

(No Model.)

2 Sheets—Sheet 1.

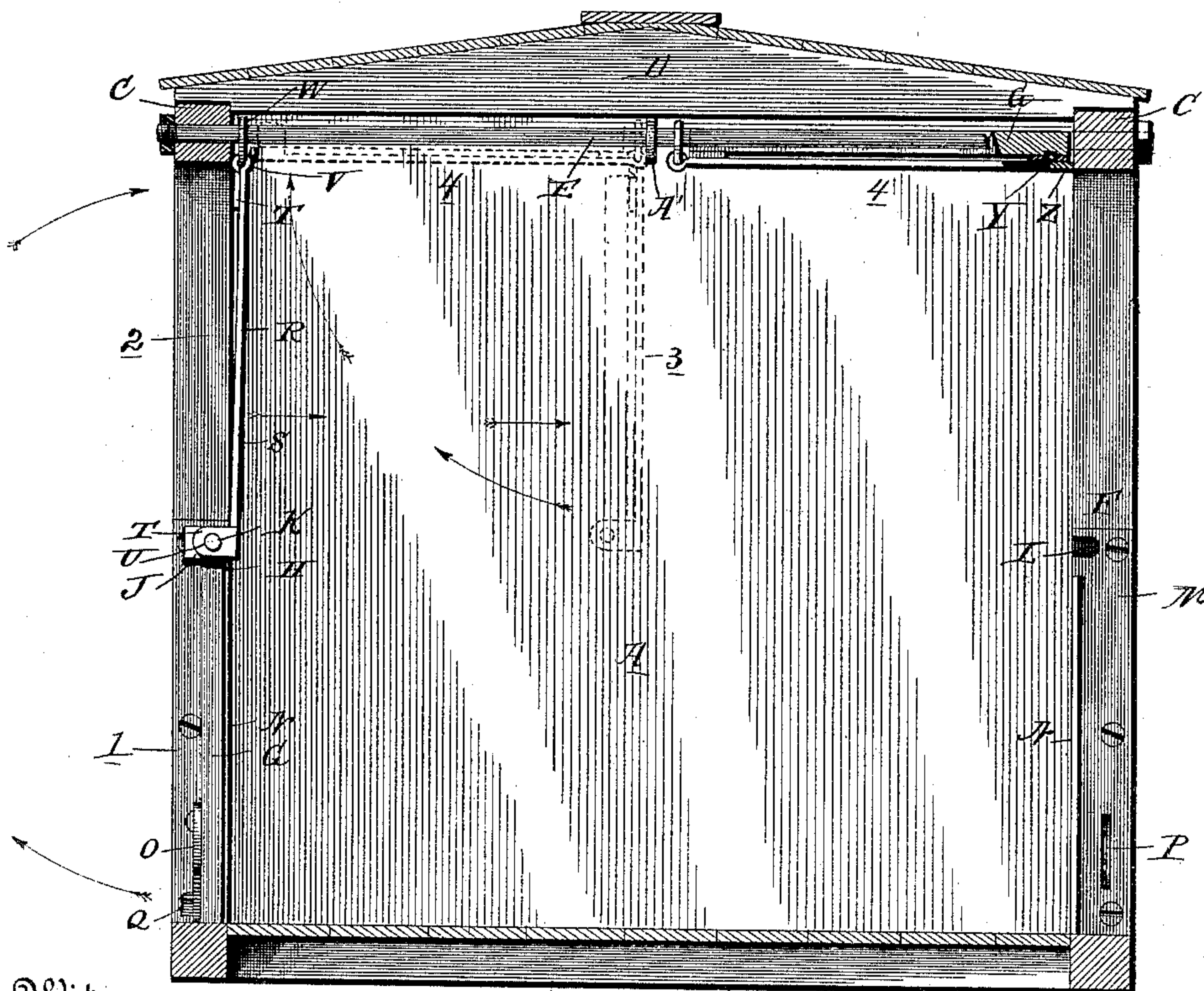
