

2,590,941

Filed June 7, 1949

2 SHEETS--SHEET 1

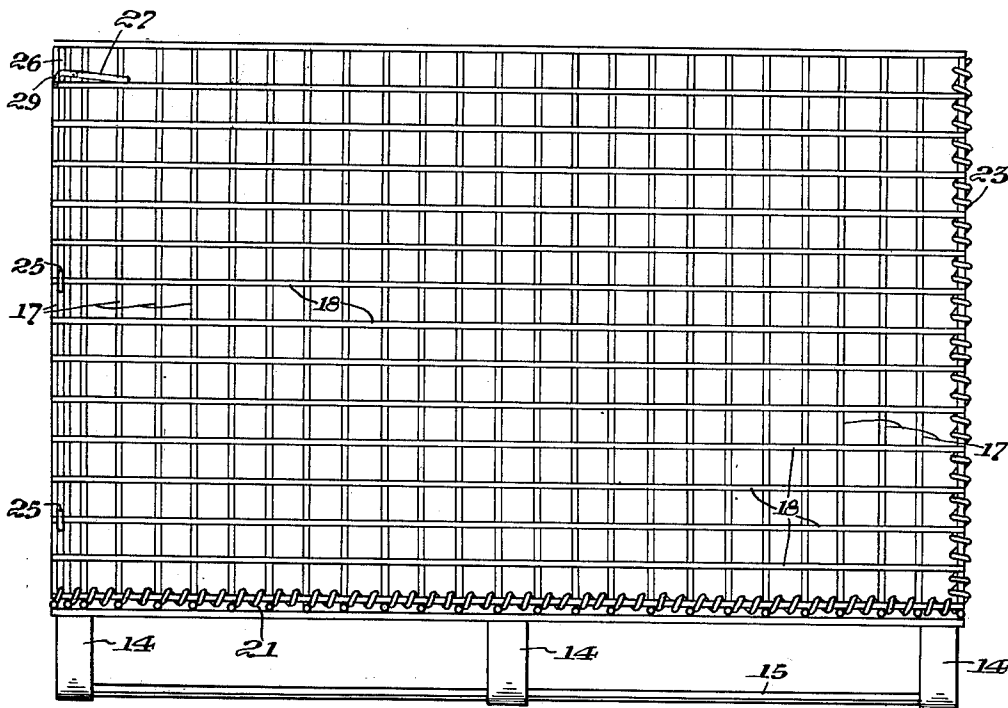
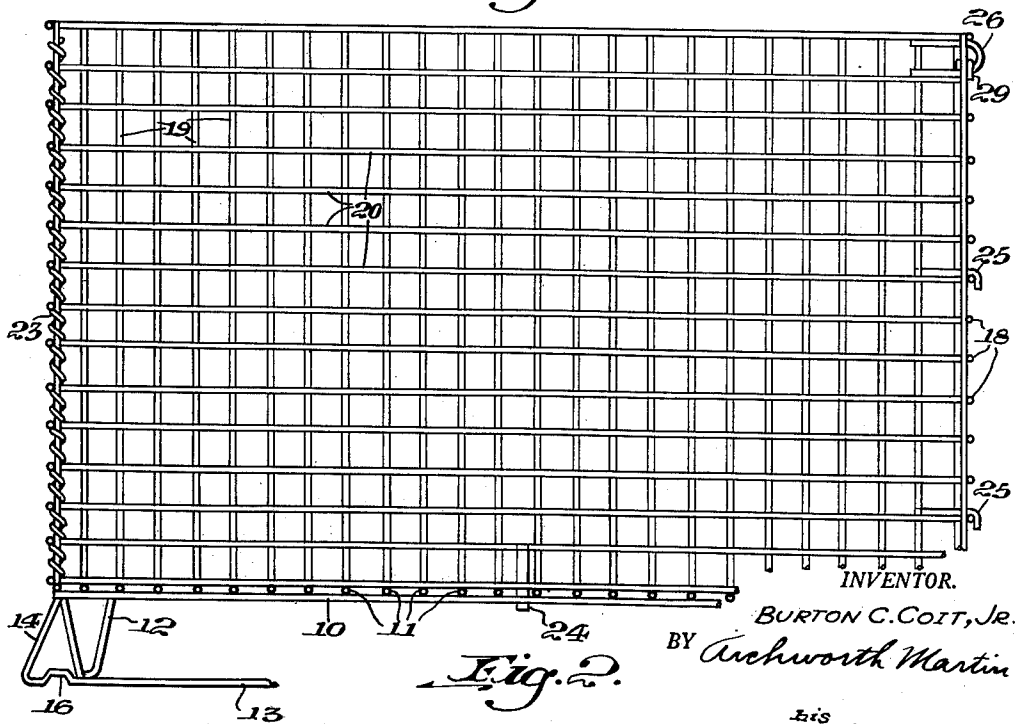


