United States Patent

[11] 3,589,548

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[54] **KNOCKDOWN CONTAINER**
9 Claims, 8 Drawing Figs.

[52] U.S. Cl. ..... 220/4 R, 220/80
[51] Int. Cl. B65d 7/34, B65d 11/18
[50] Field of Search 220/1.5, 4, 71, 80

[56] References Cited

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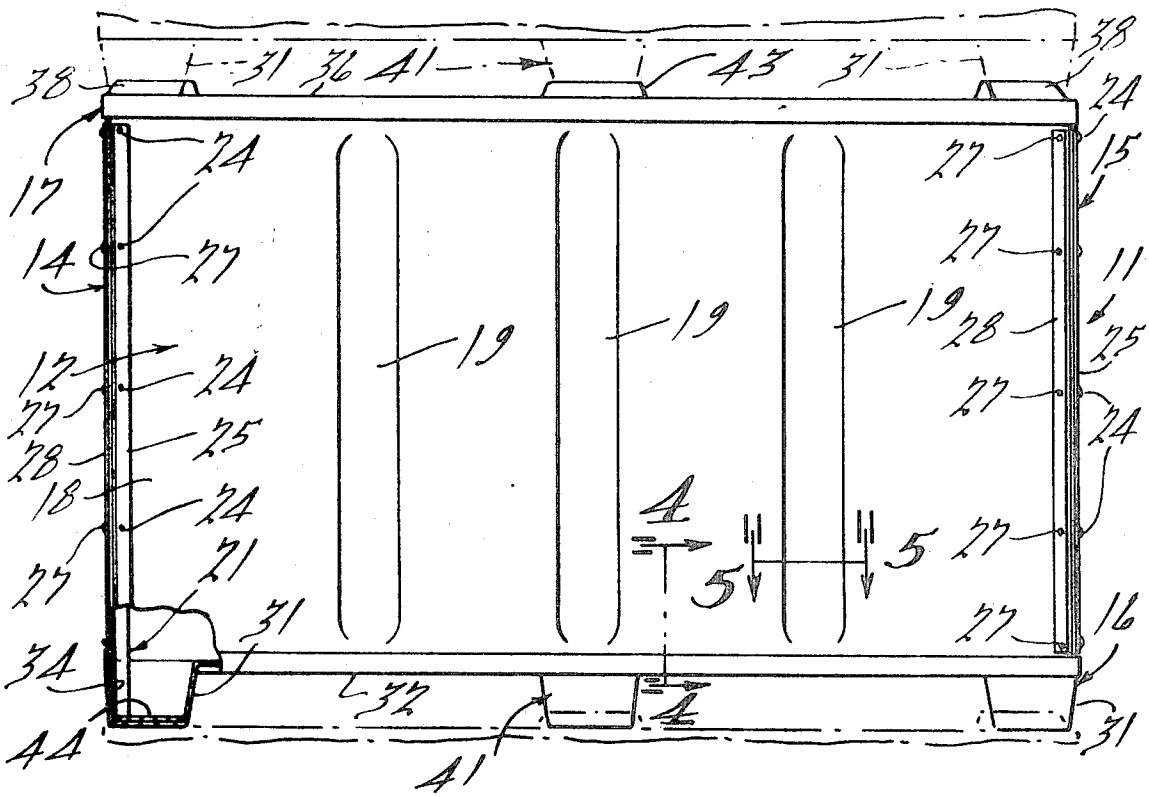
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ABSTRACT: A knockdown-type shipping container for shipping articles. The container has sides with interengaging corner posts and which are held together by means of a top and bottom at least one of which has recesses to supportingly contain corner posts of the sides.



