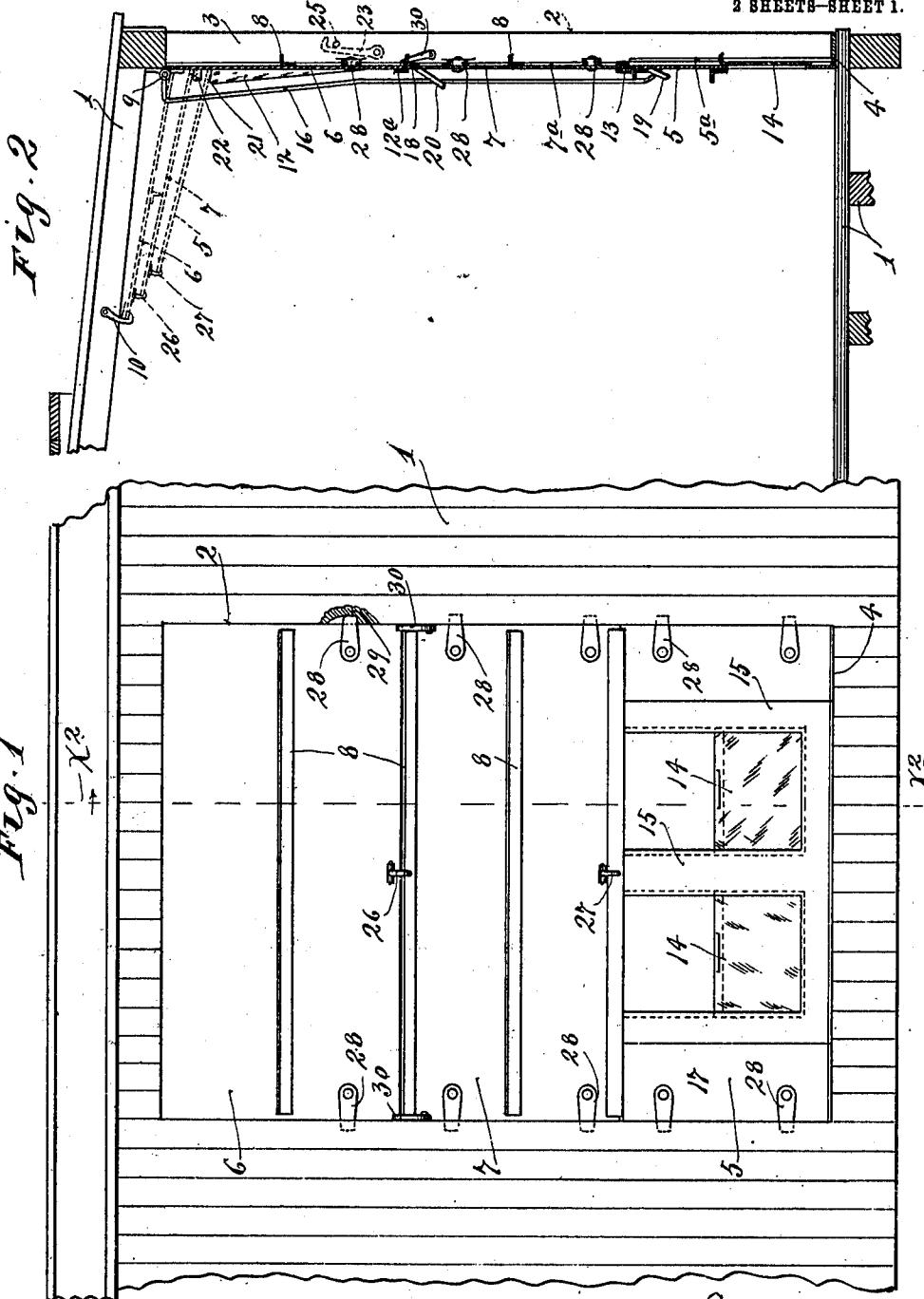


A. OLSON.
CAR DOOR.
APPLICATION FILED JAN. 13, 1909.

989,032.

Patented Apr. 11, 1911.

