A. W. WILSON & I. E. RICE.

CAR DOOR.

APPLICATION FILED MAR. 28, 1914.

1,154,681.

Patented Sept. 28, 1915.

2 SHEETS—SHEET 1.

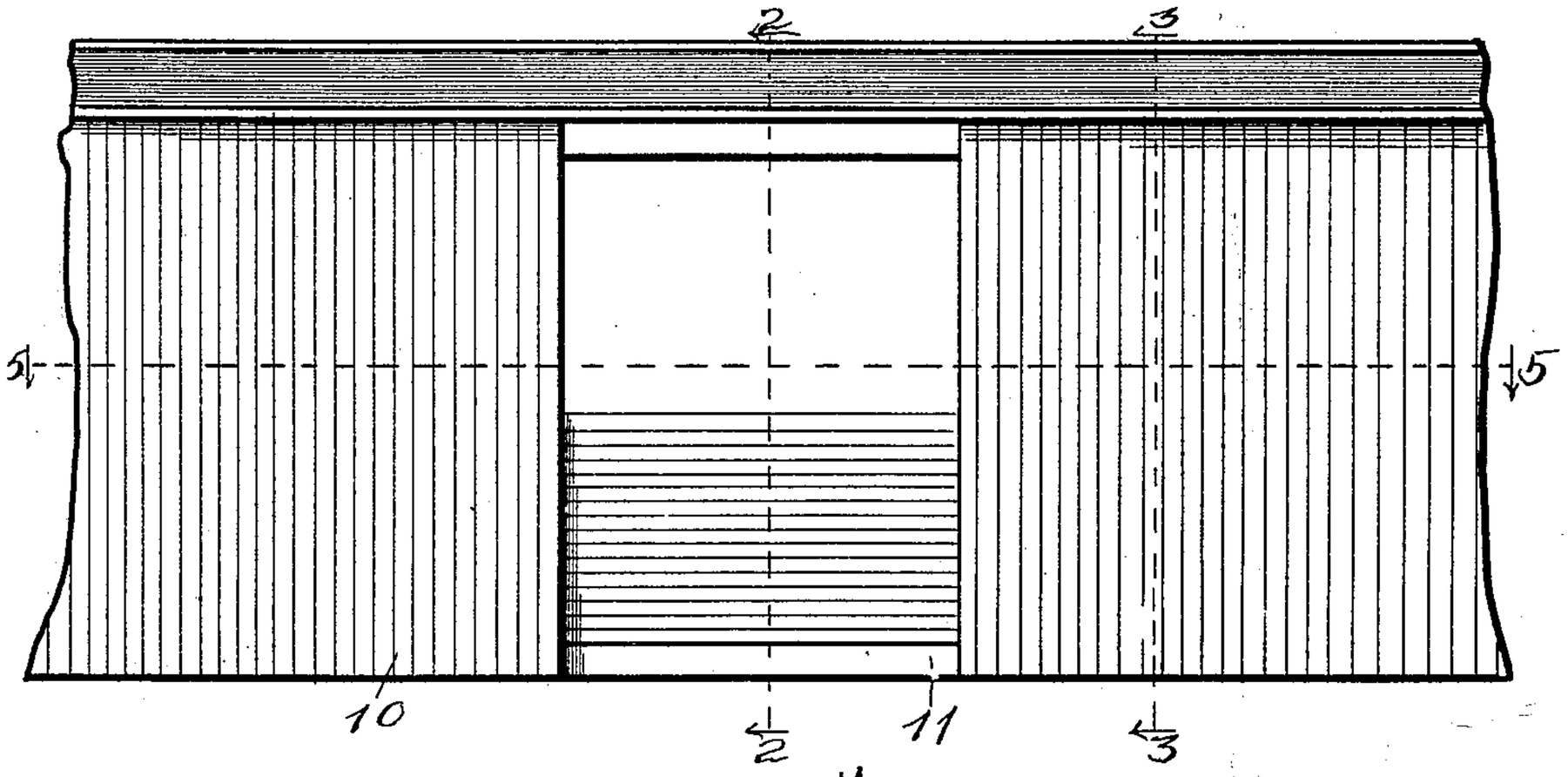

FIG. 1.

