March 17, 1942. H. C. PIERCE 2,276,866

BOXED PRODUCE LOAD

Filed April 10, 1940

Fig. 1.

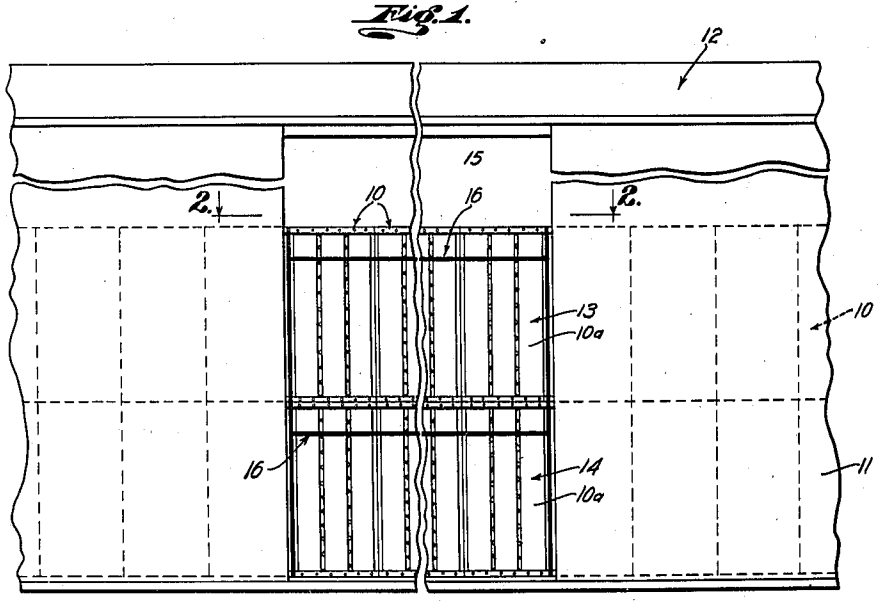


Fig. 2.

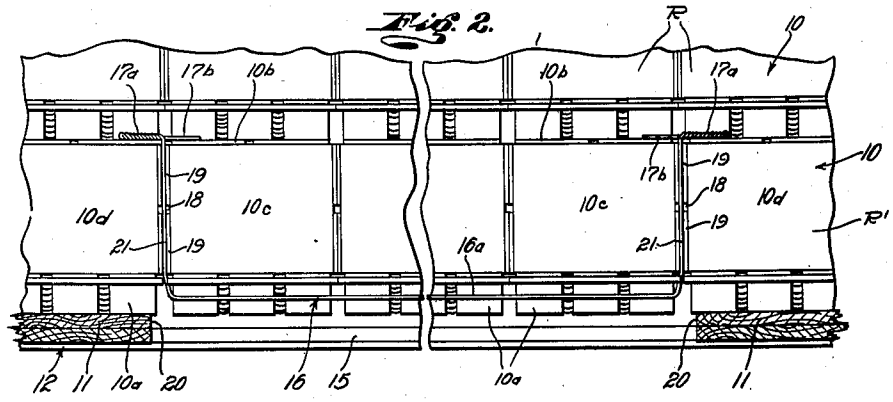
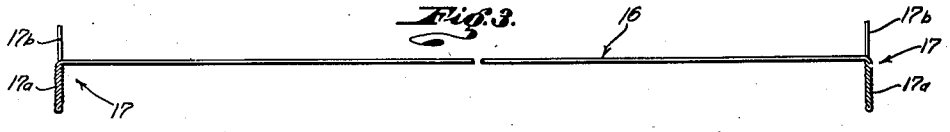


Fig. 3.



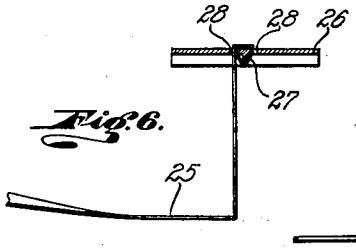


Fig. 6.

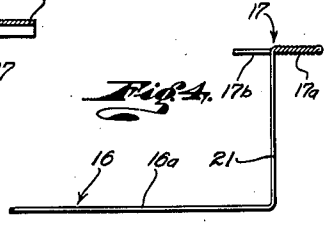


Fig. 4.

