Aug. 4, 1970 C. PHILLIPS, JR 3,522,877

PACKAGE

Filed March 29, 1968 2 Sheets-Sheet 1

FIG. I

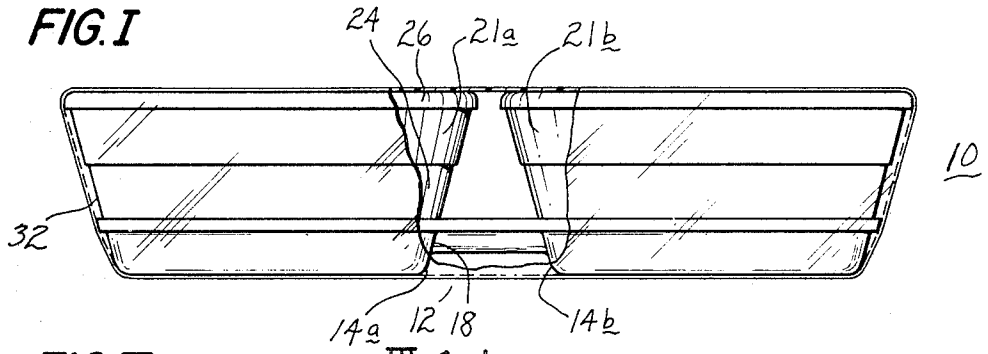

FIG. II

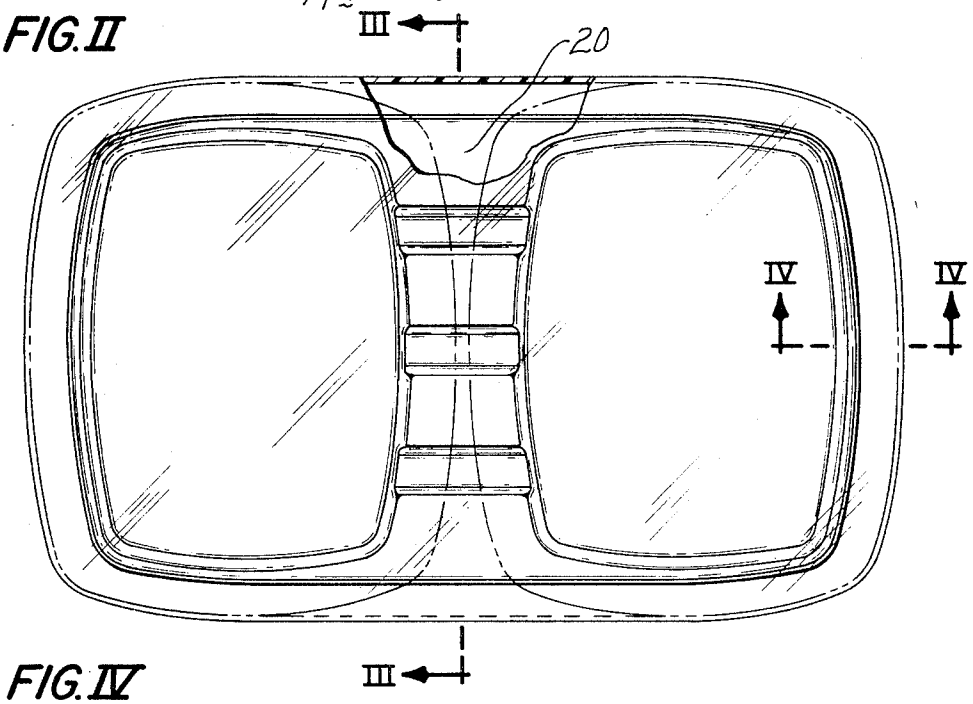

FIG. IV

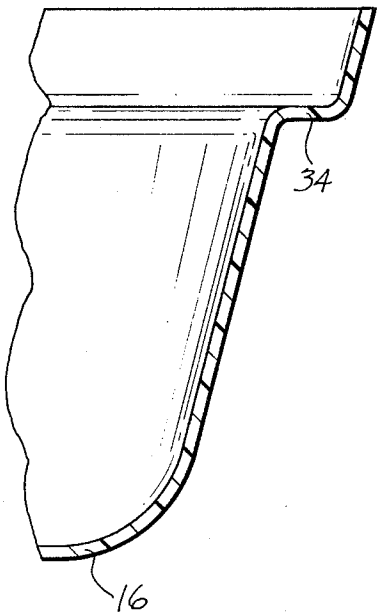

FIG III

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Aug. 4, 1970 C. PHILLIPS, JR 3,522,877

