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(54) **REUSABLE COOLER AND METHOD OF SELLING FOOD AND BEVERAGES**

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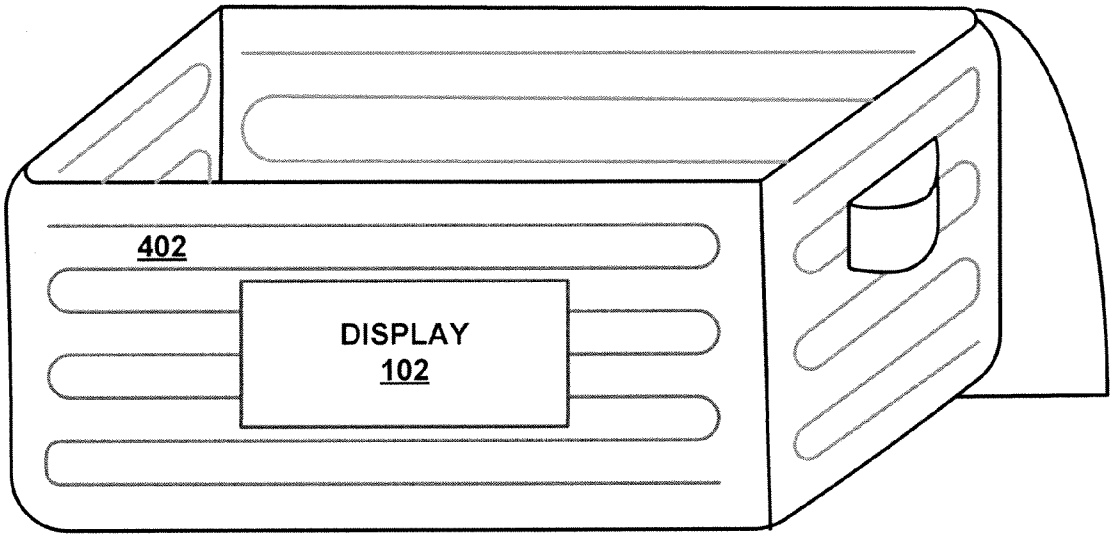
(57) **ABSTRACT**

A reusable cooler comprising a first hollow sidewall having a first side, a second side and first chamber configured to hold a first thermal pack. A second hollow sidewall having a first side coupled to the second side of the first hollow sidewall, a second side and a second chamber configured to hold a second thermal pack. A third hollow sidewall having first side coupled to the second side of the second hollow sidewall, a second side and a third chamber configured to hold a third thermal pack. A fourth hollow sidewall having a first side coupled to the second side of the third hollow sidewall, a second side coupled to the first side of the first hollow sidewall and a fourth chamber configured to hold a fourth thermal pack. The first hollow sidewall, the second hollow sidewall, the third hollow sidewall and the fourth hollow sidewall form an interior.



