

[54] **PORTABLE SHELTER**

[72] Inventor: **Charles W. Moss**, P.O. Box 34, Ann Arbor, Mich. 48107

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Related U.S. Application Data

[63] Continuation of Ser. No. 745,048, July 15, 1968, abandoned.

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[51] Int. Cl. **A45f 1/00**

[58] Field of Search **135/1 R, 2, 3 R, 3 E, 4 R**

[56] **References Cited**

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Primary Examiner—Peter M. Caun

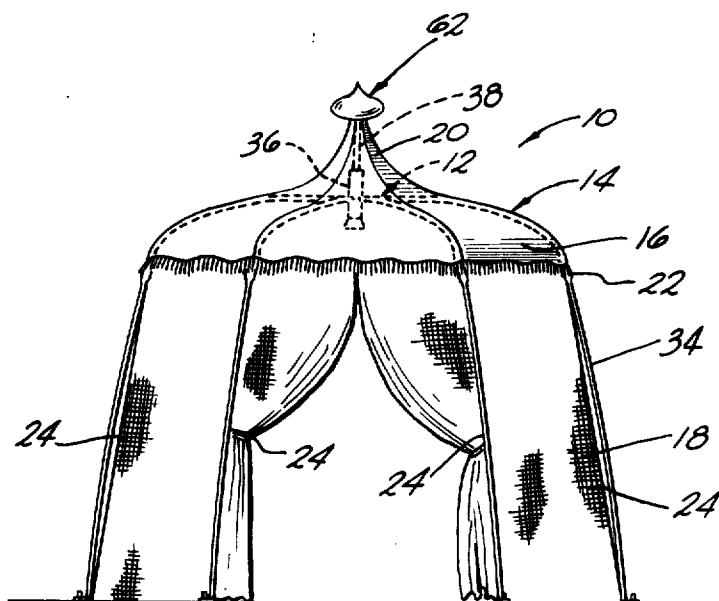
Attorney—Olsen and Stephenson

[57]

ABSTRACT

A portable screen house which has a flexible frame structure and a cover supported in tension thereon. The cover has screen material for its sides and an impervious dome-shape top portion having an upwardly projecting cone-shape peak at its center. A bulbous ornament element is supported above the cone-shaped peak by the frame structure.

