

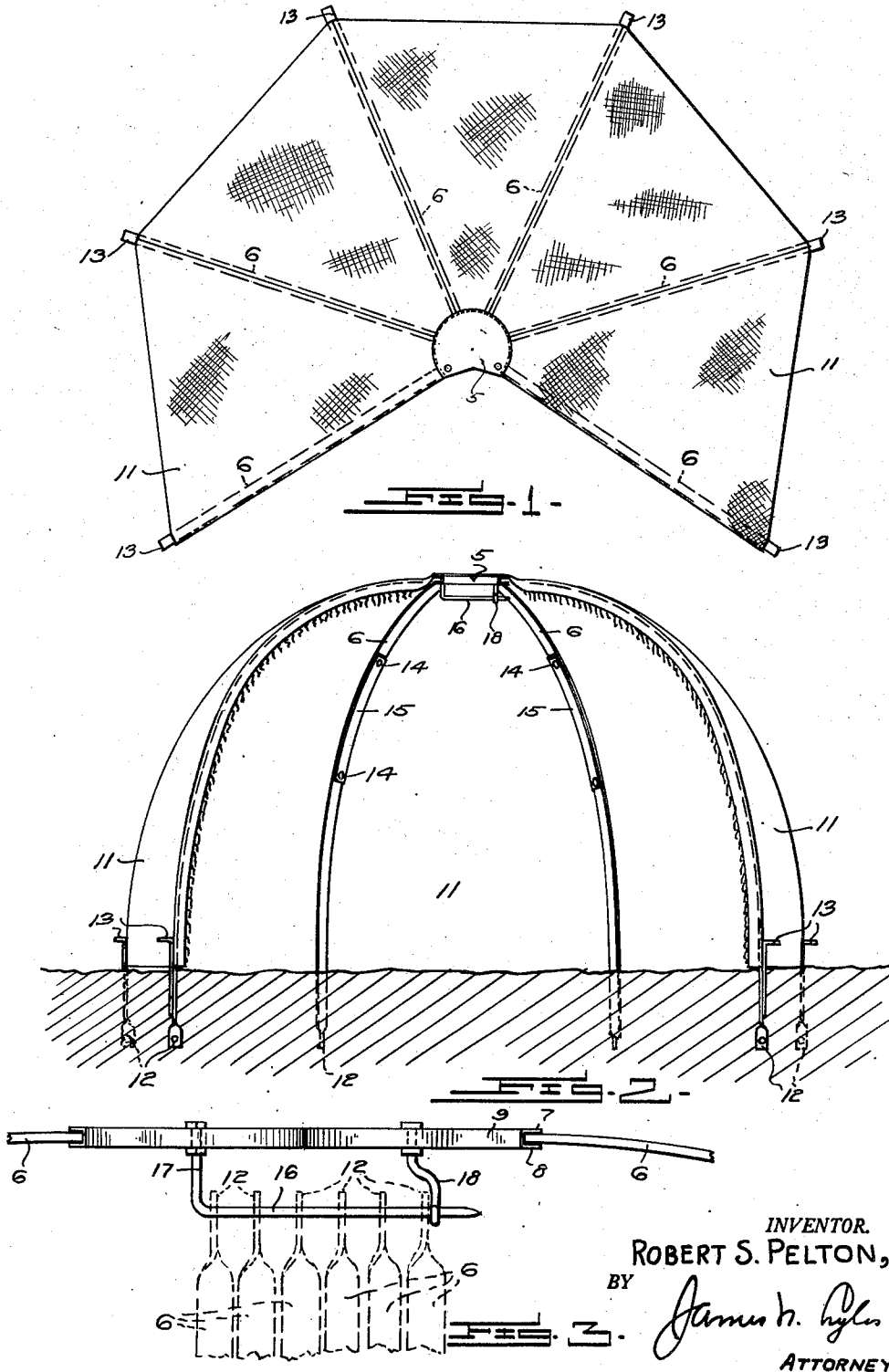
April 3, 1951

R. S. PELTON
COLLAPSIBLE SHELTER

2,547,770

Filed Sept. 17, 1948

2 Sheets-Sheet 1



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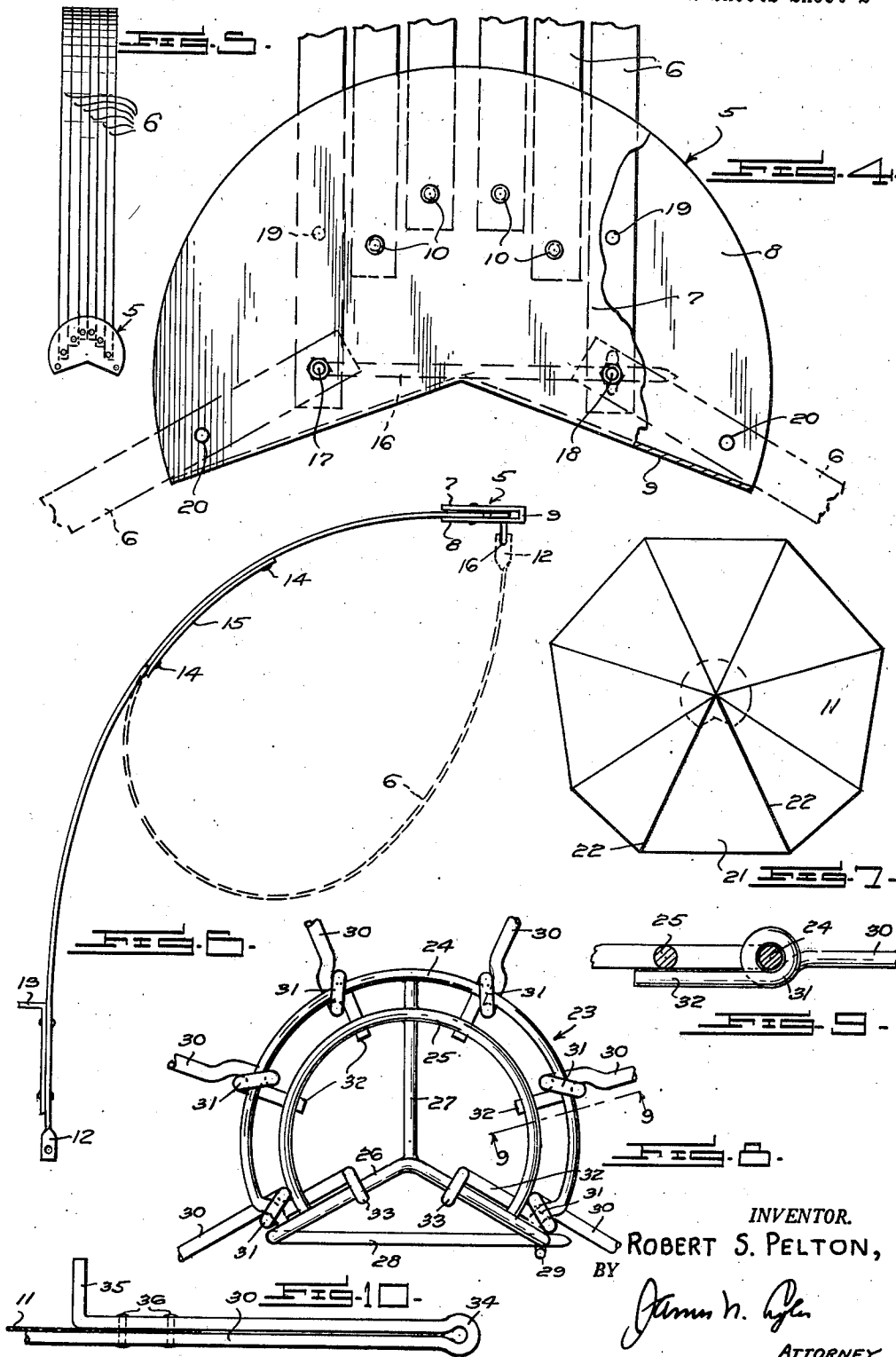
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COLLAPSIBLE SHELTER

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9 Claims. (Cl. 135-5)

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This invention relates to collapsible shelter devices, commonly known as cabanas.

It is an object of the present invention to provide a shelter device constructed in a manner to permit it to be quickly and conveniently collapsed and then folded into a relatively compact and easily handled package of a size capable of being carried in a motor vehicle and requiring a minimum of space for storage.

