

Feb. 14, 1950

L. P. FRIEDER ET AL

2,497,596

TENT

Filed June 11, 1946

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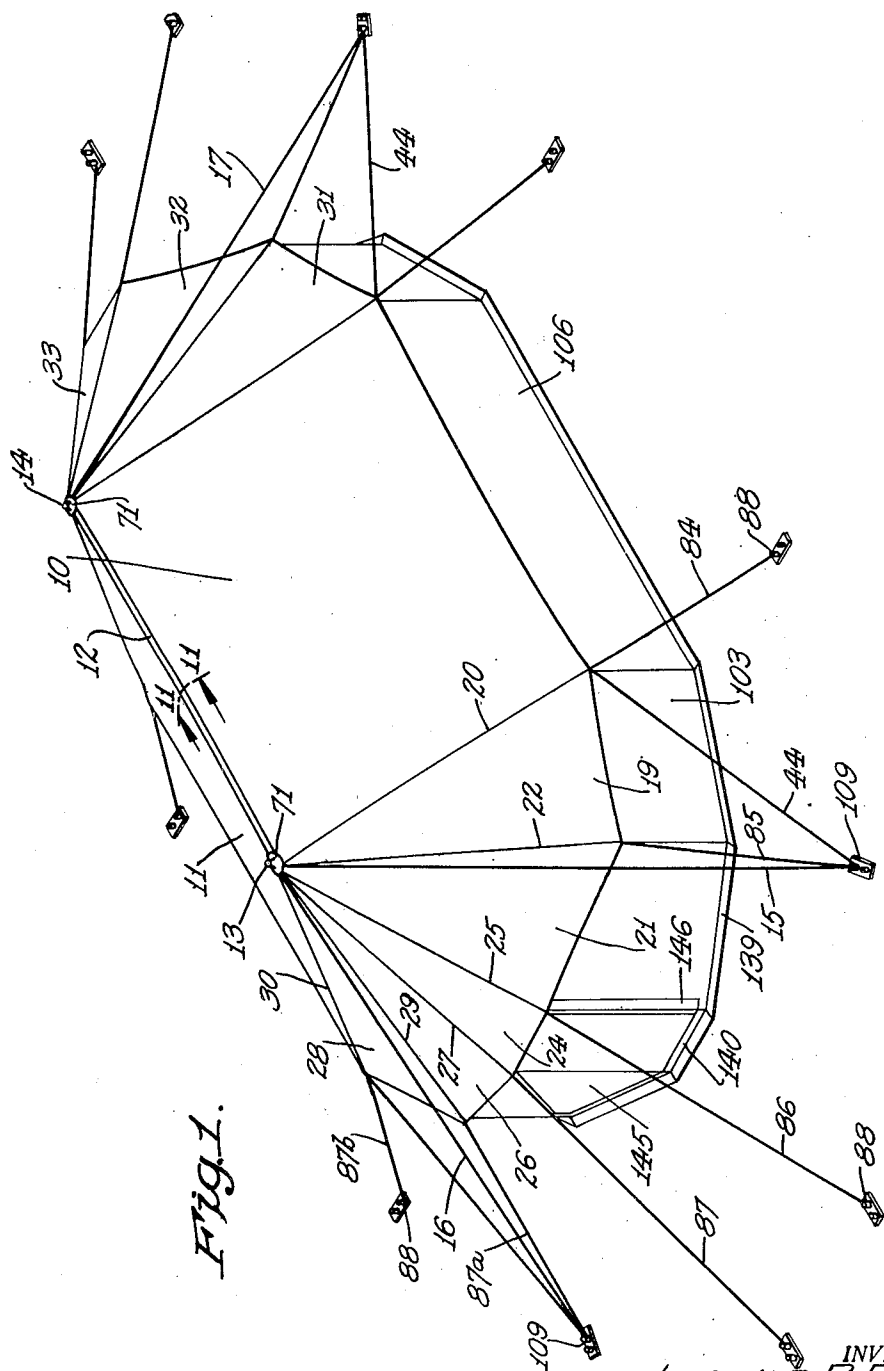


Fig. 1.

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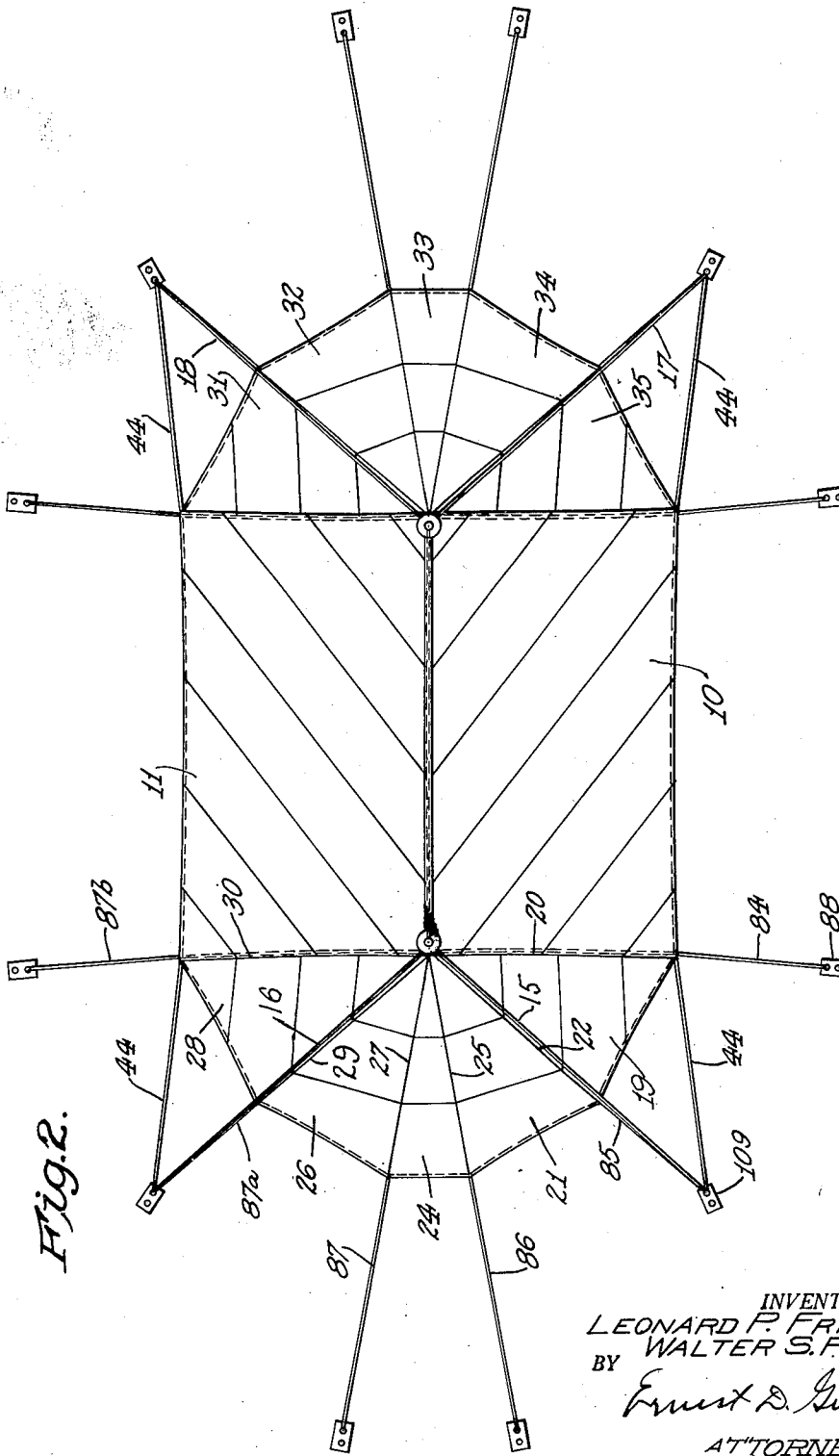
L. P. FRIEDER ET AL