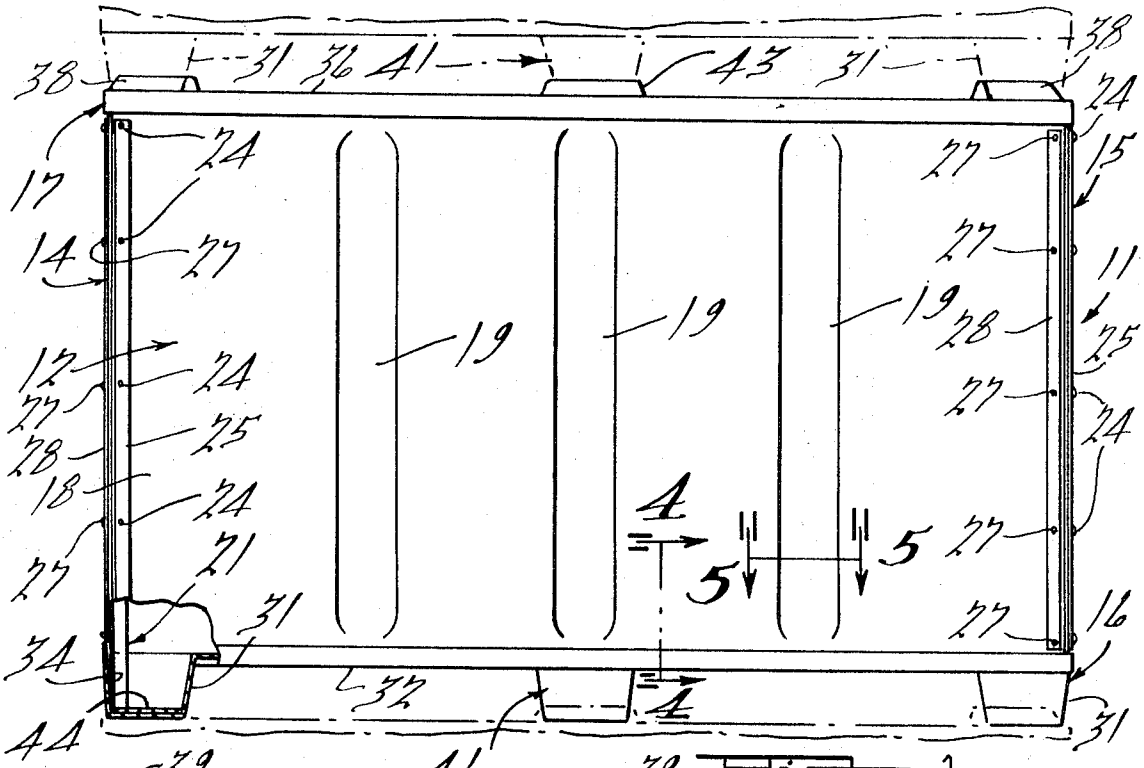


FIG. 1.

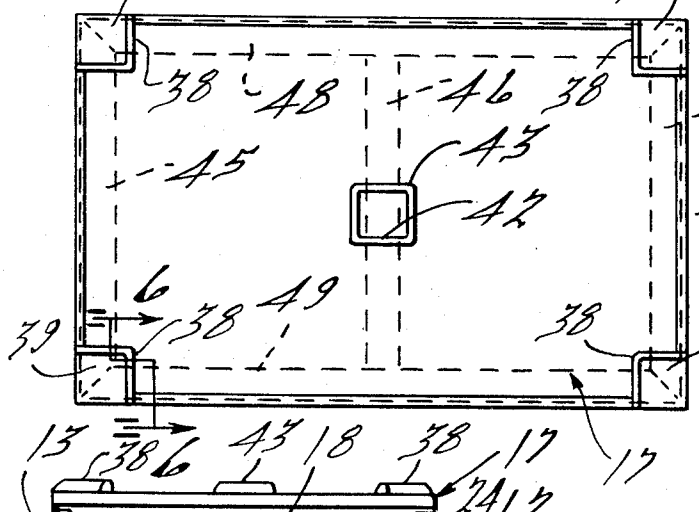


FIG. 2.

