Feb. 21, 1956 D. H. BITNEY 2,735,568

COLLAPSIBLE WALLED PALLETS

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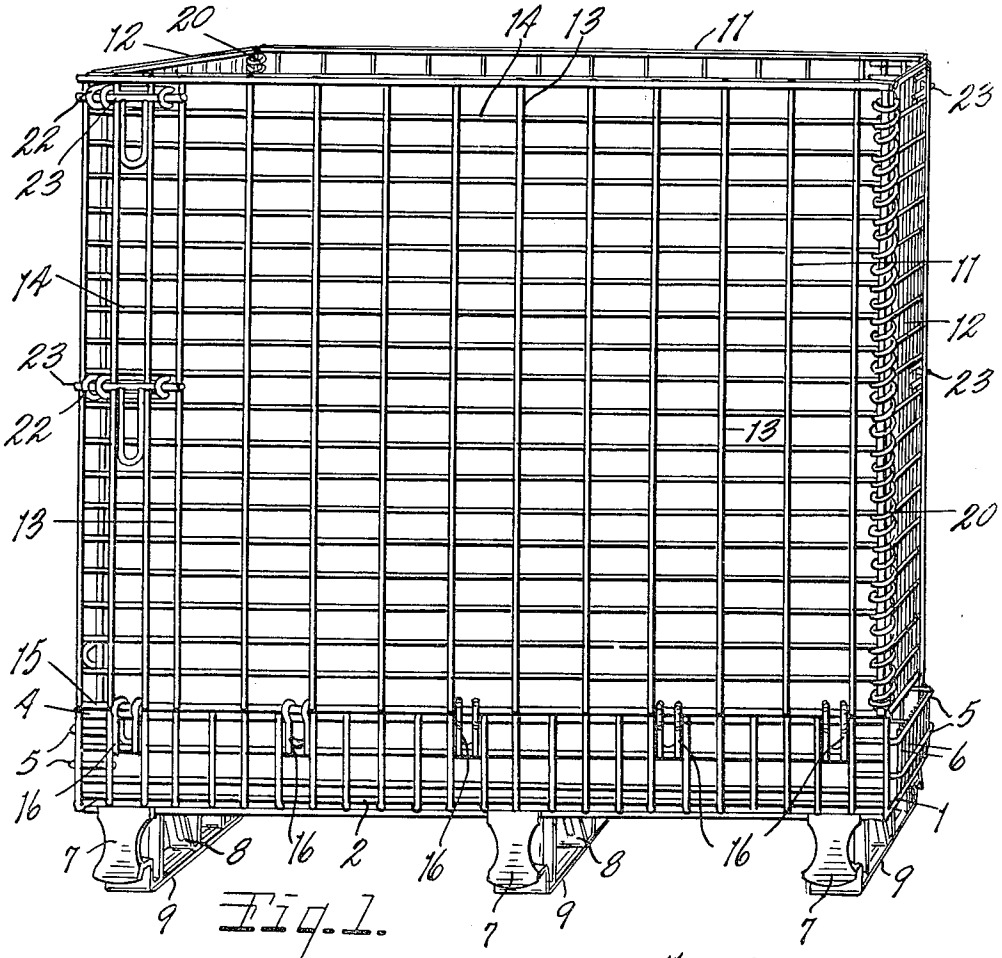


Fig. 1.

Fig. 2.

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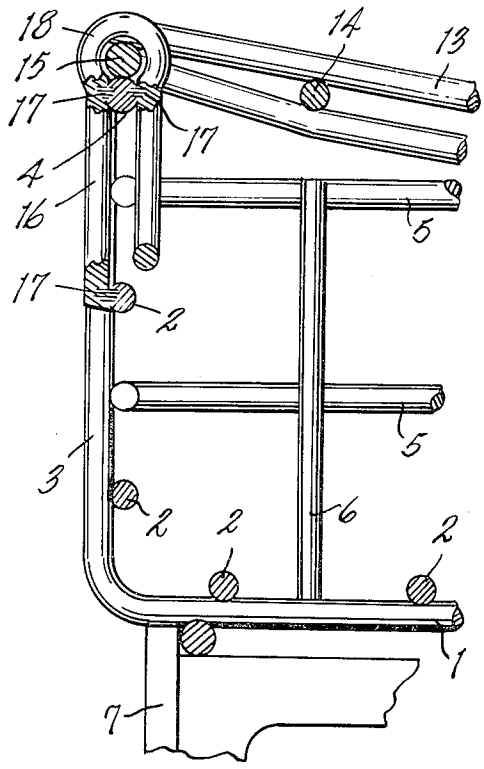


Fig. 3.

