



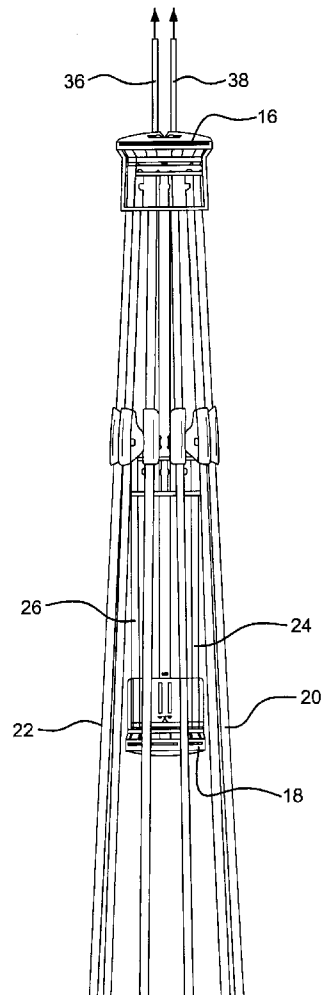
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(19) **United States**(12) **Patent Application Publication**
ZIMMER et al.(10) **Pub. No.: US 2014/0069476 A1**(43) **Pub. Date: Mar. 13, 2014**(54) **FOLDABLE TENT**(71) Applicant: **CRI 2000, L.P.**, San Diego, CA (US)(72) Inventors: **ZACH ZIMMER**, SAN DIEGO, CA (US); **BRIAN COX**, SAN DIEGO, CA (US)(73) Assignee: **CRI 2000, L.P.**, San Diego, CA (US)(21) Appl. No.: **14/076,389**(22) Filed: **Nov. 11, 2013****Related U.S. Application Data**

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E04H 15/28 (2006.01)(52) **U.S. Cl.**CPC **E04H 15/28** (2013.01)USPC **135/98**(57) **ABSTRACT**

The tent frame includes an upper hub with a plurality of ribs intended to extend outwardly and a lower hub having an equal number of stretchers. The ends of the stretchers are pivotally connected to the ribs. As the lower hub moves upwardly, the stretchers force the ribs outwardly to erect the tent. Flexible cords extend down from the upper hub through the lower hub and out apertures in the bottom of the lower hub. Pulling the cords apart from within the tent causes the lower hub to move upwardly toward the upper hub to erect the tent. Alternatively, the cords can be passed around pulleys in the lower hub and upwardly through apertures in the top of the upper hub. Pulling the cords apart from above the tent causes the lower hub to move upwardly toward the upper hub to erect the tent.