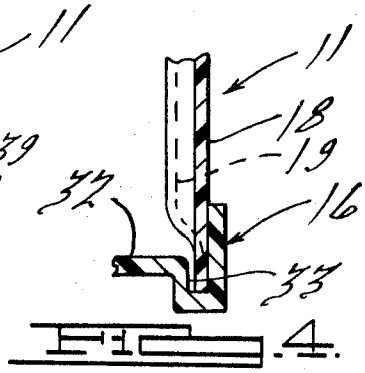


FIG. 4.

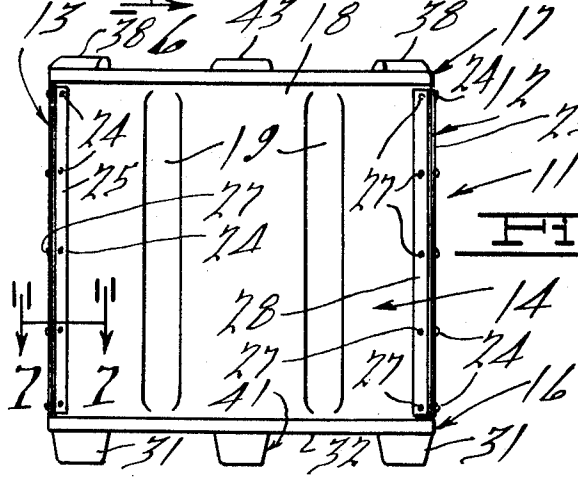


FIG. 3.

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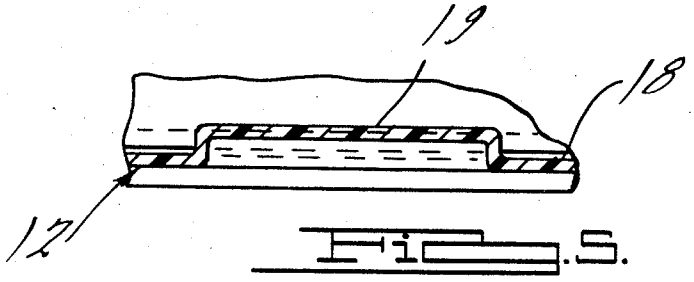


Fig. 5.

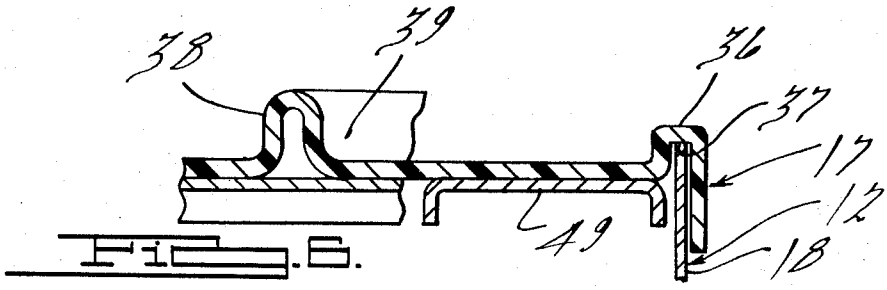


Fig. 6.

