

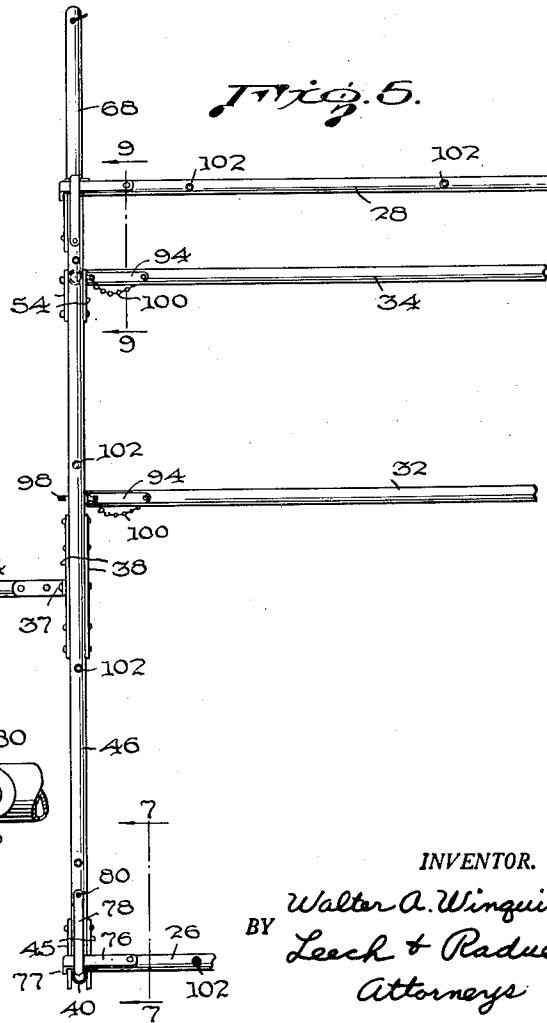
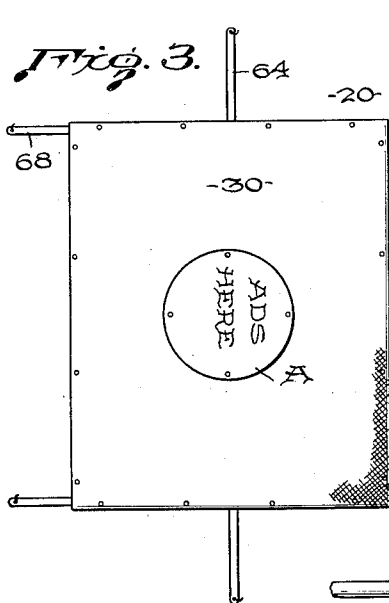
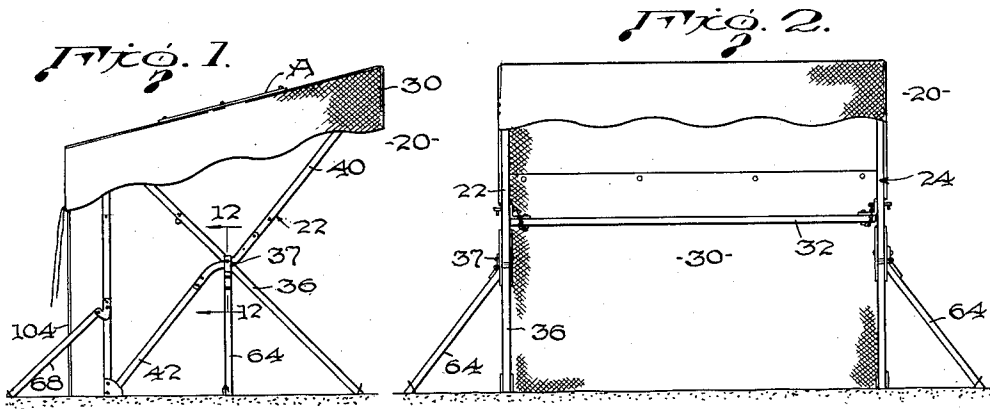
March 7, 1950

W. A. WINQUIST
PORTABLE SUN SHELTER

2,499,897

Filed Dec. 24, 1948

3 Sheets-Sheet 1



INVENTOR.

