July 29, 1969 D. J. GLADDEN ET AL 3,457,930

METHOD OF AND APPARATUS FOR RAISING A TENT

Filed Dec. 30, 1966 3 Sheets-Sheet 1

FIG. 1

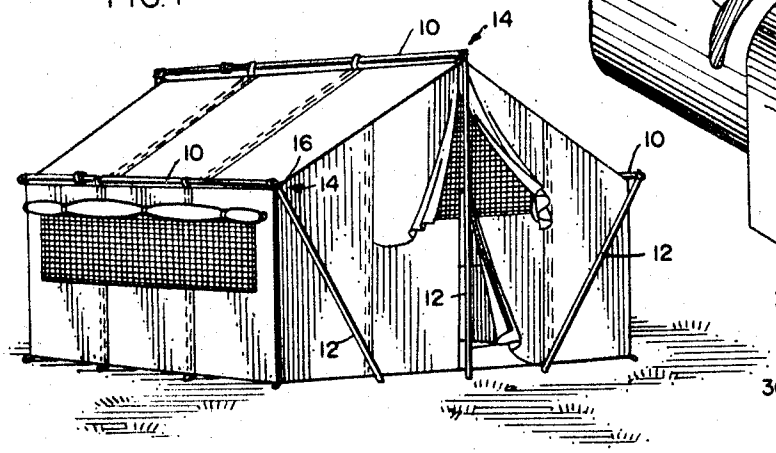


FIG. 2

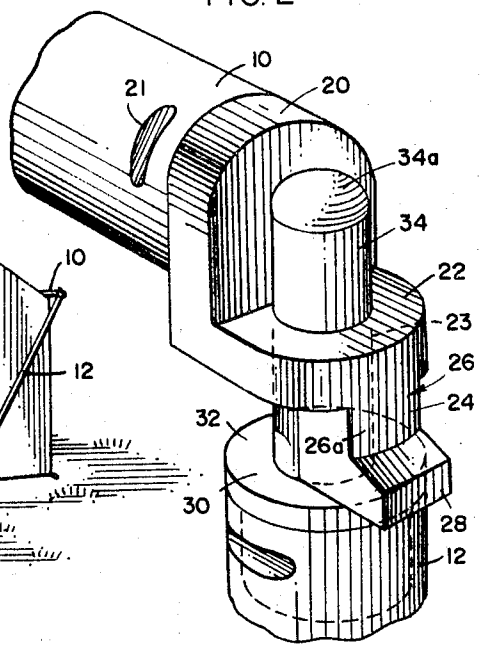


FIG. 3

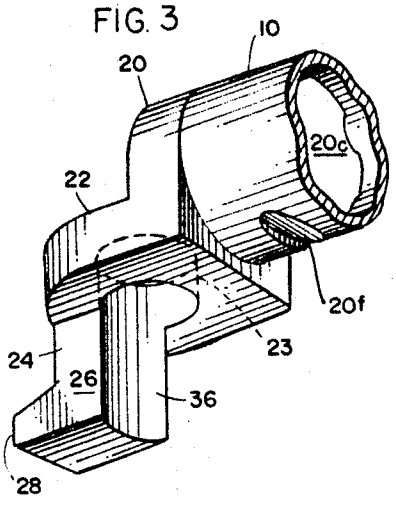
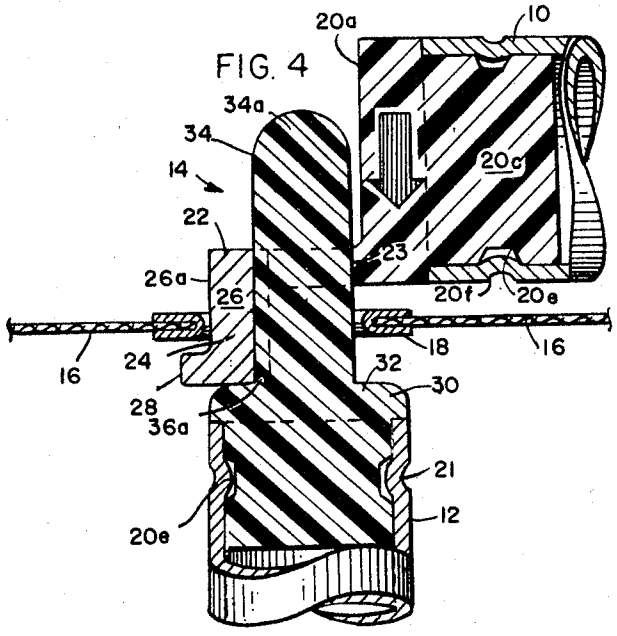


