

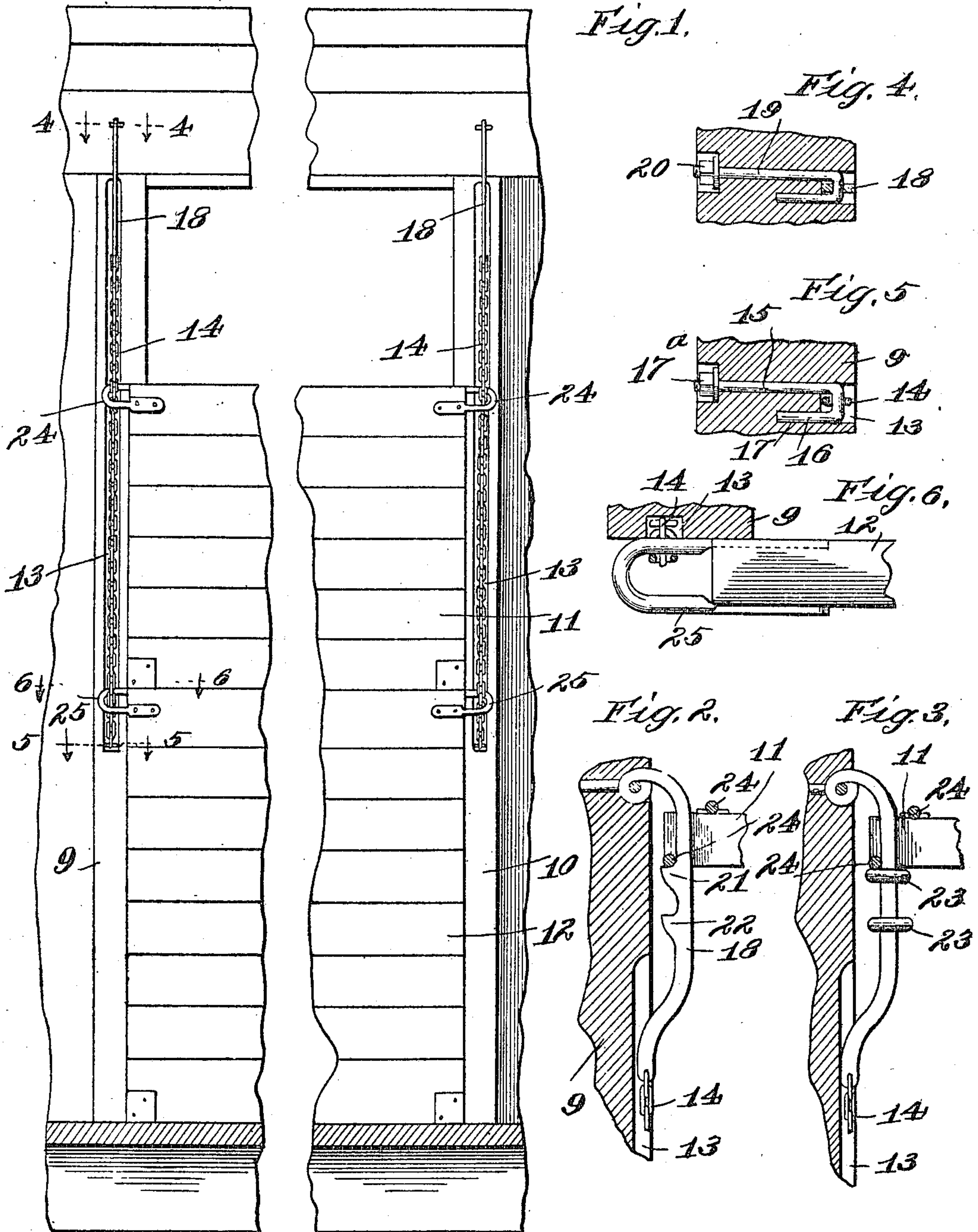
No. 831,670.

PATENTED SEPT. 25, 1906.

T. LENNOX.
GRAIN CAR DOOR.

APPLICATION FILED DEC. 31, 1904.

2 SHEETS—SHEET 1.



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Fig. 7.

