No. 725,213. PATENTED APR. 14, 1903.

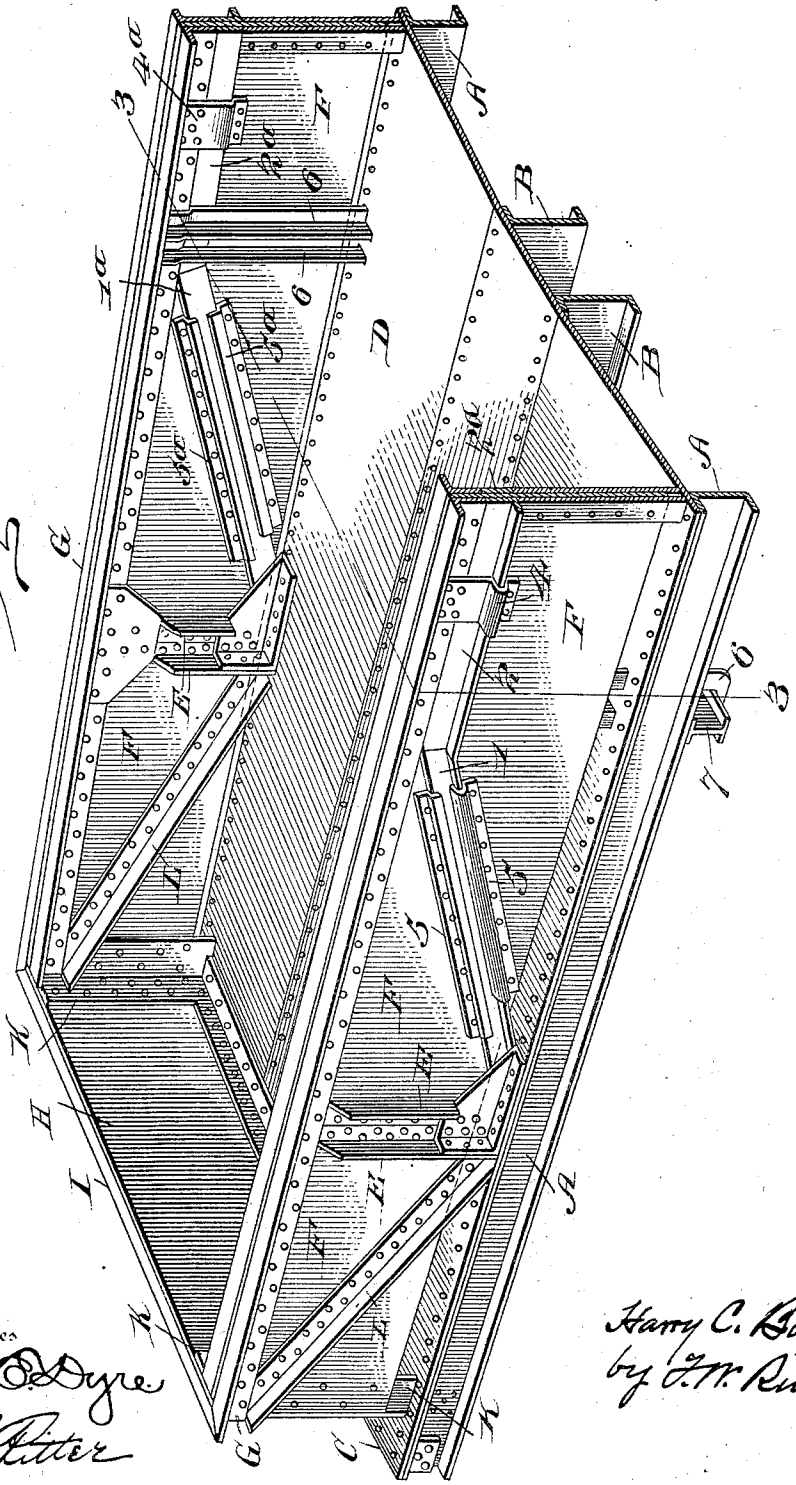
H. C. BUHOUP.

CAR CONSTRUCTION.

APPLICATION FILED JAN. 28, 1903.

NO MODEL. 4 SHEETS—SHEET 1.

Fig. 1.



