Title: INSULATED GEODESIC BEVERAGE CONTAINER

Abstract: An insulated geodesic beverage container that includes a main body portion and a cap portion. The main body portion has an inner wall, an outer wall and a reinforcing layer. The inner wall has an enclosed region with an opening. The outer wall is mounted in a spaced-apart configuration with respect to the inner wall to define a partially enclosed region between the inner wall and the outer wall. The reinforcing layer is associated with the outer wall. At least a portion of the reinforcing layer has a geodesic shape. The cap portion is removably attached to the main body portion for sealing the opening.

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INSULATED GEODESIC BEVERAGE CONTAINER

REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to Non-Provisional Applic. No. 15/231,323, filed on August 8, 2016 which claims the benefit of Provisional Applic. No. 62/250,138, filed on November 3, 2015, the contents of which are incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The invention relates generally to beverage containers. More particularly, the invention relates to insulated geodesic beverage containers.

BACKGROUND OF THE INVENTION

[0003] There are a variety of beverage containers that are used to hold beverages either prior to consumption or while the person is consuming the beverage. These beverage containers are generally classified as disposable, which are intended for a single use, or reusable, which are intended for multiple uses.

[0004] While reusable beverage containers have many desirable features, the reusable beverage containers are typically a lot more expensive than the disposable beverage containers. These reusable containers typically focus on one or more areas that are desirable for the particular beverage that is intended to be used in the reusable beverage container. For example, the reusable beverage container may have good insulating characteristics.
Heretofore, beverage containers have not been reusable but fabricated from materials that facilitate relatively quick breakdown of the beverage containers after being discarded by consumers.

SUMMARY OF THE INVENTION

[0006] An embodiment of the invention is directed to an insulated geodesic beverage container that includes a main body portion and a cap portion. The main body includes an inner wall, an outer wall and a reinforcing layer. The inner wall has an enclosed region with an opening. The outer wall is mounted in a spaced-apart configuration with respect to the inner wall to define a partially enclosed region between the inner wall and the outer wall. The reinforcing layer is associated with the outer wall. At least a portion of the reinforcing layer has a geodesic shape. The cap portion is removably attached to the main body portion for sealing the opening.

[0007] Another embodiment of the invention is directed to an insulated geodesic beverage container that includes a main body portion and a cap portion. The main body portion has an inner wall, an outer wall, a spacer and a reinforcing layer. The inner wall has an enclosed region with an opening. The inner wall is fabricated from a moisture resistant material. The outer wall is mounted in a spaced-apart configuration with respect to the inner wall to define a partially enclosed region between the inner wall and the outer wall. The spacer maintains the inner wall in a spaced-apart orientation with respect to the outer wall. The reinforcing layer extends over at least a portion of the outer wall. The reinforcing layer has a geodesic shape. The cap portion is removably attached to the main body portion for sealing the opening.
BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The accompanying drawings are included to provide a further understanding of embodiments and are incorporated in and constitute a part of this specification. The drawings illustrate embodiments and together with the description serve to explain principles of embodiments. Other embodiments and many of the intended advantages of embodiments will be readily appreciated as they become better understood by reference to the following detailed description. The elements of the drawings are not necessarily to scale relative to each other. Like reference numerals designate corresponding similar parts.

[0009] Fig. 1 is a perspective view of an insulated geodesic beverage container according to an embodiment of the invention where a cap portion is in a closed configuration.

[0010] Fig. 2 is a side view of the insulated geodesic beverage container of Fig. 1 with the cap portion in the closed configuration where part of the cap portion is broken away.

[0011] Fig. 3 is a side view of the insulated geodesic beverage container of Fig. 1 with the cap portion and a cup where part of the cap portion is broken away.

[0012] Fig. 4 is a sectional view of the insulated geodesic beverage container in Fig. 1.

[0013] Fig. 5 is a bottom plan view of the insulated geodesic beverage container of Fig. 1.

