

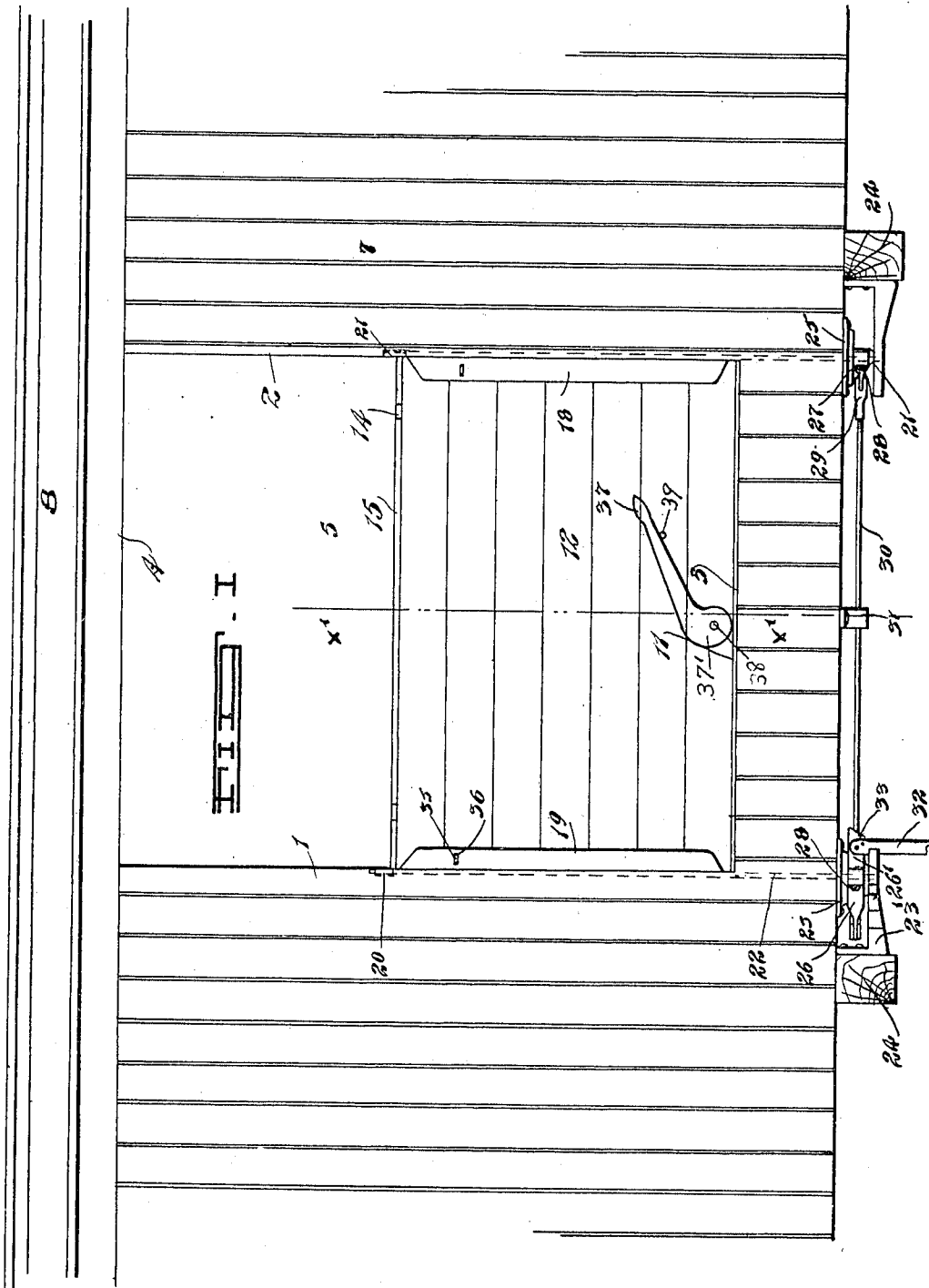
J. HEUCHERT.
GRAIN CAR DOOR.

