O. VAN CAMP.

GRAIN CAR DOOR.

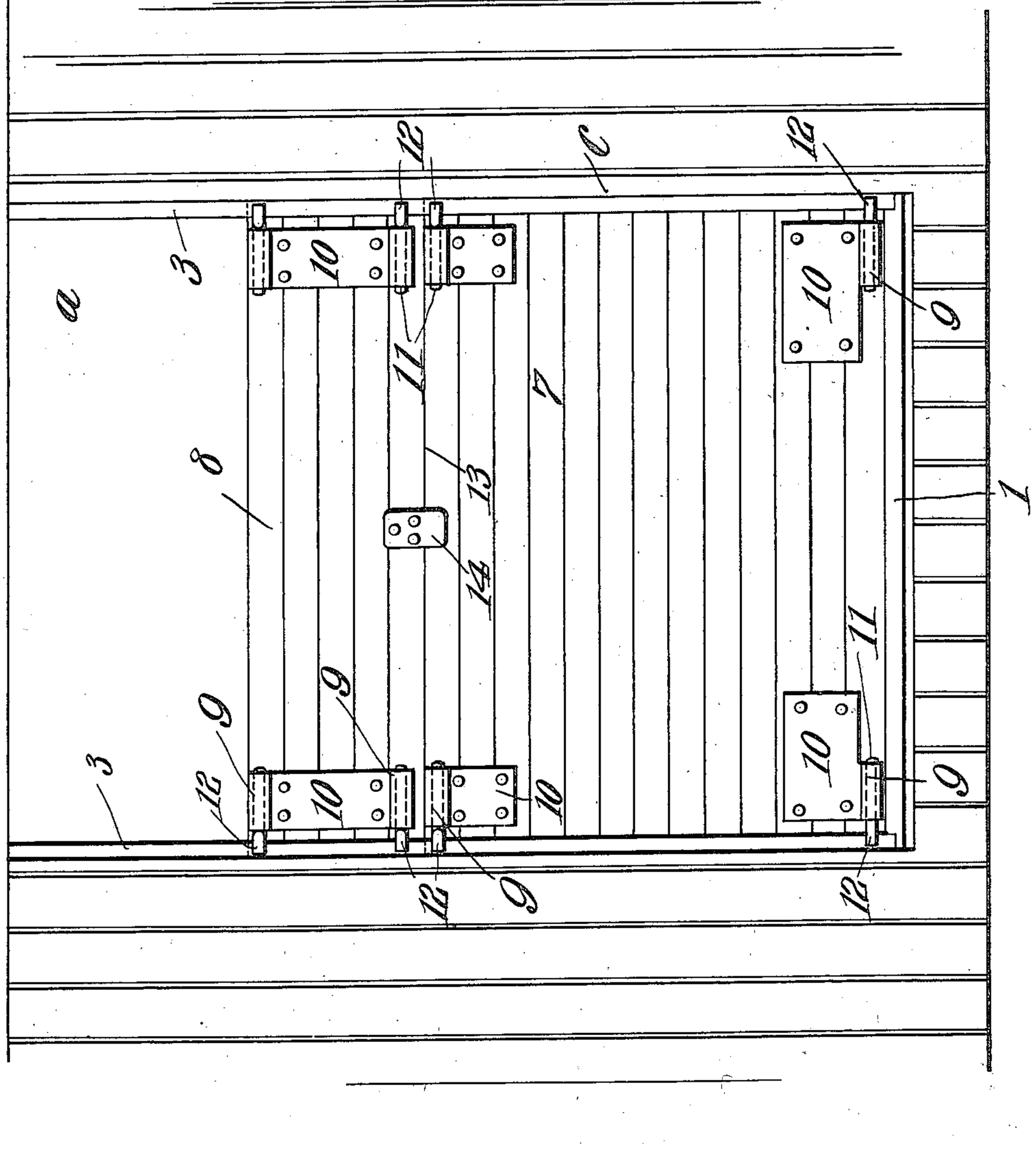
APPLICATION FILED APR. 5, 1909.

953,244.