2 SHEETS-SHEET 1.



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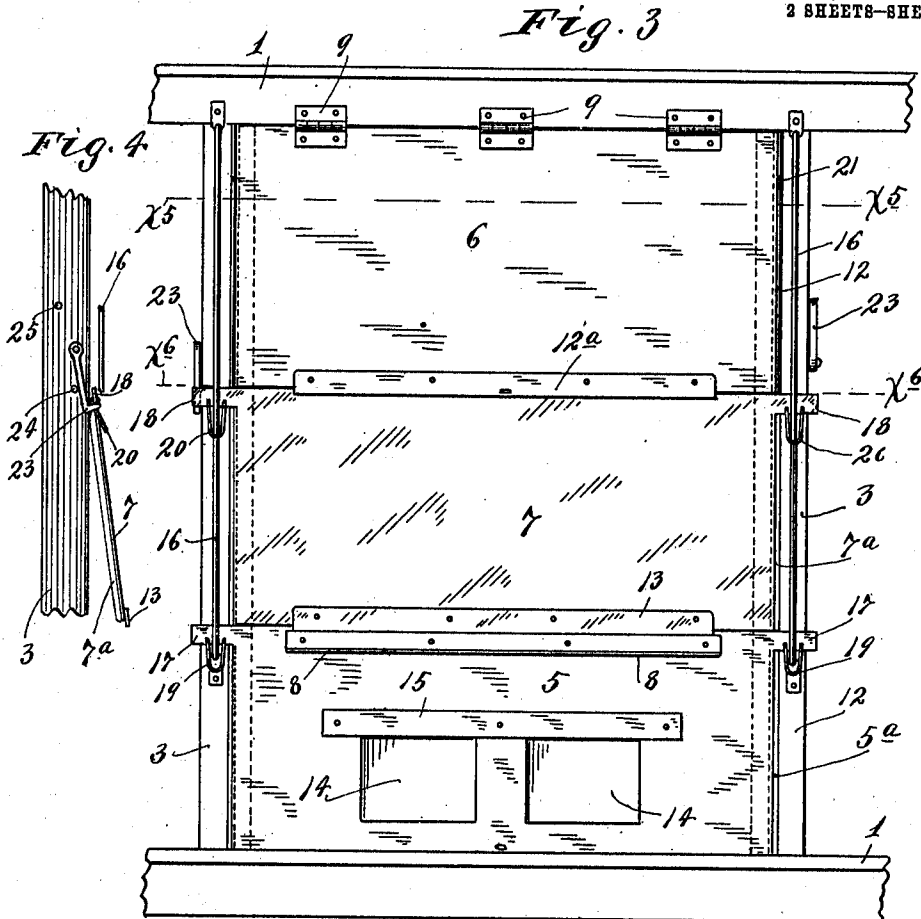


Fig. 4

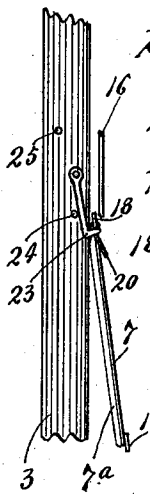


Fig. 5

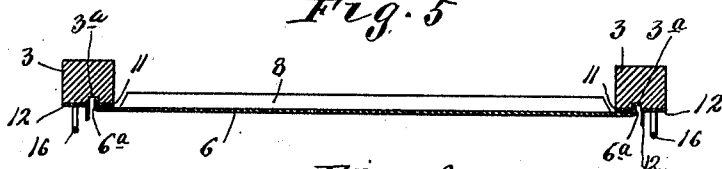
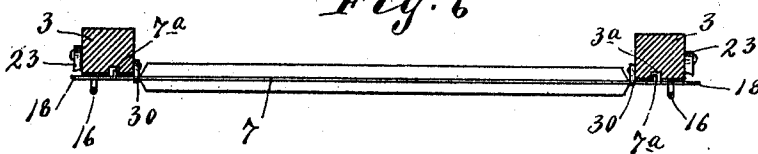


Fig. 6



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UNITED STATES PATENT OFFICE.

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CAR-DOOR.

989,032.

Specification of Letters Patent.

Patented Apr. 11, 1911.

Application filed January 13, 1909. Serial No. 472,063.

To all whom it may concern:

Be it known that I, ANDREW OLSON, a citizen of the United States, residing at Superior, in the county of Douglas and State of Wisconsin, have invented certain new and useful Improvements in Car-Doors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide an improved grain door for cars, and to this end, the invention consists of the novel devices and combinations of devices herein-after described and defined in the claim.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings: Figure 1 is a view in side elevation, showing the central portion of a box car with my improved grain door applied to one of the side door openings thereof, some parts being broken away; Fig. 2 is a vertical section taken on the line $x^2 x^2$ of Fig. 1, some parts being broken away; Fig. 3 is a view in elevation looking at the grain door from the inside of the car body, and showing diagrammatically portions of the car body; Fig. 4 is a detail view in elevation, showing a portion of one of the door posts, and showing a portion of the improved grain door in edge elevation; Fig. 5 is a horizontal section taken on the line $x^5 x^5$ of Fig. 3; and Fig. 6 is a horizontal section taken on the line $x^6 x^6$ of Fig. 3.

The car body 1 is provided in its sides with the usual door openings 2, formed between vertical door posts 3. Secured to the car floor and extending between the lower ends of the door posts 3, is a door stop, preferably in the form of a flat metal bar 4.

