

June 3, 1969

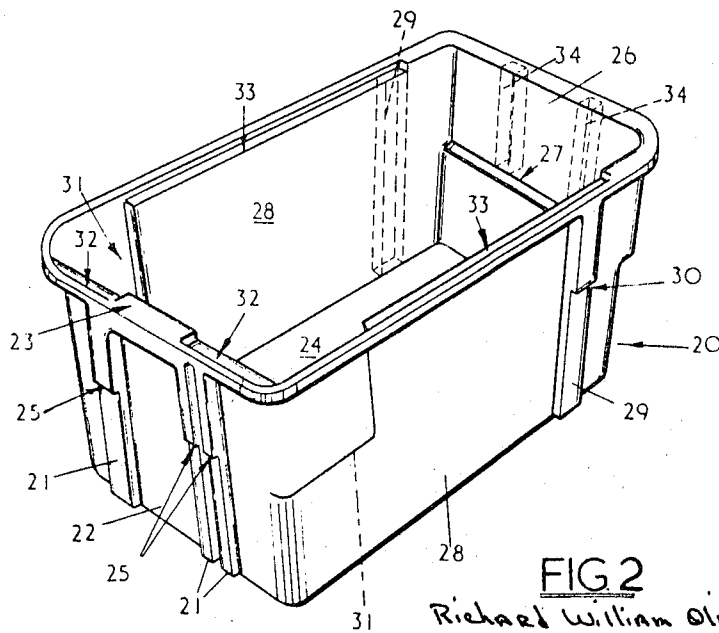
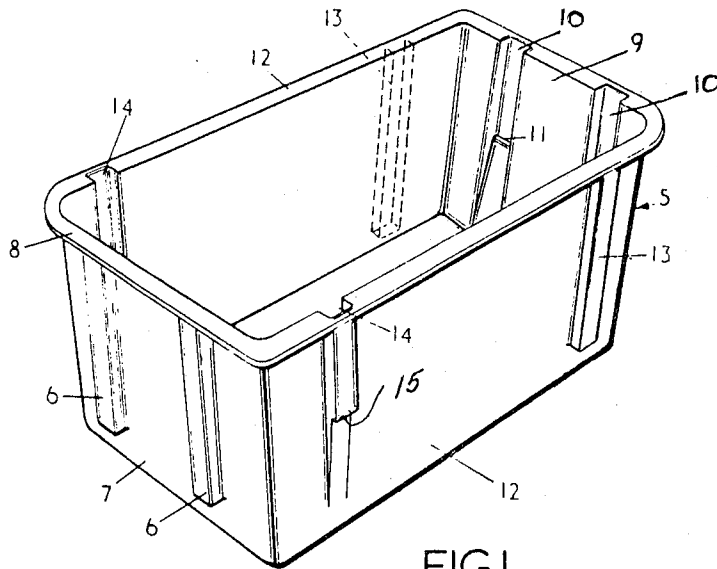
R. W. O. BENEY

3,447,715

CONTAINERS

Filed March 4, 1968

Sheet 1 of 2



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Sheet 2 of 2

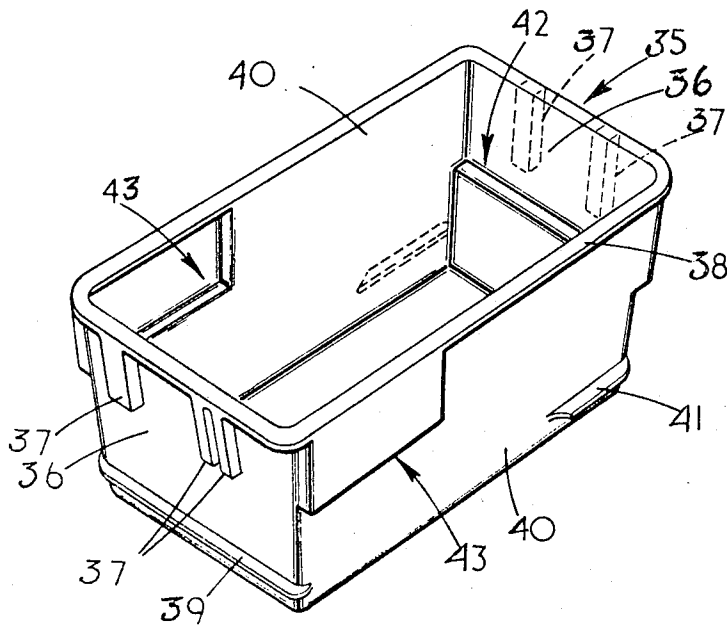


FIG. 3

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3,447,715
CONTAINERS

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Continuation-in-part of abandoned application Ser. No. 548,938, May 10, 1966. This application Mar. 4, 1968,
Ser. No. 710,087

