Aug. 2, 1927. R. E. HARMON 1,637,748

MEANS FOR SUPPORTING THE CONTENTS IN FREIGHT CARS

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Fig. 1.

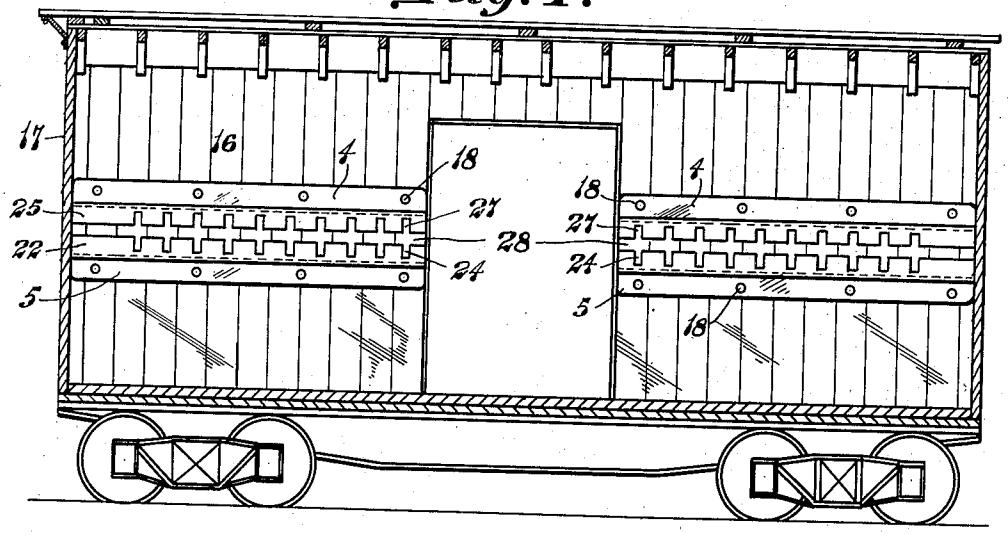


Fig. 2.

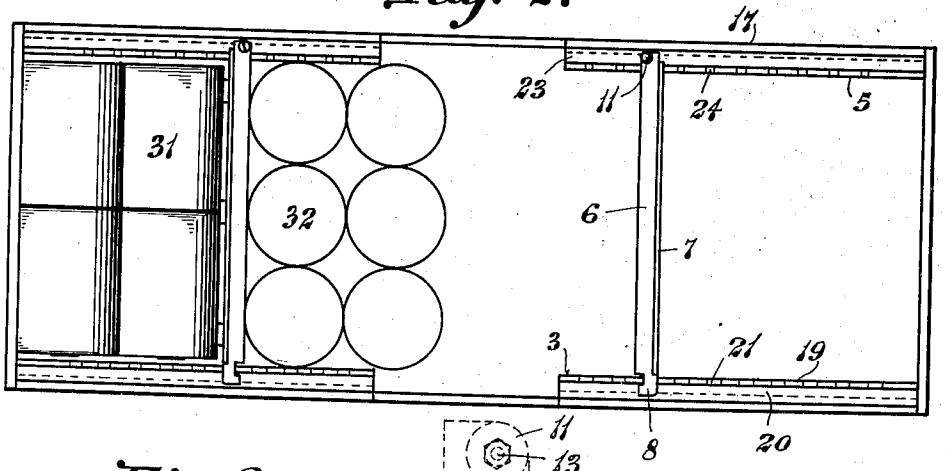
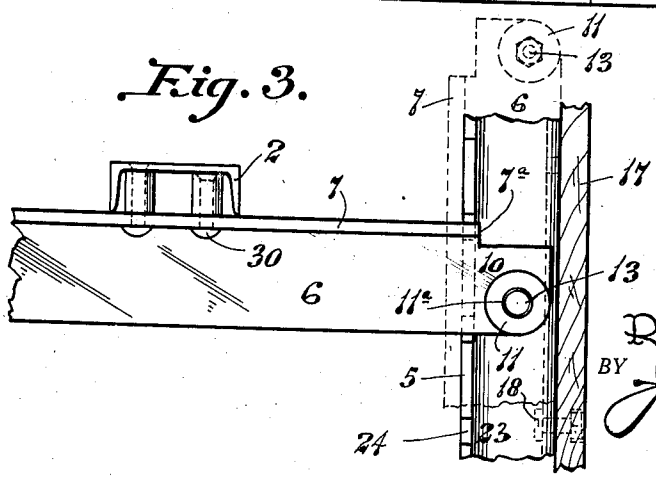


Fig. 3.



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Fig. 4.