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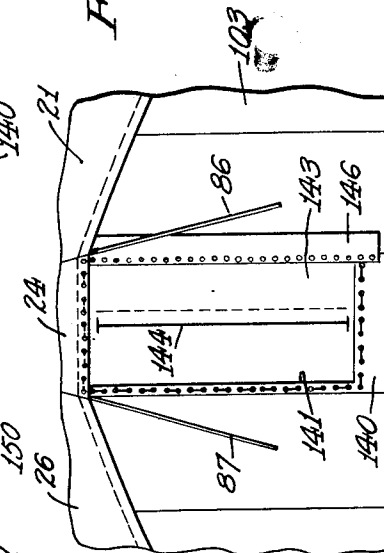
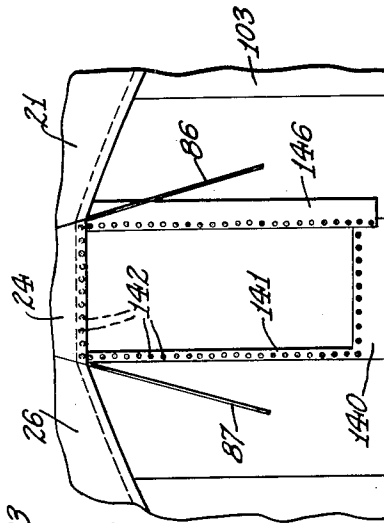
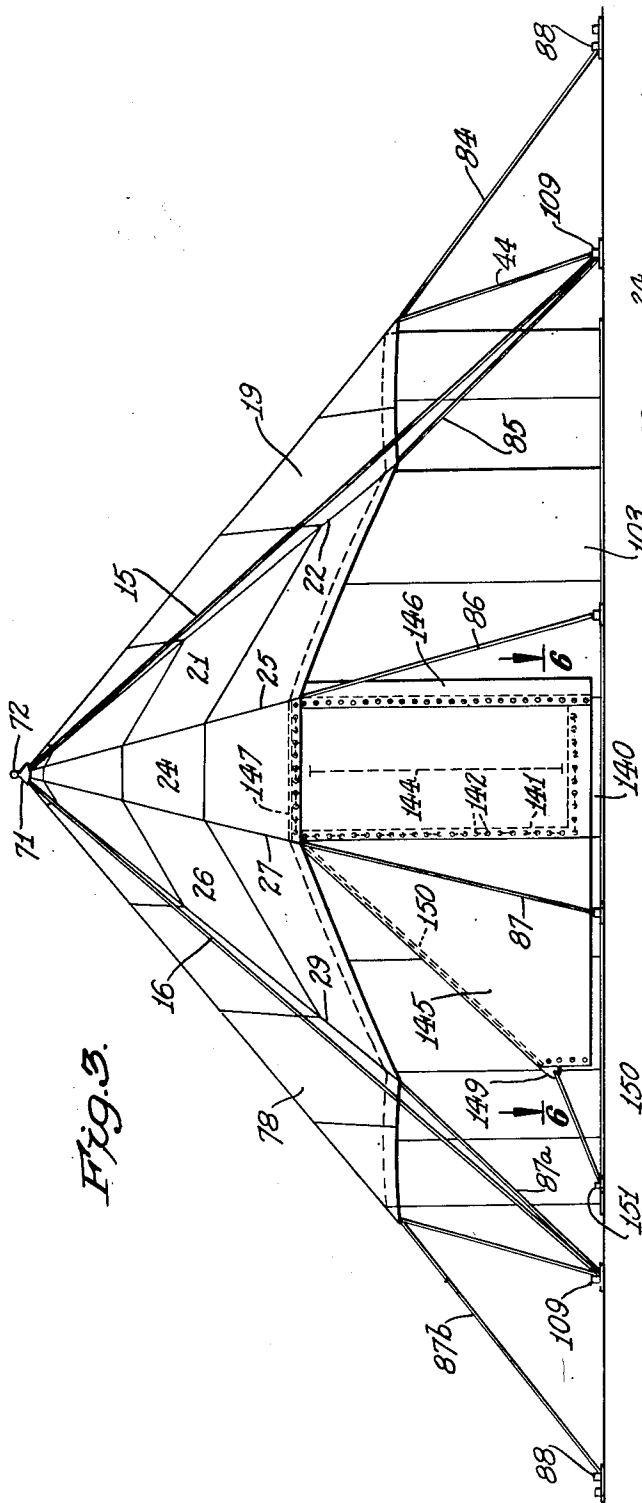
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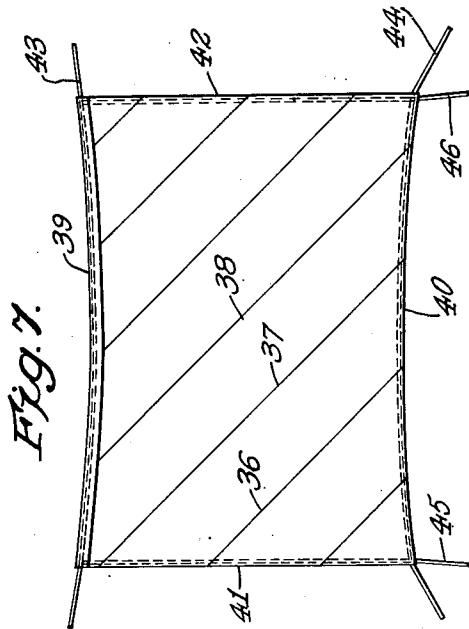
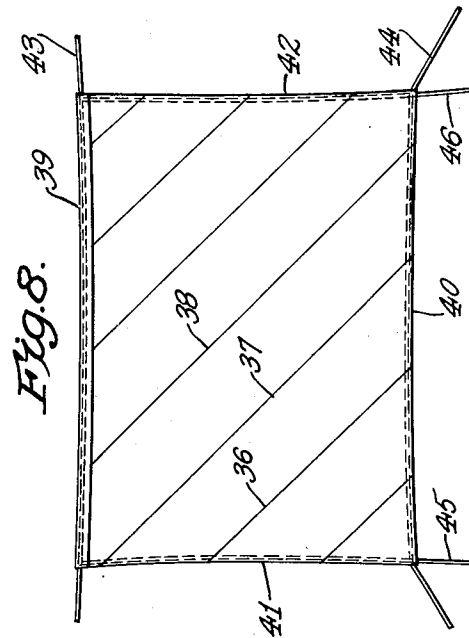
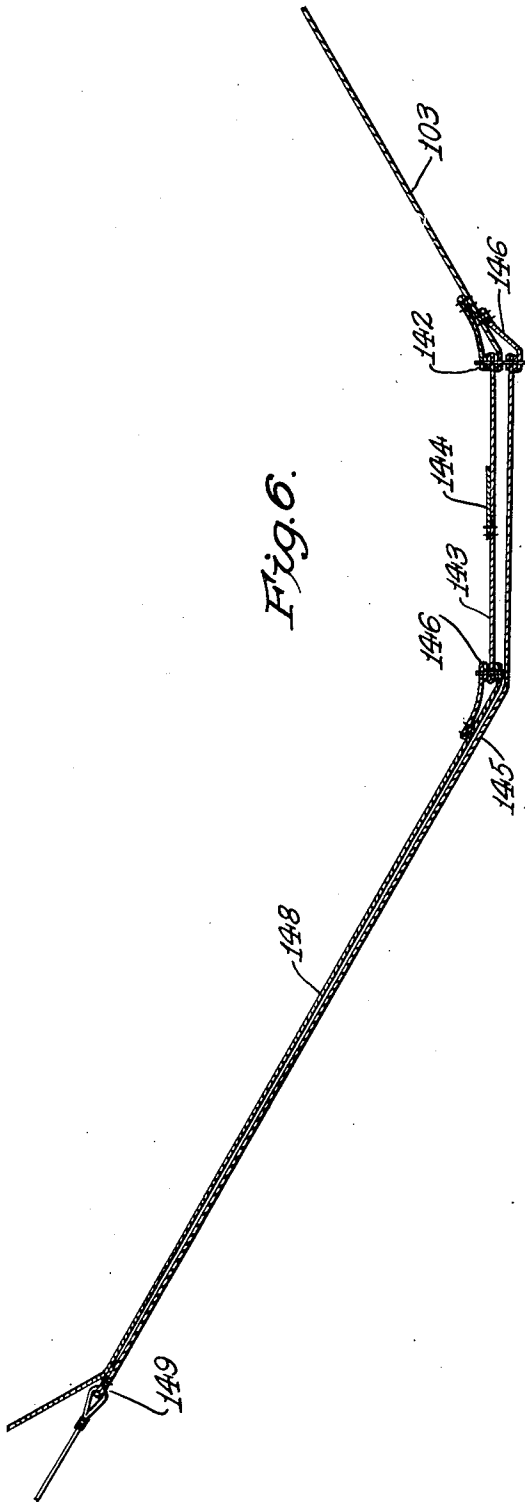
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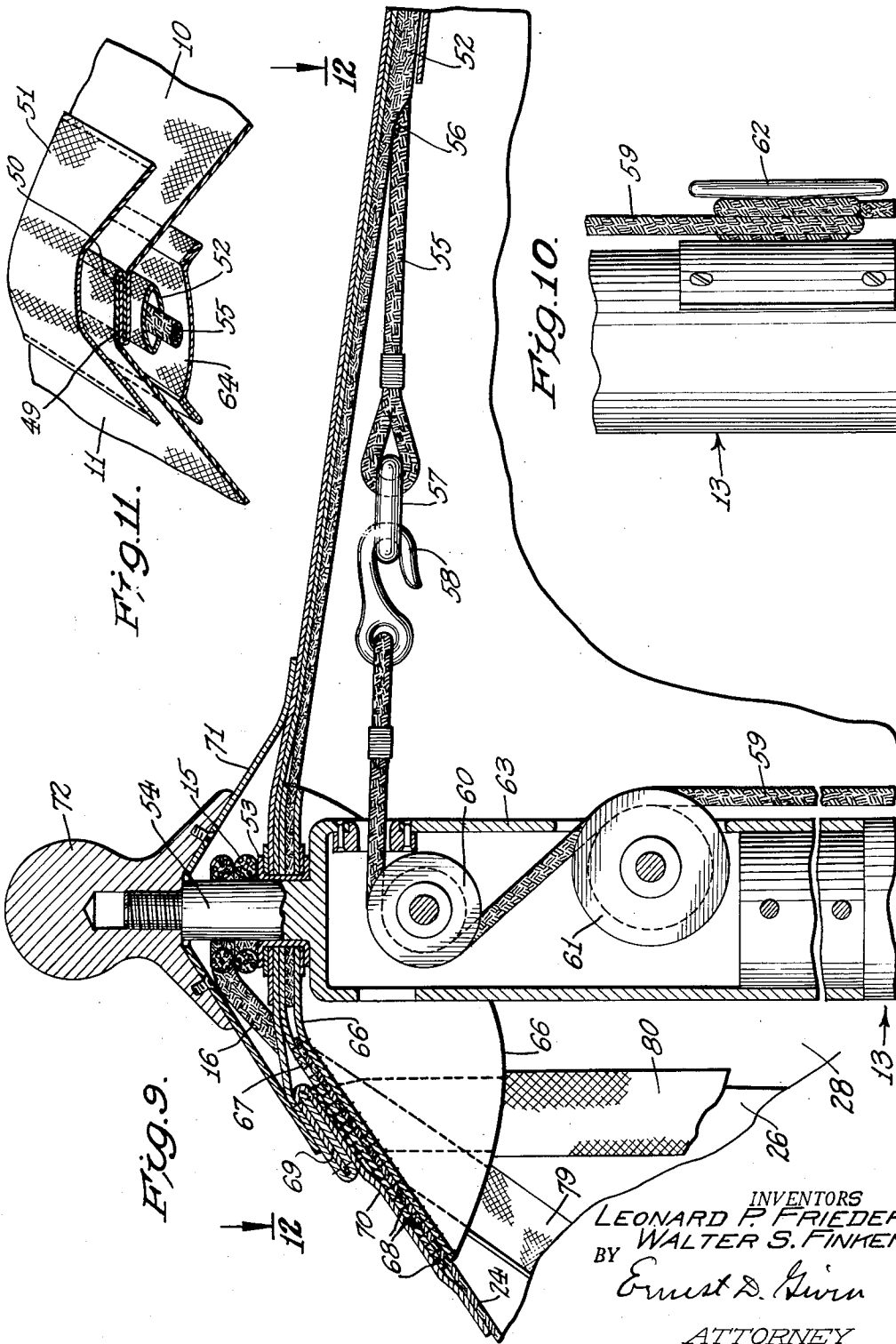
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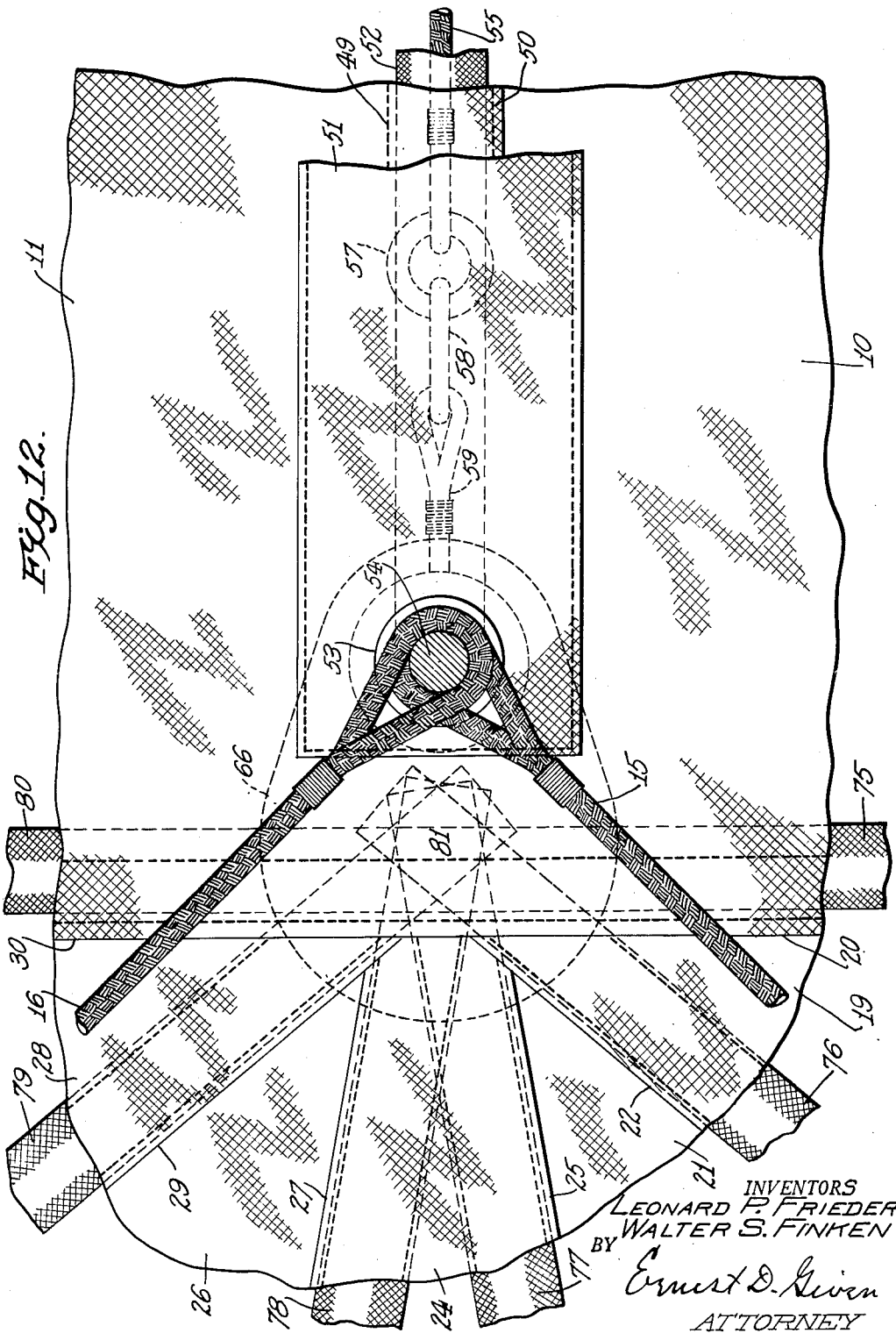
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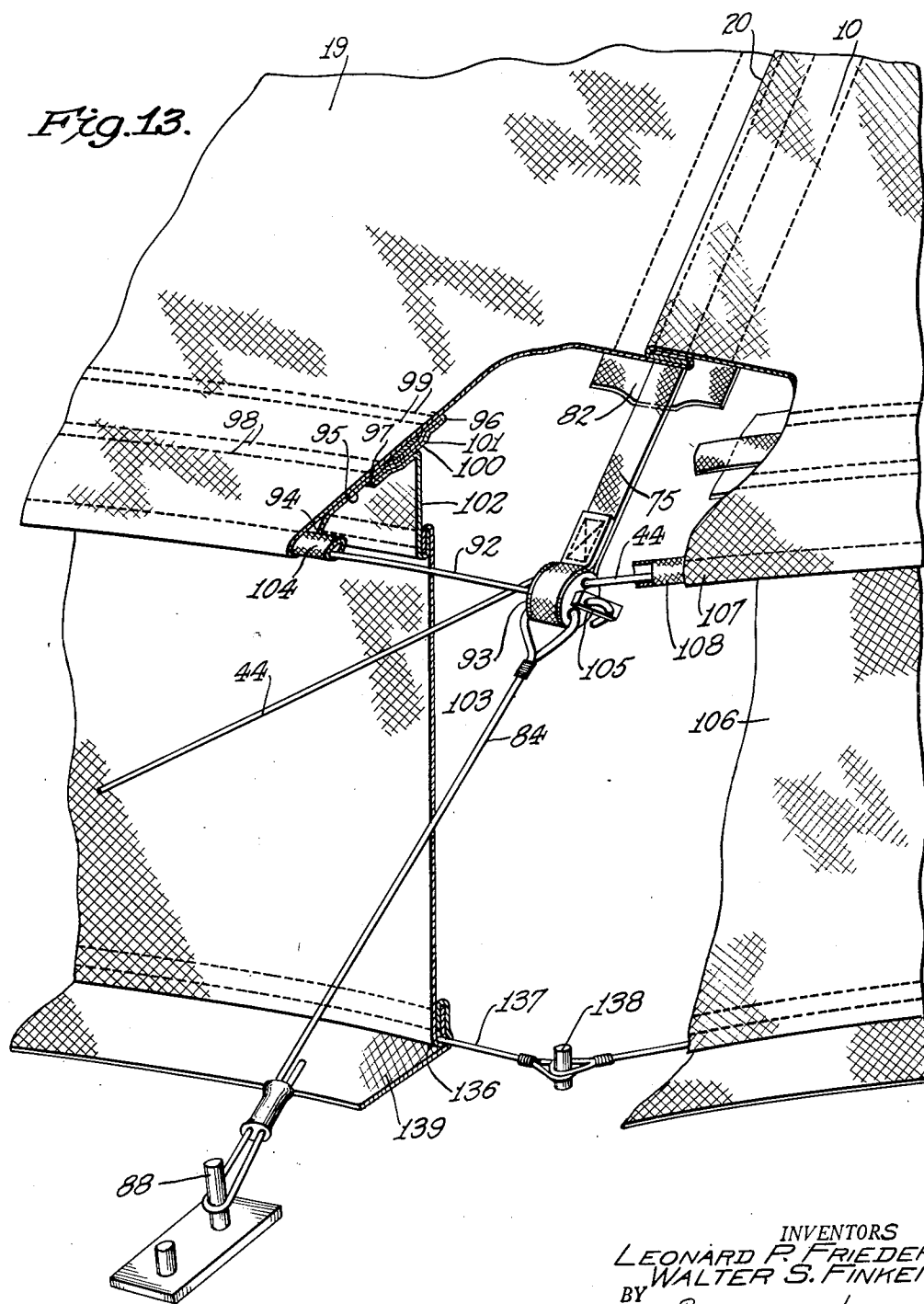
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TENT

