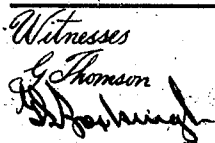


GRAIN DOOR.

Patented Mar. 14, 1911.

2 SHEETS—SHEET 1.



By Inspector
James J. [illegible] City

J. OLIVER,
GRAIN DOOR.

APPLICATION FILED MAY 14, 1910.

986,746.

Patented Mar. 14, 1911.

3 SHEETS—SHEET 2.

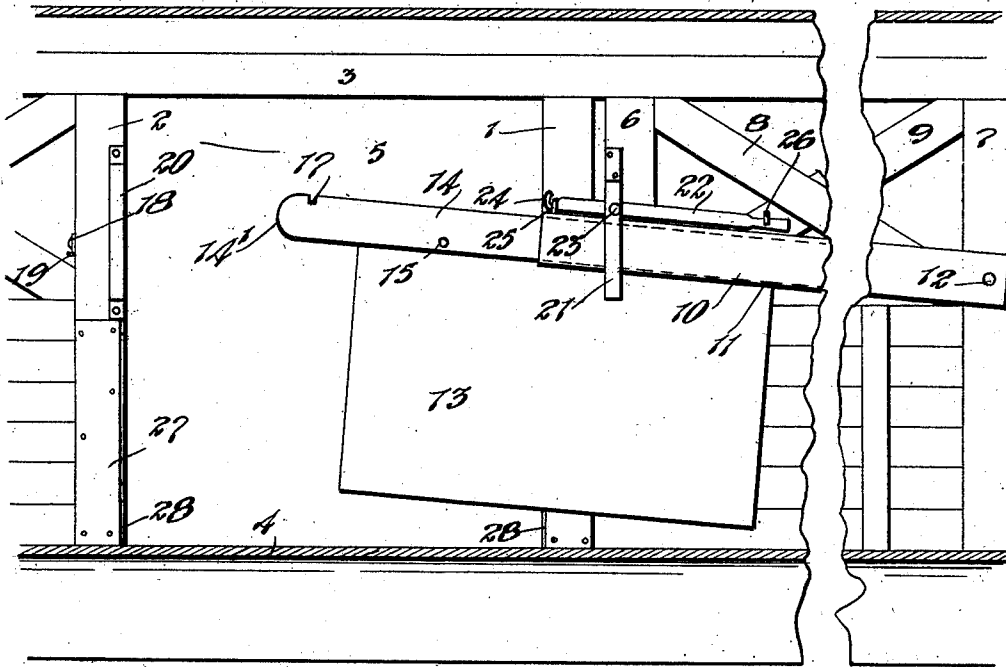


FIG. 3

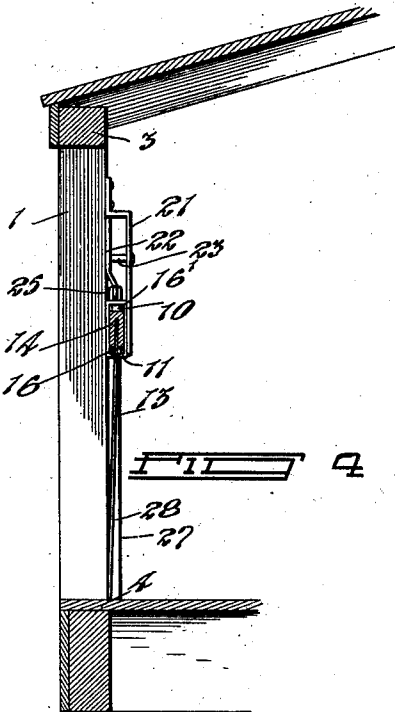


FIG. 4

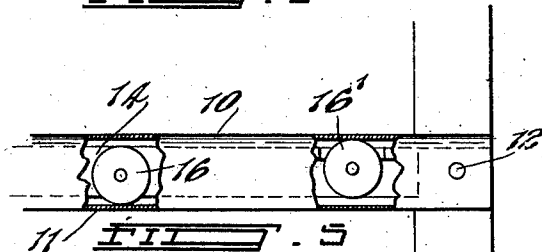


FIG. 5

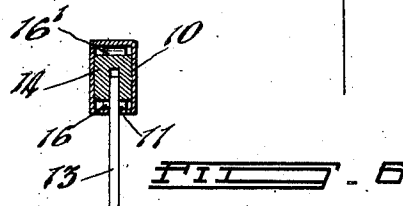


FIG. 6

Witnesses
G. Thomson
G. D. Doughty.

Inventor
J. Oliver
By *Frank S. Sargent* Atty.

UNITED STATES PATENT OFFICE.

JOHN OLIVER, OF WESTBOURNE, MANITOBA, CANADA.

GRAIN-DOOR.

986,746.

Specification of Letters Patent.

Patented Mar. 14, 1911.

Application filed May 14, 1910. Serial No. 561,458.

To all whom it may concern:

Be it known that I, JOHN OLIVER, a subject of the King of Great Britain, and resident of the village of Westbourne, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Grain-Doors, of which the following is the specification.

My invention relates to grain doors and the object of the invention is to provide a simply constructed, inexpensive, and durable door which can be quickly opened against grain pressure to free the grain from the car.

A further object of the invention is to provide a door which cannot be removed from a car and which can be thrown to the open position with little trouble and does not require an attendant to lift or carry it.

