

No. 868,096.

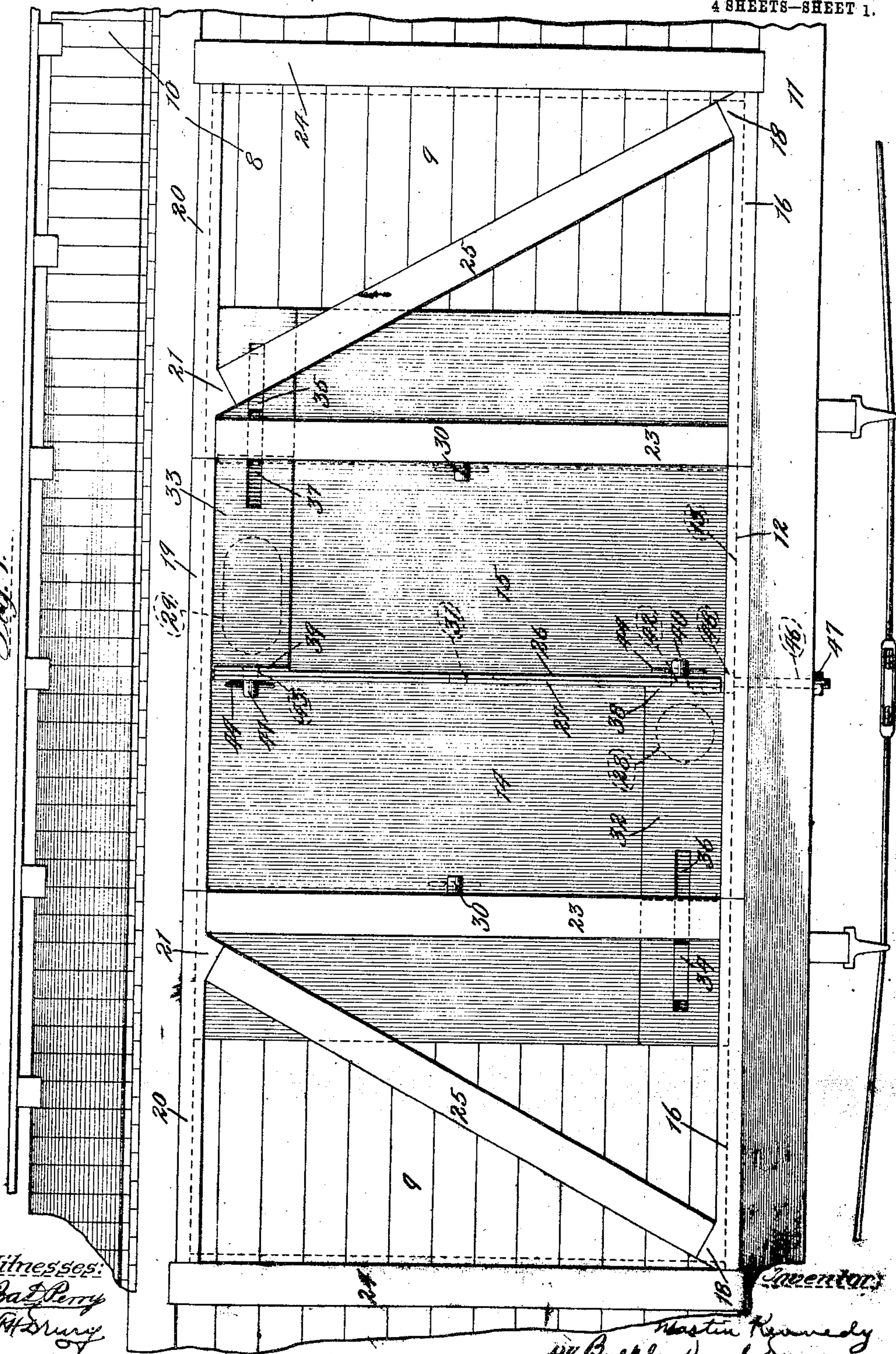
PATENTED OCT. 15, 1907.

M. KENNEDY.  
RAILWAY CAR CONSTRUCTION.  
APPLICATION FILED JAN. 31, 1907.

4 SHEETS—SHEET 1.

Fig. 1.

