July 14, 1925. 1,546,222

A. H. FINLAY

TENTS, MARQUEES, AND THE LIKE.

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Fig. 1.

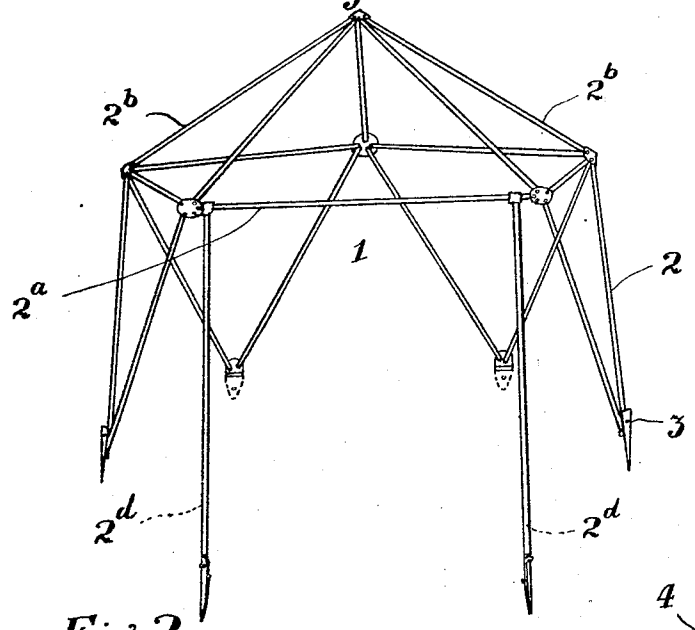


Fig. 1a.

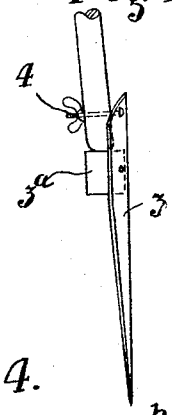


Fig. 2.

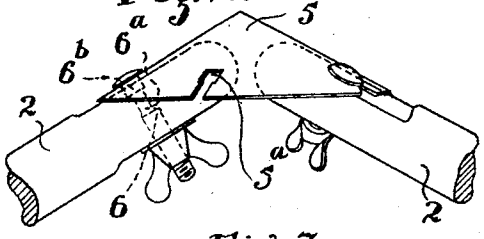


Fig. 3.

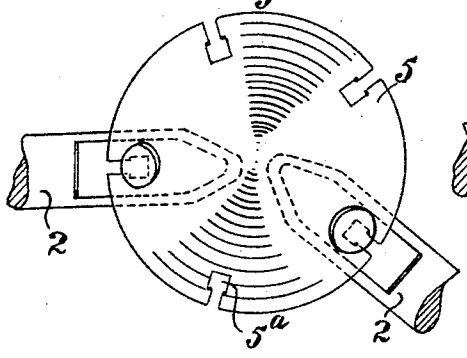
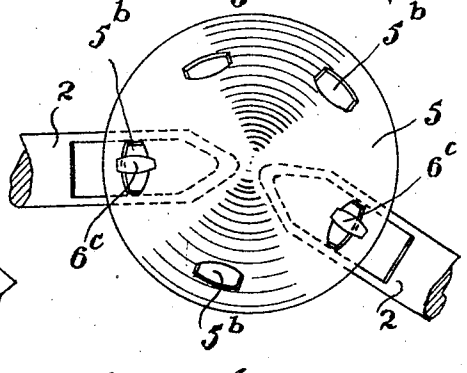


Fig. 4.



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per

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Fig. 5.

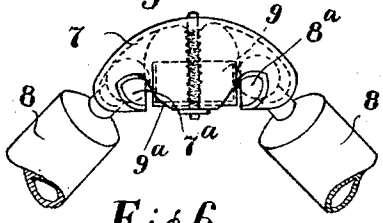


Fig. 5a

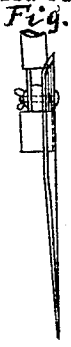


Fig. 7.

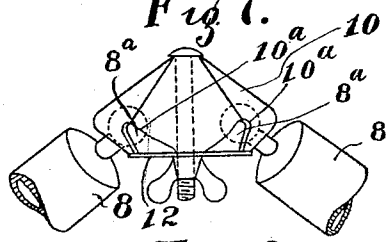


Fig. 6.

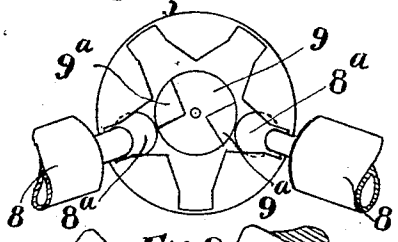


Fig. 8.

