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(54) **Improvements in or relating to tents**

Entwicklungen in Zelten

Tentes améliorées

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Description

[0001] The present invention relates to tents and in particular, though not exclusively, to an improved tension bracing system for use on tents having an arched pole in their construction.

[0002] There are typically two types of tents which employ arched poles, these being tunnel and dome-shaped tents. The shapes are created by arranging lengths of high tensile aluminium alloy, or fibre glass, poles, which can be spring linked or elasticated, together to form arches. The arches are then fed through sleeves of the flysheet to provide the tunnel or dome shape. In order to stabilise these arrangements a large number of poles are used and/or criss-crossed to create complex geodesic shapes. While these tents are stable in strong winds they have the disadvantages of being heavy to carry, expensive and are typically more difficult to pitch.

[0003] GB 2 237 827 discloses a tension bracing system for providing stability to tents of this type having arched poles. This invention discloses an arrangement whereby a pair of tensioning members are located from a midpoint on the arch to each end of the poles, as illustrated in Figure 1. Such an arrangement has been found to resist distortion, due to wind and weather, of the arched tent pole to which it is attached. Embodiments are described where the tensioning members are fabric straps which are of adjustable lengths to prevent over-tensioning and alternatively, the members are poles located in a tensioning membrane.

[0004] While this arrangement provides improved stability over arched poles alone, disadvantages exist as the poles/straps obstruct the clearance through the arch, limiting the use of the tension brace system at places where the arch forms an entrance or passageway through the tent. This would be particularly relevant to tunnel designs. Additionally, this brace system requires the location of tent pegs at or adjacent to the ends of the poles to ensure a fixed end point for the bracing system. This requires additional pegging over standard tent designs.

[0005] It is an object of at least one embodiment of the present invention to provide an improved tension brace system for use in a tent including one or more arched poles which obviates or mitigates some of the disadvantages of the prior art tension bracing system.

[0006] According to a first aspect of the present invention there is provided a tent, the tent comprising a flysheet; one or more arched poles, wherein at least one pole is located relative to the flysheet to provide support thereto; one or more guy lines, wherein at least one guy line is located on the flysheet at a connecting point adjacent to the said arched pole and between a midpoint and an end of the arched pole; and one or more tensioning members, wherein at least one tensioning member has a first end arranged for connection at the midpoint of the said arched pole and a second end attached to an attachment point away from the end of the arched pole

being arranged at or adjacent to the connecting point; such that a line of tension is created between the midpoint and a pegged out position of the guy line through the connecting point and the attachment point.

[0007] In this way the tensioning members are kept higher up the arched poles and thus do not obstruct passage through the arch; pegs are not required at the ends of the arched poles and the structure has increased stability due to the increased tension applied in the horizontal direction compared to the prior art bracing system.

[0008] Preferably a pair of tensioning members are arranged symmetrically in the tent with respect to the arched pole. This provides improved stability and prevents the pole from distorting, due to wind and weather, for example.

[0009] Each pole is located in at least a portion of a sleeve provided on the flysheet. In this way the position of each pole is fixed relative to the flysheet and the guy lines.

[0010] The tent includes means for attachment of the tensioning member to the flysheet at each end of the member or to the arched pole at each end of the member. Obviously combinations may also be sought. Advantageously the means for attachment at the second end is located on the opposite side of the flysheet from the guy line but at substantially the same point.

[0011] The means for attachment may comprise fillets of flysheet which include a releasable attachment. In this way the members may be removable to allow for attachment to the tent once the tent is pitched.

[0012] Preferably the tensioning members are strips of fabric or cord. The strips of fabric or cord may be adjustable in length so that the tension over the member can be varied in use. Alternatively the members may be poles. In this arrangement the means for attachment may be pockets located on the flysheet into which the poles locate.

[0013] Preferably, the connecting point is arranged such that, in use, the line of tension makes an intersect angle of around 45 degrees with the ground. In this way, horizontal and vertical loading are balanced. It will be appreciated that for different tent designs the intersect angle may be bigger or smaller. Typically, the intersect angle may lie in the range 30 to 60 degrees. The angle will be directly proportional to the height to width measurements of the tent.

