

R. L. ETTENGER.
CAR CONSTRUCTION,
APPLICATION FILED JUNE 6, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

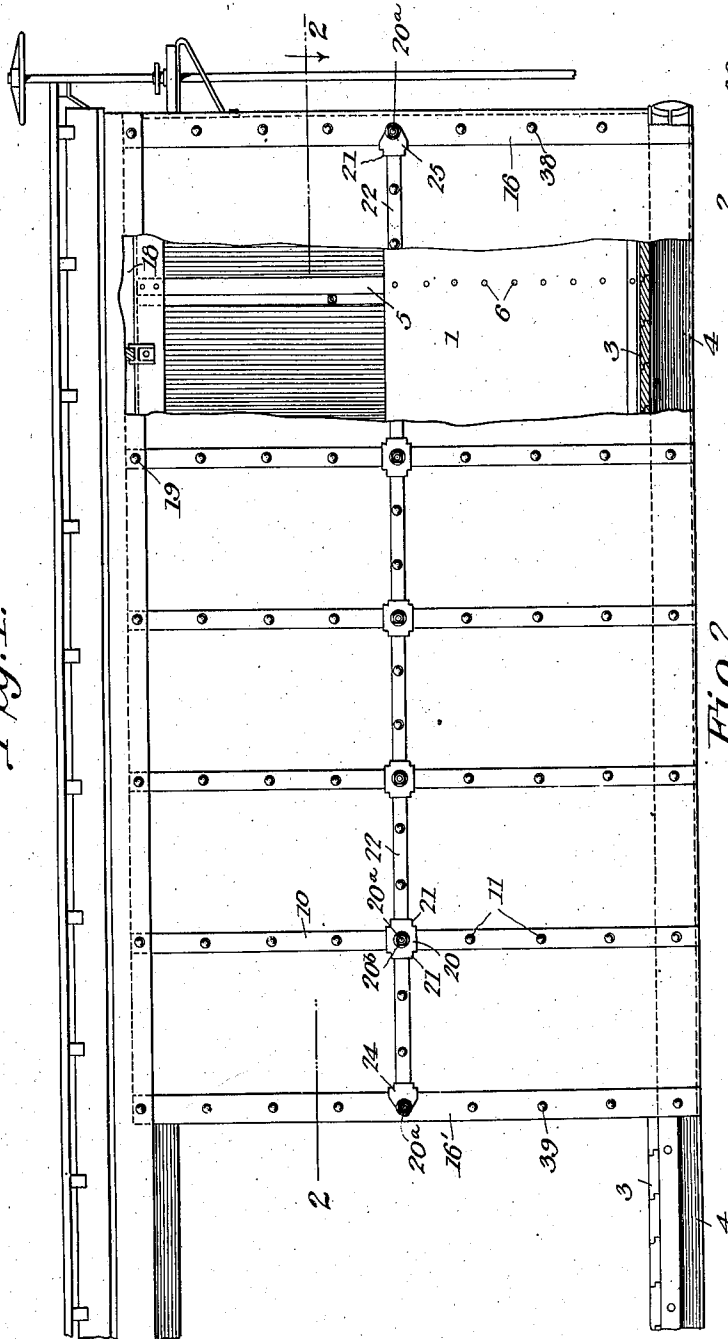
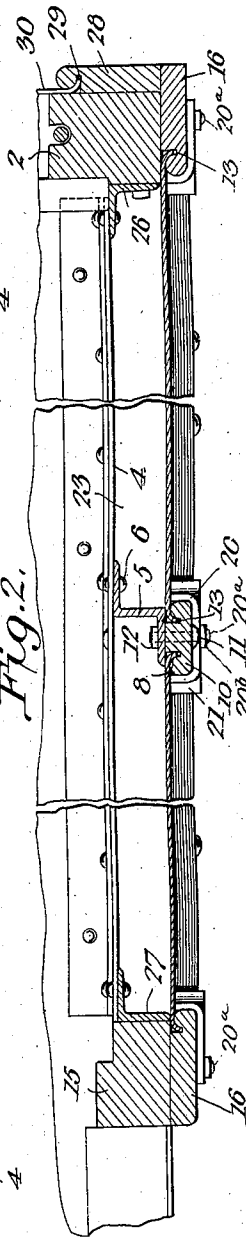


Fig. 2.