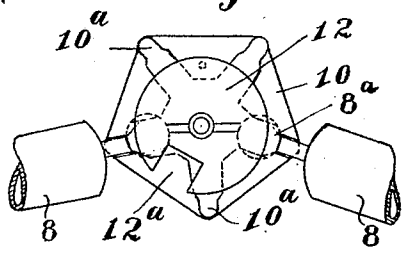


Fig. 9.

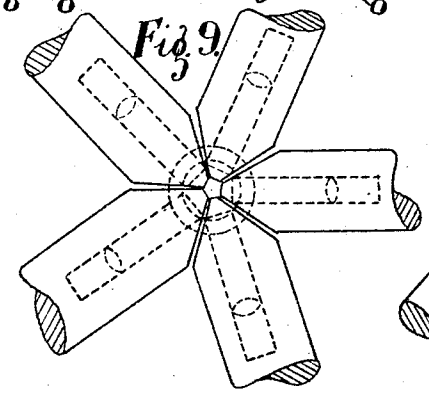


Fig. 11.

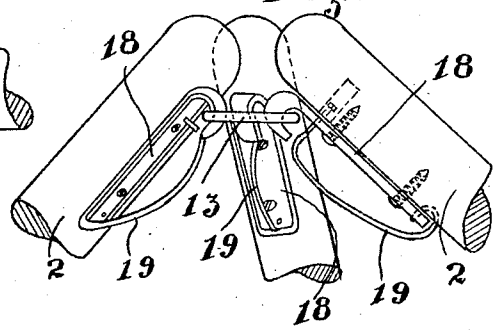


Fig. 10.

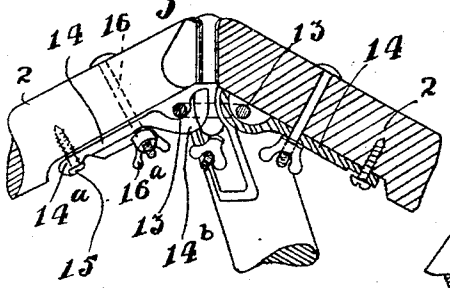
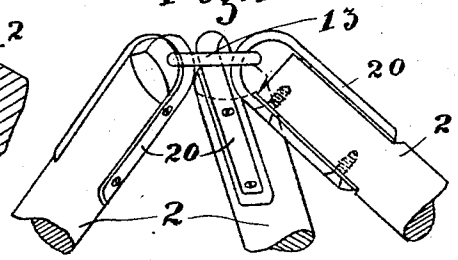


Fig. 12.



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UNITED STATES PATENT OFFICE.

ARCHIBALD HENRY FINLAY, OF HOLYWOOD, IRELAND.

TENTS, MARQUEES, AND THE LIKE.

Application filed June 16, 1924. Serial No. 720,271.

To all whom it may concern:

Be it known that I, ARCHIBALD HENRY FINLAY, a subject of the King of Great Britain and Ireland, residing at "Willesden," Holywood, county Down, Ireland, have invented certain new and useful Improvements Relating to Tents, Marquees, and the like, of which the following is a specification.

This invention relates to tents, marquees, and the like of the class in which the covering material is stretched on a framework, the object of the invention being to provide a novel framework which comprises a number of bars or rods arranged in the form of a truncated skeleton icosahedron, that is an icosahedron minus five adjacent triangles leaving the top and middle portions to form the tent framework. The points of the triangles at the bottom of the middle portion of the icosahedron may rest on the ground and be pegged down, or otherwise suitably secured. The structure thus formed is rigid and guy ropes may be dispensed with. By employing a framework formed as described it is possible to provide interchangeable jointing members for the bars or rods which can also be interchangeable, being of equal length, and at equal angles the one from the other.

The rigid structure described makes it possible to stretch the canvas or other material under the framework if desired.

If desired two adjacent rods of the middle portion of the icosahedron might be changed in angle to give a clear opening or entrance; they might be removed and (or) replaced by one or more rods or struts arranged to give a clear opening for a door or entrance into the tent. This, however, might prevent the use of the universal connecting member at the top of said rods or struts when same are connected to the vertices of the adjacent triangles and to avoid variation of the structure at the vertices of the triangles, the aforesaid strut or struts might be secured to the base rod of the corresponding top triangle.

Any suitable member may be used for connecting the rods together at the vertices of the triangles. I may employ a member of hollow conic shape with slots or holes therein at the required positions round the cone for securing the ends of the rods by means of pins or bolts passed through said holes or slots. A member with bayonet joint or other projecting connections for the rods may be used or any other suitable connecting device may be used for connecting the rods together.

The rods forming the structure, or any number of them, might be linked together for convenience in handling.

The invention will be described with reference to the accompanying drawings whereon a tent structure in accordance with the invention is shown by way of example with a number of different constructions of connecting members for connecting the bars or rods at the vertices of the triangles formed thereby.

