

April 1, 1958

P. J. STOCKMAN

2,828,755

COLLAPSIBLE TENT

Filed Oct. 10, 1955

2 Sheets-Sheet 1

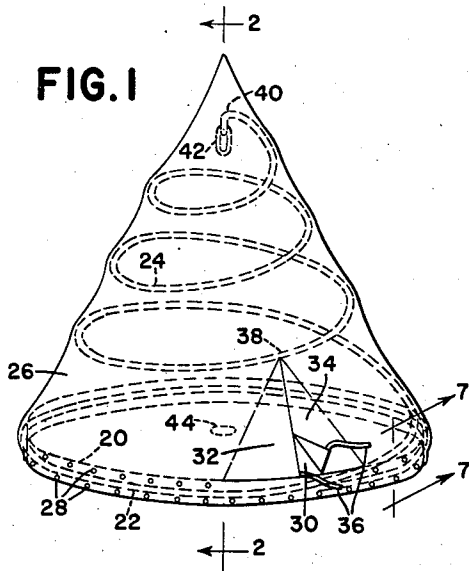


FIG. 3

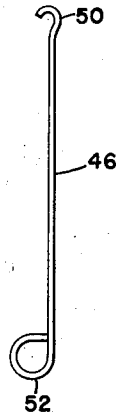


FIG. 4

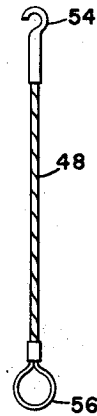


FIG. 2

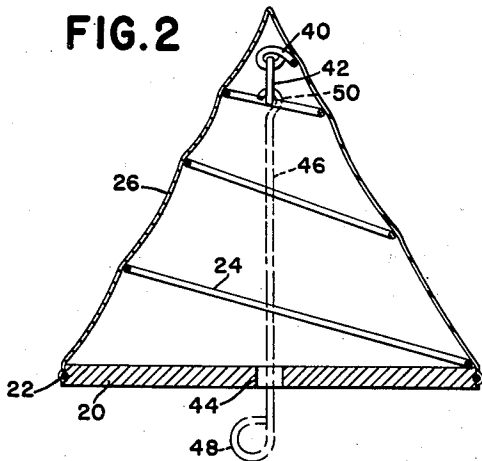


FIG. 6

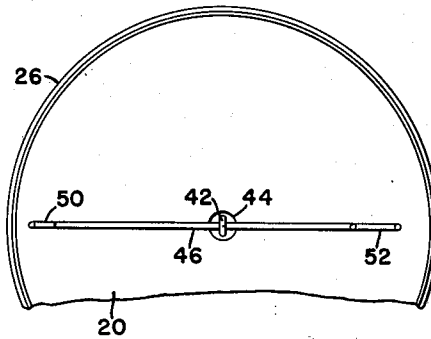


FIG. 7

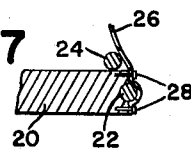


FIG. 5

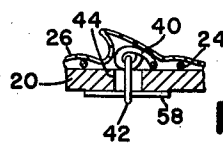
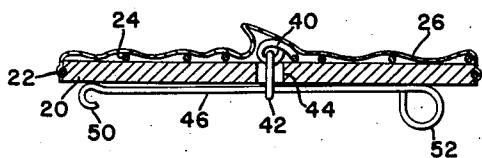


FIG. 8

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FIG. 9

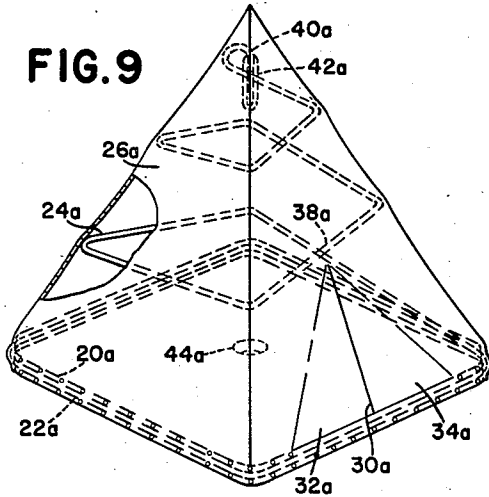


FIG. 10

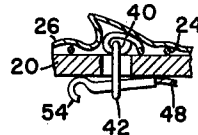


FIG. 11

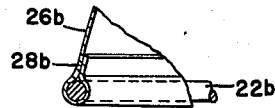
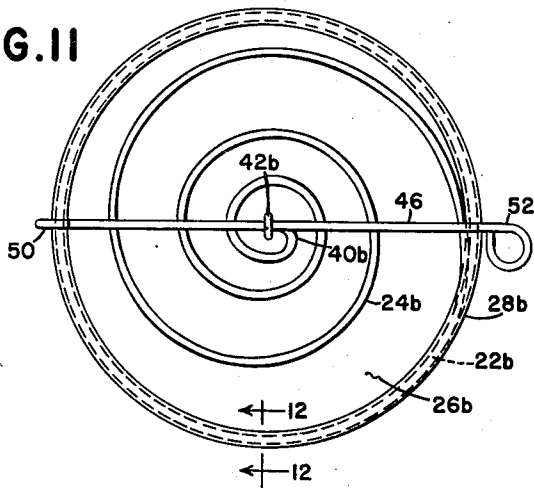


