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## Waterproof cover for outdoor products


### Abstract

A waterproof cover for outdoor products comprising having a tarpaulin, a plurality of binding straps, a tensioning assembly, and a support column assembly is disclosed. The tarpaulin comprises a ceiling part composed of flexible materials. The plurality of binding straps are used for fixing to outdoor products. The edge of the tensioning assembly is fastened to the edge of the inner surface of the ceiling part. The top end of the support column assembly is fastened to the inner surface of the center of the ceiling part, the bottom end of the support column assembly is fixed at the center of the tensioning assembly. Through fixing the flexible binding belts to an outdoor product, the flexible tension assembly is tensioned, and the roof of the tarpaulin is jacked up to form a slope, thus avoiding water accumulation in the roof of the waterproof cover.



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## Background/Summary

CROSS REFERENCE TO RELATED APPLICATIONS

(1) The present application claims the benefit of Chinese Patent Application No. 202321177224.0 filed on May 15, 2023, the contents of which are incorporated herein by reference in their entirety.

TECHNICAL FIELD

(2) The present invention relates to the field of outdoor protective equipment, and more specifically, to a waterproof cover for outdoor products.

BACKGROUND

(3) With the improvement of living standards, people are no longer satisfied with indoor activities. More and more families are starting to have outdoor products placed outdoors, such as outdoor tables, pet pens, etc. These outdoor products are prone to contamination or damage due to the effects of fog or rain when left outdoors for a long time.

(4) To protect outdoor products, a tarpaulin can be placed on them. However, when the tarpaulin is directly applied to outdoor products, it can easily form water accumulation. Prolonged accumulation of water can easily leak, thereby affecting the protection effect.

(5) In addition, there are ways to use inflatable mats combined with tarpaulin to protect outdoor

products. However, the above-mentioned inflatable mats require high sealing requirements for production, otherwise they are prone to air leakage. The above-mentioned inflatable mats also have relatively high costs. At the same time, the inflatable cushion needs to be inflated, which is much troublesome to use. Moreover, it requires a flat or grid surface on the top of outdoor product to place the above-mentioned inflatable cushion, which limits the application scope of the aforementioned waterproof protection scheme.

SUMMARY

(6) The main objective of the invention is to provide a waterproof cover for outdoor products that is to solve problems for water accumulation when using a tarpaulin alone and high cost, inconvenient use, and limited application occasions when using an inflatable pad combined with a piece of tarpaulin.

(7) According to an aspect, a waterproof cover for outdoor products is provided, which comprising: a tarpaulin having a ceiling part made of flexible materials, wherein the center of the ceiling part is convex; a plurality of binding straps made of flexible materials and used for fastening to outdoor products, wherein one end of each binding strap fastened to the edge of the ceiling part of the tarpaulin; a tensioning assembly, wherein the tensioning assembly is composed of flexible materials, the edge of the tensioning assembly is fastened to the edge of the inner surface of the ceiling part, and the tensioning assembly is tensioned when the binding straps are respectively tied to outdoor product; a support column assembly, wherein the top end of the support column assembly is fastened to the inner surface of the center of the ceiling part, the bottom end of the support column assembly is fastened to the center of the tensioning assembly, and the support column assembly jacks up the center of the ceiling part under the action of the tensioning assembly and makes the ceiling part form a tensioned slope above the outdoor product when the tensioning assembly is in a tensioning state.

(8) Advantageously, the tensioning assembly includes at least two tensioning belts, each end of each tensioning belt is fastened to a binding strap, all tensioning belts intersect at the center of the tensioning assembly, and the bottom end of the support column assembly is fastened to the intersection position of the tensioning belts.

(9) Advantageously, the ceiling part includes a plurality of first crest lines, the plurality of first crest lines are radially distributed from the center of the ceiling part, and the vertical projections of the plurality of first crest lines on the plane where the tensioning assembly is located are respectively located on the tensioning belts, and the ceiling part is tensioned above the outdoor product by the tensioning assembly, the support column assembly and the first crest lines.

(10) Advantageously, the tension assembly includes a tensioning fabric, the shape and size of the tensioning fabric match with the shape and size of vertical projection of the ceiling part on the plane where the tensioning fabric is located, the edge of the tensioning fabric is fastened to the edge of the inner surface of the ceiling part, and the bottom end of the support column assembly is fastened to the center of the tensioning fabric.

