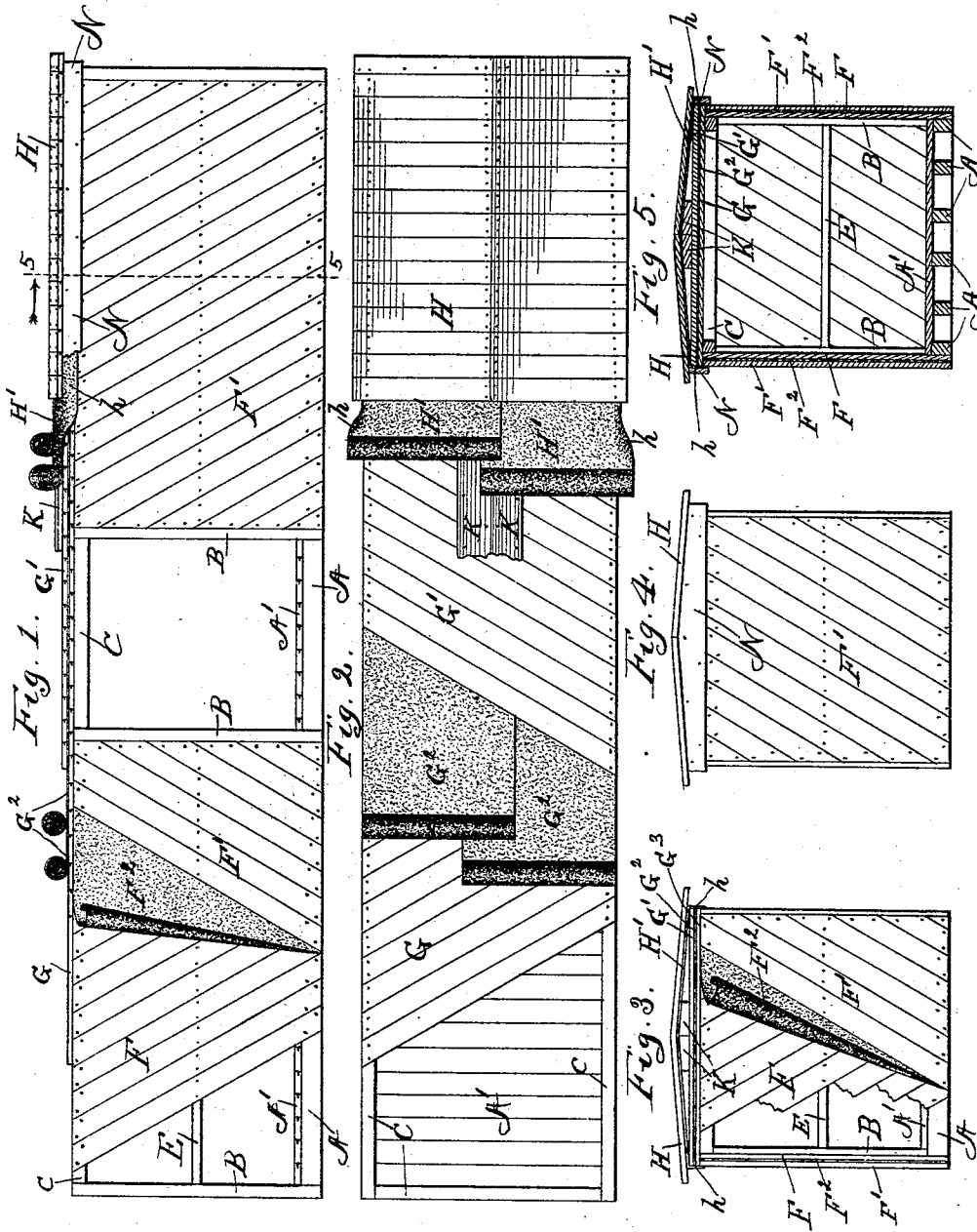


(No Model.)