[0014] Fig. 6 is a sectional plan view of the insulated geodesic beverage container in Fig. 1.

[0015] Fig. 7 is an enlarged sectional view of a side wall of the insulated geodesic beverage container of Fig. 1.

[0016] Fig. 8 is an enlarged sectional view of a bottom wall of the insulated geodesic beverage container of Fig. 1.
[0017] Fig. 9 is a sectional view of an alternative embodiment of the insulated geodesic beverage container that is vertically collapsible.

[0018] Fig. 10 is an enlarged sectional view of the mechanism for engaging container sections.

[0019] Fig. 11 is a side view of another embodiment of the insulated geodesic beverage container.

[0020] Fig. 12 is a bottom plan view of the insulated geodesic beverage container of Fig. 11.

[0021] Fig. 13 is a sectional plan view of the insulated geodesic beverage container of Fig. 11.

[0022] Fig. 14 is a perspective view of another embodiment of the insulated geodesic beverage container.

[0023] Fig. 15 is a side plan view of the insulated geodesic beverage container of Fig. 14.

[0024] Fig. 16 is a top plan view of the insulated geodesic beverage container of Fig. 14.

[0025] Fig. 17 is a vertical sectional view of the insulated geodesic beverage container of Fig. 14.

[0026] Fig. 18 is a horizontal sectional view of the insulated geodesic beverage container of Fig. 14.
DETAILED DESCRIPTION OF THE INVENTION

[0027] An embodiment of the invention is directed to an insulated geodesic beverage container, as illustrated at 10 in the figures. The insulated geodesic beverage container 10 enables a beverage or other liquid to be stored therein while being insulated to minimize a change in temperature of the beverage caused by ambient conditions outside of the insulated geodesic beverage container 10.

[0028] The insulated geodesic beverage container 10 generally includes a main body portion 20 and a cap portion 22 to which a cup 21 may be attached. A variety of techniques may be used to operably attach the cap portion 22 to the main body portion 20. An example of one such attachment technique is a screw-type mechanism. In one such configuration, the screw-type mechanism includes a male threaded surface on the main body portion 20 and a female threaded surface on the cap portion 22 and the cup 21. Another suitable attachment technique is a snap mechanism. The cup 21 may be provided with a receptacle 82 that is adapted to holding items such as facial tissue.

[0029] As most clearly illustrated in Fig. 4, the main body portion 20 has a generally cylindrical configuration that includes a side wall 24 and a bottom wall 26 that define a receptacle 28 in which the beverage or other liquid can be placed.

[0030] The main body portion 20 may have a two-wall configuration that includes an inner wall 30 and an outer wall 32 that are positioned in a spaced-apart configuration to define an enclosed region 34.

[0031] At least one of the inner wall 30 and the outer wall 32 may be fabricated from a relatively thin, yet moisture resistant material so that the beverage or other liquid placed in the insulated geodesic beverage container 10 remains therein. In certain embodiments, the inner
wall 30 and the outer wall 32 may be fabricated from wax coated paper or paper board. The wax coating not only enhances the moisture resistance but also may enhance the strength of the wall. In other embodiments, the inner wall 30 and the outer wall 32 may be fabricated from metallic or other materials.

[0032] To enhance the strength of the insulated geodesic beverage container 10, a reinforcement such as a layer 36 of material that is placed on a surface of at least one of the inner wall 30 and the outer wall 32, as illustrated in Figs. 1-3. For example, the reinforcing layer 36 may be fabricated from the same material as the inner wall 30 or the outer wall 32. The reinforcing layer 36 may be attached using a variety of techniques such as the wax coating or an adhesive.

[0033] The reinforcing layer 36 may have a geodesic shape such as illustrated in the figures. A person of skill in the art will appreciate that the amount of strength provided by the reinforcing layer 36 may be affected by the type of material used as well as the spacing between the reinforcing layer 36 pieces.