PACKAGE

Filed March 29, 1968 2 Sheets-Sheet 2

FIG. V

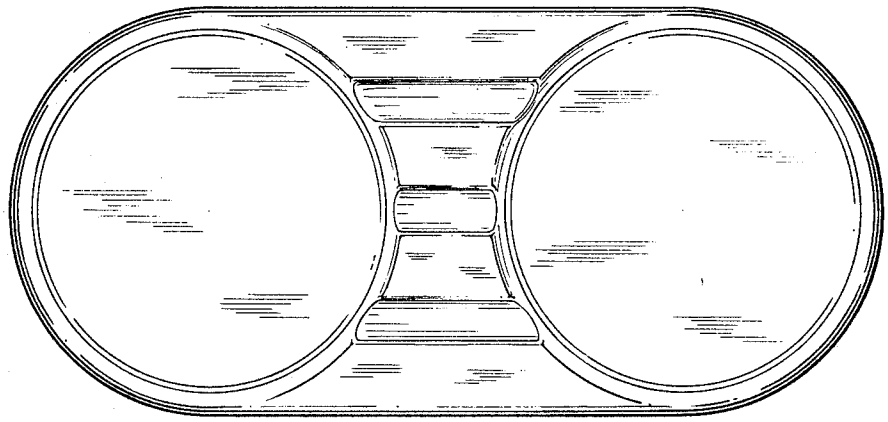


FIG. VI

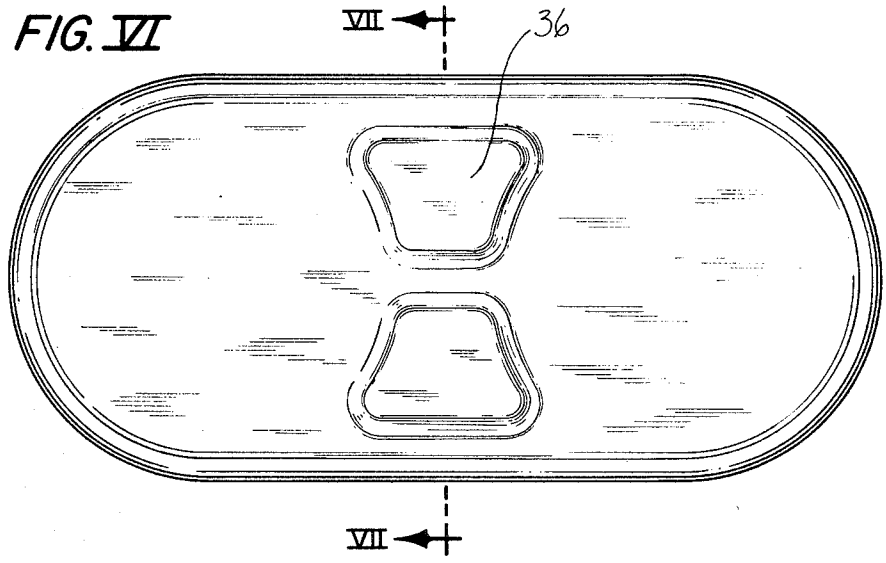
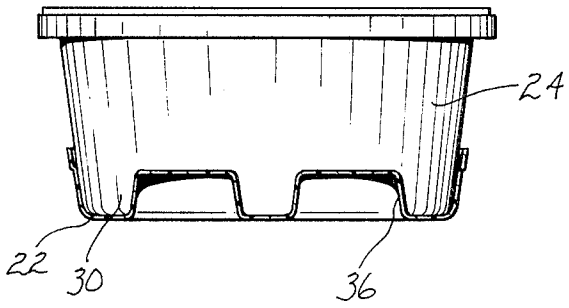


FIG. VII



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3,522,877

PACKAGE

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U.S. Cl. 206—45.14 5 Claims

ABSTRACT OF THE DISCLOSURE

A package for holding adjacent containers in a unitary manner, which includes a thin wall compartmented tray, a plurality of containers fitted within the compartments and a plastic film overwrap around both the tray and containers to seal the containers tightly in place within the tray.

