

[54] PORTABLE SHELTER

[76] Inventor: Calvin P. Glade, 903 N. Waterview,
Richardson, Tex. 75080

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[52] U.S. Cl. 135/4 R, 135/1 R, 52/2,
52/71

[51] Int. Cl. E04b 1/344

[58] Field of Search 52/2, 3, 4, 5, 71,
52/70, 80, 81; 135/1 R, 3 R, 4 R; 88/3 B

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Primary Examiner—Henry C. Sutherland

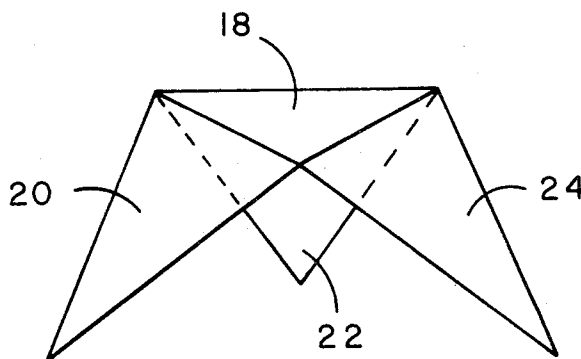
Assistant Examiner—Leslie A. Braun

Attorney—Henry K. Woodward

[57] ABSTRACT

A portable shelter comprises a central triangular section and three exterior triangular sections with each of the exterior sections being flexibly attached to respective sides of the central section whereby a variety of shelter configurations may be achieved.