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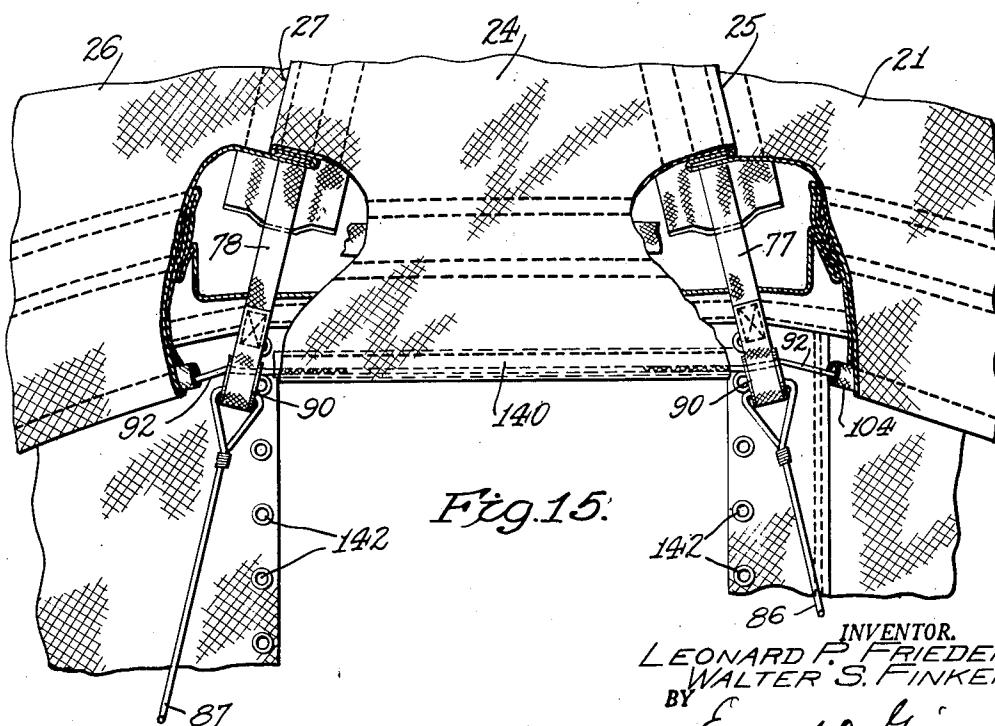
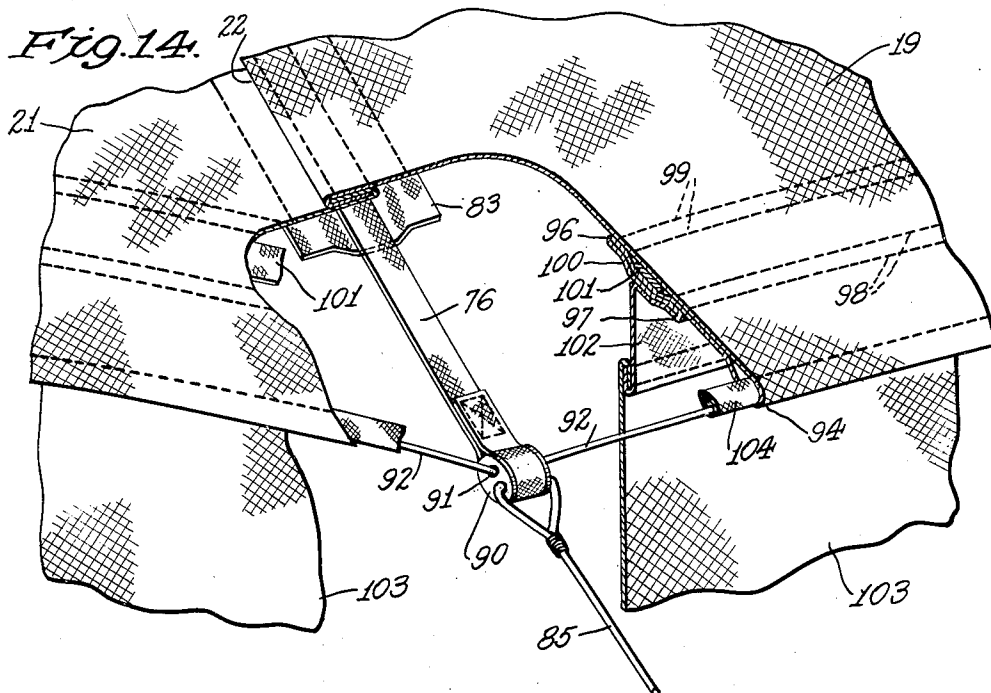
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9 Sheets-Sheet 8