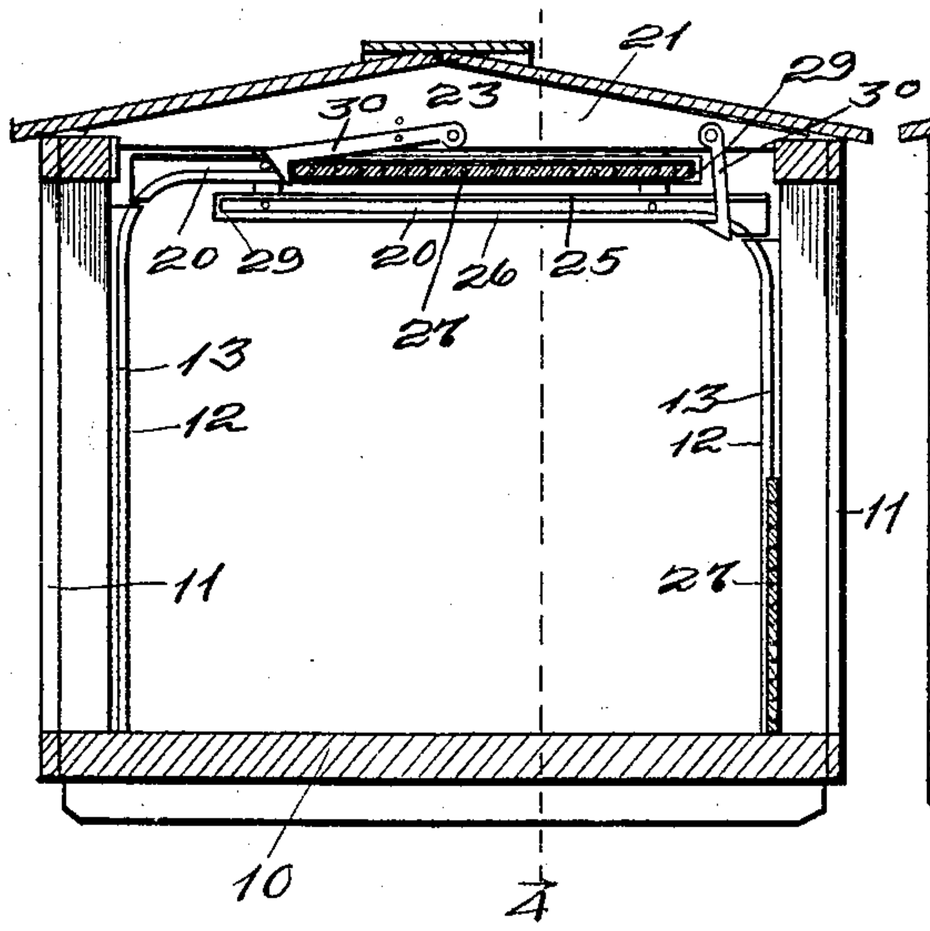

FIG. 2.

