Mar. 27, 1923. 1,449,894

G. H. DIAL

COLLAPSIBLE TENT

Filed July 10, 1920 2 sheets-sheet 1

Fig. 1

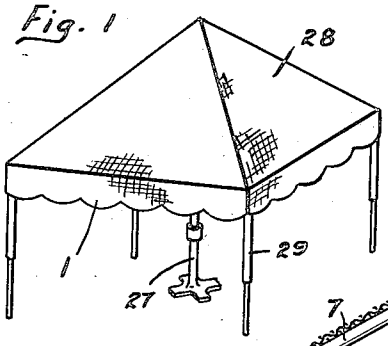
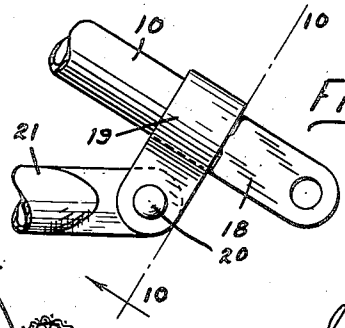


Fig. 9



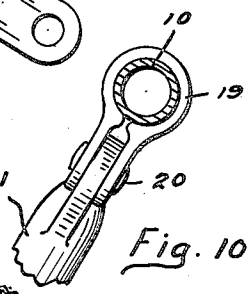


Fig. 10

Fig. 2

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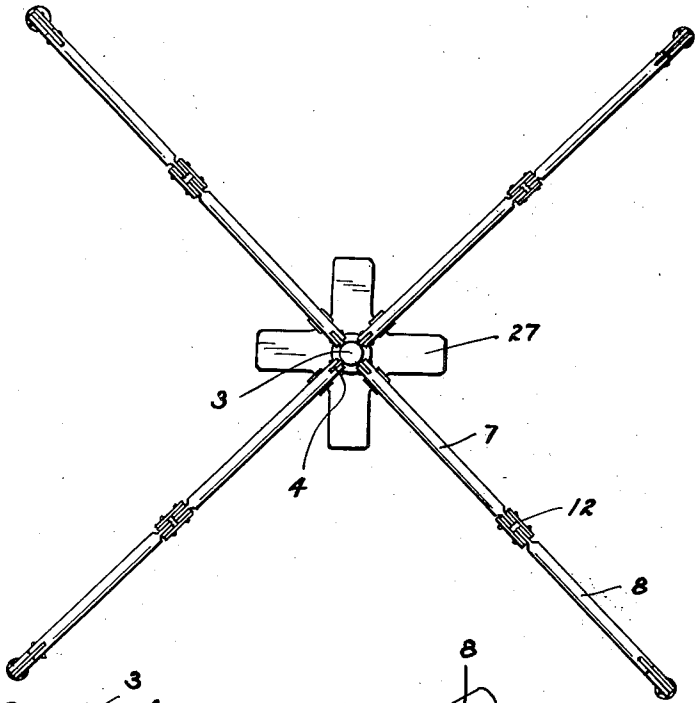


