Jan. 12, 1943. J. PURCELL 2,308,025

HOUSE CAR END WALL LINING

Filed Nov. 28, 1941 3 Sheets-Sheet 1

Fig. 1.

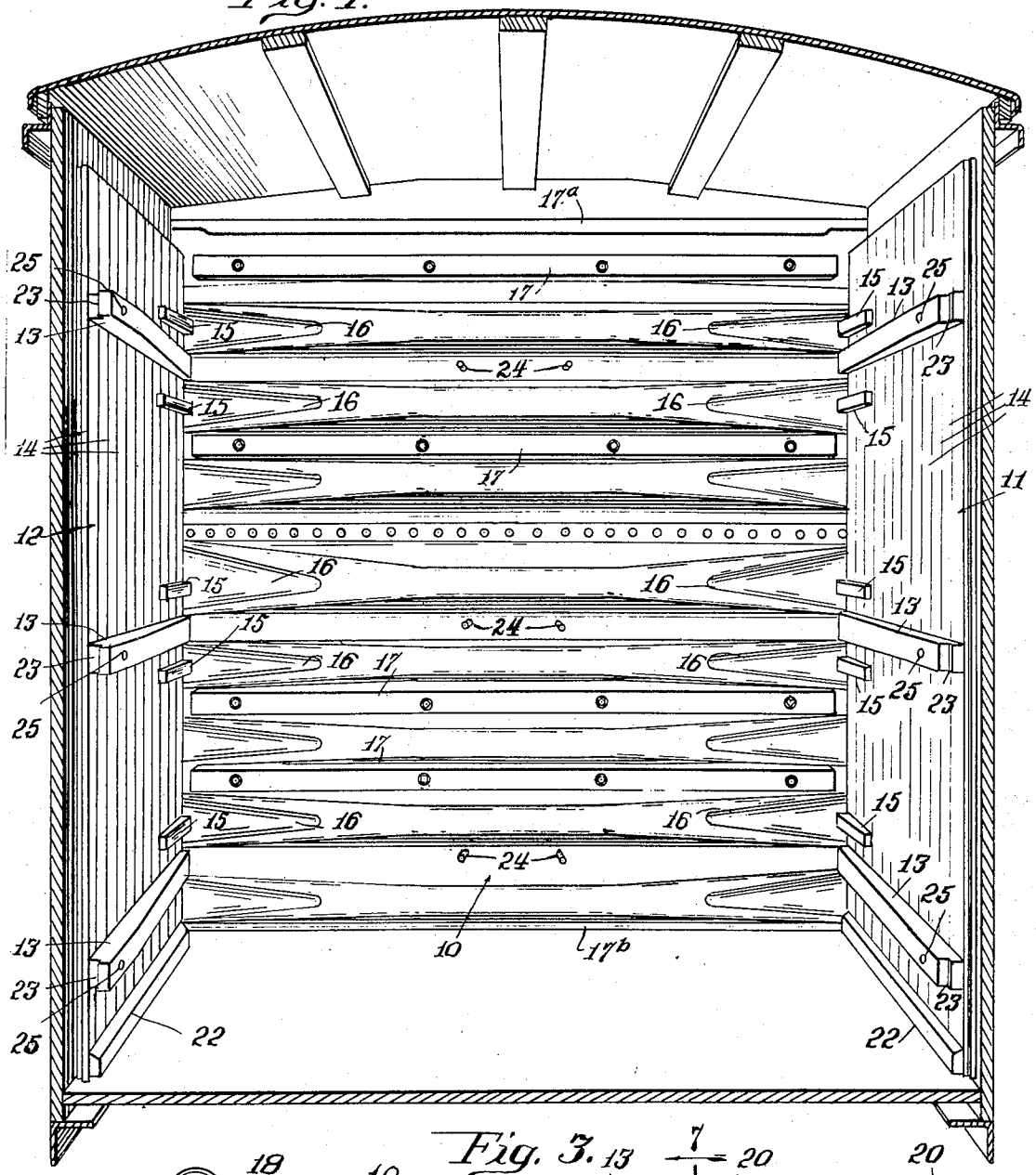
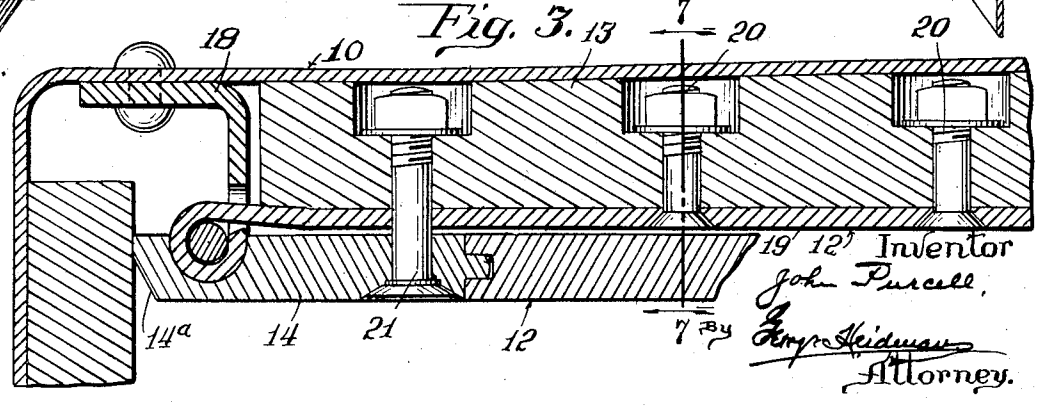


