STACKABLE CLAMSHELL TYPE OF CONTAINER

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ABSTRACT
A container of the clamshell type, with an upper and lower shell, the lower shell having a footing and the upper shell having a platform. The clamshell container is especially useful in the packaging of peewee types of peaches and nectarines, or also with conventionally shaped peaches and nectarines. The shells are separated at a plane, the plane of separation plane directed at approximately a forty-five degree angle relative to the footing plane. With the separation plane oriented at close to a forty-five degree angle off the footing plane, or an angled shell separation, the lip surface extending from the container does not interfere with neighboring containers, stacked above, below or in a single layer. Each container's footing rests on the platform of the container below, without contacting the lip surface, hinge or handle of a neighboring container. This feature provides display advantages, and a closer stacking of clam shell type containers.
STACKABLE CLAMSHELL TYPE OF CONTAINER

PRIORITY

[0001] This is a utility conversion of provisional application 60/834,722, filed Jul. 31, 2006.

FIELD OF INVENTION

[0002] A clamshell type of container for receiving an article, such as a perishable item, the filled container able to stack efficiently with neighboring containers, minimizing voids or empty space between the containers.

BACKGROUND

[0003] The packaging and display of agricultural produce and articles of manufacture continues to be of vital importance to the producers, distributors and retailers of such articles. Plastic and typically thermo-formed containers are employed widely in the “fast-food” marketplace, and increasingly in a wider range of retail packaging, as they provide both the producer and consumer with an easy to use, and convenient package system. One such type of plastic container is the clamshell container. With a goal of providing an efficient, economical and eye-catching display system, the clamshell container is easily acquired, carried and used by the consumer. Clamshell types of containers, generally for the enclosure of articles, are well known to packers of bakery goods, perishable items, especially agricultural commodities or “produce,” such as fruits and vegetables. Clamshell containers are typically two-part, connected by a hinge, and fold over to enclose the article, or multiples of articles. The clamshell container shields the article from damage, and provides for easy carrying or transport of the article within the container. The present invention provides an improved clamshell type of packaging system, with superior stacking, display, labeling and carrying features, discussed as follows.

BRIEF DESCRIPTION OF DRAWINGS

[0004] FIG. 1 is a perspective drawing of four clamshell containers, according to a preferred embodiment of the present invention;
[0005] FIG. 2 is a perspective drawing of a clamshell container and four articles, according to a preferred embodiment of the present invention;
[0006] FIG. 3 is a perspective drawing of a clamshell container, according to a preferred embodiment of the present invention;
[0007] FIG. 4 is a side view drawing of a clamshell container, according to a preferred embodiment of the present invention;
[0008] FIG. 5 is drawing of a clamshell container, according to a preferred embodiment of the present invention;
[0009] FIG. 6 is a perspective drawing of six clamshell containers, stacked according to a preferred embodiment of the present invention;
[0010] FIG. 7 is a perspective drawing of twelve clamshell containers, stacked according to a preferred embodiment of the present invention;
[0011] FIG. 8 is a perspective drawing of twelve clamshell containers packed within a box, stacked according to a preferred embodiment of the present invention;

[0012] FIG. 9 is a perspective drawing of a clamshell container, according to a preferred embodiment of the present invention; and
[0013] FIG. 10 is a perspective drawing of a clamshell container, according to a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

[0014] The present invention provides for an improved clamshell type of container. As shown in FIGS. 1 through 10, the container 10 receives an article 12, such as a perishable item. The article is preferably a peach or nectarine, and most preferably a “peento” variety of peach 14, or nectarine, as shown in FIG. 2. The peento variety of peach is also sold under the “Donut™” brand, or an alternative the “Halo®” brand. As shown in FIG. 9, a conventionally shaped nectarine or peach 14B may also be packaged within the container. However, in an alternative, the article may be any article, perishable or nonperishable, which is receivable in the container generally for the purposes of storage, display for sale and easy transport.

