March 6, 1928. 1,661,457

R. E. BAUS

SHIPPING DEVICE

Filed March 7, 1924 2 Sheets-Sheet 1

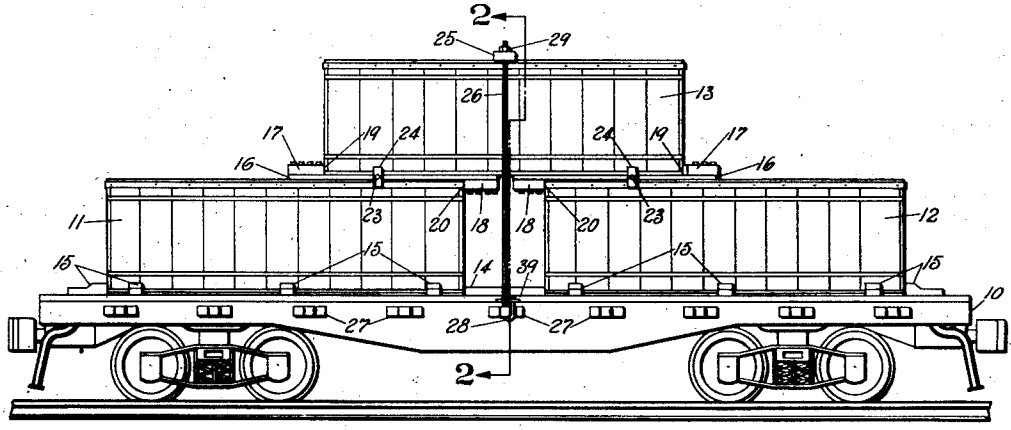


Fig. 1

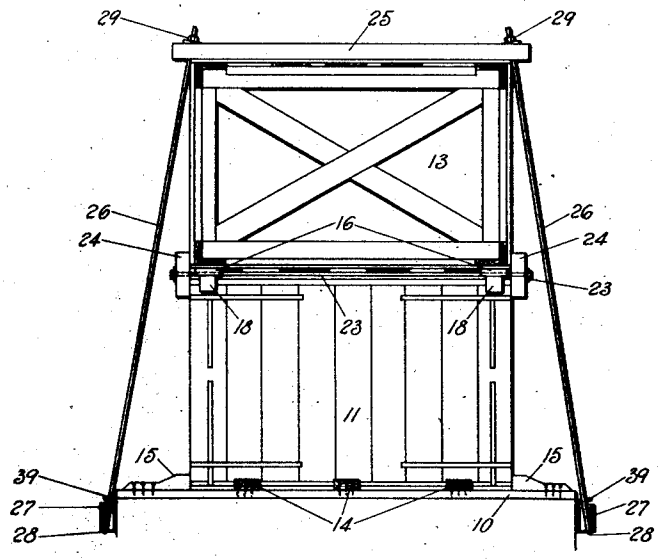


Fig. 2

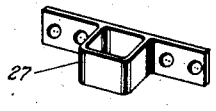


Fig. 3

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SHIPPING DEVICE

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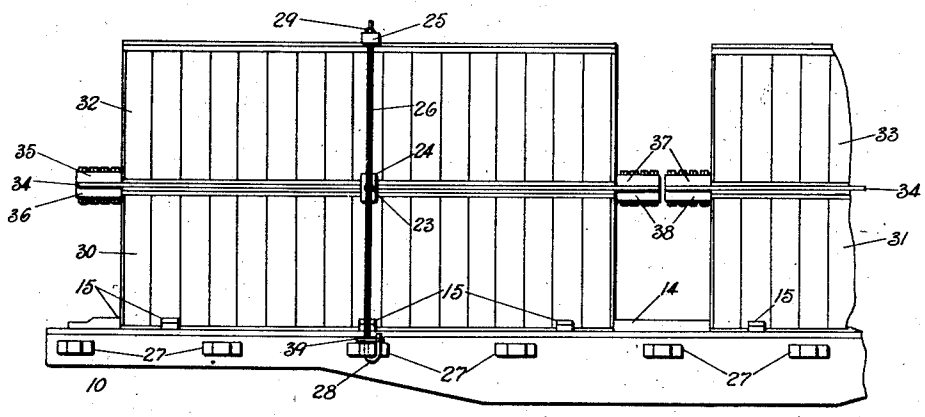


