

[54] CONE PACKAGE

[75] Inventors: **Paul Davis**, Swampscott; **David Schneider**, Lexington, both of Mass.; **Paul Hollinger**, Pikesville, Md.

[73] Assignee: **Sweetheart Plastics, Inc.**,
Wilmington, Mass.

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Primary Examiner—William I. Price

Assistant Examiner—Stephen Marcus

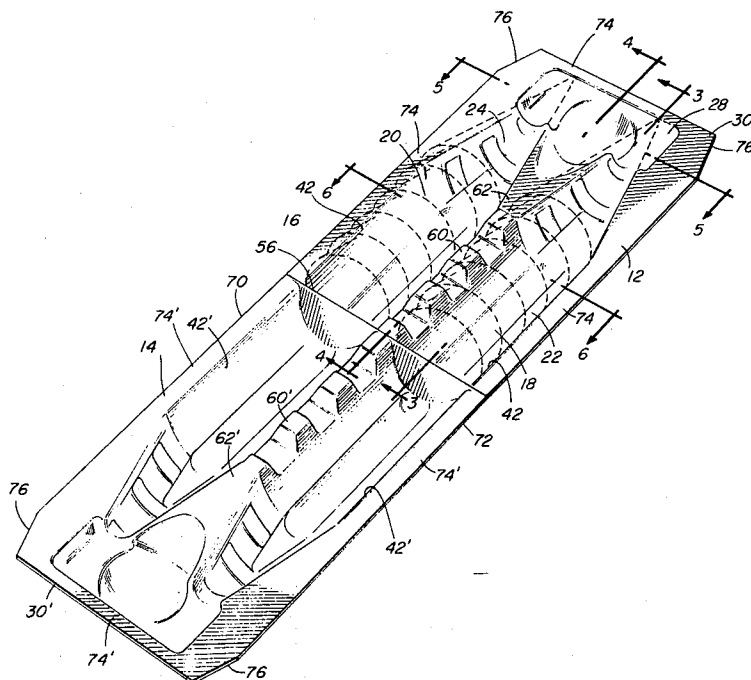
Attorney, Agent, or Firm—Wolf, Greenfield & Sacks

