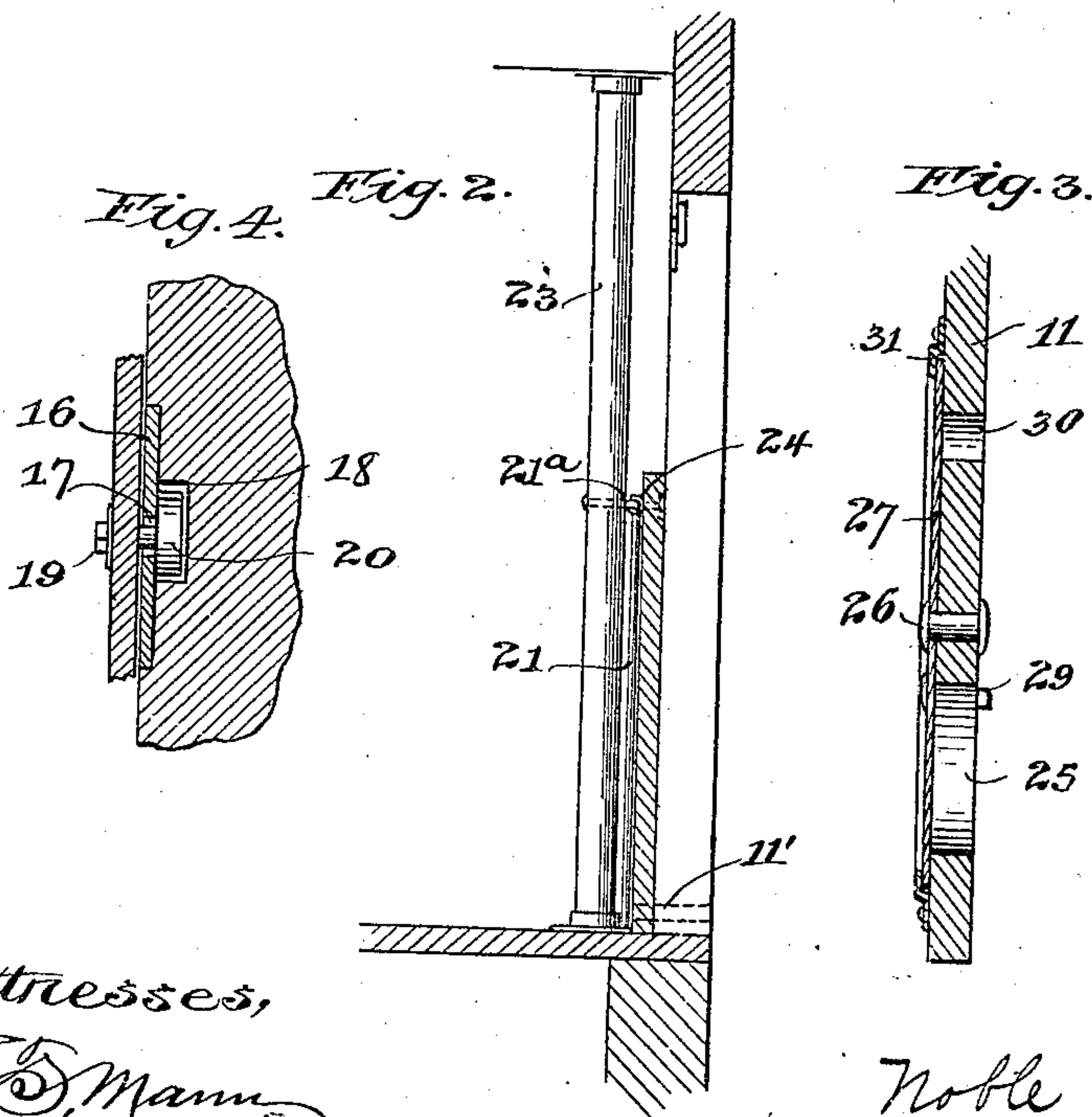
