May 26, 1970 W. L. JOHNSON 3,513,861

COLLAPSIBLE TENT

Filed Oct. 17, 1968 2 Sheets-Sheet 1

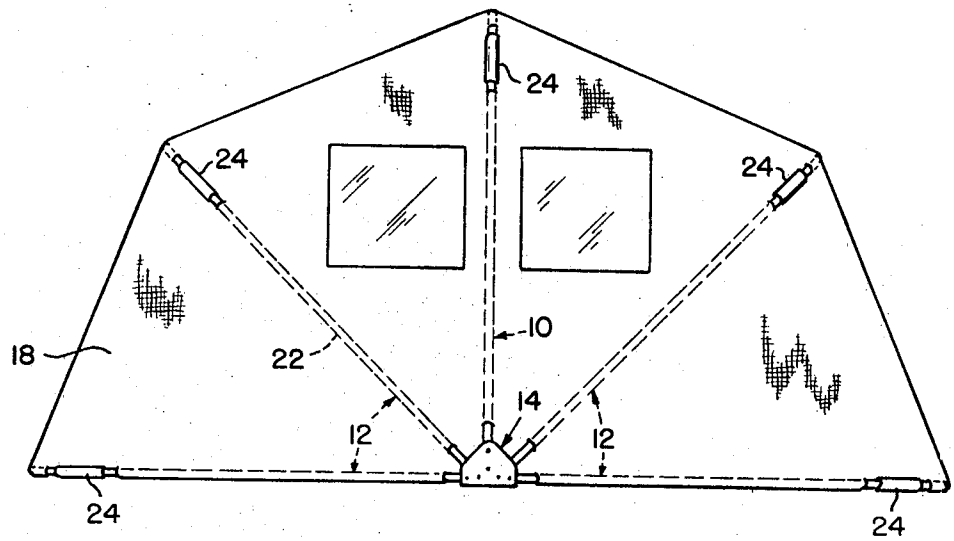


FIG. 1

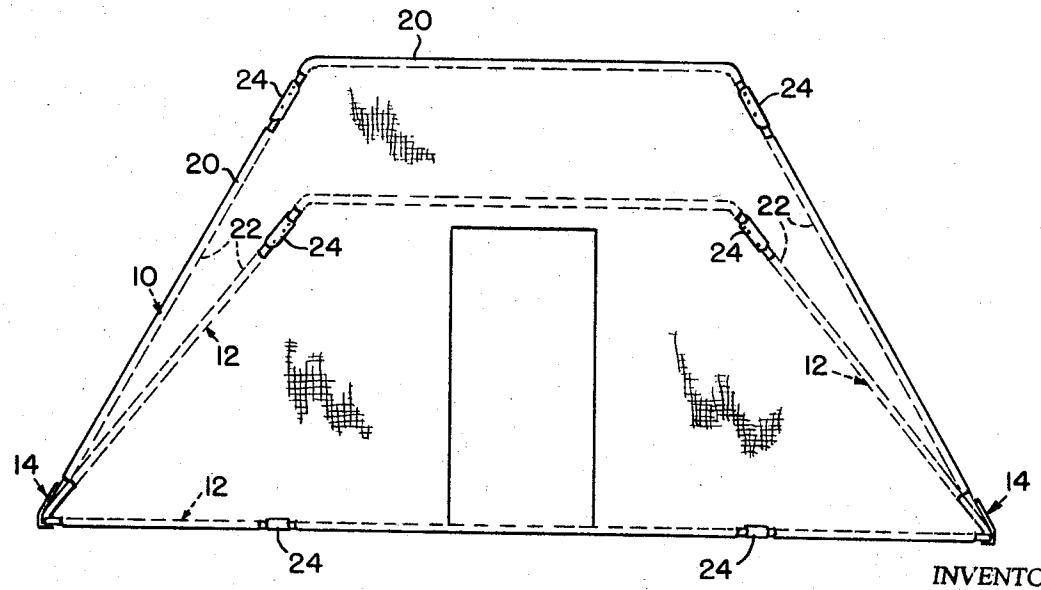


FIG. 2

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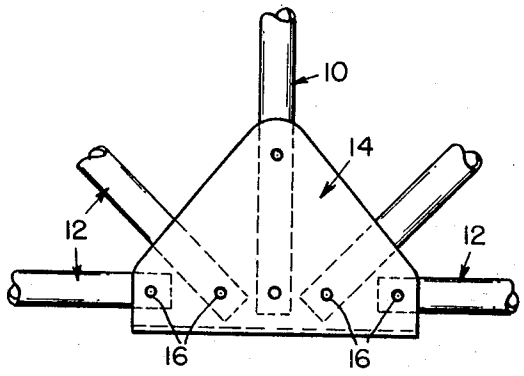