This application relates to a package and more particularly to a package for holding containers.

Trade practice in the food industry has been to merchandise food products such as margarine, butter, etc. in a series of two or more individually wrapped units generally totaling one pound in weight. Thus, it has been conventional to sell two one half pound tubs of margarine fully enclosed within an elongated, outer paperboard carton. While such a package has not been entirely unsatisfactory it has had several shortcomings. The paperboard cartons have been relatively expensive. Also, the inner container in which the actual product is held and from which it will be eventually dispensed cannot be seen by a prospective purchaser since it is hidden within a box, with the result that the manufacturer may lose an attractive sales advantage. Furthermore, in such a case, an unaware buyer may purchase a package thinking and desiring the product to be in tub form, whereas actually it is in stick form. The alternative has been the use of extensive advertising via printing or labeling on the outer carton to clearly emphasize the form of the contents, as well as on the inner containers to keep the name of the producer before the consumer after removal of the containers from the carton. Though the product may be consumed from a table ready container without transferring it to a separate holder, this may not be obvious when the containers are offered for sale while confined within a box. If the packaged product contains water which can evaporate during the shelf life of the product, each container is required to be hermetically sealed since the cardboard carton is obviously not adequate to protect against weight loss by evaporation. As an alternative to hermetic sealing of each inner container, a barrier film overwrap around the entire outer carton has been proposed, which also increases the cost of the package.

There has now been developed a package formed entirely from plastic which eliminates the above mentioned disadvantages of prior packaging techniques. Accordingly, there is provided by the present invention a new package construction having reduced material and assembly costs which permits visual inspection of enclosed containers, while protecting the packaged product from contamination and weight loss to the surroundings, without requiring a hermetic seal on each enclosed container.

Accordingly it is an object of the present invention to provide an improved package for holding containers while advantageously exposing them to view.

It is an additional object of this invention to provide a new package which combines a plurality of containers together to form an integral sturdy unit.

It is a further object of this invention to provide a package which eliminates the many prior art difficulties discussed above.

It is a still further object of the present invention to

provide an improved package for holding containers while protecting them against movement and contamination.

It is a still further object of this invention to provide a new package for holding containers which effectively seals the contents within the containers from ambient conditions, while being readily accessible with a minimum of difficulty without requiring that each enclosed container be hermetically sealed.

These and other objects will in part be obvious and will in part appear hereinafter.

These and other objects are accomplished by providing a unitary package for holding and displaying containers in adjacent position comprising a thin wall, compartmented plastic tray, a plurality of containers having their bottom portions situated within the tray compartments and a plastic overwrap around both the tray and containers to hold the tray and containers together.

In describing the overall invention, reference will be made to preferred embodiments illustrated in the accompanying drawings in which:

FIG. I is a front view of a package formed according to the present invention with parts broken away;

FIG. II is a plan view of the package of FIG. I, also with parts broken away;

FIG. III is a partial section taken along the line III—III of FIG. II;

FIG. IV is a partial, enlarged section taken of the tray of FIG. III, along the line IV—IV of FIG. II;

FIGS. V and VI are plan views of alternate embodiments of tray portions of the package of the present invention; and

FIG. VII is a section taken along the line VII—VII of FIG. VI showing a container seated therein.

With reference to the drawings, wherein identical numerals refer to identical parts, there is shown in FIGS. I and II a unitary package **10**, constructed in accordance with the present invention, for holding and displaying a plurality of containers in adjacent position. Though containers are shown in upright position, they could be positioned on their sides. Package **10** comprises a thin wall, shallow plastic tray **12** molded from thermoplastic sheet material, having dual, adjacent, article receiving compartments **14***a* and **14***b*. Compartments **14***a* and **14***b* are similar in construction and only the components of **14***a* will be described. Compartment **14***a* has a base **16** (FIG. IV) and an axially short sidewall **18** extending upwardly from at least a portion of the periphery of its base **16**. Connecting member **20** joins compartments **14***a* and **14***b*, and may have strengthening ribs formed therein to provide stability against bending in a direction perpendicular to the lengthwise axis of the tray. Containers **21***a* and **21***b* of package **10** are adapted to fit within compartments **14***a* and **14***b*, and are of the thin wall plastic variety. Each container is similarly constructed and therefore the parts of only one will be described. Container **21***a* has a base **22** (FIG. VII) a sidewall **24** extending upwardly from the periphery of its base **22** defining an open mouth extending to sidewall **24**. Lid **26** is provided for covering the mouth and has a peripheral portion which mates with a complementary sealing portion at the top of sidewall **24** of container **21***a*, either inside or outside the container rim, that is it may be either of the insert or overcap variety of lid. The base **22** and lower portion **30** (FIG. VII) of sidewall **24** of each of containers **21***a* and **21***b* snugly seat within compartments **14***a*, **14***b*. As an important part of the present invention, package **10** further comprises a plastic film **32** preferably transparent, which compressively contacts both tray **12** and containers **21***a* and **21***b*. Film **32** serves to hold the tray and containers together and specifically to seal the containers within the tray compartments until the package is opened.

