June 3, 1952 E. KOPPER 2,598,800

SHIPPING CONTAINER

Filed April 16, 1948 2 SHEETS—SHEET 1

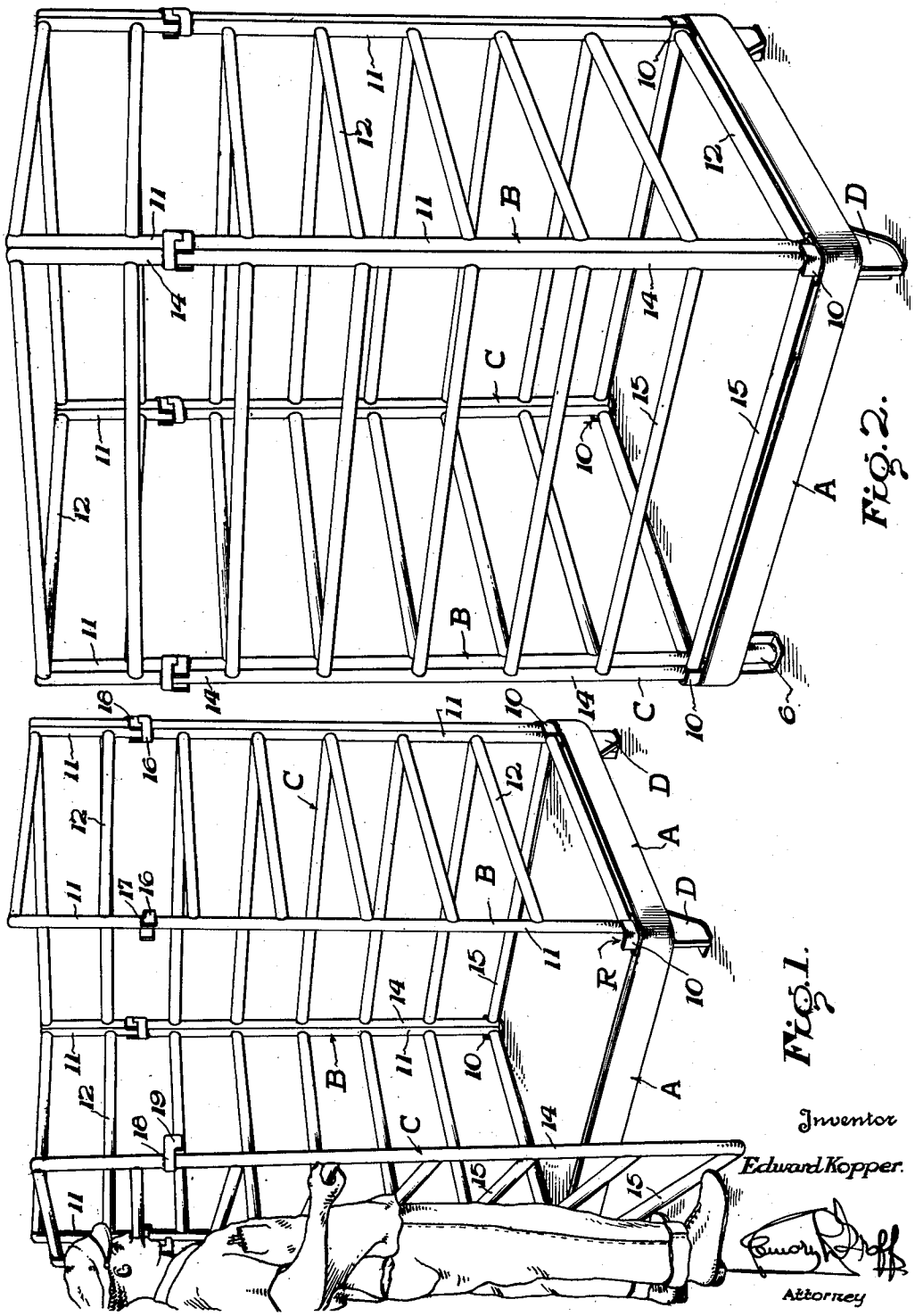


Fig. 2.

Fig. 1.

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Fig. 3.

