

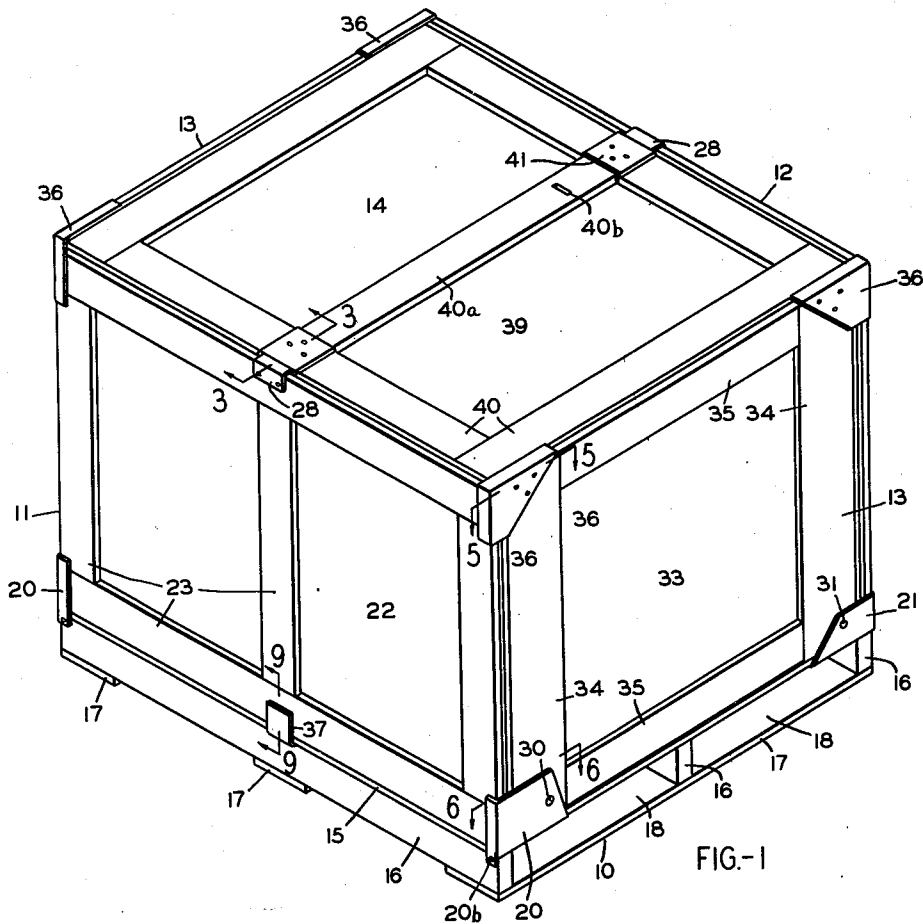
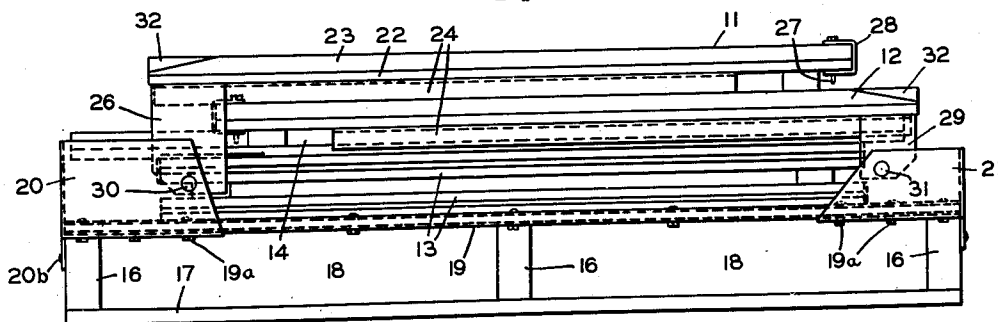
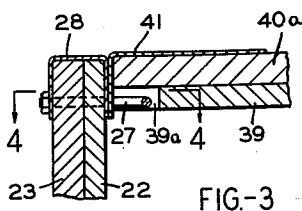
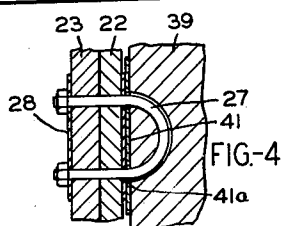
March 17, 1953