Walter A. Winquist
BY
Leech & Radue
Attorneys

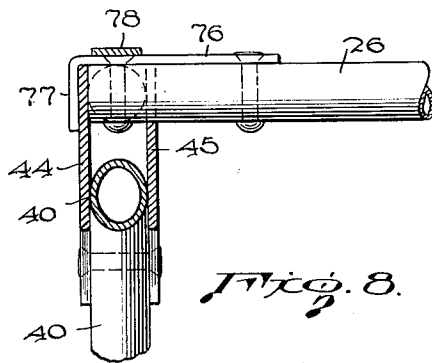
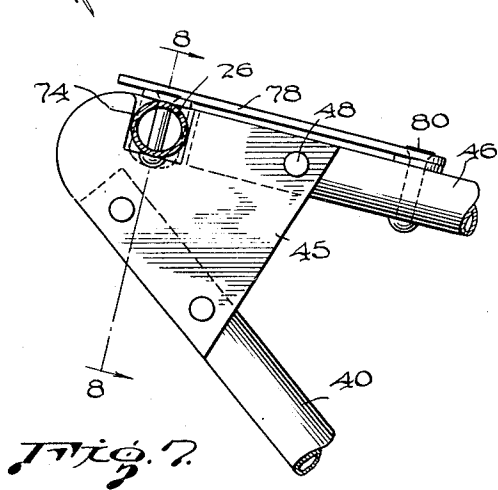
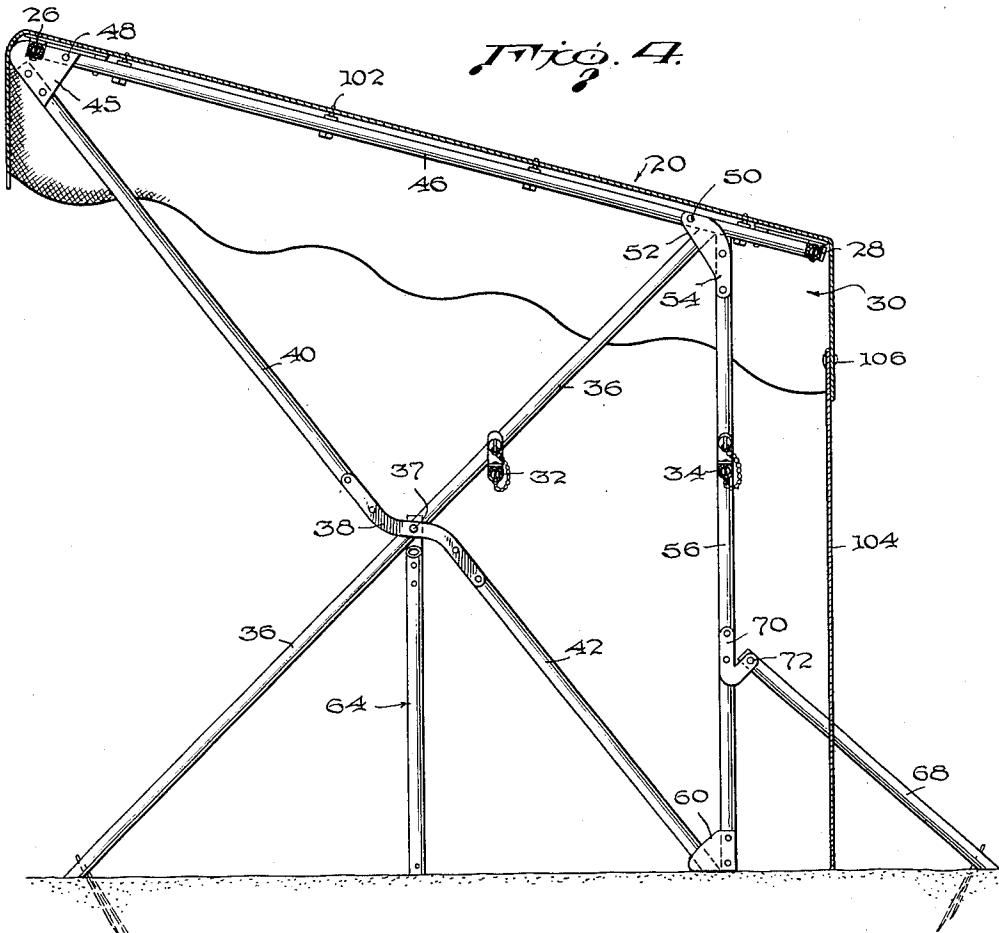
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3 Sheets-Sheet 2



