June 30, 1925. 1,544,353

V. E. SISSON

CORRUGATED WALL FOR RAILWAY CARS

Original Filed Nov. 26, 1923

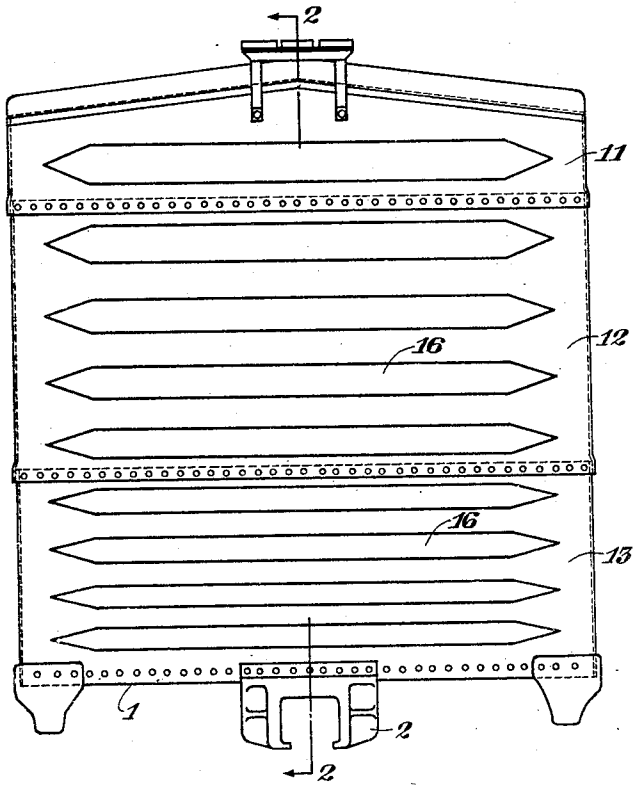


Fig. 1

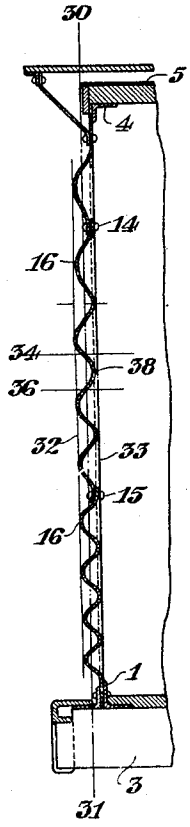


Fig. 2

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Patented June 30, 1925. 1,544,353

UNITED STATES PATENT OFFICE.

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CORRUGATED WALL FOR RAILWAY CARS.

Original application filed November 26, 1923, Serial No. 677,019. Divided and this application filed February 13, 1925. Serial No. 8,908.

To all whom it may concern:

Be it known that I, VINTON E. SISSON, residing at Chicago, county of Cook, State of Illinois, and being a citizen of the United States, have invented certain new and useful Improvements in Corrugated Walls for Railway Cars, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and to use the same, reference being had to the accompanying drawings, which illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof within the scope of the claims will occur to persons skilled in the art.

The ends of railway cars are subject to considerable stress due to the shifting of the lading which is caused by the heavy locomotives, the automatic air brake, the hump and other modern railway service conditions. These thrusts may be local, tending to distort the end in some particular spot, as, for example, when a piece of piping or lumber shifts lengthwise, or a load of plastic material, such as grain, sand or chats may shift, imparting a blow over a large area of the end wall, whereas rail, steel plates, castings and the like cause blows at the bottom of the car. From the above, it is apparent that a railway car end must be strong throughout its entire area. Experience shows that a stronger end wall is needed adjacent the floor of the car because the blows against this portion of the car wall are more frequent and more severe than at the middle or upper portion thereof. Very little strength is needed adjacent the top of the car wall and the strength required at the middle of the car wall is more than needed at the top and less than needed at the bottom.

While, of course, efforts are made to block the lading in the car, the shocks caused by the heavy locomotives, the emergency brake and the classification hump tear the lading away from its moorings and throw it against the side walls of the car.

A rigid end to a car, and particularly a large car, materially strengthens the entire superstructure to resist the torsional and weaving movements which not only rack the car to pieces, but causes leaky roofs and inoperative and leaky doors with their consequent damage claims. As it costs as much to transport a ton of freight car as it does a ton of lading it is imperative that the weight of the car must be kept as low as possible, therefore, the end must be very light as well as strong. As freight cars are frequently damaged in wrecks and by other unfair usage, any end will probably be damaged in service, therefore, it must be capable of being easily repaired with such meagre facilities as the railroads are equipped with at their outlying repair points.

My invention relates to the construction of railway cars and more particularly to metal end structures or walls for railway cars made of one or more metallic plates or panels formed with integral reinforcing stiffening or bracing corrugations. However, the construction may be used in car side walls. It is readily adaptable to box, gondola, stock or other types of railway equipment.

All metal car ends have been made of corrugated metallic plates secured together having the centers of adjacent corrugations equally spaced apart.

One of the objects of my invention is to provide a metallic end wall made of one or more metallic plates with reinforcing corrugations or panels formed therein wherein the corrugations are located close together where greater strength is required and spaced further apart where less strength is required; in other words, the corrugations are spaced apart proportionately to the required strength of the car wall.

It has been proposed to strengthen the lower portion of the end wall of a car by forming the corrugations deeper and wider adjacent the floor.

Another object of my invention is to space the corrugations so that the end wall is strengthened according to its requirements, but at the same time, the corrugations are maintained at the same depth throughout the entire end wall. This has the advantage of not increasing the length of the car over the end wall or decreasing the inside length of the car. The thickness of the end wall is maintained constant throughout.

