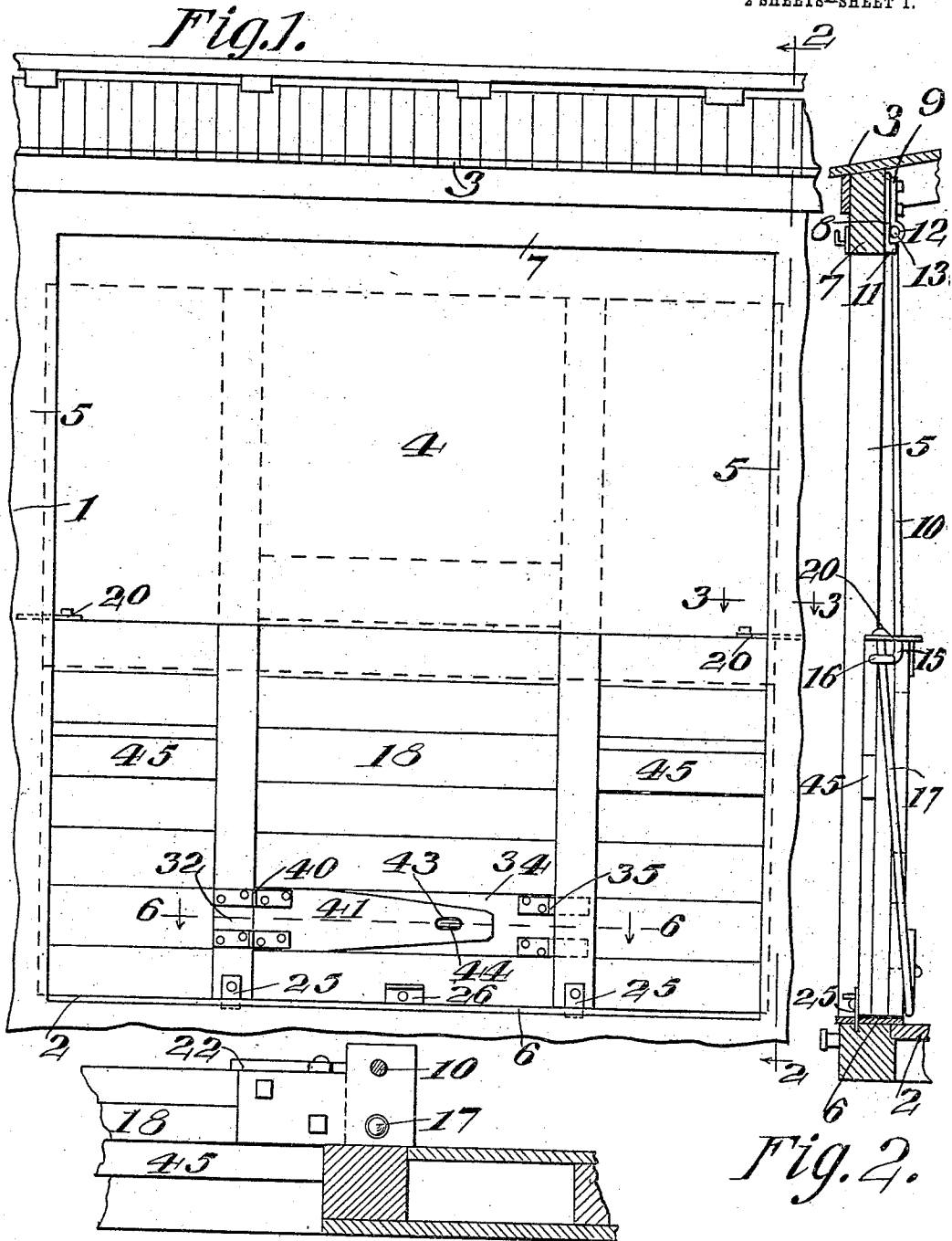


D. S. BAILEY.
CAR DOOR.
APPLICATION FILED JUNE 1, 1908.

936,209.