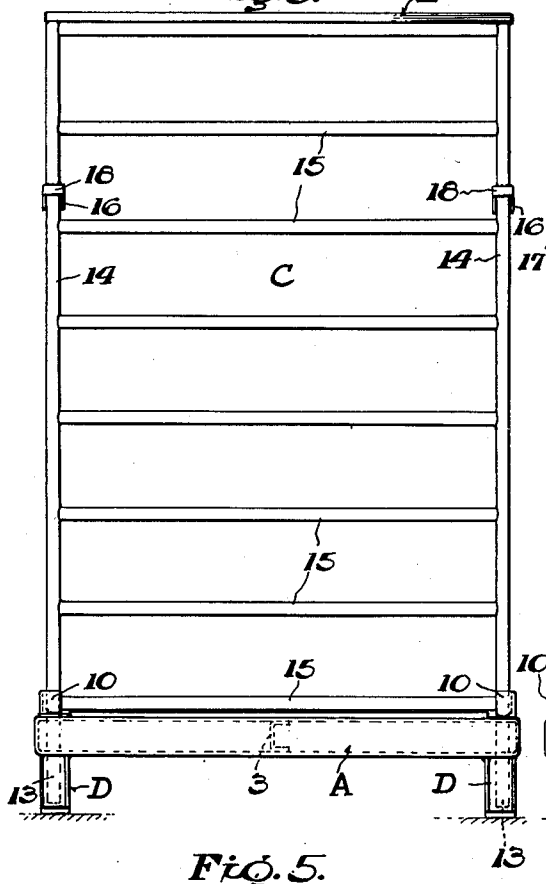


Fig. 4.

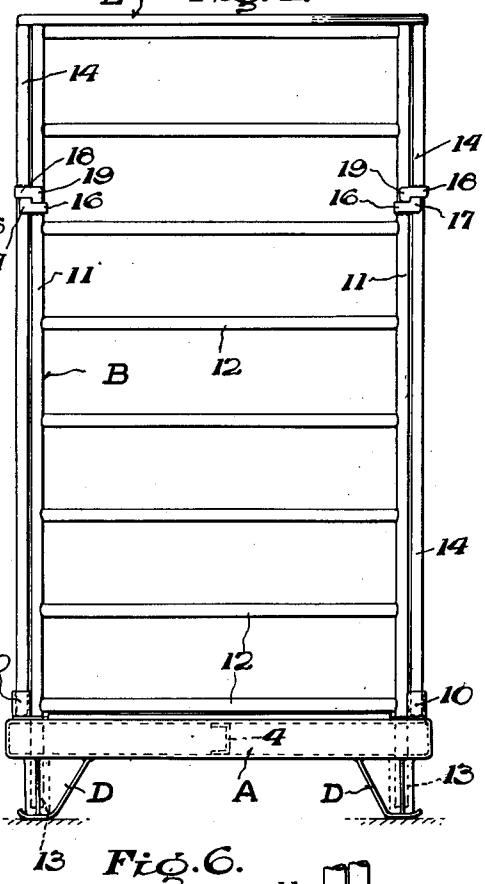


Fig. 5.

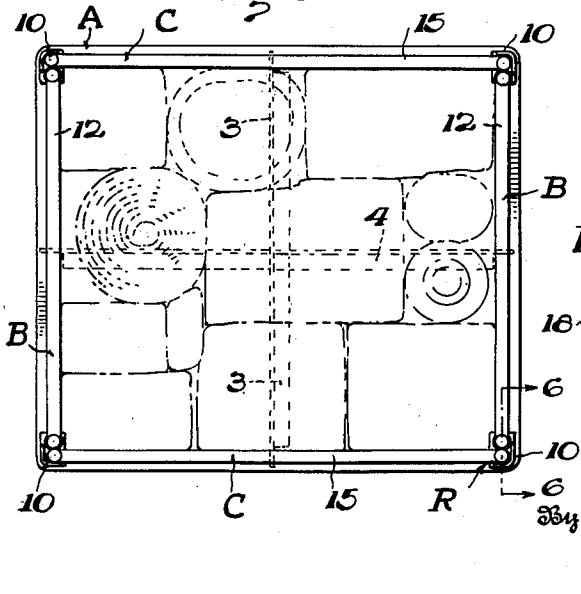


Fig. 6.

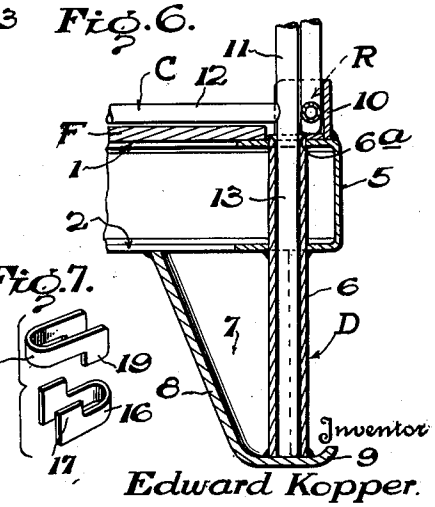


Fig. 7.

