

Nov. 22, 1966

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3,286,877

PLASTIC VEGETABLE CONTAINER

Filed May 4, 1964

2 Sheets-Sheet 1

FIG. 1

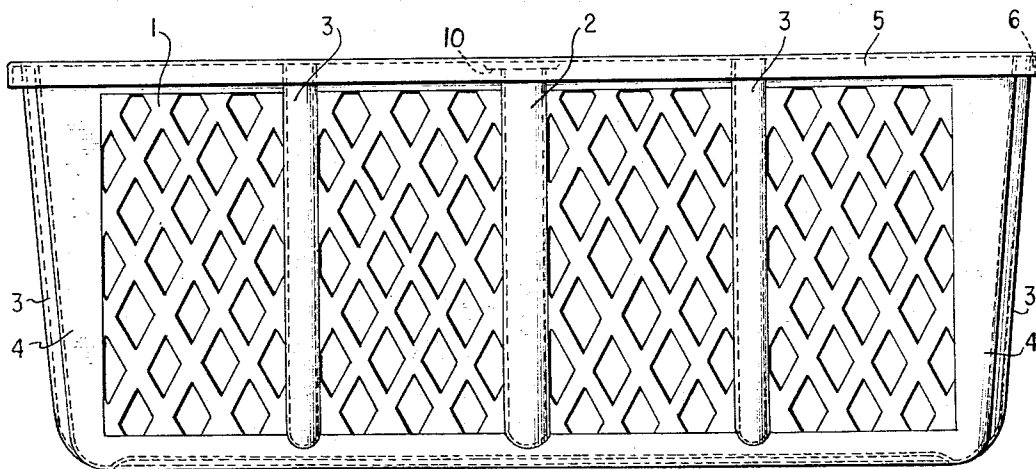


FIG. 2

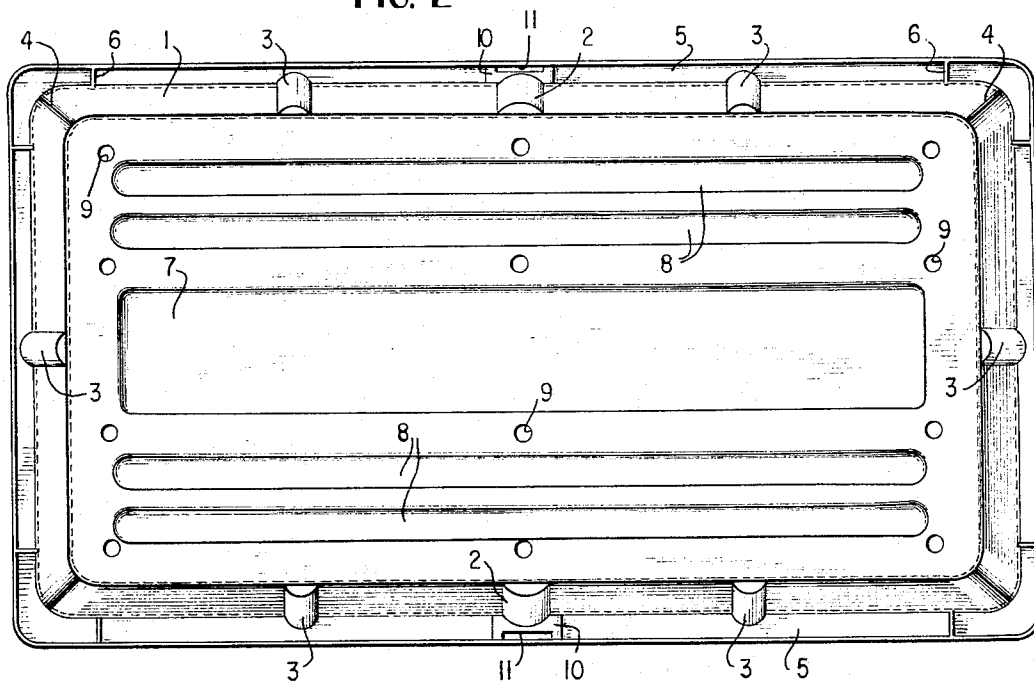
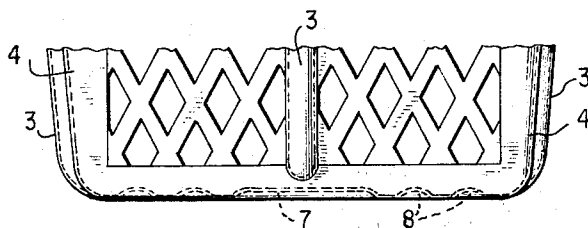


