United States Patent [19]

Carter

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[54] **BACK PACK FRAME FOR SUPPORTING A TENT**

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[52] **U.S. Cl.** ..... **224/25 A,** 182/187, 135/1 R, 224/10

[51] **Int. Cl.** **A45f 3/10,** A45f 4/04

[58] **Field of Search** ..... 224/25 A, 10, 9, 8 R, 8 A; 297/217, 184; 135/1 R, 1 A, 4; 182/187

[56] **References Cited**

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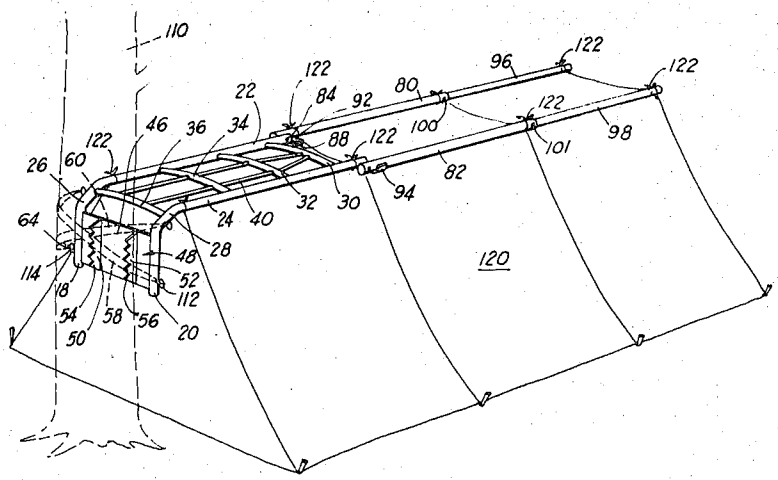
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Assistant Examiner—Jerold M. Forsberg
Attorney, Agent, or Firm—Newton, Hopkins & Ormsby

[57] **ABSTRACT**

A back pack is convertible into a tent support frame and includes a pair of spaced parallel L-shaped frame members. A gripping structure including saw-toothed projections is supported between a first pair of legs of the frame members and serves, in conjunction with straps secured to the frame members, so secure the back frame to an upright support member, such as a tree. The second legs of the upright frame members are extendable by providing extension frame members pivoted to the second legs of the L-shaped frame members and additional frame members telescoped within the extension frame members. In this way, the back pack may be secured to an upright support, such as a tree, and the second legs of the extension frame members may be extended to form a tent support frame.