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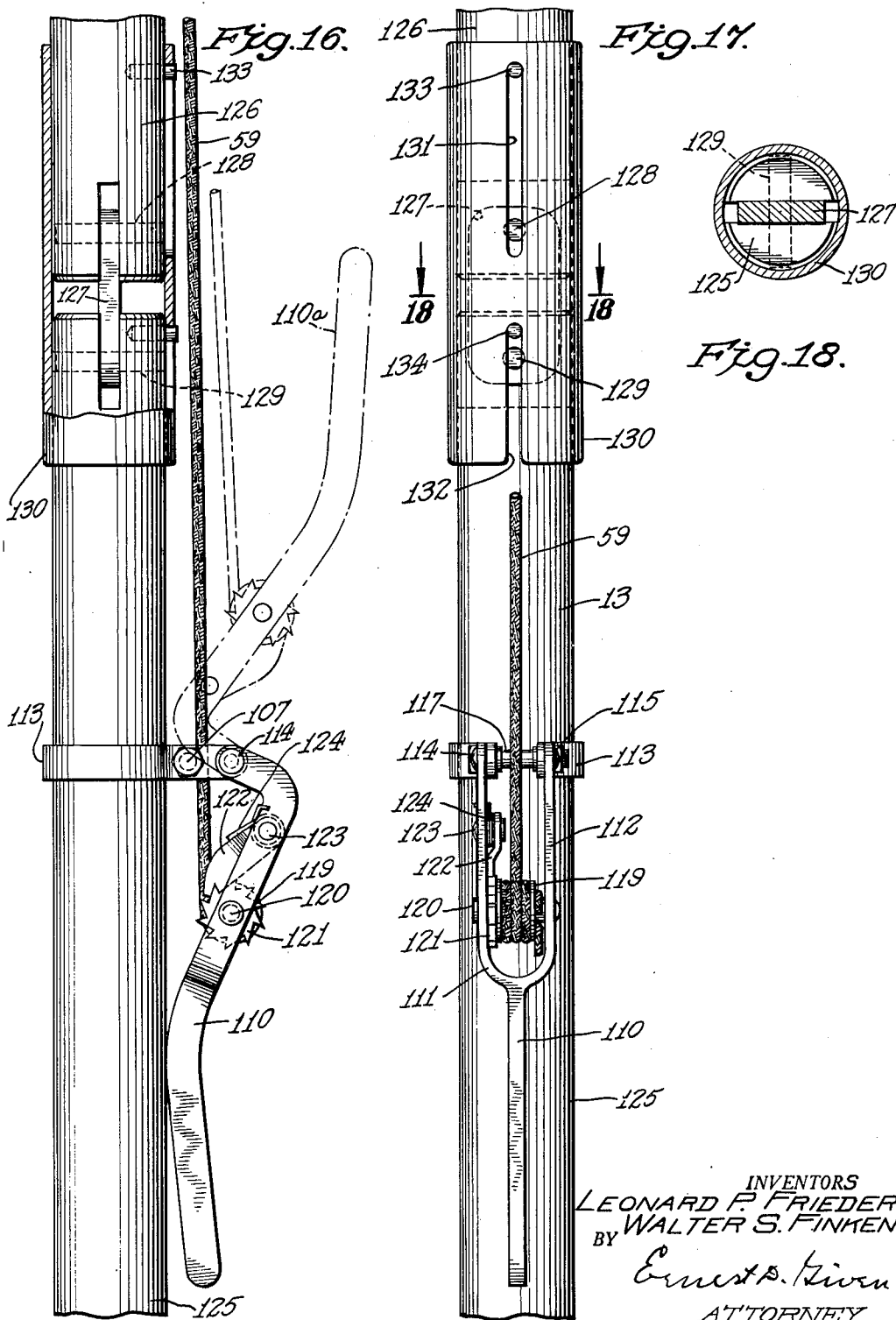
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## UNITED STATES PATENT OFFICE