[0015] The container 10 is especially useful in the storage of perishable articles 12, such as fruits and vegetables. The container is preferably fabricated from a plastic material 17, such as polyethylene, and most preferably thermo-formed by processes and equipment that are well known to those skilled in container manufacture on an industrial scale. Any other process for forming such a container may be employed, such as vacuum molding or injection molding. Additionally, the plastic material of the container is most preferably clear or substantially transparent, which allows a purchaser to examine the articles contained within. However, in an alternative container may be formed of a substantially opaque material, or a blend of transparent and opaque materials, with “windows” to view the article within.

[0016] The container 10, when filled with the article 12, or most preferably filled with a plurality of articles 18, is able to stack, in single or multiple layers, efficiently with neighboring containers, to minimize a “void” 20, which is the interstitial or empty space between the containers. FIGS. 1 through 3 shows a “four-pack” embodiment of the container in its unfilled state, with a lower shell 21 connected to an upper shell 22 by a hinge 24. Foldable about the hinge, the upper shell folds over to cap the lower shell, as shown in FIG. 1. The upper and lower shells are preferably equivalently sized halves of the container, hence the analogy to a “clamshell.”

[0017] To lock the lower shell 21 and the upper shell 22 together, an interlock 25 is preferably employed, as shown in FIGS. 1 and 2. Most preferably, the interlock includes a female interlock 27 that receives a male interlock 28. The interlock holds the upper shell to the lower shell and is easily separated manually, by the purchasing consumer or end user. Interlocks of this type are well known in thermo-formed container manufacture.

[0018] The container 10, and more specifically the lower shell 21 and the upper shell 22, each include a plurality of cups 29, formed within each of the shells. The cups serve to receive and enclose each article 12 held within the container. Most preferably, the cups substantially match the outer shape or form of the article to be held within the container. In a preferred embodiment of the present invention, the plurality of cups are each formed to receive the peento
variety of peach or nectarine 14, which is generally flat and somewhat annular in form, and can be closely stacked within the container. Any reasonable number of articles may be included in the container. Containers with four, six, eight or ten articles, specifically manufactured for the peento peaches or nectarine, easily employs the container system of the present invention, as shown in FIGS. 1 through 10.

[0019] In a preferred embodiment, the container 10 also includes a handle 30, as shown in FIGS. 1 through 5, 9 and 10. The handle is most preferably in two parts, with a lower handle 31 formed in the lower shell 21 and an upper handle 32 formed in the upper shell 22. When the upper and lower shell are folded together about the hinge 24, the upper handle meets the lower handle, together comprising the handle. The handle preferably includes a finger hole 34 for receiving the fingers, or a portion of the hand of a user, who may be the purchasing consumer.

[0020] The container 10 also includes a footing 37, as shown in FIGS. 1 through 4, 6, 9 and 10. Preferably, the footing is formed in the lower shell 21. The footing serves to stabilize the container, providing a substantially stable base in the stacking of the containers, and also to maintain the orientation of each individual container. The footing may set upon a support surface 38, such as the bottom of a box 41 or display case, as shown in FIG. 7, or another container may provide the support surface. The footing is preferably flat, but can additionally include protrusions to aid in stacking, to limit slippage or facilitate drainage, for example. Essentially, the footing includes a footing plane 40, as shown in FIG. 3 which preferably matches-up to the support surface. Additionally, the footing can receive a lower label 42, preferably with a standard, scan-able “UPC barcode.”

[0021] Similar to the footing 37, a platform 39 is preferably formed in the upper shell 22, as shown in FIGS. 1 through 10. A purpose of the platform is to provide support for the receipt of the footing of a second container 10b, stacked on top of the container 10. Similar to the footing plane 40, the platform includes a platform plane 50, as shown in FIG. 3, the platform plane is essentially the reciprocal or counterpart match to the footing plane, both of which are substantially horizontal to the ground surface, when the support surface 38, is also horizontal relative to the ground, as is preferred.

[0022] Most preferably, the platform 39 can also receive an upper label 43, to identify the article 12 or plurality of articles 18, enclosed within the containers, and their origin. For retail display, the support surface 38 beneath the footing 37, and so the footing plane may depart from the horizontal, especially when it is desired to angle the container toward the potential purchaser. This off-horizontal angling of the container is best accomplished with the container stacked within a box, as depicted in FIG. 8, to prevent the toppling of stacked containers.

