

[54] CONTAINER

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220/70, 72, 23.6

[56]

References Cited

UNITED STATES PATENTS

D201,398	6/1965	Burns.....	220/97 F UX
3,077,284	2/1963	McLaughlin.....	220/97 FX
2,859,557	11/1958	Lattuca.....	220/72 UX
3,379,341	4/1968	Miles.....	220/97 F

FOREIGN PATENTS OR APPLICATIONS

1,176,052	8/1964	Germany.....	220/97 C
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110,754	4/1961	Pakistan	220/97 F
754,549	8/1956	Great Britain	220/72

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[57]

ABSTRACT

A container having four side walls extending upwardly and outwardly from a base, the side walls having upper edges defining a peripheral rim and each side wall having longitudinal and lateral strengthening ribs formed therein, the base having a pair of channels formed in the exterior thereof to define a pair of support legs, and a lid having a peripheral lip adapted to engage the peripheral rim and having a depressed exterior surface defined by a peripheral ledge adjacent the peripheral lip and L-shaped recesses at the corner of the lid, the peripheral ledge being dimensioned to capture the support legs of a similar container when the containers are stacked one upon the other.

3 Claims, 10 Drawing Figures

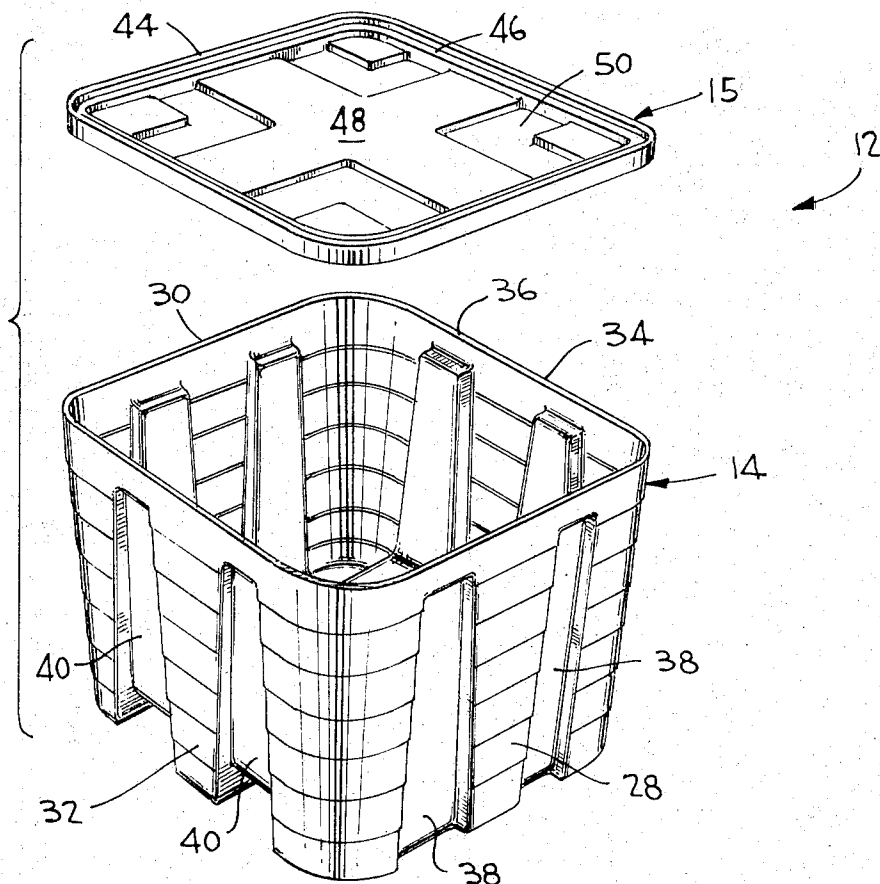


FIG. 1

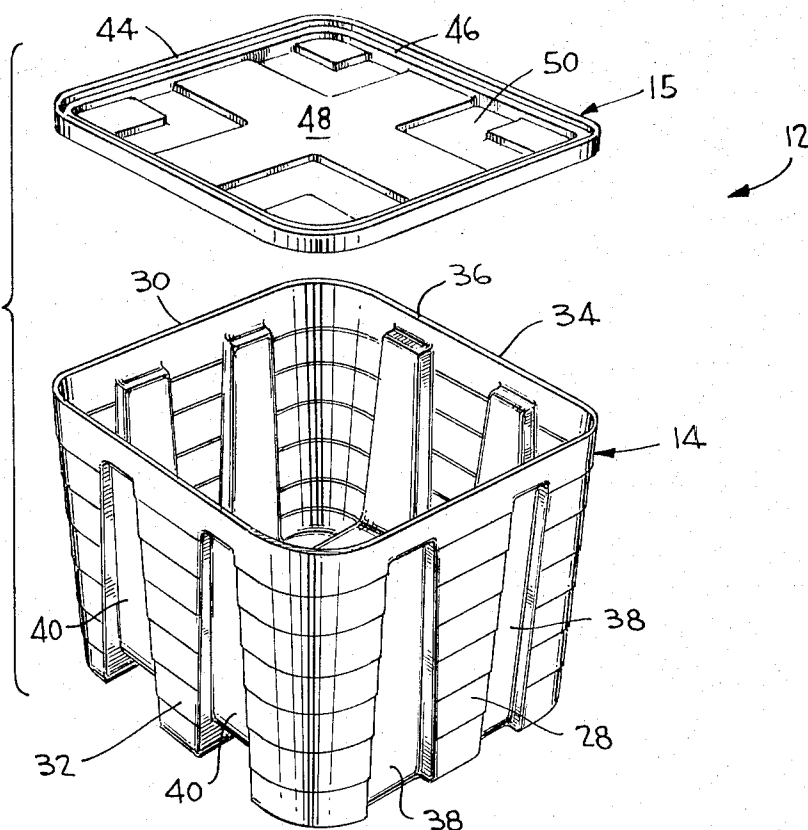


FIG. 2

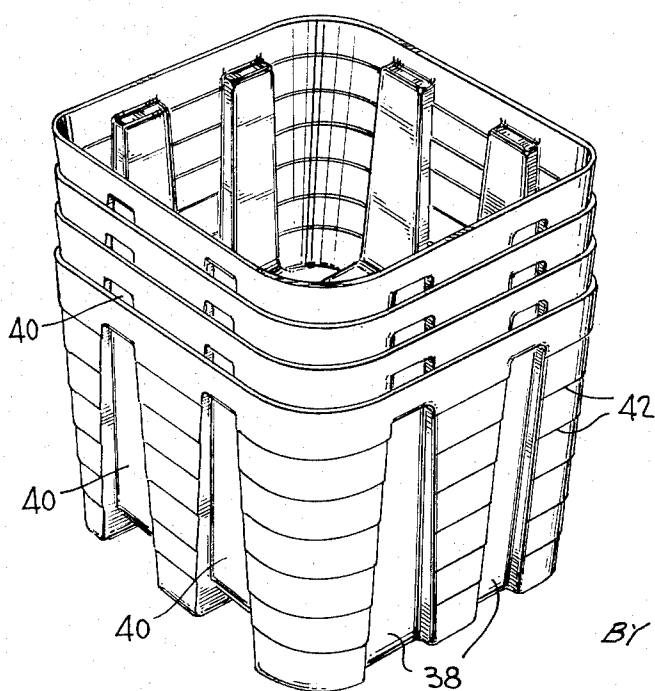
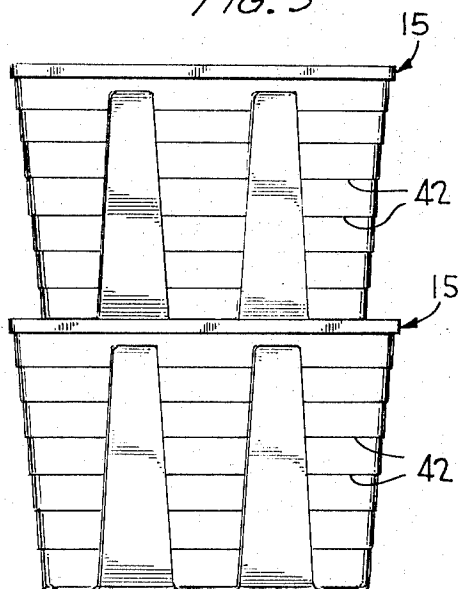
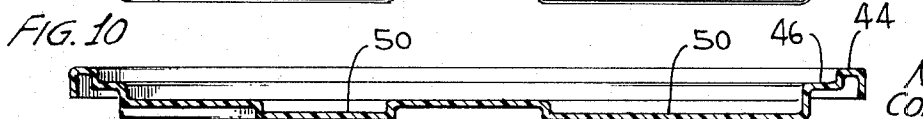
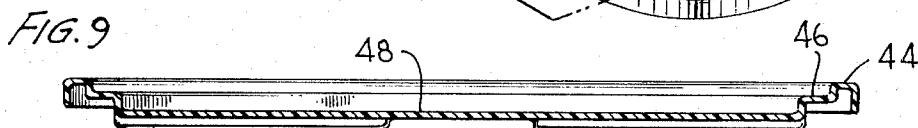
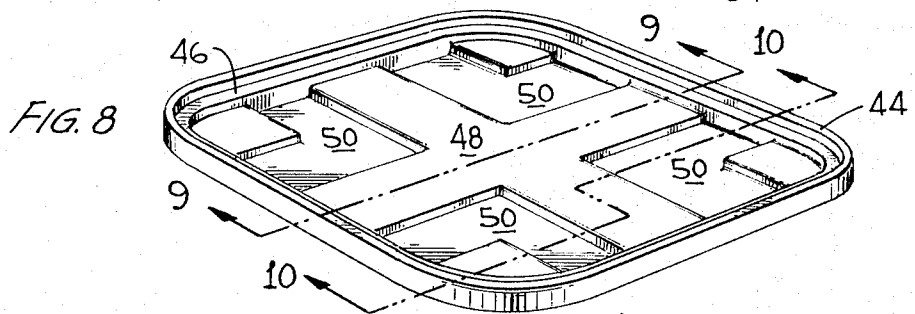
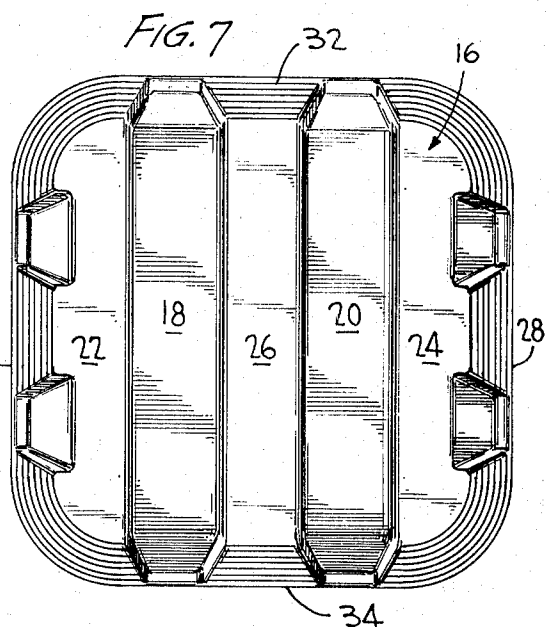
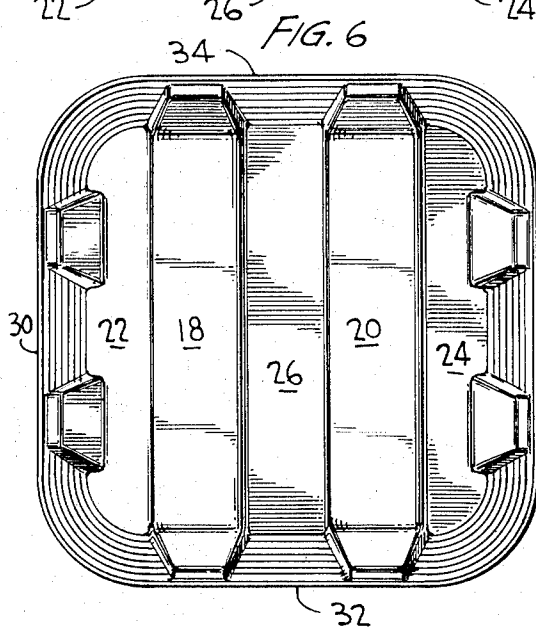
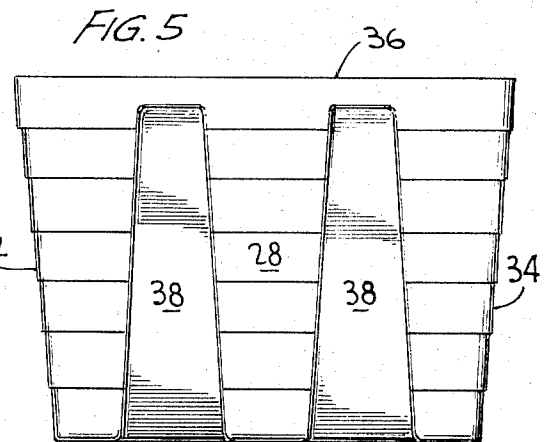
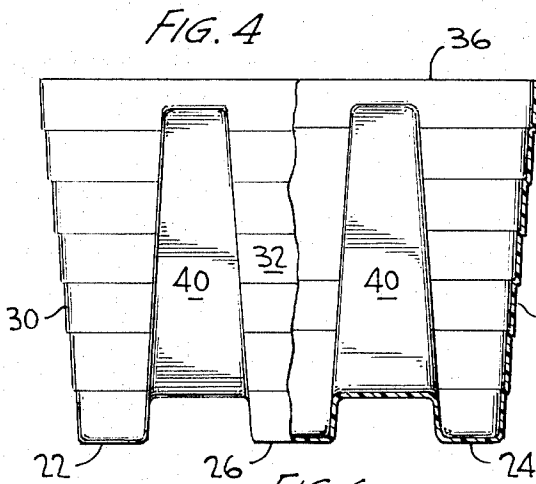