APPLICATION FILED SEPT. 13, 1909.

984,560.

Patented Feb. 21, 1911.

3 SHEETS-SHEET 1.



Witnesses
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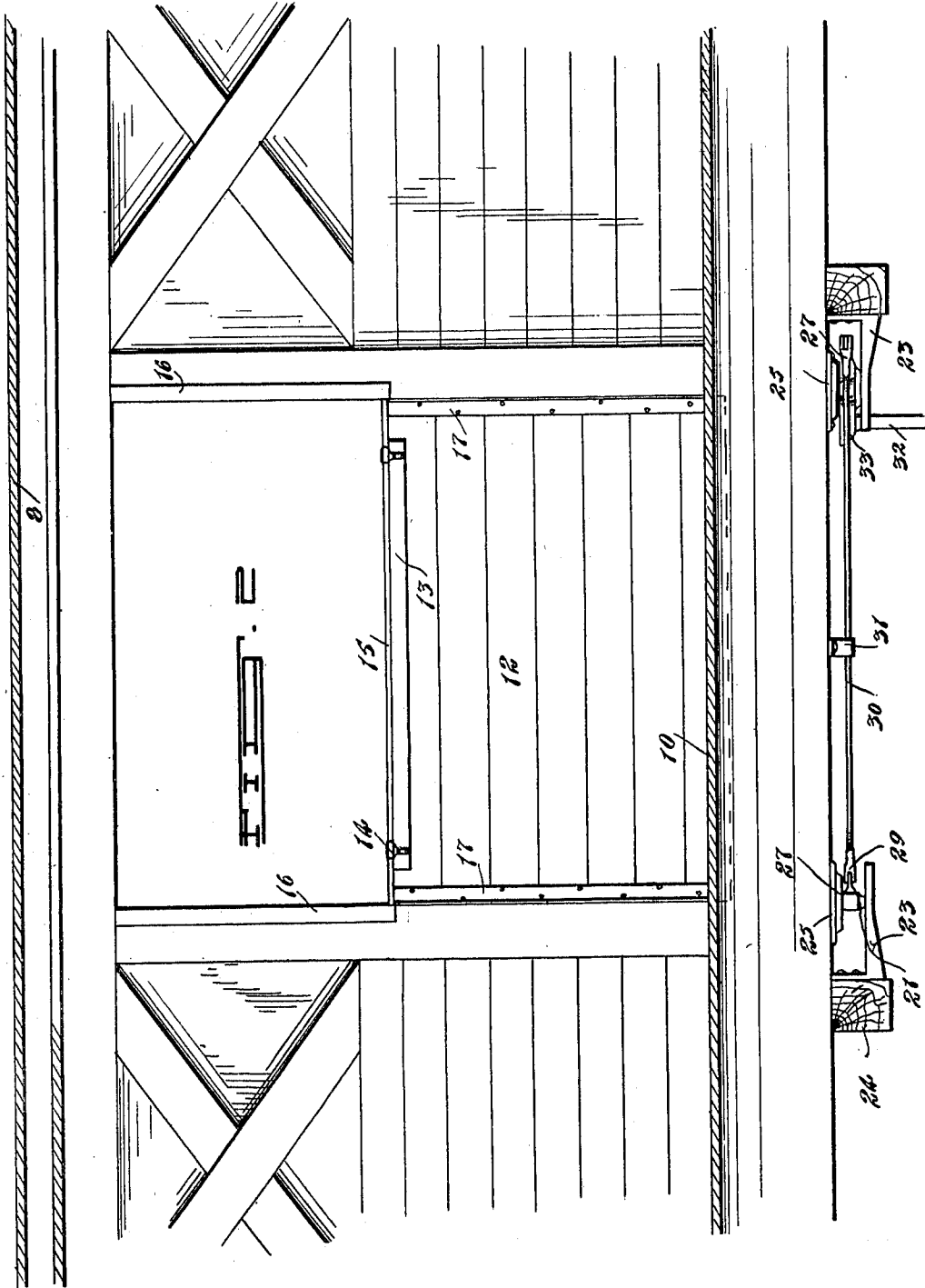