Fig. 1.



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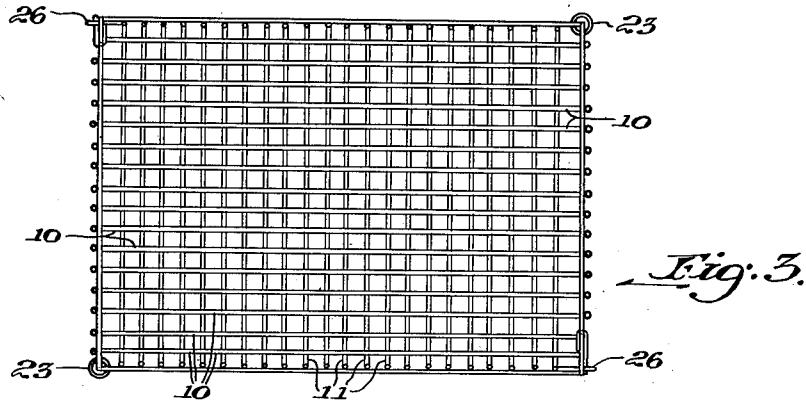
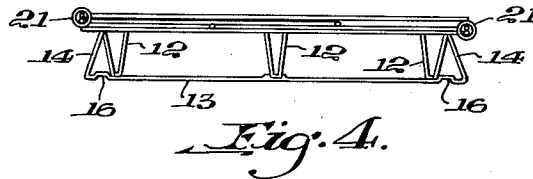
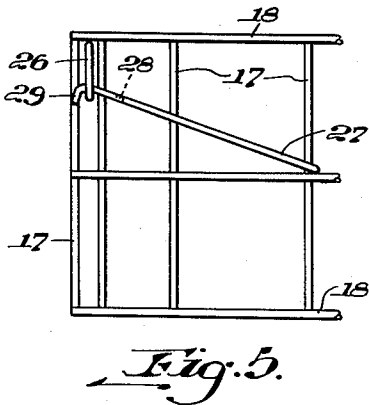
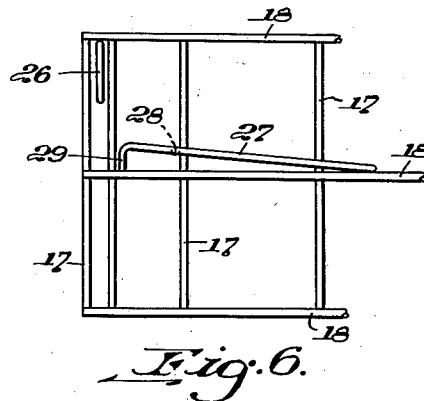
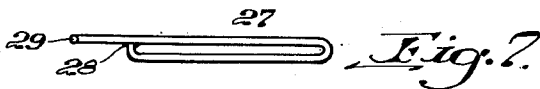
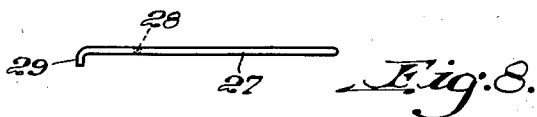
April 1, 1952

