

No. 719,875.

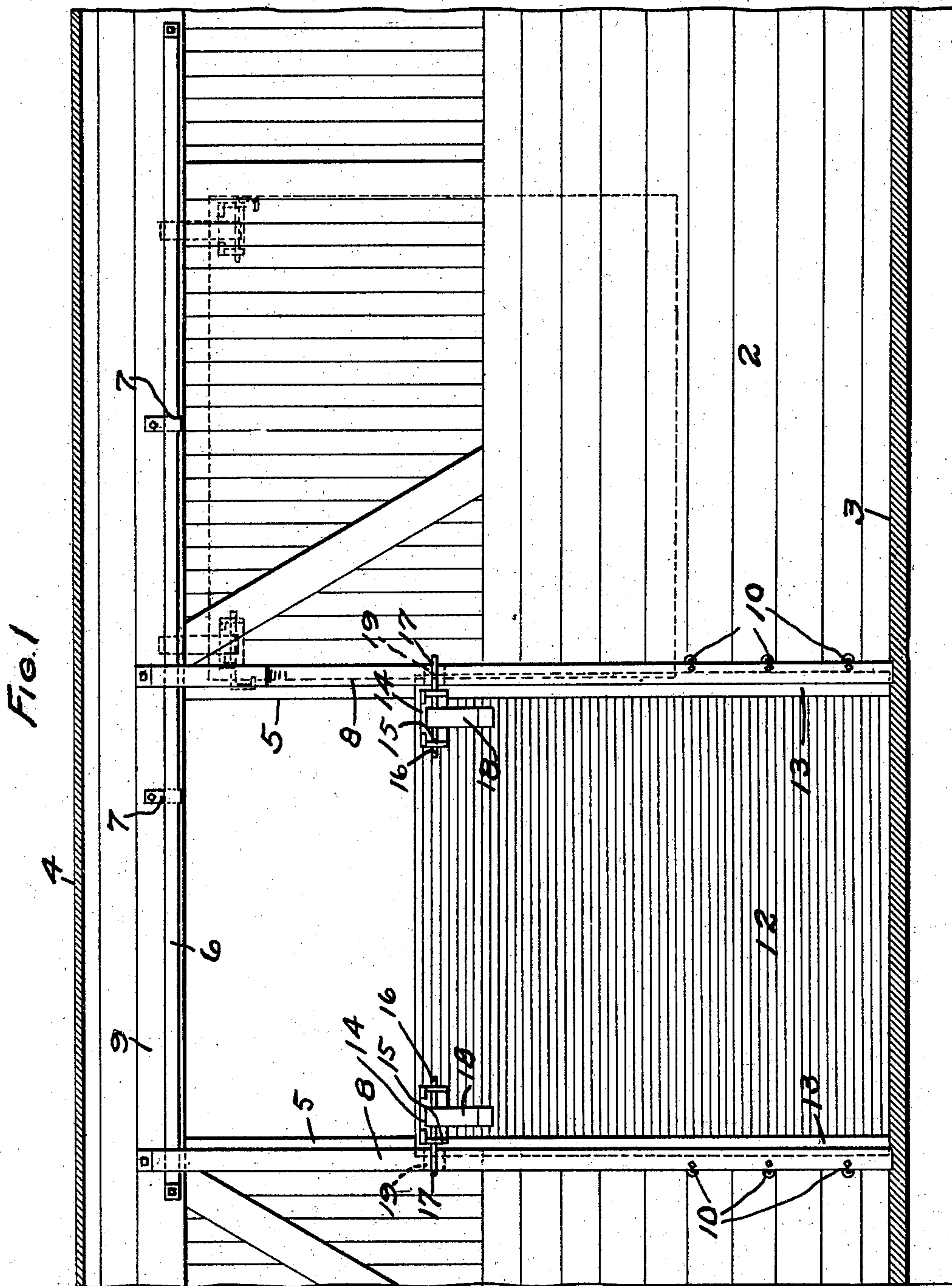
PATENTED FEB. 3, 1903.