INVENTOR.
Walter A. Winquist
BY *Leech & Radue*
Attorneys

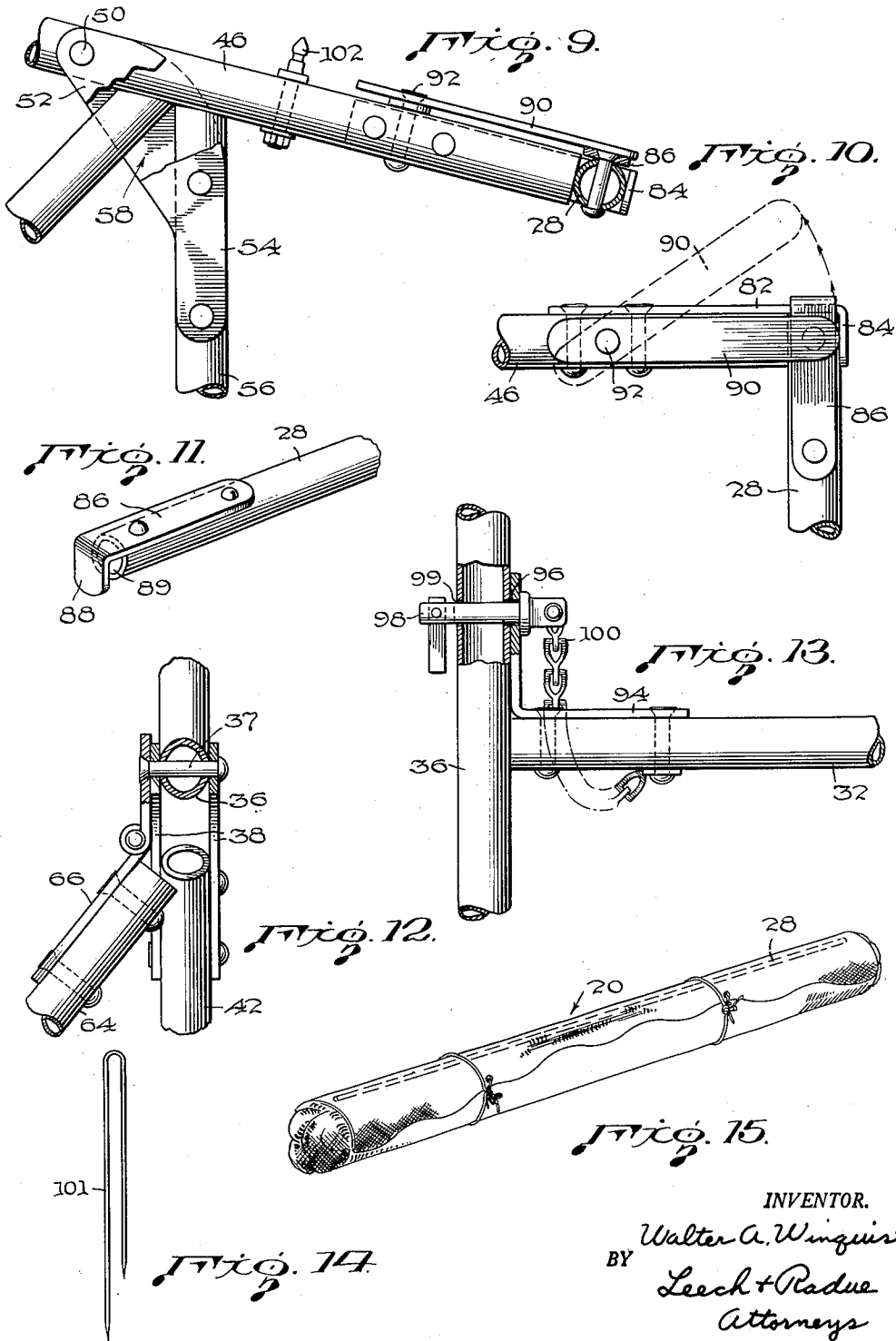
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INVENTOR.