FIG. 4



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FIG. 5

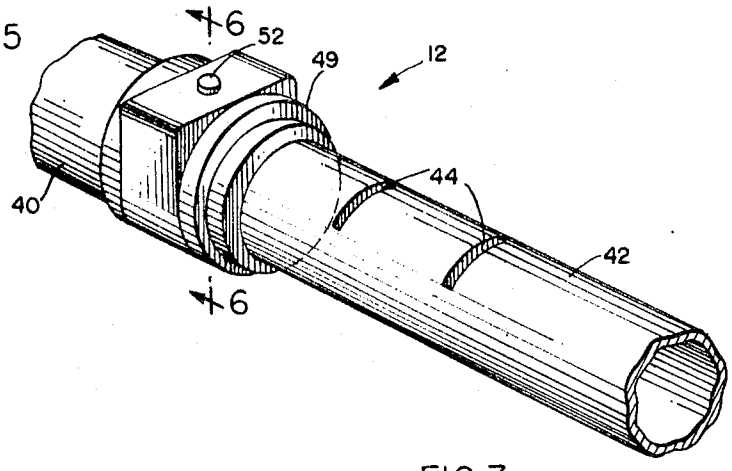


FIG. 6

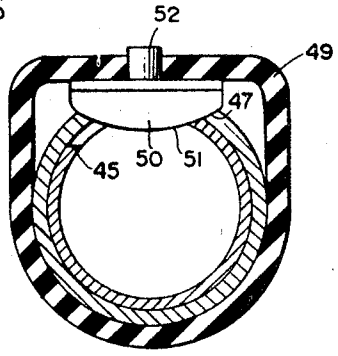


FIG. 7

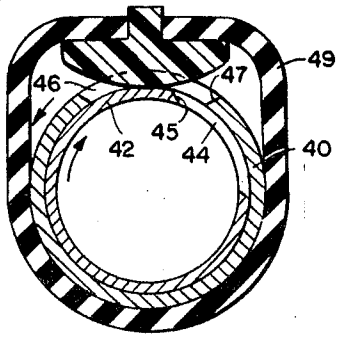
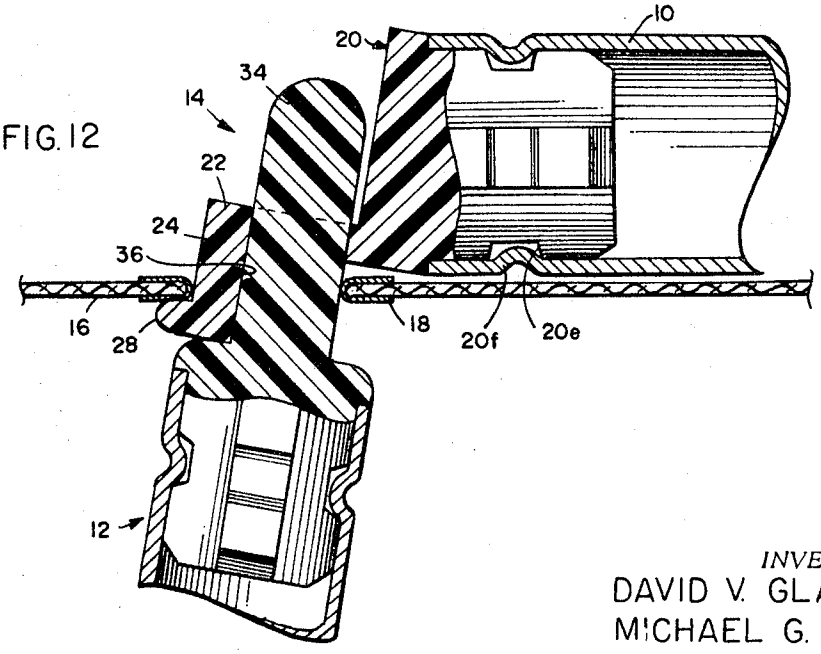