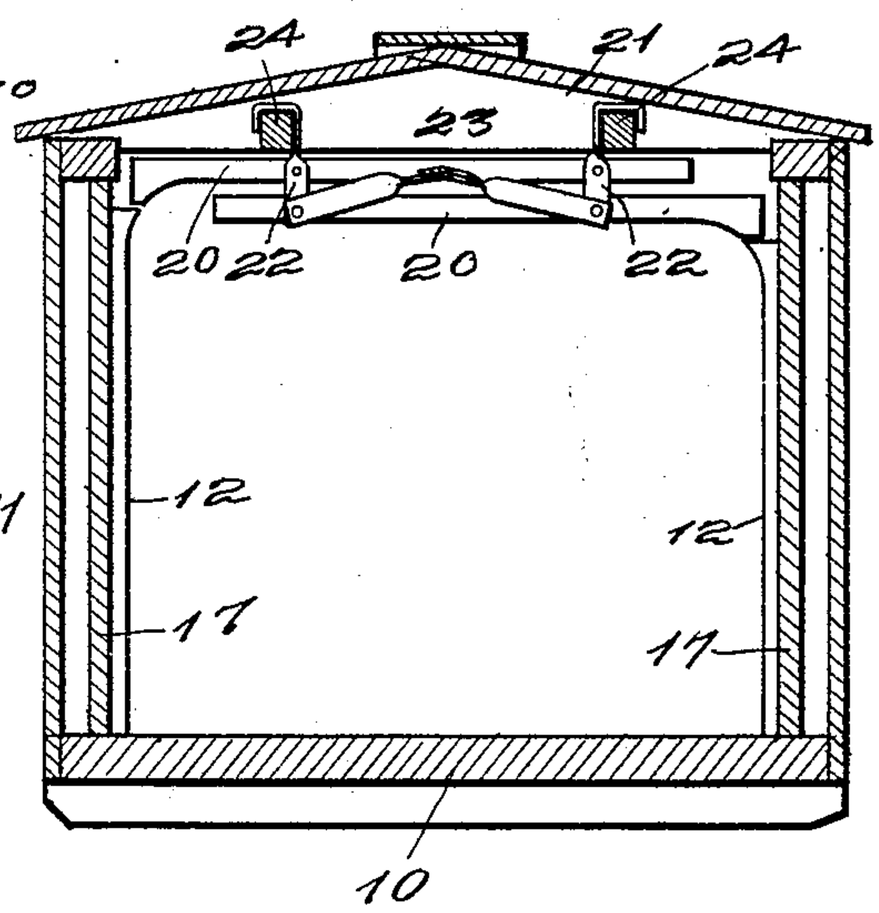

FIG. 3.

Witnesses

Inventors

A. W. Wilson

I. E. Rice,

By Fred C. H. Parker

Attorneys

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2 SHEETS—SHEET 2.