B. C. COIT, JR
SHIPPING CRATE

2,590,941

Filed June 7, 1949

2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

2,590,941

SHIPPING CRATE

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Application June 7, 1949, Serial No. 97,511

3 Claims. (Cl. 220-7)

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My invention relates to crates or boxes of the foldable or collapsible type, and more particularly to a latching arrangement therefor for releasably maintaining the side walls and end walls of the crate in assembled position to receive goods for storage or shipment. The invention is particularly applicable to structures of the types shown in my applications Serial No. 740,103, filed April 8, 1947 (now abandoned), and Serial No. 85,926, filed April 6, 1949, (now Patent No. 2,576,671) which applications show combined pallet and crate structures wherein the side walls are hingedly connected to the pallet deck and each end wall is hingedly connected at one of its vertical edges to one of the side walls and the side walls then foldable upon the deck, when the crates are not in use, for compact storage and return shipment of the empty crates. While my invention is particularly useful in combined pallet and crate structures, it is also useful in structures wherein the crate has simply a bottom instead of the crate walls being placed upon a pallet deck.

My invention has for its object the provision of an improved form of latching device for releasably connecting the free vertical edges of the end walls of a crate to the adjacent free edges of the side walls, when the four walls of the crate are in upright position, the latching device being so arranged that it will not protrude perpendicularly from the planes of the crate walls nor become accidentally disengaged at any position to which the crate may be turned during the handling thereof.

Figure 1 is a side view of a crate that embodies my invention; Fig. 2 is an end view thereof; Fig. 3 is a plan view thereof, on a reduced scale and showing more particularly a plan view of the pallet deck; Fig. 4 is an end view, on a reduced scale, showing the manner in which the side and end walls of the crate can be folded upon the pallet deck; Fig. 5 is an enlarged view showing the safety latch in operative position; Fig. 6 shows the latch in disengaged position; Fig. 7 is a plan view of the latch bar, and Fig. 8 is a side view thereof.

The crate walls, together with the improved latching arrangement or safety latch, may be provided with a crate bottom of any suitable form but is here shown as used with a pallet of the type employed for transporting and stacking merchandise, by the use of trucks of the lifting fork type.

The pallet comprises a deck portion formed of transversely-extending rods 10 welded to longi-

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tudinally-extending rods 11. Leg members 12 of sheet metal are welded at their upper ends to the deck wires 10 and 11, although these legs may be of rod-like form if desired. Floor bars 13 are welded to the lower ends of the legs 12 and have their ends upturned at 14 and welded to the deck. Here the floor bars are shown in the form of sheet metal strips but could be of rod-like form if desired. The floor bars 13 are connected by cross bars 15 that are welded thereto. The floor bars are bent or offset upwardly at 16, to facilitate stacking of the pallets and their containers. The offset portions engaging the upper edges of a crate upon which the pallet is stacked, to make it easier to center or align the stacked crates and pallets and also reducing danger of shifting of the stacked crates.

The crate has side walls each formed of vertical rods 17 welded to horizontal rods 18, and the end walls are respectively formed of vertical rods 19 welded to horizontally-extending rods 20.

The side walls 17-18 are hingedly connected to the pallet deck by spiral wires 21 that respectively embrace the lowermost rod 18 of the side walls and the adjacent marginal rod 11 of the deck. At each of two diagonally-opposite corners of the crate, the end walls are hingedly connected to the side walls by spiral wires 23 that embrace the adjacent vertical rods 17 and 19 of the side and end walls respectively.

In order to maintain the crate walls in upright position to receive lading and to hold them against lateral deflection under the contained lading, the end walls have hooks 24 welded thereto in position to extend through the deck as shown in Fig. 2 to prevent "spreading" of the lower edge of the wall relative to the deck. Also, these walls have hooks 25 welded to the wires 19 in position to project through the mesh openings of the adjacent side wall and engage rods 18.

