

A. J. DENTON.
GRAIN CAR DOOR.
APPLICATION FILED JAN. 20, 1909.

936,764.

Patented Oct. 12, 1909.
2 SHEETS—SHEET 1.

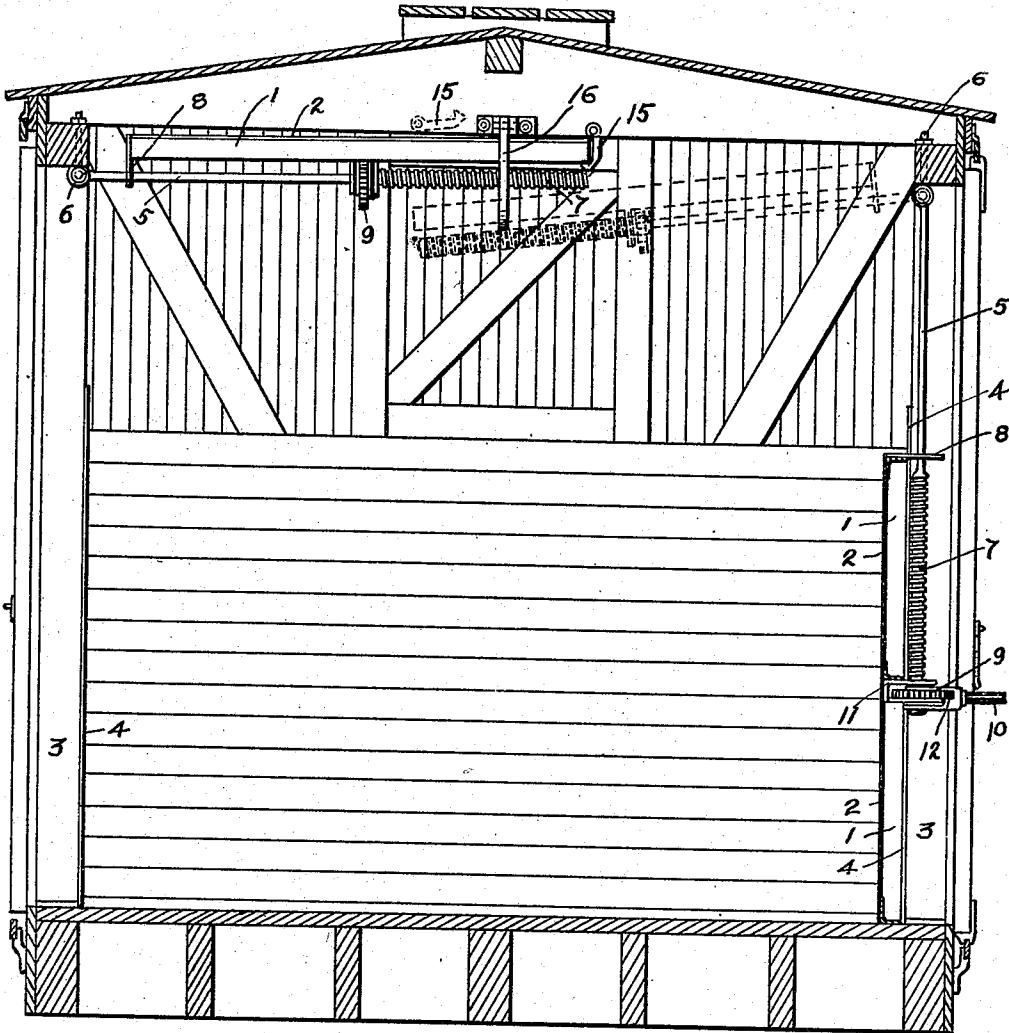


Fig. 1.

