

W. P. MURPHY.
METAL CAR STRUCTURE.
APPLICATION FILED SEPT. 7, 1912.

1,058,784.

Patented Apr. 15, 1913.

3 SHEETS-SHEET 1.

FIG. 1.

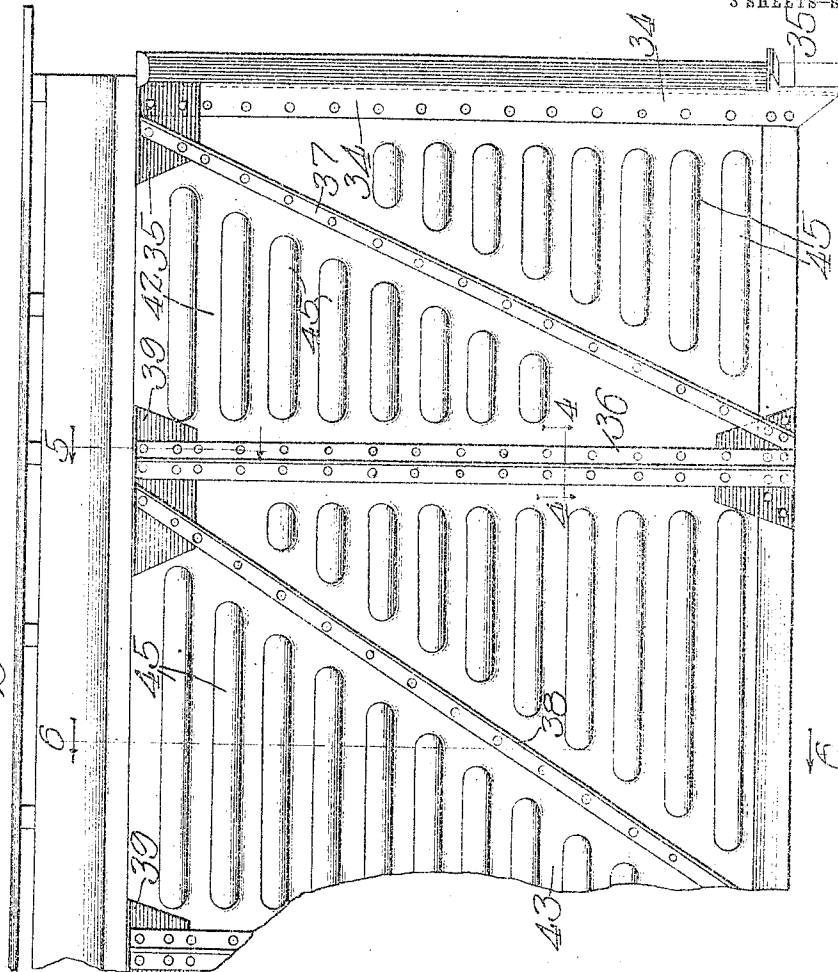
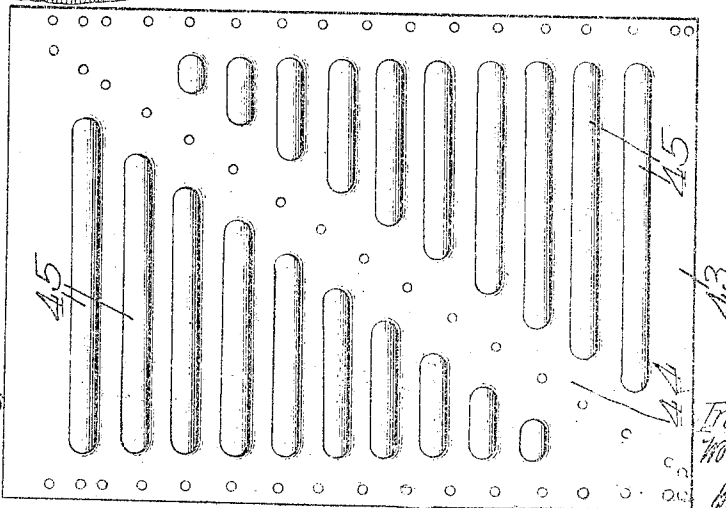


FIG. 2.



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3 SHEETS-SHEET 2.