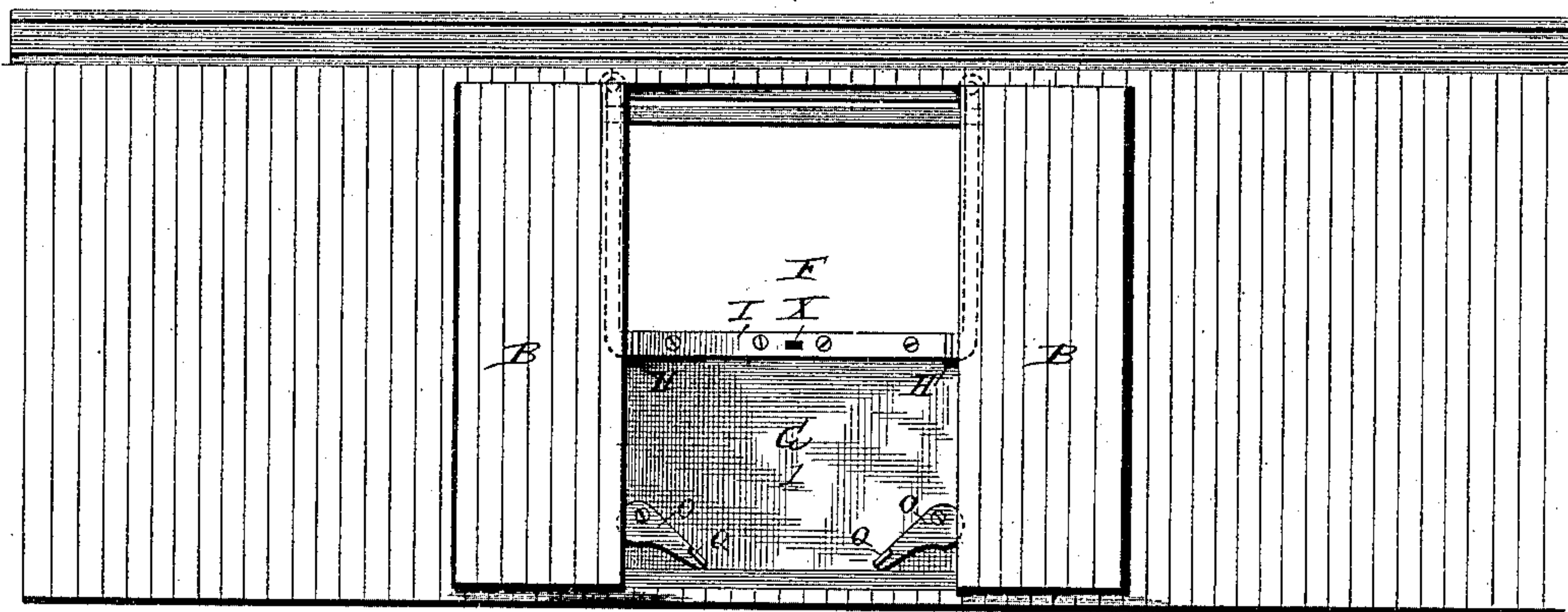
L. F. MARTIN.
GRAIN DOOR FOR CARS.