Walter A. Winquist
BY Leech + Radue
Attorneys

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PORTABLE SUN SHELTER

Walter A. Winquist, Norfolk, Va.

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8 Claims. (Cl. 135—7.1)

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This invention relates to a portable sun shelter and more particularly to one comprising connected frame members and a canopy which may be used on lawns or beaches.

It is the general object of this invention to provide a light compact sun shelter that is easy to erect and which is stable and secure in use.

A more specific object of the invention resides in the provision of a collapsible frame structure having relatively few separate parts.

A further and specific object of this invention is to provide a generally rectangular framework having pivotally interconnected side frames adapted to pivot in a common plane into a compact bundle and articulated members that are interengageable with the side frames to produce a rigid rectangular structure.

In its more specific aspect, this invention includes a shelter frame structure having novel interlocked joints with associated latching means for maintaining the joints in locked condition.

These and other features contributing to ease of assembly, stability in use and economy of manufacture will be more fully understood from the following detailed description of a preferred embodiment taken in connection with the accompanying drawings in which:

Fig. 1 is a side elevation of the sun shelter erected for use;

Fig. 2 is a front elevation of the sun shelter shown in Fig. 1;

Fig. 3 is a top plan view of the sun shelter shown in Fig. 1;

Fig. 4 is an enlarged vertical section of the erected shelter with certain parts shown in section;

Fig. 5 is a partial plan view of the framework of the shelter shown in Fig. 4;

Fig. 6 is a fragmentary plan view showing a joint detail of Fig. 4 to enlarged scale;

Fig. 7 is a side elevation view partly sectioned of the joint detail of Fig. 6;

Fig. 8 is a vertical section of the same joint detail taken on line 8—8 of Fig. 7;

Fig. 9 is an enlarged side elevation of another joint and assembly detail of Fig. 4 with certain parts sectioned or broken away;

Fig. 10 is a partial plan view of the assembly and joint detail of Fig. 9;

Fig. 11 is a perspective view of one of the joint members shown in Fig. 10;

Fig. 12 is an enlarged elevational view partially sectioned showing the mounting of a brace for the shelter framework;

Fig. 13 is a partially sectioned elevational view

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showing the manner of mounting an auxiliary cross member to the shelter framework;

Fig. 14 is a side elevation of an anchoring pin for the shelter framework; and

Fig. 15 is a perspective view of the sun shelter collapsed and disassembled for carrying or storage.

In general, the sun shelter of this invention comprises a pair of side frame assemblies having front and back frame members of rod-like formation adapted to form a generally rectangular framework, the top of which inclines rearwardly, and a canopy connected by detachable fastening means to the framework thus provided in order to cover the top and a lateral side.

Referring to Figs. 1, 2, 3 and 4, the reference numeral 20 designates the complete sun shelter, the principal components of which are opposite side frame assemblies 22 and 24, a front frame member 26 connecting the upper ends of the side assemblies, and a back frame member 28 connecting the rearward ends thereof. In the preferred embodiment, these assemblies and members are made of lightweight, tubular metal, although it will be understood that wood strips either square or round may be used. A canopy 30, preferably of awning material, extends over the frame members 26 and 28 and the upper ends of the frame assemblies 22 and 24 to provide a roof covering with downwardly hanging marginal portions. The canopy 30 can also be extended to close the rear side of the shelter as may be necessary when the sun is low or protection against the wind is desirable.