Patented Oct. 5, 1909.
2 SHEETS—SHEET 1.



Witnesses
C. D. B. Brown.
C. F. Griesbauer.

Fig. 3.

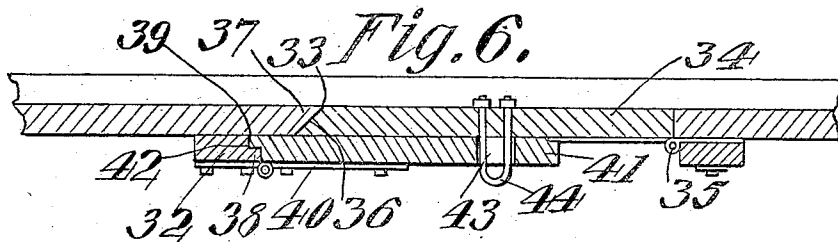
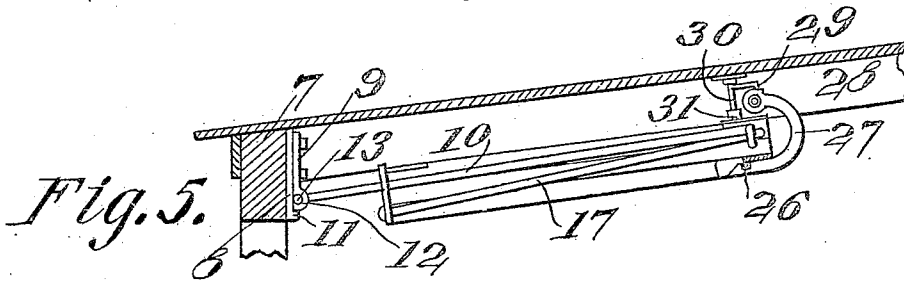
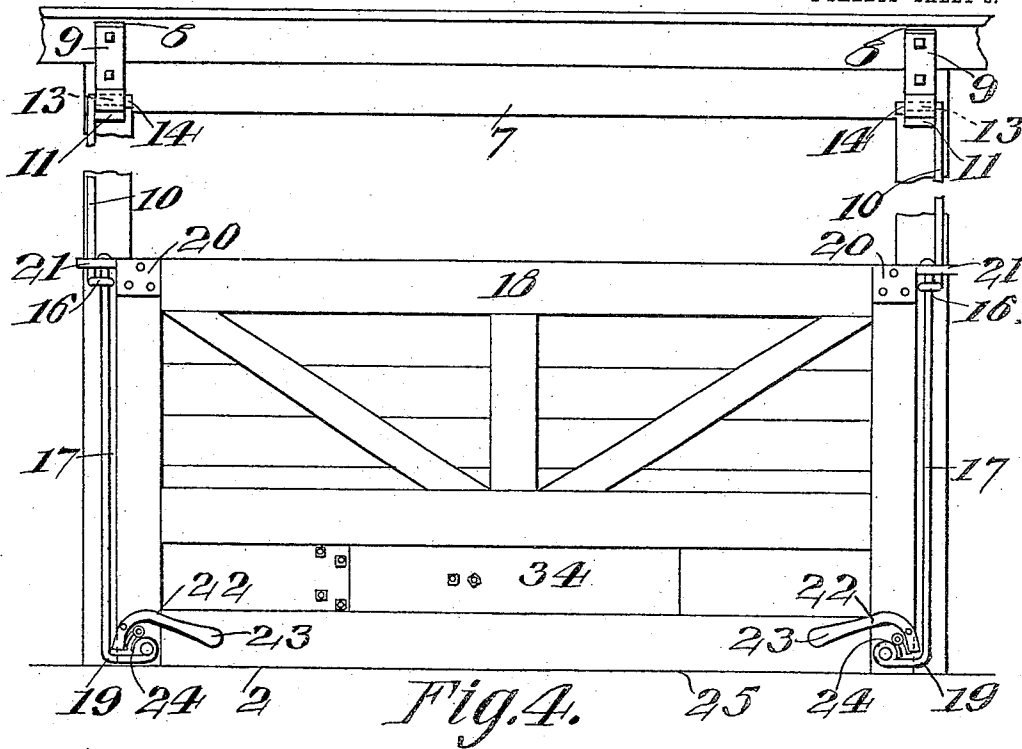
Inventor
D. S. Bailey,
By A. R. Wilson & Co.
Attorneys

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UNITED STATES PATENT OFFICE.

