The present invention relates to a canopy that does not generate gaps generated between the components thereof so that the canopy is firmly fixed after installation without any deviation. In addition, the canopy does not break or sink even in the event of an external impact, heavy rainfall, or heavy snowfall.
FIRM CANOPY HAVING NO GAPS

TECHNICAL FIELD

The present invention relates to a canopy, and in particular to a canopy that does not generate gaps generated between the components thereof so that the canopy is firmly fixed after installation without any deviation. In addition, the canopy does not break or sink even in the event of an external impact, heavy rainfall, or heavy snowfall.

BACKGROUND ART

According to the dictionary, the canopy represents a canopy-shaped cover, a canopy-shaped curtain, a windshield in the barracks, a cover, etc. The above mentioned canopy is widely used. In recent years, the canopy is widely used for the purpose of blocking sunshine, snow or rain after the canopy is easily installed at a street kiosk, an event place, etc. The Korean patent number 1095662 discloses "a foldable tent which can easily carried and stored", wherein the canopy easily installed at a street kiosk or an event place can be easily folded and stored and carried and can be easily unfolded and installed at an event place or a street when in use. After the event is over, the canopy can be easily folded and stored.

As illustrated in FIG. 1, the foldable tent (canopy) is constituted in such a way that a center pillar 220 supporting a ridge is formed of an outer member (not numbered) and an inner member (not numbered), and when the tent is unfolded, the inner member of the center pillar 220 which is elastically supported by a spring at an inner side ascends to support the ridge. A third support pipe 234 of a slope maintaining member 230 may be inserted into or separate from the inner side of a second support pipe. When the tent is set up, as illustrated in FIG. 1, the third support pipe 234 protrudes from the second support pipe 232, thus supporting together with the center pillar 220 the tent cloth over the tent.

If a vertical load applies to the tent cloth due to a gust of sudden wind, heavy rain, heavy snow, etc., the inner member of the center pillar 220 and the third support pipe 234, which is an inner member of the slope maintaining member 230 may be inserted into the outer member of the center pillar 220 and the inside of the third support pipe 232 of the slope maintaining member 230 respectively, so that the shape of the tent deforms and then finally collapses down or the tent itself may be damaged.

More specifically, the frame of the tent may deform or may be damaged or may collapse down due to the absence of a support structure for the vertical load.

In addition, the tent may easily sway a lot even by a small impact, for example, wind or a collision with a person due to the gaps formed at an engaging portion between each link and a structure, so the tent cannot stably stand.

DISCLOSURE OF INVENTION

Technical Problem

Accordingly, the present invention is made in an effort to resolve the problems in the conventional art.

It is an object of the present invention to provide a firm canopy which is able to stand stably even against a vertical load unless a canopy deforms or collapse down even when a strong vertical load applies to the tent due to heavy rain, heavy snow, etc.

It is another object of the present invention to provide a canopy wherein the canopy does not sway a lot and is able to stand stably even when an impact applies to the tent as strong wind blows or a passerby goes by and collides with the tent when the canopy is unfolded and set up at an event place or a street kiosk, which may be obtained in such a way to prevent the formation of any gap at each link and joint of the canopy.

Solution to Problem

To achieve the above objects, there is provided a firm canopy having no gaps, which may include a ridge pillar outer member which supports at its top a ridge and includes a center slide engaging member at its bottom; a ridge pillar inner member which includes at its bottom a center lower engaging member and is inserted into the inside of the bottom of the ridge pillar outer member and is inserted into and separates from the ridge pillar outer member; a leg outer member which includes at its top a corner engaging member and a corner slide engaging member which slides along the leg outer member and is formed in four corners of the canopy; a rib one end of which is hinged at the ridge and the other of which is hinged at a corner engaging member, wherein a first rib and a second rib are hinged through a joint; a reinforcing member one end of which is hinged at a reinforcing member engaging member engaged to the second rib and the other end of which is hinged at the corner slide engaging member, thus supporting the rib; a X-link wherein each end portion of the X-link in which the X-link is in series engaged to both side of the link engaging member is hinged at a corner engaging member of the leg outer member and a corner slide engaging member respectively, thus forming the sides of the canopy; and four X-links one end of each of which is hinged at a center slide engaging member and a center lower engaging member, and the other end of each of which is hinged at the link engaging member of the X-link which forms the sides of the canopy.