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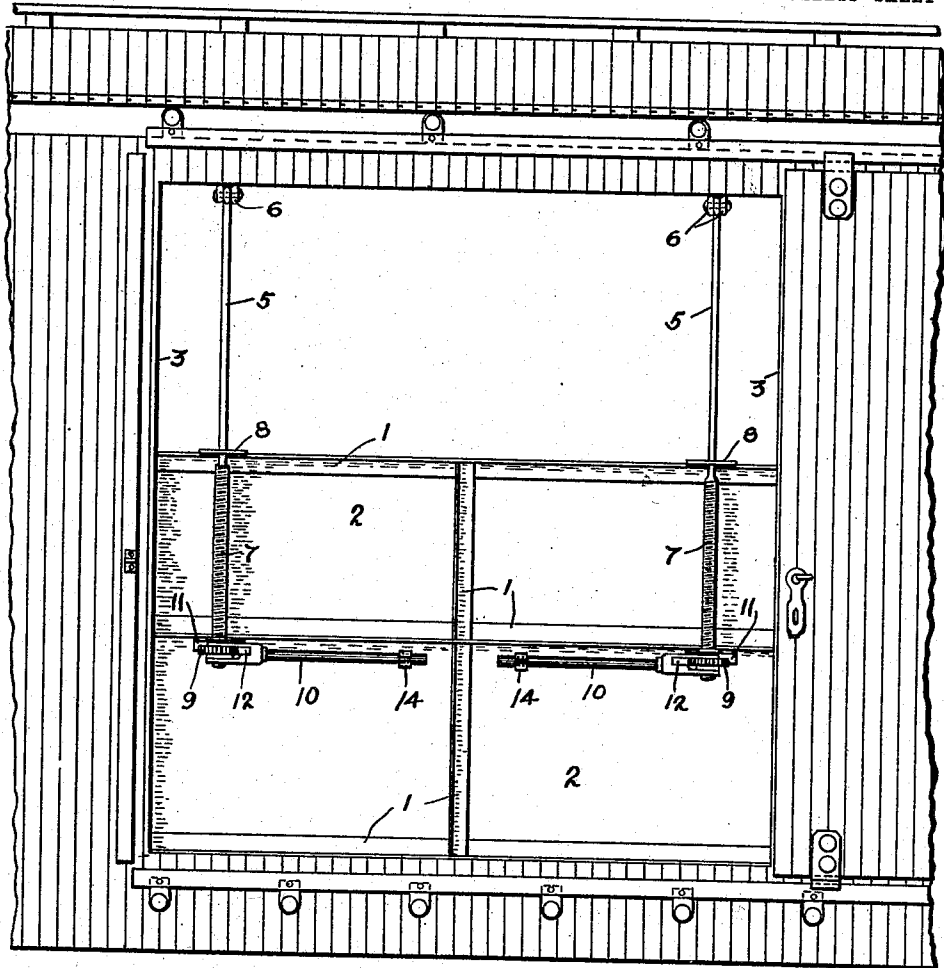


Fig. 2.

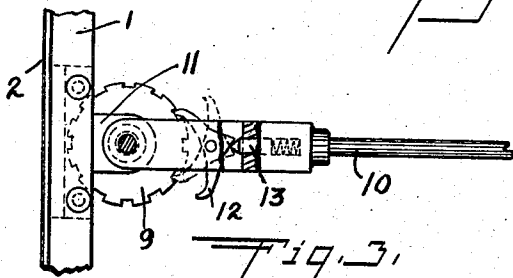


Fig. 3.

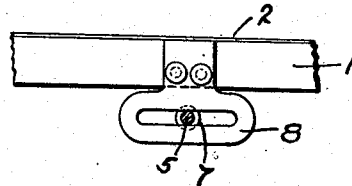


Fig. 4.

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UNITED STATES PATENT OFFICE.

ABNER J. DENTON, OF NEBRASKA CITY, NEBRASKA.

GRAIN-CAR DOOR.

936,764.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed January 20, 1909. Serial No. 473,376.

To all whom it may concern:

Be it known that I, ABNER J. DENTON, a citizen of the United States, and a resident of Nebraska City, in the county of Otoe and State of Nebraska, have invented certain new and useful Improvements in Grain-Car Doors, of which the following is a specification.

My invention relates to grain car doors and it is the object thereof to provide a simple and comparatively inexpensive permanent door for use in grain cars, which when not in use may be raised and held at a position adjoining the roof of the car, and provided with simple and powerful hoisting means for raising the same in unloading the car, in order to provide a relief opening under the door and permit the grain lying against the same to escape.

Constructions embodying my invention are illustrated in the accompanying drawings, in which—

Figure 1 is a transverse section of a car provided with my doors, the door on one side being shown in closed position, and at the other side in open position, Fig. 2 is a partial side elevation of the car showing the door in closed position, Fig. 3 is a detail plan view of one of the hoisting devices, and Fig. 4 is a detail plan view of one of the guide-brackets for the suspension rods.

In carrying out my invention I provide an integral or single-section door, preferably made entirely of metal and consisting of a frame 1 made of angle-bars and covered with a plate 2 of sheet-metal. The door-posts 3 are faced with metallic plates 4 on the parts thereof which are engaged by the edges of the door.

