Dec. 4, 1928. 1,694,026

H. A. WHITTEMORE

FRUIT CAR BRACE

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Fig. 1

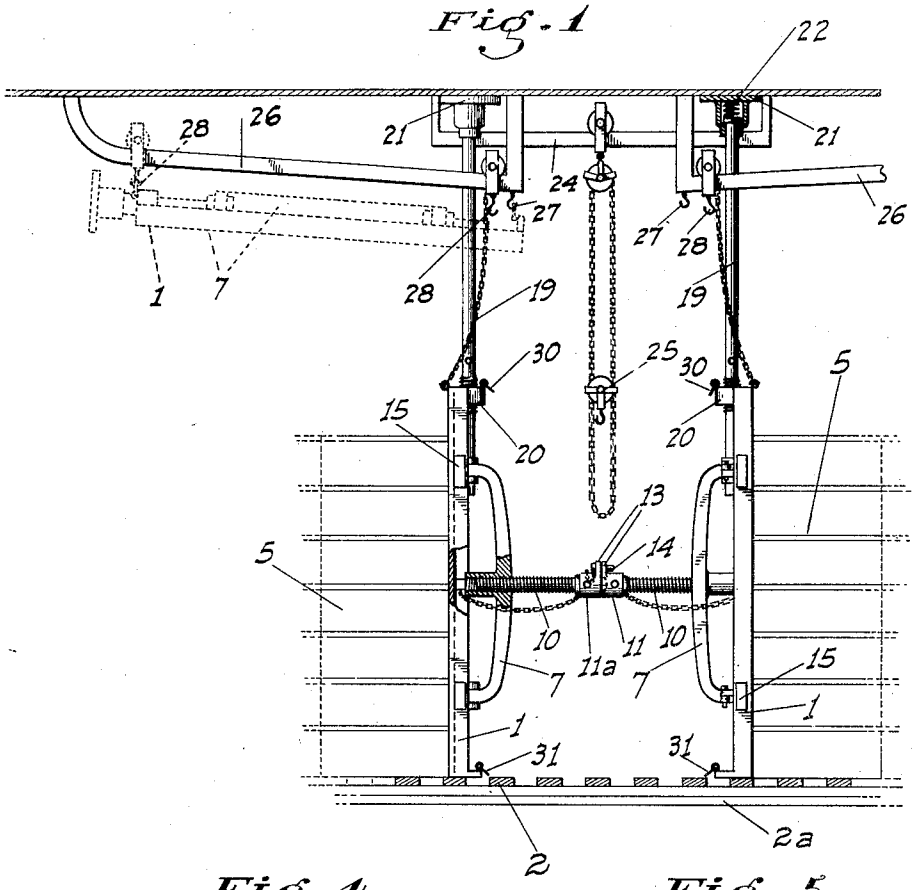


Fig. 4

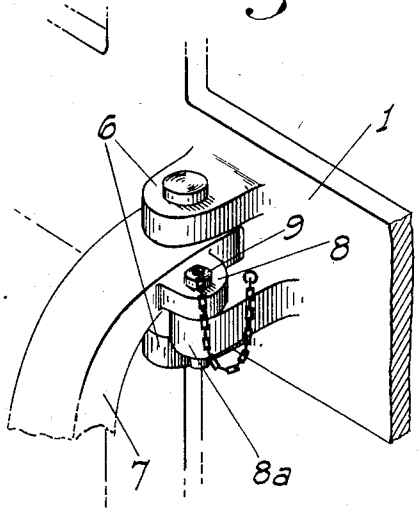
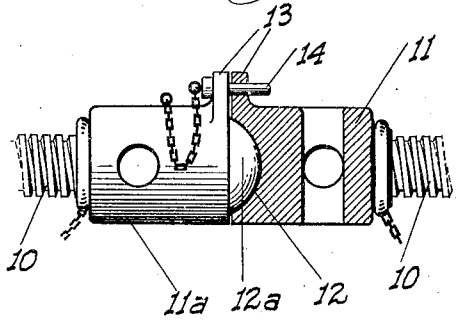