J. K. PETRIME
COLLAPSIBLE PALLET

2,631,749

Filed Dec. 30, 1949

2 SHEETS—SHEET 1



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2 SHEETS—SHEET 2

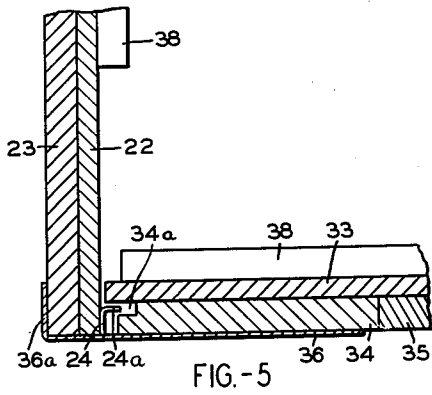


FIG.-5

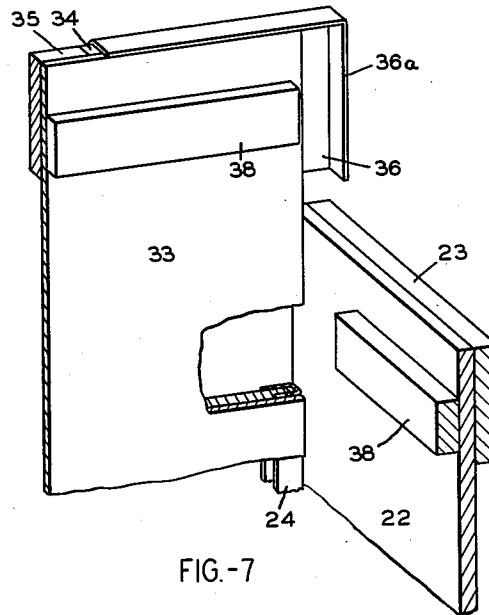


FIG.-7

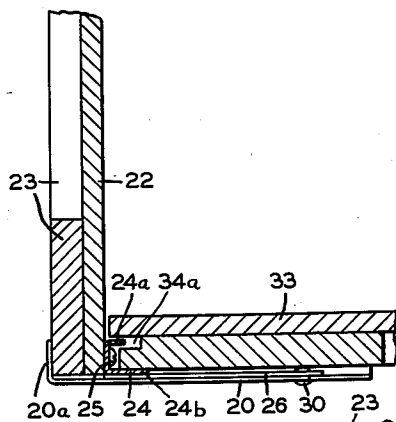


FIG.-6

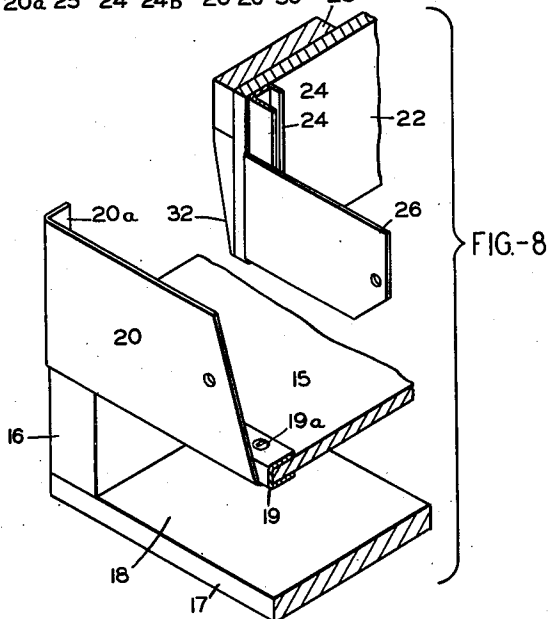


FIG.-8

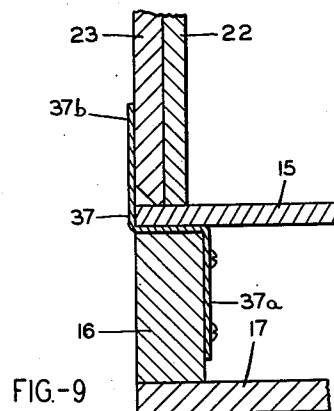


FIG.-9

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COLLAPSIBLE PALLET

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1 Claim. (Cl. 217-15)

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This invention relates to a novel and improved collapsible pallet.

An object of the present invention is to provide a collapsible pallet which may be quickly folded and knocked down but which is very strong and sturdy when assembled.

Another object of the present invention is to provide a collapsible pallet in which the sides are hinged to the bottom member and the ends slidably engage the sides in a novel manner to form a rigid pallet.

Another object of the present invention is to provide a collapsible pallet which may be quickly collapsed to occupy less space and thereby receive a lower shipping rate when the pallet is returned to its point of origin.