Fig. 3.



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Fig. 2.

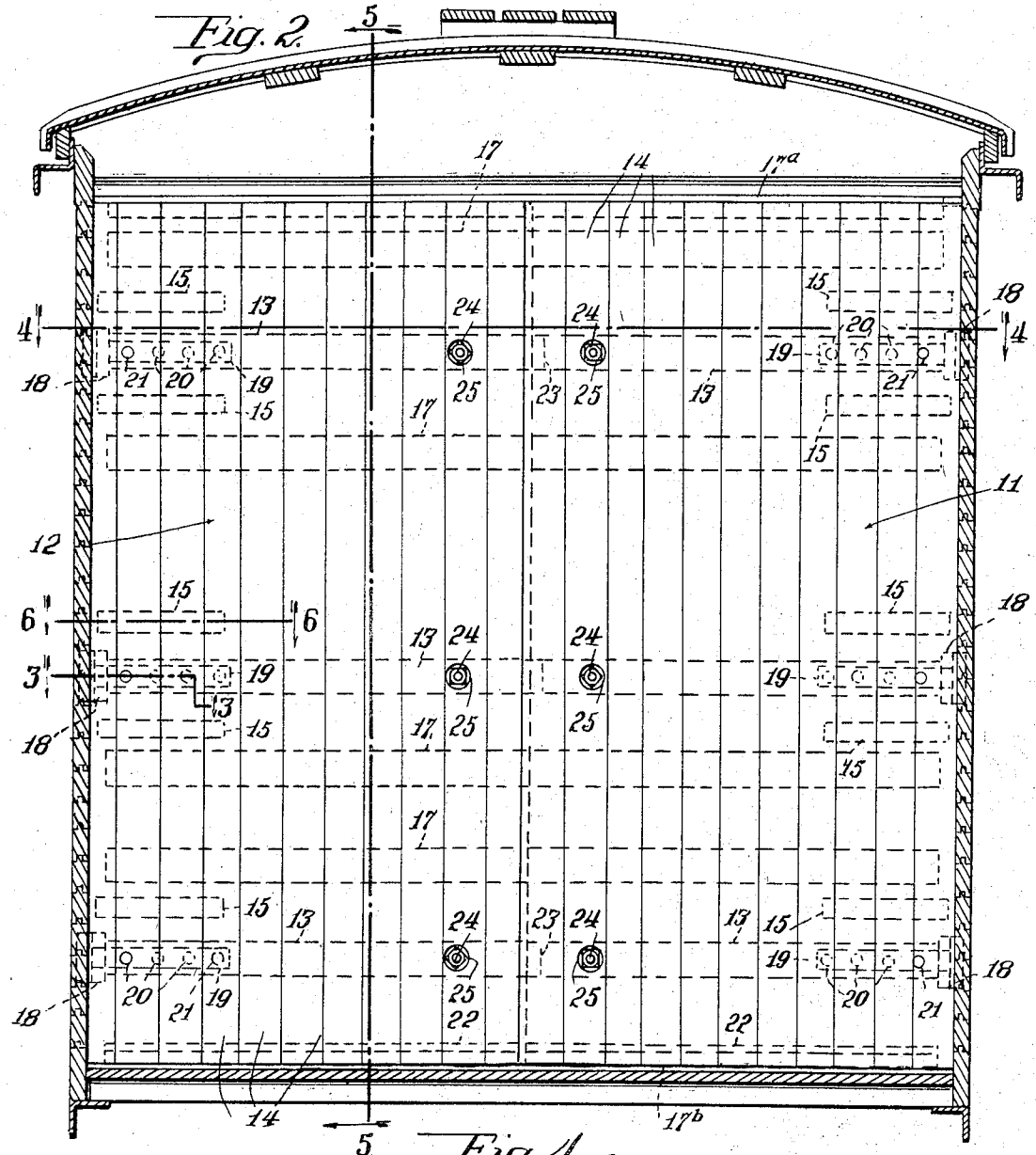
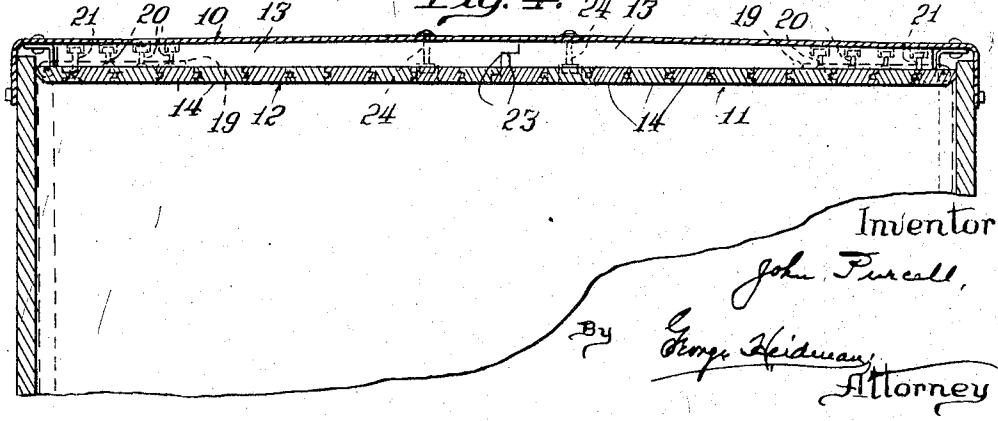


Fig. 4.