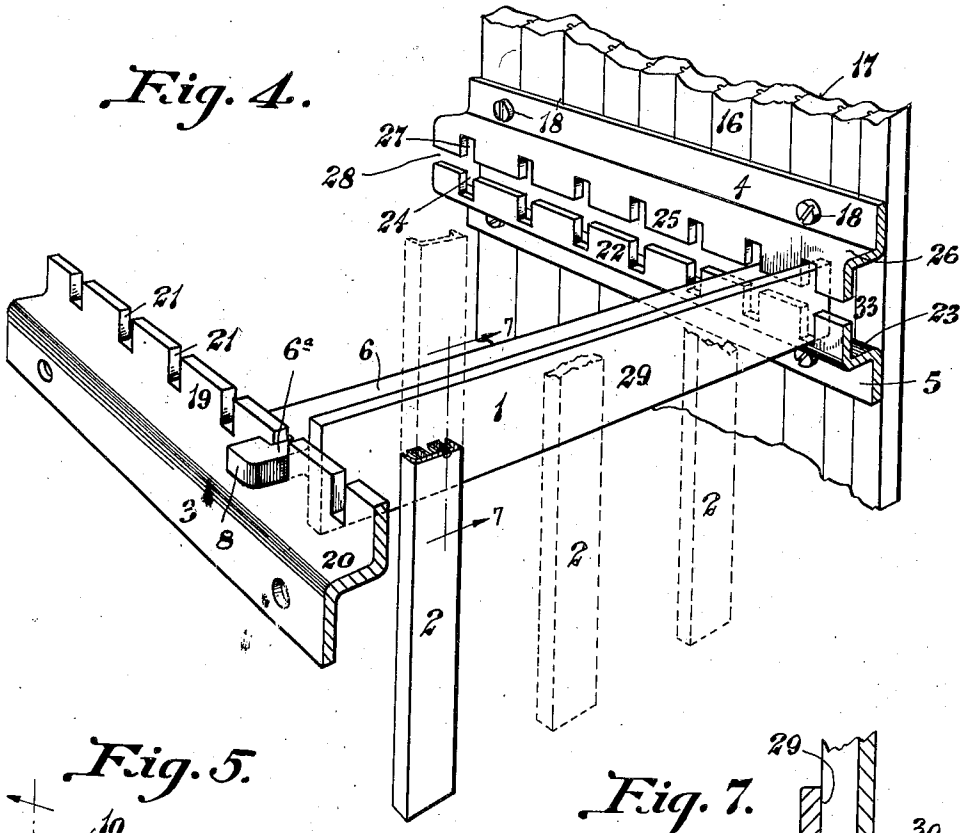


Fig. 5.

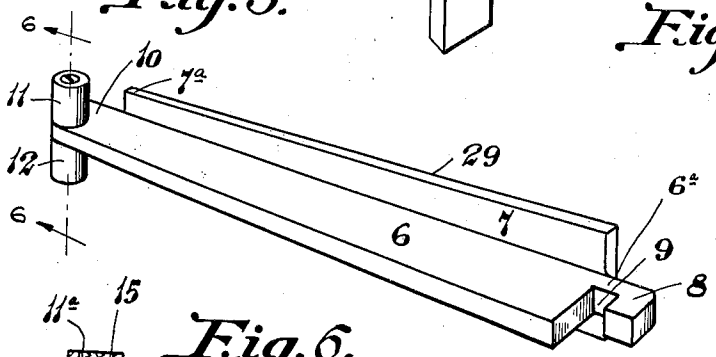


Fig. 7.

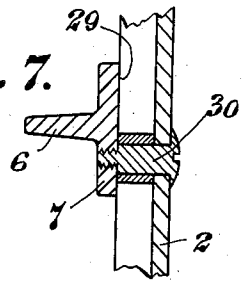
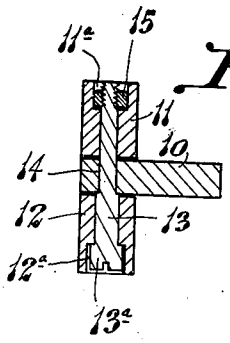


Fig. 6.



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UNITED STATES PATENT OFFICE.

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MEANS FOR SUPPORTING THE CONTENTS IN FREIGHT CARS.

Application filed October 22, 1926. Serial No. 143,496.

My invention relates to improvements in bracing structures and more particularly to braces used within box or freight cars for supporting merchandise where placed in the car while being shipped.

The main objects of my invention are to provide braces for freight cars which are easily and quickly manipulated in both the packing and unpacking of the cars; braces which will firmly hold packages of different sizes and shapes, and braces of this character which will be simple, efficient, economical to manufacture and easy to install within freight cars.

