V. E. SISSON.

END CONSTRUCTION FOR RAILWAY BOX CARS.

APPLICATION FILED JUNE 18, 1915.

1,244,649.

Patented Oct. 30, 1917.

4 SHEETS—SHEET 1.

Fig. 1.

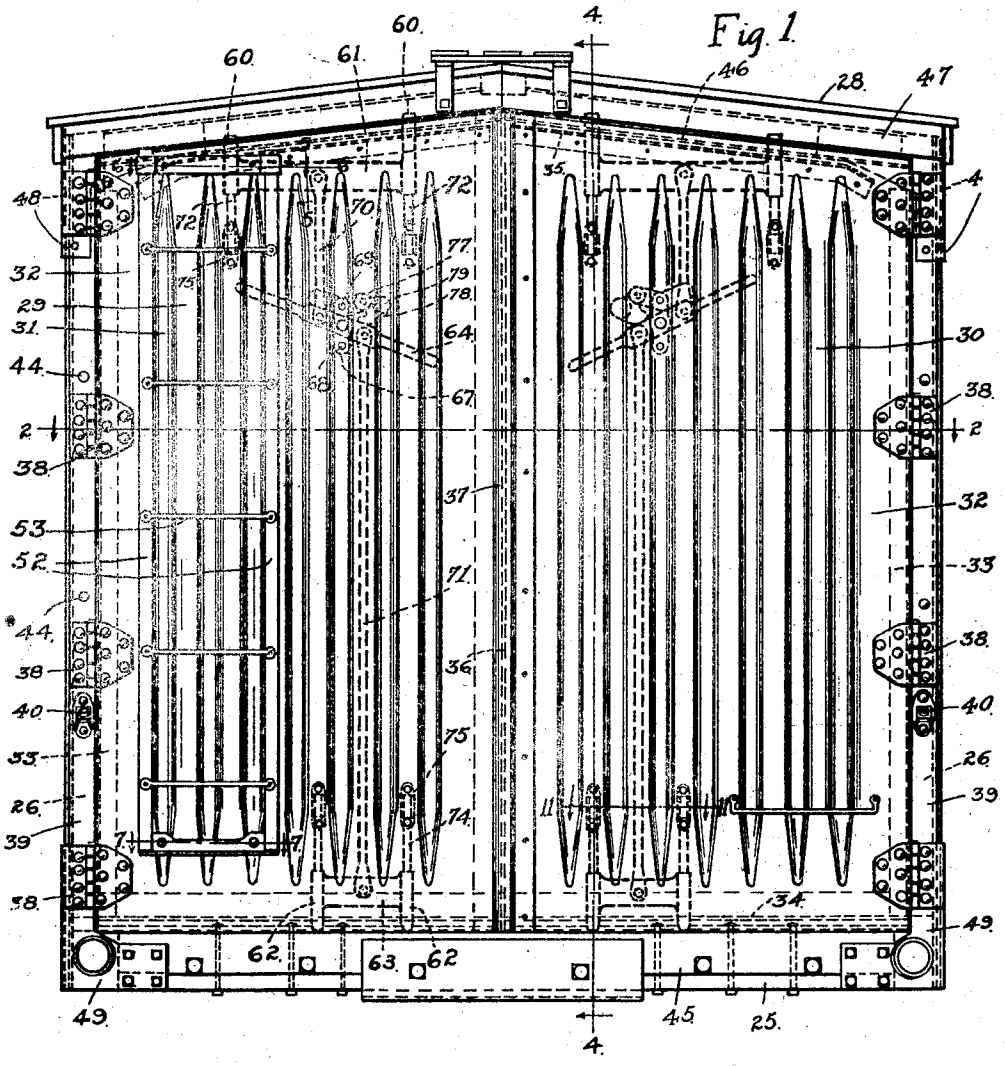
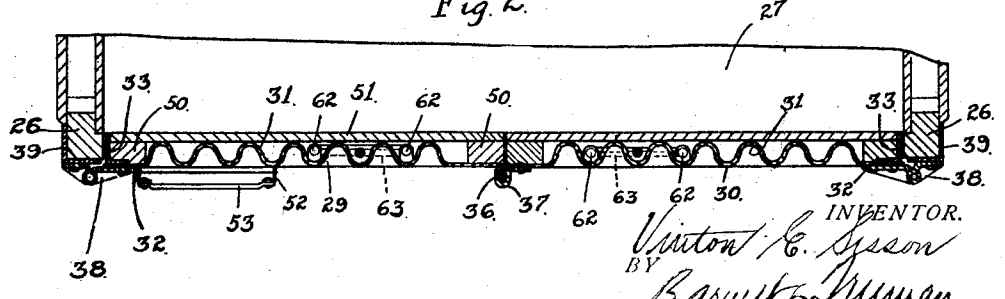


