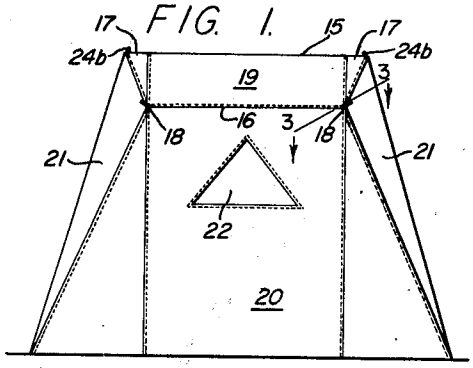
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TENT

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FIG. 1.



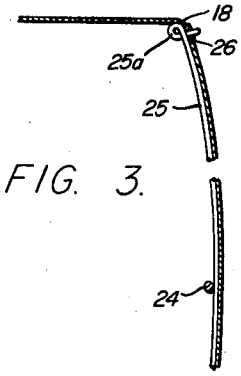


FIG. 3.

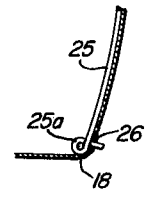


FIG. 2.

FIG. 4.



FIG. 5.

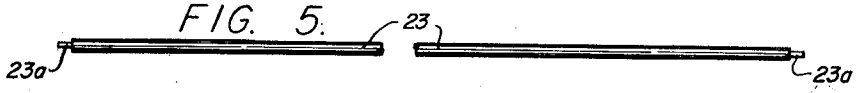


FIG. 6.

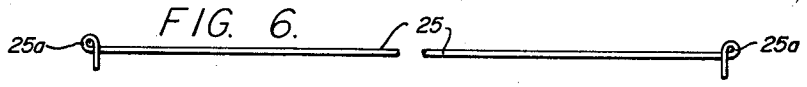
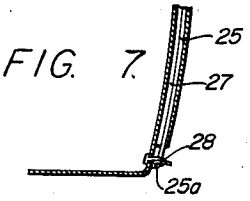


FIG. 7.



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FIG. 8.

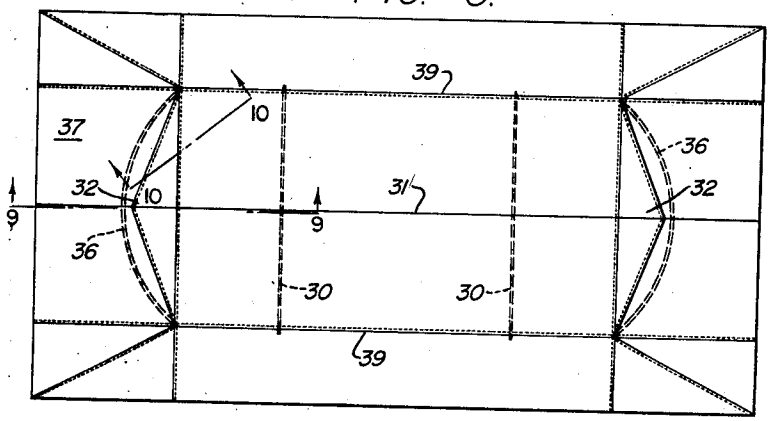


FIG. 9.

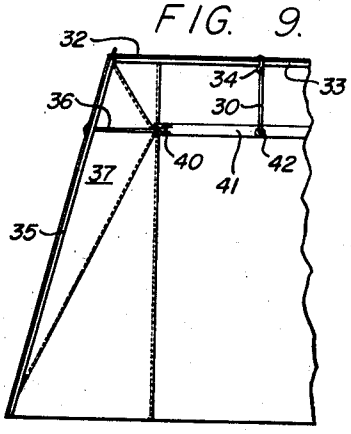


FIG. 10.

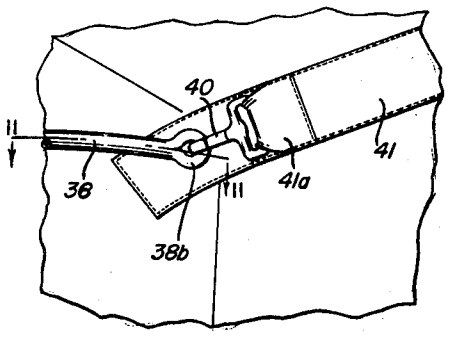
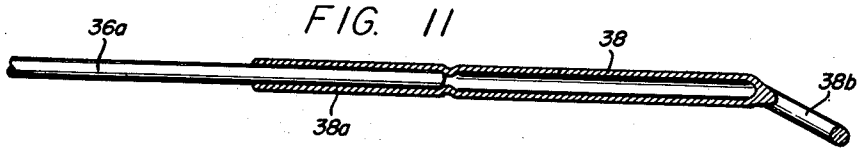


FIG. 11



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TENT

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10 Claims. (Cl. 135—1)

This invention relates to tent construction and is especially concerned with structure utilized to support the fabric or other flexible sheet covering of a tent or similar shelter or enclosure. Although the supporting structure is the most important aspect of the invention, the covering itself is advantageously uniquely contoured and plays a significant role in preferred forms.

