July 11, 1944. E. CHARLOP 2,353,220

CANOPY HAMMOCK

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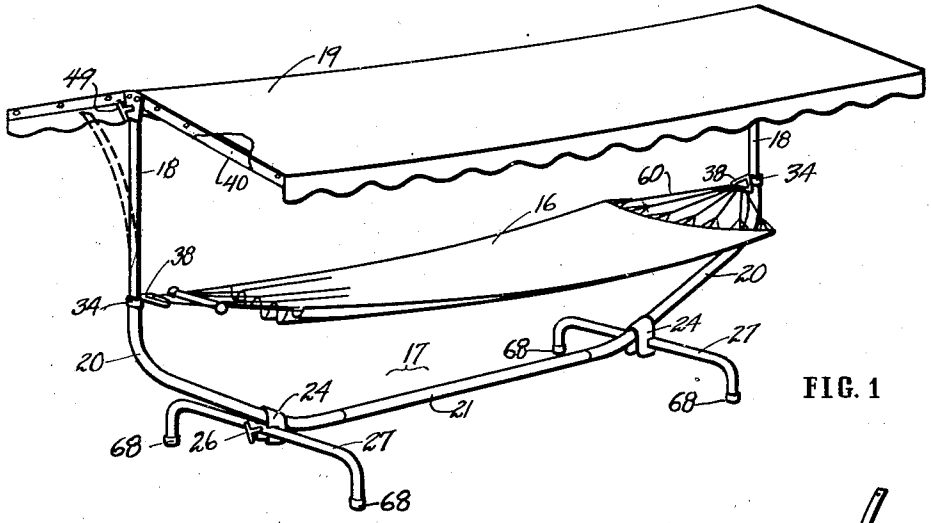