The invention consists essentially in an arm of channel iron cross section pivotally secured to the interior of a car, a door carried by a beam adapted to telescope within the arm, said door being of greater length than the doorway opening, means for raising the arm, means for locking the door in the closed position, and means for guiding the arm and beam, the parts being arranged and constructed as hereinafter more particularly described.

Figure 1 is an exterior view of a car supplied with my invention the door being closed. Fig. 2 is an interior view of a car the parts being shown as in Fig. 1. Fig. 3 is an interior view of a car showing the door as it appears when passing to the open position. Fig. 4 is a vertical sectional view through the door, the section being taken in the plane denoted by the line X X', Fig. 1. Fig. 5 is an enlarged detailed side elevation of a portion of the arm showing the rollers carrying the beam. Fig. 6 is an enlarged detailed vertical sectional view through the arm and beam showing the position of the rollers.

In the drawings like characters of reference indicate corresponding parts in each figure.

1 and 2 represent the door posts of a car of which 3 is the lintel or upper cross beam and 4 the sill, such parts bounding the usual doorway opening 5.

6 and 7 are beams within the car located at suitable intervals and forming part of the framework thereof.

8 and 9 are braces located between the beams 6 and 7 in the usual way.

10 is an arm of a channel iron cross section such arm having its lower edges turned inwardly at 11 forming tracks, for a purpose later explained. The arm is pivotally secured to the beam 7 by a pin 12 and extends to the inner side of the door post 1.

13 is a metallic door of a length somewhat greater than the distance between the door posts and of the height which it is usual to employ with the heavier grains, such as wheat. The upper edge of the door is firmly embedded within the beam 14 to which it is secured by rivets 15. The beam is adapted to pass within the arm 10 and is supplied at one end with a lower roller 16 operating on the tracks 11 and an upper roller 16' operating on the back of the arm. The free end of the beam is notched at 17 and a latch 18 is pivotally secured to the door post 2 and is adapted to pass into the notch and hold the door shut or closed. In this connection it is to be noticed that the end of the beam is rounded at 14' and also that the latch is restrained from swinging downwardly by the pin 19 so that when free it will remain in the horizontal position. A guide bar 20 is secured to the beam 2 and receives the end of the beam 14 when the door is closed. A bracket 21 is secured to the beam 6 and overhangs the arm 10 holding it to the door post.

22 is a lever pivotally secured by a pin 23 to the door post the pin passing through the bracket 21. The lever has a hooked end 24 which receives a staple or eye 25 passing from the free end of the arm.

26 is a hook extending from the brace 9 and adapted to pass over the end of the lever when the door is open to hold the lever stationary.

Plates 27 are fixed to the inner faces of the door posts, such plates being sufficiently thick to insure a tight joint with the door when it is closed, the door resting against the plates at both ends. It will readily be seen that if plates were not provided there would be an opening between the door and the post for the reason that the arm rests against the post and consequently the door would be some distance from it, i. e., approximately half the thickness of the arm. The plates are notched away at 28 so that the door is inclined slightly when shut.

In order to better understand my invention I will now describe its operation assuming the door closed and that it is desired to open it. The lever 22 is swung

downwardly and it carries with it the arm which in turn raises the door on account of the movement of the beam. As the beam rises the latch 18 is swung upwardly and passes from the notch when it approaches the vertical position. As soon as the door is raised the grain is released from the car and after the pressure has been sufficiently reduced in this manner the beam is telescoped within the arm and passes to the side of the doorway opening, the lever at this time being held down by the hook 26. To shut the door it is only necessary to extend the beam within the arm until the door comes to the original position it being locked by the latch which passes upwardly over the curved end of the beams into the notch 17.

What I claim as my invention is:

1. In a grain door, the combination with the door post of a car, of an arm swingably secured to the interior of the car, a beam adapted to telescope within the arm, a door carried by the beam designed to bear against the door post, and means for raising the arm, as and for the purpose specified.

2. In a grain door, the combination with the door posts of a car, of an arm pivotally secured at one end to the interior of the car, a beam adapted to telescope within the arm, a door secured to the beam and movable therewith, guides for the beam and arm, and means for raising the arm, as and for the purpose specified.

3. A door for grain cars, comprising a pivoted arm extending lengthwise within the car, and a door having sliding movement on the arm, as and for the purpose specified.

4. A door for grain cars, comprising an

arm pivotally secured to the interior of the car and extending longitudinally of the car, means for swinging the arm, and a door sliding on the arm, as and for the purpose specified.

5. In a grain door, the combination with the door post of a car, of an arm pivotally secured at one end to the interior of the car and with the other end at the inner side of the adjoining door post, a swingable lever adapted to raise the arm, a beam designed to telescope within the arm, a door secured to the beam and movable therewith, said door being adapted to close the doorway opening, and means for locking the door in the closed position, as and for the purpose specified.

6. In a grain door, the combination with the door posts of a car and frame posts located to the side of one of the door posts, of an arm of substantially channel iron cross section having inwardly directed portions forming tracks at its lower side, such arm being pivotally secured to one of the latter frame posts, a lever pivotally secured to one of the frame posts and connected to the arm, means for locking the lever in a set position, a beam adapted to telescope within the arm, rollers on the beam, a door fixed in the beam and movable therewith, and means for locking the said beam in a set position, as and for the purpose specified.

Signed at Winnipeg in the Province of Manitoba, this 11th day of March 1910.

JOHN OLIVER.

In the presence of—
G. S. ROXBURGH,
J. K. ELKIN.