No. 885,101. PATENTED APR. 21, 1908.

M. H. STICKNEY.

CAR DOOR.

APPLICATION FILED DEC. 7, 1905.

2 SHEETS—SHEET 1.

Fig 1

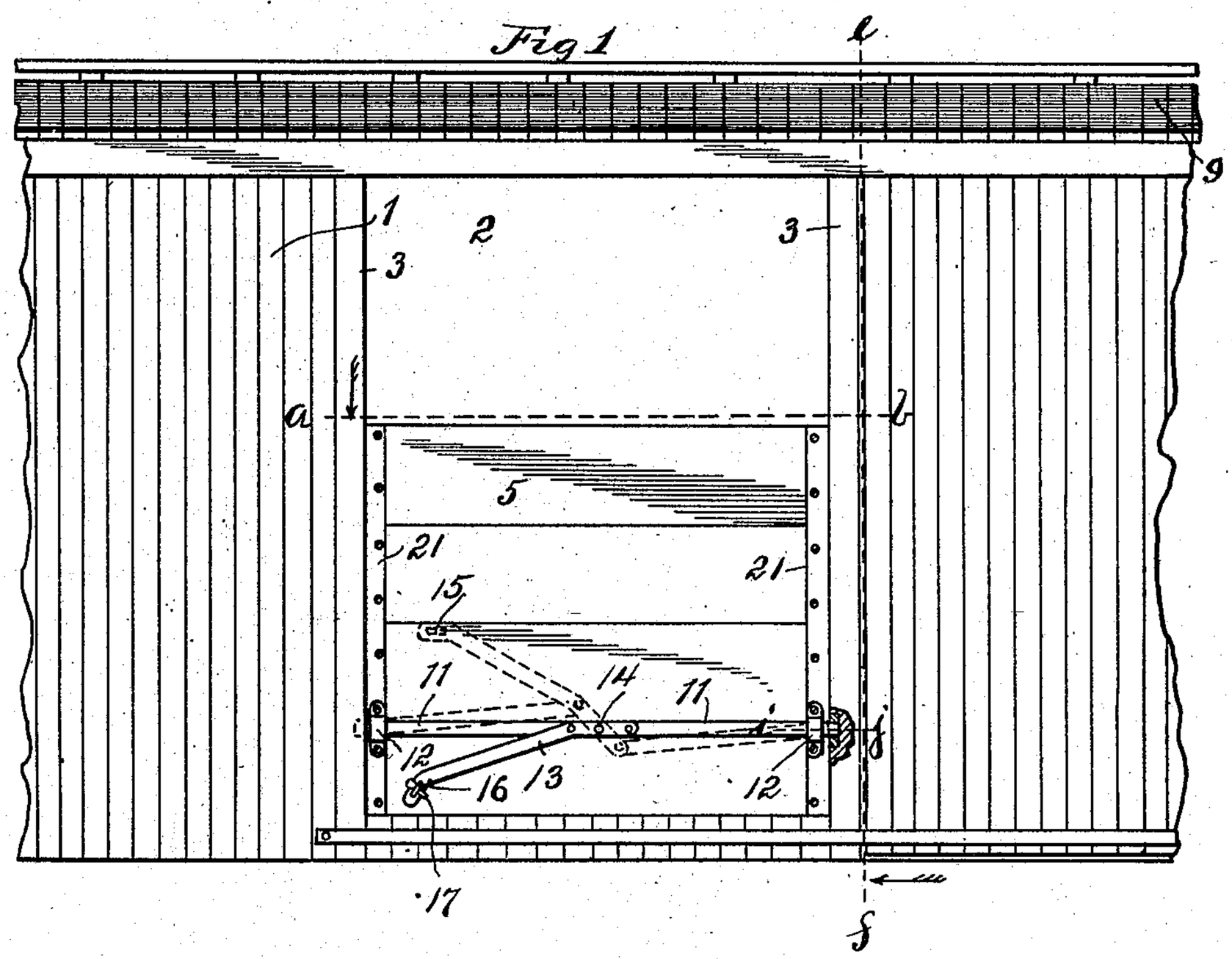
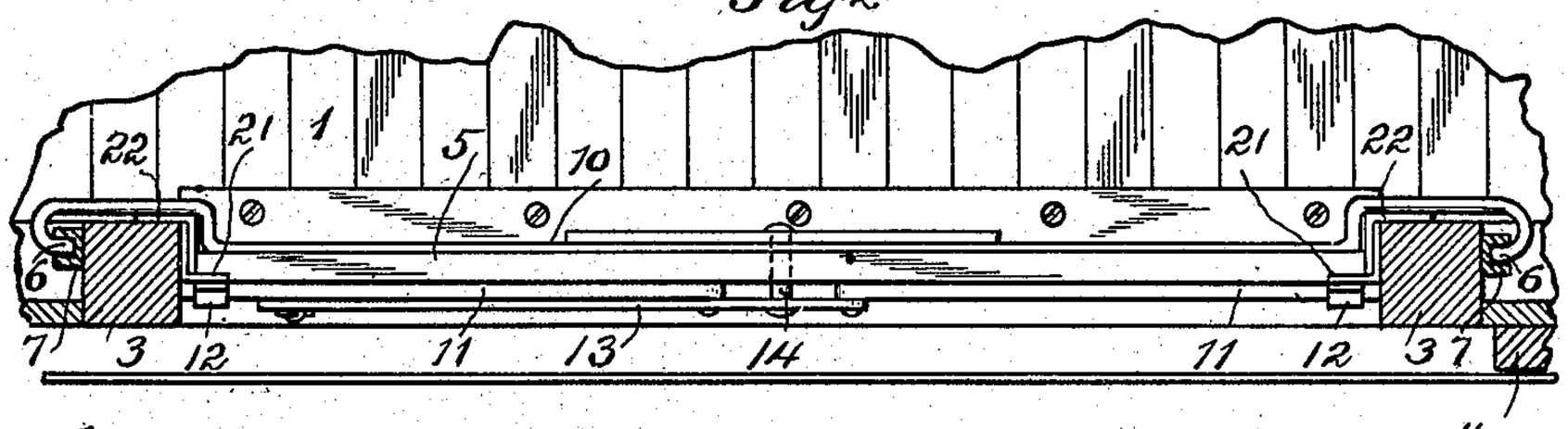