At this time, a hook is provided at the bottom of the leg outer member, and a leg inner member is inserted into the inside of the bottom of the leg outer member.

In addition, a stopper protruding in the direction of the rib is formed at the reinforcing member.

In addition, a slide groove is formed at both sides of the joint of the rib, and a cover which formed in "T" shape and with a protrusion inserted in to slide groove of the joint is formed at an inner side of the bottom, and the cover is engaged to the joint.

In addition, the end portions of the first rib and the second rib hinged at the joint are formed in a semicircular shape, and the outer surface of the end portion of the semicircular shape comes into contact with the inner surface of the joint, and the end portion of the reinforcing member hinged at the reinforcing member engaging member is formed in a semicircular shape, and the outer surface of the end portion of the reinforcing member of the semicircular shape comes into contact with the surface of the reinforcing member engaging member.

In addition, a hook is provided at the center slide engaging member, so the ridge pillar inner member is fixed at the ridge pillar outer member.
In addition, a hook is provided at the corner slide engaging member, and in a state where the canopy is unfolded, the corner slide engaging member is fixed at the leg outer member.

At this time, in the hook, a protrusion protrudes into the inside of the engaging member, and the protrusion is elastically supported by a spring and in the inside of the body of the hook and is engaged to the handle, and when the handle is pulled, the protrusion protruding into the inside of the engaging member is inserted in the inside of the body of the hook, and when the handle is released, the protrusion protrudes into the inside of the insertion member by means of the elastic force of the spring.

Advantageous Effects

As described above, the canopy having no gaps according to the present invention may not deform or collapse down and may stand stably against a vertical load even when a strong vertical load applies to the tent due to heavy rain, heavy snow, the like.

In addition, the present invention is advantageous in that the canopy does not sway a lot and is able to stand stably even when an impact applies to the tent as strong wind blows or a passerby goes by and collides with the tent when the canopy is unfolded and set up at an event place or a street kiosk, which may be obtained in such a way to prevent the formation of any gap at each link and joint of the canopy.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a perspective view illustrating a conventional canopy.

FIG. 2 is a perspective view illustrating a state where a canopy is unfolded according to the present invention.

FIG. 3 is a perspective view illustrating a state where a canopy is folded according to the present invention.

FIG. 4 is a view illustrating a major configuration of a state where a canopy is unfolded according to the present invention.

FIG. 5 is a view illustrating a major configuration of a state where a canopy is folded according to the present invention.

FIG. 6 is a view illustrating a major configuration of a state where a canopy is folded according to the present invention.

FIG. 7 is a cross sectional view illustrating an engaged state of a rib and a joint.

FIG. 8 is a cross sectional view illustrating an engaged state of a reinforcing member and a corner slide engaging member.

FIG. 9 is a perspective view illustrating a corner slide engaging member with a hook.

FIG. 10 is a view illustrating a hook provided at a center slide engaging member.

LEGENDS OF MAJOR COMPONENTS IN THE DRAWINGS

100: canopy
111: ridge pillar outer member
112: ridge pillar inner member
113: ridge
114: center slide engaging member
115: center lower engaging member
121: leg outer member
122: leg inner member
123: corner engaging member
124: corner slide engaging member
130: rib
131: first rib
132: second rib
133: joint
134: reinforcing member
135: stopper
136: reinforcing member engaging member
137: slide groove
138: cover
140: X-link
141: link engaging member
150: hook
151: handle
152: protrusion

BEST MODES FOR CARRYING OUT THE INVENTION

The firm canopy having no gaps according to the present invention will be described with reference to the accompanying drawings.

FIG. 2 is a perspective view illustrating a state where a canopy is unfolded according to the present invention. FIG. 3 is a perspective view illustrating a state where a canopy is folded according to the present invention. FIG. 4 is a view illustrating a major configuration of a state where a canopy is unfolded according to the present invention. FIG. 5 is a view illustrating a major configuration of a state where a canopy is folded according to the present invention. FIG. 6 is a perspective view illustrating a rib joint. FIG. 7 is a cross sectional view illustrating an engaged state of a rib and a joint. FIG. 8 is a cross sectional view illustrating an engaged state of a reinforcing member and a corner slide engaging member. FIG. 9 is a perspective view illustrating a corner slide engaging member with a hook. FIG. 10 is a view illustrating a hook provided at a center slide engaging member.