A further object of the invention is to provide novel construction for reinforcing a container of the type described using the same parts which contribute to the knock-down features of my device.

Other objects and advantages of the present invention will be apparent from the accompanying drawings and description and the essential features thereof will be set forth in the appended claim.

In the drawings:

Fig. 1 is a perspective view of the assembled pallet;

Fig. 2 is an end view of the pallet in its collapsed condition;

Fig. 3 is a fragmental sectional view, enlarged, on the line 3-3 of Fig. 1;

Fig. 4 is a fragmental sectional view on the line 4-4 of Fig. 3;

Figs. 5 and 6 are fragmental sectional views, enlarged, on the lines 5-5 and 6-6 respectively of Fig. 1;

Fig. 7 is a perspective view of an upper corner of the pallet, the view being taken from the inside of the pallet with the parts partially assembled;

Fig. 8 is an exploded perspective view enlarged of a lower hinged corner of Fig. 1; while

Fig. 9 is a fragmental sectional view enlarged on the line 9-9 of Fig. 1.

My collapsible pallet consists of a bottom member 10, the side members 11 and 12 which are hinged to the bottom, the end members 13 and a top 14.

The bottom member 10 of my collapsible pallet consists of a panel 15, forming an imperforate bottom wall. Secured to the underside of the panel 15 are a plurality of parallel spacers 16, three being shown, two of the spaces extending along each side edge and the other intermediate the side edges. A plurality of parallel strips 17, three being shown, are fixed to the underside and extend transversely of the parallel spacers 16, to provide a rigid construction and to provide openings 18 for the forks of a lift truck.

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To protect the bottom wall 15 from being damaged by the forks of a lift truck, when the bottom is made of plywood, I provide metal channels 19, Figs. 1 and 8, secured by bolts 19a along the end edges of the bottom wall 15 above the openings 18.

At each corner of the bottom member 10, I provide gusset plates 20 and 21 to which the sides 11 and 12 are pivoted. The gusset plates 20 and 21 are fixed to the bottom by the bolts 19a (Fig. 8).

The side 11 consists of an imperforate wall 22, having reinforcing strips 23 secured on the outside thereof.

On each inner vertical side edge of each side wall I provide a channel 24, Figs. 6, 7, and 8, which may be secured to the wall 22 by screws 25 or the like, for retention of the end members 13, to be more fully described hereinafter. A pivot plate 26, Fig. 8, is welded to one leg 24b of each channel 24, at the lower end thereof, to cooperate with the gusset plates 20 for pivoting movement of the side 11.

The gusset plates 20 are provided with legs 20a to engage the lower outer surface of the side members to provide reinforcement for the lower edges of the side members to prevent movement laterally outward. The leg 20a is secured to the bottom by a screw or bolt 20b.

The other side member 12 is identical to the side 11 except for the size of the pivot plate 29, Fig. 2, and like reference characters have been given to like parts.

The difference in size of the pivot plates 26 and 29 is to allow the sides 11 and 12 to be in parallel relationship to each other when the sides 11 and 12 are folded inwardly as shown in Fig. 2. It will also be noted in Fig. 2 that the pivot point 30 is higher and nearer the center of the pallet than the pivot point 31 for accomplishing this folded parallel relationship.

Referring to Fig. 2, with the parts in the knock-down position, it will be noted that the distance of the pivot 31 above the bottom member 15 plus the distance of this member inwardly on the pivot plate 29 from the side member 12 is at least equal to the combined thickness of the two end members 13 so that they may be packed underneath the member 12 in the knockdown position. Referring now to the pivot 30, its distance above the bottom member 15 plus the distance of this pivot inwardly on the pivot plate 26 from the side member 11 is at least equal to the thickness of the two end members 13 plus the thickness of the side member 12 so that the parts may be placed in the knock-down position. In the parts shown in Fig. 2, the top member 14 is also shown placed beneath the side member 12. Inasmuch as I have indicated that I may use my box without a top member, I prefer the above statement in this paragraph regarding the position of the pivots 31

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and 30 utilizing the phrase "at least" to indicate that besides accommodating the two end members 13, I may so place the pivots as to also accommodate the top member 14 in the knock-down position shown in Fig. 2.

Obviously, my pallet may be of such dimensions that the sides will not overlap when folded upon the bottom, in which case the side members and pivot plates are identical and the pivot points are placed in the same relative positions.

The lower corners of the sides 11 and 12 are cut away as at 32 to clear the gussets 20 and 21 when the sides are folded inwardly.

