

G. R. DUNN.
GRAIN DOOR.

APPLICATION FILED SEPT. 8, 1908.

937,056.

Patented Oct. 19, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

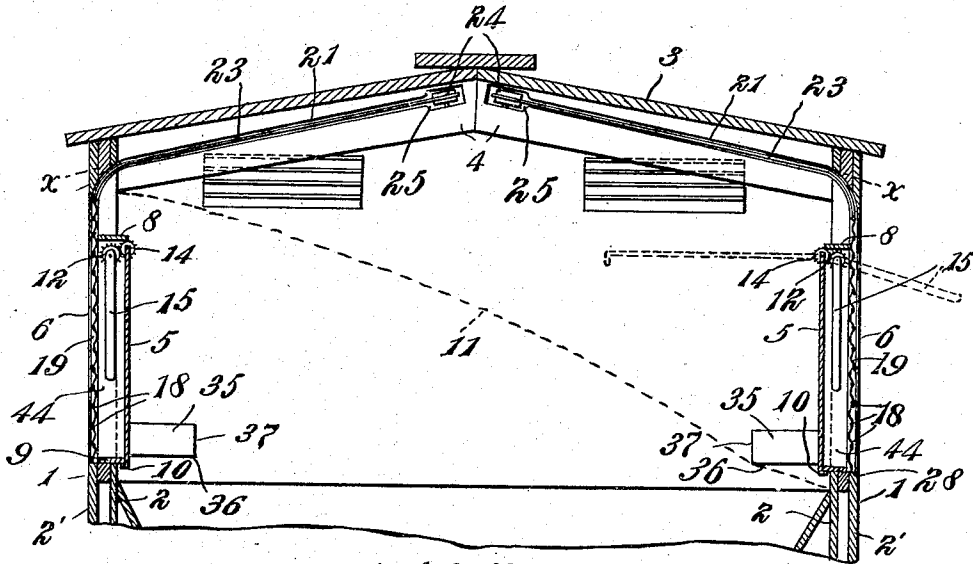
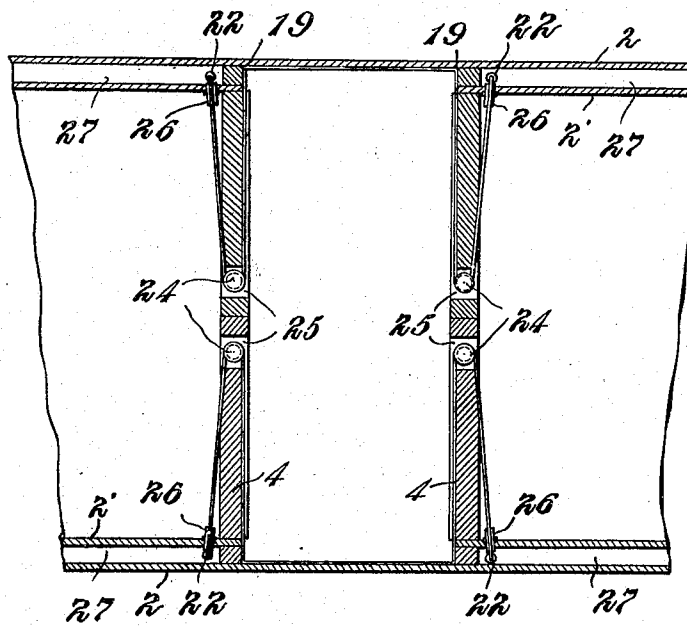


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 4.

