Feb. 7, 1928. 1,658,442

W. W. JACKSON

GRAIN DOOR

Filed May 3, 1926 3 Sheets-Sheet 1

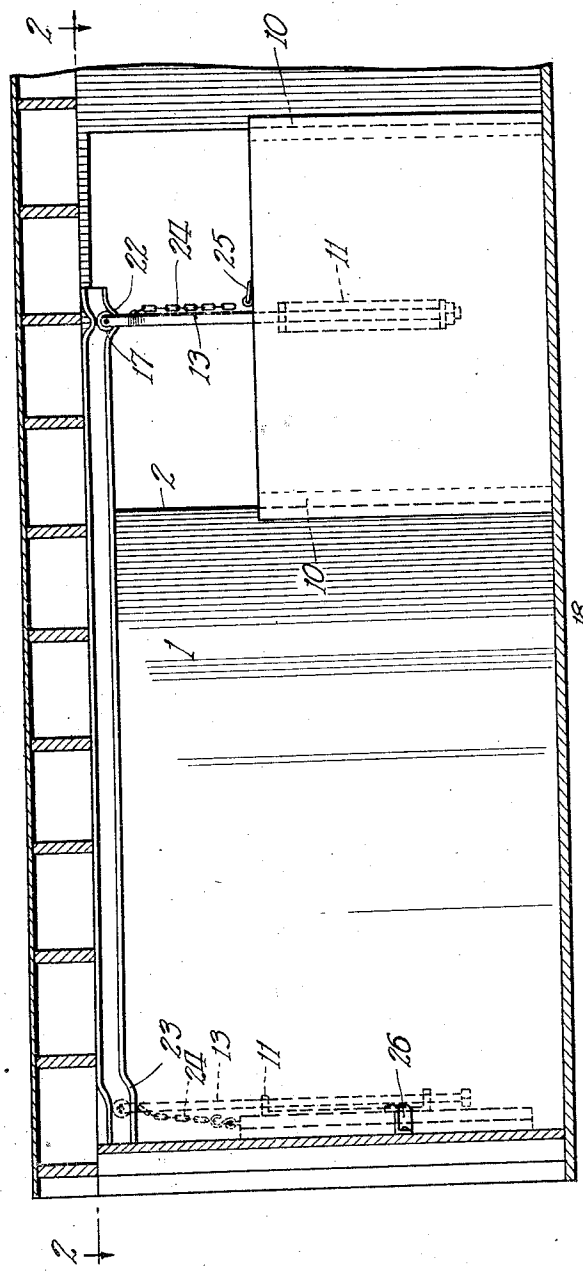


Fig. 1

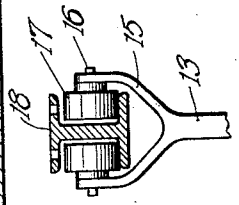


Fig. 5

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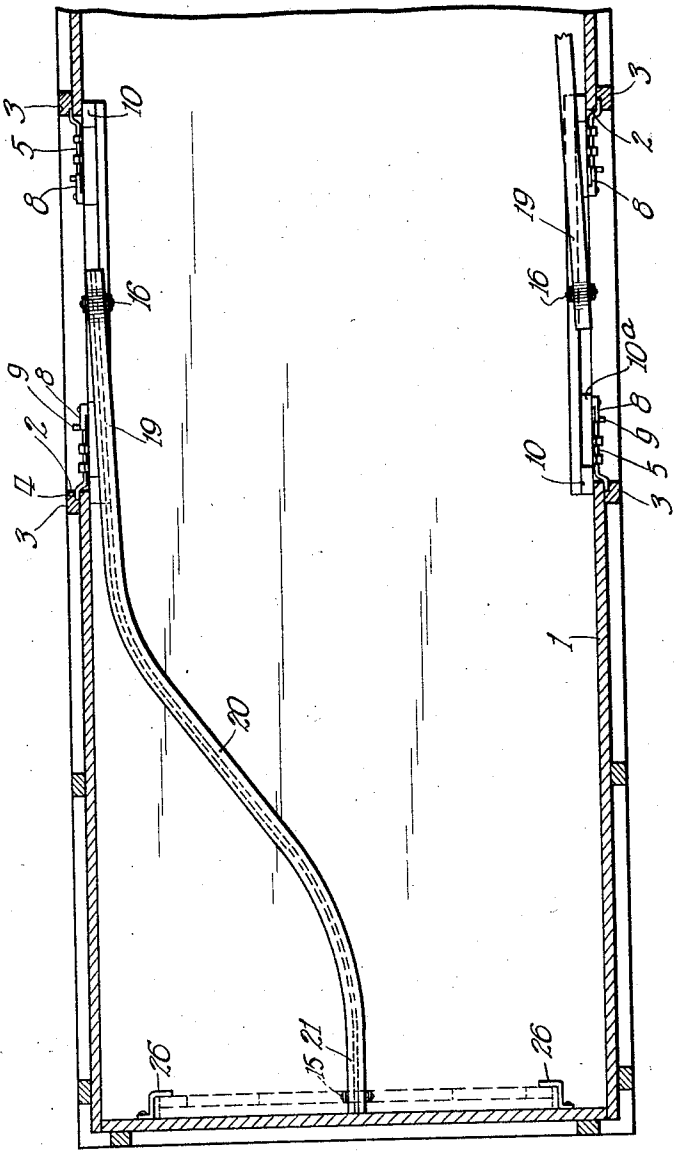


Fig. 2

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Fig 2

