

April 3, 1951

L. J. DANIELS
CONTAINER AND PALLET

2,547,112

Filed June 14, 1946

2 Sheets-Sheet 1

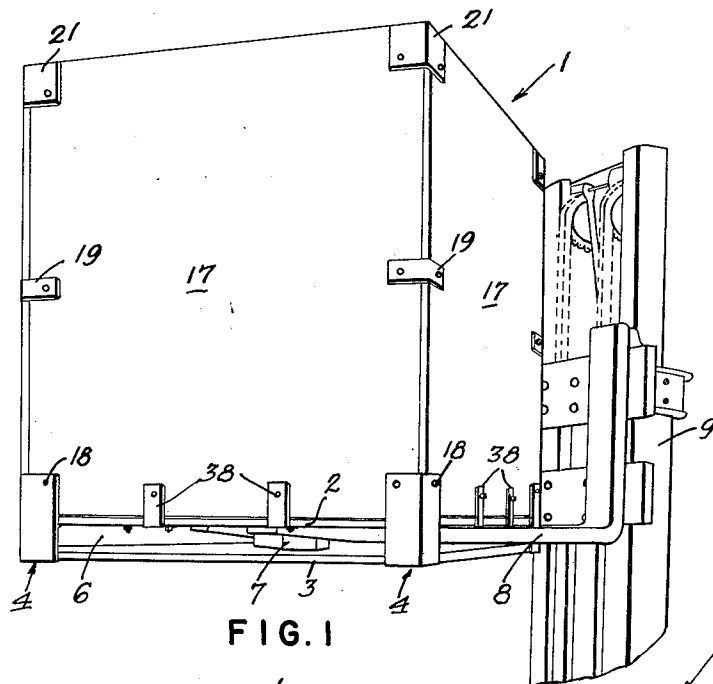


FIG. 1

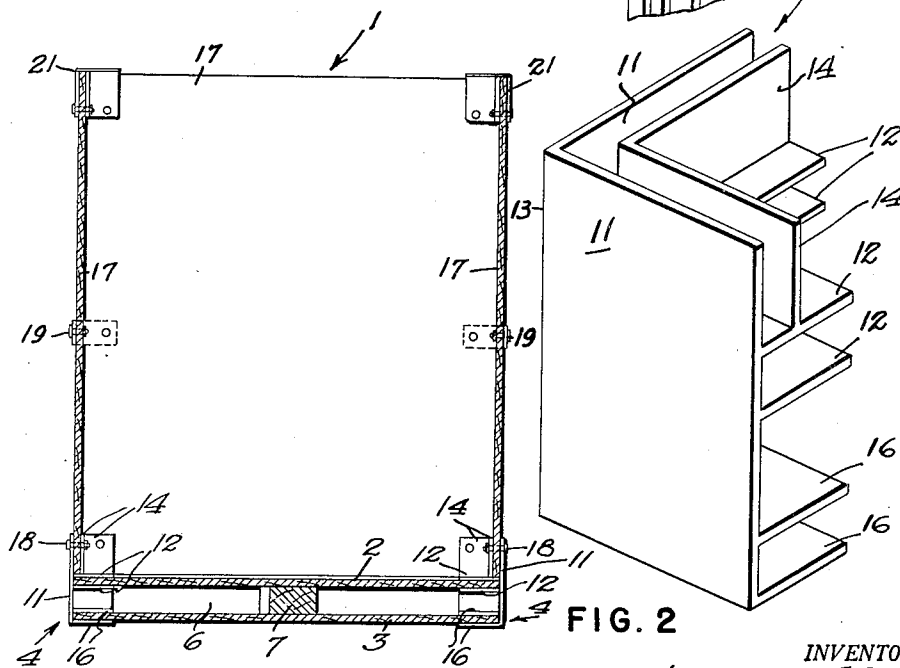


FIG. 2

FIG. 3

INVENTOR.
LLEWELLYN J. DANIELS
BY *George B. White*
ATTORNEY

April 3, 1951

L. J. DANIELS
CONTAINER AND PALLET

2,547,112

Filed June 14, 1946

