

TITLE

OUTDOOR ACTIVITY DRYING RACK

5 FIELD OF THE INVENTION

This invention relates to a clothes drying rack that can be used for drying clothes.

10 BACKGROUND OF THE INVENTION

Usually, in high-rise building clothes drying is to insert to a bamboo which hangs clothes into the metal tube that is pre-buried in the wall. But, bamboo is perishable, easy to break and not safe. For people who lack power, inserting or
15 remove the bamboo which is full of clothes is a tough task. When faced with sunny or rainy weather, frequent collection and drying out clothing is an irksome task.

It is therefore an object of the present invention to provide an outdoor
20 drying rack which can solve the aforementioned problems.

SUMMARY OF THE INVENTI

In accordance with the present invention, there is provided an outdoor
25 drying rack including: support, activities suspension device, traction device and removable cover. The support includes support rods, brackets, fixed strip, activation bar, sleeve, coupling, etc; the activities suspension device includes roller units, rods, joint pieces, metal chain, etc; the traction device includes pulley unit, drag rope, eye bolt, sleeve, lantern ring; the removable cover includes
30 circular tubes, tarpaulin, batten, butt hinges, angle sheets, etc; the support is set with bracket, coupling, activation bar and sleeve, so as to install and unload the support conveniently. The setting of the suspension device and traction device makes the rods move as is needed, so it is convenient to hang and collect clothes. Many slot positions of the bracket; circular tube and butt hinge which are
35 equipped on the removable cover make the cover open and shut conveniently.

DESCRIPTION OF THE DRAWINGS

An embodiment of the present invention will now be described by way of
40 example only with reference to the accompanying drawings in which:

Figure 1 is a top view of the rack,

Figure 2 is end staggered section view of the rack,

Figure 3 is end section view of the rack,

Figure 4 is side section view of the rack,

Figure 5 has an enlarged cross-section view of the area inside the circle E of figure 4,

Figure 6 is an enlarged part section view of figure 1,

5 Figure 7 has an enlarged cross-section view of the area inside the circle F of figure 3,

Figure 8 is an isometric view of the rack,

Figure 9 is an isometric view of the rack wherein the cover is a soft removable cover,

10 Figure 10 is an isometric view of the rack in a partially collapsed configuration.

DESCRIPTION OF THE PREFERRED EMBODIMENT

15 This invention consists of support, activities suspension device, traction device and removable cover. Referring to figure 1 to figure 8 of the drawings, The support includes support rod 24, metal tube 29, rubber ring 28, serum cap 11, bracket 3,8,10,17, bollard 7, fixed strip 16, activation bar 12, coupling 1, 2, bolt 19, nut 18,41,washer 42, sleeve 44. Activities suspension device includes roller
20 unit 25, rod 5, metal chain 33, joint piece 31, set screw 32, cable clamp 30, activities cable clamp 34, nut 35, 37, bolt 36, washer 38. The traction device is made up of pulley unit 15, sleeve 43, drag rope 13, eye bolt 14, nut 21, and lantern ring 6. The removable cover includes circular tube 27, coupling 26, nut 39, washer 40, batten 20, 22, tarpaulin 9, butt hinges 23, angle sheet 4. The roller unit 25
25 includes roller support 25a, roller wheel 25b, and roller pin 25c, nut 25d. The pulley unit 15 includes pulley support 15a, wheel pin 15b, and slide wheel 15c, nut 15d. In this case, support rod 24 is made of thick stainless steel tube. The circular tube is made of thin stainless steel tube. Fixed strip16, activation bar 12, batten 20, 22 are made of aluminum. The tarpaulin 9 is made of transparent
30 plastic.

The distance between rods 5 depends on the length of the metal chain 33, which is prefer half length of the normal clothes hanger. As is shown in figure 4 and figure 6. The metal chain 33 pass through the hole of joint piece 31, pressed
35 tightly by cable clamp 30, assemble joint piece 31 and roller support 25a with bolt 36, nut 37, and washer 38; continue to do like this, becoming a roller combination. In groups of three roller combinations, there are two groups of roller combinations. The material of the rod 5 can be chosen stainless steel, and the amount depends on the requirement. Usually, it is advised to use three to six rods and three rods in this
40 case. The roller wheel 25b which has circular arc profile is made of nylon.

