



- (51) **International Patent Classification:**
B65D 5/44 (2006.01)
- (21) **International Application Number:**
PCT/US20 13/020384
- (22) **International Filing Date:**
4 January 2013 (04.01.2013)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
61/583,109 4 January 2012 (04.01.2012) US
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- (81) **Designated States** (*unless otherwise indicated, for every
kind of national protection available*): AE, AG, AL, AM,

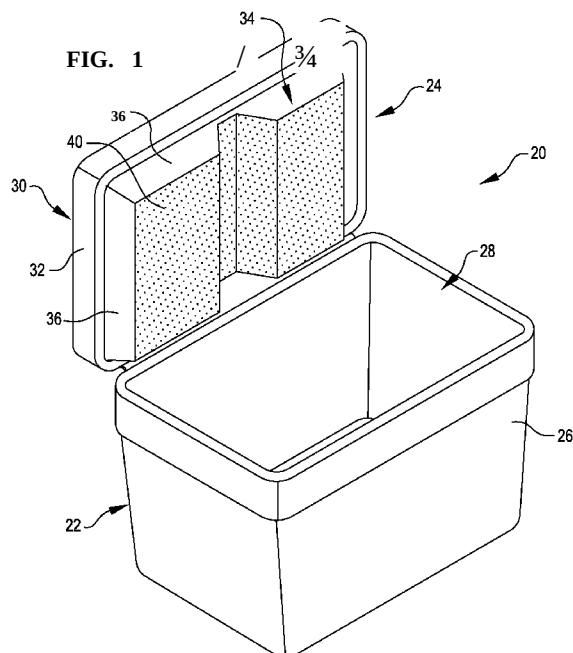
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BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
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RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ,
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA,
ZM, ZW.

- (84) **Designated States** (*unless otherwise indicated, for every
kind of regional protection available*): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

Published:

- *without international search report and to be republished
upon receipt of that report (Rule 48.2(g))*

(54) **Title:** COOLER HAVING REFLECTIVE FILM



(57) **Abstract:** An insulated container (20) is provided hav-
ing a reflective film or coating (40) for blocking the trans-
mission of radiation through the insulated container. In an
embodiment, the reflective material (40) is provided on a lid
(24) for the insulated container (20), for example on the
lower portion of the lid for the insulated container. The insu-
lated container (20) may be a rigid structure.

COOLER HAVING REFLECTIVE FILM

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of U.S. Provisional Application No. 61/583,109, filed January 4, 2013, the entire disclosure of which is hereby incorporated herein by reference.

BACKGROUND

[0002] Insulated containers, also called "coolers," are prevalent in contemporary life. Insulated containers are often used for picnics or for outdoor activities such as camping or sporting events. In addition, insulated containers are becoming more prevalent in the medical industry, where the containers are used to move transplant organs and other articles that need to remain cold during transport. Also, the need to transport commercial goods such as perishable food, drink, medicine, and environmental samples is becoming more important.

BRIEF SUMMARY

[0003] The following presents a simplified summary of some embodiments of the invention in order to provide a basic understanding of the invention. This summary is not an extensive overview of the invention. It is not intended to identify key/critical elements of the invention or to delineate the scope of the invention. Its sole purpose is to present some embodiments of the invention in a simplified form as a prelude to the more detailed description that is presented later.

[0004] In accordance with an embodiment, an insulated container is provided having a reflective film or coating for blocking the transmission of radiation through the insulated container. In an embodiment, the reflective material is provided on a lid for the insulated container, for example on the lower portion of the lid for the insulated container. The insulated container may be a rigid structure.

[0005] For a fuller understanding of the nature and advantages of the present invention, reference should be made to the ensuing detailed description and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Fig. 1 is a perspective view of an insulated container incorporating embodiments;

[0007] Fig. 2 is a cutaway perspective view of an insulated container in accordance with another embodiment; and

[0008] Fig. 3 is an exploded perspective view of yet another insulated container in accordance with another embodiment.

DETAILED DESCRIPTION

[0009] In the following description, various embodiments of the present invention will be described. For purposes of explanation, specific configurations and details are set forth in order to provide a thorough understanding of the embodiments. However, it will also be apparent to one skilled in the art that the present invention may be practiced without the specific details. Furthermore, well-known features may be omitted or simplified in order not to obscure the embodiment being described.