(11) Advantageously, the tensioning assembly includes a tensioning fabric and at least two tensioning belts, each end of each tensioning belt is fastened to a binding belt, and all tensioning belts intersect at the center of the tensioning assembly, the shape and size of the tensioning fabric match with the shape and size of vertical projection of the ceiling part on the plane where the tensioning fabric is located, and the edge of the tensioning fabric is fastened to the edge of the inner surface of the ceiling part.

(12) Advantageously, the ceiling part includes a plurality of first crest lines, the plurality of first crest lines are radially distributed from the center of the ceiling part, and the vertical projections of the plurality of first crest lines on the plane where the tensioning assembly is located are respectively located on the tensioning belts, and the ceiling part is tensioned above the outdoor product by the tensioning assembly, the support column assembly and the first crest lines.

(13) Advantageously, the outdoor product is a square table, a square fence, or a square cart; the

waterproof cover includes at least two pairs of binding straps, and the fixed positions of the binding straps at the ceiling part are corresponding to the corners of the square table, square fence or square cart, respectively; the plurality of first crest lines extend from the center of the ceiling part to the corner of the square table, square fence or square cart, and the plurality of first crest lines separate the ceiling part to a plurality of slopes when the ceiling part is jacked up by the support column assembly.

(14) Advantageously, the tarpaulin comprises edge parts connected to the edge of the ceiling part, and a plurality of second crest lines are formed at the junction of edge parts and the edge of the ceiling part; the length of each binding strip is greater than the height of the edge part, and at least a portion of the binding strip is fastened to the edge part.

(15) Advantageously, all tensioning belts are overlapping together in a width direction at the intersection of all tensioning belts.

(16) Advantageously, the support column assembly includes a support rod made of rigid material and a sleeve made of flexible material, the length of the sleeve is greater than the length of the support rod, the sleeve wraps the support rod, and the top end of the sleeve is fastened to the center of the inner surface of the ceiling part, and the bottom end of the sleeve is fastened to the center of the tensioning assembly.

(17) Advantageously, the two binding straps in each pair correspond to the phase angle of one tensioning straps of the tensioning assembly.

(18) The waterproof cover for outdoor products disclosed in the present disclosure has following beneficial effect. Through fixing the flexible binding belts to an outdoor product, the flexible tension assembly is tensioned, and the roof of the tarpaulin is jacked up to form a slope by the tension assembly and support column assembly, thus avoiding water accumulation in the roof of the waterproof cover.

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## Description

BRIEF DESCRIPTION OF THE DRAWINGS

(1) FIG. **1** is a schematic diagram of the waterproof cover for outdoor products according to an embodiment of the present disclosure.

(2) FIG. **2** is a schematic diagram of the inner side of the waterproof cover for outdoor products according to an embodiment of the present disclosure.

(3) FIG. **3** is a decomposition diagram of the waterproof cover for outdoor products according to an embodiment of the present disclosure.

(4) FIG. **4** is a decomposition diagram of the tensioning assembly and the binding straps of the waterproof cover for outdoor products according to another embodiment of the present disclosure.

(5) FIG. **5** is a decomposition diagram of the tensioning assembly and the binding straps of the waterproof cover for outdoor products according to another embodiment of the present disclosure.

(6) FIG. **6** is a schematic diagram of the waterproof cover for outdoor products applied to a square table according to an embodiment of the present disclosure.

(7) FIG. **7** is a schematic diagram of the waterproof cover for outdoor products applied to a square fence according to an embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

(8) To make the object, the technical solution, and the advantage of the present disclosure more clearly, the present disclosure is further described in detail below with reference to the accompanying embodiments. It should be understood that the specific embodiments described herein are just a part of rather than all the embodiments of the present disclosure. All other embodiments obtained by one skilled in the art without inventive works based on the embodiment of the present disclosure, fall into the protection scope of the present disclosure.