C. B. HUTCHINS.
FREIGHT CAR.

No. 487,743.

Patented Dec. 13, 1892.



Witnesses.
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UNITED STATES PATENT OFFICE.

CARLETON BROWN HUTCHINS, OF DETROIT, MICHIGAN.

FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 487,743, dated December 13, 1892.

Application filed June 27, 1892. Serial No. 438,091. (No model.)

To all whom it may concern:

Be it known that I, CARLETON BROWN HUTCHINS, a citizen of the United States, residing in Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Freight-Cars, of which the following is a specification.

My invention relates to improvements in the construction of freight-cars, and more particularly to the construction of the roof and walls of such cars.

My present invention is an improvement upon that heretofore patented to me in Letters Patent of the United States No. 343,173, dated June 8, 1886.

The object of my present improvement is to dispense, as far as possible, with the usual framework heretofore employed in the construction of freight-cars—the studding and rafters—and at the same time make the car strong and durable. By dispensing with the framework the cost of constructing the car is very greatly reduced both in point of labor and material.

To this end the car embodying my invention comprises the side and end walls formed of two layers of diagonal boards crossing each other at an angle and extending from the sills to the roof-plates of the car and a roof formed of diagonal layers of boards extending from side to side of the car, so that each and every board in the side and end walls and in the roof acts not only as a sheath or covering, but also as a brace. The end walls and roof of the car are thus constructed of a multitude of braces. The pitch of the roof is formed in a top transverse layer of boards, which fit above the diagonal boards and on beveled boards extending longitudinally at the middle or ridge of the car.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a side elevation of a car embodying my invention, the side of the car being in part finished and in part in different stages of completion, so as to more clearly show the construction. Fig. 2 is a top or plan view showing the roof of the car in similar stages of completion. Fig. 3 is an end view of the car. Fig. 4 is an end view of the car, show-

ing it in different stages of completion. Fig. 5 is a cross-section on line 5 5 of Fig. 1.

In the drawings, A represents the sills of the car; A', the floor laid thereon; B, the up- rights at the corners and doors of the car- body; C, the top plates at the sides and ends of the car, and E the intermediate frame- pieces, the same being located, preferably, about at the middle of the car and extending around its sides and ends.

The side and end walls of the car are formed of two layers of diagonally-placed sheathing- boards F and F', the same crossing each other at an angle and extending from the floor- sills A to the roof-plates C. Interposed between these two layers of sheathing-boards F and F' is a layer of roofing-felt F², saturated with waterproofing material or compound. The diagonally-extending sheathing-boards F F' thus operate each as a cross-brace and give great strength and rigidity to the side and end walls of the car. These boards are securely nailed to the plates and sills at their ends and to the intermediate frame-piece E at their middle.

The roof of the car consists of two crossing layers of diagonal boards G G', secured at their ends to the top plates of the car with a layer G² of roofing-felt between, the same being saturated with waterproofing compound, and a third layer of transverse boards H on top of the boards G G', there being a layer of roofing-felt H' interposed between. This top layer of transverse boards H is given a pitch from the ridge or middle of the car toward each side by the beveled longitudinal boards K, which extend from end to end of the car and are mitered together at the ridge. These longitudinal beveled boards K are preferably laid on the second layer of diagonal boards G' and beneath the layer of roofing-felt H'. The layer of roofing-felt H' has overlapping edges h, which are folded down over the ends of the diagonal layers of boards G G'.

The roofing compound employed to saturate the roofing-felt is preferably that described in my Letters Patent, No. 333,467, of December 29, 1885.

The first layer of roofing-felt F² may preferably be two-ply in thickness, and the second layer of roofing-felt may preferably be

three-ply in thickness. The overlapping flange or edge *h* of the roofing-felt *H'* and the ends of the diagonal boards *F F'* are protected by a cornice board or band *N*, which extends
5 around the car at sides and ends. The diagonal boards *G G'*, as well as *F F'*, should be, preferably, tongued and grooved together, as should also be the upper transverse roofing-boards *H*.

