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Gilley

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[54] **PACKAGING TRAY WITH JUICE TRAPPING VIEWING WINDOWS**

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[73] Assignee: **Keyes Fibre Company,** Waterville, Maine

[*] Notice: The portion of the term of this patent subsequent to May 27, 1992, has been disclaimed.

[22] Filed: **Apr. 18, 1974**

[21] Appl. No.: **462,097**

[52] **U.S. Cl.** **229/2.5;** 426/124

[51] **Int. Cl.** **B65d 1/00**

[58] **Field of Search** ..... 229/2.5, 29 M; 217/26, 217/26.5; 206/525; 426/124, 129

[56] **References Cited**

UNITED STATES PATENTS

3,151,799	10/1964	Engles, Jr. et al.	229/2.5
3,682,365	8/1972	Reifers et al.	229/2.5
3,698,623	10/1972	Bixler	229/2.5
3,700,096	12/1972	Reifers	229/2.5
3,718,274	2/1973	Reifers et al.	229/2.5
3,756,492	9/1973	Reifers et al.	229/2.5
3,761,011	9/1973	Reifers et al.	229/2.5

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[57] **ABSTRACT**

A molded, open top tray for packaging products such as moist pieces of meat, fish or poultry in conjunction with a tansparent wrapping which encloses both the tray and the product packaged thereon. The bottom of the tray includes a plurality of hollow posts tapering upwardly from a base portion, the posts being truncated to define upper viewing windows and provide product support rims. There are openings through the base portion between the posts to define lower viewing windows, with upstanding lip means around the periphery of each lower viewing window to trap juices on the upper surface of the base portion and inhibit the flow of juices downwardly through the lower viewing windows.

5 Claims, 4 Drawing Figures

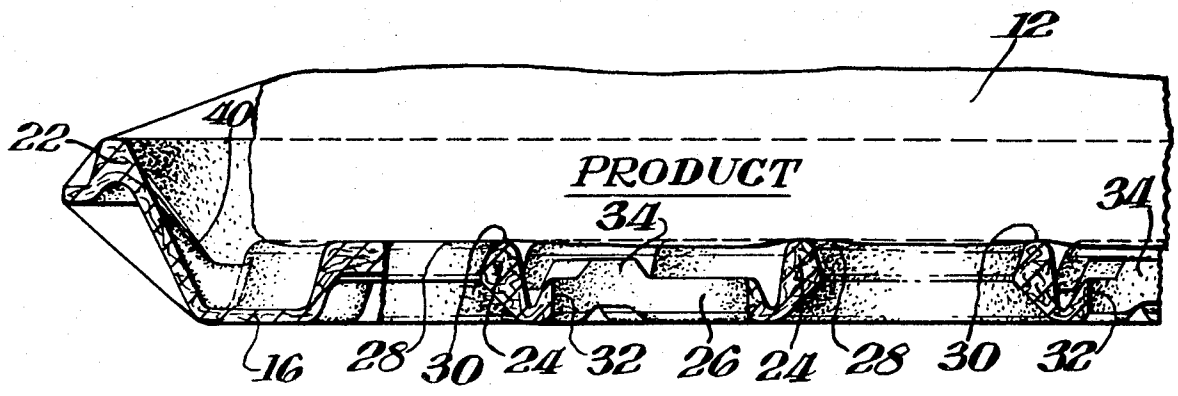


Fig. 1.

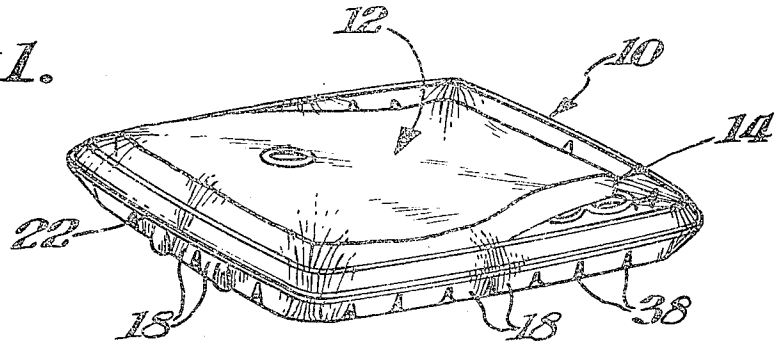


Fig. 2.