2,497,596

## TENT

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Application June 11, 1946, Serial No. 676,000

17 Claims. (Cl. 135—1)

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This invention relates to tents, and more particularly to tents having panels of fabric which are so cut and supported as to distribute stresses throughout the fabric more equally than is accomplished in fabric tents of the conventional type. Among the objects of the invention is to provide a tent which is composed of panels of fabric so shaped and extended that when the tent is readied for general use, the fabric material constituting the panels is strained substantially uniformly throughout the panels and the tent is adapted to be readily slackened to avoid excessive strain in the fabric when circumstances are such as to cause shrinkage.

Another object of the invention is to provide a tent having a flexible ridge line and a minimum number of supporting poles and wherein the eaves of the tent are extended and the tent cover is supported by flexible lines or cords which extend along seams or lines of intersections of the various panels and also along the eaves and wherein the tension in the material of the tent can be increased or slackened by the shortening or extending of a relatively few number of lines.

Another object of the invention is to provide a tent, fly, or other covering cut on the bias and finished along incurving lines at its edges and supported in such a manner that the strains in the fabric are transmitted angularly with respect to the edges of the fabric and cross in accordance with the weave of the fabric when the fabric is extended and held taut.

Another object of the invention is to provide a fabric wall for a tent wherein the lower edge of the wall is formed on an incurving line and is provided with a clear channel accommodating a cord or other line which, when tensioned, distorts the material of the wall and provides means whereby the lower edge of the wall may be held close to the ground.

Another object is to provide a storm flap for normally overlying a door and adapted for displacement to permit access to the door.

Other objects and advantages of the invention will be described hereinafter in connection with the description of a tent which embodies the principles of the invention and the best mode in which we have contemplated applying those principles. The tent illustrated in the drawings includes a cover or canopy having center and end sections joined together. The center section is composed of sloping side panels substantially rectangular in shape and cut on the bias. The upper edges of the side panels are joined at the ridge line of the tent and the lower edges form

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the eaves of the tent. The upper and lower edges are finished to provide incurving edges. The incurving edges may be in the general shape of a catenary and are subjected to loading under uniformly distributed loads whereby the curve of the edges tends to flatten.

The tent is supported at either end of its ridge line by a pair of poles from which guys extend to the ground. The poles are connected together by the material of the canopy extending between the poles. This connection is normally flexible enough to permit such slackening in the tautness of the material of the panels as may be required to relieve undue strain when shrinkage occurs because of dampness. A ridge cord is provided between the upper ends of the tent poles which may be tensioned for fully extending the canopy. A cord freely passes through a sleeve at the eave edge of each panel. When the ridge cord and eave cords are tensioned the incurving upper and lower edges of the panels tend to flatten and thereby cause movement of the bias cut fabric and impart substantially uniform stress over the panels.

The end edges of the sloping side panels are fastened to end sections constituting a number of gores. The tensioning of the sloping side panels produces an inward pull along their side edges which is transmitted to the immediately adjacent gores. The gores are also provided with incurving eaves and cords running through sleeves at the eaves which, when tensioned, maintain the gores extended. The sloping side panels and the end sections are supported in their extended positions of use by a number of lines or cords which extend from the vicinity of the tops of the tent poles to the ground. These lines pass freely through sleeves, with the result that the material of the tent is relatively free from the supporting lines and can adjust itself relatively to the lines but is maintained by the lines in a raised position for normal use. This arrangement obviates the necessity of using poles for supporting the eaves of the tent.

The fabric of the end sections is also on the bias so that when the ridge line, the eave lines, and the supporting lines are tensioned, stresses are uniformly distributed throughout the end sections as well as in the sloping side panels. On occasion of shrinkage of the fabric or of the guy lines due to moisture, the fabric may be relieved by releasing the tension on the ridge line and thereby produce the slack normally afforded in other types of tents by the loosening of the

guy lines.

The side walls or curtains of the tent extending downwardly from adjacent the eaves are also preferably cut on the bias. The lower edges of the side walls are inwardly curved and provided with sleeves through which lines pass. These lines are staked to the ground at their ends and by tightening the lines the side walls are held taut and the lower edges are held close to the ground. By this construction, soil cloths, which are stitched to the lower edges of the side walls, are provided with a continuous anchoring along their lengths.

The door for the tent constitutes a removable panel which is fastened to the edges of an opening in a side wall. This panel has an overlapping slit of a height sufficient to permit the entry of a man. For the purpose of preventing the entry of heavy blasts of air through the door in stormy weather, a flap of fabric is provided which preferably is attached to a side edge and the upper edge of the door opening. This flap extends approximately three times the width of the door panel and tapers downwardly to the ground so that a person can step over the upper sloping edge of the flap and work his way between the side wall and the flap to reach the slit in the tent door. The outer edge of the storm door is fastened in position by means of an elastic cord which permits manipulation of the flap for this purpose.

Referring to the drawings,

Fig. 1 is a perspective view of the tent erected and ready for use;

Fig. 2 is a plan of the tent illustrated in Fig. 1; Fig. 3 is an elevational view of one end of the tent;

Fig. 4 is an elevational view of a portion of the tent showing the door panel in place;

Fig. 5 is an elevational view similar to Fig. 4 with the door panel removed;

Fig. 6 is a horizontal section on line 6—6 of Fig. 3 showing the door panel and the storm flap;

Fig. 7 shows a covering in the form of a sloping side panel of a tent lying in the plane of the paper in its normal unstressed condition;

Fig. 8 is a view of the covering illustrated in Fig. 7 slightly distorted by tensioned cords running through sleeves at its upper and lower edges;

Fig. 9 is a vertical section through the upper end of one of the tent poles taken on a line longitudinally of the tent;

Fig. 10 illustrates a cleat by which the ridge line may be fastened to a tent pole;

Fig. 11 is a section on line 11—11 of Fig. 1;

Fig. 12 is a horizontal view of a portion of the tent on line 12—12 of Fig. 9;

Fig. 13 is an elevational view of a portion of the tent adjacent a corner of a sloping side panel and an adjacent gore;

Fig. 14 is an elevational view of a portion of the tent adjacent adjoining gores; and

Fig. 15 is an elevational view of a portion of the tent adjacent the central gore and adjoining gores;

Fig. 16 is a side view of a device for tensioning the ridge line attached to a tent pole;

Fig. 17 is a view of the tensioning device shown in Fig. 16 as seen from the right; and

Fig. 18 is a section on line 18—18 of Fig. 17.

The tent illustrated in the drawings demonstrates one manner of using the invention. It includes a cover or roof having two adjoining sloping side panels 10 and 11 which are connected together by stitching along the ridge 12

extending between a pair of tent poles 13, 14. The tent pole 13 is guyed at one end of the tent by guy lines 15 and 16 and is held spaced from pole 14 by the adjoining edges of material of sloping side panels 10 and 11. Guys 17 and 18 similarly steady tent pole 14 at the other end of the tent.

The ends of the tent may be substantially semi-circular in plan, as illustrated in Fig. 2. The covers for the ends are constituted of gores which are joined together by lines of stitching. In the tent illustrated in the drawings there are five gores at either end of the tent. Gore 19 is stitched to the sloping side panel 10 along adjoining edges 20, and is stitched to gore 21 along adjoining edges 22. Gore 24 is stitched to gore 21 along adjoining edges 25 and is stitched to gore 26 along adjoining edges 27. Gore 28 is stitched to gore 26 along adjoining edges 29 and to sloping side panel 11 along adjoining edges 30. Gores 31, 32, 33, 34 and 35 at the other end of the tent, are similar in shape and construction to gores 19, 21, 24, 26 and 28, respectively. One feature of the invention which is concerned particularly with the manner in which the tent is supported and extended during use is the fact that, if desired, the gore panels of the cover at either side or both ends of the tent can be dispensed with, or may be constructed to provide end portions having a ground configuration other than semi-circular. When one of the end sections of the cover which is formed of gores is dispensed with, the guys, tapes and cords cooperating with the sloping side panels 10 and 11 will operate to maintain the sloping side panels extended, as will hereinafter appear. We have employed a duck of standard weave as material for the tent, but other suitable materials of various weights may be used.

