

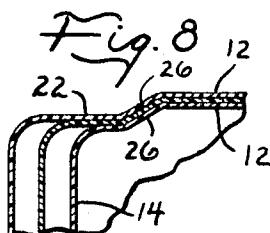
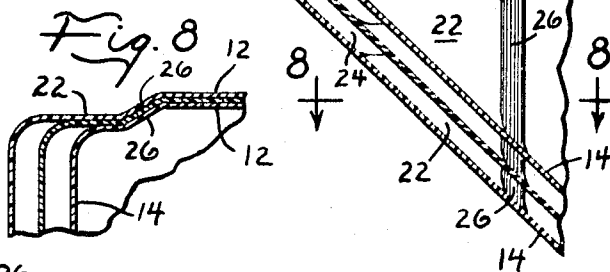
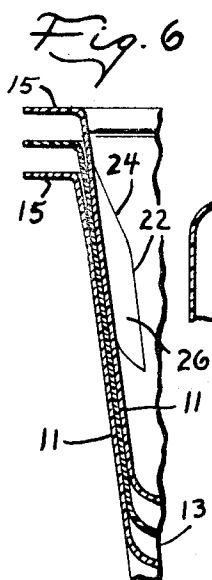
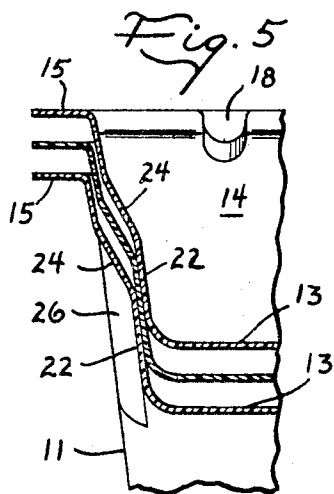
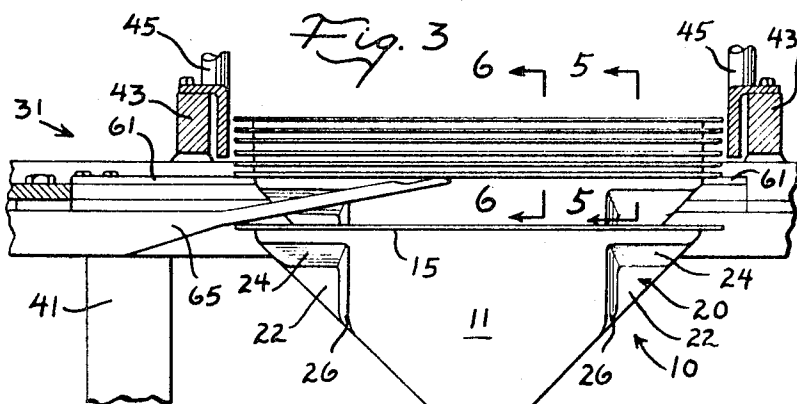
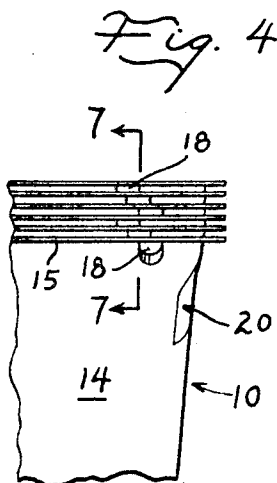
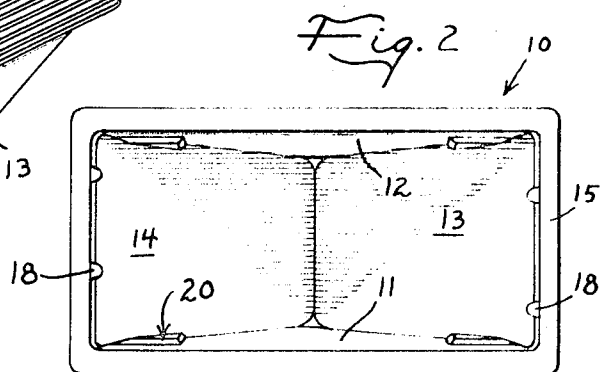
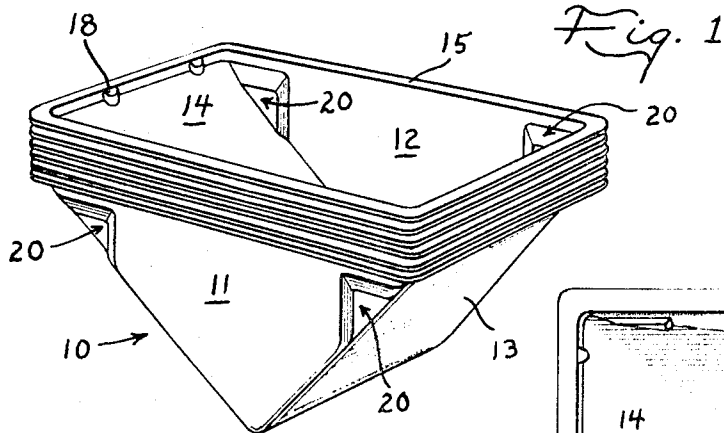
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3,615,039