With reference to figure 1, 4, 5, 6 and 8, after the drag rope 13 goes through the pulley unit 15, one end of the rope passes through the eye bolt 14,

pressed by cable clamp 30 tightly, while the other end passes through the lantern ring 6, whose function is to set the rod 5 in the needed position. As is shown in the figure 1 and figure 8, when the rod 5 is open completely, the drag rope 13 press the lantern ring 6 tightly with the cable clamp 30 in the position of bollard 7, going through the lantern ring 6, which has the same number of rod 5, and the lantern ring 6 is pressed on the drag rope 13 with the same method, making the distance between the lantern ring 6 equal to the one between rod 5. The length of the drag rope 13 should make the drag rope 13 get to the position of bollard 7 when the rod 5 is shut. Then the lantern ring 6 which is at the end of the drag rope 13 hangs into the bottom of the bollard 7, composing the traction device. As soon as pulled by hand , the drag rope 13 will move with the rolling of the slide wheel 15c, driving the rod 5, which is at outermost edge, making the roller wheel 25b which is in the roller unit 25 go forward together. After the metal chain 33 is straightened, it will drag the next roller unit 25 and rod 5 go forward together.

With reference to figure1, 2, 8, both sides of the tarpaulin 9 are sew around the cylindrical end, and circular tubes 27 are inserted into each end. Four batten 20 are put below, fastened by nut 39, washer 40 of the coupling 26, then two batten 22 are put in the middle, connected by four angle sheet 4, afterwards, the butt hinges 23 are installed on two batten 22 to form the removable cover.

With reference to figure 1 to figure 8, the bracket 17 is installed into the end of the first support rod 24, and the fixed strip 16 is set underneath, after that, the coupling 2 is inserted, fastened by nut 41, washer 42. Like this, the bracket 10 is installed into the end of the second support rod 24, and the activities bar 12 is set underneath, after that, the coupling 2 is inserted, also insert sleeve 44, fastened by nut 41, the bolt 19 and nut 18 are set on the bracket 17, then, sleeve 43 inserted into wheel pin 15b, put into the fixed strip 16, activation bar 12, fastened by the nut 15d. The function of the sleeve 43 and sleeve 44 is to make the activation bar 12 movable. The purpose of fluting on activation bar 12 is to adjust the distance between two support rods 24 to suit to the variety of distance two metal tube 29. The design that is mentioned above is to enable the support to open and shut, and insert or take out support rod 24 from the metal tube 29 easily. There are slot position b, slot position c and the middle slot position between in the bracket 3, 17, The slot position a is in the bracket 8, 10, these slot positions are used to arrange for the circular tube 27 of the removable cover, making the removable cover open and shut conveniently, and adapt to all kinds of exterior surroundings. Each of the groups of roller combinations is set into the support rod 24 and the serum cap 11 is inserted into end of each support rod 24, which end fixed the bracket 10 or the bracket 17. While the rubber ring 28 is inserted into the other end of the support rod 24. The serum cap 11 and the rubber ring 28 are used to prevent the rain from storing in the metal tube 29 which is pre-buried in the wall.

Afterwards, it is turn to do the installation out side. The two support rod 24 are folded, which have the group of roller combinations, bracket, fixed strip (or activation bar), serum cap and rubber ring. With reference to figure 10, Firstly, the support rod 24 with fixed strip on the left side is inserted into metal tube 29, secondly, strength is exerted to the direction of opening, the support rod 24 with activation bar on the right side is in the open position with the movement of the activation bar 12, then the support rod 24 will be inserted into the metal tube 29, the bracket 3 and 8 are combined with the metal tube 29 and the support rod 24 by coupling1, 2, nut 41, washer 42 on left side and right side. One end of the metal chain 33 which is in the suspension device on the left and right side is fixed on the bracket 3 and 8 by activation cable clamp 34 and nut 35. The rod 5 which has one hole in the middle is inserted into the hole of joint piece 31 outermost on the left and right side, fixed by set screw 32. In the same way, the other two rods 5 are installed. The eye bolt 14 is inserted into the hole of outermost rod 5, fixed by nut 21. When the removable cover is set, one end of the left circular tube 27 passes through the hole which is formed by the middle slot position of the bracket 17 and bolt 19, while the other end is put into the middle slot position of the bracket 3, then the bolt 19 and nut 18 are installed on the bracket 3. At this time, the circular tube 27 on the left side can only do rotary, so like this tube is called the rotary tube, yet the circular tube 27 on the right side of the removable cover is called activities tube. They are titled below. Activities tube can be put into the slot position b or c in the bracket 3, 17, or the slot position a in the bracket 8, 10 according to the need. When the removable cover, which is fold and above the rack, affects the casement window, the activities tube will be hold to make the removable cover revolve around the rotary tube to the below position. What is followed is that the activities tube is put into the slot position b. If the activity drying rack is on the right side of the wall and closed to the wall, the activities tube will be put in the slot position c when the removable cover is needed to be fold. In extreme cases, the removable cover can be without framework. The activities tube will be passed through the cylinder which is form by scrolled tarpaulin on each side of the tarpaulin 9, forming a soft removable cover. With reference to figure 9, it is an example for the situation when the removable cover is fold. The activities tube will be drag up and put in the slot position c when the soft removable cover is needed to be shut. When open and cover the rack, if the bossing of the removable cover obstructs the opening of the window, the removable cover can be drawn back to make the middle part of the cover concave-downwards, afterwards, the activities tube is put into the slot position a. besides, the soft removable cover which have only the circular tube 27 and the tarpaulin 9 which is mentioned above can be used as well.