Fig. 2.



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4 SHEETS—SHEET 2.

Fig. 3.

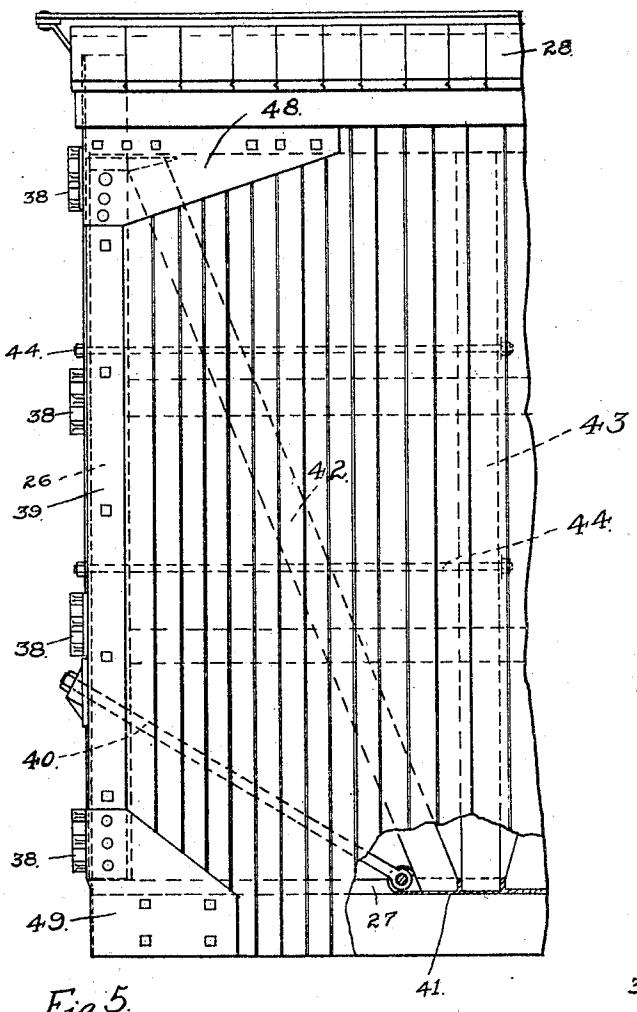


Fig. 4.

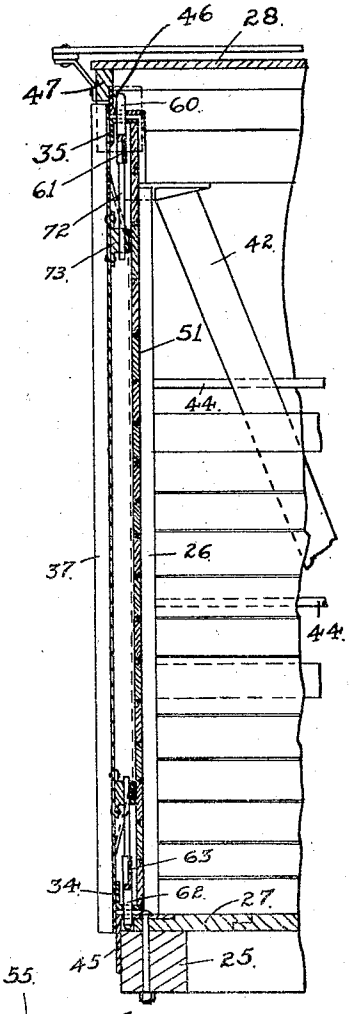


Fig. 5.

