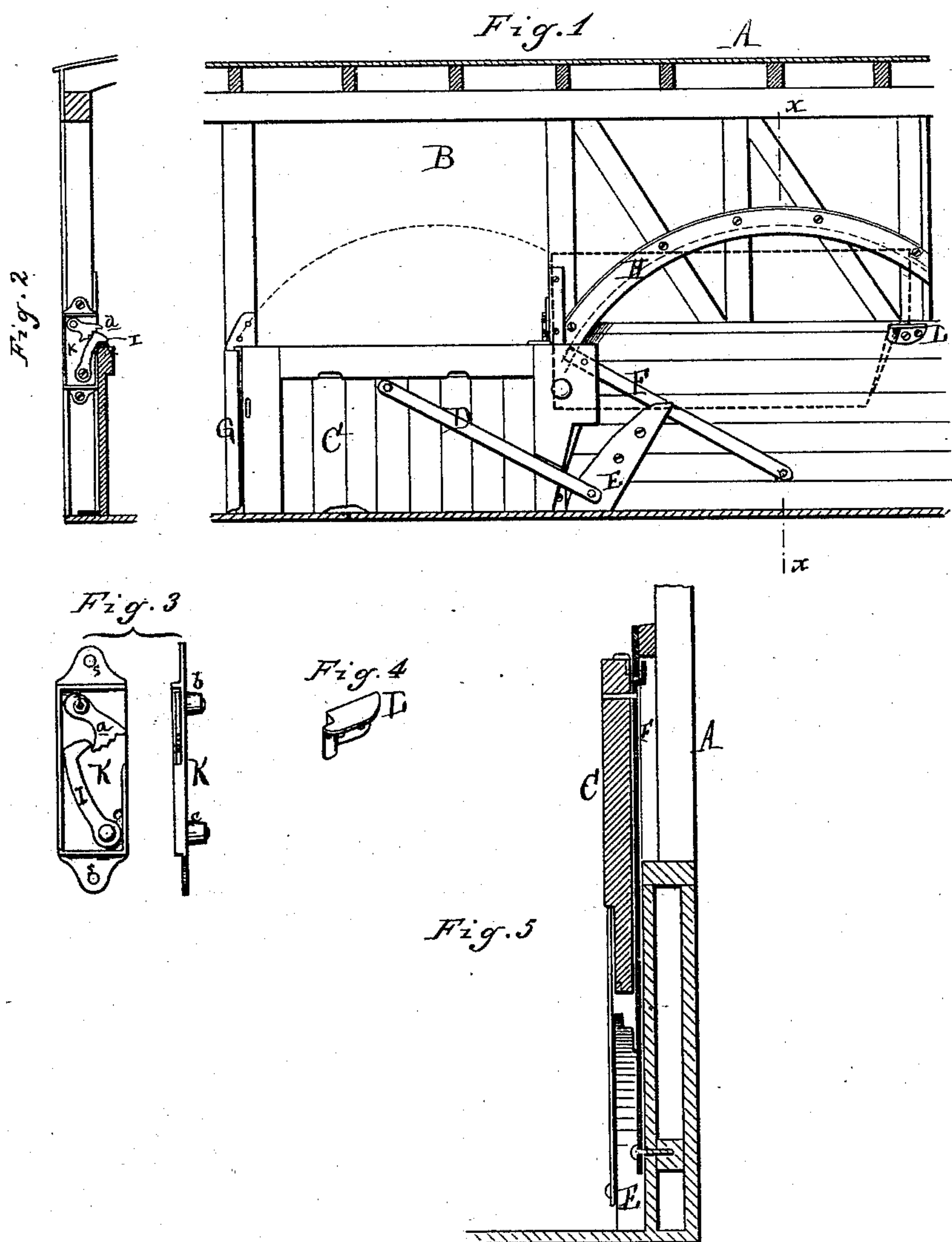


D. F. VAN LIEW.
Car Door.

No. 232,662.

Patented Sept. 28, 1880.



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UNITED STATES PATENT OFFICE.

DENNIS F. VAN LIEW, OF AURORA, ILLINOIS.

CAR-DOOR.

SPECIFICATION forming part of Letters Patent No. 232,662, dated September 28, 1880.

Application filed September 2, 1879.

To all whom it may concern:

Be it known that I, DENNIS F. VAN LIEW, of Aurora, in the county of Kane and State of Illinois, have invented an Improvement in Car-Doors, of which the following is a specification.