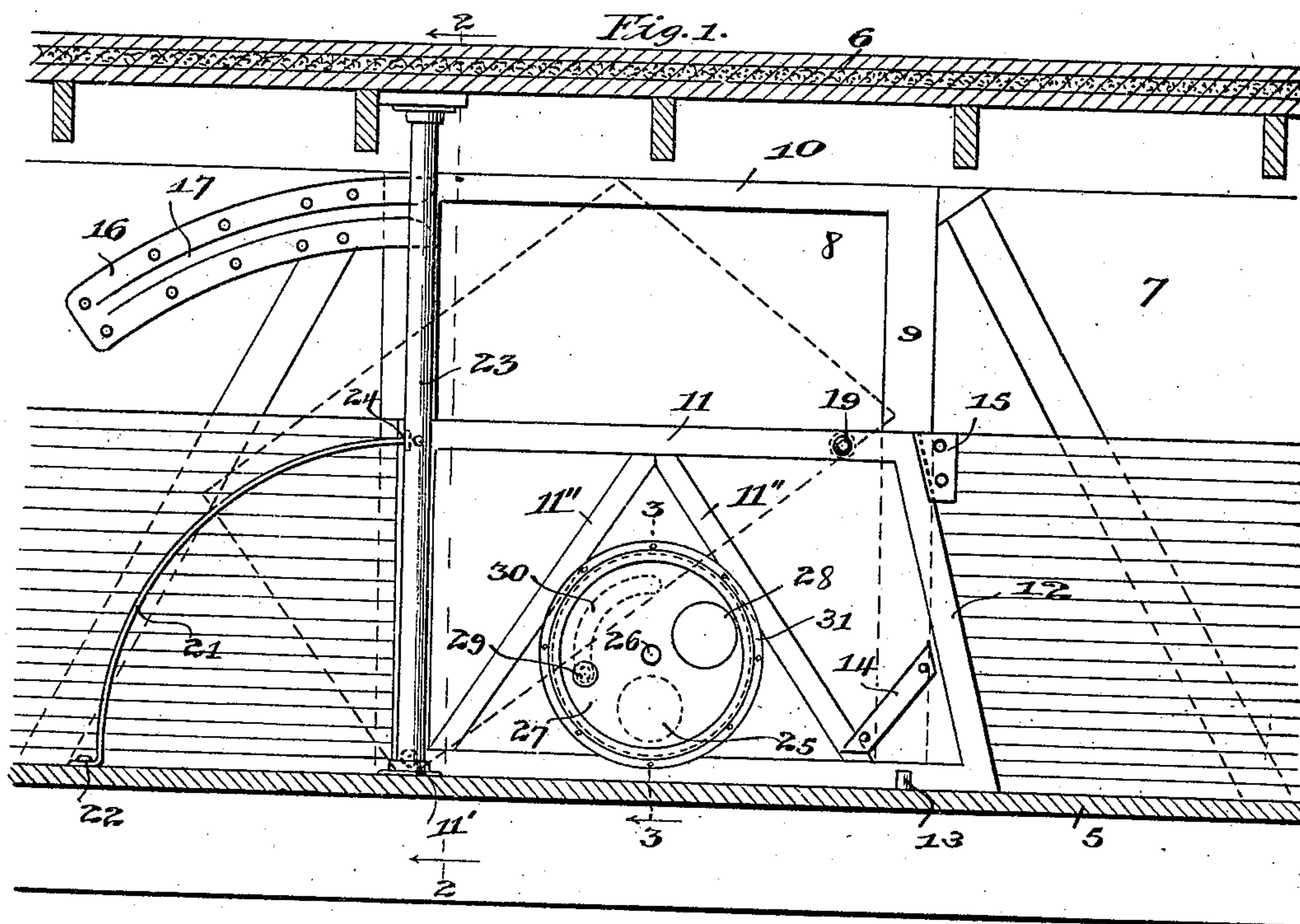