NESTABLE CONTAINER

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3,615,039

NESTABLE CONTAINER

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6 Claims

ABSTRACT OF THE DISCLOSURE

The container has triangular side panels and generally rectangular end panels joined to a peripheral flange at the open end. Each triangular side panel has a triangular recess at each corner adjacent the peripheral flange. The container is arranged for nesting inside an identical container and the recess relieves the drag at the corners to facilitate denesting. Each recess also provides an upright shoulder for laterally aligning the nested containers and for guiding the subjacent container when denested.

BACKGROUND

The invention pertains to containers or receptacles, and more particularly to a nestable container of generally triangular cross section and having means to facilitate denesting.

Containers of generally triangular cross section have been known. Such a container, when provided with a peripheral flange at the open end, has a corner which is strong or rigid, even when formed of thin plastic material. When such containers are nested, the generally rigid corners tend to bind and operate against easy denesting. It is desirable, therefore, to provide a nestable container of triangular cross section in which the corners do not bind. Also, since the end panels are slanted, there is no structure which restrains the nested containers from lateral movement relative to each other. This can be contrasted with a nestable container of rectangular cross section where the end walls provide this function. The need for restraint against lateral movement is emphasized when denesting lugs are located on the slanted end panels. Under that condition, slight lateral movement of one nested container relative to another can allow the nested container to slip off the lugs at one end. Thus, it is desirable to provide a nestable container of triangular cross section which is restrained against lateral movement. Finally, it can be seen that the slanted end panels of a plain container of triangular cross section, allows pivoting about either end of the container when being denested. With mechanical denesting, this action can lead to erratic results and prevent accurate positioning of a denested container. Thus, it is desirable to guide the container in a downward direction while being denested.

SUMMARY

The present invention relates generally to containers and more particularly to a nestable container of generally triangular cross section.

It is a general object of this invention to provide a nestable container of generally triangular cross section which is easily denested.

Another object is to provide a nestable container of generally triangular cross section and which has structure to minimize binding at the corners.

Still another object is to provide a nestable container of generally triangular cross section which has means for restraining the container against lateral movement relative to an adjacent container.

Yet another object is to provide a nestable container of generally triangular cross sections which has means for

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guiding a subjacent container in a downward direction when it is denested.

