

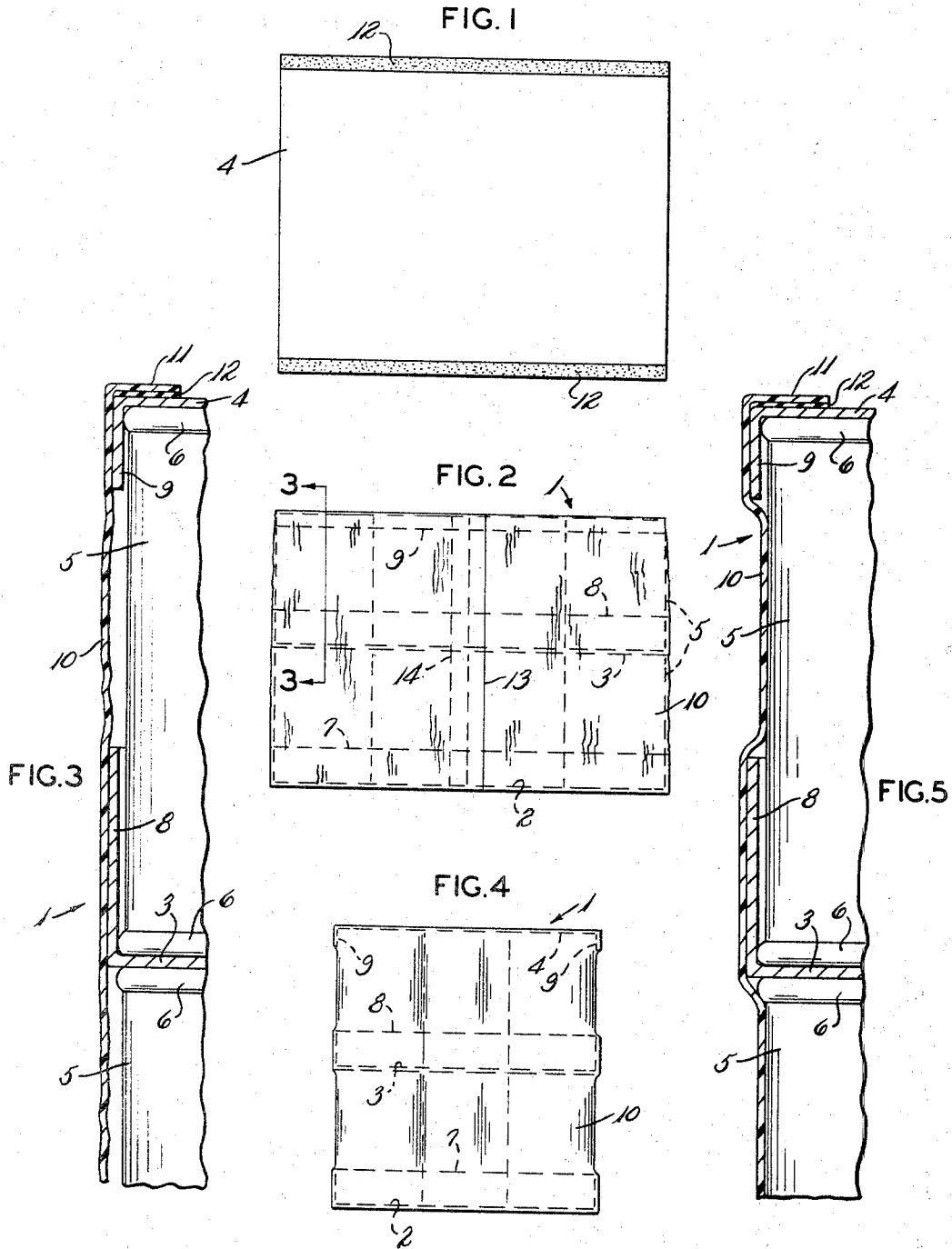
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ARTICLE AND TRAY PACKAGE

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ARTICLE AND TRAY PACKAGE

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ABSTRACT OF THE DISCLOSURE

A method of forming an article comprising placing a top member upon the tops of articles in a tray having articles therein, and positioning a transparent, heat shrinkable plastic film around the exposed vertical margins of the tray and article assembly. The opposed marginal edge portions of the film are secured to the tray and to the top member, and the film is heat shrunk into tight engagement with the top member, tray and article assembly.

