Dec. 20, 1927. 1,653,453

W. P. FLYNN

GRAIN CAR DOOR FASTENER

Filed Jan. 22, 1927

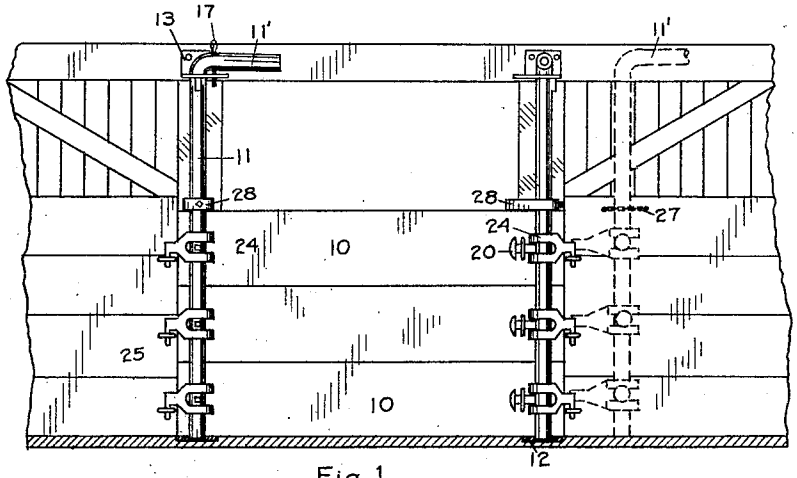


Fig. 1

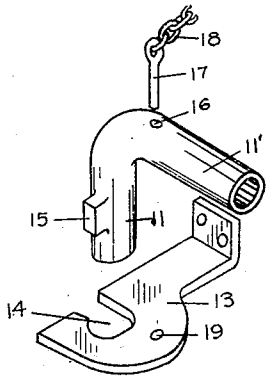


Fig. 3

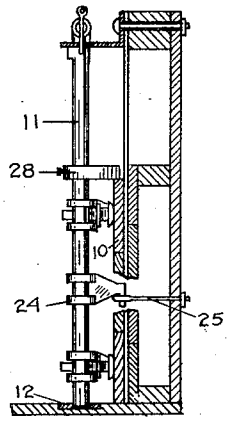


Fig. 2

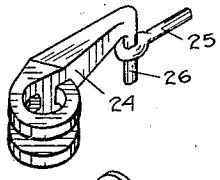


Fig. 4

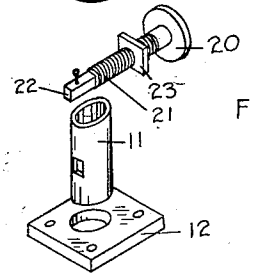


Fig. 5

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UNITED STATES PATENT OFFICE.

WALTER P. FLYNN, OF ULYSSES, NEBRASKA.

GRAIN-CAR-DOOR FASTENER.

Application filed January 22, 1927. Serial No. 162,867.

My invention relates to grain car door fasteners, one of its objects being the provision of a device whereby the grain car door may be clamped into place without the use of nails and without injury to either the door or the frame of the car.

Another object of my invention is the provision of means for adjustably clamping the door to the grain car regardless of the variations in thickness of the boards of which the door is made or of variations in the frame of the car.

Another object of my invention is the provision of means for preventing buckling of the shafts or rods when the clamping devices are brought into play.

Still another of the objects of my invention is the provision of a device which is more or less permanently secured to the car so that it may always be conveniently available when needed, but which is so secured to the car that it may be swung entirely out of the way when the car is to be used for hauling freight other than grain.

Having in view these objects and others which will be pointed out in the following description, I will now refer to the drawings, in which

Figure 1 is a view in elevation of a grain car door and of my securing device as they appear when viewed from the inside of the car.

Figure 2 is a sectional view of the grain car door and showing in full lines my securing device.

Figure 3 is a view in perspective of the three members at the upper end of my device.

Figure 4 is a view in perspective of the claw which prevents buckling of the shaft.

Figure 5 is a perspective view of the lower end portion of the shaft and showing also one of the abutments which are secured to the shaft.

Grain cars are provided with openings at their sides and with slidable doors on the outer walls of the car for closing the openings. These doors, of course, are not grain tight and it is necessary therefore to provide an additional closure for preventing the loss of grain during transit. The customary form of door used for this purpose consists of a number of pieces of lumber of suitable length which are nailed to the frame of the car against its inner walls so as to close the opening. This entails the wastage of considerable quantities of lumber and it seriously damages the car from the fact that nails are frequently driven into and withdrawn from the car frame.