The grain door is preferably made up of three sections, to-wit; a lower section 5, an upper section 6 and an intermediate section 7. These door sections are all preferably, but not necessarily, constructed of sheet metal reinforced by angle iron strips 8. The upper door section 6, at its upper edge, is connected by hinges 9 to the transverse upper beam of the door frame, and is arranged to swing inward and upward, and to be secured, when desired, to the roof beams of the car by one or more retaining hooks 10 pivoted to the latter and gravity held in operative

position. At its ends, this upper door section 6 has out turned vertically extended flanges 6^a, which, when the door section is closed, enter vertical grooves 3^a formed in the door posts 3 between metal facing strips 11 and 12 that are secured to the inner faces of said door posts. The said channels 3^a and the metal strips 11 and 12 are extended from top to bottom of the door posts, for coöperation with out turned end flanges 5^a and 7^a of the door sections 5 and 7 respectively. The upper door section 6 is provided at its lower edge, with a laterally offset depending joint strip 12^a, formed from a thin strip of metal and arranged to overlap the upper edge of the intermediate door section 7; and likewise, the intermediate door section 7 is provided with a strip 13, that is adapted to overlap the upper edge of the lower door section 5 on the inner face thereof. The lower door section 5 is provided with one or more, preferably with two, preliminary discharge passages that are normally closed by vertically movable gates or slides 14, held for vertical sliding movements, as shown, by guide strips 15 secured to the outer face of the said door section 5.

Secured to the inner sides of the door posts 3, and extending from their upper portions downward to points below the upper edge of the lower door section 5, is a pair of guide rods 16. The door sections 5 and 7 are provided at the ends of their upper edges, with projecting lugs 17 and 18 that are located between the door posts and the coöperating guide rods 16, and are provided with links 19 and 20 respectively, that work loosely upon the said guide rods. The outer facing strips 12, at their upper extremities, are provided with vertically spaced rest shoulders or flanges 21 and 22, the former of which are preferably beveled downward, and extended parallel to obliquely extended upper portions of the corresponding guide rods 16, as best shown in Fig. 2. To the intermediate portion of each door post 3 is pivoted a supporting hook 23. When these two hooks 23 are turned downward as shown in Fig. 4, against stops 24, their ends are adapted to engage the projecting lugs 18 of the intermediate door section 7, and thus support the said door section independently of the other door sections. When the hooks 23 are turned upward against stops 25, they are entirely out of use.

When the entire door is to be suspended in

an inoperative position, as indicated by dotted lines in Fig. 2, the upper door section 6 is first turned upward and secured by the hooks 10; then the intermediate door section 7 is slid upward on the rods 16, and its lugs 18 are turned downward upon the supporting lugs 22, and its free edge is then secured to the door section 6 by a hook 26, pivoted to the said door section 6; and then the lower door section 5 is moved upward on the guide rods 16, and its upper edge is turned inward of the upper extremities of the supporting flanges 21, and its free edge is then secured to the door section 7 by a hook 27, shown as pivoted to the said door section 7. Preferably, the door sections 5, 6 and 7 are provided at their ends with pivoted turn buttons 28, which when turned outward, are adapted to engage seats 29 formed in the inner faces of the door posts 3, and thus to secure the door sections against the door posts, even when there is no pressure thereon from the grain or other material contained in the car.

When the car is to be emptied of grain, the gates 14 are slid upward into open positions, so as to permit an initial discharge of grain from the car, and thereby relieve the grain from an internal pressure. After this has been done, the door may be moved upward into its inoperative position, indicated by dotted lines in Fig. 2, in the manner already described.

A grain door constructed as above described will very tightly close the entire door opening, so that the outside door may be dispensed with. However, the grain door

is capable of use in connection with the ordinary outside sliding door; and for holding wheat or other materials with which the car will not be loaded, above the top of the door section 7, the upper door section 6 may be left suspended in its inoperative position.

What I claim is:

The combination with a car body having a door opening, facing strips secured to the posts of said door opening and provided with vertical channels, rest shoulders projecting laterally from the upper extremities of said facing strips, located on the outer edges of said vertical channels and arranged in horizontally alined pairs, the lower pair of which are beveled downward to meet said facing strips, and guide rods spaced apart from said facing strips with their lower portions extending parallel to the facing strips and with their upper portions extending parallel to the bevel portions of said lower pair of rest shoulders, of a grain door made up of independent sections having at their upper portions projecting lugs that work between said guide rods and said facing strips, and also having end flanges engageable with said vertical channels, and said lugs adapted to be held by said rest shoulders when the door sections are in their inoperative positions, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW OLSON.

Witnesses:

FRANK AUSTIN,
FRED ANDERSON.