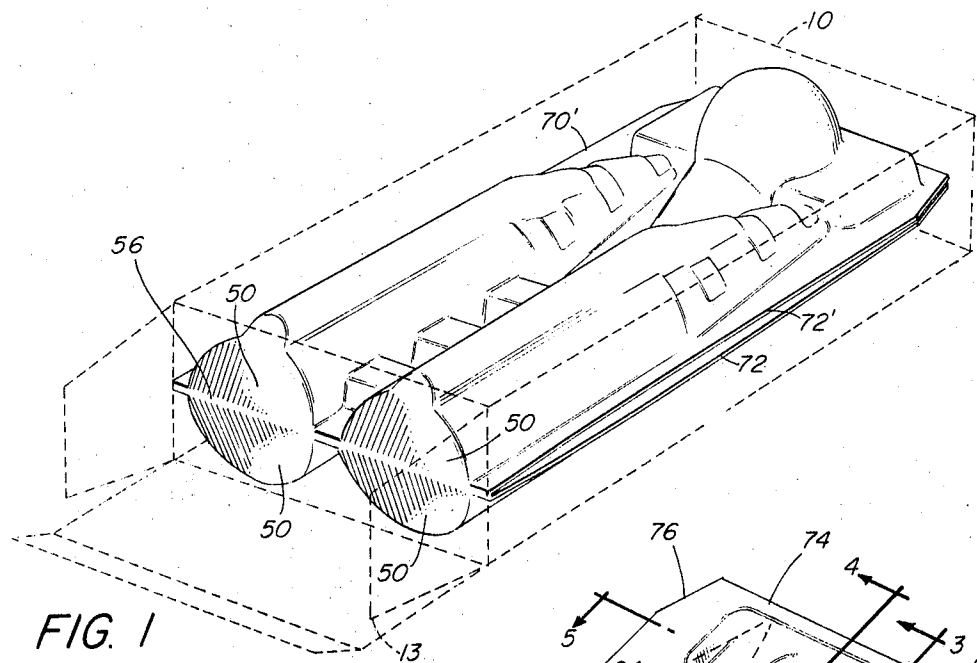
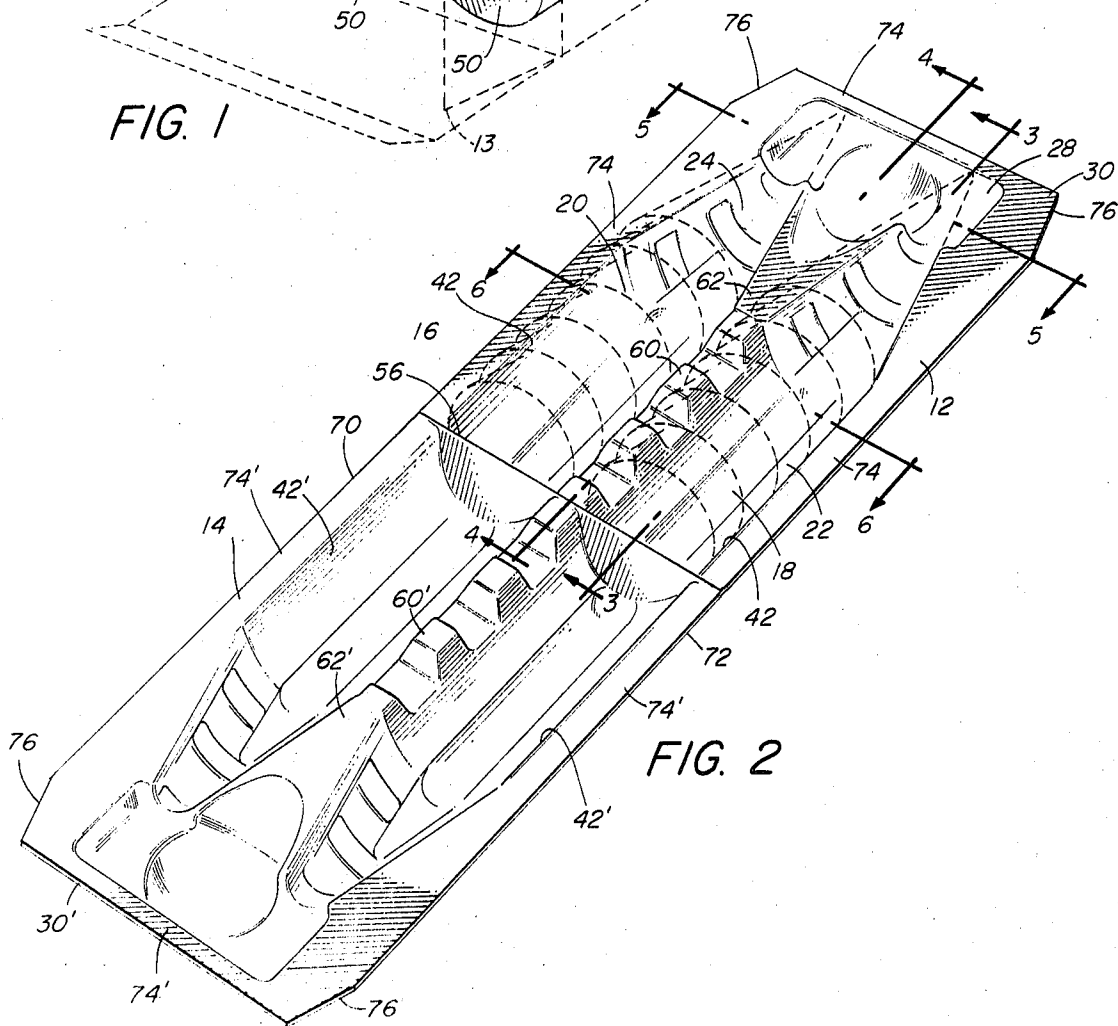
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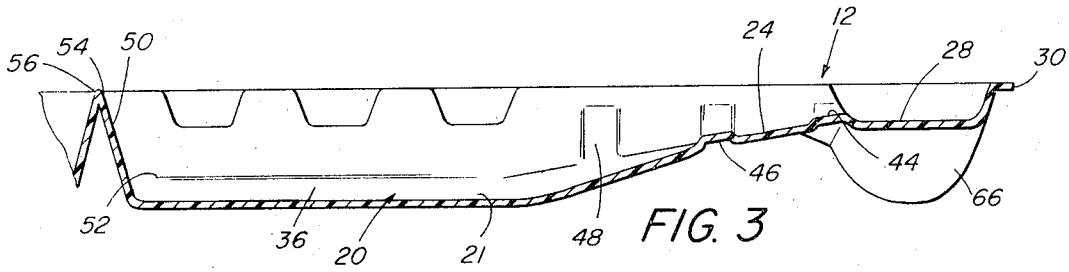