FIG. 12

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2,828,755

COLLAPSIBLE TENT

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Application October 10, 1955, Serial No. 539,610

12 Claims. (Cl. 135—1)

This invention relates to a collapsible tent especially designed for children; although, the principles of the design, when embodied on a larger scale, will clearly result in structures for adult use.

One of the principal objects of the invention is the provision of a poleless, readily portable and foldable tent or like structure comprising a fabric or similar enclosure supported by and conforming to the shape of resilient frame means which, in its expanded state, affords a tent of normal operative or useful dimensions and which, when collapsed, is vertically compressed to a materially low storage height, the enclosure material, be it canvas, rubberized fabric, plastic sheet, etc. being flexible and pliable so as to be foldable, accordion fashion, upon compression of the structure as a whole. It is also a significant object to utilize, as the supporting frame means a single coiled spring having an average diameter and an expanded height sufficient to accommodate occupants, which spring or frame means may be of any desired configuration to achieve the selected overall shape of the structure, whether conical, pyramidal or otherwise. Other features of the invention reside: in securing means for releasably securing the compressed state or storage height of the structure; in a collapsible tent having floor means therein; in the use of securing elements cooperative between the floor means and an upper part of the frame means for achieving the aforesaid securing means; in the provision of a collapsible tent of the class described in which a doorway is provided in a desirable location; and in such other characteristics and capabilities as will appear from the disclosure of various forms of the invention in the ensuing specification and accompanying sheets of drawings, the several figures of which are described immediately below.

- Figure 1 is a perspective of one form of structure.
- Figure 2 is a section on the line 2—2 of Figure 1.
- Figure 3 is a view of one form of retracting member.
- Figure 4 is a view of another form of retracting member.
- Figure 5 is a section showing the structure of Figures 1 and 2 collapsed and locked by the member of Figure 3.
- Figure 6 is a fragmentary bottom view of the structure of Figure 5.
- Figure 7 is an enlarged fragmentary section on the line 7—7 of Figure 1.
- Figure 8 is a fragmentary section of the collapsed structure as locked by a separate lock member.
- Figure 9 is a perspective, with parts broken away, of a structure modified over Figure 1.
- Figure 10 is a fragmentary section of the Figures 1 or 9 structure locked by a member similar to that of Figure 4.
- Figure 11 is a bottom view of a collapsed and locked structure of the floorless type.
- Figure 12 is a fragmentary section on the line 12—12 of Figure 11.

In general, let it be noted at the outset that, in the interests of convenience and clarity, the structure is defined in

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familiar terms as a tent, in which case it quite naturally has a bottom or floor, a top, side walls, etc., but other "building" structures not strictly called tents can obviously be erected, folded etc. on the basis of the instant disclosure. Hence, such expressions as "top," "bottom," "up," "down" etc. are terms of convenience and not of limitation.

The structure of Figure 1 affords a tent having a circular base or floor 20 of any suitable material, such as wood or the like, which has a peripheral groove in which is at least partially seated the first turn 22 of a conical coil spring 24, which spring achieves a unitary, resilient, collapsible frame structure which, when extended as shown in Figures 1 and 2, supports an appropriately conical shaped cover or housing 26 of any adequate material; e. g., duck, plastic, etc., the specific nature of the material by itself being of little significance as a limiting factor in this invention. The marginal lower edge of this cover is appropriately secured to the periphery of the base, as by tacking etc. at 28 (Figure 7) in such manner as to enclose the lowermost turn 22 of the frame or spring 24. Other than this connection, the housing or cover need not be secured to the supporting means comprising the frame 24 and floor 20, since the shapes of the cover and spring conform to each other; although, appropriate securing means can be employed at the apex, for example, if desired.

The foregoing is true as respects the modified form of tent of Figure 9, wherein a floor 20a similarly mounts the first turn 22a of a frame or spring 24a of pyramidal shape, which in turn sustains a pyramidal cover or housing 26a. The conical and pyramidal forms of Figures 1 and 9, for example, are merely exemplary of the many shapes that a structure could have on the basis of the present invention, and those forms shown here are selected solely because the shapes are familiar and therefore have natural appeal to young people for whose use the structures are primarily designed. However, as will be readily appreciated, variations in size, shape, etc. are clearly within the scope of the invention.