6 Claims, 14 Drawing Figures



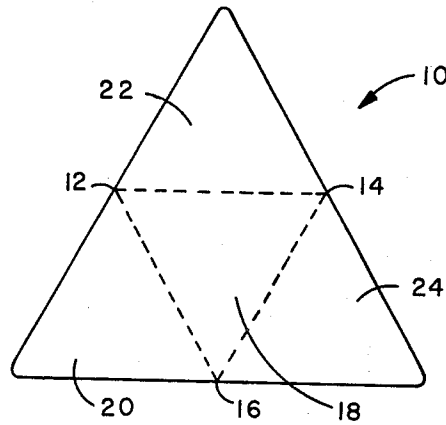


FIG. 1

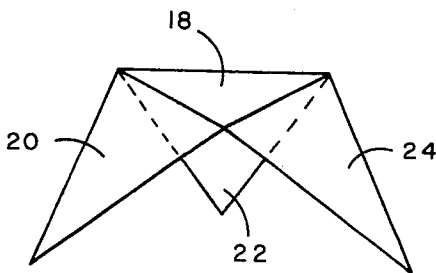


FIG. 2

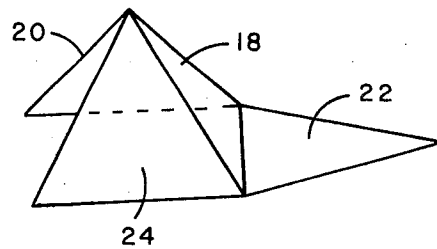


FIG. 3

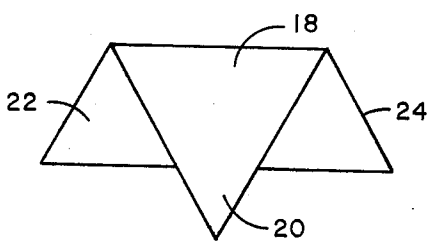


FIG. 4

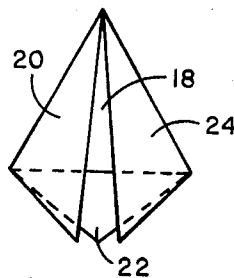


FIG. 5

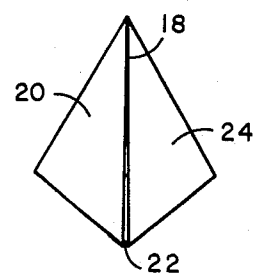


FIG. 6

INVENTOR
CALVIN P. GLADE

BY *H. B. Woodward*
ATTORNEY

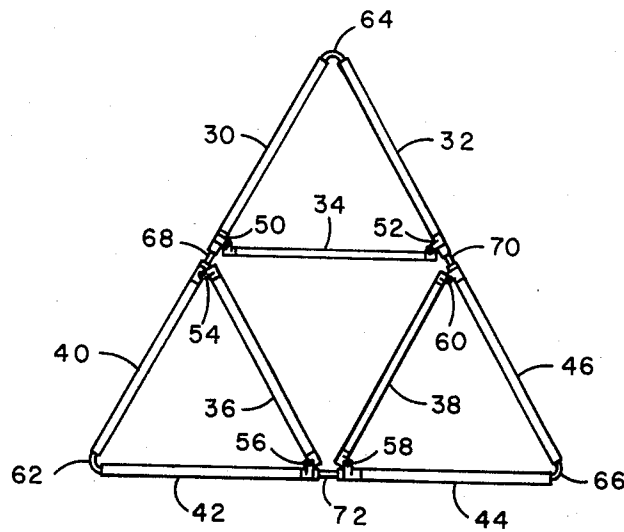


FIG. 7

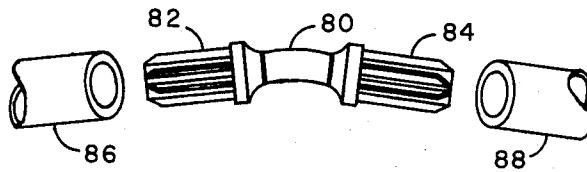


FIG. 8

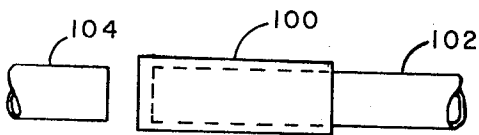


FIG. 10

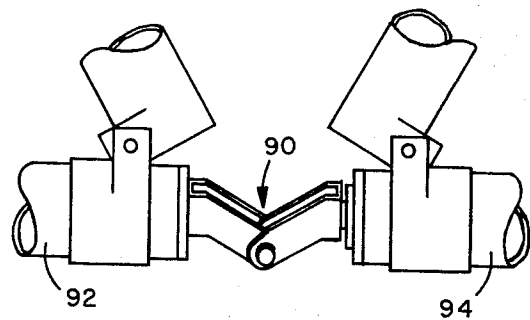


FIG. 9

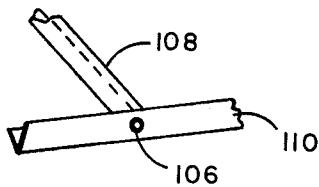


FIG. 11

INVENTOR
CALVIN P. GLADE

BY *J. F. Woodward*
ATTORNEY

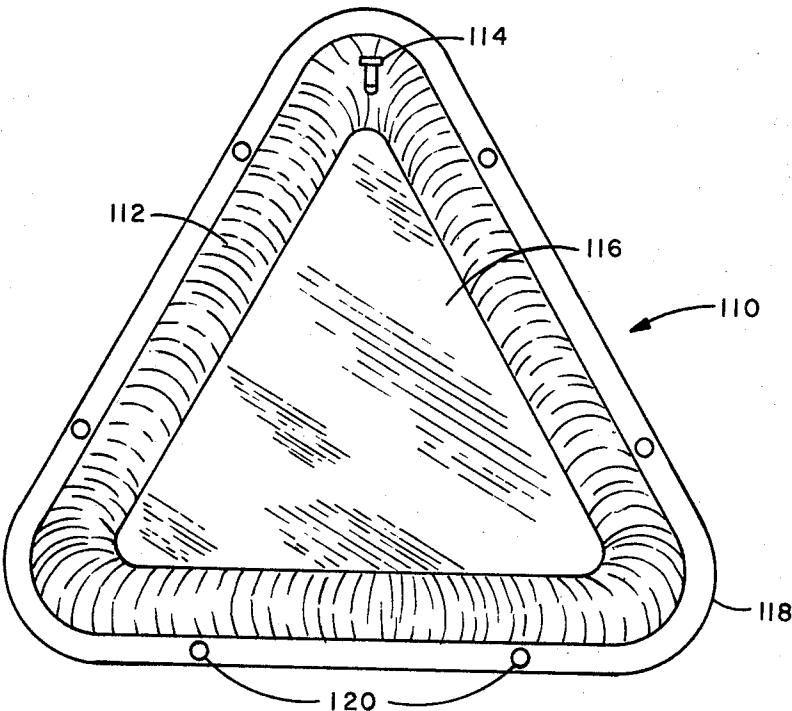


FIG. 13

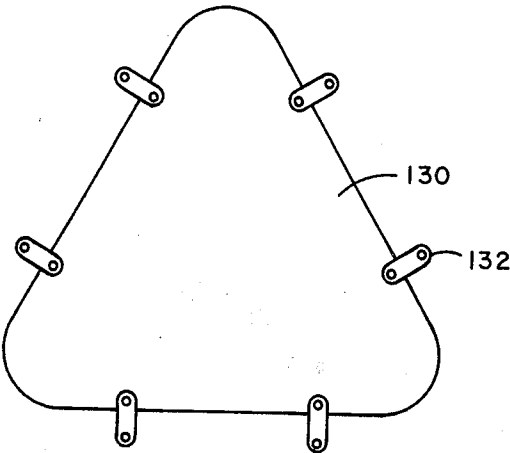


FIG. 14

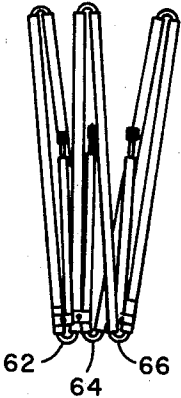


FIG. 12

INVENTOR
CALVIN P. GLADE
BY *H. F. Woodward*
ATTORNEY

PORTABLE SHELTER

BACKGROUND OF THE INVENTION

This invention relates generally to portable shelters, are more particularly to foldable portable shelters which are easily transported and erected.

Conventional portable shelters for outdoor use typically comprise a tent structure requiring the use of stakes and guys for support. Such structures are normally bulky and time consuming to erect.

More recently, portable, self-supporting shelters have been devised which are less time consuming in erecting. Such shelters are exemplified by the collapsible teepee shelter disclosed in U.S. Pat. No. 3,176,698 to Warner, and the portable shelter disclosed in U.S. Pat. No. 3,016,115 to Harrison et al. The Harrison et al shelter is a folded plane, each of the folds being in a reverse direction to those on either side. As described by Harrison et al., the shelter comprises three or more dormer-like sections, each of the dormer-like sections being formed of two triangular shaped plates.

While these self-supporting structures are more easily erected than tents, they do require a considerable number of parts and are relatively inflexible in use as to adaptability to various configurations.

SUMMARY OF THE INVENTION

An object of the present invention is an improved portable shelter.

Another object of the invention is an improved portable shelter which is self-supporting and easily transported and erected.

Still another object of the invention is a portable shelter which is adaptable to different configurations.

Features of the invention include a generally triangularly shaped, self-supporting cover means, said cover means being foldable along three lines defined by respective points on the sides of said cover means, thereby defining a central triangular section and three triangular sections each abutting a side of said central triangular section.

In one preferred embodiment the triangular cover means comprises a flexible cover and a rigid frame which accommodates the cover. Advantageously, legs of said frame may be collapsible thereby facilitating storage and transporting of the shelter.

In another preferred embodiment each of the triangular sections comprises an inflatable portion which when inflated is self-supporting and which may be deflated for transporting and storage. Advantageously, each triangular section may be detachable and function, also, as a float thereby being especially useful on beach outings and the like.

In another preferred embodiment each triangular section may comprise a rigid plate or sheet of corrugated board or the like.