No. 842,943.

PATENTED FEB. 5, 1907.

N. H. CONGER.
GRAIN DOOR FOR RAILWAY CARS.
APPLICATION FILED JULY 27, 1905.



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UNITED STATES PATENT OFFICE.

NOBLE H. CONGER, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE OSTERMANN MANUFACTURING CO., OF CHICAGO, ILLINOIS, A CORPORATION OF SOUTH DAKOTA.

GRAIN-DOOR FOR RAILWAY-CARS.

No. 842,943.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Application filed July 27, 1905. Serial No. 271,448.

To all whom it may concern:

Be it known that I, NOBLE H. CONGER, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Grain-Doors for Railway-Cars, of which the following is a specification.

My invention relates to grain-doors for railway-cars and constitutes an improvement on the door described in my copending application, Serial No. 260,560, Grain-doors for railway-cars, filed May 15, 1905. Doors of this character are usually located on the inner wall of the side of the car opposite the main door-opening and are designed for use when the car is employed in the transportation of grain, being swung out of the way or removed entirely when the car is used for the transportation of other merchandise.

One object of my invention is to provide a simplified and improved door of this character which may be easily moved into and out of operative position and which when not in use shall occupy a minimum of space and present a minimum obstruction to the contents of the car.

A further object of my invention is to so construct the door as to withstand pressure tending to force it outward; and to this end my invention consists, essentially, of a door pivoted or hinged at one corner and adapted to be swung in a plane parallel to the wall into inoperative position, the door being so constructed as to constantly overlap two or more edges of the doorway in its opening movement.

A further object of my invention is to provide in the grain-door itself a means for relieving the pressure of the grain thereagainst in order to facilitate the opening of the door or to draw off a sample of the grain.

My invention in an improved mechanical form is illustrated in the accompanying drawings, in all the views of which the same reference characters refer to like parts.

Figure 1 represents a longitudinal vertical section through a portion of the car-body, showing the usual side opening or doorway and my improved grain-door applied thereto. Fig. 2 is a vertical transverse section of a portion of the car, showing the grain-door in edge elevation. Fig. 3 is a cross-section of the grain-door on the line 3 3 of Fig. 1. Fig. 4 is

a fragmentary section of the car and door, showing the coöperation between the slotted guide on the side of the car and the stud on the door.

Referring to the drawings, 5 is the floor of an ordinary car, 6 the roof of the same, and 7 the side wall. In this wall is the usual doorway 8, with the frame consisting of the side members 9 and the top member 10. The grain-door 11, which is pivoted at its lower left-hand corner on bolt or pin 11', secured to the side frame member 9, has its right-hand end 12 formed with an inclined or sloping edge, as is clearly shown in Fig. 1. In order to strengthen the frame of the grain-door, I provide inclined or diagonal braces 11'', joining the top and bottom frame-pieces. The door may be made of wood or sheet metal, and if constructed of metal the diagonal braces may comprise integral ribs stamped out of the plane of the door. It will be noticed that the door is longer than the width of the doorway, so that it overlaps the frame of the doorway to a considerable extent. On the floor of the car a lug 13 is provided, which, in addition to the guides hereinafter mentioned, prevents the door from moving inwardly, and stop 15 also coöperates with the edge 12 to assist in holding the door in place. The door is supplied at its lower part with a handle 14 for facilitating its opening and closing from the inside of the car when desirable.

Attached to the side of the car at one side of and near the upper portion of the doorway is a curved guide-plate 16, having a curved slot 17 for the reception of a headed stud 19, secured near the upper edge of the door 11. The curvature of the slot 17 corresponds to the path of travel of the stud 19, so that the latter engages the slot when the door is part way opened and travels therein for the remaining movement of the door, the side of the car behind slot 17 and plate 16 being recessed, as at 18, to accommodate the enlarged head 20 of stud 19. This guide-plate and coöperating stud securely retain the upper portion of the door against the side of the car when in its upright or open position. To guide the lower portion of the door, I provide a rod 21, bent into quadrant shape and bolted or otherwise secured at its lower end 22 to the car-floor. A column or post 23, which may be a metal pipe fastened to the floor and

roof of the car, supports and retains in place the upper end of rod 21, which is bent inwardly at 21^a, passing through holes in post 23 and headed at its outer end to retain it in place. Eyebolt 24, fastened to and extending inwardly from the grain-door, slides on rod 23 and guides that portion of the door.