(9) FIGS. **1** to **3** show the structure of the waterproof cover for outdoor products according to an embodiment of the present disclosure. The waterproof cover for outdoor products as shown in FIGS. **1-3** can be placed on an outdoor product to prevent the outdoor product from being affected by rain and affecting its lifespan. The outdoor waterproof cover for outdoor products according to the present embodiment includes a tarpaulin **10**, a tensioning assembly **30**, a support column assembly **40**, and four binding straps **20**. The four binding straps **20** are divided into two pairs that are diagonally distributed. The support column assembly **40** and four binding straps **20** are respectively fastened to the tarpaulin **10**. The tarpaulin **10** is fastened to outdoor products by four binding straps **20**. In other embodiments, the number of binding straps **20** can be different, for example, the number of binding straps **20** can be three, five, six, etc.

(10) The tarpaulin **10** is made of materials with good waterproof performance and good flexibility. For example, the tarpaulin **10** can be composite fabrics which composed of polymer waterproof, breathable materials and fabrics. The tarpaulin **10** includes a ceiling part **11**. The ceiling part **11** is not planar, and the center **113** of the ceiling part **11** is convex. Of course, in other embodiments, a sun protection layer can also be made on the surface of the tarpaulin **10** to improve its sun protection performance.

(11) Each binding strap **20** is made of flexible materials and is used to fasten to outdoor products. For example, the binding strap **20** can be made of fiber fabric, and one end of each binding strap **20** is fastened to the edge of the ceiling part **11**. Specifically, the fixing points of multiple binding straps **20** and the ceiling part **11** can be located at the multiple vertices of the same rectangle or polygon to improve the stability of the fixation of the ceiling part **11**. The tensioning assembly **30** is made of flexible materials. The edge of the tensioning assembly **30** is fastened to the edge of the inner surface of the ceiling part **11**. The tensioning assembly **30** is tensioned when the binding straps **20** are respectively tied to the outdoor product. The length of each binding strap **20** is enough to be fastened to the outdoor product. In addition, the free end of each binding strap **20** can also be provided with a Velcro, an elastic rope, a hook, etc., so as to facilitate fasten to the outdoor product.

(12) The support column assembly **40** is roughly columnar in shape and is rigidity in axial. The top end of the support column assembly **40** is fastened to the inner surface of the center of the ceiling part **11** of the tarpaulin **10**, and the bottom end of the support column assembly **40** is fastened to the center of the tensioning assembly **30**. When the support column assembly **40** is in a tensioned state, the center of the ceiling part **11** is jacked up and the ceiling part **11** forms a tensioned slope **111** above the outdoor product by the support force provided by the tensioning assembly **40**.

(13) The waterproof cover described above is fastened to the outdoor product by fastening the binding straps **20** to the outdoor product. When the tensioning assembly **30** is tensioned, the center of the ceiling part **11** of the tarpaulin **10** is jacked up by the tensioning assembly **30** and the support column assembly **40**, and the ceiling part **11** forms one or more slopes **111**. Therefore, raindrops that fall on the ceiling part **11** can flow downward along the slope **111** under the action of gravity, avoiding water accumulation in the ceiling part **11** of the tarpaulin **10**. Due to the lack of a rigid support rod at the edge of the ceiling part **11** and the fact that there is only one support column assembly **40** with a smaller size in axial, the waterproof cover can be conveniently folded and stored when not in use. People just bind the binding straps **20** to the outdoor product when using the waterproof cover, and need not to build a support frame.

(14) As shown in FIG. **3**, the tensioning assembly **30** includes at least two tensioning belts **31** in an embodiment of the present disclosure. Two ends **311** of each tensioning belt **31** are respectively fastened to the edges **15**, **16** of the ceiling part **11**, and all tensioning belts **31** intersect at the center **312** of the tensioning assembly **30**. The bottom end of the support column assembly **40** is fastened to the intersection position of all tensioning belts **31**. When fastening the binding straps **20** to the outdoor product, the tensioning belts **31** are tensioned (i.e. the tensioning belts **31** is straightened) and can provide upward support. The number of tensioning belts **31** can be increased when the size of the ceiling part **11** is large, thus the support force on the support column component **40** can be

