Oct. 28, 1969 C. A. LORING 3,474,802

TENT CONSTRUCTION

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Fig. 1

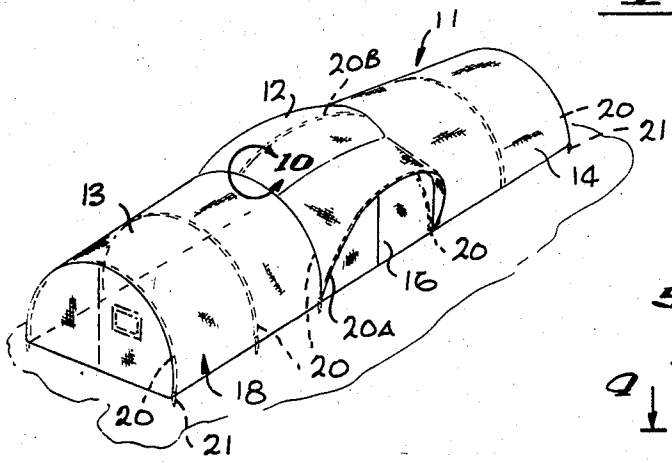


Fig. 2

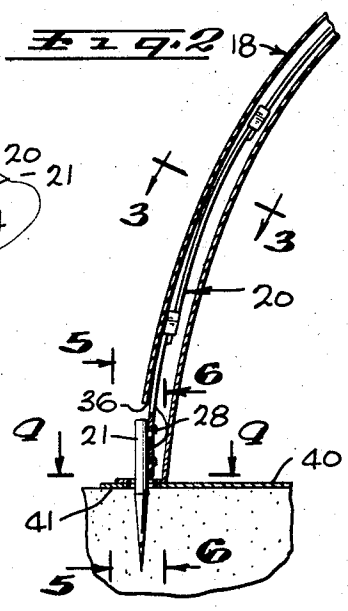


Fig. 3

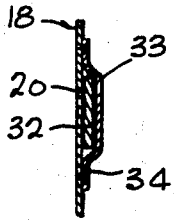


Fig. 4

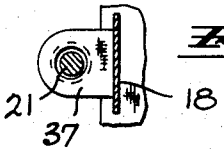


Fig. 6

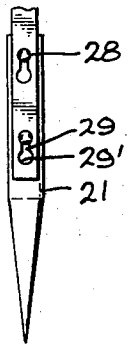


Fig. 5

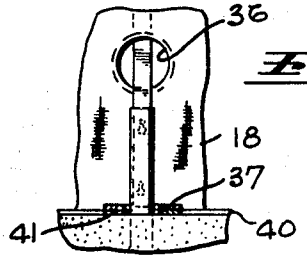
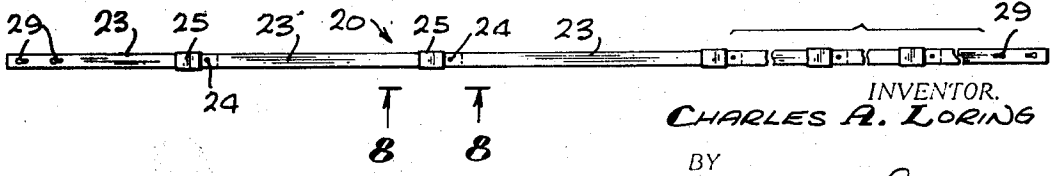


Fig. 7



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TENT CONSTRUCTION

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Fig. 8

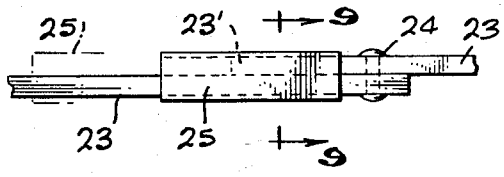


Fig. 9

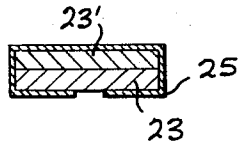


Fig. 10

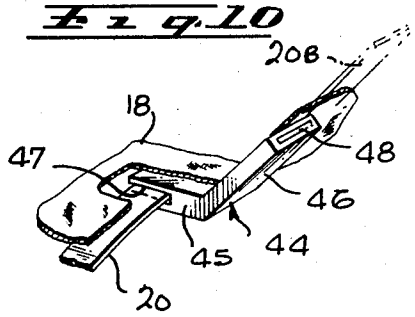


Fig. 12

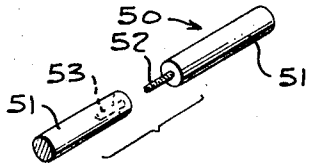


Fig. 11

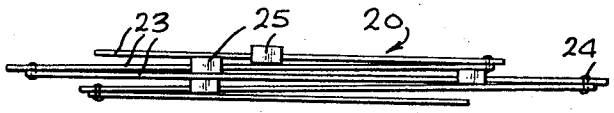


Fig. 13

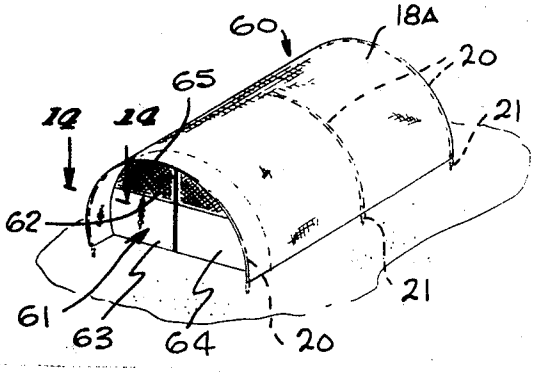
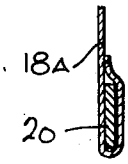


