Nov. 3, 1953 H. C. PIERCE 2,657,644

CENTER FILLING AND BRACING OF CARLOADS

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Fig. 1.

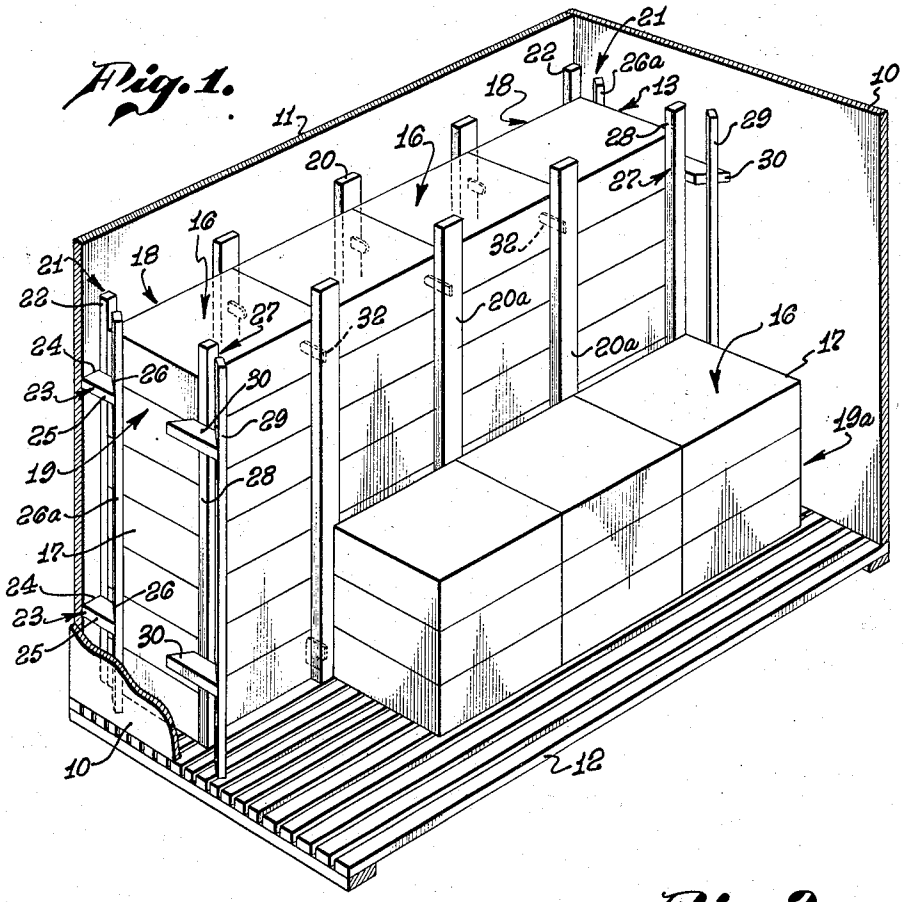
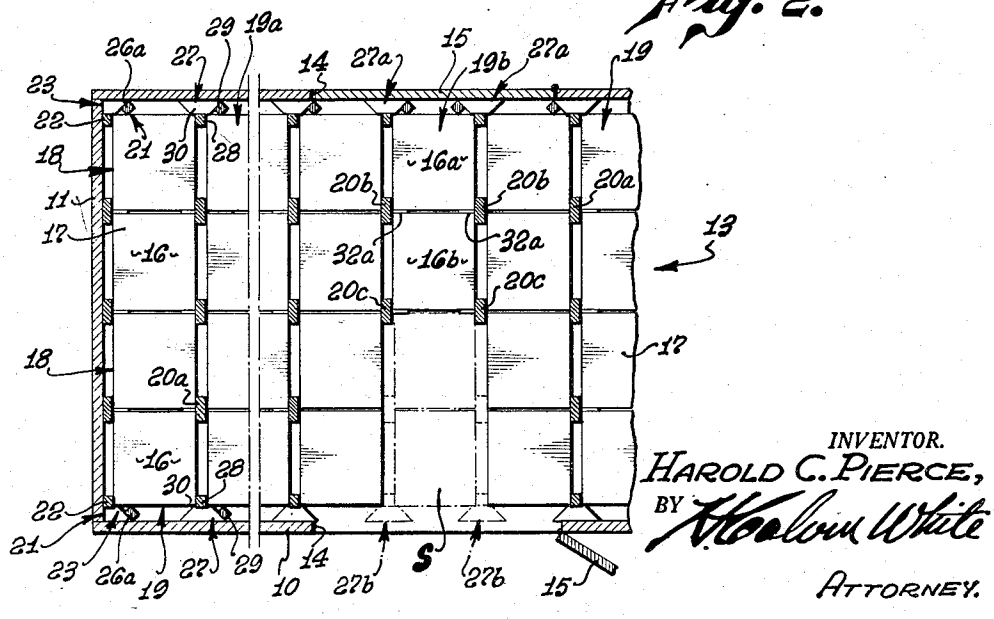