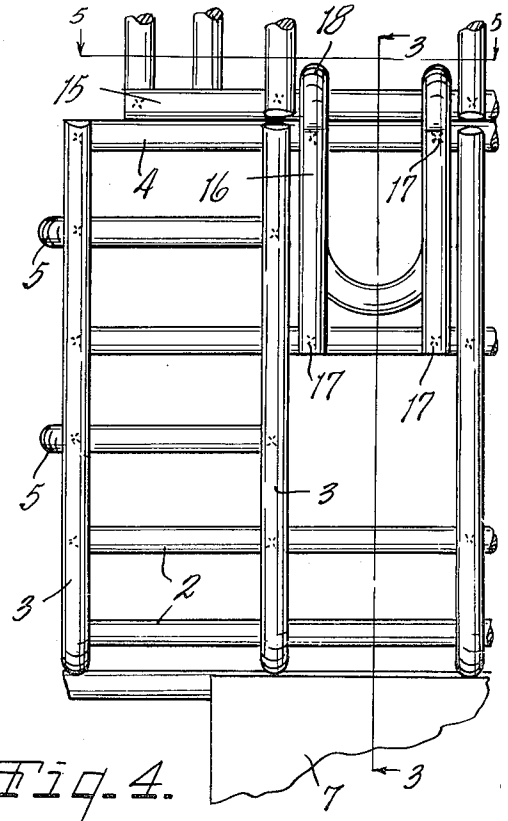


Fig. 4.

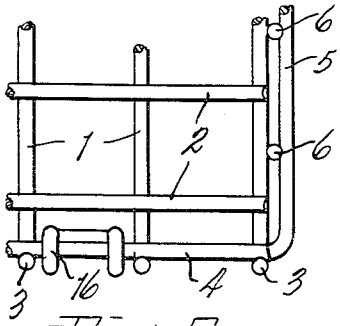


Fig. 6.

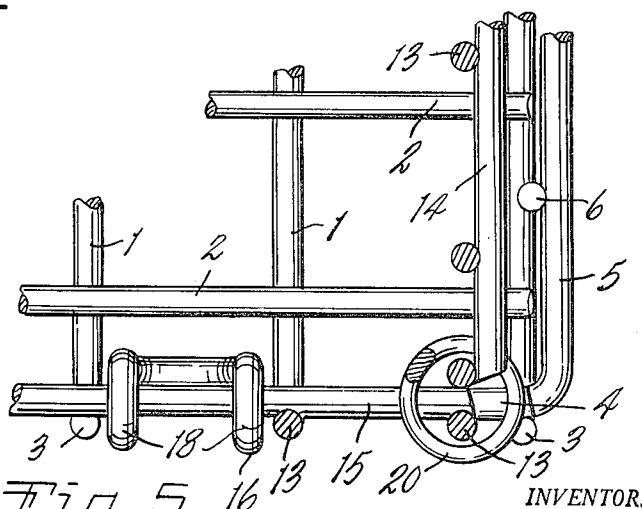


Fig. 5.

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United States Patent Office 2,735,568 Patented Feb. 21, 1956

2,735,568

COLLAPSIBLE WALLED PALLETS

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Application April 22, 1952, Serial No. 283,581

3 Claims. (Cl. 220—6)

This invention relates to improvements in collapsible walled pallets.

The main objects of this invention are:

First, to provide a collapsible walled pallet in which the height of the walls when erected approximates the horizontal dimensions of the pallet deck or bottom.

Second, to provide a walled pallet having these advantages which may be quite compactly collapsed and at the same time one in which the walls are strong and capable of withstanding heavy stresses when erected.

Third, to provide a pallet having these advantages which may be stacked when loaded and also one which when collapsed may be compactly arranged with other collapsed pallets or like structure.