400

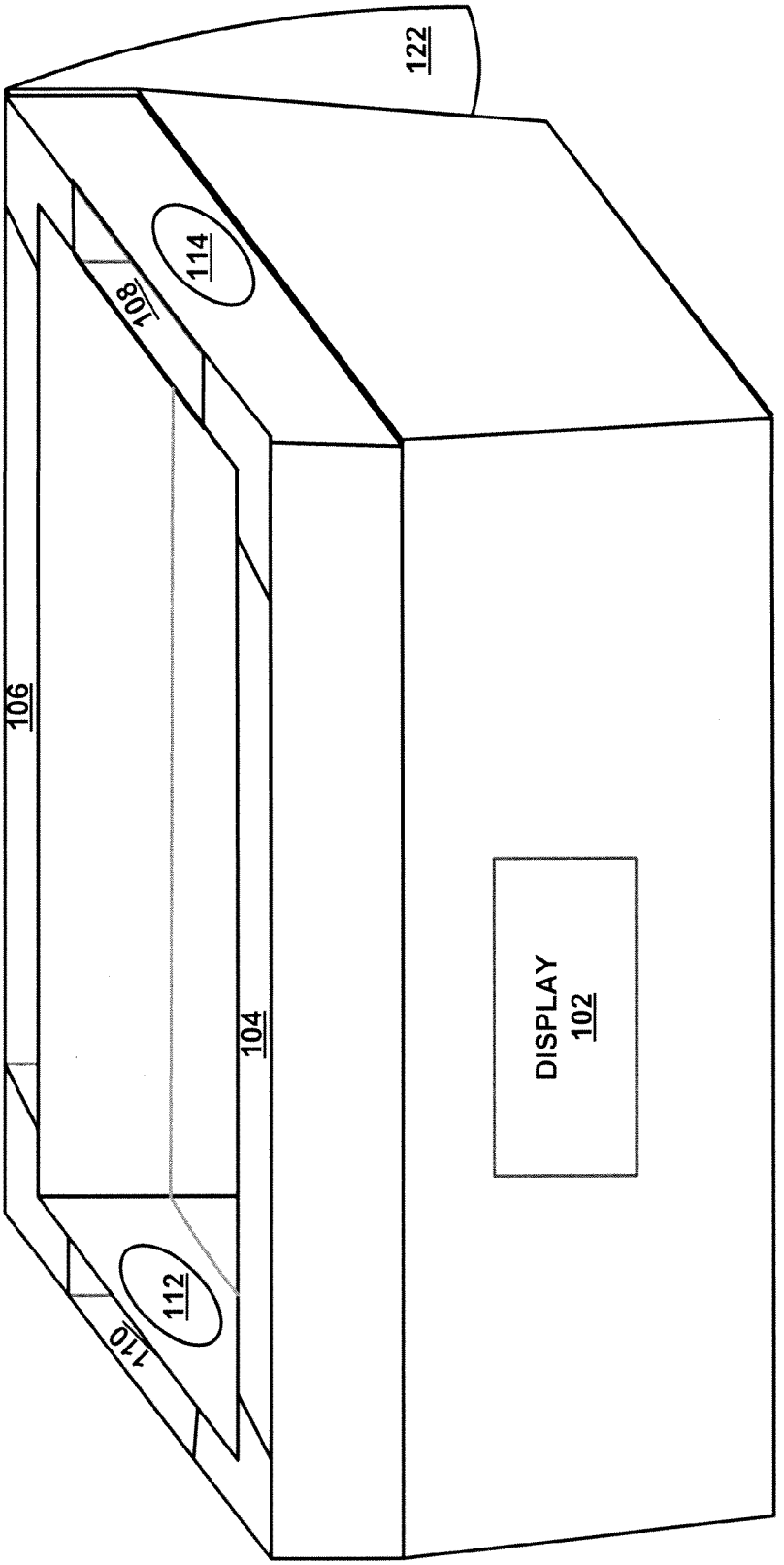


FIGURE 1

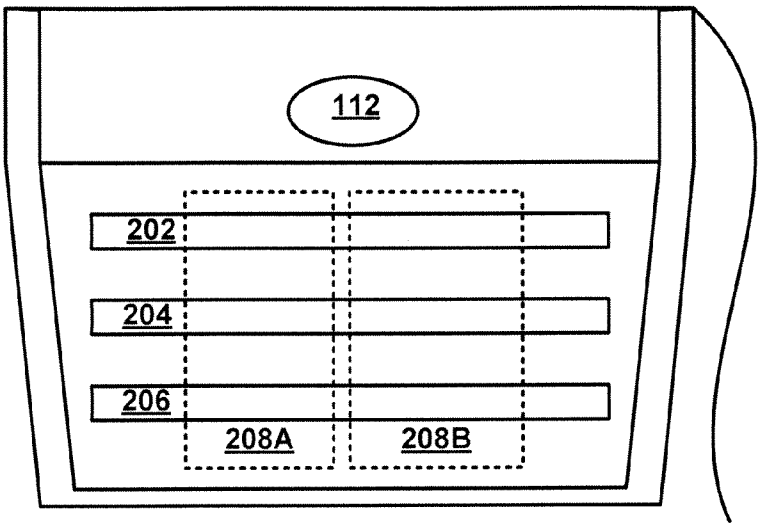


FIGURE 2 200

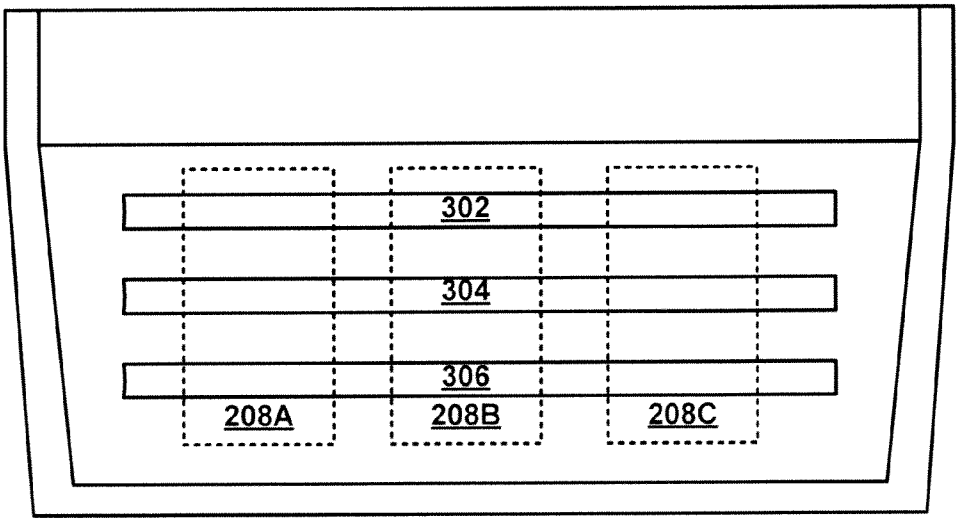


FIGURE 3 300

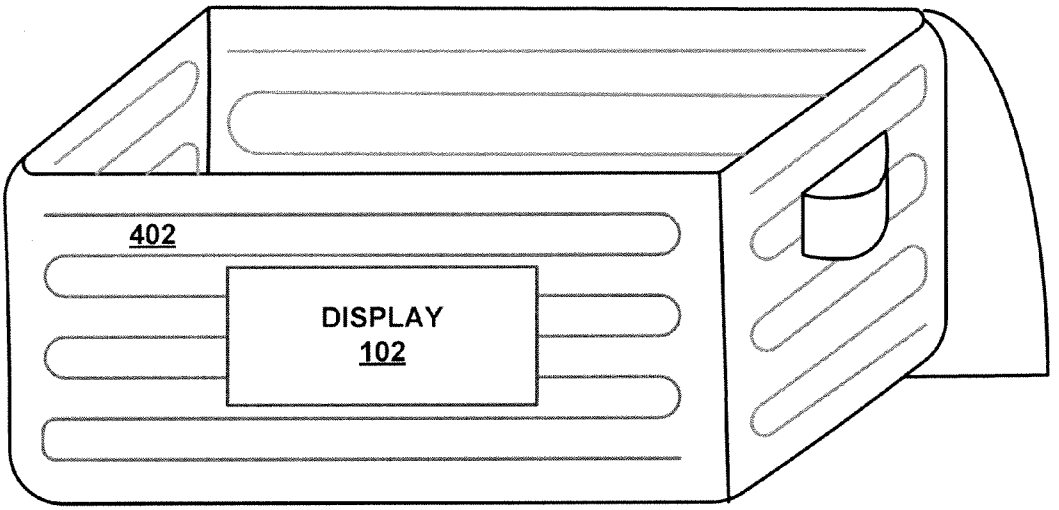


FIGURE 4 400

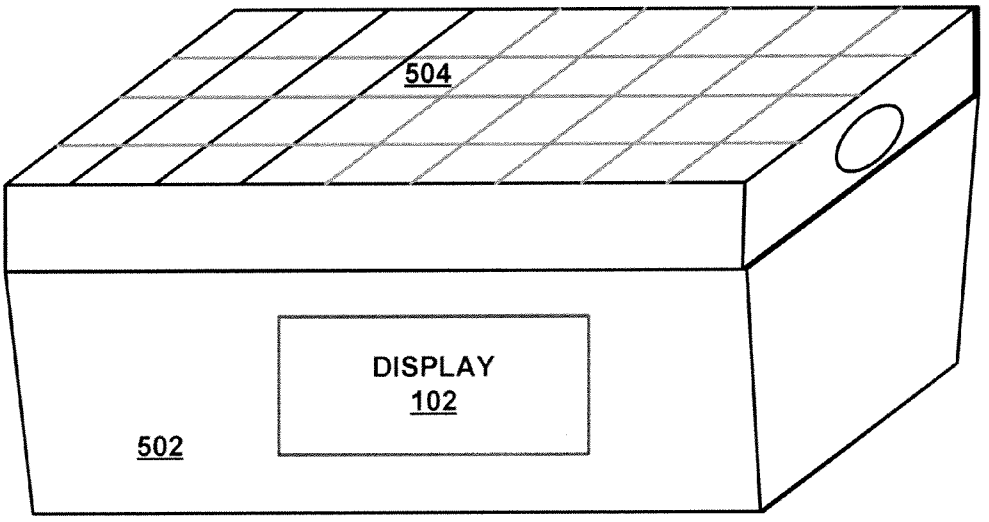


FIGURE 5 500

REUSABLE COOLER AND METHOD OF SELLING FOOD AND BEVERAGES

TECHNICAL FIELD

[0001] The present disclosure relates generally to coolers, and more specifically to a reusable cooler and method of selling chilled food and beverages that eliminates the need for ice in support of such sales.

BACKGROUND OF THE INVENTION

[0002] Beverages are typically sold at sporting events and other events from a container that is filled with ice, in order to chill the beverages and to keep the beverages cold. However, the ice required to chill the beverages from room temperature significantly increases the weight of the container, and can also spill onto the ground, where it forms a safety hazard.

SUMMARY OF THE INVENTION

[0003] Accordingly, a reusable cooler is provided that includes a first hollow sidewall having a first side, a second side and a first chamber that is used to hold a first thermal pack. A second hollow sidewall has a first side that is connected to the second side of the first hollow sidewall, a second side and a second chamber configured to hold a second thermal pack. A third hollow sidewall has a first side coupled to the second side of the second hollow sidewall, a second side and a third chamber configured to hold a third thermal pack. A fourth hollow sidewall has a first side coupled to the second side of the third hollow sidewall, a second side coupled to the