ABSTRACT: For a container-carrying flat deck railroad car, a locking container bracket of the adjustable type having a support leg pivotally and slidably attached to the car side sill and to the container supporting bracket mountable on and stored within the deck, the seat of the bracket having disposed thereabove a pivotal lock element having one portion lockingly receivable in the aperture of a corner casting of a container and having the other portion moved by the container attendant to moving the locking portion into the aperture of the corner casting for retaining the container on the bracket.
The invention relates to an improvement in the type of mounting on a flat deck car for receiving a container. The invention in particular relates to a type of corner bracket arrangement which is movable lengthwise of the flat deck to support containers of different sizes and yet which may be stored out of sight and clear and free of the flat deck when not in use so that other types of lading may be stored on the railroad car or permit the driving of a motorized unit over the surface of the flat deck without hitting the container bracket. The bracket is of the automatic or self-locking type wherein there is provided a locking element that is pivotally and resiliently held by the bracket and having one lever portion being engageable with the seating of the container to move another locking arm portion for passing through an opening in the bracket and in the aperture of the container corner casting for locking of the container to the corner bracket. In vertical view the locking element of the corner bracket is somewhat C-shaped or U-shaped to provide a lower container engaging portion and an upper container securing portion horizontally offset from the container, the locking arrangement being resiliently and pivotally mounted below the container seating portion of the bracket to permit pivotal and shifting movement of the locking element or member for selective and alternate unlocking and locking positions with respect to the container mounted on the seat of the bracket. These and further objects and advantages of the invention will become more readily apparent by reference to the following description and attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a partial plan view of a flat deck railroad car employing the subject invention;

FIG. 2 is a partial perspective view of the inventive locking container corner bracket arrangement;

FIG. 3 is a longitudinal sectional view of the railroad car showing these side elevational view of the novel bracket;

FIG. 4 is a cross-sectional view of the railroad car showing the end elevational view of the novel corner bracket; and

FIG. 5 is a partial top plan view of the railroad car illustrating the novel bracket in plan view.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the drawings, there is shown a portion of a flat deck 2 of a railroad car 3 which is also provided with the usual side sill or structure 5. The flat car 3 may be of the cushion underframe type and provided with usual coupling means 6 at each car end. The flat deck is provided with a plurality of corner bracket structures 7 disposed along the sides of the car and intermediate the ends thereof which corner brackets are adjustable. The flat deck is further provided with fixed end corner brackets 8. For transportation of trailers on the flat deck there are provided the stanchion or trailer support structures 6a for supporting the fifth wheel structure of a trailer.

The container corner brackets 8, 8′ of the fixed type may be recessed in the deck, or elevated into an in-use position to cooperate with the adjustable container corner brackets 7 for supporting a container 9.

The adjustable type corner bracket 7 which is best seen in FIGS. 2−5, is in the in-use or elevated position and in the out-of-use or below deck position in dotted line in FIG. 4. The corner bracket 7 is composed of a pair of intercoupled hinge portions pivotally connected to the overhanging portion of the deck 2 adjacent the side sill 5. The first hinge portion of the corner bracket is comprised of a support and connecting leg or plate 10, the lower outer end of which is provided with a curved or looped eye or end portion 11 about a rod or hinge structure 12 welded to the lower outboard side portions of the deck, the hinge pin structure 12 extending substantially the length of the deck for pivotally supporting the leg or arm 10.

The deck has a rod 12 on either side thereof. Support element 10 is free to move longitudinally of the car along the rod 12. The upper portion of the support leg 10 is provided with a pivot pin structure 13 on the inside thereof and pivotally carries the upper or container supporting corner bracket element 14. To this end, the support arm 10 is slotted at a at 15 for receiving the lugs of the upper container bracket element or member 14.

The bracket element 14 is provided with side and transverse indexing wall portions 17 and 18 for guiding the corner of the container onto seat 19 which is provided with load bearing support members 20, 21 and member 22 transverse to members 20 and 21, the members 18, 19, 20, 21 and 22 being attached to the base or bottom wall 23 of element 14. Lugs or feet 24 extend from the base 23 are L-shaped in cross section and extend through the enlarged elongated openings 25 in the deck 2 with conventional support stringers 26a and are movable to the edge of the opening for preventing removal of the upper hinged element 14 from the deck. A plurality of such apertures 25 may extend longitudinally along each side of the deck to permit the pair of feet 24, 24 of each upper hinged element to be placed at a plurality of locations.

