Sept. 14, 1965 J. G. S. BILLINGSLEY ETAL 3,206,020

MULTIPLE CONTAINER PACKAGE

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FIG. 1

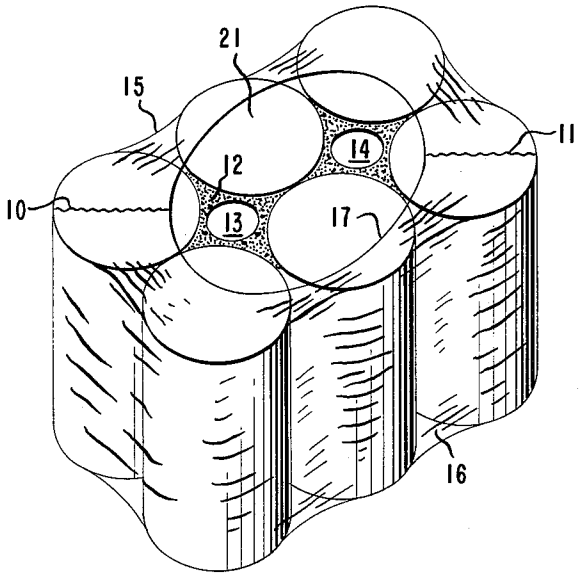


FIG. 2

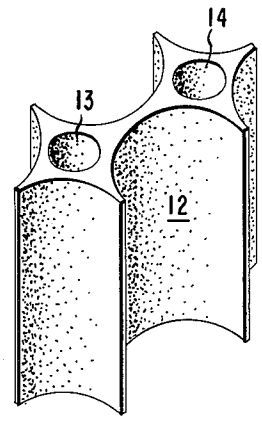


FIG. 3

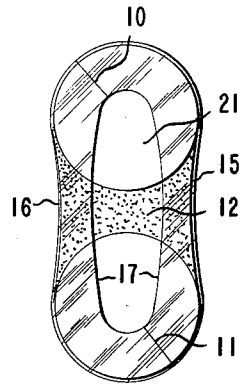


FIG. 4

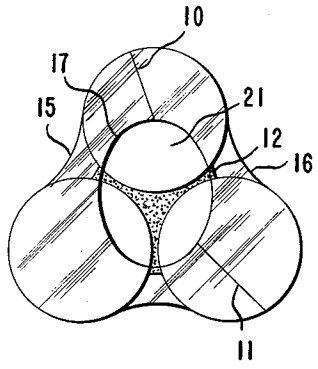
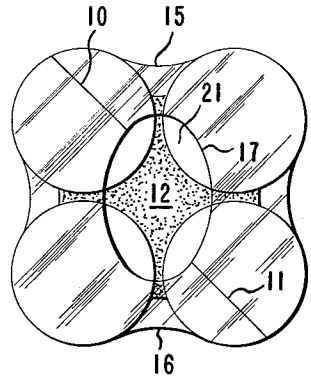


FIG. 5



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FIG. 6

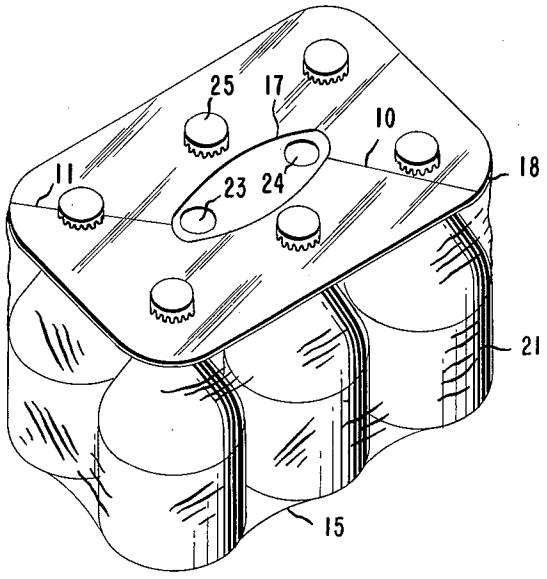
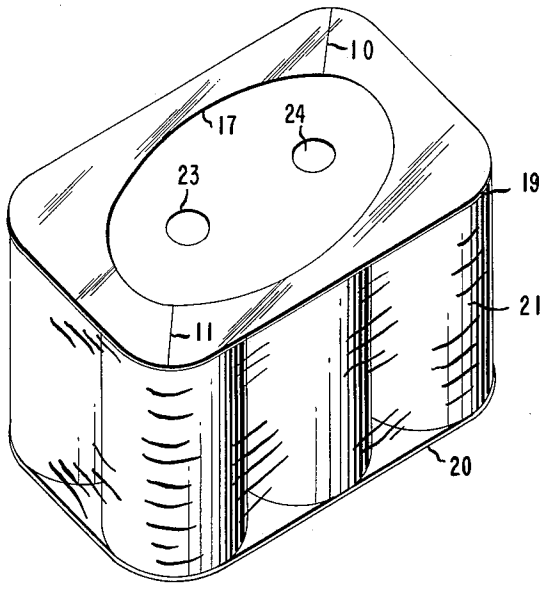