2 Sheets-Sheet 2

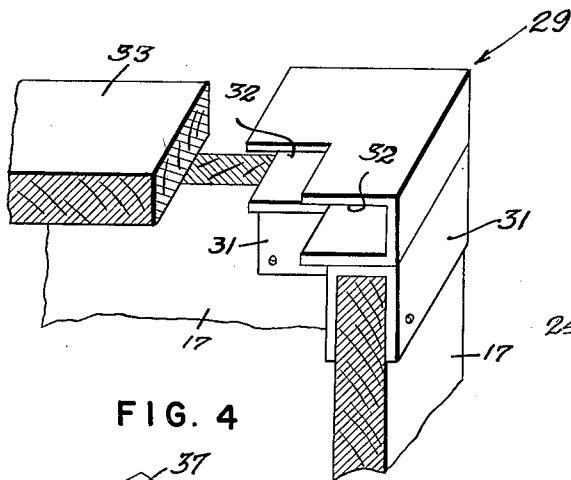


FIG. 4

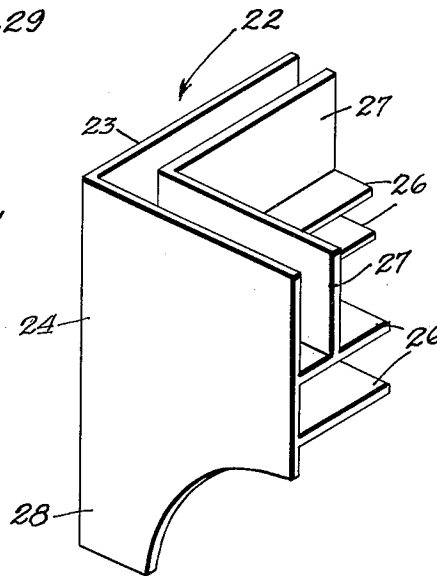


FIG. 5

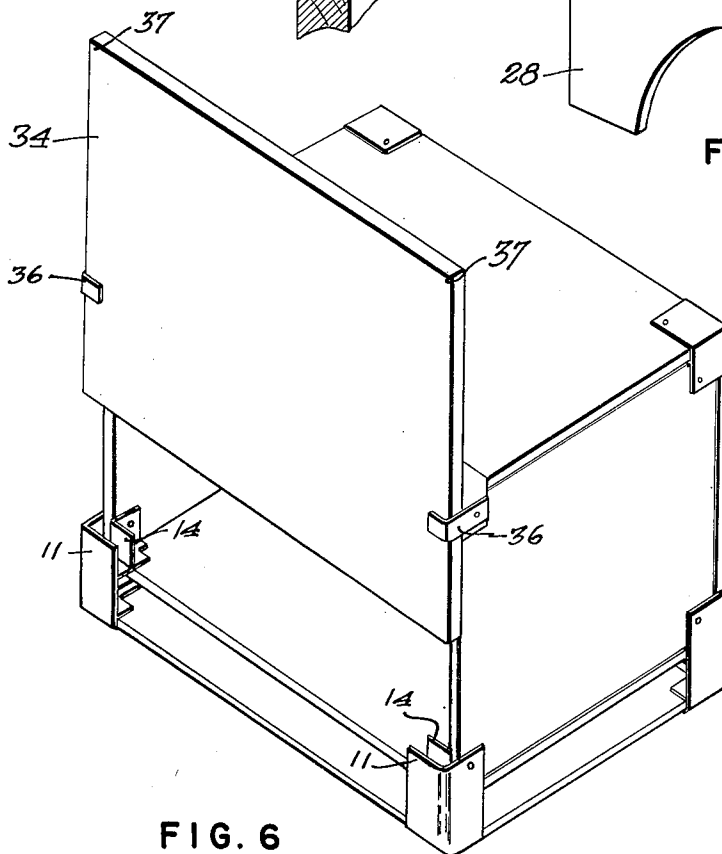


FIG. 6

INVENTOR.
LLEWELLYN J. DANIELS
BY *George B. White*
ATTORNEY

UNITED STATES PATENT OFFICE

2,547,112

CONTAINER AND PALLET

Llewellyn J. Daniels, San Francisco, Calif.

