The present invention relates to a framework of foldable frame tent, which is comprised of roof braces and relieving braces, wherein said roof brace includes the first brace and the second brace abutted together in pivoting connection, in which one end of the first brace is pivoted on the pivoting hub at the central top, and another end of the second brace is pivoted on the pole; and in the same way, said relieving brace also includes the first and the second relieving braces abutted together in pivoting connection, one end of the first relieving brace is pivoted on the middle portion of the first brace, the middle portion of the second relieving brace is pivoted on the middle portion the second brace together, and another end of the second relieving brace is pivoted on the pole. Due to adding a pair of draw-bars on the both sides of the roof brace or the relieving brace, the roof staying mechanism provided by the present invention has more powerful supporting intention, and more uniform load distribution, meanwhile the service life of the framework can be greatly prolonged.
FIG. 2
FRAMEWORK OF FRAME TENT
BACKGROUND OF THE INVENTION

1. Field of the Invention
The present invention relates to a big-size foldable frame tent, and more particularly to a framework of frame tent.

2. Description of Prior Art
In accordance with the conventional big-size frame tents, their roof bar stay is required to be enough strong to support the heavy awning, as shown in FIG. 1, the roof framework shown a common big-size frame tent in the market so far includes proper number of roof braces that is comprised of two almost equal mono-folding braces 11' 12' and a relieving brace 2', in which one end of said main brace 11' is pivoted on a pivoting hub 3' on the center of the framework, another end of the brace 12' is pivoted on a static base 4' located on the top end of the pole 4', and one end of said relieving brace 2' is pivoted on a sliding base 42' joining on the trunk of the pole 4' in sliding connection, another end is pivoted on the middle portion of the main brace 12' for supporting it, said main braces 11' 12' are abutted with a pivot piece 5' in pivoting connection, so in this structure, the stress is concentrated on said pivot piece 5', so that the service life of the pivot piece 5' is limited after a using time, therefore, a need is arisen that the roof framework of the tent is innovated to delay the service life.

OBJECTS AND SUMMARY OF THE INVENTION

It is therefore a main object of the present invention to provide a framework of frame tent with standing higher supporting intensity and longer service life.

For achieving the above-mentioned object, the present invention provides a roof staying mechanism, which is comprised of roof braces and relieving braces, wherein said roof brace includes the first brace and the second brace abutted together in pivoting connection, in which one end of the first brace is pivoted on the pivoting hub at the center top, and another end of the second brace is pivoted on the pole; and in the same way, said relieving brace also includes the first and the second relieving braces abutted together in pivoting connection, one end of the first relieving brace is pivoted on the middle portion of the first brace, the middle portion of the second relieving brace is pivoted on the middle portion the second brace together, and another end of the second relieving brace is pivoted on the pole; wherein a pair of draw-bars are connected a brace or a relieving brace to the both side strutting assembly in pivoting connection respectively.

Said second brace is pivoted on the sliding base attaching on the pole with the outer end, and the second relieving brace is pivoted on the static base located on the top end of the pole with the outer end too.

Said side strutting assembly is consisted of several couples of struts pivoted together crossly at middle points like a scissors pivoting in abutting joint.

Said draw-bar is comprised of two connecting bars, in which the first connecting bar connects the second relieving brace and the low pivoting point of said side strutting assembly with the both ends in pivoting connection, and the second connecting bar connects the first connecting bar to the upper pivoting point of the side strutting assembly with the both ends in pivoting connection respectively.

As utilizing above-mentioned project, comparing with the prior art, the framework of foldable frame tent provided by the present invention has following advantages:

1. Higher supporting intensity: due to the relieving brace consisting two sub-relieving braces directly pivoted together, and they are pivoted on the two sub-braces of the roof brace respectively, as spreading out the tent, pushing up the sliding base makes the first relieving brace pull up the first brace, meanwhile the second relieving brace support the second brace up, so that the both braces are exerted with assistant extra forces, but in the prior art, just only one supporting point coming from the relieving brace at the second brace, so the present invention can stand higher supporting intensity.

2. Longer service life of the roof braces: because the two sub-braces of said roof brace are pivoted directly in abutting joint, a spacing pivoting piece is saved, meanwhile two sub-relieving braces exert assistant force on the two sub-braces respectively, so that the all roof staying mechanism is loaded with the tension in uniform distribution without concentrating on the pivoting piece in the prior art, so the service life of the roof braces can be greatly prolonged.

