

Jan. 19, 1954

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2,666,552

CRATE FOR USE WITH LIFT-FORK TRUCKS

Filed Feb. 5, 1952

3 Sheets-Sheet 1

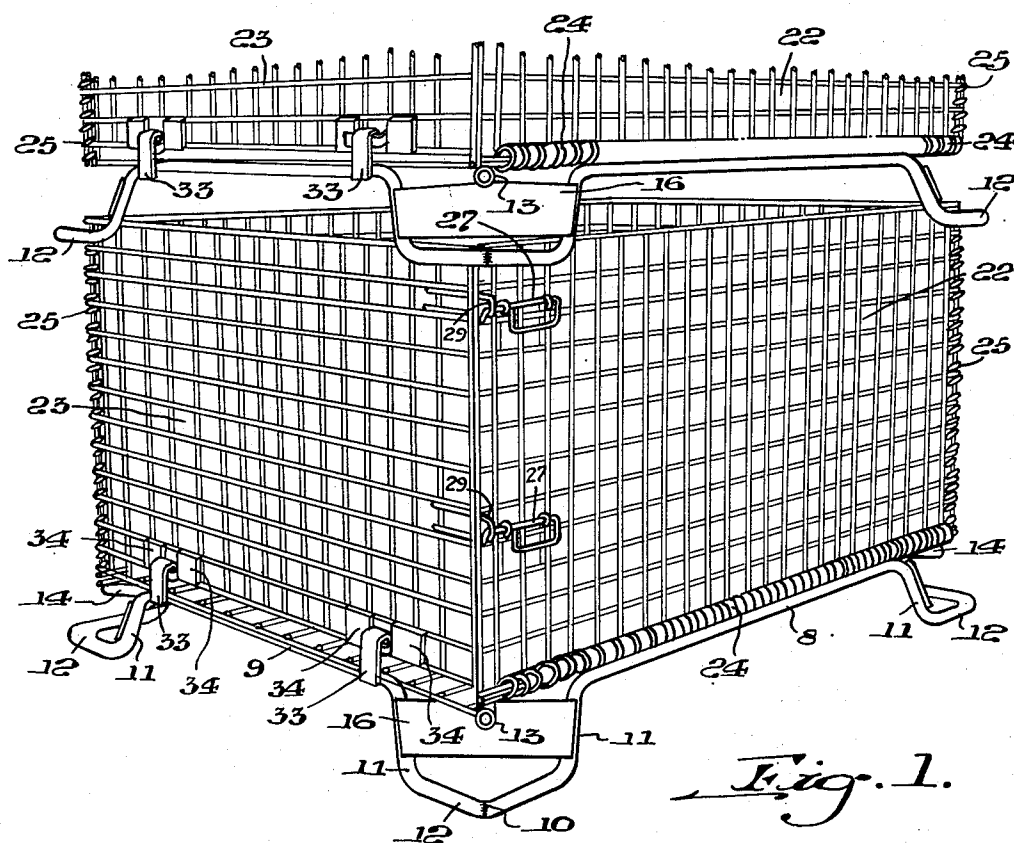


Fig. 1.

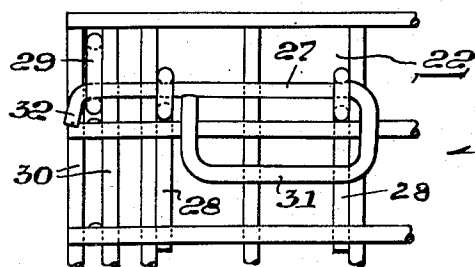


Fig. 2.