Fig 2



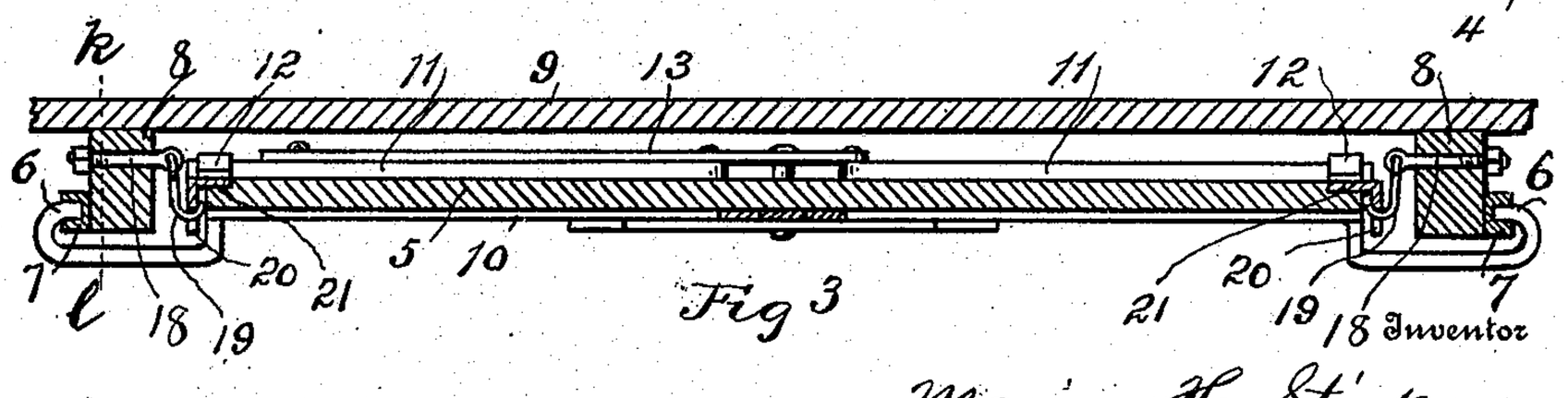


Fig 3

Witnesses
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His Attorney

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2 SHEETS—SHEET 2.