[0014] Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying figures of which:

Figures 1 (a) illustrates a prior art tent based on an arrangement of arched poles;

Figure 2 illustrates a prior art tent including tension bracing system; and

Figure 3 illustrates a tent according to an embodiment of the present invention.

[0015] Reference is initially made to Figure 1 which illustrates a known tent design commonly referred to as a tunnel design. The tent A comprises a series of arched poles B used to support a flysheet C which is pegged out using guy lines D. Each pole B is typically formed from a series interconnected high tensile aluminium alloy, or fibre glass, rods which flex sufficiently to form the arch. The poles B are held in place by being arranged through sleeves in the flysheet C at the required locations.

[0016] Now referring to Figure 2 there is illustrated a prior art tension brace system E for use in a tent such as that illustrated in Figure 1, according to the prior art. Figure 2 is a cross-section through the tent A at the location of an arched pole B including the tension brace system E. Tensioning members in the form of two straps F are arranged such that they lie between the apex G of the arched pole B and each end H of the arched pole B. Pegs are located at the ends H to prevent the ends from lifting as tension is applied to the straps F. Guy lines D are used to tie the flysheet C to the ground.

[0017] Reference is now made to Figure 3 of the drawings which illustrates a tent, generally indicated by reference numeral 10, including a tension brace system 12 according to an embodiment of the present invention. Arched pole 14 is held in the classic semi-circular arrangement by location in sleeves 16 arranged on the inner surface 18 of the flysheet 20. Guy lines 22 are attached to the flysheet 20 at connection points 24 and are held taught as they are pegged out to the ground at peg out point 26.

[0018] Tension bracing system 12 comprises two straps 28. Each strap 28 has a first end 30 which is attached at the apex 32 of the tent 10, preferably at the mid point 34 of the pole 14. A second end 36 of the strap 28 is attached to the flysheet 20 at an attachment point 38.

[0019] Attachment point 38 is away from the end 39 of the pole 14 being arranged at or adjacent to the connection point 24. Strap 28 is a fabric strip which includes a tensioning portion as is known in the art which allows the length of the strap to be adjusted. By shortening the length of strap 28 tension is applied between the mid point 34 and the attachment point 38. The straps 28 may be releasably attached to the tent fabric at points 32 and 38. This may be by clips as are known in the art. In this way a user can select whether the tension bracing system is required.

[0020] It is noted that the connection point 24 of the guy line 22 is located on one side of the flysheet 20 directly opposite the attachment point 38 where the tension strap 28 connects. As shown in the Figure, this provides a continuous line 40 from the apex 32 where the tension strap 28 is attached, to the peg out point 26 at the end of the guy line 22. Line 40 travels through the points 24 and 38 also. As tension is applied to the strap 28 and to the guy line 22, the line 40 provides a line of tension across the tent 10.

[0021] In considering this line 40 to the prior art it is noted that the tension strap F is shorter than the line 40.

Thus for the present invention load is spread over a greater horizontal distance over the ground, between peg points 26, providing more stability to a same size tent. It is also found that by bracing the tent from a point between the midpoint 34 and the end 39 the risk of overtensioning the pole 14 is avoided. Additionally there is now no need to peg the tent at the end 39 of each pole 14 as is required in the prior art tent A.

[0022] Line 40 intersects the ground at peg out point 26, making an angle α with the ground. This angle, α , is typically between 30 and 60 degrees though it will be obviously that it can be selected based on the selected location for the connection point 24 and attachment point 38. Typically the location is selected approximately half way between the apex 32 and the end 39 of the pole. Location at such a point provides sufficient 'pull' on the pole to brace it so that the pole maintains the required semi-circular arrangement, while providing sufficient horizontal spread between opposing peg out positions 26 to stabilise the tent.

[0023] The principal advantage of the present invention is that it provides a tent having improved stability over prior art tents of similar construction. A further advantage of the present invention is that it provides a tent wherein access under an arched pole is not as compromised as the prior art tent including a tension brace system. A yet further advantage of the present invention is that it provides a tent including a tension brace system which does not require additional pegs at or adjacent to the ends of the arched poles.

