

Aug. 21, 1956

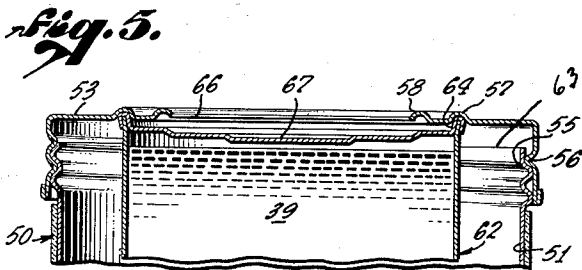
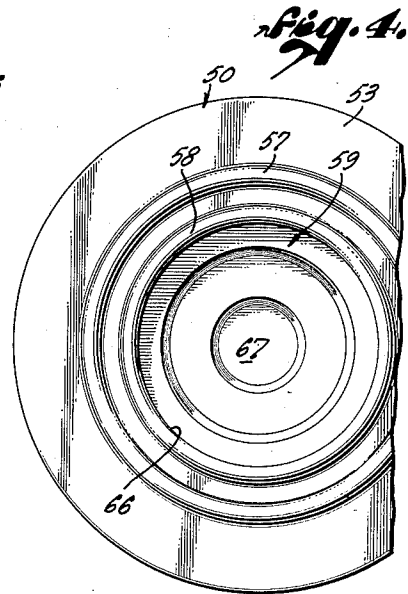
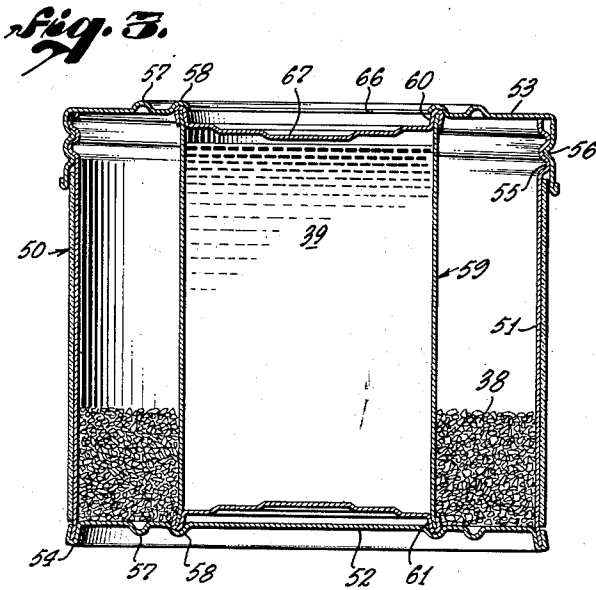
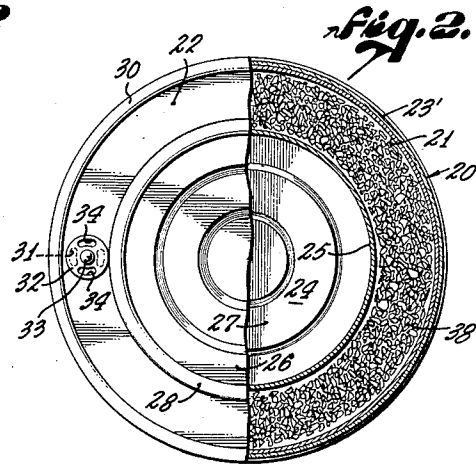
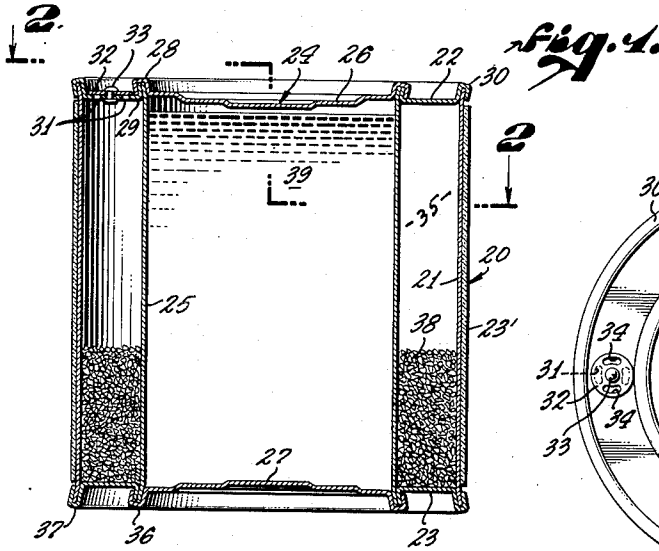
L. KATZ