Fig. 6

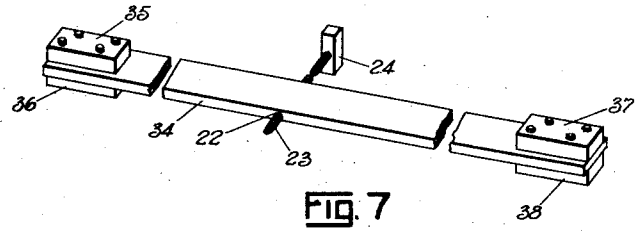


Fig. 7

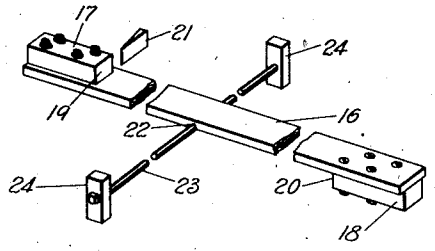


Fig. 5

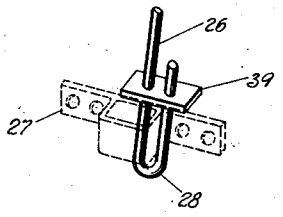


Fig. 4

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Patented Mar. 6, 1928. 1,661,457

UNITED STATES PATENT OFFICE.

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SHIPPING DEVICE.

Application filed March 7, 1924. Serial No. 697,623.

This invention relates to means for holding boxes during shipment and one of the objects is to provide such a means that will firmly hold the boxes in place without any spikes or nails being driven into the boxes for that purpose.

Another object is to provide means which will allow the boxes to be quickly loaded to and unloaded from shipping position.

Another object is to provide means which will be light in weight, without sacrificing strength, and thereby reduce the dunnage charges.

Still another object is to provide such a device that will be simple in construction and efficient in operation.

In the shipping of large boxes by railroad, particularly crated automobiles on flat cars, the greatest difficulty is encountered in properly securing them so that they will not move or shift their position on the flat car when the same is subjected to the severe shocks or jars particularly experienced in switching. For this reason it has been the custom of shippers to secure the boxes together by running boards, planks, or the like between and across the boxes and nailing them to the boxes, and nailing or spiking the lower boxes directly to the floor of the railroad car. This method, although usually sufficient to hold the boxes on the cars, is such that a severe shock or jar is likely to move or shift the boxes, causing the nails or spikes to pull out or tear the boxes where they are nailed. The labor involved in securing the boxes on the freight car and in removing them from the same is considerable, and inasmuch as the laborers engaged in removing the boxes from the freight cars are notoriously disregardful of the manner in which they unload the boxes, or mutilate them, the damage resulting from removing the securing members by crow-bars and the like is very often of great consequence. Another objection to the conventional method of securing such boxes is that it necessitates the use of considerable lumber which is generally a total loss after shipment and which of course increases the dunnage charges.

The object of the present invention, as stated above, are to provide means for shipping such boxes by common carrier whereby the objections to the customary means may be overcome.

The above being among the objects of the present invention, the same consists of features of construction and methods of application and use, to be hereinafter described, with reference to the accompanying drawings, and then claimed, having the above and other objects in view.

In the accompanying drawings which illustrate a suitable embodiment of the present invention, and in which like numerals refer to like parts throughout the several views:

Figure 1 is a side elevation of a railroad flat-car upon which are illustrated three boxes secured for shipment in accordance with the present invention.

Figure 2 is a fragmentary sectional view of objects of Figure 1 taken on the line 2—2 of Figure 1.

Figure 3 is a perspective view of the conventional stake pocket of a flat car.

Figure 4 is a perspective view showing the manner of securing the lower hooked ends of the tie-down clamp rods to the stake pockets of the flat car.

Figure 5 is a fragmentary perspective view of one of the interlocking members and one of the side clamps used in the construction of Figure 1 and Figure 2 in the approximate relative positions that they assume in securing the boxes for shipment.

Figure 6 is a fragmentary side view of a modified construction wherein one or more boxes are shipped wholly and directly above another box.

Figure 7 is a fragmentary perspective view of one of the side clamps of the construction shown in Figure 6, showing them in their approximate relative position which they assume in securing the boxes during shipment.

Although it is to be understood that this device is applicable for shipping large boxes or crates of any type, I have shown in the accompanying drawings boxes in which may be assumed to be automobiles, inasmuch as these are relatively large and heavy and must be handled with a certain amount of care, and as has been explained, a great amount of difficulty has been experienced in the shipping of the same by the use of the conventional securing means.