Referring particularly to Fig. 7, each sloping side panel is rectangular and is made up of a series of strips of fabric running diagonally across the panel and stitched together at their edges as indicated at 36, 37, 38, etc. The widths of the strips depend upon the width of the material available and if a panel is small enough it may be made from one piece of material. The weave of the fabric of the panel meets each of the four panel edges on the bias. The upper edge 39 and the lower edge 40 of each rectangular panel is cut along an inwardly sloping curve, whereas the side edges 41 and 42 are cut along substantially straight lines.

In forming a gabled roof two similar panels are stitched together along edge 39. A ridge cord 43 underlies adjoining upper edges of the sloping side panels and is slidable with respect thereto so that when the cord is tensioned, the tendency is to flatten the curve of the incurving edge 39 in the manner illustrated in Fig. 8. The lower edge 40 of the panel is supported and extended by a cord 44 which is slidable with respect to the edge and when this cord is tensioned it likewise tends to flatten the lower incurving edge 40 in the manner illustrated in Fig. 8. When cords 43 and 44 are under tension, as illustrated in Fig. 8, each panel is held taut by the uniformly distributed force caused by the tensioned cords. This state of tautness tends to incurve or dish-in the end edges 41, 42, in the manner illustrated in Fig. 8. When two of such panels are incorporated in a tent having end cover sections, the lateral pull due to the contraction widthwise of a panel exerts a lateral or horizontal pull on the adjacent end sections which are stitched along edges 41 and 42 of the rectangular panels, with

the result that the tautness in a rectangular panel effects a degree of tautness in the adjoining panels of the tent. The arrangement of the fabric on the bias contributes elasticity which cannot be obtained when the threads of the material are not diagonally disposed with respect to the edges of the panels to which stress is applied. The action of "straightening out" or of flattening the curves of the upper and lower edges causes movement of the bias cut fabric in such manner as to apply equal or uniform tension throughout the area of the fabric and thereby avoid unequal stress that is visible as wrinkles.

The supporting cords, such as 45 and 46, do not offer substantial restraint to readjustment of the threads of the material in the panels as they are not attached to the panel except at their upper ends. They are slidably arranged within sleeves along the edges of the panel and their principal function is to sustain the tent cover and to hold the lower cord 44 in an elevated position. The lower cord 44 tends to straighten between the supporting cords 45 and 46 when tensioned and is slidable laterally to the supporting cords but not longitudinally of the supporting cords, as will hereinafter be described more fully. A single panel constructed as described and supported by cords running freely through sleeves at its edges is useful as a cover. Joined sloping side panels constructed and arranged as described may be used alone as a tent, fly or other cover.

The sloping side panels 10 and 11 of the tent illustrated in Figs. 1 and 2 are constructed and arranged to function in the manner described hereinabove with reference to Figs. 7 and 8. The seam between sloping side panels 10 and 11 is illustrated in Fig. 11. The interlocking edges are stitched together at 49 and 50 and the seam is protected from the weather by a strip 51 which is fastened to both sloping side panels. Underlying the seam but unattached thereto there is a tubular tape 52 whose ends are fastened to grommets like grommet 53, Fig. 9, which engage a pin 54 extending from the upper end of each tent pole 13 and 14. This tubular tape contributes support to the center of the tent when the tent is slack.

The ridge line by which the tent is tightened, passes through the tubular element 52 and is fastened to the tent poles. This ridge line is shown in Fig. 9 as including a cord 55 passing from an opening 56 in the tubular tape 52. Cord 55 is fastened to a ring 57 which is engaged by a hook 58 at one end of a cord 59. Cord 59 passes over sheaves 60 and 61 and may be fastened to the tent pole by means of a cleat 62, Fig. 10, or any other suitable form of fastening means. While it is not necessary to provide a releasable fastening means on both tent poles, this may be done so that the ridge cord can be slackened at either end of the tent.

All of the tubular tapes and contained cords throughout the tent are preferably made of the same kind of material. We have found that tapes and cords made of nylon are well suited for the purpose as that material has low frictional resistance and the cord slides easily with respect to the tape. Strip 64, which is stitched at its edges to the underside of sloping panels 10 and 11, is provided for preventing the displacement of tubular tape 52 and cord 55 from association with the cover of the tent when the tent is taken down.

The tent poles may constitute ordinary wooden poles or poles which can be folded for packing. As shown in Fig. 9, the top end of the pole has

fitted to it a tubular metallic member 63 which supports sheaves 60 and 61 and provides a pin 54 to which the grommet 53 and the guy lines 15 and 16 for the pole are attached.

As may be seen in Figs. 9 and 12, the sloping side panels 10 and 11 extend beyond the pin 54 of the tent pole and the grommet 53, which is engaged in a hole in these panels anchors the panels to the tent pole. The upper edges of each of the gores at one end of the tent and adjoining corners of the side panels 10 and 11 are fastened together by an underlying reinforcement 66 and an overlying reinforcement 67, each of which is stitched to the gores as shown at 68, Fig. 9. These two reinforcements are pierced and engaged by the grommet 53, whereby the gores are connected to the sloping side panels 10 and 11 at the top of the pole. The center gore 24 is shown as being stitched to the reinforcements 66 and 67 in Fig. 9, and it will be understood that each of the remaining gores are similarly stitched to these reinforcements. The upper corners of the sloping side panels interlock at 69 with an apron 70. All of these layers of material and the upper ends of guys 15 and 16 are preferably protected from the weather by a metallic cover 71, which is held in place by a knob 72 in threaded engagement with the upper end of pin 54. It will be understood that the joining of the materials at the other end of the tent is accomplished in the manner described and as illustrated in Figs. 9 and 12.

The supporting tapes 75, 76, 77, 78, 79 and 80 at either end of the tent meet in an area 81, Fig. 12, and are there fastened to each other and anchored to reinforcements 66 and 67 by stitching, as illustrated in Figs. 9 and 12. The supporting tapes are free from direct attachment to the material of the tent cover, except in the vicinity of their intersection and within the area provided by the reinforcements 66 and 67. The relationships of the supporting tapes to the tent cover are illustrated in Figs. 12, 13, 14 and 15. As shown in Fig. 13, supporting tape 75 freely passes through a tunnel formed by a strip 82 which is stitched at one edge to sloping side panel 10 and at its other edge to gore 19. As shown in Fig. 14, supporting tape 76 underlies seam 22 between gore 19 and gore 21 and is encased between the material of the tent cover and strip 83 which is fastened to the tent cover, the tape 76 being free to stretch or slide relatively to the tent cover. As shown in Fig. 15, the supporting tape 77 is similarly mounted with respect to gores 21 and 24, and supporting tape 78 is likewise similarly mounted with respect to gores 24 and 26. The lower ends of each of the supporting tapes 75, 76, 77, 78, 79 and 80 are respectively extended by guys 84, 85, 86, 87, 87a and 87b, which are anchored to the ground by means of pegs, such as 88, Fig. 13. The lengths of these guys and the spacing of the pegs from the wall of the tent is such as to support the eave of the tent at its desired height. The supporting tapes are connected to the guys by means of thimbles similar to the ones shown in Figs. 13 and 14. The thimbles 90 at the lower ends of tapes 76, 77, 78 and 79 are holed at 91, Fig. 14, for the free passage of an eave cord 92 which is continuous through the several intermediate thimbles and is fastened at its ends to the thimbles 93, one at the lower end of each of supporting tapes 75 and 80, as shown in Fig. 13. The pull on eave cord 92 by the guys maintains the lower or eave edges of the gores extended.

All of the lower edges of the gores are similarly constructed. As shown in Fig. 13, the lower edge

of gore 19 is looped to provide a channel 94 and a lap 95 which is twice reversed at 96 and 97 and stitched to the gore at 98 and 99. A portion of the lap 100 is stitched to a tape 101 and drops down to form a portion 102 of the lower side wall. The remaining portion of the lower side wall is constituted of material 103, which is stitched to the edge of the depending extension 102.

The channel 94 encloses a tubular tape 104 which is otherwise free from attachment to the gore. Eave cord 92 is free for movement relative to the tubular tape 104. As shown in Fig. 13, eave cord 92 extends through the thimble 93 and is tied thereto by an anchoring device 105, which is adjustable for drawing the cord and applying the desired tension thereto. A similar anchoring device is provided for attaching the other end of cord 92 to the thimble at the lower end of supporting tape 80.