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No. 815,946.

PATENTED MAR. 27, 1906.

R. L. ETTENGER.
CAR CONSTRUCTION.
APPLICATION FILED JUNE 6, 1905.

2 SHEETS—SHEET 2.

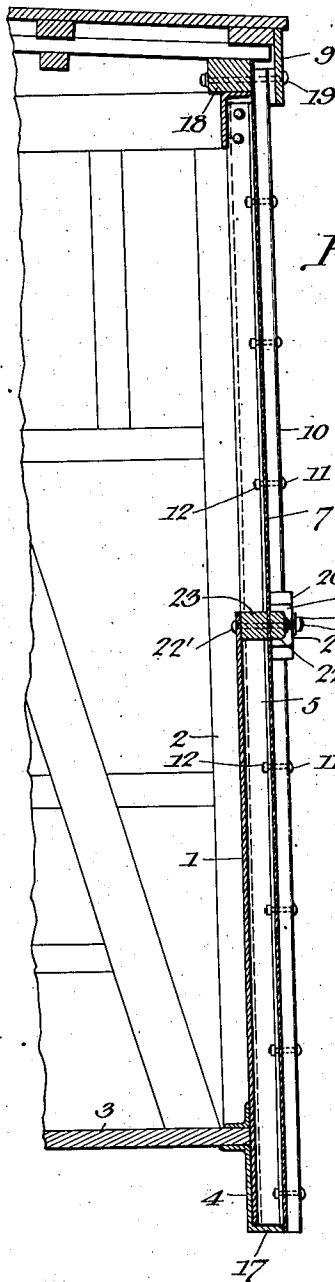


Fig. 3.

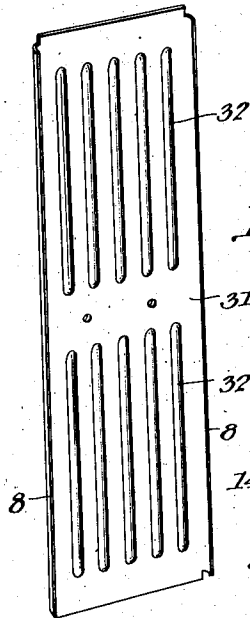


Fig. 4.

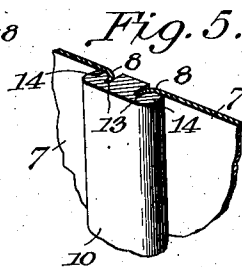


Fig. 5.

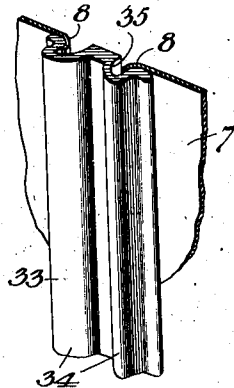


Fig. 6.

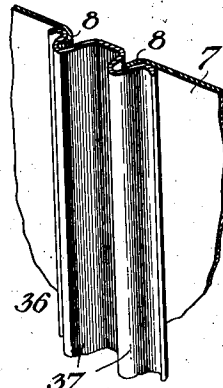


Fig. 7.

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UNITED STATES PATENT OFFICE.

ROBERT L. ETTENGER, OF WASHINGTON, DISTRICT OF COLUMBIA.

CAR CONSTRUCTION.

No. 815,948.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed June 6, 1905. Serial No. 263,991.

To all whom it may concern:

Be it known that I, ROBERT L. ETTENGER, a citizen of the United States, residing at the city of Washington, in the District of Columbia, have invented a new and useful Car Construction, of which the following is a specification.

This invention relates to car construction, and more particularly to an improvement in freight-cars.

