

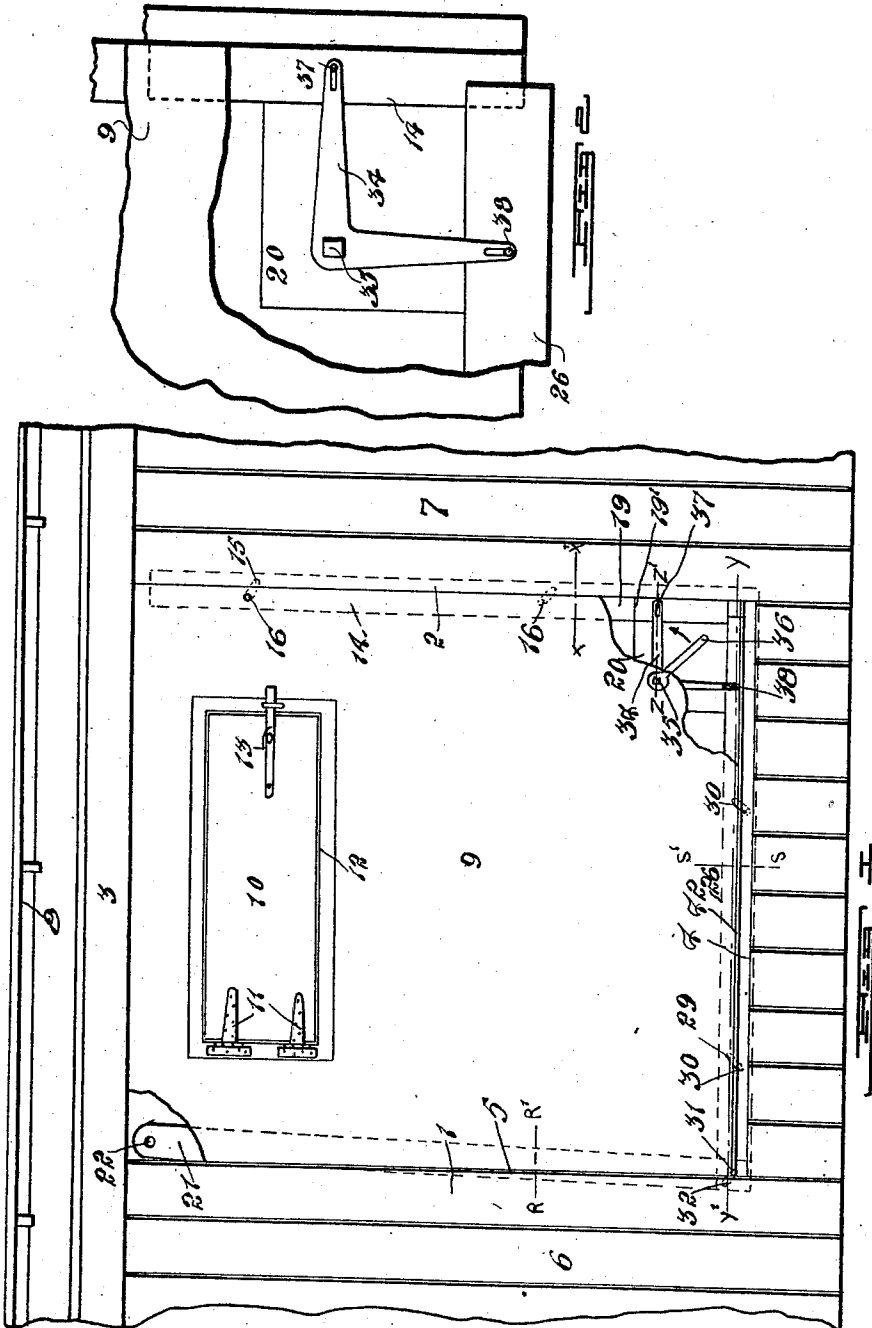
C. S. D. PERRY.
GRAIN CAR DOOR.

APPLICATION FILED JAN. 7, 1911.

996,672.

Patented July 4, 1911.

