

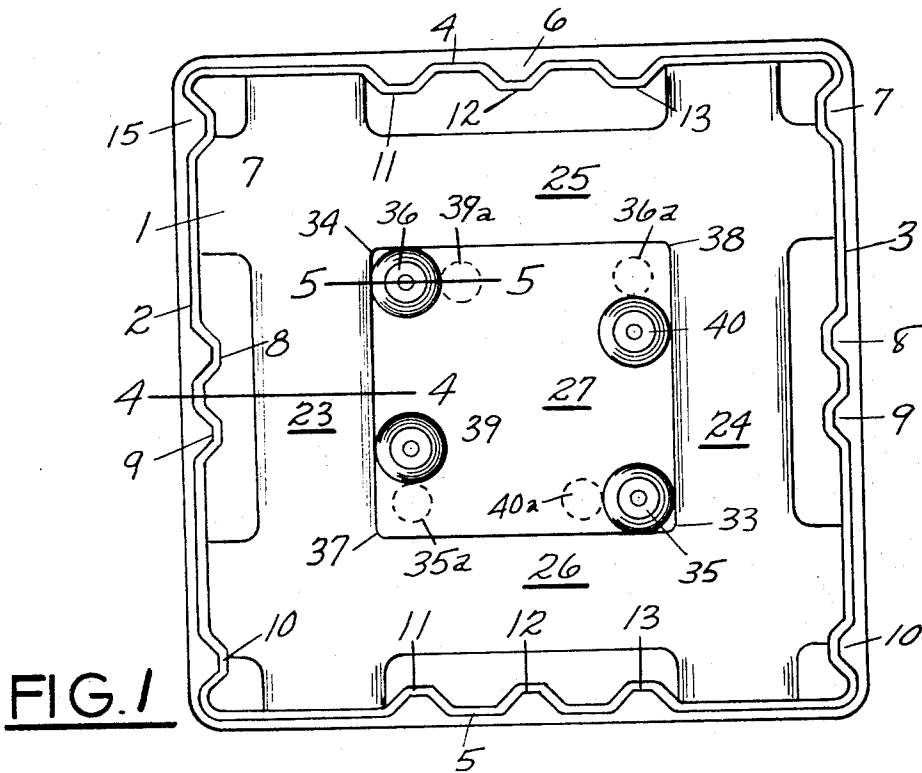
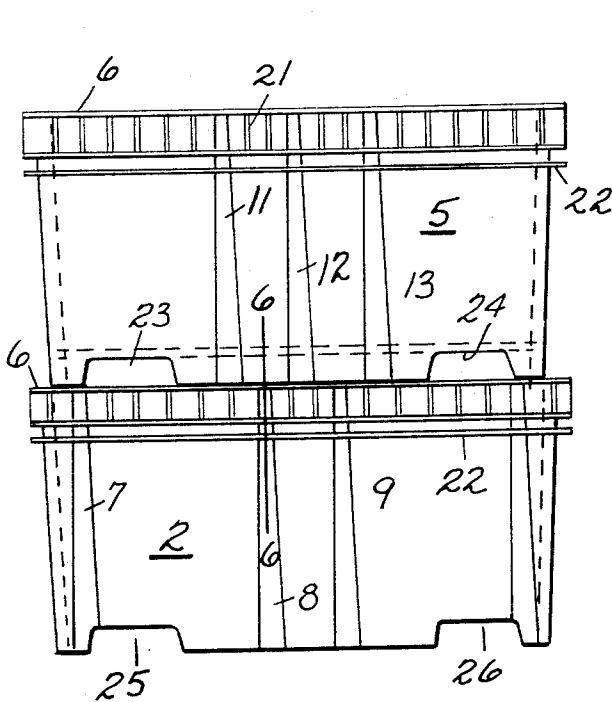
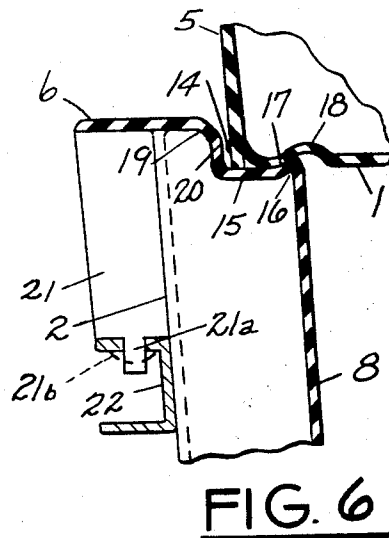
April 15, 1969