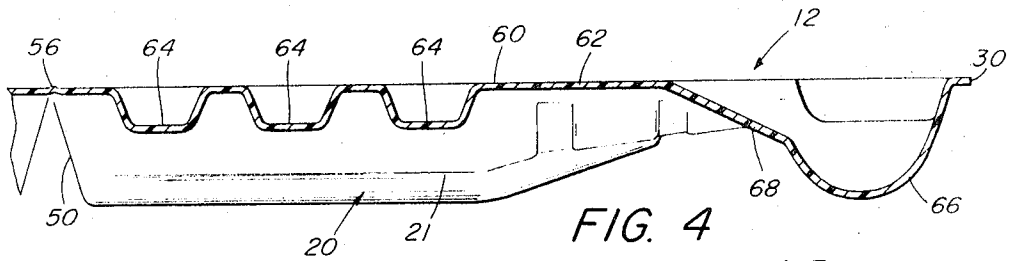
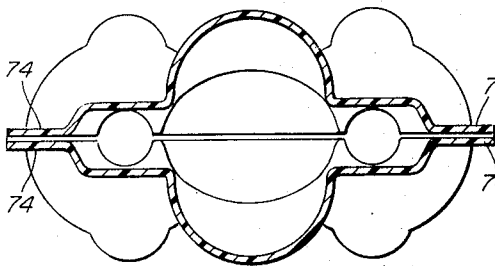
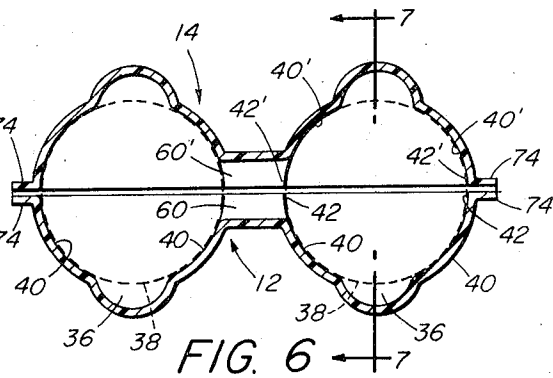
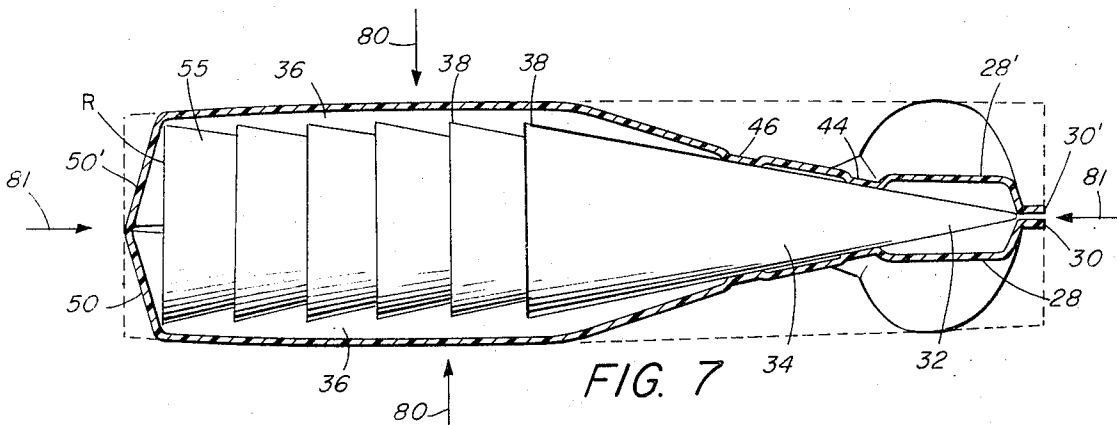
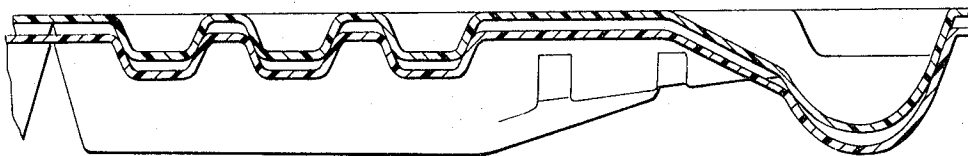
ABSTRACT