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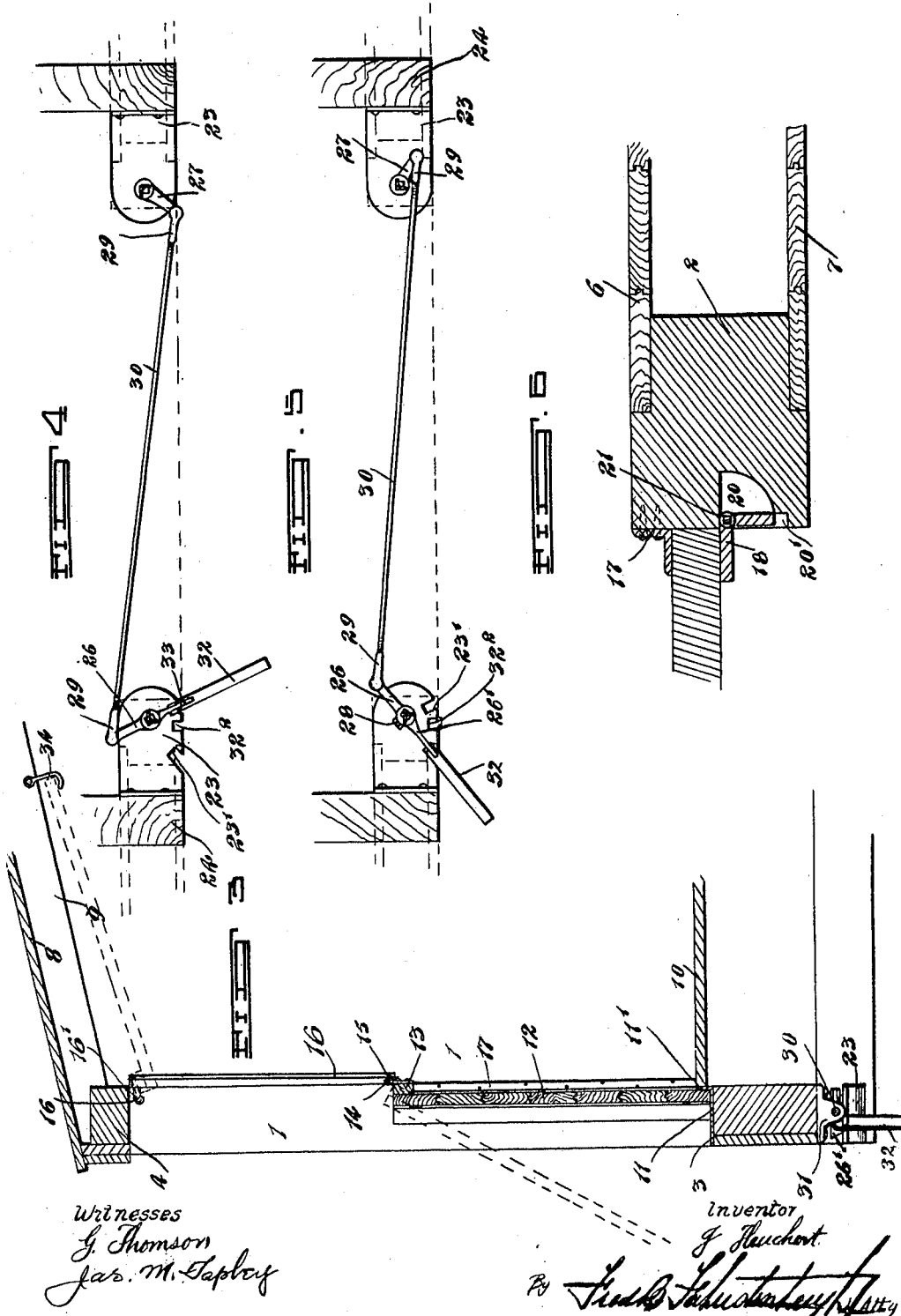
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UNITED STATES PATENT OFFICE.