3. Longer service life of the framework: by means of adding a pair of draw-bars on the both sides of the roof brace or the relieving brace, a spacing function and a mutual supporting effect are established between the roof staying mechanism and the side strutting assemblies, so the draw-bars cooperates with a set of relieving braces and a set of braces to construct stereo-poly-directional staying framework, thereby preventing every pivoting points, as a relieving brace and a roof brace are exerted with extra force, from bearing up bigger torque, therefore the roof staying mechanism provided by the present invention has more powerful supporting intention, and more uniform load distribution, meanwhile the service life of the framework can be greatly prolonged too.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the prior art.
FIG. 2 is a perspective view of the present invention.
FIG. 3 is a perspective view showing the folding action of the present invention.
A roof staying mechanism provided by the present invention, as shown in FIG. 2 and FIG. 3, is typically comprised of roof braces 1 and relieving braces 2.

Said roof brace 1 is consisted of almost equal lengthen two sub-braces, the first brace 11 and the second brace 12, pivoted together in abutting joint at the pivoting point A, wherein one end of said first brace 11 is pivoted on the pivoting hub 3 at the central top, and another end of the second brace 12 is pivoted on the pole 4.

Said relieving brace 2 also includes the first and the second relieving braces 21 22 pivoted together in abutting joint to form a pivoting point B, one end of the first relieving brace 21 is pivoted on the middle portion of the first brace 11 to form a pivoting point C, the middle portion of the second relieving brace 22 is pivoted on the middle portion the second brace 12 together to form a pivoting point D, and another end of the second relieving brace 22 is pivoted on the pole 4.

Here something should be stressed: the distance from the pivoting point A to the pivoting point C adding the distance between the pivoting point B and the pivoting point C should equal the distance of AD adding BD. In this way, the roof staying mechanism of the frame tent can be folded up together.

Referring to FIG. 2 and FIG. 3, in this embodiment, said second brace 12 is shorter than the second relieving brace 22 in lengthen, meanwhile said second brace 12 is pivoted on the sliding base 42 attaching on the pole 4 with the outer end, and the second relieving brace 22 is pivoted on the static base 41 located on the top end of the pole 4 with the outer end too, so such when spreading out the frame tent, the sliding base 42 is pushed up along the trunk of the pole 4, the both sub-braces 11 12 are tending to approach the sub-relieving braces 21 22, so the included angle of the second brace 12 and the second relieving brace 22 is getting to smaller, on the other hand, the four pivoting points A B C D surround a quadrangle (in this embodiment it is parallelogram), meanwhile the included angle of the second relieving brace 22 and the first relieving brace 21 is getting to bigger, so the first relieving brace 21 generates a pulling-up force on the first brace 11, the second relieving assemblies 3 and four roof staying mechanisms consisted of roof braces 1 and relieving braces 2.

Said roof brace 1 is consisted of almost lengthen two sub-braces, the first brace 11 and the second brace 12, pivoted together in abutting joint at the pivoting point A, wherein one end of said first brace 11 is pivoted on the pivoting hub 3 at the central top, and another end of the second brace 12 is pivoted on the pole 4.

Said relieving brace 2 also includes the first and the second relieving braces 21 22 pivoted together in abutting joint to form a pivoting point B, one end of the first relieving brace 21 is pivoted on the middle portion of the first brace 11 to form a pivoting point C, the middle portion of the second relieving brace 22 is pivoted on the middle portion the second brace 12 together to form a pivoting point D, and another end of the second relieving brace 22 is pivoted on the pole 4.

Said side strutting assembly 3 is consisted of several couples of struts 31 32 pivoted together crossly at middle points like as scissors pivoting in abutting joint, in this embodiment there are three couples pivoted together in abutting joint.

Here something should be stressed: the distance from the pivoting point A to the pivoting point C adding the distance between the pivoting point B and the pivoting point C should equal the distance of AD adding BD. In this way, the roof staying mechanism of the frame tent can be folded up together.

On the other hand, on the both sides of said each relieving brace 2 there are two draw-bars 5 set up, said draw-bars 5 is consisted of two connecting bars 51 52, one end of the first connecting bar 51 is pivoted on the second relieving brace 22, another end is pivoted on the low pivoting point F of said side strutting assembly 3, one end of said second connecting bar 52 is pivoted on the first connecting bar 51, another end is pivoted on the upper pivoting point E of said side strutting assembly 3.

Of course, said draw-bars 5 also can be pivoted on the both sides of each roof brace 1.

Said draw-bars 5 makes the roof staying mechanism and the side strutting assemblies 3 build up an inter-spacing and mutual supporting functions, so the draw-bars 5 cooperates with a set of relieving brace 21 22 and a set of braces 11 12 to construct stereo-poly-directional staying framework, thereby preventing every pivoting points A B C D, as a relieving brace 2 and a roof brace 1 are exerted with extra force, from bearing up bigger torque, especially to the all pivoting points A B C D they are supported by said connecting bars under the connection of the draw-bars 5 without floating configuration.

