March 8, 1960 A. ARMATO, SR., ET AL 2,927,712

COOLER UNIT

Filed June 23, 1958

FIG. 1

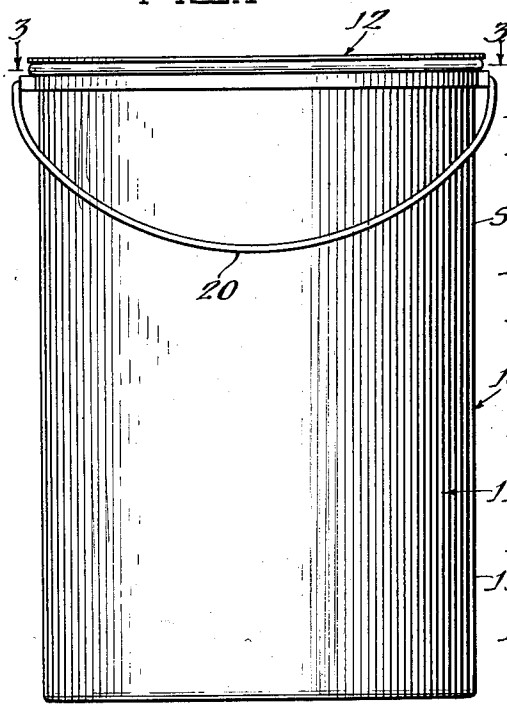


FIG. 2

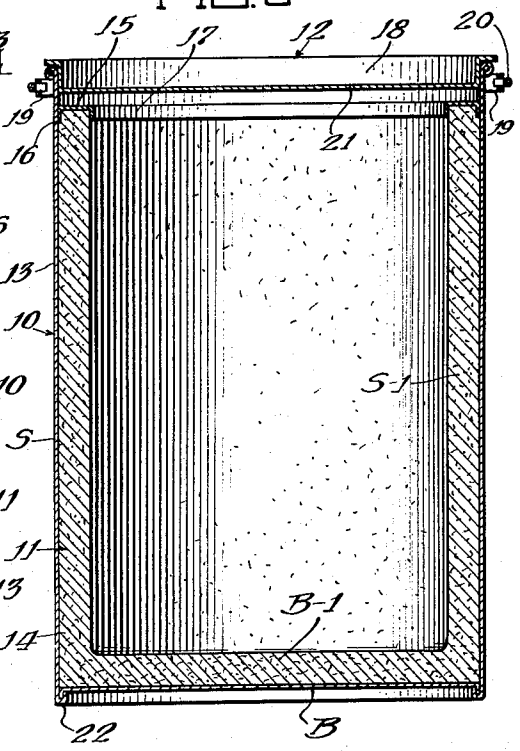


FIG. 3

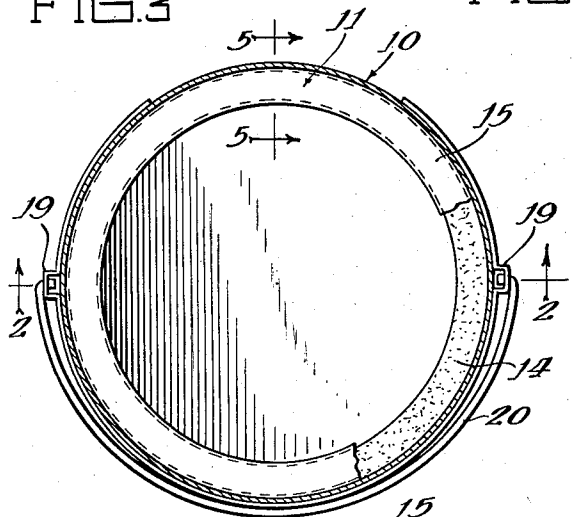


FIG. 4

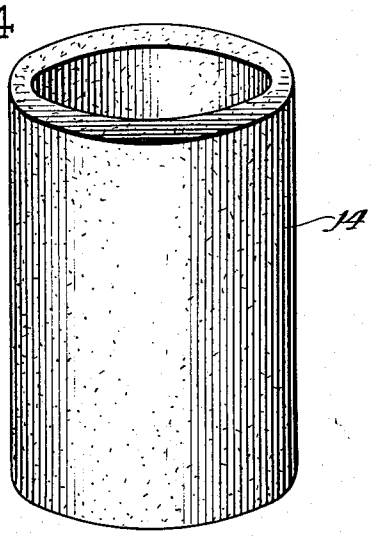
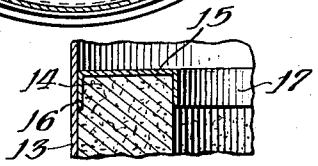


