooks transmit the measured weights to the control device via the wireless network.
6. The rotatable hanger assembly as described in claim 4, wherein the control device further comprises a memory, and each time the current total weight is determined by the control device, the control device stores the current total weight in the memory, the reference value is a most recent previously determined current total weight stored in the memory as a historical weight, and each time the current total weight is determined by the control device and stored, the current total weight replaces the historical weight in the memory so that the historical weight is updated.
7. The rotatable hanger assembly as described in claim 1, further comprising two connecting assemblies, wherein the connecting assemblies are respectively arranged at opposite ends of the mounting portion to couple the mounting portion to the close-loop frame, and the control device further comprises a second drive unit located in the mounting portion and configured to drive the connecting assemblies to move upwards or downwards, thereby moving the close-loop frame upwards or downwards together with the connecting assemblies.

8. The rotatable hanger assembly as described in claim 7, wherein each connecting assembly comprises a plurality of connecting units and a pair of connecting cables, and each connecting unit comprises two connecting bars; each connecting bar comprises two end portions and a center portion, and each two adjacent connecting bars that cross each other at the center portions thereof are rotatably connected to each other at the center portions; each connecting bar of at least one of the connecting units is respectively connected to two other connecting bars at its end portions; the two connecting cables are respectively attached to the two connecting bars of one of the plurality of connecting units; and the second drive unit under control of the control device causes the connecting cables of the two connecting assemblies to move upwards or downwards, thereby driving the two connecting bars of each connecting assembly connected to the connecting cables to rotate relative to each other such that the close-loop frame is moved upwards or downwards correspondingly.

9. The rotatable hanger assembly as described in claim 7, wherein each connecting assembly comprises two connecting cables, and each of the two connecting cables is connected to the second drive unit and the close-loop frame, and the second drive unit under control of the control device causes the connecting cables of the two connecting assemblies to lift or lower the close-loop frame.

10. A rotatable hanger assembly comprising:
    a mounting portion;
    a close-loop frame coupled to the mounting portion, and comprising a carrier belt movable along the close-loop frame;
    a control device comprising a first drive unit connected to the carrier belt to drive the carrier belt to move along the close-loop frame;
    a remote control device configured for a user to wirelessly control the control device; and
    a plurality of hooks connected to the carrier belt and configured to have objects suspended therefrom, so that when the carrier belt moves along the close-loop frame, the hooks correspondingly move along the close-loop frame.

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