In order to prevent accidental disengagement of the hooks 24 and 25, I provide the safety latch arrangement heretofore referred to. This arrangement comprises keepers 26 of looped or U-shaped form welded to the end walls in position to project through openings in the side walls, at diagonally-opposite corners of the crate. A latch bar 27 is provided for engagement with each of the loops or keepers 26, the major portion of the bar being bent to elongated-loop form as shown more clearly in Fig. 7. The bent-back or looped end of the bar is welded at 28 to the body portion of the bar, and the bar has a hook 29 formed thereon. The bar loop loosely embraces the adjacent vertical rods 17 of the side walls and is

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therefore readily movable from its release position of Fig. 6 to its operative or engaged position of Figs. 1, 2 and 5. The latch bar will, of course, maintain latching engagement with the keeper loops 26 when the crates are being handled in either upright or tilted positions, and, more importantly, will not be accidentally disengaged even though the crate is turned up-side down, for the reason that the inner end of the bar 27 will fall under the weight of gravity probably even more readily than the hook end of the bar. This results from the fact that the latch bar is freely slidable on the rod 17 instead of being pivotally mounted on a fixed axis at its inner end as is common with latch bars.

In order to fold the crate for storage or return shipment in an empty condition, the latch bars 27 will be disengaged as will also the hooks 24 and 25. Thereupon, the end walls can be folded against the side walls, and the side walls folded upon the deck, thus making for compactness as shown schematically in Fig. 4. Because the bars 17 are disposed behind or at the inward sides of the bars 18 and the flattened loop of the latch bar 27 extends around the bars 17, the outer side of the latch bar does not project beyond the outer plane of the bars 18 and therefore is not likely to be caught on any obstruction. Also, since the loop of the bar engages two of the rods 17, the bar cannot swing outwardly from the face of the crate wall.

A lid or cover will be provided for the crate, when desired, as for example the form of cover shown in my said application Ser. No. 85,926, now Patent No. 2,576,671, dated November 27, 1951.

I claim as my invention:

1. A crate having vertical walls whose lower edges are adapted for connection to a bottom wall, means for releasably connecting the vertical walls together at corners of the crate, comprising vertically-extending guide devices on one vertical wall, a latch bar having an elongated loop surrounding said guide devices and having limited movements thereon in vertical and horizontal directions, and extending in a generally horizontal direction, to a point adjacent to a vertical edge of the wall, a hook on the outer end of the bar, in a plane perpendicular to the loop and a keeper on the adjacent edge of another wall, engageable by the said hook, the inner end of the bar being shiftable vertically on the said guide device when the hook is engaged with the keeper.

2. A crate having a bottom wall and vertical

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walls two of whose lower edges are connected to the bottom wall, and means for releasably connecting the vertical walls together at corners of the crate, comprising a downturned hook fixedly mounted on a vertical wall and engageable with a retaining member on the adjacent vertical wall, at one corner of the crate, a latch bar loosely supported by the last-named vertical wall, for limited movements vertically and horizontally, and extending in a generally horizontal direction to a point adjacent a vertical edge of the wall, a hook on the outer end of the bar, and a keeper on the adjacent vertical edge of the first-named wall, at said corner, near the upper end thereof and engageable by the said hook, the second-named vertical wall at the corner having a hole through which the keeper extends for connection to the hook, a wall of the hole preventing relative upward movement of the vertical wall and thereby maintaining the first-named vertical wall against disengagement from said member.

3. A crate having vertical side and end walls each formed of vertical and horizontal rods that are secured together where they cross one another, a bottom wall to which opposite side walls are hingedly connected, the end walls each being hingedly connected to a side wall, downturned hooks fixedly carried by the free vertical edges of the end walls and engageable with horizontal rods of the side walls, keeper loops carried by free vertical edges of the end walls, near their upper ends and movable into spaces between horizontal and vertical rods of the adjacent side wall, and latch bars loosely embracing vertical rods on the side walls, and having downturned hooks engageable with the keeper.

BURTON C. COIT, JR.

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