[0010] Referring now to the drawings, in which like reference numerals represent like parts throughout the several views, FIG. 1 shows an insulated container 20 in accordance with embodiments. The insulated container 20 includes a box 22 having a lid 24 that fits on top. The lid 24 may be hinged to the box 22, or may be a separate, detached structure. The insulated container 20 shown in the drawings is a conventional insulated container, sometimes called a "cooler" or a "box cooler," but aspects of the invention may be used on any type of insulated container, including insulated beverage jugs, thermoelectric coolers, and other insulated products. Aspects herein are particular relevant, however, to an insulated container having rigid sides and a rigid lid.

[0011] The box 22 includes sidewalls 26 and an upper opening 28. The sidewalls may be insulated, for example, with polyurethane foam, polyisocyanurate foam, expanded polystyrene (EPS), or another suitable material.

[0012] The lid 24 includes a top section 30 having sidewalls 32. A lower, protruding portion 34 extends downward from the top portion 30. This protruding portion 34 includes sidewalls 36 that are configured to engage inner surfaces of the sidewalls 26 of the box 22 when the lid 24 is placed on top of the box. This engagement seals the insulated container and ensures good closure and minimal heat loss.

[0013] In accordance with embodiments, reflective material 40 is included on or in the insulated container, preferably on or in the lid 24. This reflective material 40 may be positioned on an outer surface of the lid 24, or may be included internal to the lid. In accordance with embodiments, the reflective material 40 is provided as a thin layer of a reflective composition, and may be a sheet, an emulsion, or another structure capable of blocking electromagnetic radiation through the insulated container, slowing heat loss through the container. As non-

limiting examples, the reflective material 40 may be as simple as aluminum foil and could be a more technical aluminized coating on a layer of carrier film. The reflective film can also be a laminate that will have various layers such as nylon, polyester, or polypropylene that will provide benefits such as some additional structure, tear strength, puncture resistance, scratch resistance, and UV protection for the substrate. Other materials may be used in accordance with desired properties of the reflective material 40.

[0014] In embodiments, the reflective material 40 is positioned on a underside of the lid 24. For example, as is shown in Fig. 1, the reflective material 40 is positioned on the underside of the protruding portion 34 of the lid 24. In this embodiment, the reflective material 40 is exposed to the inner portion of the box 22 when the insulated container 20 is closed. In an alternate embodiment shown in Fig. 2, reflective material 140 is positioned not only on the lower surface of the protruding portion 134, but also around the sidewalls 136 of the protruding portion.

[0015] In either event, in embodiments, the reflective material 40 or 140 faces the inner compartment of the insulated container 20. The reflective material thereby blocks entry of heat due to radiation into the cooler, thus prolonging the cooling life of items in the cooler.

[0016] In alternate embodiments, the reflective material may be positioned in other places in the lid 24. For example, as shown in the embodiment the insulated container 220 shown in Fig. 3, a separate panel 50 includes reflective material 240 thereon. This panel fits into a lower side of the lid 224, for example by snaps, screws, or other fasteners. In still another embodiment, the panel 50 may be reversed, with the reflective material trapped between the panel 50 and the underside of the lid 224.

[0017] In either event, the reflective material 40, 140, 240, because it is located on or in the lid 24, 124, 224, is positioned between the top of the insulated container 220 and the interior of the insulated container. In this manner, the reflective material may block radiation of electromagnetic waves into the insulated container from the top of the insulated container, a common cause of heat transfer into an insulated container, especially from the sun.

[0018] Other variations are within the spirit of the present invention. Thus, while the invention is susceptible to various modifications and alternative constructions, certain illustrated embodiments thereof are shown in the drawings and have been described above in detail. It should be understood, however, that there is no intention to limit the invention to the specific

form or forms disclosed, but on the contrary, the intention is to cover all modifications, alternative constructions, and equivalents falling within the spirit and scope of the invention, as defined in the appended claims.

[0019] The use of the terms "a" and "an" and "the" and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The terms "comprising," "having," "including," and "containing" are to be construed as open-ended terms (i.e., meaning "including, but not limited to,") unless otherwise noted. The term "connected" is to be construed as partly or wholly contained within, attached to, or joined together, even if there is something intervening. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (*e.g.*, "such as") provided herein, is intended merely to better illuminate embodiments of the invention and does not pose a limitation on the scope of the invention unless otherwise claimed. No language in the specification should be construed as indicating any non-claimed element as essential to the practice of the invention.