FIG. 7



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United States Patent Office 3,206,020 Patented Sept. 14, 1965

3,206,020

MULTIPLE CONTAINER PACKAGE

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Filed Apr. 9, 1963, Ser. No. 271,733
3 Claims. (Cl. 206—65)

This invention relates to improved packages and more particularly to the enveloping of articles with transparent, heat-shrinkable films to form packages having seals in opposite diagonal corners and a substantially oval opening in the top and bottom.

Numerous items are marketed in multiple packages either for direct consumer use or for distribution purposes. Past practice has generally been to use paperboard cartons of various types and sizes to contain the desired number of units. Such packaged units include six-packs of beer cans, six-packs of dog food, soft drink bottle carriers and packs of frozen orange juice concentrate. It is desirable to have a neat, rigid, and handleable package to market these multiple goods. It would also be desirable to have the packaging material transparent to reveal the product itself, which in many cases has an attractive label.

There have also been packages in which the articles have been bound together by a band of heat-shrinkable material. These packages, however, have not been wholly satisfactory due to the lack of rigidity and a tendency for the articles to shift.

It is an object of this invention to provide a package in which articles are enveloped with a transparent, heat-shrinkable film having seals in opposite diagonal corners and a substantially oval opening in the top and bottom.

It is a further object of this invention to provide an enveloped article package of attractive appearance and which minimizes shifting of the articles and deformation of the package. These and other objects will appear hereinafter.

The objects of the present invention are accomplished broadly by providing at least two contiguous articles of regular cross-section enveloped by two sheets of thermoplastic, heat-shrinkable film whose transverse dimensions are larger than the dimensions of the articles being packaged. The films extend over the edges of the articles, are sealed in opposite diagonal corners of the package and heat-shrunk to encase the articles and form a package with a substantially oval opening in the top and bottom. The packaged articles can be square, hexagonal, octagonal, etc. but preferably cylindrical.

Transparent heat-shrinkable film is utilized with neat, hot wire seals to make a package with a good configuration. The transparent film reveals the product within by exposing the printing or labels on the cans or bottles, thereby using the individual product as a package identification. This package is unique in that the seals forming the film into a sleeve are placed in diagonally opposite corners of the package resulting in added strength to the seals and improving package appearance in that the seals are almost invisible. This particular design is excellent for machine operation since the diagonal corner location of the seals gives greater access to the seal area for the required machining operations. To improve the handleability and rigidity of the package, paperboard tops and bottoms can be added.

If cans are the articles being packaged, the beads of the cans have a tendency to cause the cans to shift within the package and make an irregular shaped and loose package. Numerous attempts have been made to apply

means for maintaining proper alignment through locking devices, separators, and card covers. Such means have proved either very difficult to apply or costly in application. To overcome shifting and deformation of the package, a resilient preformed spacer can be placed between the units in the package.

The invention can be best understood by referring to the drawings which show embodiments of the invention, wherein:

FIGURE 1 illustrates a perspective view of a heat-shrinkable package using a preformed foam spacer between the articles.

FIGURE 2 shows the preformed spacer used in FIGURE 1.

FIGURES 3–5 illustrate other package configurations.

FIGURE 6 shows packaged necked bottles, and

FIGURE 7 shows a package using a paperboard sheet top and bottom.

In the embodiments of the invention illustrated in FIGURES 1–5, points **10** and **11** indicate the thin heat seals which continue down the opposite diagonal sides of the package containing the desired number of cans or bottles **21** which are separated for rigidity by a spacer **12**. Finger holes in the spacer for carrying are indicated at **13** and **14**.

Two sheets of transparent heat-shrinkable film **15** and **16** envelope the cans or bottles. The films have transverse dimensions larger than the dimensions of the cans or bottles and extend over the edges of the articles and are joined at the heat seals. When the film is heat-shrunk, an oval opening **17** is left on the top of the package. A similar opening is formed on the bottom of the package. It is also possible to have oval openings on the ends of the package instead of the top and bottom.

