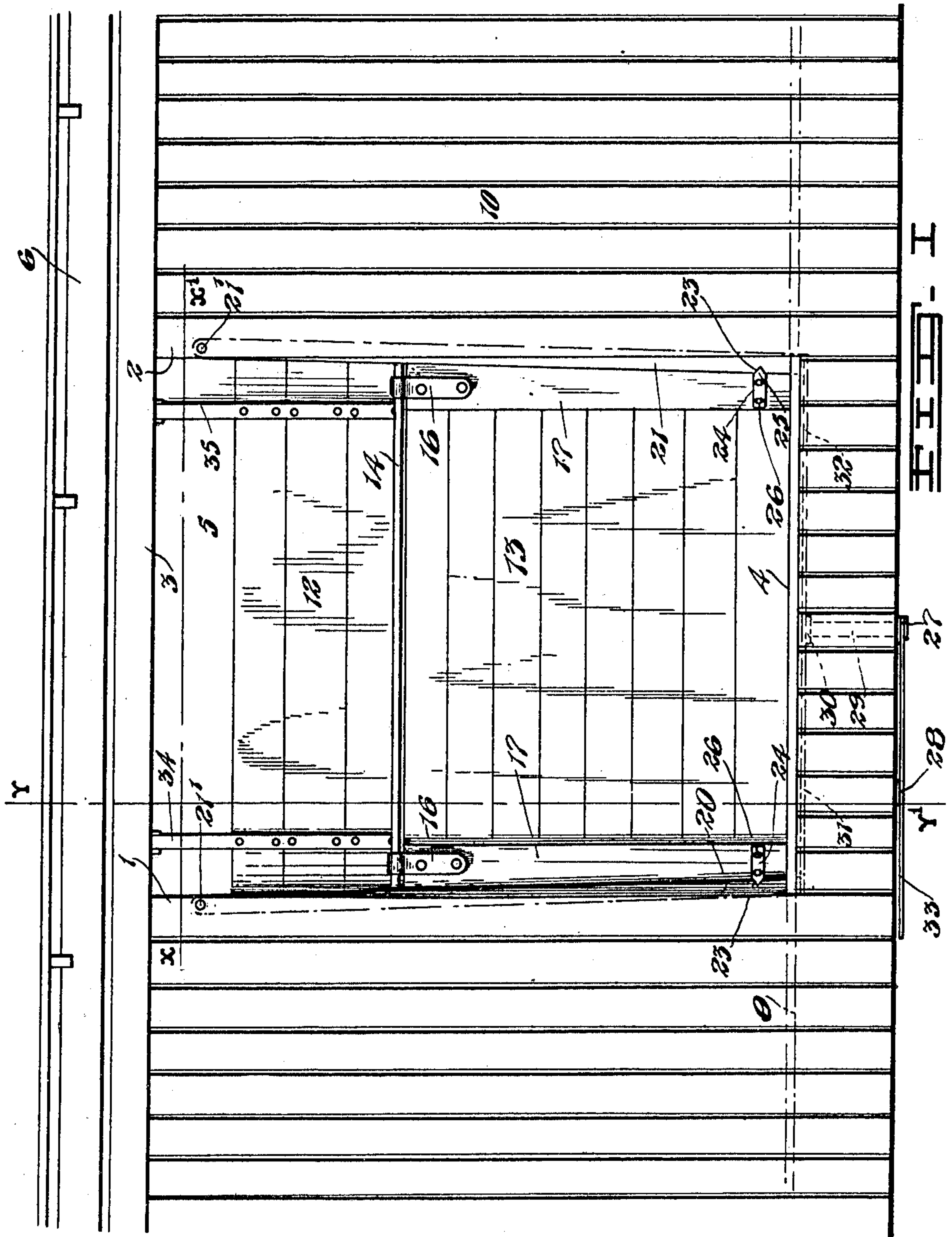


A. C. SMITH.
GRAIN CAR DOOR.
APPLICATION FILED AUG. 5, 1909.

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Patented Sept. 6, 1910.

