

[54] TENT

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[58] Field of Search..... 135/1 R, 3 R; 52/11, 13,
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[57] ABSTRACT

Apparatus for suspending a tent comprising support poles at each corner thereof, a top wall of the tent being supported by a center frame member supported by the support poles to thereby omitting a main center pole. The support poles are connected together by support beam which acts as rain gutters and the support poles serve as vertical rain conducts.

8 Claims, 11 Drawing Figures

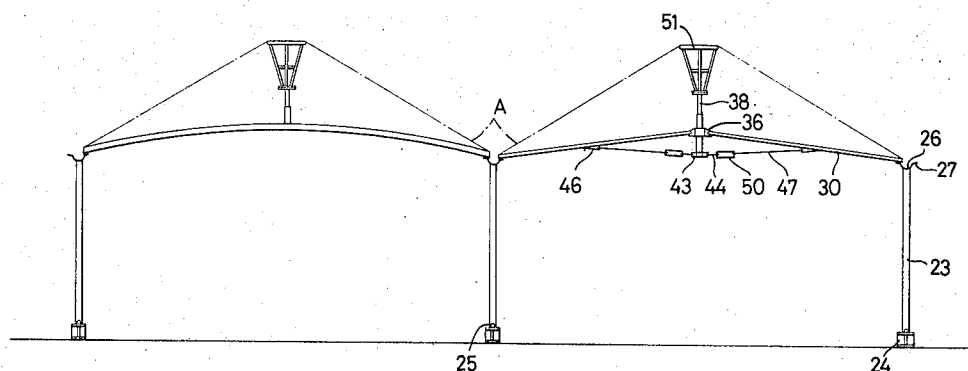
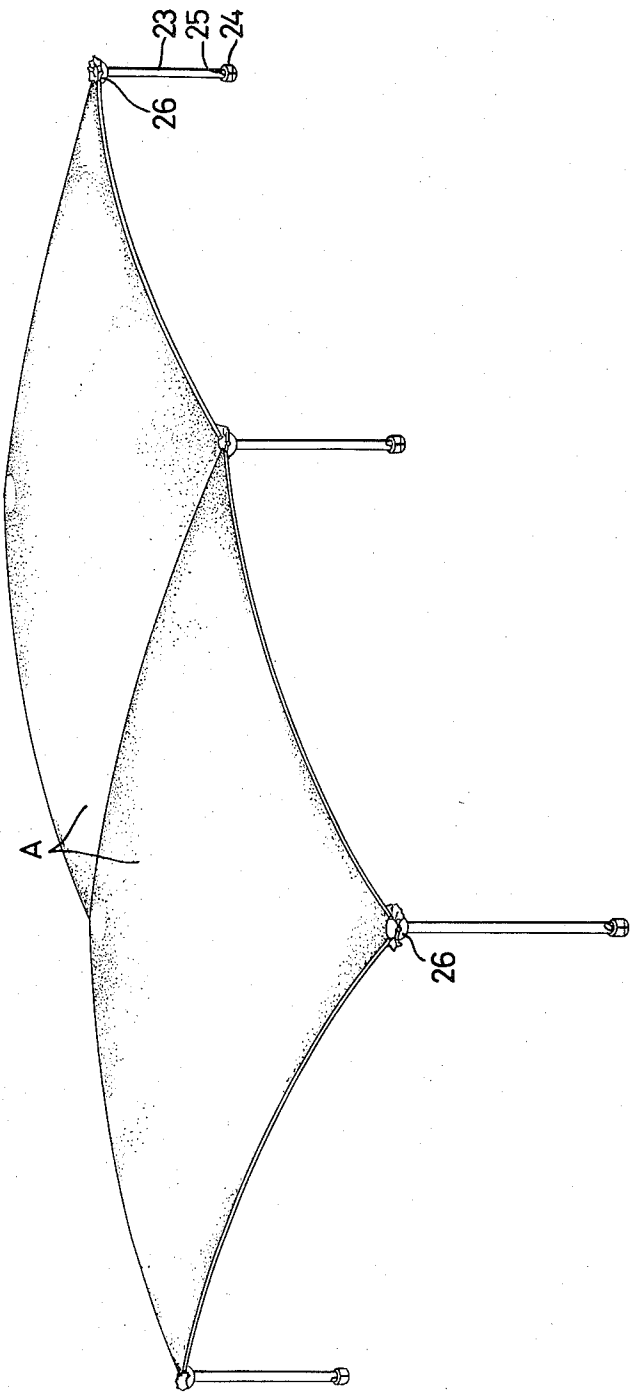