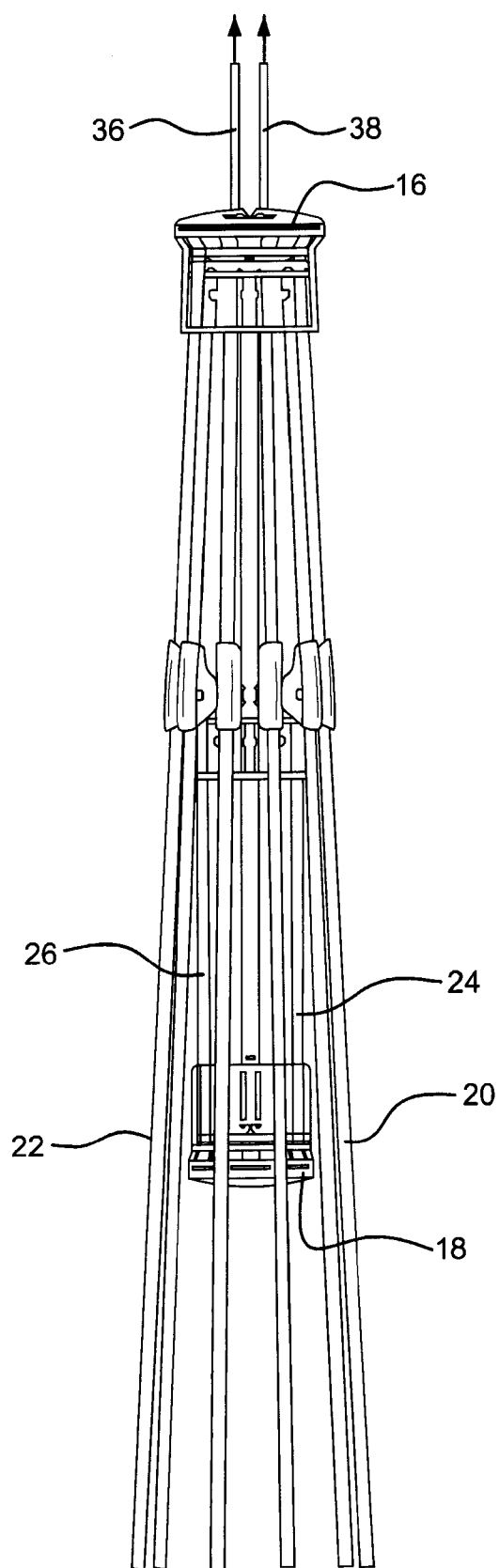


FIG. 1

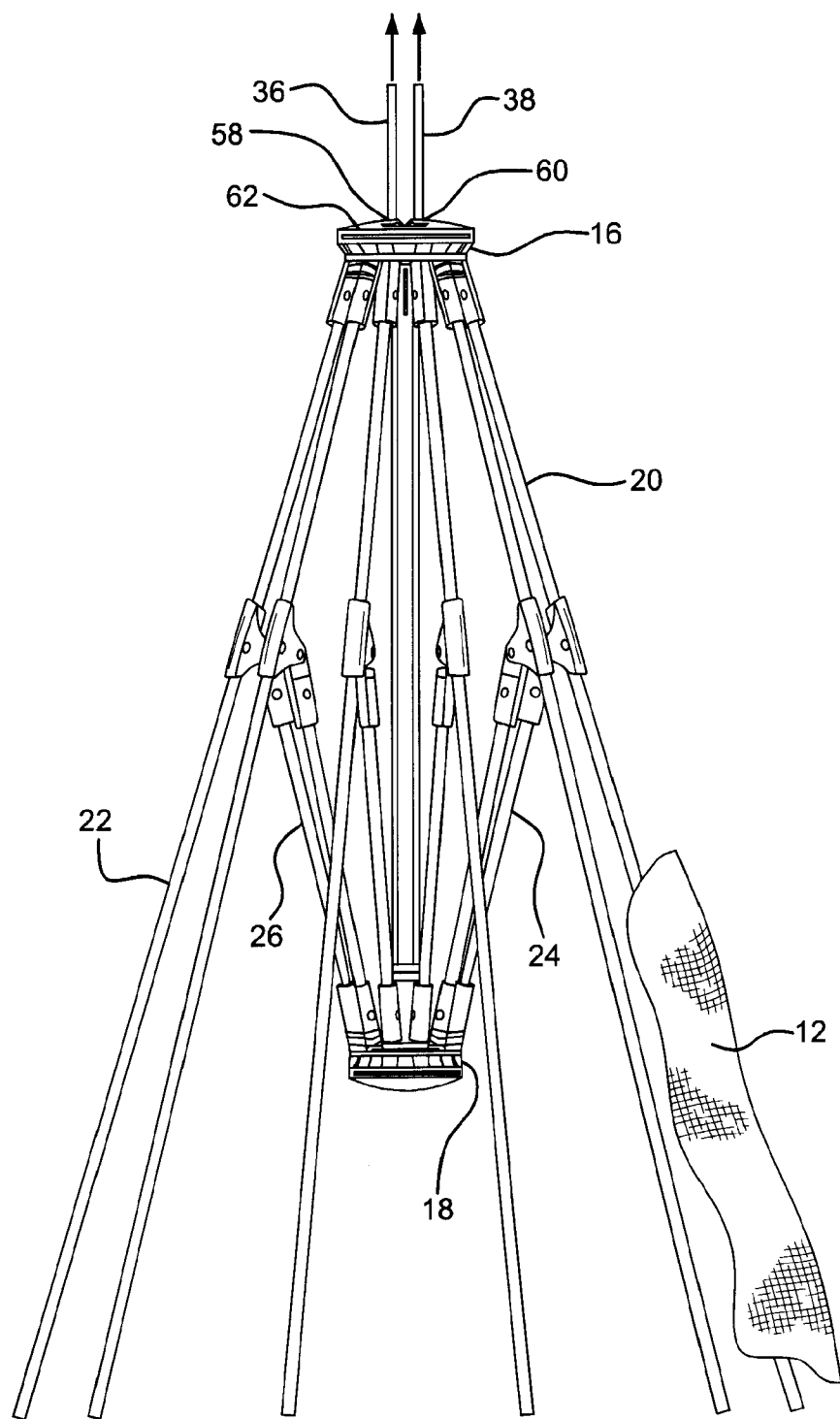


FIG. 2

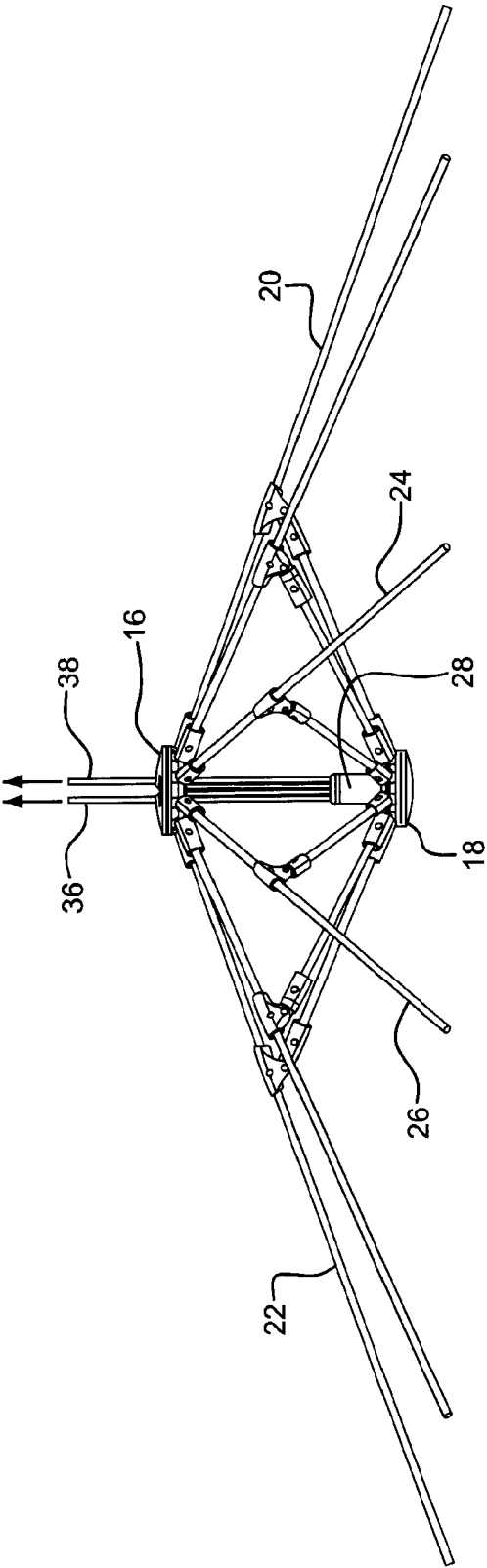


FIG. 3

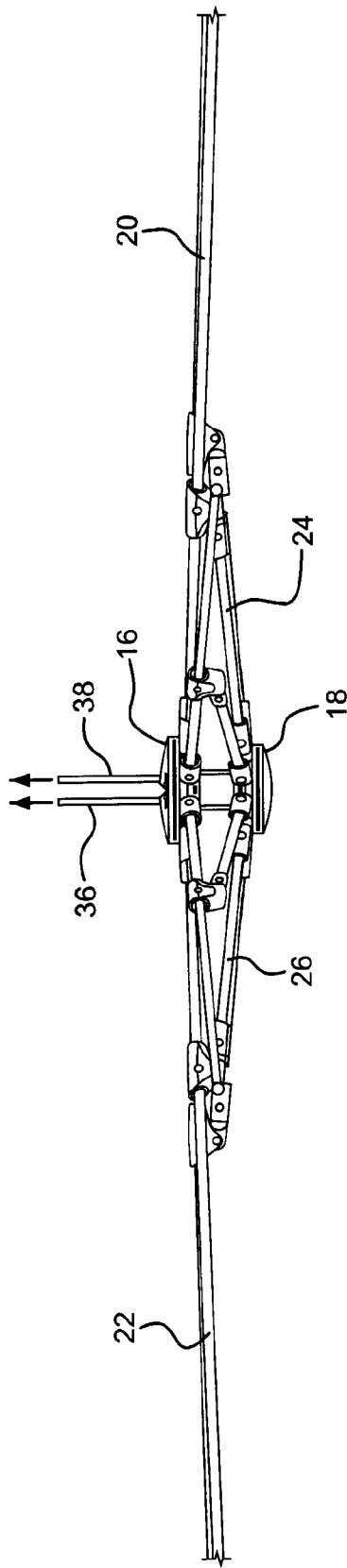


FIG. 4

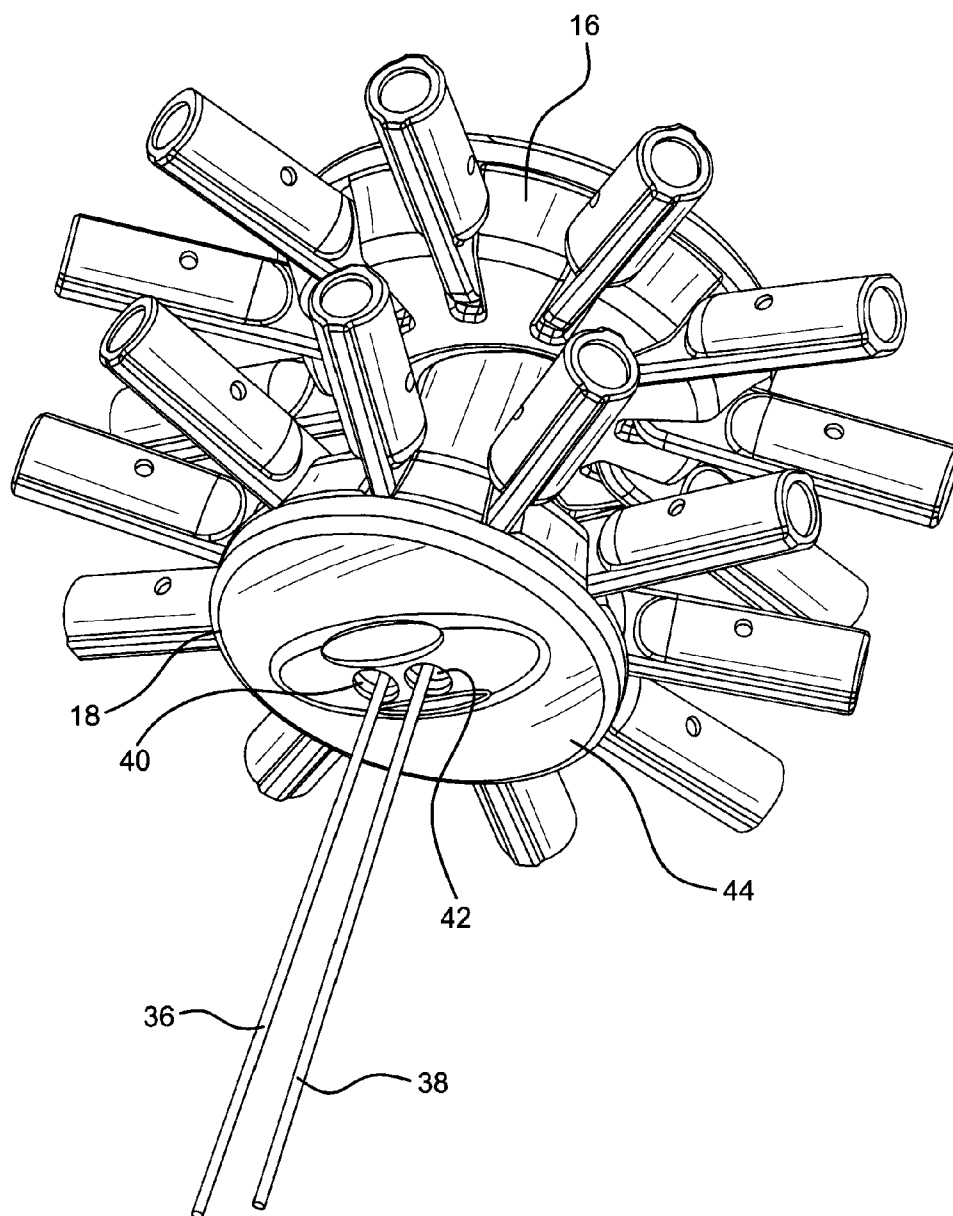


FIG. 5

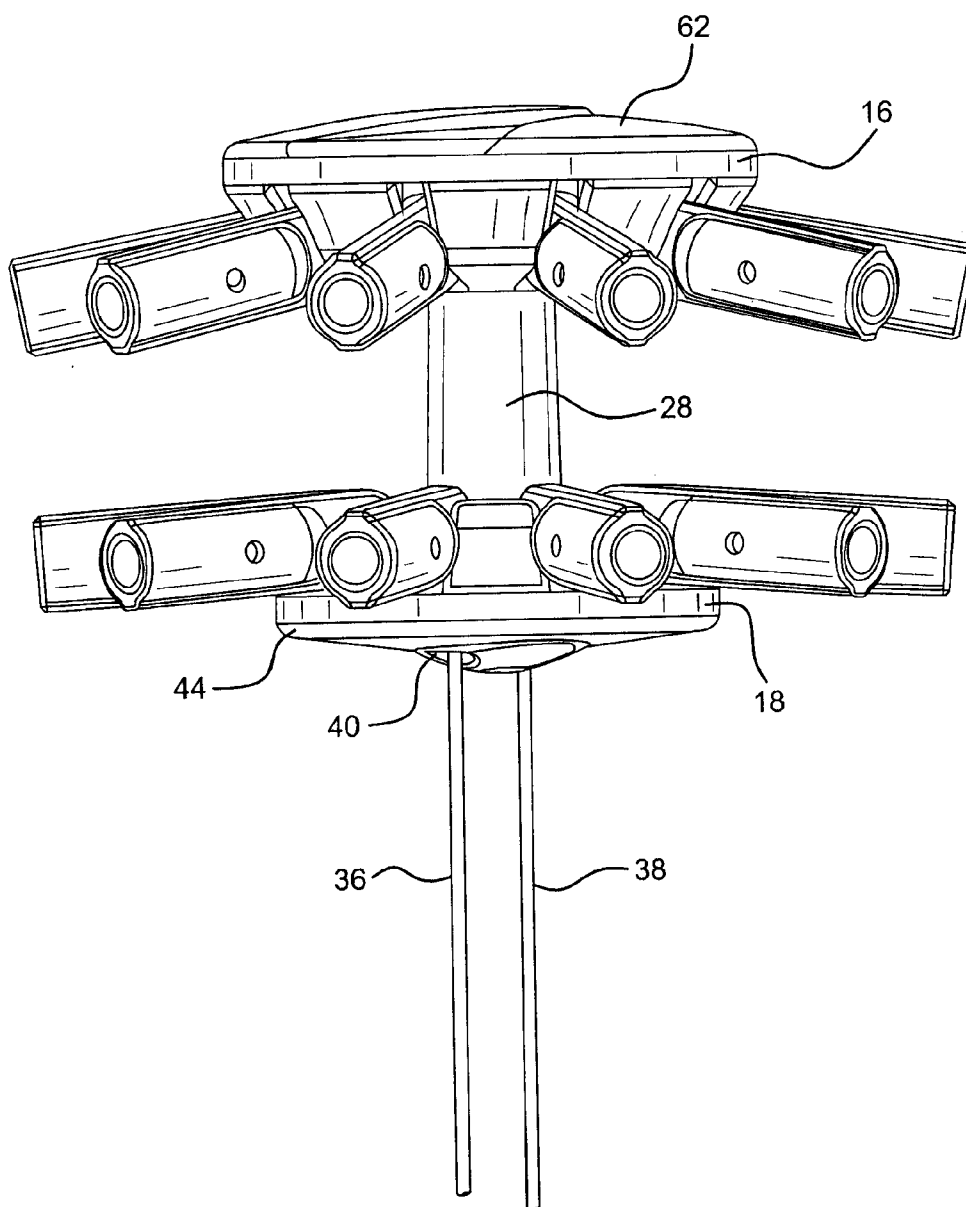


FIG. 6

FIG. 7

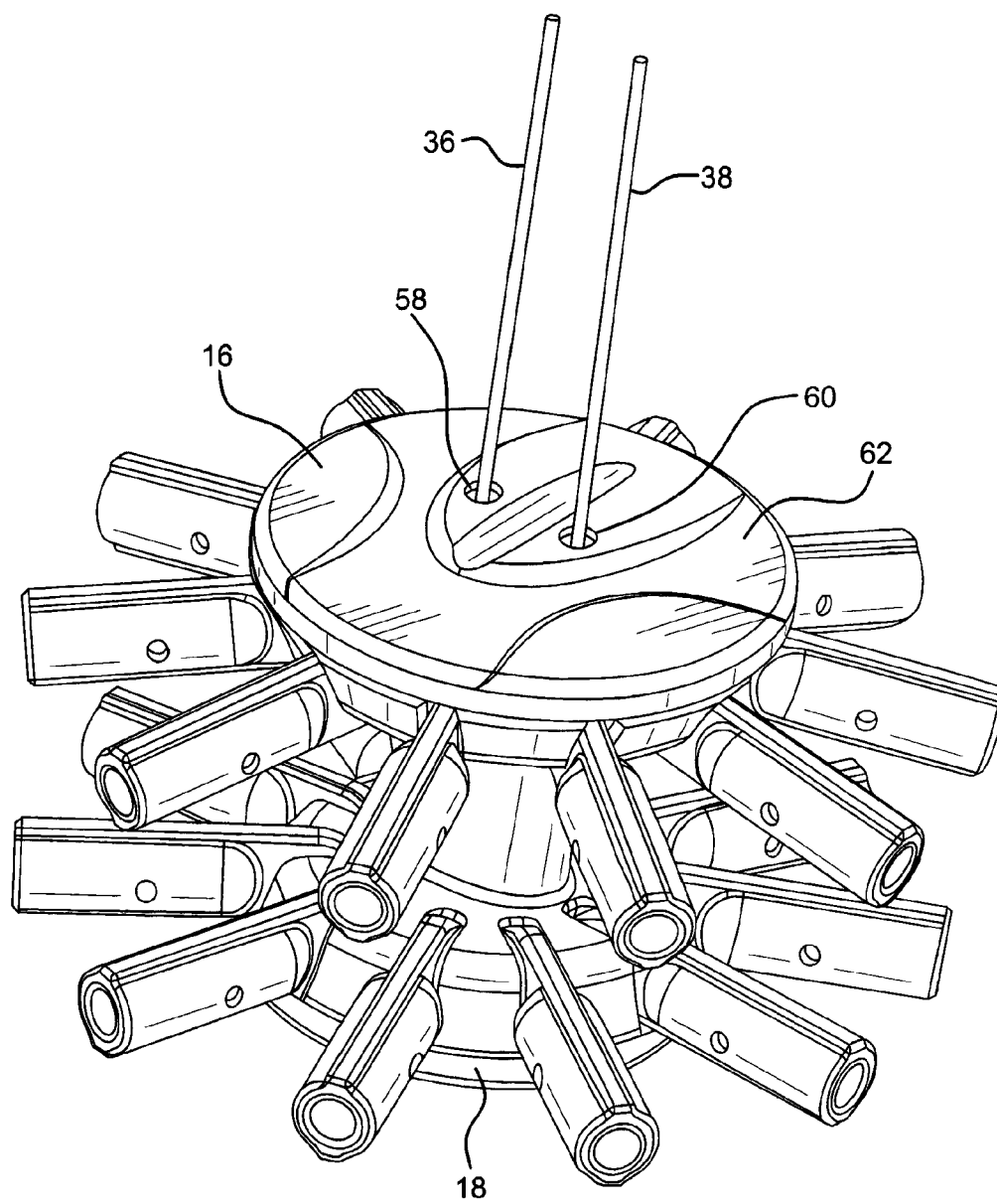