3 SHEETS—SHEET 1.



WITNESSES
Jas. M. Tapley
G. Thomson

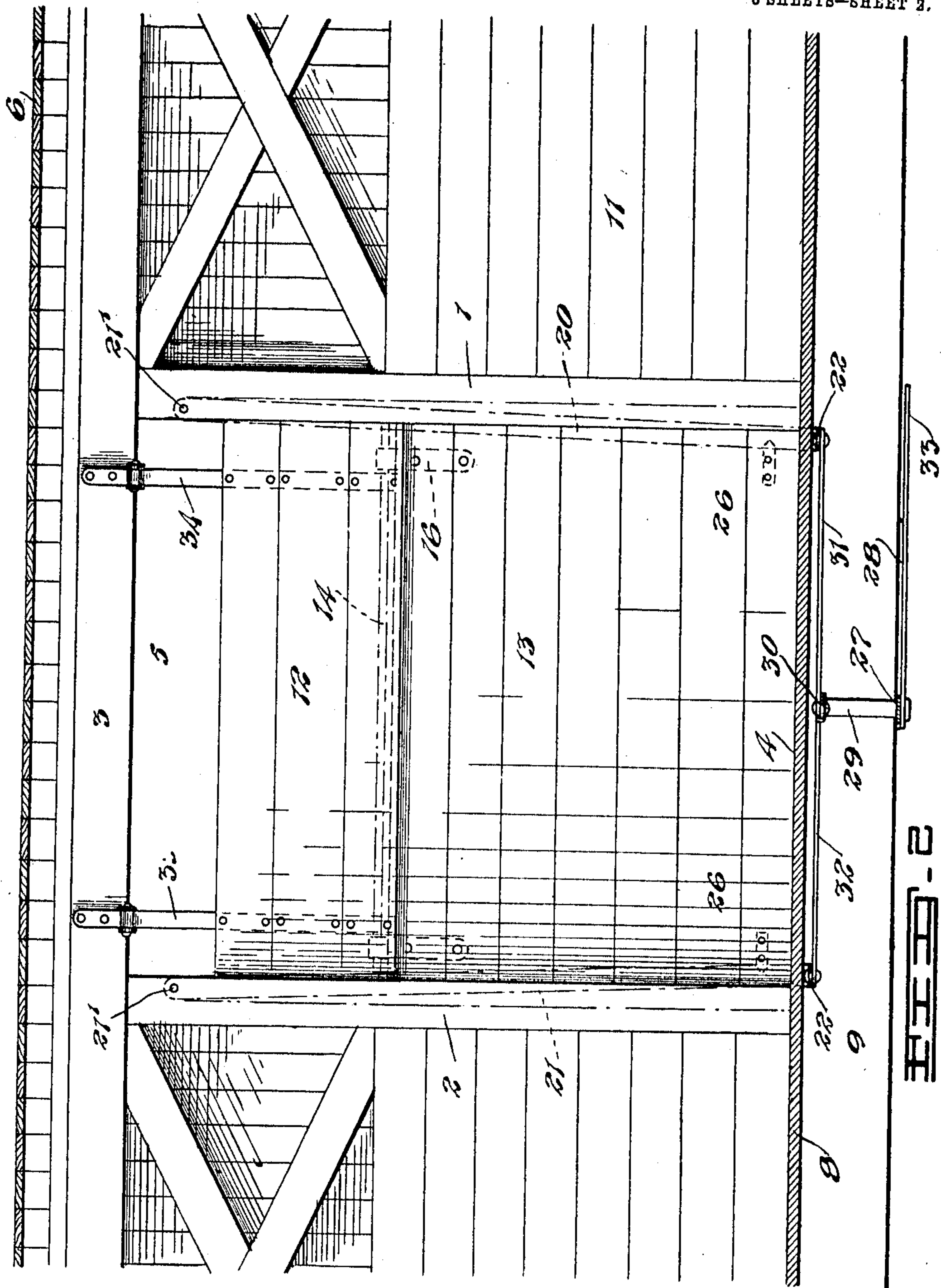
INVENTOR
Anton. C. Smith
By *Frank J. [Signature]* Atty