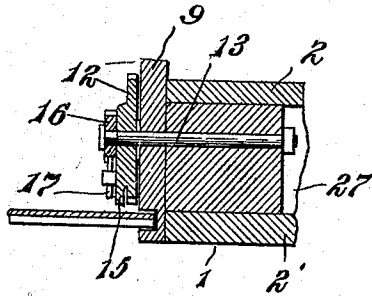
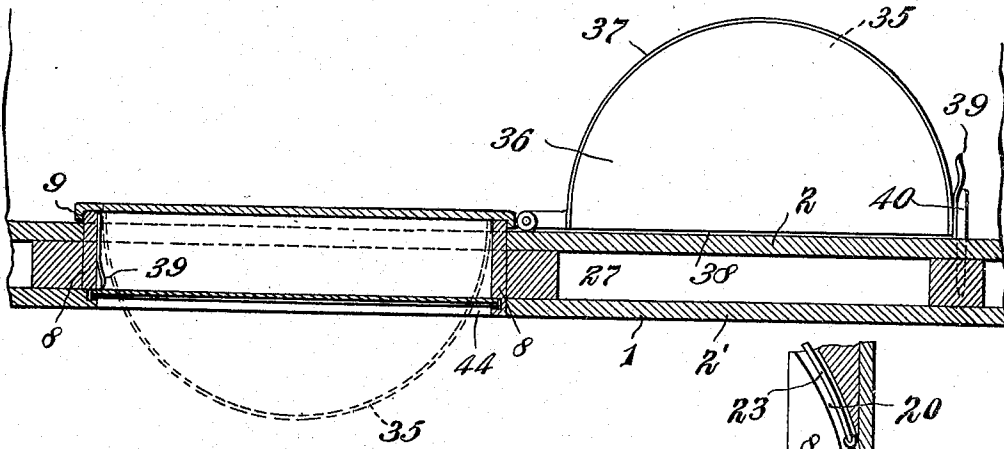
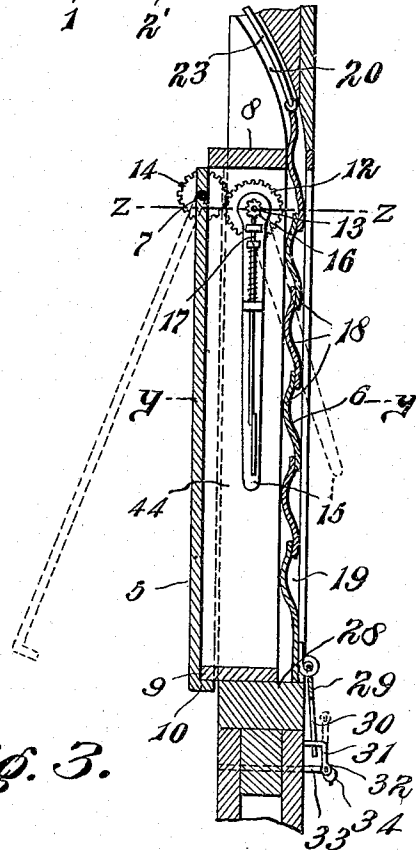


Fig. 5.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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GRAIN-DOOR.

937,056.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed September 8, 1908. Serial No. 451,933.

To all whom it may concern:

Be it known that I, GEORGE R. DUNN, a citizen of the United States, residing at Gary, county of Lake, and State of Indiana, have invented certain new and useful Improvements in Grain-Doors, of which the following is a specification.

My invention relates to grain doors and particularly to grain doors especially adapted for use upon grain cars.

The object of my invention is to provide a grain door which when closed shall be perfectly tight and absolutely prevent the egress of grain therethrough or the ingress of moisture.

A further object of my invention is to provide a door as mentioned equipped with a grain chute which may be readily swung into position for filling the car when the door is opened and swung within the car and away from the door when not in use.

Other objects will appear hereinafter.

My invention will be more readily understood by reference to the accompanying drawings forming a part of this specification and in which—

Figure 1, is a vertical transverse section of a grain car equipped with grain doors embodying my invention in its preferred form. Fig. 2, is a section on the line $x-x$ of Fig. 1. Fig. 3, is a vertical section of the door, illustrated upon an enlarged scale. Fig. 4, is a horizontal section on the line $y-y$ of Fig. 3, and Fig. 5, is a detail section on the line $z-z$ of Fig. 3.

Referring to the drawings 1—1 indicate the side walls of a grain car which are preferably formed of double or inner and outer sheathing 2, 2' respectively, and 3 indicates the roof supported by the transverse members or carlines 4.