A package for ice cream cones including a pair of generally rectangular complementary panels made of an expanded foam plastic material with each panel having a pocket which corresponds in shape to the shape of a number of nested ice cream cones. The panels completely enclose the cones in the pockets when oriented in face to face relation, and the assembled cones and panels fit in a box which is smaller in thickness than the assembly so as to preload the cone package to prevent movement of the cones in the box.

9 Claims, 8 Drawing Figures







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CONE PACKAGE

BACKGROUND OF THE INVENTION

This invention relates to the packaging of fragile articles and more particularly comprises a new and improved package for nested ice cream cones. This invention is an improvement over the package disclosed in U.S. Pat. No. 3,400,873 dated Sept. 10, 1968.

Several different devices have been developed for packaging ice cream cones in small quantities for retail sale in markets. None of these are wholly satisfactory. They have not proved adequate to protect the box of nested cones from even the normally encountered impacts which occur during shipment, stacking, and customer handling.

Because the cones are very fragile, any relative movement of the nested cones with respect to one another or to the package itself regularly results in cone breakage, and the cones are rendered unusable. Obviously, if the tip of a cone breaks, melted ice cream will drip from it. If the lip of a cone breaks, it will not provide a firm seat for a scoop of ice cream, and the remainder of the lip will tend to crumble under the pressure applied when the scoop of ice cream is pressed onto it.

In order to reduce if not eliminate cone breakage, one object of the present invention is to provide preloading of the cones when the cones are packaged so as to prevent relative movement between the cones themselves and/or between the cones and package.

Another object of the present invention is to provide a packaging for cones which is inexpensive to manufacture and which itself may be handled easily and conveniently in nested relationship with like packaging before use.

Yet another important object of this invention is to provide a package of nested ice cream cones, which very quickly may be assembled and sealed, so as to reduce the packaging costs.

SUMMARY OF THE INVENTION

To accomplish the foregoing and other objects, this invention includes among its features a pair of cooperating panels made of an expanded foam plastic material. A pocket is formed in each of the panels, which pockets face one another when the panels are in face to face relationship so that the pockets together form a cavity for housing a plurality of nested cones. The cavity is disposed inwardly of the edges of the panels, and the assembly of cones and panels are packaged in a box whose thickness is less than the assembly so as to load the assembly and prevent any shifting of the cones relative to each other or to the panels and/or the box.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a cone package constructed in accordance with this invention and showing the box in phantom lines for clarity;

FIG. 2 is a perspective view showing an opening packing made of two panels, and showing stacks of nested cones in phantom lines placed in the pockets of one panel, utilized in the package of FIG. 1;

FIGS. 3 and 4 are fragmentary cross sectional views taken along section lines 3—3 and 4—4 of FIG. 2;

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FIGS. 5 and 6 are cross-sectional views of the panels which comprises the packing in face to face relationship, and taken in the planes suggested by the section lines 5—5 and 6—6 in FIG. 2 and with the cones suggested in phantom lines in FIG. 6;

FIG. 7 is a cross-sectional view taken along the section line 7—7 of FIG. 6, and showing the cones in full lines and the box in phantom lines; and

FIG. 8 is a fragmentary view of several panels showing how they nest together when the panels are open.