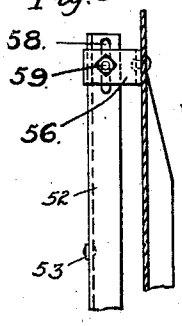


Fig. 6.

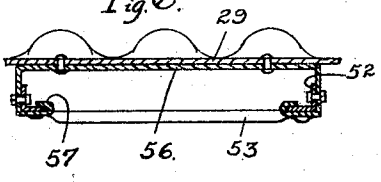
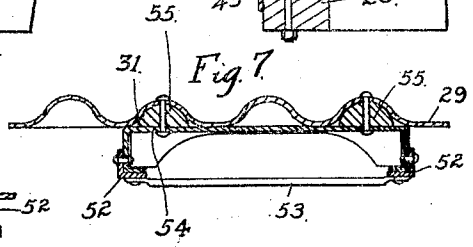


Fig. 7.



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4 SHEETS—SHEET 3.

Fig. 8.

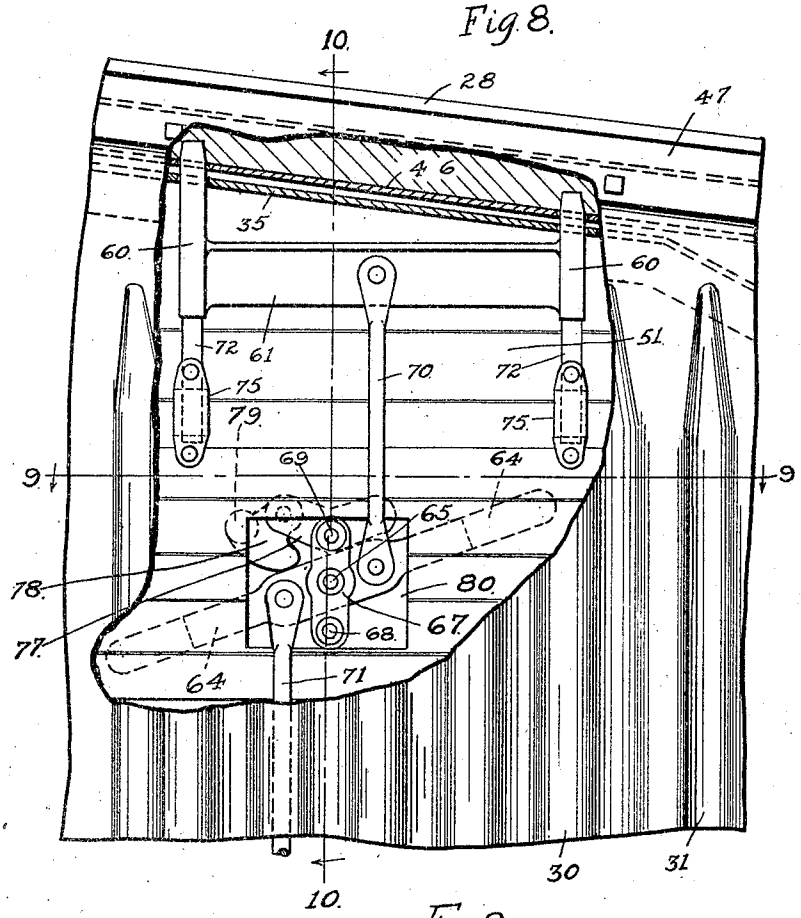
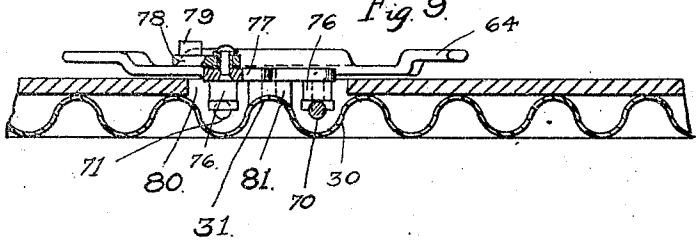


Fig. 9.



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4 SHEETS—SHEET 4

Fig. 10.