[0034] In certain embodiments, the reinforcing layer 36 is oriented at an angle as illustrated in the figures. As used herein, oriented at an angle means an angle of between about 30 degrees and about 45 degrees with respect to a lower surface of the insulated geodesic beverage container 10.

[0035] The reinforcing layer 36 may extend above the outer surface of the outer wall 32, as illustrated in Figs. 1-3. Such a configuration may enhance the ability of a person to securely grasp the insulated geodesic beverage container 10.

[0036] The main body portion 20 may also be strengthened with spacer 38 that extend between the inner wall 30 and the outer wall 32, as illustrated in Figs. 6-8. The spacer 38 may
have a variety of configurations. An example of one suitable configuration is an oscillating pattern. The spacer 38 may define at least one utensil receiving region that is capable of receiving at least one utensil from at least one of an upper end or a lower end of the main body portion 20.

[0037] This enclosed region 34 may provide a substantial portion of the insulating characteristics to the insulated geodesic beverage container 10. In one embodiment, the enclosed region 34 is filled with a gas such as air. In another embodiment, the enclosed region 34 is at least partially filled with a material having insulating properties such as expanded foam.

[0038] While the bottom wall 26 is illustrated in Fig. 4 as only having a two-part configuration that is similar to the inner wall 30 and the outer wall 32 used in the side wall 24, it is possible for the bottom wall 26 to have a one-part configuration.

[0039] The bottle may have a side wall 40 and a top wall 42, which is similar to the configuration of the side wall 24 and the bottom wall 26 used in the main body 20. In particular, the side wall 40 may have an inner wall 44 and an outer wall 46 that are mounted in a spaced-apart configuration such that the bottle provides insulation to the beverage or other liquid placed in the insulated geodesic beverage container 10. The inner wall 44 and the outer wall 46 may include reinforcing members and/or reinforcing layers that are similar to the structures used in the main body 20.

[0040] While the top wall 42 is illustrated as having a single wall, it is possible for the top wall 42 to have a two-part configuration that is similar to the inner wall 44 and the outer wall 46 used in the side wall 40.

[0041] As an alternative to applying the wax to the paper of the individual layers, it is possible for the wax to be applied after the components have been assembled. As discussed
earlier, the wax coating significantly enhances not only the moisture resistance features but also enhances the strength of the insulated geodesic beverage container 10. In still other embodiments, it is possible to use a form to fabricate the waxed component bottle.

[0042] In addition to providing a desired level of strength during use, the insulated geodesic beverage container 10 configuration of the insulated geodesic beverage container 10 that includes wax coated paper biodegrades much quicker than beverage containers fabricated from plastic or foam.

[0043] The insulated geodesic beverage container 10 may also include a storage region 82 that is attached to at least one of the main body portion 20 or the cap portion 22. In one such embodiment, the storage region 82 is pivotally attached to the cap portion 22 and includes a partially enclosed space 82 that is adapted to receive a product such as facial tissue.

[0044] The partially enclosed region 82 may be accessible from the top of the storage region 82 that is adjacent to the cap portion 22 when the storage region 82 is in the closed configuration to prevent the items (facial tissue) placed in the partially enclosed space 82 from inadvertently falling out and/or protect the items placed in the partially enclosed space 82 from damage.

[0045] While the figures illustrate that the insulated geodesic beverage container 10 has a substantially round configuration, the concepts of the invention may be adapted for alternative shapes. Examples of the alternative shapes include oval, square, rectangular and triangular.

[0046] As an alternative to the insulated geodesic beverage container 10 being generally rigid, the insulated geodesic beverage container 10 may be configured to collapse for storage when not in use. The collapsing may be in a vertical direction, a horizontal direction or a combination thereof.
Another embodiment of the insulated geodesic beverage container is set forth in Fig. 9. This embodiment of the insulated beverage container is formed in a plurality of sections that vertically slide with respect to each other for movement between a use configuration, which is illustrated in Fig. 9, and a storage configuration that has a height that is less than in the use configuration.