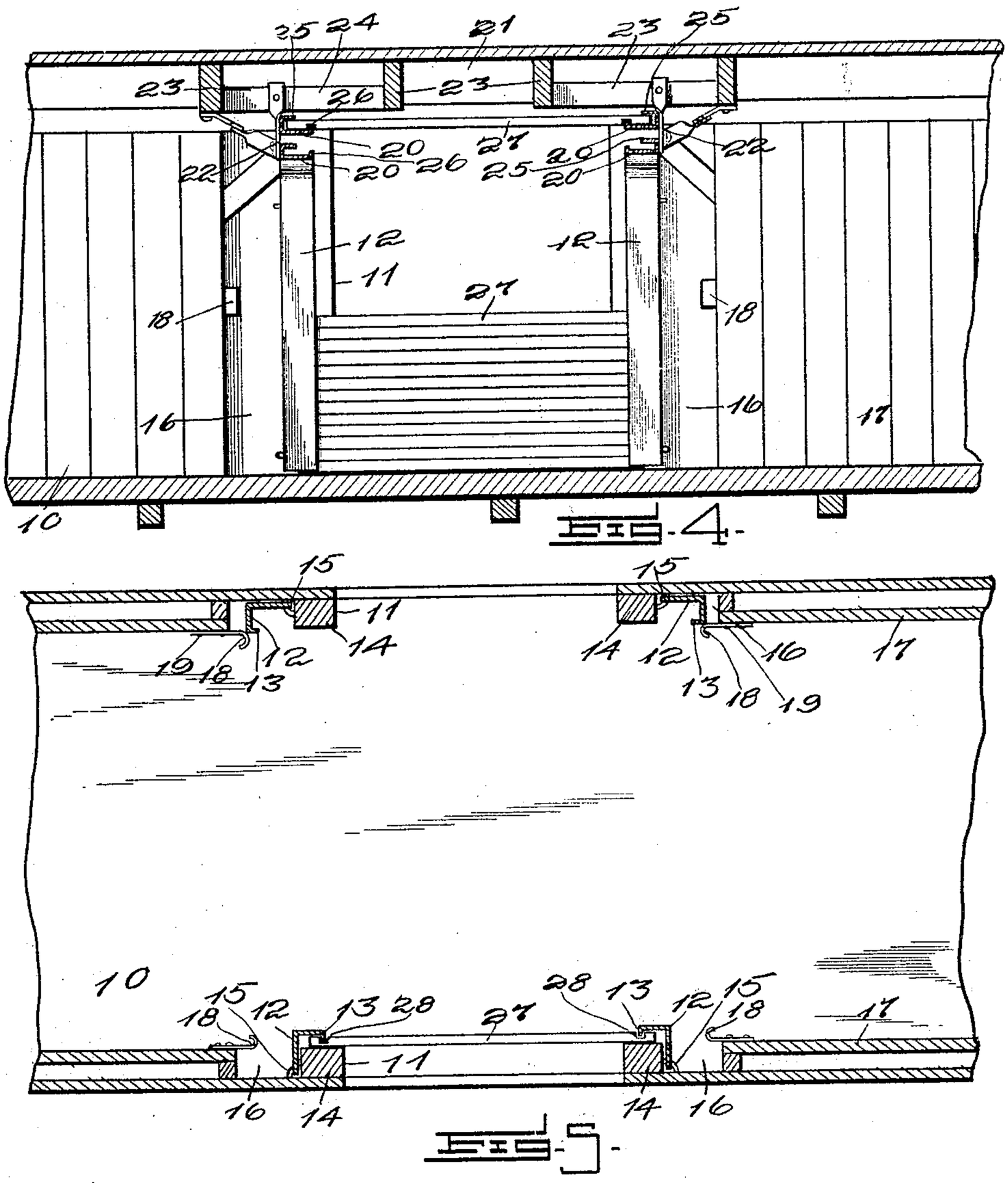

FIG. 4.

FIG. 5.

Witnesses

Inventors

A. W. Wilson

I. E. Rice.

By Fred C. H. Parker Attorneys

UNITED STATES PATENT OFFICE.

AARON W. WILSON AND IRWIN E. RICE, OF CASPER, WYOMING.

CAR-DOOR.

1,154,681. Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed March 28, 1914. Serial No. 827,904.

To all whom it may concern:

Be it known that we, AARON W. WILSON and IRWIN E. RICE, citizens of the United States, residing at Casper, in the county of Natrona and State of Wyoming, have invented certain new and useful Improvements in Car-Doors, of which the following is a specification.

The present invention relates to improvements in grain doors for railway cars, ordinarily known as box-cars, of the general type wherein a plurality of door elements or sections are so mounted that they may be conveniently moved to positions to open or close the door opening of the car.

An important object of the invention is to provide means of the above mentioned character, whereby the door or door-sections, when not in use, may be stored within the box-car, in an out-of-the-way position, in a manner to occupy the minimum space.

A further object of the invention is to provide guide means for holding the door or door-sections in their closed positions, such guide means being adapted to be moved out of the way when the door opening is uncovered to provide the maximum clearness space in proximity to the door opening.

A further object of the invention is to provide means of the above mentioned character, which are simple in construction, inexpensive to manufacture, convenient in use, and may be installed upon almost any box-car without material alteration to the construction thereof.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same, Figure 1 is a side elevation of a box-car equipped with apparatus embodying our invention, Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 1, Fig. 3 is a similar view taken on line 3—3 of Fig. 1, Fig. 4 is a vertical longitudinal sectional view taken on line 4—4 of Fig. 2, and, Fig. 5 is a horizontal longitudinal sectional view taken on line 5—5 of Fig. 1.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 10 designates a box-car, preferably designed to carry grain or the like. This box-car is provided with preferably oppositely arranged doors 11.

Arranged interiorly of the box-car and adjacent the vertical walls of each door opening, are vertical combined guide and lock track-sections 12, which as more clearly shown in Fig. 5, are L-shaped in horizontal cross-section, and have guide flanges 13, as shown. These vertical track-sections are hinged to vertical posts 14, as shown at 15, whereby they are adapted to be swung in a horizontal plane into and out of recesses 16, occurring at one side of the posts 14. When the door openings are uncovered, for the purpose of unloading the car, the track-sections 12 are swung away from the posts 14, to occupy positions within the recesses 16, to afford the maximum clearness space in proximity to the door openings. When the car is loaded with grain, as it is gradually unloaded the door elements 27 are moved up into the horizontal tracks one at a time. When the car is practically empty the last door section is moved to the horizontal tracks, thus enabling the tracks 12 to be swung to the inner position, as clearly shown in Fig. 5. As clearly shown in Fig. 5, when the track-sections 12 are arranged within the spaces 16, they are approximately flush with the inner walls of the longitudinal sides 17 of the box-car. Means are provided to detachably lock each vertical track-section 12 within the recess or space 16, preferably embodying a spring catch 18, secured to the inner wall of the longitudinal side 17, as shown at 19.

