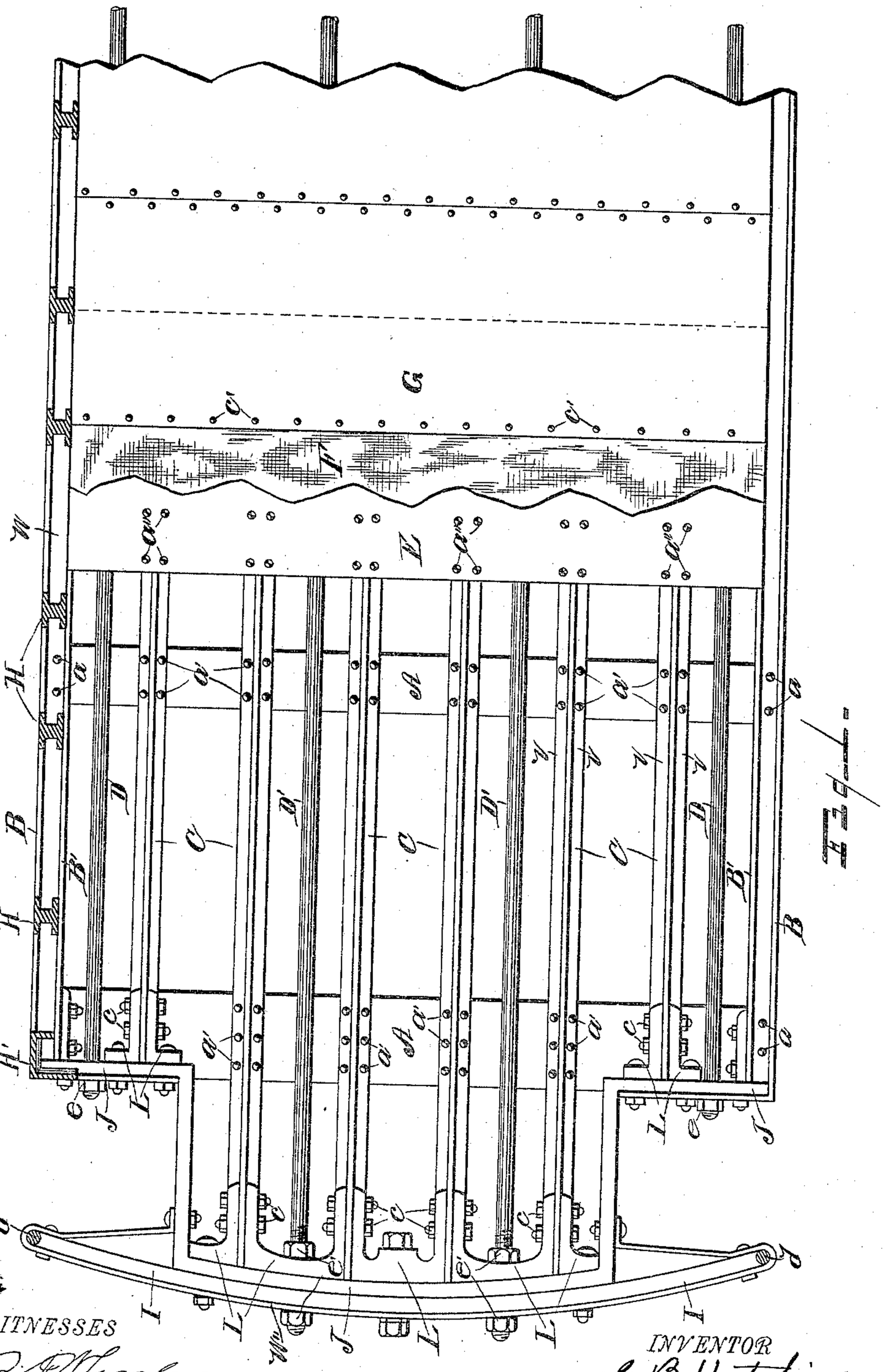
(No Model.)

3 Sheets—Sheet 1.

C. B. HUTCHINS.

METALLIC PASSENGER CAR.

No. 442,894. Patented Dec. 16, 1890.



WITNESSES

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(No Model.)