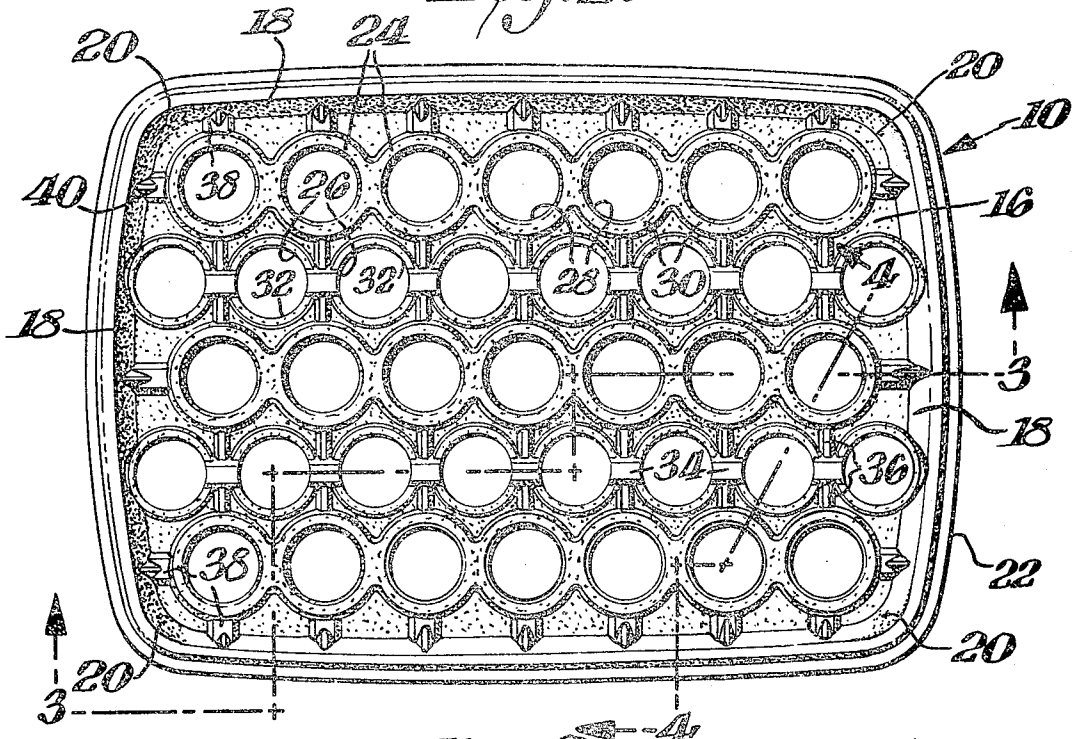


Fig. 3.

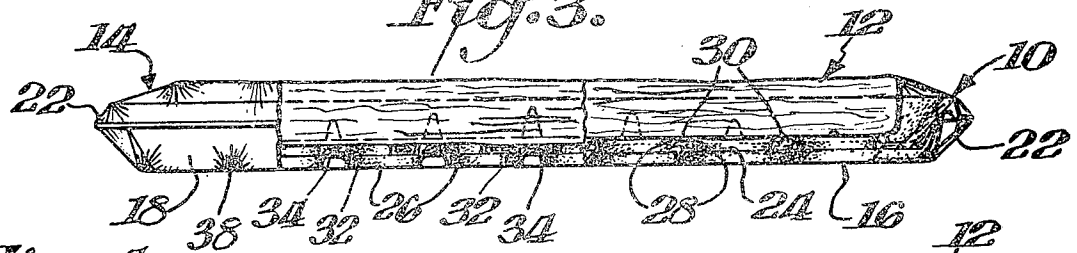
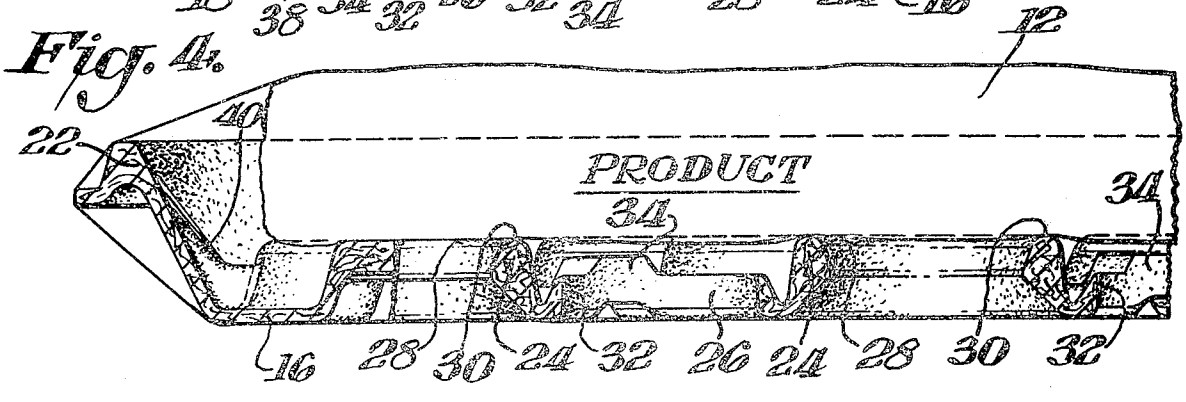