The objects of the invention are in a novel and practical manner to substitute metal for the ordinary wooden sheathing or siding employed; to effect the combination of the sheathing with the car-frame in such manner as to permit of its being readily removed in sections when necessary for repairs or the like; to obviate the employment of ordinary wooden posts or braces for spacing the lining from the sheathing and in lieu thereof to employ metal, whereby the car will be strengthened and be rendered less liable to damage from strains and vibrations; to dispense with the employment of fastening means directly in conjunction with the metal sheathing for holding the same in place, and generally to improve and simplify the construction of cars employing metal sheathing.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a freight-car, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this invention, and in which like characters of reference indicate corresponding parts, Figure 1 is a view in side elevation of a portion of a freight-car constructed in accordance with the present invention. Fig. 2 is a view in horizontal section, taken on the line 2 2, Fig. 1, and looking in the direction of the arrow thereon. Fig. 3 is a view in vertical transverse section through a portion of the car, showing more particularly the manner in which the sheathing is combined with the roof. Fig. 4 is a perspective detail view of a modified form of sheathing that may be employed in lieu of that shown in Figs. 1, 2, and 3. Fig. 5 is a perspective detail view of the form of cleat used in connection with the car construction shown in Figs. 1, 2, and 3. Fig. 6 and 7 are perspective detail views of modified forms of cleats that may be employed for securing the sheathing in position.

Referring to the drawings, 1 designates the

lining of the car, 2 one of the corner-posts, and 3 the flooring, the flooring being supported upon Z or double-L-shaped sill-beams 4, as clearly shown in Figs. 1 and 3.

The lining 1, which in this instance is metallic, is secured to metallic posts 5, which are approximately Z or double-L shaped in cross-section, one flange of each of the posts being employed to secure the lining in place, which may be effected by means of bolts or rivets 6, the other flange being employed to secure the sheathing 7 in place, and the webs of the posts operating to hold the sheathing and lining properly spaced.

The sheathing, whether plain, as shown in Figs. 1, 2, and 3, or corrugated, as shown in Fig. 4, is composed of sheets of metal of the desired size, and each sheet is provided with side flanges 8, that extend approximately the entire length thereof, each sheet, by preference, reaching from the fascia-board 9 to the sill-beams 4. The flanges 8, as clearly shown in Fig. 2, are curved and are designed to engage with cleats 10, that are secured to the posts 5 by bolts 11, carrying nuts 12, disposed on the inner sides of the flanges of the posts 5. In order to facilitate the positioning of the flanges 8 within the channels 13 of the cleats, the beads 14 on each side of the channels are rounded to correspond to the curvature of the flanges, and by inserting the flanges between the beads and the flanges of the beams 5 and then moving the plates inward the flanges 8 will be caused to enter the channels 13 and assume the position shown in Fig. 2, it being understood that this results after the bolts 11 have been securely seated or clamped to position. The plates are thus held securely in position and against any possibility of working loose or becoming detached without the employment of any fastening devices, such as bolts or the like, passing through them, thereby materially reducing the cost of the construction of a car employing such sheathing, and, further, obviating any weakening of the sheathing, which would necessarily result where bolt-holes are provided. This arrangement of cleats is observed throughout the entire length of the car except at the corner-posts 2 and door-post 15, where the cleats 16 and 16' are provided with only a single channel. It will be noted by reference to Fig. 1 that the channels in the cleats are of greater depth than the height of the flanges of the sheathing, and this will permit the latter to have sufficient

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play to compensate for contraction and expansion and also to resist strains resulting from vibrations of the car, which might otherwise be destructive if the connection between the cleats and the sheathing were of such character as positively to preclude any yielding.

The cleats extend from a point near the eaves of the roof to the flanges 17 of the sill-beams 4, upon which they rest, as shown in Fig. 2, and are secured at their upper ends to the side plate 18 by bolts 19.

At points intermediate the ends of the cleats there are secured socket-plates or castings 20, which, as shown in Fig. 2, are of a size to straddle the cleats and are held combined therewith by the bolts 20^a and nuts 20^b. The sockets have lateral extensions 21, that are engaged by the terminals of horizontally-disposed cleats or bars 22, that are arranged, preferably, intermediate of the height of the sheathing and are secured in position by bolts 22', that pass through the sheathing and through a longitudinal beam 23, arranged between the sheathing and the lining, as clearly shown in Fig. 3. These longitudinal cleats 21 serve positively to brace the body of the car against lateral strains, and thereby materially enhance its strength, and by being disposed exteriorly of the sheathing they act, in conjunction with the cleats 10, to shield the sheathing against injury, such as frequently results from striking projecting objects on cars. Of course the sockets 24 and 25 that are disposed at the corner-posts and door-posts have only one extension to receive the terminal of the cleat 22 terminating thereat.