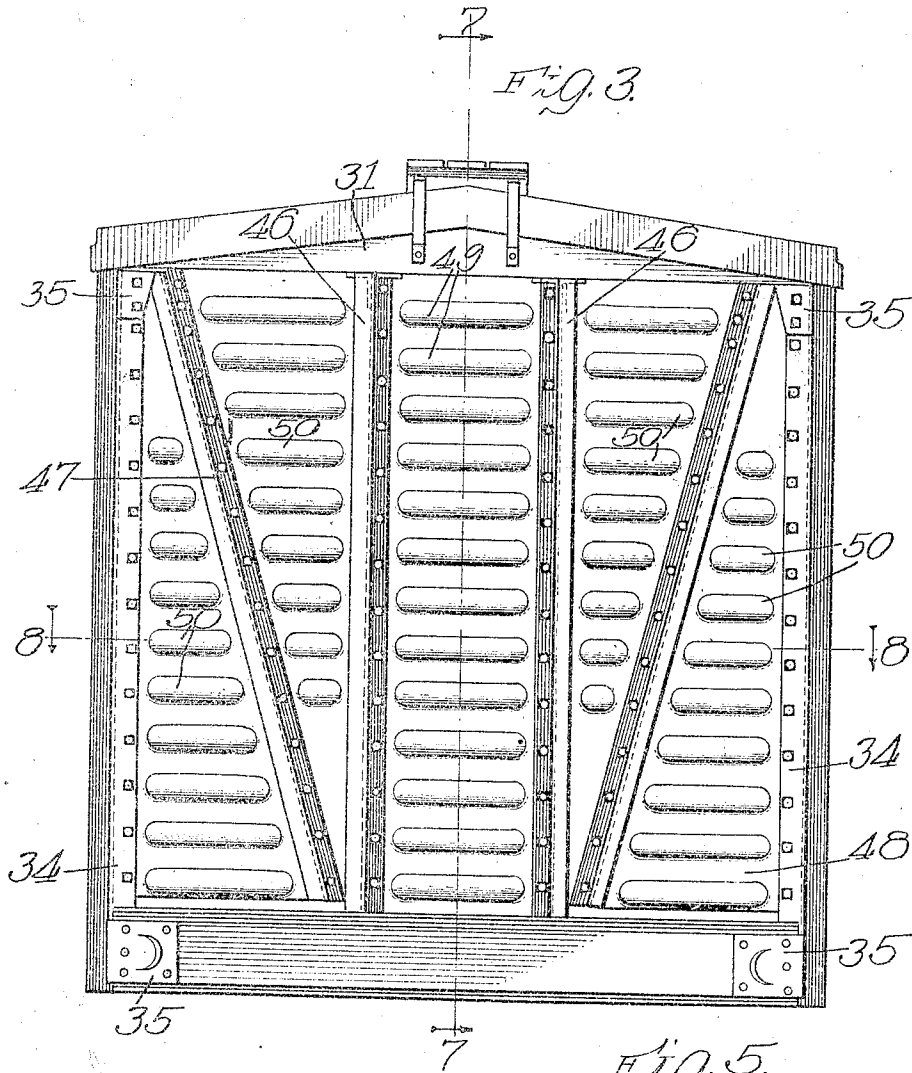


Fig. 5.

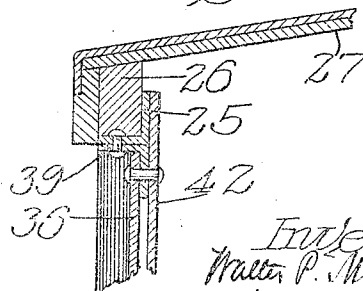
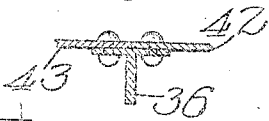


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 8.

45 42 34 50 48 49 46 47

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METAL CAR STRUCTURE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER P. MURPHY, 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 Metal Car Structures, of which the following is a specification.

My invention relates to railway cars, and has for its object to provide an improved wall construction for the sides or ends of railway cars which can be made entirely of metal, which will be strong, light, structurally simple, and inexpensive, and which, furthermore, will be very compact, so that the car will have maximum inside dimensions in comparison with its outside dimensions.

The invention consists in certain novel arrangements and constructions for carrying into effect the above stated objects, and further, in the several improvements in the construction of railway cars shown in the accompanying drawings and which will be hereinafter described and claimed.

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

Figure 1 is a side elevation of part of a railway box car constructed in accordance with my invention; Fig. 2, a detail view of one of the sheet metal wall elements forming a part of said car; Fig. 3, an end elevation of the car; Fig. 4, a sectional plan taken on line 4—4 of Fig. 1; Figs. 5 and 6, vertical sections on lines 5—5 and 6—6, respectively, of Fig. 1, looking in the direction of the arrows; Fig. 7, a vertical sectional view taken on line 7—7 of Fig. 3, looking in the direction of the arrows, and Fig. 8, a sectional plan taken on line 8—8 of Fig. 3.

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

The improved arrangement and devices constituting my invention might be employed in the construction either of the side walls or of the ends of a railway car, or both sides and ends.

Referring to the drawings, 25 designates one of the side plates of a car which, in the particular construction shown, is an angle bar outwardly turned and supporting a wooden nailing strip 26 to which the roof boards 27 may be secured. The side sill 28 is also shown as an angle bar which is turned to support a nailing strip 29 for the floor boards 30. 31 designates one of the

end plates of the car, and 32 an end sill, the latter supporting a nailing strip 33 for the floor boards 30. The corner posts 34 are preferably angle bars riveted to the side sills 28 and the end sills 32 and secured to the side and end plates by means of the gussets 35.