[0023] The platform 39 of each container 10 orients to mate and match-up with the footing 37 of the second container 10b, above. To best support the corresponding footing of the second container 10b, the container for this matching-up, the platform should be approximately horizontal, relative to the ground surface, when the footing of the container also rests on a horizontal support surface 38, as is preferred. A term used herein to describe this featured, matched relationship between the footing and the platform is a “reciprocal planar orientation” 44. With this reciprocal planar orientation, the footing plane 40 parallels and substantially matches the platform plane 50, as shown in FIGS. 1 and 6.

[0024] The hinge 24 of the container 10 is an extension of a lip surface 45. The lip surface extends laterally outward from both the lower shell 21 and the upper shell 22. The hinge is the portion of the lip surface that connects the upper shell to the lower shell, as shown in FIGS. 2 through 4, 9 and 10. The handle 30 is also a portion of the lip surface, and additionally, the interlock 25 extends from the lip surface, as needed to provide for the connection of the upper shell to the lower shell. Specifically, the lip surface of the lower shell is a lower lip surface 46, and the lip surface of the upper shell is an upper lip surface 47. Preferably, when the container is employed for agricultural produce, the upper lip surface does not touch the lower lip surface, when the container is folded together. Most preferably, the hinge has a separation width 51 to maintain a ventilation gap 52 between the upper lip and the lower lip of the respective upper and lower shells, as shown in FIG. 1. The interlock also maintains this ventilation gap, with the male interlock and female interlock keeping the upper lip surface separated from the lower lip surface. The ventilation gap provides for the circulation of cool air to prolong the storage life of the article enclosed within the container, and also for the escape of moisture and ripening gasses.

[0025] The ventilation gap 52, as described above, lies on a separation plane 55, which divides the lower shell 21 from the upper shell 22. Portions of the lower or upper shell may certainly cross this separation plane, for instance the male interlock 28 may extend into the female interlock 27, and vice versa. However, the separation plane substantially bisects the container through the hinge 24 between the upper shell and the lower shell.

[0026] A key feature of the container 10 of the present invention is the orientation of the separation plane 55 relative to the footing plane 40. The container with the separation plane oriented at close to a forty-five degree angle off of the footing plane, or an “angled shell” 60, the lip surface 45 extending from the container does not interfere with neighboring containers, such as the second container 10b. Specifically, each footing 37 of each stacked container rests on the platform below, without contacting the lip surface of neighboring containers. Importantly, as shown in FIGS. 1 and 6, the lip surface of any particular stacked container does not impact the lip surface of any neighboring container above or below the stacked container. This feature provides for a closer stacking of clam shell type containers than previously possible. Neighboring containers may also be at the same level or layer, with a common support surface 38, such as the bottom of a box or display counter, as shown in FIG. 7. In the single layer embodiment of the present invention, the angled shell of the container allows neighboring containers to space closely together, especially when compared to conventional container systems. The lip surface of each container, preferably including the handle 30, overlaps onto the neighboring container, most preferably up to, but without obscuring the upper label 43 on the platform 39, as shown in each layer of containers in FIG. 1.

[0027] An exact angle of forty-five degrees is not required for the angled shell 60. The container 10 of the present invention can function as described herein, to take advantage of the placing the hinge 24 and handle 30 within the void 20 between stacked containers. A tolerance of plus or minus fifteen degrees for the angled shell is acceptable, and a small departure from forty-five degrees is preferred, to allow the handle and the hinge of adjacent stacked containers to overlap, instead of abutting against one another. This overlapping preferred configuration of the angled shell is shown in FIG. 1.
Additionally, this angled shell 60 also provides for the handle 30 to occupy the void 20 between stacked containers 10, and 10B, out of the way of mating footings 37 and platforms 39. Therefore, the handle can be included in the design of the container, without a penalty to packing density in boxes filled with stacks of the containers.