Patented Mar. 29, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

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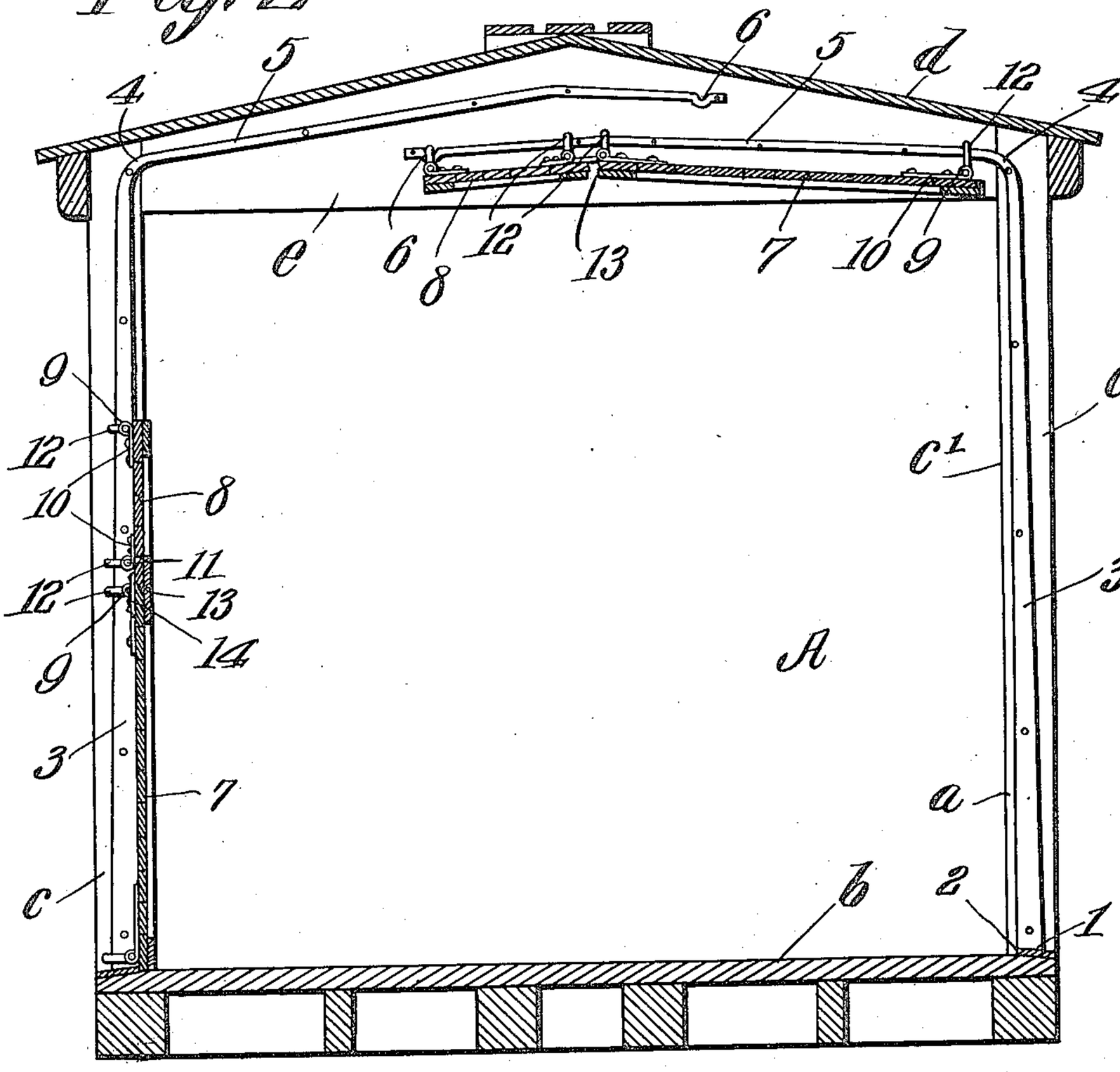
2 SHEETS—SHEET 2.