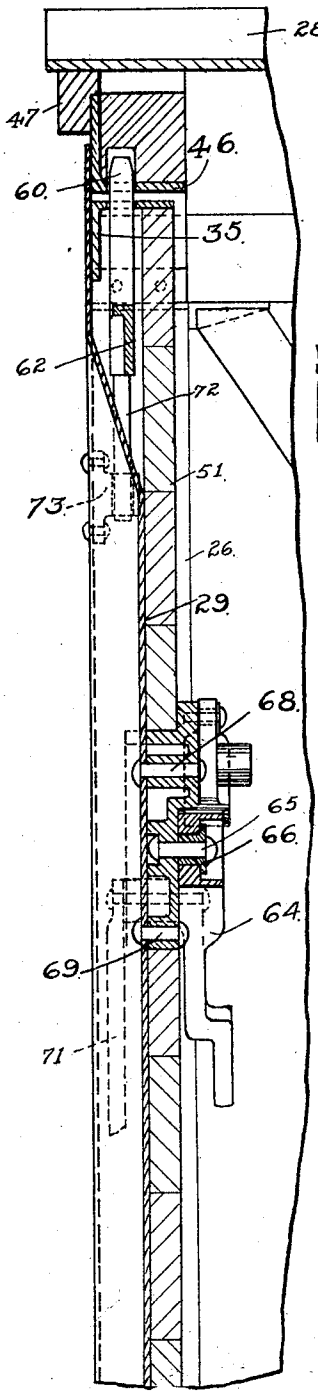


Fig. 11.

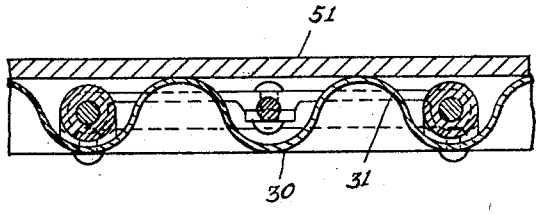


Fig. 12.

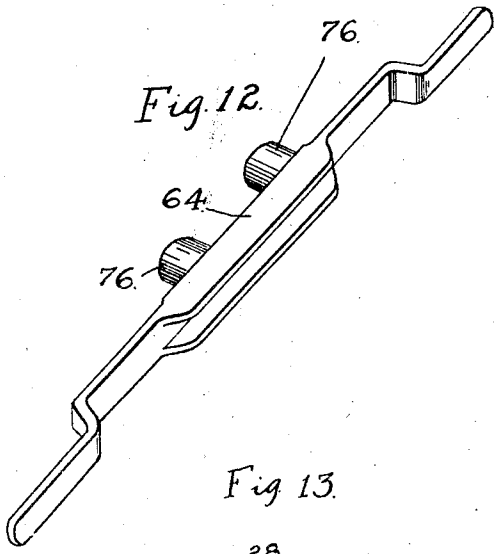
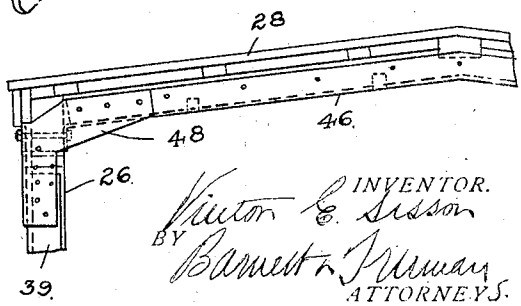


Fig 13.



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UNITED STATES PATENT OFFICE.

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END CONSTRUCTION FOR RAILWAY BOX-CARS.

1,244,649. Specification of Letters Patent. Patented Oct. 30, 1917.

Application filed June 18, 1915. Serial No 34,870.

To all whom it may concern:

Be it known that I, VINTON E. SISSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in End Constructions for Railway Box-Cars, of which the following is a specification.

My invention relates to the construction of railway box cars and more particularly to the construction of cars for transporting automobiles or freight of like bulky character. These cars, instead of being provided with the usual end sheathing, have the ends closed with panels or doors which are hinged to the corner posts and constitute the entire end, or practically the entire end, of the car. This permits the automobile or other large, bulky article to be loaded into or taken from the car more conveniently than through one of the usual side door openings.

The primary object of the invention is to provide certain novel and improved constructions relating to the end structure of a car of this type, the details of which will be hereinafter described.