Fig. 14



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3,474,802

TENT CONSTRUCTION

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Int. Cl. A45f 1/16, 1/12
U.S. Cl. 135—1 3 Claims

ABSTRACT OF THE DISCLOSURE

The application discloses a tent in which the canvas or sheet material is supported without benefit of ropes or poles upon a structure comprising a plurality of spring ribs extending in arched condition between pegs to which they are attached, the ribs being demountable and collapsible or foldable into small-sized units for transport and storage.

An object of the invention is to provide a novel, readily portable, poleless and ropeless tent which is easy to erect in the field and which can be readily taken down and arranged in a small package.

More particularly it is an object to provide a tent construction embodying novel, collapsible supporting framework members for the canvas or sheet material of the tent comprising spring ribs each made up of several connected parts which may be folded or disassembled into small, easily handled units for storage or transport, together with tent pegs or stakes to which the ribs are adapted to be fastened.

Another object is to provide a novel, spring rib construction for a tent or the like made up of a plurality of individual sections connected together and so designed as to provide varying degrees of stiffness in different parts of the rib in order to impart desired curvature to the rib as a whole when it is secured between a pair of anchors, such as tent pegs.

These and other objects will be apparent from the drawings and the following description. Referring to the drawings, which are for illustrative purposes only:

FIG. 1 is an isometric view of a tent embodying the invention;

FIG. 2 is a fragmentary sectional view through the canvas or sheet material of the tent alongside one of the supporting ribs and a tent peg;

FIGS. 3, 4, and 5 are fragmentary sectional views on lines 3—3, 4—4, and 5—5, respectively, of FIG. 2;

FIG. 6 is a fragmentary sectional view on line 6—6 of FIG. 2, but showing only the rib and tent peg;

FIG. 7 is a fragmentary plan view of a rib;

FIG. 8 is a fragmentary side elevational view on line 8—8 of FIG. 7, but on a larger scale;

FIG. 9 is a cross sectional view on line 9—9 of FIG. 8;

FIG. 10 is a fragmentary sectional view in the area designated by line 10 of FIG. 1;

FIG. 11 is a side elevational view of the rib of FIG. 7 in folded condition;

FIG. 12 is a fragmentary sectional view of an alternate form of rib construction;

FIG. 13 is an isometric view of a simple one-man type tent; and

FIG. 14 is a cross section on line 14—14 of FIG. 13, but on a larger scale.

More particularly describing the invention, in FIG. 1 I show a tent 11 arbitrarily formed in three sections, namely, a relatively high middle section 12 and somewhat downwardly sloping lower end sections 13 and 14. The middle section is also characterized by a canopy or entry awning section 15 which provides shelter for entry flaps 16 of the middle section. While a particular configuration of tent has been shown, the basic construction to be described is suitable for various shapes of tents.

In general the construction comprises a covering or tent sheet 18 of canvas or other fabric or a suitable one of the newer flexible plastic sheet materials, supported on a plurality of ribs 20 capable of being collapsed or disassembled which extend in an arched condition between pairs of tent pegs or posts 21 driven into the ground. No poles or ropes are required.

Describing the invention more in detail, a preferred form of rib 20 comprises a member made of spring metal and formed of a plurality of sections 23 which are hingedly connected together substantially in end-to-end relation, as by means of rivets 24 (FIG. 8). Any suitable means can be provided for releasably securing the sections 23 in alignment and by way of illustration, I show sleeves 25 which are movable longitudinally of the sections. Each sleeve thus can be slipped over the adjacent end portion 23' of the next rib section 23 to prevent pivoting of the two sections.

In use each rib is attached at its ends to a pair of pegs 21 that have been driven into the ground at suitable spacing. Various means may be provided to attach the parts, however, by way of illustration, I show each tent peg provided with a pair of headed studs 28 that are received in slots 29 in the endmost sections of the ribs, each slot having a large end portion 29' to accommodate the head of the stud, the remainder of the slot being narrower and received beneath the head as the rib is pushed downward into place. As previously pointed out, the ribs are preferably made of spring metal but conceivably may be of some other spring material and, when secured between a properly spaced pair of tent pegs, provide an arched support for a section of the tent sheet. The ribs are received within channels 32 formed in the sheet material by the addition of strips 33 sewn or otherwise secured along their edges at 34. If desired, hems (not shown) may be provided at the ends of the tent cover sheet to receive the endmost ribs.