My invention relates to vertically-swinging grain-doors for cars; and it consists in certain improvements therein hereinafter more fully set forth, and pointed out in the claim.

In the drawings, Figure 1 is an elevation of the inside of a car, showing my improved door. Fig. 2 is a vertical section, showing the locking device to prevent the upward movement of the grain-door when closed. Fig. 3 is an enlarged side and edge view of the locking device detached. Fig. 4 is a perspective view of the stop-block. Fig. 5 is a vertical section on line *xx* in Fig. 1.

In the accompanying drawings, which form a part of this specification, A represents a portion of the side wall of a railway freight-car, provided with the usual doorway B, which may be entirely closed by a sliding door (not shown) upon the outside of the car, as in the usual manner. The lower portion of the doorway B is provided on the inside with a supplementary door, C, commonly called a "grain-door." This door is pivoted, at or near its longitudinal center and near the top, to one end of a bar, D, the opposite end of which is pivoted to the recessed block E, which is secured to the wall of the car, as shown. A second bar, F, is pivoted to or near the rear upper corner of the door, its opposite end being pivoted to the inside of the car, the two bars D and F being parallel with each other. The length of the bars D F and their points of pivot to the door and car are such as to enable said door to be placed across the doorway, as seen in Fig. 1, or to be moved upward and rearward, disclosing said door-opening its full width. The front end of the door, when closed, enters a flanged shoe, G, secured to one of the door-posts, which shoe holds the forward end of the door and retains it in a vertical position. The rear end of the door is held in its proper position vertically by means of the upper end of the bar F, which is bent outwardly and passes behind a segmental plate, H, secured to the side of the car, as shown.

K represents a flanged metallic plate, having holes S S in its ends, by means of which it is attached to the inside face of one of the door-posts near the upper edge of the grain-door. The plate K is provided with bosses *b c*, to which are pivotally secured, by means of screws or rivets, the pivoted button *a*, having its end eccentrically corrugated, and the pivoted hook I so arranged that when the door is closed the hook may be turned down upon the upper edge of the door to prevent it from being moved vertically upward, and the hook is locked in its position over the upper edge of the grain-door by the button turned down upon the hook, one of the corrugations in the end of the button engaging with the rear end of the hook.

By this construction the grain-door is securely locked to prevent any upward movement and the consequent escape of the grain.

The object of providing a series of corrugations in the end of the button is to allow the button to be adjusted and always press against the end of the hook when, from the shrinkage or wear of the grain-door, the button and hook would not be in engagement when a single corrugation was employed, as in my former Letters Patent for freight-cars, dated June 23, 1874, No. 152,439, and in which Letters Patent a single notch is made in the button engaging with the end of the hook, and no provision is made for the shrinkage or wear of the grain-door.

It will be observed that the hollow bosses *b c* project outwardly from the back face of the flanged metallic plate K, and are adapted to be inserted in corresponding holes in the face of the door-post, to which the plate is attached. The hollow bosses thus serve as a means for helping to securely attach the plate K to the door-post, thus relieving the strain upon the screws, and also serve as seats for the pivots of the hook and button.

When the door is moved rearward so as to disclose the doorway the engagement of the bar F with the segmental plate H retains the door in a vertical position during such movement until the rear end of the door rests within the stop-block L, while the forward end rests upon the end of the block E, which is recessed to receive the lower edge of the door,

said blocks E L being secured to the inside of the car at such points as shall keep the lower edge of the door above the floor of the car. The recessed block E also receives the bar F 5 when the door is thrown forward to close the doorway, and gives additional security to prevent the door from being displaced laterally. The connection of the bar F with the segmental plate H, the recessed stop-block L, and the 10 recessed block E, all support the door and prevent its lateral movement inwardly away from the side of the car, the segmental plate acting at all times for this purpose, the block E when the door is either wholly up or wholly 15 down, and the stop-block L when the door is thrown back to its farthest limit.

The advantages and operation of this de-

vice can be so readily seen upon reference to the drawings that a further description is deemed unnecessary. 20

What I claim as my invention is—

The combination, with the vertically-swinging grain-door C, of the parallel radius-bars D F, pivoted thereto and the side of the car, the upper end of the bar F being bent angu- 25 larly behind the segmental plate H, and recessed blocks E L, holding the door, when open, above the bottom of the car and stopping its end movement, substantially as described, and for the purpose set forth.

DENNIS F. VAN LIEW.

Witnesses:

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