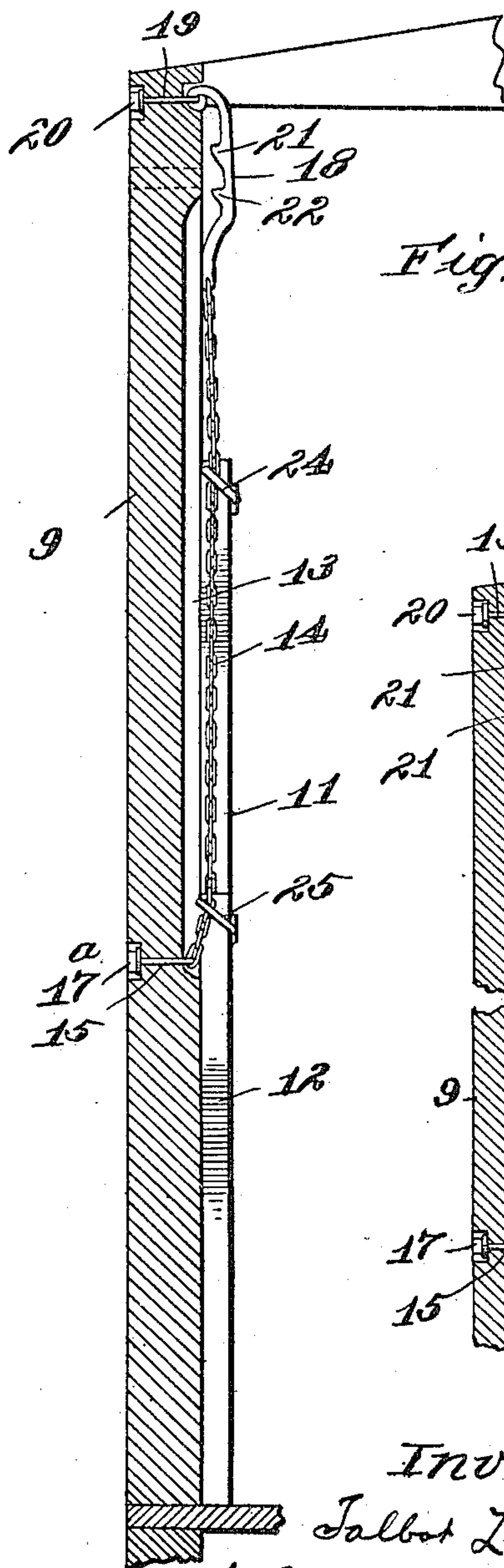
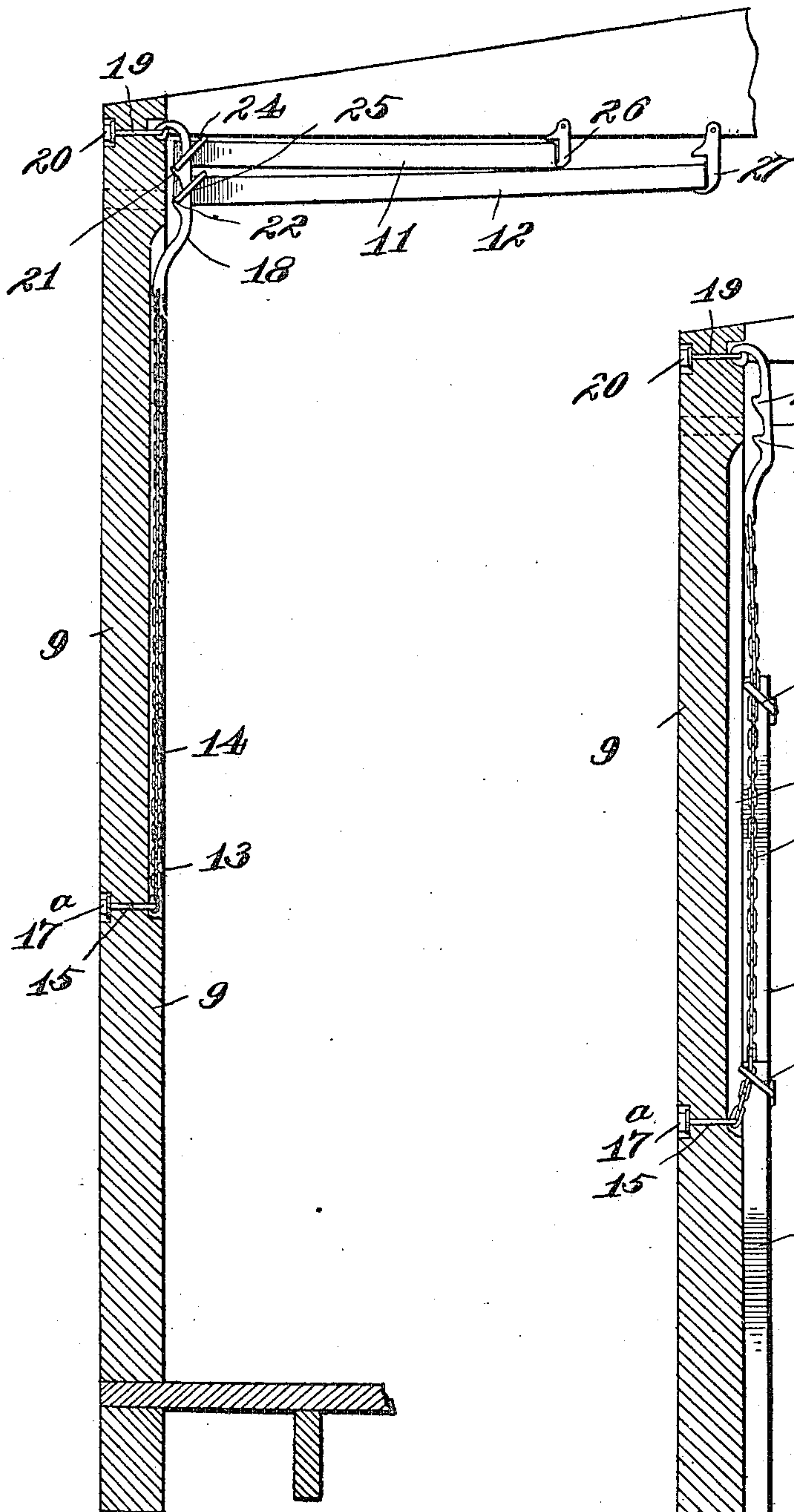