JAKOB HEUCHERT, OF WINNIPEG, MANITOBA, CANADA, ASSIGNOR OF NINE-TENTHS
TO MARGARET MULLALY, OF WINNIPEG, CANADA.

GRAIN-CAR DOOR.

984,560.

Specification of Letters Patent.

Patented Feb. 21, 1911.

Application filed September 13, 1909. Serial No. 517,455.

To all whom it may concern:

Be it known that I, JAKOB HEUCHERT, 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 grain car doors and the object of the invention is to provide a door which can be quickly opened to release grain, coal, or other such like substance from a car and which when opened can be readily raised and suspended from the roof of the car.

A further object of the invention is to provide a strongly reinforced door which will not allow leakage of grain from the car when closed and which has no tendency to rise from the closed position.

The invention consists essentially in a door having an outer cross rod secured thereto upon which it is outwardly swingable, vertically directed channel irons secured to the door posts and receiving the ends of the rod, channel iron bars secured to the opposing face of the door post and engageable with the inner side of the door, pivotally supported angle iron bars located within the door posts and engageable with the outer face of the door, means for turning the channel iron members in unison, means for suspending the door from the roof of the car, and means for locking the door in the closed position, the parts being arranged and constructed as hereinafter more particularly described.

Figure 1 is an exterior view of a portion of a car with my door applied. Fig. 2 is an interior view as in Fig. 1. Fig. 3 is a vertical sectional view through the door the section being taken in the plane denoted by the line X X', Fig. 1. Fig. 4 is a plan view of the mechanism utilized for closing and opening the channel iron bars, the parts being shown as they appear when the door is closed. Fig. 5 is a similar view of the above parts as they appear when the door is free to open. Fig. 6 is an enlarged vertical sectional view through one of the door posts

showing the manner in which the door is held in the closed position.

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

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

6 are the inner and 7 the outer face boards of the car appearing to either side of the doorway opening.

8 is the roof of the car carried by the beams 9 in the usual manner.

10 is the car floor.

The door sill 3 is cut away at the doorway opening and a plate 11 is inserted therein having an upwardly directed flange 11' which bears against the door. It will be understood that the body of the plate is slightly below the level of the floor.

12 is the car door which is of the height usually employed for carrying the various grains and of a length which will allow it to pass between the door posts. The door has a cross bar 13 secured to its upper edge to which I have fastened two eye bars 14 carrying a cross rod 15 having the ends thereof extending to the side and behind the post where they are received and carried by vertically directed channel irons 16 secured to the posts. The channel irons have their upper and lower ends closed and communicate at their upper ends with notches 16' formed in the door posts the purpose of which will shortly be apparent. When the door is in the closed position the rod 15 rests on the lower closed end of the channel irons and the lower edge or bottom of the door bears against the flange 11' of the plate 11.

17 are vertically directed channel irons firmly secured to the opposing face of the door posts and bearing against the inner face of the door when in its closed position.

18 and 19 are angle iron bars located within recesses 20 formed in the door posts said bars having shanks 21 extending therefrom the upper ones of which are pivotally secured within the door posts at the upper

end of the recesses 20 which it will be understood only extend upwardly a slight distance above the upper edge of the door. The lower or downwardly extending shanks 5 of those 21 pass through suitable openings 22 formed in the door sill and are supported by brackets 23 carried by the cross beams 24 of the car.

25 are bearing plates secured to the under side of a car and through which pass the downwardly extending shanks 21.

26 and 27 are arms secured to the lower of the shanks 21 by adjusting nuts 28 and appearing on the shanks between the bearing plates 25 and the brackets 23. The 15 arms on the shanks extend in opposite directions and have short links 29 secured thereto which receive the threaded end of a rod 30.

31 is a strap secured to the under side of the car and passing under the rod 30 such being provided to hold the rod in place and to prevent it from sagging.