Objects relating to details and economies of the invention will appear from the description to follow. The invention is defined and pointed out in the claims.

A preferred embodiment of the invention is illustrated in the accompanying drawing, in which:

Fig. 1 is a side perspective view of a pallet embodying my invention with the walls in erected position.

Fig. 2 is an end elevation view thereof with the walls in collapsed position.

Fig. 3 is an enlarged fragmentary view in vertical section on a line corresponding to line 3—3 of Fig. 4.

Fig. 4 is a fragmentary view looking from the left of Fig. 3 with a fragment of the wall shown in erected position.

Fig. 5 is a fragmentary horizontal section on a line corresponding to line 5—5 of Fig. 4.

Fig. 6 is a fragmentary plan view of the deck or bottom.

In the embodiment of my invention illustrated the grid-like bottom or deck comprises a lower series of spaced parallel slats 1 desirably formed of wire or light rod stock, and an upper series of spaced parallel slats 2 in crossing relation to the slats 1 and welded thereto at their crossing point. The ends of the slats 1 are turned upwardly to provide wall uprights 3, there being a plurality of the slats 2 secured on the inner sides of the upturned portions or uprights 3. These parts constitute relatively fixed side wall members. The upper slats 4 are arranged at the upper ends of the uprights 3.

U-shaped end members 5 are disposed with their arms on the inner sides of a plurality of the upturned ends 3 and fixedly secured thereto by welding. Vertical slats 6 are arranged in spaced relation and fixedly secured to the members 5. These constitute relatively fixed end wall members.

In the embodiment illustrated, legs 7, 7 and 8 are secured to the deck in aligned sets, there being a plurality of these sets of legs. The aligned legs of the set are connected by the base bars 9. The legs 7 are formed as castings and have a downwardly facing recess 10 to facilitate stacking. The legs 7 and their connection to the deck is substantially that shown in the Averill and Hobson application for Letters Patent filed January 18, 1951, Serial No. 206,546, now Patent No. 2,700,522.

The details of the legs form no part of my present invention other than that they are connected in sets and that there are no crossties or base members extending between the sets of legs. This is clearly shown in Fig. 1.

The side walls 11 and end walls 12 in the embodiment illustrated are formed of vertical slats 13 and horizontal slats 14, these slats being welded together at their crossing points. The bottom slats 15 of the side walls are hingedly connected to the fixed side wall members by means of loop-like hinge members 16 which are formed of wire folded upon itself, the arms of the loop being welded at 17 to the horizontal slats and projecting above the slats 4 to form eyes 18 receiving the lower slats 15 of the side walls as is shown in the drawing.

The end walls 12 are hingedly connected as by the helical wires 20 to diagonally opposite ends of the side walls so that the end walls may be folded or collapsed inwardly upon the side walls and thus collapsed. The collapsed pairs may be folded or collapsed as illustrated in Fig. 2. The fixed side walls are spaced to permit one of the collapsed pairs of walls to collapse between the same as shown in Fig. 2, and the other to be collapsed to a horizontal position in supported relation to the pair collapsed between the fixed wall members. This supporting of the upper of the collapsed pairs in a substantially horizontal position is desirable as it permits the stable stacking of a plurality of the pallets with their walls collapsed. They are preferably stacked in inverted pairs, that is, one pair inverted relative to the other with their legs in nesting relation between the legs of the other. These nested pairs can be stacked to a very considerable height and still be stable in the stack. A stack may be tied together if they are to subjected to repeated or rough handling as a stack.

The swinging ends of the end walls are detachably connected to the adjacent ends of the side walls by means of keepers 22 on the end walls engaged between slats of the side walls, and secured by means of the bolts 23. The details and manipulation of these bolts are not illustrated as they form no part of my present invention. They are of importance however in that they provide a very secure connection for the parts when erected and one which effectively resists distortion stresses. A suitable structure is illustrated in the Averill application Serial No. 211,755, filed February 19, 1951, now Patent No. 2,695,724.

It will be understood that I use the term "side" and "end walls" and "side" and "end wall members" for convenience in the description and not to indicate relative dimensions. However, it is desirable in stacking that legs be engaged with the walls which I have designated as side walls or on the walls which are hingedly mounted on the fixed side members, as they are well adapted to sustain the load.