10 By laying the two layers of roofing-boards diagonally and making them cross each other at an angle the roof structure of the car is very greatly strengthened and each board of the second layer rests upon and gets support
15 from a number of boards beneath it in the first layer, so that the roof is easily given the requisite stiffness and rigidity to properly bear the weight of a man running upon the same, and this principle also applies to the transverse layer of boards *H*, each board of which
20 is sustained by a number of boards of the second layer *F'* and a number of boards of the first layer *F*. In this respect my improved construction of freight-car roof herein shown
25 has many advantages over that shown and described in my said patent, No. 313,173.

By my multiple-brace construction of freight-cars, wherein each of the diagonal sheathing-boards *F F'* and diagonal roofing-boards *G G'* and transverse roofing-boards *H*,
30 which coact together as braces, I am enabled to produce a freight-car of a much cheaper construction than those heretofore commonly in use and which is at the same time much
35 stronger and more durable.

I claim—

1. In a car-body, the combination, with its side and end walls composed of two layers of diagonal boards *F F'*, crossing each other, and
40 an intermediate layer of felt, of a frameless roof composed of two layers of diagonal boards *G G'*, crossing each other at an angle, an interposed layer of roofing-felt *G²*, a transverse layer of boards *H*, and roofing-felt *H'*,
45 and longitudinal beveled boards *K* to give a pitch to said upper transverse layer of roofing-boards, substantially as specified.

2. In a freight-car body, the combination, with the top plates, of two layers of diagonal
50 roofing-boards *G G'*, crossing each other at an angle, the boards of each layer extending diagonally across the car-body from one of said top plates to the other, substantially as specified.

55 3. In a car-body, the combination, with the top plates, of two layers of diagonal roofing-

boards *G G'*, crossing each other at an angle, and roofing-felt interposed between said two layers of boards, the boards of each layer extending diagonally across the car-body from
60 one of said top plates to the other, substantially as specified.

4. In a freight-car body, the combination, with the top plates, of two layers of diagonal roofing-boards *G G'*, crossing each other at an
65 angle, and transverse boards *H*, substantially as specified.

5. In a freight-car body, the combination, with the top plates, of two layers of diagonal roofing-boards *G G'*, crossing each other at an
70 angle, transverse boards *H*, and layers of roofing-felt interposed between the two layers of diagonal boards and between the second layer of diagonal boards and the transverse top layer of boards, substantially as specified. 75

6. In a freight-car, the combination, with the top plates, of two layers of diagonal roofing-boards *G G'*, longitudinal beveled boards *K*, and transverse roofing-boards *H*, substantially
80 as specified.

7. The combination, with the layers of diagonal roofing-boards *G G'*, crossing each other at an angle, of a layer of roofing-felt *G²*, longitudinal beveled boards *K*, roofing-felt *H'*, and transverse roofing-boards *H*, substantially
85 as specified.

8. The combination, with the layers of diagonal roofing-boards *G G'*, crossing each other at an angle, of a layer of roofing-felt *G²*, longitudinal beveled boards *K*, roofing-felt
90 *H'*, and transverse roofing-boards *H*, said layer of roofing-felt *H'* having its edges folded down and overlapping the ends of said diagonal roofing-boards *G G'*, and a cornice board or band *N*, substantially as specified. 95

9. In a freight-car, the combination, with the sills and top plates and corner and door posts, of the side and end walls of a car composed of two layers of diagonal sheathing-boards *F F'*, substantially as specified. 100

10. The multiple-brace construction of freight-cars herein shown and described and consisting, in connection with the sills, plates, and posts, of diagonal boards *F F'*, forming
105 the side and end walls of the car, and diagonal roofing-boards *G G'*, substantially as specified.

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Witnesses:

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