(No Model.)

W. S. MORRIS.

ROOFING FOR BOX CARS.

No. 487,193. Patented Nov. 29, 1892.

Fig. 1.

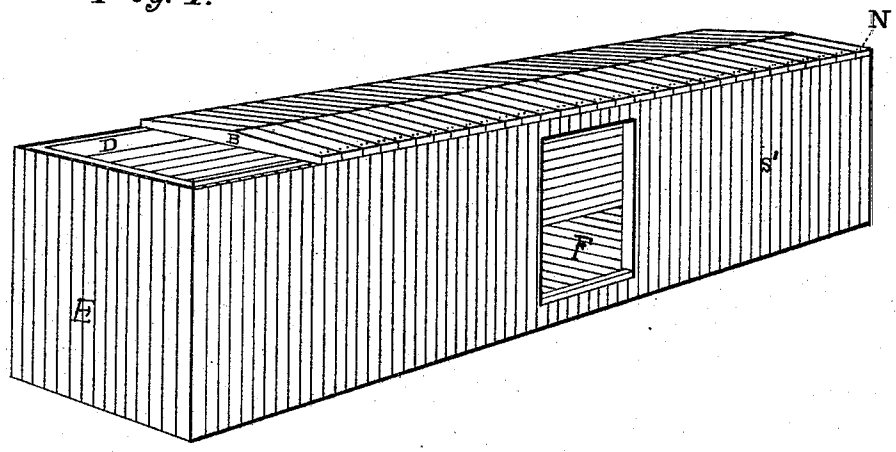

Fig. 2.

Fig. 3.

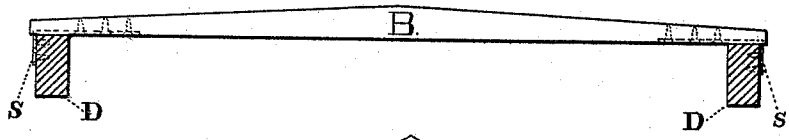

Fig. 4.

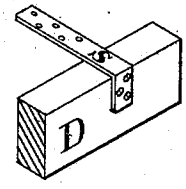

Fig. 5.

WITNESSES:

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ROOFING FOR BOX-CARS.

SPECIFICATION forming part of Letters Patent No. 487,193, dated November 29, 1892.

Application filed June 11, 1892. Serial No. 436,358. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. MORRIS, a citizen of the United States, residing at the city of Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Roofing for Box-Cars, of which the following is a specification.

This invention relates to certain new and useful improvements in box-cars, and more particularly to the construction of the roof of that kind of cars known as "box freight-cars;" and the objects of my invention are, first, to secure the greatest possible height to the interior space between the floor and the ceiling of the car, while keeping the extreme outside height of the car within the required limits; second, to leave the inside surface of the ceiling smooth without projections or rafters, and, third, to simplify the construction of the roof of such cars by making the roof proper support itself without beams or rafters. These objects I accomplish by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents the body of the box-car in perspective, with a portion of the roof finished in accordance with my invention and a portion of the roof removed in order to show the form of the roof boards or covering. Fig. 2 is a detail side view of one of the boards or planks. Fig. 3 is a similar view showing a modification. Fig. 4 is a detail side view of a board or plank constructed as exhibited in Fig. 2, the edge-plates being shown in section; and Fig. 5 is a broken detail view of one of the edge-plates, showing the angle-strap secured thereto.

Similar letters refer to similar parts throughout the several views.

B represents a form of roof-board thicker at the center and tapering with a uniform taper toward either end.

B′ represents a roof-board in which the taper is on a curve. The two forms are shown in Figs. 2 and 3.

S′ represents the sides of the car-body; E, the end of the car-body, and F the floor of the car.

In Fig. 2 I have shown an edge view of the form B of a plank or covering, and in Fig. 3 I have shown an edge view of a modified plank or covering-board. When the roof boards or planks are applied and covered with suitable covering, they form a water-tight roof the entire length of the car-body, which roof slopes from center to either side with an incline sufficient to carry off the water from the car. These planks or boards are secured to the plate of the car-body by means of nails, bolts, screws, or other suitable means.

I prefer to make the thickness of the covering-plank at its end about one inch and at the center about two and one-half inches. However, the thickness and weight of the plank may be varied to suit the car to which it is to be applied and to contain greater or less strength or greater or less incline.

In cutting the plank in order to give an incline (shown by B,) a saving of the timber may be effected by cutting from one end one-half way to the center and then by using the piece thus cut off to raise the center and produce the incline. This will leave the principal part of the plank whole from end to end, but will raise the center portion, so as to give the required incline to the upper or outer surface, or the plank may be cut from the end to the center, so that the roof-plank as completed will be a single integral plank. The only object of cutting from the end one-half way to the center is to save the timber cut off and to utilize the same to increase the incline. For ordinary purposes I deem this the preferable way of constructing the roof.

As shown in B′, the plank has a curve on the upper side, being thicker at the center and thinner at the ends. Whether the form of plank shown by B or the form shown by B′ is used, the roof of the car is formed without the use of rafters or center plates, the tapering planks being nailed or secured firmly and securely to the wall-plates of the car. D represents the edge plate, and S an angle-strap secured by means of screws, bolts, or nails to the plate and to the plank, as shown in Fig. 4. These fastenings are placed over the posts, preferably, and about six on a side; but the number may be more or less.

The roof-planks constructed as above described are placed edge to edge, covering the entire upper surface of the car-body. After the car has been covered by the tapering

planks, above described, the partially-prepared roof is ready for the reception of the felt or other covering, which may be applied in any suitable manner. The planks being secured to the edge-plates of the body and being placed close together the entire length of the car not only gives the car strength and durability to the roof and forms a roof sufficiently sloping in either direction for the discharge of the water caused by rain or snow, but also leaves a smooth unbroken ceiling within from end to end of the car, unobstructed by plates, rafters, or other projections and of a uniform height the entire length and width of the car-body.

In case the form shown by B′ in Fig. 3 is used the planks may be cut from logs or planks by means of a band-saw or other suitable means.

It is obvious that the tapering planks which form the roof of the car-body may be made of any convenient widths in order to be applicable to each particular style of car-body to which they are applied. The length of the plank, however, should be sufficient to reach from side to side of the car, so as to allow the water to drip free from the car-body.

Having thus described my invention, what I claim to have invented, and desire to secure by Letters Patent, is—

The combination, with the body of the box-car, of a series of boards or planks thickened at the center and tapering toward their opposite ends, said tapering boards or planks being placed together, so as to form an entire sheathing and support for the car and supplying the place of both covering and rafters, thereby leaving the upper and inner ceiling of the car of uniform height from end to end and side to side, substantially as described.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

WILLIAM S. MORRIS. [L. S.]

Witnesses:

DENTON O. SPROAT,

EDWARD TAGGART.