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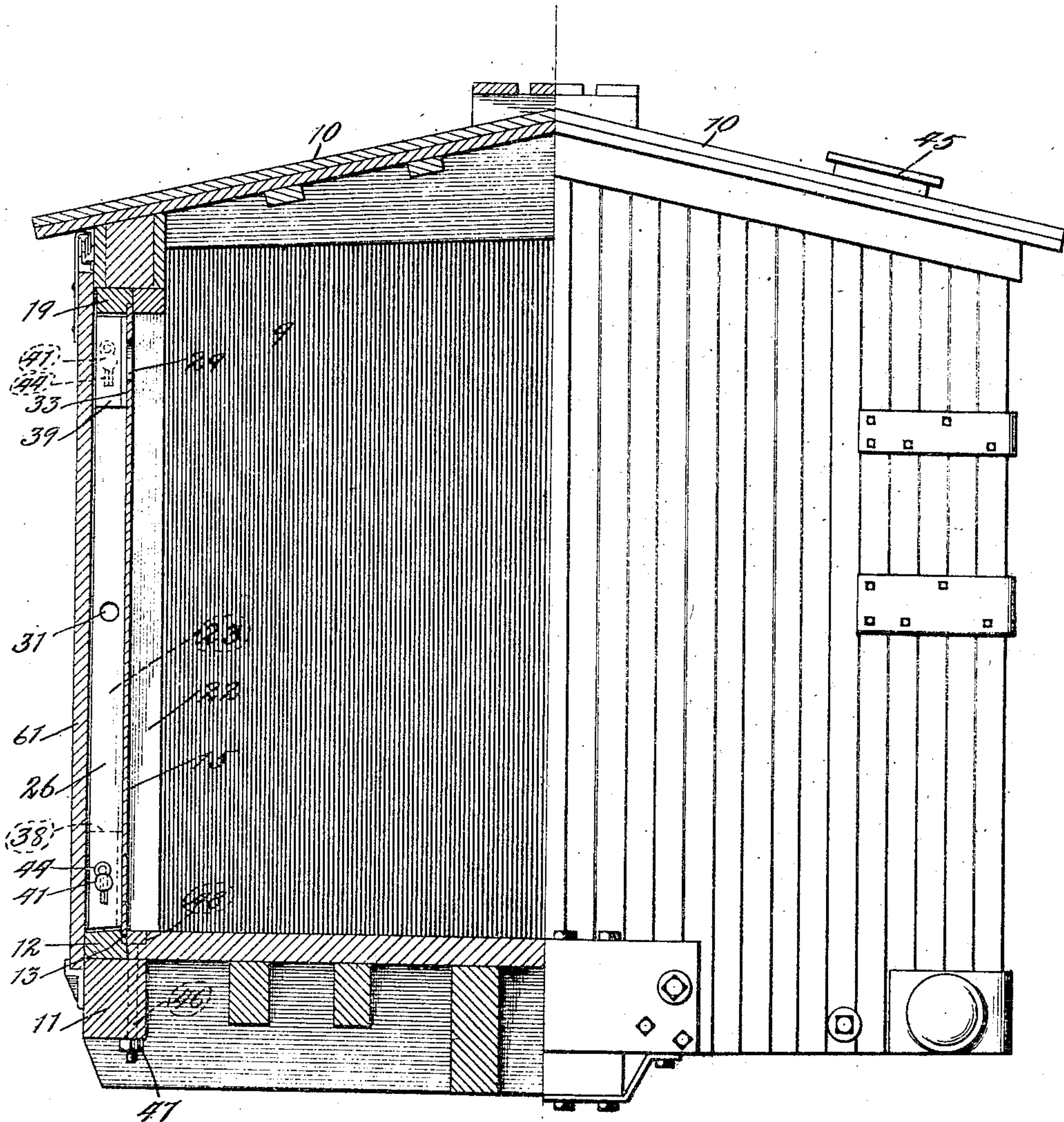
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4 SHEETS—SHEET 2.

Fig. 2.