Fig. 1 is an isometric view of the complete tent structure erected and ready for the covering material.

Fig. 1[a] is an enlarged detail view of a ground peg.

Fig. 2 is an enlarged detail view of one of the connecting members showing two of the rods in position.

Fig. 3 is a plan view corresponding to Fig. 2.

Fig. 4 is a plan view of a modification showing another method of securing the ends of the rods to the connecting cone.

Figs. 5 and 6 are respectively elevation and inverted plan view of another modification of the means for connecting the rods together at the vertices of the triangles.

Fig. 5[a] is an enlarged detail view of a modified form of ground peg.

Figs. 7 and 8 are respectively elevation and inverted plan view of still another modification of the means for connecting the rods together at the vertices of the triangles.

Fig. 9 is a view showing the ends of five rods connected together at their vertices without the use of members such as shown at Figs. 2 to 8, the rods in this case being connected by a ring and ring engaging hooks on the rods.

Fig. 10 is a sectional view on the line 10—10, Fig. 9.

Fig. 11 is an elevation corresponding to Fig. 10 and showing a modification in which a spring action hook is used to connect the tops of the rods with the ring.

Fig. 12 shows another modification of means for connecting the rods together at the vertices of the triangles. In this case the rods are connected with the ring, so that, normally, they remain connected there-

with whereby the rods can remain linked together for convenience in handling.

Referring to the drawings:—

The icosahedron minus five sides is shown erected at Fig. 1 and comprises a number of rods 2. The points of the triangles at the bottom of the middle portion 1 of the icosahedron rest on the ground and they are suitably pegged down. The ground ends of the rods 2 are secured to ground pegs 3 shown in detail at Fig. 1[a] and comprise a plate 3 with projecting bar or shelf 3[a] which rests on the ground and on which the ends of the rods bear, the rods being secured to the plate 3 by suitable bolts 4. Interchangeable jointing members are provided to connect the rods at the vertices of the triangles round the horizontal line formed by the rods 2[a] and also at the vertices of the triangles at the top of the structure formed by the rods 2[b]. The interchangeable jointing members shown at Fig. 1 are shown in detail at Figs. 2 and 3, and comprise at each corner a hollow cone 5 having five open-ended slots 5[a] arranged around same. Bolts 6 on the ends of the rods 2 are adapted to engage the slots 5[a], being each made with a narrow portion 6[a] adapted when the bolt is turned in one direction to pass through the narrow portion of the slot 5[a] so that the rods can be easily removed or easily connected with the cone when required. The portion 6[b] at the top of the bolt is made a fit for the larger portion of the slot 5[a].

In the example shown at Fig. 4 the hollow cone 5 is made with slots 5[b] which are tapered towards their ends and the heads 6[c] of bolts 6 to be used with this modification are correspondingly shaped so that the heads 6[c] can pass through the slots 5[b], but when turned to the position shown at the left hand side of this figure the square portion of the bolt near the head corresponding to the portion 6[b] is so engaged by the slot 5[b] that it does not shift or slide along the slot owing to the taper at each end thereof.

In the example shown at Figs. 5 and 6 the universal connecting member 7 is of hollow mushroom shape with five slots 7 formed therein and adapted to permit the entry of ball topped ends 8[a] on metal ends 8, secured to the rods 2. At the centre of the mushroom fitting I provide a spring action locking member 9 having grooves 9[a] cut out of, or formed in, the bottom and such that when the member 9 is pressed inwards and one of the grooves 9[a] brought into line with a ball head 8[a], the latter can be readily removed from the connecting member 7 but when the securing member 9 is in normal position it effectively prevents the disengagement of the rods 6 from the connecting member 7. Ground members suitable for rods with ball ends 8[a] are shown at Fig. 5[a].

In the example shown at Figs. 7 and 8 the universal connecting member 10 is of hollow pyramidal shape with five slots 10[a] formed therein and adapted to permit the entry of the ball topped ends 8[a] on metal ends 8 secured to the rods 2. At the centre of the rod connecting fitting 10 I provide a locking plate 12 having a portion thereof cut away at 12[a] to form an opening so that when said opening 12[a] is brought into line with a ball head 8[a] the latter can be readily inserted in or removed from the connecting member 10, but when the securing plate 12 is turned for example to the position shown in the inverted plan, Fig. 8, and locked at such, or an equivalent, position it effectively prevents the disengagement of the rods 6 from the connecting member 10.

At Figs. 9 and 10 the rods 2 are connected together by a ring 13 and for this purpose each rod has secured to it a ring engaging member 14 made at its end 14[a] so that it can move relatively to a securing pin 15, being secured to the rod thereby and also by a securing bolt 16. The arrangement is such that when the nut 16[a] of the bolt 16 is slackened the construction at the end 14[a] permits of the hooked end 14[b] moving away from the rod so as to permit of the said end being engaged with the ring and afterwards by means of the securing bolt 16 and nut 16[a] the ring engaging member can be brought close to the rod 2 with the hooked end 14[b] securely engaging the ring 13 as clearly shown at Fig. 10.