DANIEL S. BAILEY, OF RANTOUL, ILLINOIS.

CAR-DOOR.

936,209.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed June 1, 1908. Serial No. 436,015.

To all whom it may concern:

Be it known that I, DANIEL S. BAILEY, a citizen of the United States, residing at Rantoul, in the county of Champaign and State of Illinois, have invented certain new and useful Improvements in Car-Doors; and I do 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 relates to car doors, and particularly to grain car doors.

The object of the invention is to provide a door of this character which will be comparatively easy to operate and cheap to manufacture and withal strong and efficient for the purpose for which it is adapted.

A further object of the invention is the provision of means for locking the door in its vertically adjusted positions.

A further object of the invention is the provision of a novel release door structure and the hand holds which prevent shifting of the door when closed, and also a novel device for preventing the bulging of the door under pressure.

A still further object of the invention is the provision of means for automatically engaging and retaining the door in raised horizontal position adjacent the roof of the car whereby it is held in a convenient and out of the way position.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a front elevation of the device showing in dotted lines the position of the door when raised, Fig. 2 is a vertical section through the car taken on the line 2—2 of Fig. 1, Fig. 3 is a fragmentary horizontal section on the line 3—3 of Fig. 1, Fig. 4 is an inside elevation, Fig. 5 is a vertical sectional view of the door when in raised position, Fig. 6 is a horizontal sectional view taken on the line 6—6 of Fig. 1.

Referring more especially to the drawings, 1 represents the side of the car, 2 the floor and 3 the roof thereof.

The door way is shown at 4 and is defined by vertical side or frame pieces 5 and by the

sill 6 and top piece 7. Secured to the side members 5 are the members 8 and 9 of a peculiarly formed hinge to which is secured the upper guiding rod 10. The lower member 8 of the hinge is formed with a right angular offset 11, which is engaged by the hooked portion 12 of the upper member 9, so as to form a pintle receiving aperture 13. A hinge of similar character is secured upon each frame member 5 and is engaged by the bent end 14 of the guiding rod 10. The lower end of this guiding rod is offset as at 15 and provided with a loop 16 in which the lower guiding rod 17 is adapted to slide. This lower guiding rod is carried upon the door 18, as is shown in Fig. 4 wherein it will be seen that the lower end of the rod 17 is provided with an offset portion 19, secured to the lower end of the bar and is secured at its upper end to the door by means of a plate 20, which is provided with the apertured overhanging ear or lug 21, which also acts as a guide for the upper rod 10.

Pivoted adjacent the bottom of the door on either side thereof close to the offset portion 19 of the lower guiding rods 17 are a pair of gravity pawls 22, each having a manipulating handle 23, by which the forward engaging portion of the pawl may be released from its connection with the loop 16 which it engages when the door is raised to its upper position. In order to keep these pawls in engagement with the loops when the door is in horizontal position adjacent the roof of the car I provide springs 24, which hold them in proper position.