Fig. 3

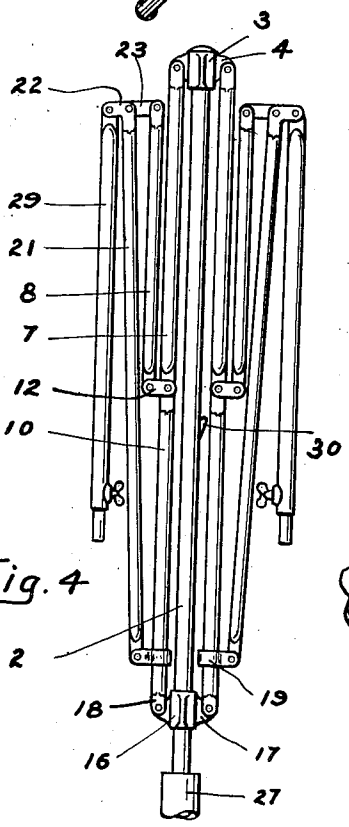


Fig. 4

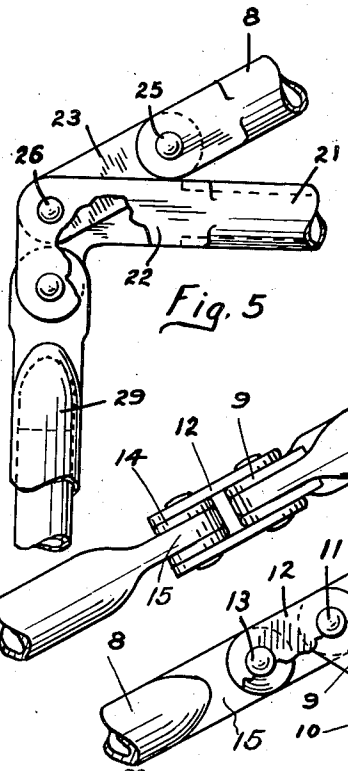


Fig. 5

Fig. 8

Fig. 7

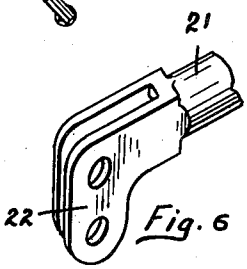


Fig. 6

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UNITED STATES PATENT OFFICE.

GEORGE H. DIAL, OF COLUMBUS, OHIO.

COLLAPSIBLE TENT.

Application filed July 10, 1920. Serial No. 395,263.

To all whom it may concern:

Be it known that GEORGE H. DIAL, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, has invented certain new and useful Improvements in Collapsible Tents, of which the following is a specification.

This invention relates to improvements in collapsible tents, and has particular reference to an improved form of tent primarily adapted for use by motorists and for other outing purposes, the construction being such as to enable the tent to be readily erected so as to afford adequate protection from the elements, and to be also capable, when not in use, of being folded or collapsed, so that the same will occupy but a minimum of space when carried or stored away.

Another object of the invention resides in the provision of a tent of the above character wherein is provided a frame structure of a novel and improved character, which frame structure is formed to include a plurality of pivotally mounted and braced ribs, which may be readily expanded in umbrella fashion in the erection of the tent, and said ribs are also of such construction that when the tent is folded the ribs will be hinged in such manner that their effective length will be considerably reduced when compared with their expanded length, a feature which assists greatly in folding the tent into a compact and small bundle.

Other objects of the invention reside in forming the tent in such manner that when erected, the canopy thereof will be of pyramidal formation, and to provide the outer corners of said canopy with depending adjustable leg members, which serve to strengthen and stabilize the tent structure and to render the latter fully capable of resisting the effects of adverse weather; in the provision of improved articulated connections between the various members of the frame of the tent, which connections act to rigidly hold the frame in its expanded position and at the same time enable the frame to be readily collapsed when not in use into a very compact condition, and in the provision of a tent structure which will be substantial and durable, cheap and simple to manufacture, convenient to assemble and erect and particularly light in weight.

With these and other objects in view, as will appear as the description proceeds, the invention accordingly consists in the novel features of construction, combination of elements and arrangement of parts, hereinafter to be fully described and to have the scope thereof pointed out in the appended claims.

In the accompanying drawings, forming a part of this specification, and in which similar characters of reference denote like and corresponding parts:

Figure 1 is a perspective view disclosing the improved tent structure comprising the present invention in its erected or set up position.

Figure 2 is a vertical sectional view taken through the tent structure.

Figure 3 is a plan view of the frame structure.

Figure 4 is a side elevation showing the frame structure in its collapsed position.

Figure 5 is a detailed side elevation of the joint construction found between the outer ends of the supporting ribs, the radiating arms and the depending leg members.

Figure 6 is a detailed perspective view of the yokes provided at the outer ends of the radiating arms employed in said outer connection.

Figure 7 is a side elevation disclosing the link connection between the meeting ends of the rib sections and the outer ends of the brace members.

Figure 8 is a top plan view of the connection shown in Figure 7.

Figure 9 is a side elevation of the connection between the brace members and the radiating arms, and,

Figure 10 is a sectional view taken along the plane disclosed by the line 10—10 of Figure 9.