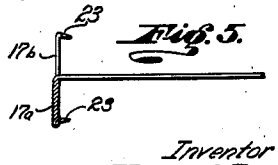


Fig. 5.

Inventor
HAROLD C. PIERCE

Attorney

Patented Mar. 17, 1942

2,276,866

UNITED STATES PATENT OFFICE

2,276,866

BOXED PRODUCE LOAD

Harold C. Pierce, Pomona, Calif.

Application April 10, 1940, Serial No. 328,870

5 Claims. (Cl. 105—367)

This invention has to do with the maintenance of loads for distribution in railroad box cars or the like, and particularly with an improved type of support or guard for preventing displacement of the load outwardly within or through the car door openings. It will be understood that the present type of guard may be applied to loads of different forms, including for example boxes and barrels, and that the claims are to be construed accordingly. As illustrative of its forms and use however, the invention is described and shown typically as applied to boxed produce loads.

The customary practice in loading boxed produce, such as citrus and deciduous fruits, is to arrange the boxes in transverse rows, usually two tiers deep, extending from the ends of the car to its center opposite the side door openings. When the car is fully loaded, the boxes fill the floor space between the door openings, and extend in longitudinal rows adjacent and parallel to the openings. In transit, the box load tends to shift in the car, and there is danger of the boxes becoming so displaced, loosened or unbalanced, as to make it difficult to open the car doors, and difficult also, when the doors are opened and workmen or inspectors attempt to enter the car by climbing over the boxes, to prevent the latter from accidentally falling or being pulled out through the door openings. The invention is primarily concerned with an improved guard for so confining the boxes in the car as to obviate these as well as other difficulties.

In Patent No. 2,156,866 issued May 2, 1939, to me in Doorway guard and side slack bracing for crate-loaded cars, I show another form of guard for serving this same general purpose. The specific guard described in the patent comprises an elongated member, such as a pole, adapted to span the car door opening at the inside and having means, such as longitudinally spaced hooks, for removably securing the pole to the top cleats of correspondingly spaced boxes. Any tendency for the boxes to shift outwardly into the door opening is resisted by confinement of the boxes by the pole, and engagement of the pole with the wall of the car beyond the sides of the door opening. Due to the large quantities in which these guards are used and that fact that when the cars reach their destinations the guards are discarded instead of being returned to the packing house for reuse, it is desirable that the material as well as installation costs of the guards be kept just as low as possible. In accordance with the present invention, I am able to provide a simplified form of guard that can be made and installed at a minimum and almost nominal cost, and at the same time serve at least as effectively as the expedients heretofore adopted to properly maintain the box load.

One of my primary objects is to provide a simple form of guard that may conveniently and cheaply be made partly or entirely of wire or metal strap, making it possible to form the guards in quantity production from low cost stock. It will be understood that the invention contemplates the use of elongated flexible metallic material in any suitable form, such as wire or flat strap, and that the entire guard may be made of a simple piece of stock material, or of different materials, as for example in the illustrative form later described. In its preferred form as applied to the boxes, the guard has an elongated intermediate portion extending along and engaging the outer faces of the box row adjacent the car door opening, with the end portions of the guard turned inwardly to extend between the engaging faces of adjacent boxes in the row. One distinctive feature of the present guard is that it need not, and preferably does not extend the full width of the door opening, but only along the outer faces of those boxes subject to outward displacement. The guard is held to or within the box row, independently of the car structure, and preferably is so formed as to be held by boxes which bear against the wall of the car and thereby give the guard indirect support by the wall. The guard may thus be held against the wall supported boxes, by extending the guard the full distance between adjacent boxes and turning the extreme end portions of the guard so that they will bear against the inner faces of one or both of the boxes between which they extend. In this manner the boxes facing the door opening are securely tied to boxes of the row not so exposed, all in a manner avoiding any necessity for direct application of the guard to the car wall.