FIGS. 1 through 10 show the stacking and display advantages of specific containers 10 having features of the present invention, for a wide number of articles 12. FIGS. 1 through 4 show a four-article container, FIG. 5 shows an eight-article container, and FIGS. 6 through 8 show six-article containers. FIGS. 9 and 10 show four-article containers, for use with more spherical articles, such as the conventional peach 141, as shown in FIG. 10. Any number of the plurality of articles 18 could be placed within properly configured containers and utilize the features of the present invention. Specifically, FIG. 1 shows four containers in a stacked configuration, with the handles fitting into the voids 20 created between the stacked containers, the hinges 24 of the containers also share this void space. With the lip surface 45 rotates at the angled shell 60 of approximately forty-five degrees, the containers can be stacked closer together, saving room in the shipping box 41, as shown in FIG. 7.

Additionally, FIG. 6 shows this space saving feature of the angled shell 60, even without the use of the handles. The hinge 24 and the lip surface can orient to share the void 20 to save space when the container 10 is stacked.

Having now described the invention, to those skilled in the art to which it pertains, it may become apparent that the need to make modifications without deviating from the intention of the design as defined by the appended claims.

What is claimed is:

1. A container for an article comprising:
   an upper shell and a lower shell, the lower shell having a footing and the upper shell having a platform;
   the upper shell substantially separated from the lower shell at a separation plane, the separation plane at approximately a forty-five degree angle relative to the footing; and
   the platform approximately parallel with the footing.

2. The container of claim 1, additionally including:
   a label receivable onto the platform.

3. The container of claim 1, additionally including:
   a label receivable onto the footing.

4. The container of claim 1, wherein:
   the upper shell is connected to the lower shell at a hinge on the separation plane.

5. The container of claim 1, wherein:
   the platform of the container is able to receive the footing of a second, stacked container.

6. The container of claim 1, additionally including:
   a lip surface that extends from the container along and approximately parallel to the separation plane; and
   the lip surface of the container does not interfere with a neighboring container, the neighboring container stacked above, below or in a single layer, relative to the container.

7. The container of claim 1, additionally including:
   an article receivable into the container, substantially enclosed within the upper shell and the lower shell.

8. The container of claim 7, wherein:
   the article is a perishable item.

9. The container of claim 7, wherein:
   the article is selected from the group consisting of a peach, and a nectarine.

10. A container system for an article comprising:
   a first container having a first upper shell and a first lower shell, the first lower shell having a footing and the first upper shell having a first platform;
   the first footing resting on a first footing plane;
   the first upper shell substantially separated from the first lower shell at a first separation plane, the first separation plane at approximately a forty-five degree angle relative to the first footing plane;
   the first platform approximately parallel with the first footing;
   a second container having a second upper shell and a second lower shell, the second lower shell having a second footing;
   the second footing resting on a second footing plane;
   the second footing plane substantially parallel to the first footing plane;
   the second upper shell substantially separated from the second lower shell at a second separation plane, the second separation plane at approximately a forty-five degree angle relative to the second footing plane;
   the second platform approximately parallel with the first footing; and
   the second container stackable onto the first container, with the second footing resting on the first platform.

11. The container system of claim 10, additionally including:
   a label receivable onto the first platform.

12. The container system of claim 10, additionally including:
   a label receivable onto the first footing.

13. The container system of claim 10, wherein:
   the first upper shell is connected to the first lower shell at a hinge on the first separation plane.

14. The container system of claim 10, additionally including:
   a lip surface that extends from the first container along and approximately parallel to the first separation plane; and
   the lip surface of the first container does not interfere with a neighboring container, the neighboring container stacked above, below or in a single layer, relative to the first container.

15. The container system of claim 14, wherein:
   the neighboring container is the second container.

16. The container system of claim 10, additionally including:
   a first article is receivable into the first container, substantially enclosed within the first upper shell and the first lower shell.

17. The container system of claim 10, additionally including:
   a second article is receivable into the second container, substantially enclosed within the second upper shell and the second lower shell.

18. The container system of claim 10, wherein:
   the first article is a perishable item.

19. The container system of claim 10, wherein:
   the second article is a perishable item.

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