A further object of the invention resides in the novel construction of the device, providing a flexible cover that is maintained in an extended or taut position while in use by suitable flexible elements supported from a common carrier, all of which are collapsible in a horizontal plane to a position of parallelism with respect to each other, after which they are folded or flexed upon themselves and retained in such position against accidental displacement.

The invention further readily lends itself to slight modifications that enables its use as a collapsible tent with closure flap or as a shelter for use with garden tables or the like.

Other important features of novelty in structural details will readily be apparent during the course of the following description, reference being had to the accompanying drawings, wherein:

Figure 1 is a plan view of a shelter device constructed in accordance with the invention and in extended position,

Figure 2 is a front elevation of the device in extended position,

Figure 3 is an enlarged front elevation of a common pivotal support for a plurality of stays,

Figure 4 is a plan view of the pivotal support as illustrated in Figure 3, parts being collapsed to folded position,

Figure 5 is a top plan view of the stays in collapsed position prior to folding,

Figure 6 is a side elevation of a single stay, illustrating its attachment to the pivotal support and showing the manner of folding in dotted lines,

Figure 7 is a plan view of a modified form of the invention for use as a tent,

Figure 8 is a plan view of a modified form of pivotal support for the stays,

Figure 9 is a fragmentary section on line 9-9 of Figure 8 and,

Figure 10 is an elevational view of the lower end portion of one of the stays employed in the structure of Figure 8.

Like numerals are employed to designate like parts throughout the several figures of the drawings.

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Referring specifically to the drawings, the numeral 5 designates a common pivotal support for a plurality of stays 6, illustrated in Figures 1 to 5 inclusive. The support 5 comprises a preferably metallic U-shaped member having upper and lower spaced parallel walls 7 and 8, connected by a front wall 9. The stays 6, of which there are six in number for purposes of illustration, are formed of flat metallic bars, preferably of spring metal and have their upper ends pivotally mounted between the plates 7 and 8, as shown at 10. The two outermost stays 6 are limited in their outer extended movement by their abutment with the connecting wall 9, in which position, the other stays are all properly spaced, due to their connection with a suitable flexible covering 11, such as canvas, bunting or the like, it being usual in devices of this character to attach the cover to the stays by snap fasteners, cord loops, rivetting or the like. Thus, the stay is maintained in its same relative position with respect to the cover at all times. The lower, or free ends of the stays are twisted at a right angle and provided with an aperture, as shown at 12, for a purpose to be described. The free ends of the stays are adapted to be forced into the ground as a means to anchor the shelter against winds. To facilitate the entry of the ends 12 into the ground, angle devices 13 are rivetted to the lower end of the stay, as shown in Figure 6, and serve as step-on devices to force the end into the ground. The covering 11 extends between the step-on devices 13 and the stay at assembly and in such position is permanently secured against shifting by the rivets.

Each of the stays 6, has rivetted to its inner face, as at 14, a reinforcing strap 15, serving to strengthen the stay and prevent too sharp folding thereof in the final collapsing movement of the shelter. The support device 5 is provided with a flexible retainer bar 16, parallel with the under surface of the support 5 and rigidly connected to the member 5 by an upturned end 17, passing through the plates 7 and 8 and serving also as the pivotal pin for the left outermost stay. The bar 16 is detachably supported on a hook device 18, likewise passing through the plates 7 and 8 and serving as a pivotal point for the right outermost stay 6.

With the shelter in the extended position as shown in Figure 1, it now becomes desirable to completely collapse the device for storage or transportation. The ends 12 of the stays being first withdrawn from the ground, the stays are

swung rearwardly on their pivotal points 10 until all the stays lie in parallelism, as indicated in Figures 4 and 5. The cover 11 obviously follows and folds between the stays during this movement. The combined stays and support now assume substantially quarter circle shape in edge elevation.

To further collapse the device, the free end of the bar 16 is disengaged from its hook 18 and the several stays, beginning at the left side, are folded upon themselves, as indicated in dotted lines in Figure 6 and its end 12 having the aperture is engaged over the bar 16, until all the stays have been so engaged, at which time the bar 16 is reengaged with its retaining hook 18. The reinforcing straps 15 prevent too sharp a bend in the stays 6 during this final folding movement. Thus, it will be seen, that the shelter has now been collapsed into a relatively compact and easily transportable bundle, capable of storage in the luggage compartment of a vehicle or conveniently carried in the hand to the beach or other place of use. To extend the shelter, the stays are first released from the bar 16, at which time they will spring outward to their normal curvature, as in Figure 6. The stays are then swung about their pivots 10 until the outermost stays abut the wall 9. In this position, the cover has been drawn sufficiently taut. Each of the outermost stays 6 are provided with apertures 19 and, when in fully extended position, align with apertures 20 in the plates 7 and 8. Pins, not shown, may then be inserted through these openings to positively maintain the device in its extended position.