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3 Sheets-Sheet 2

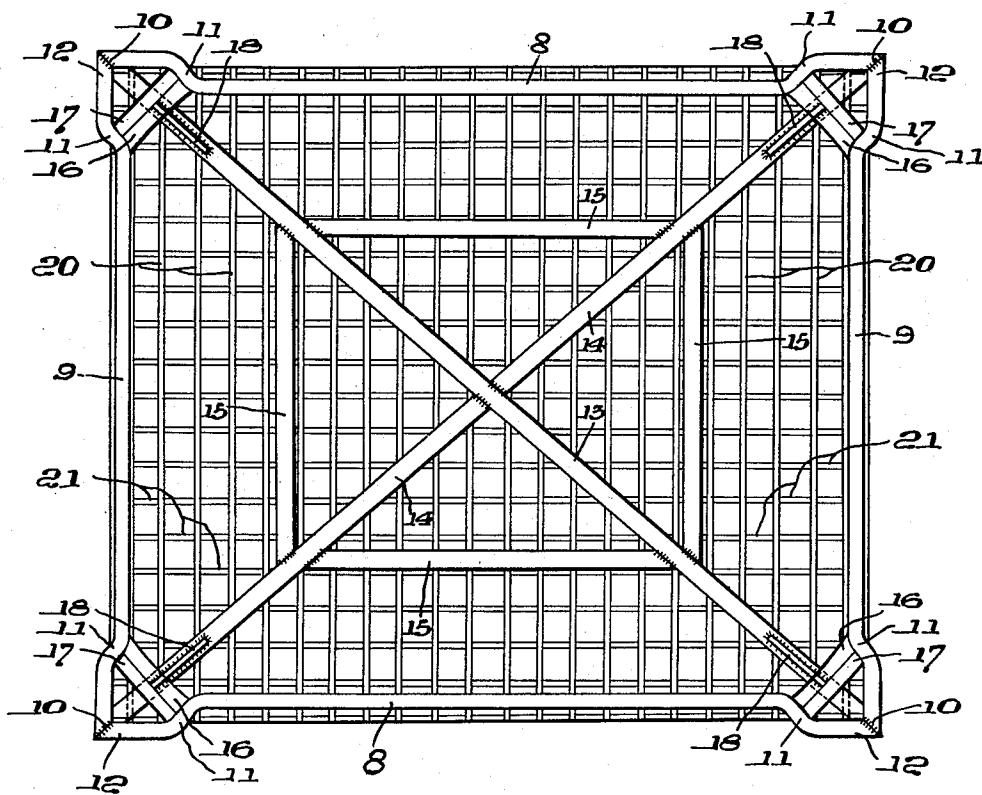


Fig. 3.

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3 Sheets-Sheet 3

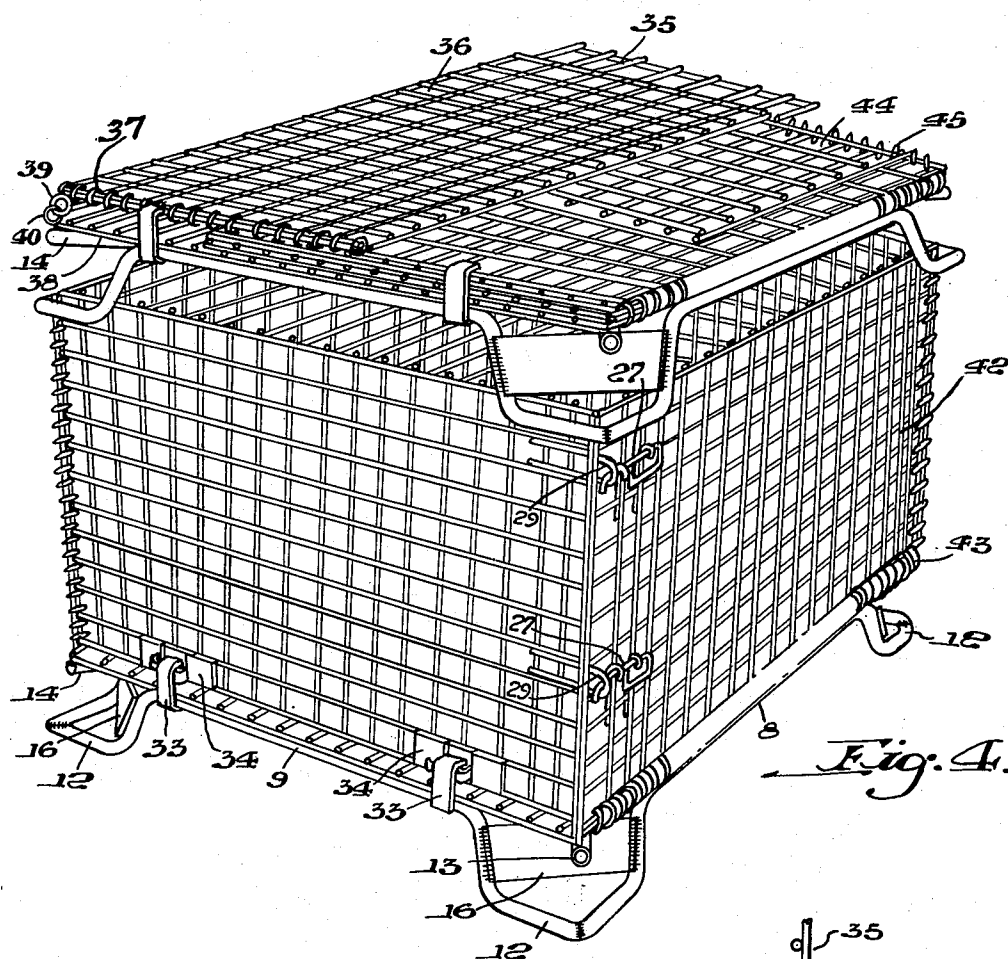


Fig. 4.