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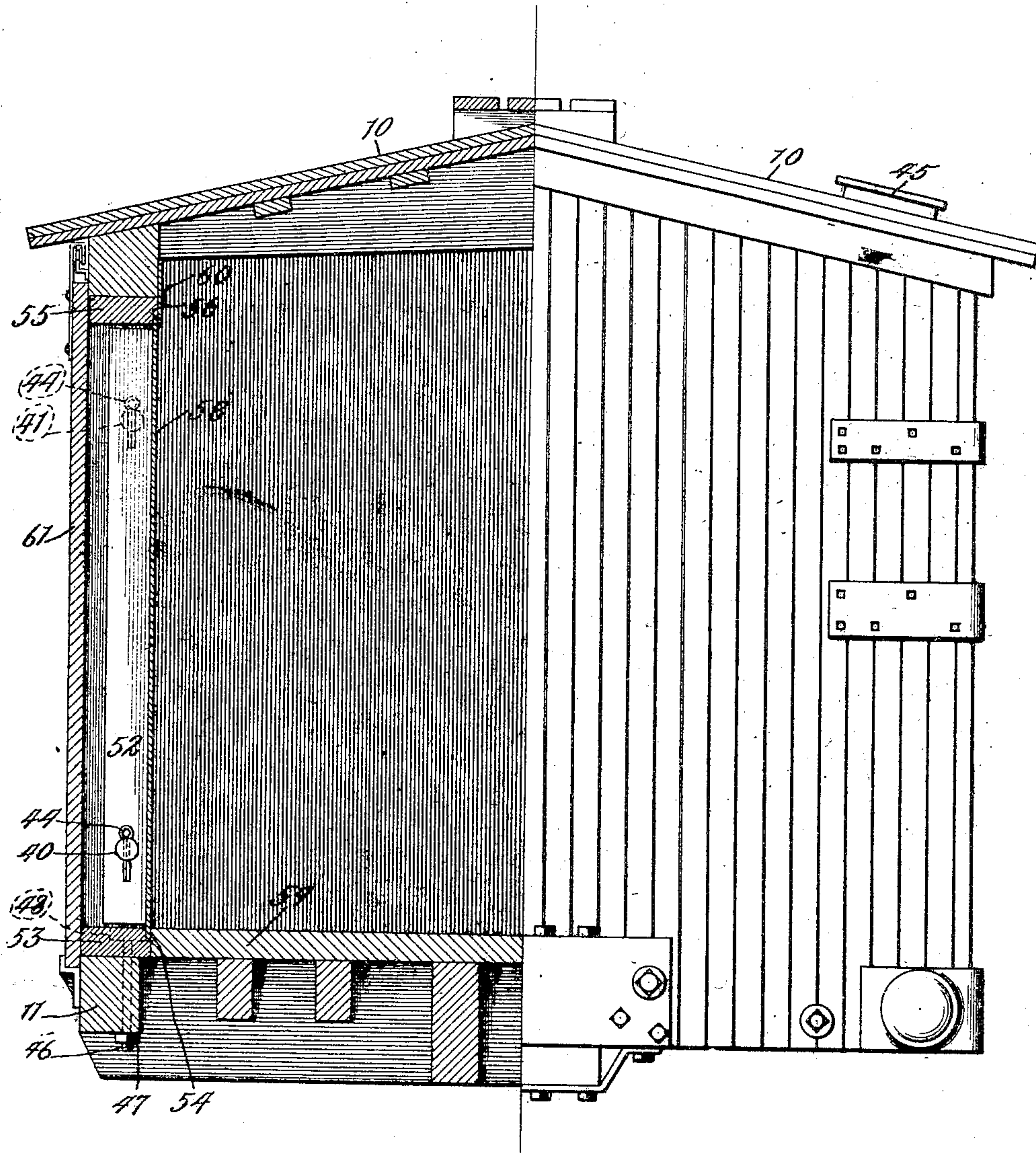
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4 SHEETS—SHEET 3.

*Fig. 3.*



Witnesses:

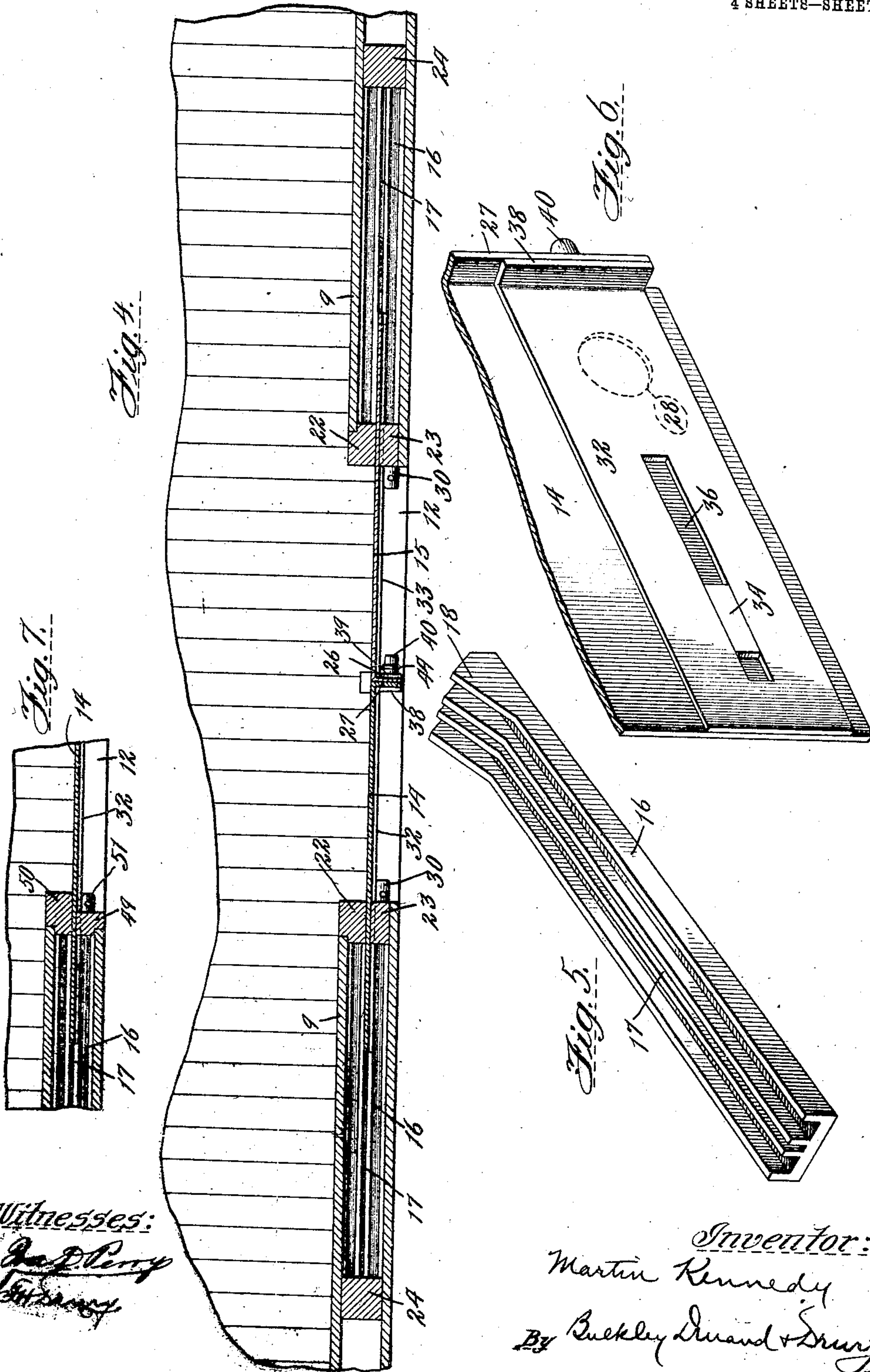
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4 SHEETS—SHEET 4



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# UNITED STATES PATENT OFFICE.

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## RAILWAY-CAR CONSTRUCTION.

No. 868,096.

Specification of Letters Patent.

Patented Oct. 15, 1907.

Application filed January 31, 1907. Serial No. 354,956.

*To all whom it may concern:*

Be it known that I, MARTIN KENNEDY, a citizen of the United States of America, and a resident of Chicago, Illinois, have invented a certain new and useful Improvement in Railway-Car Construction, of which the following is a specification.

My invention relates to improvements in the construction of railway freight cars, and has for its object the production of a car that is especially adapted for the carrying of grain, salt, coal, etc.

A further object is the production of a car of such a construction that nearly all of the contents thereof may be readily removed without exposing the entire contents of the car.

A further object is the production of a railway freight car equipped with grain or inner doors, preferably constructed of metal and adapted to be readily slid away from the door opening.

A further object is the production of a railway freight car equipped with durable permanent inner doors.