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SHIPPING CONTAINER

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Application April 16, 1948, Serial No. 21,419

7 Claims. (Cl. 248—120)

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This invention relates to shipping containers, and more particularly to a readily transportable unit for holding miscellaneous parcels and packages to simplify and expedite less than car load lot shipments of goods or merchandise.

One of the objects of the invention is to provide a unit including a base in the form of a pallet, and a superstructure consisting of a plurality of panels or sections detachably interfitted at their lower ends with the pallet and in turn having their upper portions detachably interlocked with each other to maintain the same in predetermined closure-forming relation, on the pallet, by the simple act of manually assembling and positioning the sections on the pallet. In that connection, a distinctive feature of the invention is the provision of a structure whereby the closure sections may be securely interlocked with the pallet with a minimum expenditure of time and labor, or, on the other hand, easily and readily separated to effect the collapse of the unit for compactness where it becomes necessary to transport the unit in a knocked-down condition, as for example, when units are to be returned without cargo, or, are to be shipped in the first instance to a warehousing point.

Another object is to provide a superstructure for the pallet which constitutes the sides and ends of a closure, said superstructure comprising panels or sections which lend themselves to the use of standard stock shapes, such as metal tubing which possesses strength and rigidity without excessive weight, and which are more easily handled than, for example, metal sheets, expanded metal, or otherwise fabricated panels which present hazards to operators from the standpoint of personal injury, or to goods in the form of damaged merchandise which results in claim losses being charged against the carrier.

A further object is to make the merchandise closure so that three sections can be erected in position while the fourth section may be omitted until packing or stacking of merchandise is completed. In other words, the arrangement is such that one entire side of the enclosures may remain unobstructably open until loading is completed. The resulting advantage is that operators or handlers can easily effect orderly loading, without undue labor, throughout the storage space from the floor of the pallet to the top of the sections. When loading is completed, the fourth section may be simply lifted and dropped into place to become automatically locked in position to enable the entire unit to be thereafter handled by the fork of a lift truck with its contents intact during

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transportation from the loading platform into the car, truck, or vessel, or vice versa.

With the above and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts, hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is a perspective view showing three sections of the pallet superstructure in position with the fourth section ready to be placed in position to complete the formation of the closure.

Figure 2 is a perspective view with all sections of the pallet superstructure in position.

Figure 3 is a front elevation, viewed for example, from the position of the operator shown in Figure 1.

Figure 4 is a side elevation of the construction shown in Figure 3.

Figure 5 is a top plan view of the construction shown in Figures 3 and 4.

Figure 6 is an enlarged detail section view taken on the line 6—6 of Figure 5.

Figure 7 is a detail perspective view of the interfitting hook type latch means used for connecting the upper portions of the closure-forming sections.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, it will be observed that the invention includes in its organization a pallet designated generally as A, and duplicate pairs of closure-forming sections or panels B—B and C—C. For convenience, the pair of sections B—B, which are self-sustainingly interlocked with the legs of the pallet, may be termed side sections, and the pairs C—C, which are engaged with and supported on the top of the pallet and also abut the edges of the side sections, may be termed end sections. Either end section may be considered the front or the rear end in the sense that when either one of them is removed, or not yet in place, access may be conveniently had to the entire interior of the container.

The pallet A, in the example shown, is made principally of metal and includes a channel having inwardly directed upper and lower flange portions 1 and 2 interiorly braced by the crossed reinforcing members 3 and 4 (Figure 5). The outer face of the pallet is formed by the web 5 of the channel which provides a continuous

smooth outer edge portion, while the top flanges of the channel may be provided with a wood floor F.

The pallet also includes the supporting leg members D which, as will be observed from Figure 6, not only perform the function of elevating the floor of the pallet sufficiently to enable the fork of a lift truck to be inserted therebeneath, but also provide means for anchoring and supporting portions of the superstructure thereto. That is to say, the leg members D preferably include a tubular socket forming member 6 which extends entirely through the channel to be accessible from the top face thereof, and also extends downwardly a sufficient distance to give the proper length to the leg D. The portion of the socket member 6 which projects below the pallet floor is securely connected with the bottom flange of the channel by a substantially triangular leg plate 7 and an angular shoe member 8 whose relatively horizontal tread portion 9, serves as a closure for the lower end of the socket member 6. It will of course be understood that all of the parts described are connected by appropriate welding operations in order to insure the necessary rigidity and strength to the leg members.