The introduction of the invention is that the clothes are hanged on the outmost rod 5. When the rod is full, the drag rope 13 will be pulled, and put the second lantern ring 6 which is closed to the end of the end of the lantern ring 6 into the bollard 7. So the outermost rod 5 can move towards outside for a distance.

- Then, clothes are hung on the second rod 5, repeat the steps which are mentioned above, the first and second rod 5 will move towards outside for a distance at the same time, put the third lantern ring 6 into the bollard 7. By analogy, the last rod 5 which is full of clothes will be dragged out. When it rains, the activities tube 27 will be hold and put it into the slot position a of the bracket 8 and 10, when it stops, the activities tube 27 will be hold and put into the slot position b or c of the bracket 3 and 17. while the clothes are to be collected, the latest lantern ring 6 should be moved out of the bollard 7, then the rod 5 could be dragged towards inside, meanwhile, all the rod move inside for a distance, yet, the first rod reach the most inside position, and the clothes on the first rod will be gotten. The next one lantern ring 6 is moved out of the bollard 7, then the second rod is pulled towards inside, and the clothes on the second rod can be gotten, too. By analogy, repeat the steps until the clothes on the last rod 5 are gotten.
- When encountered wall paint or move to disassemble this drying rack. It only needs to screw out the bolt 19, nut 18 on the bracket 3 first, and the removable cover will get down. Secondly, the set screw 32 will be loosened, and the nut 21 will be taken out, the rod 5 will be down as well. The nut 41 is screwed out on the bracket 3,8, then the coupling 1,2, and the bracket 3,8 will be gotten out . what is followed is that the support rod 24 will be gotten out from the right side of the metal tube 29. The support is folded and moved out from the left side of the metal tube 29, as is shown in figure 10.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOW:

1. A kind of outdoor activity drying rack consists of support, activities suspension device, traction device and removable cover. Its characteristic is that several pairs of roller combinations in the activities suspension device pass through the support rod in the support, the rods which are used to hang clothes are combined with the roller units by the joint pieces and bolts, and the rod can be moved by traction of the metal chain in the activities suspension device and drag rope of the traction device.
- 2 With reference to claim 1, the support of the rack includes support rod, bracket, bollard, fixed strip, activation bar, coupling, and sleeve. Its characteristic is that the support rod can be inserted into the metal tube which is pre-buried in the wall, fixed by coupling and bracket.
- 3 With reference to claim 1, the activities suspension device of the rack includes roller unit, rod, metal chain, joint piece, set screw, cable clamp. Its characteristic is that the distance between rods depends on the length of the metal chain.
4. With reference to claim 1, the traction device of the rack includes pulley unit, sleeve, drag rope, eye bolt, lantern ring, and cable clamp, Its characteristic is that the distance between lantern rings which is fixed on drag rope is equal to the one between rods.
5. With reference to claim 1, the removable cover includes circular tube, coupling, batten, tarpaulin, butt hinges, and angle sheet. Its characteristic is that the removable cover can open and shut with the coordination of the butt hinges, and one of circular tube being rotation axis.
6. With reference to claim 1 or claim 2, a kind of outdoor activity drying rack wherein the support is equipped with sleeve and activation bar, which allow it open and shut.
7. With reference to claim 1 or claim 2, a kind of outdoor activity drying rack wherein the support rod is equipped with the rubber ring and the serum cap to prevent the rain from storing in the metal tube.
8. With reference to claim 1 or claim 2, a kind of outdoor activity drying rack wherein the bracket is equipped with the bollard, so that it's convenient to put into or take out the lantern ring from the bollard to make sure of the position of the rod.

9. With reference to claim 1 or claim 2, a kind of outdoor activity drying rack wherein the bracket provide with slot positions which allow the removable cover open and shut, install and disassemble, and suit to the condition of the outside of the wall.
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10. With reference to claim 1 or claim 3, a kind of outdoor activity drying rack wherein the roller wheel in the roller unit is made of nylon, and has circular arc profile.
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11. With reference to claim 1 or claim 5, a kind of outdoor activity drying rack wherein the removable cover can become soft removable cover when the battens, the butt hinges, and the angle sheets are disassembled.