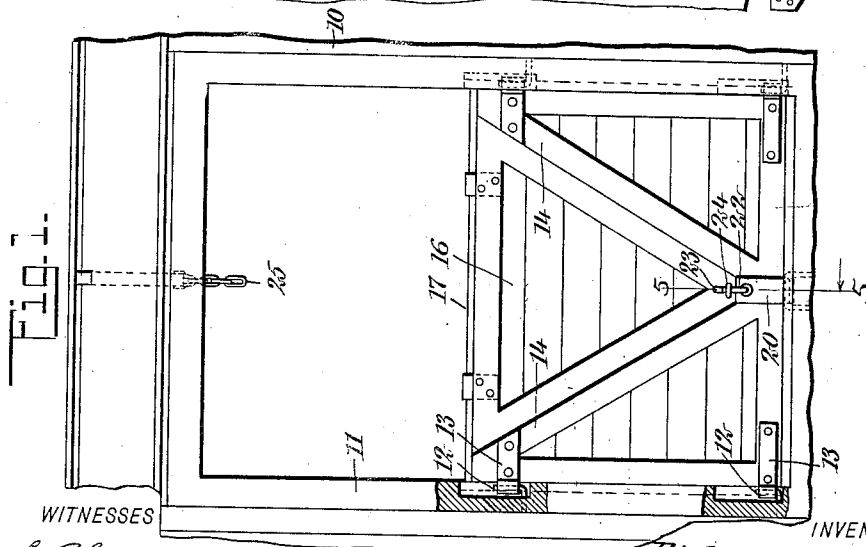
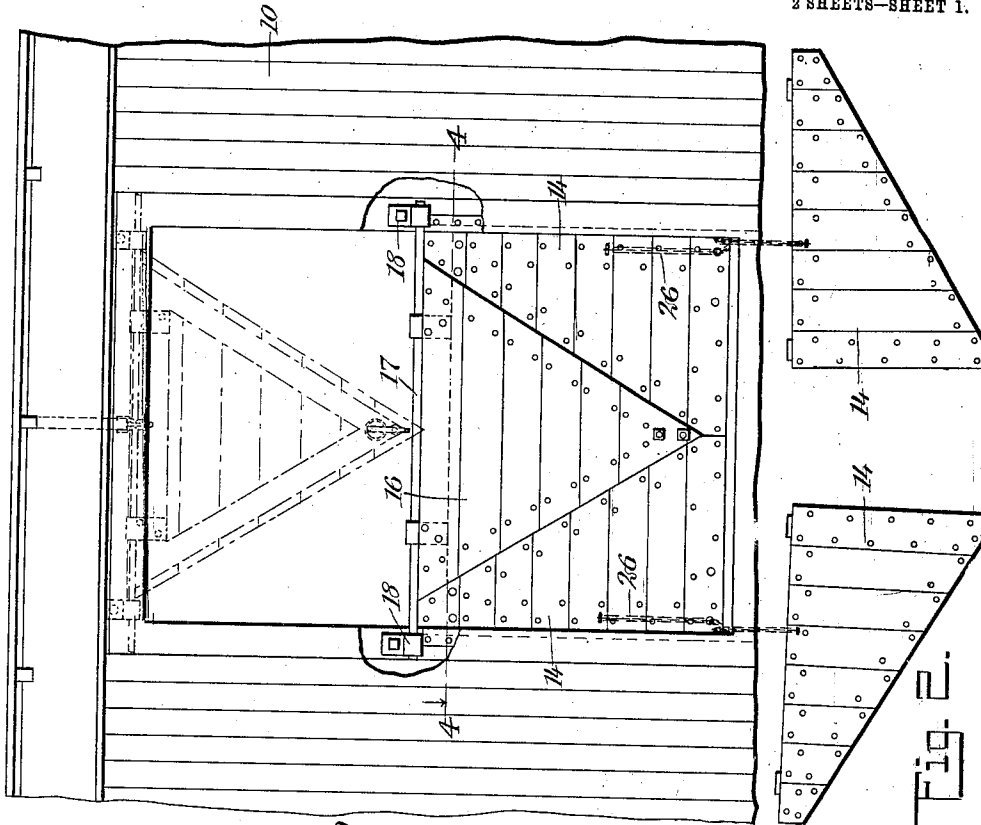


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APPLICATION FILED NOV. 24, 1908.