FIG. 3

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FIG. 4

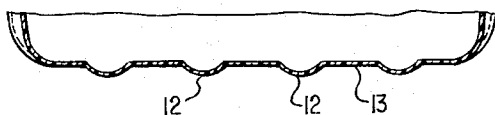
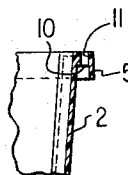


FIG. 5

FIG. 6

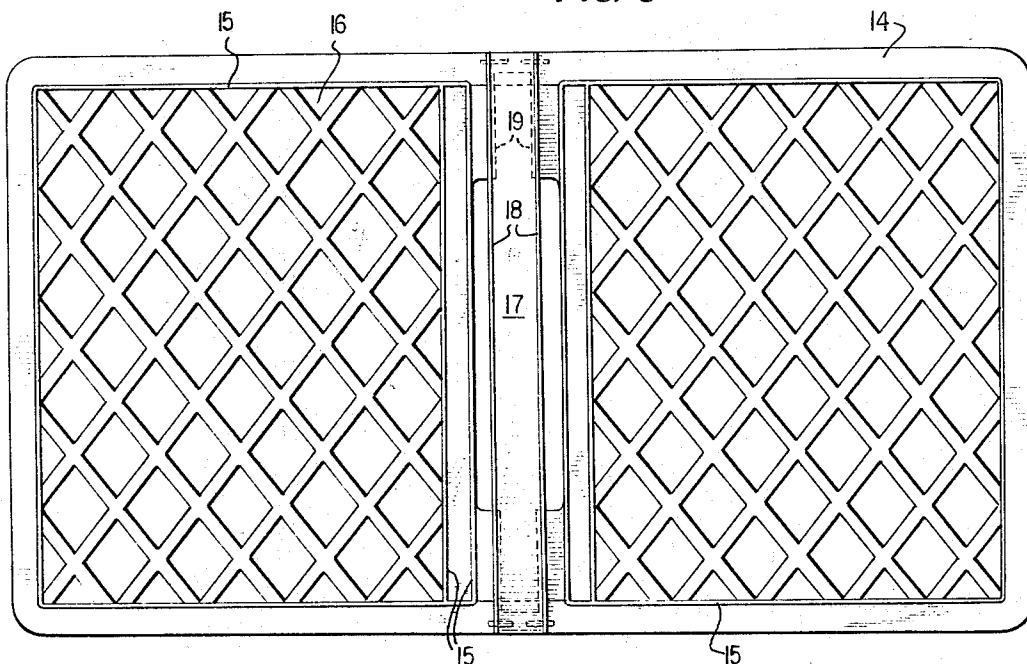


FIG. 7

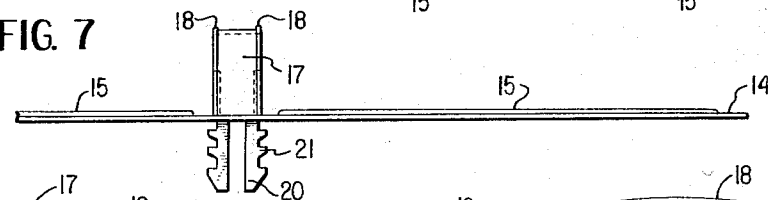
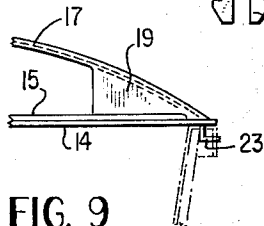