All the various features and objects of the invention, as well as the more specific aspects of a typical and preferred form, will be understood to better advantage from the following detailed description. Reference is had throughout the description to the accompanying drawing in which:

Fig. 1 is a fragmentary side elevation of a conventionally illustrated box car, showing the guard and box arrangement along one of the side door openings, the door itself being removed for clarity of illustration;

Fig. 2 is a fragmentary enlarged plan view on line 2—2 of Fig. 1;

Figs. 3 and 4 are views showing different forms of the guard before its application to the boxes;

Fig. 5 illustrates a variational form of the invention; and

Fig. 6 illustrates a second variational form of the invention.

Figs. 1 and 2 of the drawing show a typical orange box load, the crown packed boxes **10** being arranged in transverse rows R extending between the side walls **11** of the car **12** and placed usually in upper and lower tiers **13** and **14**. In the loading operation, the boxes are loaded in the car from opposite ends toward its center, and when the rows reach the center portion of the car opposite the side door openings **15**, the customary practice is to insert a so-called "box squeeze" which compacts the boxes toward the ends of the car and provides the necessary clearance for completely filling the car with boxes between the door openings. The boxes **10** at opposite sides of the longitudinal center of car are arranged oppositely so that their bowed lids **10***a* face the car side walls **11** and the bottoms **10***b* and lids of correspondingly facing boxes in the same transverse rows are in engagement. In an orange load, it may be preferable to maintain the boxes of the outer longitudinal rows R' beyond the opening **15**, in engagement with the car walls **11**, although for the purposes of the present invention, these boxes may be directly supported by engagement with the car wall, or indirectly supported as for example by a spacer assembly such as that disclosed in my Patent No. 2,177,076, Oct. 24, 1939.

The form of guard **16** shown in Figs. 3 and 4 consists of a fairly heavy wire having its end portions **17** bent at substantially right angles with the adjacent section of the wire. Preferably each end portion **17** is formed to provide opposite right angle projections **17***a* and **17***b* so that they overlap the rear faces of both boxes between which each end portion extends, as will presently appear. The end projections **17***a* and **17***b* may be formed simply and conveniently by twisting the wire on itself to form a relatively stiff projection **17***a* and from which the untwisted end of the wire extends to form the opposite projection **17***b*. The individual guards **16** may initially be formed and shaped for application to the boxes, either in the straight elongated form of Fig. 3, or the wire may be bent and pre-shaped in the form of an elongated U, as in Fig. 4, so that the guard is ready to be applied to the boxes without necessity for further deformation other than as may be required by irregularities and slight variations in the box dimensions.

The guard is applied to the boxes as shown in Fig. 2, by extending the intermediate elongated portion **16***a* along and in contact with the outer faces **10***a* of the boxes exposed to the door opening **15**. By inserting a suitable tool within spaces **18** between the side slats **19** of boxes **10***c* nearest the edges **20** of the door openings, the boxes **10***d* positioned beyond the door edges, the boxes may be spread sufficiently to permit the sections **21** of the guard toward its ends, to be inserted between the boxes as shown. The end projections **17***a* and **17***b* thus are brought into engagement with the inside or bottom faces **10***b* of the boxes, the twisted projections **17***a* preferably being turned outwardly so as to give somewhat stronger support for the guard against boxes **10***d*, which in turn are laterally supported by the car walls **11**.

As best illustrated in Fig. 1, each guard **16** is positioned below the upper ends of the boxes to which it is applied, this distance being determined by the point at which the guard in being moved downwardly about the boxes, will come into snug engagement with the outwardly bowed slats of the lids **10***a*. After being placed about the boxes in the position shown, the guard is held in place by the boxes themselves, as will be apparent, and any tendency for the boxes confined by the guard to become displaced into or through the door opening **15**, is effectively prevented by the engagement of the projection **17***a* with boxes **10***d*. Ordinarily the portions **21** of the guard are squeezed sufficiently tightly between the boxes **10***c* and **10***d*, and the intermediate portion **16***a* is adequately supported by the lid slats **10***a*, to obviate any necessity for otherwise supporting the guard. Any suitable means however may be used, if for any reason desired, to directly secure the guard to the boxes. For example, referring to Fig. 5, the end projections **17***a* and **17***b* may be formed with sharp barbs **23** which, as tension is applied to the guard, will bite into the box surfaces.

