No. 753,162. PATENTED FEB. 23, 1904.

J. RILEY.

GRAIN DOOR FOR FREIGHT CARS.

APPLICATION FILED AUG. 4, 1903.

NO MODEL.

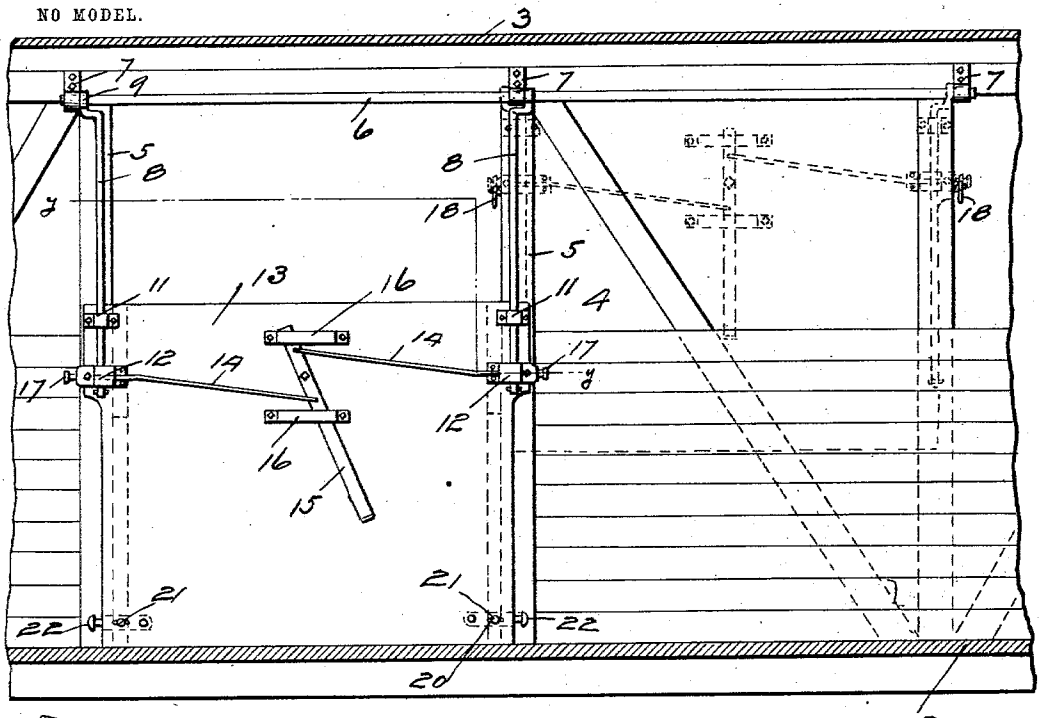


FIG. 1

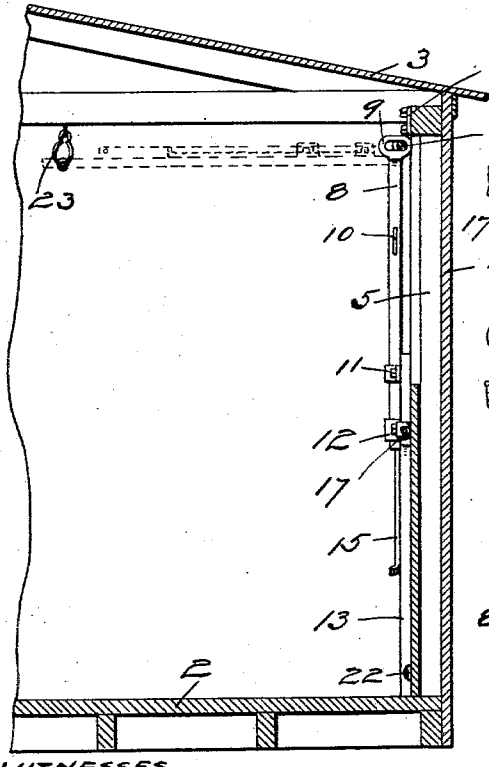


FIG. 2

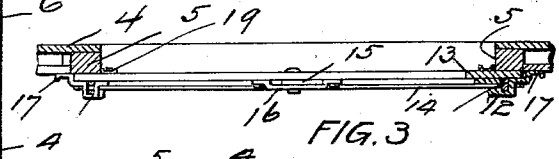


FIG. 3

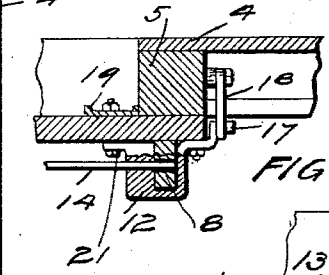


FIG 5

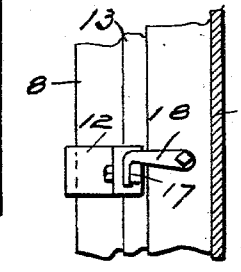


FIG 6

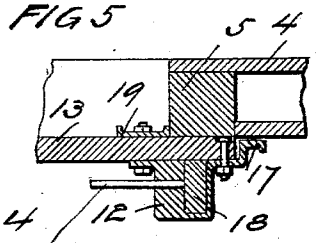


FIG 4

WITNESSES
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No. 753,162. Patented February 23, 1904.

UNITED STATES PATENT OFFICE.

JOHN RILEY, OF MINNEAPOLIS, MINNESOTA.

GRAIN-DOOR FOR FREIGHT-CARS.

SPECIFICATION forming part of Letters Patent No. 753,162, dated February 23, 1904.

Application filed August 4, 1903. Serial No. 168,152. (No model.)