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Fig. 5

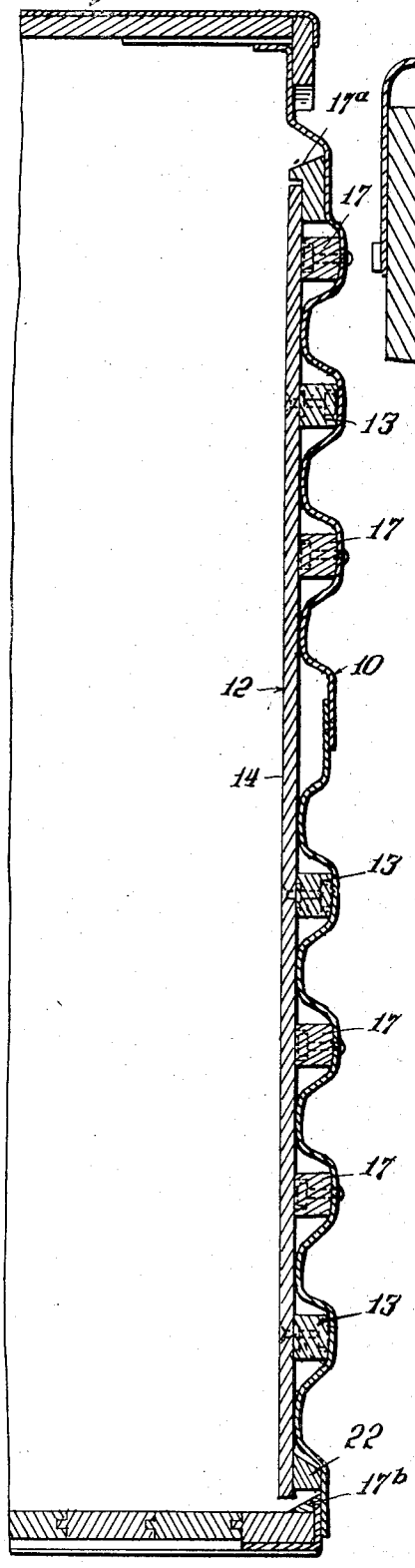


Fig. 6.

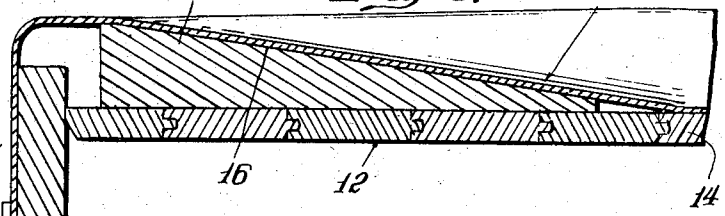
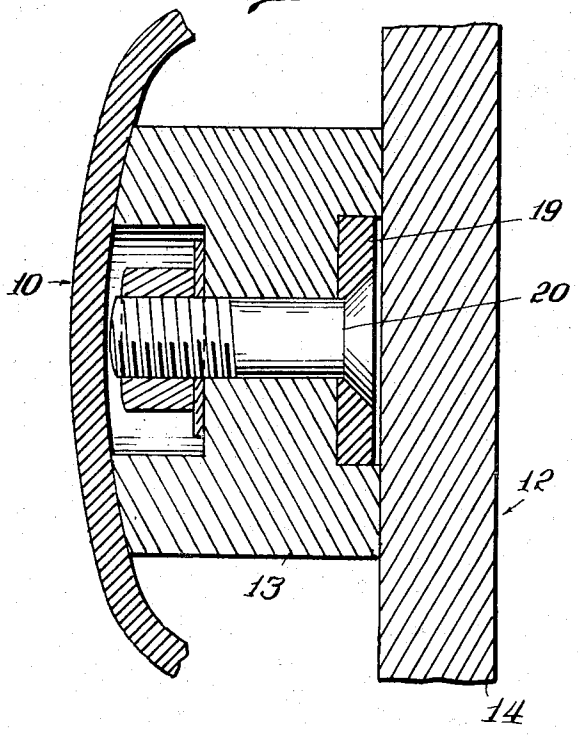


Fig. 7.



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Patented Jan. 12, 1943 2,308,025

UNITED STATES PATENT OFFICE

2,308,025

HOUSE CAR END WALL LINING

John Purcell, Topeka, Kans.

Application November 28, 1941, Serial No. 420,774

7 Claims. (Cl. 105—423)

My invention contemplates an end wall lining for railroad box or house cars which preferably consists of separately formed sections which are hingedly mounted so as to permit the lining sections to be swung against the car side walls and thus permit removal of accumulated grain, dirt, or other moisture retaining matter.