FIG. 5



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2,927,712

COOLER UNIT

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3 Claims. (Cl. 220—63)

This invention relates to a portable cooler unit.

More specifically, this invention relates to a cooler unit which is particularly adapted for use in readily manually transporting and storing food products, including beverages such, for example, as beer, soft drinks, and the like, and maintaining them in a cool condition.

One of the difficulties involved in prior portable cooler units is the fact that most of the same have been relatively complicated and heavy and expensive in construction with the result that it has been necessary to sell them in a price range which has been prohibitive to great numbers of the purchasing public.

An object of the present invention is, therefore, to provide a new and improved and relatively simple and inexpensive portable cooler unit which is simple and relatively light, but strong in construction and which may be manufactured and sold in quantity at a relatively low price so that it may be readily used for manually transporting and storing foods and beverages, including beer, soft drinks and the like.

Another object of the invention is to provide a new and improved cooler unit which is so designed, constructed and arranged that it does not require the use of ice or other refrigerant materials to preserve food and beverages in a cool condition, but which, when ice is used therein, will hold the ice or other refrigerant materials longer than prior coolers.

A further object of the invention is to provide a new and improved cooler unit which is of light construction and which may be readily carried by a child or adult for camping, on vacation trips, and the like.

Another object of the invention is to provide a new portable cooler unit which is highly buoyant and may be effectively used as a life preserver, does not sweat or cause moisture to form by condensation on the outer side thereof, is non-toxic to foods on its inner surface, is non-absorptive to water and moisture, and may be readily washed with soap and water, if and when the inner surface thereof becomes soiled.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawing which, by way of illustration, shows a preferred embodiment of the present invention and the principle thereof and which we now consider to be the best mode in which we have contemplated applying that principle. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention. In the drawings:

Fig. 1 is an elevational view illustrating a preferred form of the new cooler unit;

Fig. 2 is a central vertical sectional view of the cooler unit shown in Fig. 1;

Fig. 3 is a top plan view, on line 3—3 of Fig. 1, partly in section, a part of the construction being broken away to show the internal construction thereof;

Fig. 4 is a perspective view showing the inner heat insulating shell embodied in the present invention; and

Fig. 5 is an enlarged sectional detail view on line 5—5 in Fig. 3.

A preferred form of the new cooler unit is illustrated in the drawing, wherein it is generally indicated at **10**, and includes a body or casing generally indicated at **11**, having an open top, and an annular closure member generally indicated at **12**. The casing **11** is preferably formed of suitable light and non-corrosive metal such, for example, as tin-plated ferrous sheet metal, aluminum, and the like. The casing **11** is preferably, but not necessarily, cylindrical in form, and includes a side wall S and a bottom wall B which may be formed integral therewith, or suitably connected thereto, as at **22**.

The body **11** of the new cooler unit also includes an inner unitary heat-insulating shell **14** which includes a side wall S–1 and a bottom wall B–1, and this inner shell **14** is molded of a single light, heat-insulating synthetic resinous material, hereinafter referred to.

The unitary inner heat-insulating shell **14** is snugly fitted within the outer metallic casing **13** and is retained therein by retaining means in the form of a retaining ring **15** which includes an outer depending marginal flange **16**, which frictionally engages the inside of the upper end portion of the outer metallic shell **11**, and an inner depending marginal flange **17** which is bent or crimped down over and engages the inside of the unitary heat insulating shell **14** at the top and on the inner side thereof.

The new cooler unit **10** is completed by an annular closure member **12** which includes a depending flange **18** which is frictionally fitted within the outer metallic casing **13**, above the retaining ring **15**, and a closure cap member **21**, which is integral with the flange **18**.

