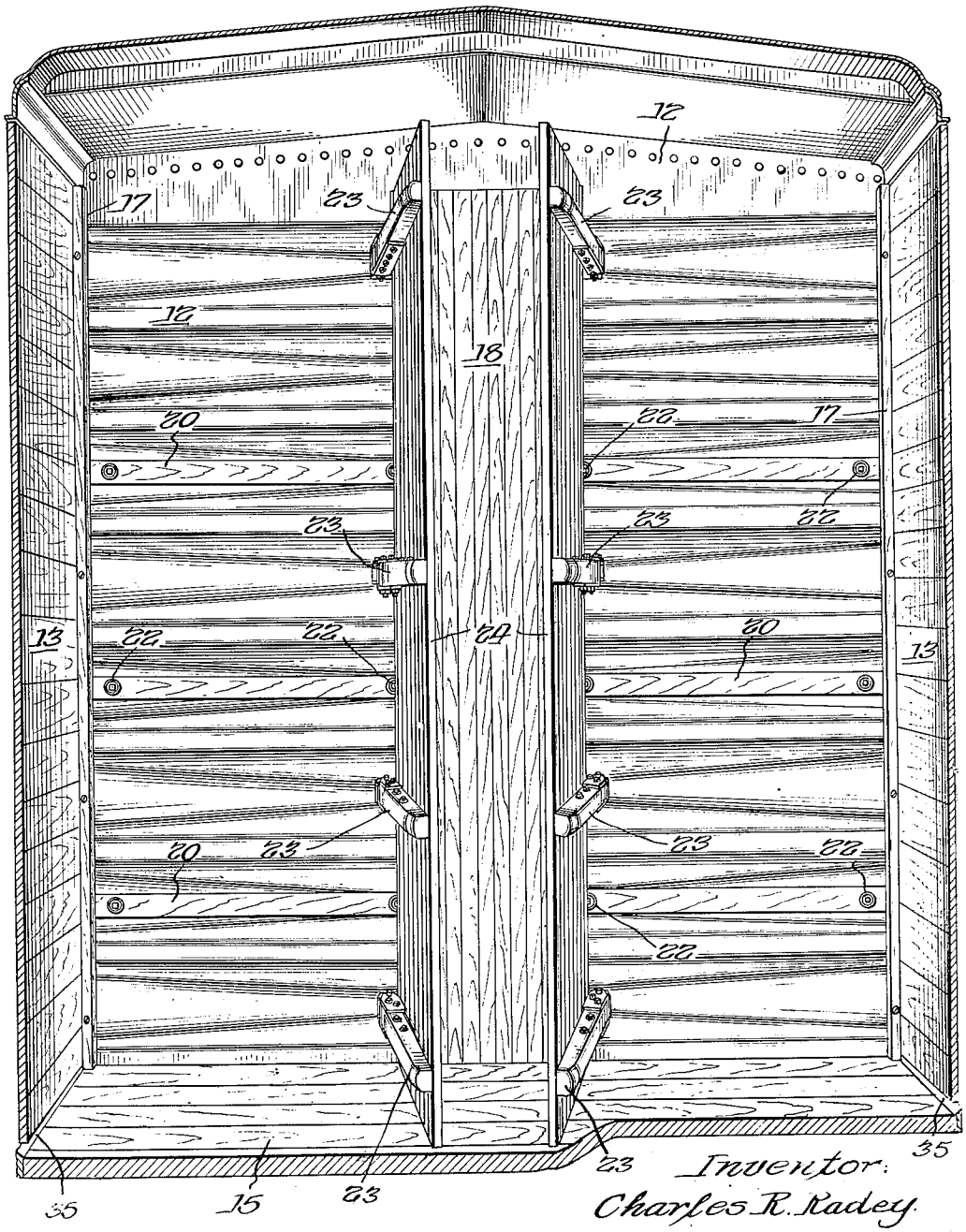
April 1, 1952 C. R. RADEY 2,591,006

RAILWAY CAR END LINING ARRANGEMENT

Filed Oct. 6, 1947 5 Sheets-Sheet 1

Fig. 1.



Inventor:
Charles R. Radey.

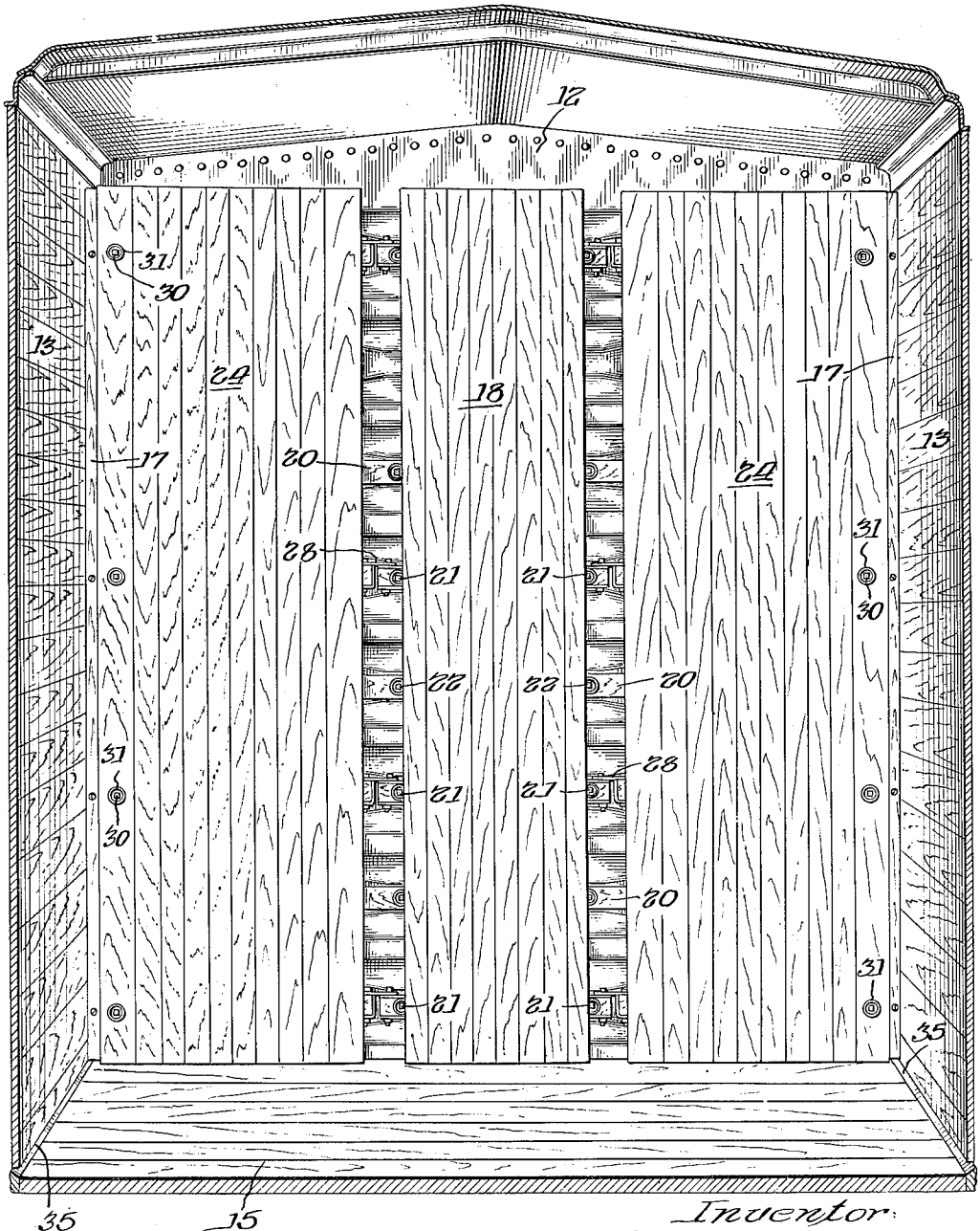
By Oscar Hoolberg.
Atty.

