



US 20090032078A1

(19) **United States**(12) **Patent Application Publication**
Gardiner et al.(10) **Pub. No.: US 2009/0032078 A1**(43) **Pub. Date: Feb. 5, 2009**(54) **COLLAPSIBLE WALKWAY COVER SYSTEM***E04H 15/18*

(2006.01)

E04H 15/32

(2006.01)

(76) Inventors: **David Gardiner**, Bethesda, MD
(US); **Adrienne Gardiner**,
Bethesda, MD (US)(52) **U.S. Cl. 135/97; 135/128**

Correspondence Address:

BERENATO, WHITE & STAVISH, LLC
6550 ROCK SPRING DRIVE, SUITE 240
BETHESDA, MD 20817 (US)

(57)

ABSTRACT

A walkway cover system for covering a walkway to prevent snow and ice from accumulating thereon. The walkway cover system includes a collapsible walkway cover unit comprising a frame including a series of relatively rigid frame members, a series of flexible battens operatively connecting the frame members, and a cover member of a flexible sheet material. Each of the frame members forms a continuous loop including an elongated, straight base portion provided to extend substantially transverse the walkway and a slanted top portion disposed opposite the base portion. The cover member is attached to the frame so as to cover the slanted top portions of the frame members and form an enclosed passage through the frame. The collapsible walkway cover unit is convertible between an expanded operative state provided to be placed over the walkway and a collapsible state provided for storing when not in use.

(21) Appl. No.: **12/128,141**(22) Filed: **May 28, 2008****Related U.S. Application Data**

(60) Provisional application No. 60/933,943, filed on Jun. 11, 2007.

Publication Classification(51) **Int. Cl.***E04H 15/44*

(2006.01)

E04H 15/00

(2006.01)

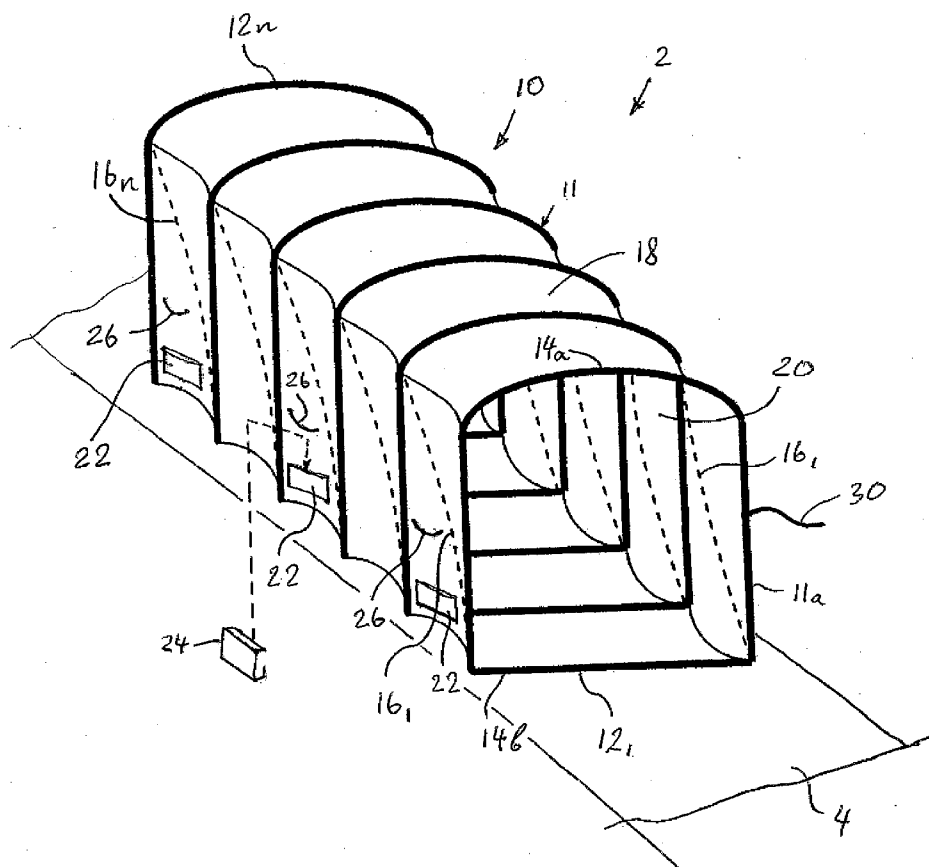
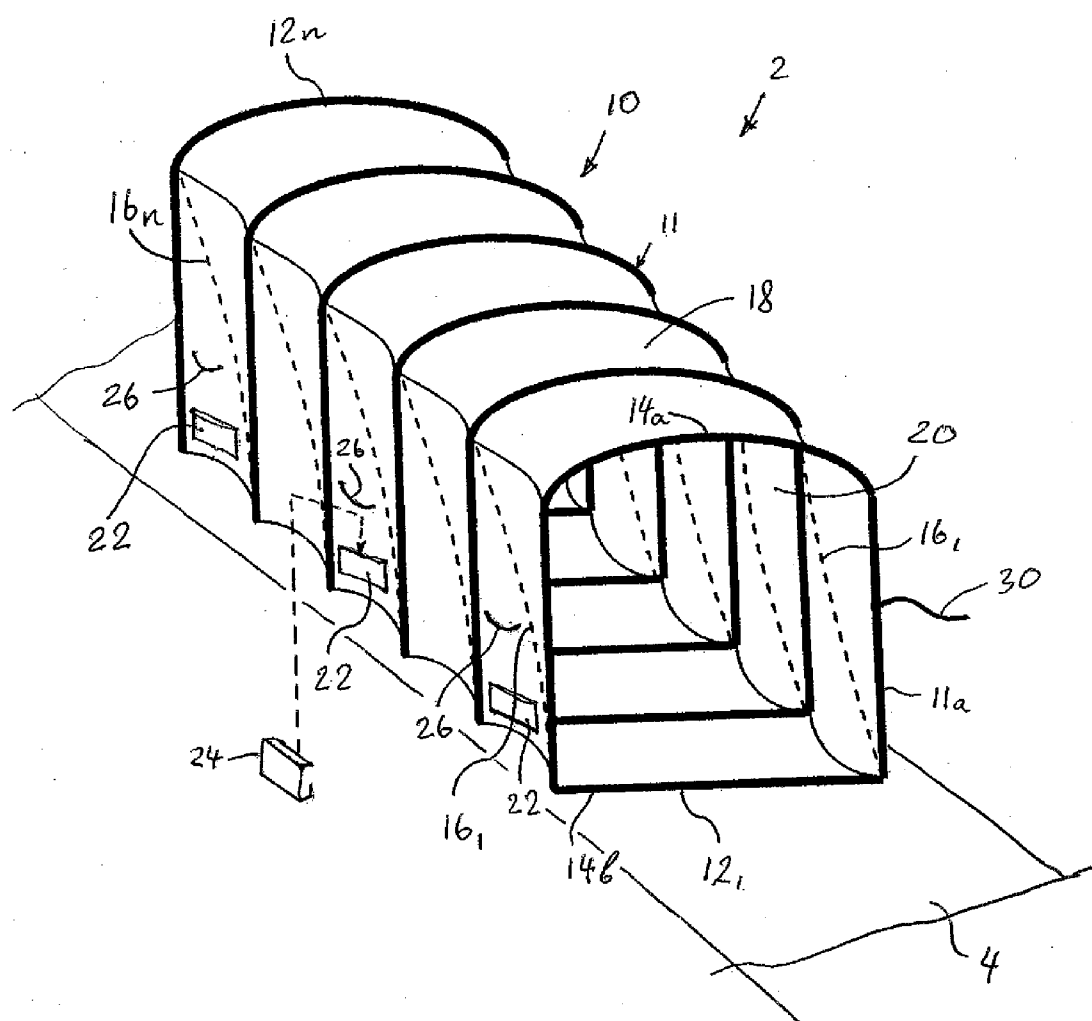