The end members 13 are identical and consist of an imperforate wall 33, and reinforcing strips 34 and 35. The strips 34 are rabbeted out at 34a to provide a runway for one leg 24a of the channel 24 (Figs. 5 and 6). The other leg 24b embraces the outer surface of the strip 34.

At the upper corners of the end members 13 are metal retainer angles 36 (Fig. 7) which extend outwardly beyond the vertical side edges of the end members 13 and are provided with legs 36a which engage the outer surface of the side members 11 and 12.

The pallet is assembled from its collapsed position by simply pivoting the sides 11 and 12 outwardly about their pivots 30 and 31 until they are vertical. The lower end of the strips 34 of the ends 13 are then engaged in the channel 24 and the end members 13 slide downwardly. The legs 36a will then engage the upper corners of the sides 11 and 12 and rigidly prevent the sides from being pushed outwardly by a load within the pallet.

I also provide a Z-shaped bracket 37 (Fig. 9), one end 37a of which is secured to the bottom member 10, and the other end 37b extends upwardly and on the outside of the side members 11 and 12 to prevent the sides 11 and 12 from being bulged outwardly by a load within the pallet.

It is sometimes desirable, when shipping certain articles, to provide a top 14. For this purpose cleats 38 are fixed on the inner surfaces of the end members 13 and the side members 11 and 12, near the upper horizontal edges thereof, upon which the top 14 rests.

The top 14 is also constructed of an imperforate wall 39 and reinforcing strips 40.

On the top edge of each of the sides 11 and 12 and intermediate the side edges thereof I provide a U-bolt 27, with the closed end of the bolt extending inwardly. The U-bolt 27 cooperates with the top member 14 as will be described later. I also provide a metal band 28 where the U-bolt 27 is secured to the side 11.

As best shown in Figs. 1, 3 and 4 the top 14 is provided with metal lugs 41 having slots 41a in a vertical leg thereof which engage the U-bolts 27, the wall 39 being cut away at 39a to receive the U-bolt 27.

The center reinforcing strip 40a of the top 14 has a slot 40b to receive the U-bolt 27 of the side member 12 when the pallet is in its collapsed position.

The imperforate walls 15, 22, 33 and 39 are preferably made of plywood with the parts 16, 17, 23, 34, 35, 40 and 40a being made of common lumber sizes such as 1 x 4's, 1 x 6's and 2 x 4's, all the remaining parts being of metal.

As a test of durability my improved collapsible pallet was tumbled for six weeks, with a load fixed within the pallet, without breaking or showing any signs of weakening.

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My pallet is collapsed, as shown in Fig. 2, by first placing the two end members 13 flat on the bottom wall 15, the top member 14 is next placed on top of the ends 13. After this the side 12 is folded inwardly about its pivot 31 with the U-bolt 27 engaging in the slot 40b and the side 11 folded inwardly about its pivot 30.

My collapsible pallet may be used, for example, with the top 14 removed, for receiving stampings directly from a stamping machine and then shipped in the pallet, with or without the top member 14, without further handling or packing. The pallet may then be returned to the factory in its collapsed condition, thereby receiving lower shipping rates, and thus may be used over many times.

I find that in at least one case, in approximately three trips, to and from the factory, the pallet has paid for itself, thereby effecting a great saving over the conventional crates which are discarded after each use.

Other advantages of the invention will be apparent to those skilled in the art.

What I claim is:

In a collapsible pallet, a rectangular, planar bottom member, a gusset plate secured to each of the corners of said bottom member, each of said gusset plates being secured to the end edge of said bottom member and lying in a plane perpendicular to and extending upwardly from said bottom member, each of said gusset plates having a leg laterally outside of its associated side member and perpendicular to said gusset plate, two rectangular side members of the same length as the bottom member, the said legs on said gusset plates providing reinforcement for the lower edges of the said side members from movement laterally outward, an inwardly opening channel fixed to each of the vertical side edges of said side members, two rectangular end members engaging in said channels by a vertical sliding movement, a pivot plate rigidly secured to the lower end of the outside leg of each of said channels and extending inwardly therefrom outside of its associated end member, each of said pivot plates being parallel to and closely adjacent one of said gusset plates, pivots passing through said pivot plates and gusset plates whereby each side wall will fold about its pivot to a knock-down position parallel to said bottom member, the distance of one of said pivots above said bottom member plus the distance of the said one pivot inwardly from its associated side member being at least equal to the combined thickness of said two end members, and the distance of the other of said pivots above said bottom member plus the distance of the said other member inwardly from its associated side member being at least equal to the combined thickness of said two end members and one side member.

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