first side of the first hollow sidewall and a fourth chamber configured to hold a fourth thermal pack. The first hollow sidewall, the second hollow sidewall, the third hollow sidewall and the fourth hollow sidewall form an interior where beverages can be stored, such as to maintain their temperature.

[0004] Other systems, methods, features, and advantages of the present disclosure will be or become apparent to one with skill in the art upon examination of the following drawings and detailed description. It is intended that all such additional systems, methods, features, and advantages be included within this description, be within the scope of the present disclosure, and be protected by the accompanying claims.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0005] Aspects of the disclosure can be better understood with reference to the following drawings. The components in the drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the present disclosure. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views, and in which:

[0006] FIG. **1** is a diagram of a cooler in accordance with an exemplary embodiment of the present disclosure;

[0007] FIG. **2** is a cut-away view of a cooler in accordance with an exemplary embodiment of the present disclosure;

[0008] FIG. **3** is a cut-away view of a cooler in accordance with an exemplary embodiment of the present disclosure;

[0009] FIG. **4** is a diagram of cooler in accordance with an exemplary embodiment of the present disclosure; and

[0010] FIG. **5** is a diagram of cooler in accordance with an exemplary embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0011] In the description that follows, like parts are marked throughout the specification and drawings with the same reference numerals. The drawing figures might not be to scale and certain components can be shown in generalized or schematic form and identified by commercial designations in the interest of clarity and conciseness.

[0012] In accordance with the present disclosure, a reusable cooler for distribution of beverage containers is provided that eliminates the need for ice to be used to maintain the beverage containers at a cold temperature. The present disclosure includes a number of exemplary embodiments, such as a first embodiment that is stackable, has open sides with drop-in thermal packs, and which has a digital temperature sensor and an associated display. A second embodiment is soft sided and foldable and also has a digital temperature sensor and associated display. A third embodiment is closed-sided, filled with a reusable thermal solution and has a digital temperature sensor and associated display. In these exemplary embodiments, the digital temperature sensor and associated display can be powered by a solar photovoltaic array, a battery or can be a passive type indicator that uses color changing materials or other suitable passive devices. The dimensions of the reusable cooler can be optimized for predetermined products, such as cans, bottles, long necks or other suitable containers. Interior spacers can also be provided, to improve the ability of the reusable cooler to maintain cold beverage temperatures. A replaceable logo cover or pocket can also be used, to allow the exterior of the reusable cooler to be customized for predetermined sporting events.