The tubular socket forming members 6 of the pallet each have their upper open ends or mouth portions 6a located or spaced a greater distance inwardly from one related edge of the pallet than the other, as will be apparent from Figures 5 and 6, and with respect to said first mentioned edge each top corner of the pallet is provided with upstanding abutment means preferably in the form of an angular keeper member 10 welded rigidly to the top flange 1 of the channel. The space between the inner face of the keeper members 10 and the mouths of the sockets provides recesses R, in cooperation with the side edges of the sections B—B, for receiving the bottom corners of the end sections C—C, as will presently appear more in detail.

Referring to the side sections B, it will be observed that the same include the vertical frame elements 11 and the horizontal cross rails 12. A distinctive feature of the said vertical frame elements 11 is that they are provided with the downwardly extending dowel portions 13, clearly shown in Figures 3, 4 and 6, and which snugly fit in the socket members 6 of the pallet. Thus, when the opposite side sections B—B having the vertical rails 11 provided with the dowel portions 13, are inserted in sockets 6 at the same side of the pallet, it will be seen that the said side sections are firmly interlocked with the pallet and held vertically erect. In other words, the side sections B—B may be readily assembled relative to the pallet by simply lifting the same until the dowels 13 clear the mouths of each related socket and then released so that the dowels fit into the sockets to hold the side sections erect.

The end sections C—C, in the example shown, include the vertical frame elements 14 and the horizontal connecting rails 15. As distinguished from the side sections B—B, the frame elements 14 of the end sections C—C terminate at the level of the pallet floor, which in the example shown is also at the junction of the lowermost cross rail 15 therewith, as will be seen from Figure 1.

From the construction of the end frames C—C as above described, it will now be apparent that after the side sections B—B are interlocked with the pallet and held in erect vertical position, the end sections C—C may be successively lifted by an operator and positioned so that the vertical

frame elements 14 of each end section C will abut the vertical frame elements 11 of the side sections B—B, and then the end sections C—C may be permitted to drop into the recesses R formed behind the keeper flanges 10 so that the lower bottom corners of the end sections C—C are firmly interlocked with the pallet and against the side sections.

For the purpose of interconnecting the upper portions of the vertical frame elements 11 and 14, respectively, of the side sections B—B and end sections C—C, suitable automatically interfitting latch means are provided. This latch means, in the example shown, preferably consists of substantially U-shaped members 16 embracing the frame elements 11 of the side sections C—C and provided with the upstanding hook portions 17. Said members 16 are welded or otherwise secured to the vertical side frames 11—11 of the side sections B—B, and preferably near the top thereof. The vertical frame elements 14 of the end sections C—C are also provided with similar U-shaped latch members 18 welded or otherwise secured to the vertical frame elements 14 of said sections and having the downturned hook portions 19 for interfitting with the hook portions 17 of the members 16, thereby to hold the upper portions of the sections against outward separation.

From the foregoing, it will be seen that since the opposite side sections B—B are self-sustaining when their dowel portions 13 fit in the socket 6 of the pallet, the latch elements 16 thereof will be in position to interlockingly receive the latch elements 18 of the end sections C—C as the latter are held against the related portions of the side sections B and dropped into the recesses R formed behind the keeper angles 10.

As shown in Figures 3 and 4, the top portions of the sections B—B and C—C terminate in the same horizontal plane and may be provided with a cover E which may be co-extensive with the area of the cargo space of the superstructure, and which may be held in place by any suitable clips or abutments (not shown), thereby to form a top closure for the container. If desired, the cover E may be locked to the sections B—B and C—C by any conventional means to prevent removal of the contents of the container through the top thereof.

Assuming that the container is set up with the sides B—B in place, and the rear end C—C also in place, as shown in Figure 1, it will be apparent that the interior of the container may be loaded with merchandise and then the fourth or front end section C may be put in place by the operator as suggested in Figure 1 and previously described herein. With one of the ends open, it will be easy for the merchandise handlers to put packages or boxes of irregular sizes and shapes one upon the other, or even rolls of wire mesh, or similar articles can be easily stacked on the pallet floor without the necessity of an operator lifting the same over a high side or wall, as would be the case if the sides of the enclosure were all assembled on the pallet before loading began.

By reason of the unique features which make it possible to set up or separate the side sections and the end sections with ease and facility, the present invention provides an attractive unit in its field.