J. RILEY.  
GRAIN DOOR FOR FREIGHT CARS.

APPLICATION FILED JULY 18, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses  
E. G. Starnes  
M. C. Noonan

Inventor  
John Riley  
By Paul & Paul  
his attorneys

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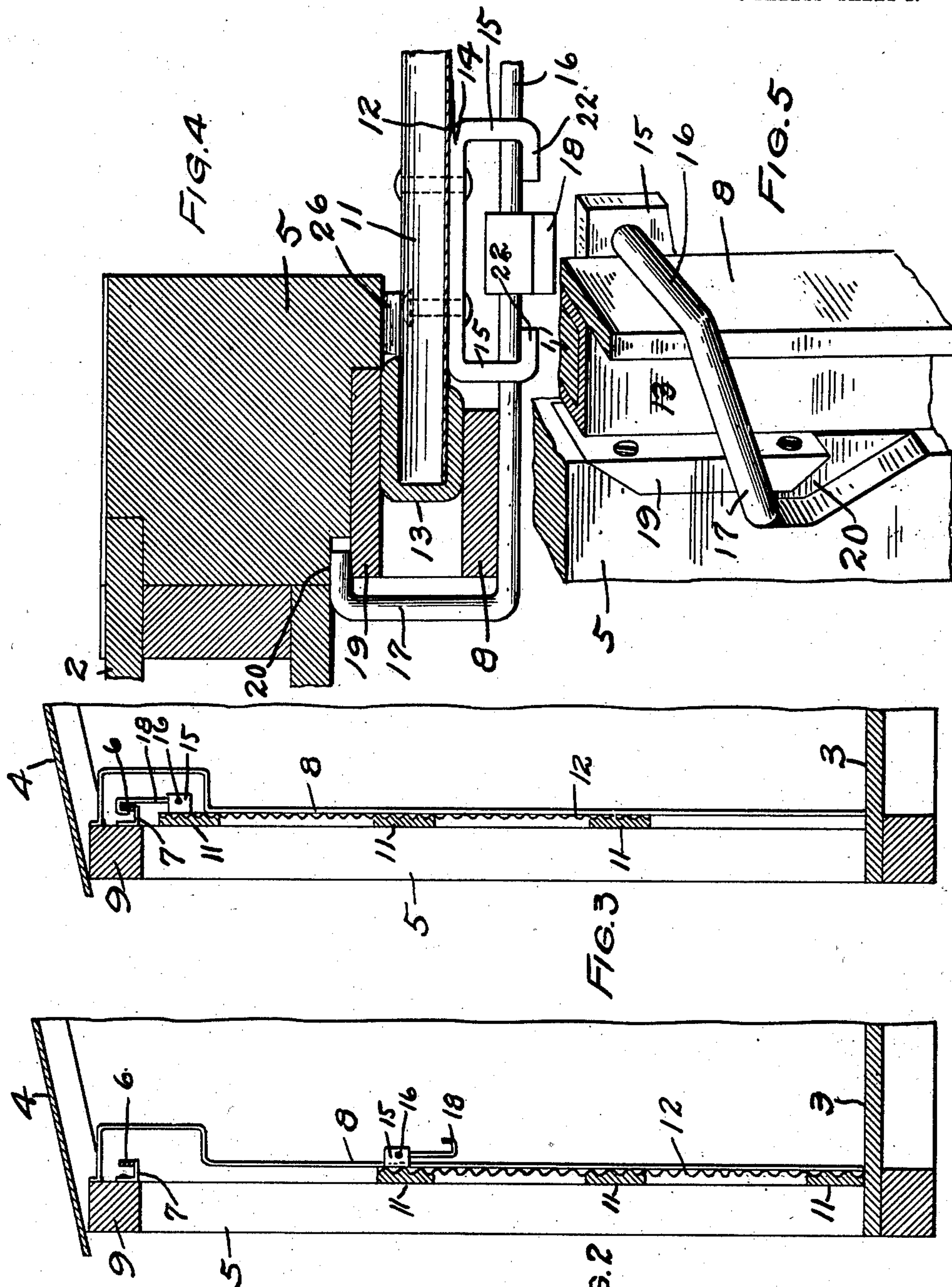
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Witnesses  