A prime objective in modern tent construction of collapsible type for camping and other purposes has been the elimination, so far as possible, of both interior and exterior encumbrances, such as obtrusive supporting poles and guy ropes. Several constructions have gone far toward these objectives, while retaining structural stability, but they have left considerable room for improvement.

A principal object in the making of the present invention was to provide strong and rigid support for the flexible sheet covering of a tent or structure of similar nature in a manner adapted to hold such covering taut and smooth substantially throughout and to provide a maximum of unencumbered space.

A feature of the invention in the accomplishment of this object is the provision of elongate, resilient, structural members adapted for horizontal positioning under tension along mutually opposite wall portions of the flexible covering material intermediate the height of the tent. Tension is imparted to these resilient members by means of upright structural members corresponding to customary tent poles, which stand closely adjacent to the resulting taut walls almost as part of such walls and completely out of the way.

Most tents used for camping and similar purposes are of definite gable formation, having an elongate ridge, sloping roof panels, and gabled ends. While some, such as the so-called "pup" tent, do not have side walls as such, the sloping roof panels themselves extending down to ground level to establish eave lines at that level, most do have either vertical or sloping side wall panels which join with the sloping roof panels along eave lines raised at some convenient height above the ground.

Although a teepee tent does not have an elongate ridge or definite gable formation, it is convenient here to regard its single peak as a ridge and opposite halves of its covering as gabled ends so that it will not be excluded from the generic scope of the invention as defined herein.

In order to tension each resilient member, it is necessary that the ends of the member be anchored to the covering and that the upper end of the corresponding upright structural member be fulcrumed at an end of the ridge member, so that pushing of the lower end of such upright member outwardly will bow the resilient member and engaged covering material outwardly to impart tautness to the flexible sheet covering of the tent.

In order to achieve a satisfactory degree of roominess for the tent, with tautness for the covering material, it is preferred in most instances, particularly where the eave lines are spaced closely below the ridge, to extend the ridge beyond the anchorages for the opposite ends of the resilient members, so there will be considerable leverage movement of the upright members at the locations of their engagement with the resilient members to bow such resilient members a considerable distance outwardly.

To effectively accommodate the extended ridge member, it is preferred that the gable ends of the flexible sheet covering be peaked outwardly beyond the normal.

In long tents, utilizing long ridge members between the upright members, additional resilient tension members are advantageously provided transversely and along the length of the ridge to hold taut the roof panels of the tent covering.

Another feature of the invention is the provision of stress-resisting reinforcement, e.g. strips of webbing, along the tent covering between corresponding tension bar anchorages at mutually opposite ends of the tent to absorb the stress imparted by the tension bars. Without such reinforcement, the stress would necessarily be carried by the flexible tent covering, e.g. fabric, itself.

Tents of various shapes and sizes and other structures of generally similar character, including walls as such, can be made in accordance with the invention, and the supporting structure can be arranged either within or outside, although the former is much preferred.

A specific embodiment representing what is presently regarded as the best mode of carrying out the invention is illustrated in the accompanying drawings, along with variations thereof. From the detailed description of these, other more specific objects and features of the invention will become apparent.

In the drawings:

FIG. 1 is a view in rear elevation of one type of tent comforming to the invention;

FIG. 2, a perspective view showing the special supporting structure as set up in tent-supporting position, the flexible sheet covering being indicated by dotted lines and the manner of erecting being similarly indicated;

FIG. 3, a fragmentary horizontal section taken on the line 3—3 of FIG. 1 and drawn to a considerably larger scale, with intermediate portions broken out for convenience of illustration;

FIG. 4, an elevation of one of the upright structural members per se drawn to a scale commensurate with that of FIG. 3 and having intermediate portions broken out;

FIG. 5, a similar view of the ridge structural member;

FIG. 6, a similar view of one of the resilient structural members of the type used in the tent of FIGS. 1–3;

FIG. 7, a view corresponding to the lower end portion of FIG. 3, but illustrating a less desirable though possible arrangement;

FIG. 8, a plan view of a tent representing a somewhat different and preferred embodiment of the invention;

FIG. 9, a fragmentary vertical section taken on the line 9—9 of FIG. 8;

FIG. 10, a fragmentary vertical section taken on the line 10—10 of FIG. 8 and drawn to a considerably larger scale; and

FIG. 11, a fragmentary sectional view taken along the line 11—11 of FIG. 10 and drawn to a somewhat larger scale, this view showing a greater length of the resilient structural member than appears in FIG. 10.

