United States Patent

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[54] COLLAPSIBLE SHELTER STRUCTURE

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[52] **U.S. Cl.** **52/70,** 52/81

[51] **Int. Cl.** **E04b 1/344,** E04b 7/10

[58] **Field of Search** 52/81, 80, 70, 71, 64

[56] **References Cited**

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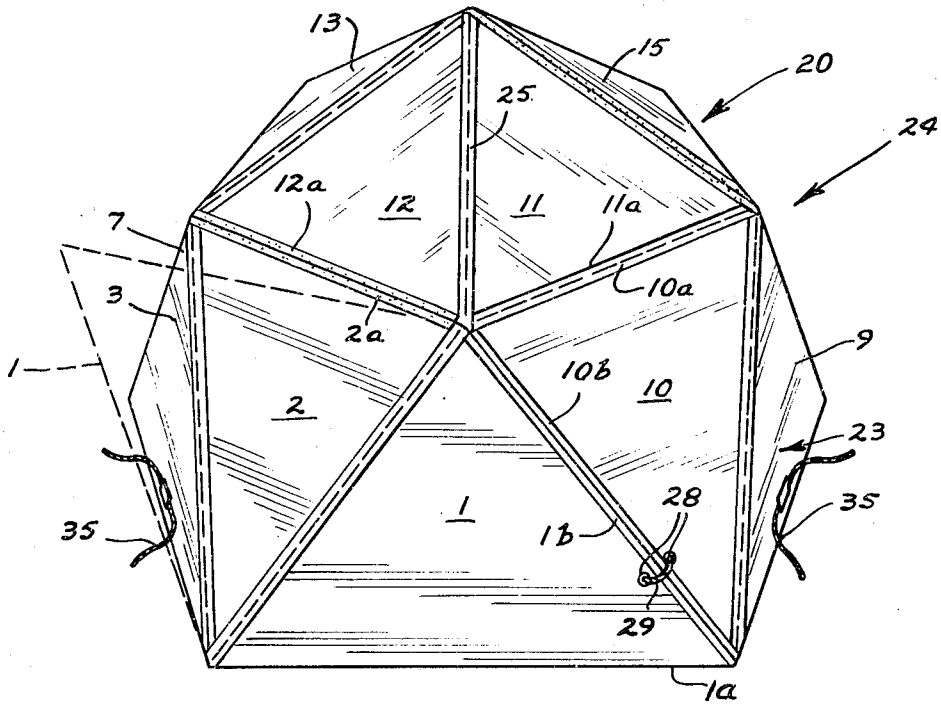
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[57] **ABSTRACT**

A collapsible shelter comprising a polyhedron in form and being formed of a unitary strip of substantially rigid sheet material, said strip comprising hinged triangular portions, said portions being so disposed as to have said strip arranged to form a sidewall and a top cover of said shelter and means releasably securing the abutting free edges of said portions.