FIG. 9

FIG. 8

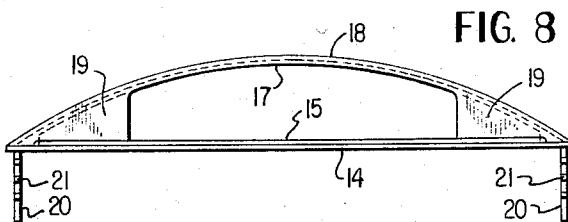


FIG. 9a

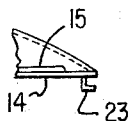
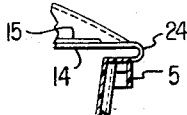


FIG. 9b



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PLASTIC VEGETABLE CONTAINER
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The present invention relates in general to plastic containers of the type used for packing and shipping agricultural products and more specifically to a container for packing and shipping radishes and similar goods.

For many years containers for shipping small agricultural products, including both fruits and vegetables, have been in the form of small wooden baskets made of thin flexible slats, and more recently folded cardboard baskets, which were both flexible and light-weight in construction; however, the use of wood provided a high cost of manufacture and the wood or cardboard structure exhibited only a limited structural strength for a given weight of the container. In addition, due to the porous nature of the wooden or cardboard container, problems of hygiene could not be entirely eliminated.

In accordance with the instant invention, baskets of the type described are made of thermoplastics and constructed so as to provide high structural strength and flexibility, coupled with light-weight and low manufacturing costs. In addition, due to the feature of the thermoplastic material the molded baskets may be maintained in a clean and completely hygienic condition at all times during use.

More specifically the invention contemplates a thermoplastic container molded as a separate basket and lid, but also includes a one piece basket and lid construction having a plurality of integrally formed hinges between the basket and lid and also contemplates a construction wherein a full-length hinge between the basket and lid is provided. If the basket and lid are separately molded, simplified assembly can be provided through integrally formed snap lock fasteners in both the lid and the basket such that simple pressing of the lid into the corresponding snap lock members will quickly and efficiently lock the lid and the basket together.

With the construction wherein the lid is hinged to the basket in an integral manner, a locking arrangement is provided along one edge of the lid with a corresponding snap lock fastener formed into the adjacent side of the basket. Some advantages are provided in this construction over the arrangement wherein a lid and basket are formed as separate members since with an integral lid and basket arrangement, the locking need be provided only on one side of the lid, thereby providing a more secure closure for the basket which is much easier to manipulate.

In addition to the thermoplastic construction of the basket, certain structural features are provided which add to the strength and flexibility of the basket while maintaining a light-weight construction at reduced manufacturing costs. Such features are stiffened and reinforced corners of the basket which are rounded to facilitate handling and packing; the provision of a mesh-like side construction for the basket which maintains the proper structural strength while materially reducing the weight of the basket; the provision of stiffening and reinforcing channels along the sides of the basket which permit the use of the mesh-like side walls while also retaining a vertical structural strength in the side walls necessary to support a compression load thereon; a lifting handle construction integrally molded into the lid of the basket for facilitating handling and carrying thereof while retaining a configuration which may be easily stacked or packed for transportation; and a bottom stiffening for the basket which may extend in the lengthwise direction of the basket, but may also run at a di-

agonal to the lengthwise direction or provide a criss-cross configuration which in conjunction with the side stiffening members will maintain the overall shape of the basket under all conditions.

5 It is an object of the instant invention to provide a basket for packing and shipping agricultural products which is light-weight, structurally strong, flexible, and of low cost.

10 It is another object of the instant invention to provide a basket for the packing and shipping of agricultural products which may be maintained in an extremely hygienic condition during use.