Referring to the drawings:

The tent of FIGS. 1–3 has an elongate ridge **15** which is sufficiently short to require no direct tensioning of the roof panels of the flexible sheet tent covering. Its eave lines **16** are, however, so closely spaced under and with respect to such ridge **15** as to require outward extension and peaking thereof at its ends, as at **17**, relative to the upper corners **18** of the tent, in order to obtain a desirable degree of leverage for tensioning the resilient members of the supporting structure of the tent in accordance with the invention.

Except for the outwardly extending peaked portions **17** of the roof, the tent covering is conventional. It is formed as a unitary item of some suitable flexible sheet material, such as canvas, to provide interconnected roof panels **19**, side wall panels **20**, and gabled end wall panels **21**. The side wall panels **20** are here utilized as front and rear walls, respectively, of the tent, there being provided a

window **22**, FIG. 1, in the rear wall panels and a doorway (not shown) in the front wall panels.

The supporting structure for the tent covering comprises an elongate ridge member **23**, FIG. 5, having pins **23***a* extending integrally therefrom at opposite ends, respectively, for insertion within sockets **24***a* of respective upright members **24**, FIG. 4, which have spike ends **24***b*. Both the ridge member and the upright members are rigid and may be of the usual telescoping or collapsible formation (not indicated). The supporting structure also includes a pair of elongate resilient members **25** having means at their ends, here shown as pigtails **25***a*, for interengagement with means, here shown as grommets **26**, FIG. 3, provided at the corners **18**, i.e. opposite ends of the eave lines **16**, of the tent covering.

In erecting the tent, the bottom periphery of the tent covering is staked down in customary manner (not shown); the upright members **24** are erected interiorly, with their spike ends **24***b* passing through grommets (not shown) in the outwardly peaked ends **17** of ridge **15** of the tent covering; and ridge member **23** is fitted into place by inserting its end pins **23***a* into sockets **24***a* of the upright members. These upright members, it should be noted, will be in the dotted line position of FIG. 2. The resilient tensioning members **25** are then placed in transverse positions at the respective gabled ends of the tent covering, between the upright members **24** and the wall panels **21**, with the protruding ends of their respective pigtails **25***a* in engagement with the grommets **26** of the tent covering.

As so assembled, it is only necessary to push upright members **24** outwardly of the tent, either arcuately, as shown in FIG. 2, if such uprights are not adjustable in length, or, if they are adjustable, then directly by suitably adjusting the lengths during the direct outward movement, in order to tension the resilient members **25**. Each upright member fulcrums as a lever of the second class about its pivotal engagement with the ridge member and exerts its leverage upon its associated resilient member intermediate the length of same, bowing it outwardly and, at the same time, stretching taut the flexible sheet material of the tent covering.

Although it is much preferred to position the resilient tensioning member between the upright and covering, as just explained, it is possible to provide an exterior pocket transversely of each end panel, as shown at **27**, FIG. 7, for the resilient member, and to provide anchor loops **28** for the ends of such resilient member.

The tent of FIGS. 8–11 is similar in style to that of FIGS. 1–3, but is considerably longer, making it advisable to utilize elongate resilient members **30** intermediate the length of the ridge **31** to obtain a satisfactory degree of tautness for the roof panels throughout their lengths. Also, a somewhat different and preferred style of anchorage for the resilient tensioning members at the gabled ends of the tent covering is employed, together with tension stress reinforcements for such covering and a style of resilient tensioning member that is easier to fabricate.

The ridge **31** of the flexible sheet covering this tent is provided with outwardly peaked extensions **32**, as in the previous instance, for accommodating the similarly extended ridge member **33** of the supporting structure, and such ridge member **33** is provided with depending hooks **34** intermediate its length for engaging the resilient members **30**. The latter members are tensioned by pushing them upwardly intermediate their ends and engaging their upwardly bowed middle portions in the respective hooks **34**. Resilient tensioning members **36** for the gabled end panels **37** of the tent covering are bowed outwardly against such panels **37** by the leverage action of upright members **35**, as explained in reference to the previous embodiment.

In the present embodiment, each resilient member **36** is formed by securing non-resilient engagement pieces **38**, FIG. 11, to opposite ends of a resilient rod **36***a*, as by means of friction sleeve ends **38***a* of such pieces **38**. This obviates the difficult task of bending pigtails or some other suitable formation in the ends of a resilient rod, as must be done with resilient members **25** of the previous embodiment. For engagement purposes pieces **38** are provided with rings **38***b*, respectively.

The means carried by the tent covering, at the ends of the eave lines **39**, for interengagement with the rings **38***b* are spring clips **40**, FIGS. 9 and 10. These are advantageously secured to the flexible sheet material of the tent covering by means of loops **41***a* of webbing reinforcement strips **41** extending between corresponding tent corners and corresponding rings **38***b* at opposite ends of the tent and secured along their lengths to the eave portions of the tent covering, as by sewing.