FIG. 1



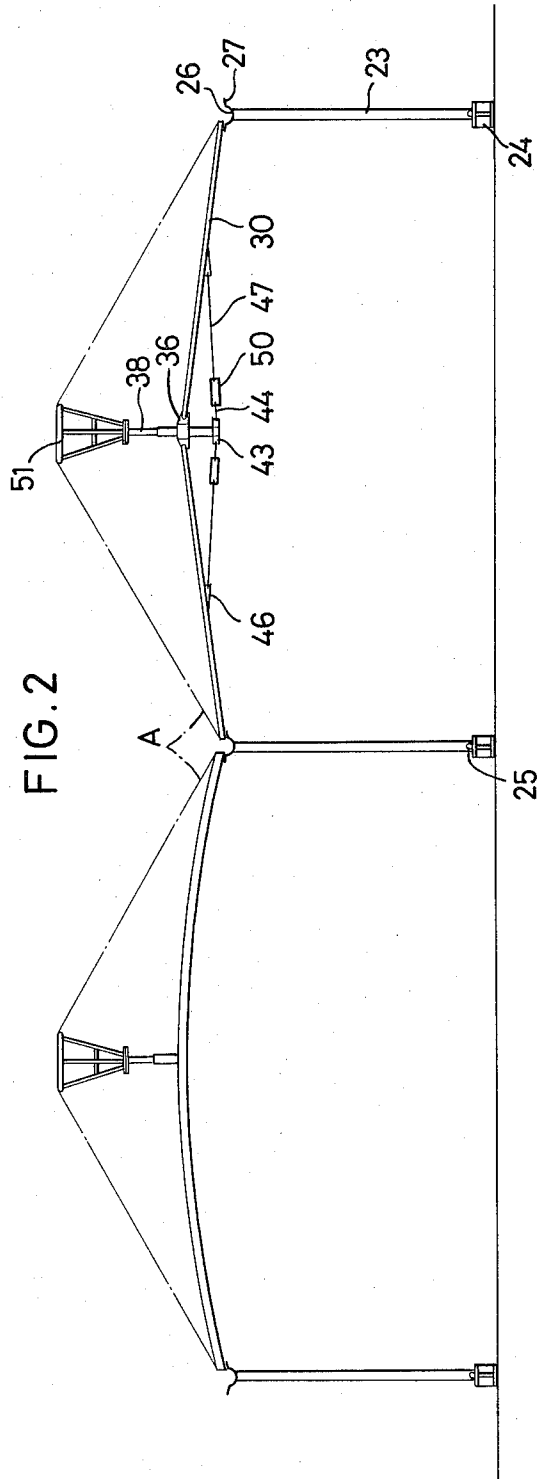


FIG. 3

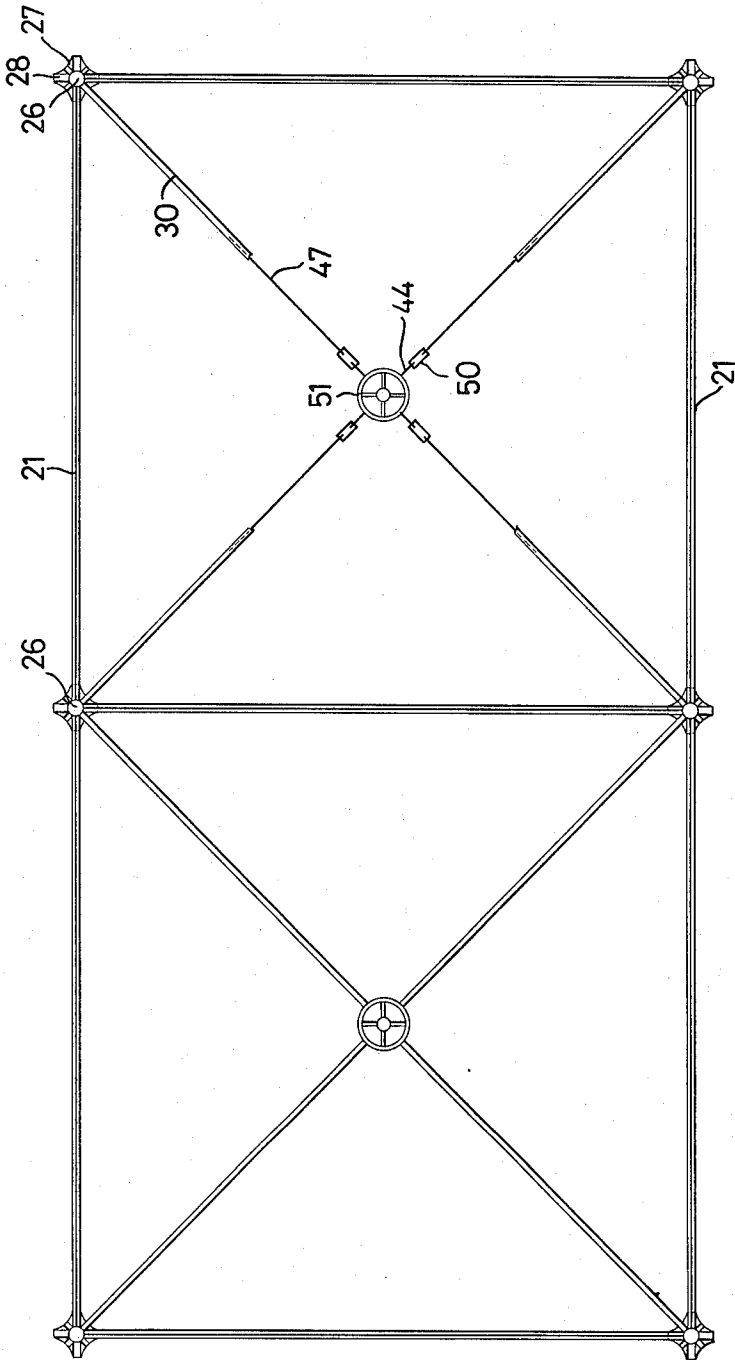