Figure 11 illustrates a conical structure of the floorless type, in which the first turn 22b of a spring frame 24b serves to carry the hemmed lower edge 28b of a cover or housing 26b (Figure 12). Here again the modification will suggest further variations that obviously require application of the basic principles disclosed and claimed here.

In any form of the invention, the cover 26 will require an entrance or doorway, as at 30 in Figure 1 and 30a in Figure 9, and flaps 32 and 34 (32a and 34a in Figure 9) integral with the cover may have straps or ties 36. Of significance is the location of the entrance at that point at which the second turn of the coil, as at 38 in Figure 1 (38a in Figure 9), is at its maximum vertical distance from the floor 20; i. e., the doorway is of maximum height without any intervening turns of the coil. In a floorless structure as in Figures 11 and 12, the doorway would be in the zone of maximum distance between the first and second turns of the coil.

The coil frame 24 spirals upwardly when extended and of course gradually diminishes in diameter, having an upper terminal end or apex portion in the form of a loop 40 to which may be connected a depending ring 42. This ring is on the altitude of the structure and is therefore in vertical alinement with a central opening 44 in the floor 20. The height of the structure is such that when in normal use the ring 42 is out of the way of the occupants, but when it is desired to collapse the structure, as to the position of Figure 5, the ring serves as part of retracting and locking means, another part of which comprises a retracting member, alternate forms

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of which appear respectively at 46 and 48 in Figures 3 and 4.

The retractor 46 is preferably a rod or equivalent rigid member having a hook 50 at one end and a handle ring 52 at its other end. When this retractor is inserted upwardly through the floor opening 44 (broken lines Figure 2), the hook engages the ring 42 and a downward pull collapses the spring 24. The ring 42 is elongated and thus extends through the floor opening 44 and downwardly beyond the plane of the lower surface of the floor 20 so that the retractor can be turned, while still engaging the ring 42, and moved to a position diametrically of the structure (Figure 6), thus serving to retain the collapsed state of the structure. As will be readily seen, the retractor 48, which is flexible, except for a rigid hook 54 at one end and a ring 56 at the other end, will accomplish the same purposes as the retractor 46, the length of the shank of the hook 54 serving, if desired, as a lock for the ring 42 when the ring is extended through the floor opening 44 (Figure 10). Another alternative is to collapse the structure by either retractor or even simply by downward pressure in any other manner and then secure the collapsed state by any convenient locking member such as a bar or rod 58 (Figure 8). The length of the retractor 46 is such that it lies conveniently on a diameter of the base or floor 20 when the structure is folded or collapsed, thus facilitating storage and transport thereof. As will be seen, the collapsed height of the structure is substantially small and the cover simply follows the retracted coils, accordion fashion. If the length of the retractor 46 is equal to or longer than the height of the extended structure, it is feasible, in certain circumstances, to hook the retractor in place in its vertical position, its hooked end 50 engaging the ring and its ringed end 52 at or embedded in the ground, whereby it will serve as a central pole precluding collapse of the structure from unauthorized external sources. However, one of the principal aims of the invention is to achieve a pole-less tent and the foregoing is mentioned merely as an example of the versatility of the arrangement.

Either of the retractors 46 or 48 may be used to collapse and lock the tent of Figure 9, which is shown as having a ring 42a at the top portion 40a of the frame 24a and the floor 20a of which has a central aperture 44a. Also, the bar 58 of Figure 8 may be used as a lock. In the floorless tent of Figures 11 and 12, the retractor 46 is particularly suitable, since its length may be such as to span diametrically opposite portions of the base of the tent when collapsed. As shown, the frame 24b of this tent has a hook 40b at the top and a ring 42b carried by the hook.

In all forms of the invention, and in equivalent variations thereof that are possible on the basis of the instant disclosure, the resilient frame 24, 24a or 24b, is the sole support of the cover or housing 26, 26a or 26b, respectively, whether the structure has a floor as in Figures 1 and 9 or is floorless as in Figures 11 and 12. The frame when extended is self-sustaining and further carries the cover or housing in a unitary manner so that the structure, even when extended, is relatively portable and may be readily moved about even when erected. In its collapsed state the structure has a relatively low height, rendering storage and transport a simple task, all of which enables the use of the tent indoors as well as outdoors, which is of especial importance from the standpoint of furnishing the structure for children. The light weight and portability, whether extended or retracted, is significant in the interests of low production cost and initial low price to the consumer. There are no separable parts to become lost or misplaced, with the exception of the retractor and in those cases in which either retractor is used as a lock, it is retained in place by the bias of the spring. Various features of certain of the individual forms of the invention disclosed here may be

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readily incorporated with other disclosed forms; e. g., any of the structures shown may be floored or floorless; the pyramidal tent may be floorless instead of floored as illustrated; etc. Still other features, in addition to those enumerated, as well as modifications in the structures themselves, will occur to those versed in the art, all of which may be achieved without departure from the spirit and scope of the invention.