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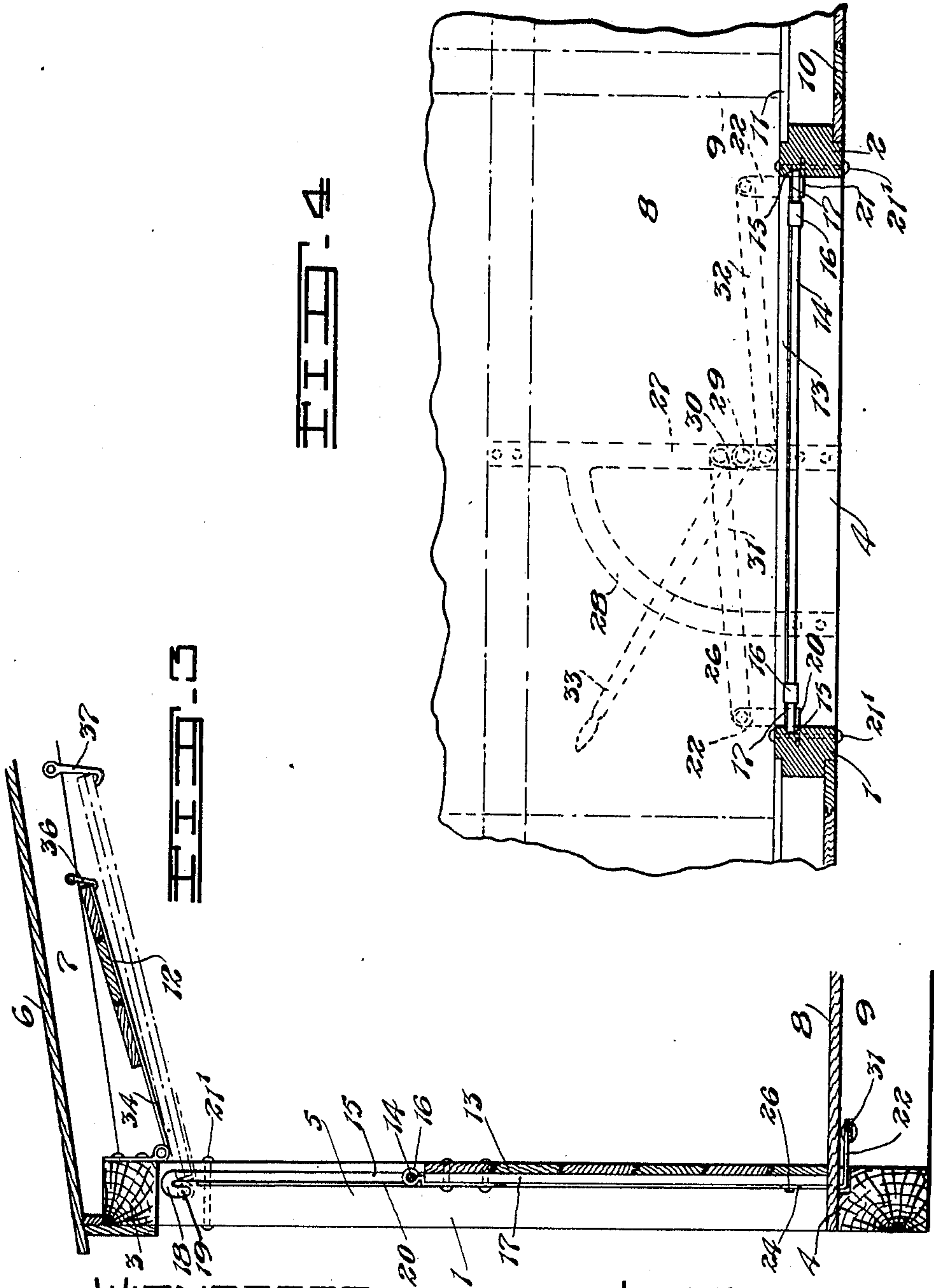
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Jas. M. Tapley

G. Thomson

INVENTOR

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UNITED STATES PATENT OFFICE.

ANTON CHRISTIAN SMITH, OF WINNIPEG, MANITOBA, CANADA, ASSIGNOR OF ONE-THIRD TO THOMAS J. HOLLAND, OF WINNIPEG, CANADA.

GRAIN-CAR DOOR.

969,730.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed August 5, 1909. Serial No. 511,297.

To all whom it may concern:

Be it known that I, ANTON CHRISTIAN SMITH, 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 by which grain, coal, or such like produce can be readily released from a car, particular care having been taken to avoid placing undesirable obstructions of any kind within the car which would interfere with the scoops which are at present used for cleaning the grain out of the car, after it has finished running of its own accord.

A further object is to provide a simple door which can be readily placed in the inoperative position against the roof of the car. It consists essentially in a door section adapted to pass between the door posts of a car, metallic bars pivotally secured within vertically directed and opposing slots formed in the door posts, means controlled by a lever for operating the bars, a cross rod supporting the door section in the closed position and slidable within vertically directed grooves formed in the door posts, the parts being arranged and constructed as hereinafter more particularly described.

Figure 1 is a front elevation of a portion of a car showing one of my doors as it appears in the closed position. Fig. 2 is an interior view of the car, the door being shown as in Fig. 1. Fig. 3 is a vertical sectional view through the car, the section being taken in the plane denoted by the line Y Y', Fig. 1, and the upper section of the door being shown in its open position. Fig. 4 is a horizontal sectional view taken in the plane denoted by the line X X', Fig. 1, the upper section of the door being removed.

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, which portions bound the usual door way opening 5.

