

R. C. RUSSELL.
GRAIN DOOR FOR CARS.
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942,221.

Patented Dec. 7, 1909.

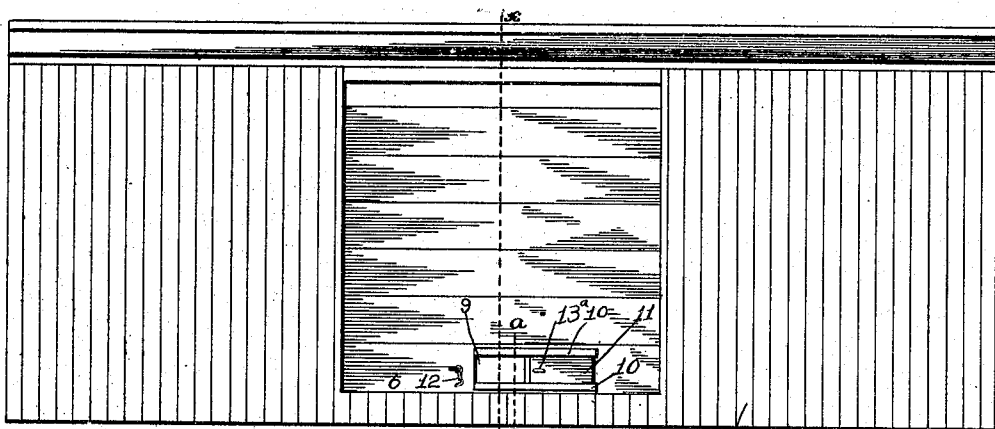


Fig. 1.

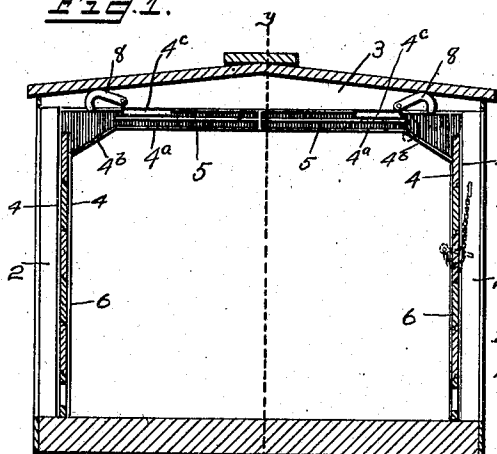


Fig. 2.

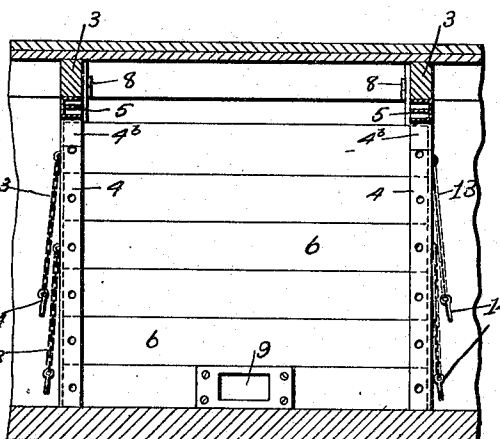


Fig. 3.

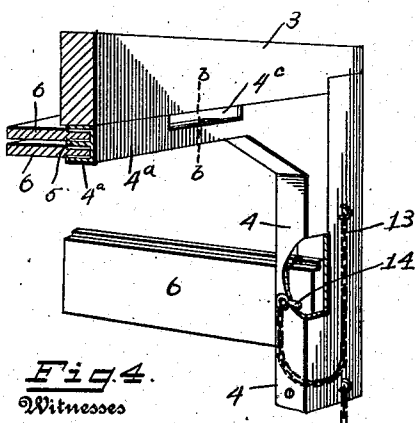


Fig. 4.

Witnesses

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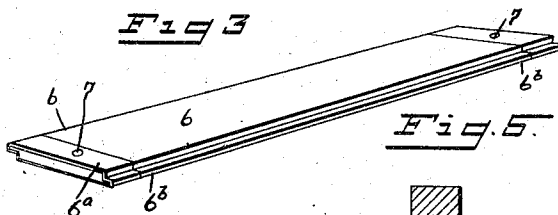


Fig. 5.

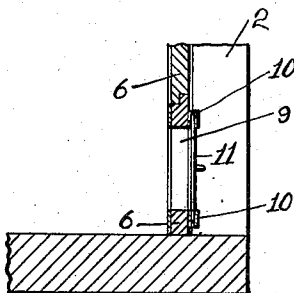


Fig. 6.