The tent sheet 18 is provided with holes 36 through which the ribs 20 pass just above the stakes so that the lower marginal portion of the tent sheet is inside the stakes. Also, the lower edges of the sheet are provided with apertured tabs 37 that receive the tent pegs, thereby firmly anchoring it. The tent may also be provided with a floor sheet having apertured tabs 41 for receiving the tent pegs and holding the sheet in position.

In FIG. 1 the tent sheet is shown supported by six transverse ribs 20, although more may be employed if found desirable, and another rib, designated 20A, is used at the margin of the canopy 15. In addition, an auxiliary rib 20B is used between or bridging the ribs at the ends of the middle section 12 of the tent. Rib 20B is secured in place by means of a special fitting 44 best shown in FIG. 10, which comprises a body having two angularly disposed portions 45 and 46, the first of which is slotted at 47 to receive the transverse rib 20 and the other of which has a socket 48 to receive the longitudinal rib 20B.

It is one of the features of the invention that I may, if desired, vary the stiffness of different portions of the ribs so that they will not be equally flexible from end to end and thereby control the shape of the curve they form when secured between two pegs. Preferably I accomplish this by utilizing sections 23 of different lengths and in the example shown I have utilized short sections at the ends of the rib, intermediate-length sections next to the ends, and longer sections throughout the remainder of the rib, thereby increasing the stiffness at the ends and giving more height to the overall rib-supported tent structure than would otherwise be the case.

It will be apparent that a tent can be easily and quickly erected with the structure heretofore described, and

as easily and quickly taken down. It will also be apparent that the ribs **20** fold into compact, easily carried and stored units, as shown in FIG. 11. While the sleeves **24** interfere to some extent with the sections **23** of the ribs lying parallel in side-by-side relation, if more compactness is desired, the sleeves can be made removable or another type of holding means employed.

As an alternative construction, the ribs may be made of individual sections which are releasably attachable and in FIG. 12 I show a portion of a modified rib, designated **50**, in which the rib sections **51** are provided with a threaded stud **52** at one end for reception in a threaded bore **53** in the end of the next adjacent section. The material of the rib should be springy.

While the invention has thus far been described in connection with a relatively large tent adapted to accommodate four to six persons, it will be apparent that the rib construction is extremely suitable for smaller tents, and by way of illustration I show a one-man tent **60** in FIG. 13, which employs three ribs **20** to support the tent sheet **18A**. The front end wall **61** of the tent is shown recessed to afford protection for the air vent section **62**. The wall itself may be made of half sections **63** and **64** connected by a zipper-type fastener **65**.

Although I have illustrated and described preferred forms of my invention, I contemplate that various changes and modifications can be made therein without departing from the invention.

I claim:

1. In a tent construction, pairs of tent pegs anchored in the ground in laterally spaced relationship, spring ribs extending between the pairs of pegs, each rib being made up of a plurality of sections hingedly connected at their ends one to the next in end-to-end relation, means carried by said sections for releasably securing the same in alignment, certain of said sections of each rib being shorter than other of said sections whereby said rib is stiffer in the region of the shorter sections than in the remainder of the rib, said shorter sections being at the ends of the rib, each rib having its ends fastened to the pegs respectively of a pair of pegs and being arched under tension therebetween substantially within a vertical plane, a flexible covering sheet over and supported by said ribs, said sheet having an opening adjacent each peg through which the rib passes whereby the lower marginal portion of said covering sheet extends inside of said pegs, and means securing the sheet to the pegs.

2. In a tent frame construction, pairs of tent pegs anchored in the ground in laterally spaced relationship, spring ribs extending between the pairs of pegs, each rib being made up of a plurality of sections hingedly connected at their ends one to the next in end-to-end relation, means carried by said sections for releasably securing the same in alignment, certain of said sections of each rib being shorter than other of said sections whereby said rib is stiffer in the region of the shorter sections than in the remainder of the rib, said shorter sections being at the ends of the rib, each rib having its ends detachably fastened to the pegs respectively of a pair of pegs and being arched under tension therebetween substantially within a vertical plane, and a fitting on each of a pair of adjacent ribs at the apexes thereof, each fitting including a slot detachably receiving the rib and a socket extending upwardly and generally toward the other rib, and an auxiliary rib having its ends received in the sockets of said fittings.

3. A tent frame construction as set forth in claim **2** in which a flexible covering sheet extends over and supported by said ribs and in which channels are provided in said sheet individually receiving said ribs.

References Cited

UNITED STATES PATENTS

1,900,335	3/1933	Del Vecchio	135—4
2,314,830	3/1943	Hunter	135—1
2,823,683	2/1958	Smith et al.	135—1
3,010,463	11/1961	Wade	135—3 XR
3,052,249	9/1962	Seaman et al.	135—3 XR

FOREIGN PATENTS

1,477,376	3/1967	France.

KENNETH DOWNEY, Primary Examiner

U.S. Cl. X.R.

135—4, 7.1