[0020] Preferred embodiments of this invention are described herein, including the best mode known to the inventors for carrying out the invention. Variations of those preferred embodiments may become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventors expect skilled artisans to employ such variations as appropriate, and the inventors intend for the invention to be practiced otherwise than as specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described elements in all possible variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.

[0021] All references, including publications, patent applications, and patents, cited herein are hereby incorporated by reference to the same extent as if each reference were individually and specifically indicated to be incorporated by reference and were set forth in its entirety herein.

WHAT IS CLAIMED IS:

- 1 1. An insulated container, comprising:
2 a rigid box defining an opening;
3 a rigid lid for fitting on the opening; and
4 a reflective material positioned at least one of on or in at least one of the rigid lid or
5 the rigid box for blocking electromagnetic radiation through said at least one of the lid or the
6 box.
- 1 2. The insulated container of claim 1, wherein the reflective material is
2 positioned on an inner surface of the lid.
- 1 3. The insulated container of claim 1, wherein the reflective material is
2 positioned on an inner surface of the box.
- 1 4. The insulated container of claim 1, wherein the reflective material is
2 positioned on inside of the lid.
- 1 5. The insulated container of claim 1, wherein the reflective material
2 comprises a thin layer of reflective composition.
- 1 6. The insulated container of claim 1, wherein the reflective material
2 comprises a sheet, an emulsion, or another structure capable of blocking electromagnetic
3 radiation through the insulated container.
- 1 7. The insulated container of claim 1, wherein the reflective material
2 comprises an aluminized coating on a layer of carrier film.
- 1 8. The insulated container of claim 1, wherein the reflective material
2 comprises a laminate structure.
- 1 9. The insulated container of claim 1, wherein the lid comprises a protruding
2 portion that fits against inner sidewalls of the box, and wherein the reflective material is
3 positioned on an underside of the protruding portion.

1 10. The insulated container of claim 9, wherein the reflective material is
2 positioned around sidewalls of the protruding portion.

1 11. The insulated container of claim 1, further comprising a panel for
2 attaching to the lid, and wherein the reflective material is positioned on the panel, between the
3 panel and the lid.

1 12. The insulated container of claim 11, wherein the panel is attached against
2 a bottom surface of the lid, and the reflective material is positioned between the panel and the
3 lid.