Railroad box cars, automobile loading cars, or other commonly known house cars at present in use, are usually provided with permanently secured side and end linings in addition to the outside side sheathing and wood or steel ends. The railroads have encountered considerable difficulty and expense with cars of the character mentioned because of the accumulation of dust, dirt, grains and other moisture retaining matter between the outside steel end walls and the inside stationary or permanently secured lining which, in a comparatively short period of time, results in deterioration of the end lining, particularly adjacent the bottom thereof, necessitating frequent renewal of the lining and entailing considerable expense and loss of car service.

My invention is designed to eliminate the difficulty and expense mentioned by providing an end lining, preferably made in sections, which may be swung inwardly toward the car sides to provide complete access to the space between the end lining and the car outer wall and thus permit the accumulated matter to be brushed or blown out with compressed air and permit evaporation or drying out of moisture; the invention contemplating an end lining which will not interfere with the car lading or its proper loading and which is adapted to resist impacts to which it may be subjected during car transportation.

The objects and advantages of my invention will all readily be comprehended from the following detailed description of the accompanying drawings wherein:

Figure 1 is a sectional elevation of one end of a box car illustrating my improved sectional lining swung inwardly against the car sides.

Figure 2 is a similar view showing my improved end wall lining in normal or closed position.

Figure 3 is a detail sectional view taken on the line 3—3 of Figure 2, looking in the direction of the arrows.

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 2, looking downwardly.

Figure 5 is a vertical sectional view taken along the line 5—5 of Figure 2 viewed in the direction of the arrows.

Figure 6 is a detail sectional view on the line 6—6 of Figure 2.

Figure 7 is a sectional view taken on the line 7—7 of Figure 3, looking in the direction of the arrows.

In the particular exemplification of the invention the car is shown provided with a corrugated sheet metal end wall 10, which may be composed of separate sheets riveted or otherwise secured together, and the corrugations arranged transversely of the car as shown in Figures 1 and 5, with the major corrugations extending the full width of the car and minor corrugations arranged intermediate the tapering ends of adjacent major corrugations. In cars as heretofore constructed, permanent end framing and end lining was employed, with the lining spaced from the metal end wall 10, leaving pockets or spacing in which dust, grain, or other moisture retaining material accumulated and caused deterioration of the car end wall and lining, especially at the bottom thereof. As a result, frequent renewal of the end lining was necessary. It is this serious difficulty and consequent expense that my invention is designed to overcome; the preferred form of my improved end lining involving two hinged sections 11 and 12, extending from adjacent the ceiling or roof of the car to the car floor and substantially similar in construction.

Each lining consists of a suitable number of horizontally disposed furring strips 13, extending the full width of the section with the lining secured thereto; the lining preferably consisting of tongue-and-grooved boards 14, as shown in Figure 4. The furring strips 13 preferably are prearranged so as to extend into the major corrugations or valleys of the metallic end wall 10, as shown in Figure 5; the furring strips tapering toward the hinged sides of the lining sections, see Figures 1 and 4, to correspond somewhat with the taper of the valleys or corrugations of the outside end wall. In order to afford sufficient backing or resistance adjacent the hinged side of the lining section, I prefer to provide each section with a number of short furring strips or cleats 15 which taper in a direction opposite to the taper of the furring strips 13 in order to match the minor corrugations or valleys 16 which are of greatest depth adjacent the sides of the outer metal end wall 10, as can more clearly be seen in Figure 1.

The end wall is provided with filler or furring strips 17 arranged transversely in some of the major corrugations or valleys and secured to the outer metal end wall 10; the strips all being arranged to terminate short of the car sides to permit the end wall sections 11 and 12 to swing

into complete open position as shown in Figure 1; the top strip 17a being flanged along its upper longitudinal edge to overlap the upper ends of the movable end wall sections 11 and 12; while the car floor adjacent the metal end wall 10 is provided with a bevel strip 17b which is provided with a heavy coat of car cement to provide a tight joint; the inner side of the bevel strip being notched to clear the car end sill as shown in Figure 5.