FIG. 3

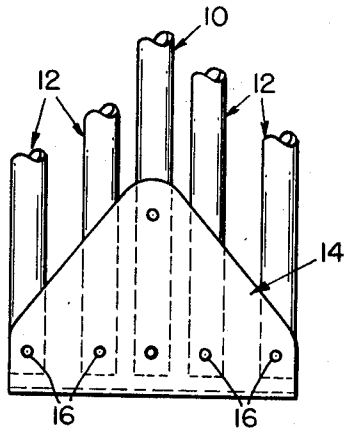


FIG. 4

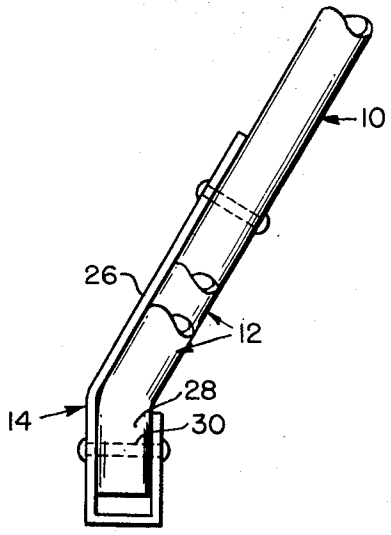


FIG. 5

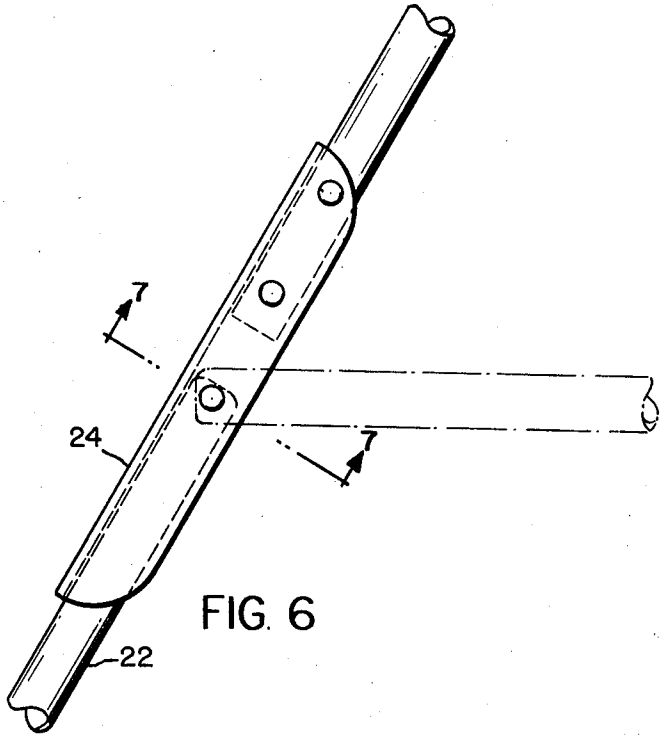


FIG. 6

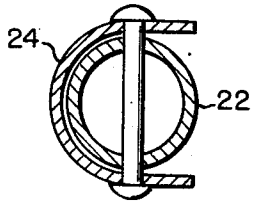


FIG. 7

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COLLAPSIBLE TENT

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Int. Cl. A41f 1/00, 1/16
U.S. Cl. 135—1 5 Claims

ABSTRACT OF THE DISCLOSURE

A collapsible tent structure including five stiff supporting bows attached to common footing members. The center bow is fixed to the footing members, and the other bows are pivoted to them. The bows are formed with straight legs that form obtuse angles with their center bight portions so that when the tent is erected, its floor is hexagonal, and its side walls converge upwardly. The legs of the bows are hinged near the bight portions to permit folding the legs inwardly when the tent is collapsed. The tapered form of the bows holds the legs straight without need for braces or latching devices at the hinges.

BRIEF SUMMARY

This invention relates to a novel collapsible tent of the type including rigid supporting bows attached to a pair of footing members, and alternately extendible and collapsible in the manner of a perambulator hood.

In the tent of the invention, the bows are generally U-shaped and of identical construction, with straight, divergent leg portions, making the floor plan of the tent in its erected position hexagonal and its side walls sloping. The arrangement provides several advantages over previous tents of the same general type, as described hereinafter. It is exceptionally roomy and very stable under even severe weather conditions. Staking is seldom required. The legs of the bows are hinged to permit folding them inwardly when the tent is collapsed, and, because of the divergent arrangement, neither latching devices nor braces are needed to hold the legs straight when the tent is erected. The weight of the tent itself suffices, urging the lower portions of the legs against fixed detents adjacent to the hinges.