These and such other objects as may hereinafter appear are attained by my device, embodiments of which are illustrated in the accompanying drawings, in which

Figure 1 is a side elevation of a car with the door and sheathing removed, showing my device in position. Fig. 2 is an end view of a car equipped with my device, showing half of the car in section. Fig. 3 is a view similar to Fig. 2, showing a modified form of my device.

Fig. 4 is a cross-section on line 4-4 of Fig. 1, looking in the direction indicated by the arrows. Fig. 5 is a perspective view of one of the channel bars with the thrust bearing. Fig. 6 is an enlarged perspective showing the sliding cover for the aperture. Fig. 7 is a cross-sectional view similar to Fig. 4, showing a slight modification in the construction.

Like numerals of reference indicate like parts in the several figures of the drawing.

Referring to Figs. 1 and 2, 8 represents an ordinary freight car; 9, the inner sheathing thereof; 10 the top of the car; 11 the sills; 12 the threshold having grooves 13 within which the doors 14 and 15 are adapted to slide; 16 represents channel bars provided with a central groove 17, being a continuation of the grooves in the threshold, and provided at its extreme end with thrust bearings 18. An upper grooved member 19 corresponds to the threshold, and the upper members 20 correspond to the members 16. The upper member is provided with a thrust bearing 21. On either side of the door openings are pairs of posts 22-23, spaced apart, while on either side, and at a proper distance therefrom, are additional posts 24, forming stops for the doors 14 and 15 when they are slid back away from the door opening. Pairs of diagonal struts 25 are located

between the thrust bearings 18 and 21, also spaced apart, the doors sliding between the struts. The doors are preferably provided with out-turned flanges 26, 27, and also provided with apertures 28 and 29. Preferably one of the apertures 28 is located in the bottom of one door 14, while the other aperture 29 preferably of an oblong shape, to provide for the introduction of an elevator boot, is located in the upper part of the other door 15. Seated within the door posts are pins 30-30, while the out-turned flanges of the doors are provided with corresponding openings 31 registering with the pins. When the doors are slid back out of the way, the openings 31 permit the passage of the pins 30, so that the flange of the door fits snugly against the side of the post. Cotter pins 31, or any other fastening, are inserted in holes in the pin to hold the door in place. These pins may be secured to the flanges of the door in any desired manner, and corresponding indentations (not shown) may be made in the door post to receive such fastenings, allowing the flange of the door to fit snugly against the post. Slides 32-33 are adapted to fit over the openings 28 and 29, bearings 34 and 35 being secured to the doors and seated within the slots 36 and 37 in the slides 32-33. The said slides 32-33 have out-turned flanges 38-39 to which are secured bosses or pins 40 and 41 similar to the pins 30. The flanges of the doors are also provided with openings 42-43 registering with the pins 40-41, and within which the pins are seated when the slide is over the aperture. The pins may be locked in place by means of cotter pins 44-44, which are secured to the door in the same manner as 31, and disposed of in the same way.

The car may be provided with a hatch 45 through which the grain or other material may be loaded into the car, if desired, or which may be used in order to more completely fill the car. The threshold 12 has a center bolt 46 passing therethrough, extending below the car sill, and held in place by a nut 47. The head 48 of the bolt serves as a stop for the car doors, the corners of which are cut away as shown at 47 in Fig. 6, thereby enabling the flanges to fit closely together.

In Fig. 7, I have shown a slight modification in which one of the pair of door posts 49 is of lesser width than the opposite post 50, so that the end of the pin 51 comes flush only with the post 50. By means of this construction, the entire door opening is left unobstructed.

In the construction shown in Fig. 3, the flanges 52 corresponding to the flanges 26-27 in the other construction, are considerably wider. The threshold 53 is rabbeted as shown at 54, and the upper member 55 has a corresponding groove 56. The doors 58 slide within this groove. The side of the floor 59 abutting



against the rabbeted threshold forms a groove within which the bottom of the door slides, while a strip 60, preferably of metal, is secured to the upper part of the car, forming with the rabbeted upper member 55 a groove within which the upper part of the door slides. By this construction, when the door is slid back, a portion of the side of the car is entirely protected by the metal door and strip, the door fitting closely against the inner sheathing of the car. The outer door 61 is shown in place in Figs. 2 and 3, secured in the ordinary manner.

