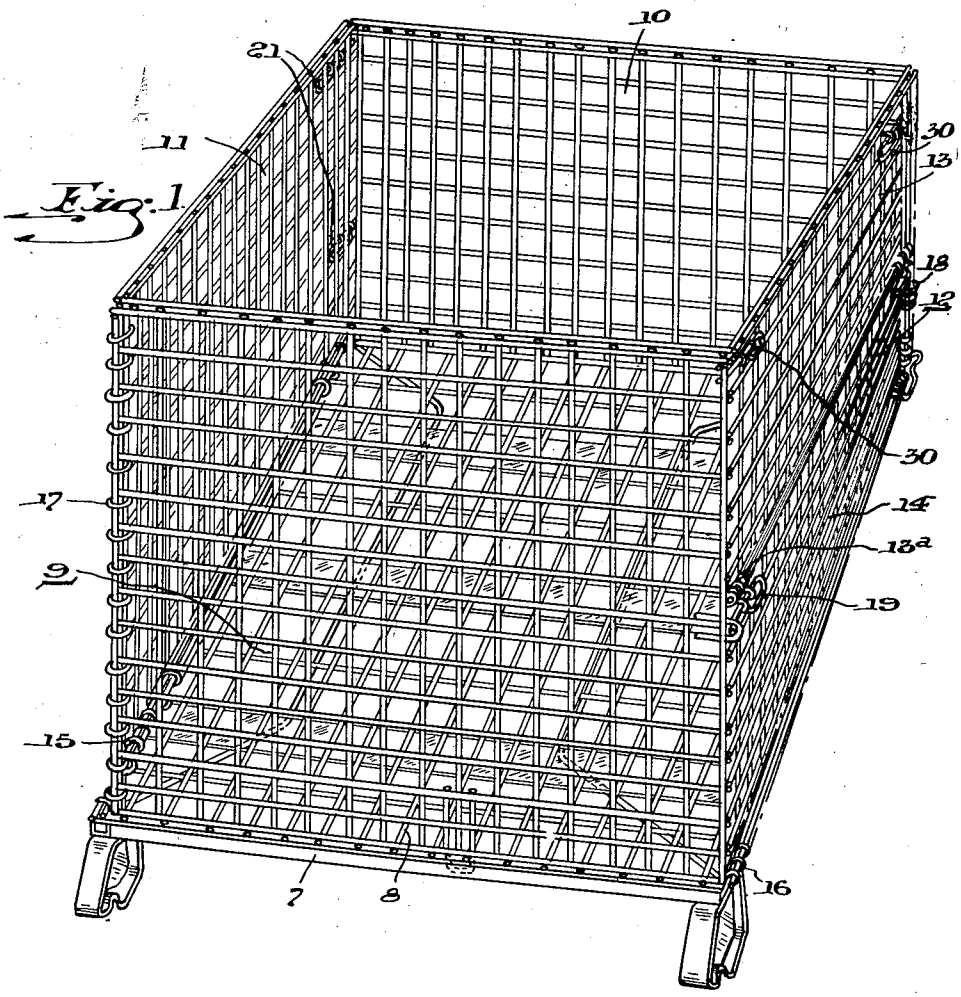
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LATCH FOR CRATE LIKE CONTAINERS

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Fig. 1.



INVENTOR.
BURTON C. COIT, JR.
BY Auchworth Martin
his ATTORNEY.

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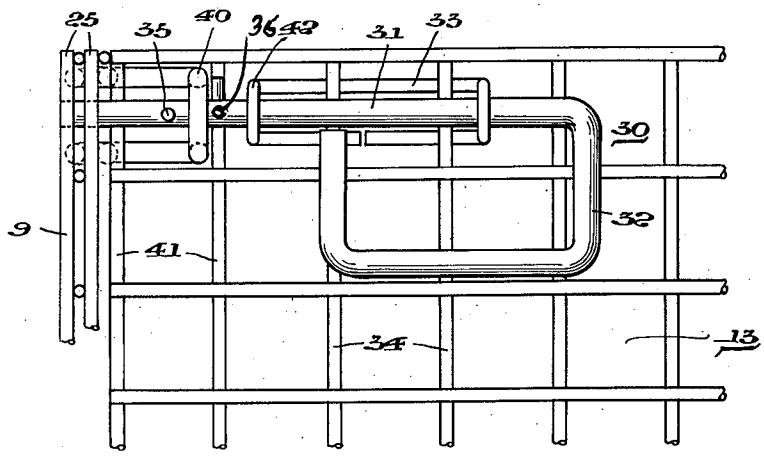


Fig. 2.

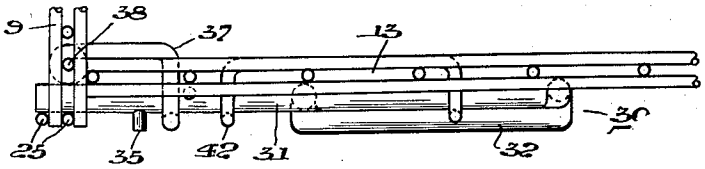


Fig. 3.