Film overwrap **32** is preferably provided on either its inner or outer surface with a chemical coating composition which acts as a barrier to prevent the escape of vapors from or entrance of vapors to the interior of package **10** or containers through film **32**. This may not be necessary, however, when barrier properties are not of concern.

Package **10** is asssembled by filling containers **21***a* and **21***b* with their contents, subsequently capping the open mouths of containers with lids **26**, and then inserting each of assembled containers into compartments **14***a* or *b* of tray **12**. Obviously filling of containers could occur after they were initially seated in tray **12** with their lids removed. This assembly may be done either manually or by automated packaging equipment in high speed production operations. The tray carrying the seated containers may then be slid into a previously prepared tube of the overwrap material with the sides of the tube at its open ends then sealed to each other or to the bottom of the tray. Alternatively a sheet of film overwrap may be placed over the tray and container combination and sealed to an outer surface of the tray. The package thus formed combines two individual containers into a single, sturdy block-like unit which permits ready observance of the tops and side portions of the containers enclosed within the package through the transparent packaging film. The sides of the tray compartments prevent movement of the containers within the package. Printing may be applied as desired on either side of the film overwrap, or on the lid or sides of the containers. Since the containers are stabilized against movement after the film is applied, scuffing or marring of the advertising matter is avoided.

Opening of package **10** is accomplished by merely rupturing thin film overwrap **32**, to expose containers. The contents of containers are exposed by prying or pulling the lid off the container body portion.

A preferred form of sidewall of a tray compartment is depicted in FIG. IV, which includes an inward bend **34** between the top and bottom edges of the sidewall, to provide stability against lateral movement of the side prior to application of the overwrap.

FIGS. V–VII depict alternate embodiments of tray portions of the package of the present invention for enclosing round containers. In place of the tray sidewall portions around the section of the compartment within the outer edges of the tray, there may be used orienting lugs **36** as depicted in FIG. VI, which function similarly to the sidewall portions in FIGS. I—III to align the containers vertically and prevent their movement.

The above description and particularly the drawings are set forth for purposes of illustration only and are not to be taken in a limited sense.

The tray of the package of the present invention is preferably provided with rounded corners in order to avoid ripping the thin film overwrap material and to avoid cutting the fingers of a purchaser, or of a person assembling the package. A rip in the film overwrap will expose the enclosed containers to the environment and will destroy the stability of the package.

Although in the illustrated embodiments trays having compartments of generally rectangular or circular shapes are shown, it is obvious that the tray may be of other various shapes, e.g. square, oval, triangular and the like. A rectangular shape is preferred for storage economy purposes.

Though packages enclosing two like containers are shown in the preferred embodiments, it is obvious that more than this number may be packaged together, and that they need not be of the same shape or size. However, there is preferred a two cell package wherein each of two containers is sized to hold one half pound of product, is in the form of a wide mouth, disposable, capped tub constructed of thin wall plastic, and which may be removed from the tray after initial opening of the package and used directly on the table of a consumer.

Any means may be provided for sealing the film overwrap of the package of the present invention, such as, for example, pressure sensitive adhesives, fusing of the film directly to itself or to the plastic tray either with or without a film coating for enhancing sealability. When sealing is by means of heat fusion, conventional heat sealing types of apparatus may be used.

The enclosed containers should be designed such that their side portions which project beyond the sides of the supporting tray compartments should not be excessive, in order to avoid rendering the complete package unstable and to avoid the need for a second stabilizing tray enclosing the tops of the containers. In general it has been found that the height of the portion of each container outside the tray compartment is less than about five times the portion of each container within the tray compartment.