FIG. 3



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CONTAINER

BACKGROUND OF THE INVENTION

The present invention pertains to containers and more particularly to transportable containers which are adapted to be stacked one upon the other for shipping and nested within each other for storage.

In food processing and preparation plants, a problem has existed with respect to the disposal of waste food by-products. In the past, in-plant repositories were utilized to receive such waste; however, such repositories generally take up a great amount of space and are not movable, thereby requiring handling of the contents of the repository during transfer thereof to any suitable means for removing the waste from the plant. Such handling of the waste is extremely undesirable from a health and sanitation standpoint as well as from an economic standpoint, due to the added labor and equipment requirements.

This problem in food plants can not be solved by merely utilizing smaller containers in that any such container or repository must be acceptable from a health and sanitation standpoint for use in a food plant. Furthermore, the containers must be logistically compatible with available modes of transport; that is, the containers must be capable of being economically transported from the plant to their destination and must be susceptible to automated handling for emptying of the contents and for cleaning thereof for reuse. The shipping and sanitary requirements for such containers have presented obstacles to the construction of a suitable container for use in a food plant in that, in the past, a container complying with the shipping requirements failed to comply with health standards and vice versa.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to construct a container for use in food plants that meets all health requirements while facilitating transportation thereof.

The present invention is generally characterized in a container having a base with four side walls extending longitudinally upwardly and outwardly from the base to upper edges defining a peripheral rim, the side walls extending laterally to engage the sides of adjacent side walls, each of the side walls having longitudinal and lateral ribs integrally formed therein and a lid having a peripheral lip engaging the peripheral rim defined by the upper edges of the side walls.

Another object of the present invention is to form a container with side walls having longitudinal and lateral strengthening ribs integrally from a nonporous resinous plastic.

A further object of the present invention is to construct a lid for a container such that another container may be stacked upon the lid with the lid supporting the container without deformation thereof or deformation of the side walls of the bottom container.

Some of the advantages of the present invention over the prior art are that the container may be formed economically and quickly; the container is strengthened by longitudinal and lateral ribs thereby permitting the use of a resinous plastic meeting health standards without sacrificing structural requirements; the containers may be nested within one another for in-plant storage; and

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the containers may be stacked upon each other to facilitate transportation thereof.

Other objects and advantages of the present invention will become apparent from the following description of the preferred embodiment as illustrated in the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded, perspective view of a container constructed in accordance with the present invention.

FIG. 2 is a perspective view of a plurality of the containers of FIG. 1 in their nested position.

FIG. 3 is a side elevation of two of the containers of FIG. 1 stacked upon each other.

FIG. 4 is a broken front elevation of the container of FIG. 1.

FIG. 5 is a side elevation of the container of FIG. 1.

FIG. 6 is a top plan view of the container of FIG. 1.

FIG. 7 is a bottom plan view of the container of FIG. 1.

FIG. 8 is a perspective view of the lid of the container of FIG. 1.

FIG. 9 is a section taken along line 9—9 of FIG. 8.

