



US 20050205124A1

(19) **United States**

(12) **Patent Application Publication**
Goldwitz

(10) **Pub. No.: US 2005/0205124 A1**

(43) **Pub. Date: Sep. 22, 2005**

(54) **COLLAPSIBLE SHELTER HAVING A REINFORCED TRUSS AND TELESCOPING LEG**

Publication Classification

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(51) **Int. Cl.7** E04H 15/28; E04H 15/38;

E04H 15/50

(52) **U.S. Cl.** 135/131

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(57) **ABSTRACT**

(21) **Appl. No.: 10/978,648**

A collapsible shelter has a canopy supported by legs and a center post. The legs and center post are rigidly fixed in position by eave and truss assemblies made from scissor type linkages. The ends of the scissor type linkages can be coupled to create a robust frame assembly. A locking button fixes the scissor linkages to the center post and a strap couples secures the interconnections between scissor linkages. The legs telescope in a non-binding manner and include curved footings for easy assembly and disassembly.

(22) **Filed: Nov. 1, 2004**

(30) **Foreign Application Priority Data**

Mar. 17, 2004	(CN)	200420020981.8
Mar. 17, 2004	(CN)	200420020986.0
Mar. 19, 2004	(CN)	200420021066.0
Mar. 22, 2004	(CN)	200420021142.8

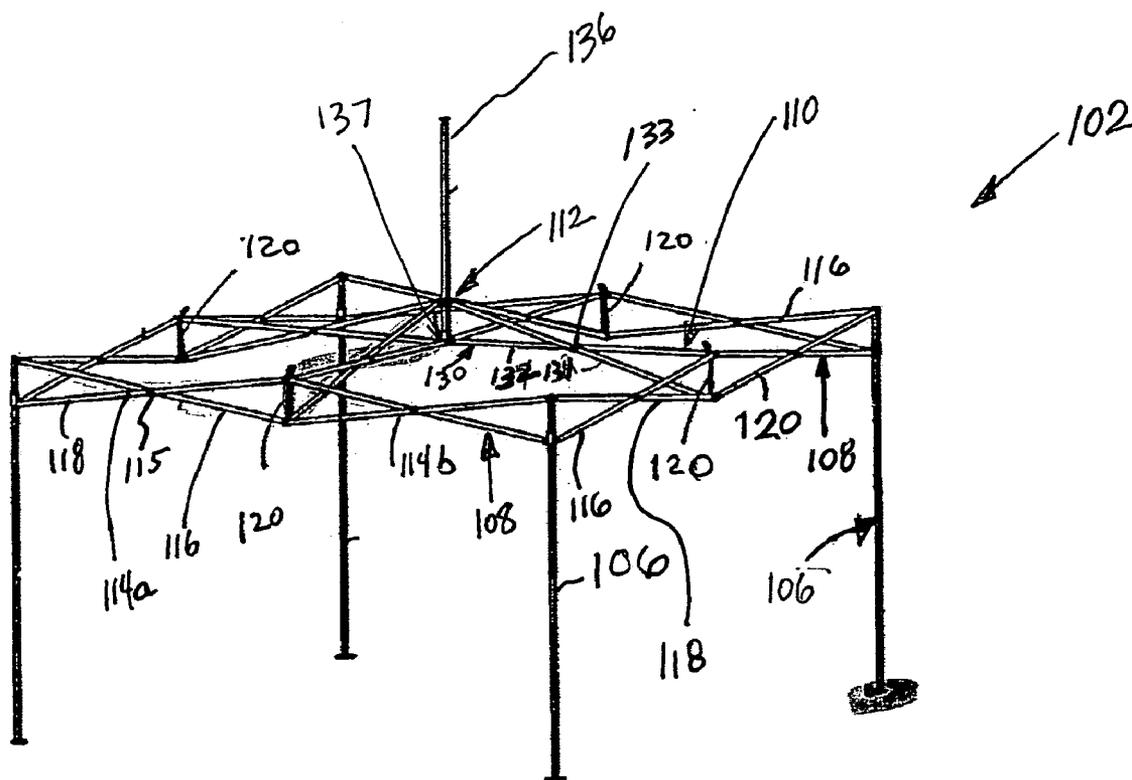
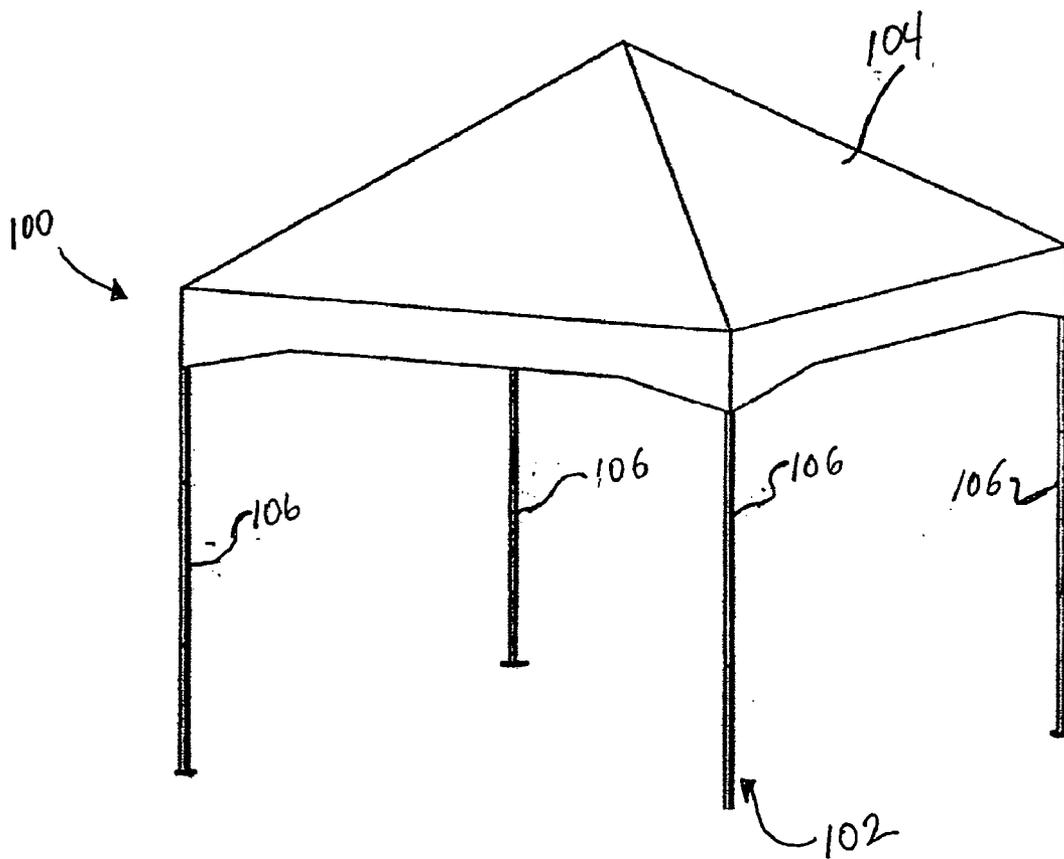