FIG. 4

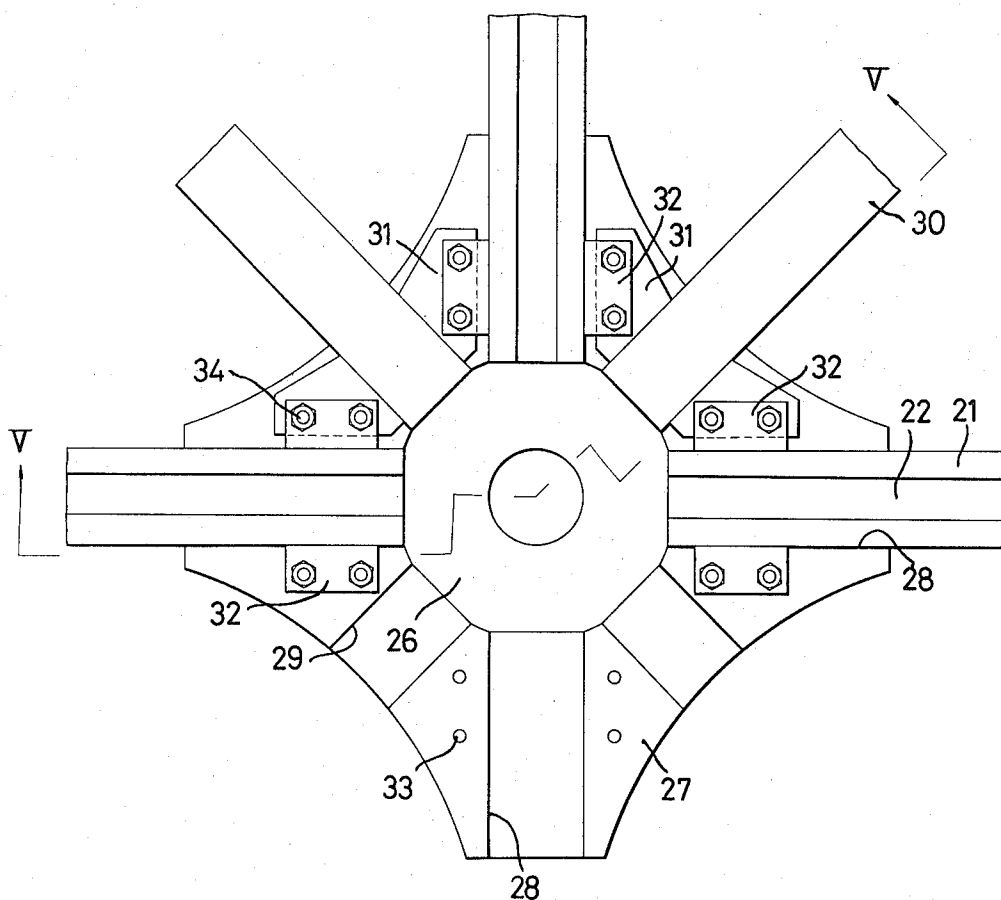
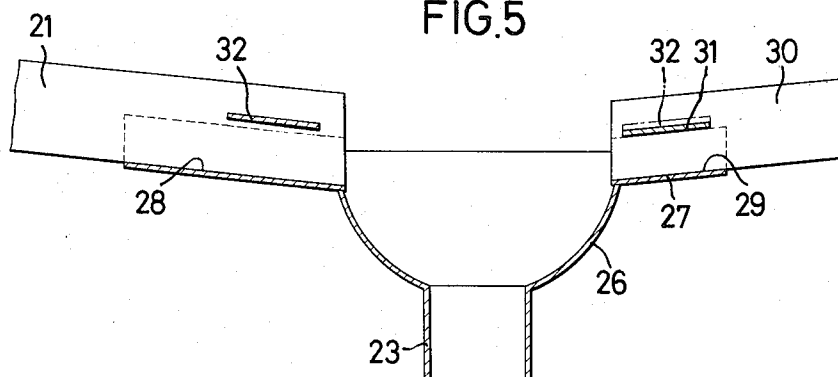