15 It is a further object of the instant invention to provide a basket for the packing and shipping of agricultural products which may be provided in an economical manner with a lid capable of being simply locked to the basket to provide a substantially complete enclosure.

20 These and other objects, features and advantages of the present invention will become more obvious from the following description when taken in connection with the accompanying drawing which shows one embodiment in accordance with the present invention, wherein:

FIGURE 1 is a side plan view of the basket construction in accordance with the instant invention;

25 FIGURE 2 is a bottom plan view of the basket construction of FIG. 1;

FIGURE 3 is an end plan view of the same basket construction of FIG. 1;

30 FIGURE 4 is a cross-sectional view of an alternative construction for the bottom of the basket as compared to that illustrated in FIG. 3;

FIGURE 5 is a partial sectional view through the side of the basket illustrated in FIGURE 1; showing the center channel and top channel with an opening for the lid fastener;

35 FIGURE 6 is a top plan view of the basket lid having a handle and lock formed therein;

FIGURE 7 is a partial sectional view illustrating the cooperation between the lock and handle of the basket lid with the side channel of the basket;

40 FIGURE 8 is a side sectional view through the basket lid, and the handle;

FIGURES 9 and 9a illustrate a sectional detail of a hinge construction utilized in connection with an alternative embodiment of the invention; and

45 FIGURE 9b illustrates a sectional detail of another hinge construction for use with the invention.

Referring now specifically to the drawings, wherein like numerals have been used throughout the view to designate like parts wherever possible, and particularly to FIGS. 1, 2 and 3, the basket in accordance with the instant invention is provided with side walls of mesh-like configuration having a relatively thin construction formed with a multiplicity of openings, which may be diamond-shaped, as illustrated, or may be round, square or any regular configuration. However, the diamond-shaped opening is preferred since this particular aperture configuration provides an optimum weight to strength characteristic.

50 The side walls are supported by an integral framework consisting of a continuous peripheral channel 5 extending around the upper open end of the basket in combination with the corner supports 4 and the entire bottom portion of the basket. The side walls are also provided with a plurality of supporting or stiffening channels 2 and 3, which extend essentially vertically and are rounded or of generally semicircular cross-section so as to provide a high strength in compression, thereby maintaining the general planar shape of the side walls and also providing the structural strength necessary to support compressive loads which may be exerted on the top side of the basket.

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The stiffening of the side walls is also effected by the rather wide rounded corners 4 of the basket and the generally channel-shaped construction of the upper rim 5 of the basket. In order to provide additional rigidity and stiffening to the corner posts 4 of the basket, additional ribs 6 are integrally formed into the corner posts on both sides of the corner and join with the top channel so as to stiffen and reinforce this channel at the corners. The ribs 6 are formed tangentially to the vertical top channel and also extend at an angle of 45 degrees to the corner to provide a structurally stiffened top channel construction.

FIGURE 2 illustrates the bottom construction of the basket including the relatively narrow bottom stiffening ribs 8 which extend lengthwise of the basket and the relatively wide center rim 7 which provides increased structural support at the center of the basket where the majority of the weight of the enclosed product is concentrated and where the least support is provided by the side walls of the basket. In addition, drain holes 9 are provided at several evenly spaced locations in the bottom of the basket and serve to release the moisture which may accumulate in or be carried in by the product during packing of the basket.

FIGURE 2 also illustrates the lock openings 11 in both longitudinal portions of the channel 5 defining the top opening of the basket and a channel stiffening rib 10 which surrounds the opening 11 and provides increased structural support therefor. Obviously, if the basket is formed with an integral lid construction, only a single lock opening 11 need be provided; however, in the construction illustrated in FIGURE 2, it is contemplated that the basket be utilized with a separate lid having a pair of locking members, such as illustrated in FIGURE 7, which may be inserted into the opposing locking openings 11 in both longitudinal edges of the basket.