H. S. CLOYD
PALLET CONTAINER

3,438,544

Filed Feb. 26, 1968

Sheet 1 of 2



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Sheet 2 of 2

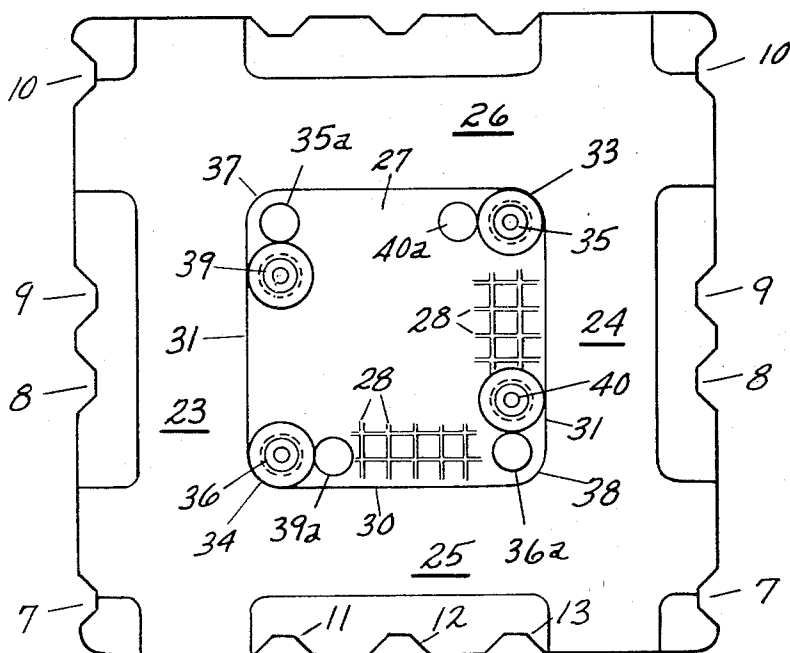


FIG. 3

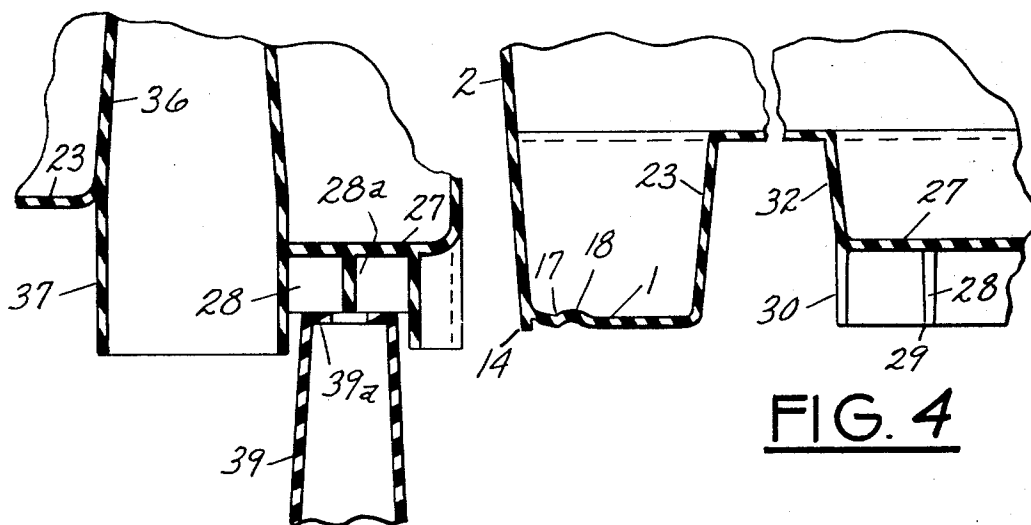


FIG. 4

FIG. 5

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3,438,544

PALLET CONTAINER

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Filed Feb. 26, 1968, Ser. No. 708,090

Int. Cl. B65d 21/04, 1/22, 1/42

U.S. Cl. 220—97

6 Claims

ABSTRACT OF THE DISCLOSURE

A pallet container has bottom walls formed with intersecting channels providing four-way fork entry openings, side walls provided with ribs for supporting an overlying container in either nested or stacked relation, and upstanding hollow posts at the center of the bottom wall which likewise support the overlying container in either nested or stacked relation. The area of the bottom wall of the container within the posts is preferably provided with reinforcing ribs which are tied into the post so as to increase the load carrying capacity of the container.