Fig. 2.



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CENTER FILLING AND BRACING OF CARLOADS

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This invention has to do with improvements in the loading of box cars with box loads, typically of produce such as fruits or vegetables, wherein the load consists of individual stacks of boxes alined in rows extending longitudinally and transversely of the car. Particularly the invention relates to internally braced and spaced loads, and specifically to that form of load wherein the boxes are stacked bottom down and the transverse box rows are spaced apart.

One of my primary objects is to accomplish complete or center loading of a car while internally bracing and spacing the box rows to an end result which if sought by the use of conventional forms of braces and spacers, would preclude the possibility of finally filling in the box load at the center of the car opposite its side door.

Considering past practices, it has been customary to place the boxes in the car by loading from opposite ends toward the center, and with some types, such as citrus loads, which require no internal bracing or spacing of at least the lower box tiers, it has been possible to fully load the car, including its center section by filling in the box stacks to the central floor area to be occupied by one or two transverse rows, then "squeezing" the load sections toward the ends of the car to open the center area sufficiently to permit accommodation of the final transverse row or rows. Where, on the other hand, the load requires internal bracing and spacing, as for example in conventional melon loads in which vertical brace-spacers are inserted between the transverse rows and also between the box stacks in those rows, it has not been possible to finally load the center section because of the interference of the braces with the boxes. That is to say, after insertion of a box stack at the end of a transverse row area finally to be filled in, the box arrangement interferes with any further placement of the braces that might be desired to give a uniformly braced and spaced condition of the load within the center section as well as the end sections of the car.

Consequently, the practice has been to load the car from both ends to an unoccupied center area and to then maintain the spaced sections of the load in stabilized condition by applying cross frames or gates to the inner ends of the load sections and within the unoccupied center space. This practice has a number of limitations and undesirable features, among which are the loss of center load carrying capacity in the car, the expense and work incident to installation of the supporting frames in the center space, and

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the lack of uniformity in the support and spacing given the boxes longitudinally throughout the entire load.

In accordance with the invention, it now becomes possible to fully load the car, including its center section, and in so doing to correspondingly increase the load carrying capacity of the car, to entirely limit the work and expense of restoring the conventional supporting frames or gates, and to afford throughout the load a uniform system of bracing and spacing. Generally speaking, the invention contemplates the use of a box brace and spacer in the form of a member receivable between and in overlapping relation with adjacent face portions of opposed pairs of box stacks in the transverse rows, the brace preferably being vertically extended so that a single member will have the stated overlapping relation with all the boxes in the individual stacks. The position of the brace member is stabilized transversely of the load by providing the member with a projection receivable between adjacent vertical walls of the engaged stacks. In this connection it may be mentioned that I preferably employ a brace assembly of the type disclosed in my Patent 2,585,269, issued February 12, 1952, having a projecting portion sufficiently thin to permit interengagement of the adjacent walls of the stacks in the transverse rows so that, considering the load as a whole, the box stacks are spaced longitudinally but not transversely of the car. For the sake of uniformity in the braces to be used throughout the load, all the braces may be substantially T-shaped in cross-section, at least at the location of the projections, the cross or head portion of the T being received between the transverse rows, and the remaining or web portion extending longitudinally of the load between the box walls. Thus, the braces are so arranged and progressively placed as the load is filled in from the ends toward the center of the car. Finally, when for example only a single transverse row center area remains unfilled, the load is squeezed and the center section filled by first placing in position the box stack at one end of the space, then inserting the spacer braces with their projections or web portions turned inwardly of the space, permitting the next box stack to be filled in against the first stack, with the spacer projections confined between the adjacent surfaces of the stacks, and so on until the entire center section is filled.