In Figures 1 and 2 is shown a flat car 10 upon which are mounted three boxes 11, 12 and 13. The boxes 11 and 12 are positioned end to end directly upon the floor of the flat

car 10 with their adjacent ends spaced apart. Spacer blocks 14, of a length equal to the distance betwen the ends of the boxes 11 and 12, are spiked directly to the floor of the flat car 10 and are for the purpose of preventing either of the boxes 11 or 12 from shifting on the flat car in the direction of the spacer blocks 14. Along the other end and along the sides of the boxes 11 and 12 and abutting against the boxes 11 and 12 are blocks 15, which I prefer to call foot brackets, securely spiked to the floor of the freight car 10. These foot brackets 15 are for the purpose of preventing the boxes 11 and 12 from moving or shifting on the floor of the flat car 10 in their direction. It will be thus seen that the boxes 11 and 12 are prevented from relative movement in any horizontal direction relative to the floor of the flat car 10 by the spacer blocks 14 and the foot brackets 15, and this without a nail or spike being driven in the boxes themselves for that purpose. This means alone is ordinarily not sufficient to hold the boxes firmly or securely enough should the flat car be subjected to an unusually severe jar or shock and further means are provided to reinforce or add to this as will later be explained.

Above the boxes 11 and 12 and preferably positioned at substantially an equal amount over each of these boxes is the third box 13, which is prevented from movement lengthwise of the flat car 10 by means which I prefer to call interlocking members. Each interlocking member is composed of a flat member shown as a plank 16 which has two blocks or brackets 17 and 18 secured to each end, the block or bracket 17 at one end being secured to and extending upwardly from the upper face of the plank 16 and the block 18 at the other end being secured to and extending downwardly from the lower face of the plank 16, the assembly forming a type of a narrowed Z. The result accomplished is in effect two oppositely extending stop faces 19 and 20 (see Figure 5), formed by the ends of the blocks 17 and 18, spaced apart from each other and prevented from spreading by being secured to the plank 16. Two or more of these interlocking members are preferably used under each end of the box 13. They are positioned longitudinally of the flat car 10 between the bottom of the box 13 and the tops of the boxes 11 and 12 in such a manner that the planks 16 separate the boxes, the stop faces 19 abut against one end of the box 13 and the stop faces 20 abut against the inner end of the box 11 or 12 directly below it. If either of the stop faces 19 or 20 do not abut tightly against the adjacent end of its box, a wedge such as 21 (Figure 5) may be driven in between it and the box and thus prevent any possibility of endwise movement of the box 13.

The effect of the interlocking members is quite evident, the members under each end of the box 13 locking that end of the box from moving longitudinally in that direction and consequently locking the whole box from moving in either direction longitudinally.

In order to prevent the box 13 from lateral movement, notches 22 are cut in the planks 16 approximately mid-way their length and rods 23 are passed through the notches 22, crosswise of the boxes, and clamp blocks 24 are placed over the ends, bearing against both the upper and lower box, and are drawn up securely in contact therewith by nuts threaded on the ends of the rods 23 outside of the blocks 24. It is preferable to have at least one of these side clamps under each end of the box 13, although more may be used if considered desirable or necessary. The relative operative positions of the interlocking members and the side clamps are clearly shown in perspective in Figure 5.

As mentioned above, it is deemed advisable to provide further means than those already described to prevent shifting of the load, this especially in view of the fact that any tendency of the box 13 to shift will be directly transmitted to either the box 11 or 12, and it is also advisable, if not necessary to provide means for preventing the boxes from bouncing above the blocks 14 and 15 or interlocking members, which bouncing might under certain conditions release the boxes from the same. Both of these conditions are taken care of by one means which is as follows. Across the center of the box 13 is placed a cross member 25, which I prefer to call a load clamp which extends over each side. Through each end of the load clamp 25 is passed a rod 26 which extends downwardly and engages one of the stake pockets 27 of the flat car 10 by its hooked end 28. Nuts 29 threaded on the upper end of the rod 26 are drawn down and draw the load clamp 25 down upon the box 13, thereby securely holding all the boxes, 11. 12 and 13 to the floor of the flat car 10 and prevent the same from bouncing. It also has the effect of causing a marked increase in the friction between the box 13 and boxes 11 and 12, and between the boxes 11 and 12 and the floor of the freight car 10. This increased friction together with the means described is amply sufficient to prevent any shock ordinarily experienced in shipping from moving the boxes. Should the boxes be shifted from some extraordinary jar it is evident that the box 13 will carry the load clamp 25 along with it and will thereby effect a tightening down of the load, increasing the friction and preventing further movement of the load in that direction. In order to prevent a possible spreading of the hooked end 28 of the rod 26 under severe strain, which spreading might possibly release the clamping effect of the load clamp 25, I provide a clamp

member 39 which fits around the rod 26 and drops over the free end of the hook 28. This prevents any possibility of the free end of the hook from spreading away from the rod 26 as is clearly shown in Figure 4, and is such as to be easily and speedily placed in position and removed in loading and unloading.