Fig. 5



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Fig. 2

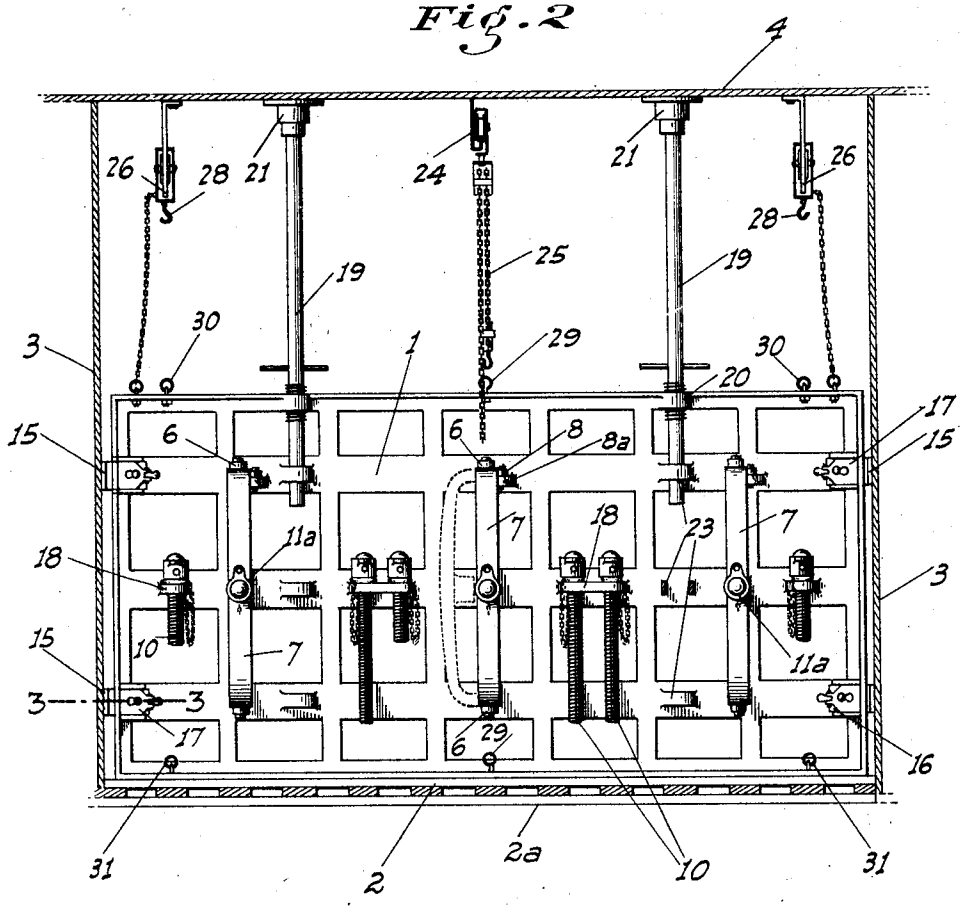
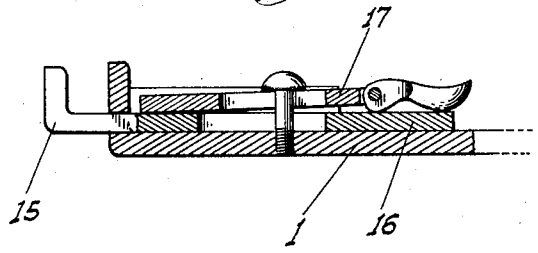


Fig. 3



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UNITED STATES PATENT OFFICE.

HERBERT A. WHITTEMORE, OF NEWCASTLE, CALIFORNIA.

FRUIT-CAR BRACE.

Application filed November 29, 1927. Serial No. 236,455.

This invention relates to devices for bracing boxes of fruit as stacked in refrigerator cars for shipment, to prevent the boxes from shifting with the jolting and vibration incident to the moving of the car.

At present such essential bracing is done by means of wood staging of a temporary nature which is erected in place every time the car is loaded and which must be wrecked when it is desired to unload the car. This is obviously a crude arrangement which consumes considerable time to carry out, entails a costly use of material which once used is discarded, and which is frequently unsatisfactory or insufficient due to faulty erection, lack of rigid contact with the boxes, or insufficient strength.

The principal objects of my invention are to provide a brace structure for the purpose which is of a permanent nature adapted to be permanently mounted in the car; one which is provided with means for enabling the braces to be easily moved into firm pressing or bearing engagement with the boxes; and one having means for enabling the braces to be quickly and easily moved and held out of the way in the car while loading or unloading operations are being carried out or whenever it is desired to use the car for merchandise not requiring the use of the braces.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a side elevation of my brace structure as applied to a car and boxes stacked therein.

Fig. 2 is a front elevation of one of the brace members as in operating position.

Fig. 3 is an enlarged sectional elevation of a presser device for engagement with the sides of the car, taken on the line 3—3 of Figure 2.