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2 SHEETS—SHEET 1.



WITNESSES
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J. W. S. Holt

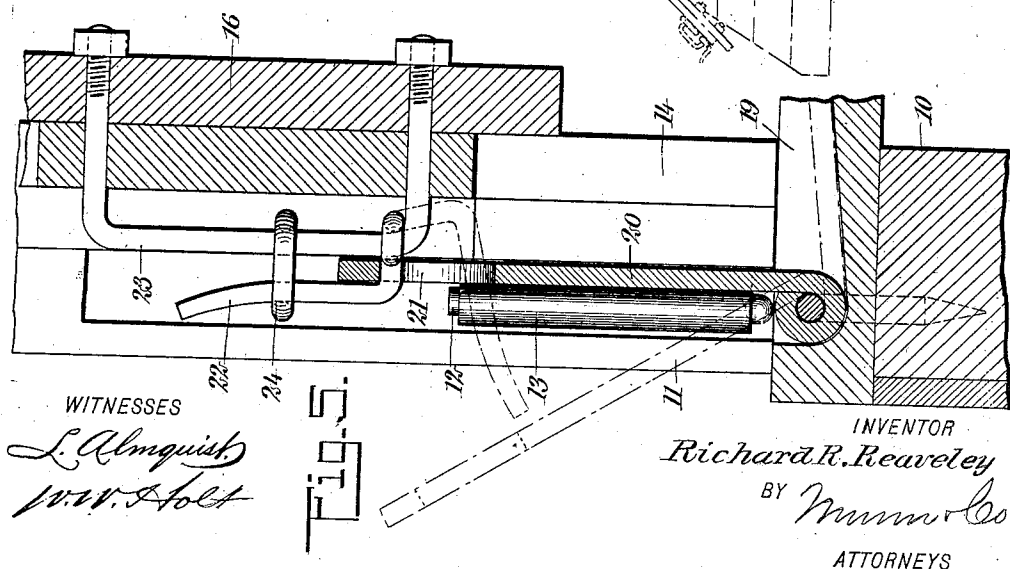
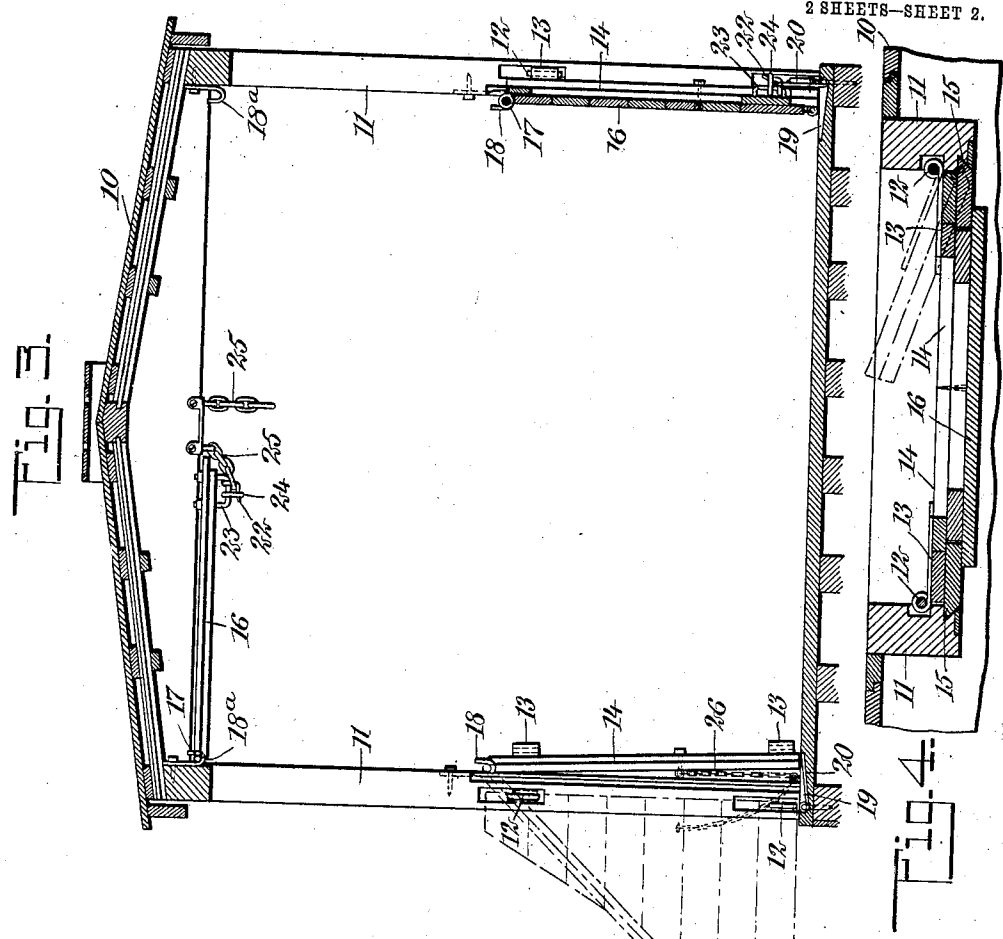
INVENTOR
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UNITED STATES PATENT OFFICE.