increased, for ensuring that the ceiling part **11** forms the slopes **111**.
(15) Specifically, the two binding straps **20** in each pair of binding straps correspond to the phase angle of one tensioning belt **31** of the tensioning assembly **30**. For example, the two ends **311** of each tensioning belt **31** are respectively fixed or integrated with one binding strap **20**.
(16) In one embodiment of the present disclosure, the cross-sectional area of the tensioning belts **31** of the tensioning assembly **30** is flat in order to support the support column assembly **40** better. All tensioning belts **31** are fastened together in a width direction overlap at the intersection position **312**, thereby providing a larger support area for the bottom end of the support column assembly **40**. The above structure is suitable for situations where the size of the ceiling part **11** is small, such as rainproof for smaller tables, carts, etc.
(17) Specifically, the tensioning belts **31** can be made of fiber fabric, which ensures structural strength while facilitating storage. In addition, both ends of each tension belt **31** can be directly sewn on the edge of the ceiling part **11**. In other embodiments, both ends of the tensioning belt **31** can also be fastened to the ceiling part **11** by means of Velcros, metal buckles, etc.
(18) As shown in FIG. **4**, in another embodiment of the present disclosure, the tensioning assembly **30** includes a tensioning fabric **32**. The shape and size of the tensioning fabric **32** matches the shape and size of vertical projection of the ceiling part **11**. The edge of the tensioning fabric **32** is fastened to the edge of the inner surface of the ceiling part **11**. The bottom end of the support column assembly **40** is fixed at the center **321** of the tensioning fabric **32**. The above structure is suitable for situations where the size of ceiling part is small, such as rainproof for smaller pet fences. Due to the overall structure of the tensioning fabric **32**, it can prevent pets inside the pet fence from biting the tension belt, compared to the embodiment in FIG. **3**.
(19) Specifically, the tensioning fabric **32** can be made of fiber fabric, which ensures structural strength while facilitating storage. In addition, the edge of the tensioning fabric **32** can be directly sewn on the edge of the ceiling part **11**. In other embodiments, the edge of the tensioning fabric **32** can also be fastened to the ceiling part **11** by means of Velcros, metal buckles, etc.
(20) As shown in FIG. **5**, in another embodiment of the present disclosure, the tensioning assembly **30** includes both a tensioning fabric **32** and at least two tensioning belts **31**. The shape and size of the tensioning fabric **32** are matched with the vertical projection of the ceiling part **11**. The edge of the tensioning fabric **32** is fastened to the edge of the inner surface of the ceiling part **11**. The tensioning belts **31** can be fastened to the upper surface or the lower surface of the tensioning fabric **32**, and all tensioning belts **31** intersect at the center of the tensioning fabric **32**. This structure is suitable for situations where the ceiling part **11** is larger in size, such as rainproof for larger tables, larger pet fences, etc.
(21) In order to improve structural stability, in one embodiment of the present disclose, the ceiling part **11** comprises a plurality of first crest lines **112** when the tensioning assembly **30** includes the tensioning belts **31**. The plurality of first crest lines **112** are radially distributed from the center of the ceiling part **11**. The top end of the support column assembly **40** is fixed at the intersection of the plurality of first crest lines **112**. Vertical projections of all first crest lines **112** on the plane of the tensioning assembly **30** are respectively located on the tensioning belts **31**. The ceiling part **11** is tensioned above the outdoor product by the tensioning assembly **30**, the support column assembly **40**, and the first crest lines **112**.
(22) When the waterproof cover is covered on the outdoor table or other outdoor products that need rain or dust prevention, the tensioning belts **31**, the first crest lines **112** and the support column assembly **40** form a plurality of stable triangle as the binding belt **20** is respectively tied with the outdoor products. Thus, the three-dimensional space of the ceiling part **11** is relatively stable, and the support column assembly **40** will not be significantly skewed. The support column assembly **40** can lift the ceiling part **11**. Accordingly, the ceiling part **11** can be formed by splicing multiple waterproof cloth. Each first crest line **112** is located at the splicing position of adjacent waterproof cloth. In addition, the first crest lines **112** can also be formed by sewing lines at predetermined