In Fig. 6 I have illustrated another form of the invention having a number of decided advantages by reason of its adaptability to low cost production and compactness of form for distribution. Here the guard assembly comprises an intermediate length consisting of flexible metal strap **25** (although wire may be used if desired) connected at its opposite ends to rigid pieces **26** adapted to bear against the inner faces of the boxes in the same manner as the end portions **17***a*, and **17***b* of the previously described form. Fig. 6, like Fig. 4, illustrates a half portion of the guard. While members **26** may be made of any suitable material, I find it convenient and economical to use half sections of bamboo and to attach the strap **25** thereto by wrapping the ends of the strap about the internal cross web **27** of the bamboo through slots cut in the wood at **28**. Fig. 6 shows the form of the guard when it is applied to the load. For distribution, the guard assembly may be reduced to very compact form by folding or doubling relatively short sections of the strap on itself between the end pieces **26** which may be brought (and tied) together with the folded strap between them.

I claim:

1. In a box car having a side wall with a door opening therein and containing a row of boxes or the like extending along said wall across and offset transversely of the car from the interior of the door opening; a retaining member extending longitudinally of the car along and engaging the outer walls of a series of boxes in said row facing the door opening and extending a distance less than the width of said opening, and separate anchorages for the ends of said member and to which end portions of the member extend laterally and inwardly of the car between the end boxes of said series and adjacent boxes in said row positioned beyond the sides of the door opening, each of said anchorages comprising means for holding the member to one of said adjacent boxes and to thereby prevent displacement of said series of boxes outwardly through the door opening.

2. In a box car having a side wall with a door opening therein and containing a row of boxes or the like extending along said wall across and offset transversely of the car from the interior of the door opening; a normally flexible retaining member extending longitudinally of the car along and engaging the outer walls of a series of

boxes in said row facing the door opening and extending a distance less than the width of said opening, and separate anchorages for the ends of said member and to which end portions of the member extend laterally and inwardly of the car between the end boxes of said series and adjacent boxes in said row positioned beyond the sides of the door opening, each of said anchorages comprising means for holding the member to one of said adjacent boxes and to thereby prevent displacement of said series of boxes outwardly through the door opening.

3. In a box car having a side wall with a door opening therein and containing a row of boxes or the like extending along said wall across and offset transversely of the car from the interior of the door opening; a retaining member extending longitudinally of the car along and engaging the outer walls of a series of boxes in said row facing the door opening and extending a distance less than the width of said opening, and separate anchorages for the ends of said member and to which end portions of the member extend laterally and inwardly of the car between the end boxes of said series and adjacent boxes in said row positioned beyond the sides of the door opening, each of said anchorages comprising means applied to the vertical face innermost within the car, of one of said adjacent boxes, to hold said member thereto and prevent displacement of said series of boxes outwardly through the door opening.

4. In a box car having a side wall with a door opening therein and containing a row of boxes or the like extending along said wall across and offset transversely of the car from the interior of the door opening; a normally flexible retaining member extending longitudinally of the car along and engaging the outer walls of a series of boxes in said row facing the door opening and extending a distance less than the width of said opening, and separate anchorages for the ends of said member and to which end portions of the member extend laterally and inwardly of the car between the end boxes of said series and adjacent boxes in said row positioned beyond the sides of the door opening, each of said anchorages comprising a rigid element connected to the end of said member and applied to the vertical face innermost within the car, of one of said adjacent boxes, to hold said member thereto and prevent displacement of said series of boxes outwardly through the door opening.

5. In a box car having a side wall with a door opening therein and containing a row of boxes or the like extending along said wall across and offset transversely of the car from the interior of the door opening; a normally flexible retaining member extending longitudinally of the car along and engaging the outer walls of a series of boxes in said row facing the door opening and extending a distance less than the width of said opening, and separate anchorages for the ends of said member and to which end portions of the member extend laterally and inwardly of the car between the end boxes of said series and adjacent boxes in said row positioned beyond the sides of the door opening, each of said anchorages comprising a rigid element connected to the end of said member and applied to the vertical faces innermost within the car, of both boxes between which the end portion of said member extends, to hold said member thereto and prevent displacement of said series of boxes outwardly through the door opening.

HAROLD C. PIERCE.