FIG. 8

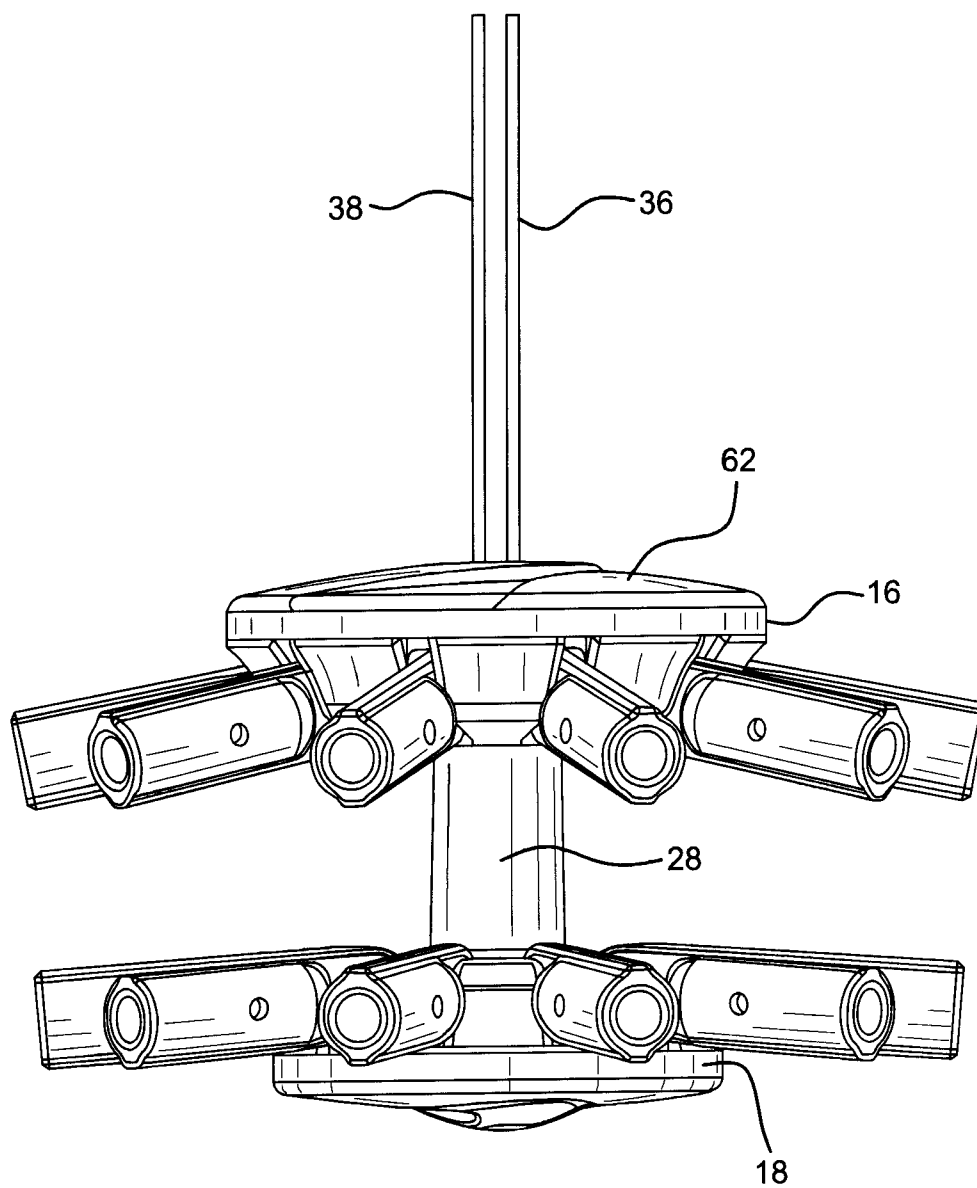


FIG. 9

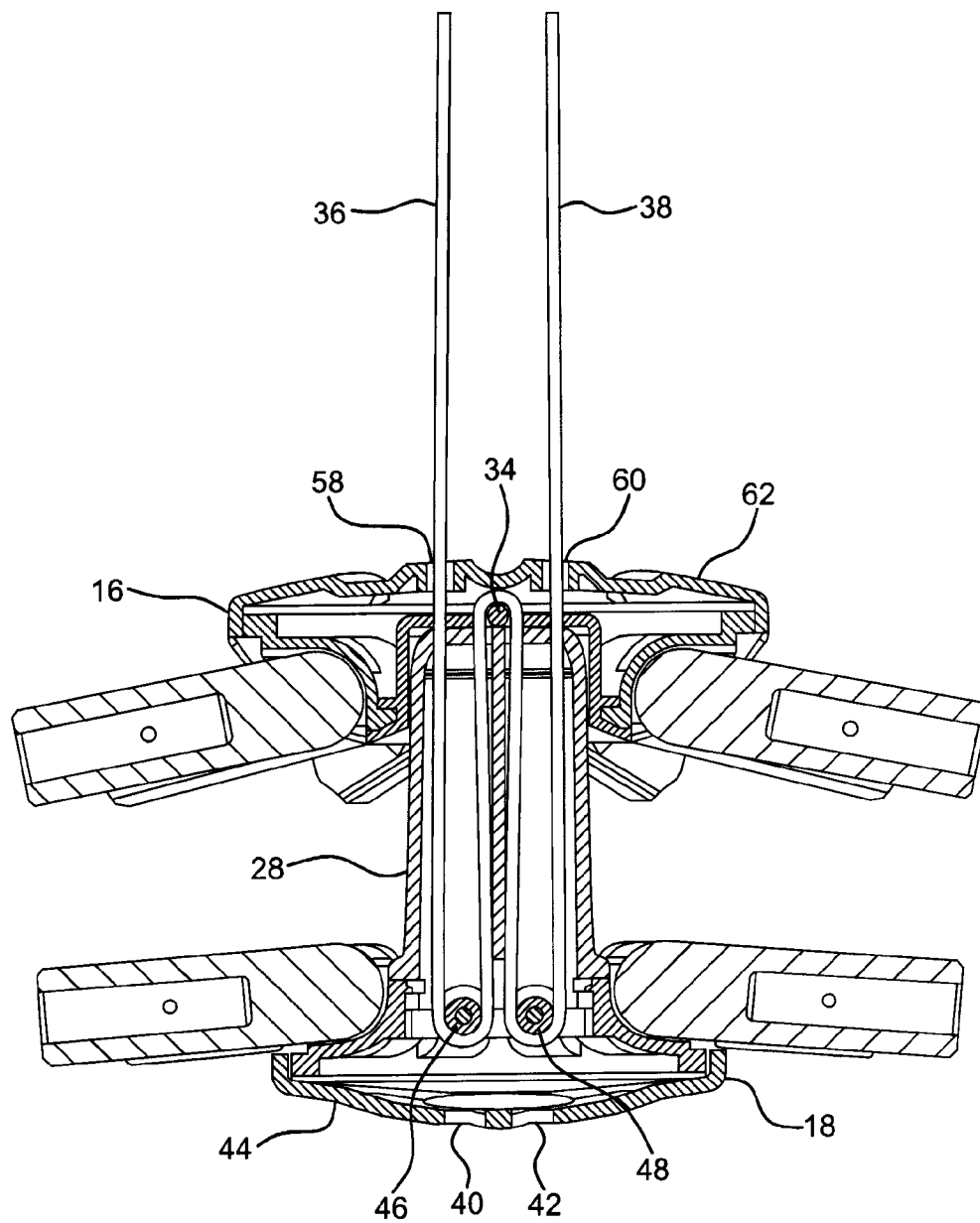


FIG. 10

FOLDABLE TENT

BACKGROUND OF THE INVENTION

[0001] The present invention is directed toward a foldable tent and more particularly, toward an improved frame for a foldable tent that allows a person to erect or open the tent from inside or outside of the same.

[0002] Quick opening tents of the type to which the subject matter of this application is directed are, per se, well known in the art. Examples can be found in U.S. Pat. No. 5,479,954 that issued to Lin on Jan. 2, 1996 and U.S. Published Application No. 2007/0062569 to Joo-Tai published Mar. 22, 2007.

[0003] All such prior art tents are structurally very similar and operate in substantially the same manner. They all include a tent fabric supported on a frame. The fabric can be secured to the inside or the outside of the frame. The frame includes a plurality of elongated ribs that are pivoted to an upper hub and which are intended to extend radially outwardly therefrom. The frames also include an equal number of elongated stretcher members that are pivoted to a lower hub and to the ribs. As the lower hub moves axially upwardly toward the upper hub, the stretcher members force the ribs outwardly to erect the tent. The system works essentially like an umbrella being opened.