Further objects of my invention are to provide an adjustable brace for freight cars which will not only protect the merchandise being shipped but will protect the car itself.

Heretofore, and as is now the general practice, the bracing for supporting the merchandise in the cars is accomplished by nailing boards to the inner walls, ends and uprights of the cars with large nails and spikes. This not only damages the freight cars but is expensive to the shipper as the lumber used for bracing is expensive and is oftentimes thrown away after the car reaches its destination. Another disadvantage of this method of packing is that it necessitates a large amount of labor, both in packing and unpacking the cars and, as is often the case, nails are left protruding into the car after unloading, causing damage to merchandise which may afterwards be loaded in the same car.

My invention consists in the provision of an improved brace for freight cars which is adjustable and has a unique method of positively holding the brace in position.

My invention also consists in the construction, combination, location and arrangement of parts, as herein set forth and claimed.

In the drawings:

Fig. 1 is a longitudinal vertical section of a box car showing a portion of my invention installed therein;

Fig. 2 is a longitudinal horizontal section of a box car having my invention installed therein;

Fig. 3 is a fragmentary view of one end of one of the bracing members and its connection with one of the Z-shaped retaining brackets.

Fig. 4 is a perspective view of my invention, parts being shown in section and in dotted lines and a fragmentary portion of a box car;

Fig. 5 is a perspective view of one of the cross-braces with the vertical braces omitted;

Fig. 6 is a vertical section taken on a plane corresponding to line 6—6 of Fig. 5; and

Fig. 7 is a cross-section taken on line 7—7 of Fig. 4.

In the embodiment of my invention as illustrated and which shows a preferred construction I provide a freight car bracing structure comprising cross-braces 1, vertical braces 2 and cross-brace-supporting bars 3, 4 and 5, respectively. A vertical section through one of the cross-braces is substantially T-shaped (as shown in Fig. 7) and is preferably made of wrought iron because of its toughness, durability, and of its imperviousness to changes of temperature. As all of the cross-braces 1 are alike in construction, the description of one will suffice for all. Horizontally disposed portion 6 of cross-brace 1, extends longitudinally beyond vertically disposed portion 7 of said brace and terminates in reduced end 8. Said end 8 is provided with notch or recess 9. The opposite end 10 of portion 6 also extends longitudinally beyond portion 7, as clearly shown in Fig. 5. Rollers 11 and 12, respectively, are rotatably mounted upon shoulder stud 13 which passes through hole 14 in said end 10. Head 13^a of said shoulder stud 13 fits within recess 12^a of roller 12 and nut 15 fits within recess 11^a of roller 11, as clearly shown in Fig. 6.

Supporting bars 3, 4 and 5, respectively, are substantially Z-shaped (see Fig. 4) and are securely fixed to the inside walls 16 of freight car 17 in any suitable manner, as for example, by bolts 18. Wall 19 of supporting bar 3 rising upward from horizontal portion 20 and at right angles thereto, is provided with a plurality of spaced apart notches 21. Wall 22 of supporting bar 5 is at right angles to horizontal portion 23 and is provided with a plurality of spaced apart notches 24 which are oppositely disposed and in alignment with notches 21 within wall 19. Wall 25 of supporting bar 4 extends downwardly from horizontal portion 26 and is provided with a plurality of spaced apart notches 27 which are in align-

ment with notches 21 and 24, respectively, of walls 19 and 22.

As clearly shown in Fig. 4, cross-brace-supporting bar 4 is located above cross-brace-supporting bar 5 and spaced apart therefrom, thereby creating a horizontal opening 28 between said walls 22 and 25, respectively.

Vertical braces 2 are substantially U-shaped in cross-section and may be securely fixed to the rear 29 of cross-braces 1 but I prefer to have them pivoted as by studs 30 (Fig. 7). By being pivoted said vertical braces may be moved slightly to one side or another whereby odd-shaped articles or merchandise can be readily and easily packed and braced.

Operation of the device.

The operation of the device is as follows: Assume that freight car 17 is to be packed with rolls of paper 31 and barrels of flour 32 for shipment, said flour to be shipped to one place and said paper to another. The first step is to load the required amount of paper rolls 31 within the car first as it is the last to be taken out. Then insert one of the cross-braces 1. To insert said cross-brace 1 insert rollers 11 and 12, respectively, within channel 33 formed by cross-brace supporting bars 4 and 5, respectively. Then slide said cross-brace 1 until the vertical braces 2, partially rest against rolls of paper 31. Then push forward on brace 1 at the same time inserting end 7^a of vertically disposed portion 7 within one of the notches 27 of supporting bar 4 and one of the notches 24 of supporting bar 5. The next step is to insert neck 6^a of horizontally disposed portion 6 within one of the notches 21 of wall 19 and in alignment with notches 24 and 27, respectively, which receives end 7^a, as before described.