The present invention relates to packaging, and particularly to a novel and improved package for a plurality of articles positioned on one or more trays in one or more horizontal layers in the package provided by the invention.

At the present time, there are many different types of packages provided commercially, and one new type of package that has received some commercial acceptance comprises one or more horizontal layers of articles carried by a support tray, or trays, and with, for example, a transparent plastic band enclosing the tray and articles thereon and comprising an open ended tube that is positioned on a horizontal axis and bands the tray or trays with the articles thereon by a biaxial heat shrunk enclosure action. The band extends completely around the package from top to bottom thereof and initially has protruding end portions that are shrunk into engagement with the end portions of the trays and end articles of the sections or portions of the articles exposed as the band is heated to shrink into engagement with the package. These trays usually are only of an inch or two of vertical height to receive and carry the articles for display and sale purposes.

It is the general object of the present invention to provide a novel and improved article and tray package characterized by the provision of a top board on the top layer of articles received on and positioned by the trays and by an endless plastic enclosure band that extends circumferentially around the tray and articles thereon, which enclosure band is positioned on a vertical axis.

Another object of the invention is to provide a novel and improved article and tray package characterized by its competitiveness in price with present cardboard boxes and other packaging means, and characterized by the use of low cost heat shrinkable film that will usually shrink on only the longitudinal axis of a plastic strip from which the enclosure band is formed.

Another object of the invention is to provide an attractive novel and improved tray and package assembly that is cheaper than constructions of a similar type proposed heretofore, and to provide a novel and improved package that has a better appearance and is of sturdier ultimate construction than previous types of article and tray packages.

Yet another object of the invention is to provide a novel and improved article and tray package wherein a top member is provided in the package and which top member has dependent flanges extending longitudinally thereof for extending down over the lateral margins of the top chimes on the packaged articles for protecting an enclosure band thereafter positioned around the tray and articles and top member received therein to protect the

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enclosure band from being cut, or loosened by the top chimes on the articles in the package.

Yet another object of the invention is to provide an improved plastic enclosure means for article and tray packages and wherein a top member is provided in the package over the exposed tops of articles in the package and where an enclosure band is suitably cemented to the top member and bottom tray prior to heat shrink action on the enclosure band to facilitate bonding the enclosure band tightly to the trays and other means received within the package.

Yet a further object of the invention is to provide a sturdy improved package and display assembly for a plurality of articles, which package can be readily opened when desired.

Other objects of the invention are to provide a novel and improved article and tray package wherein a heat shrink transparent film is used to enclose a plurality of articles and associated support means which film is relatively easy to heat shrink into tight engagement with the articles and other article carrying means provided in the package; to provide a novel and improved article package wherein a plurality of articles, such as cans, can be locked into relatively fixed horizontal positions; to provide an improved package which minimizes chime misalignment of the packaged articles; and to provide a spaced and improved article and tray package that is adapted to stand rough usage in transport and shipment without loosening its grip upon the packaged articles.

In the practice of the present invention, it will be realized that the package can be made to include only one horizontally extending tray with articles supported thereon and a top member on the upper ends of such horizontally aligned articles, or two or more vertically spaced, horizontal layers of articles can be positioned on individual support trays and again with a top member being provided on the top of the upper layer of cans or articles present in the package. Any suitable number of articles can be carried in any of the layers provided in the package and normally the same number of articles are present in each layer of the packaged trays.

While any desired type of a heat shrinkable film can be used in the practice of the invention, it is a feature of the invention that a less costly film can be used in that it only needs to be heat shrinkable upon the longitudinal axis of the film used to enclose or be wrapped around the circumference of the trays and articles thereon to be packaged by the invention. One suitable heat shrinkable film is the product known as "Vitaflm" as sold by The Goodyear Tire & Rubber Company of Akron, Ohio. This film is a polyvinyl chloride film, and such film has worked very well in the practice of the invention when the film is approximately 1½ mils thick, and is only oriented in one direction, which is on the longitudinal axis of the sheet of film as initially produced. Such film has good heat shrink properties on its longitudinal axis and has about 5 to 8 percent shrinkage possible on its transverse axis. Usually this film is shipped in roll form, and in the practice of the invention, the film is wound around the periphery of the trays and articles to form a tube, having a vertical axis, in which the packaged members are contained. Or a tube of film could be provided to band around the sides of the package.