According to the invention the end wall of the car is made up of two corrugated sheet metal panels or doors which are constructed so as to be strong, rigid, and relatively light in weight.

The invention further provides novel means for locking said doors in closed position, the locking means being of such character that the doors or panels when in closed position will be, to all intents and purposes, as firm and strong as against cargo thrusts, for example, as the usual end wall or sheathing of a box car.

A further object of the invention is to provide a suitable end ladder for attachment to one of said hinged panels.

The invention has for further objects such other new and improved constructions, arrangements and devices relating to the construction of railway box cars as will be hereinafter described and claimed.

The invention is illustrated, in a preferred embodiment, in the accompanying drawings wherein—

Figure 1 is a view, in elevation, of one end of the superstructure of a box car constructed in accordance with my invention.

Fig. 2 is a sectional plan on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary side elevation of the end of the car.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1.

Figs. 5, 6 and 7 are detail sectional views taken on lines 5—5, 6—6 and 7—7, respectively, of Fig. 1, illustrating particularly the construction of the ladder.

Fig. 8 is a fragmentary end elevation of the upper part of the structure with a portion of the metal panel broken away to show a part of the apparatus for locking the panel to the upper part of the end framing of the car.

Figs. 9 and 10 are sectional views taken on lines 9—9 and 10—10 of Fig. 8.

Fig. 11 is a sectional plan on line 11—11 of Fig. 1, the scale being enlarged.

Fig. 12 is a view, in perspective, of the lever operating the locking mechanism, and

Fig. 13 is a fragmentary elevation of the end framing of the car.

Like characters of reference designate like parts in the several figures of the drawings.

The railway car in connection with which my invention is illustrated is a wooden box car of standard construction but the invention might obviously be used in the construction of box cars of types different from this.

In the drawings, 25 indicates one of the end sills of the car, 26, 26 the corresponding corner posts, 27 the flooring, and 28 the roof of the car.

The end structure is composed of two panels or doors 29, 30 made of sheet metal and formed preferably with vertically extending corrugations 31 which protrude inwardly from the plane of the marginal portions 32 of the sheets. To the outer vertical edges of the sheets on the inside thereof are secured stiffening members 33 preferably in the form of angle irons. Angle irons 34 are preferably attached to the sheets near their lower edges and angle irons 35 or other suitable stiffening members to the sheets adjacent their upper edges. The door or panel 29 is formed at its inner edge with an out turned flange 36 which is engaged and inclosed by a channel-shaped member 37 on the corresponding edge of panel 30. The panels are attached to the corner posts 33 by hinges 38. Preferably the corner posts are furnished with angle bars 39 to which the hinges are secured. In order to prevent the weight of the panels, or any thrust

against them, from tearing the angle bars 39 from the corner posts, the angle bars are preferably anchored by means of diagonal tie rods 40 to the socket castings 41 in which the frame members 42, 43 of the car superstructure are mounted, the tie rods extending through perforations in the corner posts. Additional tie rods 44, 44 may be employed in order to strengthen the construction in this respect. These tie rods 44 extend also through the corner posts and through the vertical frame members 43 (Figs. 3 and 4). The end sill of the car has preferably bolted thereto an angular member 45 which is overlapped by the lower edges of the panels when in closed position.

Instead of the usual end plate I have shown the upper frame member of the end as consisting of an angle bar 46 suitably bent to conform to the gable of the roof. The upper edges of the panels overlap and bear upon this angle bar. The structure is completed at the top by a suitable fascia plate 47. When necessary to give the required strength gusset plates 48, 49 may be employed at the upper and lower corners of the car.

The panels or doors 29, 30 are preferably provided with wooden linings which are so constructed as to add rigidity. Secured to the opposite vertical edges of each panel on the inside thereof are wooden spacing strips 50 the thickness of which corresponds approximately to the depth of the corrugations 31. To these strips are nailed lining boards 51 which preferably cross the corrugations at right angles thereto. In this arrangement the lining boards add considerably to the rigidity of the panels.