7 Claims, 3 Drawing Figures



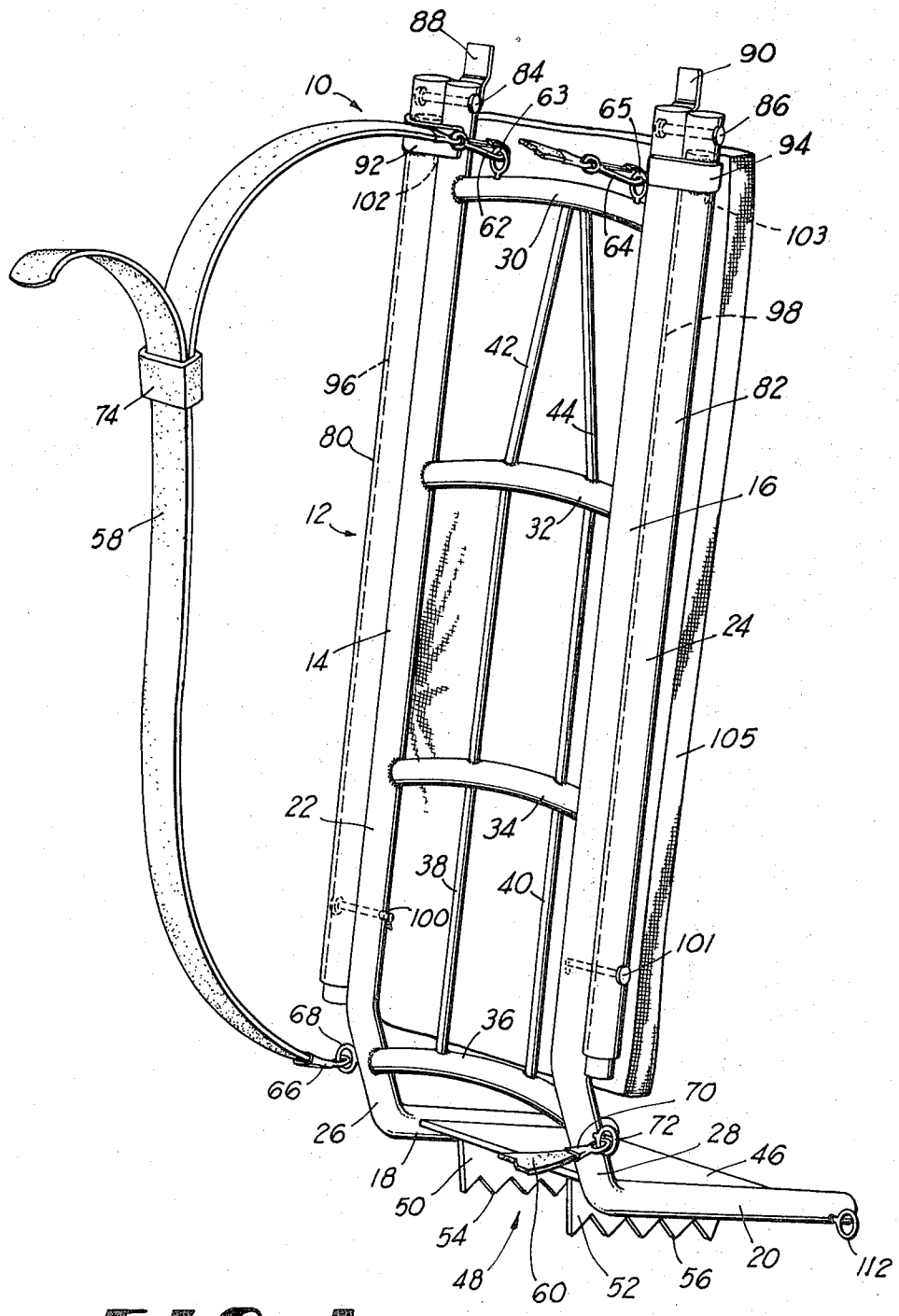

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FIG 1

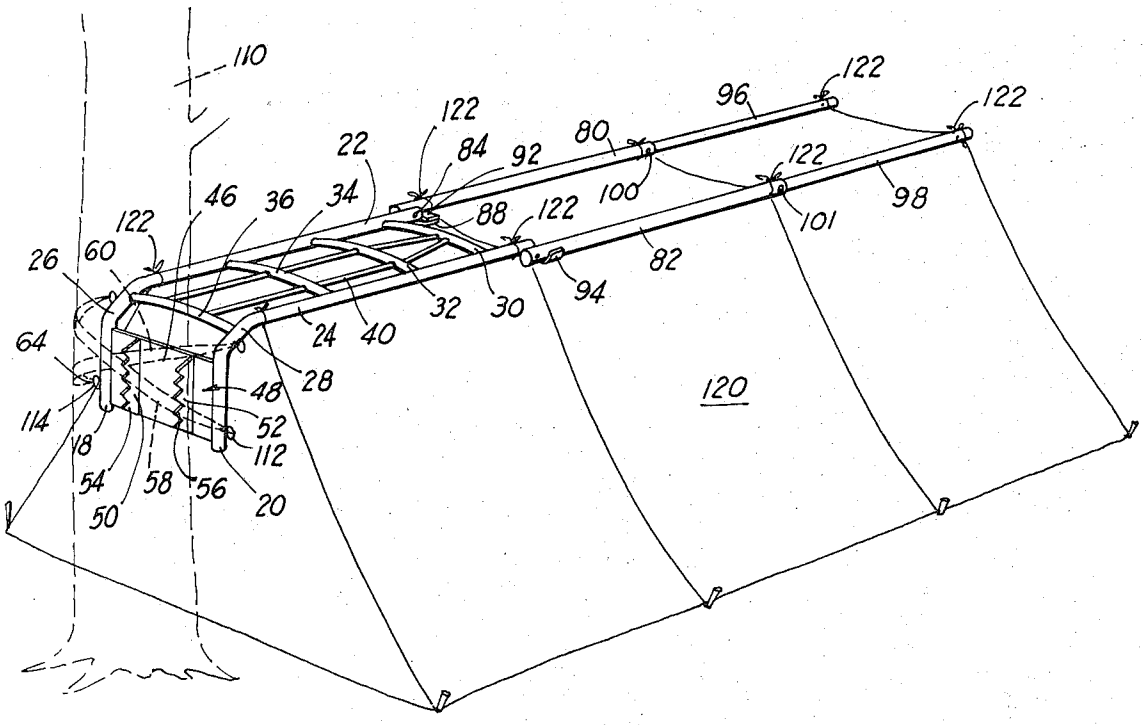

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FIG 2

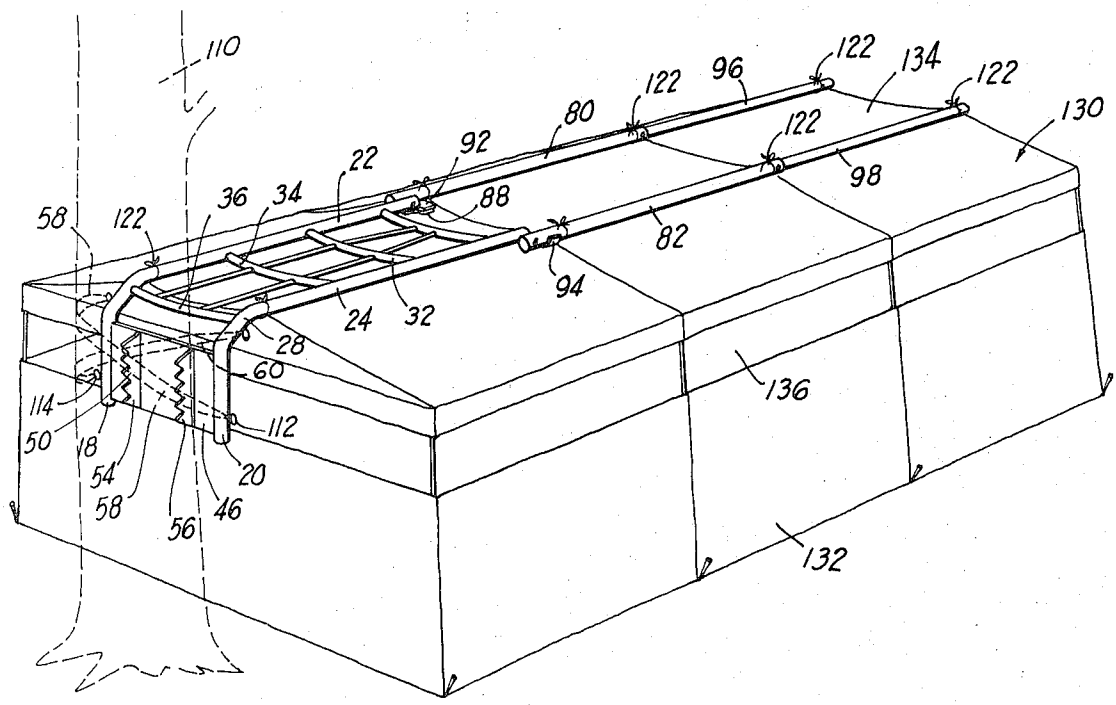

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FIG 3

BACK PACK FRAME FOR SUPPORTING A TENT

BACKGROUND OF THE INVENTION

This invention relates to back packs and, more particularly, to back packs which are convertible into tent support frames.

The popularity of out-of-doors activities such as hiking, camping, and hunting have been greatly enhanced by the development of devices to make such activities more convenient and enjoyable. The introduction of the lightweight back pack has made it possible for the outdoorsman to carry a relatively large, well-distributed load on his back, and the development of the frame tent has made it possible for him to erect his shelter quickly and easily. However, frame-type tents require metallic frame members for the erection of a support for the tent. Since these frame members greatly increase the weight of the load to be carried on the outdoorsman's back, there has been a need for a back pack which is convertible into a tent support frame thereby avoiding the need for separate tent frame members.

While there have been a number of suggestions in the prior art of back packs which are convertible into tent support frames, the prior art expedients have tended to be complex and inconvenient to use.

It has also been proposed in U.S. Pat. No. 3,368,725 to provide a back pack frame which is convertible into a chair by supporting the frame on a tree with one flat side of the frame serving as a seating surface. However, there is no teaching in this patent that the frame may be used to support a tent.