The foregoing and other objects and advantages of the invention will be made more apparent as the specification proceeds.

Reference now is particularly directed to the accompanying drawings wherein:

FIG. 1 is a plan of a top member used in forming the package of the invention;

FIG. 2 is a side elevation of a package embodying the

principles of the invention and using the top member shown in FIG. 1;

FIG. 3 is a fragmentary enlarged vertical section taken on line 3—3 of FIG. 2, prior to heat shrink action;

FIG. 4 is an end elevation of the package of FIG. 2, when completed; and

FIG. 5 is a fragmentary enlarged vertical section, like FIG. 3, but taken after heat shrink action.

In general, this invention relates to a novel article and tray package comprising one or more trays having edges thereon, a plurality of articles being snugly positioned on said trays and extending above said edges and if two or more trays are provided they are stacked upon each other being carried by the articles on the lower tray, a top member carried by said articles on the upper tray, said top member preferably having a pair of parallel dependent flanges thereon engaging upper edge portions of the adjacent articles but leaving sections thereof exposed, a plastic film tightly engaging said tray or trays, top member and exposed sections of all marginal articles on said trays, said film being in an endless band on a vertical axis, and adhesive means bonding edge portions of said plastic film to said top member to said lower tray.

In considering the details of the invention, reference should be had to the drawing wherein the improved article and tray package of the invention is indicated as a whole by the numeral 1. Such article and tray package will primarily be referred to hereinafter as the package and it comprises a bottom tray 2, an upper tray 3, and a top member 4. Preferably, the trays 2 and 3, and the top member 4 are all made from conventional materials, such as paperboard, cardboard, plyboard, corrugated paperboard, or the like. Each of the trays 2 and 3 is of substantially rectangular shape and is adapted to receive a plurality of articles 5 thereon. These articles 5 are arranged in a plurality, such as three rows and with four articles being present in each row whereby twelve articles are carried by each of the trays 2 and 3.

These articles 5 normally are abutted tightly against each other, at least in the chimes 6 usually formed at the top and bottom of the articles 5. The articles 5 obviously can be of any conventional construction and normally are metallic cans receiving foods, beverages or other materials therein and normally the articles have the chimes 6 at both the top and bottom thereof.

The trays 2 and 3 include vertically upwardly extending walls 7 and 8, respectively, that extend completely around the peripheral portions of the trays to engage and retain the articles 5 snugly positioned thereon whereby the upper tray 3 can be conveniently positioned upon the articles 5 received in and carried by the bottom tray 2. Thereafter, or at any suitable time, the top member 4 is placed upon the top of the articles 5 received in and carried by the upper tray 3. It should be noted that this top member 4 has a pair of dependent side flanges 9 extending downwardly along, usually, the longer sides of this top member 4 to engage and extend downwardly beyond the top chimes 6 of the articles 5 on the upper tray.

The package 1 of the invention also includes a plastic enclosure band 10. This enclosure band, as a feature of the invention, is made from any suitable longitudinal strip of plastic material of the type indicated hereinabove, and usually is transparent and heat shrinkable, primarily on the longitudinal axis of the original strip of plastic film. Such film 10 is of a width that upper and lower marginal portions thereof, as indicated at 11, extend over, or can be folded over horizontally to engage with the upper surface of the top member 4 and the bottom surface of the bottom tray 2 at the longitudinal lateral margins thereof. The film needs only a slight heat shrink vertically of the package as it is initially secured in the package fairly tightly in the direction extending transversely of the film.

As another feature of the invention, to facilitate forming the package 1, suitable strips of adhesive 12 are deposited in a conventional manner along the opposed longitudinally extending marginal portions of the top member

4 and on the bottom edge surfaces of the bottom tray 2. Thus, such adhesive, which may be of any suitable composition, so that it engages readily and bonds tightly to marginal portions of the film 10, is deposited on the top member 4 prior to application of the film 10 to the tray assembly. Then the film edges are folded over in any conventional manner to engage the adhesive and be bonded thereto.

It will be realized that ends, or edges 13 and 14 of the film 10 are overlapped slightly in a transversely extending direction in the package 1 as shown in FIG. 2. These edges 13 and 14 are then suitably bonded together by adhesive, or by a heat bonding action, as desired, to form a vertical seam in the film.