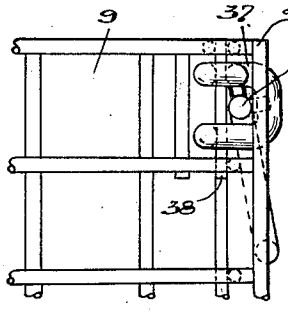


Fig. 4.

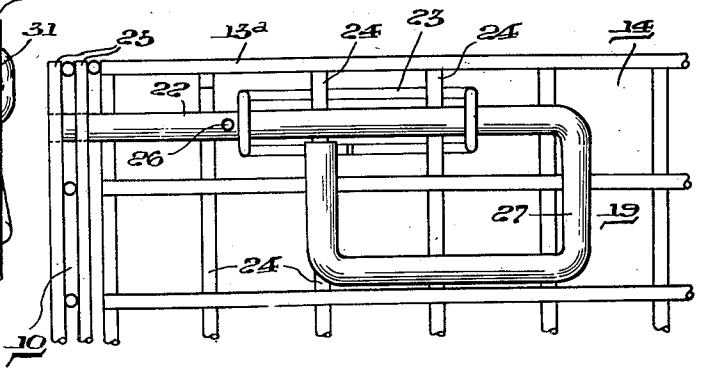


Fig. 6.

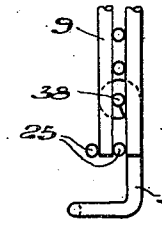


Fig. 5.

INVENTOR.
BURTON C. COIT, JR.
BY Auchworth Martin
his ATTORNEY.

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LATCH FOR CRATE LIKE CONTAINERS

Burton C. Coit, Jr., Washington, Pa., assignor to Tri-State Engineering Company, Washington, Pa., a corporation of Maryland

Application January 24, 1956, Serial No. 560,994

7 Claims. (Cl. 220—7)

My invention relates to crate-like containers, and more particularly to those having one end or side formed of two panels, the upper one of which is hinged to the lower panel, so that it can be dropped to permit more ready access to the containers.

The invention constitutes an improvement upon that disclosed in my Patent No. 2,667,319, issued January 26, 1954, and the side walls may be hinged in such manner as to be foldable flatwise upon the deck as shown in Fig. 4 of my Patent No. 2,590,941, issued April 1, 1952.

My invention has for one of its objects the provision of a sliding latch bar and keeper therefor of such form that they may readily be connected even though the vertical walls of the crate be bulged somewhat under the internal pressure of lading, and which has provision for preventing accidental disengagement as between the latch bolt that is carried by one vertical wall and the adjacent vertical wall into which the latch bolt is removably inserted to hold the first-named wall in upright position.

A further object of my invention is to provide a pivoted keeper for the latch bolt of such form that it will not interfere with the folding and stacking of the vertical walls of the crate.

As shown in the accompanying drawings,

Figure 1 is a perspective view of a crate that embodies my improved latching structure;

Fig. 2 is an enlarged side elevational view of one of the latches;

Fig. 3 is a plan view thereof;

Fig. 4 is an end view of the structure of Fig. 2;

Fig. 5 is a fragmentary plan view of the side walls of Figs. 2 and 3, showing the swivel keeper turned to inoperative position, and

Fig. 6 is a plan view of some of the other latches of Fig. 1.

The structure comprises a base of pallet-like form for the vertical walls which may suitably be of welded mesh, the base having a metal framework 7 upon which a deck 8 of mesh form is welded, in a manner similar to that shown in my patent first-above mentioned. The crate proper comprises side walls 9 and 10 and end walls 11 and 12, the end wall 12 being divided into upper and lower panels 13 and 14, as hereinafter described, connected by a spiral hinge 13*a*.

The end wall members are hingedly connected to the deck by spiral wires 15 and 16 respectively, as in the first-named patent, while the vertical walls 9 and 11 are hingedly connected by a spiral 17. The lower end panel 14 is pivotally connected to the side wall 10 by a spiral hinge 18, at one vertical edge. At its other vertical edge, it is connected to the side wall 9 by a latch 19.

The end wall 11 is releasably connected at one edge to the side wall 10 by a pair of latches 21 of the form shown in Fig. 6. These latches comprise a latch bolt 22 slidably supported in a yoke 23 which is welded to the rear sides of vertical rods 24 and has outturned ends of looped form through which the bolt extends. The bolt is projectible past the vertical edge of the wall 11 and into

the side wall 10 behind vertical rods 25, it being releasably held in place by a stud 26.

When the bolt handle 27 is in its depending position, the stud 26 is engageable with the loop bar 23 to prevent withdrawal of the bolt from the side wall 10. When the handle 27 is swung upwardly, the stud 26 can be moved backwardly through the forward loop of the bar 23, when withdrawing the latch bar from the side wall. The latch structure at 19 is of like form.