2 SHEETS—SHEET 1.



Witnesses:
W. Wakefield
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By
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[Signature]

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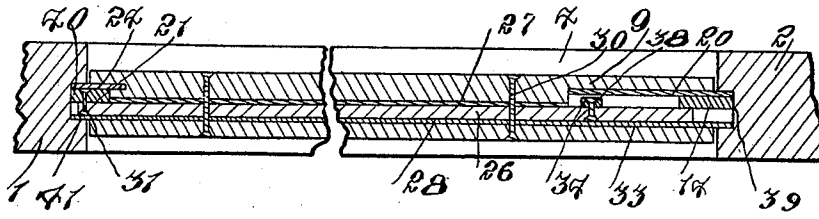


FIG. 3

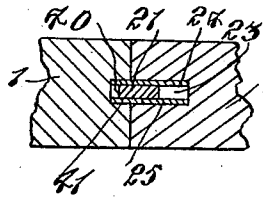


FIG. 4

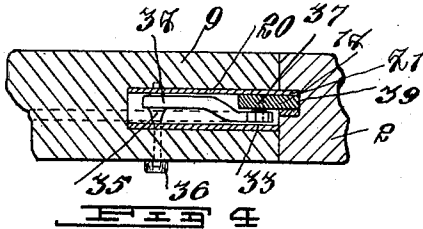


FIG. 5

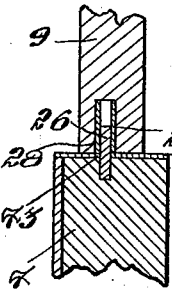


FIG. 6

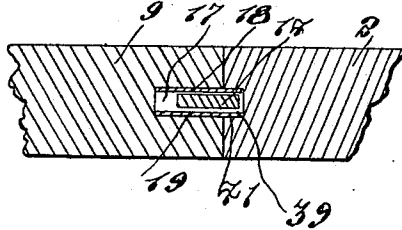


FIG. 7

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UNITED STATES PATENT OFFICE.

CYRIL SAM DRAYTON PERRY, OF WINNIPEG, MANITOBA, CANADA.

GRAIN-CAR DOOR.

996,672.

Specification of Letters Patent.

Patented July 4, 1911.

Application filed January 7, 1911. Serial No. 601,409.

To all whom it may concern:

Be it known that I, CYRIL SAM DRAYTON PERRY, of the city of Winnipeg, in the Province of Manitoba, Canada, have invented certain new and useful Improvements in Grain-Car Doors, of which the following is the specification.

My invention relates to a door for a grain car, and the object of the invention is to provide a simply constructed, inexpensive grain door which will effectively hold the grain in the car when closed, and which can be quickly removed from the car to release the grain.

A further object of the invention is to provide a strongly reinforced door which makes what might be termed a closed joint at the sides and bottom with the door posts and sill.

With these and other objects in view as will be more apparent as the description proceeds the invention consists essentially in the arrangement and construction of parts hereinafter more particularly described and later pointed out in the appended claims.

Referring to the drawings, Figure 1 is a side elevation of a portion of the car showing my door in position, certain parts being torn away to expose construction. Fig. 2 is an enlarged detail side elevation of a portion of one of the lower corners of the door, parts being broken away. Fig. 3 is an enlarged horizontal sectional view through the bottom of the door and posts, the section being taken in the plane denoted by the line Y Y', Fig. 1. Fig. 4 is an enlarged horizontal sectional view through a portion of the door and one of the posts, the section being taken in the plane denoted by the line Z Z', Fig. 1. Fig. 5 is an enlarged detailed horizontal sectional view through the door and one of the posts, the section being taken in the plane denoted by the line X X', Fig. 1. Fig. 6 is an enlarged detailed horizontal sectional view through a portion of the door and one of the posts, the section being taken in the plane denoted by the line R R', Fig. 1. Fig. 7 is an enlarged vertical sectional view through a portion of the door and the sill, the section being taken in the plane denoted by the line S S', Fig. 1.

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 upper cross beam or lintel

and 4 the door sill, such parts bounding the usual door way opening 5.

6 and 7 represent the face boards at the sides of the door way opening and 8 is the roof of the car.

9 represents the door which in the present instance is shown of a size which will completely close the door way opening. This however is optional and the door may be made of any height desired.

10 is a relief door hingedly secured to the door 9 at 11 and closing an opening 12 formed in said door. The relief door is supplied with a latch 13 whereby the door is held closed. The purpose of the relief door is to release initially the grain pressure on the main door 9 prior to opening the latter.