14 Claims, 6 Drawing Figures



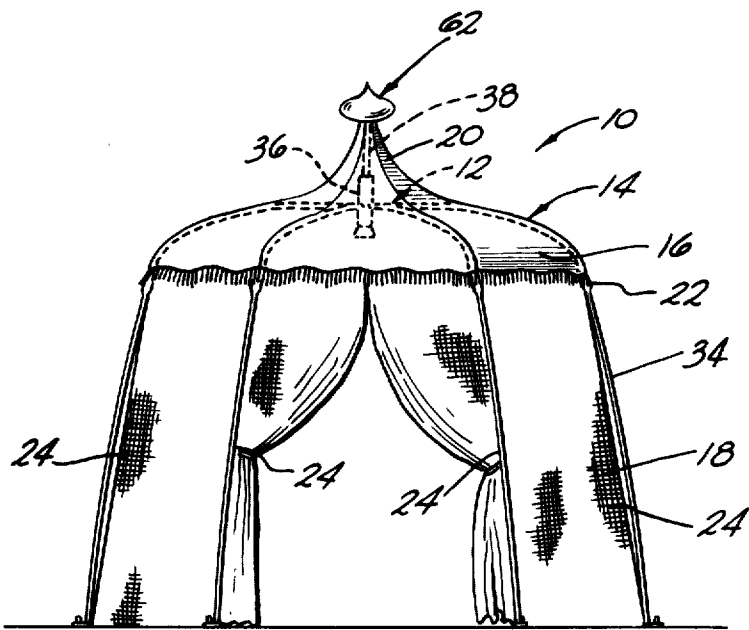


FIG. 1

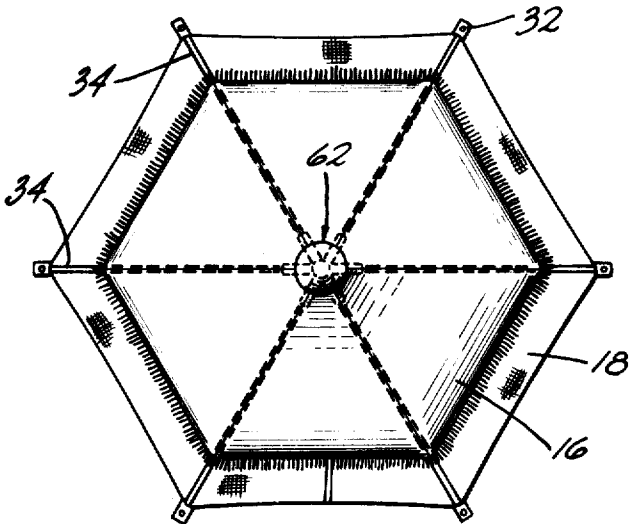


FIG. 2

INVENTOR
CHARLES W. MOSS

BY
Olsen and Stephenson
ATTORNEYS

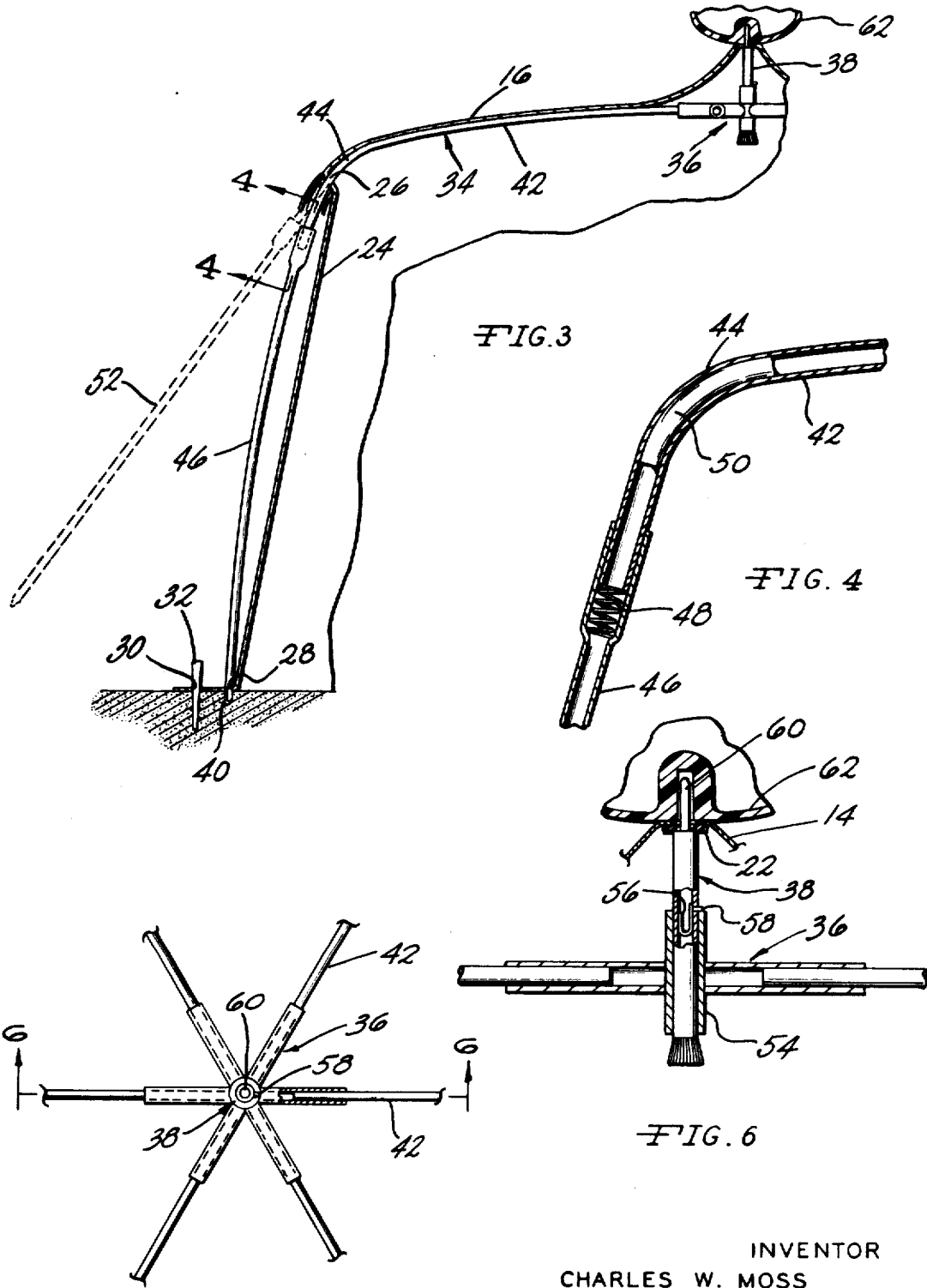


FIG. 5

FIG. 6

INVENTOR
CHARLES W. MOSS

BY

Olson and Stephenson
ATTORNEYS

PORTABLE SHELTER

This application is a continuation of Ser. No. 745,048, filed July 15, 1968, now abandoned.

BACKGROUND OF THE INVENTION

The present invention relates to portable shelters, and more particularly to self-sustaining screen houses which can be supported on hard surfaces or staked to the ground, and which are particularly adapted for camping, recreation, display purposes or the like.

It is well known to provide portable screen houses which may be erected for camping or recreational purposes, but such prior art structures have various shortcomings, such as excessive costs, excessive weight, difficulty in erecting, moving or disassembling, lack of attractive appearance, or the like.

SUMMARY OF THE INVENTION

The present invention has been developed to overcome these shortcomings of the prior art, and to provide a portable shelter which is characterized by its economical cost, its light weight, and the ease with which it can be erected, moved or disassembled, and further, which is characterized by the attractive appearance it has when erected.

According to one form of the present invention, a screen house is provided comprising a frame assembly and a cover of flexible material supported on the frame assembly. The frame assembly includes a central hub member, a plurality of bowed leg members radiating from the hub member and terminating at their outer extremities in lower ends adapted to be carried on a supporting surface, and a rod member extending axially