Heretofore the carrying of grain and like shifting products by the railroad companies has necessitated the use of inner grain doors generally made of wood and easily removable. The result has been that it has nearly always been necessary to reëquip cars with doors after each trip. The doors themselves being of wood and readily removable, were often thrown out by the parties unloading the cars or stolen along the way or at the receiving station. The cost to the railroad for these doors is not a large sum for the individual doors, but when a period of years is considered, the sum reaches a large amount, and is practically a total loss to the company. I am aware that doors are used on some cars that are more or less permanently attached to the sides of the car and adapted to swing inwardly and upwardly and held against the top of the car. These constructions are all, however, open to objection for various reasons. In most of the cases, guiding rods are necessary along the side of the car upon which eyes secured to the doors slide. These rods become bent, oftentimes, rendering it difficult—if not impossible—to slide the doors upwardly before swinging them inwardly and upwardly against the top of the car. In this construction, it is also necessary to have a retaining hook or bracket, or a plurality of them, at the top of the car, in order to hold the door in place. In order to render these devices operative in the highest sense, it is, of course, essential that the doors can be readily secured in place at the top of the car, and at the same time making it equally impossible for the doors to be readily disengaged from their support. This is a serious disadvantage, as in the event that the supporting hooks are knocked aside by anyone within the car, the door falls, and is apt to seriously injure anyone who may be in its path. This is often done, as the doors are very much in the way when loading merchandise in the car. The mechanism of these doors, being subject to great strain exerted from all directions, in the handling by ignorant and inexperienced laborers, is very apt to become bent or twisted out of shape, thereby rendering the device inoperative, while from the very nature of the construction of my device there is practically no liability of the doors ever being in the way. Most of the doors in use also provide for closing only the lower half of the door opening, rendering it impossible to load the car much more than half its capacity. By the use of my improved construction, the door opening is entirely closed, and the grain or other commodity introduced preferably through the top of the car, rendering it possible to load the car to its utmost carrying capacity; or if preferred, the elevator boot may be inserted in the upper aperture and the car loaded in that manner. At the same time, the openings in the door covered by the movable slides render it a simple mat-

ter to withdraw any portion, or, in fact, nearly all of the contents of the car, without opening the doors. When the sliding coverings to the openings are securely in place, and the two parts of the doors locked, the entire door opening is tightly closed, rendering it impossible for any of the contents to escape. The fact that the doors are constructed of metal renders them especially durable, and also reduces to a minimum the possibility of tampering therewith in order to remove any of the contents of the car.

In the construction shown in Figs. 1, 2, 4 and 7, the frame-work of the car adjacent to the door is separated, leaving a channel therebetween in which the doors can be slid when opened, so that the door itself is entirely out of the way, and the outwardly turned flanges 26, 27 are flush with the door posts. As shown in Fig. 4, the outer posts may be set back or cut away sufficiently so that the pins will not project into the openings,—an advantageous feature when the car is used for ordinary merchandise. The use of the upper and lower channel beams 20 and 16, provided with thrust bearings 21 and 18, makes a very simple and strong construction.

In the construction shown in Fig. 3, which is especially applicable in equipping old cars with the device, double framing is dispensed with, the body of the inner doors sliding within the grooves 54 and 56 close to the inner sheathing of the car. In this construction, when the car doors are opened, the middle doors are close against the sheathing, and entirely out of the way. This feature is one of especial value when it is necessary to use the cars, as it often is, for the loading of furniture or other merchandise. The metal doors not being needed, are slid back, and being close against the sheathing, add to the strength of the car and are entirely out of the way.

What I claim as my invention is:

1. In a car, the combination with a body and frame, of outer doors and inner doors, of grooved thresholds, of channel bars at either end thereof and abutting thereto, and a series of uprights and struts therebetween, said uprights and struts forming a portion of the car frame adjacent to said door openings.

2. In a car, the combination with a body and frame, of outer and inner doors, of grooved thresholds, of channel bars at either end thereof and abutting thereto, a series of upper grooved members corresponding thereto, and a series of uprights and struts therebetween, said members being provided with thrust bearings against which the ends of said struts are adapted to rest, said uprights and struts forming a portion of the car frame adjacent to the door openings.

3. In a car, the combination with a body and frame, of outer and inner doors, of grooved thresholds, of channel bars at either end thereof and abutting thereto, a series of upper grooved members corresponding thereto, and a double series of uprights and struts therebetween spaced apart, said uprights and struts forming a portion of the car frame adjacent to the door openings.