2,759,337

SELF-COOLING CONTAINER

Filed May 12, 1951

3 Sheets-Sheet 1



LEO KATZ,
INVENTOR.

HUEBNER, BEEHLER,
WORREL & HERZIG,
ATTORNEYS.

BY

Albert M. Herzog

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L. KATZ

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3 Sheets-Sheet 2

fig. 6.

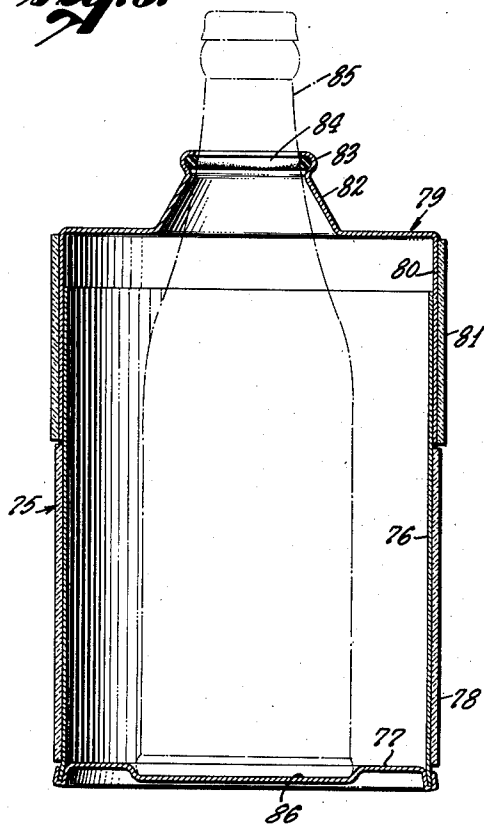


fig. 8.

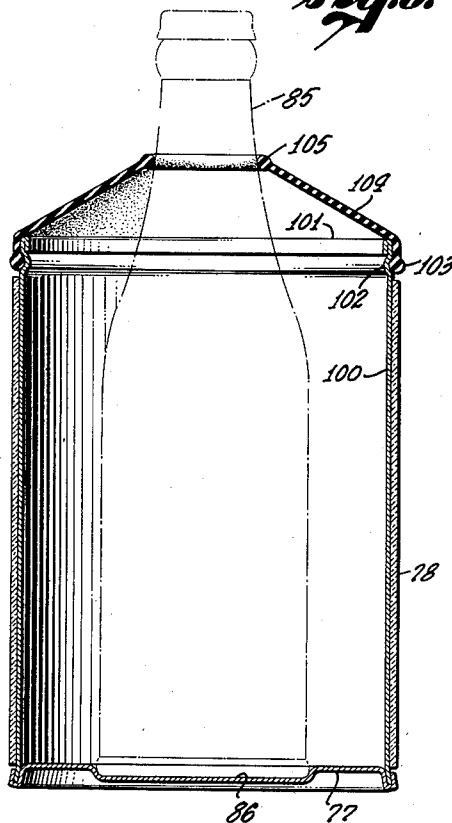


fig. 7.