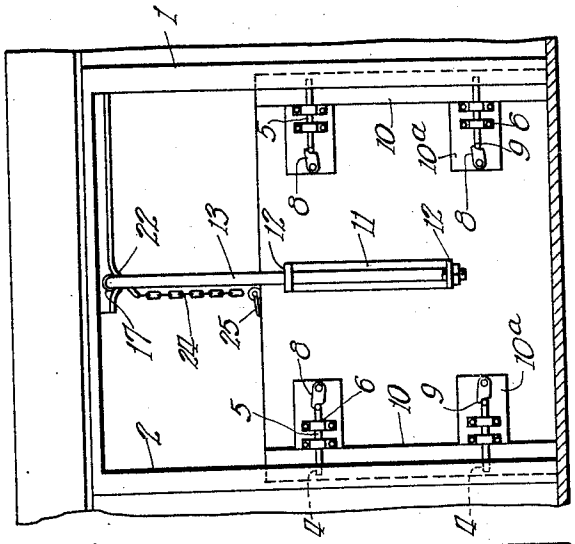
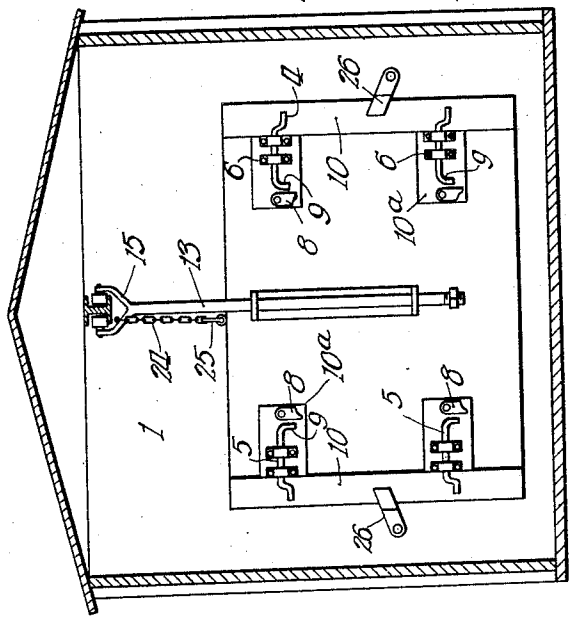


Fig 3



Inventor:
William W. Jackson.
by John Howard & McElroy his Atty

Patented Feb. 7, 1928. 1,658,442

UNITED STATES PATENT OFFICE.

WILLIAM W. JACKSON, OF OAKDALE, LOUISIANA.

GRAIN DOOR.

Application filed May 3, 1926. Serial No. 106,186.

