Oct. 1, 1963 R. A. MAYBEE 3,105,505

MULTIPLE PURPOSE PORTABLE AND COLLAPSIBLE TENT

Filed April 10, 1961

FIG.1.

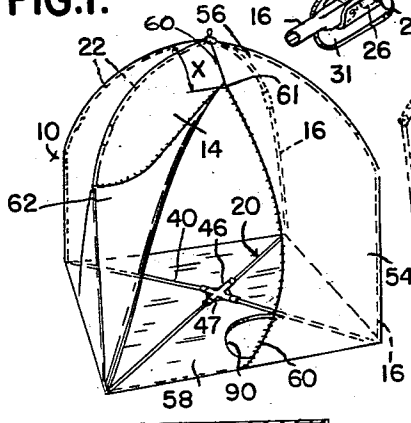


FIG.9.

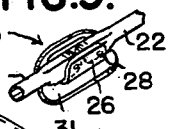
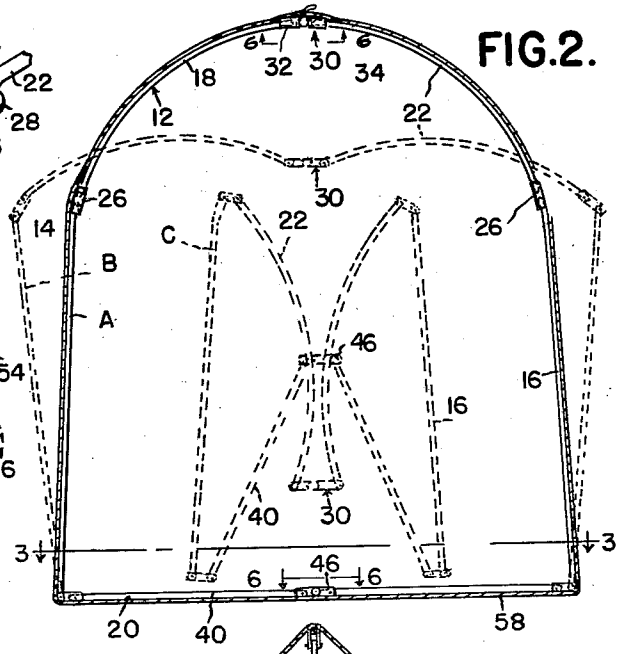


FIG.2.



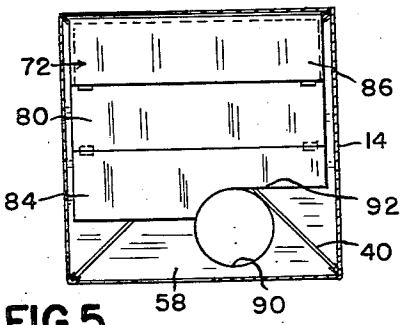


FIG.5.

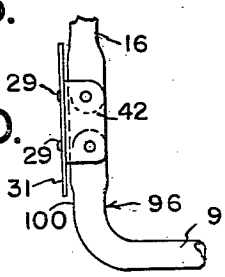


FIG.10.

FIG.3.

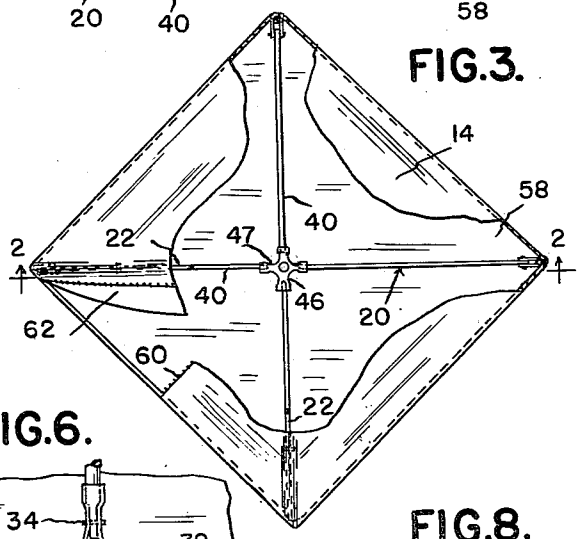


FIG.6.