This invention is a pallet container for bulk handling of fruits and vegetables. One feature is the intersecting channels in the bottom wall providing four-way fork entry opening. Another feature is the upstanding hollow tubular posts at the central portion of the bottom wall which telescope over each other or nest in one orientation of the container and which provide stacking support in another orientation of the container.

In the drawing, FIG. 1 is a top plan view of a pallet container, FIG. 2 is a side elevation of two containers stacked one on top of the other, FIG. 3 is a bottom plan view of the bottom wall of the container, FIG. 4 is a section on line 4—4 of FIG. 1, FIG. 5 is a fragmentary section on line 5—5 of FIG. 1 showing the transfer of force from an upper container to a hollow post of a lower container in the stacked position, FIG. 6 is a fragmentary section on line 6—6 of FIG. 2 showing the transfer of force from the bottom of the side wall of an upper container to the top of the side wall of a lower container in the stacked position.

Referring to the drawing, the container has a bottom wall 1 joined at its periphery to upstanding vertical side walls 2, 3, 4, 5 terminating at their upper edges in a continuous outwardly extending rim 6. The container is preferably of square shape. There is a slight outward taper in the walls sufficient to provide the draft to permit forming the walls integral with the bottom wall, for example, by plastic molding and to permit nesting of containers. The walls 2 and 3 each have inwardly projecting vertical ribs or convolutions 7, 8, 9, 10 opposite each other and the walls 4 and 5 have inwardly projecting vertical ribs or convolutions 11, 12 and 13 directly opposite each other. The spacing of the ribs or convolutions 7—10 is not symmetrical with respect to the spacing of the ribs or convolutions 11, 12 and 13. When all of the containers are oriented as shown in FIG. 1, the containers nest one within the other when placed on top of each other. When the containers are oriented so that the walls containing the convolutions 7, 8, 9, 10 are directly above or below the walls containing the convolutions 11, 12 and 13, the containers when placed one on top of each other are in stacking relation as shown in FIG. 2. To shift from nesting to stacking position a container need be turned 90 degrees. In the stacking position, as shown in FIG. 6, extensions 14 in direct straight line continuation of the lower ends of each of the side walls 2, 3, 4, 5 transmit the load from an upper container to seats 15 formed in the upper ends of each of the inwardly extending ribs 7 through 13 inclusive. The

extensions 14 prevent an offset in the force transmission which could introduce a moment tending to cause buckling of the side walls of the container. Once the buckling starts, the load carrying ability of the container walls is greatly decreased. To help locate an upper container on the seats 15 in a lower container, the seats 15 at their inner edges have upwardly inclined surfaces 16 which cooperate with surfaces 17 in a groove 18 in the bottom wall 1 of the container. At the outer part of each seat 15 is a downwardly incline surface 19 which cooperates with the extensions 14 to cam or lead the upper container onto the seats 15. There is also an abrupt shoulder 20 which cooperates with the extensions 14 to limit outward movement of the container on the seats. As an upper container is lowered into stacking position, if the upper container is slightly off center, certain of the extensions 14 strike the inclined surfaces 19 and cam the container into position on the seats 15 of the lower container.

In order to stiffen the rim 6 of the container, vertical ribs 21 are molded integrally with the underside of the rim 16 and the adjoining container side wall and at the lower ends of the ribs 21 are metal channels 22 suitably riveted to the desired number of ribs 21, for example by integral projections 21a on the ribs which project through holes in the channel and are headed as indicated by dotted lines 21b.