3 Sheets—Sheet 2.

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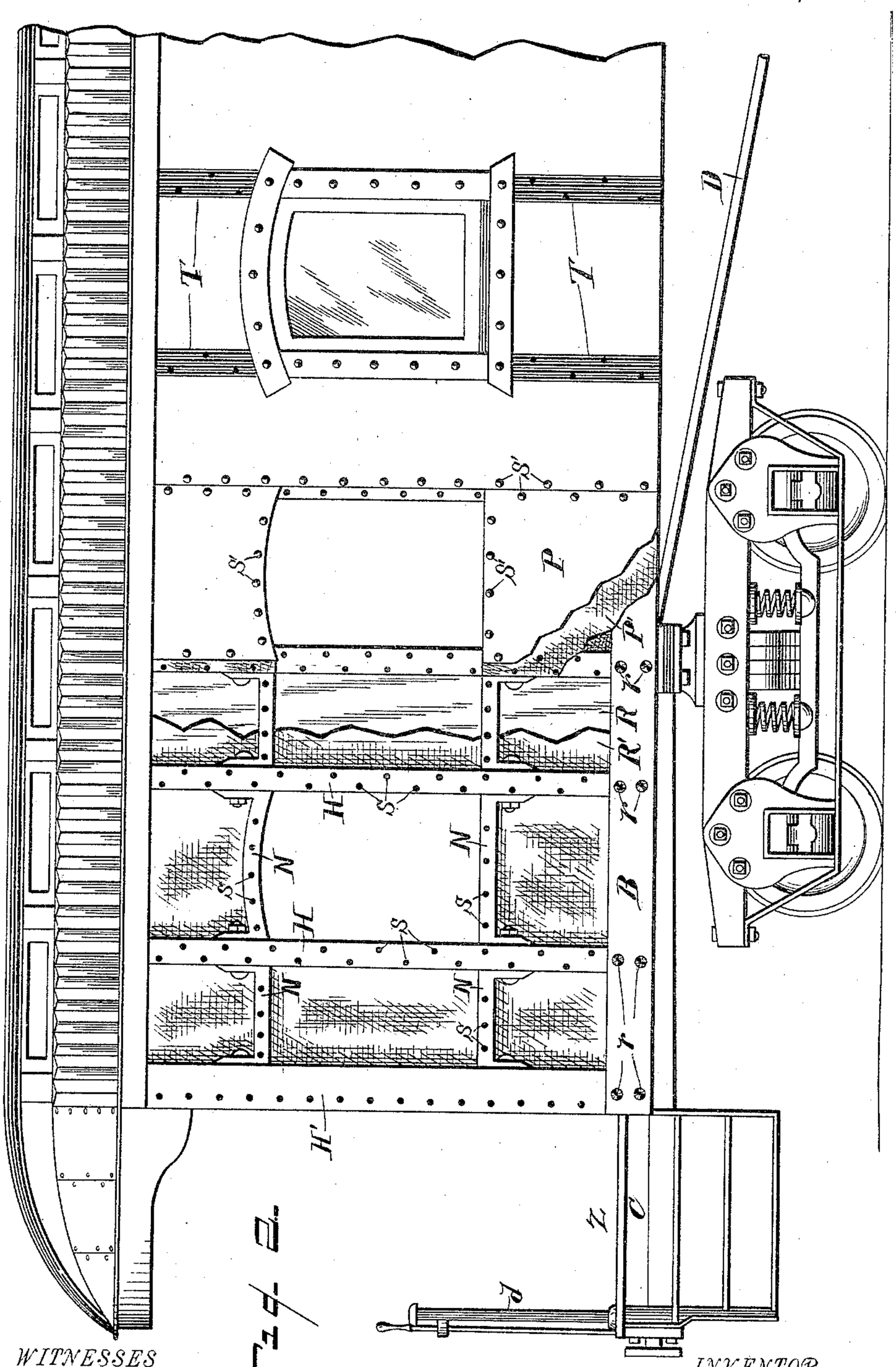

Fig. 2.

WITNESSES

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3 Sheets—Sheet 3.