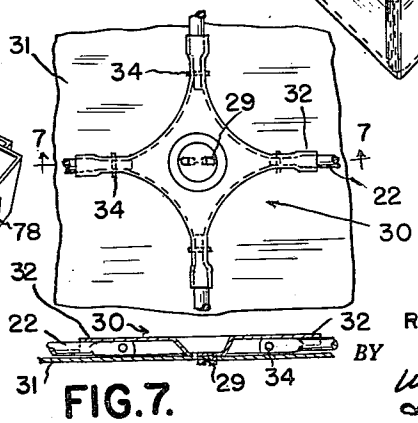


FIG.4.

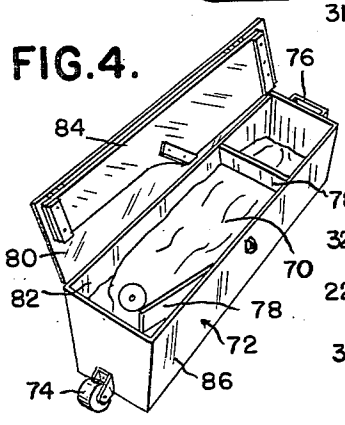
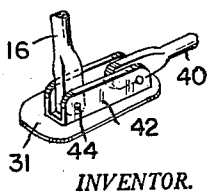


FIG.7.

FIG.8.



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United States Patent Office 3,105,505 Patented Oct. 1, 1963

3,105,505
MULTIPLE PURPOSE PORTABLE AND COLLAPSIBLE TENT

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Filed Apr. 10, 1961, Ser. No. 101,913
3 Claims. (Cl. 135—4)

This invention relates to a multiple purpose portable and collapsible tent. More particularly, this invention relates to a tent construction which includes a self-supporting frame having a fabric enclosure for completely enclosing the interior of the tent. The tent is characacterized by the ease and manner in which one person may erect the tent for use and collapse or fold the tent so as to embody a substantially small and compact article or package. The tent of the type described is especially adapted for use by fishermen, bathers, hunters, and campers or the like.

The invention further relates to improvements in a pivoted tent frame structure and has reference more particularly to the provision of a novel, collapsible frame structure for a tent which is easily folded about the longitudinal axis of the frame in a minimum amount of time and effort.

It is an object of the present invention to provide a collapsible frame structure for supporting a tent, and in which the structure is free of any central self-supporting leg or structural member that would interference with the freedom of use of the enclosed area of the tent.

It is another object of the present invention to provide a foldable tent structure which is self supporting in that it does not require that any of the legs thereof be actually inserted into the adjacent ground for support.

Still another object of the present invention is to provide a tent supporting structure that may be easily, readily and quickly folded into a compact bundle for convenient storage and which may be likewise easily and readily erected.

A further object of the present invention is to provide a tent structure of the type described which is adapted to be folded into a compact elongated package or bundle and inserted into a companion traveling case, said case further serving the purpose of providing a body support or rest for use in the tent by an occupant when the tent is erected.

A still further object of the present invention is to provide a self-supporting tent frame structure which is adapted to be erected or folded by one person and which is sufficiently shaped and balanced so as to be maintained in an erected position despite all sorts of inclement weather.

Another object of the present invention is to provide a self-supporting tent made from lightweight material and including a collapsible frame having thereon a fabric enclosure for completely enclosing the interior of the tent.

Still another object of the present invention is to provide a structure of the type just described wherein a zipper having a slider is provided on the complementary edges of the door flap, formed in the fabric enclosure, and the mating edge of the fabric enclosure so as to permit the door flap to be closed when desired.

A further object of the present invention is to provide a tent of the type just described wherein the zipper-slider construction provides means for locking the tent structure in an erected position regardless of whether the door flap is opened or closed.

A still further object of the present invention is to provide an integral tent structure in which all the parts are adapted to be folded together and which is economical to manufacture, assemble and maintain.