[0013] FIG. **1** is a diagram of a cooler **100** in accordance with an exemplary embodiment of the present disclosure. Cooler **100** has hard sides and corresponding slots **104**, **106**, **106** and **108** in each side to hold thermal packs (not explicitly shown). The remainder of each sidewall of cooler **100** can be filled with insulation. The thermal packs are typically frozen, but could alternatively be heated. Cooler **100** is optimized for maintaining the temperature of beverages that have already been cooled or heated, and as a result does not require ice to be used to cool beverages down or other internal temperature adjustment materials.

[0014] The term "thermal pack" as used herein refers to a suitable package containing a suitable substance (solid, liquid, gas or gel) with thermal properties that allow it to act as a heat source or heat sink for packaged food and beverages. In one exemplary embodiment, the thermal packs can be stored in a freezer or cooler prior to use, then inserted into cooler **100** for use and removed from cooler **100** after use. Thermal packs can be layered in rows, disposed between individual food or beverage containers or layers or food or beverage containers, or otherwise used in place of ice.

[0015] In addition to slots **102**, **104**, **106** and **108**, cooler **100** includes vents in the interior sides (not explicitly shown) to improve heat transfer from the beverage containers to the thermal packs. A photovoltaic array **122** is disposed on flexible insulated cover, and is operatively coupled to digital display and thermocouple **102**, which is used to display the interior temperature of cooler **100**. Additional digital displays and thermocouples can also or alternatively be provided on other sides of cooler **100**. In addition, a removable inner floor panel is used to store additional thermal packs.

[0016] Cooler **100** is stackable, and can be filled and stored in a walk in freezer for subsequent use. Cooler **100** can be formed by blow molding or other suitable processes, and can

be customized with colors, patterns, logos, advertising or other designs, which can be applied after the molding process, which can be removable or which can otherwise be provided. In one exemplary embodiment, digital display and thermocouple **102** can also or alternatively provide a digital message, advertising, or other suitable data.

[0017] Cooler **100** can include openings **112** and **114** for handles, support straps or other suitable devices to allow a user to easily carry cooler **100**, such as to sell beverages in a sports arena or other suitable locations.

[0018] In operation, cooler **100** is prepared for use in food or beverage sales by loading frozen thermal packs into slots **104**, **106**, **106** and **108**, and then loading chilled food or beverage containers into the interior of cooler **100**. Alternatively, heated food and beverages and heated thermal packs can be used where suitable. Cooler **100** can then be stored in a walk-in cooler and stacked with other instances of cooler **100**. A user then retrieves a stocked and chilled cooler **100**, and can distribute chilled or heated foods and beverages to others, such as during a sporting event, a musical event or other suitable events.

[0019] FIG. **2** is a cut-away view **200** of a cooler **100** in accordance with an exemplary embodiment of the present disclosure. Cut-away view **200** shows thermal pack vents **202**, **204** and **206** that improve the heat transfer capability between thermal packs **208**A and **208**B, which are disposed inside of the walls of cooler **100**, and food or beverages stored in cooler **100**. As can be seen in cut-away view **200**, the thermal packs **208**A and **208**B are inserted into the walls of cooler **100** until they are below the location of opening **112**, so as not to interfere with handling of cooler **100**.

[0020] FIG. **3** is a cut-away view **300** of a cooler **100** in accordance with an exemplary embodiment of the present disclosure. Cut-away view **300** shows thermal pack vents **302**, **304** and **306** that improve the heat transfer capability between thermal packs **208**A, **208**B and **208**C, which are disposed inside of the walls of cooler **100**, and food or beverages stored in cooler **100**. As can be seen in cut-away view **300**, the thermal packs **208**A, **208**B and **208**C are inserted into the walls of cooler **100**.