In FIGURE 6, a rigid sheet **18** is placed over the tops of the bottles while in FIGURE 7, a rigid sheet **19** is placed on top of the cans and a rigid sheet **20** is placed on the bottom of the cans. These sheets further improve the rigidity of the package and are placed under the film thereby covering the holes in the spacer. Holes **23** and **24** can be placed in these sheets to enable the package to be carried. The sheet in FIGURE 6 has six openings to hold the tops of the bottles **25**.

In its preferred form, the package is substantially rectangular in shape. It is also preferred that the articles be aligned side by side in a peripherally contiguous manner to form the smallest rectangular configuration possible. Cubical and triangular shaped packages are also possible but the resulting triangular unit is not as desirable as the rectangular unit because of cartoning and display difficulties. The package must consist of at least two articles; however, as many articles as practicable can be used.

Any thermoplastic film can be used having the requirements of being heat-shrinkable and also heat sealable with a hot wire. However, the preferred film is polyethylene. Other heat-shrinkable films which can be used are plasticized polyvinyl chloride, irradiated polyethylene, polystyrene and polypropylene. It is also preferred to have the film transparent so that it will reveal the product packaged. Labels to identify the product can be adhered to the film on the package if desired or the film can be printed.

The heat seal is placed on a leading corner and on the opposite diagonal corner. This reinforces the seal by backing it with the product thereby making it stronger and giving greater access to the seal area for machine operations. The preferred method of sealing is with a hot wire since this method makes a neat, thin line seal which, after the film is shrunk on the package, is not as noticeable as it would be if other sealing methods were employed.

The oval openings are formed on the top and bottom of the units packaged. This facilitates ease in handling of the units and, also, if a formed spacer is used this enables placement of finger holes for carrying the package. It is also possible to have openings on the ends of the units and still have a functional package.

The spacer used in the package is preformed so that its contours fit that of the units packaged. This type spacer can be with or without finger holes for carrying. The preferred material used for spacers is either a foamed polystyrene or a urethane foam. These materials can be molded or cut into shape to provide the desired spacer design. Any semi-rigid material can be used equally well such as paperboard, pulpboard, rubber, polyethylene, or a resilient plastic. The specifications for the materials are that it must be formable, and the surface of the spacer must provide enough friction to enable it to stay in place. Strips of corrugated paperboard or similar material can be substituted for this formed spacer and still make the package functional.

The package of the present invention has an advantage in that the heat-shrinkable film envelopes the articles to form a top and bottom enclosure with openings. The top and bottom enclosure help contain the individual articles and prevents shifting and deformation of the package.

Using a preformed spacer, shaped to fit the contour of the articles, in conjunction with a heat-shrinkable film has an advantage in that films with a smaller degree of shrinkage can be used as opposed to a high shrinkage film needed to exert a compressive force on the cans to deform a spacer to its desired shape.

What is claimed is:

1. A heat treated rigid package comprising: at least two cylindrical articles having opposed beads on the top and bottom of said articles, the beads of each article being peripherally contiguous; a preformed spacer of resilient material selected from the group consisting of foamed polystyrene and foamed polyurethane placed between said articles, said spacer having arcuate recesses extending completely through said spacer which contact less than half the circumference and the entire cylindrical portion of said articles between the top and bottom beads, the thickness of the spacer between opposing arcuate recesses is such that the opposing beads of each article are out of contact; and two enveloping sheets of thermoplastic, heat-shrinkable film having transverse dimensions larger than those of the articles and spacer being packaged, each sheet draped diagonally around half of the articles and spacer, said films extending over the edges of said articles, the edges of each sheet sealed in opposite diagonal corners of said package and heat-shrunk to tightly encase said articles and said spacer and form a package with a substantially oval opening in the top and bottom.

2. A heat treated rigid package comprising: six cylindrical shaped articles having opposed beads on the top and bottom said articles, the beads of each article being peripherally contiiguous with the beads of at least two adjacent articles; a preformed spacer of resilient material selected from the group consisting of foamed polystyrene and foamed polyurethane placed between said articles, said spacer having arcuate recesses extending completely through said spacer which contact less than half the circumference and the entire cylindrical portion of said articles between the top and bottom beads, the thickness of the spacer between opposing arcuate recesses is such that the opposing beads of each article are out of contact; two enveloping sheets of thermoplastic, heat-shrinkable film having transverse dimensions larger than those of the articles and spacer, each sheet draped diagonally around half of the articles and spacer, the edges of each sheet heat-sealed at the opposite diagonal corners of said package and said sheets heat-shrunk to tightly encase said articles and spacer and form a package with a substantially oval opening positioned over the top and bottom of said articles.

3. The package of claim **2** wherein there is additionally a paperboard sheet placed under said sheets of film where said film has a substantially oval opening positioned over the top and bottom of said articles.

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