

[54] **PACKAGE FOR A PLURALITY OF ARTICLES**

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[58] Field of Search 99/180, 171 TC, 171 LP, 171; 229/14 C, 38; 217/26.5; 206/65 Y, 65, 46 FR

[56] **References Cited**

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3,365,308	1/1968	Janicke	99/180 X
3,335,858	8/1967	Sibile	206/65 Y
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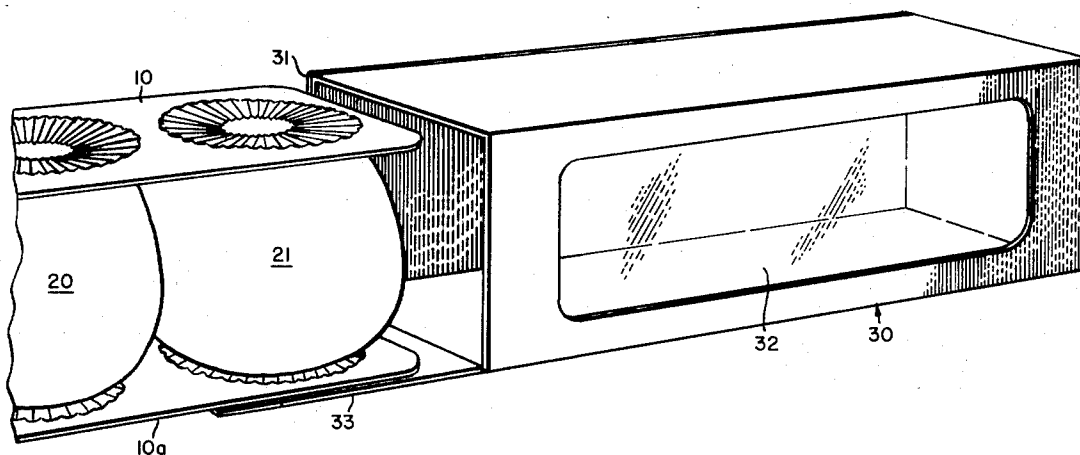
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[57]

ABSTRACT

A package for a group of caramel apples incorporates a pair of locating strips having resilient projections engageable with the opposite end indentations of an apple, the surrounding package structure maintaining sufficient confinement pressure to preserve a deflected condition of the projections.