Fig 4

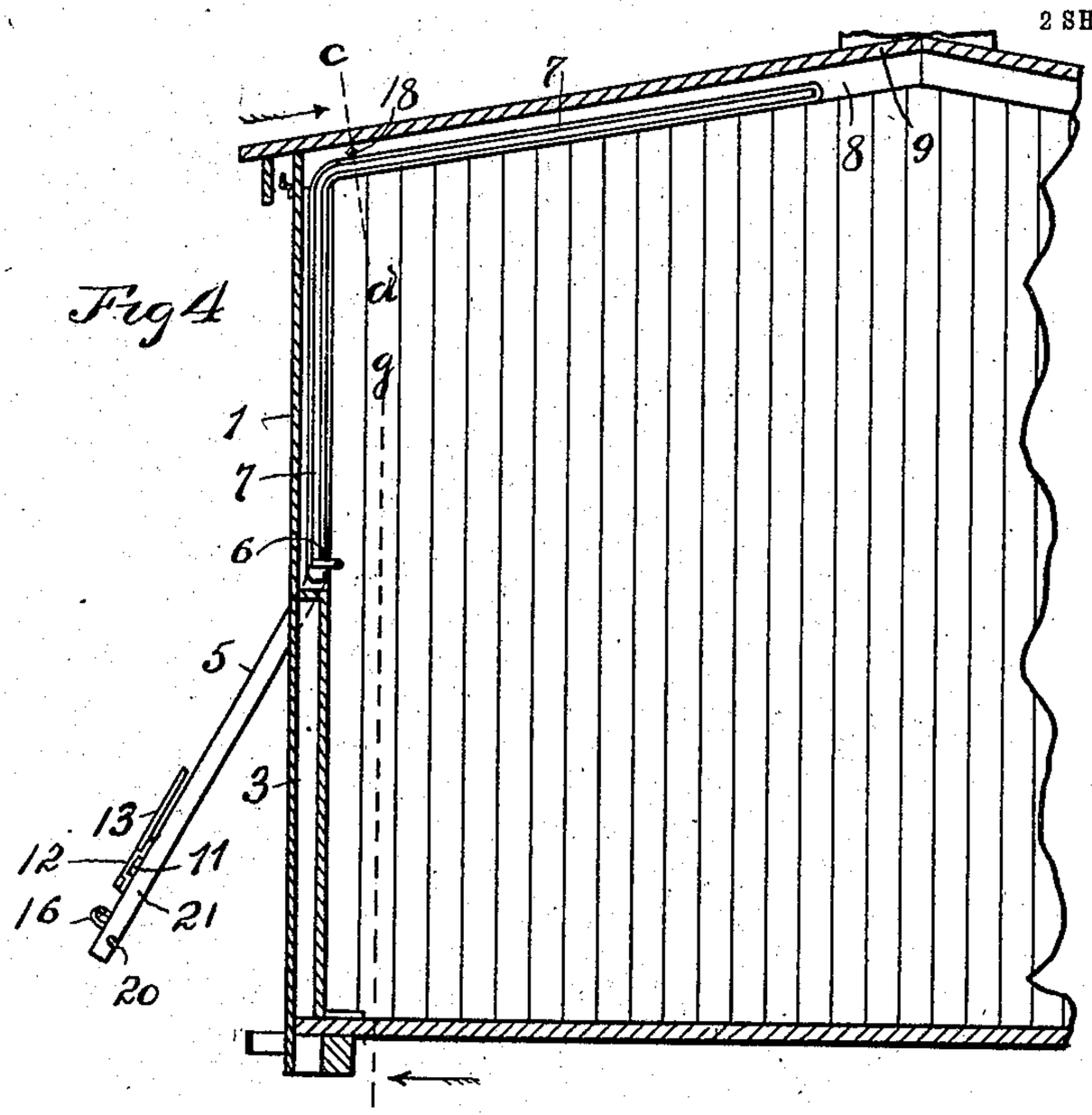
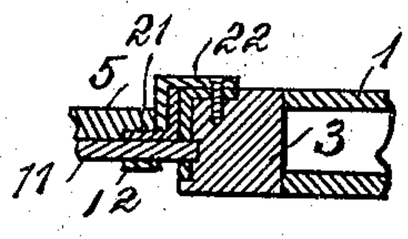