SUMMARY OF THE INVENTION

It is accordingly the object of the invention to provide an improved back pack convertible into a tent support frame.

More specifically, it is an object of the invention to provide a back pack which may be readily supported on a naturally available vertical support member, such as a tree, and which may be readily extended to form a tent support frame.

To this end, the invention contemplates the provision of a back pack formed with an L-shaped frame having first and second perpendicular legs. The frame is provided with strap means and gripping means extending from the first leg of the frame in a direction opposite to the direction of the second leg of the frame. In this way, the back pack may be supported on an upstanding support member, such as a tree, with the gripping means engaging one side of the support member and with the strap means extending around the other side of the support member to retain the frame on the support member. The gripping means may take the form of sawtooth projections which dig into the vertical support member securely maintaining the frame in position. The second leg of the frame is extendable to form a support frame for the tent. This is accomplished by providing a frame in the form of two spaced parallel L-shaped frame members. The legs of the L-shaped frame members forming the second leg of the frame means are pivotally connected to frame extension members which are retained in a first position adjacent the second legs when the back pack is employed as a back pack and which are pivotable to an extended position when the back pack is secured to a vertical support member. Further extension of the back pack is provided by additional frame members telescoped within the extension frame members. Suitable means are provided for maintaining the extension frame members in the first position adjacent the second legs and in the extended position.

These and other features, objects, and advantages of the invention will become more readily apparent upon consideration of the following detailed description of a preferred embodiment of the invention with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view, partially broken away, of a back pack of the invention in its back pack configuration;

FIG. **2** is a perspective view of a back pack according to the invention in its tent support frame configuration, being supported on a tree shown in phantom lines, and supporting one type of tent; and

FIG. **3** is a perspective view showing a back pack of the invention in its tent support frame configuration, being supported on a tree shown in phantom lines, and supporting a second type of tent.

DETAILED DESCRIPTION

Referring to FIG. **1**, a back pack **10** according to the invention is shown in its collapsed condition in which it is usable as a back pack. It will be noted that back pack **10** includes an L-shaped frame **12** which includes a pair of spaced parallel L-shaped frame members **14** and **16**. Frame members **14** and **16** have relatively short leg portions **18** and **20**, respectively, which are connected, respectively, to a pair of perpendicular relatively longer leg portions **22** and **24** by oblique connecting portions **26** and **28**. A plurality of spaced, parallel tubular frame members **30, 32,** and **34** extend between leg portions **22** and **24** of L-shaped frame members **14** and **16**, being welded to leg portions **22** and **24** at the ends thereof. In like manner, a tubular frame member **36** extends between oblique connecting portions **26** and **28** of L-shaped frame members **14** and **16**, being welded to connecting portions **26** and **28** at its ends. In addition, a pair of longitudinal frame rods **38** and **40** are welded at one end to transverse frame member **36** and extend parallel to legs **22** and **24** through frame members **34** and **32** and have end portions **42** and **44** which converge inwardly and terminate at transverse frame member **30** to which the ends of rods **38** and **40** are welded.

A bridging plate **46** extends between leg portions **18** and **20** of L-shaped frame members **14** and **16** and serves to support gripping means **48**, the purpose of which will be presently described. Gripping means **48** includes a pair of plates **50** and **52** which are welded at their base to bridging plate **46** and extend in parallel relationship downwardly, as seen in FIG. **1**, from bridging plate **46**. It will be noted that plates **50** and **52** extend in a direction opposite to the direction of legs **22** and **24**. The distal edge of plates **50** and **52** are provided with sawtooth projections **54** and **56** which will be employed, as will be described more fully hereinafter, to engage a vertical supporting member, such as a tree.

In order to carry the back pack, it is provided with a pair of strap arrangements **58** and **60**, the second of which is partially broken away in FIG. **1**. Strap arrangement **58** is provided with a clip **62** for connection to an

eyelet 63 connected to transverse frame member 30, and, in the same manner, strap arrangement 60 is provided with a clip 64 for connection to an eyelet 65 on transverse frame member 30. The other end of strap arrangement 58 has a fitting 66 connected to an eyelet 68 extending laterally outwardly from connecting portion 26. A similar fitting 70 connects the lower end of strap arrangement 60 to an eyelet 72 projecting laterally outwardly from the other connecting portion 28. As is customary, the strap arrangements are provided with adjustment means, such as at 74 on strap arrangement 58. A similar adjustment means is provided for strap arrangement 60.