Fig. 4.



PACKAGING TRAY WITH JUICE TRAPPING VIEWING WINDOWS

BACKGROUND OF THE INVENTION

The claimed invention relates to "open" bottom food containers, and more particularly to food containers for packaging products such as moist pieces of meat, fish or poultry in conjunction with a transparent wrapping enclosing both the tray and the product packaged thereon.

Molded wood and/or paper pulp food trays have served the food packaging industry well for many years for the packaging of meat, fish, poultry and other such products. Such trays have the advantages, besides low price and low cost to the consumer, of being clean, sturdy and safe, or being biodegradable so as to minimize the solids pollution problem, and of being capable of absorbing trapped moisture and juices which exude from meat, fish and poultry. A prior design of a tray having the foregoing advantages is disclosed in Bixler U.S. Pat. No. 3,698,623 (Oct. 1972), wherein the bottom of the tray is formed by a plurality of practically solid, narrow ribs of inverted V-shaped cross section spaced from each other to provide a plurality of relatively large open viewing windows. Prepacking trays utilizing outwardly and inwardly bulged portions to strengthen the sidewalls against the compressive forces of the transparent wrappings are illustrated in Reny U.S. Pat. No. 3,221,971 (Dec. 1965) and Reifers U.S. Pat. No. 3,700,096 (October 1972), respectively. A combination of such bulged portions with downwardly opening channel shaped ribs spaced from each other to provide a plurality of somewhat smaller viewing windows is disclosed in Reifers et al U.S. Pat. No. 3,682,365 (August 1972).

None of the tray designs of the aforesaid patents, however, solve the problem of providing optimum visibility of the bottom of the product packaged on the tray while at the same time maintaining the strength required for such trays. The narrow product support ribs of inverted V-shaped cross-section providing open viewing windows, as in Bixler U.S. Pat. No. 3,698,623, for instance, provide fairly good visibility of the bottom of the product supported on the ribs, but the visibility is less than optimum and the narrower the ribs for better viewing the weaker the rib structure. The downwardly open channel shaped product support ribs providing smaller open viewing windows, as in Reifers U.S. Pat. No. 3,682,365, for instance, are of the type which has long been recognized as providing good strength, but the inherent width of such ribs seriously limits the visibility of the bottom of the product supported on the ribs to the point where 70 percent visibility of the bottom of the product would be difficult to obtain.

My pending application Ser. No. 373,432 filed June 25, 1973, discloses a molded packaging tray having the previously irreconcilable combination of a visibility factor at least equal to and preferably greater than that provided by the tray of Bixler U.S. Pat. No. 3,698,623 plus a strength factor at least equal to and preferably greater than that provided by the tray of Reifers U.S. Pat. No. 3,682,365. The tray disclosed in my aforesaid application includes hollow posts tapering upwardly from a base portion, openings through the base portion between the posts defining lower viewing windows, and the hollow posts being truncated to define upper viewing windows and provide product support rims whereby

portions of the packaged product located over a post are visible through the upper viewing windows and portions of the product not located over a post are visible through the lower viewing windows. One problem created by the "open" bottom packaging trays disclosed in each of the aforesaid patents and application is the lack of control over juices which leak from the moist pieces of meat, fish or poultry packaged on the tray.

As juices exude from the packaged product, they flow downwardly through the viewing windows of the aforementioned tray designs, and smear laterally between the lower surface of the bottom of the tray and the upper surface of the transparent wrapping which encloses the bottom of the tray. Smeared juices are not only unattractive from the retail marketing standpoint, but they serve to obscure visibility and thus defeat the very purpose for which the viewing windows were provided.