One of the panels is preferably provided with an end ladder consisting of angle bar uprights 52 and rungs 53. The lower ends of the uprights 52 are riveted to the corners of a bracket member 54 which is riveted to the panel through filler blocks 55 arranged in two of the corrugations of the panel. The upper ends of the ladder uprights fit within the corners of a bracket member 56 which may be riveted to the flat portion of the panel above the corrugations. Preferably the edges of the bracket member are channel-shaped as indicated at 57. The uprights are formed with slots 58 for adjustment and are secured to the bracket member 56 by bolts 59 which pass through these slots.

Each door or panel is provided with a locking mechanism which is so designed as to be very strong and convenient to manipulate, and is so placed as not to be interfered with by or subjected to injury from the lading of the car.

To describe the locking mechanism for the panel 29 (that of panel 30 being the same except certain parts are reversed in their relative positions, as will be understood), 60, 60 indicate two bolts preferably formed integral with a connecting cross head 61, which bolts extend through perforations in the inwardly projecting leg of the angle bar 35 at the upper edge of the door and the corresponding leg of the angle bar end plate 46. In a similar manner two bolts 62, 62 (there may be more if necessary) formed on a cross head 63, extend through perforations in the angle bar 34 at the lower edge of the door and the angle bar 45 overlapping the end sill and flooring of the car. 64 is a lever pivotally mounted centrally thereof by means of a rivet or stud 65 and bushing 66 to a Y-shaped casting 67 attached to the panel 29 by rivets 68, 69. The cross head 61 is connected to lever 64 by connecting rod 70. A connecting rod 71 connects the cross head 63 to lever 64 on the other side of its fulcrum. The cross head 61 is formed with guide rods 72 which slide through keepers 73. Similarly the cross head 63 has guide rods 74 which slide in keepers 75. The connecting rods 70, 71 are pivoted to studs 76 which project outwardly from the lever 64. By this arrangement the connecting rods lie within the channels formed between the corrugations 31 and the lining boards 51 so that they are protected from damage by the lading of the car. One of the arms 77 of the Y-shaped casting 67 has pivoted thereto a locking dog 78 which is adapted to bear against the end of the lever 64 which is depressed when the locking bolts are in their operative position. The locking dog is provided with a stud 79 by which it may be readily manipulated, the stud also serving as a weight. When the bolts are to be retracted the locking dog is shifted over upon the top of the casting. The wooden lining of the car is preferably cut away, as indicated at 80, so that the casting 67 may be riveted directly to the sheet metal panel 29. The casting is formed, as indicated at 81 (Fig. 9), so as to fit one of the corrugations 31. It will be seen that the entire mechanism for locking the doors to the framing of the car lies between the sheet metal panels 29 and their wooden linings except for the operating lever 64, a portion of the casting on which the lever is mounted, and the locking dog for the lever. These parts are of rugged construction and are not likely to be injured by the cargo, particularly as they are arranged quite high up in the car. When the panels or doors are closed and locked the end structure of the car is substantially as strong as the end wall of any ordinary box car. It is also waterproof. The doors or panels are locked from the inside so that they cannot be tampered with after the side doors of the car are closed and sealed. The locking bolts for the upper and lower edges of the panels are operated simultaneously, thus obviating the

chance of injury to the structure which might occur if the attempt was made, through inadvertence, to push one of the doors open after withdrawing one set of the locking bolts.

While I have described my invention in certain preferred embodiments, it will be understood that modifications might be made without departure from the principles of the invention. Therefore I do not wish to be understood as limiting the invention to the particular constructions, arrangements and devices shown and described so far as the claims are expressly so limited.

I claim:

1. The combination with the end framing of a box car, of an end door panel hinged to said framing and comprising a sheet metal element formed with corrugations pressed from the plane of the sheet and terminating within the edges of the sheet to leave flat margins, rigidifying members secured to said margins on the side of said corrugations and a locking mechanism for engaging both the rigidified margins of the door with the end framing of the car, said locking mechanism being arranged between the plane of the sheet and the plane bounding the corrugations.

2. The combination with the end framing of a box car, of an end door panel hinged to said framing and comprising a sheet metal element formed with corrugations pressed from the plane of the sheet and terminating within the edges of the sheet to leave flat margins, rigidifying members secured to said margins on the side of said corrugations and extending transversely of the corrugations, lining boards extending transversely of the corrugations and secured in place against the same, and means for locking said rigidifying members to the end framing of the car.