FIG. 10 is a section taken along line 10—10 of FIG. 8.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A container according to the present invention is generally indicated at 12 in FIG. 1 and includes a container body 14 and a lid 15. As best illustrated in FIG. 7, container body 14 has a base 16 with channels 18 and 20 formed therein in parallel orientation to define a pair of outer legs 22 and 24 and a central leg 26.

A pair of oppositely disposed side walls 28 and 30 extend upwardly and outwardly from base 16 as do a pair of oppositely disposed walls 32 and 34. The bottoms of side walls 28, 30, 32 and 34 interconnect with base 16 in a smooth curve. The sides of the side walls are smoothly interconnected at rounded corners, and the upper edges of the side walls form a peripheral rim 36. Side walls 28 and 30 each have a pair of longitudinal ribs 38 formed as a depression therein and extending from base 16 to a terminating position close to peripheral rim 36; and, similarly, side walls 32 and 34 each have a pair of longitudinal ribs 40 formed as a depression therein and extending from base 16 to a terminating position close to peripheral rim 36. Each side wall also includes a plurality of equally spaced lateral ribs 42, which ribs have gradually increasing perimeters going from base 16 to peripheral rim 36.

As best illustrated in FIG. 4, 5 and 6, longitudinal ribs 38 and 40 intersect lateral ribs 42 and the combination thereof provides strength for the container; that is, lateral ribs 42 contain the side walls against deformation caused by the weight of the material in the container and the longitudinal ribs provide column rigidity to prevent collapse of the container when other containers are stacked thereon, as illustrated in FIG. 3. The longitudinal ribs 40 formed in side walls 32 and 34 are aligned with channels 18 and 20, as illustrated in FIG. 4, such that the longitudinal ribs smoothly curve into the channels in the base 16. Longitudinal ribs 38 and 40 are each wider adjacent base 16 than at their terminating positions, and the only difference between ribs 38 and 40 is that ribs 38 terminate at support legs 22

and 24 whereas ribs 40 terminate at channels 18 and 20.

It will be appreciated from FIG. 6 that the internal surfaces of container body 14 are smooth and all corners are rounded such that waste products will readily discharge when dumped to prevent the retention of bacteria-breeding food particles.

Lid 15 is illustrated in FIG. 8 and includes a peripheral lip 44 which extends therearound and is dimensioned to sealingly engage peripheral rim 36 of container body 14. Lip 44 has an inverted, generally U-shaped configuration in cross section, as illustrated in FIG. 9, with the inner portion thereof terminating in a peripheral ledge 46, which extends around the lid and defines a depressed area 48 for receiving a stacked container as will be described hereinafter. An L-shaped recess 50 is disposed at each corner of lid 15, and each recess 50 is right-angled with a pair of transversely extending legs of equal length meeting at one end and having a second end terminating at the peripheral ledge 46 as illustrated in FIG. 10. The recesses 50 serve to distribute loads uniformly around the perimeter of the lid in order to avoid stress concentration at the corners of the lid.

As can be seen in FIG. 2, the tapered orientation of the side walls of the container permits their nesting one inside the other such that a great many containers may be stored in a small area. It should be noted that the terminating portions of longitudinal ribs 38 and 40 extend into the top lateral rib 42 adjacent peripheral rim 36 so as to be exposed when the containers are nested to permit a person to grasp the uppermost container by using the terminating portions of the longitudinal ribs as handles and separate the containers.

The stacking of containers in accordance with the present invention is illustrated in FIG. 3, and it will be appreciated that the dimensions of depressed area 48 as defined by peripheral ledge 46 correspond to the dimensions of support legs 22, 24 and 26 in base 16 of container body 14 such that when one container is stacked upon another container, the uppermost container is prevented from slipping or moving on the lid. That is, peripheral ledge 46 serves to capture the support legs of the stacked container to stabilize stacked containers during transportation.

Bottom channels 18 and 20 are spaced to receive means for lifting the containers, such as the forks of a fork truck; and, since the weight of the contents may be as heavy as 1000 pounds, such as when the container holds wet bread dough, this is highly advantageous.

The container is integrally manufactured by a process such as molding of a nonporous resinous plastic of high-impact strength, such as polyethylene, polypropylene, polyvinyl chloride, etc. Such a nonporous resinous plastic conforms with health requirements, and the unique structural features of the molded container body and lid permit the container to be transported without requiring handling of the contents.