A modification of this construction is shown in Figures 6 and 7. In Figures 6 is shown one box supported wholly and directly above another, such a modification being adaptable where it is desired to ship one or more boxes directly above the lower one. The load in Figure 6 may be presumed to be a load of four boxes, a fragment only of the two on the right being shown. The actual construction here is but slightly different from the three box load. The two bottom boxes 30 and 31 are secured from horizontal movement by the spacer blocks 14 and foot brackets 15 as before. The top boxes 32 and 33 being positioned wholly and directly above the lower boxes 30 and 31, necessitate a change in the interlocking members which in this case are composed of a flat member shown as a plank 34 having a block 35 secured to its upper face and a block 36 secured to its lower face at one end, and corresponding blocks 37 and 38 secured to its upper and lower faces at the other end. This has the effect of providing four stop faces instead of two as in the three box load and in effect accomplishes the function of two of the interlocking members of the three box load. The top box 32 or 33 is held from longitudinal movement by the stop blocks 35 and 37 which in turn are prevented from longitudinal movement by being secured through the medium of the plank 34 to the lower stop blocks 36 and 38 which engage the opposite ends of the lower box 30 or 31. Notches 22, as before, are provided in the plank 34 for the passing of the rods 23 transversely between the upper and the lower box and clamp blocks 24 are placed over the ends of the rods 23 and drawn up to prevent later movement of the top box relative to the lower box. Although but one of these side clamps is shown it is evident that any desired number may be used to effect the purpose. In this case the load clamp 25 is placed over the center of the top box 32 or 33 and is drawn down in precisely the same manner and for the same purpose as in the three box load, the only difference being that a four, or more, box load necessitates a load clamp for every set of boxes instead of three boxes as shown in Figure 1.

The advantages derived from the use of the foregoing construction are readily apparent. In the first place, less than half of the usual amount of lumber is used in this construction as compared to the conventional construction. This not only saves the cost of this amount of lumber but also decreases the dunnage charges. Next, as the only nails or spikes used in securing the entire load are those used in the foot brackets 15 and spacer blocks 14, the load may be quickly and easily placed in position on the flat car and secured thereto in a manner that effectually resists all movement or displacement due to jars, etc. Then, by reason of the fact that it is only necessary in removing the load to remove the load clamp 25 by loosening the nuts 29 or by severing the rods 26 by a bolt cutter or other suitable means and loosen up the side clamps 24, there being no nails or spikes driven into the boxes themselves for the purpose of securing them to the flat car or to each other, it is evident that much labor is saved and there is little probability of damage to the boxes in the removal of the same. The interlocking members, side clamps, spacer blocks, foot brackets, load clamps, rods, etc., are all such that they may be prepared prior to and entirely independent of the loading operation itself. This has the effect of allowing the loading to be done in a quick, efficient and economical manner.

While the constructions shown are mainly of wood it is quite evident that the wooden members may be readily replaced by iron, steel, pressed steel or other metal construction, the necessary structural features of which would be within the scope of any good workman skilled in the art, and I do not limit my invention to the use of wooden members.

While I have shown and described but two modifications of my present invention in the foregoing drawings and description, it is readily apparent that the same may be adapted to a wide variety of forms and applications, and I do not limit myself to the particular constructions shown and described, as formal changes may be made in the same without departing from the spirit or substance of the broad invention, the scope of which is commensurate with the appended claims.

What I claim is:—

1. Means for securing a box against longitudinal movement relative to a second box positioned therebelow, said means comprising a plurality of members independent of each other interposed between said boxes, and stop members engaging the end faces of said boxes secured adjacent the ends of said first-named members.

2. Means for securing superimposed boxes from movement relative to a floor, comprising blocks secured to said floor in abutting relation with the sides and ends of the bottom box, longitudinally extending members provided with upwardly and downwardly extending stop faces adjacent each end thereof positioned between said boxes, said stop faces engaging the ends of said boxes, clamping members overlying the adjacent

side edges of said boxes, means for drawing said clamping members against said boxes, a clamping bar positioned across the top box laterally thereof, and means for drawing said clamping bar toward said floor.