A pair of auxiliary cross members 32 and 34 may be connected to the upper portions of the side frame assemblies 22 and 24 in a parallel spaced relation so as to provide an article support, e. g., a baby hammock, an odds and ends trough, or the like.

As the side frame assemblies are identical, only assembly 22 will be described in detail. Fig. 4 shows the manner in which the side frame assemblies are fabricated with a continuous diagonal support member 36 having a pivot pin connection 37 with a pair of elongated S-shaped brackets 38, riveted, welded or otherwise secured to opposite sides of parallel and offset upper and lower diagonal support members 40 and 42 respectively, with the member 36 extending between the brackets. At the upper end of the support member 40, a pair of generally triangular bracket plates 44 and 45 are secured in outwardly extended relation by means of rivets or the like. A top side frame member 46 extending

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in acute angle relation to diagonal member 40 is also secured between the bracket or plates 44 and 45 by means of a pivot pin 48.

Another pivot pin 50 secures the rear end portion of the side member 46 in between an opposed pair of triangular brackets 52 spanning an obtuse angle intersection of the end assembly and having extended corner portions between which are fixedly secured the upper end of a back supporting member 56. The member 56 is vertical and has an inclined upper end complementally engaging the projecting portion of the side member 46, as shown in Fig. 9.

It should also be noted at this point that the continuous diagonal supporting member 36 has its upper end complementally inclined for engagement with the underside of the member 46, and that it also abuts the vertical supporting member 56 within a pocket 58 formed by brackets 52. The hinge connection of top frame member 46 to vertical supporting member 56 afforded by bracket plates 52, 52 and pivot pin 50 inwardly of said member 56 prevents outward movement of member 56 beyond the vertical position shown.

Referring again to Fig. 4, the vertical supporting member 56 has an opposed pair of right angled brackets in the form of plates 60 secured to the opposite sides of its end portion in order to define with the supporting surface a pocket receiving the lower and correspondingly inclined end of the diagonal supporting member 42 to anchor the same.

In order to afford additional stability when strong winds are present, each of the side frame assemblies 22 and 24 may be provided with a lateral brace member 64 connected by a hinge 65 to the pivot pin 37 joining the diagonal member 36 to the brackets 37 as shown in Fig. 12. This mounting permits the brace 64 to be adjusted for engagement with rolling ground and to be swung upwardly and pivoted for face-to-face engagement with the rest of the respective side frame assembly.

A rear brace member 68, best illustrated in Figs. 1 and 4, is likewise connected to the lower end portion of each back supporting member 56 by means of a pair of opposed V-shaped brackets 70, riveted or otherwise fixedly secured to the inner and outer sides of member 56, and carrying a pivot pin connection 72 for the upper end of the rear brace 68. The connection of the rear brace 68 is such that it may be swung upwardly into engagement with the supporting member 56 when the framework is to be collapsed for ready carrying.

One of the particular features of this invention is the construction of the separable rigid joint between the side frame diagonal member 40, the top side frame member 46 and the front frame member 26, which joint is best shown in Figs. 6, 7 and 8. Near the outer end of its uppermost edge as seen in Fig. 7, the inner bracket 45 is formed with a square notch 74 corresponding to the external diameter of the tubular frame member 26. In assembled relation, the tubular member 26 lies within the notch 74 and has a squared end abutting the inside of the outer bracket 44 as shown in Fig. 8. A metal clip 76 is secured by riveting or welding to the upper side of the member 26 and has a downturned end 77 which extends in spaced parallel relation to the end of member 26 so as snugly to receive the thickness of the outer bracket 44. The rigid joint thus formed is maintained against accidental separation by means of a catch or latch

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78 pivotally connected by a pin 80 to the upper surface of the top side frame member 46 for swinging into position such that its outer end portion engages and clamps the extended part of the clip 76. While the latch 78 may be readily moved to an unlatched position, the friction of its connection will ordinarily be sufficient to prevent unassisted movement.