Figure 1



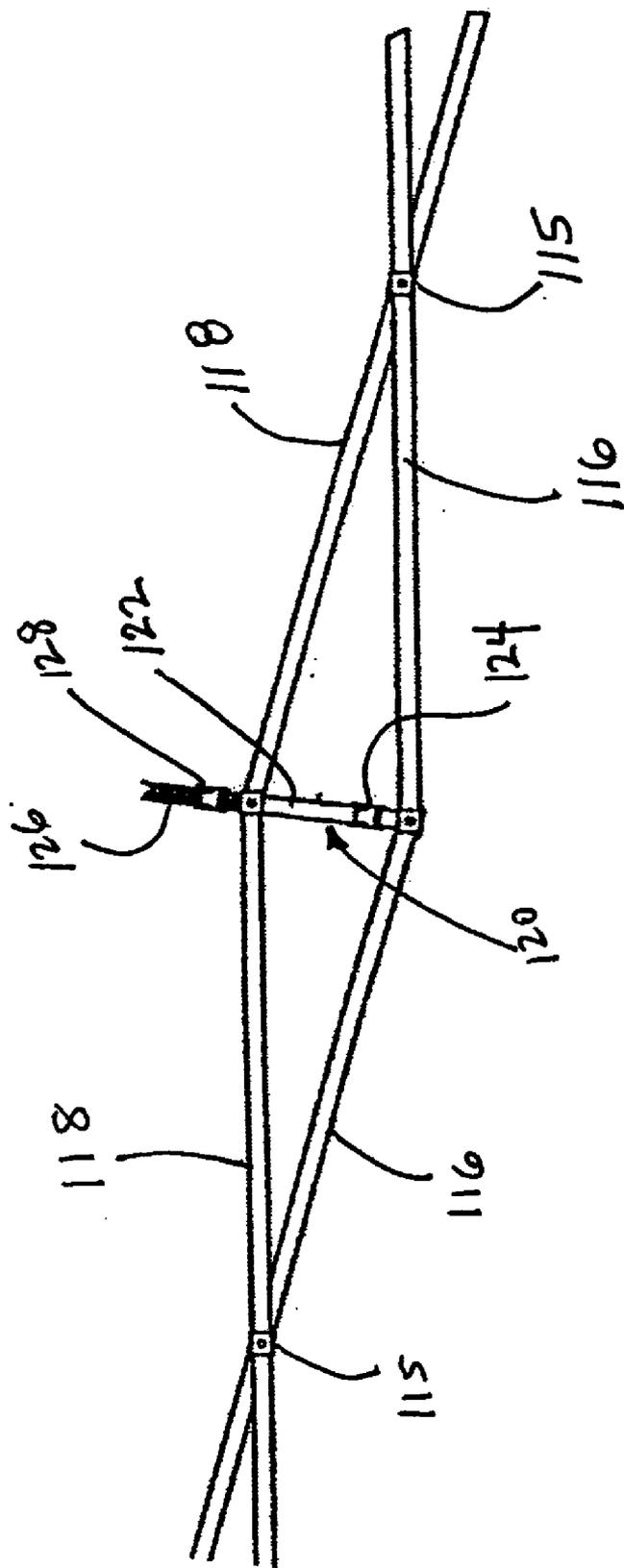


Figure 3

Figure 4

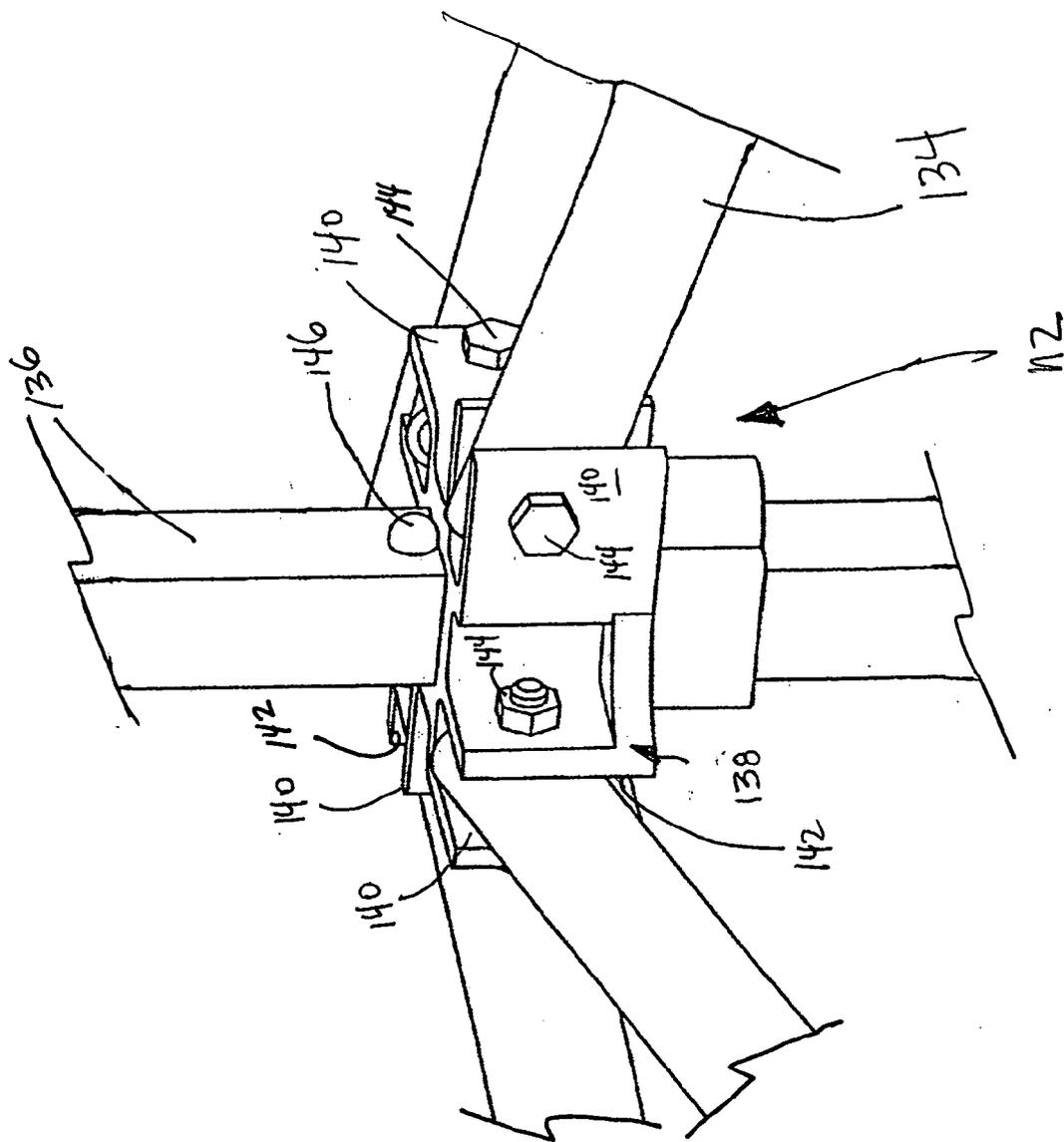


Figure 5A

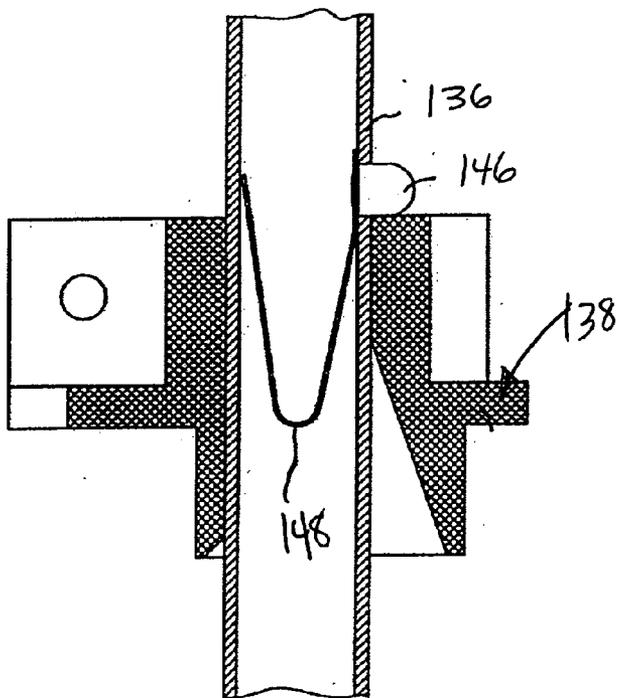