The container bracket 7 is provided with a novel spring loaded removable container locking pin means which is pivotally and slidably supported by the bracket underneath the container seating portion and extends into the corner fitting carrying area of the bracket. The details of the operation of the pin means 26 are described below. The indexing element 18 carries the journals 33 and is attached to the seat 19 and base 23 and side 17 and comprises upper sloped portion 18a and lower backing portion 18a. The pin 13 fixed to the support arm 10 is carried in the journals 33 of the upper hinge element 14 for pivotal transverse movement of element 14 inwardly and outwardly of the deck. The below deck receptacle 30 is generally rectangular and receives container bracket portions or elements 10 and 14 for storage. The corner bracket structure 7 may be moved from the stored position by grabbing the hinged element 14 and moving it to the upright or in-use position with the feet 24 in the deck apertures 25, as seen in FIG. 3, while the container bracket 7 may be pivoted about the rod 12 from the receptacle 30 and moved longitudinally onto the deck 2, the feet 24 of the bracket extending into the deck apertures 25 or through the openings 35a of the side sills. The hinged portions 10 and 14 of the bracket 7 lie flush with the deck 2 in the stored position, and in the raised position are at an angle with one another to place the seat 19 in a horizontal position.

The container bracket locking pin means 26 comprises a generally upright somewhat C-shaped like unitary elongated element or member 35 which has an upper arm or catch portion 36 which extends into an opening 37 in the vertical portion 17a of the wall portion 17 extending above the base plate 19, a portion of the opening 37 extending into the indexing sloping portion above the portion 17a of the wall 17. The end of the arm 36 is tapered and the opening 37 is of sufficient vertical extent to receive the arm portion 36 therethrough. The member 35 has an intermediate arm portion 38 connecting with the arm portion 36 and forming therewith a generally right-angle bend. The arm portion 38 at its lower end forms with a lower arm portion 39 an approximate right-angle bend. The intermediate arm portion 38 has a slight angular bend in its end connections with the arm portions 36 and 39 to accommodate passage of the end part 36 in and out of the aperture 37. The bent portion 40 formed by the lower arm portion 39 and the intermediate arm portion 38 is trapped by and carried between a spring or deflectable support V-shaped or cradle-shaped bracket 42 attached by bolt means to the lower wall portion 17b of the wall 17 below the container support plate 19. A depending arm 42a is fixedly attached to the underside of the base support 19, as by welding 19, and extends downwardly to engage the upper surface of the bent or elbow portion 40 with the underside of the elbow or pivot portion 40 resting on the upper surface.
of the bracket support member 42. The elbow portion 40 is springingly held between the members 40 and 42 such that the element 35 is allowed to pivot somewhat and at the same time slide horizontally in either direction longitudinally of the car as viewed in FIG. 3 to permit the tip or end arm portion 36 to move in and out of the opening 37 as the lower free step end 43 of the end arm 39 is depressed by the corner portion of a container 9 (as shown in dotted line in FIG. 3) or allowed to swing up through the opening 44 in the base member 19 (as shown in solid line in FIG. 3). The upper tip end or arm portion 36 is moved outwardly of the aperture 37 by upward movement of the opening 9a in the container 9 (see FIG. 3, dotted line) and upward depression of the tip end portion 36. The solid line position (FIG. 3) of the element 35 shows the element 35 with its upper end 36 in the space defined by the base 19 and the wall 17 with the lower step end 43 extending below the opening 44 of the base plate 19. The end arm portion 39 with the step end 43 is horizontally offset with respect to the intermediate arm portion 38, as best seen in FIGS. 4 and 5, to allow the end of the corner of a container to depress the step end 43. If they were not for this offsetting of the lower end or tripping lever portion 39, the step 43 would extend into the corner casting opening in the bottom of a container and would not therefore be depressed by a container to allow the top or tip end or lock portion 36 to extend through the opening 37 and into the side opening in the corner casting of the container.