FIG. 5



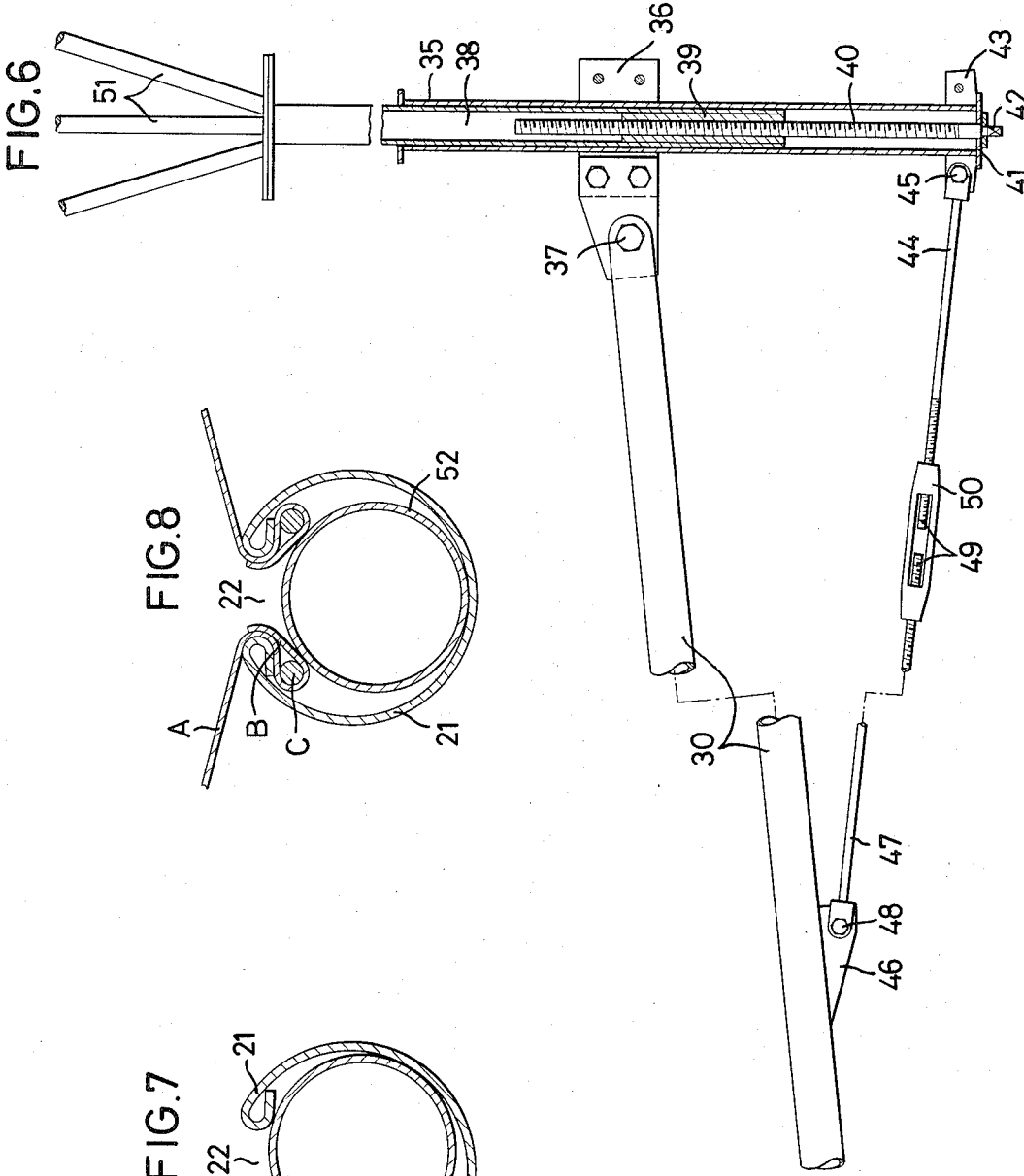


FIG. 9

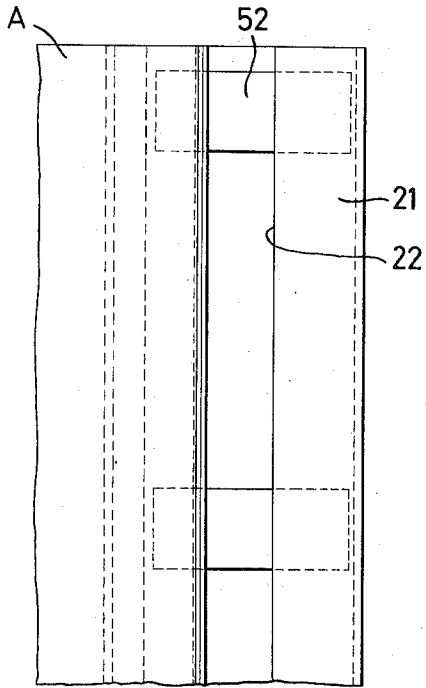


FIG. 11

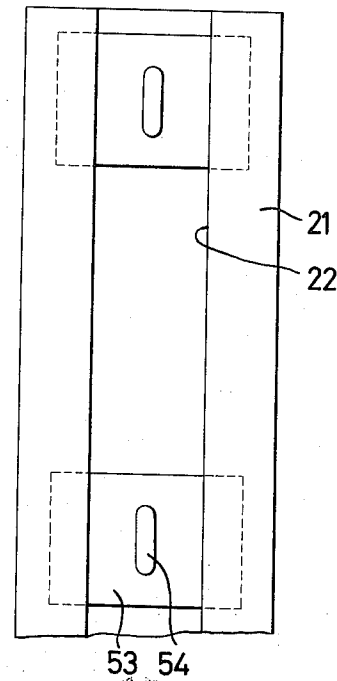
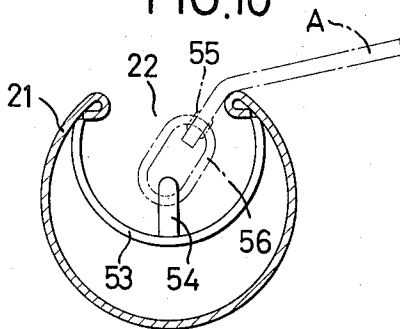


FIG. 10



1 TENT

This invention relates to a tent, and more particularly to a construction of poles for supporting installation of a tent and support members for each part thereof.

Generally, a tent was installed by erecting a support pole at each corner thereof, the top walls of the tent being uplifted by a main pole erected at the center of said tent.