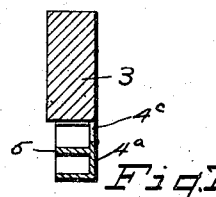


Fig. 7.

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GRAIN-DOOR FOR CARS.

942,221.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT C. RUSSELL, a citizen of Canada, residing at Arthur, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Grain-Doors for Cars, of which the following is a specification.

My invention relates to the improvement of grain doors for cars and the objects of my invention are to provide an improved construction of sectional grain door in conjunction with improved means for storing or retaining the sections forming the door, when the same are not in use; to admit of my improved door and door section retaining means being adapted for use in box cars of ordinary construction; to provide means for utilizing but one or two sections of the door when the car is not used as a grain car and to produce other improvements the details of which will be more fully pointed out hereinafter. These objects I accomplish in the manner illustrated in the accompanying drawing, in which:

Figure 1 is a side elevation of a car showing the doorway closed by my improved grain door sections, Fig. 2 is a sectional view on line *x-x* of Fig. 1, Fig. 3 is a sectional view on line *y-y* of Fig. 2, Fig. 4 is a detail view in perspective illustrating the manner of supporting one of the door boards or sections in the doorway. Fig. 5 is a detail view in perspective of one of said door sections, Fig. 6 is an enlarged sectional view on line *a-a* of Fig. 1, and Fig. 7 is a sectional view on line *b-b* of Fig. 4.

Similar numerals refer to similar parts throughout the several views.

1 represents a car body, 2 the vertical door frame standards and 3 the usual transverse roof carrying beams which connect the standards 2 on opposite sides of the car. Upon the inner side of each of the door-frame standards 2, I secure a vertical guide member 4 of channel form, the mouths of said channel members facing each other, as shown. With the upper portion of each of the guides 4 is formed or connected a horizontal channeled guide arm 4^a, these upper guide arms having their upper sides secured to the undersides of the beams 3 and extending substantially to the center of the length thereof.

As indicated in the drawing, I provide an inclined corner connection of the vertical and horizontal guide members 4 and 4^a which is

indicated at 4^b. Each of the upper horizontal guide arms 4^a is divided into two parallel channels through the medium of a central division plate or rib 5 and above one of these dividing ribs or partitions, I form an opening 4^c in the vertical face of the guide arm 4^a. This opening is of such size as to receive endwise a door board or section in the manner hereinafter described.

6 represents door boards or sections, of which there is a sufficient number to effect a closure of the car doorway when said boards are arranged edgewise one above the other. In the construction of each of these boards, I provide each end thereof with a metal casing such as is indicated at 6^a, the upper and lower surfaces of said casing being flush with the corresponding surfaces of the board. The body of the board between the incased ends, is recessed or cut away on each edge to form outwardly and downwardly projecting half width longitudinal tongues 6^b which are arranged, as shown, to project from opposite sides of the board. Each of the metal incased board ends has formed therethrough a suitable sized pin opening 7 and similar pin sockets.

As will be readily understood, the boards or door sections 6 are designed to have their incased end portions movably retained in the channels of the vertical guides 4 or the channels of the horizontal guide arms 4^a and in order to mount or insert said boards within said channels, I have provided the heretofore described opening 4^c in one of the guide arms 4^a through which opening the boards or sections 6 may be inserted endwise one at a time. When not in use for closing the doorway, a portion of the door sections thus inserted are designed to be contained in the channel of the member 4^a which is above the rib 5 and the remaining portion to have their ends retained in the channel below said rib, the change from the upper to the lower channel being effected by sliding the boards outward in said upper channel, thence dropping the same into the enlarged corner connection 4^b and reinserting the board in the mouth of the lower channel. When thus arranged, it will be understood that the door section members will be supported horizontally beneath the roof beams of a car and in position to prevent interference with the contents of the car. In order to insure the retention of the door sections in the above

described position, I have provided on the inner side of each of the beams 3, a pivoted drop hook 8 which is adapted to engage the outer edges of the outer boards and prevent a forward or outer movement thereof.