Bottom stiffening ribs 12 and 13, illustrated in FIG. 4, may also be provided as downwardly extending portions in an essentially flat bottom construction. These stiffening ribs may run lengthwise of the container or they may be provided in a criss-cross fashion so as to provide an increased rigidity of the bottom of the basket against forces applied in any direction thereto.

FIGURE 5 illustrates in greater detail the center stiffening 10 for the locking opening 11 included in the top channel 5 of the basket. This stiffening 10 forms a brace and reinforcing portion completely surrounding the lock openings so as to prevent deterioration thereof during repeated use of the basket and also to provide a sufficient structural strength to that portion of the channel 5 to prevent a tearing away of the basket lid in response to unusually great forces which may be encountered during the packing or shipping of the basket.

FIGURES 6 through 9 illustrate a preferred embodiment of the lid for the basket illustrated in FIGURES 1 through 5 along with detailed structural features of the handle and locking fastener. The lid of the basket is provided with diamond shaped openings 16 similar to the openings 1 in the side walls of the basket. However, the openings in the lid of the basket are bigger than those in the main body of the basket so as to further reduce the weight of the lid which does not require the great structural strength that is necessary for the basket itself. The openings in the lid are preferably diamond shaped; however, like the basket, the openings may have different shapes. As indicated above, the diamond shaped opening is preferred since this particular aperture configuration provides an optimum weight to strength characteristic.

The lid is of a generally flat configuration being provided with a rectangular frame 14 which is integral with the diamond shaped center portion 15. Extending across the center of the basket between opposing longitudinal edges of the frame 14 is a solid center section in the form of a handle 17 having solid end reinforcing members 19 which are integral with the frame 14 and join with a pair

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of reinforcing members 15 disposed on either side of the handle. The center portion of the handle between the solid portions 19 is open so that the handle may be easily grasped by this center portion. The handle is additionally stiffened by a pair of ribs 18 which run along either side of the full length of the handle, and not only add to the rigidity of the handle but also provide a softer and smoother grasp for the center portion of the handle.

A snap locking member 20 extends downwardly from the lid at either end of the handle and is provided with a plurality of locking teeth 21 having beveled surfaces on the one side thereof so as to facilitate the insertion thereof into the lock opening 11 in the basket while rendering withdrawal of this locking member from the locking openings somewhat difficult. Since the locking members are formed integral with the lid below the ends of the reinforced portions 19 of the handle 17, the basket is truly carried by the handle rather than the lid, since the handle locks directly to the basket rather than through the lid to the basket. In this way, the lid is not subjected to the forces resulting from the weight of the basket except at the highly reinforced areas at the ends of the handle 17.

While it is desirable to provide a separate lid and a basket construction it is in many respects more desirable to provide a basket having an integral lid construction with the lid joined to the basket either by means of several small hinges integral with the basket construction or by a full length hinge equal to the length of the basket. FIGURES 9, 9a, and 9b illustrate various hinge constructions which may be utilized in accordance with the instant invention. In FIGURES 9 and 9a, the lid is illustrated as including a plurality of L-shaped projections 23 which may communicate, as illustrated in FIGURE 9, with a plurality of corresponding openings in the peripheral channel 5 of the basket to form a hinge-like connection between the lid and the basket. In this way, the basket and lid may be manufactured as separate items and then interconnected without the use of a locking device along more than one side of the basket.

However, it is also possible to form the lid integral with the basket and interconnected by a continuous hinge 24, which will extend along one edge of the basket and form a flexible connection therebetween. The hinge 24 may also be formed integral with the lid and basket as a number of hinges of small width thereby reducing the weight of the basket and the cost of manufacture thereof.

It should be understood that modifications, within the scope of the appended claims, may be made in the design and arrangement of the stiffeners and rims and the dimensions of openings and hinge constructions without departing from the spirit and scope of the invention.