[0021] FIG. **4** is a diagram of cooler **400** in accordance with an exemplary embodiment of the present disclosure. Cooler **400** is covered with a soft flexible material on each sides, on the top and on the bottom, with wall and floor cavities that are sealed and filled with a suitable thermal solution (solid, liquid, gas or gel refrigerant), which allows cooler **400** to be stored in a freezer or other suitable locations for a predetermined period of time, until the thermal solution has solidified or otherwise reached a predetermined temperature. In one exemplary embodiment, cooler **400** can be stored in a folded configuration, then filled with food or beverage containers while it is unfrozen and placed in a freezer until it reaches a predetermined temperature, as indicated by digital display and thermocouple **102**. In this manner, cooler **400** occupies less space until it is being prepared for use, and remains flexible until it is frozen in preparation for use, at which point it becomes easier to handle for the purpose of beverage sales.

[0022] FIG. **5** is a diagram of cooler **500** in accordance with an exemplary embodiment of the present disclosure. Cooler **500** has wall and floor cavities that are sealed and filled with a suitable thermal solution (solid, liquid, gas or gel refrigerant), which allows cooler **500** to be stored in a freezer or other suitable locations for a predetermined period of time, until the thermal solution has solidified or otherwise reached a predetermined temperature. In one exemplary embodiment, cooler **500** can be filled with food or beverage containers while it is unfrozen and then placed in a freezer until it reaches a predetermined temperature, as indicated by digital display and thermocouple **102**.

[0023] It should be emphasized that the above-described embodiments are merely examples of possible implementations. Many variations and modifications may be made to the above-described embodiments without departing from the principles of the present disclosure. All such modifications and variations are intended to be included herein within the scope of this disclosure and protected by the following claims.

What is claimed is:

1. A reusable cooler comprising:

a first hollow sidewall having a first side, a second side and first chamber configured to hold a first thermal pack;

a second hollow sidewall having a first side coupled to the second side of the first hollow sidewall, a second side and a second chamber configured to hold a second thermal pack;

a third hollow sidewall having first side coupled to the second side of the second hollow sidewall, a second side and a third chamber configured to hold a third thermal pack;

a fourth hollow sidewall having a first side coupled to the second side of the third hollow sidewall, a second side coupled to the first side of the first hollow sidewall and a fourth chamber configured to hold a fourth thermal pack; and

wherein the first hollow sidewall, the second hollow sidewall, the third hollow sidewall and the fourth hollow sidewall form an interior.

2. The reusable cooler of claim **1** wherein the first hollow sidewall further comprises a plurality of openings to the interior from the first chamber.

3. The reusable cooler of claim **1** wherein the first hollow sidewall further comprises a plurality of openings to the interior from the first chamber and the second hollow sidewall further comprises a plurality of openings to the interior from the second chamber.

4. The reusable cooler of claim **1** wherein the first hollow sidewall further comprises a plurality of openings to the interior from the first chamber, the second hollow sidewall further comprises a plurality of openings to the interior from the second chamber and the third hollow sidewall further comprises a plurality of openings to the interior from the third chamber.

5. The reusable cooler of claim **1** wherein the first hollow sidewall further comprises a plurality of openings to the interior from the first chamber, the second hollow sidewall further comprises a plurality of openings to the interior from the second chamber, the third hollow sidewall further comprises a plurality of openings to the interior from the third chamber and the fourth hollow sidewall further comprises a plurality of openings to the interior from the fourth chamber.

6. The reusable cooler of claim **1** further comprising a digital display disposed in the first hollow sidewall and a thermocouple attached to the digital display and disposed in the interior.

7. A method for selling beverages comprising:

removing a plurality of reusable coolers from storage;

filling each of the reusable coolers with chilled beverages;

stacking the plurality of reusable coolers in a freezer;

monitoring a temperature on an implanted display on each of the reusable coolers until the temperature reaches a predetermined value; and

removing the plurality of reusable coolers as needed from the freezer.

8. The method of claim **7** further comprising inserting a thermal pack into a hollow sidewall of each of the plurality of reusable coolers.

9. The method of claim **7** further comprising unfolding each of the reusable coolers prior to filling each of the reusable coolers with the chilled beverages.

10. The method of claim **7** further comprising:

stacking a plurality of unfrozen thermal packs on a flat surface in a freezer;

removing the plurality of thermal packs from the freezer after they have frozen; and

inserting each of the thermal packs into a hollow sidewall of one of the plurality of reusable coolers.

11. The method of claim **7** wherein the steps are performed without the use of ice.

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