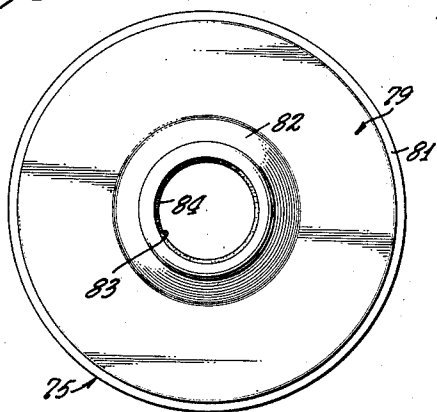
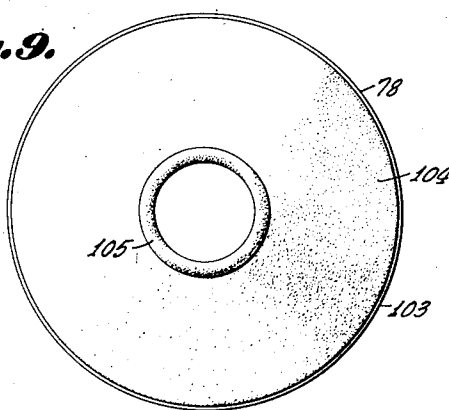


fig. 9.



LEO KATZ,
INVENTOR.

HUEBNER, BEEHLER,
WORREL & HERZIG,
ATTORNEYS.

BY

Albert M. Herzig

Aug. 21, 1956

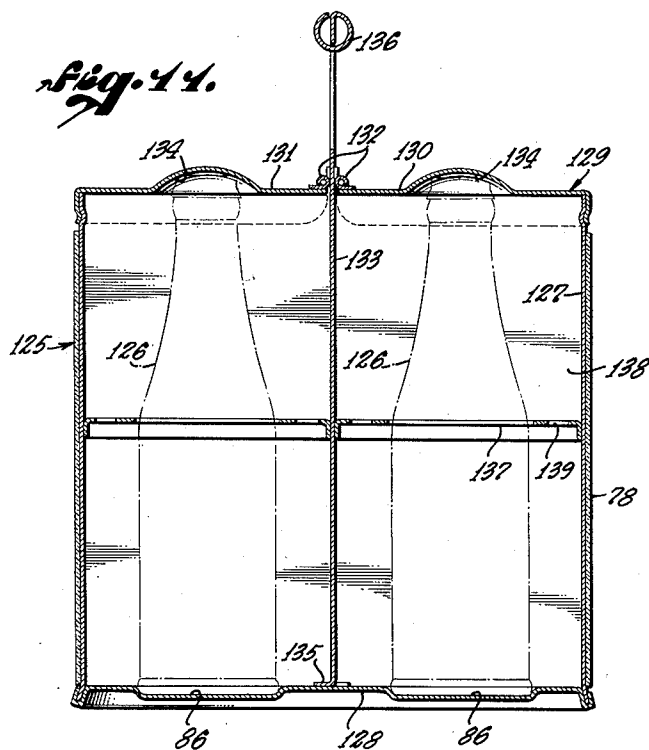
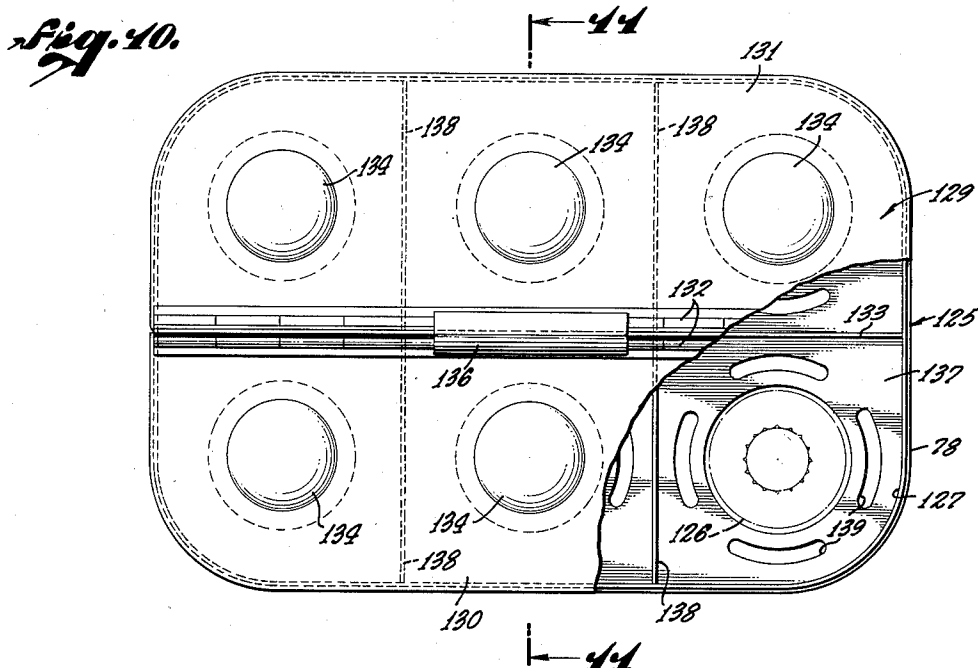
L. KATZ