These and other objects and features of the invention will be readily apparent from the following description and appended claims when taken with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a portable shelter in accordance with the present invention;

FIGS. 2-6 illustrate the adaptability of a portable shelter in accordance with the invention;

FIG. 7 is a plan view of a rigid frame support in accordance with one embodiment of the invention;

FIGS. 8 and 9 are plan views of universal motion joints for use with said frame support of FIG. 7;

FIGS. 10 and 11 are plan views of connector means for separable frame members in accordance with the invention;

FIG. 12 is a plan view illustrating the collapsible nature of said rigid frame support of FIG. 7 for facilitating transportation and storage of said shelter;

FIG. 13 is a plan view of an inflatable triangular section in accordance with another embodiment of the invention; and

FIG. 14 is a plan view of a triangular section in accordance with another embodiment of the invention.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

Referring now to the drawings, the portable shelter in accordance with the invention is illustrated as a self-supporting cover means, and the adaptability thereof is further illustrated in several perspective views of the deployed portable shelter. Several alternative implementations of the shelter are shown for illustration of the shelter's versatility.

FIG. 1 is a plan view of a portable shelter in accordance with the invention and comprises a triangularly shaped, self-supporting cover means shown generally at 10. Cover means 10 is foldable along three lines defined by respective points 12, 14, and 16 on the sides of cover 10, thereby defining a central triangular section 18 and three triangular sections 20, 22, and 24 each abutting a side of said central triangular section.

As will be further described below, each triangular section may comprise an inflatable portion with the portions forming an integral body, or with each portion separable and with means for joining each of the inflatable portions to form the cover means shown in FIG. 1, or alternatively each triangular section may comprise a rigid sheet member. Further, said cover means may comprise a flexible cover and a rigid support frame. However, before discussion of these alternative embodiments, the versatility of the portable shelter will be illustrated with reference to FIGS. 2-6.

FIG. 2 illustrates the portable shelter with central section 18 functioning as the roof and sections 20, 22, and 24 providing support for the roof and side protection with vertices of the side sections providing support points. Considering the need for portability, each side of the triangular sections is preferably 5 to 8 feet in length. However, the sides may be longer, thereby providing larger shelter area, but the portability thereof is diminished slightly. Further, it will be appreciated that all sides of the triangular sections need not be of the same length; it may be desirable to have some sections larger than other sections. For example, a larger roof is provided if the central triangular section is larger than the other sections. For purposes of illustration, though, all sides of the sections are shown equal in length.

FIG. 3 illustrates a configuration suitable as a wind-break at the beach, for example, when strong or gusty winds are blowing. Central section 18 is positioned to face the wind with sections 20 and 24 providing side protection. Section 22 is folded outwardly towards the wind, and sand or the like may be placed on section 22 to provide foundation support.

FIG. 4 illustrates a configuration suitable as a sun shade and/or wind-break with lighter breezes blowing.

In this configuration, sections 18, 22, and 24 provide a generally plane surface facing the wind or sun, and section 20 functions as a support for this plane surface.

FIGS. 5 and 6 illustrate a teepee type structure or cabana with section 22 functioning as a floor surface, and sections 18, 20 and 24 providing the side walls. When privacy for changing clothes is desired, the cabana can be closed as shown in FIG. 6.

With the adaptability of the portable shelter in mind, several versatile embodiments will be described. Referring to FIG. 7, a suitable frame structure is illustrated for accommodating a flexible cover in the shape of cover means 10 of FIG. 1. Rigid members 30, 32, and 34 provide the support for section 22 of FIG. 1; members 34, 36, and 38 provide the support for section 18; members 36, 40, and 42 provide the support for section 20; and members 38, 44, and 46 provide the support for section 24. Each of the members may comprise a light-weight metal tubing or angle bar. Hinge connectors 50 and 52 are provided at either end of member 34 for joining member 34 to members 30 and 32, respectively. Similarly, hinges 54 and 56 are provided at either end of member 36, and hinges 58 and 60 are provided at either end of member 38.

Flexible connections 62, 64, and 66 connect members 40 and 42, members 30 and 32, and members 44 and 46, respectively. Additionally, to facilitate the various configurations illustrated in FIGS. 2-6, universal motion connectors 68, 70, and 72 are provided between members 30 and 40, members 32 and 46, and members 42 and 44, respectively.

FIGS. 8 and 9 illustrate two connectors which allow the universal motion requisite for connectors 68, 70, and 72. In FIG. 8, the connector comprises a flexible portion 80 with male connector portions 82 and 84 at either end and insertable into the ends of tube members 86 and 88, respectively. Flexible portion 80, which may be formed from rubber, plastic, or the like, permits variable positioning of the connected members.