April 1, 1952 C. R. RADEY 2,591,006

RAILWAY CAR END LINING ARRANGEMENT

Filed Oct. 6, 1947 5 Sheets-Sheet 2

Fig. 2.



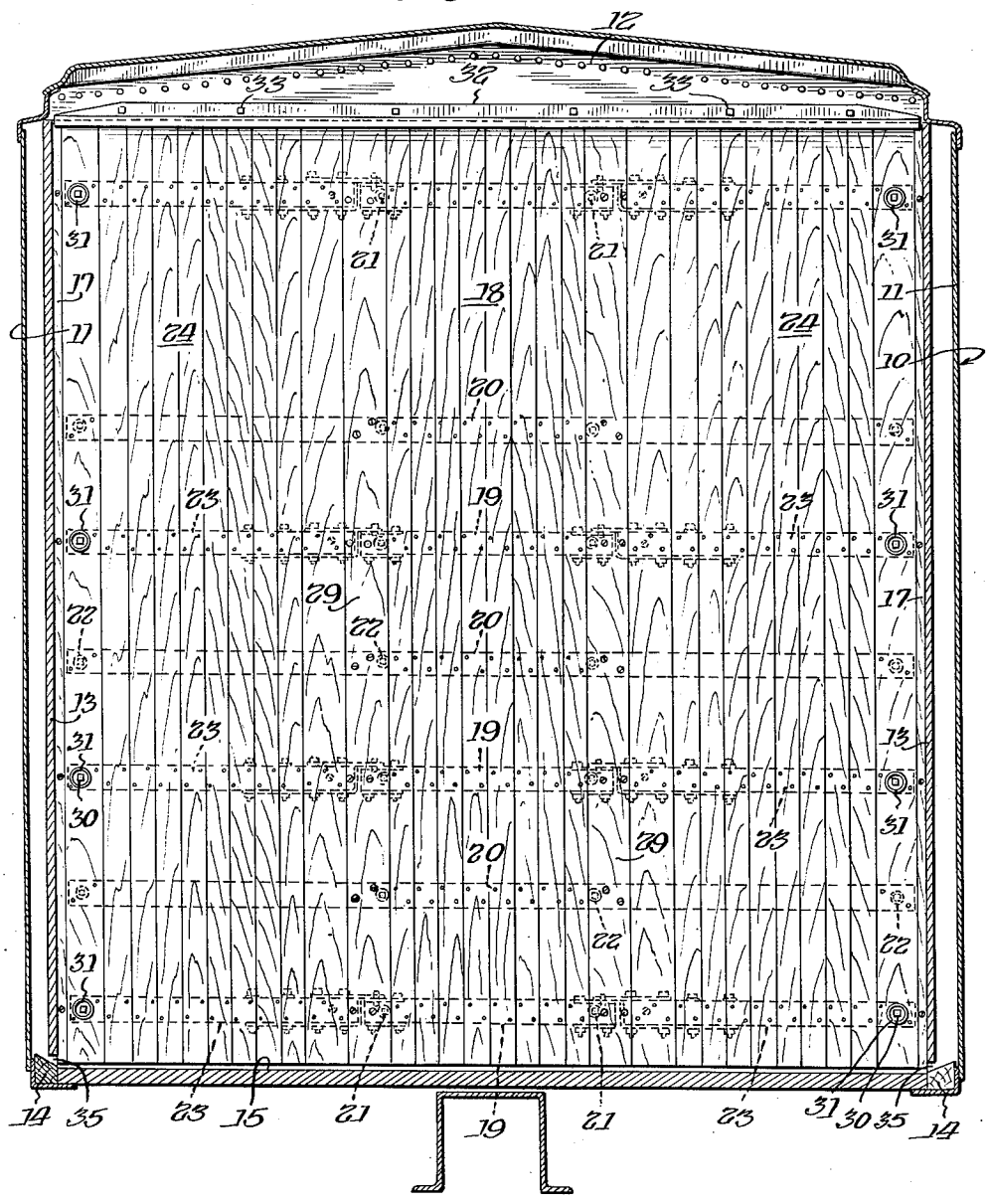
Inventor:
Charles R. Radey.
By: Oscar Hochberg
Atty.

April 1, 1952 C. R. RADEY 2,591,006

RAILWAY CAR END LINING ARRANGEMENT

Filed Oct. 6, 1947 5 Sheets-Sheet 3

Fig. 3.



Inventor:
Charles R. Radey.

By: Oscar Hochberg. Atty.