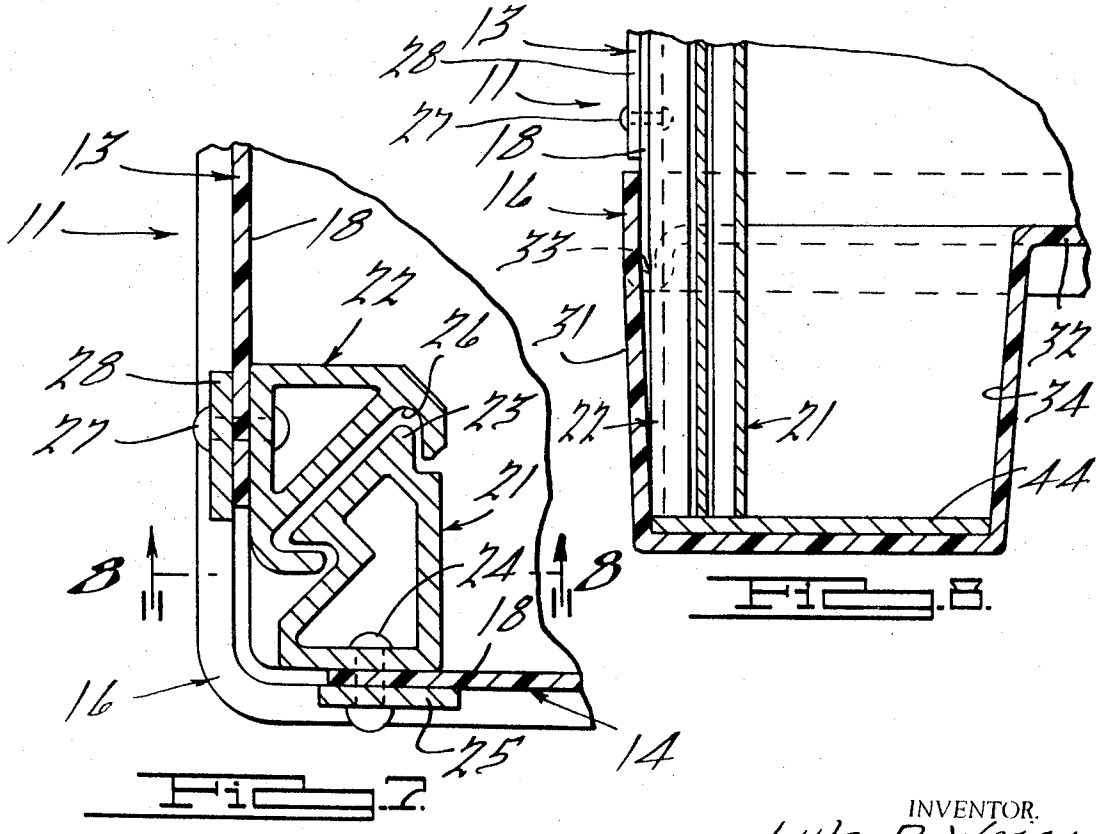


Fig. 8.

Fig. 7.

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KNOCKDOWN CONTAINER

BACKGROUND OF THE INVENTION

This invention relates to a knockdown container and more particularly to an improved shipping container that may be disassembled for empty return.

In many instances, it is necessary to ship a number of small parts from one location to another within a container. For example, frequently a number of small automotive parts are shipped from a manufacturing plant to an assembly plant. The containers used to ship these goods must be relatively strong and, accordingly, are expensive. Due to their high cost, the containers should be reusable and this gives rise to a shipping problem in that a rigid container occupies considerable space which is wasted if the container is returned empty. Although knockdown-type containers have been previously proposed to permit compaction of the container for return, such containers either are difficult to assemble and disassemble or lack sufficient strength.

It is, therefore, a principal object of this invention to provide an improved knockdown shipping container.

It is another object of this invention to provide a knockdown type of container that may be conveniently assembled and disassembled.

It is another object of this invention to provide a container that may be disassembled and formed into a compact package for return to the point of initial shipment.

SUMMARY OF THE INVENTION

This invention is particularly adapted to be embodied in a container that may be easily assembled and knocked down. The container is comprised of a base member and at least three side members. The base member has indented portions forming feet on the underside thereof upon which the container may be stood. The indented portions also define pockets on the upper side of the base member. Corner post means are formed at the ends of each of the side members and are interlocked with each other for holding the side members in assembled condition. Each of the corner post means has an extending portion received in a respective one of the pockets which hold the assembled side members relative to the base member.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view, with a portion broken away, of a knockdown container embodying this invention and shown in a stacked relationship with other similar containers.

