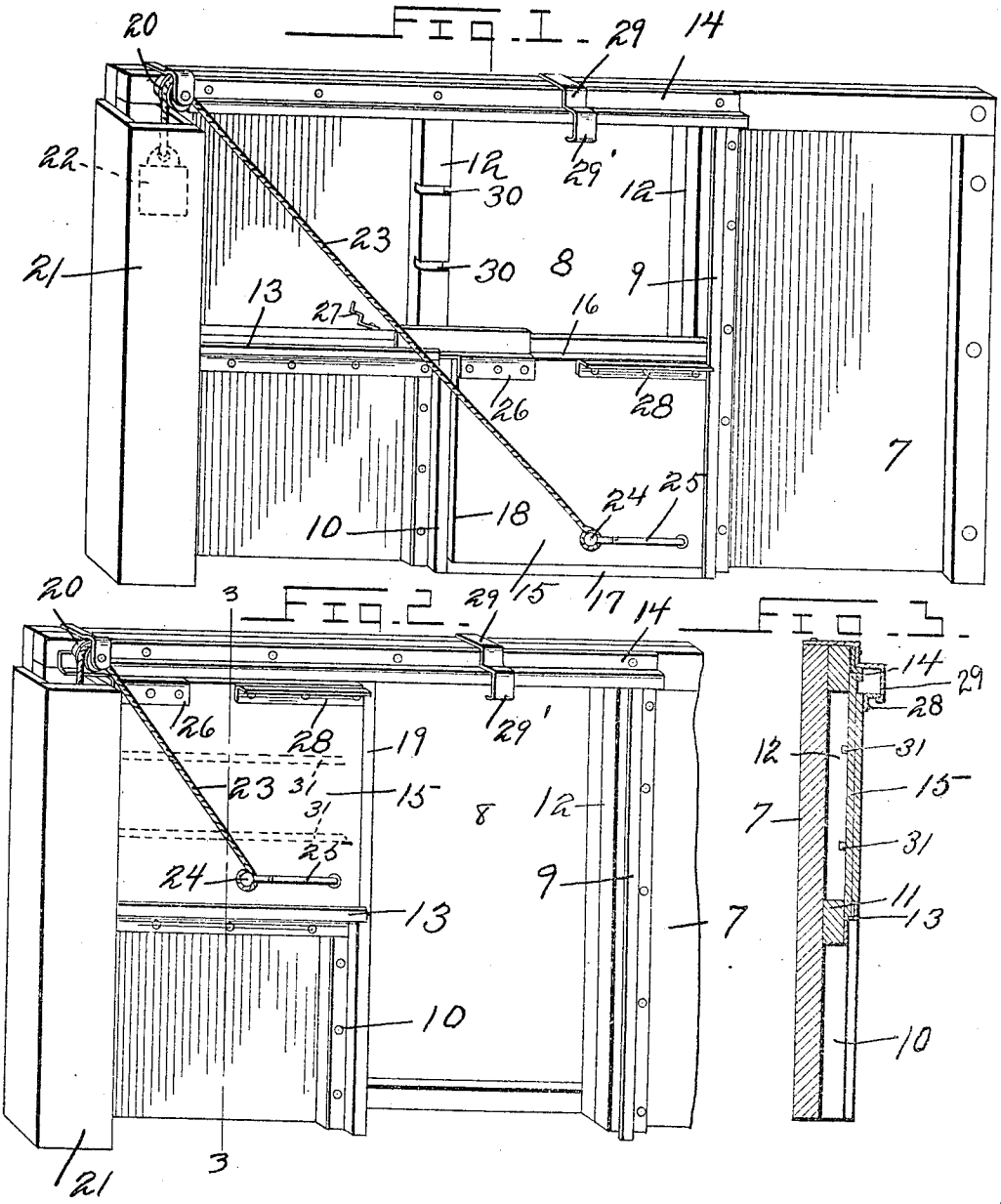
G. G. NEWMAN & W. ROWE.

GRAIN DOOR.

APPLICATION FILED SEPT. 10, 1908.

943,992. Patented Dec. 21, 1909.



Inventors

George G. Newman.

Wesley Rowe.

By Woodward & Chandlee

Attorneys

Witnesses

E. E. Johansen

E. L. Chandlee

UNITED STATES PATENT OFFICE.

GEORGE G. NEWMAN AND WESLEY ROWE, OF BISMARCK, NORTH DAKOTA.

GRAIN-DOOR.

943,992. Specification of Letters Patent. **Patented Dec. 21, 1909.**

Application filed September 10, 1908. Serial No. 452,430.

To all whom it may concern:

Be it known that we, GEORGE G. NEWMAN and WESLEY ROWE, both citizens of the United States, residing at Bismarck, in the county of Burleigh and State of North Dakota, have invented certain new and useful Improvements in Grain-Doors, of which the following is a specification.

This invention relates to railway rolling stock, and more particularly to grain cars, and has for its object to provide a grain car equipped with a grain door which may be easily and quickly moved into and out of position to close a portion of the door opening of the car.

Another object is to provide a structure in which the closing door will lie out of position to interfere with the storing of the car when it is not in use, and in which the movement of the door will be facilitated by suitable weight.

Other objects and advantages will be apparent from the following description, and it will be understood that changes in the specific structure shown and described may be made within the scope of the claims, and that any suitable materials may be used without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is an interior perspective view of one side of a car with the grain door in operative position, Fig. 2 is a similar view showing the grain door out of operative position, Fig. 3 is a vertical section on line 3—3 of Fig. 2, the door being out of operative position.