upward from the hub member. The cover has a plurality of attachment means secured to the lower ends of the leg members and a dome-shaped upper portion covering the upper portions of the leg members and an axially upwardly projecting conical portion overlying the hub member. The rod member engages and supports the tip of the cone portion, and the leg members are bowed in a state of compression by the cover so as to tension the dome-shaped upper portion and to urge the hub member and its rod member upwardly to tension the cone portion. The side walls of the cover which extend downwardly from the dome-shaped upper portion are preferably made of a screen-like material.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front elevational view of a portable shelter embodying the present invention;

FIG. 2 is a top plan view of the embodiment illustrated in FIG. 1;

FIG. 3 is an enlarged fragmentary section taken through the center of the portable shelter, and showing one of the leg members in phantom in its unstressed position and in solid lines in its stressed position when connected to the cover;

FIG. 4 is a fragmentary enlarged section taken on the line 4—4 of FIG. 3;

FIG. 5 is a fragmentary top plan view of the frame assembly with a portion of the hub member in section; and

FIG. 6 is a fragmentary section taken on the line 6—6 of FIG. 5, showing a fragment of the cover mounted on the top of the rod member and showing a fragment of the bulbous ornamental member seated on the top of the rod member.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Before explaining the present invention in detail, it is to be understood that the invention is not limited to its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also, it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation.