The bottom of the door is provided with a plurality of lugs 25, which are adapted to engage suitable sockets formed in the sill 6 so as to prevent bulging of the lower portion thereof under strain by reason of the shifting weight of the grain. A suitable wear plate or catch plate 26 is provided which when the door is raised to horizontal position underneath the roof of the car, as shown in Fig. 5, will be engaged by the catch 27, which is pivoted upon a transverse girder 28, of the car and has at its inner end a locking cam 29, which is engaged by the tripping pawl 30, having a projecting arm 31, adapted to be engaged by the door to release the pawl 30 from the cam 29. Normally this pawl is in engagement with the cam and holds the hook 27 in inoperative position. When the door strikes the arm 31

it raises the pawl 30 out of engagement with the cam 29 and releases the catch, allowing it to drop down into engagement with the catch plate. The catch plate is shown as having a flange by which the movement of the catch 27 is limited.

The release door which is shown in elevation in Fig. 1 and in section in Fig. 6 is described as follows. A suitable batten or stay piece 32 is arranged vertically on either side of the opening 33, so as to brace the structure around the door, for a purpose which will be hereinafter described. The release door member is shown at 34, and is pivotally connected with the front of the door by a hinge 35, which has one of its leaves passing under one of the stay pieces 32. The opposite end of the door 34 is beveled as at 36, so as to engage the beveled edge 37 of the opening 33. The opposite bracing member from that to which the hinge 35 is secured is provided with an overhanging lip 38, forming a recess 39, and secured to the upper member of the bracing member 32 is a hinge 40, which has one of its leaves secured to the locking door or lever 41. The inner end of this door is provided with a projecting rib 42, which is adapted to engage in the recess 39 and hold the door 34 in position against the beveled edge 37. The forward end of the locking door is slotted as at 43 to receive the staple 44, carried by the door 34. The rib 42 and lip 38 act to take the strain off the hinge 40, which would naturally be put upon it by the pressure of the release door 34.

In the operation of the device the door 18 with its release door 37 is closed over the opening 4 so that the car may be filled with grain in the usual manner. When it is desired to unload the car the padlock which is secured to the staple 44 is removed and the lever 41 thrown back to release the door 34. When a certain portion of the grain has been taken out the pressure upon the grain door 18, is released and it may then be raised upon the guide rods 17 and caught in raised position by the pawl 22, which engages the connecting loop 16. The bottom of the door may be then raised inwardly so as to engage the catch 27 and thereby be held out of the way while the remaining grain is unloaded. In order to prevent the door from having shifting motion lengthwise of the car I provide a pair of hand holds 45, which have their ends placed over the ends of the door so as to engage the side members 5 as shown in Fig. 1. These hand holds are preferably made slightly concave so as to form a firm finger grasp to permit the raising and lowering of the door.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the

invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined in the appended claims.

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

1. In a grain door for cars, the combination with a pair of guiding rods, means on one of the rods for interconnecting them, means carried by the door for holding said rods in proper relation, and means carried by the door adapted to engage said interconnecting means to hold the door in raised position.

2. In a grain door for cars, the combination with guiding rods, means on one of the rods for interconnecting them, one of said rods having a bent end, means for receiving said bent end and for hinging the rods to the frame of the door, means carried by the door for engaging said interconnecting means to hold the door in raised position upon the rods, and means for holding the door in horizontal position when raised.

3. In a grain door for cars, the combination with guiding rods, means on one of said rods for interconnecting them, one of said rods having a bent end, means receiving said bent end for hinging the rods to the frame of the door, automatic means carried by the door for engaging the interconnecting means to hold the door in raised position upon the rods, and automatic means for holding the door in horizontal position when raised.

4. In combination with a car frame, of a door hinged to said frame, a hook having a cam formed on its pivotal end, a pawl engaging said hook to hold it in normal position, and a trip arm located in the path of the door and adapted to operate said pawl to release the catch so it will engage the door and hold it in horizontal position.

5. In a grain door, the combination with a frame, of a plurality of rods hinged thereto, a pair of rods carried by the door, means to interconnect the rods on the frame with those on the door, means on the door for guiding the hinged rods, and a catch mounted on the door adapted to engage the interconnecting means to hold the door in elevated position on the frame rods.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

DANIEL S. BAILEY.

Witnesses:

FAY MILLER,
BART RICE.