FIG. 12



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FIG. 8

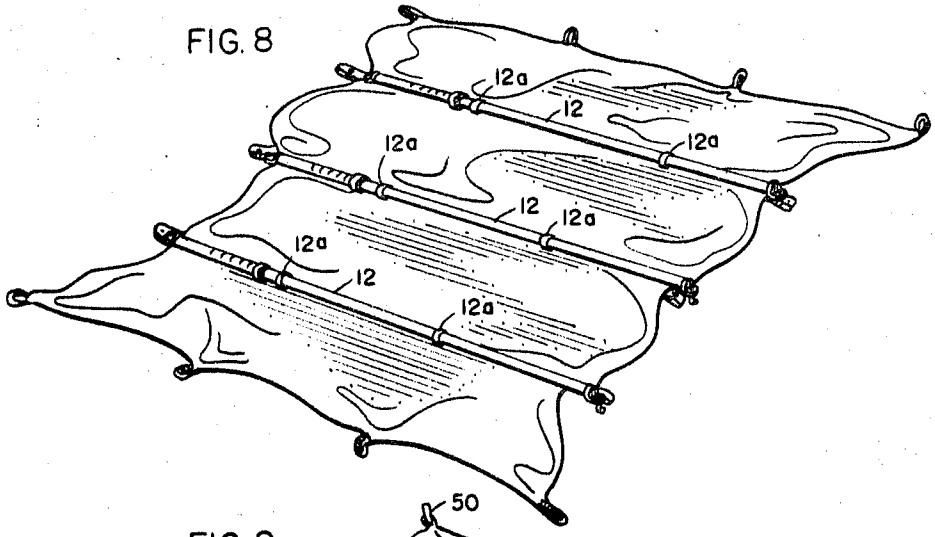


FIG. 9

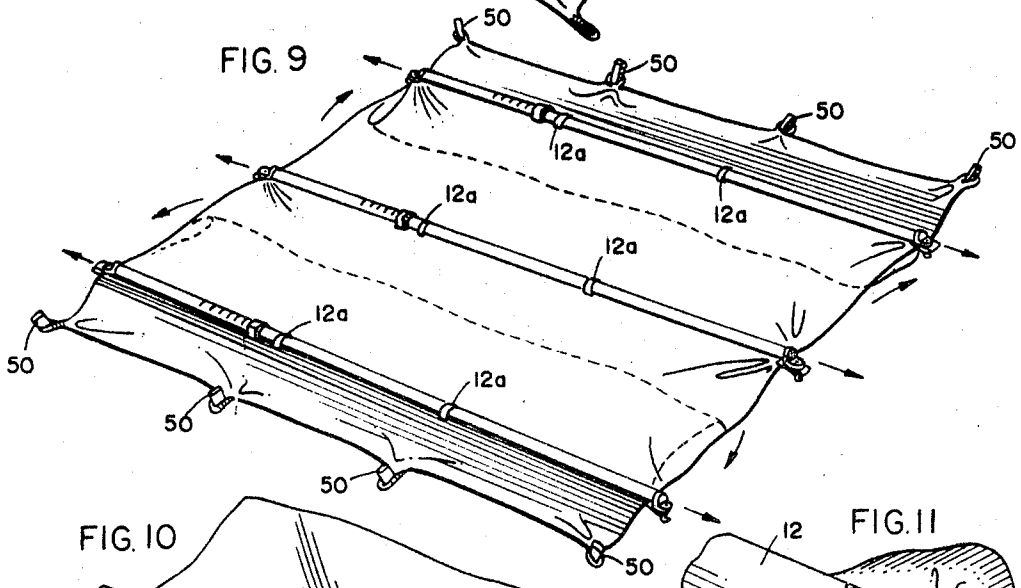


FIG. 10

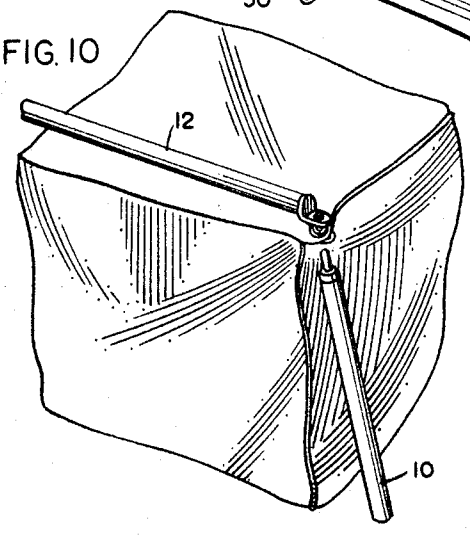
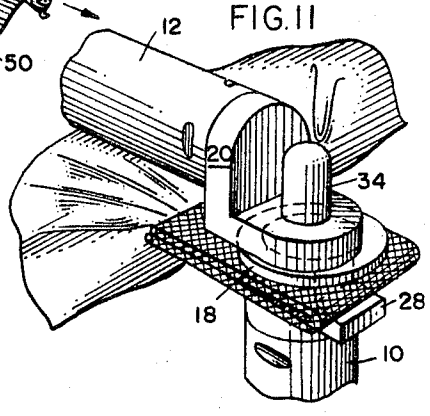