Application June 14, 1946, Serial No. 676,697

5 Claims. (Cl. 217-69)

1

This invention relates to containers and particularly containers or boxes of the knock-down type.

The types of brackets and containers as herein illustrated include several features, which obviate many disadvantages of previous containers and brackets of this type. Features of the herein invention include: a knock-down box held together by corner brackets at the bottom in such a way that a pallet is held spaced under the bottom of the box for the insertion of a lifting fork or the like, the pallet forming part of the box assembly; another feature is the provision of bottom corner brackets for a knock-down container which are adapted to also hold a pallet as part of the container; another object of the invention is to provide a corner bracket which is adapted to hold the sides and bottom of the container together at the corners of said container and is also adapted to support the container so that the bottom of the container is spaced from the surface on which the bracket stands; another object of the invention is to provide a pallet spaced below the bottom of a container so as to form part of a container, and to provide a spacing brace to prevent the flexing or bending of the bottom and of said pallet relatively to one another; another feature is the provision of a type of corner bracket which can be used either at the top or at the bottom; another feature is the type of bracket which can be used so as to render one side of such box or container removable or withdrawable.

The essential features of the invention involved in the carrying out of the objects indicated are susceptible to modification, but a preferred embodiment of the invention is shown in the accompanying drawings, in which:

Fig. 1 is a perspective view showing a box constructed in accordance with my invention, and supported on a crane fork;

Fig. 2 is a perspective view of a corner bracket for the purposes of my invention;

Fig. 3 is a sectional view of a container constructed in accordance with my invention;

Fig. 4 is a partly sectional fragmental view of a top corner where a top lid is used on the container;

Fig. 5 is a perspective detail view of a bottom corner bracket with a spacer leg; and,

Fig. 6 is a modified embodiment of the box constructed in accordance with my invention which is open on a side instead of at the top, and has a sliding panel at said open side.

In the stacking of containers or boxes, the pre-

2

vious practice has been to provide a separate pallet or board with suitable spacers between the boxes in order to allow the insertion under the bottom of each box a lifting device such as a crane fork for the lifting of each box from the stack. One of the features of my invention is a box, denoted in its entirety by the reference numeral 1, which has as a part thereof and under its bottom 2 a pallet 3, held in suitable bottom brackets 4 in such a manner that the space between the bottom 2 and the pallet 3 is accessible through openings 6 under each side of the box and between the respective brackets 4. A brace or stiffener block 7 is provided between the box bottom 2 and the pallet 3 at about the middle of the box area to prevent the bending or sagging of the bottom board 2 and maintain the spaced relationship thereunder. By built-in pallet boards of this type the moving of the boxes by crane forks of the type indicated in Fig. 1 is easily accomplished. The lifting fork 8 is movable on a suitable crane frame 9 and is operated by usual lifting mechanism, not shown, and it can be inserted, as shown in Fig. 1, between the bottom 2 and the pallet 3 to lift or carry the box. Boxes constructed as herein described carry their own built-in pallet for facilitating the handling of the same. This is particularly advantageous in connection with large size boxes and containers.

Another feature of the herein invention is the device whereby large boxes can be made as knock-down boxes and yet provide for the spacing of the bottom from the other boxes in the stack or from any supporting surface. This is accomplished by the bottom corner brackets 4 which are provided with a plurality of sockets or channels to hold the respective sides of the boxes at each corner as well as to hold the pallet 3 as a part of the box assembly. Each corner bracket 4 has side plates 11 which are arranged preferably at right angles to one another so as to fit the outside of a corner of the box 1. From each plate 11 extend inwardly of the included angle formed by them a pair of horizontal flanges 12 which are spaced from each other to form channels to receive a corner of the bottom 2. The flanges 12 are at right angles to the respective side plates 11 and form a corner adjacent to the meeting corner edge 13 where the side plates 11 join. From the upper flange 12 of each pair of flanges extends upwardly a vertical retaining flange 14 which is parallel with the respective side plate 11 and is spaced therefrom to a distance to form a vertical channel for the corner

3

edges of the respective sides of the box 1. The side plates 11 extend to below the lower flanges 12 of said horizontal channels to determine the spacing between the bottom of the box and a pallet thereunder.

