Aug. 30, 1966 H. PORIS 3,269,144

DOUBLE WALL TUMBLER HAVING COOLING MEANS THEREIN

Filed Oct. 16, 1964

FIG. 1

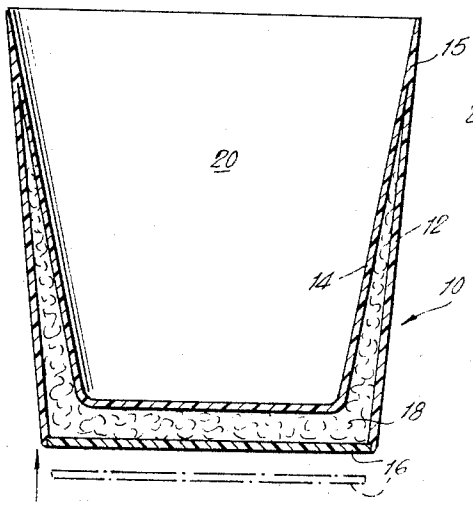


FIG. 3

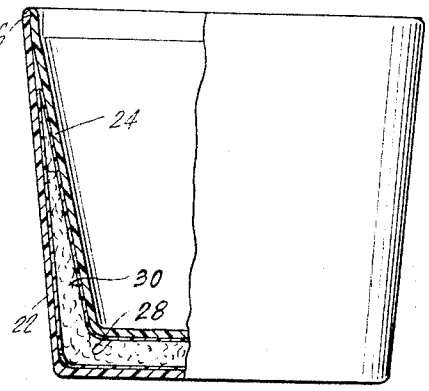


FIG. 2

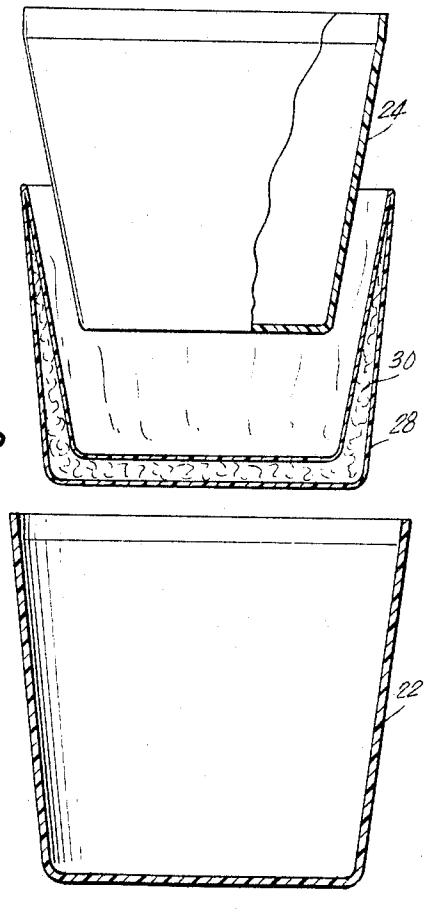


FIG. 4

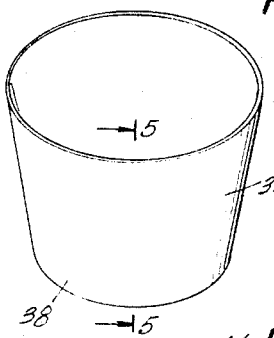


FIG. 5

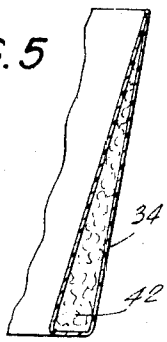


FIG. 6

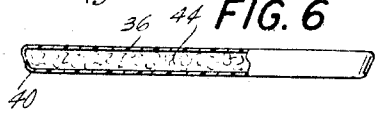
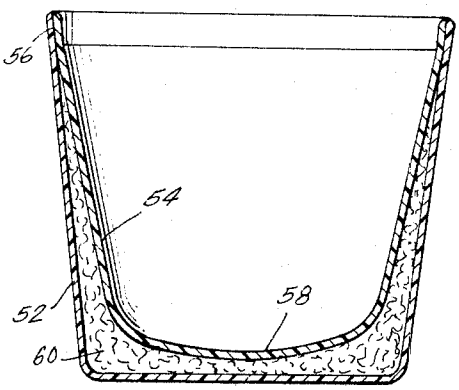


FIG. 7



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DOUBLE WALL TUMBLER HAVING COOLING MEANS THEREIN

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This invention relates to a class of receptacles and containers, and more particularly to containers and the like having self-contained means for cooling material placed therein.