Thereafter, after the band of film 10 has been formed around the package 1 and the margins of the film have been secured to opposed top and bottom portions thereof to the top member 4 and bottom tray 2, the package 1 is subjected to suitable heat shrink conditions. For example, a blast, or blasts of hot air can be directed against the heat shrinkable film 10 to cause it to shrink to reduce longitudinal length and to a slightly shorter height (width), and tightly bond against the marginal portions of the walls 7 and 8 and the exposed areas of the articles 5, whereby a tightly bonded, unitary package 1 has been provided. This package is adapted to withstand the relatively rough use that packages receive in storage and shipment and will retain the articles in tightly bonded, adjacent relationship even though only a very thin layer of plastic film is used as the bonding medium. FIG. 5 shows how the plastic film 10 is heat shrunk into tight engagement with the articles and holds them with the top chimes thereof firmly abutted against each other to prevent any loosening of these articles in the use of the package. FIG. 3, in contrast, shows how the film 10 is relatively loosely associated with the contents of the package prior to the heat shrink action on the film.

The top member 4 may have edge flanges at all margins thereof, if desired, but the film 10 would still preferably only be secured to such member, or its flanges on only one pair of opposed margins thereof.

When desired, other types of film may be used in the practice of the invention but the strip plastic film has the advantages of low cost and convenient attachment to the package. A plastic band could be preformed and be telescoped over the package contents, if desired.

The present package comprises an appreciable improvement over previous types of packages similar thereto and wherein the heat shrinkable film, for example, would be banded around the package 1 in a circumferential direction from top to bottom thereof with end portions overlapping and extending longitudinally beyond the contents of the package. On heat shrink action, such film purportedly will come into engagement with end areas of the package and contents thereof by a biaxial heat shrink action.

It should be understood that any suitable adhesive means may be used to bond edge portions of the top and bottom of the plastic film band to the top member 4 and to the bottom tray 2 and that the adhesive can be applied at any time in any suitable manner. Preferably only corresponding parallel edges of the top and bottom portions of the plastic band are secured to the contents of the package as herein described to facilitate opening the package by tearing or cutting the film at, for example, the ends of the package.

The present article and tray package of the invention lends itself to easy opening action as the end portions of the plastic film 10 are not bonded to the top member 4 or bottom tray 2 in any manner and can be grasped and be torn or cut readily to expose the individual trays 2 and 3 for removal from the package and display and sale of the contents of the package, usually while still retained upon the trays 2 and 3 for display and sale action.

Thus it is believed that the objects of the invention have been achieved.

While one complete embodiment of the invention has been disclosed herein, it will be appreciated that modification of this particular embodiment of the invention may be restored to without departing from the scope of the invention as defined in the appended claims.

What is claimed is:

1. A method of forming a package comprising the steps of
 - filling paperboard trays with articles,
 - placing one tray upon another,
 - placing a paperboard top member upon the tops of the articles in the upper tray,
 - providing strips of adhesive means on corresponding opposed bottom outer edges of said lower tray and the upper edges of said top member,
 - wrapping a heat shrinkable plastic film sheet around the exposed vertical margins of the tray and article assembly, which film extends vertically upwardly and downwardly beyond such tray and article assembly,
 - securing edges of the film to the adhesive means, and heat shrinking the film into tight engagement with the top member, tray and article assembly.
2. A method of forming a package comprising the steps of
 - filling trays with articles extending upwardly therefrom,
 - placing one tray upon another,
 - covering the tops of the articles in the upper tray with a top member,
 - providing strips of adhesive means on corresponding opposed bottom outer edges of said lower tray and the upper edges of said top member,
 - wrapping a heat shrinkable plastic film sheet around the exposed vertical margins of the trays and article assembly and securing the ends of the sheet together, which film extends vertically upwardly and downwardly beyond such trays and article assembly,
 - securing edges of the film to the adhesive means, and heat shrinking the film into tight engagement with the top member, trays and article assembly.
3. A method of forming a package comprising the steps of
 - filling trays with articles,
 - placing one tray upon another,
 - placing a top member upon the tops of the articles in the upper tray,
 - providing strips of adhesive means on corresponding opposed bottom edge portions of said lower tray and the upper edge portions of said top member,
 - positioning a heat shrinkable plastic film around the exposed vertical margins of the trays and article assembly, which film is heat shrinkable on an axis extending around said assembly and is longer vertically than the height of such trays and article assembly,
 - securing edges of the film to the adhesive means, and heat shrinking the film into tight engagement with the top member, trays and article assembly.
4. A method of forming a package comprising the steps of
 - filling a number of trays with articles,
 - placing at least one tray upon another,
 - placing a top member upon the top of the articles in the upper tray,
 - positioning a heat shrinkable plastic film around the exposed vertical margins of the trays and article assembly, which film is heat shrinkable on an axis extending around said assembly and is longer vertically than the height of such trays and article assembly,
 - adhesively securing at least opposed marginal edge portions of the film to the lower tray and to the top member, and
 - heat shrinking the film into tight engagement with the top member, trays and article assembly.