When it is desired to utilize the car as a grain car and to effectively close the doorways thereof against the exit of grain, the hooks 8 are raised and the door sections moved outward, thence downward over the incline of the corner member 4^b into the vertical channels of the guides 4, in which position the half tongue projection of one board engages the inner face of the corresponding projection of the adjoining board, thereby insuring a grain-tight connection of said boards. In order to provide a means for extracting a desirable quantity of grain from the car without raising the door sections from their places, I provide the outer door section or that section which becomes the lower section when the doorway is closed, with an opening such as is indicated at 9 in Fig. 6 of the drawing. Above and below this opening, I provide channel guide strips 10 which are secured to the lower board 6 and which provide guideways for the upper and lower edges of a sliding plate or closure 11 which is adapted to be retained in a closed position by means of a suitable hook 12 swung from the lower board 6 and adapted to engage the loop or eye projection 13^a of the closure plate 11.

For ordinary unloading purposes, the sections of the door may be raised one at a time into the proper supporting channels of the arms 4^a until the entire doorway is uncovered.

In case it should be desirable in the shipping of live stock or other freight, to simply bar the doorway against the escape of the contents of the car, I have provided means for supporting one or two of the door sections or boards at desirable heights between the vertical door frame standards, these means consisting in attaching to the sides of said standards at desirable intervals, chains 13 which carry at their free ends, bolts 14 which when a board is lowered to the desired point across the doorway, are adapted to be inserted through openings in the channel members 4, thence into the openings 7 of the board ends.

From the construction and operation which I have described, it will be seen that a simple, and convenient construction of grain car door is provided, which will permit of the employment of separated boards without the necessity of nailing or otherwise fastening said boards to the door frame. It will also be observed that simple and convenient means are provided for supporting the door boards when the same are not in use.

Owing to the fact that my improved sec-

tional door is employed on the inner side of the door frame, it is obvious that said door will not interfere with the use of the usual sliding exterior car doors.

What I claim, is:

1. In a door for grain cars, the combination with a car, its framework, of vertical channeled guide ways on the opposite sides of the door frame and a plurality of superposed, horizontal, channeled guide ways secured to the roof beams of the car and extending transversely of said car, enlarged guiding portions 4^b extending between the vertical and horizontal guide ways, said enlarged guiding portions being in communication with all of the horizontal guide ways, and door-way closing boards movable in said guide ways.

2. In a door for grain cars, the combination with a car, its framework, of vertical channeled guide ways on the opposite sides of the door frame and a plurality of superposed horizontal, channeled guide ways secured to the roof beams of the car and extending transversely of said car, enlarged guiding portions 4^b extending between the vertical and horizontal guide ways, said enlarged guiding portions being in communication with all of the horizontal guide ways, transverse openings 4^c formed in the side walls of the uppermost horizontal guide ways to permit of the passage of boards endwise therethrough, and door-way closing boards movable in said guide ways.

3. In a door for grain cars, the combination with a car, its framework, of vertical channeled guide ways on the opposite sides of the door frame and a plurality of superposed, horizontal channeled, guide ways, secured to the roof beams of the car and extending transversely of said car, enlarged guiding portions 4^b extending between the vertical and horizontal guide ways, said enlarged guiding portions being in communication with all of the horizontal guide ways, hooks pivotally connected to the roof beams of the car and adapted to swing down over the ends of all of the horizontal guide ways, and door-way closing boards movable in said guide ways.

4. In a door for grain cars, the combination with a car, its framework, of vertical channeled guide ways on the opposite sides of the door frame, a plurality of superposed, horizontal, channeled guide ways secured to the roof beams of the car and extending transversely of said car, enlarged guiding portions 4^b extending between the vertical and horizontal guide ways, said enlarged guiding portions being in communication with all of the horizontal guide ways, hooks pivotally connected to the roof beams of the car and adapted to swing down over the ends of all of the horizontal guide ways, door-way closing boards movable in said

guide ways, and a door in one of said door way closing boards.

5 In a door for grain cars, the combination with a car, its framework, of vertical channeled guide ways on the opposite sides of the door frame, a plurality of superposed, horizontal, channeled guide ways secured to the roof beams of the car and extending transversely of said car, enlarged guiding portions 4^b extending between the vertical and horizontal guide ways, said enlarged guiding portions being in communication with all of the horizontal guide ways, hooks pivotally connected to the roof beams of the car and adapted to swing down over the

ends of all of the horizontal guide ways, door-way closing boards movable in said guide ways, a door in one of said door-way closing boards, and a plurality of pins adapted to pass through the guide ways on the opposite sides of the door frame, and to pierce said door-way closing doors to thereby hold said boards in position.

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

ROBERT C. RUSSEL

Witnesses:

L. CARL STOUGHTON

A. L. PHELPS.