Referring now to the drawings, the invention will be described in greater detail. The screen house or portable shelter 10 includes a frame assembly 12 and a cover 14. The cover is formed of a flexible material and has a top or dome-shaped upper portion formed of a suitable canvass or sailcloth and side wall or panel portions 18 formed of a suitable screen material, such as nylon netting. The cloth forming the top portion 16 is cut in segments so that when they are sewed together they will define the central cone or conical portion 20, the upper tip of which has a grommet 22 secured thereto. Also formed around the periphery of the top portion 16 is a decorative fringe 22. Secured to the top portion 16 are a plurality of strips or strip portions 24, each of which has at its upper end an aperture 26 and at its lower end an aperture 28. As an optional feature, the strips 24 can have a second aperture 30 for use by a stake 32, as indicated in FIG. 3, for the purpose of staking the portable shelter 10 to the ground. The side walls or screen panel portions 18 span the spaces between the strip portions 24 and are secured thereto. Access to the interior of the portable shelter 10 is gained by a passageway formed through one of the panel portions defined by the screen material 18, as shown in FIG. 1.

The frame assembly 12 comprises a plurality of leg members 34, a hub member 36, and a rod member 38, extending axially upwardly from the hub member 36. Each leg member 34 has its radially inner end extending into the hub member 36, and radiates therefrom, first in a generally horizontal direction and then generally downwardly in an upright position to a terminal end which contains a pin 40 extending through the aperture 28 in the lower end of the associated strip 24.

Each leg member 34 preferably is formed with a horizontal portion 42 which is downwardly turned at 44 adjacent to its outer extremity, and a second portion 46 which defines a generally upright portion forming a continuation of the downwardly turned outer extremity. The portions 42 and 46 are telescoped together, as is best shown in FIG. 4, and the telescoped ends are normally urged apart by a coil spring 48. Preferably, the portions 42 and 46 are formed from aluminum tubing, and the downwardly turned outer extremity 44 of the portion 42 contains a rigidifying element to prevent

undue stresses or bending from being imposed or occurring in the section having the smallest radius of the downwardly turned outer extremity 44.

As can be seen best in FIG. 3, each leg member 34 is designed so that it can be passed through the upper aperture 26 of the strip 24, and then bowed from its unstressed position shown in broken lines at 52 to a stressed position shown in solid lines with the tip 40 inserted through the aperture 28 at the lower end of the strip portion 24. When the leg members 34 are all inserted in the cover in this manner, each leg member 34 will be bowed causing an upward thrust of the horizontal portions 42 on the top or dome portion of the cover 14. Thus, the stressed condition of the leg members 34 and hub member 36 will cooperate to distend all of the cover, with the exception of the upper conical portion 20. In this respect it will be recognized that the coil springs 48 cooperate with the leg members in urging the horizontal portions 42 upwardly, and the rigidifying element 50 will prevent all of the bowing action to occur in that joint so as to provide a more uniform and equal distension of the cover. The coil springs 48 also facilitate assembling and disassembling of the frame assembly with the cover.

The rod member 38 is provided for tensioning and elevating the conical portion 20 of the cover 14. After the remainder of the frame assembly and cover have been erected, the rod member 38 can be inserted through the tube 54 which forms the axis of the hub member 36. The rod member 38 is hollow and contains an attached U-shape spring member 56 which has a locking pin 58 secured thereon and extending through a small hole in the side wall of the rod member 38. The pin 58 can be depressed to permit passing of the rod member 38 axially upwardly through the tube 54 and when the rod member 38 has reached the position shown in FIG. 6, the spring 56 will urge the pin 58 through the opening into a locking position on the upper side of the tube 54. The rod member 38 also includes an elongated pin 60 which forms an extension on the upper end thereof. This pin 60 is adapted to pass through the grommet 22 in the top of the cover 14 so that the tip of the conical portion 20, which includes grommet 22, can seat on the elevated rod member 38 so as to tension the top portion of the cover 14. The pin 60 can also be made sufficiently long so that an ornamental bulbous element 62 can be mounted thereon, in a manner illustrated in FIG. 6.

From the foregoing description, it will be apparent that a relatively simple screen house has been provided which can be assembled quickly, and when assembled, an extremely attractive shelter is provided. The component parts are light in weight and can be carried as a relatively small package. No particular skills are required for erecting or disassembling the shelter.