FIG. 2 is a top plan view of the container shown in FIG. 1 on a reduced scale.

FIG. 3 is a reduced scale end elevational view of the container.

FIG. 4 is an enlarged cross-sectional view taken along the line 4–4 of FIG. 1 and showing the interlocking relationship between a portion of the side members and the bottom member.

FIG. 5 is an enlarged cross-sectional view taken along the line 5–5 of FIG. 1 showing the reinforcing of the side members.

FIG. 6 is an enlarged cross-sectional view taken along the line 6–6 of FIG. 2 showing the relationship between the side members and the top member at a corner of the top member.

FIG. 7 is an enlarged cross-sectional view taken along the line 7–7 of FIG. 3 showing the interengagement between the corner posts of the side members.

FIG. 8 is a cross-sectional view taken along the line 8–8 of FIG. 7 showing the interengagement between the corner posts and the bottom member.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The reference numeral 11 indicates generally a knockdown container embodying this invention. The container 11 is comprised of two longer side members 12 and 13 and two shorter side members 14 and 15, the later of which may also be considered as end members. In addition, a bottom member 16 and top member or lid 17 are provided. As will become more apparent, these members may be assembled together to form the container 11 in a convenient manner.

Each of the side members 11, 12, 13 and 14 is comprised of a sideplate 18 that is formed from a suitable rigid, lightweight material, such as high-density polyethylene. To add further strength to these sideplates 18, they may be formed with a plurality of vertically extending indentations 19 or, alternatively, outwardly extending ribs.

Corner posts 21 and 22 are carried at opposite ends of each of the side members 12, 13, 14 and 15. These corner posts may be formed as aluminum extrusions or may also be formed from any other suitable high strength, lightweight material. The corner posts 21 have a generally rectangular boxlike configuration and may be hollow to reduce their weight. At their inner edge, the corner posts 21 are formed with a tongue portion 23 of a shape as clearly shown in FIG. 7. The corner posts 21 are affixed to the side panels 18 in any suitable manner, as by rivets 24 and reinforcing plates 25.

The corner posts 22 also have a generally rectangular shape and are formed with grooves 26 that are complementary to and which are adapted to receive the tongues 23 of the corner posts 21. The corner posts 22 are affixed to the side panels 18 in any suitable manner, such as by rivets 27 and reinforcing plates 28. It should be readily apparent that with one corner post 21 at each end of the panel 18 and one corner post 22 at the opposite end of the side panel, the side members 12, 13, 14 and 15 may be readily assembled together by sliding the tongues 23 of the corner posts 21 into the grooves 26 of the corner posts 22. If desired, any other suitable interlocking arrangement may be used between the corner posts or, alternatively, the side panels 18 themselves may be formed with some suitable form of interlocking relationship.

The bottom member 16 may be formed from any suitable material such as the material used to form the side panels 18. In a preferred embodiment, high-density polyethylene is used. The bottom member 16 is formed with four indented portions 31, one at each of its corners. The indented portions 31 form feet upon which the assembled container 11 may be supported. These feet extend below the main surface portion 32 of the bottom member 16 so that the forks of a fork lift truck may be slid beneath the container 11 for handling. Between the indented portions 31, the bottom member 16 is formed with a depressed rib 33 (FIGS. 4 and 8) which rib is adapted to receive the side panel 18 of the respective side member. Thus, an interlock is provided between the side members 12, 13, 14 and 15 and the bottom member 16. In addition, the indented portions 31 at the corners form pockets 34 (FIG. 8) into which downwardly extending portions of the corner posts 21 and 22 extend. Thus, the bottom member 16 also insures against disassembly of the interlocked corner posts 21 and 22.