4 Claims, 7 Drawing Figures



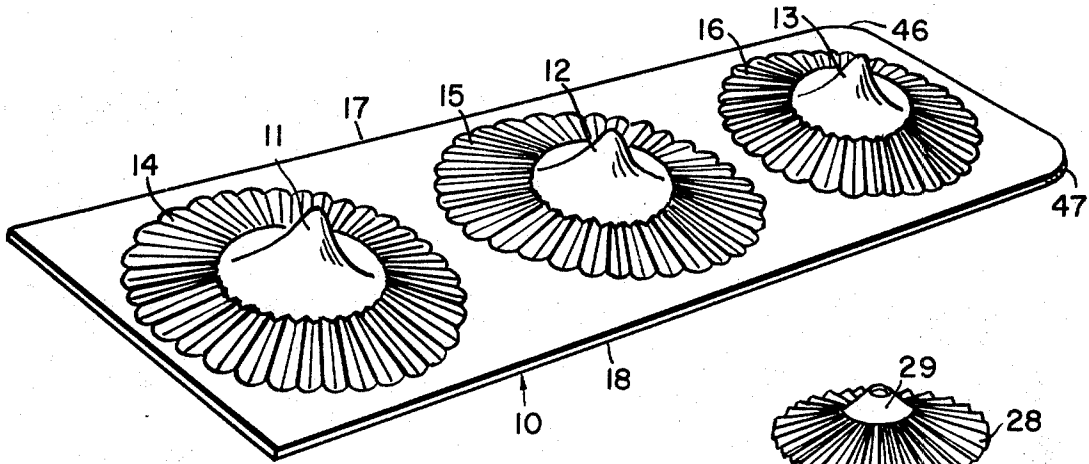


Fig. 1

Fig. 2

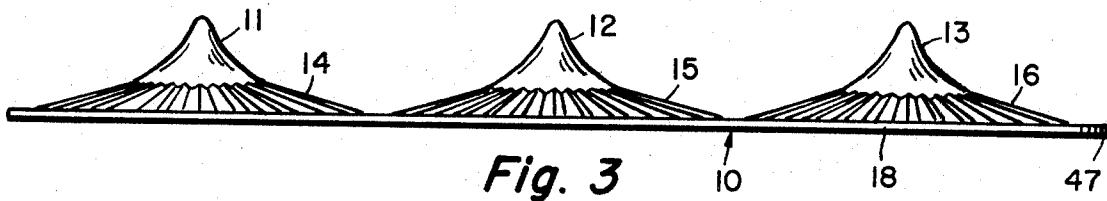


Fig. 3

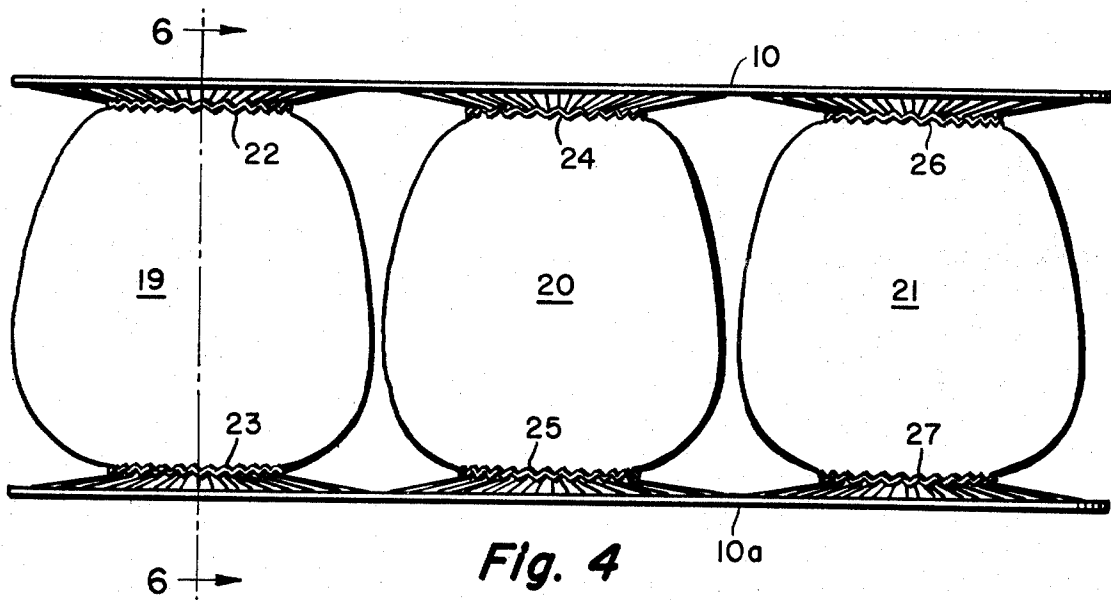


Fig. 4

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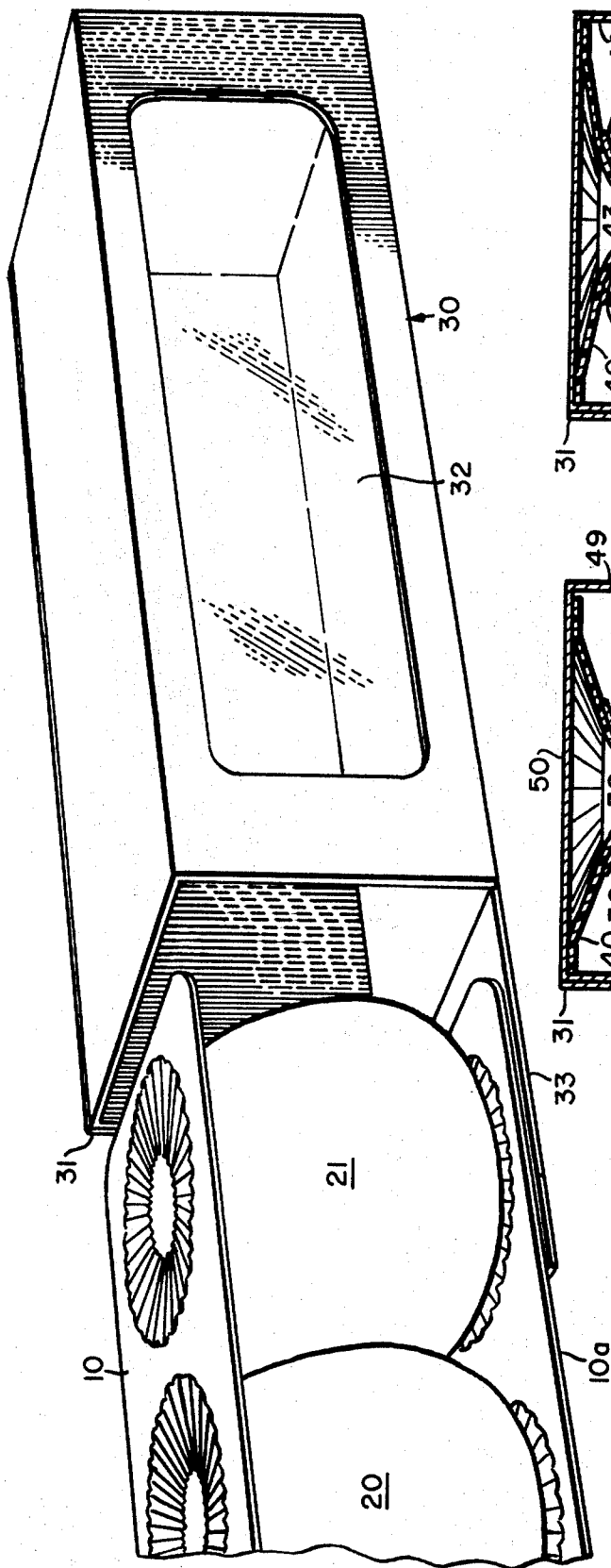