The generally square cross-sectional configuration of the container 12 facilitates handling of the container body 14 and lid 15 for dumping of the contents and sanitizing the containers by compatible, automated machinery. That is, the containers do not have to be properly faced for dumping or sanitizing due to the similar dimensions of each side wall.

Since the side walls extend outwardly from base 16 to permit the containers to be nested to storage, it will be appreciated that when the containers 12 are stacked upon each other, the support legs 22, 24 and 26 of the upper container will sit on lid 15 inside peripheral rim 36 of the lower container; and, accordingly, the upper container is not directly supported by the side walls of the lower container. Lid 15 has, therefore, been structured to support containers stacked thereon and resist the tendency of the lid to be pushed into the container. The inverted, generally U-shaped peripheral lip 44 of the lid engages the interior and exterior surfaces of the side walls to tightly grip the same to prevent the lid from collapsing and also to provide a seal between the lid 15 and the container body 14, which seal is enhanced by tapering the outer wall of lip 44 towards the center of lid 15. As previously mentioned, depressed area 48 receives the support legs of the upper container and peripheral ledge 46 serves to capture the support legs and prevent sliding of the upper container. Recesses 50 relieve stress concentrations at the corners of the lid.

From the above, it can be seen that the container of the present invention provides a sanitary, efficient implant repository for waste and a shipping container which is stackable for long distance transportation. The rectangular configuration of the container permits efficient utilization of space for transportation and storage as compared to cylindrical containers.

Inasmuch as the present invention is subject to many variations, modifications and changes in detail, it is intended that all matter described in the foregoing specification or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A container, formed of a non-porous resinous plastic, comprising a base, four side walls extending upwardly and outwardly from said base being interconnected with each other and with said base at generally rounded interior corners and having upper edges defining a rim having a periphery greater than the periphery of said base, said container being generally square in horizontal cross-section and having a plurality of horizontal ribs formed within said side walls, said horizontal ribs being substantially equally spaced from said base to said upper edges and having perimeters which increase with increasing height above said base, first and second outwardly and upwardly extending longitudinal ribs being formed as depressions within the outside of each of said side walls, said longitudinal ribs being wider near the base of said container than near the terminating portion adjacent said rim and being spaced from said rim, parallel channel means above said base interconnecting the lower end of said longitudinal ribs on opposed side walls thereby forming spaced legs in said base, and lid means having an inverted generally U-shaped peripheral ledge defining an outer wall engaging the exterior of said side walls and defining an upper wall engaging said rim, a recess adjacent said peripheral ledge and depressed with respect thereto being constructed and arranged to capture and support spaced legs of a like-configured container placed on said lid with said peripheral ledge substantially preventing horizontal movement of said supported container with respect thereto.

2. The container according to claim 1 wherein said longitudinal ribs are generally trapezoidal in vertical

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cross-section and the shorter parallel sides thereof terminate within the top horizontal rib a distance from the edge of said container whereby said shorter parallel sides of said longitudinal ribs are exposed when one of said containers is nested within another of said containers.

3. A stackable, nestable container formed of a non-porous, resinous plastic comprising a base, four side walls extending upwardly and outwardly from said base being interconnected with each other and with said base at generally rounded interior corners and having upper edges defining a rim having a periphery greater than the periphery of said base, said container being generally square in horizontal cross-section and having a plurality of horizontal ribs formed within said side walls and substantially equally spaced from said base to said rim, said horizontal ribs having perimeters which increase with increasing height above said base, first and second outwardly and upwardly extending longitudinal ribs being generally trapezoidal in vertical cross-

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section arranged with their shorter parallel sides uppermost and spaced from said rim, parallel channel means above said base interconnecting the lower ends of said longitudinal ribs on opposed side walls thereby forming spaced legs in said base, and lid means having an inverted generally U-shaped peripheral ledge defining an outer wall engaging the exterior of said side walls and defining an upper wall engaging said rim, a recess adjacent said peripheral ledge and depressed with respect thereto for capturing and supporting spaced legs of a like-configured container stacked on said lid with said peripheral ledge substantially preventing horizontal movement of said stacked container with respect thereto, the interior of said horizontal ribs being constructed and arranged to support the exterior of corresponding horizontal ribs of a nested like-configured container, and said longitudinal ribs being constructed and arranged to expose said shorter parallel sides when said containers are nested.

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