DRAWING

FIG. 1 is a perspective view of a plurality of containers of the present invention in nested relationship;

FIG. 2 is a top view of the nestable container;

FIG. 3 is a front elevational view of a plurality of nested containers in a denesting apparatus and with the lowermost container being denested;

FIG. 4 is a partial end view as seen from the left of FIG. 3;

FIGS. 5 and 6 are partial cross-sectional views taken respectively along lines 5-5 and 6-6 of FIG. 3 but on a larger scale;

FIG. 7 is a large-scale partial sectional view taken along line 7-7 of FIG. 4; and

FIG. 8 is a large-scale partial sectional view taken along line 8-8 of FIG. 7.

DESCRIPTION

The nestable container, generally designated 10, is advantageously made of plastic and includes a front side panel 11, a rear side panel 12, end panels 13 and 14, and a peripheral flange 15 surrounding the open end at the top. As can be seen, the front and rear panels 11 and 12 are generally in the shape of right isosceles triangles with the right angle at the bottom or base of the container 10, and with the hypotenuse at the top. End panels 13 and 14 are generally rectangular in shape and are joined, at each side, to one leg of the front and rear panels. The end panels are also joined to each other at the base of the containers. As best seen in FIGS. 5 and 6, the front and rear panels have a central or major portion which is tapered inwardly at a preselected angle so that the containers can be nested inside an identical subjacent container. Preferably, the taper is such that the peripheral flanges are spaced when the front and rear panels of adjacent nested containers are contiguous (see FIG. 6); however, stacking means in the form of a plurality of denesting lugs 18 are advantageously provided on each end panel 13 or 14 to hold the peripheral flanges 15 of adjacent containers in generally equally spaced relationship relative to each other. In this manner, there is provided a nestable container having a cross section generally in the shape of a right isosceles triangle.

A container as described above, even when made of thin plastic, is extremely strong or rigid at the corners where the front and rear panels are joined to the peripheral flange 18 and end panels 13 or 14. When nested together, these rigid corners tend to wedge together, or bind, and operate against easy denesting. To alleviate this situation and facilitate denesting, the nestable containers 10 are provided with structure to minimize binding at the corners. For this purpose, triangular panels 11 and 12 are provided with identical recesses, generally designated 20, at each of the aforementioned corners. As best seen in FIG. 7, each recess 20 advantageously includes a facet 22, a horizontally extending fillet 24 and an upright fillet 26. The facet 22 is preferably spaced inwardly from, and generally parallel to, the major portion of its respective triangular side panel. Additionally, the facet 22 extends downwardly to, and intersects the adjacent side panel. The horizontally extending fillet 24 connects the top of the facet 22 with a remaining portion of the respective triangular panel. Fillet 24 is preferably of significant height and extends inwardly at an angle greater than the taper of the major portion of the respective triangular panel. In this manner, as best seen in FIG. 5, fillet 24 is disposed away from the fillet of a subjacent container and thereby relieves a significant portion of the corner from the aforementioned binding or wedging problem.

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Fillet 26 is preferably upright and interconnects the side of facet 22 with the major portion of the respective front or rear panel. The function of upright fillet 26 is to laterally align the container relative to a subjacent container and to guide the subjacent container in a straight downward path when denested. Because of the slanted end panels 13 and 14, there is no structure which positively restrains the nested containers from lateral movements relative to each other. When stacking means such as lugs 18 are provided, the purpose is to hold the peripheral flanges 15 in generally equal spaced relationship. However, should the adjacent containers move laterally relative to each other, the lugs at one side of the container can slip past the end panel which they are meant to engage, and allow the peripheral flanges to become contiguous at that end of the container. Such a situation can preclude efficient denesting. The upright fillets 26 provide shoulders which engage the similar structure of a subjacent container and effectively prevent such lateral movement. Thus, the upright fillets 26 align each container relative to the adjacent nested container.

The above described lateral movement can also occur when these triangular containers are denested. In other words, the slanted end panels would ordinarily allow the container to be pivoted about either end of the container while being denested. Obviously, this action, if allowed to occur, could effectively prevent accurate positioning of the nested container on a conveyor, for example. The generally upright fillets 26, however, provide a track or guide which prevents the aforementioned pivoting and guides the container in a straight downwardly direction when being denested, as shown in FIG. 3.

