

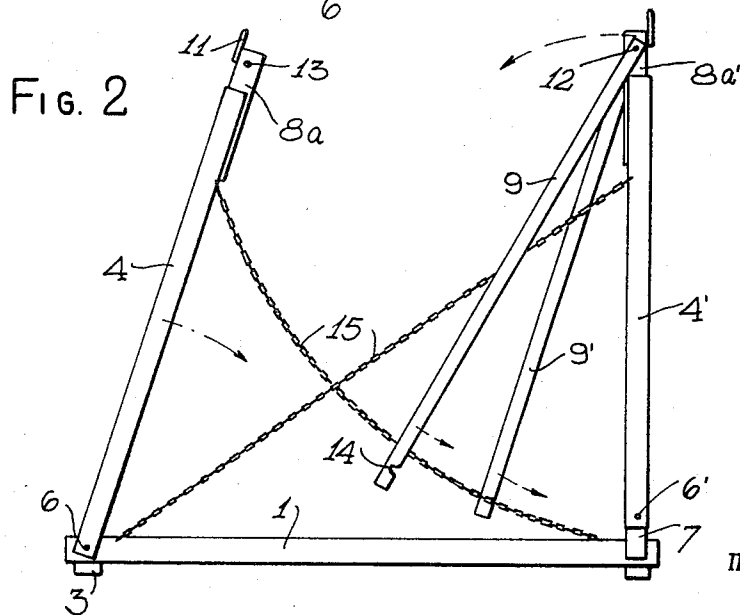
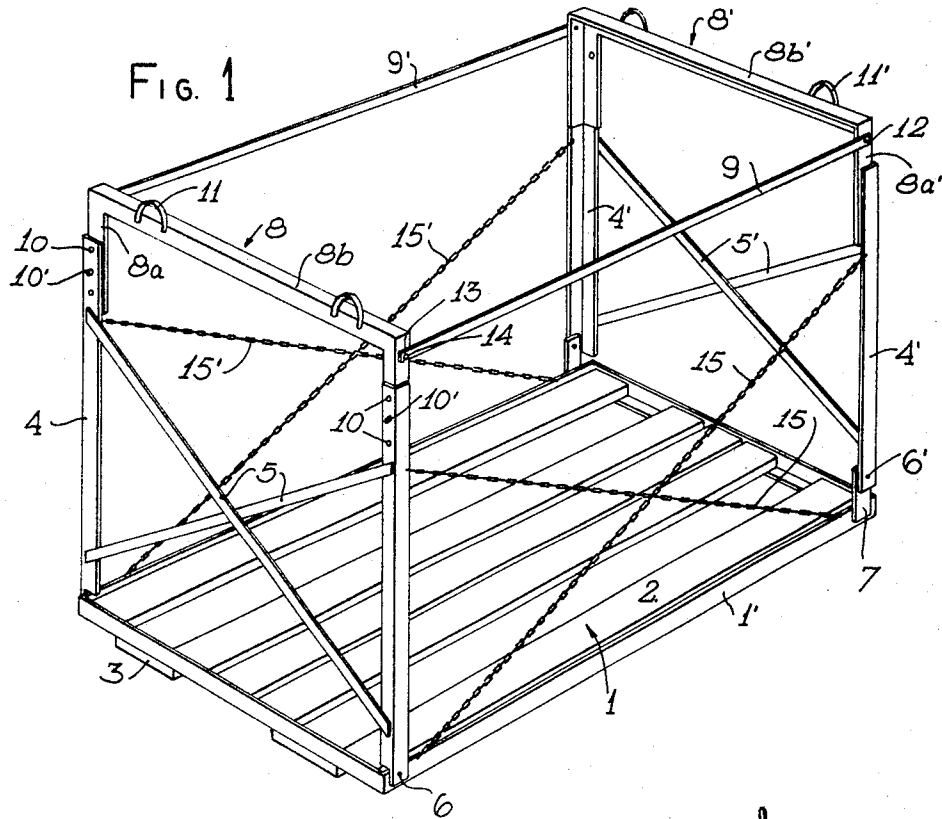
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SHIPPING PALLET