Fig. 5

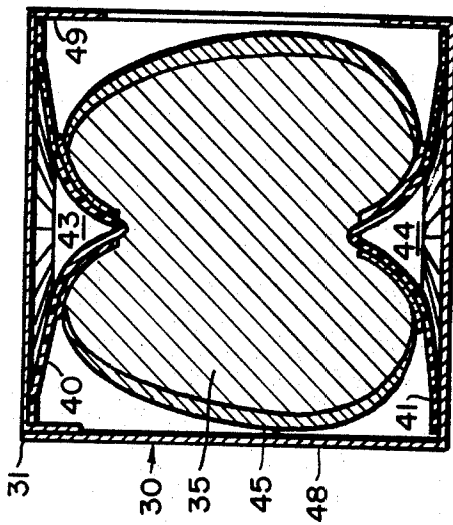


Fig. 7

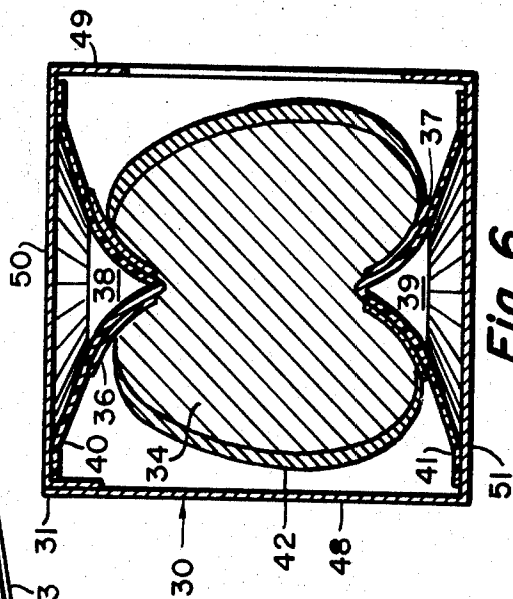


Fig. 6

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PACKAGE FOR A PLURALITY OF ARTICLES

BACKGROUND OF THE INVENTION

Packaging and handling caramel apples has always presented a problem. The sticky exterior of these tasty articles of confection makes the initial problem that of holding it in the hand while it is being eaten. The classic solution has always been the well-known "apple-on-a-stick," which is nothing more than a handle formed by jamming a pointed stick axially in the one end of the apple. These sticks have also been used to facilitate the enrobing of the caramel on the apple. Whether or not ground nuts are added to the caramelized surface of the apple, the resulting item has two objectionable characteristics. The first of these is that the piercing of the apple with the stick initiates a fermentation in the interior of the apple, which has the effect of releasing the security of the stick. The second problem is the resulting shortening of the shelf life of the finished article. In spite of these shortcomings, the desirable taste and nutritional characteristics of caramel apples has resulted in the continued marketing of hundreds of thousands per day. Frequently, large groups of the "apples-on-a-stick" are assembled either handle-up on a large tray, or inverted, with handles sticking through holes in a panel. It is obvious that the presence of the stick presents space requirements that make efficient handling of an inventory, to say nothing of sanitation problems, almost impossible.