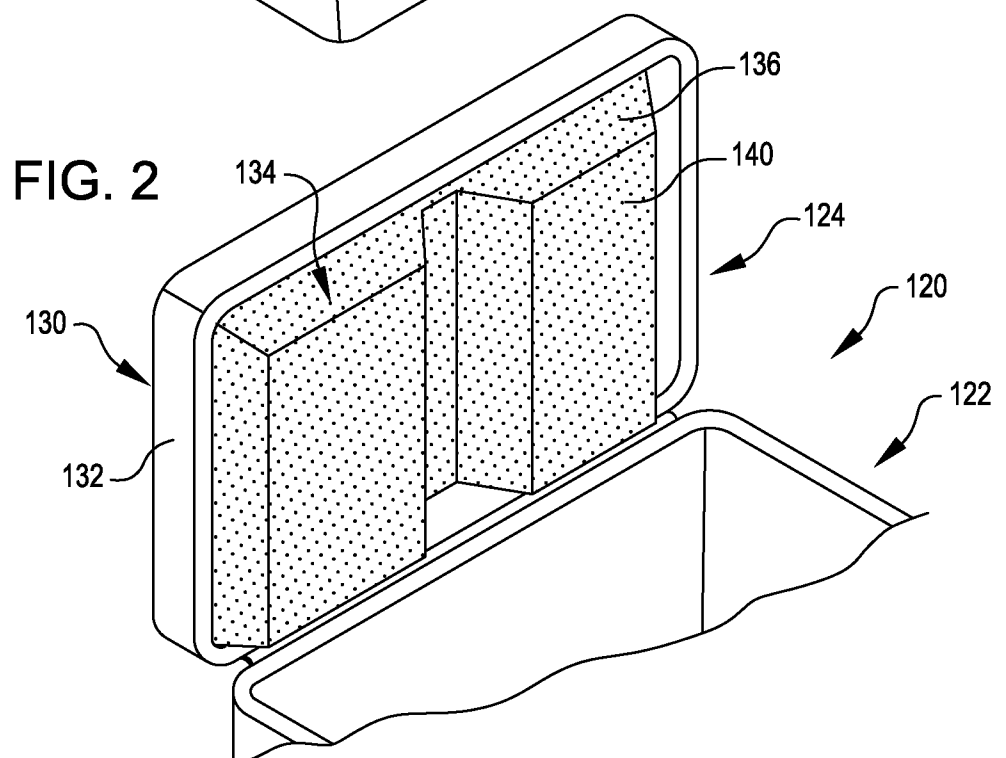
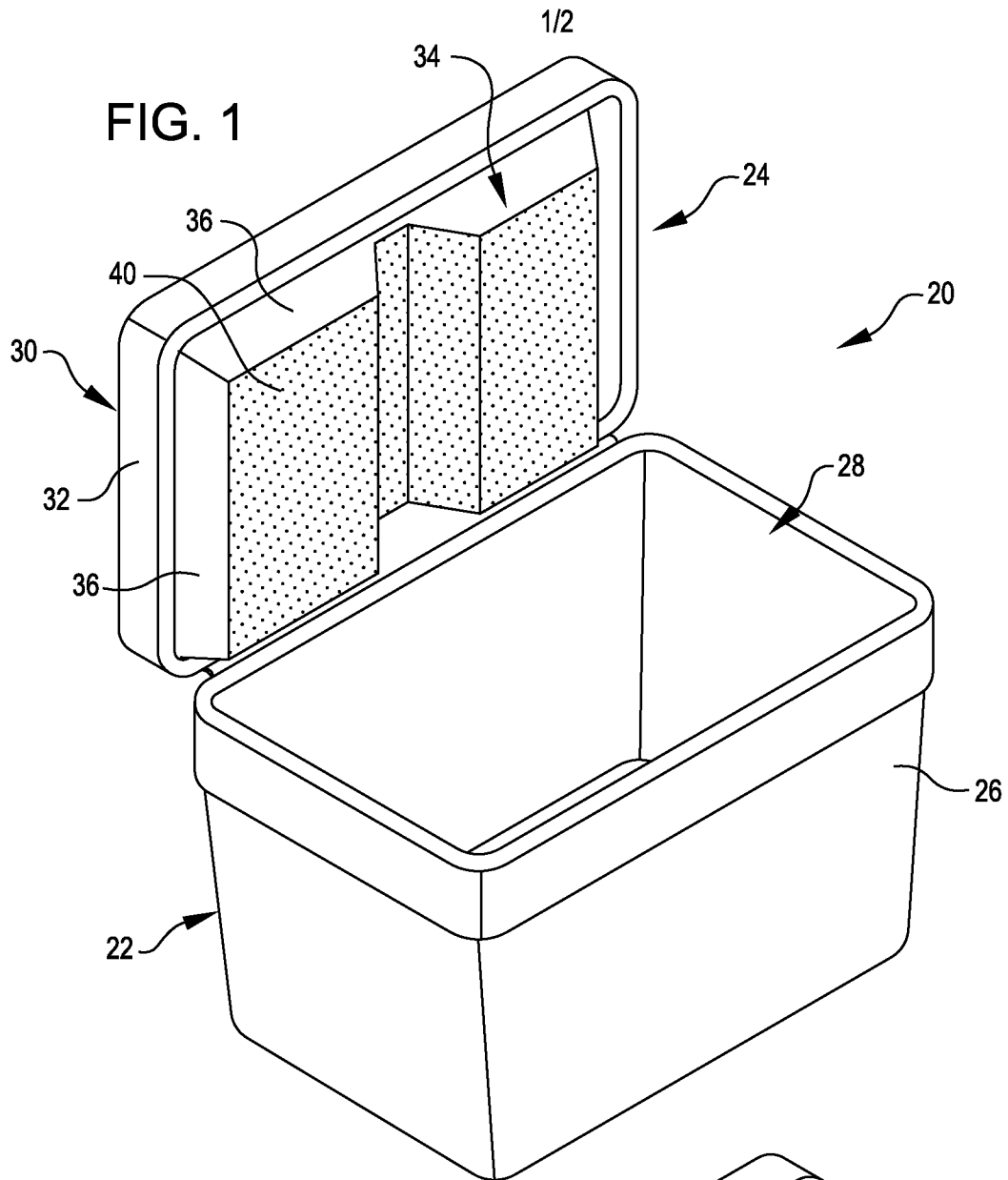


FIG. 3