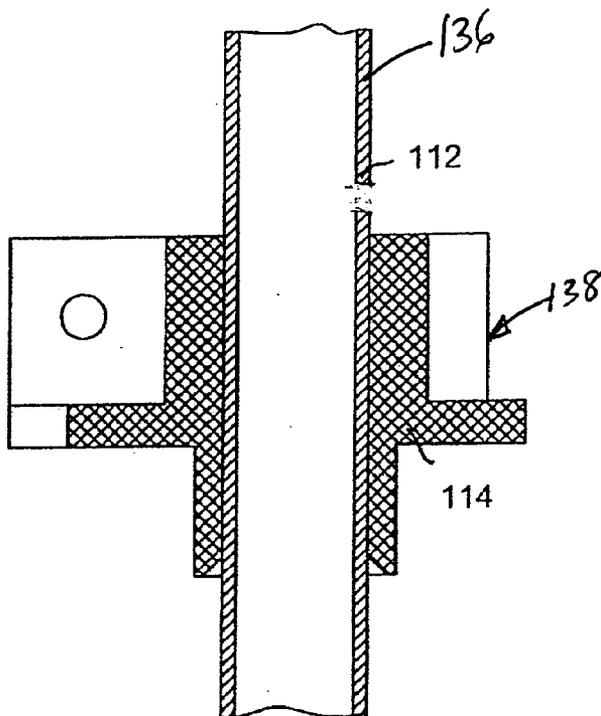


Figure 5B

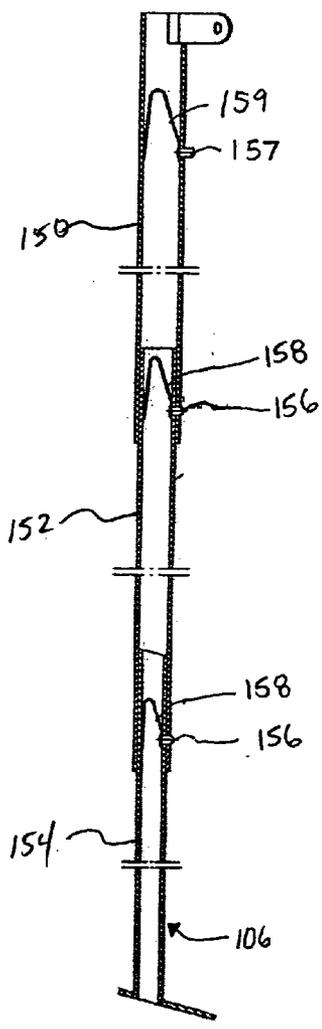
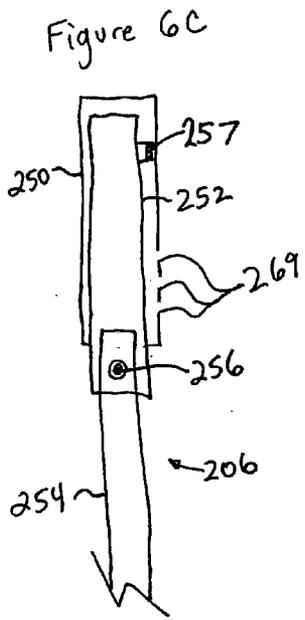