2,759,337

SELF-COOLING CONTAINER

Filed May 12, 1951

3 Sheets-Sheet 3



**LEO KATZ,
INVENTOR.**

**HUEBNER, BEEHLER,
WORREL & HERZIG,
ATTORNEYS.**

BY

AT TORNEYS.
Albert M. Herzog

1

2,759,337

SELF-COOLING CONTAINER

Leo Katz, Los Angeles, Calif.

Application May 12, 1951, Serial No. 226,053

1 Claim. (Cl. 62—94)

This invention relates to containers for food or drink, adapted to serve as a jacket integrally or unitarily secured to an inner receptacle for such food and drink, or adapted to replaceably contain the latter. More particularly it relates to such a container possessing an annular chamber formed therein for cooling, as by endothermic chemical reaction, food or drink placed in an inner container. Still more particularly, the invention relates to preferred forms of universally adaptable containers for cans or bottles of food or drink adaptable for one or more of the same, e. g., different sized cans or bottles.

Among the objects of this invention is the provision of a simplified, readily transportable and conveniently usable container for cans and bottles of food or drink incorporating a convenient self-cooling feature.

It is also among the objects of this invention to provide a container of the desired character described, which is optionally reusable.

Another object of the invention is the provision of a new and improved self-cooling container adapted for the replaceable use of cans or bottles of food of varying height and/or diameter.

Another object of the invention is to provide in a new and improved container of the character described, improved sealing features.

Among the further objects of the invention are, more specifically, the provision of new and improved can and/or bottle centering means within the container, new and improved sealing means, new and improved adaptable means for adjusting to varying can and container shapes and dimensions, new and improved optional selective sealing means for cans, particularly of standard but different diameters, conjointly or separately from cooperative adjustable means adapting the outer container to variant heights of such cans.

Still another object of the invention is the provision of a new and improved utility container embodying self-cooling features for the transport and storage of a plurality of food or drink cans or bottles.

This invention further contemplates improvements over prior art devices heretofore intended to accomplish generally similar purposes.

Other and more specific objects and advantages will appear and be brought out more fully in the following specification considered with reference to the accompanying drawings throughout which like parts are designated by like numerals.

Referring more particularly to the drawings:

Figure 1 shows a first preferred container embodying this invention, said container being shown in vertical sectional view.

Figure 2 is a plan view partially in section, taken as on a line 2—2 of Figure 1.

Figure 3 is a vertical sectional view of a second preferred form of container embodying this invention.

Figure 4 is a plan view of said container showing an inner can replaceable therein.