April 1, 1952 C. R. RADEY 2,591,006

RAILWAY CAR END LINING ARRANGEMENT

Filed Oct. 6, 1947 5 Sheets-Sheet 4

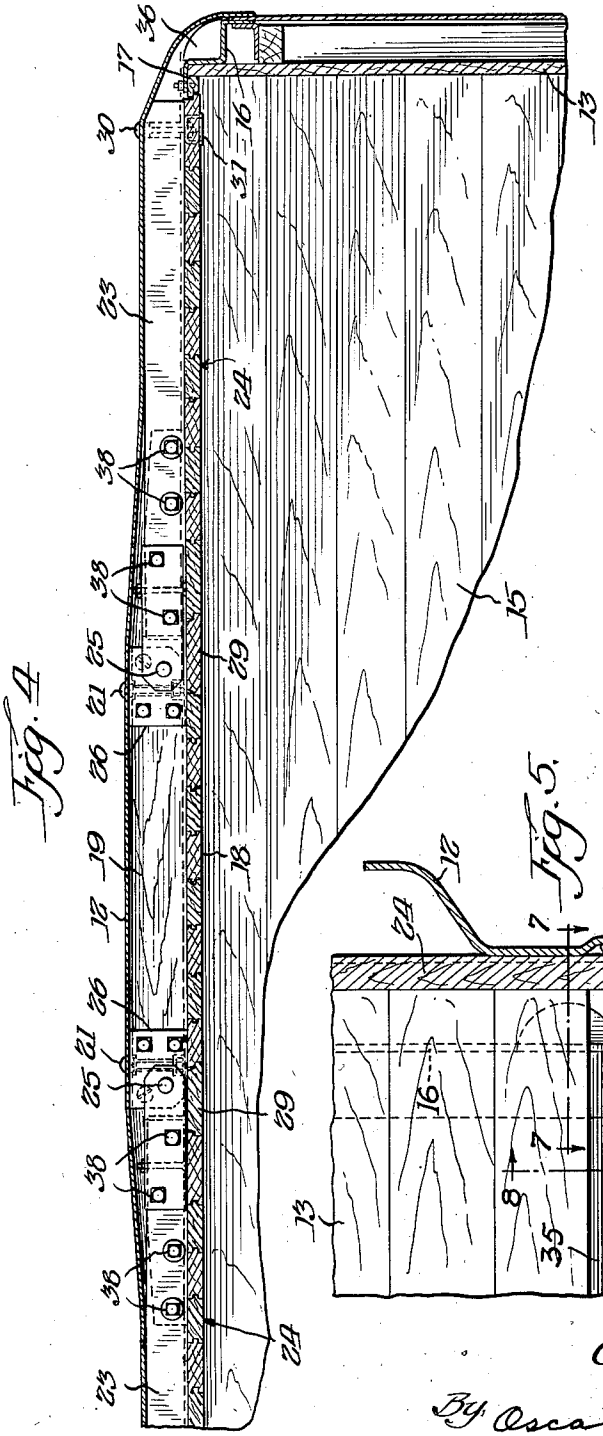


Fig. 4

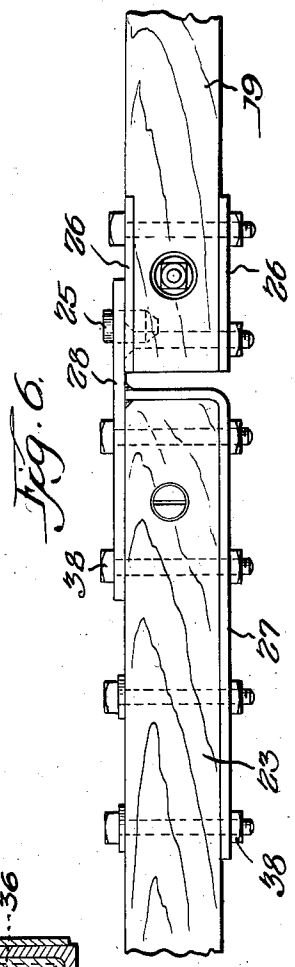


Fig. 6.

Fig. 5.

Inventor:
Charles R. Radey.
By Oscar Hochberg.
Atty.

April 1, 1952 C. R. RADEY 2,591,006

RAILWAY CAR END LINING ARRANGEMENT

Filed Oct. 6, 1947 5 Sheets-Sheet 5

Fig. 7.

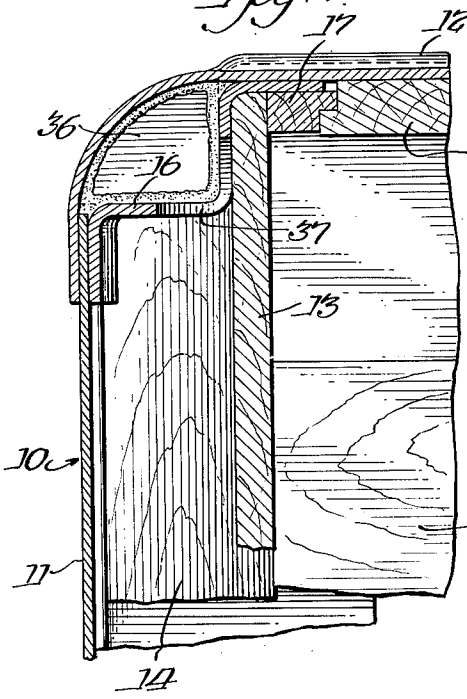
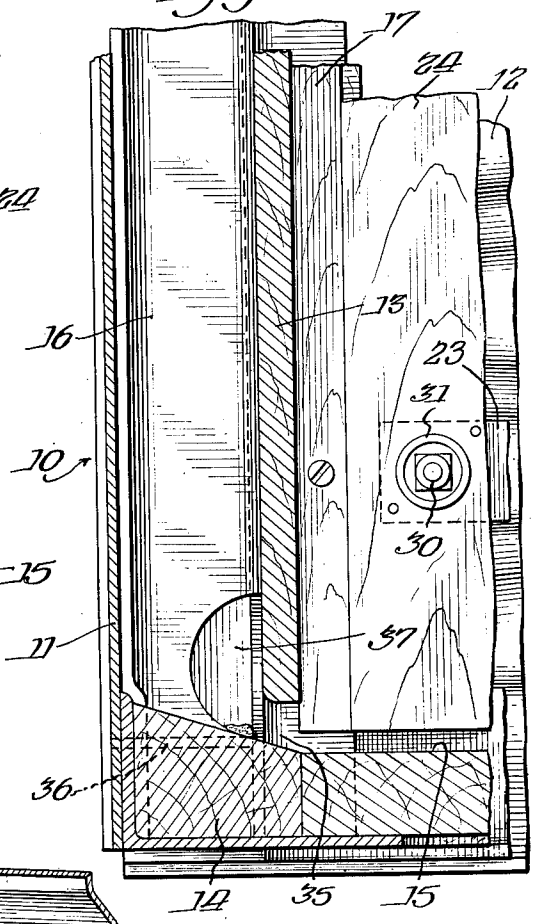


Fig. 8.



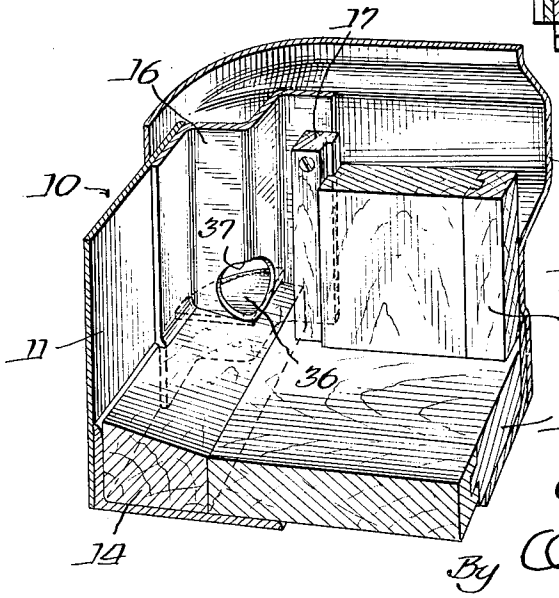


Fig. 9.