[0024] Modifications may be made to the invention described hereinbefore without departing from the scope thereof. For example, while tension straps have been described for the tensioning members, these may be of a more rigid construction such as poles. In deed, in the present invention poles may also be used for the guy lines. Additionally while the connection point 24 and attachment point 38 are shown at the same location, they may be adjacent to provide easier construction of the required attachments to the flysheet. Further, in the event that insufficient guy line is available to peg out the tent to provide a perfect tension line 40, angle α can be increased. This will result in there being an angle of less than 180 degrees between the strap and the guy line at the connection/attachment point, but a line of tension will still exist as a component of the tension on the guy line will lie on the same line as that of the strap.

Claims

1. A tent (10), the tent comprising a flysheet (20); one or more arched poles (14), wherein at least one pole is located relative to the flysheet (20) to provide support thereto; one or more guy lines (22); and one or more tensioning members (28), **characterised in that** at least one guy line (22) is located on the flysheet (20) at a connecting point (24) adjacent to the

arched pole (14) and between a midpoint (34) and an end of the arched pole (39); and **in that** the tent includes means for attachment of the tensioning member (28) to the flysheet (20) at each end of the member (28) or to the arched pole (14) at each end of the member (28); and further **in that** the tensioning member (28) has a first end (30) arranged for connection at or adjacent to the midpoint (34) of the said arched pole and a second end (36) attached to an attachment point (38) away from the end of the arched pole (39) being arranged at or adjacent to the connecting point (24); each pole (14) being located in at least a portion of a sleeve provided on the flysheet (20), thereby fixing the position of each pole (14) relative to the flysheet (20) and the guy line (22); such that a line of tension (40) is created between the midpoint (34) and a pegged out position (26) of the guy line (22) through the connecting point (24) and attachment point (38).

2. A tent (10) as claimed in claim 1 wherein a pair of tensioning members (28) are arranged symmetrically in the tent with respect to the arched pole (14).
3. A tent (10) as claimed in claim 1 or claim 2 wherein the means for attachment at the second end (36) is located on the opposite side of the flysheet (20) from the guy line (22) but at substantially the same point (24, 38).
4. A tent (10) as claimed in any one of claims 1 to 3 wherein the means for attachment comprise fillets of flysheet (20) which include a releasable attachment.
5. A tent (10) as claimed in any preceding claim wherein the connecting point (24) and the attachment point (38) are arranged such that, in use, the line of tension (40) makes an intersect angle (α) in the range 30 to 60 degrees with the ground.
6. A tent (10) as claimed in claim 5 wherein the connecting point (24) and the attachment point (38) are arranged such that, in use, the line of tension (40) makes an intersect angle (α) of around 45 degrees with the ground.

Patentansprüche

1. Ein Zelt (10), wobei das Zelt Folgendes beinhaltet: ein Überdach (20), eine oder mehrere bogenförmige Stangen (14), wobei mindestens eine Stange relativ zu dem Überdach (20) angeordnet ist, um ihm eine Stütze bereitzustellen, eine oder mehrere Halteleinen (22) und ein oder mehrere Spannelemente (28); **dadurch gekennzeichnet, dass** mindestens eine Halteleine (22) an einem Verbindungspunkt (24) ne-

ben der bogenförmigen Stange (14) und zwischen einem Mittelpunkt (34) und einem Ende der gebogenen Stange (39) auf dem Überdach (20) angeordnet ist und dass das Zelt ein Mittel zur Anbringung des Spannelements (28) an jedem Ende des Elements (28) am Überdach (20) oder an jedem Ende des Elements (28) an der bogenförmigen Stange (14) umfasst; und ferner **dadurch**, dass das Spannelement (28) ein erstes Ende (30), das zur Verbindung an oder neben dem Mittelpunkt (34) der bogenförmigen Stange eingerichtet ist, und ein zweites Ende (36), das weg von dem Ende der bogenförmigen Stange (39) an einem Anbringungspunkt (38) angebracht ist, der an oder neben dem Verbindungspunkt (24) eingerichtet ist, aufweist; wobei jede Stange (14) in mindestens einem Abschnitt einer auf dem Überdach (20) bereitgestellten Scheide angeordnet ist, wodurch die Position jeder Stange (14) relativ zu dem Überdach (20) und der Halteleine (22) fixiert ist, so dass zwischen dem Mittelpunkt (34) und einer ausgepflochten Position (26) der Halteleine (22) eine Spannungslinie (40) durch den Verbindungspunkt (24) und Anbringungspunkt (38) geschaffen wird.