The numeral 20 (see more particularly Figs. 2, 3 and 4), designates upper horizontal rail-sections which are rigidly secured to the top 21 of the grain car by means of straps 22 secured to rafters 23 and beams or sleepers 24. These horizontal track-sections 20 may be secured to the top of the box-car by any other suitable means. The horizontal track-sections 20 are arranged in superposed pairs, the lower pair being adapted for registration with the vertical track-sections 12 (to the right in Fig. 2), while the upper horizontal track-sections 20 are adapted for registration with the vertical track-sections 12 to the left. Each of the horizontal track-sections 20 is approximately L-shaped in cross-section, and has horizontal and vertical flanges 25 and 26, as more clearly shown in Fig. 4. Each door is formed of a plurality of door-sections or

strips 27, preferably separated for individual movement. Each door-section 27, as shown in Figs. 4 and 5, is provided upon its inner side and near its ends with transverse vertical grooves 28, adapted to slidably receive the flanges 13 of the vertical track-sections 12 and the flanges 26 of the horizontal track-sections 20. These door-sections or strips 27, when in their operative positions, are arranged between the posts 14 and the vertical track-sections, as shown in Fig. 5, and are adapted to slidably engage therewith to be freely raised and lowered with relation thereto. By the flanges 13 fitting within the transverse grooves 28 of the door-sections 27, the door-sections and the vertical track-sections 12 are locked together, whereby it is impossible to swing the track-sections 12 into the recesses or spaces 16. When the door-sections or strips 27 are moved upwardly and upon the horizontal tracks 20, the flanges 26 enter the transverse grooves 28, while the flanges 25 engage the upper sides of these door elements. Corresponding ends of the horizontal track-sections 20 are preferably closed, as shown at 29, to limit the movement of the door-sections 27 in one direction longitudinally of the horizontal track-sections. The movement of these door-sections in an opposite direction may be temporarily prevented by means of pivoted latch-hooks 30, as shown.

The operation of the apparatus is as follows: When it is desired to close or partly close the door openings 11, the vertical track-sections 12 are swung to their operative positions, subsequent to which the door-sections or sections 27 are moved longitudinally of the horizontal track-sections and pass from the outer ends thereof onto the upper ends of the track-sections 12. These door-sections then slide downwardly upon the track-sections 12, and assume the operative position, as shown in Figs. 1 and 4. It is obvious that any suitable number of these door-sections may be arranged in proximity to the door opening, while the others in the same set may be stored in the upper portion of the car upon the horizontal track-sections 20. When it is desired to uncover the door openings, the door-sections 27 are moved upwardly along the vertical track-sections 12 and passed upon the horizontal track-sections 20, whereon they are stored. The vertical track-sections are then swung outwardly to occupy positions within the recesses or spaces 16.

It is to be understood that the forms of our invention herewith shown and described are to be taken as preferred examples of the same, and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having described the invention, what is claimed is:—

1. The combination with a structure having spaced upstanding posts forming a door opening therebetween, of substantially vertical horizontally swinging rails formed L-shaped in horizontal cross-section arranged adjacent the posts, and provided at their free edges with laterally extending flanges, means to pivotally connect the corresponding opposite edges of the rails with the posts so that the rails may be swung horizontally and the flanges thereof brought to positions over-lapping the inner sides of the posts, and a plurality of door sections vertically movable with relation to the rails and arranged between the posts and the rails and having near their opposite ends transverse slots to receive the flanges of the rails whereby the rails are locked in the inner position while the door sections are in the closed position.

2. The combination with a wall of a car provided with a door opening and having substantially vertical recesses formed upon its inner side adjacent the opposite sides of the opening; of substantially vertical horizontally swinging rails pivotally mounted within said recesses and adapted for movement into and out of them and provided near their free edges with laterally extending flanges to be moved into proximity with the opening; and vertical door sections provided with transverse grooves to receive the flanges whereby the rails are locked against lateral movement.

In testimony whereof we affix our signatures in presence of two witnesses.

AARON W. WILSON.
IRWIN E. RICE.

Witnesses:
E. S. SCHIEFELBEIN,
MAE HARRISON.