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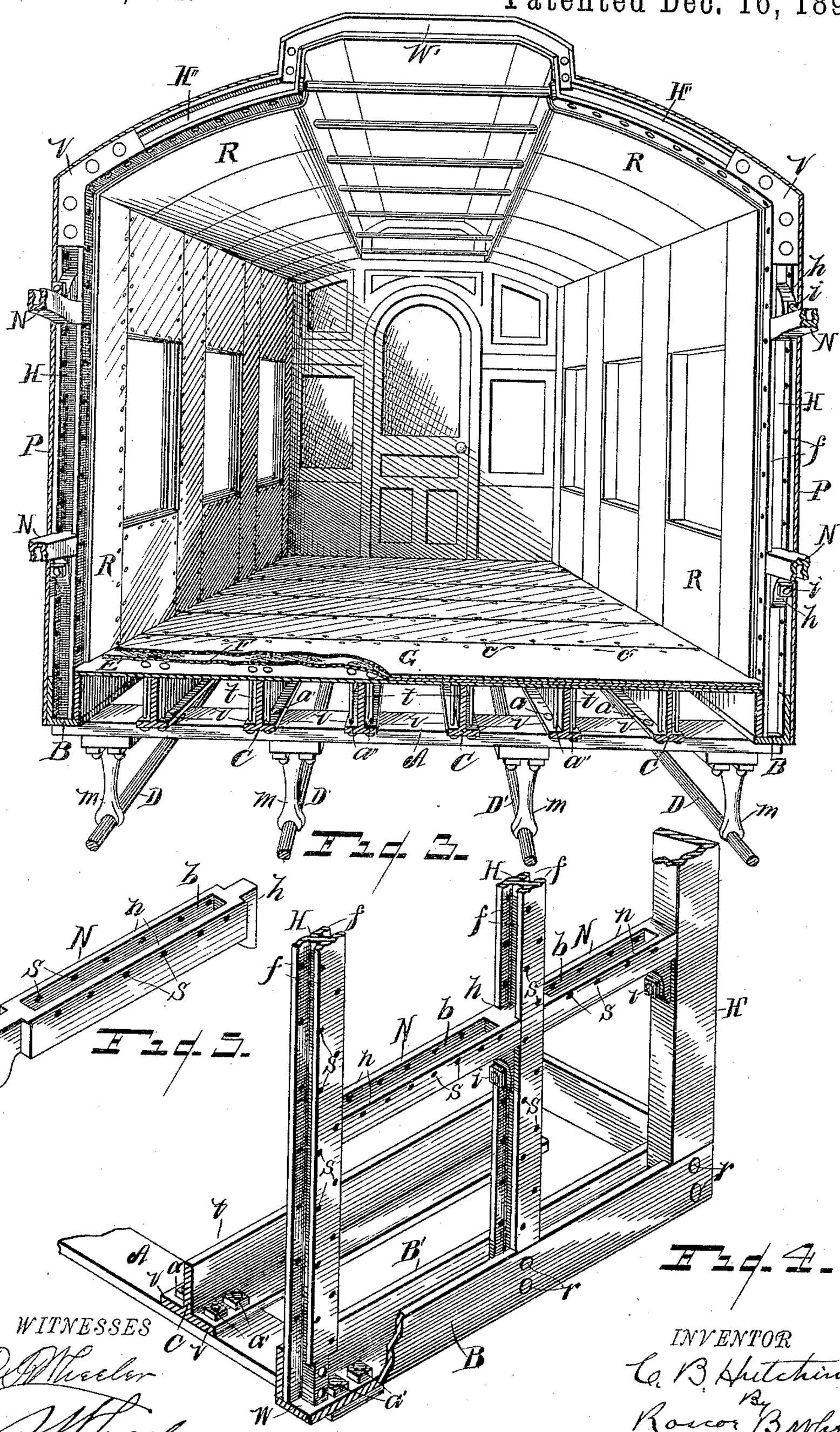

Fig. 3.

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE.

CARLETON B. HUTCHINS, OF DETROIT, MICHIGAN.

METALLIC PASSENGER-CAR.

SPECIFICATION forming part of Letters Patent No. 442,894, dated December 16, 1890.

Application filed September 8, 1890. Serial No. 364,336. (No model.)