When the insulated geodesic beverage container is in the use configuration, the sections frictionally engage each other to retain a liquid in the interior of the insulated geodesic beverage container. The insulated geodesic beverage container may also include clips (as illustrated in Fig. 10) on an outer surface thereof that retain the insulated geodesic beverage container in the use configuration.

Another embodiment of the insulated geodesic beverage container is set forth in Figs. 10-12. This embodiment includes a molded configuration that facilitates form molding the insulated geodesic beverage container by molding the geodesic beverage container as illustrated in the drawings.

Similar to the embodiment illustrated in Figs. 1-8, the insulated geodesic beverage container may include an inner wall and an outer wall with a spacer that extends therebetween. The inner wall and the outer wall may be mounted in a spaced-apart configuration that defines a enclosed region therebetween to enhance the insulating capabilities of the insulated geodesic beverage container.

In contrast to the generally cylindrical shape of the insulated geodesic beverage container illustrated in Figs. 1-8, the insulated geodesic beverage container may have a tapered configuration such that a diameter of the insulated geodesic beverage container is greater proximate a lower end thereof as illustrated in Figs. 11-13.
The inner wall may have a generally circular profile that is similar to the profile of the embodiment illustrated in Figs. 1-8. The outer wall may be formed with a plurality of obtuse angles and a plurality of acute angle that are oriented in an alternating configuration as illustrated in Figs. 11 and 13. Such a configuration may enhance the ability for a user to grip the insulated geodesic beverage container.

The outer wall may also include a plurality of substantially linear sections and a plurality of curved sections that are oriented in an alternating configuration. Such a configuration may enable a distance between the inner wall and the outer wall to be maximized while at the same time allowing for the outer wall to include the alternating obtuse and acute angles.

Yet another configuration of the insulated geodesic beverage container is illustrated in Figs. 14-18. Similar to the embodiment illustrated in Figs. 1-8, the insulated geodesic beverage container may have an inner wall and an outer wall that are mounted in a spaced-apart configuration that defines an enclosed region therebetween. This enclosed region may be filled with a gas such as air or another material that exhibits enhanced insulating properties.

Rather than having a generally circular profile as illustrated in Figs. 1-8, the insulated geodesic beverage container may have an octagonal configuration with larger width sides and smaller width sides in an alternating relationship.

While not illustrated in Figs. 14-18, the insulated geodesic beverage container may include a reinforcing member that extends over at least a portion of the inner or outer surface of at least one of the inner wall and the outer wall. The reinforcing member may be
oriented at an angle that is similar to the orientation of the reinforcing member used in conjunction with the insulated geodesic beverage container illustrated in Figs. 1-8.

[0057] In the preceding detailed description, reference is made to the accompanying drawings, which form a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. In this regard, directional terminology, such as "top," "bottom," "front," "back," "leading," "trailing," etc., is used with reference to the orientation of the Figure(s) being described. Because components of embodiments can be positioned in a number of different orientations, the directional terminology is used for purposes of illustration and is in no way limiting. It is to be understood that other embodiments may be utilized and structural or logical changes may be made without departing from the scope of the present invention. The preceding detailed description, therefore, is not to be taken in a limiting sense, and the scope of the present invention is defined by the appended claims.

[0058] It is contemplated that features disclosed in this application, as well as those described in the above applications incorporated by reference, can be mixed and matched to suit particular circumstances. Various other modifications and changes will be apparent to those of ordinary skill.
CLAIMS

1. An insulated geodesic beverage container comprising:
   a main body portion comprising:
   an inner wall comprises an enclosed region with an opening;
   an outer wall mounted in a spaced-apart configuration with respect to the inner
   wall to define a partially enclosed region between the inner wall and the
   outer wall; and
   a reinforcing layer associated with the outer wall, wherein at least a portion of the
   reinforcing layer has a geodesic shape; and
   a cap portion that is removably attached to the main body portion for sealing the opening.