Before applying the lining boards 14 to the furring strips 13 and 15, I provide the end wall with a suitable number of hinges, as for example three hinges for each end wall section, with the butt 18 of each hinge riveted or otherwise rigidly secured to the steel end wall 10 and the strap 19 of each hinge secured to an end wall section by bolting the same intermediate each furring strip 13 and the lining boards 14, as shown in Figure 3; the furring strips at the forward sides preferably being grooved or recessed to receive the hinge straps (see Figure 7) and bored to receive fastening bolts 20 and 21; the heads of bolts 20 being arranged flush with the outer face of the hinge strap and the rear sides of the furring strips 13 counterbored to receive the ends of the bolts and their nuts; while the bolts 21 preferably adjacent the hinge-pins, are longer so as also to extend through the lining boards 14, see Figure 3.

The lining boards 14, at the hinged sides of the sections 11, 12, are beveled as shown at 14a, see Figure 3, to permit the hinged sections to swing to complete open position while at the same time maintaining snug relation with car side wall lining when the sections are in complete closed position.

Each wall section 11, 12, adjacent the bottom, also is provided with a furring strip 22, shown beveled along the upper longitudinal edge to correspond with the contiguous corrugation in the outer end wall 10, see Figure 5.

The outer or adjacent ends of the furring strips 13 and the outer end lining boards 14 are kerfed as shown at 23, in Figure 4, to permit the two wall sections 11, 12 to overlap and effect a comparatively tight relation; and the wall sections are held in closed position by suitable bolts 24, preferably round headed, which extend through the metal end wall and are welded in place with their threaded ends disposed to the car interior and adapted to extend through counterbored bolt-holes 25 arranged in the lining sections, preferably at points coincident with the furring strips 13, and the ends provided with suitable nuts arranged in the counterbore of the holes so as to be substantially flush with the inner surface of the end lining. The lining sections are held in normal position by screwing up the nuts on bolts 24; at which time the furring strips 13 and 15 will be in contact with the bottoms of the corrugations or valleys in the metal end wall 10 and together with the furring strips secured to the metal end wall 10 will afford a firm support or backing for the sections.

As is apparent from the construction shown, access for cleaning between the outside steel end 10 and the inside end lining may be readily obtained by merely removing the nuts from bolts 24 (the latter being immovably secured to outside wall 10) permitting overlapping end wall section 11 and then section 12 to be swung inwardly as shown in Figure 1, which enables all accumulated grain and dirt to be removed and dampness to dry out, thereby eliminating the expense of renewing the end lining or parts thereof, as however, has heretofore been the case.

House cars frequently are employed for bulk shipments of a more or less corrosive nature, such as salt, soda, ash, sulphur, etc. In the handling and shipment of such commodities, a portion thereof frequently filtered through the conventional end lining, becoming lodged in the corrugations of the steel ends rearward of the conventional immovable lining where it was inaccessible and could not be detected. As a result, corrosion of the steel end very shortly set in which soon caused extensive deterioration of the steel at the car ends and necessitated expensive repair and loss of car service. Furthermore, where portions of certain commodities were allowed to remain pocketed between the end wall and the end lining, they constituted incubators for various types of insect life, including weevils, which resulted in damage to food stuffs and formed a basis for filing claims against the carriers. Then too, there have been instances where the conventional type of end lining was sufficiently loose or open and permitted the pocketing of bulk commodities to such an extent that the consignees, after checking shortages at the time of unloading, filed claims for such shortages.

With my improved house car end wall lining the aforementioned difficulties and expense are eliminated.

By reason of the furring strips on the movable sections and the furring strips immovably secured to the outside steel end wall, the end wall lining is adapted to withstand any impacts that may be encountered by shifting lading during car loading and transportation.

The exemplification of the invention shown in the drawings has been found to be a desirable embodiment which has been described in terms of description and not of limitation, as structural modifications are possible and may be made without, however, departing from the spirit of my invention as defined in the appended claims.