Referring more particularly to the details of the invention, as the latter is set forth in the accompanying drawings, use is made of a tent structure 1 which in its preferred form comprises a centrally located standard or staff 2. This standard may be formed from any suitable material and of any desired length, the upper end thereof being equipped with a casting 3, which is stationarily mounted in any suitable manner in connection with said staff and is provided with a plurality of apertured outstanding ears 4. Pivotally connected with these ears are the bifurcated extremities 5 of a plurality of foldable ribs 6. When the tent is erected, these ribs extend in a radial

manner from the staff 2 on a downwardly directed angle, such as is clearly shown in Figure 2.

Each of the ribs 6 is formed from a plurality of substantially duplicate sections 7 and 8, the upper ends of the sections 7 being pivotally connected to the ears 4, while the lower ends of said sections are suitably apertured and are positioned between the upper bifurcated ends 9 of a plurality of brace members 10. Pins 11 are arranged to pass through aligned apertures provided in the lower ends of the sections 7 and the ends 9 of the brace members, and the said pins are also extended so as to pass through a plurality of links 12, whereby the lower ends of the sections 7, the upper bifurcated ends 9 of the brace members 10 and the links 12 will all be pivotally assembled and held together by virtue of the pin construction 11. The sections 8 are pivotally connected with the sections 7 by extending the links 12 to receive pins 13, which latter pass through washers 14 and also through apertures provided in the upper reduced ends 15 of the sections 8. It will be noticed that by virtue of this construction, the sections 7 and 8 of the ribs may be folded so as to extend in side by side relationship substantially after the manner illustrated in Figure 4, and that by virtue of this pivotal connection, the length of the rib 6 will be materially reduced when the tent frame assumes its collapsed position.

To raise and lower the frame, the staff 2 is provided with a slidably mounted runner 16 from which extend laterally projecting irregular ears 17. These ears are suitably apertured and are arranged to receive the lower bifurcated ends 18 of the brace members 10, whereby upon the raising and lowering of the runner, corresponding movement will be imparted to the rib construction, substantially in umbrella fashion. This construction is particularly desirable in a tent of this character, inasmuch as it enables the tent to be compactly collapsed and also to be readily extended to assume an active position. To strengthen the frame construction, and to provide a tent of durable and staunch construction, the lower ends of the brace members are provided with clamps 19 which pivotally receive as at 20 the inner ends of a plurality of radiating arms 21. These arms extend outwardly, as shown in Figures 5 and 6, and are provided at their extreme outer ends with spaced jaws 22, which receive between them the lower ends of a plurality of links 23, which latter are carried pivotally as at 25 by the outer ends of the rib sections 8. Pivots 26, also, pass through apertures provided in the jaws 22 and registering apertures provided in the outer ends of the links 23, a construction which articulately joins the ribs 6 with the outer ends of the radiating arms, rendering the frame strong and substantial in construction, capable of being readily folded, and when folded to assume a very compact relationship between parts. It will be observed that by the provision of the brace members 10 and the radiating arms, the frame will include a strong truss construction which will be fully capable of enabling the tent to withstand the stresses and wear incident to actual use.

To support the tent in its expanded condition, the staff 2 may be of such length as to be driven into the ground, but is preferably somewhat reduced over this length in order to be positioned within the upper socketed end of a pedestal 27, which may be used or not as desired. However, by the provision of the pedestal 27, it will be obvious that the length of the staff 2 may be reduced so that when stored, the tent will be of relatively short length. Any suitable covering may be provided for the frame, and a fabric canopy 28 has been shown in the drawings for this purpose. It is obvious that the canopy 28 will be formed from a flexible material which will be impervious to the elements, and by being of a flexible nature, the canopy will not interfere with the folding or collapsing of the frame structure. As shown in Figure 1, when set up the canopy would be of pyramidal formation and construction which enables the full area of the tent to be utilized for practical purposes. In this connection it will be noted that the frame elements of the tent are situated in the upper portion thereof, so as to be out of the way of those within the tent. It will be appreciated that suitable walls may be connected with the lower margins of the canopy 28 for the purpose of partially or entirely enclosing the tent, as may be desired, and these walls may be in the nature of flexible curtains, not shown, which may be secured to the edges of the canopy by any suitable fastening devices commonly employed for this purpose, such for example as automobile curtain fasteners. Also, the interior of the tent when erected may be suitably partitioned by means of flexible curtains to divide the tent into separate compartments or rooms. It will be understood that all of these separate curtains or flies may be readily folded into the tent proper when the latter is collapsed, so that all the parts of the tent may be carried as a unit. It has also been found desirable to provide the jaws 22 with pivotally depending leg members 29, which extend downwardly from the four corners of the tent, the lower ends of these leg members are adapted to engage the ground, or to be embedded therein for the purpose of assisting and stabilizing the tent while the latter is erected. If desired these leg members may