5. An article and tray package comprising
 - a paperboard tray having vertically upwardly extending edges thereon, a plurality of articles being snugly positioned on said tray and extending above said edges,
 - a paperboard top member carried by said articles, said top member having a pair of parallel dependent flanges thereon engaging upper edge portions of the adjacent articles but leaving sections thereof exposed,
 - a heat shrunk plastic film tightly engaging said tray, top member and the exposed sections of all marginal articles on said tray, said film having edge portions extending over a pair of opposed edges of each of said tray and said top member, and
 - adhesive means on the top surface of said top member only at said edges and on the bottom surface of said tray at said edges,
 - said plastic film being bonded by said adhesive means to said top member and said tray.
6. An article and tray package comprising
 - a pair of trays having vertically upwardly extending edges thereon, a plurality of articles being snugly positioned on said trays, and extending above said edges, an upper tray being positioned upon the tops of the articles in a lower tray,
 - a top member carried by said articles in said upper tray,
 - a heat shrunk plastic film band on a vertical axis tightly engaging said trays, top member and the exposed sections of all marginal articles on said trays, and
 - adhesive means on said top member and on said lower tray,
 - said plastic film being bonded by said adhesive means to said top member and said lower tray.
7. A method of forming a package comprising the steps of
 - filling a rectangularly shaped tray with articles,
 - placing a top member upon the tops of the articles in the tray,
 - positioning a heat shrinkable plastic film around the exposed vertical margins of the tray and article assembly, which film is heat shrinkable on an axis extending around said rectangular assembly and is longer vertically than the height of such tray and article assembly,
 - adhesively securing two pairs of parallel opposed marginal edge portions of the film to the tray and to the top member, and
 - heat shrinking the film into tight engagement with the top member, tray and article assembly.
8. A method of forming a package comprising the steps of
 - filling a rectangularly shaped tray with articles,
 - placing a top member upon the tops of the articles in the tray,
 - positioning a transparent heat shrinkable plastic film around the exposed vertical margins of the tray and article assembly, which film is heat shrinkable only as an axis extending around said rectangular assembly and is longer vertically than the height of such tray and article assembly,
 - securing at least two pairs of parallel opposed marginal edge portions of the film to the tray and to the top member, and
 - heat shrinking the film into tight engagement with the top member, tray and article assembly.
9. An article and tray package comprising
 - at least a pair of trays having vertically upwardly extending edges thereon, a plurality of articles being snugly positioned on said trays and extending above said edges, one of said trays being positioned on the tops of articles in a lower tray,
 - a top member carried by said articles in the upper tray, said top member having a pair of parallel dependent flanges thereon engaging upper edge portions of the

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adjacent articles but leaving sections thereof exposed,
a heat shrunk plastic film tightly engaging said edges
of said trays, said flanges of said top member and the
exposed sections of all marginal articles on said 5
trays, said film having edge portions extending over
a pair of opposed edges of the lower of said trays
and over a pair of opposed edges of said top mem-
ber, and
adhesive means bonding said plastic film to said top 10
member and said lower tray at two pairs of opposed
edge portions of said plastic film.
10. An article and tray package comprising
a tray having vertically upwardly extending edges 15
thereon, a plurality of articles being snugly posi-
tioned on said tray and extending above said edges,
a top member carried by said articles, said top mem-

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ber having a pair of parallel dependent flanges there-
on engaging upper edge portions of the adjacent
articles but leaving sections thereof exposed,
a plastic film band extending circumferentially of and
tightly engaging said tray, top member and the ex-
posed sections of all marginal articles on said tray,
adhesive means on said top member and on said tray,
said plastic film being bonded by said adhesive means
to said top member and said tray.

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