2 Claims, 2 Drawing Figures



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SHEET 1 OF 2

FIG. 1

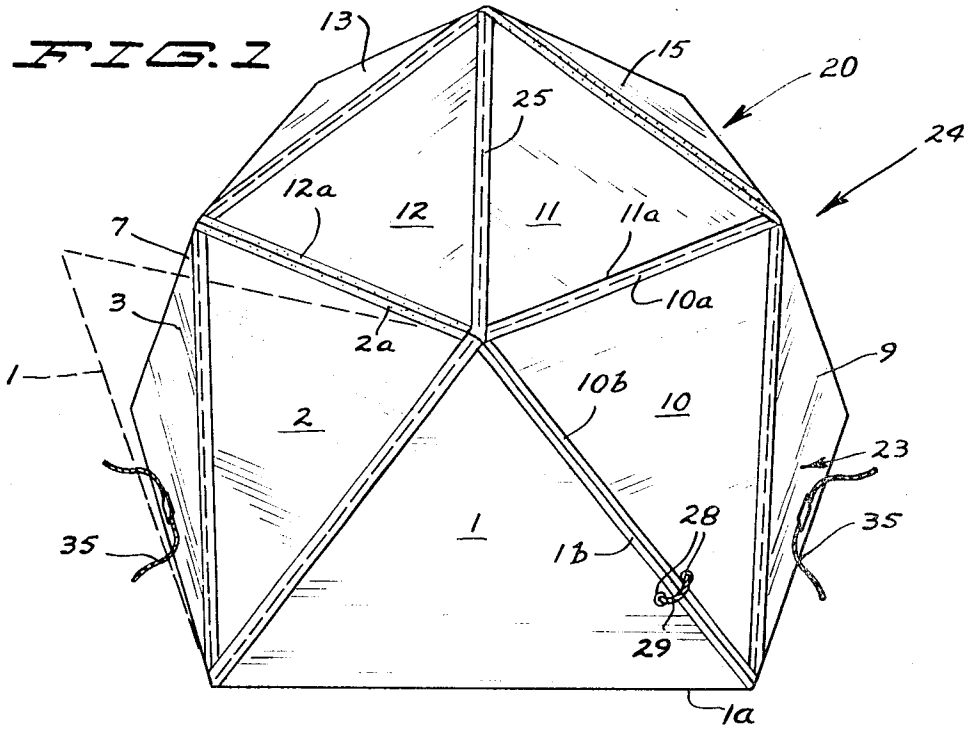
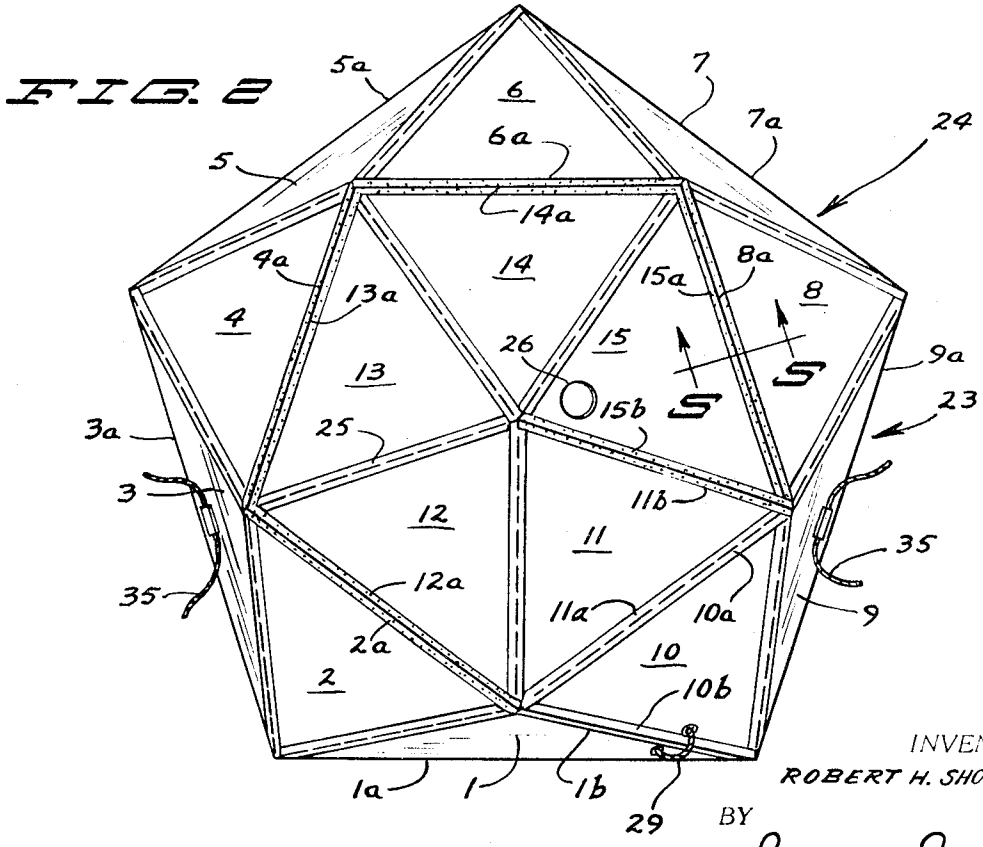