FIG. 1

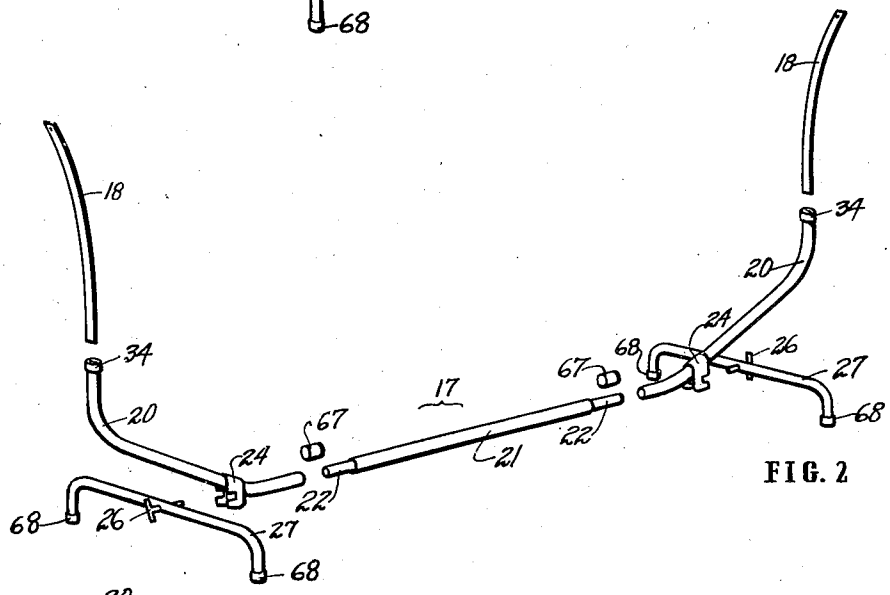


FIG. 2

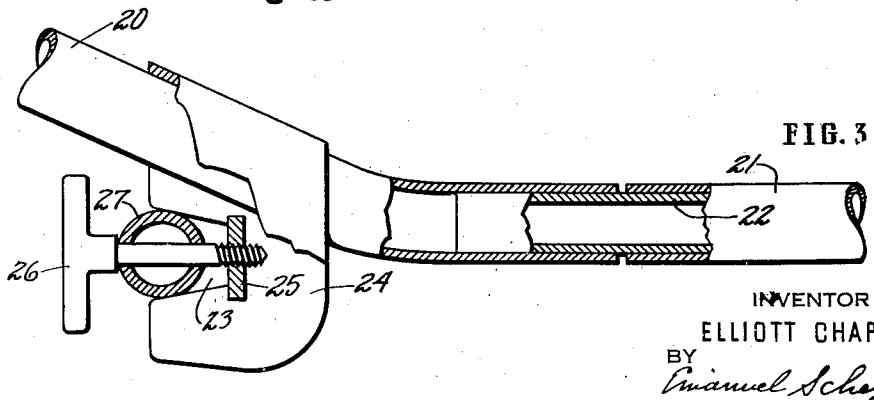


FIG. 3

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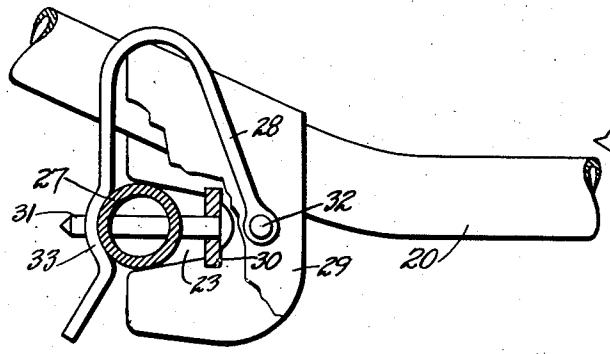