2. Zelt (10) gemäß Anspruch 1, wobei ein Paar Spannelemente (28) in Bezug auf die bogenförmige Stange (14) symmetrisch im Zelt eingerichtet sind.
3. Zelt (10) gemäß Anspruch 1 oder Anspruch 2, wobei das Mittel zur Anbringung an dem zweiten Ende (36) auf der der Halteleine (22) entgegengesetzten Seite des Überdachs (20), aber an im Wesentlichen dem gleichen Punkt (24, 38) angeordnet ist.
4. Zelt (10) gemäß einem der Ansprüche 1 bis 3, wobei das Mittel zur Anbringung Leisten des Überdachs (20) beinhaltet, die eine lösbare Anbringung umfassen.
5. Zelt (10) gemäß einem der vorhergehenden Ansprüche, wobei der Verbindungspunkt (24) und der Anbringungspunkt (38) so eingerichtet sind, dass die Spannungslinie (40) bei Gebrauch mit dem Boden einen Schnittwinkel (α) in dem Bereich von 30 bis 60 Grad aufstellt.
6. Zelt (10) gemäß Anspruch 5, wobei der Verbindungspunkt (24) und der Anbringungspunkt (38) so eingerichtet sind, dass die Spannungslinie (40) bei Gebrauch mit dem Boden einen Schnittwinkel (α) von etwa 45 Grad aufstellt.

Revendications

1. Une tente (10), la tente comprenant un double toit (20) ; un ou plusieurs arceaux arqués (14), dans laquelle au moins un arceau est placé relativement au

double toit (20) afin de fournir un support à celui-ci ; un ou plusieurs haubans (22) et un ou plusieurs éléments de tension (28), **caractérisée en ce que** au moins un hauban (22) est placé sur le double toit (20) au niveau d'un point de raccordement (24) se trouvant adjacent à l'arceau arqué (14) et entre un point médian (34) et une extrémité de l'arceau arqué (39) ; et **en ce que** la tente comporte un moyen d'attache de l'élément de tension (28) au double toit (20) au niveau de chaque extrémité de l'élément (28) ou à l'arceau arqué (14) au niveau de chaque extrémité de l'élément (28) ; et en outre **en ce que** l'élément de tension (28) a une première extrémité (30) agencée de façon à se raccorder au niveau du ou de façon adjacente au point médian (34) dudit arceau arqué et une deuxième extrémité (36) attachée à un point d'attache (38) qui, étant agencé au niveau du ou adjacent au point de raccordement (24), est éloigné de l'extrémité de l'arceau arqué (39) ; chaque arceau (14) étant placé dans au moins une portion d'un fourreau fourni sur le double toit (20), fixant de ce fait la position de chaque arceau (14) par rapport au double toit (20) et au hauban (22) ; de telle sorte qu'une ligne de tension (40) est créée entre le point médian (34) et une position au piquet (26) du hauban (22) passant par le point de raccordement (24) et le point d'attache (38).

la ligne de tension (40) fait un angle d'intersection (α) d'environ 45 degrés avec le sol.

2. Une tente (10) telle que revendiquée dans la revendication 1 dans laquelle une paire d'éléments de tension (28) sont agencés de façon symétrique dans la tente par rapport à l'arceau arqué (14).
3. Une tente (10) telle que revendiquée dans la revendication 1 ou la revendication 2 dans laquelle le moyen d'attache au niveau de la deuxième extrémité (36) est placé sur le côté opposé du double toit (20) par rapport au hauban (22) mais substantiellement au niveau du même point (24, 38).
4. Une tente (10) telle que revendiquée dans n'importe laquelle des revendications 3 à 5 dans laquelle le moyen d'attache comprend des flancs de raccordement du double toit (20) qui comportent une attache détachable.
5. Une tente (10) telle que revendiquée dans n'importe quelle revendication précédente dans laquelle le point de raccordement (24) et le point d'attache (38) sont agencés de telle sorte que lors de l'utilisation, la ligne de tension (40) fait un angle d'intersection (α) compris dans la gamme allant de 30 à 60 degrés avec le sol.
6. Une tente (10) telle que revendiquée dans n'importe quelle revendication précédente dans laquelle le point de raccordement (24) et le point d'attache (38) sont agencés de telle sorte que lors de l'utilisation,