FIG. 2



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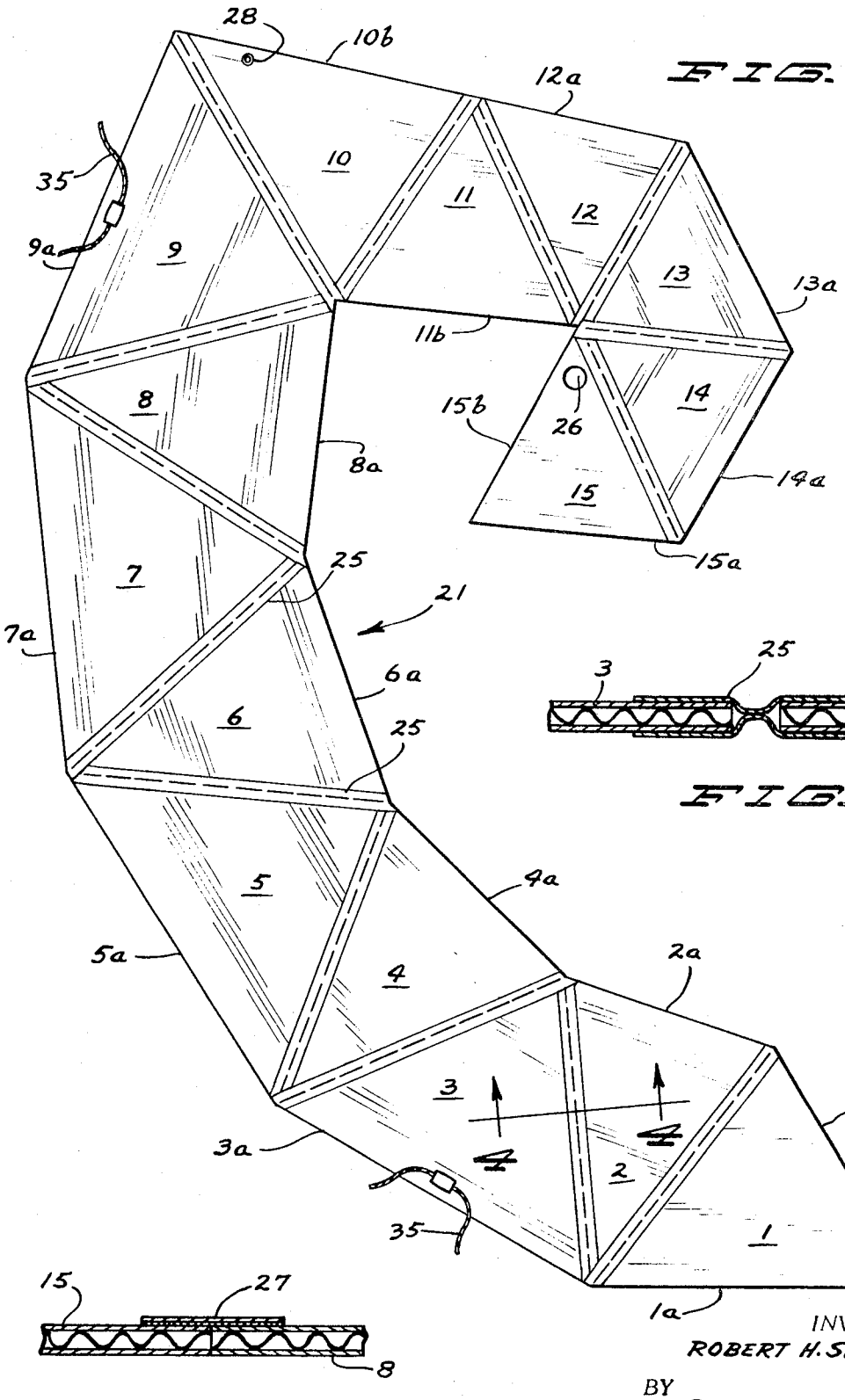