It is claimed:

1. A portable shelter comprising a frame assembly and a cover of flexible material supported on said frame assembly, said frame assembly including a central hub member, a plurality of inarticulate leg members rigidly mounted as cantilevers in said hub member to radiate horizontally therefrom and a rod member extending axially upward from said hub member, said leg members being arranged in pairs with the leg members of each pair being diametrically opposed to one

another and each pair of mounted leg members together with the central hub member being bowed into a stressed inverted generally U-shape, said cover having an apex portion positioned above said hub member and a plurality of attachment means at locations remote from said hub member for securing the cover to said leg members to retain the latter in their bowed stressed positions, said apex portion projecting upwardly out of the surface of the remainder of the cover and defining an upwardly projecting central cone the tip of which is seated on the upper end of said rod member, said rod member being held in a state of compression between said tip and said hub member so as to distend said apex portion, and said leg members exerting outward thrust against the remainder of said cover so as to distend such remainder.

2. A portable shelter according to claim 1, wherein said rod member is axially movable in said hub member to tension said cover between its tip and said attachment means when said rod member is elevated to an upper position, and locking means are provided between said rod member and said hub member to lock said rod member in said upper position.

3. A portable shelter according to claim 1, wherein said rod member has a pin projecting upward from its upper end, and the tip of said cover contains a grommet positioned on said pin.

4. A portable shelter according to claim 3, wherein said pin supports an ornamental bulbous element above said cover.

5. A portable shelter according to claim 1, wherein each of said leg members includes a generally horizontal portion turned downwardly at its outer extremity, and a generally upright portion forming a continuation of said horizontal portion at said downwardly turned outer extremity.

6. A portable shelter according to claim 5, wherein said cover has an imperforate portion overlying the generally horizontal portions of said leg members, and a strip portion adjacent each leg member extending from the imperforate portion downwardly to a point of attachment to the upright portion of the associated leg member.

7. A portable shelter according to claim 6, wherein said cover has screen-like material spanning adjacent ones of the strip portions.

8. A portable shelter according to claim 6, wherein said strip portions have apertures in their lower ends, and the leg members have pins extending from their lower ends through the apertures of the associated strips.

9. A portable shelter according to claim 8, wherein said strip portions have apertures in their upper ends, and the leg member associated with each strip portion extends through the aperture in the upper end thereof so that the upright portion of the leg member is on the external side of the strip portion and the horizontal portion of the leg member is beneath said imperforate portion.

10. A portable shelter according to claim 9, wherein each of said leg members is bowed in a state of compression between the lower end of its associated strip portion and said hub member to tension the cover and so that said rod member exerts an upward thrust on the apex portion of the cover.

11. A portable shelter according to claim 10, wherein the horizontal and upright portions of each leg member are tubular and are telescoped together.

12. A portable shelter according to claim 11, wherein spring means are positioned between said horizontal and upright portions urging them axially apart.

13. A portable shelter according to claim 10, wherein the horizontal and upright portions of each leg member are tubular, and a rigidifying element is positioned in each said horizontal portion in the downwardly turned outer extremity thereof.

14. A portable shelter comprising a frame assembly and a cover of flexible material supported on said frame assembly, said frame assembly including a central hub member, a plurality of inarticulate bowed leg members connected as cantilevers to said hub member

to radiate therefrom and terminating at their outer extremities in lower ends adapted to be carried on a supporting surface, and a rod member extending axially upward from said hub member, said cover having a plurality of attachment means secured to the lower ends of said leg members and a dome-shaped upper portion covering the upper portions of said leg members and a cone portion projecting axially out of the surface of the dome-shaped upper portion and overlying said hub member, said rod member engaging the tip of the cone portion, pairs of generally diametrically opposed leg members together with the interconnected hub member being bowed into a stressed inverted U-shape assembly so as to tension said dome-shaped upper portion and to urge the hub member and its rod member upwardly to tension said cone portion.

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