The eave edges of each sloping side panel 10 and 11 is finished in the manner in which the eave edges of the gores are finished and each sloping side panel has depending therefrom a side wall 106 similar to side wall 103, Fig. 13. The lower edge of each sloping side panel also has a channel 107 supporting a tubular tape 108 through which an eave cord 44 extends. At each of the end edges of each sloping side panel the eave cord 44 freely passes through a thimble 93 in the manner illustrated in Fig. 13 and extends downwardly to a stake 109, Figs. 1 and 2. The stakes at either end of the eave cord are so placed that tension in eave cord 44 will tend to flatten the curve in the eave edge between the end edges of the sloping side panel, and will also exert a component of force on the supporting tape 75. Guy 84, by which the supporting tape 75 is tensioned and held in its proper position, exerts a slight horizontal component of force on thimble 93 because of the location of peg 88 outside of a straight line extending between thimble 93 at opposite sides of the tent, Fig. 1. The supporting tape 75 is urged outwardly from the end edge 20 of the sloping side panel principally by the tension in eave cord 92. The portion of eave cord 44 which extends downwardly from thimble 93 is reacted against by the tension in eave cord 44 between the ends of the eave of the sloping side panel 10 and the reaction is such as to hold thimble 93 and supporting tape 75 in the position in which the material of the tent cover is fully extended.

The material and the weave of the material constituting the gores extends angularly to the edges of the gores, with the exception that in the central gore 24 the strips of the material run parallel to the eave. All of the eave edges, when cut and in a normal condition free from stress, curve inwardly. When the eave cords are tensioned the curving edges tend to straighten.

The invention thus far described has utility as a tent or covering which may consist of central sections of sloping side panels joined to end sections, or may consist of a cover formed only by a section constituting the rectangular sloping side panels. In either case the covering may be supported at any desired height from the ground. When the ridge cord, eave cords, supporting tapes and guys are properly tensioned, the material of the covering will be fully distended and held taut and free from wrinkles. To slacken an erected tent it is necessary only to relieve the tension in the ridge cord. Hereinabove we have described

the use of an ordinary cleat for securing the ends of the ridge cord. In Figs. 16 and 17 we have illustrated another form of device by which the ridge cord may be tensioned or slackened without untying the free end of the cord. This device consists of a pivoted arm 110 which is bifurcated at 111 and 112 and is pivotally connected to a clevis 113 by means of rivets 114 and 115. The clevis is held fast to the lower end of a tent pole by means of a bolt 117. The free end of cord 59 is fastened to a spool 119 which is rotatably mounted upon pin 120 carried by the bifurcated portions of lever arm 110. Fastened to one side of the spool is a ratchet wheel 121 which is normally engaged by a pawl 122 pivotally mounted on pin 123. A spring 124 biases the pawl into engagement with the ratchet wheel. The device is so mounted on the tent pole and adjusted that when the lever arm 110 is in its lowered position cord 59 will be tensioned and will cause the ridge cord to tend to straighten out between the two poles which support the tent. The pull on cord 59 is inside of the pivotal axis 114-115 and the lever arm will accordingly act as a toggle link and remain in its lowermost position. When it is desired to slacken the ridge cord it is necessary only that an operator raise the lever to the position 110a. Minor changes in the ultimate tension desired to be had in the ridge cord can be attained by winding or unwinding the end of the cord about the spool when the cord is slackened. Pawl 122 prevents accidental turning of the spool.

The pole shown in Figs. 16, 17 and 18 is a folding pole having a lower portion 125 pivotally connected to an upper portion 126 by means of a plate 127 which is pivotally connected to the upper and lower pole sections, respectively, by pins 128 and 129. A sleeve 130 overlaps the ends of the upper and lower pole sections and holds them coaxially. The sleeve is slotted at 131 and 132 to permit sliding engagement with pins 133 and 134, which extend respectively from the upper and lower pole sections. The pole sections are foldable only when the sleeve 130 has been slid beyond the upper end of the lower pole section.

When it is desired to provide a tent having vertical side walls, this may be done by attaching the side walls to the canopy or covering in the manner above described with respect to side wall 103. The construction of the lower edges of the lower side walls 103 and 106 is well illustrated in Fig. 13. Each side wall is preferably made of material cut on the bias. The side walls below the sloping side panels and the gores are separate panels which may be individually rolled up and tied. The lower edge of each lower wall is incurved and folded as at 136 to provide a channel for a ground cord 137. The ground cord is engaged to pegs beyond the ends of the wall, such as peg 138, and by tightening the ground cord, the lower edge of the side wall tends to straighten out and hug the ground. Each lower side wall is preferably provided with a soil cloth 139 which is stitched to the lower edge of the side wall.

The end portions of the tent may be variously shaped in elevation. As illustrated in Fig. 3, the side walls attached to gores 21 and 26 slope upwardly to provide a vertical height in the side wall attached to central gore 24 which is sufficiently high to provide a door through which a man may enter without bending. The central

side wall 140 is provided with a rectangular opening 141 having a series of grommets 142 along its four edges for enabling the fastening of a door 143, which is also provided with complementary grommets, whereby the door may be laced into position or removed at will. The door may be made out of duck and is provided with an overlapping slit 144 through which a man may enter.

In stormy weather, and to prevent the entry of blasts of air, there is provided a storm flap 145, which is removably attached along its vertical edge to a flap 146, Figs. 3 and 6. This storm flap may also be attached to the upper edge of the door opening of the tent along its upper horizontal edge 147. The free end of the storm flap is triangularly shaped and normally extends adjacent the lower side wall 148 in the manner illustrated in Fig. 6. The free end of the storm flap is provided with a ring 149 for securing an elastic cord 150 thereto. This cord is anchored at its other end to the ground at 151. The elasticity of the cord is such that the storm flap may be pulled away from its normal position against wall 148 so that a man may slip between the storm flap and the wall and advance to the slit 144 in the inner door.

Although it will now be apparent that tent structures embodying the principles of the invention, particularly with respect to the tensioning and flattening of horizontal edges of panels (herein shown in various types, e. g. gore panels, side cover panels and wall panels), may have less or more numbers or kinds of panels than are illustrated in the specific tent of Figs. 1, 2 and 3 (i. e. depending on the shape and character of tent desired, whether round, elongated and with its sloping cover raised or not above the ground), a relatively elaborate structure has been shown in the drawings in order to illustrate a variety of ways, especially in combination, whereby the described novel features may be put to practical use.

As stated, in general, various panels of the tent, e. g. gores and quadrilateral panels, are cut from fabric so that the weave is very preferably pitched to the horizontal edges and preferably to all edges. As also explained, for instance in connection with the illustrated tent, an important feature of an erected tent embodying the invention is that the cords along the lower edges of the cover are staked in such manner that tensioning a cord between stakes has the effect of exerting a distributed force along the lower edge of a corresponding panel and generally within the plane of the panel.

What is claimed is:

1. In a fabric tent, a plurality of cover sections including sloping side panels which are substantially rectangular and cut on the bias and have incurving upper and lower edges with the upper edges joined to provide a flexible ridge, means supporting said ridge, a flexible sleeve along the lower edge of each of said sloping side panels, and a cord disposed in said sleeve and freely slidable therethrough, said cord extending beyond the ends of said sleeve and sloping side panel for attachment to stakes at each end of the cord so that when said cord is tensioned lengthwise of the sleeve the lower incurving edge of said sloping side panel tends to flatten and thereby cause movement of the bias cut fabric and impart substantially uniform stress over the sloping side panel.

2. In a fabric tent, a plurality of cover sections including sloping side panels which are substan-

tially rectangular and cut on the bias and have incurving upper and lower edges with the upper edges joined to provide a flexible ridge, tent poles adjacent either end of said flexible ridge, a flexible cord extending between said tent poles and underlying the flexible ridge, a sleeve along the lower edge of each of said panels, a core within said sleeve and extending from the ends of said panel, and anchoring means at the ends of said last-named cord whereby said cord may be tensioned and cause the curve of the incurving lower edge of said panel to tend to flatten and thereby stress the bias cut fabric substantially uniformly.

3. In a fabric tent, a plurality of cover sections including sloping side panels which are substantially rectangular and cut on the bias and have incurving upper and lower edges with the upper edges joined to provide a flexible ridge, means supporting said ridge, said means including a pole adjacent each end of said ridge, said poles being spaced apart so as to permit said ridge to sag, a tape secured to each of said poles and underlying the ridge of said joined panels, a ridge cord extending between the upper ends of said poles and adapted to be tensioned for flattening the ridge line of said joined panels, a sleeve along the lower edge of each of said panels, and a cord freely passing through said sleeve, said last-named cord being anchored at its ends to the ground and adapted to be tensioned for flattening the lower incurving edge of said panel whereby when said ridge cord and said last-named cord are tensioned, the panel is rendered taut as the result of movement of the bias cut fabric.