FIG. 4

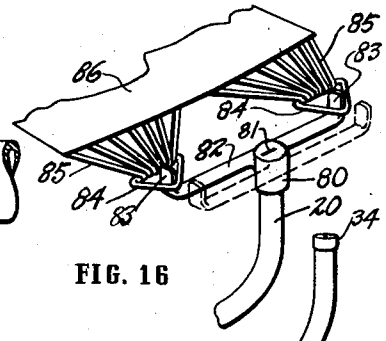


FIG. 16

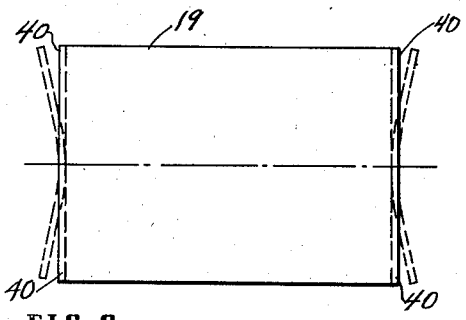


FIG. 6

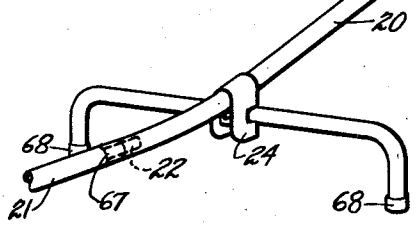


FIG. 5

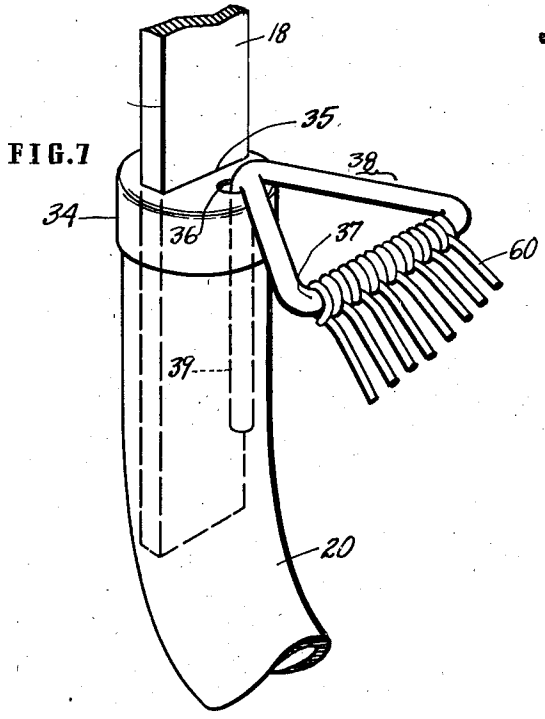


FIG. 7

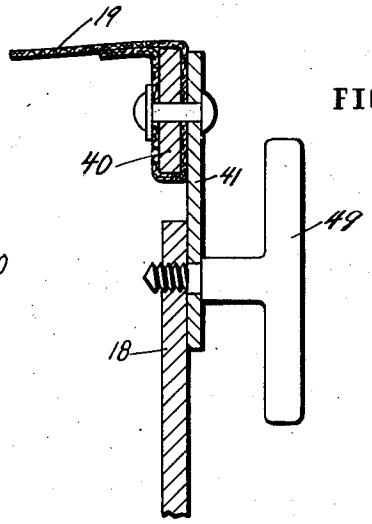


FIG. 8

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CANOPY HAMMOCK

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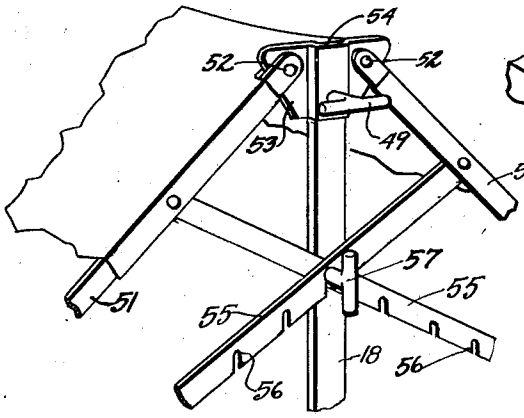