Thus, it is seen that the container will allow depressing of the lower end of the lock pin means to allow the upper end 36 to extend through the bracket aperture and into the container corner fitting aperture for tying of the container into the bracket, whereas lifting of the container off of the base member 19 causes the upward side and opening of the container corner fitting to push and deflect the upper tip end or arm portion 36 outwardly of the inside of the wall portion 17 to cause pivoting and shifting of the element 35 to allow withdrawal of the container. The element 35 is deflected at its upper end causing upper arm 36 to move outwardly and release the container whereas when element 35 is deflected at its lower end by the container this causes the lower arm 39 to move downwardly and lock the container. It is to be noted that the spring bracket 42 allows pivoting and shifting of the element 35 between the solid and dotted line positions upon coacting with the movement of the container as aforesaid, the element 35 being held in either of two said positions until moved by the container due to the spring action of the bracket member 42 which provides a snug fit for the upper portion 46 between the bracket 42 and the depending arm 42a. The locking pin means extends longitudinally of the deck and generally pivots in a vertical longitudinally extending plane for selective insertion of the respective end of the locking pin means through a respective aperture in either the end upright wall portion of the bracket or the horizontal base plate portion 19.

The foregoing description and drawings are given merely to explain and illustrate the invention, and the invention is not to be limited thereto, since those skilled in the art who have the disclosure before them will be able to make modifications and variations therein without departing from the scope of the invention.

We claim:
1. For a flat deck railroad car for carrying container means, a supporting bracket means comprising:
   a container support bracket having a container seat having an opening and upright wall portion having an aperture;
   container bracket locking means pivotally carried by said bracket and including an upper container lock portion selectively extendable through the aperture of the upright wall portion of the bracket for engagement with the opening in a container corner, said container bracket locking means having a trip lever portion extendable through the opening in the seat of the bracket and adapted for engagement with the underside of the corner opening adjacent to moving of the upper container lock portion into the corner opening.

2. The invention according to claim 1, and said member being generally C-shaped and disposed about the outer portion of said upright wall portion and said seat.

3. The invention according to claim 1, and the upper locking portion comprising a generally horizontally extending aperture entrance portion and a downwardly extending bent intermediate portion connecting therewith and said lower trip lever arm portion having a diagonally downwardly extending portion connecting with the intermediate portion to define said pivot portion.

4. The invention according to claim 1, and said pivot portion being springingly pivotally and slidingly movable between the retainer and the retainer seat means.

5. The invention according to claim 1, and said lock member being a continuous member.

6. The invention according to claim 1, and said pivot portion being an elbow-shaped portion.

7. The invention according to claim 1, and said retainer seat being of an elongated portion.

8. In a flat deck railroad car for carrying container means, a supporting bracket means comprising:
   a container support bracket having a container seat having an opening and an upright wall portion having an aperture;
   container bracket locking means pivotally carried by said bracket and including an upper container lock portion selectively extendable through the aperture of the upright wall portion of the bracket for engagement with the opening in a container corner, said container bracket locking means having a lower trip lever portion extendable through the opening in the seat of the bracket and adapted for engagement with the underside of the container attendant to moving of the upper container lock portion into the corner fitting opening;
   a retainer attached to the bracket and retainer seat means below said retainer to define with the retainer an opening to snugly receive the container bracket locking means for pivotal and sliding movement of the locking means.

9. The invention according to claim 8, and said retainer being attached to the underside of the seat and said retainer seat means comprising a springlike member urging said locking means against said retainer.

10. In a railroad car carrying container means a container supporting bracket means comprising:
    a container support bracket having a container seat having an opening in the seat and an upright portion having a lock receiving aperture in the wall;
    container bracket locking means pivotally carried by said bracket and including a container lock portion selectively extendable through the aperture for engagement with the opening in the corner of a container;
    said container bracket locking means having a trip lever portion under the seat selectively extendable through the seat opening when the underside of the container corner is lowered to depress the lever portion attendant to moving the container lock portion into the aperture into the opening in the container corner;
    said bracket having support means supporting said locking means, said support means including means grasping said
locking means for pivoting and reciprocably shifting of the lock means for either movement of the lock portion into the wall aperture or the lever portion into the seat opening.

11. The invention according to claim 10, and said means grasping including a retainer portion mounted on the under-side of said seat and a springlike retainer seat defining a bearing with said upper retainer for frictionally clamping said locking means to permit pivoting as well as shifting of said locking means.