In the bottom wall 1 are integral inverted channels 23, 24 extending from front to back and other integral channels 25, 26 extending side to side. The spacing between the channels 23, 24 and between the channels 25, 26 is the standard fork lift spacing. The height or depth of each of the channels and the width or spacing between the side walls of each of the channels is the standard spacing for receiving the prongs of a fork lift truck. Since the channels are in intersecting relation as shown in FIG. 1, a fork lift truck can approach the container from any direction at right angles to one of the container sides. This permits the four way lift entry. At the center of the bottom wall is an elevated section 27 bounded on its four sides by the channels 23—26. This elevated section is at the center of the bottom wall and is therefore in the area subject to greatest stress or most likely to sag under load. To accommodate the greater stress, the under side of the section 27 is provided with a grid of integral intersecting lengthwise and crosswise extending ribs 28, the lower edges 29 of which are in the plane of the bottom wall 1. The outermost of the lengthwise and crosswise extending ribs 30, 31 are preferably integral with the inner side wall 32 of the adjacent channel.

At diagonally opposite corners 33 and 34 of the raised section 27 are upwardly extending hollow posts 35, 36 which, as shown in FIGS. 1 and 5, merge into the inner walls 32 of the lengthwise and cross extending fork lift channels. This makes the hollow posts part of the reinforcing structure for the bottom wall of the container. At diagonally opposite corners 37 and 38 of the raised section 27 are upwardly extending hollow posts 39 and 40. The posts 39 and 40 are symmetrically offset from the corners 37 and 38. As was the case with the posts 35 and 36, the posts taper inward from bottom to top. When the containers are positioned one on top of the other in nesting relation, the posts 35, 36, 39 and 40 telescope within each other. When a lower container is rotated clockwise 90° with respect to an upper container, then the upper ends of the posts 35, 36, 39, 40 of the lower container occupy the positions designated by the numerals 35a, 36a, 39a, 40a. This means that instead of having the hollow posts nest one within the other, the hollow posts of a lower container provide stacking support for the upper container as illustrated in FIG. 5 where the upper end 39a of post 39 is shown in support-

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ing relation to depending ribs 28 on the under side of the center section 27. In order to provide a locating pocket for receiving the upper ends of the posts in the stacking position, the ribs in the region indicated by the numeral 28a have less height than the adjoining ribs 28.

The container is adapted to bulk handling of fruits and vegetables. By way of example, a container four feet square and having a depth of two feet will hold substantially 900 pounds of tomatoes and will weigh approximately 35 pounds. When used for tomatoes and similar fruits and vegetables, the hollow posts 35, 36, 39, 40 do not interfere significantly with the loading and unloading of the container. The posts greatly increase the load carrying ability and the stacking height.

What is claimed as new is:

1. A container having a bottom wall with side walls extending upward from the periphery of the bottom wall, and a plurality of upstanding hollow posts integral with the central area of the bottom wall and of height substantially equal to the depth of the container, said posts being arranged unsymmetrically with respect to the side walls whereby the posts serve as stacking supports for an overlying container of the same shape having side walls aligned with but of different orientation than the side walls of said container.

2. The container of claim 1 having a pair of channels in the bottom wall extending from front to back and another pair of channels in the bottom wall extending from side to side and intersecting the first pair, the channels of each pair being spaced from each other and open at the ends to receive fork lift prongs, and in which the posts are adjacent and integral with side walls of the channels.

3. The container of claim 2 in which said central area

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has a grid of intersecting ribs with lower edges of the ribs in the plane of the bottom wall.

4. The container of claim 1 in which the bottom wall is generally rectangular and the posts taper inward from the bottom to the top and the side walls have vertically extending convolutions and the wall and convolutions flare outwardly from the bottom to the top so that the posts, walls and convolutions of an overlying container will nest in an underlying container of the same shape and orientation, the convolutions in two side walls being arranged unsymmetrically with respect to each other whereby the convolutions of an underlying container serve as stacking supports for an overlying container of the same shape but with side walls of different orientation than the side walls of said underlying container.

5. The container of claim 3 in which the upper edges of the grid are integral with and depend from said central area of the bottom wall.

6. The container of claim 3 in which the ribs are integral with said posts.

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U.S. Cl. X.R.

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