Referring now more particularly to latches 30 that releasably hold the panel 13 in upright position, and as shown more clearly in Figs. 2, 3, 4 and 5, each of these latch structures comprises a latch bolt 31 that has a looped handle portion 32 and slidably supported by a guide 33 welded to the rear sides of vertical rods 34 that constitute part of the panel 13.

A stud 35 is welded to the bolt 31 and the bolt extends past the vertical edge of the panel 13 and into the side wall 9, behind vertical rods 25 that constitute part of the side wall. A keeper 37 has an eye at one end which is pivotally supported by a short rod 38 on the side wall 9. At its other end, the keeper 37 is bent outwardly and is of loop-like form, to slidably receive the latch bolt 31.

As stated above, one advantage of the invention is to provide a latch arrangement of such form that the bolts 31 can respectively be moved into holding engagement with the side walls 9 and 10, to hold the panel 13 in upright position even though the side walls are bulging somewhat under the pressure of the container contents. This is because the outer looped portion 40 of the keeper 37 is insertible into the wide space between upright rods 41 of the panel 13, so that the keeper loop may enter between them even though the side wall 9 be bulged outwardly somewhat relative to the adjacent vertical edge of the panel 13.

If, during handling and shipping, the lading within the container tends to move the side wall 9 outwardly an excessive distance, the loop 40 of the keeper will engage the stud 35 and pull the bolt along with it until the handle loop 32 engages the yoke 23, thus, in effect, tying the walls together.

A stud 36 on the bolt is engaged by the loop 40 to slide the bolt 31 backward when the end wall 9 is returned from a bulged position to normal as in Fig. 2.

When the latch is to be disengaged, the handle 32 will be swung upwardly to bring the stud 35 toward the rear portion of the loop, where there is sufficient clearance to permit it to be slid backwardly through the loop, along with the latch bolt. Continued withdrawal movement of the bolt will move the stud through the loop-like bend 42 of the guide 33. When the handle is then dropped, the stud 35 will be in position to engage against the right hand face of the loop 42 and thus prevent accidental sliding of the latch bar toward projected position relative to the panel 13.

In order that the keeper 35 will not interfere with the folding of the various vertical walls flatwise to the deck as in Fig. 4, of my second-mentioned patent, the keeper will be swung about its pivot 38 to the position shown in Fig. 5.

I claim as my invention:

1. The combination with a crate having a bottom and vertical side and end walls that are movably connected to the bottom, at least one of the side walls being a drop wall hingedly mounted on a horizontal axis at its lower edge, a pair of latches each comprising a latch bolt supported by the drop wall for sliding movement horizontally adjacent to the upper corner of said drop wall, and thereby projectible into openings through the end walls, stop means positively limiting said sliding movement, keepers of generally L shape each having one leg pivot-

ally connected on a vertical axis to one of the end walls and normally parallel to the wall, its other leg being outturned through a relatively wide opening through the adjacent drop wall, the said outturned end having a loop through which the bolt is slidable when the walls are in their upright positions, and a stop shoulder on the bolt movable into position to be engaged with the outer side of the loop when the bolt is in its projected position.

2. A structure as recited in claim 1, wherein the drop wall is in the form of a panel superimposed upon the upper edge of a lower wall panel that is, in turn, latched at one of its vertical edges to one of the vertical walls at the ends of the panel, the other one of its vertical edges being hinged to the adjacent vertical wall.

3. A structure as recited in claim 1, wherein the drop wall is in the form of a panel superimposed upon the upper edge of a lower wall panel that is, in turn, latched at one vertical edge to the adjacent vertical walls, its other vertical edge being hinged to the adjacent vertical wall, and wherein two opposite side walls are hingedly connected to edges of the said bottom for folding thereon, when the three latches are disengaged.

4. A structure as recited in claim 1, wherein there are guides on the drop wall that limit sliding movement of the bolt on the drop wall, and the stop shoulder on the bolt that engages the said outer side of the loop when the bolt is in one rotative position of adjustment about its axis so that the bolt can thereby be slid longitudinally and thus maintained in engagement with the loop through which it extends, notwithstanding substantial outward bulging of the end wall under internal pressure.

5. A structure as recited in claim 4, wherein there is

a second stop shoulder on the bolt in position to be engaged by the inner side of the loop when the last-named end wall returns to normal position after release of internal pressure, to thereby slide the bolt backwardly to its original locked position.

6. A structure as recited in claim 4, wherein the said loop is of such length that when the bolt is rocked upwardly from its said rotative position, its stop shoulder can be withdrawn through an inner area of the loop upon rotative movement of the bolt.

7. A fastener for two container walls positioned in edge-to-edge relation and at right angles to each other, comprising a latch bolt having limited sliding movement on one wall, toward and into the other wall adjacent to its adjacent edge, a keeper of generally L shape having one of its legs pivotally connected to said other wall and normally parallel thereto, its other leg extending through a relatively wide hole through the other wall and having a loop through which the bolt is slidable when the parts are in their operative positions, and a stop shoulder on the bolt, in position to be engaged with the outer side of the loop when the bolt is in its projected position.

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