Int. Cl. B65d 21/04, 23/06, 25/22

U.S. Cl. 220-97

1 Claim

ABSTRACT OF THE DISCLOSURE

An open top container provided at its open top with an outwardly directed flange or rim and with at least three external projections and internal seatings therefor formed in its walls. The projections and seatings are so positioned that by orienting the container in one direction the lower surfaces of the projections are engaged on a section of the rim above the projections of a similar container whereby the container is stacked in a balanced condition. By orienting the container in a different direction, the projections are received in the seatings of a similar container to provide nesting.

This application is a continuation-in-part of my co-pending application Ser. No. 548,938, filed May 10, 1966 and entitled "Containers" (now abandoned).

This invention is concerned with containers and seeks particularly to provide a container in the form of a box adapted to be stacked and nested. Known boxes of this type are generally formed so as to have recesses and notches formed by grooves in the side walls and the vertical load strength of the box walls are limited by the provision of said grooves.

The present invention seeks to provide a stronger box container than those aforementioned without increasing the general thickness of the wall with a view to avoiding limitation of the vertical load strength of the container walls.

According to the present invention there is provided an open-topped container having at its open-top an outwardly directed flange or rim and having three or more external projections and internal seatings therefor formed in its walls, the projections and seatings being positioned so that by orientating the container in one direction the lower edges or surfaces of the projections may be engaged on a section of the rim above the projections of a similar container so that the container is stacked in a balanced condition, and by orientating the container in a different direction the projections may be received in the seatings of a similar container to effect nesting.

Also according to the present invention there is provided an open-topped container having at its open top an outwardly directed flange or rim, and having four or more vertical solid external pillars and seatings therefor formed in its walls, the pillars and seatings being positioned so that by orientating the container in one direction of the lower edges of the pillars may be engaged on a section of the rim above the pillars of a similar container so that the container is balanced, and by orientating the container in a different direction the pillars may be received in the seatings of a similar container to effect nesting.

Four single or double pillars and four seating recesses may be provided on the walls, the seating recesses being, of course, wider when double pillars are employed.

The pillar seatings may be provided by recessing appropriate sections of the rim of the container at the pillar locations to provide ledges on the wall, the pillars being stepped so that in one orientation of two containers, i.e., the nesting orientation, the steps rest on the ledges.

This arrangement may be employed by providing on

one end wall two single or double stepped solid pillars with the rim recessed above the pillars, while the other end wall is set back midway down and along its whole length. In this instance, the rim of the container above the side wall pillars is recessed while each side wall at the container end remote from the side wall pillars has a portion recessed or set back midway down same.

The disposition and arrangement of the recessed rims along one end and each side of the container ensure that a container superimposed in stacking relationship on another container will not slide lengthwise or sideways.

In a modified box container of open-topped construction having at its open top an outwardly directed flange or rim and having external projections and internal seatings therefor provided in its walls for stacking and nesting purposes, the external projections consist of two spaced pillars on each end wall extending downwardly from the rim to halfway down the walls, an outwardly directed flange on each side wall adjacent the other end wall and spaced above the container bottom.

Embodiments of the present invention will now be described, by example, with reference to the accompanying drawings, in which:

FIGURE 1 is a perspective view of one container according to the present invention,

FIGURE 2 is a perspective view of another and preferred container according to the present invention, and

FIGURE 3 is a perspective view of yet another container according to the present invention.

Referring to FIGURE 1 of the drawings, a four-sided box container 5 of generally rectangular form in plan view is provided with two external pillars 6 on a shorter end wall 7, those pillars extending between a horizontal rim or flange 8 extending around the upper periphery of the box 5 and a short distance from the base or bottom of the box. The opposite shorter end wall 9 is provided with recesses 10 which extend to a similar distance down the box and those recesses 10 are provided with a flange or ledge 11 at a point approximately midway between the upper edge of the box and the lower end of the recess 10. From the flange or ledge 11 to the lower end of the recess 10, the recess reduces in depth.