DETAILED DESCRIPTION

The complete package of this invention comprises a box 10, a pair of panels 12 and 14, and two stacks of nested ice cream cones 16 and 18. The box 10 may be the conventional folding box type made of cardboard with a flap 13, and it may in turn carry a printed paper wrapper. The panels 12 and 14 may be made of an expanded polystyrene foam on standard thermoforming equipment. The panels 12 and 14 in the embodiment shown are mirror images of one another and the corresponding parts of each panel in the following description bear like numbers, primed with respect to the panel 14.

Panel 12 is shown in the drawing to be made of a single sheet of expanded foam plastic material which may have a stock thickness of approximately 0.032 inch. The thickness is of course dependent upon the particular application of package as well as economic considerations. A pair of pockets 20 and 22 are formed in the panel and each is generally semi-cylindrical in shape as shown in FIG. 2. Each pocket diminishes in size at the outer end to form generally half cone-shaped extensions 24 and 26. The ends of cone-shaped portions 24 and 26 terminate in a shallow recess 28 formed adjacent the edge 30 of the panel 12. The apex 32 of the end cone 34 in each stack 16 extends into the recess. Typically the pockets 20 and 22 including their tapered ends are sized to accommodate six nested cones each, so that the package when assembled in the box contains a total of one dozen cones (see FIG. 7).

The main semi-cylindrical portions 21 and 23 of each pocket are somewhat less than 180°, and a shallow depression 36 runs along the bottom of each, whose function is described below. Because of the configuration of the major portions 21 and 23 of the pockets, the rims 38 of the nested cones are supported only by the arcuate side walls 40. Consequently, when panels 12 and 14 are placed in face to face relationship, each cone rim is contacted in four places, twice by arcs 40 and twice by arcs 40'. And because the pockets are less than 180°, the edges 42 of opposite pockets do not contact one another when the panels are closed as in FIG. 6.

In FIGS. 2 and 3 three arcuate lands 44, 46 and 48 are shown formed in the tapered sections of the pockets, which lands are sized to grip the outer surface of the end cone 34 in the nest to further prevent axial shifting of the cone stack when closed between the panels.

The end wall 50 of each pocket is shown to taper upwardly and outwardly from the bottom 52, and the upper edge 54 of each wall 50 is coincident with the hinge line 56 which joins panels 12 and 14. Because of the tapered configuration of the end walls 50, the rim R of the end cone 55 disposed at that end of the pocket

is spaced inwardly from the edge 54 as is evident in FIG. 7.

In FIG. 4 rib 60 disposed between the adjacent pockets 20 and 22 is shown. The width of rib 60 between semi-cylindrical portions 21 and 23 of the pockets is uniform, and rib 60 widens at end 62 between the tapered extensions 24 and 26 of the pockets. Rib 60 is interrupted by downwardly tapered depressions 64 which increase the transverse rigidity of the panel between the pockets without inhibiting deformation of the foam package under loads applied perpendicular to the panels as described in greater detail below.

A well 66 shown as hemispherical but which may be of other shapes is formed in panel 12 depending from recess 28. Well 66 merges into an inclined arcuate wall 68 which terminates in the rib portion 62. The depth of well 66 is substantially identical to the depth of pockets 22 and 24 measured at depression 36 so as to present a support for the end of the panel for reasons which will also be made clear below.

As suggested above, panels 12 and 14 are preferably formed as a unitary structure by thermoforming foam plastic sheet material. Hinge 56 is formed by squeezing the sheet along a single line so as to substantially reduce the sheet thickness at the line. In the sheet suggested, the thickness of the material along the hinge line may be approximately 0.008 inch. After the panels 12 and 14 which comprise the packing are formed (normally from a wide sheet of material so that a plurality of units are formed simultaneously) the panels are trimmed from the web along the side edges 70 and 72 and end edge 30. When trimmed, a margin 74 is left along each side of the stock outwardly from the outer edges 42 of the pockets. Therefore, when the two panels are folded in face to face relationship as shown in FIG. 1 the margins 74 extend about three sides of the panels, and the fourth side is occupied by hinge 56 and inclined walls 50.