When back pack 10 is used as a back pack, strap arrangements 58 and 60 extend over the shoulders of the hiker with the side of back pack 10 seen in FIG. 1 being positioned on the hiker's back. The load carried by the hiker is positioned on the other side of back pack 10 being supported by lower legs 18 and 20 and being secured, by suitable straps or the like, to the vertical legs 22 and 24. As is customary, among the implements carried on the back pack will be the tent enclosure which will be used by the hiker when he needs shelter.

Back pack 10 is, as has been already mentioned, convertible into a tent support frame. For this purpose means are provided for extending the L-shaped frame 12. This means takes the form of a pair of tubular extension frame members 80 and 82 which are pivoted, respectively, by means of pivot pins 84 and 86 to the upper ends, as seen in FIG. 1, of legs 22 and 24 of L-shaped frame members 14 and 16. In FIG. 1, extension frame members 80 and 82 are shown in the position customarily employed for use of the back pack 10 as a back pack. However, when it is desired to convert back pack 10 into a tent support frame, extension frame members 80 and 82 are pivoted 180° so that they, in effect, serve as extensions of legs 22 and 24. As shown in FIGS. 2 and 3, extension frame members 80 and 82 are pivoted to their extended position. In order to maintain extension frame members 80 and 82 in the extended position as shown in FIGS. 2 and 3, legs 22 and 24 are provided with extension lugs 88 and 90 which are welded to the ends of legs 22 and 24 and positioned on the side of legs 22 and 24 which will correspond to the bottom side thereof when back pack 10 is employed as a tent support frame as shown in FIGS. 2 and 3. Lateral brackets 92 and 94 extend from extension frame members 80 and 82 respectively. As shown in FIG. 1, the ends of these brackets extend over one side of legs 22 and 24. However, when extension frame members 80 and 82 are pivoted to the extended position as shown in FIGS. 2 and 3, lateral abutment members 92 and 94 will abut against extension lugs 88 and 90 respectively. This will maintain extension frame members 80 and 82 in the same plane as legs 22 and 24.

In order to further extend back pack 10 when it is employed as a tent support frame, each of the tubular extension frame members 80 and 82 houses an additional frame member 96 and 98, respectively, which are telescoped therewithin. As shown in FIG. 1, these additional frame members 96 and 98 are fully housed within extension frame members 80 and 82 and are received therewithin with a tight sliding fit.

So that extension frame member 80 may be maintained in the position shown in FIG. 1 and additional frame member 96 may be fixed within member 80 when in an upright position for hiking, a dowel pin 100 is inserted through leg 22, extension frame member 80 and additional frame member 96. In like manner, a dowel pin 101 is inserted through aligned holes drilled through leg 24, extension frame member 82, and additional frame member 98 to maintain extension frame member 82 and additional frame member 98 in the positions shown in FIG. 1 when the back pack is used for hiking.

When it is desired to convert the back pack to a tent support frame, dowel pins 100 and 101 are removed to free extension frame members 80 and 82 so that they may be pivoted to their extended position and to free additional frame members 96 and 98 for telescopic extension. After extension frame members 80 and 82 are pivoted to their extended position, additional frame members 96 and 98 may be extended to the position shown in FIGS. 2 and 3 by sliding them longitudinally outwardly from the free end of the respective extension frame member 80 or 82. Due to the tight frictional fit, additional frame members 96 and 98 will then be maintained in the full extended position. However, in order to fix additional frame members in their extended position a pair of aligned holes 102 are provided through extension frame member 80 near its pivoted end and a pair of aligned holes 103 through extension frame member 82 near its pivoted end. When additional frame members 96 and 98 are slid to their extended positions the holes which received dowel pins 100 and 101 when members 96 and 98 were in their retracted position, as shown in FIG. 1, are aligned with holes 102 and 103, respectively. Alternatively, spring detent means may be employed to maintain additional frame members 96 and 98 either in the retracted or extended positions.

As shown in FIG. 1, a tent pack 105, containing a tent in a folded state, is mounted on back pack 10 being secured thereto by straps (not shown). The folded tent comprises the tent to be supported by back pack 10 when it is converted to its condition as a tent support frame.