On each side wall 12 of the box 5 there is provided an external pillar 13 towards end wall 9 of the similar form to those pillars 6 on the end wall 7. Adjacent end 7 of the box 5 there are provided on side walls 12 cooperating recesses 14 which are in line with each other across the width of the box 5 and which are formed with a ledge or flange 15 at a point midway between the upper edge of the box 5 and the lower end of the recess 14.

It will be appreciated that by orientating two containers in a similar fashion those containers may be stacked so that the pillars coincide so that the weight of the box is carried on the pillars. By turning the one box through 180° relative to another box it will be appreciated that the pillars 6 and 13 are brought into alignment with the recesses 10 and 14 respectively and the box may then be nested so that the lower edge of the pillars 6 and 13 rest on the flanges or ledges 11 and 15 of the recesses 9 and 14. It will be appreciated that when the boxes are stacked their weight is concentrated through the solid pillars 6 and 13 and thus the strength of the boxes is increased as it does not rely solely on the thickness of the material of the box.

Referring now to FIGURE 2 of the drawings, a four-sided box container 20 of generally rectangular form in plan view is provided with two external pillars 21 on a shortened wall 22, those pillars extending between a horizontal rim or flange 23 extending around the upper periphery of the box and the base 24 of the box, each pillar 21 being stepped intermediate its ends as indicated at 25. Two alternative forms of pillar arrangement 21 are shown in this embodiment, one being a single pillar (left-hand side),

while the other is a double pillar (right-hand side). The opposite shorter end wall 26 is set back to provide a ledge 27 a similar distance down the box as the stepping 25 in the pillars 21.

On the side walls 28 of the box there is provided towards end wall 26 an external pillar 29 stepped at 30 and of similar form to pillars 21 on the end wall 22. Towards the other end 22 of the box 20 there are provided cooperating recesses formed midway therebetween with ledges 31 which are in line with each other across the width of the box 20.

The box rim 23 above pillars 21 are recessed as indicated at 32 to form two transversely-spaced ledges. The rim 23 along each side 28 is recessed as indicated at 33 to form ledges from above each pillar 29 to the corresponding recess 31.

When two boxes 20 are orientated so that one is stacked on top of the other, it will be manifest that the bottoms of pillars 21 of the top box rest on ledges 32 of the bottom box, the bottoms of pillars 29 of the top box rest on ledges 33 of the bottom box, and the base 24 of the top box rests on the rim 23 of the bottom box above end wall 26.

When, however, the top box is re-orientated through 180° so that the top box nests within the bottom box, then the steps 25 of pillars 21 of the top box rest on the rim 23 of the bottom box above end wall 26 with the bottoms of these pillars 21 spaced above ledge 27, the steps 30 of the pillars 29 rest on rim 23 of the bottom box above recesses 31 with the bottoms of the pillars 29 spaced above the ledges in recesses 31, and the outer surface of ledge 27 of the top box resting on the rim of bottom box above end wall 22.

It will be manifest that in each orientation of the boxes (i.e. stacking or nesting) the top box engages in the bottom box; in the first instance only to the depth of the recesses in the rim, and in the second instance to half depth of the top box.

In the stacking condition, it will be noted from the arrangement and disposition of the recesses 32 and 33 that the endings of these recesses provide stops to prevent the top box from sliding lengthwise or sideways relative to the bottom box.

The pillars 21 and 29 are so formed that their upper external faces are vertical and flush to the outer edge of the rim 23 at the box top. The pillars 21 are matched by pillars 34 on the opposite end wall 26 extending downwards vertically for not more than half the depth of the box. These are provided so that when two boxes are, for example, travelling on a conveyor and bear end to end against one another two vertical and flat faces will come in contact. This prevents the boxes riding up as happens if two tapered faces are brought in contact under these conditions.

The pairs of pillars 21 and 34 and portion of the rim 23 extending between each pair provide convenient hand-grips for handling the box.