Figure 6A

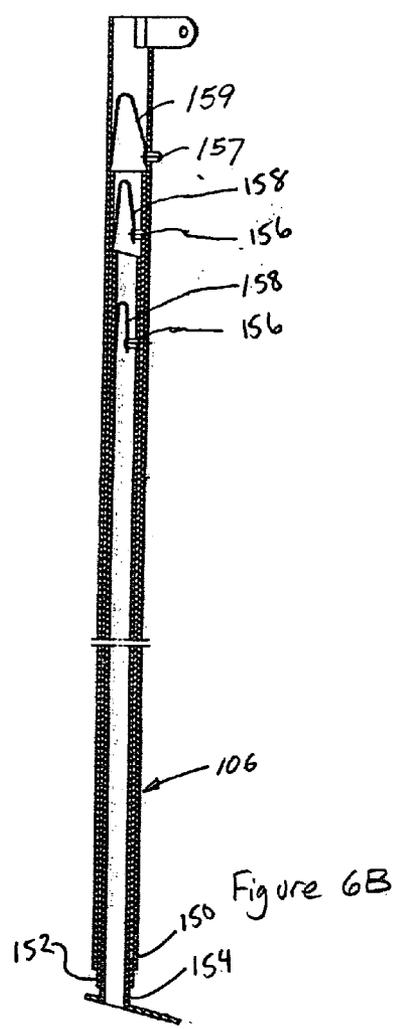


Figure 6B

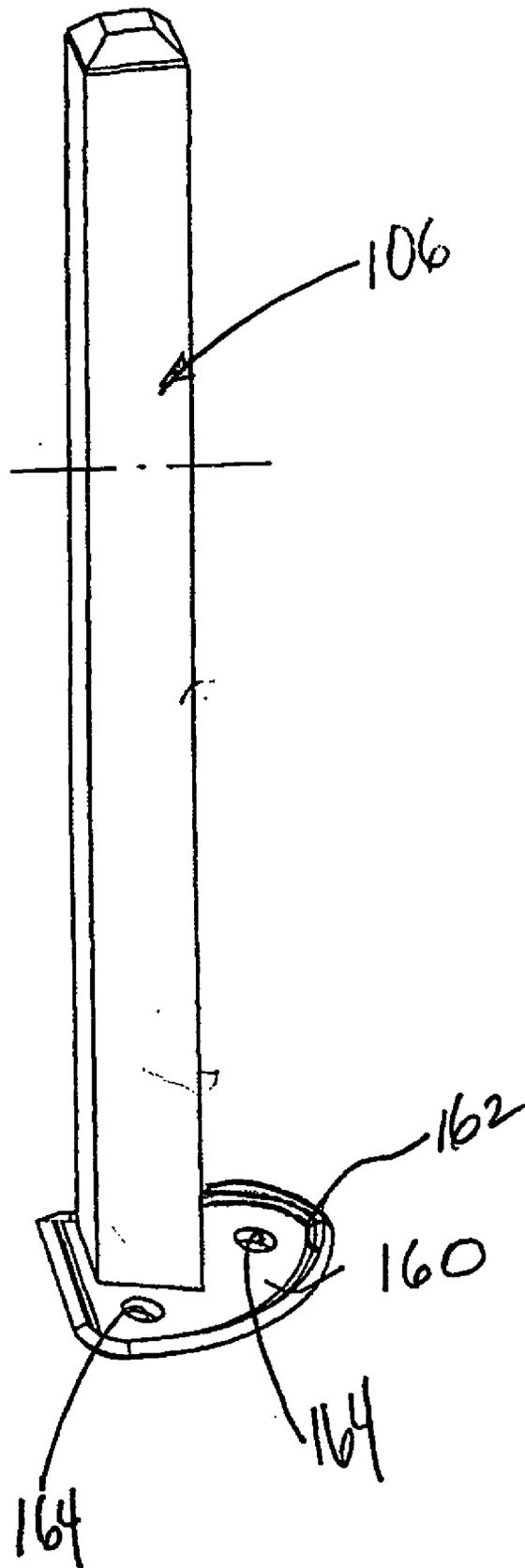


Figure 7

(PRIOR ART)

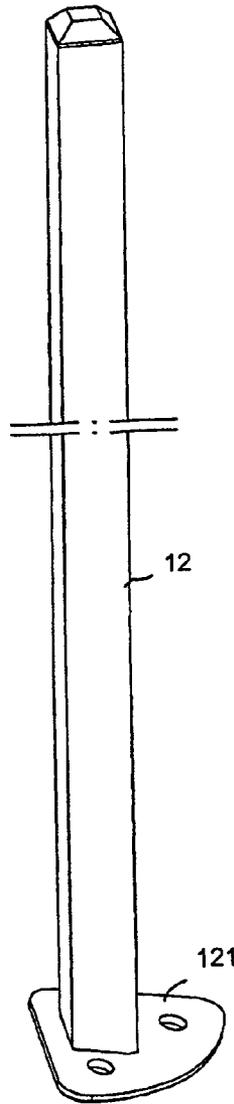


Figure 8

COLLAPSIBLE SHELTER HAVING A REINFORCED TRUSS AND TELESCOPING LEG

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to Chinese Patent Application No. 200420020981.8, filed Mar. 17, 2004, Chinese Patent Application No. 200420020986.0, filed Mar. 17, 2004, Chinese Patent Application No. 200420021066.0, filed Mar. 19, 2004, and Chinese Patent Application No. 200420021142.8, filed Mar. 22, 2004, each of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The subject disclosure relates generally to shelters, and more particularly to an improved shelter having a collapsible frame. Even more particularly, the subject disclosure relates to a shelter including a canopy supported by a cable mounted on a collapsible frame.

[0004] 2. Background of the Related Art

[0005] Over the years, many tents and other shelters having collapsible frames have been introduced. Such structures are commonly used to provide shelter during camping trips, picnics, parties, military operations, and other outdoor activities. One advantageous feature of such structures is their ability to fold into more compact configurations for storage and transport because of their collapsible frames.