Thus, the problem unsolved by the prior art is the provision of a molded packaging tray having superior visibility and strength factors together with means for controlling the undesirable flow of juices downwardly through the viewing windows to minimize smearing against the inside of the transparent wrapping which enclose the bottom of the tray.

SUMMARY OF THE INVENTION

This invention solves the foregoing problems and provides a tray for packaging products such as moist pieces of meat, fish and poultry in conjunction with a transparent wrapping which encloses both the tray and the product packaged thereon, the bottom of the tray including hollow posts tapering upwardly from a base portion and being truncated to define upper viewing windows and provide product support rims, openings through the base portion between the posts to define lower viewing windows, and upstanding lip means around the periphery of each lower viewing window to trap juices on the upper surface of the base portion and inhibit the flow of juices downwardly through the lower viewing windows.

BRIEF DESCRIPTION OF THE DRAWINGS

Numerous advantages of the present invention will become apparent to one skilled in the art from a reading of the detailed description in conjunction with the accompanying drawings, wherein similar reference characters refer to similar parts, and in which:

FIG. **1** is a perspective view of the molded tray of this invention with a product such as a moist piece of meat, fish or poultry packaged thereon and with a transparent wrapping enclosing both the tray and the product;

FIG. **2** is a plan view of the molded tray of this invention, without any product thereon and without the transparent wrapping;

FIG. **3** is a partial sectional elevational view on line **3—3** of FIG. **2**, with the product added and with the transparent wrapping illustrated on the left-hand portion thereof; and,

FIG. **4** is a greatly enlarged fragmentary sectional elevational view on line **4—4** of FIG. **2** showing details of the upstanding lip means around the periphery of the lower viewing windows according to this invention.

DETAILED DESCRIPTION

Referring in more particularity to the drawings, the molded open top tray **10** of this invention is useful for

a wide variety of purposes, but it is particularly well suited for packaging consumer products **12** such as moist pieces of meat, fish, poultry and other bulky, slab-type produce. Such products are customarily packaged with a transparent wrapping **14** enclosing both the tray **10** and the product **12** packaged thereon, leaving all of the top of the product and most if not all of the sides of the product clearly visible for inspection by the purchaser. An example of such transparent wrapping is either non-elastic cellophane or thermoplastic which may be applied and sealed in accordance with any well-known technique including gluing or heat sealing and, if desired, heat shrinking to provide an attractive, compact and sanitary package.

The tray **10** is molded after the conventional fashion on open face suction dies to final shape from generally opaque, fibrous, biodegradable wood and/or paper pulp. A recognized advantage of such molding techniques is the provision of trays which, in the empty condition, are capable of being nestably stacked with other like trays for economical shipment and convenient storage.

The tray **10** comprises a base portion **16** defining the bottom of the tray. While the tray may be of any convenient shape, the embodiment illustrated in the drawings is one wherein the overall shape of the base portion **16** is generally rectangular, and the tray includes upwardly and outwardly flaring sidewalls **18** integrally joined to all four sides of the base portion **16.** The sidewalls are joined together at rounded corners **20** of the tray to provide a continuous sidewall around the tray. The upper extremities of the sidewalls **18** are characterized by a down-turned peripheral lip **22** surrounding the generally rectangular tray, which provides an attractive upper margin and strengthens the sidewalls **18** against the compressive forces of the transparent wrapping **14** secured thereabout. In the preferred embodiment, all four sidewalls **18** are bowed outwardly at their mid-portions, which provides additional strength against the compressive forces of the transparent wrapping **14,** which bow-out may be taken up to some extent when the transparent wrapping is tightly applied, such as may occur with heat shrunk films.

The base portion **16,** which defines the bottom of the tray, includes a plurality of hollow posts **24** tapering upwardly from the base portion, and a plurality of openings **26** through the base portion between the posts. The openings **26** through the base portion **16** define lower viewing windows. The hollow posts **24** are truncated defining upper viewing windows **28** and at the same time providing product support rims **30.** The product support rims **30** support the packaged product in a manner such that portions of the product located over a post **24** are visible through the upper viewing windows **28,** and portions of the product not located over a post are visible through the lower viewing windows **26.**

The lower viewing windows **26** include upstanding lip means around the periphery to trap juices on the upper surface of the base portion **16** and inhibit the flow of juices downwardly through the lower viewing windows **26.** In the preferred embodiment illustrated in the drawings, the lower viewing windows **26** are circular, and the upstanding lip means **32** takes the form of a small, upstanding ledge or barrier around the circumference of each window. The height of the product support rims **30** defined by the hollow posts **24** above the base portion **16** is at least twice the height of the lip means **32** above the base portion **16.** The annular lip means **32** prevent the juices from flowing out through the lower viewing windows and smearing laterally between the lower surface of the base portion **16** and the inner or upper surface of the transparent wrapping which encloses the bottom of the tray.