In FIG. 9, the connector comprises a hinge means shown generally at 90 which is rotatably fastened to the ends of tube members 92 and 94 by suitable receptacle means. The rotatable positioning of hinge 90 with respect to tube members 92 and 94 affords variable positions of the connected members.

Advantageously, in facilitating the transporting and storage of the shelter, each of members 34, 36, and 38 is preferably two hinged or separable pieces. In a tube structure, this may be accomplished by providing a cylindrical coupler 100 slideably mounted to the end of one tubular piece 102 and which mates with the end of tubular piece 104, as shown in FIG. 10. When the two pieces 102 and 104 are coupled, they form one of the members 34, 36 or 38 which define the central cover section. When the two pieces are decoupled, folding of the shelter into a compact package is facilitated.

FIG. 11 is an embodiment of the two separate pieces when angle bars are used for the support members. In this embodiment, the connector means comprising hinge 106 connects members 108 and 110 and permits the two members to collapse for transporting.

FIG. 12 shows the rigid frame structure of FIG. 7 in a collapsed position for transporting or storage. In this configuration, the shelter is easily carried as a compact package by one person. It will be appreciated that the flexible cloth or plastic covering may be included in the compact package as the covering may be permanently

affixed to the members 30, 32, 40, 42, 44 and 46 by sewing or the like. A detachable cover also may be employed through the use of snaps and the like. The detachable cover facilitates cleaning and replacement of covering, but the permanently affixed cover facilitates ease of erection of the portable shelter.

FIG. 13 is another embodiment of the invention, wherein each triangular section comprises an inflatable member 110. Preferably made of a suitable plastic, member 110 includes an inflatable portion 112 formed near the periphery of the member, with valve 114 provided for inflating portion 112. Inner portion 116 is a flexible sheet which forms the major portion of the member. Alternatively, portion 116 may be inflatable, also, and in a preferred embodiment has a quilted construction. The three triangular sections may comprise an integral structure or each section may be separable, as shown. Outer flange portion 118 includes alternating male and female snap members 120 for joining triangular member 110 with the other members of the portable shelter.

Advantageously, the inflatable member may be disconnected from the other sections of the portable shelter and used as a water float.

FIG. 14 is another embodiment of the invention wherein each triangular section comprises a rigid sheet member 130 of corrugated board, plastic or the like, suitably treated for outdoor use. Straps 132 are provided with snaps on either end for snapping the triangular sections together.

A portable shelter in accordance with this invention is simple, versatile, and easily assembled and transported. While the invention has been described with reference to specific embodiments, the description is illustrative and is not to be construed as limiting the invention. Various modifications and changes may occur to those skilled in the art without departing from the spirit and scope of the invention.

I claim

1. A self-supported portable beach shelter adaptable to different configurations comprising:

a central generally triangularly shaped roof section; first, second, and third generally triangularly shaped self-supporting side sections each adjacent to a side of said roof section;

said sections comprising a flexible cover and a frame which accommodates said cover;

said frame including nine rigid members with each member defining a side of a triangular section and with each of said members which define said roof section including two separable portions and connector means for connecting said two portions;

means attaching said cover to members of each of said first, second, and third sections not common to said roof section;

hinge means attaching adjacent vertices of each of said first, second, and third sections whereby said sections may assume a variety of shelter configurations, and

first, second, and third support points defined by vertices of each of said first, second, and third sections, respectively, whereby said shelter is self-supportable on said support points.

2. A portable shelter as defined by claim 1 wherein said separable portions are tubular and said connector means comprises a cylindrical sleeve.

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3. A portable shelter as defined by claim 1 wherein said separable members are angle bar members and said connector means comprises a hinge member.

4. A portable shelter as defined by claim 1 wherein said hinge means at the common vertices of said first, second, and third triangular section permit universal movement of said rigid members.

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5. A portable shelter as defined by claim 4 wherein said hinge means at the vertices comprise a flexible element.

6. A portable shelter as defined by claim 5 wherein said hinge means at the vertices comprise a hinge member which is rotatably fastened at said vertices.

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