Fig. 1A



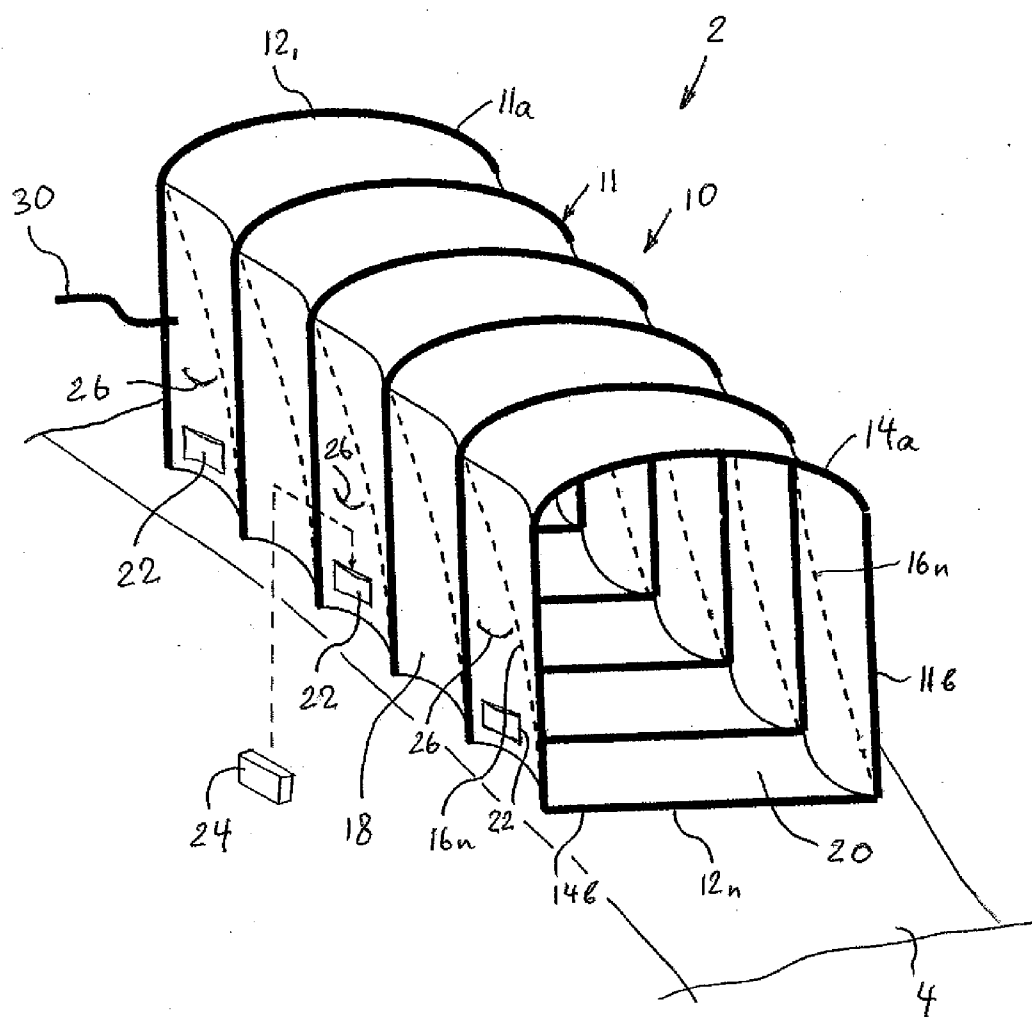


Fig. 2A