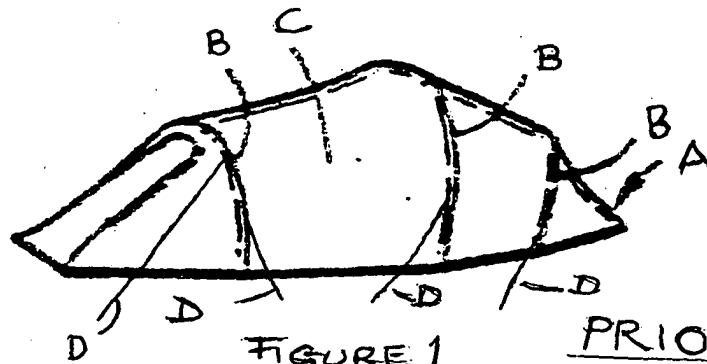


FIGURE 1

PRIOR ART

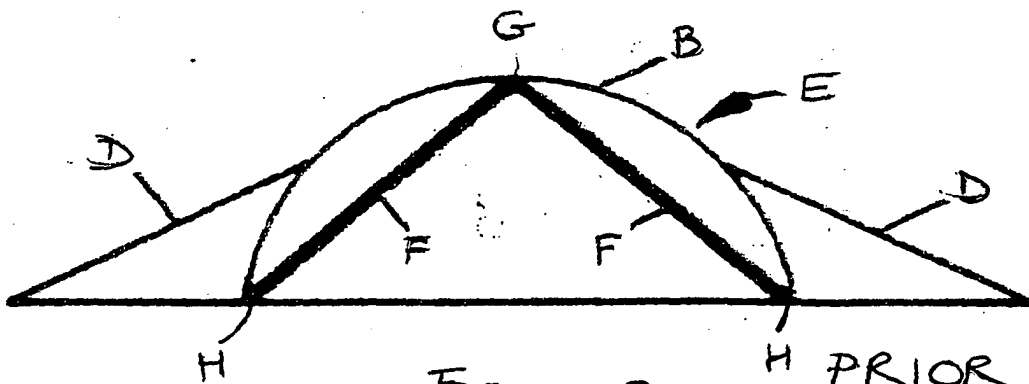


FIGURE 2

PRIOR ART

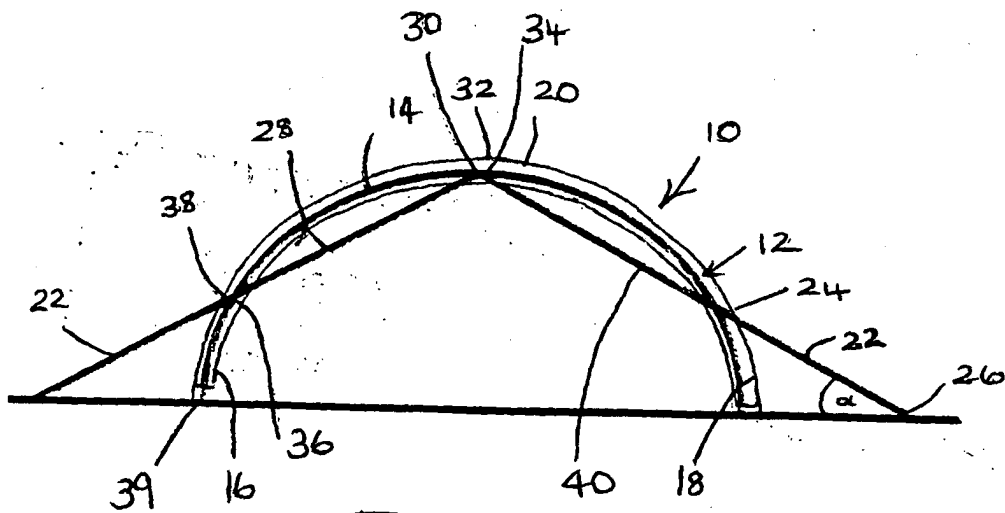


FIGURE 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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