I claim:

1. A basket for packing and shipping small agricultural products comprising
 - a body having side walls, an open upper end and a bottom wall formed integrally with said side walls for closing the lower end of said body, said side walls being of thin mesh-like construction having a plurality of apertures of regular configuration therein, reinforcing corner members joining said side walls and being of substantially heavier construction than said side walls with a generally semi-circular cross-section,
 - generally vertically disposed intermediate stiffening ribs of U-shaped cross-section spaced along said side walls and integral therewith for increasing the compressive resistance of said side walls,
 - the upper peripheral edge of said body being formed into an outwardly extending channel of generally U-shaped configuration, said entire body being formed of organic thermoplastic material in an integral construction,
 - a top of integral construction including a reinforcing frame of configuration corresponding to that of the

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open upper end of said body, a rigid central handle construction interconnecting two opposing sides of said reinforcing frame and mesh-like web means filling in the space formed by said reinforcing frame and said handle construction,

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said top further including first and second locking members extending transversely to said reinforcing frame and said handle and each locking member being secured to a respective end of said handle, each locking member having a plurality of wedge-shaped teeth, and locking aperture means in the peripheral edge of said body for receiving said locking members and engaging therewith.

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2. A basket for packing and shipping small agricultural products comprising

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a body having side walls, an open upper end and a bottom wall formed integrally with said side walls for closing the lower end of said body, said side walls being of thin mesh-like construction having a plurality of apertures of regular configuration therein, reinforcing corner members joining said side walls and being of substantially heavier construction than said side walls with a generally semicircular cross-section, generally vertically disposed intermediate stiffening ribs of U-shaped cross-section spaced along said side walls and integral therewith for increasing the compressive resistance of said side walls,

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the upper peripheral edge of said body being formed into an outwardly extending channel of generally U-shaped configuration, said entire body being formed of organic thermoplastic material in an integral construction,

30

a top of integral construction including a reinforcing frame of configuration corresponding to that of the open upper end of said body, a rigid central handle construction interconnecting two opposing sides of said reinforcing frame and mesh-like web means filling in the space formed by said reinforcing frame and said handle construction,

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said top further including a locking member extending transversely to said reinforcing frame and said handle and being secured to one end of said handle, said locking member having a plurality of wedge-shaped teeth, and locking aperture means in the peripheral edge of said body for receiving said locking member and engaging therewith,

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said top being hinged to said body along a side thereof opposite to the side on which said locking member and aperture means, respectively, are disposed by hinge means integral with said top and said body along the entire length thereof.

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3. A basket for packing and shipping small agricultural products comprising

a body having side walls, an open upper end and a bottom wall formed integrally with said side walls

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for closing the lower end of said body, said side walls being of thin mesh-like construction having a plurality of apertures of regular configuration therein, reinforcing corner members joining said side walls and being of substantially heavier construction than said side walls with a generally semicircular cross-section, generally vertically disposed intermediate stiffening ribs of U-shaped cross-section spaced along said side walls and integral therewith for increasing the compressive resistance of said side walls,

the upper peripheral edge of said body being formed into an outwardly extending channel of generally U-shaped configuration, said entire body being formed of organic thermoplastic material in an integral construction,

a top of integral construction including a reinforcing frame of configuration corresponding to that of the open upper end of said body, a rigid central handle construction interconnecting two opposing sides of said reinforcing frame and mesh-like web means filling in the space formed by said reinforcing frame and said handle construction,

said top further including a locking member extending transversely to said reinforcing frame and said handle and being secured to one end of said handle, said locking member having a plurality of wedge-shaped teeth, and locking aperture means in the peripheral edge of said body for receiving said locking member and engaging therewith,

said top being hinged to said body along a side thereof opposite to the side on which said locking member and aperture means, respectively, are disposed by hinge means including a plurality of L-shaped projections spaced along the length of said top and corresponding apertures in the peripheral edge of said body engaging with said L-shaped projections.

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