6 is the roof of the car and 7 are the roof supporting beams.

8 is the car floor suitably supported on the usual beam 9.

10 are the outer face boards at the sides of the door posts, and 11 is the inner wall of the car.

The door is formed from upper and lower sections 12 and 13, respectively, the lower section being designed to pass between the door posts, and the upper one to rest with its ends against the inner faces of the posts and with its lower edge overlapping the upper edge of the lower section thereby forming a closed joint.

14 is a cross rod having its ends received within vertically directed grooves formed in each of the door posts the lower ends of such grooves terminating at a point slightly above the lower section when closed, so that the lower section of the door is practically suspended from the rod in its lower position, as later explained.

Straps 16 are firmly bolted to cross strips 17 appearing at the ends of the section, such straps being secured to the rod thereby hinging the section on the rod.

The upper ends of the grooves turn backwardly on themselves at 18 to form a pocket at 19 to receive the ends of the rod when the section is swung to the ceiling.

20 and 21 are bars located within slots formed in the door post, such bars having their upper ends pivoted to posts at 21' and their lower ends turned at right angles at 22 and passing beneath the floor 8, it being understood that the floor and the adjoining beam are cut away to allow the bar to pass beneath the floor. Each bar is supplied with an angular notch 23 and the lower section of the door is fitted with slotted bars 24 having their ends wedge-shaped at 25. The bars are held to the doors by adjustable bolts 26.

27 is a plate secured to the beams 9 and appearing centrally beneath the door, said plate having an extending arm 28 over which the lever hereinafter referred to slides.

29 is a vertically directed post rotatably

secured to the plate 27 at its lower end and having a cross arm 30 secured to its upper end, said cross arm being united by links 31 and 32 to the inwardly directed ends 22 of the bars 20 and 21 respectively.

33 is a lever fastened firmly to the post and sliding against the plate 28, said lever appearing beneath the car.

34 and 35 are straps secured firmly to the upper section 12 of the door and hingedly secured to the lintel 3 whereby the section can be swung inwardly toward the roof of the car when desired.

36 and 37 are depending hooks pivotally secured to one of the beams 7 and adapted to receive the lower edges of the respective sections when they are swung to the open position.

In order to better understand the invention I will now describe its operation assuming the car filled with grain. To release the door it is necessary to pull the lever from the position shown in dotted outline in Fig. 4 toward the side of the car. This motion causes the bars 20 and 21 to recede gradually within the slots and finally to disappear totally within the door posts. When this occurs the lower section of the door is free to swing outwardly thereby allowing the grain within the car to flow out. After the upper section of the door has been swung and secured to the roof of the car, the lower section is raised so as to bring the ends of the rod within the pockets 19, and then the lower edge of the section is swung upwardly to the roof of the car and fastened by means of the hook 37. To close the sections it is only necessary to release them from the hooks and place them in the original position, the lever having previously been pressed inwardly so as to swing the lower ends of the bars out of their slots.

What I claim as my invention is:

1. In a grain car door, the combination with the door post of the car, of the door section shorter than the space between the door posts, said door posts having vertical slots therein, bars in said slots having their

upper ends pivoted therein and their lower ends extending below the bottom of the car, means engaging the said lower ends for moving them toward and away from each other, as and for the purpose specified.

2. In a grain door, the combination with the door posts of a car, of a door section adapted to pass between the door posts and pivotally suspended upon a horizontal rod vertically slidable within grooves appearing in the door posts, a set of similar opposing bars operating within vertically directed slots formed in the door posts, said bars being pivotally secured at their upper ends within the slots and having their lower ends passing downwardly beneath the floor of the car, and turned at right angles to the body portions thereof, an actuating lever interconnected with the lower end of the bars whereby the bars can be withdrawn or advanced within the slots, as and for the purpose specified.

3. In a grain door, the combination with the door posts of a car, of a door section adapted to pass between the door posts and pivotally suspended from a cross rod vertically movable within grooves formed in the door posts, an opposing set of similar bars located within slots formed in the door posts, the upper ends of said bars being pivoted on cross bolts and the lower ends being directed through the car floor and turned inwardly at right angles to the body portions thereof, a plate secured to the floor supporting beams, a vertically directed and rotatably mounted post carried by the plate, a cross arm secured to the upper end of the post and united through links with the inwardly directed ends of the bars, and a lever secured to the post and adapted to actuate the links, as and for the purpose specified.

Signed at Winnipeg, in the Province of Manitoba, this 19th day of June 1909.

ANTON CHRISTIAN SMITH.

In the presence of—

G. L. BOXBURGH,
M. A. SOMERVILLE.