However, this method of installing a tent had a disadvantage in that the main pole erected at the center of the tent proved to be an encumbrance impeding the effective use of the interior of the tent.

With the object of obviating the defect described hereinbefore, a method was introduced wherein a frame member capable of being assembled or disassembled was diagonally disposed between the upper part of each support pole erected at each corner of a tent, the top walls thereof being uplifted by said frame member thereby allowing the omission of a main pole erected in the center of the tent and use of the interior of the tent effectively. However, said frame member for uplifting the top walls of the tent was not elevatable, as a result of which it was difficult to give smooth expansion to said top walls of the tent.

Moreover, the known tent had a disadvantage in that, when it rained, rainwater poured down the periphery of the tent resulting in great splashes on the ground around the tent, the interior of the tent not being free from said splashes.

Furthermore, if small tents were joined together for obtaining a tent of a larger area, rainwater poured down into the tent through the joints thereof. In addition thereto, preparation of a large-sized jointless tent for preventing the downpour of rainwater through the joints was accompanied by various defects, for example, great difficulty in pitching such giant tent, not to mention of inconvenience in transportation and storing of said giant tent.

This invention provides a tent in which the conventional defects as described hereinbefore are eliminated.

A first object of this invention is to provide a tent in which the top walls are adapted to be smoothly expandible by a very simple construction and a rapid operation.

A second object of this invention is to provide a tent in which rainwater otherwise pouring down the periphery of the tent is guided into conduit-shaped beam members and drained through support poles serving as vertical conduits.

A third object of this invention is to provide a tent in which hems of said tent are easily securable to beam members.

This invention is described in detail hereinunder in reference to the annexed drawings, in which;

FIG. 1 is a perspective showing the state of installation of the tent of this invention;

FIG. 2 is an elevation of a tent installing frame;

FIG. 3 is a plan of said tent installing frame;

FIG. 4 is a plan showing the state of connection of beam members to a support pole;

FIG. 5 is a sectional view taken by the line V—V of FIG. 4;

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FIG. 6 is an elevation, longitudinally sectional in part, of a bearing member representing a section for the top wall expansion operation;

FIGS. 7 and 8 are longitudinally sectional elevations showing the state of engagement between tent hems and beam members;

FIG. 9 is a plan of FIG. 7;

FIG. 10 is a longitudinally sectional elevation showing another state of engagement between a tent hem and a beam member; and

FIG. 11 is a plan of FIG. 10.

Referring now to FIGS. 1 to 5, the numeral 21 denotes a beam member extended between the upper end of each support pole 23 erected at each corner of a tent (A), said beam member 21 upwardly curved at the intermediate part thereof, and consisting of a pipe member, said pipe member being provided with an axial slit 22, the breadth of said axial slit being adapted to be smaller than the diameter of the beam member 21.

The support pole 23 erected at each corner of the tent consists of a pipe member so as to also serve as a vertical conduit. The numeral 24 denotes a ground butt member provided at the lower end of the support pole 23, 25 denoting drainage provided on the lower end periphery of the support pole 23.

The upper terminal of the support pole is formed into a funnel-like shape, a bulge 26 and a flange 27 being formed integrally on said funnel-like terminal. As shown in FIG. 4, concave grooves 28 are formed rectangularly on the flange 27 around the support pole 23, concave grooves 29 being also formed rectangularly between said concave grooves 28, the remaining parts of said flange 27 being flat. The concave groove 28 is adapted to receive therein the end of a beam member 21, the concave groove 29 receiving therein the end of a stay rib 30. As shown in FIG. 3, the stay ribs 30 are members diagonally extended from the top of the support pole erected at each corner. As shown in FIG. 4, a pair of projections 31 each projecting in an opposite direction is integrally formed at the end of the stay rib 30, said projections 31 being formed so as to fit the flat surface between the concave grooves 28, 29 on the flange 27, a plurality of bolt holes being bored through each said projection. The beam member 21 is also provided at the terminal thereof with a pair of integrally formed projections 32 each projecting in an opposite direction and in right angles with the axial slit of the beam member, a plurality of bolt holes being bored through each said projection 32, as shown in FIG. 4.