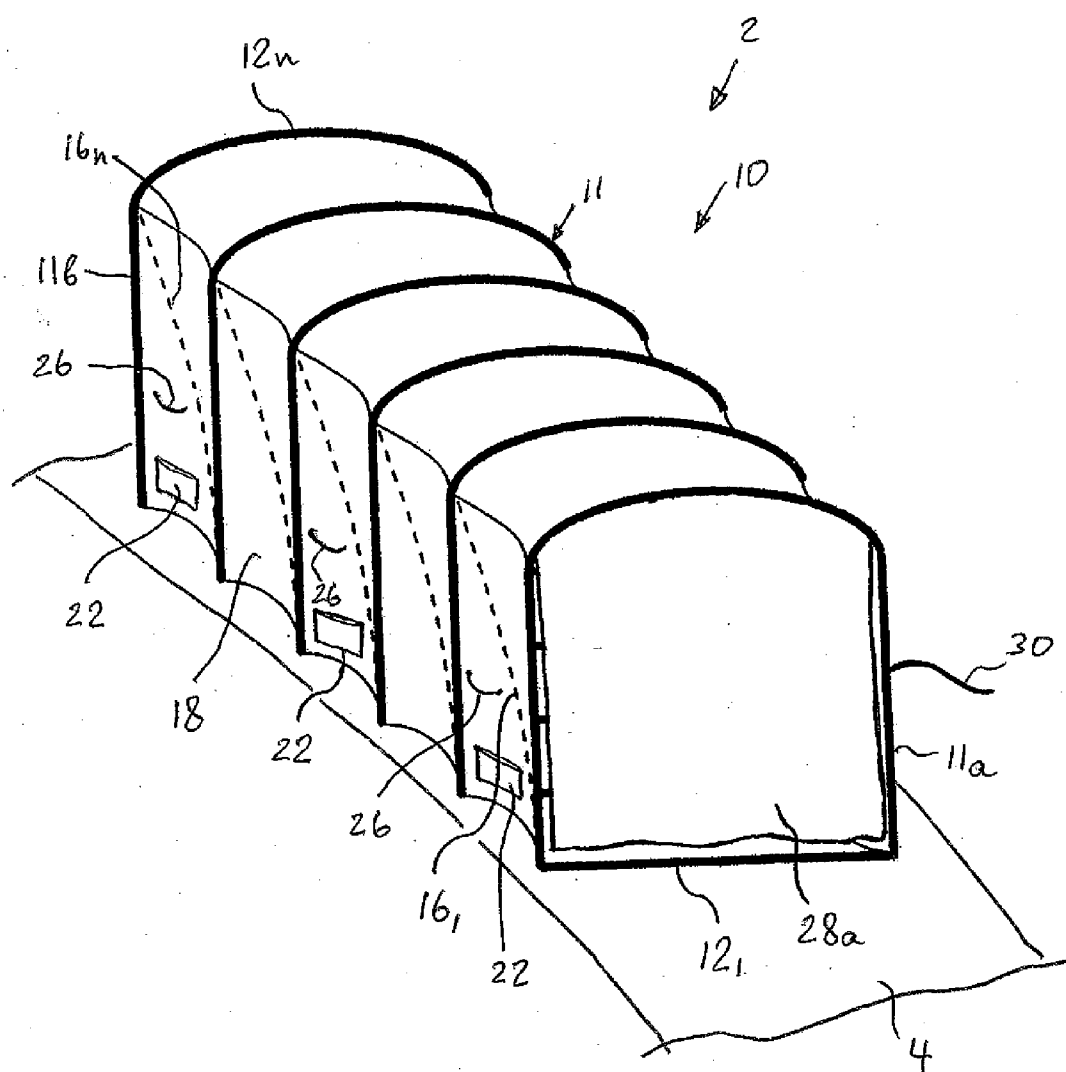
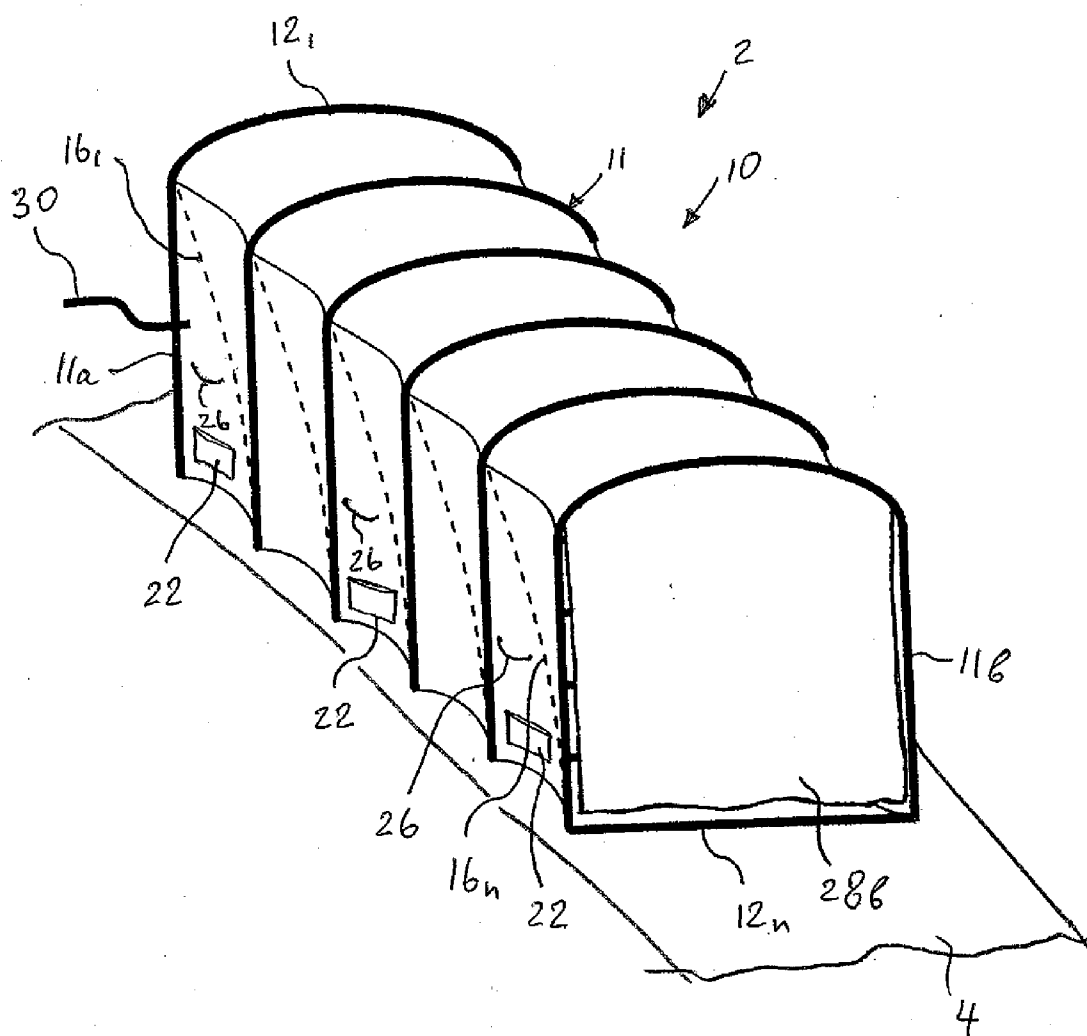