As shown in FIG. 9, the ends of roof resilient members **30** conveniently engage the tent covering at the eave portions thereof in grommeted holes **42** through both the webbing strips **41** and the tent covering material.

From the foregoing, the generic characteristics of the invention as indicated herein and as defined in the claims that follow, are apparent. Although certain preferred constructions representing what are presently regarded as the best mode of carrying out the invention are here specifically illustrated and described, it should be understood that a variety of other constructions may be adopted without departing from such generic characteristics.

I claim:

1. Tent construction, including a covering of flexible sheet material fabricated to have a ridge and gabled ends when erected, and supporting structure adapted to hold said covering in taut, erected condition, said structure comprising a ridge member; a pair of elongate resilient members; interengaging means carried by the covering and at opposite ends of the resilient members, respectively, for anchoring the resilient members to the covering in horizontal positions intermediate the height of the tent and transversely of said gabled ends; and a pair of elongate upright members which are adapted to engage, intermediate their lengths said resilient members, respectively, intermediate their lengths and whose upper ends are adapted to engage respective opposite ends of the ridge member, whereby movement, to final positions, of the lower portions of the upright members in mutually opposite directions outwardly of the tent on said ridge connections as fulcrums will bow the respective resilient members outwardly of the tent and stretch the covering taut.

2. The tent construction of claim 1, wherein the ridge of the covering extends beyond the resilient-member-interengaging means of the cover at opposite ends of the tent.

3. The tent construction of claim 1, wherein the ridge of the covering and the ridge member of the supporting structure are elongate, the covering defines eaves along opposite sides of the tent, and there is provided at least one additional resilient member adapted to extend transversely of said ridge member, with its opposite ends at the eaves, so as to be bowed upwardly by said ridge member and provide additional tautness for the top portion of the covering.

4. The tent construction of claim 1, wherein reinforcing means are fastened to the cover along lines extending between opposite ends of the cover, so as to include and join corresponding resilient-member-interengaging means of the cover at respectively opposite ends of such cover.

5. The tent construction of claim 4, wherein the resilient-member-interengaging means of the cover are spring clips and the interengaging means of the resilient members are eye formations adapted to be engaged by said spring clips.

6. The tent construction of claim 5, wherein the eye-formed ends of each resilient member are non-resilient pieces rigidly secured to an elongate resilient piece.

7. The tent construction of claim 4, wherein the reinforcing means are flexible straps secured to the cover along their lengths.

8. Tent construction, comprising a covering of flexible

sheet material fabricated to have a ridge, side wall panels, sloping roof panels joining said side wall panels along eave lines, and gabled ends, said ridge being extended at both ends beyond the eave lines; a pair of elongate resilient members; interengaging means carried by the cover and by the resilient members, respectively, at opposite ends of the eave lines and at opposite ends of the resilient members, for anchoring the resilient members to the covering in horizontal positions below the ridge and transversely of said gabled ends; and a pair of elongate upright members which are adapted to engage, intermediate their lengths, said resilient members, respectively, intermediate their lengths and whose upper ends are adapted to engage respective opposite ends of the ridge member, whereby movement, to final positions, of the lower portions of the upright members in mutually opposite directions outwardly of the tent on said ridge connections as fulcrums will bow the respective resilient members outwardly of the tent and stretch the covering taut.

9. Tent construction, including a covering of flexible sheet material fabricated to have a ridge and at least one gabled end when erected, and supporting structure adapted to hold said covering in taut, erected condition, said structure comprising a ridge member; at least one elongate resilient member; interengaging means carried by the covering and at opposite ends of the resilient member, respectively, for anchoring the resilient member to the covering in horizontal position intermediate the height of the tent and transversely of said gabled end; and at least one elongate upright member which is adapted to engage, intermediate its length, said resilient member intermediate its length and whose upper end is adapted to engage an

end of the ridge member and whose lower end is freely movable, so that movement of said upright member forcibly against said resilient member substantially normal thereto and outwardly of the tent on said ridge connection as a fulcrum will bow the resilient member outwardly of the tent and stretch the covering taut.

10. In building construction utilizing a sheet of flexible material having two opposing edges, the combination with said flexible sheet of means for holding it in taut condition, comprising means anchoring the opposing edges; an elongate member; fulcrum means for one end of said elongate member, said fulcrum means being positioned adjacent said sheet; an elongate resilient member; means for anchoring at least the ends of said elongate resilient member to said sheet such that said elongate resilient member extends between the anchored edges and crosses said elongate member intermediate its length, whereby movement of the other end of said elongate member toward said sheet moves said elongate member against said elongate resilient member to move it into position tensioning said sheet.

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