FIG. 11



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3,457,930

METHOD OF AND APPARATUS FOR RAISING A TENT

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Filed Dec. 30, 1966, Ser. No. 606,349
Int. Cl. A45f 1/16, 1/18, 1/12
U.S. Cl. 135—1 18 Claims

ABSTRACT OF THE DISCLOSURE

A method for erecting a canvas tent provided with cloth loops along ridges of the roof for holding ridge poles and with eyelets in flaps at the end of each ridge. Support poles lock at each end of the ridge poles for supporting the erected assembly. The base of the tent is first staked to the ground, and with the tent lying on the ground a ridge pole is inserted through its associated loops. Female parts of the locking joint which are fixed at the end of each ridge pole, are hooked to their associated eyelets. The ridge pole is extended thereby forcing the appended flaps in opposing directions and defining a line of tensioned canvas between the eyelets. After each of the ridge poles is thus attached to the tent, it is lifted and held in one hand thereby raising the canvas to a partially-erected position, and the support pole is inserted through the eyelet in locking engagement with the female section of the locking joint. First one end and then the other of each ridge pole is thus erected.

SUMMARY

This invention relates to a method of and apparatus for raising a tent; more particularly, this invention relates to a method of and apparatus for raising a cottage type of tent wherein it is desired that not more than one person be required for complete erection of the tent. A tent assembly of the type with which the present invention is concerned comprises four vertical walls arranged in a rectangle and a roof having an inverted V-shape placed over and integral with the walls. This is commonly referred to as a cabin or cottage type tent; and it will be noted that there are three salient angles defined by the roof and wall surfaces running front to back. In the erected state, ridge poles extend along these intersections; the center ridge pole lies along the peak, and the side ridge poles lie along the eaves of the tent. The tent material is usually canvas; and it is held in shape by support poles fixed in the ground at one end and joined at the other end with the ridge poles. A locking joint is provided at each junction of a ridge pole and a support pole. The ridge poles are fitted through cloth loops in the tent and attached to the canvas at the locking joint by means of an appended flap of canvas provided with an eyelet or grommet.

Tent assemblies with which the present invention is concerned typically may be 10′ x 8′ or 12′ x 9′, and heretofore, the erection of such tents has required at least two people. The erection method of the present invention accomplishes raising of the tent with a minimum of effort and requires only one person for complete assembly.

It is desirable from the standpoint of securing the structure against rough weather or otherwise being accidentally dismantled, that a ridge pole, once secured to a support pole, remain secured until the support pole is removed.

One known locking joint includes a pin member on the support pole which fits through an eyelet on a tent appendage and is provided with an enlarged diameter adjacent its terminal end for snapping into a receiving

aperture on a ridge pole. Even though the support pole remains in its assembled position, it is possible to accidentally disengage the ridge pole in this known type of joint.

Further, some prior tent assemblies make use of an extended center ridge pole attached to the canvas between front and rear canopies which are integral with the tent and form cups or pockets for receiving the ridge pole. The support poles were fixed to the ridge poles inward of the end of the extended ridge pole at the tent walls by forcing a pin on the support pole through a receiving aperture on the ridge pole.

A principal object of the present invention is to provide a method of and apparatus for raising a tent which requires only one person for complete erection of the tent.

A further object of the present invention is to provide a locking joint for a tent frame comprising ridge poles and support poles wherein the joint may not be unlocked without first removing the support pole.

A still further object of the present invention is to provide for a locking joint for tent poles wherein the composition of the joint may be of a relatively rigid plastic material thereby providing a more rigid structure, yet one that is economical and easily manufactured.