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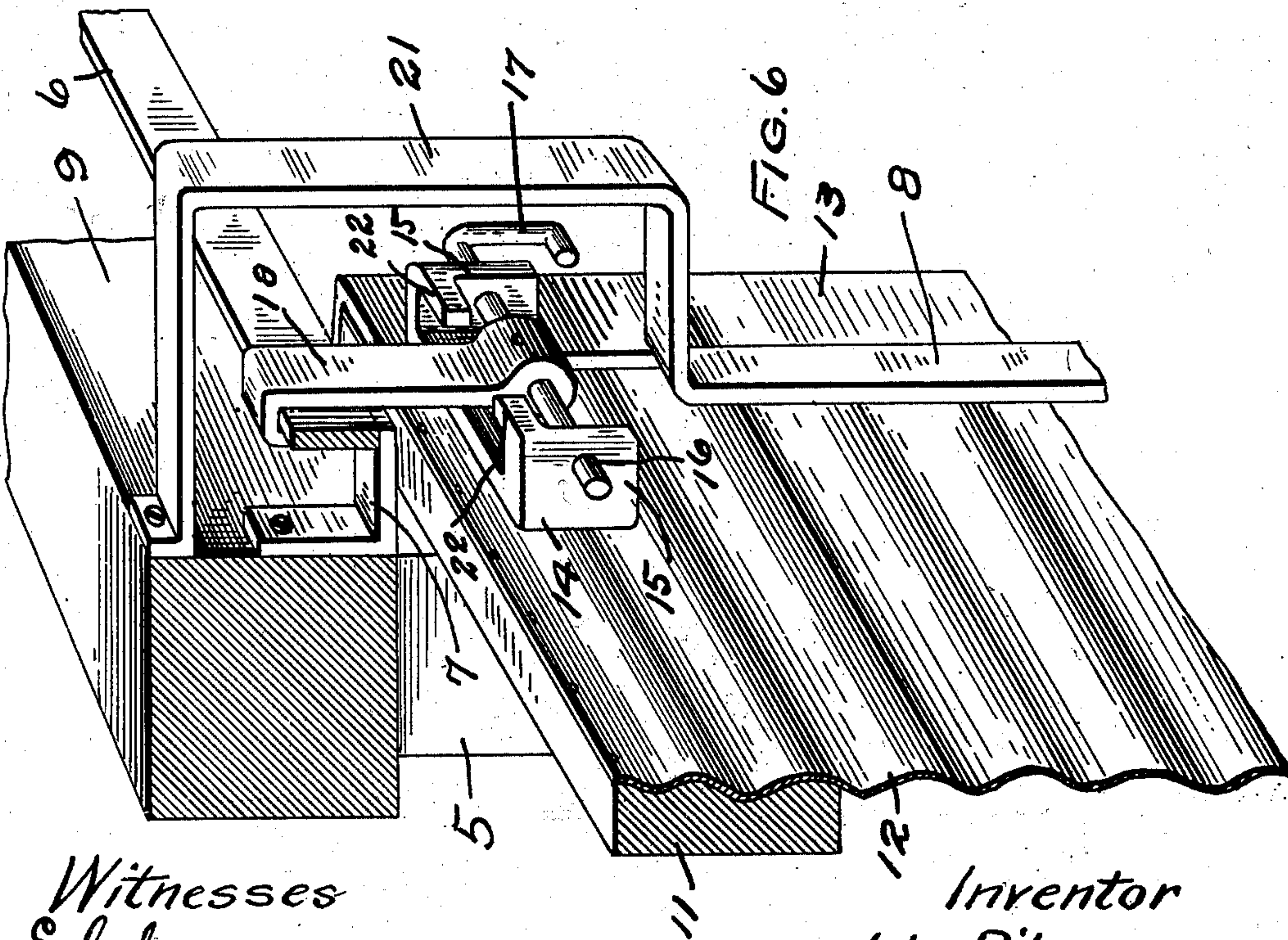
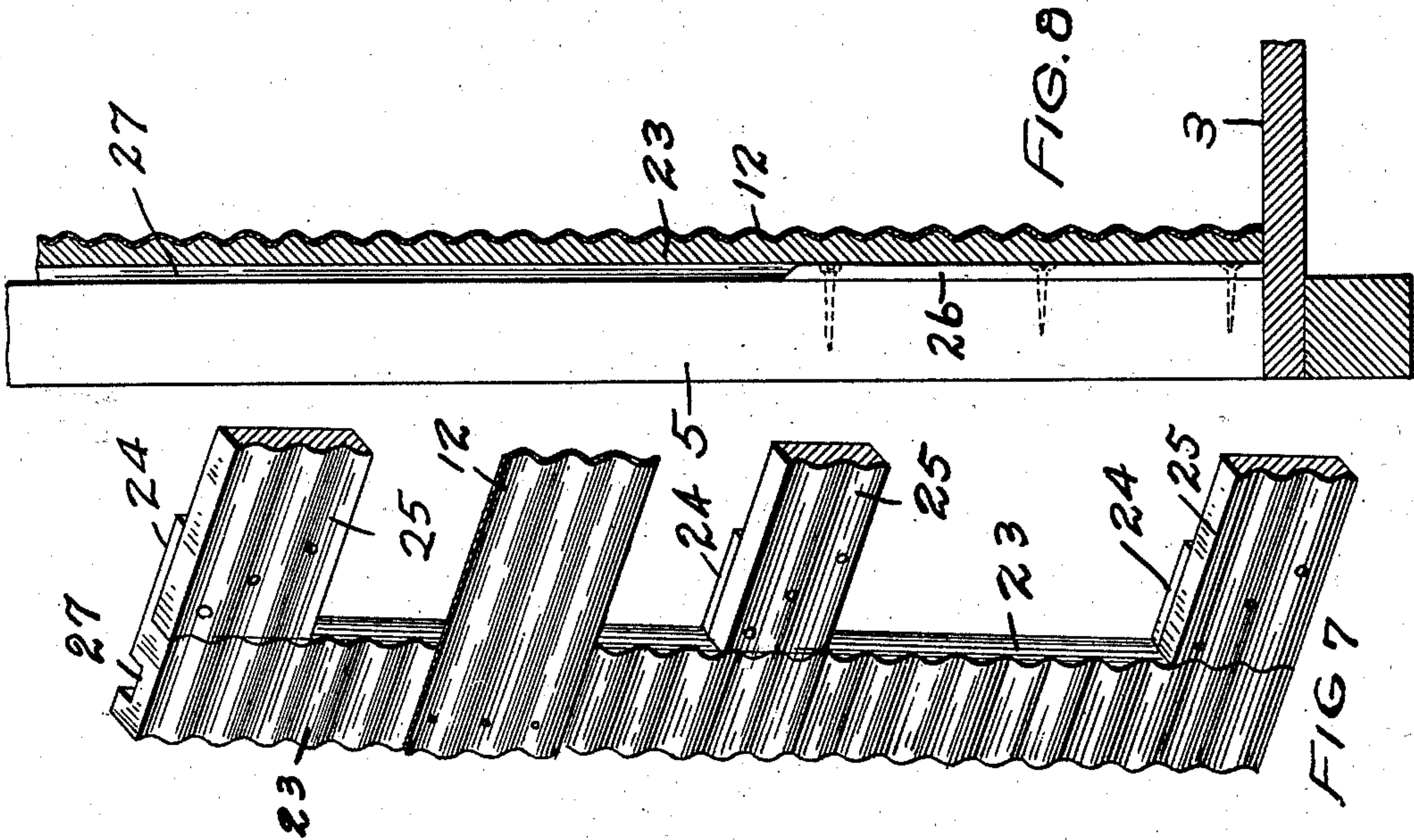
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# UNITED STATES PATENT OFFICE.