RICHARD ROBERT REAVELEY, OF FORT WILLIAM, ONTARIO, CANADA.

CAR-DOOR FOR GRAIN, COAL, &c.

938.789.

Specification of Letters Patent.

Patented Nov. 2, 1909.

Application filed November 24, 1908. Serial No. 464,215.

To all whom it may concern:

Be it known that I, RICHARD ROBERT REAVELEY, a subject of the King of Great Britain, and a resident of Fort William, in the Province of Ontario and Dominion of Canada, have invented a new and Improved Car-Door for Grain, Coal, &c., of which the following is a full, clear, and exact description.

The invention is an improved door of the character ordinarily known as grain car doors, and has in view a construction embodying two doors hinged at the side edges to swing outwardly and forming, when closed, a substantially triangular opening, with the point of the opening at the bottom, a third door for closing said opening, hinged at the top to swing inwardly, and with the two doors removable from their hinges to swing either to the outside of the car below the floor thereof or be carried within the car to positions removed from the door opening, and the third door removable to the top of the car.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an outside elevation of a door constructed in accordance with my invention as applied to a freight car; Fig. 2 is a similar view with the door removed from the door opening, and showing an inside view of the door at the opposite side of the car; Fig. 3 is a cross-section through the car at the door openings, showing the door in closed position at one side and in removed position at the opposite side; Fig. 4 is a horizontal section through the door, on the line 4-4 in Fig. 2; and Fig. 5 is a vertical central section through the lower portion of the door on an enlarged scale, the view being taken on the line 5-5 in Fig. 1.

I have shown my improved door applied to a conventional form of box car 10 having the door frames 11 at opposite sides, the door jambs of which are cut out or slotted on their inner faces at the bottom and approximately midway their height for receiving hinge members 12, preferably in the nature of vertically-supported pins. These hinge members engage with eye hinge members 13 attached to doors 14, which, as best shown in Fig. 4, have bevel side or vertical edges 15 fitting in counterpart grooves

in the door jambs 11 when the doors are closed, and forming grain-tight joints, and limiting the further inward movement of the doors when swung to closed position.

The doors 14 are preferably constructed, as best shown in Fig. 1, with marginal frames covered on the inside with a suitable sheathing, and when closed fit close together at the bottom and form thereabove a substantially triangular opening between them, the said opening pointing downwardly. The door 16, constructed similarly to the doors 14, is of a form to close the triangular opening and is hinged at the top to swing in either direction on a cross-bar 17, the latter being supported at opposite ends, when the triangular door is in operative position, on hooks 18 fixed to the inner faces of the jamb 11. The sheathing of the door 16 is extended slightly beyond its frame at each side to overlap the sheathing of the doors 14, as shown in Fig. 4, and form a tight joint.