Figure 5 is a vertical sectional view fragmentarily illus-

2

trating the container of Figure 3, and showing at the top of said container the disposition of an inner replaceable can of larger diameter than said corresponding can of Figure 3.

Figure 6 is a third preferred form of container embodying this invention, in vertical and sectional view.

Figure 7 is a top view of said container.

Figure 8 is a container embodying a fourth preferred form of this invention, in vertical sectional view.

Figure 9 is a top view thereof.

Figure 10 is a plan view, partially in section, of a fifth preferred form of container embodying this invention.

Figure 11 is a vertical sectional view taken as on a line 11—11 of Figure 10.

Referring more particularly to the drawings, there is shown a container generally designated by the numeral 20 comprising a cylindrical outer shell 21, a top 22, and a bottom 23. A coating of any suitable insulating material, such as cork 23', externally surrounds the container 20, being closely fit over the cylindrical casing 21.

Directing attention initially to the form of Figures 1 and 2, a can generally designated at 24 comprises a cylindrical wall 25 spaced inwardly from but concentric with the casing 21. Said can 24 likewise includes a top 26 and a bottom 27.

In the form of said first disclosed embodiment of Figures 1 and 2, the top 26 of the can is, at 28, turned over the upwardly projecting edges 29 of the can wall 25 and the top 22 to form a unitary and integral water-tight bead, in a manner understood by those skilled in the art of sheet metal containers. The top 22 is also turned over the top edge of the casing 21, as at 30, to form an integral water-tight bond between said top and said casing. Accordingly, in the first preferred embodiment under discussion, the top 26 of the can and the top 22 of the casing collectively form an integral top, both for the casing and for the can, and may therefore be collectively referred to as the top for the container in this embodiment.

The top portion 22 is optionally provided with holes 31, over which a preferably closely fitting cover 32 is provided. Such cover is also optionally secured for rotation over the holes 31, as by a rivet 33, and contains openings 34 for selectively registering with the holes 31, said cover, when said holes 34 are out of registry, sealing said holes 31.

Between the casing 21 and the wall 25 an annular chamber 35 is provided, completely surrounding the can 24. The bottom 27 of the can, and the bottom 23 of the container 20, are united in a fluid-tight fold 36. The bottom 23 is also connected in similar fashion with the lower edge of the casing 21 at 37. This construction renders the annular chamber 35 fluid-tight, except for the openings 31. Accordingly, any desired chemical 38 may be deposited in said chamber 35, either initially during the manufacture of the container, or subsequently through the openings 31, whose size may be varied to suit the requirements of the granular or capsular dimensions of the chemical to be inserted. Inasmuch as it is preferred that an endothermic reaction be carried out by the introduction of water into the chamber 35, likewise preferably through the openings 31, suitable chemicals, whether liquid or solid, may be employed, and may include, for example, potassium nitrate crystals, ammonium chloride, ammonium oxalate, ammonium nitrate, potassium nitrate, dibasic sodium phosphate, sodium carbonate, anhydrous sodium sulphate, or nitric acid.

It is preferable, as indicated, to utilize water-soluble capsules of gelatinous or similar material containing a solid ingredient of the character above exemplified in charging or recharging the annular casing 35, because of the convenience of handling such a capsule, and because of the hygroscopic nature of the chemical desired for

producing the endothermic reaction. Liquid chemicals such as nitric acid have been mentioned, but their use necessarily entails obvious precautions and they are therefore less desirable.

In the use of the container 20, the can 24 contains, say, beer 39. Shortly before imbibement is intended, water is poured through the openings 31 and preferably shaken with the chemical 38. The container is then permitted to stand for a predetermined period of time, depending upon the quantity of the chemical and the nature of the reaction. By closing the cover 32 after pouring in the water, which latter operation is facilitated by the channel construction of the top portion 22, and also by exercising care in the quantity of water introduced into the chamber 35, and in addition, preferably though not necessarily, tipping the container to the right, as illustrated in Figure 2, away from the holes 31, the chilled beer 39 may be drained through an opening made in customary fashion in top portion 26. Said container 20, in the first preferred form thereof hereinabove described, is intended to be disposable.