Fig. 4 is an enlarged fragmentary perspective view showing the connection of a jack supporting bow with the brace frame.

Fig. 5 is an enlarged view showing the co-operating heads of a pair of jack screws.

Referring now more particularly to the numerals of reference on the drawings, the structure comprises a pair of rectangular frames 1, of suitable rigid construction and material, which are adapted to rest on the wooden rack-bars 2, which removably rest on the floor 2^a of a refrigerator car as usual. These frames extend practically the full width between the sides 3 of the car but terminate a considerable distance short of the roof 4, since fruit boxes are not ordinarily stacked very high when being shipped in a car.

The frames are adapted to set in longitudinally spaced relation and their opposed faces are perfectly flat so that they will evenly engage the ends of all boxes 5 of both longitudinally spaced stacks. On their adjacent faces, the frames are provided with a plurality of vertically spaced lugs 6 arranged in transversely spaced sets to pivotally support the ends of rigid vertical bows 7. These bows may swing to lie alongside the frames so as to be then out of the way or to a position at right angles to the frame. When in the latter position, lugs 8 and 8^a on the jaws and frames respectively register with each other to receive removable pins 9 to then hold the bows from swinging out of position.

The bows are tapped centrally between their ends to receive jack screws 10. The bows are disposed on the opposite frames so that corresponding screws of adjacent pair of bows lie in substantially common axial alinement and the heads 11 and 11^a of the screws are then adapted to abut against each other. The head 11 has a socket 12 and the head 11^a has a ball 12^a to engage the socket as shown in Figure 5. The adjacent ends of the heads have radially projecting lugs 13 thereon adapted to register and receive a removable pin 14 therethrough. The heads also have suitable orifices therethrough to receive a turning bar or the like. The ball and socket connections between the heads allow the screws to be slightly out of line without interfering with their operation. The screw threads are all cut in the same direction so that when the screws are abutted and are turned independently of each other in certain directions, the frames will be moved away from each other and forced into pressing engagement with the fruit boxes. After such pressing engagement is had, the screws are turned if necessary until the lugs 13 register with each other when the pin 14 is inserted so that said screws can then only turn together. Since such turning would cause one frame to be advanced the same distance as the other is retracted, the space between the frames is not altered and they will not loosen

up relative to the boxes. The use of the bows distributes the strains from the screws to vertically spaced points in the frames so that a more even pressure is obtained than would be the case if the screws bore directly against the frames.

To maintain the frames against possible lateral movement in the car, pads 15 to engage the sides of the car are slidably mounted in the sides of the frame for horizontal movement. These pads are formed with plates 16 bearing against the faces of the frames, which plates are frictionally engaged with the frames so as to prevent their shift by clamping plates 17 mounted in connection therewith. This arrangement is preferably the same as is commonly used to hold the ordinary wood-working plane blades.

Since the frames may have to be placed at somewhat widely varying distances from each other, jack screws of different lengths are provided for use with the bows and such extra sets of screws as are not used at any time are kept in holders 18 mounted on the frames.

To press the frames firmly against the floor, I provide vertical post 19 which projects upwardly from said frames at transversly spaced intervals. These posts have threaded engagement with bosses 20 on the frames and at their upper ends said posts have enlarged heads 21 for engagement with the roof 4. The posts are slidable in the heads and compression springs 22 are mounted between the posts and heads to provide yielding connection therebetween (see Fig. 1). When not in use the posts are screwed down so that the threaded portion is clear of the bosses 20, and the posts are then slidably received in sockets 23 provided on the frames at vertically spaced intervals.

It will, therefore, be seen that by these various features the frames are maintained in pressing engagement with the fruit boxes and are also held in immovable relation to the sides and top of the car so that there is no chance for the frames to shift in any direction.

To raise and hold the frames out of the way when not in use, I provide the following structure: Depending from and secured to roof 4 and extending lengthwise of the car above the frames centrally of their width is a rail 24 which slidably supports a chain block 25. Disposed adjacent the sides of the car and also depending from and supported by the roof are other rails 26 which extend lengthwise of the car a certain distance from a longitudinally overlapping relationship with the ends of the central rail towards the opposite ends of the car. These rails also slope downwardly toward their adjacent ends somewhat. Hooks 27 are secured to and depend from the adjacent ends of the side rails, while slidable lengthwise on said rails are hook members 28. The frames are provided with centrally disposed eyes 29 at top and bottom for independent and detachable engagement with the chain block hook, and with other eyes 30 and 31 at the top and bottom and at the eyes for engagement with the hooks 28 and 27 respectively.