The invention will be understood more fully and to better advantage from the following de-

tailed description of an illustrative embodiment as shown by the accompanying drawing, in which:

Fig. 1 is a perspective view illustrating the load and bracing system arrangement in the car; and

Fig. 2 is a plan view showing particularly the center section of the load and illustrating the method of filling-in, bracing and spacing the box stacks opposite the car door opening.

Referring first to Fig. 1, I have diagrammatically illustrated the conventional refrigerator box car as having side walls **10**, end walls **11** and a slatted floor structure **12** through which refrigerated air may be circulated upwardly between the transverse rows of the box load **13**. As shown in Fig. 2, the car has central side door openings **14**, one of which is closed by the door **15** during final center loading of the car through the opposite opening **14** whose door is swung open. When closed, the inner surfaces of the doors are substantially in alinement with the inside surfaces of the side walls **10**.

The box load **13** consists of vertical stacks **16** of boxes **17** which may be considered placed with their bottoms down and side walls in vertical alinement. The box stacks **16** are alined in rows **18** extending longitudinally of the car, and in spaced rows **19** running transversely of the car. As particularly illustrated in Fig. 1, each end transverse row **19** may be spaced from the end wall **11** of the car by braces **20** extending from the floor **12** the full height of the stacks **16**, and in overlapping relation with the surfaces of adjacent stacks, as shown. At its corners, the end transverse row may be spaced from both the end and side walls of the car by unit brace assemblies, generally indicated at **21**, each comprising a section **22** extending the height of the box stacks and interposed between the end stack and the car end wall **11**, section **22** corresponding in thickness to the braces **20**. Section **22** is secured to the inner face of a spacer block **23** having right angle surfaces **24** and **25** bearing respectively against the end and side walls of the car. Each block **23** has an angular face **26** to which is secured a second brace piece or section **26***a* engaging and overlapping the surfaces of all the boxes in the end stack to positively position them in spaced relation to the car side wall.

In loading the car, the end transverse stack row **19** is filled in against the braces **20** and **21**, following which a second set of braces **20***a* and **27** are put in place. Each brace assembly **27** is similar to the described assembly **23**, in that it comprises a pair of vertical sections **28** and **29** secured to the trapezoidal spacer blocks **30**. Here the section **28**, corresponding in thickness to braces **20***a*, is received between adjacent transverse rows to space them apart, and section **29**, secured to corresponding angular faces of the blocks **30** serves, as before, to positively space end stacks from the car wall. Braces **20***a* are retained against movement transversely within the load by thin metallic projections **32**, a pair of which may be carried by each brace to be inserted between adjacent stacks of the transverse row **19**. As illustrated, projections **32** are sufficiently thin to permit substantial engagement of the vertical stack surfaces between which they are inserted. Accordingly, after the end transverse row **19** has been filled in to the car, brace assemblies **27** and their intermediate braces **20***a* are put in place preparatory to loading into the car of the second transverse stack row **19***a*. At this point it may be mentioned that braces **20** may carry projections similar to projections **32**, for reception between the boxes. Further details concerning the brace arrangement and construction may be had by reference to my Patent 2,585,269 referred to above.