Referring now to the drawings, there is shown a front wall of a car indicated at 7, having the usual door opening 8 therein. At one side of the door opening there is mounted a vertically extending guide 9, this guide reaching from the top to the bottom of the door, and at the opposite side of the door opening there is a shorter guide 10 extending about one-half of the height of the door from the bottom thereof. At the upper end of this short guide 10 there is a horizontally extending beam 11 secured to the inner face of the wall, the guides 10 and 9 being secured to vertical beams 12, as shown. The outer faces of these beams all lie in a common plane as will be understood.

Secured to the beam 11 there is an upwardly directed guide 13 lying in parallel relation to a horizontally extending top guide 14, this top guide extending across the upper edge of the door opening 8 and joining the upper edge of the vertical guide 9.

A door member 15 is provided with upper and lower flanges 16 and 17, and with vertical side flanges 18 and 19. When the door is in inoperative position, the flange 17 lies in the guide 13, and the flange 16 lies in the top guide 14 laterally of the door opening 8 as will be seen.

A pulley 20 is located at the opposite end of the guide 14 from the door opening 8, and beneath this pulley there is located a weight casing 21.

A weight 22 is located within the casing, and a cable 23 is secured to the weight, passing over the pulley 20 and being secured to the door member 15 as shown. The point of connection of the cable with the door member is at the lower central portion thereof. The connection mentioned is effected through the medium of a fastener 24, which also serves to attach one end of a horizontally extending handle 25 located at the lower corner of the door which lies adjacent to the guide 9.

As will be seen in the drawings, the door member 15 is arranged to lie normally between the guide 13 and the portion of the guide 14 lying laterally of the door 8. When it is desired to bring the door in position to close the lower portion of the door opening 8, however, the handle 25 may be grasped and the door moved laterally upon the guide 13 to bring the door into the upper portion of the door opening 8. The vertical flange 19 will then have been brought into the guide 9, and the flange 18 will lie in position for movement into the guide 10. Downward movement of the door member 15 will then bring it into position to lie at the lower portion of the door opening 8.

A laterally extending plate 26 is secured to the door member 15 at its upper portion and at its corner lying adjacent to the laterally extending portion of the guide 14, and this plate lies normally within the guide 14 and extending into the lateral portion thereof, the plate projecting beyond the side of the door member as shown. It will be observed that this plate is thus disposed to reduce the rocking motion of the door to which it would have a tendency when it is

drawn downwardly by the handle 25, the latter being located at the corner opposite to the plate 26 as brought out. When the door member has been brought into operative position, the laterally extending portion of the plate 26 lies in the guide 13, and in position to receive thereover a swinging latch 27 pivoted to the beam 11. It will of course be understood that this latch lies normally in the vertical plane of the beam and is turned upon its pivot to extend outwardly therefrom and over the plate 26 as just described.

Secured to the upper edge portion of the door member 15 there is a horizontal inwardly projecting plate 28, which lies adjacent to the side of the door member which is directed toward the guide 9. This plate is arranged for sliding engagement in a supporting bracket 29 which extends downwardly over the upper portion of the door member 15 at the inner face thereof, and has a lip 29′ extending in position to lie beneath the inwardly projecting portion of the plate 28. As shown, however, the bracket 29 is so positioned that when the flange 19 has been brought into the guide 9, the plate 28 is out of engagement with the bracket 29 so that the door member is free to move downwardly. The function of the plate 28 is thus to prevent downward movement of the door member until its flange 19 has been engaged in the guide 9. It also serves to support the door member previous to its entire movement into the space between the guides 13 and 14.

As will be understood, the weight 22 materially assists in the upward and lateral movement of the door.

The vertical beam 12 lying at the side of the door opening 8 adjacent to the guide 13 is provided above the guide with a pair of parallel horizontal slots 30 in its inner face, these slots receiving tenons 31 carried by the outer face of the door member 15 when the latter is at the upward limit of its vertical movement and just started upon its lateral movement to the space between the guides 13 and 14. These pins are thus guide pins.

What is claimed is:

1. In a door structure, the combination with parallel vertical guides, one of said guides terminating short of the top of the other guide, of an outwardly extending horizontal guide located at the upper end of the shorter vertical guide, a horizontal guide located at the upper end of the longer vertical guide, and extending across the space between the vertical guides and outwardly in parallel relation to the first named horizontal guide, a door member movable to lie at times between the horizontal guides and at times between the vertical guides, a plate carried by the door member and arranged to lie in the upper horizontal guide, said plate extending laterally beyond the door member and arranged to lie in the lower horizontal guide when the door member is between the lower portions of the vertical guides, and a latch movable into and out of position to extend across the laterally extending plate when the door member is between the vertically extending guides.

2. A door comprising vertical parallel guides, one of said guides terminating short of the upper end of the other guide, a horizontal guide located with one end adjacent to the upper end of the longer vertical guide and extending across the space between the vertical guides and laterally beyond the shorter vertical guide, the second horizontal guide located with one end adjacent to the upper end of the shorter vertical guide, and extending outwardly therefrom in parallel relation to the first named horizontal guide, a door member having upper and lower flanges engaged in the respective horizontal guides, said door member having vertical side flanges arranged for engagement in the vertical guides, a depending bracket member carried by the upper horizontal guide and an inwardly extending plate carried by the door member and arranged for engagement at times with the bracket, said plate being arranged to lie out of engagement with the bracket when one of the flanges of the door member is in the longer vertical guide, and means for holding the door member yieldably between the horizontal guides.

In testimony whereof we affix our signatures, in presence of two witnesses.

GEORGE G. NEWMAN.
WESLEY ROWE.

Witnesses:
ERNA D. KRUEGER,
JOSEPH S. WRIGHT.