The form of the invention illustrated in Figure 7 contemplates the use of the shelter construction of Figures 1 to 6 as a fully enclosed tent. In this form of the invention, two additional forward stays are provided to form the front opening, with all the other stays connected with and supporting the cover 11. The two forward stays are pivotally supported in the common pivotal support similar to the stays 6. A similar pivotal support 5 is employed for the stays. A closure flap 21 is preferably connected with the free edges of the cover 11 by any suitable means, such as conventional slide fasteners 22 and this flap may be completely removed or detached at one side only as found desirable. Obviously, this form of the invention may be made in a plurality of sizes, for beach or lawn use or for commercial use as a collapsible enclosed shelter. The device may likewise be supported as a garden table umbrella, in which case, the pivotal support is mounted upon a suitable post or standard carried by the table.

In the form of the invention illustrated in Figures 8 to 10, a modified form of support for the stays has been provided. The support, illustrated as a whole by the numeral 23, comprises outer and inner concentric circular shaped rods 24 and 25. The free ends of the rods are connected, as by welding, to a common V-shaped rod 26. A brace rod 27 extends from the rod 26 and is welded to the rods 24 and 25, as shown, thus providing a rigid circular frame or guide. The rod 26 has its free ends turned down to form one leg of a supporting rod 28, corresponding to the bar 16 and a supporting hook 29, corresponding to the hook 18. A plurality of stays 30, of cylindrical rod stock, suitably spring tempered, are bent to form eyes 31 adjacent their upper free ends, adapted to slidably engage the outer circular rod 24, while a tail extension 32 underlies the inner circular rod 25. The terminal ends of the rod 24 are offset inwardly at their points of connection

with the rod 26 and serve to provide sockets or recesses into which the eyes 31 of the two outermost stays will engage to maintain the shelter in the extended position. The tail extensions of the outermost stays are provided with loops 33 adapted to snap over the rod 26 to prevent pivotal movement of the stays. The lower ends of the stays 30 are bent upon themselves to form loops or eyes 34 and a step-on device 35. The cover 11, as illustrated in Figure 10 extends downwardly between the step-on device and the lower end of the stay and is held against displacement by the rivets 36, that serve to hold the device in pre-formed shape. The loops 34 are similar to and serve the same purpose as the apertures in the terminal ends 12 of the stays 6.

The collapsing of the shelter device of Figure 8 is accomplished by first releasing the loops 33 and moving the eyes 31 of the outermost stays from their retaining recesses, after which the stays are caused to slide around the rod 24 to be bunched parallel with each other. The stays are then folded upon themselves and have their looped ends 34 engaged over the rod 28, similar in all respects to the first form of the invention.

It will be understood, that the number of stays employed may be varied in accordance with the size of the shelter, as obviously, an unusually large shelter will require a greater number of stays to maintain its contour. The mode of assembly, collapsing and extension is identical in each case, with the stays first shifted to the parallel position and then folded to be hooked upon the retainer bar or rod. The construction is extremely simple and cheap to manufacture and its simplicity permits of its extension and collapsing by the very simple procedure outlined, requiring no tools or other means of fastenings to maintain the device in either of its two positions, open or closed. The parts are few and of such nature as to require a minimum of attention. While no particular stress has been placed upon the covering 11, it will be obvious that such covering will be made in many ways and designs, in segments and of different colors to lend attractiveness to the shelter. The novel form of ground anchoring means for the shelter provides a very secure means of supporting the device against movement in high winds and the lower circumferential edge of the cover may be provided with a relatively large hem calculated to lie upon the ground when the device has been placed in position.

It is to be understood, that the invention is not limited to the precise arrangement shown, but that it includes within its purview, whatever changes fairly come within either the terms of the invention or the scope of the subjoined claims.