JOHN RILEY, OF MINNEAPOLIS, MINNESOTA.

## GRAIN-DOOR FOR FREIGHT-CARS.

SPECIFICATION forming part of Letters Patent No. 719,875, dated February 3, 1903.

Application filed July 18, 1902. Serial No. 116,021. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN RILEY, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Grain-Doors for Freight-Cars, of which the following is a specification.

My invention relates to devices for use in connection with box freight-cars when loaded with grain; and the object of the invention is to provide a door of simple but strong and durable construction and one that can be easily handled and will form when closed a grain-tight joint with the sides of the door-opening.

A further object is to provide a grain-door that is particularly adapted for cars containing flax or other small grains.

A further object is to provide a door which when not in use is raised and moved to an inoperative position against the side of the car, where it is out of the way when it is desired to load the car with merchandise and where it cannot accidentally become loosened from its support and cause injury to the workmen in the car.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 represents a partial longitudinal vertical section of a freight-car, showing the inside of the car and one side opening with my invention applied thereto. Fig. 2 is a vertical transverse section of one side of the car, showing the door closed. Fig. 3 is a similar view showing the door open or raised. Figs. 4 and 5 are details of the locking mechanism provided on each side of the door. Fig. 6 is a detail showing the door in its raised position and unlocked. Figs. 7 and 8 are details of a modified form of the door.

In the drawings, 2 represents the side of the car; 3, the floor; 4, the roof, and 5 the door-posts provided upon each side of the opening in the car.

6 represents a track supported by brackets

7 on the side of the car above the door-opening, and being similar to the track usually provided on the outside of the car I make no claim, broadly, to the same herein.

8 represents guide-bars provided upon each side of the door-opening and secured at the top by bolts or other suitable means to a timber 9 and near the bottom provided with fastening devices, such as bolts 10, which firmly secure the guides to the door-posts.

The door which I prefer to employ is shown in Fig. 6 in detail and consists of a series of bars 11, preferably of wood, arranged at intervals and provided with an outer covering of corrugated sheet metal 12, the surfaces of the bars being grooved or ribbed to coincide with the corrugations of the covering. The covering is secured to the bars by rivets or bolts, and at the ends of the door I provide vertical channel-bars 13, which receive the ends of the bars and the edges of the corrugated covering and protect them against injury and also brace and strengthen the door and cause it to slide easily in the guideways. At the top of the door, near the ends thereof, I provide castings 14, having outwardly-turned flanges or brackets 15, provided with holes to receive pins 16, that are provided on their outer ends with hooks 17. The pins turn freely in their bearings, and secured thereon between the brackets 15 are hooks or hangers 18, that swing with the pins and when the door is raised are adapted to hook over the track 6 and support the door, while permitting it to be moved back and forth on the track.

Upon each door-post 5, opposite the point where the pins 16 will be located when the door is closed, I provide plates 19, fitting within recesses in the door-posts and projecting beyond the edges of notches or recesses 20, also provided in said posts. These notches are adapted to receive the hooked ends of the pins 16 and when the pins are swung around to their locked position draw the sides of the door snugly against the door-posts and form a grain-tight joint therewith, aided, of course, by the pressure of the grain in the car, which will tend to force the door out and seat it firmly against the posts. If preferred, addi-



tional locking devices may be employed besides those at the top of the door; but I do not consider that any locking means will be necessary at the bottom, as the pressure of the grain will be sufficient to hold the door firmly to its seat. The guide 8 on that side of the opening toward which the door is moved when raised I provide with an offset 21, which when the door is raised and supported on the track allows the castings 14 and the locking devices and hooks carried thereby to be moved past the guides to the position indicated by dotted lines in Fig. 1, where the door is hung against the side of the car. I prefer to provide lugs 22 on the castings 14, projecting in toward the hooks 18, and by slipping the pins 16 in their bearings in either direction the hangers 18 will pass behind these lugs, and when the door is raised and the hangers disengaged from the track they will be prevented from swinging down to the position shown in full lines in Fig. 1 and the pins 16 will be prevented from turning in their bearings until the door is in its closed position and the operator desires to lock it, when the pins are moved lengthwise to move the hangers 18 out of engagement with the lugs 22 and allow the hooks 17 to swing into engagement with the plates 19.