No. 452,798.

Patented May 26, 1891.

Fig. 1.

A



Witnesses

Geo. J. Prope.
H. E. Price

Fig. 2.

Inventor.

Louis F. Martin.

By

Attorneys.

Higdon & Higdon.

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Fig. 3.

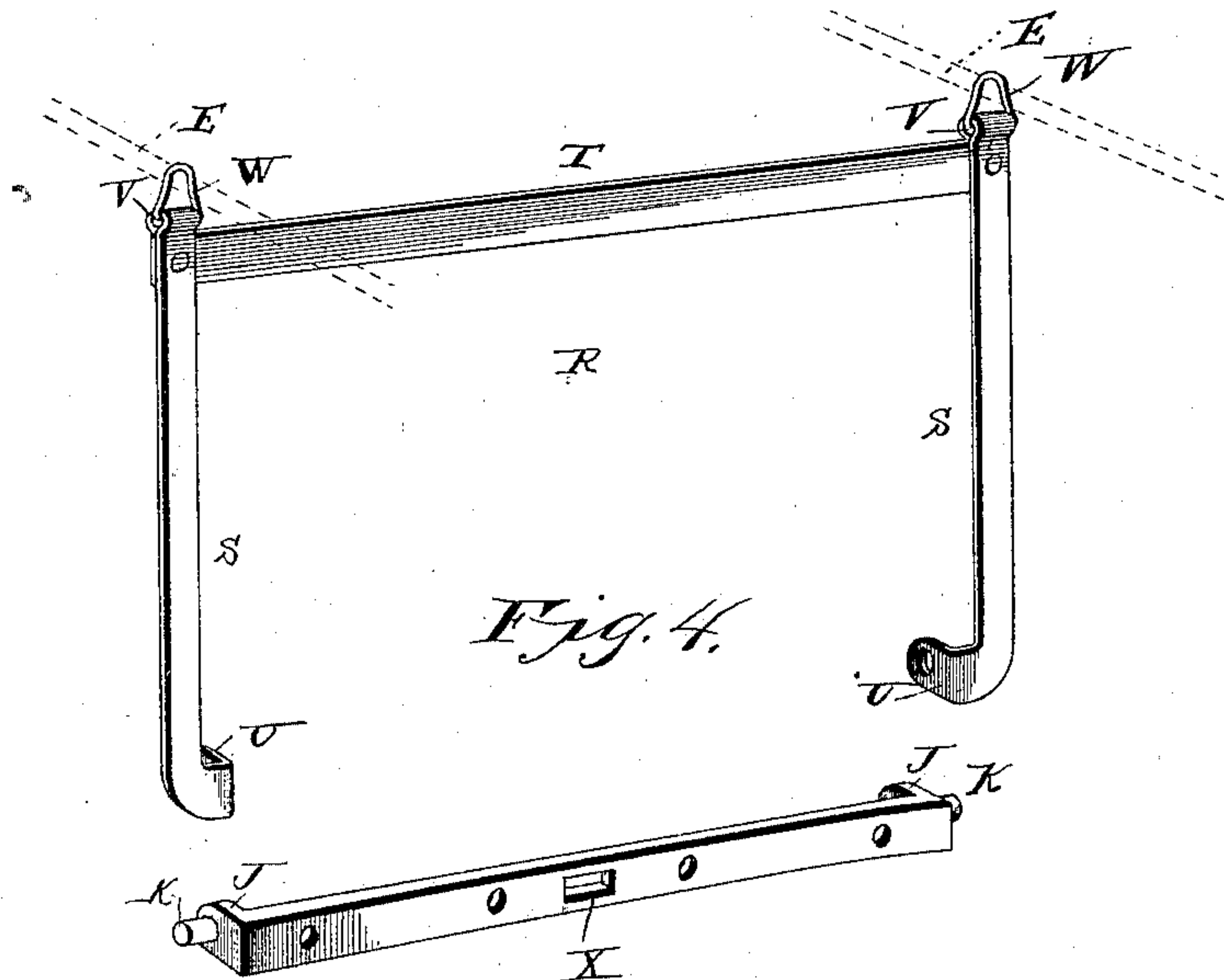
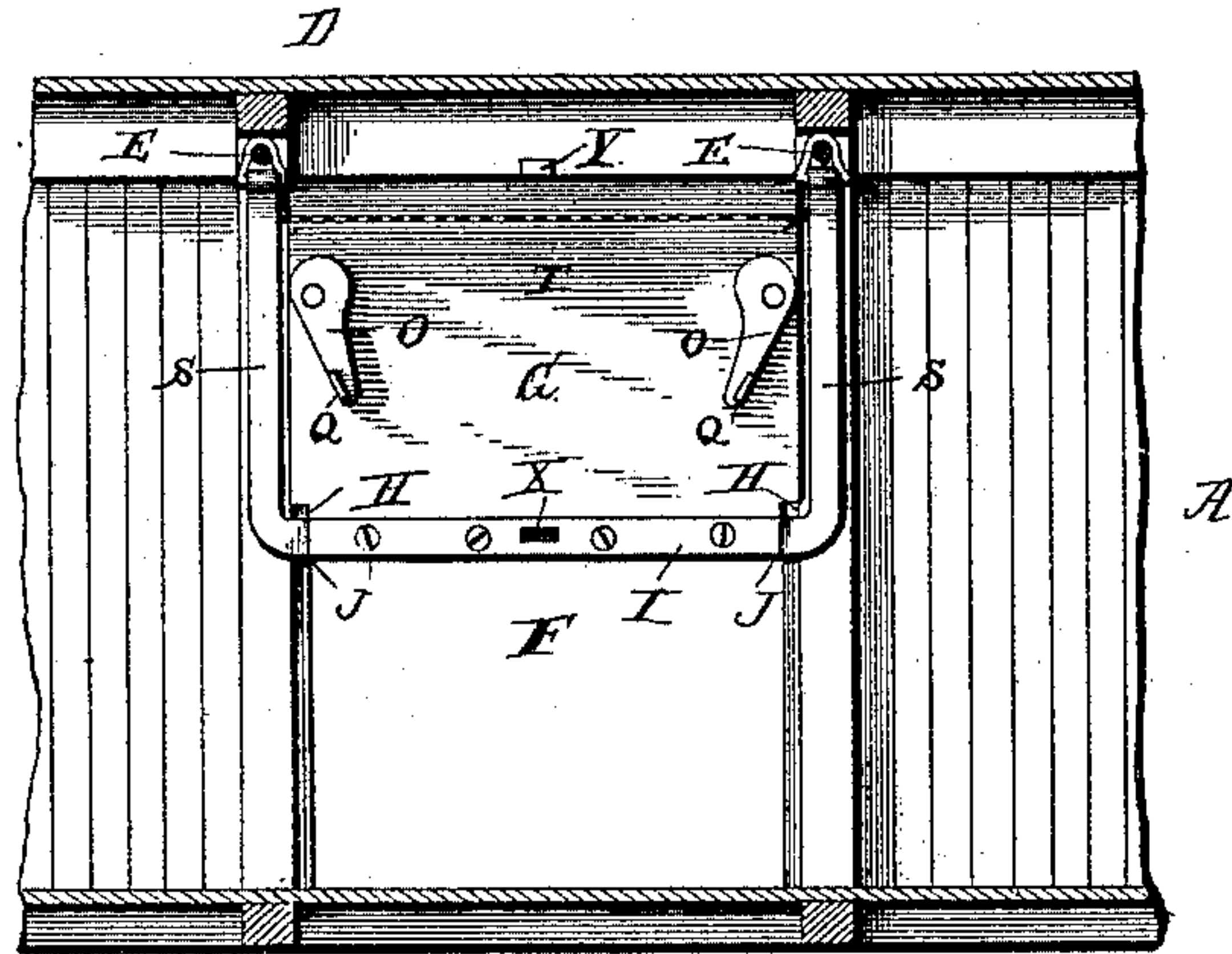