Fig 6



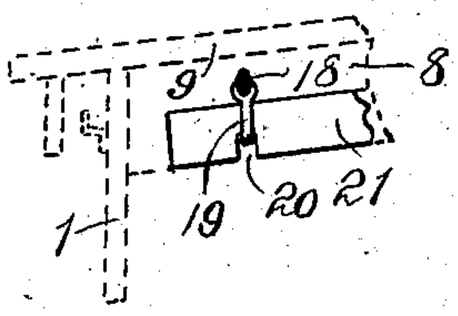
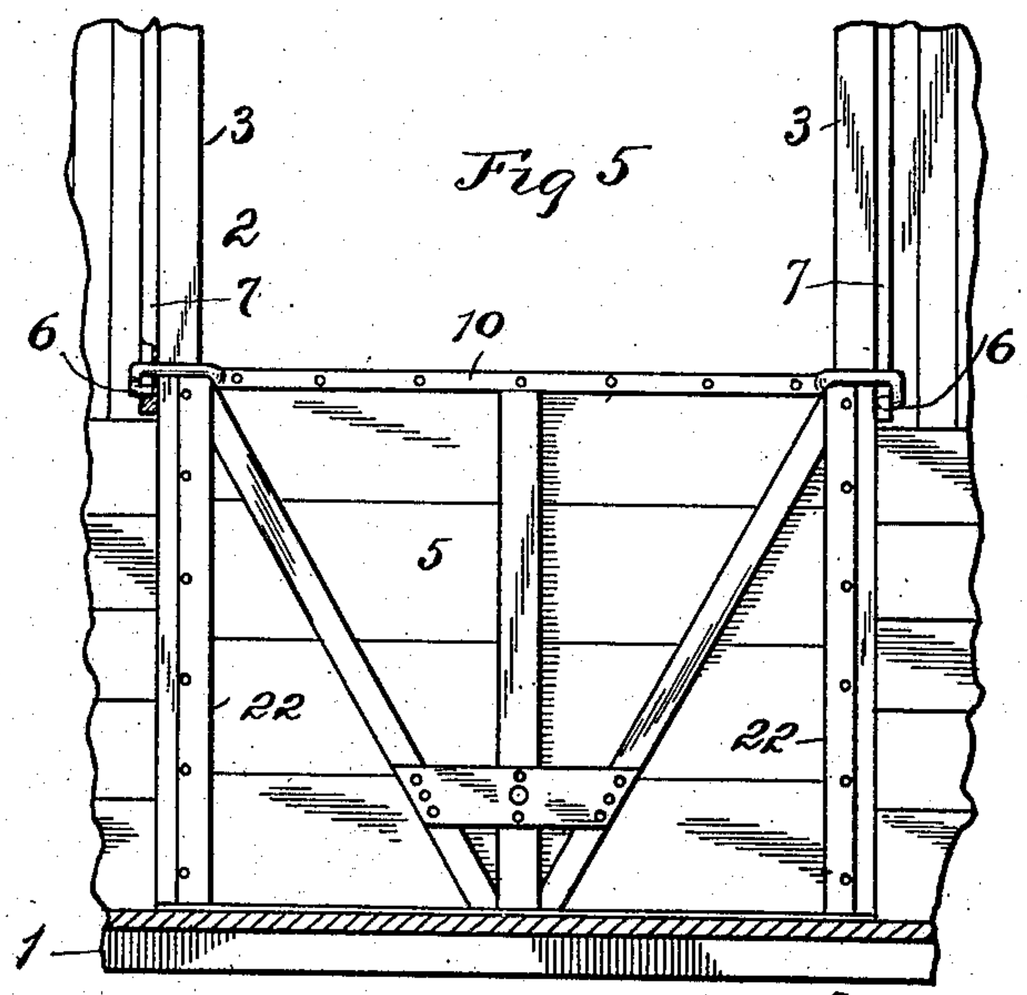


Fig 7

Fig 5



Witnesses

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UNITED STATES PATENT OFFICE.