As illustrated in FIG. 2, the canopy 100 according to the present invention may include 4 legs, and a center pillar in the center of the 4 legs. The canopy may be configured by connecting each leg, the center pillar and the legs through a X-link 140.

The canopy 100 according to the present invention will be more specifically described. In the center of the canopy 100, there are provided a ridge pillar outer member 111 and a ridge pillar inner member 112 which support the ridge 113.

The ridge pillar inner member 112 may be configured to slide from the bottom of the ridge pillar outer member 111 into the inside of the ridge pillar outer member 111. When the canopy 100 is unfolded, the ridge pillar inner member 112 is inserted in the inside of the ridge pillar outer member 111, so the ridge pillar inner member 112 is not seen from the outside, and as illustrated in FIG. 5, when the canopy 100 is folded, the ridge pillar inner member 112 looks like protruding from the ridge pillar outer member 111.

A center slide engaging member 114 is engaged to the bottom of the ridge pillar outer member 111 and slides along the ridge pillar outer member 111, and a center lower engaging member 115 is fixedly engaged to the bottom of the ridge pillar inner member 112.

Legs are provided at 4 corners of the canopy 100. As illustrated in FIG. 2, the legs are configured in such a way that the corner engaging member 123 is formed at the top of the
leg outer member 121, and there is provided a corner slide engaging member 124 which may slide along the leg outer member 121.

Two X-links 140, which are connected in series, are engaged to the corner engaging member 123 formed at the top of the leg outer member 121 and to the corner slide engaging member 124, thus connecting the leg outer member 121 and the leg outer member 121 and forming 4 sides of the canopy 100.

Two rods are hinged in the center of the X-link 140. The X-link 140 connecting the leg outer member 121 and the leg outer member 121, as illustrated in FIG. 2, two X-link 140 may be hinged using the link engaging member 141.

In addition, the link engaging member of the side which is formed by two serially connected X-links 140 between the leg outer member 121 and the leg outer member 121 of the canopy 100, as illustrated in FIG. 2, is hinged at the center slide engaging member 114 sliding along the ridge pillar outer member 111 and at the center lower engaging member 115 fixedly engaged at the bottom of the ridge pillar inner member 112 respectively.

More specifically, when the tent cloth is placed on the top of the canopy 100, vertical loads from the weight of the tent cloth and in case of heavy rain and heavy snow intensively apply to the ridge 113 and the rib 130. Most of the vertical load except for the weight which applies to the legs is transferred to the center slide engaging member 114 through the ridge 113 and the ridge pillar outer member 111 and the X-links 140. Since the ridge 113 and the center slide engaging member 114 are engaged to one ridge outer member 111, it is possible to effectively support such weights without forming any gaps.

As illustrated in FIG. 1, the conventional canopy is configured in such a way that the center pillar 220 supporting the ridge is formed of an outer member (not numbered) and an inner member (not numbered), and when the tent is unfolded, the inner member of the center pillar 220 elastically supported by the spring in the inside ascends, thus supporting the ridge, and the third support pipe 234 of the slope maintaining member 230 is inserted into or discharged from the inside of the second support pipe 232. When the tent is unfolded, as illustrated in FIG. 1, the third support pipe 234 protrudes from the second support pipe 232, thus supporting the tent cloth placed on the top of the tent along with the center pillar 220, so when vertical load applies to the tent for the reasons of the weight of the tent cloth, heavy rain, heavy snow, etc., the inner member of the center pillar 220 and the third support pipe 234 which is the inner member of the slope maintaining member 230 are inserted into the inside of the second support pipe 232 of the slope maintaining member 230, and the shape of the tent is deformed and finally collapses down or the tent is damaged.

Meanwhile, the canopy according to the present invention is characterized in that the ridge 113 and the center slide engaging member 114 are engaged to one ridge outer member 111, thus effectively supporting weight without forming any gaps.

In addition, as illustrated in FIGS. 4 and 10, it is preferred that a hole (not numbered) may be formed at the ridge pillar outer member 111 and the ridge pillar inner member 112, and a hook 150 may be provided at the center slide engaging member 114, thus more effectively supporting the weights.

As illustrated in FIG. 9, in the hook 150, a handle 151 sliding along the body of the hook may be formed at one side of the engaging member, and a protrusion 152 may protrude from an inner side of the engaging member.