Inventor:
Charles R. Radey.
By Oscar Hochberg.
Atty.

Patented Apr. 1, 1952 2,591,006

UNITED STATES PATENT OFFICE

2,591,006

RAILWAY CAR END LINING ARRANGEMENT

Charles R. Radey, Michigan City, Ind., assignor to Pullman-Standard Car Manufacturing Company, Chicago, Ill., a corporation of Delaware

Application October 6, 1947, Serial No. 782,048

24 Claims. (Cl. 105—423)

1

This invention relates to railway freight cars and has particular reference to the type of railway box car having side and end walls provided with inside lining presenting smooth interior surfaces for contact with lading.

The principal object of the invention is the provision of end lining for box cars having portions adapted to be removed for cleaning the inside end wall area behind the lining.

An important object of the invention is realized in the provision of end lining portions for box cars which may be hinged for swinging movement inwardly, toward the center of the car.

Another object of the invention contemplates end wall lining for box cars, having spaced portions hingedly mounted for swinging movement inwardly of the car and separated by end lining portions fixedly secured to the end wall.

A still further object of the invention comprises the provision of hinged end lining members, spaced apart and separated by fixed lining portions and having separate lining members removably covering the hinge members for the removable lining portions.

The invention further contemplates hinged end wall lining members adapted to be removable from the hinge mountings.

The foregoing and other and more specific objects of the invention are attained by the construction and arrangement illustrated in the accompanying drawings, in which

Fig. 1 is a general interior perspective view of a railway box car equipped with the hinged end lining arrangement of this invention, and showing the hinged portions of the lining in their open positions swung toward the center of the car, away from the end and side walls;

Fig. 2 also is a general perspective view of the interior of the car, similar to Fig. 1 but illustrating the hinged portions of the end wall lining in their closed positions, with the hinge cover members of the end lining removed to reveal the hinge structure;

Fig. 3 is a cross sectional view through a box car equipped with the end lining of the present invention and showing the end lining in fully closed condition, ready for service, and having the removable hinge cover members secured in position, and the top Z-bar secured in position at the top of the lining for securely clamping the top edge of the lining against the end wall;

Fig. 4 is a plan sectional view of the end wall and lining structure showing the lining in fully closed condition and the hinge construction

2

swingingly supported the hinged portions of the lining;

Fig. 5 is a detail longitudinal sectional view at the bottom of the end wall and adjacent to the side wall, showding the arrangement of the corner post providing an opening for cleaning out this area of the end construction;

Fig. 6 is a detail elevational view of one of the hinge members for supporting the hinged portions of the end wall lining;

Fig. 7 is a plan sectional view taken on the line 7—7 of Fig. 5 through the corner post adjacent the lower end thereof showing the arrangement for cleaning out this area;

Fig. 8 is a vertical cross sectional view taken on the line 8—8 of Fig. 5 through the side wall adjacent the corner post showing the clean-out opening therein; and

Fig. 9 is a detail perspective view of the corner post construction at the floor line showing the clean-out opening for removing debris accumulated in the corner post area.

Railway box cars are used frequently for the shipment of grain, and the accumulation of such materials behind the inside linings of such cars comprises an ideal place for the breeding of insects which infest shipments of flour and grain carried in the cars, and it is the primary purpose of this invention to provide a construction wherein that portion of the car behind the end lining may be cleaned before each shipment of grain or cereal products.

In the drawings, 10 represents a railway box car having side walls 11 and end wall 12. The side walls are provided with inside lining 13 fixedly secured in place in accordance with the usual practice now prevailing, and as shown in Fig. 3, the side wall lining stops short of the floor whereby to afford an opening 35 by means of which the areas behind the side wall lining might be cleaned. A filler strip 14 is disposed in the side wall at the side sill position, and having a sloping upper surface adapted to facilitate the cleaning of this area. The members 14 are disposed substantially flush with the upper surface of the car floor 15.

The end wall 12 is comprised of one or more metal plate members having transversely extending parallel corrugations disposed throughout the full width of the end, and having hollow corner post members 16. At the inner side of the side lining 13, at each corner post, a lining strip 17 is fixed to the end wall through a flange of the corner post and serves as a jamb member for the swinging portion of the end wall lining. The

end lining is disposed in three sections across the full width of the end wall. The vertically disposed middle section 18 is fixedly secured to the end wall and normally is immovable. This portion of the end wall lining is secured by means of nails to short horizontally disposed furring strips 19 extending only in the area of the fixed portion of the lining and having a length substantially the same as the width of the vertically disposed portion 18 and secured to the corrugated end wall by means of stud rivet bolts 21 at opposite ends thereof and to relatively long horizontally disposed furring strips 20 extending substantially full width of the end wall and secured in the corrugations thereof, also by means of stud rivet bolts 22.

Vertically disposed swinging portions 24 of the end lining are hingedly mounted on opposite sides of the vertically disposed portion 18 to move away from the end wall adjacent the side wall and swing in opposite directions toward the center of the car, as best shown in Fig. 1 of the drawings. These hinged portions of the lining are secured by nailing to horizontally disposed furring strips 23, which serve as hinge butts and in the closed position of the end lining enter the corrugations of the end wall 12. It will be noted that the long furring strips 20 are disposed in alternate corrugations with respect to the furring strips 23. The furring strips 23 are in alignment with the furring strips 19 and the furring strips 23 enter the same corrugations in the end wall as occupied by the fixed portions 19 behind the permanently secured portion of the end lining 18 and are hingedly connected thereto, as best shown in Figs. 4 and 6.

The hinge construction for the movable portions of the end lining is best shown in Fig. 6 and comprises plate members 26 secured top and bottom at opposite ends of the furring members 19 by means of bolts, and having in the upper plate member a vertically disposed hinge pin 25. The hinge pins 25 on adjacent ends of the furring strips 19 are arranged in vertically spaced relation with respect to each other. The furring strips 23 have plate brackets 27, fabricated by welding, to provide portions engaging the furring members top and bottom and secured by means of bolts 38. The upper plate member of the hinge bracket is provided with a projecting portion 28 having an opening in the projecting end thereof extending over and resting upon the uppermost plate 26 on the fixed furring member 19, the opening receiving the hinge pin 25 to provide a hinge axis about which the swinging end lining is adapted to rotate. The horizontally disposed plates 28 on each of the swinging portions 24 are arranged in vertically spaced relation with respect to each other. As shown in the drawings, it will be seen that by the arrangement of the upper extension plate 28 on each of the hinge butts of the swinging lining portions, such lining portions may be removed entirely from the end wall 12 merely by lifting the hinge members 28 clear of the hinge pins 25.