Fig. 11 shows a modification in which the ring engaging members 14 are replaced by ring engaging members 18 rigidly secured to the rods 2, the rods being held in engagement with the ring by spring members 19.

Another modification of the arrangement in which the rods 2 are connected with a securing ring 13 is shown at Fig. 12. In this case the rods 2, by means of metal loops 20, are connected with a ring 13 so that, normally, they remain connected therewith. This arrangement permits of all the rods being linked together for convenience in handling. One end of each horizontal rod 2 would be adapted so that it can be readily disconnected from the rings for the purpose of dismantling the structure whilst leaving all the rods linked together for convenience in handling. If desired the roof poles may be detachable at the apex, and the ground poles, or some of them, may also be detachable from their connecting fittings to permit of the poles being linked together in convenient groups. Some of the other rod connecting members shown, for example, Figs. 5 to 11, also permit of the rods remaining linked together in groups.

For rods connected with rings as described in Figs. 9 to 12 the ground peg would consist of a peg with a looped or ring top corresponding in construction to the

ring 13 or other equivalent and suitable ground pegs would be used.

At Fig. 1, I have shown in dotted lines how two adjacent rods 2^d of the middle portion of the icosahedron might be arranged to give a clear opening or door for entrance into the tent. The rods 2^d are shown secured to the base rod of the corresponding top triangle.

The cover forming the tent may be stretched over the structure herein described or it may, if desired, be stretched under the structure described, being connected therewith by spring or equivalent means if desired.

Having now fully described my invention what I claim as my invention and desire to secure by Letters Patent is:—

1. A framework for tents, marquees and the like comprising a plurality of rods connected together to form a rigid skeleton icosahedron structure minus five adjacent bottom triangles, thus leaving the top and middle portions to form the framework, the points of the triangles at the bottom of the middle portion resting directly or indirectly upon the ground.

2. A framework for tents, marquees and the like having in combination a plurality of rods of equal length and interchangeable jointing members for connecting the rods together, the rods being arranged in the form of a skeleton icosahedron minus five adjacent bottom triangles, thus leaving the top and middle portions to form the framework, the points of the triangles at the bottom of the middle portion resting directly or indirectly upon the ground.

3. A framework for tents, marquees and the like having in combination a plurality of rods connected together and arranged in the form of a skeleton icosahedron minus five adjacent bottom triangles, thus leaving the top and middle portions to form the framework, and ground pegs having projecting bars upon which rest the points of the triangles at the bottom of the middle portion of the icosahedron, the said points being secured to the pegs.

4. A framework for tents, marquees and the like having in combination a plurality of rods of equal length, and interchangeable jointing members for connecting the rods together and comprising a ring at each junction adapted to engage a hook upon each of the rods to be connected at that junction, the rods being arranged in the form of a skeleton icosahedron minus five adjacent bottom triangles, thus leaving the top and middle portions to form the framework, the points of the triangles at the bottom of the middle portion resting directly or indirectly upon the ground.

5. A framework for tents, marquees and the like having in combination a plurality of rods of equal length, interchangeable jointing members for connecting the rods together and comprising a ring at each junction adapted to engage a hook upon each of the rods to be connected at that junction, the rods being arranged in the form of a skeleton icosahedron minus five adjacent bottom triangles, thus leaving the top and middle portions to form the framework, and ground pegs having projecting bars upon which rest the points of the triangles at the bottom of the middle portion of the icosahedron, the said points being secured to the pegs.

6. A framework for tents, marquees and the like having in combination a plurality of rods connected together and arranged in the form of a skeleton icosahedron minus five adjacent bottom triangles, thus leaving the top and middle portions to form the framework and having three triangles of the middle portion modified to provide a rectangular doorway, the points of the triangles at the bottom of the middle portion resting directly or indirectly on the ground.

7. A framework for tents, marquees and the like having in combination a plurality of rods of equal length, interchangeable jointing members for connecting the rods together and comprising a ring at each junction adapted to engage a hook upon each of the rods to be connected at that junction, the rods being arranged in the form of a skeleton icosahedron minus five adjacent bottom triangles, thus leaving the top and middle portions to form the framework and having three triangles of the middle portion modified to provide a rectangular doorway, and ground pegs having projecting bars upon which rest the points of the triangles at the bottom of the middle portion of the icosahedron, the said points being secured to the pegs.

In testimony whereof I affix my signature in presence of two witnesses.

ARCHIBALD HENRY FINLAY.

Witnesses:

ANDREW HAMILTON,

HARRY WALTER ALLSOP.