I make use of the strips of lumber as shown at 10 in such a manner that neither the lumber nor the frame of the car is in any way damaged or injured. For this purpose I provide two shafts 11, one at each side of the door opening. These shafts are bent at right angles at 11′ to form handles whereby they may be turned. At their lower ends they are journalled in shallow sockets in the plates 12 which are preferably imbedded in the floor of the car. Secured to the car at the upper extremity of the shafts 11 are plates 13 having slots 14 for receiving the shafts 11. The shafts 11 are also provided with lugs 15 which are normally seated against the underside of the plates 13. In order to release the shafts 11 from their sockets in the plates 12, it is necessary to turn the shafts until the lugs 15 register with the opening to the slots 14 and then to lift the shafts 11 until their lower extremities are above the level of the floor. The handle portions 11′ of the shafts are provided with vertical apertures 16 for receiving a pin 17. The pin may be secured by means of a chain 18 to the car frame at any convenient position to prevent its accidental loss. The plate 13 is similarly provided with an aperture 19 which registers with the aperture 16 when the device is in locking position so that the pin 17 by passing through the apertures 16 and 19 will prevent rotation of the shaft 11.

The shafts 11 are each provided with a suitable number of adjustable abutments, one of which is shown in detail in Figure 5. The shafts 11 are provided with apertures, one end of the aperature being preferably square in outline while the other end is circular. The abutments comprise bolts having rounded heads 20, threaded portions 21 adjacent the heads and squared portions 22 at the free ends. The nuts 23 are adjustable on the screw threaded portions 21 of the abutments. It will be obvious that when the shafts 11 are in the position indicated in Figure 2 and at the left in Figure 1, the nuts 23 may be turned so as to provide any desired pressure of the heads 20 against the planks 10. The number of these abutments may, of course, be varied since it depends largely on the width of the planks 10 and on a number

of other factors. It is usually desirable to have at least two abutments for a single plank unless the plank is very narrow in width. It is found, however, that these planks vary considerably in thickness and that the frame of the car is sometimes warped. In such cases it is only necessary to tighten each nut 23 in succession until the desired pressure is exerted against all of the planks 10.

The pressure of the abutments against the planks 10 reacts on the shafts 11 and unless provision were made for taking care of this pressure, the shafts 11 would be caused to buckle when the nuts 23 are tightened. For preventing such buckling I provide claws 24 having downwardly turned pins which are pivoted in eye bolts 25 passing through the walls of the car adjacent the openings. The eyes of all the eye bolts at one side of the car door opening are in alignment so that they constitute a pivot on which the whole device may be swung when it clears the socket in the plate 12. This feature is important because the device is apt to be in the way when the car is used for hauling lumber or furniture or other articles besides grain. In such cases the device would be apt to be broken if it were allowed to remain in the position shown in full lines in Figure 1. By clearing the shafts 11 from their sockets the whole device may be swung about its pivots in the eyes of the eye bolt and into the dotted line position of Figure 1 where it is entirely out of the way. At this point a short length of chain 27 is secured to the wall of the car so that it may be made to embrace the shaft 11 and to prevent its swinging away from the wall. In order to prevent any possibility of vertical displacement of the planks 10 due to the jolting of the loaded grain car, sleeves 28 are positioned loosely on the shafts 11, these sleeves being both slidable and rotatable on the shafts. The sleeve is provided with a set screw which is adapted to be forced against the shaft to hold the sleeve in fixed position on the shaft, and with a projecting tongue which is adapted to rest on the upper edge of the uppermost plank of the door. When the sleeve is thus fixed in position, all vertical vibration of the door is effectively prevented.

Having thus described my invention in such full, clear, and exact terms that its construction and operation will be readily understood by others skilled in the art to which it pertains, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A grain car door fastener including a pair of vertical shafts secured to a grain car at the ends of the grain car door, each of said shafts having secured thereto a plurality of abutments for engaging the grain car door, means for turning said shafts to force said abutments into and out of operative position, and means for preventing buckling of said shafts.

2. A grain car door fastener including a pair of vertical shafts secured to a grain car at the ends of the grain car door, each of said shafts having secured thereto a plurality of radially projecting adjustable abutments for engaging the grain car door and claws embracing said shafts at said abutments and secured to the frame of the grain car, said claws being adapted to prevent buckling of said shafts.

3. A grain car door fastener including a pair of vertical shafts secured to the grain car at the ends of the grain car door, each of said shafts being provided with a plurality of horizontal aperatures for slidably and nonrotatably receiving bolts, nuts on said bolts between said shafts and the bolt heads whereby pressure may be exerted through said bolt heads on the grain car door by turning said nuts, and means for turning said shafts so as to force said bolt heads into and out of engagement with the grain car door.

4. A grain car door fastener including a vertical shaft adapted to be secured inside a grain car, a plurality of abutments secured to said shaft, means for turning said shaft to force said abutments into and out of engagement with the door of the grain car, and means for preventing the buckling of said shaft, said last named means being pivotally secured to the grain car in vertical alignment whereby said shaft may be swung bodily into a position against the wall of the grain car.

5. A grain car door fastener including a vertical shaft adapted to be secured inside a grain car, said shaft having secured thereto a plurality of radially projecting abutments for engaging the grain car door, said shaft being secured for turning movement to force said abutments into and out of engagement with the grain car door, a plurality of parallel arms rigidly secured to said shaft and projecting radially therefrom, and pivots connecting said arms to the grain car, said pivots being in vertical alignment whereby said shaft may be swung away from the opening of the grain car and against the wall thereof.

In testimony whereof I affix my signature.

WALTER P. FLYNN.