FIG. 9

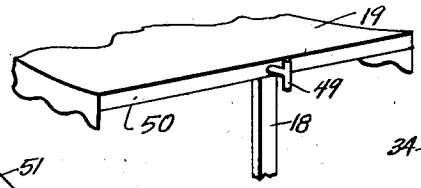


FIG. 15

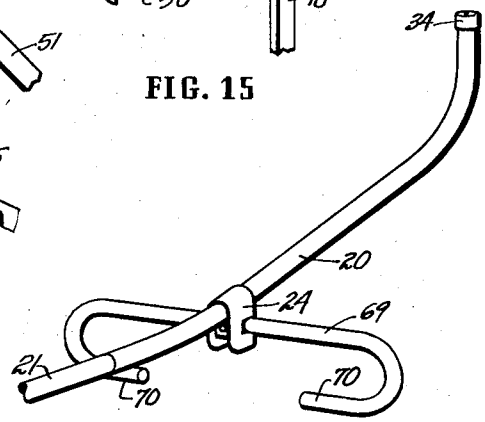


FIG. 10

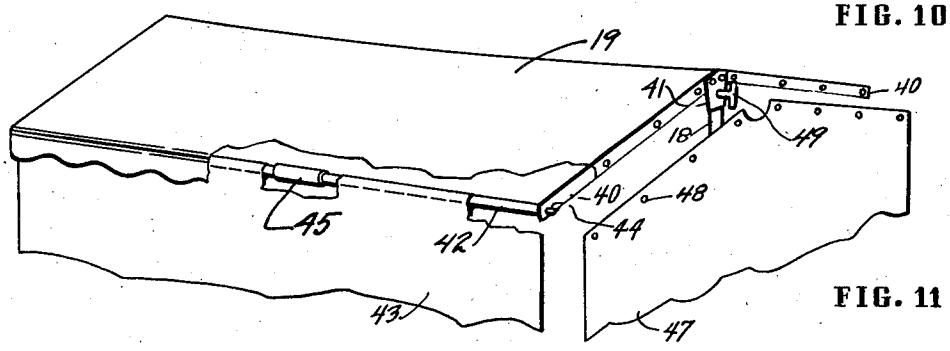


FIG. 11

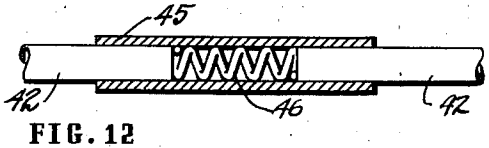


FIG. 12

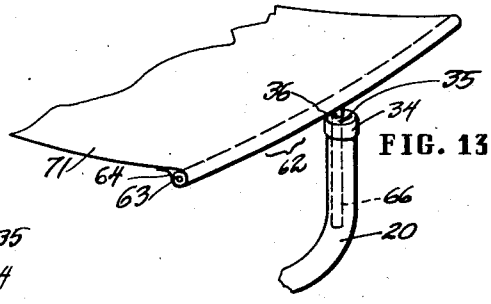


FIG. 13

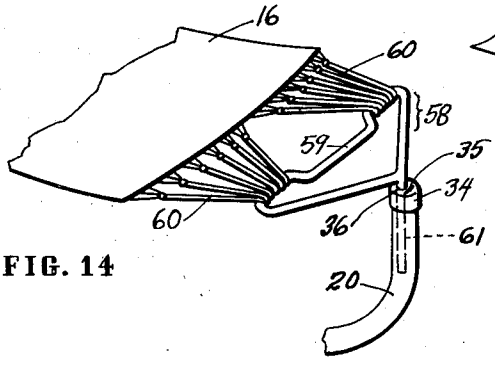


FIG. 14

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UNITED STATES PATENT OFFICE

2,353,220

CANOPY HAMMOCK

Elliott Charlop, New York, N. Y.

Application February 1, 1940, Serial No. 316,736

4 Claims. (Cl. 5—128)

This invention relates to a convertible hammock tent and support therefor. It can be used without tent flaps as a hammock with a canopy overhead both being supported on the same frame, or just with the hammock alone. These flaps are removably attachable to the canopy to hang therefrom. The frame is so constructed that it can be easily taken apart and the whole device compactly set in a container small enough that it can be readily carried by hand. The frame is of yieldable resilient construction providing a comfortable give to the hammock when loaded. The frame has provision for suspending therefrom a hanging member, that is either the canopy alone or the hammock alone, or the frame may support both such hanging members. When a canopy is supported on the frame, this give puts slack into it. The frame is so designed to put the canopy under initial tension to prevent such slack. The frame has upwardly extending spring members which normally pull in a longitudinal direction on the rafters at each end of the canopy. The rafters themselves are normally bowed each in a plane to give a longitudinal pull further to keep the canopy taut. These rafters are so mounted and constructed that the canopy may be variably tilted or the sides of the canopy set at different angles with each other. The hammock hooks supporting the hammock on the frame are of several types. One type permits a certain amount of turning or twisting of the hammock about its longitudinal axis, while the others prevent this to a very great extent.

The hammock frame is supported on a pair of cross legs. The frame is so articulated that these legs may assume various angles with the horizontal independently of each other. In this manner the feet of the cross legs can adapt themselves to support the hammock with a four point contact on uneven ground.

Owing to the fact that with continued use the hammock stretches to a certain extent, the frame is made so that it can be elongated to compensate for this stretch.

The ornamental appearance of the supporting frame is similar to that shown in my pending application Serial No. D-81,796.

Other objects and advantages will become apparent upon further study of the description and drawings, in which:—

Fig. 1 is a perspective view showing the hammock and canopy in position on the frame.

Fig. 2 is an exploded perspective view of the frame.

Fig. 3 is an enlarged view, partly in section, showing a portion of the frame and the attachment of the cross leg thereto.

Fig. 4 is an enlarged view, partly in section, showing a portion of the frame and an alternative form of attachment of the cross leg.

Fig. 5 is an enlarged perspective view of one end of the frame at the cross leg showing the use of the extension sleeve.

Fig. 6 is a plan view of the canopy, the dashed lines showing the rafters in normal unflexed condition.

Fig. 7 is an enlarged perspective view of the top of one end of the frame showing the hammock hook and the lower end of a plate spring support for the canopy.

Fig. 8 is a partial cross section to an enlarged scale through the top of a plate spring support showing the attachment thereto of a canopy rafter.

Fig. 9 is a perspective view of the top of a plate spring support showing the attachment thereto of a canopy rafter with sides angularly adjustable with respect to each other.

Fig. 10 is an enlarged perspective view of one end of the frame showing a cross leg with bent under feet.

Fig. 11 is a perspective view of the canopy showing a part of a side flap and a part of an end flap separated from a rafter, the side flap being shown hanging from a supporting bar.

Fig. 12 is a partial longitudinal section through the supporting bar showing its extension sleeve and spring.

Fig. 13 is a perspective view of the end of a cot type of hammock showing an end cross piece attached to the top of the frame so as not to tilt.