U.S. Pat. No. 3,365,308 has provided a solution to the problem of packaging single caramel apples without generating the problems associated with the stick. The caramelized apple is handled without contaminating the hands through the use of conical papers at the opposite end indentations, so that the apple can be grasped between the ends of the thumb and a finger. Such an arrangement eliminates the need for the stick, which also eliminates the spacing problems and the problems resulting from the fermentation associated with piercing. The result has been a much more economical package, together with a vast increase in shelf life. The arrangement shown in this patent, however, is not readily applicable to the multiple-article packaging requirements current in the present day. The cost per article of the package containing more than one is obviously less than that associated with individually packaging each item. The system described by this patent locates and maintains the position of the apple within the package by a resilient pressure applied to projections which engage the end-indentations of the apples. Applying this principle to a multiple-unit package presents obvious difficulties in assembling the contents preparatory to loading, and in maintaining the necessary resilient deflection of the locating projections so that the spacing of the caramel apples with respect to each other and also with respect to the walls of the package continues to be maintained.

SUMMARY OF THE INVENTION

This invention provides a multiple-unit package for caramel apples and similarly-shaped items by providing opposite locating strips bearing against opposite walls of a surrounding housing. The dimensions of the housing are selected with respect to those of the packaged items so that resilient projections on the locating strips are maintained under constant pressure in engagement with the end indentations, thus providing a resilient support and continuing locating effect for the contents of the package. In the preferred form of the invention, the housing of the package has a tubular configuration with a fixed transverse periphery, thus facilitating the maintenance of confining pressures on the contents. Preferably, the locating strips have a closely fitting relationship with respect to the transverse dimension of the housing such that the forces transferred from the locating strips to the package are applied closely adjacent to the wall of the package to minimize a tendency to deflect the supporting wall on which the spacing strips rest. Technically speaking, the closer the bearing relationship of the edge portions of the spacing strip can be made to the side walls of the housing, the less will be the bending moment applied to

the top and bottom walls against which the spacing strips bear directly.

The spacing strips are preferably manufactured of a heat-deformable plastic material in which the resilient projections can be formed by displacing portions of the material of the strips laterally under heat and pressure into a predetermined configuration established by a suitable die. The structural features of this package system make it possible to prepare a sub-assembly including the upper and lower spacing strips, a set of conical papers interposed between the ends of the apples and the resilient locating projections on the spacing strips, and the apples themselves in proper engagement with these components. This sub-assembly is conveniently slipped into the open end of the housing portion of the package under sufficient pressure to deflect the projections, with this deflected condition being maintained by the cross-sectional dimensions of the housing. A side-opening housing can be used, if means are incorporated for maintaining the peripheral confinement of the contents. This usually involves an additional taping or sealing operation after the package assembly, which normally results in an over-all increase in cost over that associated with a housing which has its cross-sectional periphery determined by seams that are secured prior to the loading of the package.

DESCRIPTION OF THE DRAWINGS

The several features of the invention will be analyzed through reference to the figures of the accompanying drawings, in which:

FIG. 1 is a perspective view of one of the locating strips incorporated in the preferred form of the package.

FIG. 2 is a perspective view showing one of the papers applied to the ends of the packaged articles.

FIG. 3 is a side elevation of the locating strip illustrated in FIG. 1.

FIG. 4 illustrates the sub-assembly of the caramel apples, the holding papers, and the locating strips.

FIG. 5 illustrates the loading procedure associated with the preferred form of the invention.

FIG. 6 is a section through the loaded package, on a transverse plane 6'-6' of FIG. 4 through the axis of one of the caramel apples, showing the resilient projections at a maximum degree of extension.

FIG. 7 is a cross-sectional view similar to that of FIG. 6, showing a somewhat larger caramel apple, illustrating the accommodation of the package to the slight variation in sorted size which will still result in the maintenance of the spacing of the articles.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, the spacing strip 10 is preferably formed integrally from a selected plastic material generally accepted for use in conjunction with food products. Various forms of polystyrene are apparently acceptable for this purpose. The initially flat strips are subject to heat deformation in a die to produce the lateral displacement forming the locating projections 11-13. Each of these is generally conical in cross-section, the elements forming these annular surfaces being preferably either straight lines (terminating in a rounded point), or being slightly concave on the side engaging the caramel apples, as shown in the various figures in the drawings. These projections are connected to the flat portions of the locating strip by generally radially corrugated portions 14-16, respectively. These portions are not truly radial, in that they have a somewhat flatter conical configuration than that of the projections 11-13. The portions 14-16 function in the manner of compression springs, with the radial corrugations providing a degree of peripheral compressibility, together with radial stiffness, which predetermines the deflection characteristics, and prevents a random crinkling action which would be associated with a continuous and non-corrugated surface connecting the projections with the edge portions 17 and 18. For the ordinary size of caramel apple, it is desirable that the

corrugated portions 14-16 provide at least a quarter of an inch of resilient movement of the projections 11-13 in a direction perpendicular to the plane of the edge portions 17-18. This will normally give a sufficient spring action with a material of the strip selected in the neighborhood of ten- to twenty-thousandths of an inch in thickness. The thickness of the material in the deformed portions, notably that of the projections 11-13, will of course, be reduced in thickness as a result of the forming procedure.