The unitary heat-insulating shell **14** is preferably composed of a very light material in the form of an expanded or so-called foam polystyrene resin or so-called "foam" which is formed of beads of this material of high density and which are molded or extruded to low density form material, or from 2.25 to 600 lbs. per cubic foot. This is accomplished by the application of heat at a temperature of about 230° F. until the material has a density within the range stated. Thus, for example, at 3.0 lbs. density, at room temperature, the compression strength of the material is 25 lbs. per square inch, its tensile strength is 65 lbs. per square inch, its flexural strength is 80 lbs. per square inch, and its import strength is 2.5 lbs. per square inch. The resulting expanded polystyrene foam resin is of closed cell structure, and has excellent physical and thermal properties, and is available under the trademark "Dylite" (Koppers Co.).

Attaching ears **19** are provided on the outer side of the upper end portion of the metallic casing **13** and the end portions of a handle or bale is swingingly mounted in these ears **19**.

In the assembly of the new cooler unit, the unitary heat-insulating shell **14** is arranged with the metallic casing **13** and the retaining ring **15** is thereupon inserted over the upper end portion of the side wall S–1 of the inner shell **14** with the depending flange **16** fitting snugly between the inside of the metallic casing **13** and side wall of the unitary heat-insulating member **14**. The inner flange portion **17** of the retaining ring **15** is then crimped down over the inside of the unitary heat-insulating member **14** so as to retain the latter in position of use within the outer metallic casing **13**.

It will thus be seen that the new portable cooler unit is relatively light and simple and inexpensive in construction and may be used for manually transporting food and beverages and keeping them in a cool condition, without the need for any refrigeration, and because of its

relatively cheap and inexpensive construction may be sold at a low cost by food and beverage manufacturers or given away as a premium.

It will further be noted that the new portable cooler unit is highly buoyant, and hence may be effectively used as a life preserver. Thus in a typical dimension of the new cooler unit, namely, 13 inches high (inside), 8.5 inches in diameter (inside) and with the inner shell 14 of 5/8 inch thickness the new cooler unit with the closure member 12 in position of use will effectively support a person weighing up to 250 lbs., in water.

It has also been found that the new cooler unit will effectively preserve ice or other refrigerant materials, when used therein, longer than prior coolers, that the inner shell 14 is non-toxic to food products, is non-absorptive to water, is readily cleaned by application of soap and water, the new cooler unit has low heat conductivity and does not "sweat" or cause condensation on the outer side thereof and hence will not stain or damage carpets or upholstery.

It will thus be seen from the foregoing description, considered in conjunction with the accompanying drawing, that the present invention provides a new and improved cooler unit having the desirable advantages and characteristics, and accomplishing its intended objects, including those hereinbefore pointed out and others which are inherent in the invention.

We claim:

1. A portable cooler unit comprising, a body having an open upper end portion and including an outer metallic casing and a unitary heat-insulating shell snugly fitted within the outer casing and composed of a unitary molded body of expanded foam polystyrene resin and including a side wall and a bottom wall integral with each other and having an open top, said outer shell and said inner shell being substantially cylindrical in form, means for retaining the inner unitary heat-insulating shell within the outer metallic casing comprising a retaining ring having an annular portion fitted over the upper end portion of the top wall of said inner shell and having a depending outer annular flange frictionally fitted between said outer metallic casing and said inner heat-insulating shell, said retaining ring including an inner depending flange extending downwardly inside and frictionally engaging the upper end portion of said inner shell, and a closure member detachably arranged upon the upper end portion of said body of said cooler unit so as to close the latter.

2. A portable cooler unit as defined in claim 1 in which the closure member comprises an annular flange having a depending portion frictionally fitted within the outer metallic casing and a radially projecting portion overlying the upper edge of the metallic casing and a cap member integral with the flange and recessed below the radially projecting portion of the flange whereby the cooler unit may be interchangeably utilized as a cooler or a highly buoyant, water-tight life preserver.

3. A portable cooler unit as defined in claim 2 wherein the metallic casing includes attaching ears and a handle swingingly mounted in said ears.

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