MARION H. STICKNEY, OF KANSAS CITY, MISSOURI.

CAR-DOOR.

No. 885,101. Specification of Letters Patent. Patented April 21, 1908.

Application filed December 7, 1905. Serial No. 290,808.

To all whom it may concern:

Be it known that I, MARION H. STICKNEY, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented new and useful Improvements in Car-Doors, of which the following is a specification.

My invention relates to improvements in car doors.

It relates particularly to improvements in doors of cars employed for carrying grain or the like.

The object of my invention is to provide a car door that may be quickly opened for permitting the grain or like material lying against the door to fall out of the car and hasten the unloading of the car.

My invention provides a vertically movable inner door for closing the lower end of the usual side opening of the car, the door being pivoted to the car body at its upper end so that the lower end of the door may be swung outwardly and thus permit the grain against the door to fall out.

My invention provides further releasable means for locking the grain door against outward or upward movement after it has been closed.

It provides further means by which the door may be releasably retained in the elevated position during the unloading of the car.

The invention provides further an inner outwardly swinging and vertically movable inner door which in the closed position lies wholly upon the inner side of the path of movement of the usual outer door, so that the outer door may be freely opened or closed.

My invention provides also novel means for sealing the side edges of the door against the entrance of grain between the car body and the inner grain door.

Other novel features are hereinafter fully described and claimed.

In the accompanying drawings illustrative of my invention. Figure 1 is an outer side elevation of a portion of a car provided with a grain door of my invention, the door being shown in the lower closed position, a portion of the car body being broken away to show the mechanism on the car body engaging one of the locking bolts. Fig. 2 is a horizontal sectional view taken on the dotted line *a*—*b* of Fig. 1. Fig. 3 is a sectional view taken on the dotted line *c*—*d* of Fig. 4. Fig. 4 is a vertical sectional view taken on a plane corresponding in position to the dotted line *e*—*f* of Fig. 1, the grain door being shown swung outwardly. Fig. 5 is a vertical sectional view taken on the dotted line *g*—*h* of Fig. 4 looking outward as denoted by the arrow, the grain door in this view being shown closed. Fig. 6 is a horizontal sectional view taken on the dotted line *i*—*j* of Fig. 1. Fig. 7 is a cross section taken on the dotted line *k*—*l* of Fig. 3, the car rafter being shown in dotted lines.

Similar characters of reference denote similar parts.

1 denotes the body of an ordinary box car employed for carrying grain and the like and provided in its side with the usual door opening 2.

3 denotes two vertical posts disposed one at each side of the opening 2, and forming a part of the car body.

4 is the ordinary outer car door, shown in Fig. 2 and slidably mounted in the ordinary manner upon the outer side of the car to and from a position closing the opening 2.

5 is the grain or inner door, vertically movable in the opening 2 and adapted to close the lower end of said opening; said door when in the closed position, as shown in Fig. 2, lies wholly at the inner side of the path of movement of the door 4, thus permitting the door 4 to be opened or closed without striking the door 5. The upper end of the door 5 is provided with laterally projecting trunnions 6, vertically slidable respectively in two guides 7 comprising preferably two channel irons secured respectively upon the sides of the posts 3 opposite the opening 2 and having their upper ends extending upwardly and laterally and secured to two rafters 8 of the car roof, denoted by 9. By placing the channel bars 7 on the sides of the posts 3 opposite the opening 2 said bars do not obstruct the opening and are, furthermore so located as not to be easily injured or to occupy valuable space in the car. The trunnions 6 are preferably formed in the following described manner:—A horizontal bar 10 is secured to the inner side and upper end of the door 5. The ends of the said bar, adjacent to the side edges of the said door, are inwardly bent and extend transversely past the posts 3 respectively, the extreme ends of said bar being formed into return bends and mounted respectively in the guides 7. The guides 7 are closed at their lower ends, as

shown in Fig. 4 and Fig. 5, thus forming supports upon which the trunnions 6 are pivotally mounted, when the door 5 is in the lower position. When in this position the door 5 may be swung outwardly to the position shown in Fig. 4, so as to permit the grain lying against the door 5 to fall out of the car, thus facilitating the unloading of the car.