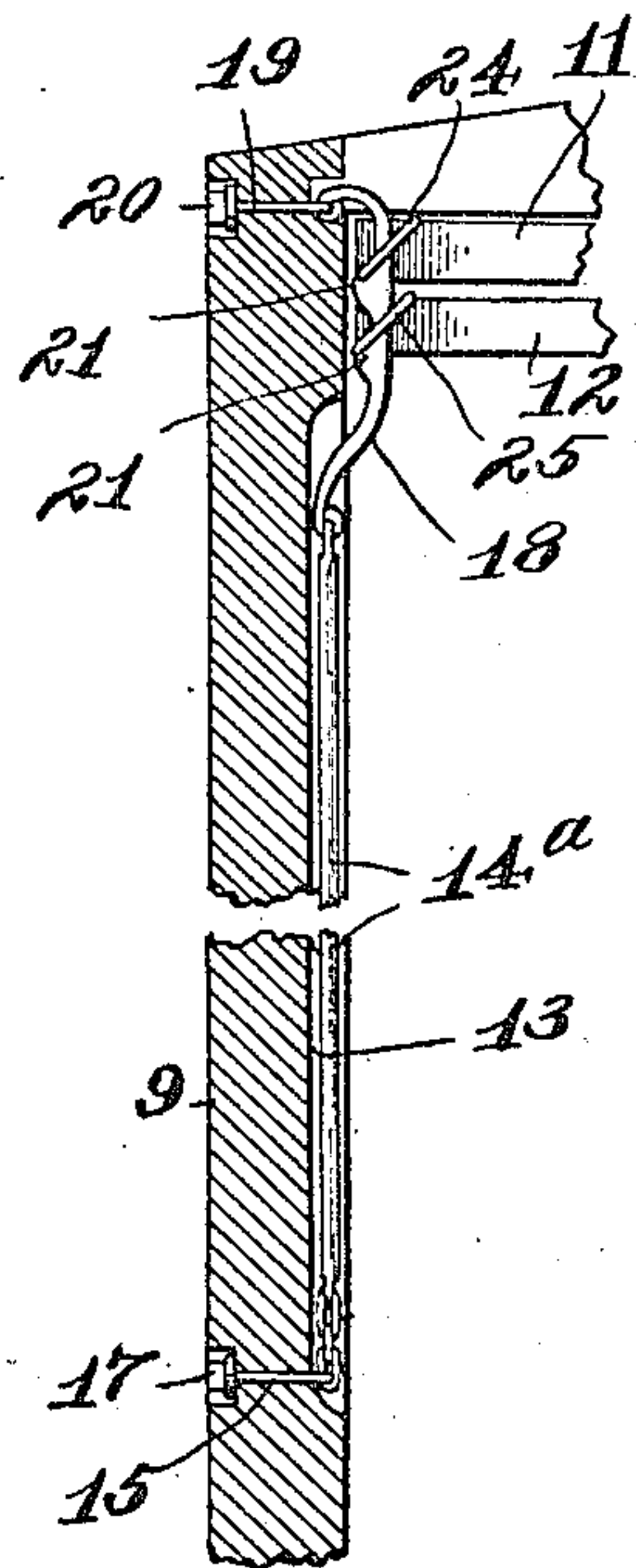


Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE.

TALBOT LENNOX, OF CHICAGO, ILLINOIS, ASSIGNOR TO MCGUIRE-CUMMINGS MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

GRAIN-CAR DOOR.

No. 831,670.

Specification of Letters Patent.

Patented Sept. 25, 1906.

Application filed December 31, 1904. Serial No. 239,157.

To all whom it may concern:

Be it known that I, TALBOT LENNOX, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Grain-Car Doors, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to grain-car doors, and has to do particularly with doors arranged to be slid vertically in suitable guides and turned up against the roof of the car when not in use.

It has for its object to provide an improved construction in which the guides may lie normally in rabbets or grooves in the door-posts, but may move out of such grooves as the door is raised or lowered, thereby avoiding the necessity of making the grooves large enough to receive the connecting devices by which the door is connected with said guides.

Further objects are to provide means operated by the swinging of the door to its horizontal or inoperative position for carrying the guides into their grooves and to provide improved means for supporting the outer edge of the door when in such position. I accomplish these objects as hereinafter described and as illustrated in the drawings.

What I regard as new is set forth in the claims.

In the accompanying drawings, Figure 1 is a partial view of the inside of a car, showing my improved grain-car door in elevation. Fig. 2 is a detail, being an enlarged sectional view illustrating one of the supporting devices by which the outer edge of the door is supported when in inoperative position. Fig. 3 is a similar view showing a modified form of supporting device. Fig. 4 is a horizontal section on line 4 4 of Fig. 1. Fig. 5 is a horizontal section on line 5 5 of Fig. 1. Fig. 6 is an enlarged detail, being a horizontal section on line 6 6 of Fig. 1. Fig. 7 is a cross-sectional view illustrating my improvements, the car-doors being in inoperative position. Fig. 8 is a similar view showing the car-doors in operative position, and Fig. 9 is a view showing a modified form of guide.

Referring to the drawings, 9 10 indicate the door-posts, and 11 12 the upper and lower grain-car doors, which are arranged in the

usual way so as to coöperate to close the door-opening. As shown in Figs. 1, 2, and 8, the door-posts are provided with longitudinal grooves 13, in which are placed car-door guides of such construction as to be movable into and out of said grooves. In Figs. 1, 2, and 8 said guides are shown as being composed of chains 14, and in Fig. 9 a modified form is shown in which the intermediate portion of the guide is composed of a bar 14^a, which is flexibly connected at its ends. Said guides are secured at their lower ends by bolts 15. (Best shown in Fig. 5.) Each of said bolts is provided with a hook 16, adapted to pass through one of the links and to fit in a suitable recess 17, provided in the door-post or other support. As shown in Fig. 5, the bolt 15 passes through the door-post and is provided with a nut 17^a, which holds it in position. By thus inclosing the ends of the hooks they are protected from injury, and the removal of the chain is effectually prevented, since the inner ends of the bolts are comparatively inaccessible and the outer ends are protected by the sheathing of the car.

18 indicates straps which are connected at their lower ends to the upper ends of the chains 14 and at their upper ends are secured in position by bolts 19, similar to the bolts 15 and similarly secured in position by nuts 20. As shown in Fig. 2, the intermediate portion of each of the straps 18 is held at a distance from the inner face of the door-post to which it is secured, this being accomplished by bending the ends of said straps inward. The lower end of each of said straps extends into the upper end portion of the groove 13 and lies in such groove when the doors are in their inoperative position, thus holding the chains 14 closely in said grooves at that time.

In the form of strap shown in Fig. 2 inwardly-projecting hooks 21 22 are provided which support the outer edge of the door when in inoperative position, as hereinafter described. Instead of hooks rings 23 may be provided, as shown in Fig. 3, or any other equivalent device may be used. The pivotal supports of the upper ends of the straps 18 are placed nearer the sides of the car than the hooks 21 or rings 23, so that the weight of the door will tend to throw the lower ends of said straps inward and hold them in the grooves 13.

The doors 11 12 are provided at their upper outer edges with loops 24 25, respectively, or equivalent devices, through which the chains 14 and straps 18 pass. Said loops are adapted to engage the hooks 21 or rings 23 when the door is in its horizontal position, as shown in Figs. 2 and 3, thereby sustaining the outer edges of the doors.

26 27 indicate the usual hooks for supporting the inner edges of the doors.