Referring now to the second preferred form of the invention illustrated in Figures 3 through 5, a container there generally designated by the numeral 50, comprises a cylindrical casing 51, a bottom 52, and an annular top 53. The bottom and casing are joined at their edges at 54 in any well known fluid-tight manner.

The casing 51 is formed with a thread 55, and the cover 53 is formed with a complementary thread 56.

The bottom 52 and the top 53 are formed with any number of concentric beads 57 and 58. For example, the bead 57 in the bottom and the bead of the corresponding reference numeral in the top are matching and of the same diameter. As illustrated in Figure 3, a conventional tin can 59, having a top rim 60 and a bottom rim 61, is clamped within the container between the top and the bottom, said rim 60 being held within the top bead 58, and the bottom rim 61 being held within the bottom bead 58.

As illustrated in Figure 5, another can 62 of different diameter and slightly greater height can be correspondingly clamped firmly within the container by means of the beads 57, said Figure 5 showing that the top edge 63 of the casing 51 is spaced from the top 53, notwithstanding the clamped engagement of the can rim 64 in the bead 57 thereof. The threaded connection 55—56 thereby affords vertical adjustability, while the plurality of selectively employable beads 57 and 58 permit the use of cans 62 and 59 respectively of different diameters.

If desired, a ring, e. g. of sealing material such as rubber, cork, wax, plastic, or the like, may be cemented, painted or otherwise caused to adhere within the beads 57 or 58, to provide a fluid-tight seal therearound.

The use of the second preferred form of the invention is similar to that of the first preferred form, except that the chemical 38 and water may be directly deposited within the annular chamber 35 following the insertion of the can 59 therein, and prior to closing the cover 53. Inasmuch as said cover is open at 66, the top 67 of the can 59 or 62 is directly accessible to be punctured for removal of the contents.

Referring now to the third preferred form of the invention illustrated in Figures 6 and 7, a container generally designated at 75, comprises a casing 76 integral with a bottom 77 and optionally fitted with an insulating layer 78. It further comprises a top 79 having a cylindrical portion 80, adapted to make a sliding telescopic fit over the upper wall of the casing 76, and like the latter, fitted with an insulating coating 81. The cover is also formed centrally with a frusto-conical boss 82 formed with a terminal annular channel 83 at the top thereof, for containing an O-ring 84 adapted to seal against the neck of a bottle 85 disposed within the container and centered at the bottom by means of a recess 86 formed in the latter.

In the use of the third preferred form of container, last described, the cover 79 is removed from the casing 76. A bottle is centered within the container by means of the recess 86, or other suitable centering means. Chemical and water are added as heretofore described, and the cover 79 is thereupon slipped back into place and telescoped until the O-ring 84 makes satisfactory seal with the neck of the bottle 85. The container may then be shaken for thorough mixture of the water and chemicals, and the cooling process permitted to proceed as aforesaid, whereupon the contents of the bottle 85 may be drunk with or without removing the bottle from the container 75.

Referring now to the fourth preferred form of the invention in Figures 8 and 9, parts corresponding to those of the preceding figures are as heretofore designated by like reference numerals.

This embodiment comprises a casing 100 having an annular bottom 77 and a recess 86 therein. Adjacent the lip 101 of the casing is an annular bead 102 adapted to receive the enlarged edge 103 of a rubber diaphragm 104 stretched over the lip 102.

Another enlarged annulus 105, integral with the diaphragm 104, defines an opening adapted to receive the neck of a bottle 85, or, optionally, bears down upon any desired can inserted in the container in lieu of the bottle 85 to form a fluid-tight seal. The diaphragm 104 is optionally secured directly to the casing 100 as shown, but may also be directly secured in a like manner to the cover of the character of that 53 of the second preferred embodiment, or 79 of the third preferred embodiment, in order to permit vertical adjustability to a greater extent than prescribed where the diaphragm is connected to the casing 100.