From the lower portions of the side plates 11 extend horizontal flanges 16 in pairs so as to form horizontal channels along the lower edges of the side plates 11 to accommodate a corner of the pallet 3. The space between the upper pallet flange 16 and lower bottom flange 12 determines the spacing between the bottom 2 of the box and the pallet 3 for the insertion of the crane fork or the like in the manner heretofore described.

In assembling a box constructed in accordance with my invention as herein described, the corner brackets 4 are placed over the corners of the bottom 2 and of the pallet 3 so that the corners of the bottom 2 are in the channels between the horizontal flanges 12 and the corners of the pallet 3 are in the channels between the horizontal pallet flanges 16 spaced from one another. Then the side panels 17 of the box are placed in the vertical channels formed between the top portions of the side plates 11 and the vertical flanges 14 of the corner brackets 4. This in itself completes a box which is sufficiently rigid and in which the pallet is held always as part of the box in a predetermined relation to accomplish the purposes herein described.

In connection with large boxes, securing screws 18 or the like may be inserted to hold the side panels 17 assembled in the vertical channels of the bracket 4. In the event that the boxes are of considerable height, then a corner reinforcing strip 19 is provided intermediate between the top and bottom of the box 1 at each vertical corner to prevent the bulging of the sides at said point. In addition the top edges of the side panels 17 may be held together by top corner brackets 21 formed in a suitable manner to engage the top edges of said panels at said corners and prevent spreading at the top.

It is to be noted that in the present illustration the spacing block 7 is secured by a suitable adhesive, or in any other suitable manner, to the bottom 2 so as to form a part of said bottom 2, but the block 7 may be similarly attached to the pallet 3. The structure herein described is particularly adapted for use in connection with so-called plywood boxes and greatly facilitates the assembly and knocking-down as well as the handling of boxes of large size which may be made from such material.

Another form of the bottom corner bracket is illustrated in the corner bracket 22 shown in Fig. 5 in which the side plates 23 and 24 extend at an angle as heretofore described and are provided with spaced horizontal flanges 26 to accommodate the corners of the box bottom 2, and with vertical flanges 27 for holding the side panels 17 as heretofore described. The side plates 23 and 24, however, extend below the lowest horizontal flange 26 at the corner to form a corner leg 28 on which the box may stand. This form is adapted in cases where the boxes are provided with suitable covers and support on which said legs may stand.

In certain instances, the use of a top cover for the box may be necessary. In such instances top corner brackets 29, as shown in Fig. 4, are utilized. These top corner brackets are formed by vertical channels 31 pointing downwardly to accommodate the top corners of side panels 17.

4

Horizontal channels 32 on the top of the vertical channels 31, and being integral therewith, accommodate the horizontal corners of a top panel 33 of the box. In the event of such assembly the horizontal channels 32 of the top corner brackets 29 are first placed on the corners of the top panel 33 and then the unit is placed over the corners of the side panels 17 as shown in Fig. 4.

Another modified form of the invention is shown in Fig. 6. This form is particularly advantageous in connection with boxes where a side is made removable and slidable so as to allow the loading and unloading of the contents of the box through one side instead of through the top. In this form the bottom corner brackets are constructed substantially in accordance with the constructions heretofore described and top corner brackets of the type shown in Fig. 4 are provided in two of the top corners. In the two corners adjacent the sliding side panel 34 of the box a pair of guide strips 36 or the like are provided to hold the sliding panel 34 in suitable sliding position. The panel 34 slides into the vertical channel between the flanges 14 and the plates 11 of the bottom corner bracket 4. It is to be noted that in boxes with removable sliding side panel, multiple channel corner brackets are provided on all the corners of the box excepting at the two top corners adjacent the sliding panel 34. At the top corners 37, of the sliding panel 34, the brackets must be open at the top to allow the upward sliding of the side panel, or holding strips 36 as shown, may be provided.