What is claimed is:

1. A collapsible tent, comprising: resilient frame means of substantially helical form generated about an upright axis and biased for vertical expansion to a normal operative height and capable of axial compression to a materially low storage height; wall means generally homocentric with and supported by the expanded frame means to afford an enclosure, said wall means being of flexible pliable material foldable substantially in accordion fashion when the frame means is compressed to its storage height, said wall means having an exit and entrance opening adjacent to the bottom thereof, base means associated with the bottom of the frame means; and releasable securing means cooperative between a portion of the base means and a portion of the upper part of the frame means for releasably holding the frame in its compressed condition, and said releasable securing means including a first element on the upper portion of the frame means positionable adjacent to the plane of the base means when the frame means is compressed to its storage height, and a second element spanning the base means and releasably engaging the first element to prevent expansion of the frame means.

2. The invention defined in claim 1, in which: said first element is of loop-like construction, and the second element is a rod having at one end thereof a hook engageable with said first element when the frame means is expanded, whereby the rod may be used in tension to compress the frame means and may thereafter be passed through the loop-like first element for spanning the base means to prevent expansion of the frame means.

3. A collapsible tent, comprising: resilient frame means of substantially helical form generated about an upright axis and biased for vertical expansion to a normal operative height and capable of axial compression to a materially low storage height; wall means generally homocentric with and supported by the expanded frame means to afford an enclosure, said wall means being of flexible pliable material foldable substantially in accordion fashion when the frame means is compressed to its storage height, said wall means having an exit and entrance opening adjacent to the bottom thereof; floor means connected to the bottom portion of the base means; and releasable securing means interiorly of the wall means and cooperative between the floor means and a portion of the frame means adjacent to the upper end thereof for releasably holding the frame at its storage height.

4. The invention defined in claim 3, in which: the floor means has an aperture therethrough; and the releasable securing means includes a first element on said upper portion of the frame means and adapted to project downwardly through the floor means aperture when the frame means is compressed to its storage height, and a second element below the floor means and engaging the first element to prevent upward passage thereof through said aperture.

5. The invention defined in claim 4, including: means insertable upwardly through the floor means aperture and engageable with the first element while the frame means is expanded, said insertable means being operative in tension to pull the upper portion of the frame means downwardly to its storage height.

6. The invention defined in claim 5, in which: the insertable means has at least a portion thereof capable of spanning the floor means aperture and engaging the first element when the frame means is compressed, whereby

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said portion of the insertable means serves as said second element of the releasable securing means.

7. The invention defined in claim 5, in which: the insertable means is a rod-like structure capable of service as an upright pole within the frame means when the frame means is expanded to its operative height.

8. A collapsible tent, comprising: resilient frame means of substantially helical form generated about an upright axis and biased for vertical expansion to a normal operative height and capable of axial compression to a materially low storage height, the helical form of said frame means being such that successive turns thereof diminish in transverse dimension toward the top, whereby upon compression of the frame means the successive turns nest one within the other so that said turns are substantially coplanar and thereby reduce the storage height of the frame means; and wall means generally homocentric with and supported by the expanded frame means to afford an enclosure, said wall means being of flexible pliable material foldable substantially in accordion fashion when the frame means is compressed to its storage height, said wall means having an exit and entrance opening adjacent to the bottom thereof.

9. The invention defined in claim 8, in which: the frame means is a conical coil spring having its apex at the top.

10. The invention defined in claim 8, in which: the frame means is a pyramid-shaped coil spring having its apex at the top.

11. A collapsible tent, comprising: resilient frame

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means of substantially helical form generated about an upright axis and biased for vertical expansion to a normal operative height and capable of axial compression to a materially low storage height; wall means generally homocentric with and supported by the expanded frame means to afford an enclosure, said wall means being of flexible pliable material foldable substantially in accordion fashion when the frame means is compressed to its storage height, said wall means having an exit and entrance opening adjacent to the bottom thereof; base means associated with the bottom of the frame means; and releasable securing means located interiorly of the wall means and cooperative between a portion of the base means and a portion of the upper part of the frame means for releasably holding the frame in its compressed condition.

12. The invention defined in claim 11, including: floor means at the level of the base means and having a peripheral groove receiving said base means.

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