Fig. 14 is a perspective view of the shroud cords at one end of the hammock attached to a supporting hook which is shown inserted in the top of the frame, said hook preventing tilting of its adjacent end of the hammock,

Fig. 15 is a perspective view of the end of a canopy showing a straight rafter directly connected to a plate supporting spring, and

Fig. 16 is another type of hook preventing tilting of its adjacent end of the hammock.

A hammock **16** is hooked in at its ends into the top of a preferably tubular supporting frame denoted in its entirety by the numeral **17**. Rising from the lower members of the supporting frame at each end are plate spring supports **18**. Attached to the top of supports **18** are rafters **40** on which is mounted a canopy **19**.

The frame, which is substantially U-shaped, has a pair of bent preferably tubular end pieces

20 connected by a longitudinal piece 21, preferably a tube, Figs. 2 and 3. Piece 21 carries fixed to each end, on its inside, a sleeve 22. Bent pieces 20 fit slidably over sleeves 22. Near the lower bend of each end piece is fastened, preferably by welding, a U-shaped bracket 24, the legs of the U, or ears of the bracket extending below piece 20. A tapering notch 23 is provided in each leg of this bracket. In the form shown in Fig. 3, a bar 25 extends between the legs of the bracket and is fastened thereto preferably by welding. Bar 25 is provided with a tapped hole to receive the threaded end of thumb screw or bolt 26. Cross leg 27 has two diametrically opposed openings slidably to receive screw 26. Inserting screw 26 through cross leg 27 and screwing it up tight in bar 25, tightly wedges said leg in notches 23, providing a rigid detachable connection of the leg to the frame.

The form of connection for cross leg 27 shown in Fig. 4 dispenses with the thumb screw, substituting in its stead a U-shaped spring 28. Bracket 29 has a bar 30 extending between its legs and fastened thereto as in bracket 24 described above. Fixedly attached to bar 30 is a pin 31. Spring 28 is pivotally mounted on pivot pin 32 on a leg of bracket 29. Cross leg 27 is provided with diametrically opposite openings to receive pin 31. In mounting the cross leg, it is set on pin 31 in notches 23, spring 28 being turned up on its pivot pin 32 out of the way. With cross leg 27 inserted in position, spring 28 is turned down so that its concavo-convex portion 33 snaps over said leg. Normally the distance between portion 33 and pivot pin 32 is less than that shown in Fig. 4, so when the spring is set as shown, it has been flexed against its resiliency.

The upper end of each bent piece 20 is provided with a cap 34 having in it an elongated slot 35 and a hole 36. The shroud cords 60 of the hammock 16, Figs. 1 and 7 are attached to cross bar 37 of hammock hook 38. The depending arm 39 of said hook is inserted through hole 36 into the interior of bent piece 20. With a hook 38 at each end inserted in a cap 34, hammock 16 is suspended from frame 17.

When hammock 16 is loaded, frame 17 is flexed, the upper ends of bent pieces 20 being pulled toward each other. Were supports 18 for canopy 19 ordinary stiff rods, the canopy would sag when the hammock is loaded. In order to prevent this, supports 18 are plate springs which must be flexed against their resilience in order to mount the canopy thereon. At each end of the frame, a spring support 18 is inserted in slot 35 in a cap 34, the spring support exending down in bent piece 20 until stopped by the upper bend of the latter. As shown in Fig. 2 and in dotted lines in Fig. 1, spring supports 18 are bowed outward when unstressed, requiring their straightening, as shown in Fig. 1, to allow attachment of the canopy. This holds the canopy under tension at all times, the bending out of spring supports 18 compensating for the shortening of the distance between the upper ends of bent pieces 20. It is not necessary, though preferable, that springs 18 be normally or initially bowed as in Fig. 2. They could be normally straight, but bent inward out of line against their resiliency in order to mount the canopy on them. Further, the compensating result could also be obtained if only one of the supports 18 were a plate spring under flexure, the other support being stiff.

