COLLAPSIBLE SHELTER ASSEMBLY

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ABSTRACT
A collapsible shelter assembly is provided. The collapsible shelter assembly is foldable from a compact configuration to an operative configuration for providing a portable yet sturdy shelter, and foldable back to the compact configuration for storage and transportation. The shelter assembly may include a floor system independently connected to a plurality of walls by pivot connecting devices, enabling the plurality of walls to be independently foldable. The floor system has an upper surface defined by periphery edges. A plurality of curbs, each with a different height than the other curbs, are perpendicularly joined along a portion of the peripheral edges, providing different wall-to-curb connection points and thus different pivot points for even identical pivot connecting devices, enabling the pancake stacking of the plurality of walls in the compact configuration.
COLLAPSIBLE SHELTER ASSEMBLY

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of priority of U.S. provisional application No. 62/206,518, filed 18 Aug. 2015, the contents of which are herein incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to structural construction and, more particularly, a collapsible shelter assembly that is foldable from a compact configuration to an operative configuration in minutes for providing a portable yet sturdy shelter.

[0003] From time to time, a rigid and impermeable shelter is unexpectedly needed on the spot for protecting its occupants from weather conditions, natural or manmade disasters, and the like. Current portable shelter systems, such as tents, utilize fabrics, blends, membranes and other semi-permeable material for their walls and roof system, such material is not only at least semi-permeable with respect to weather conditions but does not offer the security that a rigid structure formed from solid components would.

[0004] As can be seen, there is a need for a collapsible shelter assembly that is foldable from a compact configuration to an operative configuration for providing a portable yet sturdy shelter, wherein the shelter assembly is easily disassembled and retransformed for subsequent reuse.

SUMMARY OF THE INVENTION

[0005] In one aspect of the present invention, a collapsible shelter assembly includes a floor system having an upper surface defined by a plurality of peripheral edges; a plurality of curb joined to the upper surface, wherein each curb has a transverse surface having a different height than the remaining curbs of the plurality of curbs, and wherein the transverse surfaces are generally flush with at least a first portion of the plurality of peripheral edges; a plurality of walls; and a plurality of pivot connecting devices interconnecting the plurality of walls and the plurality of curbs, wherein the plurality of walls are foldable from a compact configuration to an operative configuration.

[0006] In another aspect of the present invention, the collapsible shelter assembly further includes a front wall pivotally connected to a second portion of the plurality of peripheral edges by additional pivot connecting devices.

[0007] In yet another aspect of the present invention, a method of assembling a collapsible shelter using identical pivot connecting devices so as to minimize manufacturing costs, includes the steps of providing a floor system having an upper surface defined by a plurality of peripheral edges; providing a plurality of walls; providing a plurality of curbs, each curb having a transverse surface, each transverse surface having a unique height; joining the plurality of curbs to the upper surface so that the transverse surfaces are generally flush with at least a portion of the plurality of peripheral edges; and interconnecting each wall to a separate curb of the plurality of curbs using the identical pivot connecting devices.

[0008] These and other features, aspects and advantages of the present invention will become better understood with reference to the following drawings, description and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a front perspective view of an exemplary embodiment of the present invention, shown in use;

[0010] FIG. 2 is a back perspective view of an exemplary embodiment of the present invention, shown in use;

[0011] FIG. 3 is a front perspective view of an exemplary embodiment of the present invention, shown folded in a compact configuration;

[0012] FIG. 4 is an exploded view of an exemplary embodiment of the present invention;

[0013] FIG. 5 is a section view of an exemplary embodiment of the present invention, taken along line 5-5 in FIG. 3;

[0014] FIG. 6 is a perspective view of an exemplary embodiment of the present invention, demonstrating folding from an operative configuration to the compact configuration, and shown without the hinges for clarity; and

[0015] FIG. 7 is a front perspective view of an exemplary embodiment of the present invention, demonstrating folding from the operative configuration to the compact configuration, and shown without the hinges for clarity.