[0006] However, several problems associated with collapsible shelters have been observed. The frames tend to be difficult to fold and unfold, unstable, somewhat large when folded, and prone to breakage. Some prior shelter frames also allow the overlying canopy to sag in an unsightly manner. In view of these apparent shortcomings, many attempts at overcoming these difficulties have been patented, such as: U.S. Pat. Nos. 4,779,635; 5,511,572; 5,632,293; 5,638,853; 5,701,923; 5,797,412; 5,813,425; and 6,173,726 (each of which is incorporated herein by reference in their entirety).

[0007] For example, U.S. Pat. No. 4,779,635 ('635 patent) discloses a collapsible canopy structure **10** with scissor assemblies **60** interconnecting four vertical corner poles **22**. While the scissor-type linkages provide an easily folded frame, users often suspend items from the linkages or even rest hands thereon resulting in distortion and/or breakage of the structure. Once distorted or broken, the structure **10** becomes unusable. For another example, U.S. Pat. No. 6,173,726 ('726 patent) discloses an eave assembly for a collapsible shelter. The eave assembly of the '726 patent includes pairs of bars **10-1**, **10-2** coupled to another pair of bars **20-1**, **20-2** by a center bracket **30**. Support bars **100** help support the eave assemblies in place with respect to the corner legs **150**. The structure taught by the '726 patent is relatively strong compared to that of the '635 patent. However, the '726 structure does not possess the ease of folding seen with the scissor-type linkages. In view of the above, it would be desirable to have a collapsible shelter that possesses the advantage of scissor-type linkages while overcoming the disadvantages.

[0008] The structure **10** of the '635 patent includes a center post assembly **52** in order to maintain the canopy

covering **12** in a taut condition. The center post assembly **52** has a dome shaped top **59** that is spring-biased against the canopy covering **12**. Although the spring-biasing of the post **58** keeps the canopy **12** taut, the center post assembly **52** provides no additional structural support to the structure **10**. It is desirable that a center post serves both to maintain the canopy cover taut and also to enhance the structural frame.

[0009] The canopy structure **10** of the '635 patent also includes telescoping corner poles **22**. The corner poles **22** have a lower member **26** that telescopes within an upper member **24**. A button latch **27** selectively fixes the corner poles **22** in either the fully extended or telescoped positions. Such a two-piece corner pole **22** limits both the maximum fully extended height as well as the minimum telescoped down length. Further, the corner poles **22** include a foot **30**. A typical prior art footing is shown in **FIG. 8**. The footing of **FIG. 8** is a flat, rectangular piece of metal attached to the bottom of the corner pole. Such prior art footings prevent easy folding and unfolding of the structure **10** because of edges that catch upon or even dig into the support surface during folding. There is a need, therefore, for a collapsible shelter with legs that are superior to those known in the prior art. In particular, a shelter frame leg with a plurality of telescoping portions that is easily folded and unfolded, yet still effective in supporting a canopy assembly at a plurality of heights is desired.

SUMMARY OF THE INVENTION

[0010] The present invention is directed to a collapsible shelter. The collapsible shelter includes an eave assembly having first and second scissor units. The first scissor unit has first and second cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end. The second scissor unit has third and fourth cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end. The first ends of the first and third cross pieces are pivotally connected, and the first ends of the second and fourth cross pieces are pivotally connected. A connector selectively couples the first ends of the first and second cross pieces together.

[0011] The collapsible shelter also includes a center post having an upper and a lower end. A third scissor unit has fifth and sixth cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end. The first ends of the fifth and sixth cross pieces are coupled to the center post. The second ends are coupled to an eave assembly such that the connector selectively couples the second ends of the fifth and sixth cross pieces together. The shelter also includes means for selectively fixing the first end of the fifth cross piece with respect to the first end of the sixth cross piece.

[0012] The collapsible shelter as described above possesses several advantages. By selectively coupling the cross pieces of the various scissor units, the structure can be strengthened while still allowing for easy folding into a compact configuration. Such a structure therefore incorporates the advantage of scissor-type linkages while overcoming the disadvantages. Further, the coupling of the scissor unit to both the center post and the eave assembly allows the a center post to both maintain the canopy cover taut and also enhance the structural frame.

[0013] The collapsible shelter incorporates at least two leg assemblies, each leg assembly having a foot for resting on the surface. The second ends of the first and second cross pieces are pivotally coupled to a first leg. The second ends of the third and fourth cross pieces are pivotally coupled to a second leg. In one embodiment, each leg assembly includes at least three telescoping portions and forms a plurality of holes that are offset. At least two portions have locking means, each locking means being on a different side of the leg assembly. Each leg assembly incorporates at least two spring-biased buttons for engaging the plurality of holes to selectively set a length of the leg assembly. Such a leg assembly is easily folded and unfolded, yet still effective in supporting a collapsible shelter at a plurality of heights.

[0014] Another aspect of the invention is a truss assembly for a collapsible shelter frame, comprising a scissor unit having first and second cross pieces that are pivotally connected substantially about respective midpoints. Each cross piece has a first and a second end, the first ends being coupled to a center post and the second ends being coupled to an eave assembly. The truss assembly also includes a means for selectively fixing an end of the first cross piece with respect to an end of the second cross piece. In one embodiment, the truss assembly further comprises a coupling assembly that is slidingly mounted to the center post, to which the first end of the first cross piece pivotally attaches. In another embodiment, the connector further comprises a portion for connecting to a canopy.

[0015] Another aspect of the invention is a portion of a collapsible frame for a shelter. The portion includes a first scissor unit having first and second cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end. The portion further includes a second scissor unit having third and fourth cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end. The first ends of the first and third cross pieces are pivotally connected, and the first ends of the second and fourth cross pieces are pivotally connected. A connector selectively couples the first ends of the first and second cross pieces together. In one embodiment, the portion further comprises first and second legs. The second ends of the first and second cross pieces are pivotally coupled to the first leg, while the second ends of the third and fourth cross pieces are pivotally coupled to the second leg. In another embodiment, the portion further comprises a third scissor unit. The third scissor unit has fifth and sixth cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end. The first ends of the fifth and sixth cross pieces are pivotally coupled to the first, second, third, and fourth cross pieces such that the connector couples the first ends of the fifth and sixth cross pieces together.