[0004] To assist the user in opening or erecting such prior art tents, the frame conventionally includes a flexible cord that has one end secured to the lower hub. The cord then extends upwardly through an axial opening in the upper hub where it is accessible from above the tent on the outside thereof. The tent is erected by pulling upwardly on the cord to pull the lower hub upwardly toward the upper hub. In some cases, the distal end of the cord may include a handle or the like to assist the user in gripping the cord to pull it up. As the cord is pulled upwardly, it is also frequently necessary to push the upper hub downwardly to ensure that the lower and upper hubs are being drawn together.

[0005] While such prior art tents may work well, they do present certain problems, particularly with larger tents. Depending on the height or width of the tent, it may sometimes be difficult to reach the cord at the top of the tent frame. And even if one could reach the cord, it might be difficult to apply enough force to pull the same upwardly to erect the tent. Obviously, some taller people may be able to erect such prior art tents, while others may not be able to do so.

[0006] Thus, there is a need for a foldable tent frame that can be easily opened or erected by someone who may not be able to reach over the top of the tent to open the same from above.

SUMMARY OF THE INVENTION

[0007] The present invention is designed to overcome the deficiencies of the prior art discussed above. It is an object of the present invention to provide a foldable tent frame that can be opened without having to reach over the top of the tent.

[0008] It is another object of the present invention to provide a foldable tent frame that can be opened from inside the tent.

[0009] It is an even further object of the present invention to provide a foldable tent frame that can be opened from inside the tent or from above the tent from the outside thereof.

[0010] In accordance with illustrative embodiments demonstrating features and advantages of the present invention, there is provided a tent that has a tent fabric and a frame

adapted to support the fabric on either the inside or the outside thereof. The frame includes an upper hub with a plurality of elongated ribs pivotally connected thereto and intended to extend radially outwardly and a lower hub having a plurality of elongated stretcher members having first ends pivotally connected thereto. The number of elongated stretcher members is equal to the number of ribs and the free ends of the stretcher members are pivotally connected to the ribs. As the lower hub moves axially upwardly toward the upper hub, the stretcher members force the ribs outwardly to erect the tent. Flexible cords are held in the interior of the upper hub and extend downwardly through the lower hub and out apertures in the bottom of the lower hub. Manually pulling the cords apart from within the tent causes the lower hub to move upwardly toward the upper hub to erect the tent. Alternatively, the cords can be passed around pulleys in the lower hub and be directed upwardly through the upper hub and through apertures in the upper surface of the upper hub. Manually pulling the cords apart from above the tent causes the lower hub to move upwardly toward the upper hub to erect the tent.

[0011] Other objects, features and advantages of the invention will be readily apparent from the following detailed description of a preferred embodiment thereof taken in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] For the purpose of illustrating the invention, there is shown in the accompanying drawings one form that is presently preferred; it being understood that the invention is not intended to be limited to the precise arrangements and instrumentalities shown.

[0013] FIG. 1 is a front perspective view of the major portion of the tent frame of the invention shown in its fully collapsed condition;

[0014] FIG. 2 is a view similar to FIG. 1 showing the tent frame in its initial stage of being erected;

[0015] FIG. 3 is another view similar to FIGS. 1 and 2 illustrating a further stage of the opening of the tent frame;

[0016] FIG. 4 illustrates the tent frame in its fully opened or erect position;

[0017] FIG. 5 is a bottom perspective view of the hub system used with the present invention with the cords arranged for opening the tent from the inside thereof;

[0018] FIG. 6 is a side elevational view of the hub system of FIG. 5;

[0019] FIG. 7 is a cross-sectional view similar to FIG. 6 but showing the interior of the hubs;

[0020] FIG. 8 is a top perspective view of the hub system used with the present invention with the cords arranged for opening the tent from the outside thereof;

[0021] FIG. 9 is a side elevational view of the hub system of FIG. 8, and

[0022] FIG. 10 is a cross-sectional view similar to FIG. 9 but showing the interior of the hubs.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0023] Referring now to the drawings in detail wherein like reference numerals have been used throughout the various figures to designate like elements, there is shown in FIGS. 1-10 a foldable tent constructed in accordance with the principles of the present invention and designated generally as 10. Although the tent 10 includes a tent fabric 12, this is, per se,

conventional and is, therefore, being shown only diagrammatically in figures. The fabric **12** is not being shown in most of the figures so that the frame **14** and the operation thereof can be seen in more detail. Again, it should be pointed out that the present invention can be used with the type of tent that has the fabric secured to either the interior or exterior of the frame. That is, the frame can be inside of or outside of the tent fabric.

[0024] As with many prior art tent frames, the frame **14** includes an upper hub **16** and a lower hub **18** arranged therebelow but in axial alignment therewith. A plurality of elongated ribs, such as shown at **20** and **22**, have their upper ends pivotally connected to the upper hub **16**. While six such ribs are shown in the figures, it should be clear that this is by way of example only. Fewer or more ribs may be employed depending on the nature and size of the tent **10**.

[0025] A plurality of stretcher members such as shown at **24** and **26** have their lower or inner first ends pivotally connected to the lower hub **18**. The number of elongated stretcher members **24** and **26** is equal to the number of ribs **20** and **22**. The upper or free ends of each of the stretcher members **24** and **26** are pivotally connected to a different one of the ribs **20** and **22**.