When it is desired to raise the frames the jack screws are first disassociated from each other, the bows are folded against the frames and the posts are lowered. The chain block hook is then engaged with the upper hook 29 of one frame and the frame is raised until adjacent the roof, when the upper side hooks 30 are then engaged with the movable hooks 28. The chain block is then disengaged from the upper hook 29 and engaged with the lower one. The lower end of the frame is then swung up the upper end supported by the hooks 28 at the same time moving toward the two ends of the side rails. The frame then gradually assumes a horizontal position and when its lower end is raised to adjacent the roof, the hooks 31 are engaged with the fixed hooks 27. This frame is then held in a horizontal position just under the roof where it is out of the way of loading or unloading operations. When one frame is thus in place, the other frame is manipulated in the same manner. When it is desired to lower the frames, the operations as above outlined are carried out in the reverse order as will be evident. The sloping down of the rails 26 toward their adjacent ends insures that the hooks 27 and 28 without being suspended from chains, etc., will be low enough so as to be in position to engage the frame eyes 30 when the frame is raised as high as possible by the chain-block, without the operator then having to manually lift the frame further.

The sloping rails also cause the frames when supported thereby to lie at a slope, which will prevent the uprights 19 from possibly working out of place.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention, as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention what I claim as new and useful and desire to secure by Letters Patent is:

1. A box-brace structure for cars comprising rigid frames to extend transversely of a car in longitudinally spaced relation to each other and adapted to abut against the ends of stacks of boxes, independently actuated jack screws between the frames, and means for mounting the screws in operative rela-

tionship with the frames; the outer ends of the screws when in operation abutting against each other.

2. A structure as in claim 1 with locking means between the screws for holding them against movement relative to each other at will.

3. A box-brace structure for cars comprising rigid frames to extend transversely of a car in longitudinally spaced relation to each other and adapted to abut against the ends of stacks of boxes, independently actuated jack screws between the frames, and means for mounting the screws in operative relationship with the frames; said screws lying then in substantially common longitudinal alinement, and ball and socket elements on the outer ends of the heads arranged for detachable engagement with each other.

4. A box-brace structure for cars including a rigid frame to extend transversely of a car to bear against the end of a stack of boxes, and means for forcing said frame into pressing engagement with the boxes, pads slidably projecting from the sides of the frame for engagement with the sides of the car, and clamping means for releasably preventing retractive movement of the pads.

5. A box-brace structure for cars including a rigid frame to extend transversely of a car to bear against the end of a stack of boxes, and means for forcing said frame into pressing engagement with the boxes, vertical posts projecting upwardly from the frame and having screw engagement therewith, and heads on the upper ends of the posts for detachable engagement with the ceiling of the car.

6. A box-brace structure for cars including a rigid frame to extend transversely of a car and rest on the floor in a vertical position to then bear against the end of a stack of boxes, means depending from the ceiling of the car for supporting the frame in a horizontal position adjacent said ceiling, and means for moving the frame to such position.

7. A box-brace structure for cars including a rigid frame to extend transversely of a car and rest on the floor in a vertical position to then bear against the end of a stack of boxes, rail members mounted in the car adjacent the ceiling and extending longitudinally thereof in transversely spaced relation, hooks fixed at one end of the rails, other hooks movable along the rails, and eyes on the frame at top and bottom for engagement with the fixed and movable hooks, whereby said frame when raised and engaged with the hooks may lie under the rails in close proximity thereto.

8. A structure as in claim 7 with means in the car for raising the frame.

9. A structure as in claim 1, in which the mounting means of each screw is hinged to the adjacent frame on a vertical axis to permit of said means being folded against the frame when not in use.

10. A box-brace structure for cars comprising rigid frames to extend transversely of a car in longitudinally spaced relation to each other, independent jack screws between the frames to longitudinally aline with and abut against each other at adjacent ends, and means for mounting the screws in operative association with the frames in a manner to cause the pressure of the screws to be imparted to the frame at a plurality of spaced points simultaneously.

11. A structure as in claim 10, said means comprising bows projecting outwardly from and secured at their ends to the frames; the screws being threaded into the bows centrally between their ends.

12. A box brace for cars including a rigid frame to extend transversely of a car to bear against the end of a stack of boxes, means for forcing said frame into pressing engagement with the boxes, and means mounted on the frame for engagement with the ceiling of the car to maintain the frame in firm engagement with the floor of the car.

In testimony whereof I affix my signature.

HERBERT A. WHITTEMORE.