[0016] Yet another aspect of the invention is a center apex assembly for a collapsible shelter. The apex assembly includes a center post having an upper end and a lower end. A coupling assembly is slidingly mounted on the center post intermediate the upper and lower ends and has a plurality of mounts for connecting structural members. The apex assembly includes means for selectively locking the coupling assembly at a position intermediate the upper and lower ends. In one embodiment, the center post of the apex assembly telescopes.

[0017] It should be appreciated that the present invention can be implemented and utilized in numerous ways, including without limitation as a process, an apparatus, a system, a device, and a method for applications now known and later developed. These and other unique features of the system disclosed herein will become more readily apparent from the following description and the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018] So that those having ordinary skill in the art to which the disclosed system appertains will more readily understand how to make and use the same, reference may be had to the following drawings.

[0019] FIG. 1 is a perspective view of an assembled collapsible shelter constructed in accordance with a preferred embodiment of the subject disclosure.

[0020] FIG. 2 is a perspective view of the frame assembly of the shelter of FIG. 1.

[0021] FIG. 3 is a localized view of the scissor-type linkage of the frame assembly of FIG. 2.

[0022] FIG. 4 is a localized view of the center coupling of the frame assembly of FIG. 2.

[0023] FIG. 5A is a cross-sectional view of the center coupling assembly of the frame assembly of FIG. 2 in the disassembled position.

[0024] FIG. 5B is a cross-sectional view of the center coupling assembly of the frame assembly of FIG. 2 in the assembled position.

[0025] FIG. 6A is a cross-sectional view of the leg assembly of the frame assembly of FIG. 2 in the extended position.

[0026] FIG. 6B is a cross-sectional view of the leg assembly of the frame assembly of FIG. 2 in the retracted position.

[0027] FIG. 6C is a cross-sectional view of another leg assembly in the retracted position.

[0028] FIG. 7 is a localized view of a foot for a leg assembly of the frame assembly of FIG. 2.

[0029] FIG. 8 is a view of a prior art foot for a corner pole of a collapsible structure.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0030] The present invention overcomes many of the prior art problems associated with collapsible shelters. The advantages, and other features of the system disclosed herein, will become more readily apparent to those having ordinary skill in the art from the following detailed description of certain preferred embodiments taken in conjunction with the drawings which set forth representative embodiments of the present invention and wherein like reference numerals identify similar structural elements.

[0031] Referring to FIG. 1, a shelter 100 in accordance with the present disclosure includes a collapsible frame assembly 102 for mounting a canopy 104 thereon. The collapsible frame 102 is shown in the raised, unfolded or "set-up" position. The collapsible frame 102 includes four leg assemblies 106 adapted to rest on a support surface. It

should be understood that a shelter **100** according to the subject disclosure may include more or less than four leg assemblies **106** to form configurations other than cubic. Preferably, each of the leg assemblies **106** is the same.

[0032] Referring now to **FIG. 2**, the frame assembly **102** includes a plurality of eave assemblies **108** extending between each pair of leg assemblies **106**. A plurality of truss assemblies **110** extend from the midpoint of the eave assemblies **108** to pivotally connect to a center apex assembly **112**. The combination of the eave assemblies **108** and truss assemblies **110** combine to support the center post assembly **112** to insure that the canopy **104** is maintained taut thereon. Each eave assembly **108** and truss assembly **110** is preferably the same. For simplicity, the following description is with respect to a single assembly. The eave assembly **108** includes a pair of neighboring scissor units **114a, 114b**, each scissor unit **114a, 114b** having a first cross piece **116** and a second cross piece **118**. The cross pieces **116, 118** are pivotally connected about their midpoints **115**. On one end, each scissor unit **114** pivotally attaches to a leg assembly **106**. On the other end, the neighboring scissor units **114a, 114b** are pivotally connected. Where the neighboring scissor units **114a, 114b** are connected, a connector **120** selectively links together the first cross piece **116** and the second cross piece **118**. The connector **120** prevents the end of the first cross piece **116** from moving away from the end of the second cross piece **118** at the ends where the neighboring scissor units **114a, 114b** are connected. As a result, the frame assembly **102** is well-suited to withstand downward pressure upon the eave assemblies **108**.

[0033] As best seen in **FIG. 3**, the connector **120** is preferably a loop **122** of webbing and a buckle **124**. A second loop **126** and buckle **128** of the connector **120** allow further linking to the canopy **104**. In a preferred embodiment, the second loop **126** passes through a reinforced hole (not shown) in the canopy **104**. In other preferred embodiments, hook and loop fabric, locking snaps, and the like are utilized to perform the selective coupling function of the connector **120**.

[0034] Referring again to **FIG. 2**, the truss assembly **110** consists of a single scissor unit **130** having a first cross piece **134** and a second cross piece **132** that are pivotally connected substantially about respective midpoints **133**. One end of the scissor unit **130** is pivotally coupled to the eave assembly **108** intermediate the scissor units **114a, 114b**. The other end of the scissor unit **130** is coupled to the center apex assembly **112**. In a preferred embodiment, the second cross piece **132** is substantially horizontal so that headroom within the shelter **100** is improved. It is also envisioned that the frame assembly **102** could include truss, eave, and connector assemblies with more or less scissor units to achieve the desired configuration while still benefiting from the advantages of the subject disclosure.

[0035] Referring to **FIG. 4**, there is shown a localized view of the scissor units **130** coupled to the center apex assembly **112**. The center apex assembly **112** includes a center post **136** having an upper end and a lower end. Preferably, the center post **136** telescopes and has a dome-shape at the upper end. A hub assembly **138** is slidingly mounted on the center post **136** intermediate the upper end and the lower end. The hub assembly **138** has a plurality of mounts **140** for pivotally connecting the cross pieces **134** of

the scissor units **130** thereto. Preferably, the mounts **140** form a channel **142** in which the ends of the cross pieces **134** are retained by a nut and bolt combination **144**. It should be noted that many suitable fasteners can be used for all pivotal connections of the collapsible frame **102**. Such fasteners can be rivets, a locking bar and cotter pin combination, pintle, or other suitable fasteners.