The nested ice cream cones are packaged by placing a stack of nested cones in the pockets 20 and 22, either both in the pockets of one panel or one stack each in a pocket of each panel. When placed in the pockets, apex 32 of cone 34 furthest removed from hinge 56 lies in the shallow recess 28 adjacent the edge 30 as is illustrated in FIG. 3, and cone 34 is supported by the lands 44, 46, and 48. The remaining cones are supported along their rims 38 and R by the arcuate walls 40 of pockets 22 and 24. The lowermost parts of the rims are spaced from the panel material by depressions 36 formed along the pocket bottoms.

After the stacks of nested cones are placed in the pockets, the panels are closed about the stacks. Because the individual pockets are not large enough to accommodate fully half of the stacks in the closed condition margins 74 of the panels are spaced apart in the manner shown in FIGS. 1, 5 and 6. The assembly of nested cones and panels are then inserted in box 10, edges 30 first. Insertion is facilitated by the trimmed corners 76 which reduce the width of the edges 30. The width of the panels measured from edge 70 to 72 is substantially the same as the width of the box 10 so that the box applies a load in the direction of arrows 79 on the assembly and prevents lateral shifting of the assembly in it.

The thickness of the package measured at the depressions 36 (as well as the thickness measured at the deep points of the wells 66) exceeds by a slight amount

(approximately 0.10 inch) the thickness of box 10. Consequently a slight compressive load is applied to the assembly by the box as suggested by arrows 80 in FIG. 7. Because of the presence of ribs 36, however, this load is not transferred directly to pressure on cone rims 38 and R, but rather the pressure is absorbed at least in part by the flexibility of the material so as to form a tight fit between the assembly and box further to resist any relative motion of the parts of the package.

The length of the panels 12 and 14 measured from edge 30 to hinge 56 is substantially the same as the height of box 10. Consequently the assembly cannot shift lengthwise in the box when the box flap is closed. The apex 32 of each end cone 34 is spaced inwardly from the edge 30 and is protected in the cavity 28 so that substantial impact taken at the ends of the box as suggested by arrows 81 will not break the apexes. At the other end of the box, the end cone rims are cushioned by the axial distance between the rims and the hinge 56. Therefore a load which would destroy the package is effectively required to break the cones.

In FIG. 8 it will be noted that when the panels are open at the hinge 56, a plurality of panels may be nested closely with respect to one another to accommodate storage, shipping and packaging costs before use. The various angles formed in the panels are relatively shallow so as not to interfere with close nesting of the various panels.

From the foregoing description many of the advantages of the present invention will be apparent. Some of these advantages are catalogued below without regard to their relative importance.

Unlike the package shown in U.S. Pat. No. 3,400,873, the panels of the present invention may be trimmed in a single plane, and the hinge 56 may be creased simultaneously with either the forming or trimming operation so as not to require a secondary operation.

In the present device the cones are completely enclosed with the package (with the exception of the slight gap between the margins 74). The cones themselves are protected on all sides from the sides of the box.

The panels of the present invention nest closely with one another as all steep angles have been eliminated, which would prevent close nesting of like panels.

The cones as part of the assembly are preloaded along all three axes. That is, the cones are gripped in three directions within panels 12 and 14, and the assembly composed of the panels and cones are in turn loaded in the direction of the opposed panels.

The flexibility of the foam is used to accommodate the great variations in cone size. (The cones are not uniform in length, thickness, etc. - large tolerances are encountered in cone manufacture). The panels which comprise the liner distort to accommodate the variations, and because the cones are not gripped completely circumferentially about their rims the panels may be compressed without transferring forces directly to the cones themselves.