Other objects and advantages of the present invention will be understood from the following detailed description of the invention accompanied by the attached drawing in which:

FIG. 1 is a perspective view of a cottage type of tent construction which is illustrated for explaining the method of the present invention;

FIG. 2 is a close up perspective view of the front side of a connected locking joint embodying features of the present invention;

FIG. 3 is a lower perspective view of the female portion of the locking joint of FIG. 2 showing the concave surfaces which engage the male portion;

FIG. 4 is a side sectional elevation of the locking joint of FIG. 2;

FIGS. 5, 6 and 7 illustrate a preferred type of extensible ridge pole for use in erecting a tent according to the method of the present invention;

FIGS. 8, 9 and 10 illustrate in detail the steps in erecting a tent according to the method of the present invention;

FIG. 11 is a close up perspective view of a connected locking joint and tent eyelet used in the preferred method of raising a tent; and

FIG. 12 is a side sectional view of a connected alternate embodiment of a locking joint according to the present invention.

DESCRIPTION

FIG. 1 shows a typical cottage tent construction having three horizontal ridge poles extending front to back and generally designated as **10**. A total of six support poles is required, the three front support poles are shown in the drawing and designated as **12**. The ridge poles **10** are of the telescoping type, and will be described in more detail below. The support poles may also be of the telescoping type, but need not be. The locking joints connecting the support and ridge poles form a locked coupling between the upper ends of the support poles **12** at either end of the transverse ridge poles **10**, and they are generally designated as **14** in FIG. 1.

The ridge poles **10** carry the tent by means of cloth loops **15** on the outside of the tent. Flaps defining eyelets are appended from the tent at each of the locking joints **14**. The lower end of the support poles **12** are furnished with a spike or pin (not shown) which is forced into the ground, and the spikes preferably are spring-

biased axially of the support pole to maintain vertical tension in the canvas after assembly.

Turning now to FIGS. 2, 3 and 4, the locking joint **14** is shown in more detail. A flap made of the same material as the tent and appending therefrom at a support point is generally designated as **16**, and it is fitted with a grommet **18** forming an eyelet (FIG. 4). The axis of ridge pole **10** lies along the horizontal. The part of the locking joint attached to a ridge pole **10** is hereinafter referred to as the female part of the locking; and it includes a stopper plate **20** from which a plug **20***c* projects perpendicularly (FIG. 3) into the hollow of ridge pole **10**. As seen in FIG. 3, the plug **20***c* of the female part of the locking joint defines four axial ribs for attachment to the ridge pole **10**. Each of the ribs defines a recess, designated as **20***e* in FIG. 4, which receives an indentation formed by crimping the ridge pole (see **20***f* of FIG. 3). The female portion of the locking joint is thereby restrained against axial motion of the ridge pole **10**; and, the crimp being hard enough, it is also prevented from rotating within the ridge pole **10**. The male portion of the locking joint is similarly fitted into its associated support pole, as seen in FIGS. 4 and 12.

A tab **22** having a generally D-shaped periphery is formed at right angles with the plate **20** away from ridge pole **10**. The back of the D is integral with the lower portion of the plate **20**, as seen most clearly in FIGS. 2 and 4.

The tab **22** defines a circular aperture **23** for receiving the male portion of the locking joint. Depending from the tab **22** is an L-shaped hooking member **24** comprising a leg **26** extending radially of the axis of ridge pole **10**, and an integral foot portion **28** extending radially from the axis of the aperture **23**. In horizontal section, both the leg **26** and the foot **28** are curved about a vertical projection of the aperture **23**. The outer convex surface **26***a* of the leg **26** lies adjacent, and generally conforms to, the inner circumference of the grommet **18** when the female part of the locking joint is offset in the direction of the leg **24** (i.e. when the ridge pole **10** is telescoped) as shown in FIG. 4. In this position, the foot **28** forms a lower limiting means and the tab **22** forms an upper limiting means for vertical movement of the grommet **18**. As will be clear from subsequent deescription, the L-shaped member forms a hook for engaging and securing the grommet in an appended flap.

The part of the locking joint attached to the support pole **12** comprises a plate **30** and plug **31** integral with the plate **30** and similar to the plug **20***c* in its attachment to support pole **12**. The male part of the locking joint defines a shoulder **32** extending in a plane generally perpendicular to the axis of support pole **12**. Projecting axially of support pole **12** is a pin or rod **34** of reduced diameter. The pin **34** has a hemispherical top portion **34***a* suitable for guiding the pin **34** through the grommet **18** and through the aperture **24** of the tab **22**. In connected position, the cylindrical side wall of pin **34** engages the inner concave surface **36** of the leg **26** and foot **28** of the female part of the locking joint, as seen most clearly in FIGS. 4 and 12.