Without further description, it is believed that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will, of course, be understood that changes may be made within the scope of the appended claims.

I claim:

1. A shipping container, comprising in combination, a pallet, leg members for the pallet provided with sockets, the mouths of a related pair of said sockets being spaced inwardly a greater distance from one edge of the pallet than the other, side sections having dowel portions for engaging in said sockets to hold the side sections erect when mounted on the pallet, keeper means on the upper side of the pallet at the corners thereof, and spaced from one side of the mouth of each socket to provide recesses in cooperation with the related portions of the side sections, end members having their lower corner portions adapted to fit into the said recesses to hold the same assembled with the pallet and against the adjoining portions of the side sections, and reversely related latch hooks respectively carried by the side sections and the end sections and adapted to interlock when the end sections have their lower portions fitting in the said recesses thereby to hold the upper portions of the sections against separation.

2. A shipping container, comprising, in combination, a pallet having sockets in opposite corners, side sections having dowel portions fitting in the sockets to hold the sections erect, upstanding keeper means on the upper side of the pallet spaced from the mouth of each socket to provide recesses in cooperation with the side sections, end sections adapted to be positioned on top of the pallet with the bottom corners fitted in said recesses, and cooperating means on related edge portions of the side and end sections adapted for inter-engaging connection simultaneously with the movement of the end sections downwardly relative to the side sections to place the bottom corners of the end sections into said recesses.

3. A shipping container, comprising, in combination, a pallet, leg members comprising a tubular element providing a socket opening at the top of the pallet, a leg plate between the tubular member and the underside of the pallet, an angular shoe member secured to the edge of the plate opposite the socket and having a horizontal tread portion for closing the lower end of the tubular member, side sections having dowel portions fitting in said tubular members to hold said side sections erect, angular keeper means on the top of the pallet at the corners thereof adjacent the upper end of the tubular socket member and spaced therefrom to provide a recess in cooperation with the side sections, end sections adapted to have the lower edges rest on the top of the pallet with their corners in said recesses and their outer marginal edges in abutting relation to the side sections, and cooperating latch hook means on adjacent portions of the side and end sections for releasably interconnecting the upper portions of said sections.

4. A shipping container, comprising, in combination, a pallet having leg members at the corners thereof and provided with sockets, side sections having dowel portions fitting into the sockets to hold the side sections erect, upstanding abutment means at each corner of the pallet adjacent the mouth of the socket, end sections adapted to have their bottom portions rest on the top of the pallet with their corner portions disposed behind said abutment means thereby to hold the end sections releasably interlocked with

the pallet and also hold the edge portions of the end sections in abutting relation to the related edge portions of the side sections, and latch means for connecting the upper portions of the side and end sections, said latch means comprising U-shaped members having mating hook portions, said U-shaped members being secured to the marginal portions of the side and end sections respectively for releasable interengagement.

5. A shipping container, comprising, in combination, a pallet having sockets in the corners thereof, side sections consisting of vertical frame members and horizontal cross rails, the lower ends of the side frames extending below the last cross rail to form dowel portions for engaging in the sockets of the leg members, keeper means on the top of the pallet adjacent the sockets, end sections comprising vertical frame elements and horizontal cross rails, the vertical frame elements of said end sections terminating substantially flush with the lowermost cross rail whereby the latter may rest on the top of the pallet when the corners of the section are fitted behind said keeper means, and complemental inter-engaging hook type latches on the vertical frame elements of both the side and end sections and adapted for inter-engagement when the side and end sections are assembled to the pallet.

6. A shipping container, comprising, in combination, a pallet floor having sockets in the corners thereof, a pair of side sections having means at their lower ends for engaging said sockets to hold said side sections in self-sustaining spaced upright relation, upstanding keeper means on the corners of the pallet floor outwardly of said sockets, a pair of opposite end sections held to the edges of the side sections by resting on said floor between said keeper means and the edges of said side sections, and cooperating fastening means on related portions of the side and end sections.

7. A shipping container, comprising in combination, a pallet including a floor, hollow leg members supporting the floor of the pallet in elevated position and having upper socket portions accessible from the upper side of the pallet floor, a pair of side sections having depending dowel portions fitting into said upper socket portions of the hollow leg members whereby said side sections are held in sustaining erect position relative to the floor of the pallet, keeper means located at the corner of the pallet adjacent said upper socket portions of the hollow leg members, a pair of opposite end sections whose lower portions rest on the pallet floor behind said keeper means, and cooperating hook means on related portions of both the side and end portions.

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