The hinge structure throughout the height of the swinging portions of the end lining is concealed by removable end lining boards 29, which must be removed before the hinged portions of the lining may be swung to open position and reapplied after the swinging end lining portions have been moved to fully closed positions. These removable boards are releasably secured by means of wood screws entering the various furring strips in the end wall structure throughout

the height thereof, as best shown in Fig. 3. The swinging end lining portions are releasably secured in closed position by means of stud rivet bolts 30 secured in the metal end wall 12 and having cupped washers 31 entered through openings in the lining boards adapted to accommodate nuts threaded upon the projecting bolt ends to retain the lining in fixed position. Each of the swinging portions 24 is in aligned relation with respect to the vertically disposed portion 18 when in closed position. The bolts 30 and washers 31 are disposed at the positions of the respective furring members 23. When it is desired to open either one or both of the swinging portions of the end lining, the lining boards 29 are first removed, and then the nuts on the bolts 30 and the cupped washers 31 are removed, after which the end lining members may be freely swung to a fully open position. In the closed position of the end lining, a top Z-bar 32 is utilized at the upper edge of the lining to clamp all of the lining boards against the end wall, and is removably secured by means of bolts 33.

As best shown in Figs. 4 and 5, the corner post members are constructed to provide means for cleaning out these areas of the end wall structure. As best shown in Figs. 5, 7, 8 and 9, a relatively large opening 37 is provided in the web of the corner post opening toward the inside of the car, and immediately at the bottom of this opening, a metal plate 36, shaped to the web of the corner post and to the curvature of the end wall extending therearound, is secured by means of welding between the web of the corner post and the curved end wall portion, to prevent any material from gravitating into the area beneath the floor level. The plate 36 and the opening 37 are disposed immediately adjacent the level of the floor 15 so that any material accummulating in this area may readily be swept out or blown out by means of a high pressure air hose which may be utilized to blow any accumulation of debris out of these areas directly onto the floor of the car through the space afforded by the clearance between the side lining 13 and the top of the floor.

From the foregoing, it will be seen that there has been provided an end lining arrangement for railway box cars wherein fixed and relatively movable portions of the lining are provided whereby to afford means for cleaning the end wall area of any accummulations of dirt, dust or grain or similar matters before each trip in which a car might be used for the shipment of materials adapted to be contaminated by such elements, and wherein the movable portions of the end wall lining may be merely swung open as doors upon their hinges or removed in their entirety from the end wall structure, and readily secured without any projecting elements likely to contact the lading, and readily released when it is necessary to clean behind the lining.

What is claimed is:

1. In a railway box car having an end wall, an inside lining for the end wall comprising a fixed central portion secured to the end wall, relatively short furring strips behind said fixed central portion of the end lining, relatively movable side portions of the end lining disposed at opposite sides of said central portion, said movable lining portions each being of substantially less than half the width of said end wall and said fixed lining portion occupying the space between the movable portions, furring strips secured to said relatively movable lining portions, and hinged members connecting said furring strips

on the movable portions with said short furring strips, said short furring strips being secured to the end wall to support swingingly said movable side portions therefrom.

2. In a railway box car having an end wall, an inside lining for the end wall comprising a fixed central portion secured to the end wall, relatively short furring strips behind said fixed central portion of the end lining, relatively movable side portions of the end lining disposed at opposite sides of said central portion, said movable lining portions each being of substantially less than half the width of said end wall and said fixed lining portion occupying the space between the movable portions, furring strips secured to said relatively movable lining portions, hinged members connecting said furring strips on the movable portions with said short furring strips, said short furring strips being secured to the end wall to support swingingly said movable side portions therefrom removable end lining members covering said hinged mountings, and releasable means securing said relatively movable lining portions in closed position.

3. In a railway box car having side and end walls and a floor, provided with an end lining comprising fixed and relatively movable portions, corner posts normally open to the end wall area behind said lining, horizontal plate members in the corner post areas substantially on a level with said floor, and an opening in each of said corner posts substantially at the same level as the top of said horizontal plate members providing communication of the interior portion of the corner posts above said plates with the interior of said car.

4. In a railway box car having side and end walls and a floor, an end wall lining having a relatively movable portion, a hollow corner post normally open to the end wall area behind said lining, a horizontal plate member in the hollow portion of said corner post substantially coincident with the level of said floor sealing off the post substantially at the same level as the top of said horizontal plate member area beneath said level, and an opening in the post providing communication of the hollow interior thereof with the car interior above said level.

5. In a railway box car having a side wall and an end wall and a floor, a corner post at the juncture of the side and end walls, said end wall having corrugations extending into said corner post, an end wall lining including a portion movable relatively to the end wall, said corner post being normally open to the area behind said lining through said corrugations, a horizontal plate in the corner post extending between the post and the end wall and substantially coincident with the level of the floor, said plate being continuously welded to the post and end wall below said corrugations to seal off the post area beneath said level, and an opening in the post substantially at the same level as the top of said horizontal plate communicating with the interior of the car above said level.

6. In a railway box car having side walls, an end wall and a floor, corner posts at the junctures of said side and end walls, said end wall having corrugations extending in overlapping relation to the corner posts, an end wall lining having relatively movable portions hingedly mounted for swinging movement away from the end wall, said corrugations extending into the corner posts leaving the posts normally open to the end wall area behind said lining, a horizontal plate in each corner post continuously welded between the end wall and the respective corner posts below said corrugations substantially coincident with the level of said floor whereby to seal off the post areas beneath said level, and an opening in each post substantially at the same level as the top of said plate communicating with the interior of the car above said level.

7. In a railway box car having side walls, an end wall and a floor, corner posts at the junctures of said side and end walls, said end wall having a plurality of horizontal corrugations extending continuously across the end in overlapping relation to the respective corner posts, an end wall lining comprising a fixed central portion secured to the end wall and relatively movable side portions at opposite sides of the central portion pivotally mounted for swinging movement inwardly away from the end wall, relatively short furring strips mounted in certain of said corrugations behind the fixed central portion of the end lining, furring strips mounted in certain other of the corrugations extending behind the fixed and movable portions of the lining, furring strips on the movable lining portions in alignment with said short furring strips, cooperating hinge elements mounted respectively on the last-named furring strips and said short strips for hingedly supporting said movable lining portions, said corner posts being normally open to the area behind said lining through said corrugations, a horizontal plate in each corner post continuously welded between the end wall and the respective corner posts below said corrugations substantially coincident with the level of said floor whereby to seal off the post areas beneath said level, and an opening in each post substantially at the same level as the top of said plate communicating with the interior of the car above said level.

8. In a railway box car having side walls, an end wall and a floor, corner posts at the junctures of said side and end walls, said end wall having a plurality of horizontal corrugations extending in overlapping relation to the respective corner posts, an end wall lining comprising a fixed central portion secured to the end wall and relatively movable side portions at opposite sides of the central portion hingedly mounted for swinging movement inwardly away from the end wall, said corner posts being normally open to the area behind said lining through said corrugations, a horizontal plate in each corner post continuously welded between the end wall and the respective corner posts below said corrugations substantially coincident with the level of said floor whereby to seal off the post areas beneath said level, and an opening in each post substantially at the same level as the top of said plate communicating with the interior of the car above said level.