As can be seen from FIG. 4, when the locking joint is connected, the diameter of the pin **34** together with the width of the leg **26** are sufficient to maintain the foot **28** below the grommet **18** thereby preventing disconnection of the locking joint until the support pole has been removed.

It is further noted that the locking joint of the present invention need not be made of flexible material, as are some prior locking joints, but preferably is of a rigid plastic material thereby providing a more durable and easily connected locking joint.

Referring now the FIGS. 5, 6 and 7, the telescoping ridge poles will be described in so far as is necessary for understanding the present invention. A more detailed description thereof may be found in a patent application by Elwood E. Little, entitled Self-Locking Adjustable Tent Pole, Ser. No. 587,925, filed Oct. 19, 1966.

Each of the ridge poles **12** is seen to include an outer hollow tubular member **40**. Telescopically received within the outer hollow tube **40** is an inner tubular member **42**. The inner tubular member **42** fits snugly within the outer tubular member **40**, but it is freely rotatable and slideable therein. The inner tubular member **42** defines a plurality of notches **44** elongated about a circumference and spaced longitudinally thereof.

The outer tubular member **40** is provided with a similar radial notch adjacent the end which receives the inner tubular member **42**. A resilient, flexible collar **49**, hereinafter referred to as a key holder, is fitted over the outer surface of the tube **40** adjacent the recess **46**. A key, generally designated as **48**, is equipped with a pin **52** which fits through the key holder **49** for limiting its axial motion. The key **50** is urged radially inwardly of the notch **46** when it is centered over it.

When one of the notches **44** of the inner tube **42** is in register with the notch **46** in the outer tube **40**, the key **50** will extend through the walls of both of the tubes **40** and **42** to lock them in relative axial position.

It will be noted that the key **50** defines a camming surface **51** for extending between two aligned notches in the tubes **40** and **42**. The notches **44** and **46** define beveled side surfaces **45** and **47** respectively for receiving the camming surface **51** of key **50**.

The ridge pole **12** is extended by holding the outer tube **40** in one hand and the inner tube **42** in the other hand. If the key **50** is in a locking position, that is, if it extends inwardly of two aligned notches respectively in the tubes **40** and **42**, the tubes are rotated relative to each other such that the key **50** is cammed, as seen in FIG. 7, radially outward from the tube **42**. The tube **42** is then pulled axially relative to the outer tube **40** to achieve the proper length of the telescoped pole. The inner tube **40** is rotated back in to a position wherein one of the notches **44** is aligned with the key **50**. The key **50** will then hold the two tubes **40** and **42** in a locked axial position, as described above.

With the locking joint and extensible ridge poles thus described in detail, the method of erecting a tent according to the present invention will now be illustrated. As seen in FIG. 9, the lower hem or base of the tent is staked out by means of stakes **50** to define the lower perimeter of the tent in its erected state. Referring to FIGS. 8, 9 and 10, with the tent lying on the ground, the telescoping ridge poles **12** are placed through loop **12***a* at support positions for holding the tent and extended to approximately the distance between front and back grommets. Each of the ridge poles **12**, as mentioned before, is provided with a female part of the above-described locking joint. The depending L-shaped leg parts of the female segments of the locking joints take the same radial orientation relative to the ridge pole when the telescoping members of the ridge poles are in a locked position since each of the female parts must be holding its associated eyelet when the ridge pole is in a locked, extended position.

Flaps are appended to the tent at each end of a ridge formed by the salient angles between the roof surfaces and between the roof and wall surfaces. The L-shaped member of the female part of the locking joint is inserted through the grommets provided in the flaps. Each of the ridge poles **12** is then extended in the direction of the arrows of FIG. 9, to a telescoped position defining a line of tensioned canvas along a ridge between the grommets. As described in connection with FIG. 4 and illustrated in FIGS. 10 and 11, the outer surface **26***a* of the leg part **26** will bear against the inner surface of grommet **18** thereby hooking the flap when the female part of the locking joint is offset. In this semi-assembled state, the roof of the tent has proper ridges formed in it and each

of the appended flaps on the tent lying along a ridge or line of tensioned canvas is firmly held by the pull of the canvas against the depending hook of the female part of its associated ridge pole. The grommets are prevented from slipping off the offset female part of the locking joint by the foot **28** which extends below the grommet.