The car floor or sill at the center of the door opening is grooved or cut out as indicated at 19 for receiving a flap 20 which is hinged at its outer end to swing from said groove outwardly and upwardly. In the free end of this flap is an opening 21, through which is adapted to pass a hook 22, slidable on a keeper 23 secured to the lower end of the triangular door 16. A ring 24 is also slidable on this keeper and is designed to engage over the outer end of the hook and prevent the disengagement of the latter and the flap 20 when the doors are locked.

To the inner faces of the door jambs 11, at the top of the car, hooks 18^a in all respects similar to the hooks 18, are attached and are designed to support the ends of the cross-bar 17 when the door 16 is removed from an operative position, the lower or free end of this door in such case being supported at the top of the car by a chain 25 which engages with the hook 22 the same as the flap 20. Midway the height of each door 14 and adjacent to its hinged edge is attached a chain or other flexible member 26 which has the opposite end thereof secured to the inside of the car near the bottom thereof.

On unloading a car filled with grain or such other fine material, having my improved grain door, the ring 24 is disengaged from the hook 22, when the lateral pressure of the load presses the three doors outwardly as shown in dotted outline in Fig. 3. As the doors swing open, the hook 22 and

flap 20 are automatically disengaged. The side doors are then lifted from their hinges and thrown to the outside of the car where they are suspended by the flexible members 5 16, as illustrated in Fig. 2. The central door is thereafter carried to the roof of the car and secured.

Having thus described my invention, I claim as new and desire to secure by Letters 10 Patent:

1. The combination of two doors hinged at the side edges to swing outwardly and removable from the hinges, and forming, when closed, an approximately triangular opening 15 between them, the said opening pointing downwardly, a third door for closing said opening, hinged at the top and removable to an elevated position, and flexible members for supporting the first mentioned doors 20 when removed from their hinges.

2. The combination of a car having a door frame, doors hinged at the side edges to the jambs of the frame to swing outwardly from the car, a cross-bar removably 25 supported on said jambs at the top of said doors, a third door hinged to the cross-bar to swing upwardly to the outside of the car independently of the other two doors and closing an opening between the first mentioned doors, and means for supporting the 30 cross-bar and the free end of said door at the top of the car.

3. The combination of a car having a door frame, doors hinged at the side edges to the 35 jambs of said frame and forming, when closed, a substantially triangular opening between them, the said opening pointing downwardly, a third door for closing said opening, hinged at the top, a substantially vertical keeper carried on the lower end of the 40 third door, a hook and an engaging ring for the hook slidable on the keeper, a flap hinged in the floor of the keeper and adapted to engage said hook and lock the 45 doors in closed position, and means at the top of the car for engaging said hook and locking the third door in a removed position.

4. The combination of a car having a door frame, removable doors hinged at the side 50 edges to the jambs of said frame to swing outwardly from the car and forming, when

closed, a substantially triangular opening, the said opening pointing downwardly, a third door for closing said opening, hinged at the top and removable to the top of the 55 car, and flexible members attached to the car and to the first mentioned doors for suspending said doors at the outside of the door opening.

5. The combination of a door frame, doors 60 hinged to the jambs of the frame to swing approximately parallel thereto to the outside of the car and forming, when closed, an opening between them increasing in width at the top, a third door for closing said open- 65 ing, hinged at the top, each of said doors being constructed with a marginal frame and a sheathing, the sheathing of the third door being extended beyond its frame to overlap the first mentioned doors at the 70 inside of the car.

6. The combination of a car having a door frame, doors hinged to the jambs of the frame to swing outwardly from the car and forming, when closed, an opening between 75 them increasing in width in extending upwardly, and a third door for closing said opening, hinged at the top to swing upwardly independently of the other doors.

7. In combination with a car, two doors 80 hinged to the car at the outer side edges to swing to the outside of the car and forming an opening between them when closed, and a third door closing said opening, hinged at the top to swing upwardly and outwardly 85 from the car free of the other two doors.

8. In combination with a car, two doors hinged at the outer side edges to swing from each other to the outside of the car and forming, when closed, a substantially tri- 90 angular opening between them, the said opening pointing downwardly, and a third door closing said opening, hinged at the top to swing upwardly from the other two doors.

In testimony whereof I have signed my 95 name to this specification in the presence of two subscribing witnesses.

RICHARD ROBERT REAVELEY.

Witnesses:

P. MANALAN.
W. PALLING.