Other objects and features of the invention will become

apparent as the description proceeds, especially when taken in conjunction will the accompanying drawing, illustrating preferred embodiments of the invention, wherein:

FIGURE 1 is a perspective view of the tent with the door flap in an open position so as to expose the interior thereof.

FIGURE 2 is a diagrammatic elevational view illustrating the manner in which the tubular frame structure is expanded from a substantially compact package or bundle to an erected position.

FIGURE 3 is a bottom view looking in the direction of arrows 3—3 of FIGURE 2.

FIGURE 4 is a perspective view of the traveling case in which the compact and folded tent is adapted to be transported.

FIGURE 5 is a plan view from the interior of the tent showing the traveling case in an expanded position so as to provide a body support as well as an additional floor for the tent.

FIGURE 6 is a plan view of the central top or bottom members looking in the direction of arrows 6—6 of FIGURE 2.

FIGURE 7 is a sectional view taken on the line 7—7 of FIGURE 6.

FIGURE 8 is a pictorial view illustrating the hinge connection between one of the vertical posts and its corresponding bottom rod.

FIGURE 9 illustrates the hing connection between the top end of one of the vertical posts and the corresponding end of one of the ribs forming part of the roof structure.

FIGURE 10 is a modification of the bottom rod showing its connection to a vertical post.

In the past, many various types of tents have been proposed which included a central supporting leg which interfered with the use of the tent or which utilized corner supporting legs or straps which were adapted to be inserted or connected to the ground. In addition, the prior art tent structures have been rather cumbersome to handle since many required more than one person to erect or required considerable time and effort if one person were to erect or collapse the tent.

This invention has overcome many of the prior art problems by providing a lightweight, portable, foldable tent structure which includes a collapsible floor that provides the requisite balance for the tent.

Referring now to the drawing, the tent structure is illustrated in FIGURE 1 and is designated by the numeral 10. The tent structure 10 includes the framework 12, as is best illustrated in FIGURE 2, and the fabric enclosure designated by the numeral 14.

The frame 12 has two pairs of corner posts 16 which, when erected, extend in a substantially vertical direction. The frames tructure 12 includes an upper supporting roof framework 18 and a lower floor framework 20.

The roof framework 18 is crowned and includes a plurality of diagonally extending curved ribs or arms 22 which extend downwardly from the uppermost central part of the erected tent to their corresponding corner posts 16. Each rib 22 corresponds to one of the posts 16 and is pivotally connected thereto by means of a pivot connection 23, as illustrated in FIGURE 9. The pivot connection 23 includes a U-shaped elongated member 26 which is adapted to receive the upper end of the post 16 and the outer end of the rib 22. Pivot pins 28 extend through the side walls of the U-shaped member 26 and the post 16 and rib 22 so as to properly support the post 16 and rib 22 for relative pivotal movement. The post 16 and rib 22 have holes therein which are larger than the holes in the U-shaped member 26 to provide a predetermined amount of "play" between the post 16, rib 22 and the pivot pins 28.

The opposite ends of the ribs 22 are connected to a central upper member 30, as is best illustrated in FIGURE 6. The central upper member 30 has a pair of tabs 29 for gripping a fabric pad 31. All of the pivotal connections, as illustrated in FIGURES 7–10, utilize tabs 29 and a fabric pad 31 for preventing the pivotal connections from damaging the fabric enclosure 14. The member 30 is shaped in the form of a spider so as to have radially extending arms 32 which have a U-shaped cross section. The interior of the arms 32 is adapted to receive the inner ends of the ribs 22. Pins 34 extend through the side walls of the arms 32 and the ribs 22 so as to properly support the post 16 and rib 22 for relative pivotal movement.

The floor supporting framework 20 has a plurality of diagonally extending rods 40, as is best illustrated in FIGURES 1–3. Each of the rods 40 is pivotally connected to the lower end of one of the posts 16, as is best illustrated in FIGURE 8. An elongated U-shaped member 42 is adapted to receive the lower end of the post 16 and the outer end of the rod 40. Pins 44 extend through the U-shaped member 42, post 16 and rod 40 so as to form a pivot connection.