[0036] Referring now to **FIGS. 4, 5A** and **5B**, a locking button **146** on the center post **136** selectively prevents the center post **136** from sliding beyond the locking button **146** even when downward force is applied to the center post **136**. A spring wire **148** within the center post **136** urges the locking button **146** outward but can be depressed to allow the locking button **146** to pass within the hub assembly **138** for folding of the frame assembly **102**. It is envisioned that the locking button **146** may be placed at a variety of locations in order to provide the desired headroom. In an alternate embodiment, a locking button could be utilized on the hub assembly **138** to selectively engage a plurality of holes formed in the center post **136** to thereby vary the tension applied to the canopy **104**.

[0037] When in the set-up position, the frame assembly **102** provides a structure with increased rigidity. The retention of the hub assembly **138** on the center post **136** causes the center post **136** and the cross pieces **132, 134** of the scissor units **130** to form a supportive triangle. The supporting triangle allows for any lateral forces applied to the center post **136** to be opposed by the scissor units **130** rather than by a moment maintained by the joint **137** linking the center post **136** to the frame assembly **102**. This transfer of the load bearing responsibility from the joint **137** to the scissor units **130** creates a more rigid and reliable structure. The other end of each scissor unit **130** is not only pivotally linked to the eave assembly **108** but also incorporates a vertically coupling of the cross pieces **132, 134** by the connector **120** to form a second triangle. The second triangle prevents the end of the first cross piece **134** from moving away from the end of the second cross piece **132** at the ends where the cross pieces **132, 134** connect to the eave assembly **108**. As a result, the frame assembly **102** is well-suited to withstand downward pressure upon the truss assemblies **110**.

[0038] Referring now to **FIGS. 6A** and **6B**, an exemplary leg assembly **106** is shown in vertical cross-section. The leg assembly **106** includes a top portion **150**, a middle portion **152** and a bottom portion **154**. The middle portion **152** and the bottom portion **154** telescope within the top portion **150** to reduce the height of the leg assembly **106** for storage and transport. Additionally, it is possible to extend only one portion in order to vary the overall height of the frame assembly **102** above the support surface. In another preferred embodiment, the leg assembly **106** includes additional portions to further allow variation of the height thereof. A locking button **156** on the bottom portion **154** selectively engages a hole formed in the middle portion **152** to fix the relative positions of the bottom and middle portions **154, 152** when in an extended position. Similarly, a locking button **156** on the middle portion **152** selectively engages a hole formed in the top portion **150** to fix the relative positions of the middle and top portions **152, 150** when in an extended position. A spring wire **158** urges each locking button **156** outward. To retract the leg assembly, each locking button **156** is depressed, thus allowing the middle and bottom portions **152, 154** to pass within the top

portion **150**. Preferably, the locking buttons **156** are not rounded but rather cylindrical and terminating in a flat surface. The flat surface allows for effective engagement of the hole even if the portion containing the hole is telescoped inside another portion. Thus, extension of the leg assembly **106** is easily done. Additionally, another button **157**, urged by a wire **159** secures the scissor linkages **114** to the leg assembly **106** in the assembled position.

[0039] Referring now to **FIG. 6C**, as will be appreciated by those of ordinary skill in the pertinent art, the leg assembly **206** utilizes similar principles of the leg assembly **106** described above. Accordingly, like reference numerals preceded by the numeral "2" instead of the numeral "1", are used to indicate like elements. The leg assembly **206** includes a top portion **250**, a middle portion **252** and a bottom portion **254**. A plurality of holes **269** are formed in the upper portion **250** to allow variation in fixing the relative positions of the bottom and middle portions **254**, **252** with respect thereto. The middle portion **252** is longer in length than the top portion **250** so that the middle portion **252** always is accessible. The locking button **256** on the bottom portion **254** is secured to a different side of the square in horizontal cross-section leg assembly **206**.

[0040] In another preferred embodiment, the leg assembly **106** defines a plurality of holes for receiving the locking buttons **156**. As such, the portions **150,152,154** can be fixed in a variety of positions in addition to the extended position. Preferably, the hole or holes for fixing the middle portion **152** are offset with respect to the holes for fixing the bottom portion **154**. Thus, the buttons **156** of the respective portions are not inadvertently engaged by the wrong hole. In still another preferred embodiment, the cross-section of the leg assembly **106** is square and the hole(s) for engaging each portion **152**, **154** are formed in different sides of the square.

[0041] Referring now to **FIG. 7**, a foot **160** of a leg assembly **106** is shown in detail. The foot **160** has a curved outer rim **162** for preventing the leg assembly **106** from binding or digging into the support surface during folding and assembling of the frame assembly **102**. The foot **160** defines holes **164** for anchoring the foot **160**, and, thereby, the frame assembly **102**, to the support surface.

[0042] While the invention has been described with respect to preferred embodiments, those skilled in the art will readily appreciate that various changes and/or modifications can be made to the invention without departing from the spirit or scope of the invention as defined by the appended claims.

What is claimed is:

1. A truss assembly for a collapsible shelter frame, comprising:

a scissor unit having first and second cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end, the first ends being coupled to a center post and the second ends being coupled to an eave assembly; and

means for selectively fixing an end of the first cross piece with respect to an end of the second cross piece.

2. A truss assembly as recited in claim 1, further comprising a coupling assembly that is slidingly mounted to the center post, wherein the coupling of the first end of the first cross piece is accomplished by pivotally attaching the first

end of the first cross piece to the coupling assembly and the means is a spring-biased button on the center post to selectively fix the coupling assembly thereto.

3. A truss assembly as recited in claim 2, wherein the first end of the second cross piece is pivotally coupled to the center post.

4. A truss assembly as recited in claim 1, wherein the means is a connector having a strap and a buckle, the connector selectively coupling the second ends of the cross pieces.

5. A truss assembly as recited in claim 4, wherein the connector further comprises a portion for connecting to a canopy.

6. A truss assembly as recited in claim 1, wherein the second cross piece is substantially horizontal.

7. A portion of a collapsible frame for a shelter, comprising:

a first scissor unit having first and second cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end;

a second scissor unit having third and fourth cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end, wherein the first ends of the first and third cross pieces are pivotally connected, and the first ends of the second and fourth cross pieces are pivotally connected; and

a connector selectively couples the first ends of the first and second cross pieces together.