In operation, the doors being in their vertical or operative position, as shown in Fig. 8, the chains 14 are held out of the grooves 13 by the loops 24 25. When, however, the doors are raised to inoperative position, the loops 24 25 pass up and engage the hooks 21 22, which lie at a distance from the inner faces of the door-posts, as shown in Fig. 7. The straps 18 being pivotally supported by the bolts 19 at their upper ends and the hooks 21 22 being farther from the inner faces of the posts than the pivotal points of said straps the lower ends of said straps are thrown inward, thereby carrying the chains 14 into the grooves 13, as shown in Fig. 7. Thus when the grain-doors are not used the chains are moved out of the way and so held.

While I have described fully in detail the specific embodiment of my invention illustrated in the drawings, it will of course be understood that my invention is not restricted to the details of the construction illustrated and described, except in so far as they are particularly claimed, but include, generically, the subject-matter of the broader claims.

That which I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of a permanently vertically disposed guide, a support pivotally mounted at its upper end and pivotally connected at its lower end with said guide, and a door arranged to move longitudinally of said guide and to engage said support.

2. The combination of a permanently vertically disposed guide, a support pivotally mounted at its upper end and connected at its lower end with said guide, and a door arranged to move longitudinally of said guide and to engage said support.

3. In a car, the combination of a door-post having a longitudinal groove, a permanently vertically disposed guide adapted to lie in said groove, a support pivotally mounted at its upper end and pivotally connected at its lower end with said guide, and a door arranged to move longitudinally of said guide and to engage said support.

4. A car having a frame one or more permanently vertically disposed guides, door-supporting devices at the upper ends thereof and pivotally connected therewith, and to the frame and a door arranged to move longitudinally of said guides.

5. A car having one or more vertically disposed flexible guides, rigid door-supporting

devices at the upper ends thereof, said door-supporting devices being in line with and forming substantial continuations of said guides, and a door arranged to move longitudinally of said guides.

6. A car having one or more vertically-disposed guides, rigid door-supporting devices at the upper ends thereof and pivotally connected therewith, said door-supporting devices being in line with and forming substantial continuations of said guides, and a door arranged to move longitudinally of said guides.

7. A car having one or more vertically-disposed guides, rigid door-supporting devices at the upper ends thereof and pivotally connected therewith, said door-supporting devices being in line with and forming substantial continuations of said guides, and a door arranged to move longitudinally of said guides, said supporting devices having one or more hooks for supporting the door.

8. A car having one or more permanently vertically disposed guides, rigid door-supporting devices at the upper ends of said guides, said door-supporting devices being pivotally mounted at their upper ends and pivotally connected at their lower ends with said guides, and a door arranged to move longitudinally of said guides.

9. A car having one or more permanently vertically disposed guides, a door arranged to move longitudinally thereof, and swinging means at the upper ends of said guides and pivotally connected therewith for supporting the door, said supporting means being arranged so that the weight of the door will cause the lower ends thereof to swing toward the side of the car.

10. A car having one or more permanently vertically disposed guides, a door arranged to move longitudinally thereof, swinging door-supporting devices at the upper ends of said guides, and means pivotally connecting the upper ends of said door-supporting devices with the car, said supporting devices being arranged to project into the car from said pivotal connecting devices, whereby the weight of the door will throw the lower ends of said supporting devices toward the side of the car.

11. A car having one or more permanently vertically disposed guides, a door arranged to move longitudinally thereof, swinging door-supporting devices at the upper ends of said guides, means pivotally connecting the upper ends of said door-supporting devices with the car, said supporting devices being arranged to project into the car from said pivotal connecting devices, whereby the weight of the door will throw the lower ends of said supporting devices toward the side of the car, and grooves in said door-post to receive said guides.

12. A car having one or more permanently

vertically disposed flexible guides, a door arranged to move longitudinally thereof, swinging door-supporting devices at the upper ends of said guides, means pivotally connecting the upper ends of said door-supporting devices with the car, said supporting-devices being arranged to project into the car from said pivotal connecting devices, whereby the weight of the door will throw the lower ends of said supporting devices toward the side of the car, and grooves in said door-post to receive said guides.

13. A car having a frame one or more permanently vertically disposed guides, grooves in the door-post adapted to receive said guides, door-supporting devices at the upper

ends of said guides and pivotally connected therewith, and to the frame and a door arranged to move longitudinally of said guides.

14. A car having one or more vertically-disposed guides, rigid door-supporting devices at the upper ends thereof and connected therewith, said door-supporting devices being in line with and forming substantial continuations of said guides, the lower ends of said supporting devices being adapted to project into said grooves, and a door arranged to move longitudinally of said guides.

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