A further object is to provide a corrugated metallic wall element which it is practically possible to manufacture and easy to apply and secure to the car.

In the drawings:

Fig. 1 is an end elevation of a railway car with my invention applied thereon.

Fig. 2 is a section along line 2—2 of Fig. 1.

In the drawings: 1 is the end sill angle; 2 the striking casting; 3 the center sill; 4 the end plate angle; 5 the roof, all of the usual car construction. The wall may be composed of one plate or a plurality of plates such as 11, 12 and 13, secured together in any convenient manner, such as illustrated at 14, and 15. These plates have integral corrugations 16 formed therein which preferably terminate within the edges of the sheet, as shown in Fig. 1. These corrugations are all the same depth. The distances between the centers of adjacent corrugations are lesser toward the lower portion of the car wall than those at the portion nearer the roof 5. The distance between the centers of adjacent corrugations increase from the lower to the upper portion of the wall; in other words, the distances between the centers of adjacent corrugations near the floor of the car are less than elsewhere. This spacing may be arranged progressively.

The corrugations are merged into each other so as to form a series of ogee curves. This construction increases the resiliency of the metallic plate and enables it to withstand severer shocks without being permanently distorted. These corrugations are, therefore, varying in width, though constant in depth. The corrugations adjacent the floor are narrower than the corrugations adjacent the upper portion of the car.

The contour of the several corrugations is such that the neutral axis, 30—31 of the corrugated plate is midway between the planes 32 and 33 bounding the apices of the oppositely projecting corrugations. A corrugation, for instance, is that portion (38) on one side of the neutral axis 30—31 between the points where the contour of the plate crosses it; for instance, at points 34 and 36. The width of this corrugation is the distance between points 34 and 36 and its depth is the distance between planes 30—31 and 33.

This is a division of my co-pending application Serial No. 677,019, filed November 26, 1923.

I claim:

1. A wall structure for railway cars comprising one or more metallic plates having a plurality of parallel equal depth and varying width corrugations formed therein with varying distances between the centers of adjacent corrugations.

2. A wall structure for railway cars comprising one or more metallic plates having a plurality of parallel equal depth and varying width corrugations formed therein, the distances between the centers of adjacent corrugations increasing from the lower to the upper portion of the wall.

3. A wall structure for railway cars comprising one or more metallic plates having a plurality of parallel equal depth and varying width corrugations formed therein, the distances between the centers of adjacent corrugations progressively increasing from the lower to the upper portion of the wall.

4. A wall structure for railway cars comprising one or more metallic plates having a plurality of parallel equal depth and varying width corrugations formed therein, the distances between the centers of adjacent corrugations near the floor of the car being less than elsewhere.

5. A wall structure for railway cars comprising one or more metallic plates having a plurality of parallel equal depth and varying width corrugations formed therein, terminating within the edges of the plate, with varying distances between the centers of adjacent corrugations.

6. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth and varying width corrugations formed therein, terminating within the edges of the plate, the distances between the centers of adjacent corrugations increasing from the lower to the upper portion of the wall.

7. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth and varying width corrugations formed therein, terminating within the edges of the plate, the distances between the centers of adjacent corrugations progressively increasing from the lower to the upper portion of the wall.

8. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth and varying width corrugations formed therein, terminating within the edges of the plate, the distances between the centers of adjacent corrugations near the floor of the car being less than elsewhere.

9. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth parallel corrugations formed therein, the distances between the centers of adjacent corrugations and the widths of the corrugations both increasing from the lower to the upper portion of the wall.

10. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth parallel corrugations formed therein, terminating within the edges of the plate, the distances between the centers of adjacent corrugations and the widths of the corrugations both increasing

from the lower to the upper portion of the wall.

11. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth parallel corrugations formed therein, the distances between the centers of adjacent corrugations and the widths of the corrugations both progressively increasing from the lower to the upper portion of the wall.

12. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth parallel corrugations formed therein, terminating within the edges of the plate, the distances between the centers of adjacent corrugations and the widths of the corrugations both progressively increasing from the lower to the upper portion of the wall.

13. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth parallel corrugations formed therein, the distances between the centers of adjacent corrugations and the widths of the corrugations both being smaller near the bottom of the wall than elsewhere.

14. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth parallel corrugations formed therein, terminating within the edges of the plate, the distances between the centers of adjacent corrugations and the widths of the corrugations both being smaller near the bottom of the wall than elsewhere.

15. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth parallel corrugations formed therein, the distances between the centers of adjacent corrugations and the widths of the corrugations both increasing from the lower to the upper portion of the wall, the contours of oppositely projecting adjacent corrugations being substantially the same whereby the neutral axis of the corrugated plate is midway between the planes bounding the apices of the oppositely projecting corrugations.

16. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth parallel corrugations formed therein, the distances between the centers of adjacent corrugations and the widths of the corrugations both progressively increasing from the lower to the upper portion of the wall, the contours of oppositely projecting adjacent corrugations being substantially the same whereby the neutral axis of the corrugated plate is midway between the planes bounding the apices of the oppositely projecting corrugations.

17. A wall structure for railway cars comprising one or more metallic plates having a plurality of equal depth parallel corrugations formed therein, the distances between the centers of adjacent corrugations and the widths of the corrugations both being smaller near the bottom of the wall than elsewhere, the contours of oppositely projecting adjacent corrugations being substantially the same whereby the neutral axis of the corrugated plate is midway between the planes bounding the apices of the oppositely projecting corrugations.

VINTON E. SISSON.