9. In a railway box car having side walls, an end wall and a floor, corner posts at the junctures of said side and end walls, said end wall having a plurality of horizontal corrugations extending continuously across the end between the corner posts, an end wall lining comprising a fixed central portion secured to the end wall and relatively movable side portions at opposite sides of the central portion pivotally mounted for swinging movements inwardly away from the end wall, said movable lining portions each being of substantially less than half the width of said end wall and said fixed lining portion occupying the space between the movable portions, relatively

short furring strips mounted in certain of said corrugations behind the fixed central portion of the end lining, furring strips mounted in certain other of the corrugations extending behind the fixed and movable portions of the lining, furring strips on the movable lining portions in alignment with said short furring strips adapted to be disposed in the same corrugations therewith against the end wall, and cooperating hinge elements mounted respectively on the last-named furring strips and said short strips for hingedly supporting said movable lining portions, said hinge elements being separable whereby the movable lining portions may be removed from the end wall.

10. In a railway box car having side walls, an end wall and a floor, corner posts at the junctures of said side and end walls, said end wall having a plurality of horizontal corrugations extending continuously across the end between the corner posts, and end wall lining comprising a fixed central portion secured to the end wall and relatively movable side portions at opposite sides of the central portion pivotally mounted for swinging movements inwardly away from the end wall, said movable lining portions each being of substantially less than half the width of said end wall and said fixed lining portion occupying the space between the movable portions, relatively short furring strips mounted in certain of said corrugations behind the fixed central portion of the end lining, furring strips on the movable lining portions in alignment with said short furring strips adapted to be disposed in the same corrugations therewith against the end wall, and cooperating hinge elements mounted respectively on the last-named furring strips and said short strips for hingedly supporting said movable lining portions.

11. In a railway box car having side walls and an end wall, an end wall lining comprising a fixed central portion secured to the end wall and relatively movable side portions at opposite sides of the central portion pivotally mounted for swinging movement inwardly away from the end wall, said movable lining portions each being of substantially less than half the width of said end wall and said fixed lining portion occupying the space between the movable portions, and hinge members between said central portion and the respective side portions.

12. In a railway box car having side walls and an end wall, an end wall lining comprising a fixed central portion secured to the end wall and relatively movable side portions at opposite sides of the central portion pivotally mounted for swinging movement inwardly away from the end wall, said movable lining portions each being of substantially less than half the width of said end wall and said fixed lining portion being relatively narrow with respect to the movable portions, hinge members between said central portion and the respective side portions, and removable end lining members between the respective movable portions and the fixed central portion covering said hinge members.

13. In a railway box car having side walls and an end wall, an end wall lining comprising a fixed central portion secured to the end wall and relatively movable side portions at opposite sides of the central portion pivotally mounted for swinging movement inwardly away from the end wall, said movable lining portions each being substantially one third the width of said end wall and said fixed lining portion being relatively narrow with respect to the movable portions, hinge members supporting the side portions for said swinging movement, and removable lining members between the respective lining portions and the fixed central portion covering said hinge members.

14. In a railway box car having side walls and an end wall, a lining arrangement for the end wall comprising swinging portions hingedly mounted on the end wall for movement in opposite directions away from the end wall, each of said portions being substantially one third the width of said end wall, and a fixed lining portion secured to the end wall between said swinging portions, the hinge mounting of each of said swinging portions being adjacent one of the outer margins of said fixed lining portion.

15. In a railway box car having side and end walls, a lining arrangement for the end wall comprising swinging portions of the lining hingedly mounted on the end wall and adapted to swing inwardly away from the side walls toward the longitudinal center of the car, a fixed end lining portion secured to the end wall between said movable portions separating said portions substantially at the longitudinal center of the car, said movable lining portions each being substantially one-third the width of said end wall and said fixed lining portion being relatively narrow with respect to the movable portions, and removable end lining members between the respective movable lining portions and the fixed central portion covering said hinged mountings.

16. In a railway box car having an end wall, a lining for the end wall comprising a first vertically disposed portion positioned interiorly of said railway box car and centrally of said end wall and spaced from said end wall and fixedly secured thereto, a second vertically disposed portion positioned on one side of said first vertically disposed portion and pivotally connected thereto, a third vertically disposed portion positioned on the other side of said first vertically disposed portion and pivotally connected thereto, said second and third vertically disposed portions each being substantially one-third the width of said end wall, said second vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said third vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position, means for holding said second vertically disposed portion in closed position, and means for holding said third vertically disposed portion in closed position.

17. In a railway box car having an end wall, a lining for the end wall comprising a first vertically disposed portion positioned interiorly of said railway box car and centrally of said end wall and spaced from said end wall, a first plurality of horizontally disposed furring strips having a length substantially the same as the width of said first vertically disposed portion positioned between said first vertically disposed portion and said end wall and secured to said first vertically disposed portion and said end wall, a second vertically disposed portion positioned on one side of said first vertically disposed portion, a second plurality of horizontally disposed furring strips positioned on the face of said second vertically disposed portion adjacent said first plurality of horizontally disposed furring strips and secured to said second vertically disposed portion and each of said second plurality of horizontally dis-

posed furring strips being in alignment with the adjacent one of said first plurality of horizontally disposed furring strips and the ends of said second plurality of horizontally disposed furring strips adjacent said first plurality of horizontally disposed furring strips being pivotally connected to the adjacent ends of said first plurality of horizontally disposed furring strips, a third vertically disposed portion positioned on the other side of said first vertically disposed portion, a third plurality of horizontally disposed furring strips positioned on the face of said third vertically disposed portion adjacent said first plurality of horizontally disposed furring strips and secured to said third vertically disposed portion and each of said third plurality of horizontally disposed furring strips being in alignment with the adjacent one of said first plurality of horizontally disposed furring strips and the ends of said third plurality of horizontally disposed furring strips adjacent said first plurality of horizontally disposed furring strips being pivotally connected to the adjacent ends of said first plurality of horizontally disposed furring strips, said second and third vertically disposed portions each being substantially one-third the width of said end wall, said second vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said third vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position, means for holding said second vertically disposed portion in closed position, and means for holding said third vertically disposed portion in closed position.