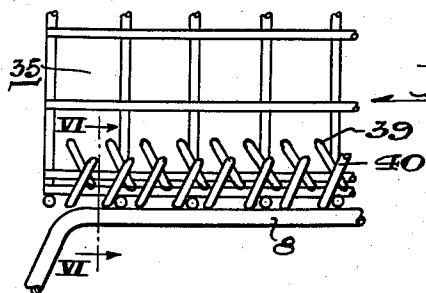


Fig. 5.

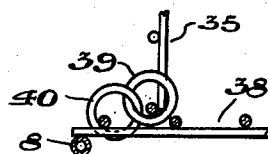


Fig. 6.

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UNITED STATES PATENT OFFICE

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CRATE FOR USE WITH LIFT-FORK TRUCKS

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Application February 5, 1952, Serial No. 270,043

1 Claim. (Cl. 220—97)

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This invention relates to crates that are particularly suitable for use with lift trucks of either the fork or platform type, and comprises a modification of the structure of my application Serial No. 168,455, filed June 16, 1950 (now Patent No. 2,622,830).

One object of my invention is to provide a crate of the foldable or collapsible type, having an improved form of base structure for convenience in transporting the crate by lift trucks and particularly suitable for stacking of the crates and their bases either in a loaded or collapsed condition.

Another object of my invention is to provide an improved manner of hingedly connecting crate walls to a base and means for holding the crate walls against bulging under internal pressures.

Still another object of my invention is to provide a base of pallet-like form that serves as the bottom wall of a crate and which is of such form as to not only facilitate the aligning and stacking of the crates upon one another, but which is of great strength for a given weight of material.

A further object of my invention is to provide a collapsible or foldable crate of the character referred to that has means for latching the vertical walls in load-receiving position, in an improved manner, with the vertical walls directly supported by the base, for transmission of imposed weight to the base independently of the hinge connections.

As shown in the accompanying drawing, Figure 1 is a perspective view of a crate, showing the manner in which another crate may be stacked thereon; Fig. 2 is a detailed view of one of the latches of Fig. 1; Fig. 3 is a bottom plan view of the structure of Fig. 1; Fig. 4 is a perspective view showing crates of a modified form, with a superposed crate folded and stacked upon another crate; Fig. 5 is a side view of a portion of the structure of Fig. 6, and Fig. 6 is a view taken on the line VI—VI of Fig. 5.

Referring first to Figs. 1 to 3, the structure comprises a pallet-like base with vertical crate walls hingedly connected thereto. The base comprises a framework having longitudinally-extending bars 3 to which are welded transverse bars 9, to make a framework of generally rectangular form. These bars may be solid or tubular and are welded together at the corners of the frame, as indicated at 10. The ends of the bars 8 are bent downwardly and outwardly as shown more clearly in Fig. 1, to form leg-like

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portions 11 and feet 12. A diagonally-extending rod or tube 13 has two diagonally-extending bars 14 welded thereto at the center of the framework, and brace bars 15 are welded to the diagonal members 13—14, these bars all serving to form a stiff support for the bottom wall of the container.

Web plates or brace plates 16 bridge the downturned leg members at each corner of the frame and are welded thereto, and brace bars 17 are welded to these plates 16 and to the leg members 11, to further strengthen the legs. The plates 16 and the bars 17 also are useful when stacking the crates on one another. The diagonal bars 13 and 14 extend through the brace plates 16, to the extreme corners of the bottom sheet and are welded to the sheet and to the plates. Gusset plates 18 are welded to the undersides of these diagonal rods 13—14 and to the plates 16, and they rest upon and are welded to the brace bars 17. The deck sheet, which serves as a bottom for the container, has transversely-extending rods or wires 20 to which are welded longitudinal rods or wires 21. The wires 20 underlie the wires 21 and are welded to the frame members 8 and to the diagonal bars 13—14. Some of the rods 21 are welded also to the bars 15.