44 indicates the doorway which is closed by an inner door 5 and an outer closure 6. The door 5 is hingedly mounted on a rod 7 extending horizontally across the inner upper end of door casing 8 and swings upwardly as indicated in dotted lines in Fig. 3. The casing 8 extends inwardly beyond the inner face of the wall, forming a flange 9, and the door 5 is provided with a peripheral flange 10 which closes tightly around the flange 9 when the door is closed. This is especially useful when the car is to be well filled, that is when the grain is to extend above the level of said door. In this

case, when filling the car, the door upon one side is closed and the grain which is loaded through the other door may be piled against the closed door as indicated by the dotted lines 11 in Fig. 1.

To open the door 5 and hold the same in raised position when desired I provide the following device. Rotatably mounted upon the side of the door casing upon a stud 13 is a pinion 12 which meshes with a pinion 14 fixed to the door 5. Secured to the pinion 12 is an arm or lever 15 which is preferably formed integral therewith as shown in Fig. 5. By pulling the arm 15 outwardly as indicated in dotted lines in Fig. 3, it is obvious that the door will be raised. The stud 13 is provided with a fixed and notched head 16 and the lever 15 is provided with a spring pressed member 17 for engaging said notched head to hold the door in raised position.

The outer closure comprises a vertically slidable door 6 adapted to slide up under the roof of the car to opened position and constituting when in closed position means for excluding rain or other moisture from entering around the door and also as means for locking the car. The door 6 is formed of a plurality of horizontal strips 18, flexibly connected and having their adjacent edges overlapping as shown clearly in Fig. 3. The ends of the strips 18 are arranged in grooves 19 formed in the side of the door casing, and the grooves are curved upwardly and inwardly as at 20, terminating in the substantially horizontal grooves 21 in the parallel frames or carlines 4. The door 6 is provided with a pair of counterbalance weights 22 each of which is connected to its respective side of the door by the weight cords 23. The cords 23 follow the course of the grooves 19, 20 and 21 to substantially the center of the car where they pass around rollers 24 arranged in passageways 25 extending transversely through the carlines and thence down the opposite sides of the carlines to rollers 26 at the side of the car, the weights being arranged in the vertical spaces 27 between the inner and outer sheathings of the car wall. When the car door 6 is closed its lower edge rests on the sill 28 which is somewhat below the bottom of the casing 9. To the lower end of the door is secured a hasp 29 having an elongated slot 30 to receive a turn-hook 31. When the hook

31 is turned up in the position shown in dotted lines in Fig. 3, the hasp may readily pass over the same but when the hook is turned down as shown in full lines in the same figure it is impossible to release the hasp to unfasten the door. The end of the hook 31 is provided with an eye 32 which registers with an eye 33 secured to the side of the car, when in locking position, and an ordinary car seal 34 is employed to secure the hook in locking position.

Hingedly mounted to the side of the door opening is a chute 35 which may be swung into the door opening when the door is opened to facilitate filling the car. The chute comprises the bottom 26 arranged at a height slightly above the bottom of the door casing and the curved or semicylindrical side member 37. When the chute is swung into operative position it extends through the doorway and a short distance outside of the car with its open side 38 inward, as illustrated in dotted lines in Fig. 4. A spring latch 39 maintains it in position. When the chute is not in use it is swung within the car as illustrated in full lines in Fig. 4 and the spring latch 39 by engaging the stop 40 holds it in position at such times.

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

1. In a device of the class described, a wall provided with a door opening, an inner closure for said opening comprising a door hingedly mounted at the top of said opening and adapted to swing inwardly and upwardly, a lever mounted on the side of said door opening, means connecting said lever and said door whereby swinging the former outwardly will raise said door and an outer closure for said opening and means for securing the same in closed position to prevent access to said lever, substantially as described.

2. In a device of the class described, a wall provided with a door opening, a door hingedly mounted at the top of said opening, a pinion fixedly connected with said door, a lever mounted on the side of said door opening, a gear on said lever meshing with said pinion, whereby swinging said lever will open or close said door and means for locking said lever and said door in the desired position, substantially as described.

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

GEORGE R. DUNN.

Witnesses:

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