The brace 1 is then in the locked position, as clearly shown in Figs. 2, 3 and 4, respectively, and vertical braces 2 are securely held against said rolls of paper 31, as shown in Fig. 2. To remove the brace 1 simply raise up on end 8 of said brace until neck 6^a is removed from notch 21 whereupon said brace can be swung on shoulder stud 13 until horizontally disposed portion 6 passes within horizontal opening 28 (see Fig. 3, dotted lines), whereupon the brace 1 is out of the way and the rolls 31 may be quickly unloaded from said car 17.

Having thus described the invention, it will be understood that certain changes and modifications can be made without departing from the scope or spirit of the claims, as for instance, any number of braces 1 can be used, as desired, or a car may be equipped with two sets of Z-bars 3, 4 and 5, respectively, instead of a single set, as shown in Fig. 4.

What I claim as new and desire to secure by Letters Patent is:

1. In means for supporting the contents of a freight car, a pair of spaced apart horizontal bars secured to the inner wall of a freight car and having projecting flanges extending toward each other, thereby forming a channel between said flanges and wall with a series of oppositely disposed notches in each of said flanges, a horizontal bar attached to the opposite wall of said car and having a flange spaced apart from said wall and provided with a series of notches in alignment with the notches of said first-mentioned bars, and a detachable cross bar pivotally and slidably mounted between said first-mentioned bars and adapted to be swung into cross-wise position whereby it will engage one of said notches in said last-mentioned bar.

2. In means for supporting the contents of a freight car, a pair of horizontal bars secured to the inner walls of a freight car and having projecting flanges spaced apart from said car and extending toward each other, thereby forming a channel between said flanges and the wall of said car with a series of oppositely disposed notches in each of said flanges and a horizontal bar attached to the opposite inner wall of said car and having a flange spaced apart from said wall and provided with a series of notches in alignment with the first-mentioned bars and a detachable cross-bar having rollers extending transversely from one end thereof and adapted to be pivotally and slidably mounted in the channel between said first-mentioned bars and having the other end adapted to be inserted in the oppositely disposed notches, respectively, and having shoulders on said bar adjacent said rollers adapted to enter the adjacent slots when said bar is placed transversely of said car within said notches.

3. In means for supporting the contents of a freight car, a pair of spaced apart horizontal bars secured to the inner wall of a freight car and having projecting flanges spaced apart from said car and extending toward each other thereby forming a channel between said flanges and the wall of said car with a series of oppositely disposed notches in each of said flanges and a horizontal bar attached to the opposite inner wall of said car and having a flange spaced apart from said wall and provided with a series of notches in alinement with the notches of the first-mentioned bars, and a detachable cross-bar pivotally and slidably mounted between said first-mentioned bars and adapted to be swung into cross-wise position whereby one of its ends will engage the notches in said last-mentioned bar and the other end will engage the notches of the first-mentioned bars, thereby

firmly holding said cross-bar against unintentional movement longitudinally of said bars.

4. In a device of the class described, the combination of a cross-brace substantially T-shaped; vertical braces pivotally mounted upon said cross-brace, Z-shaped supporting bars adapted to support said cross-brace, a reduced neck at one end of said cross-brace, rollers rotatably mounted on the other end of said cross-brace, and a series of notches cut in said supporting bars which receive said reduced neck and one end of said cross-brace, substantially as set forth and for the purposes specified.

5. In an adjustable brace for freight cars, the combination of a cross brace, vertical braces mounted upon said cross-brace, Z-shaped supporting bars adapted to support said cross-brace, notches in said bars, and means on said cross-brace to engage said notches, substantially as described.

6. In a brace for freight cars, the combination of a horizontal bracing bar, supporting bars fixed to the inner walls of a freight car and adapted to slidably support said horizontal bracing bar, a series of spaced apart notches in said supporting bars in which the ends of said horizontal bracing bar is adapted to engage and a plurality of vertical bracing bars pivotally attached to said horizontal bracing bar, substantially as described.

7. In a brace for freight cars, the combination of a T-shaped horizontal brace, vertical braces carried by said horizontal brace, Z-shaped bars suitably mounted within a freight car and having a series of notches therein in alignment with one another, and means on said horizontal brace adapted to engage any one of said notches, substantially as set forth and for the purposes specified.

ROY E. HARMON.