Fig. 2B



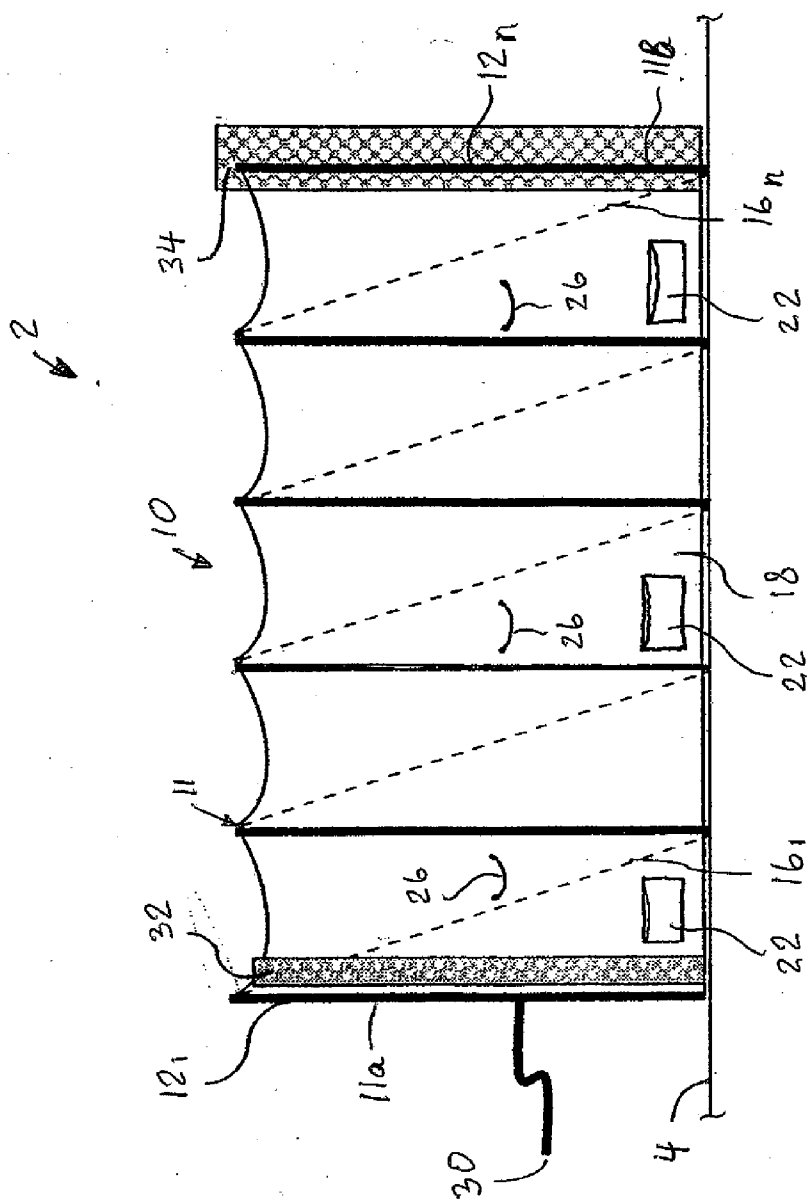


Fig. 3

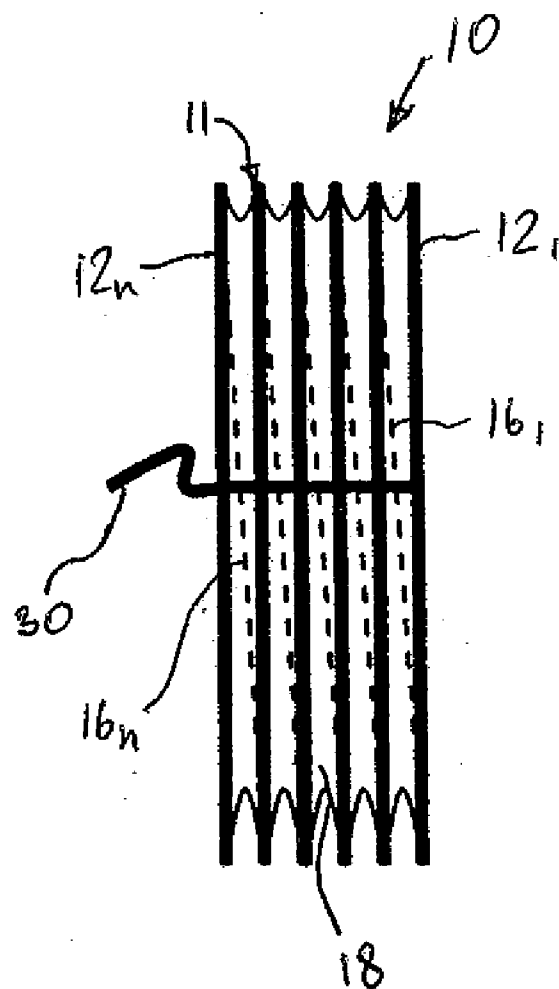


Fig. 4

2

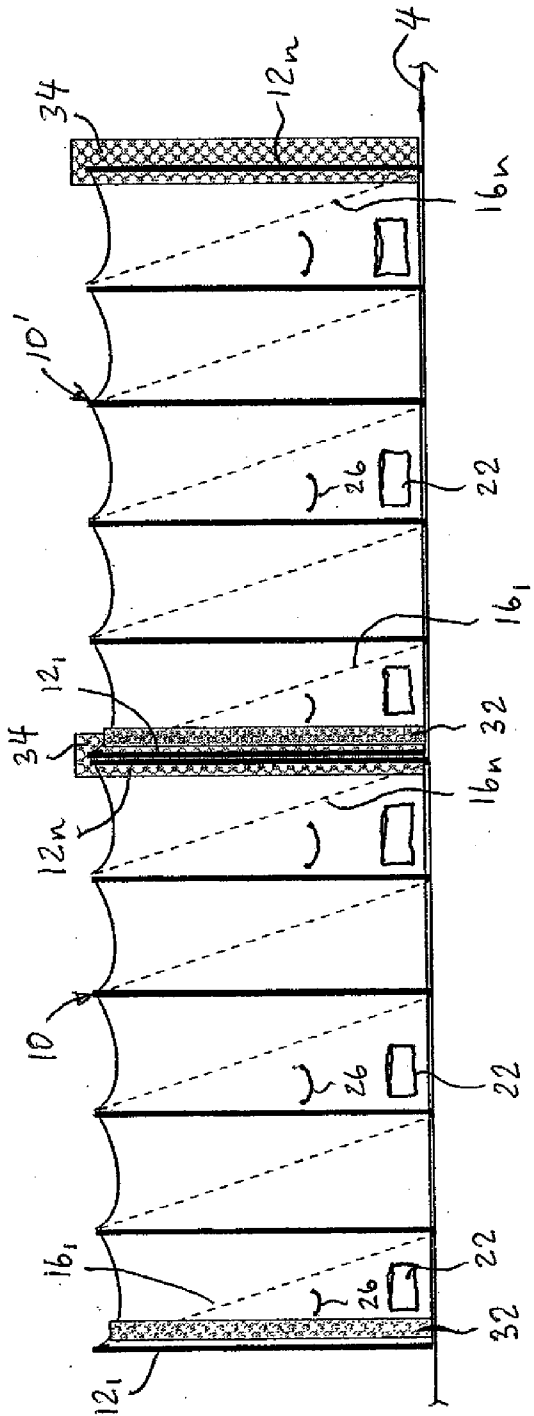


FIG. 5

COLLAPSIBLE WALKWAY COVER SYSTEM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This Application claims the benefit under 35 U.S.C. 119(e) of U.S. Provisional Application No. 60/933,943 filed Jun. 11, 2007 by David Gardiner and Adrienne Gardiner.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to collapsible structures in general, and more particularly to a collapsible walkway cover device provided for covering sidewalks or other walkways to prevent snow and ice from accumulating thereon.

[0004] 2. Description of the Prior Art

[0005] Winter weather presents many dangers and inconveniences for residents in colder climates. Ice or snow covered sidewalks, driveways and walkways, hereinafter called 'hazardous walkways', are an inconvenience and a potential hazard for residents, invitees and licensees alike. Every year countless people slip and fall on hazardous walkways, suffering sprains or broken bones. In addition, the stress of clearing these hazardous walkways of ice or snow can be too much for some, resulting in heart attacks and strokes. The elderly are especially at risk of injury from hazardous walkways.

[0006] Various solutions to hazardous walkways have been used in the past. One example is a covered walkway, either full or partial (i.e. awnings). However, this solution is less than ideal due to several reasons. A covered walkway is typically a permanent structure. It provides some protection from winter precipitation, but depending on the nature of the precipitation and