[0026] As illustrated in FIGS. **1-4**, as the lower hub **18** moves axially upwardly toward the upper hub **16**, the stretcher members **24** and **26** force the ribs **20** and **22** outwardly so that the ribs extend radially outwardly from the first hub **16** to form the erected tent. Extending upwardly from the lower hub **18** at the center thereof and axially aligned therewith is a spindle **28**. This is, perhaps, best seen in FIG. **3**. As shown best in FIGS. **7** and **10**, the lower portion of the upper hub **16** includes a recess **30** which is complementary in shape to the shape of the upper part of the spindle **28**. As the upper and lower hubs **16** and **18** approach each other, the upper end of the spindle **28** enters the recess **30** to ensure proper alignment and provide a stop means for properly positioning the hubs in spaced relationship as shown in FIGS. **7** and **10**. Temporary locking means can be provided to lock the upper and lower hubs **16** and **18** together in order to maintain the tent in its erect condition.

[0027] With the exception of the spindle **28** and recess **30** just described, the tent and tent frame **14** and the operation thereof described above are conventional. Examples can be found in the patent to Lin and the published application to Joo-Tai referred to above. For convenience, the entire disclosure of the Lin patent and the Joo-Tai publication are incorporated herein by reference. As can be seen in Lin and Joo-Tai, the upper and lower hubs are drawn together by a cord that is attached to the lower hub and passes upwardly through the upper hub so as to be exposed at the top and exterior of the tent. By pulling on the cord from the top of the tent, the lower hub is drawn upwardly to erect the tent. The improved hub arrangement of the present invention allows the tent to be erected from either above and outside of the tent or from inside of the tent.

[0028] The details of the hub system of the present invention that allow the tent to be erected from either above the tent or inside the tent are shown in FIGS. **5-10**. With reference first to FIGS. **5**, **6** and **7**, it can be seen that a flexible cord **32** extends around a support **34** that is fixedly secured within the interior of the upper hub **16**. The two free ends **36** and **38** of the cord **32** extend downwardly through the interior of the spindle **28** and through apertures **40** and **42** formed in the lower wall **44** of the lower hub **18**. Preferably, the lower wall

44 is in the form of a cover or cap that can be snapped onto or otherwise secured to the lower hub **18** and which can be removed when desired.

[0029] The use of a single cord **32** that extends around the fixed member **34** as shown in FIG. **7** is, of course, by way of example only. It is possible to use two separate distinct cords that each have their upper ends fixed in some manner within the interior of the upper hub **16**. It is also within the scope of the present invention to use only a single cord having its upper end secured within the hub **16** and the lower end extending downwardly through one of the apertures **40** or **42**.

[0030] If a single cord such as either cord **36** or **38** is utilized, the tent can be opened from the interior thereof, i.e. from below the hubs **16** and **18**, by pulling down on the cord with one hand while pushing up on the bottom **44** of the lower hub **18**. This movement will draw the hubs **16** and **18** toward each other in order to erect the tent as described more fully above. With the use of two cords, however, one need not push on the lower hub **18**. Rather, grasping each of the two cords with a different hand and moving the hands apart will force the lower hub **18** upwardly as the sides of the apertures **40** and **42** will act as cam surfaces as the cords are being forced apart from each other.

[0031] FIGS. **8**, **9** and **10** illustrate how the identical system can be utilized to erect the tent from above. To accomplish this, the cords **36** and **38** pass around pulleys **46** and **48** that are secured within the lower hub **18** and then extend upwardly through openings **50** and **52** at the top end of the spindle **28** and through similar apertures **54** and **56** in the recess **30**. The cords **36** and **38** then pass through apertures **58** and **60** in the upper wall or cap **62** of the upper hub **16**. As with the lower cap **44**, the upper cap **62** is adapted to be temporarily secured to the top of the upper hub **16** so that it can be removed when desired.

[0032] With the cords **36** and **38** extending through the top wall **62** of the upper hub **16** as shown in FIGS. **8**, **9** and **10**, the tent can be erected by holding the cords and pulling them up while pushing down on the top **62** of the upper hub **16** or by drawing the cords **36** and **38** outwardly away from each other with two hands. In this way, the upper edges of the apertures **58** and **60** will function as cam surfaces drawing the hubs **16** and **18** together to erect the tent.

[0033] The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and accordingly, reference should be made to the appended claims rather than to the foregoing specification as indicating the scope of the invention.

We claim:

1. In a tent having a tent fabric and a frame adapted to support the fabric wherein said frame includes an upper hub with a plurality of elongated ribs pivotally connected thereto and intended to extend radially outwardly therefrom and a lower hub having a plurality of elongated stretcher members having first ends pivotally connected thereto, the number of stretcher members in said plurality of stretcher members being equal to the number of ribs in said plurality of ribs and wherein the free ends of each of said stretcher members are pivotally connected to a different one of said ribs whereby as said lower hub moves axially upwardly toward said upper hub, said stretcher members force said ribs outwardly to erect said tent, wherein said improvement comprises:

said upper hub having an interior and an upper wall with at least one aperture therein and being dimensioned so as to

allow two cords to pass therethrough without interfering with the operation of said frame;
said lower hub having an interior and a lower wall with at least one aperture therein and being dimensioned so as to allow two cords to pass therethrough without interfering with the operation of said frame;
first and second pulleys located within one of said upper and lower hubs;
first and second cords extending from the interior of the other of said upper and lower hubs toward and into said one of said upper and lower hubs, said first cord passing around said first pulley and said second cord passing around said second pulley, said first and second cords then extending through said other of said upper and lower hubs and extending through the said at least one aperture in the other of said upper and lower hubs so as to be accessible from the exterior thereof.

10. The improvement as claimed in claim **1** wherein said lower wall of said lower hub includes two apertures therein with a different one of said two of cords being capable of passing through each aperture.

11. The improvement as claimed in claim **1** wherein said upper wall of said upper hub includes two apertures therein with a different one of said two of cords being capable of passing through each aperture.

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