In the past various types of containers have been devised for keeping the contents thereof cool. Double wall containers such as thermos bottles, tumblers, mugs, pitchers, ice buckets and the like, have been utilized to maintain the temperature of the material disposed therein relatively stable so that, for example, when a chilled liquid has been poured into a thermos bottle, it will remain cool for an extended period of time.

The present invention does away with the necessity of the pre-chilling of liquids such as beverages, foodstuffs, or the like, and permits the packaging of various materials in a manner such that they will remain at the lowest possible temperature for a considerable period of time, such as the extended periods while a housewife is shopping between the time she purchases a package until delivery at home.

A further object of this invention resides in the provision of a container for foods and beverages which will maintain the material therein at a relatively low temperature in a convenient manner and which containers may be utilized for eating and drinking.

The construction of this invention features the use of a double wall container, including inner and outer receptacles between which cooling means are disposed. The cooling means are preferably formed of a suitable substance which has a low coefficient of expansion so that the space between the inner and outer receptacles may be substantially filled and the relatively little expansion of the material during substantial changes in temperature will not cause force to be exerted on the inner and outer receptacles thereby eliminating the cracking and breaking of the container which otherwise might occur. The cooling means may be a paste-like substance such as wood flour saturated with formaldehyde, or may be of any other suitable material.

A still further object of the present invention resides in the provision of a container adapted to be used for drinking purposes having a solid lip structure so that there is no possibility that the cooling means can reach the lips of the user.

Further objects and features of the present invention reside in the provision of cooling means for use between the inner and outer receptacles of a double wall container adapted to be encased in a suitable pouch or envelope.

Yet another object of the invention resides in the provision of a container which employs cooling means adapted to be colored in an attractive manner, which material is visible through the transparent inner or outer receptacle so as to provide for increased ornamental appearance of the container.

The present invention is adapted for containers such as tumblers, mugs, pitchers, ice buckets, thermos bottles or other containers having tops or caps, and practically all sorts of dishes and bowls, as may be desired.

These, together with the various ancillary objects and features of the present invention, which will become apparent as the following description proceeds, are attained by this double wall container, preferred embodiments of which are illustrated in the accompanying drawings, by way of example only, wherein:

FIG. 1 is a vertical sectional view of a tumbler constructed in accordance with the concept of the present invention having a solid lip structure;

FIG. 2 is an exploded vertical sectional view of a modified form of the invention employing an envelope in which the cooling means is encased;

FIG. 3 is an assembled vertical sectional view of the embodiments shown in FIG. 2;

FIG. 4 is a perspective view of a modified form of the two-piece pouch assembly utilized for containing the cooling means;

FIG. 5 is a sectional detail view taken along the plane of line 5—5 in FIG. 4;

FIG. 6 is a horizontal sectional view of the base forming one part of the two-piece pouch assembly;

FIG. 7 is a vertical sectional view of another form of the invention.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, and with initial attention directed to FIG. 1, reference numeral **10** generally designates a container of any suitable shape or size which may or may not be provided with a cap removable therefrom.

As shown in FIG. 1, the container is in the form of a double wall container including an outer receptacle **12** and an inner receptacle **14**. The outer receptacle **12** and the inner receptacle **14** are integrally formed with each other and integrally bonded at an elongated lip **16**. The base **16** is secured to the outer receptacle **12** by any suitable means, such as cohesive bonding using solvents, or by spin welding, heat fusion, or preferably by ultrasonic welding. The materials used for the container may be selected from any of the various readily available commercially produced plastic materials such as polystyrene or the like. The precise material used is a matter of choice and it is to be recognized that the material may be transparent or opaque, and colored as desired.

A suitable cooling means **18** is disposed within the space between the inner and outer receptacles prior to attaching the base **16**. This material **18** is preferably a paste or like material of a suitable low coefficient of expansion and capable of being refrigerated below 32° F. A material which has been found to be satisfactory is wood flour saturated with formaldehyde, such excess formaldehyde being removed from the paste. This material may have suitable dyes added thereto for purposes of permitting the paste to appear in an attractive color through transparent receptacles.

Of course, other types of material may be utilized in lieu of the wood flour saturated with formaldehyde as found desirable.

It is particularly to be noted that the elongated lip **15** extends a substantial way down the depth of the container and may be adapted to have a cap or other closure device secured thereto. Further, this lip, which is integrally formed with the inner and outer receptacles prevents the material **18** from ever contacting the lips of the user drinking the contents of this receptacle. In use, the entire receptacle may be disposed in a refrigerator freezer, or freezing compartment and the material **18** will attain the temperature of the refrigerator or the freezer compartment of the refrigerator. Thus, any material poured into the interior **20** of the receptacle will be chilled.