It may be desired to provide the box container 20 with a lid, and it has been found that the most satisfactory form of lid is a flat sheet with its ends preferably as square as possible. To accommodate such a lid, the ledges 32 and 33 are continued around the rim 23 so that the rim above each end wall 22 and 26 is recessed to provide seating ledges, and the corners of the rim ledge are preferably made as square as possible. No recessed rim ledge is provided at those portions of the side walls 28 above ledges 31. The lid simply rests on this rim ledge to close the box container.

As a result of this modification, provision must be made for containers to be stacked one upon another, and this is effected by providing sockets in the recessed ledge directly above the pillars. The sockets above the pillars 29 are tapered at one side so that the pillars can be placed on the recessed ledge at about the midpoint of the box and slide into the sockets, while the sockets on the wall 22 will be

slightly tapered at both sides and well radiused at the top corners to facilitate entry of the pillars 21.

Means may be provided for retaining the lid on the box container. Such means may consist in providing clips or brackets, say of metal or two adjacent corners of the box so that an end or side of the lid can be slid thereunder to rest on the rim ledge. Retaining elements may, if desired, then be provided at the other corners.

The lid may be sealed in position by padlock, wire and lead seal or other suitable means.

The depth of the rim ledge is the same or very slightly less than the depth of the lid so that when the closed box is exposed to the weather, rain is less likely to be trapped to pass into the interior of the box.

The rim ledge may, if desired, be perforated to ensure that any small quantities of rain which penetrate past the lid will seep out of the perforations rather than into the box interior.

It may be convenient to cut away a portion of the rising section of the rim, preferably at the center at one side to facilitate gripping of the lid to remove same. Such cut out portion will be at the side of the box remote from the retaining clips or brackets.

Referring now to FIGURE 3, of the drawings, the box container 35 is four-sided and of generally rectangular form in plan view.

Each shorter end wall 36 is provided with two transversely spaced external pillars 37 which may be of single or double construction extending from a horizontal rim or flange 38 around the upper periphery of the box to midway down the depth of the box.

An external, outwardly projecting flange 39 spaced above the bottom of the box is provided along one of the shorter end walls 36 below the pillars 37 and the outer surfaces of the flange 39 and pillars 37 above same are in line.

Each long side 40 of the box 35 is provided with an external, outwardly directed flange 41 in alignment with the flange 39 on the shorter end wall 36, and each side wall flange 41 extends from the other shorter end wall 36 to not more than half the length of the side wall 40.

The shorter end wall 36 not provided with the flange is set back to provide a seating 42 internally of the box. Similarly seatings 43 are provided internally of the box container by outwardly setting back the upper half of the side walls 40 respectively at the non-flanged sections thereof, the seatings 43 being the same length as the side wall flanges 41.

When, therefore, two box containers as described above are in stacked relationship the end and side wall flanges 39 and 41 of the top box container rest on the rim 35 of the bottom box container. When, however, the top box container is re-orientated through 180° to nest in the bottom box container, the bottoms of the pillars 37 of the top box rest on the rim 38 of the bottom box container and the end and side wall flanges 39 and 41 are accommodated in the internal seatings 42 and 43 provided therefor on the bottom box container. However, the box containers are so dimensioned that the flanges 39 and 41 do not rest on the seatings 42 and 43 but are spaced slightly above same.

The rim 38 may be provided with sockets to accommodate the bottoms of the pillars 37 if desired.

If, it is desired to close the box by means of a flat lid as hereinbefore described, then it will be manifest that this can simply be done by recessing the rim 38 to provide a lid-seating ledge therearound. Similar securing and drainage arrangements may also be employed.

I claim:

1. An open-topped container capable of being stacked or nested, comprising an outwardly-directed rim at its open top, a pair of transversely-spaced pillars extending the full depth of the container on the exterior of one end wall thereof, each pillar being stepped inwardly part

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way down its length for nesting purposes, said rim being recessed above each pillar for stacking purposes, the other end wall of said container being set back at its upper part for accommodating the inwardly-stepped lower portions of the pillar of another container nested in the first-mentioned container, a pillar extending the full depth of the container on the exterior of each side wall of the container adjacent the set-back end wall, said pillar being stepped inwardly part way down its length for nesting purposes, the rim immediately thereabove being recessed for stacking purposes, and each side wall adjacent said first mentioned end wall being set back at its upper part for accommodating the inwardly stepped lower portion of the side

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wall pillar of another container nested in the first-mentioned container.

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