A generally similar but somewhat different locked joint is formed between the overhanging rear end portions of the top side frame member 46 and the corresponding end of the back frame member 28, the details of this latter connection being shown best in Figs. 9, 10 and 11. A clip 82 is riveted, welded or otherwise fixedly secured to the inner side face of the frame member 46 and is formed with a right angle end 84 extending in spaced parallel relation to the end of the member 46, the space corresponding to the diameter of the back frame member 28 which has its end positioned therein. The back frame member 28 in turn has a similar clip 85 riveted, welded or otherwise fixedly secured to its top surface and formed with a right angle end 88 spaced a distance from the squared end of the member 28 sufficient to provide a slot space which snugly receives the thickness of the clip 82 when the joint is interlocked in the manner shown in Fig. 10. By means of a catch or latch 90 connected to the upper side of the side frame member 46 by a pivot pin 92, this interlocked joint may be held against separation by pivoting of the latch into the appropriate overlapping relation shown in full lines in Fig. 10 and previously described for latch 78.

The means for mounting the auxiliary and optional cross members 32 and 34 between the side frames 22 and 24 is illustrated in Fig. 13. This figure shows only the mounting of the cross member 32 on the diagonal support 36, but it will be understood that the spaced mounting of the cross member 34 on the upper part of back support 56 is identical in every respect and need not be described. A right angle strip 94 is fixedly secured as by rivets to one side of an end portion of cross member 32 so as to provide a continuation of the end surface of said member and rest against the adjacent surface of the diagonal member 36. This continuation part of the angle strip 94 is formed with an opening 96 for receiving a locking pin 98 which also passes through aligned openings 99 in the diagonal member 36. Preferably, a chain connection 100 will be provided between the cross member 32 and the locking and supporting pin 98 so that the latter will not become lost.

Fig. 14 shows an anchoring stake 101 in the form of a heavy, U-shaped wire having its ends pointed. One of these anchoring stakes 101 can be used to anchor the lower ends of the diagonal supporting members 36 and the ground engaging ends of the side and back braces 64 and 68 to the ground, one leg of the pin passing through a suitable opening provided in the respective members and braces. The stabilizing advantages of this additional anchoring will be apparent from a consideration of Figs. 1, 2 and 4. It has been found that the sun shelter 20 as thus assembled and anchored can withstand winds of considerable velocity without being upset or moved.

The upper surfaces of the frame members 26, 28 and 46 are provided with spaced snap fasteners 102, the complementary parts of which are secured in appropriate spaced relation to the canopy 30 so that the latter may be readily and securely fastened to the framework in the manner shown. If desired, a back drop piece 104 of the canopy

may be detachably secured to the upper portion by a plurality of spaced snap fasteners 106 of conventional construction as indicated in Fig. 4. The rearwardly inclined roof structure of the canopy 30 and the relatively low height thereof provides a very convenient and conspicuous location for a panel A which may be marked with decorative, identifying or advertising material.

While it is believed that the operations necessary to the assembly, disassembly and use of the portable sun shelter of this invention will be largely obvious from the preceding detailed description, a short summary will be given. The auxiliary cross members 32 and 34 which strengthen the framework and provide support for an article container may be first separated by removal of the locking pins 98 which remain connected to the respective cross members. As previously pointed out, the shelter 20 can be used without these auxiliary cross members. After the canopy 30 has been detached from the top side frame members 46 and the front frame member 26, the latter will be unlatched and separated from the two side frame assemblies 22 and 24. The canopy 30 will be left connected to the back frame member 28 which will then be unlatched and removed. Upon unanchoring of the lateral and rear braces 64 and 68, if stakes 101 have been used, each of the side frame assemblies 22 and 24 may be laid down and collapsed or folded together in a substantially common plane. To do this, the sub-assembly comprising top frame member 46 and the vertical back support 56 will be swung upwardly as a unit about the pivot pin 48 as will be understood from a consideration of Fig. 4. This upward swinging movement will free the upper end of the continuous diagonal support 36 from the pocket 58 between the spaced brackets 52, and the lower end of the diagonal support 42 from its secured position between the opposed bracket plates 60. Either before or after doing this, the back brace 68 will have to be turned around the pivot pin 72 until it lies in approximately parallel engagement with the back support 56 with its free end adjacent the hinge connection at pivot pin 50. The continuous diagonal supporting member 36 may now be rotated counterclockwise until it lies parallel to the diagonal supporting member 40-42. After the top frame member 46 and the back support 56 have been swung together by relative movement with respect to the pivot pin 50, these members and the diagonal supporting members 36 and 40-42 may be moved together into a compact bundle which will be completed when the lateral brace 64, which is hinged for movement in a plane perpendicular to that of the other end frame members, has been collapsed into engagement and alignment with the remainder of the bundle.