As an optional part of the present invention a tear strip may be provided to aid in opening the package, such as, for example a pair of perforated lines in the film with a pull tab therebetween to initiate tearing.

The tray may be formed of pulp or plastic material. The containers likewise may be made of any plastic and preferably thermoplastic material capable of being molded. Thermoplastic materials generally have the advantages of being tough, difficult to break under ordinary circumstances, and have sufficient strength to be fabricated relatively thinly for economy purposes, since the containers contemplated herein are of the throw away, non-reusable type. The forming method may be by injection molding, through the preferred method is from web stock by any of well known sheet thermoforming processes such as, for example, pressure differential forming using vacuum or positive pressure. The resulting structure when formed in this manner is unitary in construction, has no seams and is of the thin wall variety having a generally uniform wall thickness between about 2 and 80 mils. The various ribs when formed integrally in the tray body in this manner are well defined and sturdy. Useable thermoplastics are polyolefins, such as for example, polyethylene or polypropylene; polyacrylates; polymethacrylates; polycarbonates; polyvinyl chloride and polyethylene terephthalates. The preferred materials are styrene polymers, for instance, styreneacrylonitrile copolymers, and most particularly, is biaxially oriented polystyrene preferred, since even when thin this material is tough and resilient, even at low temperatures. The low temperature stability of styrene polymers is important in considering the plastic to be used in fabricating the tray and containers of the present invention, since it must be kept in mind that the contents at times may be refrigerated below about 0° C., for extended periods. Some plastics are more brittle and susceptible to fracture than styrene based polymers under these conditions.

The film overwrap material utilized in the present invention may be any of the thermoplastics mentioned above, having a thickness of between about 2 and 15 mils. Laminates made of a plurality of films of the same or of different materials may also be used. The film is preferably transparent, otherwise the tray and container may be of any color. Films of polymeric vinylidene chloride, polyvinyl chloride, cellophane, polypropylene or polyethyene are preferred materials.

When it is desired to protect the contents of the containers within the package from the effects of the atmosphere, the film overwrap may be coated on either side with an adherent chemical barrier material to decrease the transmission of vapors into or out of the package. This then obviates the expensive requirement of applying a sealant to a less easily accessible sealing surface on each container within the package. Coatings to accomplish other desirable effects such as fog, static and block resistance may be applied as required to the film material.

In general, the present package finds particular utility for uniting containers holding various consumer items

such as dairy products, jellies, pickles and the like, which are ordinarily sold in plural units. Individual containers are herein inexpensively combined into a single sturdy, attractive display package which may, when desired, be designed to protect the contents from detrimental effects of exposure to the environments. Movement of the containers enclosed within the package is eliminated. The package permits ready observance of the enclosed containers, and is uniquely adapted to high speed forming and packaging operations.

The above description and particularly the drawings are set forth for purposes of illustration only. It will be understood that many variations and modifications of the embodiments herein described will be obvious to those skilled in the art, and may be carried out without departing from the spirit and scope of the invention as hereinafter claimed.

What is claimed is:

1. A unitary package for holding and displaying a plurality of wide mouth, thin wall, plastic containers in adjacent upright position, comprising a thin wall, one piece, thermoplastic tray having identical, separate, adjacent compartments, each of said compartments having a base and an axially short sidewall having a continuous surface extending upwardly from at least a portion of the periphery of its base, a plurality of shallow, thin wall plastic containers, each container having a base, a sidewall extending upwardly from itse base to an upper end defining an open mouth extending to the upper end of the sidewall of said container and a lid covering the mouth, the base and lower portion of the sidewall of each of said containers being snugly seated within and against the sidewall of one of said compartments to prevent lateral shifting of each seated container, and a transparent plastic film overwrap around both the tray, including the entire surface of the sidewall of said tray, and said containers to hold said tray and containers together.

2. The package of claim 1 wherein the tray has lateral stiffening ribs extending between the sides of adjacent compartments.

3. The package of claim 1 wherein the height of the portion of each container outside said tray is less than about five times the height of the portion of each container within said tray.

4. The package of claim 1 wherein both the tray and film are oriented polystyrene plastic.

5. The package of claim 1 wherein the number of displayed containers is two.

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U.S. Cl. X.R.

206—45, 33, 65, 72