My present invention has reference to grain or similar cars, and my primary object is a particular construction and mounts for inside doors of such cars, whereby the doors may be readily moved to an out of the way position in a car and secured there when the car is empty, and readily returned and effectively locked to the door openings when the car is to be filled.

A further object is to provide a box or grain car with inside tracks of particular and peculiar formation, the rails of each track being engaged by rollers on the posts or hanger members for the doors, so that the doors, after they are unlocked, may be raised on their hangers and moved bodily therewith to the other end of the rails which terminate at the center of the ends of the car, at which points the doors may be lowered and secured to the said car ends, so that the doors will be sustained in an unobstructing position when the car is empty, and further wherein, when the doors are in normal car closing position they will be effectively locked on the car to establish a grain tight closure therefor.

A further object is the provision of a device for this purpose which may be readily installed in different classes of box cars, and which, while of an extremely simple construction, will be found thoroughly effective for its purposes.

With the above broadly stated objects in view, the improvement further resides in certain other novel features of construction, combination and operative association of parts, my preferred embodiment of which is illustrated by the accompanying three sheets of drawings in which:

Figure 1 is a central vertical and longitudinal sectional view through a sufficient portion of a box or grain car to illustrate the application of my improvement;

Figure 2 is a horizontal sectional view approximately on the line 2—2 of Figure 1;

Figure 3 is a transverse sectional view showing the door latched against one end of the car;

Figure 4 is a fragmentary side elevation, as seen from the outside; and

Figure 5 is a detail elevation of the upper portion of one of the hangers, the rail being in section.

In the drawings numeral 1 designates a grain or similar box car, and 2 the openings in the sides thereof. The posts at the sides of the door openings 2 are indicated for distinction by the numeral 3, and each of these posts is bored to provide spaced sockets 4 for the reception of bolts 5 that are slidably mounted through brackets 6 that are fixed on the outer side of the doors 7.

On each bracket plate 6 there is pivotally secured a cam member 8 designed to engage with the handle portion 9 of each bolt when the bolts are thrown home.

Each door 7 has on its ends facing outwardly the vertically extending cleats 10, the outer edges of which engage the inner edges of the sides of the door opening 2 to make a grain tight joint, and on the outer face of each door there is secured an elongated metallic supporting member 11 having the flanged ends 12. The brackets 6 are secured on the cleats 10 and on extensions 10^a thereof, which might be separate blocks.

A rod 13 extends through suitable openings in the flanges 12 of the members 11, and for convenience I will hereinafter refer to the said rods 13 as hangers for the doors 7. The lower end of each hanger may be threaded and engaged by a nut which forces a washer against the lower flange 12 of the members 11, but other means may be provided for holding the hangers secured to the doors. The hangers, it is to be noted, permit the doors to be turned on them.

Each hanger 13 has its upper end forked as at 15, and the straight outer ends of the forks are provided with bearing openings for the stud shafts 16 of rollers 17. Thus each hanger is provided with a pair of rollers.

Fixedly secured by any suitable means to, or adjacent to, the top of the car 1 there are oppositely directed rails 18. Each rail preferably has the cross-section of an I-beam; that is, each side of the rail is grooved throughout its length. Each rail includes a straight portion 19 arranged substantially parallel with and close to the respective sides of the car. From the straight portions 19 the rails are curved, preferably in an ogee curve, as at 20, and from thence are extended in a straight portion, as at 21, to the respective ends of the car. The portions 21 of the rails terminate in a plane with a vertical center of the car.

By reference to Figure 2 of the drawings it will be noted that the respective ends of

the rails 18 have depressions therein, as at 22 and 23). The depressed portions 22 are disposed in a line with a vertical center of the door openings 2, and of course, the depressed portions 23 are disposed at the ends of the car. The rollers 17 are designed for travel on the lower flanges of the rails 18 and are out of contact with the webs of the said rails.