the design of the covered walkway, it may not provide adequate protection. For example, many covered walkways are shielded only from precipitation that falls perpendicular to the walkway. If the precipitation is accompanied by wind of any considerable force, the precipitation will fall or encroach on portions of the walkway that are covered. Even if the precipitation does not fall or encroach on portions of a covered walkway, water can migrate onto the walkway when snow or ice adjacent to the covered walkway melts. This water can freeze over the walkway if the ambient temperature falls below freezing, thus presenting the same hazard as an uncovered walkway.

[0007] A fully enclosed walkway will prevent encroachment or migration of water onto the walkway. However, a fully enclosed walkway is expensive and aesthetically displeasing. Once in place, an enclosed walkway cannot be easily moved.

[0008] Therefore, there is a need for a walkway cover device that overcomes shortcomings of the prior art and advances the art. More specifically, there is a need in the art for a collapsible walkway cover device that can provide the protection afforded by a fully enclosed walkway, but can be easily removed when not needed.

SUMMARY OF THE INVENTION

[0009] The present invention is a walkway cover system provided for covering sidewalks or other walkways to prevent snow and ice from accumulating thereon.

[0010] The walkway cover system includes a collapsible walkway cover unit comprising a frame including a series of relatively rigid frame members, a series of flexible battens

operatively connecting the frame members, and a cover member of a flexible sheet material.