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3,405,665

## SHIPPING PALLET

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### ABSTRACT OF THE DISCLOSURE

A shipping pallet is described including a load-carrying bottom wall, a pair of end walls each including a pair of corner bars pivotably mounted to opposite ends of the bottom wall, and a rigid member for retaining the end walls in an upright position. The retaining member includes a four-sided frame having four depending legs each removably attached at different vertical positions to the upper ends of the end walls. Two sides of the frame are pivotably mounted at one end to a third side thereof and are removably attached at the opposite end to the fourth side thereof. Chains are connected between the end walls and form a pair of side walls over the bottom wall.

### BACKGROUND OF THE INVENTION

#### *Field of the invention*

The invention relates to shipping pallets used for transporting and/or storing goods.

#### *Description of the prior art*

The most common types of shipping pallets used for transporting and/or storing goods include merely a horizontal plank or board on which the goods are loaded. Such pallets do not provide lateral support for the goods, and therefore can be used only with respect to goods not requiring lateral support.

In recent years, there has been a tendency to use, instead of shipping pallets, shipping containers in which the goods remain from the point of origination of the goods to the point of ultimate use. Such shipping containers provide lateral as well as horizontal support for the goods and therefore can be used with diverse types of goods including those requiring lateral support within the container. In addition, the shipping containers have the advantage that they minimize the amount of handling required during the transportation and/or storage of the goods, and thereby reduce handling costs as well as the possibility of damage. Shipping containers, however, are more expensive to produce than the conventional shipping pallets heretofore used. Moreover, they occupy a good deal of volume when being stored or returned empty.

### SUMMARY OF THE INVENTION

In the present invention, a shipping pallet is provided which offers many of the advantages of a shipping container, particularly the provision of lateral support for the goods, and yet which can be produced at little more than the cost of the conventional shipping pallets and can be collapsed so as to occupy a minimum volume when stored or returned empty.

According to a broad feature of the present invention, there is provided a shipping pallet comprising a load-carrying bottom wall, four corner bars each mounted at a corner of the bottom wall and pivotable from an upright position to a collapsed position folded over the bottom wall, and a four-sided rigid frame including four legs each depending from a corner of the frame and attached to the upper end of one of the corner bars. Two opposed sides of the four-sided frame are pivotably mounted at one end to a third side of the frame and are removably

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attached at the opposite end to the fourth side of the frame.

According to more specific features, the two opposed sides of the frame are removably attached to the fourth side by slots formed at the ends of the former receivable on pins carried by two of the legs depending from the latter. In addition, the upper end of each of the four corner bars is formed with a plurality of vertically-spaced openings, the depending legs of the frame each including a pin receivable in one of the openings for adjusting the vertical position of the frame with respect to the bottom wall.

The invention provides a number of important advantages. First, the shipping pallet of the present invention is of very simple construction and therefore can be produced at little cost over the conventional pallets commonly used today. In addition, the pallet of the present invention provides lateral support for the goods, and thus offers some of the advantages of the more expensive shipping containers. Further, the shipping pallet may be returned or stored in a collapsed condition and therefore takes up substantially less space than the shipping containers, and very little space over that of the conventional pallets.

Further features and advantages of the invention will be apparent from the description below.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, illustrating a preferred embodiment of the invention for purposes of example only:

FIG. 1 is a perspective view of one form of shipping pallet constructed in accordance with the invention; and

FIG. 2 is a side elevational view of the pallet of FIG. 1 during the collapsing thereof.

### DESCRIPTION OF THE PREFERRED EMBODIMENT

The shipping pallet illustrated in the drawings comprises a bottom wall 1 including a four-sided frame 1' of angle bars or the like to which are secured a plurality of planks 2 preferably of wood. Four short legs 3 are carried at the underside of the bottom wall.