Recollecting that the canopy 30 has been left connected with the back frame member 28, it will now be necessary only to place the two completely folded and collapsed side frame assemblies 22 and 24 on the canopy adjacent the back frame member and to add the front frame member 26 and the auxiliary cross members 32 and 34 to the bundle. The canopy 30 and the shelter frame members may finally be rolled into a neat compact package within the canopy 30 as illustrated in Fig. 15. The bundle may be tied by cords as indicated and the back frame member 28 gripped with the awning material of the canopy as a handle.

For a beach shelter of ordinary size, the bundle

thus formed will weigh approximately 15 pounds and may be carried or stored very easily.

There has thus been provided a portable sun shelter having a fully braced framework of four basic components which may be collapsed into a very compact bundle. This has been accomplished without objectionable increase in weight or cost of manufacture.

While a preferred embodiment of the invention has been described in detail, such embodiment is merely for the purpose of illustration as it will be understood by those skilled in this art that various changes can be made in the details of construction and the arrangement of parts without departing from the spirit of the invention and the scope of the appended claims.

Having thus described my invention, what I claim as novel and desire to secure by Letters Patent of the United States is:

1. A shelter comprising a pair of side frames, each of said side frames having first and second crossed diagonal supporting members pivotally interconnected, a top frame member extending between the upper ends of said diagonal supporting members and pivotally connected by one end with the upper end of the first diagonal supporting members, a vertical supporting member extending between the upper end of the second diagonal supporting member and the lower end of the first diagonal supporting member, and a pivotal connection between the top frame member and the vertical supporting member formed to prevent outward movement of said vertical supporting member beyond a vertical position, each of said pivotal connections being constructed and arranged to limit the pivotal movement of all of said members to a common plane; and front and back frame members having their respective ends detachably interlocked with the upper end portions of said side frames.

2. The shelter combination of claim 1 in which a lateral brace is hinged at the pivotal connection of the crossed diagonal supporting members of each side frame for movement in a plane perpendicular thereto.

3. The shelter combination of claim 1 in which a rear brace is pivotally connected to each vertical supporting member for movement in said common plane.

4. A sun shelter comprising a pair of side frames, each of said side frames having first and second crossed diagonal supporting members pivotally interconnected, a top frame member extending between the upper ends of said diagonal supporting members and pivotally connected by one end with the upper end of the first diagonal supporting members, a vertical supporting member extending between the upper end of the second diagonal supporting member and the lower end of the first diagonal supporting member, and a pivotal connection between the top frame member and the vertical supporting member formed to prevent outward movement of said vertical supporting member beyond a vertical position, each of said pivotal connections being constructed and arranged to limit the pivotal movement of all of said members to a common plane; front and back frame members having their respective ends detachably interlocked with the upper end portions of said side frames; and a canopy extending over and detachably fastened to the top frame members and the front and back frame members.