Fig. 4.

Fig. 5

Witnesses

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UNITED STATES PATENT OFFICE.

LOUIS F. MARTIN, OF KANSAS CITY, KANSAS, ASSIGNOR OF ONE-HALF TO JOHN W. CRUMBAUGH AND LANDER C. PRATER, BOTH OF KANSAS CITY, MISSOURI.

GRAIN-DOOR FOR CARS.

SPECIFICATION forming part of Letters Patent No. 452,798, dated May 26, 1891.

Application filed October 18, 1890. Serial No. 368,564. (No model.)

To all whom it may concern:

Be it known that I, LOUIS F. MARTIN, of Kansas City, Wyandotte county, Kansas, have invented certain new and useful Improvements in Grain-Doors for Cars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in grain-doors for cars; and it consists in the peculiar combination and arrangement of devices, as will be fully specified hereinafter, and particularly pointed out in the claims.

My object is to provide a door which may be very easily and effectively operated and which may be cheaply constructed and applied to freight-cars of any construction.

Referring to the drawings, Figure 1 represents a side elevation of a freight-car, the ordinary outer doors being open to show my improved grain-door in its normal or closed position. Fig. 2 is a vertical cross-section of the same, showing the different positions the door assumes in opening the same by means of arrows and dotted lines. Fig. 3 is a vertical longitudinal section of the car, showing the inner side of the grain-door after the first step toward opening the same has been accomplished. Figs. 4 and 5 are detail perspective views of attachments of said door.

Similar letters refer to similar parts in all the figures, in which—

A represents a freight-car provided with the ordinary outer doors B. The upper longitudinal beams C of the car are connected directly beneath the cross-beams D by the cylindrical rods E, which are screw-threaded on their outer ends and engaged by nuts.

F represents the open casing of the door, in the lower half of which the door G normally rests. A bar I extends longitudinally across the outer face of the door at its upper edge, and is provided with the inwardly-extending horizontal ears J, which rest in the notches or recesses H in the upper corner of the said door. Extending longitudinally from the outer side of the ears or arms J of bar I are the trunnions K, which rest and are adapted

to pivotally operate in notches L in the rear upper edge of plates M, which are recessed in the inner surfaces of the vertical beams of the casing opposite the ends of the door G. These plates are provided with the vertical flanges N, extending inward a short distance, and against which the door abuts when closed. The door G is provided on its outer surface, near the lower corners thereof, with the cam-levers O, which are adapted to engage the vertical notches P of plates M when the door is in its closed position, as shown in Fig. 1. The lower ends of these levers are provided with flanges or projections Q, which may be grasped to operate the same. R represents a frame consisting of the depending arms S, connected near their upper ends by the cross and brace bar T, the lower ends of these arms S being bent inwardly and rearwardly at U, and provided with bearings through which the trunnions of bar I pass and pivotally operate. The upper ends of the vertical bars S are looped at V and pivotally engage the horizontal arm-bearings W, which engage and are adapted to travel on the cross-bars E of the car.

X represents the slot or recess in the bar I, which is adapted to engage, when the door is in its elevated position, the vertical flange Y of the plate Z, secured to the inner side of the longitudinal beams C of the car.

The operation of my invention is as follows: The locking cam-levers O being caused to assume such a position as to unclamp the door, the latter is swung to the position shown in dotted lines, Fig. 1, and full lines, Fig. 3, resting against the cross-bar T of the depending frame R. The door-frame is then forced into the position described toward the center of the car until the bails W, sliding on cross-bars E, come in contact with eyelets A', which also prevent the said cross-bars from sagging at the middle. The lower end of the door, whose pivotal point is now at the lower end of vertical bars S of frame R, is raised concentrically until the surface of the door reaches a horizontal position, when it is forced toward the inner side of the longitudinal

beams C, and the forward end is raised until the slot or notch X of bar I is in position to engage the flange or plate Z, and, as will be readily understood, the door cannot accidentally become disengaged.

Having thus fully described my invention, what I claim as new, and desire to obtain by Letters Patent, is—

1. In a grain-door for freight-cars having lateral rods therein above the door-openings, the combination, with a frame pivotally and movably hanging from said rods and having depending arms, of a door pivoted at its one edge to the lower ends of the said arms, as described.

2. In a grain-door for freight-cars having lateral rods therein above the door-openings, the combination, with a frame R, pivotally and movably pendent from the said rods and having depending arms, of a door pivoted at one edge to the lower ends of the said arms, and a catch Y, adapted to engage the pivoted

edge of the said door, secured to the upper longitudinal beams of the car, as described.

3. In a grain-door for freight-cars having lateral rods therein above the door-openings, the combination, with a frame R, pivotally and movably pendent from the said rods and having depending arms, of a door pivoted at one edge to the lower ends of the said arms, a catch Y, adapted to engage the pivoted edge of the said door, secured to the upper longitudinal beams of the car, plates M, having inwardly-extending vertical slots P, secured to the sides of the doorway, and cams upon the said door adapted to engage the said slots in the plates M, as described.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS F. MARTIN.

Witnesses:

G. G. THORPE,
H. E. PRICE.