A pair of vertical angle bars 4 are mounted at the corners of one end of bottom wall 1 and are connected together by a pair of cross-bars 5, bars 4 and 5 forming together an end wall. A similar end wall, comprising vertical corner bars 4' and cross-bars 5', is formed at the opposite end of the bottom wall. Vertical bars 4 are pivotably mounted by pins 6 to frame 1' of the bottom wall, while vertical bars 4' are pivotably mounted by pins 6' to a short vertical plate 7 secured, as by welding, to frame 1' of the bottom wall. The two end walls may thus be pivoted to a collapsed condition wherein the end wall including bars 4, 5 lies closest to the bottom wall 1, and the end wall including bars 4', 5' lies thereover.

A four-sided rigid frame member is provided for retaining the end walls in an upright position. This frame member comprises a pair of inverted U-shaped bars 8 and 8' forming two sides of the frame and connected together by a pair of bars 9, 9' forming the remaining two sides. These U-shaped bars 8 and 8' are also made of angle bars, the depending legs 8a and 8a' being attachable to the upper ends of the angle bars 4 and 4' of the end walls. Preferably, the bars 4 and 4' are formed with a plurality of vertically-spaced openings 10, there being a pin 10' carried by each of the legs 8a and 8a' receivable through selected openings 10 to enable adjustment of the height of the pallet. The bridging portions 8b and 8b' of the U-shaped bars 8 and 8' include handles 11 and 11' to facilitate the handling of the pallet and the goods loaded on it.

One end of the bars 9, 9' is pivotably mounted, as by

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pins 12, to the legs of U-shaped member 8', while the opposite end of the bars 9, 9' is removably attached to the other U-shaped member 8, as by the provision of pins 13 on the latter receivable in slots 14 formed on the bars.

A pair of chains 15 are connected so as to extend diagonally across one side of the pallet, one end of the chains being attached to frame 1' of the bottom wall, and the opposite end of the chains being attached to the vertical bars 4 and 4'. A similar pair of chains 15' are connected to extend across the opposite side of the pallet.

It will be seen that when the pallet is in its upright position as illustrated in FIG. 1, it can be used for supporting a load of goods and will provide lateral support to the goods on all four sides, similar to a shipping container. When it is desired to collapse the container for purposes of storage or return, the slotted ends 14 of bars 9 and 9' are unseated from pins 13, enabling the bars 9 to pivot downwardly on their pins 12 (FIG. 2). This now enables the end wall of bars 4 to be pivoted downwardly on top of the bottom wall 1, and the end wall of bars 4' to be pivoted on top, the chains 15 and 15' permitting this pivoting of the walls. The shipping pallet may thus be collapsed into a very compact condition for storage or return.

While the novel shipping pallet offers many of the advantages of shipping containers, it is of very simple construction and therefore can be produced much less expensively than shipping containers, probably at a cost little more than that of conventional pallets.

Many changes, variations and applications of the illustrated embodiment may be made within the scope of the invention as defined in the following claims.

I claim:

1. A shipping pallet comprising a load-carrying bottom wall, four corner bars each mounted at a corner of said bottom wall and pivotable from an upright position to a collapsed position folded over the bottom wall, and a four-sided rigid frame including four legs each depending from a corner of the frame and attached to the upper end of one of the corner bars, two opposed sides of the four-sided frame being pivotably mounted at one end to

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a third side of said frame and being removably attached at the opposite end to the fourth side of the frame.

2. A shipping pallet as defined in claim 1, wherein said two opposed sides of the frame are removably attached to the fourth side of the frame by slots formed at the ends of the former receivable on pins carried by two of said legs depending from the latter.

3. A shipping pallet as defined in claim 1, wherein the upper end of each of the four corner bars is formed with a plurality of vertically-spaced openings, and wherein the depending legs of the frame each includes a pin receivable in one of said openings for adjusting the vertical position of the frame with respect to the bottom wall.

4. A shipping pallet as defined in claim 1, wherein said four corner bars are angle bars.

5. A shipping pallet as defined in claim 1, wherein each pair of said corner bars are connected by cross-bars forming a pivotable end wall at each end of the pallet.

6. A shipping pallet as defined in claim 5, further including chains connected diagonally between said end walls.

7. A shipping pallet as defined in claim 1, wherein said third and fourth sides of the frame include handles for carrying the pallet.

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