The inner ends of the rods 40 are connected to a central lower member 46 which is similar in construction to the central upper member 30 shown in FIGURE 6. The inner ends of the arms 40 are received by the radially extending arms 47 of the central lower member 46 and are pin connected thereto as has been previously explained for the central upper member 30.

A fabric enclosure made from suitable material, such as canvas, is provided around the frame structure 12 so as to completely enclose the interior thereof. The fabric material is designated by the numeral 50 and includes fabric sides 54, a fabric dome-shaped top 56, and a fabric bottom 58.

The fabric sides 54, top 56 and bottom 58 are provided with sufficient fastening loops, tabs or the like, not shown, through which the posts 16, ribs 22 and rods 40 extend and which secure the fabric to the frame of the tent. In addition, the fabric may be appropriately sewed, stapled, stitched or otherwise secured to the frame. Regardless of the manner of securing the fabric to the frame of the tent, it is important that the fabric is arranged so that it may be folded with the frame structure without injury or damage to the fabric.

One of the fabric sides 54 has an elongated slit therein extending from the central upper member 30 to the floor of the tent so as to form a door flap 62. A zipper 60 is provided on the outer edge of the door flap 62 and the mating edge of the fabric side 54. The zipper 60, which is provided with a slider 61, extends from the central upper member 30 to the floor. The zipper 60 and slider 61 cooperate to provide an important dual function not heretofore provided in tent structures of the type described.

After the tent has been erected, it is necessary to lock the frame of the tent and to draw the fabric snugly. Such is accomplished by moving the slider 61 a distance "X," to the position illustrated in FIGURE 1. When the slider 61 is in the position illustrated in FIGURE 1, a downward force applied to the central upper member 30 will not move the posts 16 from the position A, shown in solid lines in FIGURE 2. This is due to the fact that the slider 61, when moved to the position illustrated in FIGURE 1 pulls the fabric snugly and firmly, thereby holding the frame in position A and preventing the frame from moving outwardly to position B.

When it is desirable to close the door flap 62, all that is required is that the slider 61 be moved downwardly to the floor so as to draw the zipper 60 provided on the door flap 62 and the mating edge of the fabric side 54 together to close the interior of the tent. From such a construction, it is apparent that the zipper-slider construction locks the frame in an erected position and also closes the door flap 62 when required.

The central upper and lower members 30 and 46 lie on the longitudinal axis of the tent 10 when in an erected position. It should be noted that the various ribs 22 and rods 40 are all pivotally connected to the posts 16.

When the tent is folded, it takes the form of an elongated bundle 70. The bundle 70 is adapted to be transported in a box, case or container 72 illustrated in FIGURE 4. The box 72 has a roller 74 and a handle 76 which facilitates moving the box 72 over the ground. As an alternative, the bundle 70 may be provided with carrying straps so that a person may carry the folded tent on his back or with his hands.

The box 72 includes a cover 80 pivotally connected to the back wall 82 of the box 72. The cover 80 has a floor member 84 pivotally connected thereto which is used for a purpose to be hereinafter described. When transporting the bundle 70, the cover 80 closes the interior of the box 72 and is appropriately secured to the front wall 86 by fastening means, not shown. Stops 78 are provided in the interior of the box 72 for supporting the cover 80 when a person is sitting thereon.

After the tent has been erected, the box 72 is adapted to be used in the interior of the tent as a body support. The cover 80 and member 84 are so connected and arranged as to unfold on the floor of the tent, thereby providing a cover for the floor of the tent. This arrangement is particularly useful when the tent is utilized for ice fishing. The fabric bottom 58 has a circular hole 90 provided therein which is adapted to fit over the hole in the ice. The member 84 is provided with a portion 92 which is also adapted to fit around the hole in the ice. A person who is ice fishing may sit on the front wall 86 of the box 72 and place his feet on the cover 80 or the floor member 84.