FIG. 4 illustrates the manner in which the locating strips shown in FIG. 1 are assembled, together with the holding papers shown in FIG. 2, to form a sub-assembly insertable in a package housing. Caramel-coated apples 19-21 are provided with the holding papers at the opposite ends, as shown at 22-27 in FIG. 4. Each of these papers has the conformation illustrated in FIG. 2, which permits initially flat paper to be deformed into a conical configuration by virtue of the generally radial pleats 28. Preferably, an un-pleated portion 29 remains in the central area. The end papers are normally applied during the enrobing process which deposits the caramel on the apples, with the papers being adhesively retained in place by the effect of the caramel itself. With the sub-assembly prepared as shown in FIG. 4, a degree of pressure applied between the spacing strips 10 and 10a will produce a resilient pressure applied against each of the three caramel apples, regardless of the fact that one might be slightly longer than the other. This resilience will maintain the position of the apples by virtue of the engagement of the projections 11-13 with the normal end-indentations on the apples. It is preferable that Jonathan, Wealthy, or Winesap apples be used for this type of caramel apple packaging, as these provide the most desirable cross-sectional configurations and taste characteristics in combination with caramel.

The loading of the sub-assembly shown in FIG. 4 into the housing portion of the package is illustrated in FIG. 5. The tubular section of the housing indicated at 30 has a fixed periphery determined by an adhesive seam shown at the corner 31. This construction produces a housing best able to maintain the transverse pressures necessary to produce continuing force against the locating projections. For marketing purposes, a transparent window 32 is preferably incorporated in the housing 30. These windows are normally adhesively secured all around their margins, and thus are able to cooperate in maintaining the peripheral continuity of the stress-transfer. The vertical dimension of the tubular portion 30, as shown in FIG. 5, is selected to be slightly less than the un-compressed distance between the locating strips 10 and 10a, so that compression of the sub-assembly sufficient to permit insertion into the package, as shown in FIG. 5, will produce the desired degree of confinement. After the sub-assembly has been slipped in, the flap 33 can be closed in the usual manner.

The resulting complete package presents the characteristics shown in FIGS. 6 and 7. The apple 34 is somewhat smaller than the apple 35. The end papers 36 and 37 are forced into general conformity with the locating projections 38 and 39 of the strips 40 and 41. The apple 34 is sufficiently small so that a minimum of deflection has developed in the opposite locating strips, but the apple is still securely retained in position. Obviously, the locating projections 38 and 39 would have to move completely out of engagement with the end indentations in the apple before the apple would be released. The coating of caramel indicated at 42 is thus kept in isolation from the walls of the housing 30 as well as from adjacent apples. In FIG. 7, the larger axial length of the apple 35 has resulted in deflection of the material supporting the locating projections 43 and 44 to a greater degree than that shown in FIG. 6. The same housing 30, however, is fully able to accommodate this slight difference in size, with the result that the article is still maintained in isolation from its neighbors and from the wall of the package to protect the caramel coating 45.

Particularly in cases where relatively large degrees of deflection are required for insertion in the package housings, it is desirable to round the edges of the locating strips as shown at 46 and 47 in FIG. 1. This facilitates the insertion of the sub-assembly of FIG. 4 into the housing, under the procedure illustrated in FIG. 5. This is largely due to the relatively close clearance between the marginal edges 17 and 18 with respect to the side walls 48 and 49, as illustrated in FIGS. 6 and 7. This closeness results in the transfer of forces from the locating strips over to the side walls at positions sufficiently close to the walls that a minimum of bending moment is induced in the top and bottom walls 50 and 51.

I claim:

1. In combination with a plurality of articles of similar axial length and having opposite end-indentations, a container for said articles comprising: a spaced pair of strips having similarly spaced deflectable projections extending outwardly from a side thereof and deflectible relative thereto in a direction normal to a plane containing the side edge portions of said strips; said projections being engaged with said end-indentations; a housing enclosing said plurality of articles and pair of strips; and opposed side walls of said housing engaging said strips along a side thereof opposite said projections and maintaining a deflecting stress on at least some of said projections.

2. A combination as defined in claim 1, wherein said housing has a fixed tubular periphery, and closeable flap means at least at one end thereof.

3. A combination as defined in claim 1, wherein said projections are integral with said edge portions.

4. A combination as defined in claim 1, wherein said edge portions are rounded at least at one end thereof in a plane parallel to said edge portions.

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