When the doors 7 close the doorways 2 the rollers on the hangers 13 will be received in the depressions 22, which allow the said doors to rest on the floor of the car. On each hanger 13 there is secured a flexible element which is preferably in the nature of a chain 24, while on the upper edge of each door 7 a hook 25 is pivoted. When the bolts 5 are thrown to unlocking position the door 7 is raised on its hanger and is held out of car floor contacting engagement by bringing the hook 25 into one of the links of the chain 24. The door may be now bodily moved with the hanger on the track 18, and after traveling over the curved portion 20 of the said track, the door is swung on its hanger to bring the said door transversely of the car. The door is further moved on the track until the said door contacts the end of the car. The hanger, with the door rollers will move downwardly as the rollers are received in the depressions 23, and the ends of the car have pivotally mounted thereon angular latch members 26 which are swung to engage with and hold the door from movement. When the doors are thus positioned no obstruction is offered to the loading or the emptying of the car if used for other materials not requiring the use of grain doors. When the doors are brought to close the openings 2 a perfect grain tight joint between the doors and the car is effectively provided, and incident to the latching of the doors in either their open or closed positions accidental movement of the said doors is positively prevented.

While I have shown and described my invention as embodied in the form which I at present consider best adapted to carry out its purpose, it will be understood that it is capable of modifications and that I do not desire to be limited in the interpretation of the following claims except as here necessitated by the state of the prior art.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The combination of a grain car or the like having door openings in the sides thereof, inside doors for closing said openings, and means for locking the doors in closed position, of a double-flanged over head track having a portion disposed over each door and from thence curved toward and terminating at the center of the car ends, a hanger having a bifurcated upper end, rollers journaled therein and disposed on flanges of the tracks, means swingably connecting each hanger to each door, and means for holding the doors raised on the hangers.

2. The combination with a grain car or the like having door openings through the sides thereof and inside doors for closing said openings, of overhead rails inside the car, a single centrally located mount for each door arranged to travel on a rail, and connections between each door and its mount, said connections consisting of a single vertical rod extending downward from the mount and an eye carried by the door through which the rod extends so that the door can be raised and lowered and swung about said rod on a vertical axis through an angle of ninety degrees.

3. The combination with a grain car or the like having door openings through the sides thereof and inside doors for closing said openings, of overhead rails inside the car, a single centrally located mount for each door arranged to travel on a rail, connections between each door and its mount, said connections consisting of a single vertical rod extending downward from the mount and an eye carried by the door through which the rod extends so that the door can be raised and lowered and swung about said rod on a vertical axis through an angle of ninety degrees, and means for holding the door elevated, said means consisting of a chain and a hook carried by the door and its mount.

4. The combination of a grain car or the like having door openings in the sides thereof, doors for closing the openings, standards for engaging with the inner faces of the doors and locking means for the doors, of overhead double flanged rails each having a portion disposed over a door and from thence curved and extended to the center of the car ends, each of said rails, adjacent to its ends having a depressed portion, a forked hanger having rollers in the forks thereof arranged on flanges of the rails, means pivotally connecting the hangers with the doors, means for sustaining the doors raised on the hangers, and means for latching the doors against the ends of the car when the doors are moved thereagainst.

5. The combination with a grain car or the like having door openings through the sides thereof and inside doors for closing said openings, of overhead rails inside the car, a single centrally-located mount for each door arranged to travel on a rail, and connections between each door and its mount, said connections consisting of a single vertical rod extending downward from the mount, and an eye carried by the door through which the rod extends, so that the door can be raised and lowered and swung about said rod on a vertical axis through an angle of ninety degrees.

6. The combination with a grain car or the like having a door opening in a side thereof, an inside door for closing said opening, and means for locking the door in closed position, of a rail, all in a substantially single horizontal position near the top of the car having a portion disposed above the door parallel thereto and from thence directed toward and extended to the center of the end of the car, a mount for each door arranged for horizontal travel only on its rail, and means for suspending the door from its mount so that it can be raised and turned thereon about a vertical axis through an angle of ninety degrees.

7. The combination with a grain car or the like having a door opening in a side thereof, an inside door for closing said opening, and means for locking the door in a closed position, of a rail having a portion disposed above the door parallel thereto and from thence directed toward and extended to the center of the end of the car, a mount for each door arranged for travel on its rail, and means for suspending the door from its mount so that it can be raised and turned thereon about a vertical axis through an angle of ninety degrees.

In witness whereof, I have hereunto set my hand this 22 day of March, 1926.

WILLIAM W. JACKSON.