DETAILED DESCRIPTION OF THE INVENTION

[0016] The following detailed description is of the best currently contemplated modes of carrying out exemplary embodiments of the invention. The description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention, since the scope of the invention is best defined by the appended claims.

[0017] Broadly, an embodiment of the present invention provides a collapsible shelter assembly that is foldable from a compact configuration to an operative configuration for providing a portable yet sturdy shelter, and foldable back to the compact configuration for storage and transportation. The shelter assembly may include a floor system independently connected to a plurality of walls by pivot connecting devices, enabling the plurality of walls to be independently foldable. The floor system has an upper surface defined by periphery edges. A plurality of curbs, each with a different height than the other curbs, are perpendicularly joined along a portion of the peripheral edges, providing different wall-to-curb connection points and thus different pivot points for even identical pivot connecting devices, enabling the pancake stacking of the plurality of walls in the compact configuration.

[0018] Referring now to FIGS. 1 through 7, the present invention may include a shelter assembly 60 that may be foldable from a compact configuration to an operative configuration, as illustrated in the Figures. The shelter assembly 60 may include a floor system 12 pivotally connected to a plurality of walls 70 so that each pivotal connection to each wall of the plurality of walls 70 is independent of the other pivotal connections. One pivotal connection to each wall may include a plurality of pivot connecting devices 20, including but not limited to a hinge.

[0019] The plurality of walls 70 may include a front wall 22, a right wall 30, a back wall 34, and a left wall 38, as illustrated in FIG. 4. The floor system 12 and pivotally connected walls 22, 34, 30, 38 may be generally planar and made of generally impermeable, rigid material that can be repeatedly bent without fracturing, such as metallic.
materials, various impregnated or laminated fibrous materials, various plasticized materials and the like.

[0020] The floor system 12 and pivotally connected walls 22, 34, 30, 38 may form a substantially rectangular in shape, though other geometric and non-geometric shapes may be formed so long as the floor system 12 and pivotally connected walls 22, 34, 30, 38 function in accordance with the present invention as described herein. The floor system 12 may include an upper surface 11 and an opposing downward surface. Interconnecting the upper surface 11 and the downward surface is a plurality of peripheral edges 13 defining the upper surface 11 and the downward surface. Each peripheral edge 13 may be associated with one of the pivotally connected walls 22, 34, 30, 38.

[0021] The present invention may include a plurality of elongated curbs 15: a right curb 14, a back curb 16 and a left curb 18. The plurality of elongated curbs 15 may be perpendicularly joined to the upper surface 11 along at least a portion of the peripheral edge 13 so that an outer surface of each curb 15 is flush to a portion of the peripheral edge 13. Each elongated curb 15 extends along a longitudinal axis, and each curb has at least one outer surface—the transverse surface 19—extending along a transverse axis, wherein the transverse surface 19 would be associated with and defined by the ‘height’ of the curb 15 just as the ‘12’ in ‘2x12’ defines the ‘height’ of a wood structural member. The transverse surface 19 is the surface flush with a portion of peripheral edge 13. The curbs 14, 16, 18 may be dimensioned so that each transverse surface 19 extends a different distance/height compared to the other curbs, thereby each extends above the upper surface 11 by a different distance, as illustrated in FIG. 4.

[0022] The pivot point of each pivot connecting device 20 may be generally defined by the (height of) transverse surfaces 19 and/or an uppermost point of each curb’s 14, 16, 18, or, in the case of the wall (in the illustrated embodiments, the front wall 22) that has no curb, the upper surface of the floor system 12. As a result of such staggered wall-to-curb/peripheral edge connection points and thus pivot points, the pivotally connected walls 22, 34, 30, 38 are foldable so that each pivotally connected wall 22, 34, 30, 38 pancake stacks on or underneath an adjacent wall when positioned in the compact configuration, as illustrated in FIG. 5, even if using identical pivot connecting devices 20 throughout to save manufacturing costs.