When erecting or folding the tent 10, a two-step operation is required. When erecting the tent 10, the bundle 70 is removed from the box 72 or unstrapped and placed in a vertical position, with the central lower member 46 located above the top member 30, as is shown in dotted lines in FIGURE 2. The four pivotal connections 23 are moved apart or separated. The person pulls upwardly on the central member 30 and pushes downwardly on the lower member 46 so that one of the members 30 or 46 is moved out of the plane of the longitudinal axis of the tent to permit member 30 and member 46 to pass one another. Continued movement of the members 30 and 46 first moves the post 16, ribs 22 and rods 40 from the position C illustrated in FIGURE 2 to the position B. Further movement of members 30 and 46 forms the tent to the shape illustrated by position A. It is then necessary to pull the fabric tightly and firmly on the frame by moving the slider 61 a distance X, as shown in FIGURE 1.

When folding the tent 10, the slider 61 is moved upwardly so as to unlock the frame and fabric. A downward force is applied to the central upper member 30 and an upward force is applied to the lower member 46. The lower member 46 is pulled through the zipper opening and moved to the position illustrated by position C of FIGURE 2. The fabric is then pulled, drawn or folded around and in between the frame to form the bundle 70. A closing strap, not shown, is used to maintain the bundle in the folded position.

The posts, ribs and rods are of tubular construction and are made from lightweight material such as aluminum. The fabric enclosure may be made from canvas, plastic or other lightweight material.

From such a description, it is apparent that I have provided a tent structure which may be easily erected or folded by one person in a minimum amount of time and with a minimum amount of effort.

FIGURE 10 illustrates a modification of the present

invention wherein instead of utilizing the straight rods **40**, a rod **96** is provided which has a horizontally extending portion **98** and a vertically extending portion **100**. The rod portion **100** generally has a length of approximately one foot and provides a means for adding additional height to the tent structure. The rod portion **100** is pivotally connected to a vertical post **16** by means of the U-shaped clamping member **42** as illustrated in FIGURE 8.

Regardless of which embodiment of the invention is utilized, when the slider **61** is moved a distance "X," the fabric is firmly pulled around the frame to remove any slack in the fabric enclosure. This results in the fabric enclosure providing an inwardly directed force which places the frame under tension. This is an important advantage since it not only locks the frame in an erected position, but also provides for a neat and attractive appearing tent structure.

The drawing and the foregoing specification constitute a description of the improved multiple purpose portable and collapsible tent in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A self-supporting portable lightweight tent comprising a frame foldable about its longitudinal axis, said frame including vertically arranged posts at the corners thereof having upper and lower ends, central top and bottom connecting members spaced axially along the aforesaid axis, a first set of diagonally extending ribs curving downwardly with respect to the aforesaid axis and having inner and outer ends, means pivotally connecting the inner ends of said ribs to said top connecting member, means pivotally connecting the outer ends of said ribs to the upper ends of said posts, said ribs forming the roof structure of the tent, a second set of diagonally extending ground engaging rods forming the support for the bottom of the frame, means pivotally connecting the inner ends of said rods to said bottom connecting member, means pivotally connecting the outer ends of said rods to the lower ends of said posts, a fabric bottom

connected to said rods and forming the floor of said tent, a fabric enclosure for said frame appropriately connected thereto, an elongated slit provided in the fabric enclosure and extending from a point adjacent said top member downwardly along one side thereof to an edge of said fabric bottom, an integral door flap included in said fabric enclosure and defined in part by one side of said slit, and zipper means including a slider provided on said door flap and the mating edge of said fabric enclosure defined by the other side of said slit, said slider upon erection of the tent being located adjacent said top connecting member with the door flap and mating edge of the fabric enclosure apart, said slider being adapted to be moved downwardly a relatively short distance to pull the fabric enclosure firmly around the frame to remove any slack in the fabric enclosure to thereby result in an inwardly directed force applied by said fabric enclosure against said frame which places said frame under tension, and said slider being adapted to be moved downwardly the remaining distance to the aforesaid edge of said fabric bottom to interconnect said door flap with the aforesaid mating edge of the fabric enclosure.

2. A self-supporting portable lightweight tent defined in claim 1 wherein said top and bottom connecting members are provided with arms having U-shaped cross-sections and which are adapted to receive the inner ends of said ribs and rods respectively.

3. A self-supporting portable lightweight tent defined in claim 2 wherein an opening is provided in the fabric bottom near one edge thereof.

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