One advantage of my invention is that structures embodying the same may have relatively high walls as compared to the dimensions of the bottom or deck and still permit collapsing without the walls projecting, and also collapsing so that the superimposed collapsed walls are in a substantially horizontal position. In collapsed position the hinging connections of the walls are not subjected to objectionable strains or stresses.

I have illustrated my invention in a highly practical embodiment thereof, one especially designed and adapted for the handling of munitions, although desirable for a wide variety of uses in material handling. I have not attempted to illustrate or describe other adaptations or embodiments which I contemplate, as I believe this disclosure will enable those skilled in the art to embody or adapt my invention as may be desired.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a walled pallet the combination of a grid-like

bottom comprising a lower and an upper series of parallel slats disposed with the slats of the series in crossed relation and fixedly connected at their crossing points, the ends of a plurality of the slats of the lower series being turned upwardly and constituting vertical side wall elements, there being a plurality of the slats of the upper series disposed horizontally on the inner sides of such upright end portions of the lower series and coacting therewith to provide opposed relatively fixed side members, one of the horizontally disposed slats being at the upper ends of the upright end portions, vertically spaced U-shaped horizontal end wall slats disposed with their arms on the inner sides of and fixedly secured to a plurality of said vertical side wall elements, spaced vertical end wall slats secured to the inner sides of said horizontal end wall slats and coacting therewith to provide relatively fixed end wall members, loop-like hinge members secured to said side wall members, and grid-like collapsible side and end walls comprising vertical and horizontal slats, the lower horizontal slats of the side walls being hingedly engaged within the loops of said hinge members on said fixed side wall members in supported relation to the upper horizontal slats of the fixed side wall members, said side and end walls being swingably connected in pairs to permit the collapsing of the end walls on the inner sides of the side walls, said fixed end wall members being spaced to permit collapsing of one collapsed pair of side and end walls to a downwardly inclined position between them and the collapsing of the other pair to a substantially horizontal position in supported relation to the pair collapsed between the fixed side walls, and means for detachably connecting the swinging ends of said end walls with the adjacent ends of the side walls when the walls are in erected position.

2. In a walled pallet the combination of a grid-like bottom comprising a lower and an upper series of parallel slats disposed with the slats of the series in crossed relation and fixedly connected at their crossing points, the ends of a plurality of the slats of the lower series being turned upwardly and constituting vertical side wall elements, there being a plurality of the slats of the upper series disposed horizontally on the inner sides of such upright end portions of the lower series and coacting therewith to provide opposed relatively fixed side members, vertically spaced U-shaped horizontal end wall slats disposed with their arms on the inner sides of and fixedly secured to a plurality of said vertical side wall elements, spaced vertical end wall slats secured to the inner sides of said horizontal end wall slats and coacting therewith to provide relatively fixed end wall members, hinge members secured to said side wall members, and grid-like collapsible side and end walls comprising vertical and horizontal slats, the lower horizontal slats of the side walls being engaged with said hinge members on said fixed side wall members, said side and end walls being swingably connected in pairs to permit the collapsing of the end walls on the inner sides of the side walls, said fixed end wall members being spaced to permit collapsing of one collapsed pair of side and end walls between them and the collapsing of the other pair to a substantially horizontal position in supported relation to the pair collapsed between the fixed side walls, and means detachably connecting the swinging ends of said end walls with the adjacent ends of the side walls when the walls are in erected position.

3. In a walled pallet, the combination of a grid-like bottom comprising a lower series of parallel slats and an upper series of parallel slats disposed with the slats of one series in crossed relation to the slats of the other series, the opposite ends of a plurality of the slats of one series being turned upwardly and constituting vertical side wall elements, a plurality of horizontal slats secured to the vertical side wall elements and coacting therewith to provide reatively fixed side wall members, vertically spaced U-shaped horizontal end wall slats having the arms thereof welded to certain of the vertical side wall elements of the fixed side wall members, and spaced vertical end wall slats secured to the U-shaped horizontal slats and coacting therewith to provide relatively fixed end wall members.

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