8. A portion as recited in claim 7, further comprising:

a first leg, wherein the second ends of the first and second cross pieces are pivotally coupled thereto; and

a second leg, wherein the second ends of the third and fourth cross pieces are pivotally coupled thereto.

9. A portion as recited in claim 7, wherein the connector is a strap and buckle.

10. A portion as recited in claim 7, wherein the connector includes a strap and a buckle capable of engaging a hole formed in a canopy for the collapsible shelter frame.

11. A portion as recited in claim 7, further comprising a third scissor unit having fifth and sixth cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end,

wherein the first ends of the fifth and sixth cross pieces are pivotally coupled to the first, second, third, and fourth cross pieces such that the connector couples the first ends of the fifth and sixth cross pieces together.

12. A portion as recited in claim 11,

wherein the second end of the fifth cross piece is adapted to slidingly engage a center post, and the second end of the sixth cross piece is pivotally coupled to the center post; and

further comprising a spring-biased button to selectively fix the second end of the fifth cross piece to the center post.

13. A center apex assembly for a collapsible shelter, comprising:

a center post having an upper end and a lower end;

a coupling assembly slidingly mounted on the center post intermediate the upper end and the lower end, the coupling assembly having a plurality of mounts for connecting structural members thereto; and

a means for selectively locking the coupling assembly at a position intermediate the upper and lower ends.

14. A center apex assembly as recited in claim 13, wherein the center post telescopes and the upper end of the center post is dome-shaped.

15. A center apex assembly as recited in claim 13, wherein the plurality of mounts are formed to receive a substantially horizontal member to improve headroom.

16. A center apex assembly as recited in claim 13, wherein the means is a spring-biased button that can be depressed to allow the coupling assembly to pass over the button.

17. A truss assembly for a collapsible shelter frame, comprising:

a roof assembly; and

at least three leg assemblies for supporting the roof assembly above a surface, each leg assembly having a foot for resting on the surface, wherein the foot has a curved outer rim.

18. A truss assembly as recited in claim 17, wherein each leg assembly is multi-sided in cross-section and each leg assembly includes at least three telescoping portions, wherein at least two portions have locking means, each locking means being on a different side of the leg assembly.

19. A truss assembly as recited in claim 18, wherein the locking means is a spring-biased button that can be depressed to allow the at least three telescoping portions to pass within each other.

20. A truss assembly as recited in claim 19, wherein at least one of the spring-biased buttons has a flat end that allows coupling to a hole formed in the respective portion even when the respective portion is telescoped inside another portion.

21. A truss assembly as recited in claim 17,

wherein each leg includes at least three telescoping portions and forms a plurality of holes that are offset and further comprising at least two spring-biased buttons on each leg assembly for engaging the plurality of holes to selectively set a length of the leg assembly.

22. A collapsible shelter comprising:

a center post having an upper and a lower end;

an eave assembly having

a first scissor unit having first and second cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end;

a second scissor unit having third and fourth cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end,

wherein the first ends of the first and third cross pieces are pivotally connected, and the first ends of the second and fourth cross pieces are pivotally connected;

a connector selectively coupling the first ends of the first and second cross pieces together;

at least two leg assemblies, each leg assembly having a foot for resting on the surface, wherein the second ends of the first and second cross pieces are pivotally coupled to a first leg, and wherein the second ends of the third and fourth cross pieces are pivotally coupled to a second leg;

a third scissor unit having fifth and sixth cross pieces that are pivotally connected substantially about respective midpoints, each cross piece having a first and a second end, the first ends being coupled to the center post and the second ends being coupled to an eave assembly such that the connector selectively couples the second ends of the fifth and sixth cross pieces together; and

means for selectively fixing the first end of the fifth cross piece with respect to the first end of the sixth cross piece.

23. A collapsible shelter as recited in claim 22, further comprising a connector assembly that is slidingly mounted to the center post intermediate the upper and lower ends, the connector assembly having a plurality of mounts for connecting structural members thereto, and wherein the coupling of the first end of the fifth cross piece is accomplished by pivotally connecting the cross piece to the mount of the connector assembly.

24. The collapsible shelter as recited in claim 23, wherein the first end of the sixth cross piece is pivotally coupled to the center post.

25. The collapsible shelter as recited in claim 23, wherein the means is a spring-biased button on the center post that can selectively fix the connector thereto or be depressed to allow the coupling assembly to pass over the button.

26. A collapsible shelter as recited in claim 22, wherein the connector is a strap and a buckle.

27. A collapsible shelter as recited in claim 22, wherein the connector further comprises a portion for connecting to a canopy.

28. A collapsible shelter as recited in claim 22, wherein the sixth cross piece is substantially horizontal.

29. A collapsible shelter as recited in claim 22, wherein the center post telescopes.

30. A collapsible shelter as recited in claim 22, wherein the upper end of the center post is dome-shaped.

31. A collapsible shelter as recited in claim 22, wherein each leg assembly is multi-sided in cross-section and each leg assembly includes at least three telescoping portions, wherein at least two portions have locking means, each locking means being on a different side of the leg assembly.

32. A collapsible shelter as recited in claim 31, wherein the locking means is a spring-biased button that can be depressed to allow the at least three telescoping portions to pass within each other.

33. A collapsible shelter as recited in claim 32, wherein at least one of the spring-biased buttons has a flat end that allows coupling to a hole formed in the respective portion even when the respective portion is telescoped inside another portion.

34. A collapsible shelter as recited in claim 22,

wherein each leg includes at least three telescoping portions and forms a plurality of holes that are offset and

further comprising at least two spring-biased buttons on each leg assembly for engaging the plurality of holes to selectively set a length of the leg assembly.

35. A collapsible shelter as recited in claim 34, wherein each spring-biased button may engage more than one of the plurality of holes.

36. A collapsible shelter as recited in claim 34, wherein a middle portion of the at least three telescoping portions is longer than a top portion of the at least three telescoping portions.

37. A collapsible shelter as recited in claim 22, wherein a foot of a leg assembly has a curved outer rim.

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