To complete the side framing of the car, posts 36 and diagonal braces 37, 38 are provided which, for the purpose of giving strength and rigidity, are angular in cross section. I have shown the posts as consisting of T section members and the diagonal braces as simple angle bars. The posts are riveted to the side sills 28 of the car and secured to the side plates 26 by means of the angular gussets 39 (Fig. 5). The lower ends of the braces 37, 38 are riveted to the side sill. The upper end of brace 37 is secured to the gusset plate 35 and the upper end of brace 38 to the gusset plate 39.

The wall of the car consists of a number of sheet metal elements 42, 43 which are substantially alike except that in the construction shown the sheet 42 at the end of the car is narrower than the next adjacent sheet 43. Each sheet is formed with a diagonally extending smooth area 44 dividing the sheet into two triangular areas which are formed with the groups of horizontally extending ribs 45, the ribs of one group diminishing in length from the top to the bottom of the sheet and the other diminishing in length from the bottom toward the top. The sheets are preferably secured to the inner faces of the posts and diagonal braces, the latter lying between the two groups of ribs or corrugations. The advantage of this arrangement is that in the first place, it gives a very light, strong and waterproof structure, and, in the second place, utilizes for the ribs or corrugations, what may be termed the waste spaces between the posts and diagonal braces. It is necessary, in order that the framing of the car may be sufficiently strong and rigid, to make the posts and braces some considerable thickness. It is for this reason that they have the angular cross sections shown. This, of course, adds to the over all width of the car without increasing its inside width. By using sheet metal for forming the side wall of the car the thickness of the wall structure as a whole is not appreciably greater than the thickness of the framing elements. Strength is given to this comparatively thin sheet metal by forming it with

the ribs or corrugations described and no space is wasted inasmuch as the ribs project into and occupy the spaces between the framing members.

Figs. 3, 7 and 8 illustrate similar arrangements applied to the construction of the end of the car. The frame consists, in addition to the parts above described, of posts 46 and diagonal braces 47, both of these elements being shown as consisting of Z-bars. The end consists of a single sheet of metal 48 formed with a series of corrugations or ribs 49 of uniform length between the posts 46 and groups of ribs 50 of diminishing length from the top to the bottom of the car, or vice versa as the case may be, between the diagonal braces and the end posts 46 on the one side and the corner posts 31 on the other.

It will be readily understood that the single sheet metal element 48 might be divided up into a plurality of separate sheets if found desirable for manufacturing reasons. Likewise the side wall structure might be made up of a greater or less number of sheets than that indicated by the drawings.

While I have described my invention as embodied in certain preferred constructions, I realize that modifications could be devised which would come within the principles of the invention. I, therefore, do not wish to be understood as limiting the invention to the particulars shown and described.

I claim:

1. In a wall structure for railway cars, the combination with a framing comprising posts and diagonal braces, of sheet metal wall elements secured to said posts and braces and formed with ribs which project into and occupy the spaces between said posts and braces.

2. In a wall structure for railway cars, the combination with a framing comprising posts and diagonal braces, both of metal and angular in cross section, of sheet metal wall elements secured to said posts and braces and formed with ribs which project into and occupy the spaces between said posts and braces.

3. In a wall structure for railway cars,

the combination with a framing comprising posts and diagonal braces, of sheet metal wall elements secured to said posts and braces and formed between each post and the adjacent brace with a series of horizontally extending ribs diminishing in length from the top toward the bottom of the car, or vice versa as the case may be, which ribs project into the spaces between said posts and braces.

4. In a wall structure for railway cars, the combination with a framing comprising posts and diagonal braces, of sheet metal wall elements secured to said posts and braces which extend from post to post, said sheet metal element being formed with a diagonally extending flat portion to accommodate one of said diagonal braces which divides said sheet into triangular areas, the latter being formed with ribs.

5. In a wall structure for railway cars, the combination with a framing comprising posts and diagonal braces, of sheet metal wall elements secured to said posts and braces which extend from post to post, said sheet metal element being formed with a diagonally extending flat portion to accommodate one of said diagonal braces which divides said sheet into triangular areas, the latter formed with horizontally extending ribs which diminish in length from the top to the bottom of the sheet on one side thereof, and from the bottom to the top on the other side thereof.

6. In a railway car, the combination of a framing comprising angle bar corner posts, end post, side posts and diagonal braces, all of metal and angular in cross section, and sheet metal end and side wall elements secured to the inner sides of said end and side posts and diagonal braces with the adjacent edges of the side and end sheets secured to the inner surfaces of said angle bar corner posts, said sheets formed with horizontally extending ribs projecting into the space between said braces and posts.

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