In Figs. 6 and 11, canopy 19 is shown supported on rafters 40, there being a pair at each end of the canopy. The rafters 40 of a pair, in Fig. 11, are inclined to one another, but are integral with each other, each pair forming a single piece. A gusset plate 41 is riveted to rafters 40. As seen in Fig. 6, in dashed lines each pair of rafters 40 is normally bowed longitudinally of the canopy, that is bowed away from each other when viewed in plan. This assists in keeping the canopy taut at its edges. As with plate spring supports 18, it is necessary, though not preferable, only to have one pair of rafters bowed. The stretching of the edges of the canopy can be assisted, if not effected, by a rod 42, which can also be used to support a side flap 43. The ends of rod 42 are provided with pins, one being seen at 44, which fit in holes in the ends of rafters 40. Rod 42 is made up of two parts, Fig. 12, set in a sleeve 45 with a spring 46 between them. Instead of the split rod just described, a one piece rod could be used with pins 44 on the end for mounting it in the rafters. By having the one piece rod of excess length, it would stretch the canopy at the edge when set between corresponding rafters of the pairs.

If it be desired to use end flaps, one of which is seen at 47, they can be attached by suitable fasteners 48 to rafters 40.

Each pair of rafters 40 is attached to a support 18 by means of a hand screw 49 extending through its gusset plate 41 (Fig. 8), into a tapped hole in a support 18. This construction enables the pairs of rafters to be adjustably set at various inclinations with respect to supports 18.

Instead of using rafters with the rafters of a pair inclined to each other as rafters 40 in Fig. 11, straight one piece rafters 50, as seen in Fig. 15, could be used. In plan view these rafters, Fig. 6, are normally bowed out as shown in dashed lines as was explained above for rafters 40. These rafters are attached by a screw 49 directly to supports 18 which permits them to be set at various inclinations with respect to supports 18.

Still another type of rafter is shown in Fig. 9. Here the rafters 51 of a pair are hingedly mounted, each by means of a pin 52 on a gusset plate 53. An offset portion 54 is provided in gusset plate 53 so that when the latter is set on support 18, the offset portion will receive the support. Hand screw 49 passes through gusset plate 53 into a tapped hole in support 18 as was explained above in connection with Fig. 8. Because support 18 sets into offset portion 54, gusset plate 53 cannot be adjustably set in different angular positions with respect to support 18 as can gusset plate 41 in Figs. 8 and 11. Each rafter 50 has pivotally attached to it a setting bar 55 provided with notches 56, fitting over thumb screw 57, which enables the rafters to be adjustably set in different angular positions with respect to supports 18. Thumb screw 57 is screwed in a tapped hole (not shown) in support 18.

Hammock hook 38 of Fig. 7 permits a fairly free turning or twisting of hammock 16 about its longitudinal axis. Hook 58 of Fig. 14, to a great extent prevents such turning because its cross bar 59 is longer, permitting a wide spread of shroud cords 60. Hook 58 cannot rotate about a horizontal axis because of the fit of its depending arm 61 in hole 36 of cap 34. Should there be considerable play in said hole, the lower end of arm 61 will contact with the inside of piece 20 and stop said rotation.

In Fig. 13 there is shown a hook 62, which like

hook 58 of Fig. 14 prevents the rotation as noted above. Hook 62 is particularly adapted to a hammock 71 of the cot type, that is one without the use of shroud cords. Cross bar 63 consists of a tube fitting in a loop 64 of cot 71. Depending arm 66 fits in hole 36 of cap 34 extending into piece 20.

The nature of hammock 16 and canopy 19 is such that they will stretch in use. When this occurs, even with the use of plate spring supports 18, canopy 19 may sag and the hammock may be too loose. In order to obviate this, insert tubes or extension sleeves 67 are provided, Figs. 2 and 5 which can be placed over sleeves 22 between frame pieces 20 and 21. The insertion of insert tubes 67 will increase the distance between caps 34. For a slight stretch it may be sufficient to use only one insert tube 67.

As has been noted above, end pieces 20 are slidably mounted on sleeves 22 carried by frame piece 21. Such mounting permits pieces 20, which carry cross legs 27 fixed to them, to rotate about the longitudinal axis of piece 21. Should the ground upon which cross legs 27 are set be uneven, said legs can rotate about sleeves 22 so that their feet 68 will suit the elevations of the ground. Both cross legs, however need not be capable of relative rotation with respect to piece 21 to achieve this independent adaptation to the ground. Only one cross leg need rotate for four point contact.

In Fig. 10, cross leg 69 has bent under feet 70 to provide greater bearing area for the load brought upon the ground or floor.