4. In a fabric tent, a plurality of sections including sloping side panels which are substantially rectangular and cut on the bias and have incurving upper and lower edges with the upper edges joined to provide a flexible ridge, a pair of supporting poles located one adjacent either end of said flexible ridge, a ridge cord extending between said poles and adapted to be tensioned for supporting and flattening the upper incurving edges of said rectangular panels, said cord being free to slide with respect to said panels, a sleeve along the lower edge of each of said panels and a cord disposed within said sleeve and freely slidable therethrough, said cord being anchored at each end and adapted to be tensioned, whereby when said cords and said ridge cord are tensioned the weave of the material in said panels is distorted, the incurving upper and lower edges of said panels tend to straighten, the end edges of said panels tend to curve inwardly and said panels are rendered taut.

5. A fabric tent comprising a plurality of cover sections including sloping side panels which are substantially rectangular and cut on the bias and have incurving upper and lower edges with the upper edges joined to provide a flexible ridge, end cover sections consisting of gores fastened together along adjacent edges, each end section having edges fastened to end edges of said panels, tension elements extending from adjacent the ridge of said tent to the eaves of said tent at connections between sections and between gores, said tension elements being adapted to slip longitudinally with respect to said cover sections, means for anchoring the ends of said tension elements to the ground, a pair of supporting poles located one adjacent either end of said flexible ridge, a ridge cord extending between said poles and adapted to be tensioned for supporting and

flattening the upper incurving edges of said panels, said cord being free to slide with respect to said panels, a sleeve along the lower edge of each of said panels and means intermediate said tension elements at the ends of said panels for guiding a cord, a cord disposed within said sleeve and freely slidable through said guiding means, said last-named cord being anchored at its ends to the ground and adapted to be tensioned for flattening the lower incurving edge of said panel.

6. In a fabric tent, a plurality of sections including sloping side panels which are substantially rectangular and cut on the bias and have incurving upper and lower edges with the upper edges joined to provide a flexible ridge, end cover sections consisting of gores fastened together along adjacent edges, each end section having edges fastened to end edges of said panels, said gores having incurving lower edges with sleeves therein, tension elements extending from adjacent the ridge of said tent to the eaves of said tent at connections between sections and gores, said tension elements being adapted to slip longitudinally with respect to said sections, means for anchoring the ends of said tension elements to the ground, a pair of supporting poles located adjacent either end of said flexible ridge, a ridge cord extending between said poles and adapted to be tensioned for flattening the upper incurving edges of said rectangular panels, said cord being free to slide with respect to said panels, a sleeve along the lower edge of each of said panels and a cord disposed within said sleeve and freely slidable therethrough, means intermediate said tension elements at the ends of said panels for guiding said last-named cord, said last-named cord being anchored at its ends to the ground and adapted to be tensioned for flattening the lower incurving edge of said panel, and a cord within the sleeves at the lower edges of said gores, said last-named cord being attached to said guiding means.

7. In a fabric tent, a plurality of cover sections including substantially rectangular sloping sections joined at their upper edges to provide a flexible ridge and polygonal-shaped end cover sections joined at their side edges to said substantially rectangular sections, said polygonal end cover sections being formed of gores, poles supporting said cover sections and engaging them adjacent the ends of said ridge, a ridge cord extending between the upper ends of said poles, tension elements extending from the cover sections adjacent the upper ends of said poles and extending to the ground, said tension elements being unattached to said cover sections between their ends, thimble-like means intermediate the ends of said tension elements adjacent the eaves of the cover sections, sleeves attached to and running along the eaves of said cover sections, eave cords extending through said sleeves, one of said eave cords being contained in the sleeve at the lower edge of an end cover section and attached to said thimble-like means and another of said eave cords being contained in the sleeve at the lower edge of a rectangular sloping section and freely slidable through said thimble-like means.

8. In a fabric tent, a substantially rectangular panel cut on the bias and normally having incurving upper and lower edges and substantially straight and parallel side edges, sleeves along all of said edges, means supporting the upper edge of said panel, said means including a pole adjacent each end of said upper edge and a flexible cord extending between said poles and freely passing

through the sleeve at the upper edge of the panel, cords extending through the sleeves at the side edges of said panel, and a cord extending through the sleeve at the lower edge of said panel whereby the fabric of the panel is distorted and rendered taut when all of said cords are tensioned with the normally incurving upper and lower edges of said panel tending to flatten and the side edges tending to curve inwardly.

9. In a fabric tent, a fabric cover having an eave edge formed by folding under the material of the cover and attaching the folded under material to the cover by stitching along a line displaced inwardly from the eave edge and leaving a depending portion, a side wall attached to said depending portion of the cover, said side wall being cut on the bias with respect to the line of jointure with said depending portion, and means for uniformly loading the lower edge of said side wall.

10. In a fabric tent, a fabric cover section, a fabric wall extending downwardly from adjacent the lower edge of said cover section, said wall being cut on the bias with respect to its upper and lower edges and its lower edge being finished on an incurving line, a channel along said incurving edge, and a cord passing through said channel and adapted to be staked to the ground at its ends.

11. In a fabric tent, a cover comprising gores stitched together along their side edges, means supporting said cover adjacent the apices of said gores, said gores having incurving lower edges with sleeves along the lower edges, a cord supported freely in said sleeves for relative sliding movement with respect to the lower edges of said gores, said cord being accessible, from outside the gores, at the localities of the lower corners of the gores, and means for fastening said cord at said localities thereof whereby said cord may be tensioned to extend said cover and flatten the incurving lower edges of said gores.

12. In a fabric tent, a cover comprising sloping panels of fabric stitched together along side edges and having extended lower edges which form the eaves of the cover, the panels being formed from fabric cut on the bias with respect to the eave edges, the eave edges being normally incurving and provided with sleeves, cords extending through said sleeves, said cords being freely slidable in said sleeves and adapted to be straightened by tension applied thereto at the ends of the respective sleeves whereby the eave edges of the panels tend to flatten out and the material of the cover is slightly distorted, and means supporting said cover adjacent its mid-portion.

13. In a fabric tent, a fabric cover comprising gores stitched together along their side edges, each gore being formed of strips of fabric sewed side by side with the side edges of the strips pitched with respect to the lower edge of the gore so that the fabric of the gore is on the bias with respect to the edges of the gore, the lower edges of each gore being cut on an incurving line and provided with a sleeve, a cord extending freely through the several sleeves, means for fastening said cord at points adjacent the side edges of said gores whereby said cord can be tensioned to flatten out the incurving lower edges of said gores and maintain taut the fabric in said gores, and means supporting said cover adjacent the upper portions of said gores.

14. In a fabric tent a cover including a part which has the shape of part of a cone and which is formed of gores stitched together and sup-

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ported at its upper portion, said gores having incurving lower edges with sleeves adjacent the lower edges, supporting cord means underlying said cover part and extending from its supported upper portion to the ground, a cord freely passing through said sleeves, said cord being subjected to tension to thereby flatten the incurving lower edges of gores.

15. In a fabric tent, a cover comprising substantially rectangular panel of fabric cut on the bias and provided with upper and lower edges which normally have incurving lines, sleeves at said upper and lower edges, means supporting said upper edge including a cord extending through the sleeve at the upper edge of the panel and supports at either end of the panel and between which said cord may be tensioned, a cord extending through the sleeve at the lower edge of said panel and extending beyond the side edges of said panel at such angles to the lower edge of the panel as to tend to straighten out the lower incurving edge of said panel when tension is applied to the cord, whereby when said cords are tensioned the material of the panel is slightly distorted and maintained taut.

16. In a fabric tent, a fabric cover section having an eave edge, a fabric side wall connected at its upper edge to said cover section at the vicinity of said eave edge, said side wall being cut on the bias with respect to its upper and lower edges, and means associated with said side wall along an incurving line at the lower edge thereof and adapted to be tensioned lengthwise of said lower edge, for applying downward force to said wall substantially throughout said edge, in a manner tending to flatten said line.

17. In a fabric tent, a tent-shaped body of

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fabric including a panel of fabric material having a substantially horizontal edge, and having side edges joined to other portions of said fabric body, said panel being cut on the bias relative to said horizontal edge, and said horizontal edge being normally incurving relative to the panel, means for supporting the panel at edge localities thereof remote from said horizontal edge, cord means disposed along said horizontal edge, said panel having associated means along said horizontal edge retaining the cord means in the aforesaid disposition and in such engagement with the panel that the cord means may exert outward force thereon substantially in the plane of the panel and throughout said horizontal edge when the cord means is tensioned, said cord means being adapted to have fastening connections made thereto at its ends, to tension it endwise, whereby the fabric of the panel is distorted and rendered more taut when the cord means is tensioned, with said normally incurving horizontal edge thereby tending to flatten and the side edges to curve inwardly.

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