[0011] Each of the frame members forms a continuous loop including an elongated, straight base portion provided to extend substantially transverse the walkway and a slanted top portion disposed opposite the base portion. The cover member is attached to the frame so as to cover at least the slanted top portions of the frame members and form an enclosed passage through the frame. The collapsible walkway cover unit has axially opposite first and second distal ends so that a first frame member of the frame members defines the first distal end, while a last of the frame members defines the second distal end. The collapsible walkway cover unit is convertible between an expanded operative state provided to be placed over the walkway and a collapsible state provided for storing when not in use.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The objects and advantages of the invention will become apparent from a study of the following specification when viewed in light of the accompanying drawings, wherein:

[0013] FIG. 1A is a perspective view of a walkway cover system according to a preferred embodiment of the present invention illustrating a collapsible walkway cover unit in expanded operative state from one side thereof;

[0014] FIG. 1B is a perspective view of the walkway cover system according to the preferred embodiment of the present invention illustrating the collapsible walkway cover unit in expanded operative state from the other side thereof;

[0015] FIG. 2A is a perspective view of the walkway cover system according to the preferred embodiment of the present invention illustrating the collapsible walkway cover unit with a first flap;

[0016] FIG. 2B is a perspective view of the walkway cover system according to the preferred embodiment of the present invention illustrating the collapsible walkway cover unit with a second flap;

[0017] FIG. 3 is a side view of the collapsible walkway cover unit according to the preferred embodiment of the present invention in the expanded operative state;

[0018] FIG. 4 is a side view of the collapsible walkway cover unit according to the preferred embodiment of the present invention in a collapsed state;

[0019] FIG. 5 depicts the walkway cover system of the present invention including two collapsible walkway cover units in the expanded operative state attached to each other.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0020] The preferred embodiment of a present invention will now be described with the reference to accompanying drawings. For purposes of the following description, certain terminology is used in the following description for convenience only and is not limiting. The words "inner" and "outer", "bottom" and "top", "inside" and "outside" designate directions in the drawings to which reference is made. However, it is to be understood that the invention may assume various alternative orientations, except where expressly specified to the contrary. The terminology includes the words specifically mentioned above, derivatives thereof and words of similar import.

[0021] It is also to be understood that the specific article illustrated in the attached drawings, and described in the following specification is simply exemplary embodiment of the inventive concept. Specific dimensions and other physical characteristics relating to the embodiment disclosed herein are not to be considered as limiting, unless expressly stated otherwise. Additionally, the word “a”, as used in claims, means “at least one.”

[0022] FIGS. 1-3 of the accompanying drawings illustrate a preferred embodiment of a collapsible walkway cover system 2 of the present invention provided for covering a walkway, generally depicted by the reference numeral 4, to prevent snow and ice from accumulating thereon. The term “walkway” is defined herein as any passage for walking, such as sidewalks, pathways or any other walkways used primarily for walking public.

[0023] The collapsible walkway cover system 2 includes at least one collapsible walkway cover unit generally depicted by the reference numeral 10. The collapsible walkway cover unit 10 of the present invention comprises a collapsible frame 11 including a series of relatively rigid frame members 12₁-12_n, oriented substantially vertically relative to the walkway 4 and substantially parallel to each other, and a series of flexible and resilient battens 16₁-16_n, which extend diagonally between frame members 12₁-12_n. Each pair of the frame members 12₁-12_n is operatively connected by two opposite flexible battens 16₁-16_n. In the preferred embodiment of the present invention the frame members 12₁-12_n are substantially structurally identical. In view of these similarities, and in the interest of simplicity, the following discussion will use a reference numeral in brackets without a letter to designate an entire group of substantially identical structures. For example, the reference numeral [12] will be used when generically referring to frame members 12₁-12_n, rather than reciting all reference numerals. Similarly, the flexible battens 16₁-16_n are substantially structurally identical in the preferred embodiment of the present invention. Thus, the reference numeral [16] will be used when generically referring to the flexible battens 16₁-16_n, rather than reciting all reference numerals.

[0024] As illustrated in FIGS. 1 and 2, the series of the rigid frame members 12₁-12_n includes a first frame member 12₁ and a last frame member 12_n, axially spaced from each other. The first frame member 12₁ of the frame members [12] defines a first distal end 11a of the walkway cover unit 10, while the last frame member 12_n of the frame members [12] defines a second distal end of the walkway cover unit 10 axially opposite to the first distal end 11a. Moreover, as illustrated in FIG. 1, each of the rigid frame members [12] is forming a continuous loop including an elongated, straight base portion 14b, a slanted top portion 14a disposed above and opposite the base portion 14b, and a pair of opposite side portions 14s extending substantially vertically between the arch portion 14a and the base portion 14b. The base portion 14b is provided to be supported on the walkway 4 and to extend substantially transverse the walkway 4. The slanted top portion 14a may have any appropriate shape, such as a convex curved arch (shown in FIG. 1) or pointed top, to allow the snow and ice to deposit on the sides of the walkway cover unit 10. This will prevent the snow and ice from accumulating on a top of the walkway cover unit 10. The frame members [12] may be made out of any rigid material, such as metal, fiberglass, plastic or wood.

[0025] A cover member 18 of a flexible sheet of waterproof material is attached to the collapsible frame 11 so as to cover at least the curved arch portions 14a of the frame members [12]. According to the preferred embodiment of the present invention, the cover member 18 is attached to each of the frame members [12] so as to form a continuously enclosed tubular passage 20 through the collapsible walkway cover unit 10. In other words, the cover member 18 encloses the frame 11 from all sides thereof leaving only a front opening defined by the first frame member 12₁ and a rear opening defined by the last frame member 12_n. The cover member 18 may be made out of any suitable flexible, waterproof sheet material, such as natural or synthetic fabrics or flexible plastic. Further according to the preferred embodiment of the present invention, the frame members [12] and the flexible battens [16] are integrated into the cover member 18. In other words, the frame members [12] and the flexible battens [16] are disposed between two layers of the cover member 18. However it should be appreciated that other techniques of attaching the cover member 18 to the collapsible frame 11 are equally applicable. For example, the frame members [12] and the flexible battens [16] may be fixed to the cover member 18 by adhesive bonding or removably fastened by any other suitable attachment means such as fabric or metal latches, sockets sewn into the fabric cover member 18, or staples.

[0026] The battens [16] may consist of strips of flexible and resilient material such as thin strips of spring metal, wood, fiberglass or plastic. The requirements for the material of the battens [16] are as follows: (1) the material used has to have enough spring force to cause the cover member 18 to expand when the frame members [12] are not compressed together, and (2) the material has to be flexible enough to allow the frame members [12] to be compressed together by a person of average strength. The battens [16] may be present on one or both sides of the cover member 18 and may be present in configurations other than the one shown in FIG. 1. In other words, the battens [16] provide a springing force that pushes the frame members [12] apart in the absence of a compressive force, which, in turn, causes the cover member 18 to expand. When a compressive force is applied, the battens [16] flex such that the frame members [12] can be pushed together by an external compressive force, such as when compressed together by a use, resulting in minimal storage requirements.