After each of the ridge poles **12** is similarly attached to the roof of the tent by placing it through the loops **12***a* and engaging the grommets at the appended flaps as described above, the support poles **10** are locked to the ridge poles **12** as described below. However, it is noted here that with the ridge poles thus attached to the tent, they may not be removed without being telescoped to a contracted position. Hence, a ridge pole may be lifted and held with one hand; and as it is raised, the roof of the tent is raised along with it (FIG. 10).

In the preferred method of raising the tent, the center ridge pole is thus raised and held with one hand, the center support pole is placed beneath the grommet defining the eyelet in the appended flap of the tent, as shown for a side ridge pole in FIG. 10, and the male part of the locking joint which is attached to the support pole, is inserted through the grommet and the receiving aperture in the female part of the locking joint. With one locking joint thus connected, the other end of the center ridge pole is similarly erected thereby raising the center of the tent. The side walls are then erected, first one end and then the other is connected, and the tent is raised.

In FIG. 11 is illustrated a connected locking joint showing the appended flap and its grommet **18** which are held in place by the leg **26** of the female part of the locking joint. The pin **34** of the male part of the locking joint is shown as inserted through the grommet and the receiving aperture of the female part.

The ground-engaging support poles may themselves be extensible for getting a better trim on the raised tent, but it is not necessary for the practice of the invention. With the erection procedure thus described, it can be seen that a complete tent may be erected by a single person without assistance.

In its broader aspects, the method of the present invention is not limited to use with telescoping ridge poles since hinged poles, or even rigid straight poles (if the flaps are stretched over hooking means) for example, may be used; nor is it limited to use with the preferred embodiment of the locking joint which has been illustrated since other hooking means may be suitably employed with like results.

In FIG. 12 is shown an alternate embodiment of the locking joint described above. In this embodiment the ridge pole, designated as **12**, lies along its usual horizontal position, but the support pole **12** is inclined outwardly from the side wall of the tent for wind support or similar purpose, such that the angle between the ridge pole and support pole is slightly greater than 90°.

The support pole **12** is constructed similar to the one described above, the only difference being in the female part of the locking joint wherein the plate **20** has a decreasing taper from the bottom to the top such that the tab **22** is inclined upwardly.

Whereas specific embodiments have been described and illustrated, it is obvious that equivalent steps and structures, for example hinged rather than telescoping ridge poles, will accomplish the object of the present invention without deviating from its principle, and it is intended that such modifications be covered as they are embraced within the spirit and scope of the appended claims.

We claim:

1. A method of erecting a tent having side walls, a roof integral therewith defining ridges, and appendages defining eyelets at the ends of the ridges comprising: hooking the eyelets defining a ridge with extensible ridge poles; extending the ridge poles to force said appendages apart thereby defining a line of tensioned canvas along the ridge, said appendages cooperating with said tent to limit the extension of said ridge poles; and coupling said ridge poles to ground-engaging poles for support.

2. The method of claim **1** wherein each of said extensible ridge poles includes hook means at each end, said method further comprising: inserting said hook means in said eyelets whereby when said ridge poles are extended, said hook means are thereby fastened to said eyelets to form said lines of tensioned canvas.

3. The method of claim **2** wherein said tent is provided with loops along said ridges intermediate said eyelets further comprising: fastening the base of said tent to the ground; inserting said ridge poles in said loops; and extending said ridge poles to the approximate distance between said eyelets before inserting said hooks therein.

4. The method of claim **2** wherein each of said hook means of said ridge poles further comprises: a tab attached to the end of said pole defining an aperture having an axis generally perpendicular to the axis of the pole and a depending L-shaped member defining a leg and a foot integral with said tab for insertion in said eyelet and so constructed and arranged that said aperture is aligned with said eyelet when said ridge pole is extended, said support pole defining a pin for insertion through said eyelet and said tab aperture thereby locking said eyelet to said poles.

5. For use with a tent having first and second spaced eyelets defining a ridge, apparatus comprising: an elongated, extensible pole; and first and second hook means attached respectively to the ends of said pole for insertion in said eyelets whereby when said hook means are coupled respectively to said eyelets, said pole may be extended thereby forcing said eyelets apart by engagement with said hook means to tension the canvas between said eyelets fastening said pole to said tent along said ridge.

6. The pole of claim **5** wherein each of said hook means further comprises a tab attached to the end of said pole defining an aperture having an axis generally perpendicular to the axis of said pole and an L-shaped member defining a leg and a foot depending from said tab whereby when said L-shaped member is inserted in an eyelet such that the aperture in said tab is aligned with said eyelet and a pin is inserted through said aperture and said eyelet to engage the side of said aperture, said tab and said foot limit the motion of said eyelet.