3. Means for securing a box against movement positioned above and supported by two boxes positioned in spaced apart relation end to end on a floor, said means comprising inextensible members positioned below said second box and above said two boxes, and stop members secured to said inextensible members engaging the ends of said box and the inner ends of said boxes.

4. Means for securing a box against movement positioned above and supported by two boxes positioned in spaced apart relation end to end on a floor, said means comprising members positioned below said box and above said two boxes, and oppositely extending stop members secured adjacent to the ends of said members engaging the ends of said box and the inner ends of said two boxes.

5. Means for securing a box against horizontal movement positioned above and supported by two boxes positioned on a floor, said means comprising a plurality of members positioned between said upper box and said lower boxes, each of said members being provided at one end with a downwardly projecting stop face adapted to engage an end of one of the lower boxes and at the opposite end with an upwardly projecting stop face adapted to engage an end of said upper box.

6. Means for securing a box against horizontal movement positioned above and supported by two boxes positioned in spaced apart relation end to end on a floor, said means comprising inextensible members each having an upwardly extending stop face engaging one end of said upper box and a downwardly extending face engaging the inner end of the box therebelow to thereby prevent longitudinal movement of said upper box relative to said lower boxes, and inextensible members haivng stop faces mounted thereon extending transversely between said upper and lower boxes to thereby prevent lateral movement of said upper box relative to said lower boxes.

7. Means for securing a box against movement supported by two boxes positioned in spaced apart relation end to end upon a floor; said means comprising stop faces secured to a member extending between said upper and lower boxes engaging the ends of said upper box and the adjacent ends of said two boxes; clamping members extending over the adjacent lateral faces of said boxes; means for drawing said clamping members into close relationship with said lateral faces; a clamp bar extending over said upper box; and means for drawing said clamp bar towards said floor.

8. In a flat car having a floor and stake pockets, two lower spaced apart boxes positioned end to end on said floor, a third box overlying a part of and supported by each of said lower boxes, longitudinally extending members between the upper box and lower boxes having upwardly extending stop faces engaging the ends of said upper box and downwardly extending stop faces engaging the adjacent ends of the lower boxes, lateral clamping members overlying the adjacent edges of the upper and lower boxes, means for drawing said clamping members towards each other, a clamping bar extending over said upper box, rods having hooked ends engaging said stake pockets and threaded ends projecting through said clamping bar, and nuts threaded on said rods above said bar for drawing said bar down on said upper box.

9. Lateral securing means for a box supported by a plurality of boxes, said means comprising members positioned between the said box and said plurality of boxes, each member being provided with stop faces perpendicular thereto engaging a vertical side of said box and a vertical side of one of the plurality of boxes.

10. Means for preventing lateral movement of one box in relation to a box or boxes positioned therebelow, said means comprising a member having parallel top and bottom faces extending between the lower face of the upper box and the adjacent face of a box therebelow, said member having a stop face perpendicular to its top face engaging a vertical wall of one box and a stop face parallel with said first stop face engaging a vertical wall disposed at a relatively opposite end or side of said box therebelow.

11. Means for securing a box against longitudinal movement superimposed over a similar box in shipment, said means comprising a member independent of said boxes interposed between said boxes and provided with oppositely extending stop faces adjacent to its ends adapted to engage the end faces of said boxes.

12. Means for securing a box superimposed over a similar box in shipment against horizontal and vertical movement, said means comprising inextensible members between said boxes provided with stop faces engaging the end faces of said boxes, a clamping bar positioned transversely of said inextensible members extending over said upper boxes, and means co-operating with said clamping bar for securing said upper box against said lower box.

13. Means for securing a box against movement relative to a second box positioned therebelow and supporting the same, said means comprising inextensible members ex-

tending between said boxes longitudinally thereof and provided with projecting stop faces engaging the end faces of both boxes, inextensible members having stops engaging the adjacent side edges of said boxes, means for drawing said boxes into close relationship with said edges, and means for drawing said upper box down into close relationship with said lower box.

14. Means for securing superimposed boxes during shipment from movement relative to a floor, said means comprising a member extending longitudinally between said boxes provided at its opposite ends with stop faces engaging the end faces of said boxes, blocks secured to said floor engaging the side and end walls of said lower box to prevent horizontal movement of said box, and means for preventing vertical movement of both of said boxes relative to said floor.

15. Means for securing superimposed boxes against lateral movement during shipment comprising a relatively thin inextensible member extending transversely between said boxes and having stop faces perpendicular to said member adjacent to each end thereof engaging the side walls of each of said boxes.

Signed by me at Detroit, Michigan, U. S. A. this 23rd day of February, 1924.

RICHARD E. BAUS.