The full extended position of back pack 10 in which it serves as a tent support frame is illustrated in FIGS. 2 and 3. Turning first to FIG. 2, it will be observed that back pack 10 is mounted with legs 22 and 24 in a horizontal position and legs 18 and 20 in a vertical position with gripper means 48 facing a vertical support member such as a tree 110, which is shown in phantom lines. The sawtooth projections 54 and 56 are engaged with one side of tree 110, digging into the bark of the tree more securely to hold back pack 10 thereon. In order to further hold back pack 10 on tree 110, strap arrangement 58 is disengaged from eyelet 63 and clip 62 is engaged with an additional eyelet 112 provided near the end of leg 20. By the same token, strap arrangement 60 is disengaged from eyelet 65 by removing clip 64 therefrom, and clip 64 is engaged with an eyelet 114 provided near the end of leg 18.

A shelter tent 120 is supported from the extended portion of back pack 10 which now serves as a tent support frame. Suitable straps and the like may be provided for tying the top of shelter tent 120 to the extended tent support frame, such straps being shown at 122.

Although a shelter tent 120 is hung from the tent support frame in FIG. 2, FIG. 3 illustrates the use of the tent support frame to support a hunter's blind. In this embodiment, a hunter's blind tent 130 is shown hung

from the extended back pack **10.** This shelter **130,** includes a bottom portion **132** and a roof portion **134** with a gap **136** being provided therebetween serving as openings through which the hunter may shoot. It is to be understood that with this use of the shelter, the material of the sidewall **132** and the roof **134** would be provided with a camouflage pattern. As before, a number of ties **122** secure the roof portion **134** to the extended tent support frame provided by back pack **10.**

It will be seen that back pack **10** is easily and readily convertible from its use as a back pack to a tent support frame, adding no significant weight to the load carried by the hiker other than the weight of the extension frame members **80** and **82** and the additional frame members **96** and **98.** Since these members are made of a light weight metal such as aluminum or a magnesium alloy, the additional weight to be carried by the hiker is minimal. As was explained hereinabove, advantage is taken of naturally available vertical support members, such as trees, with the result that a practical convertible back pack has been provided.

While a preferred embodiment invention has been shown and described, it will be readily apparent to those skilled in the art that changes can be made without departing from the principles and spirit of the invention, the scope of which is defined in the appended claims.

The invention claimed is:

1. A back pack convertible into a tent support frame comprising:

L-shaped frame means having first and second perpendicular legs, said second leg extending in a first direction from said first leg;

strap means;

gripping means extending from said first leg in a direction opposite to said first direction, whereby said frame means may be supported on an upstanding support member with said gripping means engaging one side of the support member and with said strap means connected to said frame means and extending around the other side of said support member to retain said frame means on said support member;

wherein said L-shaped frame means comprises a pair of spaced L-shaped frame members, each having first and second legs corresponding to the first and second legs of said frame means;

wherein said gripping means is supported by a bridging member extending between the first legs of said frame;

wherein said gripping means comprises a pair of parallel plates extending perpendicularly from said bridging member, the distal edges of said plates having sawtooth projections; and

means for extending said second leg to form a horizontal support frame for suspending a tent therefrom.

2. A back pack according to claim **1,** wherein said gripping means comprises sawtooth projections which engage said one side of said support member.

3. A back pack according to claim **1,** wherein said support member is a tree.

4. A back pack according to claim **1,** wherein said means for extending said second leg of said frame means comprises extension frame members pivoted to said second legs of said L-shaped frame members near the free ends thereof, said extension members being pivoted from a first position adjacent said second legs to a second extended position increasing the length of said second leg of said frame means.

5. A back pack according to claim **4,** further comprising means to retain said extension frame members in said first position and means for supporting said extension frame members in said extended position.

6. A back pack according to claim **5,** wherein said means for supporting said extension frame member in said extended position comprises a stop member extending laterally from one of said extension frame members to overlie the adjacent second leg of one of said L-shaped frame members when said one extension frame member is in said first position and to abut a stop extension of said adjacent second leg when in said extended position.

7. A back pack as recited in claim **4,** wherein said means for extending said second leg of said frame means further comprises a pair of additional frame members telescoped within said extension frame members and means for extending said additional frame members from said extension frame members when said extension frame members are in said extended position.

* * * * *