FIG. 3

FIG. 4

FIG. 5

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COLLAPSIBLE SHELTER STRUCTURE

BACKGROUND AND SUMMARY OF THE INVENTION

This invention relates to a collapsible shelter comprising a polyhedron in form in operative position and formed of a unitary strip having hinged portions cooperating with one another to form a unitary shelter and foldable to be superposed upon one another in compact form for transport and for storage.

Said shelter is readily formed of relatively thin, substantially rigid sheet material having good insulating and weather-resisting characteristics and being adapted to be collapsed in such compact form as to be readily handled and moved about and is readily erected.

It is an object of this invention therefore to provide a shelter polyhedron in form comprising a unitary folding strip of material.

It is another object of this invention to provide a shelter comprised of a unitary strip of material formed of hinged portions, said hinged portions being adapted to be disposed with respect to one another to form a polyhedron figure.

More specifically it is an object of this invention to provide a shelter comprising a foldable unitary strip of material formed of hinged portions, said portions respectively being triangular in form arranged to be disposed with respect to one another to form a completely enclosed shelter comprising a polyhedronlike figure. These and other objects and advantages of the invention will be set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which

FIGS. 1 and 2 are perspective views respectively taken substantially in front elevation and top plan;

FIG. 3 is a view in plan showing the form of the strip from which the structure herein is formed;

FIG. 4 is a view in horizontal section on a magnified scale taken on line 4—4 of FIG. 3 as indicated; and

FIG. 5 is a view in section similar to FIG. 4 showing a detail on a magnified scale.

DESCRIPTION OF A PREFERRED EMBODIMENT

Referring to the drawings the structure herein comprising a collapsible shelter is indicated generally by the reference numeral **20**.

The basic portion of said structure comprises an elongated strip **21** formed of substantially rigid sheet material having good insulation and weather-resistant characteristics. Various types of insulating board or insulating sheet material suitable for purposes herein are available on the market. If desired, it is conventional within the art to apply a weather-resistant spray such as of liquid plastic material to the surface of said strip.

Said strip is shown comprised of portions **1–15** triangular in form. The portions **1–10** form the sidewall portions of said shelter and these are shown in the present embodiment in the form of isosceles triangles. It will be noted that the alternate portions of **1–10** have inverted base portions with respect to one another. The base edge portions **2***a*, **4***a*, **6***a* and **8***a* form the supporting edge portions for the adjacent and abutting edges **12***a*–**15***a* of the portions forming the top cover. The base portion **10***a* is hingedly secured to the base portion **11***a*.

The base edge portions **1***a*, **3***a*, **7***a* and **9***a* are of greater length than are said base edge portions **2***a*, **4***a*, **6***a*, **8***a* and **10***a*, thus permitting the portions of said strip forming the enclosing sidewall **23** of said shelter to be outwardly inclined downwardly to form an increased base area. In positioning said alternate portions **2, 4, 6, 8** and **10**, the base portion **10***a* is brought around to an upward position to form support for the edge of the base portion **11***a* which is hinged thereto and which forms the base of the upper cover portion **11**.

The portions **11–15** are respectively in the form of equilateral triangles as here shown to form a uniform or symmetrical top cover **24**.

An air vent **26** is shown formed through the portion **15**. Said air vent may have a protective cover disposed to extend thereabove.