It is to be also noted that in connection with boxes of large sizes further bracing may be provided by brace strips 38 spaced along the bottom edges from the respective bottom corners further to hold the bottom 2 and the adjacent side panels 17 together against bulging or bending.

The invention herein described results in a light-weight but very strong box which can be made out of plywood or composition boards or the like. The box can be readily assembled and forms a strong unit. It has its own pallet board spaced below the bottom which is readily assembled with the box and after assembly forms a part of the box to provide the necessary space above a supporting surface, in which the usual crane fork or the like can be worked for handling the box. The bottom corner brackets are such that they allow quick yet secure assembly of the pallet on the box. The support by the brackets herein shown results in lightweight boxes which can carry comparatively heavy loads. The spacing block between the bottom and the pallet prevents the sagging of the bottom at the center toward the pallet. Additional braces further stiffen the box without rendering the handling of the box more difficult. When it is desired to close such a box then by providing inverted bottom corner brackets, the tops can be assembled securely and easily and held in place. The construction herein provides for greater variety as to the size and shape of boxes for such use. It facilitates the shipping of such boxes in knock-down condition and their assembly at the place of use. It greatly facilitates the handling of the boxes and especially of large size boxes by cranes and the like. It permits the carrying of heavy loads in comparatively light boxes. It provides for the automatic spacing of the bottoms of the boxes when they are staked upon supporting surfaces. It results in general economy and efficiency both in making, assembling and using boxes.

5

I claim:

1. In knock-down box of the character described, corner brackets, flanges on said sides and corners of the bottom of said box, a pallet, and a downward extension on each bracket, and retaining flanges on each extension engageable with said pallet to support said pallet in spaced relation below said bottom of said box.

2. In a box of the character described, a bottom, side panels at an angle to said bottom, a corner bracket for holding together said side panels and said bottom at each corner thereof, a pallet, and an extension extended from each bracket downwardly below said bottom, spaced flanges projecting from each extension under the bottom and spaced below said bottom being adapted to support said pallet on said box spaced from said bottom.

3. In a box the combination with a bottom, side panels and a pallet for said box, of a corner bracket for each bottom corner of the box, horizontal retaining channels on each corner bracket engaging a corner of said bottom, substantially vertical channels on each bracket at an angle to said horizontal channels for engaging and holding the side panels of the box at each corner of said bottom, and supporting channels on each bracket spaced below the said horizontal channels for engaging and supporting the corners of said pallet in spaced relation below said bottom.

4. A corner bracket for a box of the character described, comprising sides arranged at an angle to fit the outer surface of a box corner, horizontal

6

channels extended from each of said sides inwardly of the included angle and adapted to hold a corner of the bottom, vertical channels on each bracket adapted to hold the sides of said box, and horizontal channels on each bracket spaced below said first horizontal channels and adapted to hold a corner of pallet element spaced below said bottom.

5. A corner bracket for a box of the character described comprising a pair of sides at an angle conforming to a corner of said box, retaining flanges extending from said sides forming channels fitting over a corner of the bottom of said box, flanges extending from the top of said first flanges substantially parallel with the respective sides forming channels to fit over the bottom edges of adjacent sides of said box, and retaining flanges spaced below the first set of retaining flanges on said sides forming corner channels for a panel spaced below the bottom of said box.

LLEWELLYN J. DANIELS.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
406,156	Weir	July 2, 1889
942,391	Kinsey	Dec. 7, 1909
1,189,542	Collins	July 4, 1916
2,168,911	Meyer	Aug. 8, 1939
2,299,175	Procissi et al.	Oct. 20, 1942
2,337,923	Pierce	Dec. 28, 1943