In FIGS. 2 and 3 there is shown a modified form of the invention in which an outer receptacle **22** is connected to an inner receptacle **24** at the lip **26** by any suitable means such as bonding or welding. Disposed within

the space between the inner receptacle **22** and the outer receptacle **24** is an envelope or pouch **28** containing material **30** similar to the material **18** such as wood flour saturated with formaldehyde, or other suitable material. This envelope is made of a light pliable thin sheet material, such as polyurethane or polyethylene or the like, and may be transparent or opaque, and colored as desired. The inner and outer receptacles **24** and **22** may be colored, and may be opaque or transparent and the envelope **28** may be provided with decorations thereon visible through the inner and outer receptacles **24** and **22**.

In FIGS. 4 through 6 there is shown a modified form of the invention which in lieu of the pouch **28** a two-piece pouch assembly **34** and **36** is utilized, both of which include envelopes **38** and **40** respectively, in which material **42** and **44**, such as wood flour saturated with formaldehyde is disposed. The envelope **38** is of a truncated tapered conical shape, while the envelope **40** is of disc shape.

In FIG. 7 there is shown a further modification in which the outer receptacle **52** is bonded to the inner receptacle **54** at the lip **56** and the inner receptacle **54** has an arcuate well **58** at the bottom thereof leaving a relatively large space in which material **60**, such as wood flour saturated with formaldehyde, may be used as desired. Considerably more material may be utilized in this form of the invention, and there is thus achieved a greater amount of cooling for a beverage or like substance, including various foodstuffs disposed within the container.

It is to be specifically understood that this invention is equally adaptable to be utilized as desired for jars or any type of bottle or container as desired, and a suitable closure or cap of single or double wall construction may be provided.

A latitude of modification, substitution and change is intended in the foregoing disclosure, and in some instances, some features of the invention will be employed without a corresponding use of other features. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the invention herein.

I claim:

1. A container comprising inner and outer receptacles, means securing said receptacles to each other in a fluid tight manner, and cooling means disposed between said receptacles, said cooling means comprising wood flour saturated with formaldehyde.

2. A container comprising an outer receptacle of synthetic plastic material, an inner receptacle of synthetic plastic material of smaller size than said outer receptacle means connecting said inner receptacle and said outer receptacle and defining a space therebetween, and a substance having a relatively high specific heat and a relatively low coefficient of expansion disposed in said space, and being a mixture of wood flour and formaldehyde.

3. A container comprising an outer receptacle of synthetic plastic material, an inner receptacle of synthetic plastic material of smaller size than said outer receptacle means connecting said inner receptacle and said outer receptacle and defining a space therebetween, and a substance having a relatively high specific heat and a relatively low coefficient of expansion disposed in said space, said substance being arranged in an envelope of pliable synthetic plastic material located between said inner receptacle and said outer receptacle.

4. A container comprising an outer receptacle of synthetic plastic material, an inner receptacle of synthetic plastic material of smaller size than said outer receptacle means connecting said inner receptacle and said outer receptacle and defining a space therebetween, and a substance having a relatively high specific heat and a relatively low coefficient of expansion disposed in said space, said substance being arranged in an envelope of pliable synthetic plastic material, said envelope conforming to the shape of said space located between said inner receptacle and said outer receptacle.

5. A container comprising an outer receptacle of synthetic plastic material, an inner receptacle of synthetic plastic material of smaller size than said outer receptacle means connecting said inner receptacle and said outer receptacle and defining a space therebetween, and a substance having a relatively high specific heat and a relatively low coefficient of expansion disposed in said space, said substance being arranged in an envelope of pliable synthetic plastic material, said envelope conforming to the shape of said space, said substance being wood flour saturated with formaldehyde.

6. A container comprising an outer receptacle of synthetic plastic material, an inner receptacle of synthetic plastic material of smaller size than said outer receptacle means connecting said inner receptacle and said outer receptacle and defining a space therebetween, and a substance having a relatively high specific heat and a relatively low coefficient of expansion disposed in said space, said substance being arranged in an envelope of pliable synthetic plastic material, said envelope conforming to the shape of said space, said substance being wood flour saturated with formaldehyde, said inner and outer receptacles being integrally formed with each other at their upper edges to form a lip, said lip being solid and extending a substantial portion of the depth of said container.

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