Fig. 2



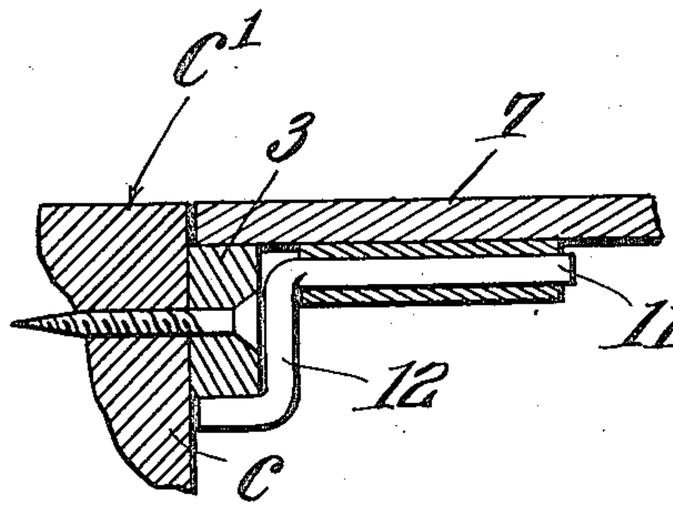


Fig. 3.

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UNITED STATES PATENT OFFICE.

ORBLIN VAN CAMP, OF ST. THOMAS, NORTH DAKOTA.

GRAIN-CAR DOOR.

953,244. Specification of Letters Patent. Patented Mar. 29, 1910.

Application filed April 5, 1909. Serial No. 487,838.

To all whom it may concern:

Be it known that I, ORBLIN VAN CAMP, a citizen of the United States, residing at St. Thomas, in the county of Pembina and State of North Dakota, have invented a new and useful Grain-Car Door, of which the following is a specification.

This invention relates to doors for grain cars and its object is to provide a door of this type made up of sections mounted in a novel manner whereby, when they are in lowered or closed position, they are held positively against rattling or accidental displacement.

A further object is to provide a door of this character the sections of which are designed to be supported up close to the ceiling of the car when the door is open, said door being readily shiftable into either open or closed position.

Another object is to provide novel means for holding the door sections in proper position upon the guide rails, said rails being so shaped as to act as wedges for holding the sections rigidly when they are lowered to their proper positions.

With these and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a front elevation of a door constructed in accordance with the present invention, the adjoining portion of a car structure being shown. Fig. 2 is a central vertical transverse section through a car body embodying the present improvements, one of the doors being shown closed and the other door being shown elevated. Fig. 3 is an enlarged horizontal section through one edge portion of one of the doors, and showing the adjoining rail in sections and engaged by one of the guide members of the door.

Referring to the figures by characters of reference A designates a car structure having a door opening *a* therein, there being a sill strip 1 upon the bottom of the door opening and having its inner edge extending above the floor *b* of the car, so as to form a shoulder or abutment 2 for the lower edge of the door. Secured to each jamb *c* of the door is a rail 3 extending throughout the height of the jamb and gradually diminishing in width toward its upper end, the inner edge of each rail being flush with the shoulder 2 of the sill strip and preferably parallel with but spaced from the inner surface *c'* of the jamb *c*. The upper end of each rail 3 is curved inwardly close to the car ceiling *d*, as indicated at 4, said curved portion merging into a supporting rail 5 extending transversely of the car and along one of the roof beams *e* thereof. This rail 5 is preferably of uniform width and is inclined upwardly for a distance slightly greater than the height of one of the door sections hereinafter described and is then inclined slightly downwardly and terminates in a recessed or notched portion 6. It is to be understood that the rails 5 extending inwardly from one side of the car are arranged over and are spaced from the corresponding rails extending inwardly from the other side of the car, as clearly indicated in Fig. 2.

Each door is preferably made up of two sections, the lower section 7 being considerably higher than the upper section 8, but both sections being disposed to be seated between the jambs *c* and against the rails 3, the inner faces of the sections being thus disposed with the inner surfaces *c'* of the jambs, as clearly indicated in Fig. 3. The lower section 7 is also designed to bear against the shoulder 2 formed by the sill strip 1. Each of the sections is provided upon its outer face in each corner thereof with an eye 9 which may if desired be formed at one end of a strap 10, said eye constituting the bearing of a stem 11 from which projects a crank 12 constituting a connecting member. The two lower cranks on the door section 7 are larger than the upper cranks on said section, so that when the door is in its lowermost position said cranks will bear firmly upon the tapering rails 3 and thus hold the section tightly clamped against the inner faces of the rails. The same is true also of the cranks on the upper door section 8.