With reference to FIG. **1**, the adjacent edges of the portions **1–15** are as shown hingedly connected by connective members or hinges **25** which are here indicated as being formed of suitable weather-resistant self-adhesive tape overlying the adjacent inner and outer surface edge portions of the adjacent portions as illustrated in FIG. **4**. Suitable self-adhesive weather-resistant tape is available on the market.

With the shelter assembled for use, the adjacent abutting edge portions **2***a*–**12***a*, **4***a*–**13***a*, **6***a*–**14***a*, **8***a*–**15***a* and **11***b*–**15***b* will be suitably secured by releasable securing means **27** here shown in one convenient form as removable and disposable weather-resistant adhesive tape of sufficient width to overly adjacent free edge portions, as indicated in FIG. **5**.

The hinged portion **1** will be used as in entrance to the shelter and will have its edge portion **1***b* suitably latched to the adjacent edge portion **10***b* as by the use of securing means **29** here shown simply as a piece of rope or its equivalent disposed through the apertures **28** and having its free ends secured together.

This shelter is assembled operative condition may be variously anchored to the ground or to any suitable supporting surface such as by having a suitable number of tabs **35** secured to said shelter as illustrated with ties extending therefrom to readily anchor said shelter to ground anchored stakes.

OPERATION

With reference to FIG. **3**, the structure herein is shown in blank strip form which may be readily placed in compact arrangement by folding the portion **1** over the portion **2**, the portion **2** will overlie portion **3**, portion **3** will overlie portion **4** and thus the folding process will continue for the remainder of the strip with the end result that said strip is in compact form of relatively small thickness and of a size in plan no larger then portion **1**. In this form said strip may be readily stored or transported.

To arrange said strip to form the assembled shelter, the strip is unfolded as illustrated in FIG. **3** and with the portion **1** forming one end, the portion **10** is brought around in a circular path and in passing through said circular path the base edge **10***b* of said portion **10** will be brought around to be disposed in a substantially vertical position to have abutting engagement with edge portion **1***b*. Thus it is seen the portions **11–15** will be elevated to form an upper layer of portions whereby the edges **12***a*–**15** are supported in abutting engagement by the edges **2***a*, **4***a*, **6***a* and **8***a* therebelow. The free edge **15***b* will abut the free edge **11***b* and the free edge **15***a* will abut the base edge **8***a*. The free abutting edges will be suitably secured as previously described. Thus there is formed a top cover **24** for the shelter in supporting engagement with respect to the enclosing sidewall **23** to form a symmetrical shelter formed substantially as a polyhedron figure. It will be understood that various means may be provided for anchoring the shelter other than the simple means here described.

No dimensions have been given herein as size is a matter of choice. The dimensions of portions may readily be determined in view of a desired overall size.

Thus it is seen that the invention herein comprises a compact readily assembled and readily collapsed shelter which provides cover from seasonal weather conditions and as assembled forms a shelter of substantial structural strength.

It will of course be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of the invention herein which, generally stated, consists in a device capable of carrying out the objects set forth above, in the parts and combination of parts disclosed.

What is claimed is:

1. A portable collapsible shelter structure comprising

an integral elongated strip consisting of hingedly connected triangular portions,

some of said portions being arranged and adapted to be disposed to form an upwardly inclined enclosing sidewall,

said portions forming said sidewall being in the form of isosceles triangles having hinged adjacent sides and the alternate of said portions having inverted bases with respect to one another,

the remainder of said portions being arranged and adapted to be disposed to form a top cover and being in the form of equilateral triangles with each side thereof having a length equal to the length of a base of said isosceles triangular portions,

The underlying sides of said portions forming said top cover being supported by abutting engagement with the adjacent supporting base portions of said portions forming said sidewall, and

means releasably securing said abutting side and base portions.

2. The structure set forth in claim 1, wherein

said sidewall comprises 10 isosceles triangular portions and said top cover comprises four equilateral triangles, whereby

said sidewall portions are disposed to form a circular enclosure and said top cover portions are disposed to be supported thereon.

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