As Fig. 2 will illustrate, the described procedure is followed in filling in the box stacks in spaced transverse rows from opposite ends of the car toward its center opposite the open door, spacers **20***a* having been inserted progressively between and as the transverse rows are filled in to a center space S centrally opposite the door openings. Thus the load will have been filled in up to this center space, following which a conventional "car squeeze" (not shown) is moved into the center space to engage and displace the load sections toward the ends of the car, and thus open or widen the center space sufficiently for its reception of a finally filled-in transverse center row **19***b*. After completion of the squeezing operation, box stack **16***a* then is put in place against side spacer assemblies **27***a* engaged against the closed car door **15**. Then intermediate spacers **20***b* are positioned as illustrated, with their projections **32***a* pointed inwardly of the space S, as distinguished from the oppositely pointing projections carried by braces **20***a*. Box stack **16***b* then is filled in against the projections **32***a* and stack **16***a*, spacers **20***c* with their inwardly pointing projections are put in place, and so on until the transverse row **19***b* is filled out to the door opening **14**. Side spacer assemblies indicated by the dotted lines at **27***b* are then put in place and the door **15** closed against them to confine the center section of the load.

As will be apparent from the foregoing, the invention permits maintenance of the center section of the load in the same supported and spaced condition as the end sections of the load, thus affording uniformity in the load bracing and spacing throughout the length of the car. Reversal of the braces **20***b* with relation to the positions of braces **20***a* permits filling in the center space S, while maintaining the aforesaid uniformity in the load condition.

Since practically all refrigerator cars have standard internal dimensions, and since the boxes used in shipping a particular type of produce also have standard dimensions, the various spacers may be so dimensioned that the entire load exactly fills the standard car. Where a car squeeze is used before filling in the last row of boxes, the action of the squeeze may be so controlled as to leave exactly the right spacing at the center of the car to receive one row of boxes and the associated spacers.

I claim:

1. In a box car having a centrally located side door opening, a load comprising individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car and substantially filling the car including its central portion opposite said opening, and substantially T-shaped members having their head portions interposed between and spacing apart the transverse box rows opposite said opening and web portions projecting between adjacent vertical walls of the stacks.

2. In a box car having a centrally located side door opening, a load comprising individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car and substantially filling the car including its central portion opposite said opening, members interposed

between and spacing apart successive transverse rows beyond both sides of a central transverse row, said members including projections extending therefrom away from said central row and between adjacent vertical walls of the stacks, and spacer members interposed between and spacing apart said central row and adjacent transverse rows, the last mentioned members including projections extending only inwardly of and between adjacent vertical walls of stacks in said central row, successive transverse rows of boxes opposite said opening being spaced apart distances in each instance small as compared with the box dimensions.

3. In a box car having a centrally located side door opening, a load comprising individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car and substantially filling the car including its central portion opposite said opening, members interposed between and spacing apart successive transverse rows beyond both sides of a central transverse row, said members including projections extending therefrom away from said central row and between adjacent vertical walls of the stacks, and spacer members interposed between and spacing apart said central row and adjacent transverse rows, the last mentioned members including projections extending only inwardly of and between adjacent vertical walls of stacks in said central row, all of said members comprising wooden braces extending upwardly from the car floor in overlapping relation with all the boxes in the engaged stacks, and all of said projections comprising metallic elements sufficiently thin to permit interengagement of the stack walls between which they are received, successive transverse rows of boxes opposite said opening being spaced apart distances in each instance small as compared with the box dimensions.

4. The method of loading a box car having a centrally located side door opening, that includes filling into the car from its ends to a transverse central area opposite said door individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car, inserting spacers between adjacent transverse rows to maintain them in spaced relation and also portions of the spacers between successive stacks in the spaced transverse rows, filling into said transverse central area a last transverse row of individual box stacks substantially filling said area, and inserting spacers narrow as compared with the box dimensions between the last mentioned filled-in stacks and the adjacent transverse rows and also between adjacent stacks in the filled-in transverse row progressively as the stacks are filled into said central area.

5. In a box car having a centrally located side door opening, a load comprising individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car and substantially completely filling the car including its central portion opposite said opening, and spacer members of essentially T-shaped horizontal section having their head portions interposed between and spacing apart a central group of box stacks and adjacent transverse box rows, said T-shaped members having their web portions extending inwardly of said central group of stacks and between adjacent vertical walls of stacks in said group, said central group of box stacks having across the width of the load a uniform dimension longitudinally of the load.