To all whom it may concern:

Be it known that I, CARLETON B. HUTCHINS, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Metal Passenger-Cars; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to the construction of metallic cars, in which the car is composed entirely of metal, the sheeting of the floor and that of the inner and outer walls being provided with an interposed layer of felt or like material to deaden the sound, the arrangement of parts being such that the car, though comparatively light, is very strong and durable, not easily crushed in a collision or accident, and is absolutely non-combustible, all of which will be hereinafter more fully set forth, and the essential features of the construction pointed out particularly in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a portion of the bottom frame of the car and a section of the floor lying on said frame, like parts being broken away. Fig. 2 is a side elevation of a car, a portion of the outer sheeting and lining being removed to show the inner lining, which is broken away, showing also the inner sheeting forming the interior wall of the car. Fig. 3 is a perspective view looking into a section of one end of the car. Fig. 4 is an enlarged detail in perspective of the frame-work. Fig. 5 is an enlarged view of the cross-tie used for connecting and supporting the uprights or studding of the frame.

Referring to the letters of reference, A indicates the under transverse bars of the frame or car foundation on which the girders C rest, the ends of said bars being bolted to the under face of the side rails B, as shown at *a* in Figs. 1 and 4. The girders C are T-shaped in cross-section and extend the entire length of the car-frame, and are bolted to the cross-bars A through their horizontally-extending flanges *v*, as shown at *a'* in Figs. 1, 3, and 4. The ends of the girders C terminate against the angle-bar J, crossing the end of the frame, and are secured between the adjacent faces of the heads L by means of the bolts *c c*, (shown in Fig. 1,) the heads L being bolted to the angle-bar J of the frame forming the car foundation.

D D' are truss-rods extending longitudinally of the car-frame, their ends passing through the angle-bar J, and are secured by the nuts *e e'*, (shown in Fig. 1,) said rods being braced near their longitudinal center by the depending arms M, secured to the under face of the cross-bars A. (Clearly shown in Fig. 3.) The ends of the rods D' also pass through the heads L and the crown-plate I, being secured therein, and said parts held together by the nuts *e'*. (Shown in Fig. 1.) The outer ends of the crown-plate I support the vertical posts *d* of the railing of the steps, and the extended end of the frame supports the platform Z at the end of the car. (Clearly shown in Figs. 1 and 2.)

The floor of the car rests upon the vertical portion *t* of the girders C. (Shown in Fig. 3.) Said floor is composed of the under layer of sheet metal E, the upper layer of sheet metal G, and the layer of felt or like material F, interposed between said layers of sheeting. (Shown in Figs. 1 and 3.) The under layer of sheeting E is secured to the girders C by means of the bolts or rivets *a''*, (see Fig. 1,) that pass through said layer on each side of the vertical portion *t* of the girder C and through the flanges *v v* thereof, as shown in Fig. 3.

On the sheeting E is placed the layer of felt or filling F, and on said felt is placed the upper layer of sheet metal G, which is secured to the under layer E by means of the rivet *c'*, the interposed layer of felt holding the upper and under layers of metal from contact with each other. Said upper and under sheetings are laid in strips and so as to break joints, as shown by dotted line in Fig. 1.

The sides and ends of the car-frame are composed of the uprights or studding H H', coupled by the cross ties or braces N, as shown in Fig. 4. The uprights H are provided on each side with the laterally-extending flanges

f, having a series of holes *s* therethrough, that afford means for riveting to said uprights the outer and inner sheetings that form the wall of the car. The corner post or upright II′ is smooth-faced and of three sides, it being open on the inner side to permit of riveting the outer sheeting thereto. The lower ends of all of said uprights rest on the base W of the side rail B, which is L-shaped in cross-section, a portion of the lateral flange *f* at the lower ends of the uprights being cut away so as to bring their outer face flush with the outer face of the rail B, between which and the inner rail B′ the ends of the studding are secured by bolts or rivets *r r*, also shown in Fig. 4.

The cross ties or braces N are provided with the depending tenon *h* at each end. Said braces are channeled, as shown at *b*, forming the web *n* on each side, which is also provided with a series of holes *s* to permit of riveting the sheeting thereto. The tenons *h* of said braces are adapted to enter between the flanges *f* of the uprights II, and the braces are firmly secured to said uprights by means of the bolts *i* passing through the tenons and uprights, as shown in Figs. 3 and 4, the braces N being equal in thickness to the uprights II and standing flush with their inner and outer faces, as clearly shown in Fig. 4.

The roof of the car is supported by the rafters II″, substantially of the same form as the studding or uprights II, and to which they are secured at their lower ends by the angle-plates V. (See Fig. 3.) The upper ends of the rafters II″ are coupled by the arched bars W′, that form the ridge of the roof.