[0023] The present invention may include a roof 42 having a plurality of attached corrugated coverings 44, 46, 48, 50, 52. The roof 42 may be removably connected to an upper portion of at least one of the walls 22, 34, 30, 38 by standard fastening means.

[0024] In certain embodiments, the front wall 22 may form a door cutout. A door 24 with a door knob 56 may be operatively attached along a periphery of the door cutout with door hinges 58. Any one of the walls 22, 34, 30, 38 may form a window cutout. In certain embodiments, a window 54 may be operatively attached along a periphery of the window cutout. In certain embodiments, the present invention may include corrugated coverings 26, 32, 36, 40, 28 for connecting to the walls 22, 34, 30, 38 and the door 24.

[0025] In certain embodiments, the present invention may include a floor covering 10 dimensioned and adapted to cover the upper surface of the floor system 12.

[0026] A method of using the present invention may include the following. The shelter assembly 60 disclosed above may be provided. With the downward surface supported by a supporting surface, such as the ground, the user may unfold the pivotally connected walls 22, 34, 30, 38 from the compact configuration to the operative configuration. Then the user may removably attached the roof 42 to at least one of the walls 22, 34, 30, 38 so as to form a durable, temporary shelter that can be used as an ice shanty, shed, safe harbor or the like for the long term, before being folded into its compact configuration for easy transport, storage, and subsequent reuse. As illustrated in FIGS. 5 through 7, the pivotally connected walls 22, 34, 30, 38 can be folded onto the floor system 12 in the compact or stacked configuration.

[0027] It should be understood, of course, that the foregoing relates to exemplary embodiments of the invention and that modifications may be made without departing from the spirit and scope of the present invention.

What is claimed is:

1. A collapsible shelter assembly, comprising:
   a. a floor system having an upper surface defined by a plurality of peripheral edges;
   a plurality of curb joined to the upper surface, wherein each curb has a transverse surface having a different height than the remaining curbs of the plurality of curbs, and wherein the transverse surfaces are generally flush with at least a first portion of the plurality of peripheral edges;
   a plurality of walls; and
   a plurality of pivot connecting devices interconnecting the plurality of walls and the plurality of curbs, wherein the plurality of walls are foldable from a compact configuration to an operative configuration.

2. The collapsible shelter assembly of claim 1, wherein all of the plurality of pivot connecting devices are generally identical.

3. The collapsible shelter assembly of claim 1, further comprising a front wall pivotally connected to a second portion of the plurality of peripheral edges by additional pivot connecting devices.

4. The collapsible shelter assembly of claim 1, wherein in the compact configuration comprises the plurality of walls pancake stacked.

5. The collapsible shelter assembly of claim 1, further comprising a roof system dimensioned and adapted to operatively engage the plurality of walls in the operative configuration.

6. The collapsible shelter assembly of claim 3, further comprising a door cutout formed in the front wall.

7. The collapsible shelter assembly of claim 3, further comprising a window cutout formed in one of the plurality of walls.

8. A method of assembling a collapsible shelter using identical pivot connecting devices so as to minimize manufacturing costs, comprising the steps of:
   providing a floor system having an upper surface defined by a plurality of peripheral edges;
   providing a plurality of walls;
   providing a plurality of curbs, each curb having a transverse surface, each transverse surface having a unique height;
   joining the plurality of curbs to the upper surface so that the transverse surfaces are generally flush with at least a portion of the plurality of peripheral edges; and
interconnecting each wall to a separate curb of the plurality of curbs using the identical pivot connecting devices.

9. The method of claim 6, wherein a staggered array of wall-to-curb connection points is formed.

10. The method of claim 7, wherein one of the plurality of peripheral edges is interconnected to a front wall by identical pivot connecting devices, maintaining the staggered array of wall-to-curb connection points.

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