4. In a car, the combination with a body and frame, of outer and inner doors, of grooved thresholds, of channel bars at either end thereof and abutting thereto, a series of upper grooved members corresponding thereto, and a double series of uprights and struts therebetween spaced apart, said members being provided with thrust bearings against which the ends of said struts are adapted to rest, said uprights and struts forming a portion of the car frame adjacent to the door openings.

5. In a car, the combination with a body and frame, of outer and inner doors, of grooved thresholds, of channel bars at either end thereof and abutting thereto, a series of upper grooved members corresponding thereto, and a



double series of uprights and struts therebetween spaced apart, said members being provided with thrust bearings against which the ends of said struts are adapted to rest, said uprights and struts forming a portion of the car frame adjacent to the door openings, said inner doors fitting within said grooves and adapted to slide in the passages between said uprights and struts.

6. In a car, the combination with a body and frame, of outer and inner doors, of grooved thresholds, of channel bars at either end thereof and abutting thereto, a series of upper grooved members corresponding thereto, and a double series of uprights and struts therebetween spaced apart, said members being provided with thrust bearings against which the ends of said struts are adapted to rest, said uprights and struts forming a portion of the car frame adjacent to the door openings, said inner doors being apertured and fitting within said grooves and adapted to slide in the passages between said uprights and struts.

7. In a car, the combination with a body and frame, of outer and inner doors, of grooved thresholds, of channel bars at either end thereof and abutting thereto, a series of upper grooved members corresponding thereto, and a double series of uprights and struts therebetween spaced apart, said members being provided with thrust bearings against which the ends of said struts are adapted to rest, said uprights and struts forming a portion of the car frame adjacent to the door openings, said inner doors being apertured and fitting within said grooves and adapted to slide in the passages between said uprights and struts, and sliding members covering said apertures.

8. In a car, the combination with a body and frame, of outer and inner doors, of grooved thresholds, of channel bars at either end thereof and abutting thereto, and a double series of uprights and struts therebetween spaced apart, said members being provided with thrust bearings against which the ends of said struts are adapted to rest, said uprights and struts forming a portion of the car frame adjacent to the door openings, said inner doors being apertured and fitting within said grooves and adapted to slide in the passages between said uprights and struts, sliding members covering said apertures, and means for securing said doors together.

9. In a car, the combination with a body and frame, of outer and inner doors, of grooved thresholds, of channel bars at either end thereof and abutting thereto, a series of upper grooved members corresponding thereto, and a double series of uprights and struts therebetween spaced

apart, said members being provided with thrust bearings against which the upper ends of said struts are adapted to rest, said uprights and struts forming a portion of the car frame adjacent to the door openings, said inner doors being apertured and fitting within said grooves and adapted to slide in the passages between said uprights and struts, sliding members covering said apertures, and means for securing said doors together, said means comprising pins or bosses secured to one door and adapted to fit in corresponding openings in the other door.

10. In a car, the combination with a body and frame, of hatches in the top thereof, of outer and inner doors, of grooved thresholds, of channel bars on either end thereof and abutting thereto, a series of upper grooved members corresponding thereto, and a double series of uprights and struts therebetween spaced apart, said members being provided with thrust bearings against which the ends of said struts are adapted to rest, said uprights and struts forming a portion of the car frame adjacent to the door openings, said inner doors being apertured and fitting within said grooves and adapted to slide in the passages between said uprights and struts, sliding members covering said apertures, and means for securing said doors together, said means comprising pins or bosses secured to one door and adapted to fit in corresponding openings in the other.

11. In a car, the combination with a body and frame, of outer doors, inner metal doors, of grooved thresholds, of channel bars on either end thereof and abutting thereto, a series of upper grooved members corresponding thereto, and a double series of uprights and struts therebetween spaced apart, said members being provided with thrust bearings against which the ends of said struts are adapted to rest, said uprights and struts forming a portion of the car frame adjacent to said door openings, said inner doors being apertured and fitting within said grooves and adapted to slide in the passages between said uprights and struts, sliding members covering said apertures, and means for securing said doors together, said means comprising pins or bosses secured to one door and adapted to fit in corresponding openings in the other door.

Signed by me at Chicago, Illinois, this 28th day of Jan'y 1907.

MARTIN KENNEDY.

Witnesses:

F. H. DRURY,  
ALBERT JOHN SAUSER.