When the doors are not in use they are suspended from the rails 5 by means of the cranks 12, one set of cranks of each section 7 being seated in the notches 6 so as to prevent said section from moving off of the ends of the rails 5 when the doors are being elevated.

When it is desired to close the door the section 7 thereof is moved in the direction

of the door opening *a* and along the rails 5, the cranks 12 traveling around the curved portions 4 of the rails and thence downwardly along the tapered rails 3. As the section 7 reaches the bottom of the door opening *a* and assumes a position back of the sill strip 1 the cranks 12 become tightly wedged upon the rails 3 and thus serve to draw the sections firmly against the rails so that they will not rattle or permit any grain to sift between them and the rails and thus escape. After the lower door section has been placed in position the upper door section can be moved to closed position in the same manner, its cranks 12 passing along the rails 5 and thence downwardly on the tapered rails 3 until the section assumes a position upon the lower section 7. At this time the cranks of the section 8 become firmly wedged upon the rails 3 so that the section will be drawn by the cranks tightly against the rails. The two sections are preferably formed at their meeting edges so as to lap, this being clearly indicated in Fig. 2 at 13, and, if desired, a tongue 14 may be secured upon the outer face of the section 8 at the center of the lower portion thereof so as to lap the upper portion of the lower section 7 as shown in Fig. 1, thus preventing outward bulging of the upper portion of the section 7 and inward bulging of the lower portion of the section 8.

To open the door the foregoing operation is reversed and as the sections move along the rails 3 and thence along the rails 5 they will be stopped by one set of cranks dropping into the notches 6, this occurring when the two sections reach their proper positions upon the rails 5.

It is of course to be understood that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

1. The combination with a car structure having a door opening, of rails secured to the sides of said opening, each rail being tapered from the bottom to the top of the opening, supporting rails constituting continuations of the tapered rails, a door and means carried by the door for constantly engaging either the supporting or the tapered rails, said means embracing and being slidably mounted on the rails and coöperating with the tapered rails to bind the door against said rails when the door is in its lowermost position.

2. The combination with a car structure having a door, of rails secured to the sides of the opening, each rail being tapered from the bottom to the top of the opening, supporting rails constituting continuations of the said rails and extending under the roof of the car structure, a slidable door, and means mounted to swing upon the door and constantly engaging either the supporting or the tapered rails, and adapted, when engaging with the tapered rails, to bind the door against said tapered rails.

3. The combination with a car structure having a door opening therein, of rails secured to the sides of the opening, each rail being tapered from the bottom to the top of the opening, supporting rails extending from the upper ends of the tapered rails and constituting continuations thereof, said supporting rails being arranged at angles to the tapered rails under the roof of the car, a door, cranks pivotally mounted upon the door and extending beyond the sides thereof, said cranks being continually in engagement either with the supporting rails or the tapered rails, said tapered rails and cranks cooperating to bind the door upon the tapered rails when the door is in its lowermost position.

4. The combination with a car structure having a door opening, of rails secured to the sides of the opening, each rail being tapered from the bottom to the top of the opening, supporting rails integral with the upper ends of the tapered rails and extending inwardly at angles therefrom, each supporting rail having a recess, a door, cranks pivotally mounted on the door and slidably engaging either the supporting or the tapered rails, said cranks and tapered rails cooperating to bind the door upon the tapered rails when the door is in its lowermost position, one of the cranks at each side of the door being movable into the recess when the door is mounted upon the supporting rails.

5. The combination of a car structure having a door opening, of rails secured to the sides of the opening, each rail being tapered from the bottom to the top of said opening, supporting rails extending from the upper ends of the tapered rails and each having a recess therein, a door, cranks pivotally mounted on the door and in constant engagement with the rails, said cranks and the tapered rails coöperating to bind the door upon the tapered rails when the door is in its lowermost position, the recesses constituting seats for the cranks when the door is elevated.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ORBLIN VAN CAMP.

Witnesses:
WM. MCMURCHIE,
T. E. PETERSON