The interior lining of the car is composed of a layer or filling of felt R′, placed against the inner face of the uprights, over which is placed the metal sheeting R, (shown in Figs. 2 and 3,) and which is riveted to the uprights and cross-braces through said layer of felt, the ceiling being formed and secured to the rafters in like manner.

The outer covering of the car-frame consists of the layer of felt P′ and the outer sheeting P, said felt being placed over the outer face of the frame and the outer sheeting P riveted to the uprights and cross-braces through said layer of felt, (shown at *s*′ in Fig. 2,) and, if desired, the rows of rivet-heads and seams may be covered with the ornamental strips T, which give a better finish to the car.

This improved car, as shown and described, is composed entirely of metal, with the exception of the interposed layer of filling of felt or analogous material, which is used between the outer and inner sheeting and the frame of the car and between the layers of sheeting of the floor. This use of the felt or filling prevents the contact of the sheeting with the frame and deadens the sound.

It will be observed that the series of girders C along the center of the car base or frame are longer than the like girders forming the side supports for the car. By this arrangement the buffer-head W″ is supported firmly and the platform Z of the car is an integral part thereof, thus forming light and substantial approaches at each end of the car.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The metal car-foundation comprising the following combined elements: the transverse plates A, the series of T-shaped girders crossing said plates, the angle-bar mounted on the ends of the girders, and the crown-plate attached to the angle-bar, substantially as specified.

2. In a car-foundation, the following combined metallic parts: the series of transverse plates A, the series of T-shaped girders crossing said plates at right angles, the flanges of the girders being bolted to said plates, the angle-bar mounted on the ends of the girders, and the metal heads bolted to the girders and to the angle-bar, substantially as set forth.

3. In a metal car-frame, the combination of the transverse plates, the T-shaped girders crossing said plates, the angle-bar mounted on the ends of said girders, the metal heads attached to the girders and the angle-bar, and the series of truss-rods passing through the metal heads and the angle-bar.

4. In a car-frame, the following combined metallic parts: the series of transverse plates, the girders crossing said plates, the angle-bar mounted on the ends of said girders, the series of metal heads attached to the girders and the angle-bar, the metal crown-plate mounted on the angle-bar, the series of truss-rods passing through the metal heads, the angle-bar and crown-plate, and nuts on the ends of the truss-rods, substantially as specified.

5. In a car-frame, the following combined metallic parts: the transverse plates, the T-shaped girders crossing said plates, the L-shaped girders attached to the ends of the transverse plates, the angle-bar mounted on the ends of both sets of girders, the metal heads attached to the T-shaped girders and the angle-bar, the truss-rods passing through the metal heads and the angle-bar, and the truss-rods D, passing through the angle-bar at the end of the car proper, substantially as specified.

6. A metal car-frame comprising the following combined elements: the transverse plates, the series of T-shaped girders crossing said plates, the outside L-shaped girders, the plates B′ adjacent thereto, the metal sheets or plates E, said plates being fastened to the flanges of the T-shaped girders, the lapping sheets of metal G, and the interposed strip of felt or analogous agent.

7. In combination with the transverse plates, the series of T-shaped girders, the transverse plates being riveted to the flanges of said girders, the series of metal plates E, mounted on said girders, said plates being also riveted to the flanges of said girders, the lapping series of metal plates G, and the in-

terposed layer of felt or analogous substance, the sheets G being riveted to the sheets E, for the purposes specified.

8. In combination with the metal L-shaped girders, the adjacent plate B′, the series of risers H, having perforated flanges, and the sheets of metal riveted to the opposite faces of said risers and having an interposed sheet of felt or analogous substance, substantially as specified.

9. In combination with the metal girders B, the series of metal uprights H, having perforated flanges on opposite faces, the channeled braces having the perforated faces attached to said uprights, and a sheet of metal riveted to the opposite faces of said uprights and braces and having an interposed felt or like pliable agent, for the purposes specified.

10. In combination with the metal uprights H, having perforated flanges, the channeled braces having perforated faces, their ends being bolted to the uprights, the series of metal sheets riveted to said uprights and having an interposed sheet of felt or like substance, and the ornamental metallic strips located over the meeting edges of the metal sheets, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

CARLETON B. HUTCHINS.

Witnesses:
E. S. WHEELER,
R. B. WHEELER.