Although end pieces 20 are slidably mounted on sleeves 22, the frame as a whole will not come apart under ordinary usage as the feet of cross legs 27 or 69, due to the weight carried by them, grip the ground. Should the hammock and its frame be pulled about to change its location, end pieces 20 are prevented from coming off sleeves 22 by the tying together action of the hammock with its hammock hooks setting in holes 36 of caps 34. The mounting of canopy 19 on supports 18, which latter also enter caps 34, also prevents the frame from coming apart.

The frame is so designed and its parts so proportioned that it can be readily taken apart and carried in a moderate sized carrying case which can also hold the hammock and canopy.

In Fig. 16 is shown another type of non-tilt hammock support or hook. This support is also useful as a simple means of increasing the distance between the points of suspension of the hammock at opposite ends of the frame. The hook comprises a sleeve 80 which fits like a cap on the top of a piece 20, said sleeve having a slot 81 in its top for the insertion of a spring support 18, not shown, just as is the case with slot 35 in cap 34 of Fig. 14. Eccentrically mounted on sleeve 80 is a cross bar 82 having short uprights or hooks 83 at its extremities. Engaging uprights 83 are rings 84, each ring holding a group of shroud cords 85. The gathering of the shroud cords into two groups, which are held a substantial distance apart from each other at their apices, tends to prevent twisting of hammock 86 about its longitudinal axis while the fit of sleeve 80 on the upper end of piece 20 keeps cross bar 82 in a substantially horizontal plane. Sleeve 80, with hammock 86 disconnected at the time, can be rotated 180 degrees on piece 20 so that cross bar 82 assumes the position shown by the dotted lines. Uprights 83 will then have moved outward a distance substantially equal to twice the eccentricity of bar 82 on sleeve 80, thereby increasing the longitudinal distance between the points of suspension of the hammock at opposite ends of the frame. This is useful in taking up slack developed in the hammock due to its stretching after prolonged use.

As shown in Fig. 16, sleeve 80 is set over the top of piece 20 without the use of a cap 34. However where it should be desired to use the types of hooks shown in Figs. 7, 13 and 14, at times, as well, sleeve 80 is made large enough to set over cap 34, the frame being supplied with said cap. Sleeve 80 with its arm 82 is then removed when it is desired to use said other type of hooks.

I claim:

1. A support for a canopy hammock comprising a frame having tubular upwardly extending parts at its ends, a base for said frame, means for attaching a hammock at each of its ends to the upper portion of one of said parts, a closure for the top of each of said parts, said closure consisting of a cap having a web portion and a sleeve portion which fits over a part, a bar at the upper end of each part, each bar having its lower end inserted through an opening provided in the web of a cap into the inside of a part, and means for attaching a canopy at each end to the upper end of one of said bars, at least one of said bars being a spring bar, requiring the bending thereof against its resiliency toward the other bar to permit the attachment of the canopy, whereby the canopy is kept taut.

2. A support for a canopy hammock comprising a substantially U-shaped frame having tubular upwardly extending parts at its ends, a base for said frame, a closure for the top of each of said parts, said closure consisting of a cap having a web portion and a sleeve portion which fits over a part, a bar at the upper end of each part, at least one of said bars being a spring bar, each bar having its lower end removably inserted through an opening provided in said web and extending well into the inside of a part, means for attaching a canopy at each end to the upper end of one of said bars, hooks for holding the ends of a hammock, each hook having a downwardly extending arm removably inserted through an opening in said web and extending well into the inside of a part, said latter opening being provided in the web of each cap in addition to the opening provided for the bar.

3. A hook for supporting a hammock comprising a ring-shaped member, one side of said member when supporting a hammock extending generally transversely of the hammock having a portion at each end offset toward the hammock, with the shroud cords of the hammock tied to said side in the offset portions, bunching the cords therein, and an arm extending downward from the opposite side of said member for removable engagement with a hammock supporting frame, said arm being of substantial length relatively to the transverse extent of said member.

4. For use in a hammock construction having a supporting frame with upwardly extending parts at its ends, a hook having a substantially horizontal cross bar, said bar being offset at predetermined locations to hold the shroud cords of the hammock in a bunch at each location, and a member attached to and extending downward from said bar and removably braced to an upwardly extending part of the frame.

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