positions on the ceiling part **11**.
(23) As shown in FIG. **6**, in one embodiment of the present disclosure, a waterproof cover for a square table **50** is provided, and the tensioning assembly **30** of the above waterproof cover includes two pairs of binding straps **20** and two tensioning belts **31**. The fixed positions of the two pairs of binding straps **20** and two tensioning belts **31** with the ceiling part **11** are located on the four corners of the square table **50**. Accordingly, the ceiling part **11** includes four first crest lines **112** extending from the center of the ceiling part **11** to the four corners of the square table **50**. When the ceiling part **11** is covered on the surface of the square table **50**, the binding straps **20** can be bound to the legs of the square table **50**. At this time, the tensioning belts **31** are tensioned on the surface of the square table **50**, the bottom end of the support column assembly **40** is against the surface of the square table **50** to jack up the center of the ceiling part **11**, and four first crest lines **112** separate the ceiling part **11** to form four slopes **111**.
(24) As shown in FIG. **7**, in another embodiment of the present disclosure, a waterproof cover for a square fence **60** without a top cover (such as a pet fence) is provided, and the above waterproof cover includes two pairs of binding straps **20** and a tensioning fabric **32**. The fixed positions of the two pairs of binding straps **20** with the ceiling part **11** are located on the four corners of the square fence **60** respectively. Accordingly, the ceiling part **11** includes four first crest lines **112** extending from the center of the ceiling part **11** to the four corners of the square fence **50**. When the ceiling part **11** is covered on the square fence **50**, the binding strips **20** can be bound to the grid or column of the square fence **50**. At this time, the tensioning fabric **32** is suspended above the square fence **50** and tensioned. The bottom end of the support column assembly **40** lifts the center of the ceiling part **11** under the support of the tensioning fabric **32** and separates the ceiling part **11** into four slopes **111** by four first crest lines **112**.
(25) The waterproof cover mentioned above can also be used for round tables, circular fences, etc. Correspondingly, its ceiling part **11** is circular. At this time, the edge of the ceiling part **11** can be fastened to three or more binding straps. In addition, the technicians in this field can understand that the waterproof covers can also be applied to other shapes of outdoor products, and will not be elaborated here.
(26) In one embodiment of the present disclosure, the tarpaulin **10** not only includes the ceiling part **11**, but also includes edge parts **12** which are connected to the edge of the ceiling part **11**. A second crest lines **121** is formed at the junction of each edge part **12** and the edge of the ceiling part **11**. By the edge parts **12**, outdoor products can be better protected while preventing the ceiling part **11** from being blown up by the wind. The second crest lines **121** are conducive to the positioning of the tarpaulin **10**, that is, the ceiling part **11** can fully cover the outdoor products by attaching the second crest lines **121** to the edges of the outdoor products. The second crest lines **121** can be specifically composed of a suture line between the ceiling part **11** and the edge part **12**. In other embodiments, the second crest lines **121** is a transitional part between the ceiling part **11** and the edge part **12**.
(27) In one embodiment of the present disclosure, when the waterproof cover is for a square table, square fence, or square cart, the tarpaulin **10** includes four edge parts **12**, which correspond to the four sides of the square table, square fence, or square cart. A third crest line **122** is formed between adjacent edge parts **12**. Similarly, the third crest line **122** mentioned above can be a transitional part of the two edge parts **12**.
(28) In order to protect outdoor products better, the length of each binding strap **20** in the waterproof cover is greater than the height of the edge part **12**, and at least a part of the binding strap **20** is fastened to the edge part **12**. By the above structure, the edge parts **12** can be tightly attached to the outdoor product to prevent the tarpaulin **10** from being blown up by the wind when the binding straps **20** are fastened to the outdoor product.
(29) In one embodiment of the present disclosure, the support column assembly **40** includes a support rod **41** made of rigid materials (such as metal or hard plastic) and a sleeve **42** made of

flexible materials (such as fiber fabric). The support rod **41** is wrapped by the sleeve **42**. The top end of the sleeve **42** is fixed (such as sewing) at the center of the inner surface of the ceiling part **11**. The bottom end of the sleeve **42** is fixed (such as sewing) at the center of the tensioning assembly **30**.

(30) While the present disclosure has been described with reference to certain embodiments, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted without departing from the scope of the present disclosure. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the present disclosure without departing from its scope. Therefore, it is intended that the present disclosure not be limited to the particular embodiment disclosed, but that the present disclosure will include all embodiments falling within the scope of the appended claims.