14 is a movable bar having slots 15 therein which receive upper and lower pins 16 carried by the adjoining edge of the door 10, which it will be noticed is provided with a vertically directed channel 17 fitted at the sides with guide plates 18 and 19. The guide plate 18 has the lower end thereof enlarged at 20 to form a bearing for a bell crank pin later described, while the guide plate 19 does not pass the full length of the post, being cut away at 19' directly opposite the upper edge of the enlarged end 20 of the guide plate 18.

21 is a bar having its upper end pivotally secured at 22 to the opposite edge of the door, such bar being received within a vertically directed channel 23 and operating between guide plates 24 and 25 also secured to the sides of the channel. The guide plate 25 is shorter than the guide plate 24 so that it will not interfere with the cross bar now described.

26 is a cross bar located at the lower edge of the door 9 and operating between two guide plates 27 and 28 appearing within a channel formed in the edge of the door. The bar 26 is provided with slots 29 which receive pins 30 passing into the material of the door. One end of the bar 26 is connected by a pin 31 to the lower end of the bar 21, which pin enters a slot 32 formed in the bar 21.

33 (Fig. 4) is a guide plate corresponding to the enlarged end 20 of the guide plate 19 and inserted within the corner of the door directly opposite the enlarged end 20, such plates housing between them a bell crank 34 carried by a pin 35 which finds

bearings in the plates and extends through the door in a squared end where it is provided with a lever 36. The ends of the bell crank are slotted and receive pins 37 and 38 which extend from the bars 14 and 26, respectively. It is to be noticed that the bar 26 bears at one side against the lower end of the bar 19, and at the other against the plate 33 when the door is closed.

10 According to the above construction it will be seen that if one swings the lever 36 in the direction indicated by the arrow in Fig. 1 of the drawings, the bars 14, 26 and 21 will all be withdrawn within the door so as to allow it to draw free from the door opening. Recesses or channels 39 and 40 are formed in the door posts 1 and 2 and are provided with sets of guide plates 41 which receive the bars 14 and 21 when extended from the door. The customary door plate 42 is slotted at 43 to admit the bar 26 when it is extended within the sill.

In order to better understand my invention I will now describe its operation assuming the door closed, that is with the parts in position as shown in Fig. 1.

The door 10 is opened and a considerable amount of grain is released thereby decreasing the grain pressure on the main door. The lever 36 is then swung in the direction indicated by the arrow, so that all the bars are drawn into the main door releasing them from the posts and the sill. The door immediately flies open due to the grain pressure.

It will be understood that suitable means such as chains can be used for fastening the door to the car.

What I claim as my invention is:

40 1. The combination with the door posts and sill of a car, said parts having channels formed therein, of a door adapted to pass between the door posts, a vertically extend-

ing laterally movable bar located in a suitable channel formed in one edge of the door, a vertically extending swingable bar located in a suitable channel formed in the opposite edge of the door, a movable cross bar located in a suitable channel formed in the bottom of the door, said cross bar being connected to the lower end of the swingable bar and turnable means connecting the free end of the cross bar with the end of the adjoining movable bar, as and for the purpose specified.

2. The combination with the door posts and sill of a car, said parts having channels formed therein, of a grain door adapted to pass between the door posts, a vertically disposed laterally and upwardly movable bar located within a convenient channel formed in one edge of the door, a swingable bar located in a suitable channel formed in the opposite edge of the door, a laterally and longitudinally movable cross bar located in a suitable channel formed in the lower edge or bottom of the door, guide plates for all of said bars, guide plates located in the sides of the channels formed in the posts and sill, means connecting the lower end of the swingable bar with the adjoining end of the cross bar, a pivoted bell crank located in the door and connected with the opposite end of the cross bar and the lower end of the adjoining vertically and laterally movable bar, and means for turning the bell crank to advance or recede the bars into or from the channels formed in the door posts and sill, as and for the purpose specified.

Signed at Winnipeg, in the Province of Manitoba, this 17th day of October, 1910.

CYRIL SAM DRAYTON PERRY.

In the presence of—

G. S. ROXBURGH,
R. C. SMITH.