6. In a box car having a centrally located side door opening, a load comprising individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car and substantially filling the car including its central portion opposite said opening, members interposed between and spacing apart adjacent transverse rows beyond both sides of a central group of box stacks, said members including projections extending therefrom away from said central group and between adjacent vertical walls of the stacks, and spacer members of essentially T-shaped horizontal section having their head portions interposed between and spacing apart said central group of boxes and adjacent transverse rows, the web portions of said T-shaped members extending inwardly of and between adjacent vertical walls of stacks in said central group, said central group of box stacks having across the width of the load a uniform dimension longitudinally of the load.

7. In a box car having a centrally located side door opening, a load comprising individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car and substantially completely filling the car including its central portion opposite said opening, and spacer members of essentially T-shaped horizontal section having their head portions interposed between and spacing apart a central group of box stacks and adjacent transverse box rows, said T-shaped members having their web portions extending inwardly of said central group of stacks and between adjacent vertical walls of stacks in said group, said central group of box stacks having across the width of the load a uniform dimension longitudinally of the load, said head portions of said members comprising elongated wooden braces extending upwardly from the car floor in engaging and overlapping relation with adjacent transverse face portions of opposed pairs of the stacks, and said web portions of the members comprising metallic elements sufficiently thin to permit interengagement of the stack walls between which they are reecived.

8. In a box car having a centrally located side door opening, a load comprising individual stacks of boxes alined in parallel rows exending transversely and longitudinally of the car and substantially filling the car including its central portion opposite said opening, members interposed between and spacing apart adjacent transverse box rows opposite said opening, the dimensions of said members longitudinally of the car being in each instance small as compared with the box dimensions to space the rows apart a correspondingly small distance, and means holding said members in their spacing positions within the load.

9. In a box car having a centrally located side door opening, a load comprising individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car and substantially filling the car including its central portion opposite said opening, members interposed between and spacing apart adjacent transverse box rows opposite said opening, the dimensions of said members longitudinally of the car being in each instance small as compared with the box dimensions to space the rows apart a correspondingly small distance, said members extending vertically and in engaged and overlapping relation with adjacent transverse face portions of opposed pairs of the stacks, and means holding said members in their spacing positions within the load.

10. In a box car having a centrally located side

door opening, a load comprising individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car and substantially filling the car including its central portion opposite said opening, adjacent vertical walls of the box stacks in said transverse rows being interengaged, and members interposed between and spacing apart adjacent transverse rows opposite said opening, the dimensions of said members longitudinally of the car being in each instance small as compared with the box dimensions to space the rows apart a correspondingly small distance, said members extending vertically and in overlapping relation with adjacent transverse face portions of opposed pairs of stacks and including projections extending between said engaged vertical walls of the stacks to hold the members in their spacing positions within the load.

11. The method of loading a box car having a centrally located side door opening, that includes filling into the car from its ends to a transverse central area opposite said door individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car, inserting spacers between adjacent transverse rows to maintain them in spaced relation, filling into said transverse central area a last group of box stacks substantially filling said area, and inserting spacers narrow as compared with the box dimensions between the last mentioned filled-in

stacks and the adjacent transverse rows progressively as the stacks are filled into said central area.

12. The method of loading a box car having a centrally located side door opening, that includes filling into the car from its ends to a transverse central area opposite said door individual stacks of boxes alined in parallel rows extending transversely and longitudinally of the car, displacing said filled-in box stacks by a car squeeze toward opposite ends of the car and away from said central area of the car, inserting spacers between adjacent transverse rows to maintain them in spaced relation, filling into said transverse central area a last transverse row of individual box stacks in alinement longitudinally of the car with the first mentioned stacks and substantially filling said area, and inserting spacers narrow as compared with the box dimensions between the last mentioned filled-in stacks and the adjacent transverse rows progressively as the stacks are filled into said central area.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
Re. 22,256	Hoak	Jan. 26, 1943
2,475,719	Pierce	July 12, 1949