The protrusion 152 may be elastically supported by a spring in the inside of the body or may elastically protrude into the inside of the insertion member 125 of the engaging member or may be inserted into the inside of the body of the hook 150. The protrusion 152 may be connected to the handle 151 in the inside of the body of the hook 150, so when a user pulls the handle 151, the protrusion 152 can be inserted into the inside of the body of the hook 150, and when the user releases the handle 151, the protrusion 152 may protrude into the inside of the insertion member 125.

When the canopy 100 is unfolded, the ridge pillar inner member 112 is inserted into the inside of the ridge pillar outer member 111, and when the hole formed at the ridge pillar inner member 112 and the hole formed at the ridge pillar outer member 111 match each other, as illustrated in FIG. 10, the elastically supported protrusion 152 is inserted through the matching holes, so the ridge pillar outer member 111 and the ridge pillar inner member 112 are fixed, not movable, thus
effectively supporting external impacts or weights, while preventing the canopy 100 from swaying due to external weight or impact.

As illustrated in FIG. 6, when the canopy 100 is unfolded, it is preferred that a "T"-shaped cover 138 may be engaged to the joint 133, so the canopy can more effectively support external impact or weight, while preventing the canopy 100 from swaying due to external weight or impact.

As illustrated in FIG. 6, a slide groove 137 may be formed at both sides of the body of the joint 133 which hinges the first rib 131 and the second rib 132, and a protrusion (not illustrated) may be formed at both lower inner sides of the cover 138, and in the way as illustrated in FIG. 6, when the cover 138 is engaged to the joint 133, the protrusion of the cover 138 may be inserted into the slide groove 137 of the joint 133, and the cover 138 may be fixed at the joint 133.

When weight applies to the rib 130, the first rib 131 and the second rib 132 are slightly bent about the joint 133, so the canopy can be movable. Since the cover 138 is engaged to the joint 133, the first rib 131 and the second rib 132 are prevented from being bent by weight or impact, so the canopy can effectively support external impact or weight, while preventing the canopy 100 from swaying due to external weight or impact.

As illustrated in FIG. 4, a hook 150 may be provided at the corner slide engaging member 124 so as to reliably support the weight which applies to the reinforcing member 134 which supports the rib 130. The hook may be formed at the leg outer member 121, so when the canopy 100 is unfolded, the hook 150 fixes the corner slide engaging member 124 at the leg outer member 121, thus effectively supporting external impact or weight, while preventing the canopy 100 from swaying due to external weight or impact.

As illustrated in FIGS. 2 and 4, a protrusion member stopper may be formed at the reinforcing member 134 in the direction of the rib 130, so that it is possible to easily unfold the canopy when the canopy is unfolded.

The stopper 135 is installed at the reinforcing member 134, and when the canopy 100, as illustrated in FIG. 5, is folded, the stopper 135 and the leg outer member 121 and guides the reinforcing member 134 to be widened at a predetermined angle and from the leg outer member 121, so the canopy 100 can be easily unfolded even if the canopy 100 is in a state where the canopy is folded or unfolded, there are not any gaps between the first and second ribs 131 and 132 and the joint 133, thus preventing the canopy from swaying, thus effectively supporting external impact or weight, while preventing the canopy 100 from swaying due to external weight or impact.

In the same way, as illustrated in FIG. 8, the end portion of the reinforcing member 134 hinged at the reinforcing member engaging member 136 which slides along the second rib 132 is formed in a semicircular shape and is configured to rotate in a state where the outer surface of the end portion comes into contact with the inner surface of the reinforcing member engaging member 136, thus effectively supporting external impact or weight, while preventing the canopy 100 from swaying due to external weight or impact.

In addition, as illustrated in FIG. 2, it is preferred that the leg inner member 122 is configured to be inserted into or protrude from the inner side of the bottom of the leg outer member 121, thus adjusting the height of the canopy 100 through the leg inner member 122.

At this time, as illustrated in FIG. 2, the hook 150 is disposed at the bottom of the leg outer member 121, and a multi-stage hole (not shown) is formed in the axial direction and at the leg inner member, thus freely adjusting the height of the canopy.

According to the firm canopy having no gaps according to the present invention, the canopy is not deformed or does not collapse down even when a high vertical load applies to the tent due to heavy rain, heavy snow or the like and is able to stably stand against such a vertical load.

In addition, the canopy of the present invention is constituted in such a way that gaps don’t occur at each link and joint, so when the canopy is unfolded and set up at an event place or a street kiosk, the canopy won’t sway and can be stably supported even when a predetermined impact applies to the canopy since a gust of strong wind blows or a passerby goes by and collides with the canopy, thus obtaining a stable use state when in use.