## Claims

1. A waterproof cover for outdoor products comprising: a tarpaulin having a ceiling part made of flexible materials, wherein the center of the ceiling part is convex; a plurality of binding straps made of flexible materials and used for fastening to outdoor products, wherein one end of each binding strap fastened to the edge of the ceiling part of the tarpaulin; a tensioning assembly, wherein the tensioning assembly is composed of flexible materials, the edge of the tensioning assembly is fastened to the edge of the inner surface of the ceiling part, and the tensioning assembly is tensioned when the binding straps are respectively tied to an outdoor product; a support column assembly, wherein the top end of the support column assembly is fastened to the inner surface of the center of the ceiling part, the bottom end of the support column assembly is fastened to the center of the tensioning assembly, and the support column assembly jacks up the center of the ceiling part under the action of the tensioning assembly and makes the ceiling part form a tensioned slope above the outdoor product when the tensioning assembly is in a tensioning state.

2. The waterproof cover for outdoor products as claimed in claim 1, wherein the tensioning assembly includes at least two tensioning belts, each end of each tensioning belt is fastened to a binding strap, all tensioning belts intersect at the center of the tensioning assembly, and the bottom end of the support column assembly is fastened to the intersection position of the tensioning belts.

3. The waterproof cover for outdoor products as claimed in claim 2, wherein the ceiling part includes a plurality of first crest lines, the plurality of first crest lines are radially distributed from the center of the ceiling part, and the vertical projections of the plurality of first crest lines on the plane where the tensioning assembly is located are respectively located on the tensioning belts, and the ceiling part is tensioned above the outdoor product by the tensioning assembly, the support column assembly and the first crest lines.

4. The waterproof cover for outdoor products as claimed in claim 2, wherein all tensioning belts are overlapping together in a width direction at the intersection of all tensioning belts.

5. The waterproof cover for outdoor products as claimed in claim 1, wherein the tension assembly includes a tensioning fabric, the shape and size of the tensioning fabric match with the shape and size of vertical projection of the ceiling part on the plane where the tensioning fabric is located, the edge of the tensioning fabric is fastened to the edge of the inner surface of the ceiling part, and the bottom end of the support column assembly is fastened to the center of the tensioning fabric.

6. The waterproof cover for outdoor products as claimed in claim 1, wherein the tensioning assembly includes a tensioning fabric and at least two tensioning belts, each end of each tensioning belt is fastened to a binding belt, and all tensioning belts intersect at the center of the tensioning assembly, the shape and size of the tensioning fabric match with the shape and size of vertical projection of the ceiling part on the plane where the tensioning fabric is located, and the edge of the tensioning fabric is fastened to the edge of the inner surface of the ceiling part.

7. The waterproof cover for outdoor products as claimed in claim 6, wherein the ceiling part

includes a plurality of first crest lines, the plurality of first crest lines are radially distributed from the center of the ceiling part, and the vertical projections of the plurality of first crest lines on the plane where the tensioning assembly is located are respectively located on the tensioning belts, and the ceiling part is tensioned above the outdoor product by the tensioning assembly, the support column assembly and the first crest lines.

8. The waterproof cover for outdoor products as claimed in claim 7, wherein the outdoor product is a square table, a square fence, or a square cart; the waterproof cover includes at least two pairs of binding straps, and the fixed positions of the binding straps at the ceiling part are corresponding to the corners of the square table, square fence or square cart, respectively; the plurality of first crest lines extend from the center of the ceiling part to the corner of the square table, square fence or square cart, and the plurality of first crest lines separate the ceiling part to a plurality of slopes when the ceiling part is jacked up by the support column assembly.

9. The waterproof cover for outdoor products as claimed in claim 6, wherein all tensioning belts are overlapping together in a width direction at the intersection of all tensioning belts.

10. The waterproof cover for outdoor products as claimed in claim 1, wherein the tarpaulin comprises edge parts connected to the edge of the ceiling part, and a plurality of second crest lines are formed at the junction of edge parts and the edge of the ceiling part; the length of each binding strip is greater than the height of the edge part, and at least a portion of each respective binding strip is fastened to the edge part.

11. The waterproof cover for outdoor products as claimed in claim 1, wherein the support column assembly includes a support rod made of rigid material and a sleeve made of flexible material, the length of the sleeve is greater than the length of the support rod, the sleeve wraps the support rod, and the top end of the sleeve is fixed at the center of the inner surface of the ceiling part, and the bottom end of the sleeve is fixed at the center of the tensioning assembly.