18. In a railway box car having an end wall having a plurality of horizontal corrugations extending continuously across its full width, a lining for the end wall comprising a first vertically disposed portion positioned interiorly of said railway box car and centrally of said end wall and spaced from said end wall, a first plurality of horizontally disposed furring strips having a length substantially the same as the width of said first vertically disposed portion positioned between said first vertically disposed portion and said end wall in said corrugations and secured to said first vertically disposed portion and said end wall, a second vertically disposed portion positioned on one side of said first vertically disposed portion, a second plurality of horizontally disposed furring strips positioned on the face of said second vertically disposed portion adjacent said first plurality of horizontally disposed furring strips and secured to said second vertically disposed portion and each of said second plurality of horizontally disposed furring strips being in alignment with the adjacent one of said first plurality of horizontally disposed furring strips and the ends of said second plurality of horizontally disposed furring strips adjacent said first plurality of horizontally disposed furring strips being pivotally connected to the adjacent ends of said first plurality of horizontally disposed furring strips, a third vertically disposed portion positioned on the other side of said first vertically disposed portion, a third plurality of horizontally disposed furring strips positioned on the face of said third vertically disposed portion adjacent said first plurality of horizontally disposed furring strips and secured to said third vertically disposed portion and each of said third plurality of horizontally disposed furring strips being in alignment with the adjacent one of said first plurality of horizontally disposed furring strips and the ends of said third plurality of horizontally disposed furring strips adjacent said first plurality of horizontally disposed furring strips being pivotally connected to the adjacent ends of said first plurality of horizontally disposed furring strips, said second and third vertically disposed portions each being substantially one third the width of said end wall, said second vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said second plurality of horizontally disposed furring strips being disposed in the same corrugations as said first plurality of horizontally disposed furring strips when said second vertically disposed portion is in closed position and said third vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said third plurality of horizontally disposed furring strips being disposed in the same corrugations as said first plurality of horizontally disposed furring strips when said third vertically disposed portion is in closed position, means for holding said second vertically disposed portion in closed position, and means for holding said third vertically disposed portion in closed position.

19. In a railway box car having an end wall, a lining for the end wall comprising a first vertically disposed portion positioned interiorly of said railway box car and centrally of said end wall and spaced from said end wall, a first plurality of horizontally disposed spaced furring strips extending substantially the full width of said end wall positioned between said first vertically disposed portion and said end wall and secured to said end wall, a second vertically disposed portion positioned on one side of said first vertically disposed portion and pivotally connected thereto, a second plurality of horizontally disposed spaced furring strips positioned on the face of said second vertically disposed portion adjacent said first plurality of horizontally disposed furring strips and secured to said second vertically disposed portion, a third vertically disposed portion positioned on the other side of said first vertically disposed portion and pivotally connected thereto, a third plurality of horizontally disposed spaced furring strips positioned on the face of said third vertically disposed portion adjacent said first plurality of horizontally disposed furring strips and secured to said third vertically disposed portion, said second and third vertically disposed portions each being substantially one third the width of said end wall, said second vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said second plurality of horizontally disposed furring strips being positioned between said first plurality of horizontally disposed furring strips when said second vertically disposed portion is in closed position and said third vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said third plurality of horizontally disposed furring strips being positioned between said first plurality of horizontally disposed furring strips when said third vertically disposed portion is in closed position, means for holding said second vertically disposed portion in closed position, and means for holding said third vertically disposed portion in closed position.

20. In a railway box car having an end wall, a lining for the end wall comprising a first ver-

tically disposed portion positioned interiorly of said railway box car and centrally of said end wall and spaced from said end wall, a first plurality of horizontally disposed spaced furring strips extending substantially the full width of said end wall positioned between said first vertically disposed portion and said end wall and secured to said end wall, a second plurality of horizontally disposed spaced furring strips having a length substantially the same as the width of said first vertically disposed portion positioned between said first vertically disposed portion and said end wall and positioned between said first plurality of horizontally disposed furring strips and secured to said first vertically disposed portion and said end wall, a second vertically disposed portion positioned on one side of said first vertically disposed portion, a third plurality of horizontally disposed spaced furring strips positioned on the face of said second vertically disposed portion adjacent said second plurality of horizontally disposed furring strips and secured to said second vertically disposed portion and each of said third plurality of horizontally disposed furring strips being in alignment with the adjacent one of said second plurality of horizontally disposed furring strips and the ends of said third plurality of horizontally disposed furring strips adjacent said second plurality of horizontally disposed furring strips being pivotally connected to the adjacent ends of said second plurality of horizontally disposed furring strips, a third vertically disposed portion positioned on the other side of said first vertically disposed portion, a fourth plurality of horizontally disposed spaced furring strips positioned on the face of said third vertically disposed portion adjacent said second plurality of horizontally disposed furring strips and secured to said third vertically disposed portion and each of said fourth plurality of horizontally disposed furring strips being in alignment with the adjacent one of said second plurality of horizontally disposed furring strips and the ends of said fourth plurality of horizontally disposed furring strips adjacent said second plurality of horizontally disposed furring strips being pivotally connected to the adjacent ends of said second plurality of horizontally disposed furring strips, said second and third vertically disposed portions each being substantially one third the width of said end wall, said second vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said third plurality of horizontally disposed furring strips being positioned between said first plurality of horizontally disposed furring strips when said second vertically disposed portion is in closed position and said third vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said fourth plurality of horizontally disposed furring strips being positioned between said first plurality of horizontally disposed furring strips when said third vertically disposed portion is in closed position, means for holding said second vertically disposed portion in closed position, and means for holding said third vertically disposed portion in closed position.

21. In a railway box car having an end wall having a plurality of horizontal corrugations extending continuously across its full width, a lining for the end wall comprising a first vertically disposed portion positioned interiorly of said railway box car and centrally of said end wall and spaced from said end wall, a first plurality of horizontally disposed spaced furring strips extending substantially the full width of said end wall positioned between said first vertically disposed portion and said end wall in certain of said corrugations and secured to said end wall, a second plurality of horizontally disposed spaced furring strips having a length substantially the same as the width of said first vertically disposed portion positioned between said first vertically disposed portion and said end wall in certain other of said corrugations and secured to said first vertically disposed portion and said end wall, a second vertically dispossed portion positioned on one side of said first vertically disposed portion, a third plurality of horizontally disposed spaced furring strips positioned on the face of said second vertically disposed portion adjacent said second plurality of horizontally disposed furring strips and secured to said second vertically disposed portion and each of said third plurality of horizontally disposed furring strips being in alignment with the adjacent one of said second plurality of horizontally disposed furring strips and the ends of said third plurality of horizontally disposed furring strips adjacent said second plurality of horizontally disposed furring strips being pivotally connected to the adjacent ends of said second plurality of horizontally disposed furring strips, a third vertically disposed portion positioned on the other side of said first vertically disposed portion, a fourth plurality of horizontally disposed spaced furring strips positioned on the face of said third vertically disposed portion adjacent said second plurality of horizontally disposed furring strips and secured to said third vertically disposed portion and each of said fourth plurality of horizontally disposed furring strips being in alignment with the adjacent one of said second plurality of horizontally disposed furring strips and the ends of said fourth plurality of horizontally disposed furring strips adjacent said second plurality of horizontally disposed furring strips being pivotally connected to the adjacent ends of said second plurality of horizontally disposed furring strips, said second and third vertically disposed portions each being substantially one third the width of said end wall, said second vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said third plurality of horizontally disposed furring strips being positioned between said first plurality of horizontally disposed furring strips in said certain other of said corrugations when said second vertically disposed portion is in closed position and said third vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said fourth plurality of horizontally disposed furring strips being positioned between said first plurality of horizontally disposed furring strips in said certain other of said corrugations when said third vertically disposed portion is in closed position, means for holding said second vertically disdisposed portion in closed position, and means for holding said third vertically disposed portion in closed position.