In the center of the door and near the lower portion thereof is a port-opening 25 for the discharge of the grain. Pivoted to the door, as at 26, is a circular valve-plate 27, provided with an opening 28, which when swung into its lowermost position registers with the opening 25 of the door and allows the discharge of the grain or permits the taking of a sample thereof. When the plate 27 is turned upon its pivot, so that the opening 28 does not register with the opening 25, the discharge of the grain is prevented. To facilitate the operation of valve 27 from the outside of the door, I provide a lug 29, which is securely fastened to valve 27 and extends through a curved slot 30 in door 11 to the exterior thereof. By grasping this lug the valve 27 may be swung so as to open or close port-opening 25. To retain the plate 27 snugly against the grain-door 11, there is secured to the door a flanged ring 31, the flange overlapping the edge of plate 27. If the grain-door bulges, the flange holds the circular plate 27 to the door and prevents the grain from escaping through any spaces which might otherwise open up between the door and plate.

The door 11 is of a height suitable to the grain-line of any particular kind of grain desired to be carried by the car or of a height equaling the maximum grain-line where the car is used for the transportation of various grains.

The operation of this device is as follows: When the car is to be used for the transportation of grain, the door 11 is swung down by means of the handle 14 or in any other manner to its lowermost position, the valve-plate 27 is turned so that the port-opening of the door is closed, and the car can then be filled to the proper height with the grain to be transported. When it is desired to unload the car, the valve 27 is turned by means of the handle or lug 29, so as to open the port and allow the grain to discharge, and when it is desired to lift the door 11, so as to completely remove it from the doorway, it is turned about its pivot 11', and owing to the length of the door before the lower right-hand portion of the same ceases to overlap the member 9 of the frame the upper right-hand portion of the door overlaps the upper member 10 of the door-frame, so that any pressure which tends to force the door outwardly is successfully counteracted. After the door has been partially lifted the stud 19

comes into contact with the guide-plate 16, and this in conjunction with the guide-rod 21 and its coöperating eyebolt holds it snugly to the side of the car with the doorway fully open.

It will be observed that the door always overlaps two edges of the doorway and in this manner prevents the door from being forced outward through the doorway, due to pressure of grain or from other causes. The sloping end formation of the door, although not necessary, facilitates the accomplishment of this result.

It is obvious that various changes may be made in the construction of this grain-door without departing from the substance of the invention as defined in the following claims.

I claim—

1. In a railway-car, the combination of a wall of the car-body having a doorway, and a grain-door pivotally mounted at one side of said doorway and adapted to be swung parallel to the wall of said car-body across said doorway to retain grain or other lading in the car or to be removed therefrom, said door being of such length as to constantly overlap at least two edges of said doorway in its opening movement, substantially as described.

2. In a railway-car, the combination of a wall of the car-body having a doorway, and a grain-door pivotally mounted at one of its lower corners adjacent to one of the lower corners of said doorway, said door being adapted to be swung parallel to the wall of the car-body across said doorway to retain grain or other lading in the car or to be removed therefrom, said door being of such length as to constantly overlap at least two edges of said doorway in its opening movement, substantially as described.

3. In a railway-car, the combination of a wall of the car-body having a doorway, a grain-door pivotally mounted at one of its lower corners adjacent to one of the lower corners of said doorway, said door being adapted to be swung parallel to the wall of the car-body across said doorway to retain grain or other lading in the car or to be removed therefrom, said door being of such length as to constantly overlap at least two edges of said doorway in its opening movement, a guide for said door comprising a quadrant-rod, a post, said rod being parallel to the wall of the car-body and fastened at one end to the floor of the car and at its other end to said post, and an eyebolt secured to said door and coöperating with said rod, substantially as described.

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