The side walls of the crates are indicated generally by the numerals 22 and the end walls by the numerals 23. These vertical walls may suitably be of welded wire mesh as is the bottom. The longitudinal walls are hinged to the deck or bottom wall by spiral hinge members 24, at opposite longitudinal edges of the deck, and each of the end walls is hinged to a side wall by a spiral hinge 25, these hinges being at diagonally-opposite corners of the structure and each end wall being foldable on the side wall to which it is hingedly connected somewhat as indicated in Fig. 4, that will hereinafter be described.

The end walls are detachably connected at their free edges to their respective side walls by means of latch bolts 27 which are slidably supported in the eyes of bent rods 28 that are welded to the sides 22 at diagonally-opposite corners of the crate. Keeper members 29 having loops formed thereon and which are welded to the end walls 23 are movable into latching position, between vertical bars 30 of the side walls, for engagement with the latch bolts 27. Each latch bolt has a handle-like portion 31 that serves not only as a convenient means for operating the bolt, but also as a weighted member for holding the hook portion 32 of the bolt in operative posi-

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tion as shown in Fig. 2, to thereby reduce danger of accidental disconnection. To disengage the latch, the handle 31 is swung to its uppermost position to permit the hook 32 to be slid out of the keeper 29.

The hinges 24 prevent the side walls from bulging at their bottoms, under the pressure of contents within the crate, and the end walls 23 are held against bulging, by hooks 33 that are welded to the end bars 9 of the base. These hooks are engageable with keeper plates 34 that are welded to the end walls, when the end walls are in their latched positions.

Referring now to Figs. 4, 5 and 6, I show a crate structure which is similar to that of Fig. 1, in most respects. In this structure however, the side wall 35 at one side of the deck, which corresponds to one of the side walls 22 and has an end wall 36 hinged thereto at 37, is connected to the bottom 28 by a double spiral hinge composed of members 39 and 40 that are interconnected with one another and with the adjacent longitudinally-extending wires of the side wall 35 and the bottom 28 respectively, in order that the side and end walls can be folded upon one another to flat positions. In folding the crate walls to collapsed condition for storing or shipment when empty, the latches 27 will be disengaged, whereupon the side wall 42 is folded on its hinge 43 to a flat position upon the deck. Thereupon, the remote end wall 44 is folded on its hinge 45 to lie flatwise upon the wall 42. The other side wall 35 will be folded down to a flatwise position about its hinge members 39-40. Its associated end wall 36 can then be folded about its hinge 37 flatwise against the side wall, although if the hinge joint 39-40 has enough clearance, the end wall 36 can be folded under its associated side wall. In either case, the panels or walls 35-36-42-44 can all be folded to horizontal planes because of the extensible nature of the hinge 39-40. The hinge 43 could be made of two spirals, if desired.

In all cases, the horizontal lower edges of the vertical wall will rest upon the deck and be directly supported thereby, when the crates are set up to receive goods, thus relieving the hinges of weight.

An important feature of my invention in both the structures of Figs. 1 and 6 is that the legs and foot arrangement permits the crates to be readily stacked upon one another, as indicated in Fig. 1, and furthermore permits stacking of the crates on one another when they are in folded or collapsed position, particularly when the double hinge arrangement of Fig. 6 is em-

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ployed. The leg arrangements prevent the stacked crates sliding upon one another either when in a loaded condition or when collapsed for storing. The exposed sloping leg arrangement enables the operator to more easily bring the crates into stacked position. It will be understood that the crates will usually be handled by lifting trucks such as those of the lift-fork or platform type.

I claim as my invention:

A crate having vertical walls and a bottom wall therefor of rectangular form, an underframe to which the crate bottom wall is secured, the underframe containing bars respectively disposed adjacent to the four edges of the bottom wall for limited distances between its corners, and the bars at substantial distances from each corner of the bottom wall, extending downwardly and laterally outward, to form legs whose lower portions are disposed outwardly of the vertical planes of the adjacent crate walls, a cross plate bridging the legs and welded thereto flatwise intermediate their upper and lower ends, at each corner of the crate, in a diagonal direction, and in position to support the corners of the underframe and to afford support on a corner of a crate upon which the base may be stacked, and horizontal extensions on the lower ends of the legs at each corner, extending at right angles to each other, along lines outwardly of the said vertical planes, and having their extremities united at a point horizontally beyond the adjacent crate corner.

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