The arm 26 has an extending portion 26' to which is hingedly secured a lever 32 by which the arms are turned. The lever operates over the adjoining edge of the bracket 23 which is notched at 23' to receive the lever and hold it in a set position. An opening 33 is provided in the extending portion 30 of the arm 26 for the insertion of a pin or lock whereby the lever is held in the lower position until the pin or lock is removed.

34 is a hook pivotally secured to the beam 35 of the car and adapted to receive the lower edge of the door when it is raised to the roof of the car.

It is to be noticed that one of the arms of each of the irons 18 and 19 is wider than 40 the other and that the narrower arms swing within the notches 20 while the wider ones are adapted to lie flush with the face of the door posts when turned and be received within grooves 20' continuous with the 45 notches. It is also to be noticed that the arms of the angle irons 18 and 19 are cut away somewhat above the floor level of the car the reason for this being that it makes it easier for them to be put in position when 50 a car is being equipped with my door.

The lower shanks are inserted within the openings 22 and passed downwardly as far as possible so as to admit the upper shanks within the notches 20. When the angle 55 irons are raised the upper shanks pass into the openings or bearings provided for them at the upper end of the notches and they are held in this position by the tightening of the adjusting screws 28 on the lower shanks.

60 35 are pins or lugs extending outwardly from the face of the door such lugs being

provided to enter complementary openings 36 provided in the wider arms of the angle irons 18 and 19.

In order to more clearly understand my 65 invention I will now describe its operation assuming the door closed and the car filled with grain. To open it is only necessary to release the locking means supplied in the opening 33 and raise the lever 32 to the hori- 70 zontal position then swing it to the position shown in Fig. 5. This motion causes the angle irons 18 and 19 to turn until the wider arms are flush with the faces of the door post at which instant the door swings 75 outwardly on the rod due to the outward pressure of the grain. The door is then raised and the ends of the rod are brought into the notches 16' at which time the door is swung inwardly till the lower edge is re- 80 tained by the hook 34 in which position it is suspended.

I wish to draw particular attention to the angle irons 17 and to the plate 11 as these are of great value in preventing grain from 85 leaking from the car when the door is closed.

The angle iron bars 18 and 19 not only serve to prevent the door from swinging outwardly but also serve to hold the door tightly against the angle irons and the 90 flange 11' so that leakage is practically impossible.

It may be found desirable in certain instances to release the grain slowly from the car without allowing the door to swing 95 outwardly. In order to accomplish this I have provided a lever 37 having a cam shaped head 37' such lever being pivotally secured to the outside of the door by a pin 38. 39 is a further pin engaging with 100 the lever in the normal position and preventing it from passing downwardly below the lower edge of the door. A notch 32' is provided in one of the brackets 23 which will allow the angle iron bars to be 105 turned slightly by the lever and held in such position thereby releasing the door sufficiently to allow it to be raised by means of the lever 37. By turning the lever 37 to the alternative position to that shown in 110 Fig. 1 it will be seen that the door will be raised by the action of the cam head against the plate 11.

What I claim as my invention is:

In a device of the class described, the 115 combination with the door posts of a car having vertically directed notches therein, of an outwardly swingable door adapted to pass between the door posts, a set of vertically directed angle iron bars located with- 120 in the notches and having upwardly and downward extending shanks, the upper

shanks passing into suitable bearings formed in the door posts, and the lower shanks beneath the car through suitable openings formed in the sill, brackets carried at the under side of the car receiving the extending ends of the lower shanks, adjustable arms secured to the latter shanks and extending in different directions, a rod connecting said arms together, bearing plates secured to the under side of the car through which the lower shanks pass, and a lever hingedly secured to one of the arms and adapted to operate over notches provided in the adjoining bracket to hold the angle irons in a set position, as and for the purpose specified. 15

Signed at Winnipeg, in the Province of Manitoba, this 25th day of August 1909.

JAKOB HEUCHERT.

In the presence of—

G. S. ROXBURGH,

M. A. SOMERVILLE.