7. A joint for locking first and second elongated tent poles in transverse relation at a location on a tent provided with an eyelet comprising: means attached to said first pole including a male member; and female means attached to said second pole for receiving said male member of said first pole and including a depending member comprising a leg and a foot integral with said leg, said leg extending through said eyelet and said foot extending away from said male member beneath said eyelet in locking position, said leg and male member cooperating to hold said eyelet.

8. The structure of claim **7** wherein said male member defines a pin and said female member defines an aperture for receiving said pin, said leg of said depending member conforming to the contour of and adjacent to said pin in a locking position.

9. The structure of claim **7** wherein said leg of said depending member extends through said eyelet and lies adjacent said male member in a locking position and wherein said female member further comprises a tab portion defining an aperture for said male member, motion of said eyelet being confined on one side by said tab and on the other side by said foot.

10. The structure of claim **9** wherein the combined width of said male member and said leg portion of said female member in said locking position are slightly less than the diameter of said eyelet thereby forcing said foot beyond the periphery of said eyelet.

11. A female part of a joint for locking first and second

elongated tent poles in transverse relation at a location on a tent provided with an eyelet, said first pole having a pin extending axially thereof comprising: means attached to the end of said second pole including a tab extending generally in the direction of elongation of said pole and defining an aperture for receiving said pin of said first pole, said tab including a generally L-shaped member having a leg portion depending from said tab and a foot portion on said leg portion diposed away from said tab and extending radially from the axis of said aperture, said pin of said first pole means and said leg portion of said second pole means lying adjacent each other in locked position and having a combined transverse dimension sufficient to maintain said foot portion beyond the periphery of said eyelet.

12. The joint of claim **11** wherein said tab is offset from the axis of said second pole and lies in a plane generally perpendicular to said pin in said locking position, the angle between said first and second poles in said locking position being greater than ninety degrees.

13. The structure of claim **11** wherein said leg of said L-shaped member extends perpendicularly to the plane of said tab and away from the axis of said pole, said foot of said member extending below said tab at a distance to accommodate said grommet intermediate of said leg.

14. The structure of claim **13** characterized by said L-shaped member forming along the contour of said aperture thereby defining a concave cylindrical surface for engaging said pin in said locking position, said grommet lying between the base of said pin and said tab.

15. In a method of erecting a tent having an upper ridge and first and second side eaves, the steps comprising: expanding an extensible ridge pole coupled to said tent at opposite ends of said ridge to tension said tent along said ridge and secure said ridge pole to said tent; expanding a first extensible eave pole coupled to said tent at opposite ends of said first eave to tension said tent along said first eave and secure said first eave pole to said tent; expanding a second extensible eave pole coupled to said tent at opposite ends of said second eave to tension said tent along said second eave and secure said second eave pole to said tent; then locking a support pole to each end of said ridge pole and said first and second eave poles while securing one end of said support pole to the ground to hold the tent erect.

16. In combination, a tent having a plurality of generally horizontal roof creases each having a tab defining an eyelet at each end thereof; an extensible roof pole for each crease; a first member of a locking pair secured to the end of each roof pole for extending through said eyelet and bearing against the outboard edge thereof, whereby extending a roof pole having its end first members inserted in an associated pair of eyelets tensions the canvas along a crease; a pair of ground-engaging support poles for each of said roof poles; and a second member of said locking pair at one end of each of said support poles for locking with an associated first member of a roof pole.

17. The combination of claim **16** wherein each of said second members of a locking pair on said support poles includes a pin extending axially of said support pole; and each of said first members of said locking pair includes a leg member attached to the end of a roof pole and extending generally radially thereof for insertion into an eyelet and defining a surface for engaging an outboard edge of said eyelet whereby when said roof pole is extended said first and second legs attached to said pole urge an associated pair of said eyelets apart in a generally horizontal plane for receiving an upwardly extending pin on a support pole.

18. The combination of claim **17** wherein each of said first members of said locking pair defines an aperture inboard of said leg member aligning with an eyelet when said pole is attached to said tent along a crease for receiving a pin of a support pole, and wherein each of said first members further includes a foot integral with the distal end of each leg and extending outwardly of said eyelet-engaging surface thereof for slipping beneath an eyelet and holding the same in engagement with said leg when said pole is expanded.

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KENNETH DOWNEY, Primary Examiner

U.S. Cl. X.R.

135—3, 15; 287—93