The tapered end 30 facilitates insertion of the assembly into the box, and the configuration of the ball prevents any hangup of that end as it enters the box.

Depressions 64 between the pockets increase the transverse rigidity of the ribs 60 without inhibiting deformation of the foam under package load. That is, the

opposite ribs 60 and 60' are spaced apart when the panels are closed so as to facilitate squeezing of the assembly in a direction perpendicular to the troughs.

The tips of the cones are effectively suspended in space in the recesses 28 and 28', and no box loading can effect the cone tips except under destructive conditions.

Hinge 56 and inclined wall 50 and 50' provide a cushion for the cones by spacing the cone rims from the end of the box.

Lands 44, 46 and 48 support the tapered parts of the cone and prevent motion of the stack when the package is closed.

The tapered portions at one end and the inclined walls 50 at the other end of each pocket provide guides at both ends for loading the stack of cones so as to promote quick and efficient loading.

The dimensions of the pockets with respect to the cones afford full cone protection even when less than a full complement of cones are placed in the package. That is, the stacks are gripped firmly even when fewer than six cones are in any of the pockets.

Having described this invention in detail, those skilled in the art will appreciate that modifications may be made of the invention without departing from its spirit. Therefore it is not intended that the scope of this invention be limited by the specific embodiment illustrated and described. Rather, it is intended that the scope of the invention be determined by the appended claims and their equivalents.

What is claimed is:

1. An ice cream cone package for a plurality of nested cones comprising
 - a pair of complementary generally rectangular panels made of a resilient plastic material,
 - at least one pocket in each panel and facing one another when the panels are in face to face relationship, for receiving the nested cones,
 - said pockets being spaced inwardly from the peripheral edges of at least three sides of the panels
 - said pockets diminishing in depth and width at one end to receive the end cone in the nest with the end cone having its apex spaced inwardly from the adjacent peripheral edge,
 - and a depression provided along the bottom of each pocket to space a portion of the rim of each cone in the stack from the panel and provide pressure absorbing characteristics to said panel to prevent application of excessive pressure to said cones so that each pocket is divided into elongated side gripping portions which are resiliently spread apart to grip said cones when said pockets and associated cones are inserted in a box which has a top to bottom dimension less than the top to bottom outer dimension of said cone packed panels at said depressions.
2. An ice cream cone package for a plurality of nested cones as described in claim 1 further character-

ized by

a well formed in each panel adjacent said one end and of a depth to proximate the depth of the pockets at their deepest point.

3. An ice cream cone package for a plurality of nested cones as described in claim 3 further characterized by

said panels being formed as a unitary structure and hingedly connected together along edges opposite said one ends of the pockets.

4. An ice cream cone package for a plurality of nested cones as described in claim 3 further characterized by

end wall forming the ends of the pockets, said walls tapering upwardly and away from said one end of the pockets to the hinged edge, whereby the hinged edge lies removed from the plane of the adjacent rim of end cones of the nest.

5. An ice cream cone package for a plurality of nested cones as described in claim 4 further characterized by

a pair of pockets in each panel disposed side by side and each having ends which diminish in depth and width,

and means including a rib between the side by side pockets in each panel imparting lateral stiffness to said panels.

6. An ice cream cone package for a plurality of nested cones as described in claim 5 and further characterized by,

said panels being made of an expanded foam plastic material,

and a box housing the panels therein with said elongated side gripping portions resiliently spread apart to grip said cones.

7. An ice cream cone package for a plurality of nested cones as described in claim 3 further characterized by

said pockets being generally cylindrical with slightly narrower widths than the widest dimension of the nested cones whereby when the cones are assembled between the panels the margins of the panels about the pockets are spaced from one another as the pockets together will not accommodate the full thickness of the stack of cones.

8. An ice cream cone package for a plurality of nested cones as described in claim 3 further characterized by

lands provided in said one end of each pocket for gripping the tapered cone at that end.

9. An ice cream cone package for a plurality of nested cones as described in claim 3 further characterized by

a recess in each panel immediately beyond said one end of each pocket into which the apex of the end cone extends when a stack of cones lies in the pocket.

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