So far, the firm canopy having no gaps has been described.

It should be understood that the present invention may be embodied in several forms without departing from the spirit or essential characteristics thereof for those skilled in the art.

It should also be understood that the above-described examples are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be construed broadly within its spirit and scope as defined in the appended claims, and therefore all changes and modifications that fall within the means and bounds of the claims, or equivalences of such means and bounds are therefore intended to be embraced by the appended claims.

1. A firm canopy having no gaps, comprising:
   a ridge pillar outer member 111 which supports at its top a ridge 113 and includes a center slide engaging member 114 at its bottom;
   a ridge pillar inner member 112 which includes at its bottom a center lower engaging member 115 and is inserted into the inside of the bottom of the ridge pillar outer member 111 and is inserted into and separates from the ridge pillar outer member 111;
   a leg outer member 121 which includes at its top a corner engaging member 123 and a corner slide engaging mem-
ber 124 which slides along the leg outer member 121 and is formed in four corners of the canopy; a rib 130 one end of which is hinged at the ridge 113 and the other of which is hinged at a corner engaging member 123, wherein a first rib 131 and a second rib 132 are hinged through a joint 133; a reinforcing member 134 one end of which is hinged at a reinforcing member engaging member 136 engaged to the second rib 132 and the other end of which is hinged at the corner slide engaging member 124, thus supporting the rib 130; a X-link 140 wherein each end portion of the X-link 140 in which the X-link 140 is in series engaged to both side of the link engaging member 141 is hinged at a corner engaging member 123 of the leg outer member 121 and a corner slide engaging member 124 respectively, thus forming the sides of the canopy; and four X-links 140 one end of each of which is hinged at a center slide engaging member 114 and a center lower engaging member 115, and the other end of each of which is hinged at the link engaging member 141 of the X-link 140 which forms the sides of the canopy.

2. The canopy of claim 1, wherein a hook 150 is provided at the bottom of the leg outer member 121, and a leg inner member 122 is inserted into the inside of the bottom of the leg outer member 121.

3. The canopy of claim 1, wherein a stopper 135 protruding in the direction of the rib 130 is formed at the reinforcing member 134.

4. The canopy of claim 1, wherein a slide groove 137 is formed at both sides of the joint 133 of the rib 130, and a cover 138 which formed in '┌┐' shape and with a protrusion inserted in the slide groove 137 of the joint is formed at an inner side of the bottom, and the cover 138 is engaged to the joint 133.

5. The canopy of claim 1, wherein the end portions of the first rib 131 and the second rib 132 hinged at the joint 133 are formed in a semicircular shape, and the outer surface of the end portion of the semicircular shape comes into contact with the inner surface of the joint 133, and the end portion of the reinforcing member 134 hinged at the reinforcing member engaging member 136 is formed in a semicircular shape, and the outer surface of the end portion of the reinforcing member 134 of the semicircular shape comes into contact with the surface of the reinforcing member engaging member 136.

6. The canopy of claim 1, wherein a hook 150 is provided at the center slide engaging member 114, so the ridge pillar inner member 112 is fixed at the ridge pillar outer member 111.

7. The canopy of claim 1, wherein a hook 150 is provided at the corner slide engaging member 123, and in a state where the canopy is unfolded, the corner slide engaging member 124 is fixed at the leg outer member 121.

8. The canopy of claim 6, wherein in the hook 150, a protrusion 152 protrudes into the inside of the engaging member, and the protrusion 152 is elastically supported by a spring and in the inside of the body of the hook 150 and is engaged to the handle 151, and when the handle 151 is pulled, the protrusion 152 protruding into the inside of the engaging member is inserted in the inside of the body of the hook 150, and when the handle 151 is released, the protrusion 152 protrudes into the inside of the insertion member by mean of the elastic force of the spring.

9. The canopy of claim 7, wherein in the hook 150, a protrusion 152 protrudes into the inside of the engaging member, and the protrusion 152 is elastically supported by a spring and in the inside of the body of the hook 150 and is engaged to the handle 151, and when the handle 151 is pulled, the protrusion 152 protruding into the inside of the engaging member is inserted in the inside of the body of the hook 150, and when the handle 151 is released, the protrusion 152 protrudes into the inside of the insertion member by mean of the elastic force of the spring.

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