5. A sun shelter comprising a pair of side frames, each of said side frames having first and second crossed diagonal supporting members piv-

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otally interconnected, a top frame member extending between the upper ends of said diagonal supporting members and pivotally connected by one end with the upper end of the first diagonal supporting members, a vertical supporting member extending between the upper end of the second diagonal supporting member and the lower end of the first diagonal supporting member, and a pivotal connection between the top frame member and the vertical supporting member formed to prevent outward movement of said vertical supporting member beyond a vertical position, each of said pivotal connections being constructed and arranged to limit the pivotal movement of all of said members to a common plane; front and back frame members having their respective ends detachably interlocked with the upper end portions of said side frames; and a pair of auxiliary cross members detachably secured in spaced relation between the upper portions of the adjacent diagonal and vertical supporting members of the side frames to strengthen the shelter and provide support for an article container.

6. A portable sun shelter comprising an opposed pair of collapsible side frames, each of said side frames having two crossed diagonal supporting members, one of which is divided into offset parallel upper and lower diagonal portions and includes a pair of joining brackets providing a longitudinal slot, means pivotally mounting the other diagonal supporting member within said slot for relative movement of the two diagonal supporting members in a common plane, a top frame member extending between the upper ends of said crossed diagonal supporting members and pivotally connected by one end to the end portion of said upper diagonal portion for movement in said common plane, a vertical back supporting member extending between corresponding upper and lower end portions of said crossed diagonal supporting members, and a hinge connection between said top frame member and said vertical back member preventing outward movement of said back supporting member beyond the vertical while accommodating pivotal movement in said common plane into general parallelism with said top frame member; and front and back frame members having their respective ends detachably interlocked with front and rear upper end parts of the side frames.

7. A portable sun shelter comprising an opposed pair of collapsible side frames, each of said side frames having two crossed diagonal supporting members, one of which is divided into offset parallel upper and lower diagonal portions and includes a pair of joining brackets providing a longitudinal slot, means pivotally mounting the other diagonal supporting member within said slot for relative movement of the two diagonal supporting members in a common plane, a top frame member extending between the upper ends of said crossed diagonal supporting members and pivotally connected by one end to the end por-

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tion of said upper diagonal portion for movement in said common plane, a vertical back supporting member extending between corresponding upper and lower end portions of said crossed diagonal supporting members and abutting the underside of the top frame member, a pair of triangular bracket plates fixedly secured along one side to the inner and outer sides of the upper end of the back supporting member, said triangular bracket plates being pivotally connected by the end portions of their adjacent sides to the inner and outer sides of the top frame member inwardly of the upper end of the said other diagonal to provide a pocket therefor, and a pair of inwardly extending plates fixedly secured to the inner and outer sides of the lower end of the back supporting member to receive the lower end of the divided diagonal; and front and back frame members having their respective ends detachably interlocked with front and rear upper end parts of the side frame.

8. A portable sun shelter comprising an opposed pair of collapsible side frames, each of said side frames having two crossed diagonal supporting members pivotally connected intermediate their ends, a pair of bracket plates fixed to opposite sides of the upper end of one diagonal supporting member, the inner of said bracket plates having a notch extending downwardly from its upper edge, a top frame member pivotally connected by one end between said bracket plates inwardly of said notch, and having its other end portion extending over and beyond the upper end of the other diagonal supporting member and provided with a clip formation on its outer side with a bent end extending in spaced parallel relation to the adjacent end of said top frame member, a vertical back supporting member extending between corresponding upper and lower ends of said crossed diagonal supporting members and pivotally connected by its upper end to said top frame member; a front frame member fitting in the notch of each of said inner bracket plates with its ends abutting the respective outer bracket plates, each end of said front frame member having a clip formation with a bent end engaging over the outside of the respective outer bracket plate; a latch pivotally mounted on each top frame member to hold the front frame member interengaged with said bracket plates; a rear frame member provided on its upper side at each end portion with a clip formation having a bent end in spaced parallel relation to the corresponding end of the rear frame member, the clip formations of the rear frame member interlocking with the clip formations of the top frame member; and a latch pivotally mounted on the extending end portion of each top frame member to hold the clip formations in interlocked relation.

WALTER A. WINQUIST.

No references cited.