Referencing to drawings, in the embodiment, said second brace 12 is shorter than the second relieving brace 22 in lengthen, meanwhile said second brace 12 is pivoted on the sliding base 42 attaching on the pole 4 with the outer end, and the second relieving brace 22 is pivoted on the static base 41 located on the top end of the pole 4 with the outer end too, so such when spreading out the frame tent, the sliding base 42 is pushed up along the trunk of the pole 4, the both sub-braces 11 12 are tending to close, meanwhile the both sub-relieving braces 21 22 are closed too, so as to make the tent fold up smoothly to carry out folding effect.

Just because the both sub-relieving braces 21 22 exerts assistant forces on the two sub-braces 11 12 respectively, so that the all roof staying mechanism is loaded with the intension in uniform distribution without concentrating on the pivoting piece in the prior art, so the service life of the roof braces can be greatly prolonged.

Referring to FIG. 4 and FIG. 5, a framework of foldable frame tent provided by another embodiment of the present invention is comprised of four poles 4, four side strutting assemblies 3 and four roof staying mechanisms consisted of roof braces 1 and relieving braces 2.
relieving brace 22 exerts a pushing-up force on the second brace 12, thereby carrying out supporting effect on the roof brace. As folding the frame tent, the sliding base 42 is pulled down along the trunk of the pole 4, due to the pivoting connection of all, the both sub-braces 11 12 are tending to close, meanwhile the both sub-relieving braces 21 22 are closed too. in the same time, all the struts 31 32 of the side strutting assemblies 3 are concentrated on the center, so as to make the tent fold up smoothly to carry out folding effect.

[0036] by means of adding a pair of draw-bars 5 on both sides of the roof brace 1 or the relieving brace 2, a spacing function and a mutual supporting effect are established between the roof staying mechanism and the side strutting assemblies 3, so the draw-bars 5 cooperates with a set of relieving braces 21 22 and a set of braces 11 12 to construct stereo-poly-directional staying framework, thereby preventing every pivoting points A B C D, as a relieving brace 2 and a roof brace 1 are exerted with extra force, from bearing up bigger torque, therefore the roof staying mechanism provided by the present invention has more powerful supporting intention, and more uniform load distribution, meanwhile the service life of the framework can be greatly prolonged too.

I claim:

1. A roof staying mechanism of foldable frame tent comprising roof braces and relieving braces, wherein said roof brace includes the first brace and the second brace abutted together in pivoting connection, in which one end of the first brace is pivoted on the pivoting hub at the central top, and another end of the second brace is pivoted on the pole; and in the same way, said relieving brace also includes the first and the second relieving braces abutted together in pivoting connection, one end of the first relieving brace is pivoted on the middle portion of the first brace, the middle portion of the second relieving brace is pivoted on the middle portion the second brace together, and another end of the second relieving brace is pivoted on the pole.

2. A roof staying mechanism of foldable frame tent as claimed in claim 1, wherein said second brace is pivoted on the sliding base attaching on the pole with the outer end, and the second relieving brace is pivoted on the static base located on the top end of the pole with the outer end.

3. A framework of foldable frame tent is comprised of poles, side strutting assemblies and roof staying mechanisms, in which said roof staying mechanism is comprised of roof braces and relieving braces, wherein said roof brace includes the first brace and the second brace abutted together in pivoting connection, in which one end of the first brace is pivoted on the pivoting hub at the central top, and another end of the second brace is pivoted on the pole; and in the same way, said relieving brace also includes the first and the second relieving braces abutted together in pivoting connection, one end of the first relieving brace is pivoted on the middle portion of the first brace, the middle portion of the second relieving brace is pivoted on the pole with the outer end, and the second relieving brace is pivoted on the static base located on the top end of the pole with the outer end too.

4. A framework of foldable frame tent as claimed in claim 3, wherein said second brace is pivoted on the sliding base attaching on the pole with the outer end, and the second relieving brace is pivoted on the static base located on the top end of the pole with the outer end too.

5. A framework of foldable frame tent as claimed in claim 3, wherein said side strutting assembly is consisted of several couples of struts pivoted together crossly at middle points like a scissors pivoting in abutting joint.

6. A framework of foldable frame tent as claimed in claim 3, wherein said draw-bar is comprised of two connecting bars, in which the first connecting bar connects the second relieving brace and the low pivoting point of said side strutting assembly with the both ends in pivoting connection, and the second connecting bar connects the first connecting bar to the upper pivoting point of the side strutting assembly with the both ends in pivoting connection respectively.

7. A framework of foldable frame tent as claimed in claim 5, wherein said draw-bar is comprised of two connecting bars, in which the first connecting bar connects the second relieving brace and the low pivoting point of said side strutting assembly with the both ends in pivoting connection, and the second connecting bar connects the first connecting bar to the upper pivoting point of the side strutting assembly with the both ends in pivoting connection respectively.

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