For locking the door in the closed position, as shown in Figs. 1, 2 and 5, the following described mechanism is provided:—Slidably mounted upon the outer side of the door 5, are two horizontal bolts 11, mounted respectively at their outer ends in two guides 12, secured to the outer side of the door 5 adjacent its side edges. The adjacent ends of the bolts 11 are pivoted respectively to a lever 13, at opposite sides respectively, of a bolt 14, secured to the door 5 and upon which the lever 13 may be oscillated. By oscillating the lever bolts 11 may be forced in and out of two recesses provided one in each post 3 adjacent the door 5. To lock the lever 13 against movement when the bolts 11 are in the locked position, the said lever is provided with a slot 15, adapted to receive a staple 16, secured to the outer side of the door 5 and adapted to receive a pin 17, which rests upon the outer side of the lever 13, as shown in Fig. 1. To retain the door 5 in the elevated position, as represented in Fig. 3, two bolts 18 are secured transversely in the rafters 8 respectively and have mounted on their inner ends respectively, two hooks 19, adapted, when the door 5 is moved in its most elevated position, to enter the notches 20 provided one each in the lower end and inner side of an inwardly extending flange of a vertical angle iron 21 secured to the outer side and adjacent edge of the door 5. The inwardly extending flanges of the angle irons 21 are slidably mounted respectively between the posts 3 and the outwardly extending flanges of two vertical angle irons 22, secured upon the inner sides respectively of the posts 3. The overlapping angle irons 21 and 22, seal the said vertical edges of the door 5 against the admission of grain between the posts 3 and the door 5.

In operating my invention the door 5 is swung to the lower position shown in Figs. 1 and 5, after which the lever 13 is swung to the position shown in solid lines in Fig. 1, thus forcing the bolts 11 into the recesses provided in the posts 3, thus locking the door 5 against outward or upward movement. The car may now be loaded with grain. When it is desired to unload the car the pin or other securing device 17 is removed from the staple 16 and the lever 13 sprung outwardly from the staple and swung to the position indicated in dotted lines in Fig. 1, after which the door 5 will be swung outward by the weight of the grain to the position shown in Fig. 4. After the grain adjacent the door 5 has fallen out, the door 5 is moved upwardly on its trunnions 6, moving in the guides 7 until the notches 20 are disposed opposite the hooks 19, at which time the lower end of the door is allowed to swing downward to the position shown in Fig. 3, with the hooks 19 resting in the notches 20. To close the door it is but necessary to raise the lower end thereof so as to release it from the hooks 19, after which it may be lowered to the position shown in Fig. 1 and locked in such position, in the manner already described. It will be understood of course, that prior to unlocking the door 5 the door 4 is first moved laterally to a position clearing the opening 2.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:—

The combination with the car body having a side door opening and two vertical posts at opposite sides of said opening, of two angle irons secured respectively to said posts and having outwardly extending flanges, two channel bars having vertical portions secured respectively to said posts and having their upper ends extending inwardly and upwardly, the channel sides of the bars being the sides distant from said opening, a door for closing said opening, a horizontal bar secured to the upper end of said door and having return bends at its ends slidably and pivotally mounted in the channels of said channel bars respectively, vertical angle bars secured respectively to opposite vertical edges of said door and having inwardly extending flanges disposed respectively between said posts and said outwardly extending flanges, said inwardly extending flanges having notches adjacent their lower ends, hooks pivoted to the roof of the car body and adapted when the door is raised to enter said notches to retain the door in the open position, and releasable means for locking the door in a position closing said opening.

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

MARION H. STICKNEY.

Witnesses:
WARREN D. HOUSE,
HENRY F. ROSE.