[0027] Therefore, the collapsible walkway cover unit 10 is convertible between an expanded operative state (shown in FIGS. 1 and 2) provided to be placed over the walkway and a collapsed state (shown in FIG. 3) provided for storing when not in use. In operation, the frame members [12] are moveable in parallel relationship to each other so as to collapse the walkway cover unit 10 in the collapsed state or deploy the walkway cover unit 10 over the walkway 4 in the expanded operative state.

[0028] Further according to the present invention, the collapsible walkway cover unit 10 includes one or more tie downs, preferably attached to the cover member 18, for securing the walkway cover unit 10 on the walkway 4. Further preferably, the tie downs are in the form of at least one enclosure, such as a side pocket 22 attached to the cover member 18, for receiving a weight element 24 (shown in FIG. 1) therein for pulling the walkway cover unit 10 down toward the walkway 4 by a force of gravity of the weight element 24 when the walkway cover unit 10 is placed on the walkway 4. It will be appreciated that any appropriate tie-downs known in

the art may be used, such as ropes that can be tied to stakes staked to the ground or existing fixtures.

[0029] The walkway cover unit 10 according to the preferred embodiment of the present invention is also provided with one or more handles 26 to allow lifting the walkway cover unit 10 to shake off snow and/or ice accumulation from the walkway cover unit 10 to either side of the walkway 4 or move the walkway cover unit 10 from one place to another. Preferably, the walkway cover unit 10 is provided with at least one handle 26 on opposite sides 11_{SR} and 11_{SL} thereof to allow easy lifting, shaking and transportation of the walkway cover unit 10. Further preferably, the handles 26 are attached to the cover member 18.

[0030] As further illustrated in FIGS. 2A and 2B, the walkway cover unit 10 also comprises a first end flap 28a (shown in FIG. 2A) provided at the first distal end 11a of the walkway cover unit 10 and a second end flap 28b (shown in FIG. 2B) provided at the second distal end 11b of the walkway cover unit 10 to prevent snow and ice from entering the enclosed passage 20.

[0031] Further preferably, the collapsible walkway cover unit 10 of the present invention has one or more binding straps 30 attached to cover member 18 at one of the distal ends of the walkway cover unit 10, as shown in FIGS. 1, 2 and 3. The binding strap 30 may consist of a rope, hook and loop strip, buttons or any other device that can be used to counteract the spring force of the resilient battens [16] and keep the walkway cover unit 10 compressed (i.e. in the collapsed state) when in storage by looping the binding strap 30 through the openings of the walkway cover unit 10, removing any slack left over in the binding strap 30, and then securing or tying the binding strap 30 such that the walkway cover unit 10 cannot expand from its compressed condition.

[0032] The walkway cover system 2 of the present invention preferably includes two collapsible walkway cover units, i.e. the collapsible walkway cover unit 10 and an additional collapsible walkway cover unit 10' (shown in FIG. 5), which is substantially structurally identical to the collapsible walkway cover unit 10. Each of the collapsible walkway cover units 10 and 10' comprises a first fastening member 32 provided at the first distal end 11a of the walkway cover unit 10 and a second fastening member 34 provided at the second distal end 11b of the walkway cover unit 10 (and 10'), best illustrated in FIG. 3. The first fastening member 32 and/or the second fastening member 34 are provided for detachably fastening the collapsible walkway cover unit 10 to an additional collapsible walkway cover unit 10' (shown in FIG. 5) which is substantially structurally identical to the collapsible walkway cover unit 10. Preferably, the first fastening member 32 is a male fastening member, while the second fastening member 34 is a female fastening member complementary to the male fastening member 32. Further preferably, the male fastening member 32 is a hook strap and the female fastening member 34 is a loop strip of a conventional mating hook and loop type fastening system known in the art. It should be understood that the hook strap 32 has hooks formed on an outer peripheral surface thereof while the loop strap 34 has loops formed on an inner peripheral surface thereof. Thus, when the outer peripheral surface of the hook strap 32 removably engages the corresponding outer peripheral surface of the loop strap 34, an overlapping coverage from the collapsible walkway cover unit 10 to the additional collapsible walkway cover unit 10' is provided (as shown in FIG. 5). It will be appreciated that in addition to, or in lieu of hook and loop

straps 32 and 34, any other appropriate fastening device or combination of fastening devices may be used as an attaching mechanism, such as snap fasteners, buttons, zippers, etc.

[0033] Alternatively, the attachment of more than one collapsible walkway cover units together may also be accomplished with external components that are not integrated into one or more collapsible walkway cover units. The design of the attaching mechanism is not important, insofar as the attaching mechanism provides overlapping coverage from collapsible walkway cover unit to another.

[0034] In operation, the walkway cover system 2 according to the preferred embodiment of the present invention, that includes one or more structurally identical the collapsible walkway cover units (10, 10') provides a temporary covered walkway providing shelter from the atmospheric elements, such as snow and ice which would otherwise accumulate on the walkway 4, and requires minimal storage space. When the collapsible walkway cover unit 10 is compressed from end to end, the battens [16] flex inward to cause the cover member 18 to collapse and allow the frame members [12] to be placed in close proximity to one another such that the entire length of the collapsible walkway cover unit 10 is approximately the width of the material used to make the frame members [12]. In a preferred embodiment, the battens [16] flex inward so as to not increase the width of the collapsible walkway cover unit 10, but in other embodiments, the battens [16] may flex outward when the collapsible walkway cover unit 10 is compressed.

[0035] The binding strap 30 may be used to keep the collapsible walkway cover unit 10 compressed (i.e. in the collapsed state) when in storage by looping the binding strap 30 through openings in the collapsible walkway cover unit 10, removing any slack left over in the binding strap 30 and then securing or tying the binding strap 30 such that the collapsible walkway cover unit 10 cannot expand from its compressed state.