As will be seen by reference to Fig. 2, the posts 26 and 27 at the corner-posts and door-posts are L-shaped, as this form will be best adapted for use at these points; but it is to be understood that the invention is not to be limited thereto, as Z-posts may be employed, if found necessary or desirable.

At the ends of the car the cleats 28 which are secured to the corner-post 2 are provided with but a single channel 29 to receive the flange of the sheathing 30, the intermediate cleats being of the same construction as that shown on the sides of the cars, and as this will be readily understood detailed illustration thereof is omitted.

As shown in Figs. 1, 2, and 3, the sheathing is plain—that is, devoid of corrugations or ribs; but, if preferred, the form of sheathing shown in Fig. 4 may be employed, wherein the plate 31 is provided with two series of spaced corrugations 32, arranged, preferably, longitudinally of its length, and these corrugations may project outward beyond its face or inward, as preferred.

Generally the form of cleat shown in Figs. 1 to 3 will be employed; but, if preferred, it may be made as shown in Fig. 6, in which the cleat 33 is made of cast metal and is provided

with longitudinal ribs 34, having channels 35 to receive the flanges of the sheathing. Another form of cleat 36 (shown in Fig. 7) is made of stamped sheet metal and is formed with two longitudinal hollow ribs 37 to receive the flanges of the sheathing. In both these latter forms of cleats the assemblage of the sheathing therewith is the same as that described in connection with the form of cleat shown in Figs. 1 and 3 and operates in precisely the same manner.

One of the principal features of this invention is that by the mode of assembling the sheathing with the car, should it be desired to remove damaged plates and reset new ones, this may readily be accomplished, the procedure being as follows: The bolts 38, holding the cleats 16, combined with the corner-posts, or the bolts 39, holding the cleats 16', combined with the door-posts, are first removed, according to whether the damaged plate or plates be located adjacent to the end of the car or to the door, and thereafter it will only be necessary should the plate be removed some distance from the end of the door to remove one or more of the sockets 20 and cleats 10 to permit as many of the plates to be detached as may be necessary, it being seen that by employing the curved flanges upon the plates these may be hooked into engagement with the channels of the cleats while the latter are rigidly positioned. When the damaged plate has been replaced, the sockets and cleats 21 are arranged in position and also the cleat 40 or 16, as the case may be, whereupon the necessary repairs will have been secured.

As shown in Fig. 3, the lining extends only a part way to the roof of the car; but it is to be understood that, if preferred, it may extend entirely to the roof and still be within the scope of the invention.

Having thus described the invention, what is claimed is—

1. The combination with a car, of a metallic sheathing having curved edge flanges, and cleats having curved beads to engage the flanges.

2. The combination with a car, of metallic sheathing having curved edge flanges, and cleats having channels bounded by curved beads with which the flanges engage.

3. The combination with a railway-car, of metallic sheathing having curved edge flanges, and cleats having channels and curved beads with which the flanges engage, the channels being of greater depth than the height of the flanges, thereby to permit the same to yield to climatic changes and to vibration.

4. The combination with a car, of cleats provided with channels, and sheathing having curved marginal flanges loosely disposed within the channels.

5. In a railway-car, the combination with

5 posts, of a lining secured to the inner sides thereof, cleats secured to the outer sides and provided with channels, and sheathing having curved marginal flanges to engage the channels.

10 6. In a railway-car, the combination with the lining, of Z-posts, cleats secured to the posts and provided with channels, and sheathing having marginal flanges to engage the channels.

7. In a railway-car, the combination with posts, of cleats secured thereto and provided

with channels, sheathing having marginal flanges to engage the channels, sockets secured intermediate of the ends of the cleats, 15 and horizontally-disposed cleats having their terminals in engagement with the sockets.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ROBERT L. ETTINGER.

Witnesses:

J. H. JOCHUM, Jr.,

L. L. MORRILL.