What I claim is:

1. A railroad house car having an outside sheet metal end wall, an inside lining for the end wall hingedly secured to swing inwardly; and a plurality of members arranged in spaced relation on the opposing faces of the sheathing or lining and on the metal end wall, certain of said members being immovably secured to the metal end wall while the other members are secured to the lining and are movable therewith, said members being adapted to provide support for the hinged lining.

2. A railroad house car end wall composed of outside end wall; a movable inner sectional inner wall hingedly secured to swing inwardly involving sheathing or lining and a plurality of horizontally disposed furring strips arranged on the opposing faces of the metal end wall and of the sheathing or lining, said strips being arranged in spaced relation and coincident with the corrugations of the sheet metal with certain of the furring strips immovably secured to the sheet metal while the other furring strips form a part of the hingedly secured inner wall, and means for securing the inner wall in normal position.

3. A railroad house car end wall composed of outside transversely corrugated sheet metal and an inner wall, the inner wall being formed in sections and each section hingedly secured to the sheet metal outer wall, each section involving

horizontally disposed furring strips to which the lining boards are secured, said furring strips being arranged in predetermined vertically spaced relation to seat in certain corrugations of the sheet metal wall; other furring strips immovably secured to said sheet metal wall so as to contact the lining boards at points intermediate the first mentioned furring strips; and means whereby the inner wall sections are secured against movement.

4. In a railroad house car provided with an outside end wall; a movable inner sectional lining involving lining boards and spaced apart furring strips secured on the end wall opposing face of the lining boards and adapted to effect bearing relation with the outside end wall, the adjacent sides of the inner lining sections being rabbeted to provide an overlapping juncture; hinge members secured to the outside end wall and to the lining sections whereby the latter may be swung inwardly toward the car sides; and means whereby the sections may be locked against movement.

5. In a railroad house car provided with an outside sheet metal end wall provided with transversely arranged corrugations and furring strips arranged in certain of said corrugations and immovably secured in place; an inner sectional lining involving furring strips arranged in predetermined vertical spaced relation at points intermediate the first mentioned furring strips so as to seat in certain corrugations of the metal end wall, the adjacent sides of the lining sections being formed to provide an overlapping flush juncture; hinge members secured to the metal end wall and to the lining sections coincident with their furring strips, whereby the lining sections may be swung inwardly toward the car sides; and means immovably secured to the metal end wall and controllable from the car interior whereby the lining sections may be secured against movement.

6. In a railroad house car provided with a horizontally corrugated sheet metal end wall, the major corrugations extending from side to side of the end wall while the minor corrugations are arranged adjacent the sides of the end wall intermediate the ends of the major corrugations; an inner sectional lining hingedly secured to the metal end wall at one side of each section whereby the sections may be swung inwardly toward the car sides; horizontally disposed furring strips arranged in each corrugation, certain of the strips being immovably secured to the metal end wall while the other strips form a part of the sectional lining and are vertically spaced to seat in certain of the major corrugations and in the minor corrugations of the metal end wall; a sealing strip at the juncture of the car floor and the metal end wall and beneath the lining sections; and fastening bolts immovably secured to the metal end wall and disposed through the lining sections whereby the latter are secured against movement.

7. In a railroad house car provided with a horizontally corrugated sheet metal end wall, the major corrugations extending from side to side of the end wall while the minor corrugations are arranged intermediate the ends of the major corrugations; horizontally disposed furring strips immovably secured in certain of the major corrugations of the metal end wall; an inner sectional lining for the end wall involving vertically spaced and horizontally disposed furring strips adapted to seat in the minor corrugations and in certain of the major corrugations; hinge members secured to the metal end wall and to certain of the furring strips of the lining sections whereby the latter may be swung horizontally inward toward the car sides; and fastening means immovably secured to the metal end wall whereby the sections are secured against movement.

JOHN PURCELL.

CERTIFICATE OF CORRECTION.

Patent No. 2,308,025. January 12, 1943.

JOHN PURCELL.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, second column, line 58, claim 2, for "end wall; a movable inner sectional" read --transversely corrugated sheet metal, an--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 9th day of March, A. D. 1943.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)