22. In a railway box car having an end wall, a lining for the end wall comprising a first vertically disposed portion positioned interiorly of said railway box car and centrally of said end wall and spaced from said end wall and fixedly

secured thereto, a first plurality of vertically disposed pins arranged in vertically spaced relation with respect to each other adjacent one side of said first vertically disposed portion and having their lower ends secured to said end wall, a second vertically disposed portion positioned on said one side of said first vertically disposed portion, a first plurality of horizontally disposed plates arranged in vertically spaced relation with respect to each other and secured to said second vertically disposed portion and each of said first plurality of horizontally disposed plates being provided with an opening therein adapted to receive the upper end of the adjacent one of said first plurality of vertically disposed pins, said first plurality of vertically disposed pins and said first plurality of horizontally disposed plates pivotally connecting said second vertically disposed portion to said end wall, a second plurality of vertically disposed pins arranged in vertically spaced relation with respect to each other adjacent the other side of said first vertically disposed portion and having their lower ends secured to said end wall, a third vertically disposed portion positioned on said other side of said first vertically disposed portion, a second plurality of horizontally disposed plates arranged in vertically spaced relation with respect to each other and secured to said third vertically disposed portion and each of said second plurality of horizontally disposed plates being provided with an opening therein adapted to receive the upper end of the adjacent one of said second plurality of vertically disposed pins, said second plurality of vertically disposed pins and said second plurality of horizontally disposed plates pivotally connecting said third vertically disposed portion to said end wall, said second and third vertically disposed portions each being substantially one-third the width of said end wall, said second vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said third vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position, means for holding said second vertically disposed portion in closed position, and means for holding said third vertically disposed portion in closed position.

23. In a railway box car having an end wall, a lining for the end wall comprising a first vertically disposed portion positioned interiorly of said railway box car and centrally of said end wall and spaced from said end wall and fixedly secured thereto, a first plurality of vertically disposed pins arranged in vertically spaced relation with respect to each other and having their lower ends secured to said first vertically disposed portion adjacent one side thereof, a second vertically disposed portion having one side positioned on said one side of said first vertically disposed portion, a first plurality of horizontally disposed plates arranged in vertically spaced relation with respect to each other and each being secured to said one side of said second vertically disposed portion and having one end projecting from said one side of said second vertically disposed portion and the projecting end of each of said first plurality of horizontally disposed plates being provided with an opening therein adapted to receive the upper end of the adjacent one of said first plurality of vertically disposed pins, said first plurality of vertically disposed pins and said first plurality of horizontally disposed plates pivotally connecting said second vertically disposed portion to said first vertically disposed portion, a second plurality of vertically disposed pins arranged in vertically spaced relation with respect to each other and having their lower ends secured to said first vertically disposed portion adjacent the other side thereof, a third vertically disposed portion having one side positioned on said other side of said first vertically disposed portions, a second plurality of horizontally disposed plates arranged in vertically spaced relation with respect to each other and each being secured to said one side of said third vertically disposed portion and having one end projecting from said one side of said third vertically disposed portion and the projecting end of each of said second plurality of horizontally disposed plates being provided with an opening therein adapted to receive the upper end of the adjacent one of said second plurality of vertically disposed pins, said second plurality of vertically disposed pins and said second plurality of horizontally disposed plates pivotally connecting said third vertically disposed portion to said first vertically disposed portion, said second and third vertically disposed portions each being substantially one-third the width of said end wall, said second vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said third vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position, means for holding said second vertically disposed portion in closed position, and means for holding said third vertically disposed portion in closed position.

24. In a railway box car having an end wall, a lining for the end wall comprising a first vertically disposed portion positioned interiorly of said railway box car and centrally of said end wall and spaced from said end wall, a first plurality of horizontally disposed furring strips having a length substantially the same as the width of said first vertically disposed portion positioned between said first vertically disposed portion and said end wall and secured to said first vertically disposed portion and said end wall, a vertically disposed pin positioned upon each of said first plurality of horizontally disposed furring strips adjacent one end thereof and having its lower end secured to its respective furring strip, a second vertically disposed portion positioned on one side of said first vertically disposed portion, a second plurality of horizontally disposed furring strips positioned on the face of said second vertically disposed portion adjacent said first plurality of horizontally disposed furring strips and sescured to said second vertically disposed portion and each of said second plurality of horizontally disposed furring strips being in alignment with the adjacent one of said first plurality of horizontally disposed furring strips, a horizontally disposed plate positioned upon each of said second plurality of horizontally disposed furring strips adjacent the end of the respective furring strip adjacent said first vertically disposed portion and secured to its respective furring strip and having one end projecting from said end of the respective furring strip adjacent said first vertically disposed portion and said projecting end of said horizontally disposed plate being provided with an opening therein adapted to receive the upper end of the adjacent vertically disposed pin, said vertically disposed pins and said horizontally disposed plates pivotally connecting said second vertically disposed portion to said first

vertically disposed portion, a vertically disposed pin positioned upon each of said first plurality of horizontally disposed furring strips adjacent the other end thereof and having its lower end secured to its respective furring strip, a third vertically disposed portion on the other side of said first vertically disposed portion, a third plurality of horizontally disposed furring strips positioned on the face of said third vertically disposed portion adjacent said first plurality of horizontally disposed furring strips and secured to said third vertically disposed portion and each of said third plurality of horizontally disposed furring strips being in alignment with the adjacent one of said first plurality of horizontally disposed furring strips, a horizontally disposed plate positioned upon each of said third plurality of horizontally disposed furring strips adjacent the end of the respective furring strip adjacent said first vertically disposed portion and secured to its respective furring strip and having one end projecting from said end of the respective furring strip adjacent said first vertically disposed portion and said projecting end of said horizontally disposed plate being provided with an opening therein adapted to receive the upper end of the adjacent

vertically disosed pin, said last named vertically disposed pins and said last named horizontally disposed plates pivotally connecting said third vertically disposed portion to said first vertically disposed portion, said second and third vertically disposed portions each being substantially one third the width of said end wall, said second vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position and said third vertically disposed portion being in aligned relation with respect to said first vertically disposed portion when in closed position, means for holding said second vertically disposed portion in closed position, and means for holding said third vertically disposed portion in closed position.

CHARLES R. RADEY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,300,449	Rowe	Nov. 3, 1942
2,308,025	Purcell	Jan. 12, 1943