[0036] When the collapsible walkway cover unit 10 is not compressed (i.e. in the expanded operative state), the spring force contained in the battens [16] causes the collapsible walkway cover unit 10 to expand from end to end. The amount of expansion may be controlled by a variety of factors, such as the length of the cover member 18, the length of the battens [16], the spring force contained in the battens [16], and the angle between the battens [16] and the frame members [12]. The amount of expansion and the factors that control it should not be considered limiting on the invention as long as the battens [16] cause the collapsible walkway cover unit 10 to expand when compression is not applied.

[0037] The description of the preferred embodiments of the present invention has been presented for the purpose of illustration in accordance with the provisions of the Patent Statutes. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Multiple variations and alternative embodiments are possible in light of the above teachings. The embodiments disclosed hereinabove were chosen in order to best illustrate the principles of the present invention and its practical application to thereby enable those of ordinary skill in the art to best utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated, as long as the principles described herein are followed. This application is therefore intended to cover any variations, uses, or adaptations of the invention using its general principles. Further, this application is intended to cover such departures from the

present disclosure as come within known or customary practice in the art to which this invention pertains. Thus, changes can be made in the above-described invention without departing from the intent and scope thereof. It is also intended that the scope of the present invention be defined by the claims appended thereto.

What is claimed is:

1. A walkway cover system for covering a walkway to prevent snow and ice from accumulating thereon, said walkway cover system comprising a collapsible walkway cover unit, said collapsible walkway cover unit comprising:

a frame including a series of relatively rigid frame members each of said series of said frame members forming a continuous loop including an elongated, straight base portion provided to extend substantially transverse said walkway and a slanted top portion disposed opposite said base portion;

a series of flexible battens operatively connecting said frame members; and

a cover member of a flexible sheet material attached to said frame so as to cover at least said slanted top portions of said frame members and form an enclosed passage through said frame;

said collapsible walkway cover unit having axially opposite first and second distal ends so that a first frame member of said frame members defines said first distal end and a last of said frame members defines said second distal end;

said collapsible walkway cover unit being convertible between an expanded operative state provided to be placed over said walkway and a collapsible state provided for storing when not in use.

2. The walkway cover system as defined in claim 1, wherein said frame members are moveable in parallel relationship to each other so as to collapse said walkway cover unit in said collapsible state or deploy said walkway cover unit over said walkway in said expanded operative state.

3. The walkway cover system as defined in claim 1, wherein said cover member is attached to said frame so as to form a continuously enclosed tubular passage through said collapsible walkway cover unit.

4. The walkway cover system as defined in claim 1, wherein said cover member is made of a fabric material.

5. The walkway cover system as defined in claim 1, wherein said cover member is removably fastened to said frame members of said frame.

6. The walkway cover system as defined in claim 1, wherein said cover member is adhesively bonded to said frame members of said frame.

7. The walkway cover system as defined in claim 1, wherein said walkway cover unit is provided with at least one tie-down for securing said walkway cover unit on said walkway.

8. The walkway cover system as defined in claim 7, wherein said at least one tie-down is in the form of at least one enclosure for receiving a weight element therein for pulling said walkway cover unit down toward said walkway by a force of gravity of said weight element when said walkway cover unit is placed on said walkway.

9. The walkway cover system as defined in claim 8, wherein said at least one enclosure is in the form of a side pocket attached to said cover member.

10. The walkway cover system as defined in claim 1, wherein said walkway cover unit is provided with at least one handle to allow lifting said walkway cover unit.

11. The walkway cover system as defined in claim 10, wherein said walkway cover unit is provided with at least two handles provided on opposite sides thereof to allow lifting said walkway cover unit.

12. The walkway cover system as defined in claim 10, wherein said at least one handle is attached to said cover member.

13. The walkway cover system as defined in claim 1, wherein said walkway cover unit further comprises a first end flap provided at said first distal end of said walkway cover unit and a second end flap provided at said second distal end of said walkway cover unit to prevent snow and ice from entering said enclosed passage.

14. The walkway cover system as defined in claim 1, wherein said walkway cover unit further comprises a first fastening member provided at said first distal end of said walkway cover unit and a second fastening member provided at said second distal end of said walkway cover unit; one of said first fastening member and said second fastening member is provided for detachably fastening said walkway cover unit to an additional walkway cover unit substantially structurally identical to said walkway cover unit.

15. The walkway cover system as defined in claim 14, wherein said first fastening member is a male fastening member and said second fastening member is a female fastening member complementary to said male fastening member.

16. The walkway cover system as defined in claim 1, further comprising an additional collapsible walkway cover unit structurally identical to said collapsible walkway cover unit; each of said collapsible walkway cover units further comprising:

a first fastening member provided at said first distal end of said walkway cover unit and a second fastening member provided at said second distal end of said walkway cover unit;

said first fastening member of one of said walkway cover units is complementary to said second fastening member of the other of said walkway cover units and said second fastening member of one of said walkway cover units is complementary to said first fastening member of the other of said walkway cover units.

17. The walkway cover system as defined in claim 16, wherein said walkway cover unit is removably attachable to said additional walkway cover unit through one of said first fastening member of said walkway cover unit and said second fastening member of said additional walkway cover unit and said second fastening member of said walkway cover unit and said first fastening member of said additional walkway cover unit.

18. The walkway cover system as defined in claim 17, wherein said first fastening member is a male fastening member and said second fastening member is a female fastening member complementary to said male fastening member.

19. The walkway cover system as defined in claim 18, wherein said male fastening member is a hook strap and said female fastening member is a loop strip of a mating hook and loop type fastening system.

20. The walkway cover system as defined in claim 1, wherein said walkway cover unit further comprises at least one binding strap provided at one of said first and second distal ends thereof, said at least one binding strap is provided for securing said walkway cover unit in said collapsible state thereof.