In Figs. 7 and 8 I have shown a door of modified construction, which consists in providing castings 23 at each end of the door and having lugs 24, whereon bars 25, preferably of wood, are secured by any suitable means. The surfaces of the bars and of the castings are corrugated, as shown, to coincide with the corrugated sheet-metal covering, corresponding to that heretofore described, that is secured to the bars and castings by rivets or bolts. In this form of door the channel-iron end bars are dispensed with, the castings having flat outer faces which bear upon the door-posts and form close-fitting grain-tight joints therewith.

To adapt the door (either the form shown in Fig. 6 or in Figs. 7 and 8) for use with cars loaded with small grain, such as flax, I prefer to provide straps 26, secured to the door-posts near the bottom of the door, and provide vertical grooves 27 in the castings 23, that are adapted to receive the straps 26 and positively prohibit any leakage of the small seeds around the bottom of the door.

I have shown a door of a combined wood and iron construction, but do not wish to confine myself thereto, as one entirely of wood may in some instances be preferred, and in some cases a door entirely of metal may be desired, and hence I do not desire to be confined to the materials employed or to the details of construction.

I have shown my invention applied to the door-openings in the sides of a car; but it will be understood that it may be used in the ends of the car as well.

I claim as my invention—

1. The combination, with a freight-car, of a track secured over the opening in the side of the car, a door, hangers provided thereon and adapted to rest and slide upon said track, locking devices provided in connection with said hangers, guides for said door, and an offset provided in one of said guides near said track, for the purpose specified.

2. The combination, with a track secured to the side of the car on the inside above the door-opening, of a door, hangers for supporting said door upon said track, rotating pins whereon said hangers are secured, hooks provided on said pins for drawing the top of the door to its seat, and guides between which and the door-posts said door is slidable.

3. The combination, with the door-posts, of plates 19 secured thereon, guides provided on said posts, a door slidable between said guides and posts, rotating pins mounted on said door, and hooks provided on said pins adapted to engage said plates 19 to draw said door snugly against said posts, for the purpose specified.

4. The combination, with a sliding grain-door, of rotating locking-pins secured thereon, hooks or hangers secured on said pins and oscillating therewith, and a track whereon said hangers are adapted to rest and slide.

5. The combination, with a grain-door, of castings mounted thereon, rotating and longitudinally-sliding pins mounted in bearings in said castings and having hooked ends to engage the door-posts and draw the door to its seat, a track, hangers secured on said pins and adapted to rest and slide upon said track, and lugs 22 provided on said castings for limiting the rotary movement of said pins and hangers, substantially as described.

6. A grain-door, comprising a wooden frame having a corrugated surface, a corrugated sheet-metal plate secured to said frame and metal bars at the ends of said frame and secured thereto and to said plate.

7. A grain-door, comprising a wooden frame, a sheet-metal plate secured to one side thereof, and channel-bars provided at the ends of said door to receive the edges of said frame and said plate.

8. The combination, with the door-posts, of guides secured thereon, a track provided on the inside of the car above the door-opening, a grain-door consisting of a wooden frame and a corrugated sheet-metal plate secured to one side thereof, said door being adapted to slide vertically and horizontally between said guides and the side of the car, and pivoted hangers provided on said door and adapted to engage said track when the door is raised and to slide thereon to permit the door to be moved away from the opening.

9. The combination, with a car, of a track provided above the door-opening on the inside, guides secured to the sides of said opening, a door vertically movable between said



guides, hangers provided on said door to engage said track when the door is raised to slide thereon, and locking devices for drawing said door to its seat against the posts when in its depressed position.

5 10. The combination, with the door-posts, of the straps secured thereon at the bottom of the door, guides provided on said posts, a door vertically slidable between said posts

and having vertical grooves to receive said straps, for the purpose specified.

In witness whereof I have hereunto set my hand this 12th day of July, 1902.

JOHN RILEY.

In presence of—

RICHARD PAUL,  
M. C. NOONAN.