2. The insulated geodesic beverage container of claim 1, where the reinforcing layer extends
   over at least a portion of the outer wall.

3. The insulated geodesic beverage container of claim 1, wherein the inner wall is fabricated
   from a moisture resistant material.

4. The insulated geodesic beverage container of claim 3, wherein the moisture resistant
   material is wax coated paper or paper board.

5. The insulated geodesic beverage container of claim 4, wherein the wax coating retains the
   reinforcing layer with respect to the outer layer.
6. The insulated geodesic beverage container of claim 1, and further comprising a spacer that maintains the inner wall in a spaced-apart orientation with respect to the outer wall.

7. The insulated geodesic beverage container of claim 6, wherein the spacer has an oscillating configuration.

8. The insulated geodesic beverage container of claim 6, wherein the spacer defines at least one utensil receiving region that is capable of receiving at least one utensil.

9. The insulated geodesic beverage container of claim 1, and further comprising an insulating material intermediate the inner wall and the outer wall.

10. The insulated geodesic beverage container of claim 1, wherein the cap portion is rotatably or pivotally attached to the main body portion.

11. The insulated geodesic beverage container of claim 1, and further comprising a cup portion that is capable of engaging the cap portion.

12. The insulated geodesic beverage container of claim 1, wherein the cap portion comprises a receptacle that is capable of dispensing facial tissue.

13. The insulated geodesic beverage container of claim 1, wherein the inner wall has a substantially cylindrical shape.
14. The insulated geodesic beverage container of claim 1, wherein the outer wall comprises a plurality of obtuse angles and a plurality of acute angles that are oriented in an alternating configuration.

15. The insulated geodesic beverage container of claim 14, wherein the outer wall comprises a plurality of linear sections and a plurality of curved sections that are oriented in an alternating configuration.

16. An insulated geodesic beverage container comprising:

   a main body portion comprising:
   
   an inner wall comprises an enclosed region with an opening, wherein the inner wall is fabricated from a moisture resistant material;
   
   an outer wall mounted in a spaced-apart configuration with respect to the inner wall to define a partially enclosed region between the inner wall and the outer wall;
   
   a spacer that maintains the inner wall in a spaced-apart orientation with respect to the outer wall; and
   
   a reinforcing layer that extends over at least a portion of the outer wall, wherein the reinforcing layer has a geodesic shape; and
   
   a cap portion that is removably attached to the main body portion for sealing the opening.
17. The insulated geodesic beverage container of claim 16, wherein the moisture resistant material is wax coated paper or paper board and wherein the wax coating retains the reinforcing layer with respect to the outer layer.

18. The insulated geodesic beverage container of claim 16, and further comprising an insulating material intermediate the inner wall and the outer wall.

19. The insulated geodesic beverage container of claim 16, wherein the cap portion is rotatably or pivotally attached to the main body portion.

20. The insulated geodesic beverage container of claim 16, and further comprising a cup portion that is capable of engaging the cap portion.
INTERNATIONAL SEARCH REPORT

International application No. PCT/US2016/059849

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B65D 81/38; B65D 3/00; B65D 3/22; B65D 3/28 (2016.01)
CPC - B65D 81/3841; B65D 25/18; B65D 77/245; B65D 81/38; B65D 81/3837; B65D 81/3846 (2016.1 1)

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC - B65D 3/00; B65D 3/22; B65D 3/28; B65D 81/38
CPC - B65D 25/18; B65D 77/245; B65D 81/38; B65D 81/3837; B65D 81/3841; B65D 81/3846; B65D 81/3865; B65D 81/3869; B65D 81/3874.

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC - 220/62.12; 220/645; 220/646; 220/654; 220/668; 229/401; 383/19 (keyword delimited)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tbody>
<tr>
<td>A</td>
<td>US 4,582,197 A (LIN) 15 April 1986 (15.04.1986) entire document</td>
<td>1-20</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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