The lid 17 is also preferably formed from the same material as the side panels 18 and bottom member 16, in this instance, high density polyethylene. The lid 17 is formed with an upstanding rib 36 around its periphery that forms a groove 37 into which the upper ends of the side panels 18 extend (FIG. 6). This interengagement serves to further assist in holding the side members 12, 13, 14 and 15 together and holds the lid 17 relative to the container 11. At each of the corners, the lid 17 is formed with an upstanding rib 38 which defines a recess 39. The indented portions or feet 31 of one container may be received in the recesses 39 of another container so that the containers may be stacked upon each other as clearly shown in FIG. 1. If desired, the lid 17 may also be formed with pockets to receive extensions of the corner posts 21 and 22, as with the bottom member 16.

A central foot 41 is formed in the bottom member 16 to reinforce the bottom member and to provide further support for it. The foot 41 is received in a recess 42 formed by an upstanding rib 43 in the center of the lid 17 for support during stacking.

Although the described construction will afford sufficient strength for most applications, in some instances further reinforcing may be desired. To accomplish such reinforcing, steel plates as are positioned in each of the pockets 34 (FIGS. 1 and 8) upon which the corner posts 21 and 22 are supported. In addition, a heavy plate (not shown) may be positioned upon the flat surface 32 of the base member 16. The cover member or lid 17 may also be reinforced, as by means of three transversely extending inverted channels 45, 46 and 47. The opposite ends of these channels are connected to longitudinally extending channels 48 and 49 in any suitable manner and each of the channels 45 through 49 is affixed to the cover member 17 in any suitable manner such as by riveting or adhesive bonding. The channels 45 and 47 intersect the channels 48 and 49 adjacent the pockets 39 so as to reinforce the lid 17 adjacent the corner posts 21 and 22. It may be necessary to relieve either these corner posts 21 and 22 or the panels to provide sufficient clearance. The channel 46 is juxtaposed to the center pocket 42 to provide reinforcing in this area.

It should be readily apparent that the container 11 may be conveniently filled with the lid 17 removed whereupon the lid 17 is put in place. The contained goods may then be shipped to the desired location wherein the container 11 is unloaded. The side members 12, 13, 14 and 15 can be lifted from the bottom member 16 and disassembled from each other by sliding the tongues 23 from within the grooves 26. The side members 12, 13, 14 and 15 may then be stacked one upon the other and placed upon the bottom member 16. The lid 17 can then be placed upon this assembly so that the knocked down container can be returned to its origin for reuse.

What I claim is:

1. A knockdown container comprised of a base member and at least three side members, said base member having indented portions forming feet on the underside thereof upon which said containers may be stood, said indented portions defining pockets on the upper side thereof, corner post means at the opposite ends of said side members interlocked with each other for holding said side members in assembled relationship, said corner post means having extending portions received in said pockets for holding said assembled side members relative to said base member.

2. A knockdown container as set forth in claim 1 further including a top member received upon and supported by said side members.

3. A knockdown container as set forth in claim 2 wherein the top member has indentations formed at the corner thereof for receiving the feet of another container for stacking of the containers one upon the other.

4. A knockdown container as set forth in claim 1 wherein the side members have relatively thin sectioned sides spanning the corner posts, the base member having grooves extending between its indented portions and receiving the lower ends of said thin sectioned sides.

5. A knockdown container as set forth in claim 4 further including a top received upon and supported by the side members, said top having grooves formed around its periphery and receiving the upper ends of the thin sections of the side members.

6. A knockdown container as set forth in claim 5 wherein the top member has indented portions adapted to receive the feet of the base member of another container for stacking of the containers one upon the other.

7. A knockdown container as set forth in claim 5 wherein the thin side sections are corrugated for increasing their strength.

8. A knockdown container as set forth in claim 2, further including reinforcing members interposed in the pockets of the base member for reinforcing said base member.

9. A knockdown container as set forth in claim 3, further including channel-shaped reinforcing members affixed to the top member and juxtaposed to its corners for reinforcing said top member.