DETAILED DESCRIPTION

A presently preferred embodiment of the invention will now be described in detail in connection with the accompanying drawings, wherein:

FIG. 1 is a side elevational view of a tent according to the invention, showing the tent in its erected position;

FIG. 2 is an end elevational view of the tent shown in FIG. 1;

FIG. 3 is a side view on an enlarged scale of one of the footing members of the tent with the bows attached and the tent in its erected position;

FIG. 4 is a side elevational view of the footing members illustrating the relative positions of the bows with the tent in its collapsed position;

FIG. 5 is an end elevational view of the footing member, together with terminal portions of the bows, with the tent in its collapsed position, particularly illustrating the curvature of the side wall of the footing member and the end portions of the bows;

FIG. 6 is an end elevational view of a portion of one of the bows, showing the hinge and detent arrangement; and

FIG. 7 is a sectional view taken along the line 7—7 of FIG. 6.

As shown in the drawings, a tent according to the presently preferred embodiment of the invention comprises five identical, generally U-shaped ribs, or bows **10** and **12**. The ends of the bows **10** and **12** are all attached to common footing members **14**, there being one footing member **14** on each side of the tent. The center bow **10** is rigidly fixed to the footing members, while the outer bows **12** are pivoted to the footing members at spaced apart points **16** aligned along the length of the footing members so that when the tent is collapsed, as shown in FIG. 4, all of the bows **10** and **12** lie in registered array.

Any desired sheet material **18** is supported upon the bows in any desired manner to form the tent. Preferably, a floor (not shown) is also included. As shown, tubular fabric portions **20** are sewn to the sheet **18** at spaced locations to accept the bows **10** and **12** to hold the sheet material **18** in properly tensioned extension when the tent is erected. If desired, the lateral mid-points along the lower edge of the sheet **18** may be attached to the footing members **14**, but, in practice, this has not been found to be necessary. The arrangement of windows and doorways in the sheet **18** may be as desired.

As perhaps best shown in FIG. 2, the legs **22** of the bows **10** and **12** diverge toward the footing members **14**. The particular angle chosen should be greater than 10° (as measured between the legs **22**) and is preferably between 40° and 60°. An angle of about 50° has been found to provide excellent stability under high, gusty wind conditions.

As best shown in FIG. 6, the legs **22** are hinged near their ends remote from the footing members **14**, and detents **24** are provided to limit the hinge action so that the lower portions of the legs **22** cannot be swung outwardly beyond a position in alignment with the upper portions. When the tent is in its erected position, the weight of the tent itself urges the hinges against the detents so that no laches or other bracing members are required. In addition, because the lower portions of the legs **22** are free to fold inwardly, it is usually a simple matter to tighten the sheet **18** by pushing the footing members **14** together. This causes the legs **10** and **12** to buckle slightly at the hinges and thereby to draw outwardly on the sheet **18** to pull it snug and tight.

As shown in FIGS. 4 and 5, each of the footing members **14** consists of a simple channel member having one relatively high side wall **26** to anchor the center bow **10** rigidly. The side wall **26** is bent to conform to the curved end portions **28** of the bows. The outer bows **10** and **12** are simply pivoted upon pins **30** aligned along the lower portion of the footing members **14** and spaced apart to allow the bows to lie flat upon each other when the tent is collapsed with the needed thicknesses of the sheet material between them.

From its erected position, as shown in FIGS. 1 and 2, the tent is first collapsed by swinging the bows **10** and **12** together. The legs **22** of the bows are then folded inwardly as shown in FIG. 6. The sheet material **18** is folded up and around the bows to form a package of maximum compactness. The reverse operation is undertaken to erect the tent.

Because of the sloping side wall arrangement the tent is exceedingly roomy, yet it may be easily erected and collapsed by one man even when made of fairly good size such as, for example, about sixteen feet long, sixteen feet in overall width, and seven feet high.

I claim:

1. A collapsible tent construction including a sheet material shaped to form a shelter or housing, and comprising at least three generally U-shaped rigid bows, means for connecting said bows to the exterior of the sheet material for supporting the sheet material, a pair of footing members attached to the ends of said bows so that said bows can be pivoted from a position wherein the bows are adjacent each other to fan out to erect and support the tent, the legs of each of said bows being substantially straight and divergent to provide an increasing separation therebetween in a direction toward said footing members, pivot means in each of said legs for folding a portion of said legs, and detent means in the legs of at least one of said bows for limiting the outward pivotal motion of said folding leg portions, the arrangement being such that when the tent is erected, the weight of the sheet material urges said folding leg potrions of said at least one of said bows against said detent means due to the divergent disposition of said legs.