be of telescopic formation, so as to be adapted to various irregularities in the surface of the ground on which the tent is carried. It will be noted that when the frame is collapsed the leg members 29 will be positioned in close proximity to the radiating arms 21, and that their presence will not tend to render the collapsed tent bulky or unwieldly. Also, a spring pressed finger 30 may be provided in the staff 2 for the purpose of supporting the runner 16 and the associated frame parts in their elevated or expanded positions. Of course, a set screw may be employed in lieu of the finger 30 if found expedient.

From the foregoing description taken in conjunction with the accompanying drawings, it will be understood that a tent structure is provided of a simple, compact and efficient nature for carrying out the several objects for which it has been designed. The tent may be admirably used by motorists for purposes of affording quick and comfortable shelter when employed for camping purposes. The frame structure is so formed that the same may be erected in but a minimum of time, a feature which is highly essential in tents of this character, and similarly, the tent may be expeditiously collapsed and folded into a compact bundle to enable the same to be conveniently carried. The parts comprising the frame structure may be formed from any suitable materials so as to give the same the necessary strength and yet to combine therewith lightness in weight, this may be done by the use of sheet metal tubing or wooden rods of relatively smaller diameter. In view of the foregoing, it is believed that the construction and advantages of the invention will be readily understood by those versed in the art, and therefore a more extended explanation has been accordingly omitted.

What is claimed is:

1. In a collapsible tent, a frame including a vertical staff, ribs having their inner ends pivotally connected with said staff, said ribs being disposed when actively positioned to radiate from said staff, each of said ribs being formed to include a pair of sections, links pivotally uniting the adjoining ends of said sections, a runner element slidably mounted upon said staff, braces having their inner ends pivotally connected with said runner element and their outer ends with the link connections between said rib sections, clamps carried adjacent to the inner ends of said braces, and arms pivotally connected with said clamps and with the outer ends of said ribs.

2. In a collapsible tent, a vertically disposed staff, ribs having their inner ends pivotally connected with the upper end of said staff, said ribs being each formed to include a plurality of sections, a link connection between the adjoining ends of said rib sections, a runner slidably carried by said staff, braces between said runner and said link connections, clamps carried by the inner ends of said brace sections, pivotally mounted links carried by the outer ends of said ribs, substantially horizontally extending arms having the inner ends thereof connected with the clamps carried by said braces and having the outer ends thereof pivotally connected with the links carried by the outer ends of said ribs.

3. In a tent, a frame structure including a staff, a plurality of ribs having the inner ends thereof pivotally connected with the upper end of said staff, said ribs being each formed to include a plurality of sections, link connections between the adjoining ends of said sections, said link connections serving to permit said rib sections to lie side by side when said frame structure is collapsed, a runner movable longitudinally upon said staff, braces having the inner ends thereof pivotally connected with said runner and the outer ends thereof pivotally connected with the link connections between said rib sections, clamps carried by said braces, radiating arms having the inner ends thereof pivotally connected with said clamps, yokes fixed upon the outer ends of said arms, a link connection betwen the outer ends of said ribs and said yokes, and a plurality of depending leg members pivotally connected with said yokes.

In testimony whereof I affix my signature.

GEORGE H. DIAL.