Having described my invention, what I claim is:

1. A collapsible shelter comprising a plurality of bowed stay devices adapted to be swung in a horizontal plane toward and from each other, the lower ends of the stays being apertured a pivotal support for the several stays, a flexible covering attached to the several stays, the several stays, when moved to a point of contact with each other, adapted to be folded upon themselves, and secured in such folded position by a connection at the pivotal support, the said connection adapted to receive and hold the several apertured ends of the stay.

2. A collapsible shelter comprising a plurality of bowed stay devices pivotally supported at one end upon a common support and having their lower free ends apertured, means formed upon

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the support for limiting the pivotal movement of the outermost stays to an extended position, the said stays adapted to pivot toward each other to jointly lie in parallelism, a flexible covering for the shelter attached to each individual stay and to the common support, the stays when in the position of parallelism adapted to be folded upon themselves in bowed form, a bar carried by the common support for receiving and maintaining the apertured free ends of the bowed stays when in the folded position.

3. A structure as recited in claim 2 wherein said stays are provided with reinforcing straps upon their inner surfaces.

4. A collapsible shelter comprising a plurality of contour stays bowed throughout their lengths and having their lower free ends apertured, a common support for pivotal mounting of the upper ends of the stays whereby said stays are swingable in a horizontal plane, stops means formed upon the support for limiting the outer swinging movement of the outermost stays, means for retaining the stays in extended position, said stays when collapsed adapted to jointly lie in parallelism, a flexible covering for the shelter connected with the several stays and with the common support and extendable with the said stays, the said covering serving to properly space the intermediate stays, the several stays provided with apertures adjacent their lower free ends, a retainer bar carried by the common support, said stays after collapsing adapted to be folded upon themselves with their apertured ends engaging the retainer bar.

5. A structure as recited in claim 4 wherein the said stays are provided with step-on devices adjacent their lower ends for forcing the said ends into the ground.

6. A shelter device of generally semi-spherical shape comprising a plurality of flat stays bowed throughout their length, a common pivotal support for the upper ends of the stays to support the stays in a horizontal swinging movement toward and from each other to form and collapse the shelter, said stays reinforced intermediate their ends, the lower ends of the stays twisted at a right angle and provided with an aperture, said pivotal support comprising a pair of spaced parallel plates connected at their forward edges, said stays pivotally supported between the plates, the stays adapted to swing rearwardly toward each other to lie in parallelism, the stays adapted to move away from each other to an extended position, a flexible covering for the shelter connected with each of the stays and with the pivotal support and adapted to be extended with the stays for providing a shelter enclosure, step-on devices rivetted to the stays adjacent their lower ends, the lower edge of the cover fixed between the step-on devices and the stays against

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displacement, the stays after movement to the collapsed position adapted to be folded upon themselves and a retaining device carried by the pivoted device for the reception of the apertured end of the stays.

7. The structure of claim 4 wherein the common support is formed of a pair of parallel spaced semi-circular plates connected at their forward edges, said plates spaced a distance equal to the thickness of the stays, said retainer bar bolted at one end through the plates and serving as a pivotal mount for one outermost stay, a keeper for the free end of the bar, said keeper bolted through the plates and serving as a pivotal mount for the opposite outermost stay, said bar shiftable to and from the keeper.

8. A collapsible shelter comprising a plurality of bowed stay devices adapted to be swung in a horizontal plane toward and from each other, a pivotal support for the several stays that is connected jointly with the upper ends of the stays, a flexible covering attached to the several stays and serving to properly space the stays one from the other when the shelter is extended to open position, at least one of said stays extended at its lower end beyond the covering and provided with a step-on device for forcing the extended end into the ground.

9. A collapsible shelter comprising a plurality of bowed stay device adapted to swing in a horizontal plane toward and from each other, a pivotal support commonly connected to the upper ends of the several stays, a flexible covering connected with the several stays and serving to properly position the several stays one from the other when in the extended open position, means carried by the pivotal support for limiting the outer swinging movement of the outermost stays, the several stays extended at their lower ends beyond the lower marginal edge of the cover to provide ground piercing members, step-on devices fixed to each extended end of the stays, the several stays when in the collapsed position adapted to lie in substantial parallelism, the several stays when in the collapsed position adapted to be folded upon themselves and means carried by the pivotal support whereby the extended ends are connected to the support for maintaining them in folded position.

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