The projection 32 is superposed on the projection 31 of the stay rib placed on the flat surface of the flange 27, the projections 32, 31 and the flange 27 being integrally secured together by means of clamping bolts 34. Therefore, the flange 27 is preliminarily provided with penetration holes 33.

The other end of each stay rib 30 is directed toward the center of the tent and supported by a bearing member in the center of the tent as shown in FIGS. 2 and 3.

FIG. 6 shows the bearing member. Mounting pieces 36 are radially provided on the outside of the middle part of the outer cylinder of the bearing member, the other end of the stay rib 30 being secured to one of the mounting pieces 36 by means of bolts 37. The numeral 38 denotes an inner cylinder elevatably fitted into the outer cylinder 35 from the upper end thereof, a female

screw 39 being secured to the inside of the lower part of said inner cylinder 38.

The numeral 40 denotes a male screw screwed into the female screw 39, the lower end of said male screw 40 being journaled by a bearing 41 at the lower end of the outer cylinder 35 so as to be rotatable at a predetermined position. The numeral 42 denotes a square shaft projecting downwardly from the lower end face of the male screw 40, said male screw 40 being rotated by engaging a handle (not shown in the drawing) with the square shaft 42, 43 denoting a projection provided on the lower end periphery of the outer cylinder 35 so as to be located precisely under each mounting piece 36, a shaft 44 being pivoted at one end thereof on said projection by means of a bolt 45. The numeral 46 denotes a projection provided on the lower part of the substantially middle part of the stay rib 30, another shaft 47 being pivoted at one end thereof on said projection 46 by means of a bolt 48, 49 denoting a threaded section formed at the other end of each shaft 44, 47, the lower end of the outer cylinder 35 being supported by screwing a turnbuckle 50 onto said threaded sections 49. The numeral 51 denotes a frame member mounted on the top of the inner cylinder 38, the center of the top walls of the tent (A) being uplifted by said frame member 51.

FIGS. 7 to 9 show states of engagement between a hem of the tent (A) and a beam member 21, said hem comprising a bulging rib formed by a turnup (B) with a string member (C) enclosed therein. The numeral 52 denotes an annular member insertable into the beam member through the slit 22 thereof. Though the diameter of said annular member 52 is greater than the breadth of the slit 22, the resilience of the beam member allows said annular member to be inserted thereinto through the slit 22 thereof.

FIG. 7 shows a state wherein the bulging rib of the tent hem is inserted from one edge of the slit 22 of the beam member 21, said bulging rib being securely constricted between said one edge and the peripheral wall of the annular member 52. In FIG. 8, bulging ribs of two tents (A),(A) are inserted into a beam member 21 through the edges of the slit 22 thereof, both bulging ribs of the tents (A),(A) being securely constricted between both said edges and the peripheral wall of the annular member 52.

FIG. 9 is a plan of FIG. 7, showing a state wherein annular members 52 are spaced inside the beam member 21. FIGS. 10 and 11 show another embodiment for securing the hem of the tent (A) to the beam member 21. In this case, arcuate plates 53 are spaced and inserted inside the slit 22 of the beam member 21, both edges of said arcuate plates 53 being engaged with both the interior edges of the slit 22. Though the distance between both edges of the arcuate plate 53 is greater than the breadth of the slit 22, said arcuate plate is insertable through the slit 22 because of the resilience of the beam member. A hook 54 is integrally provided on the arcuate plate 53.

On the other hand, eyelets 55 are regularly spaced on the hem of the tent (A), a ring 56 being inserted through each said eyelet 55. Thus the hem of the tent (A) is secured to the beam member 21 by engaging said rings 56 inserted through said eyelets 55 with the hooks 54 of the arcuate plates 53 secured inside the slit of the beam member 21.

As described hereinbefore, this invention is characterized in that a support pole 23 is erected at each corner of the tent, a beam member 21 being extended between the upper end of each said support pole, a bearing member for uplifting the top walls of the tent being provided at the center of the tent, a stay rib 30 being diagonally interposed between the middle part of the bearing member and the upper end of the support pole, shafts 44, 47 being extended between the middle part of the stay rib and the lower end of the bearing member with a turnbuckle 50 interposed therebetween thereby enabling a frame member to be formed, the tent (A) being expanded over the portion enclosed by the beam members 21.