The nested containers 10 may be denested by any suitable denesting apparatus which is available on the market. For example, the denesting apparatus 31 partially illustrated in FIG. 3 is of the type shown and described in Pat. No. 3,379,346. In general, the denesting apparatus 31 includes a support bracket 41 on which is mounted cross pieces 43 and a container magazine formed of rods 45. A member 61 supports the nested containers by underlying the flange 15 at one side thereof. A similar member underlies the flange at the other side of the container 10. A stripper 65 operates to engage the upper side of flange 15 on the lowermost container and strip the container off the stack. As described above, the lowermost container will be denested in a straight downward direction. Reference is made to the aforementioned patent for a more complete description of the denesting apparatus.

It is now deemed obvious that the present invention provides a nestable container of generally triangular cross section and incorporates structure which minimizes binding at the corners, which restrains the container against lateral movement relative to an adjacent container, and which guides a subjacent container in a downward direction when it is denested.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A nestable container having a substantially triangular cross section and including: front and rear generally right-isosceles triangular panels each disposed with the hypotenuse at the top of the container; first and second generally rectangular end panels joined to each front and rear panel; an outwardly extending peripheral flange joined to said panels at the top of the container; the front and rear panels each having a major portion tapered inwardly at a preselected angle for nesting inside an identical subjacent container; the taper being such that the peripheral flanges are spaced when the front and rear

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panels of adjacent nested containers are contiguous; each front and rear panel having a triangular recess at each corner adjacent the top of the container; each triangular recess having a portion tapered inwardly a greater amount than said major portion of its respective panel to position at least part of the triangular recess away from the subjacent container to relieve binding and thereby facilitate denesting; each triangular recess including a facet spaced from, and generally parallel to, said major portion of its respective triangular panel; each facet intersecting the adjacent end panel; and the portion tapered inwardly comprising a fillet interconnecting the top of the facet and a remaining portion of the respective triangular panel.

2. A nestable container as set forth in claim 1 wherein each facet is a right triangle with the hypotenuse at the intersection with the adjacent end panel and with one leg of the facet triangle being upright; and wherein each triangular recess includes an upright fillet interconnecting said one leg and the major portion of the triangular panel; the upright fillets providing shoulders for engaging the corresponding structure of a subjacent container to provide lateral alignment of the nested containers and for guiding the subjacent container when denested.

3. In a formed plastic container having two spaced, triangular side panels; two generally rectangular end panels joined to each side panel and to each other at the base of the container; the side and end panels defining a generally rectangular open end at the top of the container; and at the top of the container an outwardly-extending peripheral flange to which a cover may be sealed; the improvement comprising: the side panels each having a major portion tapered inwardly toward the base of the container so that the container may be nested inside an identical subjacent container; stacking means on the container for engaging an adjacent nested container and holding the peripheral flanges in generally uniform spaced relationship relative to each other; each triangular side panel having a triangular recess at each corner adjacent the peripheral flange; each triangular recess extending downwardly to the juncture with the adjacent side panel; and each triangular recess having at least a portion tapered inwardly at a greater angle than said major portion of the side panel to dispose at least part of the triangular recess away from the subjacent container and thereby facilitate denesting.

4. The combination of claim 3 including means on each of the triangular side panels for laterally aligning the container relative to a subjacent container and for guiding the subjacent container in a straight path when denested.

5. The combination of claim 4 wherein each triangular recess includes a facet spaced inwardly from, and generally parallel to, said major portion of its respective triangular side panel; and wherein the means for laterally aligning the container is a structural part of the recess and includes an upright fillet interconnecting the facet and said major portion of its respective triangular side panel.

6. The combination of claim 5 wherein the inwardly tapered portion of the triangular recess comprises a fillet connected to the top of the facet and extending therefrom outwardly toward the peripheral flange.

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