3. The combination with the end framing of a box car, of two door panels hinged to said end framing at opposite sides thereof, comprising in each case a sheet metal element formed with vertical corrugations, rigidifying members at the top and bottom of the panel extending transversely to said corrugations, horizontally arranged lining boards secured in place against said corrugations; and locking means arranged between said boards and said sheet metal element for engaging said rigidifying members with the end framing of the car.

4. The combination with the end framing of a box car, of an end door panel hinged to one side of said end framing and comprising an inner element and an outer element formed with corrugations and provided with flat marginal portions providing a space between said elements, and a locking mechanism for locking with a single operation the upper and lower edges of said panel to the end framing, said mechanism being arranged in the space between said inner and outer elements to protect the same from the lading of the car.

5. The combination with the end framing of a box car, of an end door panel hinged to one side of said end framing comprising an inner element and an outer element formed with corrugations and provided with flat marginal portions providing a space between said elements, and a locking mechanism for locking with a single operation the upper and lower edges of said panel to the end framing the parts of which are arranged in the space between said inner and outer elements, said mechanism provided with an operating member which extends through said inner element so as to be accessible from within the car only.

6. The combination with the end framing of a box car, of an end panel hinged thereto comprising inner and outer elements secured together, one of which is of sheet metal and formed with corrugations terminating within the edge of the sheet to leave flat margins, locking means arranged between the flat margins and the other element of the door and formed each with a plurality of bolts spaced one from the other, an operating member, and connecting rods which lie within the spaces between said corrugations and connect said locking devices with said operating member for simultaneous operation.

7. The combination with the end framing of a box car, of an end door panel hinged to one side of said end framing comprising a sheet metal element formed with vertical corrugations terminating within the edges of the sheet to leave flat margins, rigidifying members secured to said margins transversely of the corrugations, horizontal lining boards secured in place to bear against the said corrugations, and lining boards above and below the aforesaid lining boards spaced away from said marginal parts of the sheet metal element; locking devices arranged in the spaces between said margins and lining boards adapted to lock the panel at the top and bottom to the end framing, an operating member accessible only from within the car and connecting rods lying in the spaces between said corrugations connecting said locking devices to the operating member for simultaneous operation.

8. The combination with the end framing of a box car, of an end door panel hinged to said framing and comprising a sheet metal element with inwardly pressed vertical corrugations terminating within the edges of the sheet to provide flat margins, stiffening members secured to the inner sides of said margins, and locking mechanism for engaging said stiffening members to the top and bottom of the framing of the car, which mechanism lies between the

plane of said sheet metal element and the plane bounding the corrugations thereof.

9. The combination with the end framing of a box car, of an end door panel hinged to said framing and comprising a sheet metal element formed with corrugations pressed from the plane of the sheet, so as to provide a flat margin at the upper edge thereof, rigidifying members secured to the edges of said sheet metal element so as to extend transversely of said corrugations and locking means for engaging the margins of the door thus rigidified with the end framing of a car, which locking mechanism is arranged between the plane of said sheet metal element and the plane bounding the corrugations.

10. The combination with the end framing, of a box car, of an end door panel hinged to said framing, comprising a sheet metal element having corrugations pressed from the plane of the sheet which terminate within one edge of said sheet to leave a flat margin, a stiffening member attached to said margin on the side of said corrugations, and a locking member slidably mounted on said sheet metal element so as to move within the space between the ends of the corrugations of said stiffening member, said locking member being formed with a plurality of spaced bolts extending through said stiffening member and engaging the framing of the car.

11. The combination with the end framing of a box car, of an end door panel hinged to said framing, comprising a sheet metal element having corrugations pressed from the plane of the sheet which terminate within one edge of said sheet to leave a flat margin, a stiffening member attached to said margin on the side of said corrugations, a locking member slidably mounted on said sheet metal element so as to move within the space between the ends of the corrugations and said stiffening member, said locking member being formed with a plurality of spaced bolts extending through said stiffening member and engaging the framing of the car, an operating member, and a connection between the operating member and the locking member which extends through one of the spaces lying between a pair of adjacent corrugations.

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