2. A collapsible tent structure comprising:

at least five U-shaped bows, each including two substantially straight legs having a pivotal connection in each of said legs for folding a portion of said legs inwardly toward the center of said bow and a limit stop in each of said legs for limiting the outward pivot movement of said folding leg portions to a position of substantial alignment with the remaining portion of said legs wherein said folding leg portions extend in divergent directions to define an angle therebetween of at least ten degrees when said tent is in an erected position;

sheet material shaped to form a shelter including top, side and floor portions;

means attached to the exterior of said sheet material at spaced locations along the junction of said side and floor portions receiving and holding two of the said U-shaped bows along said junction, the spacing of said means being arranged that at least the portions of said bows including said pivots and limit stops are exposed;

means attached to the exterior of said sheet material at spaced locations along the side and top portions receiving and holding the other U-shaped bows, the spacing of said means being arranged that at least the portions of said bows including said pivot and limit stops are exposed;

a pair of footing members; and

means for mounting the opposite ends of said bows to separate footing members so that said bows can be pivoted from a position wherein the bows are adjacent to each other to fan out to erect said tent structure wherein said bows form the framework for supporting said sheet material, the arrangement being such when the tent is erected the weight of the sheet material urges said folding leg portions of at least three bows against said limit stops due to the divergent disposition of said legs to maintain said folding leg portions in said limit stops.

3. A unitary collapsible tent structure comprising:

at least three U-shaped bows, each including two substantially straight legs having a pivotal connection in each of said legs for folding a portion of said legs inwardly toward the center of said bow and a limit stop in each of said legs for limiting the outward pivot mevement of said folding leg portions to a position of substantial alignment with the remaining portion of said legs wherein said folding leg portions extend in divergent directions to define an angle therebetween of at least ten degrees when said tent is in an erected position;

sheet material shaped to form a shelter including top and side portions;

loop means attached to the exterior of said sheet material at spaced locations adjacent the bottom edge of said side portions receiving and holding two of the said U-shaped bows along said bottom edge, the spacing of said loops being arranged that at least the portion of said bows including said pivots and limit stops remain uncovered;

loop means attached to the exterior of said sheet material at spaced locations along the side and top portions receiving and holding the other U-shaped bows, the spacing of said loop means being arranged that at least the portion of said bows including said pivot and limit stops remain uncovered;

a pair of footing members; and

means for mounting the opposite ends of said bows to separate footing members so that said bows can be pivoted from a collapsed position wherein the bows are adjacent to each other to fan out to erect said tent structure wherein said bows form the framework for supporting said sheet material, the arrangement being such that when the tent is erected the weight of the sheet material urges said folding leg portions of at least one bow against said limit stops due to the divergent disposition of said legs to maintain said folding leg portions in said limit stops and when the tent is collapsed the legs of the bows and its connected footing members along with portions of the sheet material can be folded inwardly about the pivot connections to form a compact collapsible unit.

4. A unitary collapsible tent structure comprising:

at least three U-shaped bows, each including two legs having a pivotal connection in each of said legs for folding a portion of said legs inwardly toward the center of said bow, and a limit stop in each of said legs for limiting the outward pivotal movement of said folding leg portions to a position of substantial alignment with the remaining portion of said legs;

sheet material shaped to form a shelter including top, side and floor portions;

loop means attached to the exterior of said sheet material at spaced locations along the junction of said side and floor portions receiving and holding two of the said U-shaped bows along said junction, the spacing of said loop means being arranged that at least the portion of said bows including the pivots and limit stops are exposed;

loop means attached to the exterior of said sheet material at spaced locations along the side and top portions receiving and holding the other U-shaped bows, the spacing of said loop means being arranged that at least the portion of said bows including the pivots and limit stops are exposed;

a pair of footing members; and

means for mounting the opposite ends of said legs to separate footing members with a center bow fixed to the footing members and with the other bows pivotally connected, whereby said bows and sheet material can be rotated as a unit to fan out and erect the tent and can be rotated as a unit to collapse the tent to a position wherein the bows are adjacent to each other, the arrangement being such that when the tent is collapsed the legs of the bows and its connected footing members along with portions, the sheet material can be folded inwardly about the pivot connections to form a compact collaspible unit.

5. A unitary collapsible tent structure as defined in claim 4 wherein:

said legs in said bows are substantially straight;

said folding leg portions extend in divergent directions to define an angle therebetween of at least ten degrees

when said tent is in an erected position and said folding leg portions engage said limit stops, and wherein the weight of the sheet material urges said folding leg portions of at least one bow against said limit stops due to the divergent disposition of said legs to maintain said folding leg portions in said limit stops.

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U.S. Cl. X.R.

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