The size of the upper viewing windows **28,** as defined by the product support rims **30,** and the spacing of the upper viewing windows **28** with respect to each other precludes substantial contact between the packaged product **12** and the lip means **32** which surround the lower viewing windows **26.** In the preferred embodiment, the product support rims **30** are circular, which is believed to be the shape most conducive to economical molding of attractive viewing windows characterized by a minimum of stray pulp fibers or "flashing" which detracts from the appearance of the packaging tray. The horizontal dimension of the upper viewing windows **28** is substantially greater than the vertical distance between the level of the upper viewing windows **28** and the level of the lower viewing windows **26.** The height of the sidewalls **18** above the base portion **16** is more than twice the height of the product support rims **30** above the base portion **16.** In the preferred embodiment, the upper viewing windows **28** are arranged in parallel rows, which alternate with parallel rows of lower viewing windows **26.**

To increase the strength of the tray, the preferred embodiment illustrated in the drawings further includes downwardly opening channel shaped ribs **34** formed in the base portion between the posts, the height of the ribs **34** above the base portion **16** being no higher than the height of the product support rims **30** above the base portion. In the preferred embodiment, the ribs **34** run lengthwise of the rectangular shaped tray, between the rows of posts, and are interrupted by the lower viewing windows **26** and merge with the upstanding lip means **32** therearound, although other rib arrangements are contemplated within the scope of the present invention. The channel shaped ribs further include laterally extending solid narrow lugs **36** joined to the base portion which connect the side walls of the channel shaped ribs **34** with the side walls of the upwardly tapering posts **24.** The height of the lugs **36** above the base portion **16** is less than the height of the ribs **34** and the rims **30** above the base portion.

Additional downwardly opening channel shaped ribs **38** connect the sidewalls **18** to the posts which are adjacent to the sidewalls. The height of the ribs **38** above the base portion **16** is approximately the same as the height of the ribs **34** and the rims **30** above the base portion. In the preferred embodiment, each of the channel shaped ribs **38** further includes solid narrow lugs **40** joined between the upper surface of the ribs **38** and the adjacent sidewall **18.** The lugs **40** serve a combined purpose of strengthening the sidewall against laterally directed forces and establishing a stacking interval when the empty trays are nestably stacked with other like trays for shipment and storage to facilitate ready denesting of the trays one-by-one from the stack without jamming.

While the above described embodiment constitutes the presently preferred mode of practicing the invention, other embodiments or equivalents are within the scope of the actual invention.

What is claimed is:

1. A molded, open top tray for packaging products, such as moist pieces of meat, fish or poultry in conjunction with a transparent wrapping enclosing both the tray and the product packaged thereon, comprising a base portion defining the bottom of the tray, a plurality of truncated hollow posts tapering upwardly from the base portion, the upper ends of said posts having openings which define viewing windows, the periphery of said windows providing product support rims, openings through the base portion between the posts to define lower viewing windows whereby portions of the packaged product located over a post are visible through the upper viewing windows and portions of the product not located over a post are visible through the lower viewing windows, and upstanding lip means around the periphery of each lower viewing window to trap juices on the upper surface of the base portion and inhibit the flow of juices downwardly through the lower viewing windows.

2. A molded tray as in claim 1 wherein the viewing windows are circular, and the size of the upper viewing windows as defined by the product support rims and their spacing with respect to each other precludes substantial contact between the packaged product and the lip means around the periphery of the lowering viewing windows.

3. A molded tray as in claim 2 wherein the overall shape of the base portion is generally rectangular, and including upwardly and outwardly flaring sidewalls joined together at the corners of the tray.

4. A molded tray as in claim 3 wherein the height of the sidewalls above the base portion is more than twice the height of the product support rims above the base portion, and the height of the product support rims above the base portion is at least twice the height of the lip means above the base portion.

5. A molded tray as in claim 4 which is molded to final shape from generally opaque, fibrous biodegradable wood and/or paper pulp, and which in the empty condition is capable of being nestably stacked with other like trays for shipment and storage.

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