The use of the instant embodiment of the invention is similar to that described for other embodiments, particularly the third (Figures 6 and 7), except that when the diaphragm 104 is directly attached to the casing as shown, it must be removed by stretching the same over the lip 101 for removing the bottle 85 or inserting another.

Adverting now to the fifth preferred form of this invention, a container 125 is adapted to accommodate a plurality of bottles or cans as 126, and for such purpose is provided with a casing 127, substantially oval or rectangular as shown, but also of any other desired shape. The casing is formed with a plurality of suitably spaced recesses or ridges 86 in the bottom 128 for the reception of the bottoms of the cans or bottles 126, and a top 129 optionally formed in halves 130 and 131 respectively hinged at 132 to a central support 133. Said cover 129 is formed with recesses or ridges 134 in alinement with the recesses 86 for the cooperative clamping therebetween of such bottles or cans 126. The central support is optionally a divider for the container and is secured at 135 to the bottom thereof while projecting upwardly to form a handle 136.

Spacers 137 are optionally disposed between said central support 133 and lateral vertical supports 138, to which they are preferably secured by welding or the like. Openings 139 are formed in the spacers 137 to permit free access for the water and chemical desired to be introduced therein. Optionally also, the vertical spacers, including the central support 133, may provide fluid-tight compartments for the bottles or cans 126, so that one or more may be selectively cooled without affecting the others, but if desired, openings, not shown, may be formed within the dividers to permit cooling of all of the bottles or cans without separate insertion of water and chemical for each.

The casing, like those of the previous embodiments, is preferably insulated, as at 78, and said insulation on this and said previous embodiments, may be carried substantially over the entire container, including the top and bottom, if desired.

It is contemplated that the containers herein described shall be made of sheet metal. They can also be made

5

of plastic, glass, paper, and cardboard, waxed or unwaxed, or any other material known to be useful for containing liquids and which will not be affected by the endothermic reaction herein described. The diaphragm 104 of the fourth preferred embodiment (Figures 8 and 9), may be made of rubber, as stated, but can also be made of plastic or any other stretchable, preferably resilient material capable of, like the O-ring 84 of the third preferred embodiment (Figures 6 and 7), forming a seal.

This invention features the provision of a new and improved reusable or disposable container for the cooling of can and/or bottle-contained foods and/or beverages. The invention is further characterized by its simplicity of construction and wide adaptability of use, its convenience of transport, and its fool-proof characteristics. While some of the forms of the invention herein illustrated and described, e. g., Figures 1 through 7, are more particularly adapted for use in conjunction with conventional tin can type containers, others, e. g., Figures 8 through 11, are adapted for use either with cans or with bottles.

Having described my invention, what I claim is new and desire to secure by Letters Patent is:

A cooler-container combination comprising a cylindrical casing, a circular bottom joined at its edges to the bottom edges of the casing in a fluid-tight manner, a circular cover provided with an internal thread for threaded engagement with a complementary external thread provided adjacent the top edges of the casing, a circular aperture concentrically formed through the cover and bounded by a bead having a convexly curved surface facing inwardly of the cover, a corresponding bead of equal

6

diameter formed in the bottom and having a convexly curved surface facing inwardly of the bottom, a cylindrical food or drink container with its bottom edge seated in the bead in the bottom of the casing and its top edge seated in the bead in the top of the casing and tightly clamped between the bottom and the cover threadedly engaged on the casing for forming a liquid-tight annular chamber for the conduct of an endothermic reaction therein sufficient to appreciably cool the contents of the food or drink container, a quantity of chemical disposed in the annular chamber having endothermic reaction properties for cooling the contents of the container, and a layer of heat-insulating material fixed to the external surface of the casing and extending from the bottom to adjacent the top thereof.

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