Both ends of the beam member 21 extended between the top of each support pole and the other end of the stay rib 30 secured at one end thereof to the middle part of the bearing member are secured together to the flange 27 formed at the upper end of the support pole 23. Furthermore, each hem of the tent (A) is secured by annular members 52 or arcuate plates 53 inserted into the slit of the beam member 21.

After the hems of the tent (A) has been supported by the beam members 21, the square shaft 42 at the lower end of the bearing member is rotated by means of a handle, with the result that the inner cylinder 38 integrated with the female screw 39 engaged with the male screw 40 is elevated thereby enabling the top walls of the tent (A) to be expanded as said walls are uplifted by the elevation of the frame member 51 at the upper end of the inner cylinder.

Since the hems of the tent (A) are secured inside the slits 22 of the beam members 21, rainwater pours down the periphery of the tent (A) into the beam members 21 by way of the slits 22 thereof. Then, the rainwater pours down from the terminals of the beam members into the support pole 23 by way of the bulges 26 thereof, said rainwater being finally drained through the drainage 25 provided at the lower end of the support pole 23. Consequently, the tent (A) of this invention is free from the risk of rainwater pouring down the periphery thereof unlike the case of the known tent.

Referring now to FIG. 1, when a plurality of tents (A) are jointed together one after another, the beam member 21 to which the hem of one tent (A) is secured serves as a common beam member for sustaining also the hem of the next adjacent tent (A).

FIG. 8 shows a case in which bulging ribs of the adjacent tents (A),(A) are secured to a beam member 21 by an annular member 52. In this case too, rainwater pours down from the two tents (A),(A) through the inside of the beam members 21 by way of the slits 22 thereof and then into the support poles 23 constituting vertical conduits, the rainwater being thereby prevented from falling into the interior of the tents through the joints thereof.

As described hereinbefore, this invention has a distinct advantage in that the top walls are readily expansible making use of a bearing member thereby enabling the tent installing operation to be completed within a very short time. The beam member to which the hem of the tent is secured serves as a conduit thereby enabling rainwater to be guided into the support pole constituting a vertical conduit, the tent hems, moreover being securable to the beam member with extreme ease.

What is claimed is:

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1. A support structure for a tent comprising in combination: a support pole erected at each corner of the tent; a beam member extended between the upper end of each said support pole for sustaining a hem of the tent; a bearing member for uplifting the center of the tent; a stay rib diagonally extending between said bearing member and the upper end of a support pole; and shaft members extended between the middle part of said stay rib and the lower end of said bearing member with a turnbuckle interposed therebetween.

2. In a structure as defined in claim 1, said support pole consisting of a pipe like material and constituting a vertical conduit, a bulge and a flange being integrally formed on said support pole at the upper end thereof.

3. A structure as defined in claim 2 said flange having a concave groove for receiving a terminal of a beam member and a terminal of a stay rib, said flange also comprising a flat surface for securing the projections thereto provided on said terminals.

4. In a structure as defined in claim 1, said beam member consisting of a pipe like material, a slit being axially provided on said beam member, projections at right angles with said axial slit being provided at the terminal of said beam member.

5. In a structure as defined in claim 1, said stay rib consisting of a pipe like material and being provided at one end thereof with a pair of projections projecting at

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right angles with the axial direction and secured at the other end thereof to the bearing member at the center of the tent.

6. A structure as defined in claim 1, wherein said bearing member further comprises an outer cylinder, an elevatable inner cylinder that is inserted into said outer cylinder and is provided with a frame member at the top thereof for uplifting the tent and a male screw engaged with the inside of the inner cylinder for elevating said inner cylinder, a mounting piece for securing the other end of the stay rib being provided on the outside of the middle part of the outer cylinder, a projection for securing one end of a shaft member being provided at the lower end of the outer cylinder.

7. In a structure as defined in claim 1, said beam member and said hem being engaged to each other by inserting into the slit of the beam member the bulging rib of the tent edge formed by hemming said edge with a string member enclosed therein, said bulging rib being adapted to be constricted between the edge of the slit of the beam member and the peripheral walls of the annular members fitted into said slit.

8. In a structure as defined in claim 1, said beam member being engaged with said tent hem by rings spaced on said hem, said rings being engaged with hooks of arcuate plates secured to the inside of the slit of the beam member.

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