To all whom it may concern:

Be it known that I, JOHN RILEY, of Minneapolis, county of Hennepin, State of Minnesota, have invented certain new and useful Improvements in Grain-Doors for Freight-Cars, of which the following is a specification.

The object of my invention is to simplify and improve the grain-door shown and described in Letters Patent of the United States issued to me February 3, 1903, No. 719,875.

The invention consists generally in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a longitudinal vertical section of a freight-car with my invention applied thereto. Fig. 2 is a transverse vertical section showing the door in its closed position, its raised inoperative position being indicated by dotted lines. Fig. 3 is a section on the line *y y* of Fig. 1. Fig. 4 is an enlarged detail view of one side of the door. Fig. 5 is a similar view showing the means for lowering the door when elevated. Fig. 6 is a detail view showing the means for securing the door to the side of the car when raised and moved away from the door-opening.

In the drawings, 2 represents the floor, 3 the roof, and 4 the sides, of an ordinary freight-car having the usual door-opening, upon each side of which are the upright door-posts 5. Above the door-opening on the inside I provide a rod 6, supported by hangers 7, and whereon the bars 8 are loosely mounted by means of loops 9 and adapted to slide lengthwise of the rod 6 and swing laterally with respect thereto. The loops 9 are sufficiently large to allow considerable freedom of movement of the said bars to and fro, so that they will automatically adjust themselves to the position of the door when the car is loaded or empty. The bars 8 are provided near their upper ends with slots 10, and the lower ends of said bars are adapted to slide in guides 11 and 12, provided on a door 13, that may be constructed of wood or metal, as preferred. Rods 14 are slidably mounted in the guides 12 and connected to a lever 15, that is pivoted on the door 13 at a point midway between its connection with the rods 14, and said lever is arranged to oscillate in a vertical plane within guides 16 on said door. By oscillating the lever 15 the rods 14 may be reciprocated, and when the door is raised to a point opposite the slots 10 the rods 14 will enter therein and lock the door in its raised position. The guides 12 are preferably provided with lugs 17, that are adapted to be engaged by hooks 18, provided on the inside of the car to lock the door securely against the side of the car when it is moved away from the door-opening, as indicated by dotted lines in Fig. 1. To guide the door to its seat against the posts 5, I prefer to provide channel-bars 19, that are adjustable toward and from the sides of the door by means of slots 20 and bolts 21 to adapt the door for openings of different width. It is sometimes desirable to raise the door to a horizontal position beneath the car-roof, and I therefore provide pins 22 in the edges of the door near the lower end thereof that are adapted to enter links 23, provided in the timbers of the car-roof.

The manner of using my improved grain-door is as follows: The door is allowed to slide down the bars 8 and rest upon the floor of the car on the inside of the door, and the pressure of the grain in the car will hold the door firmly against the posts 5 and form a close grain-tight joint therewith and prevent the leakage of the grain. The guides 19, also engaging the door-posts, will aid in seating the door and forming a tight joint with the posts. When it is desired to open up the car, the door is raised to the top of the opening and the lever 15 operated to move the rods 14 into the slots 10 in the bars 8 and lock the door in its elevated position. It can then be moved along the rod 6 to the position shown by dotted lines, where it will be away from the door-opening and not in any way interfere with the loading or unloading of the car. The hooks 18, being moved into engagement with the lugs 17, will hold the door firmly in place against the side of the car and prevent it from swinging to and fro with the motion of the train should it be desired to move the car without first loading it and closing the door. The door-opening on the other side of the car

will be equipped with a similar apparatus; but I prefer to extend the rod 6 on the opposite side of the door-opening, so that when the doors are moved to one side of their respective openings they will not be directly opposite each other and will not, consequently, come in contact when raised to a horizontal position beneath the car-roof.

I claim as my invention—

1. The combination, with a freight-car, of a track mounted above the door-opening and extending beyond the same on one side, bars loosely mounted on said track and adapted to slide longitudinally thereof and oscillate laterally with respect thereto, a door having guides to receive the lower ends of said bars and whereon said door is vertically slidable, and a mechanism carried by said door and arranged to engage said bars to lock said door in its raised position, substantially as described.

2. The combination, with a freight-car, of a rod supported above the door-opening and extending beyond the same on one side, bars mounted on said rod and adapted to slide lengthwise thereof, a door having guides to receive the lower ends of said bars and whereon said door is slidable, and sliding rods for locking said door when raised to a certain predetermined point on said bars.

3. The combination, with a freight-car, of a track supported above the door-opening and projecting beyond the same on one side, bars mounted on said track and slidable lengthwise thereof, a door having guides to receive said bars and slidable vertically thereon, and a hook 18 pivoted on the car and arranged to engage a lug 17 on the door for securing it against the side of the car when said door is raised and moved away from said opening, substantially as described.

4. The combination, with a freight-car, of a rod supported above the door-opening, bars loosely mounted on said rod, a door having guides to receive the lower ends of said bars and to slide vertically thereon, and a lever-operated mechanism provided on said door and arranged to engage said bars to lock said door in its raised position.

5. The combination, with a freight-car, of a rod supported above the door-opening, bars suspended on said rod and having slots in their upper ends, a door having guides to receive the lower ends of said bars and vertically slidable thereon, a lever pivoted on said door, and rods connected with said lever on each side of its pivotal connection with said door and adapted to enter said slots when said door is raised to lock it in its elevated position.

In witness whereof I have hereunto set my hand this 30th day of July, 1903.

JOHN RILEY.

In presence of—

RICHARD PAUL,

S. V. GRIFFIN.