The door, except when in closed position, is supported by suspension rods 5 each of which at the upper end is pivotally connected with the upper member of the door casing by means of a bolt passing through the eye-bolts 6 which extend through said member, the eye portions thereof lying on each side of a similar eye formed at the end of the rod, as shown. The lower portions 7 of the suspension rods are made of larger diameter than the upper portions and are threaded as indicated. On the upper transverse member of the door frame 1 are secured the guide-brackets 8, in which are transversely slotted openings, as shown in Fig. 4, through which openings the rods 5

pass. The threaded portions 7 of the rods pass through the internally-threaded notched wheels 9 which are loosely held between the horizontally extending flanges of the brackets 11 secured to the central transverse member of the door frame 1. On the rods adjoining said brackets are pivotally mounted the ratchet-levers 10. Said levers each carry a reversible pawl or dog 12, either end of which may be thrown into engagement with the notched wheel, so that by changing the engagement of the pawl the same may be made to actuate the wheel in either direction. The pawls 12 are of the form shown in Fig. 3, and a spring-actuated plunger 13 engages the hump on the back of the pawl, as indicated, to hold either end thereof in yieldable engagement with the notched wheel. Near the center of the door are arranged spring clips 14 with which the levers 10 may be engaged when not in use, to hold them alongside the body of the door and out of the way.

In unloading a car provided with the door, the ratchet-levers are employed to turn the notched wheels 9 and screw the same upwardly on the threaded portions of the suspension rods, thereby raising the door sufficiently to form a relief opening thereunder through which the grain lying against the door may escape. After the door has been raised sufficiently and the grain has flowed out of contact therewith, the levers 10 are engaged with the spring clips 14 and the door may then be swung inwardly and upwardly around the pivoted ends of the suspension rods and engaged with the hooks 15 or 16 arranged on the car roof, as shown in Fig. 1. As the doors on the opposite sides of the car will ordinarily overlap each other at the center of the car when they are in raised position, two sets of hooks are provided, the hooks 15 being adapted to engage the lower or inner edge of the door first raised, and the hooks 16 being adapted to engage the sides of the door last raised.

In returning the doors to closed position, the same are disengaged from the hooks 15 and 16 and swung down to a vertical position, the levers 10 are released from the clips 14, the positions of the pawls 12 are reversed so as to screw the wheels 9 down on the threaded portions of the rods, and the doors are thus lowered until they are in contact with the floor of the car. When in this posi-

tion, the rods 5 no longer support the door but serve instead to hold the same down into contact with the floor and prevent any accidental raising of the door. The guide-brackets 8 are slotted transversely in order that no cramping or binding upon the rods may occur in case one side of the door were elevated or lowered slightly in advance of the other side, so as to throw the door out of plumb with the door-posts.

Now, having described my invention, what I claim and desire to secure by Letters Patent is:

1. In a railway freight car, a single-section grain door, a rod pivotally connected with the car-frame above the door, the said rod having a threaded portion, and means connected with the door and engaging said threaded portion of the rod whereby the door may be raised upon the rod.

2. In a railway freight car, a single-section grain door, rods having a pivotal connection with the car-frame above the door, the said rods having threaded portions connecting with the door, means engaging said threaded portions by which the door may be raised or lowered upon the rods, and means for actuating said engaging means either in a direction to raise or in a direction to lower the door.

3. In a railway freight car, a grain door, suspension means connected with the door and pivotally connected with the car-frame above the door, said suspension means having a threaded member, a wheel engaging said threaded member and connected with the door so that the same may be raised and lowered thereby relatively to the suspension

means, and means for actuating said wheel in either direction.

4. In a railway freight car, a grain door, rods having a pivotal connection with the car frame above the door, the said rods having threaded portions extending adjacent to the door, internally-threaded wheels engaging the threaded portions of the rods, brackets secured on the door and engaging said wheels so that movement of the wheels longitudinally of the rods will cause a similar movement of the door, and releasable means arranged adjacent to the car roof for holding the door in a substantially horizontal position adjoining the car roof.

5. In a railway freight car, a single-section grain door, rods pivotally connected with the car-frame above the door, brackets arranged on the door in alinement with said rods, threaded portions on the rods extending through said brackets, internally-threaded notched wheels engaging said threaded portions of the rods and held by said brackets in substantially fixed relation to the door, levers pivotally connected with the rods adjacent to said notched wheels, and reversible pawls carried by the levers and adapted to engage the notched wheels to turn the same in either direction and raise or lower the same and the door with relation to the rods.

In testimony whereof I have hereunto subscribed my name in the presence of two witnesses.

ABNER J. DENTON.

Witnesses:

RAY L. MILLAR,
LEILA J. BAKER.