Witnesses
Wm. C. Dyer
G. P. Ritter

Inventor
Harry C. Buhoup
by C. M. Ritter Jr.
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 4 SHEETS—SHEET 2.

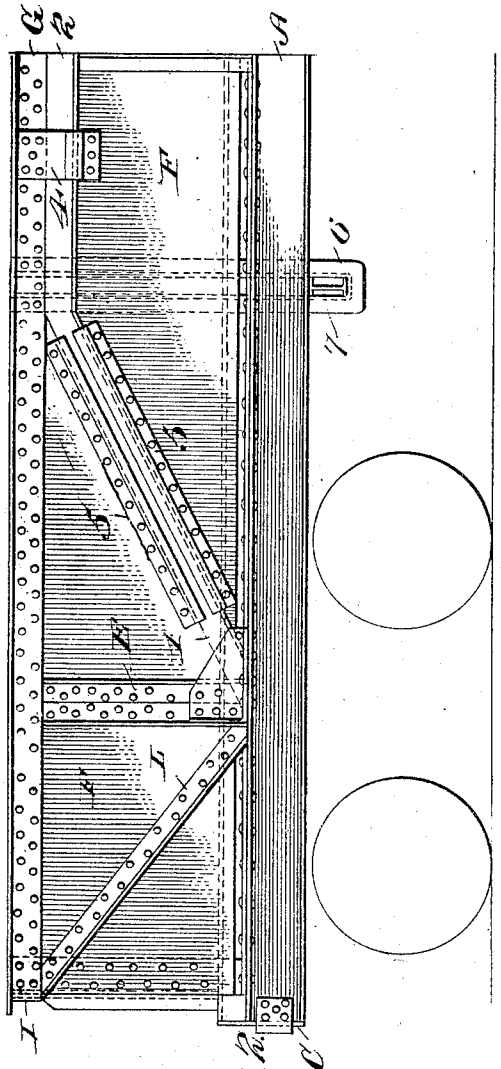


Fig. 4.

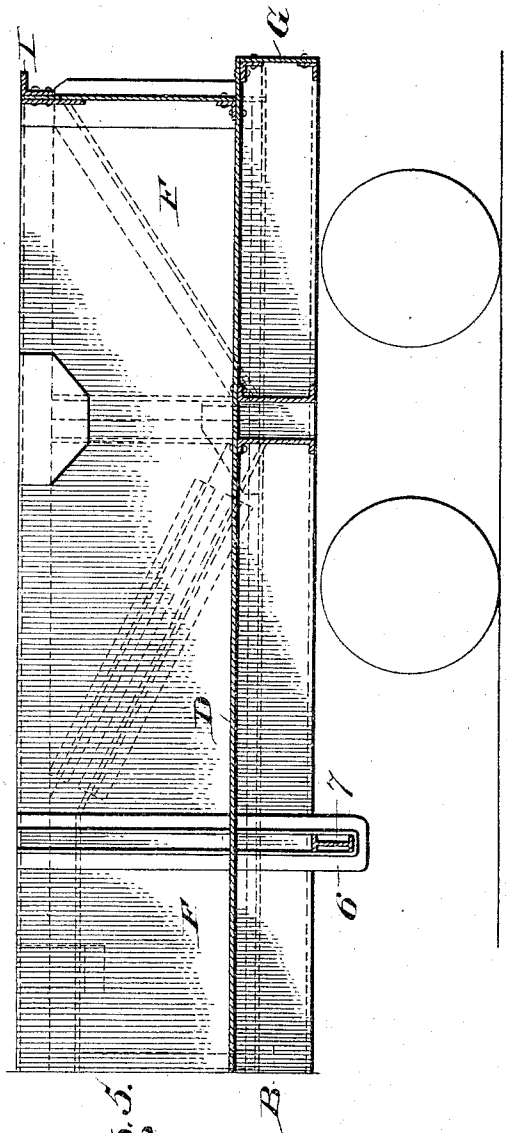


Fig. 5.

Witnesses

H. T. Dieterich

G. F. Ritter

Inventor

Harry C. Buhoup

by F. W. Ritter Jr.

Attorney

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NO MODEL. 4 SHEETS—SHEET 3.

Fig. 3.

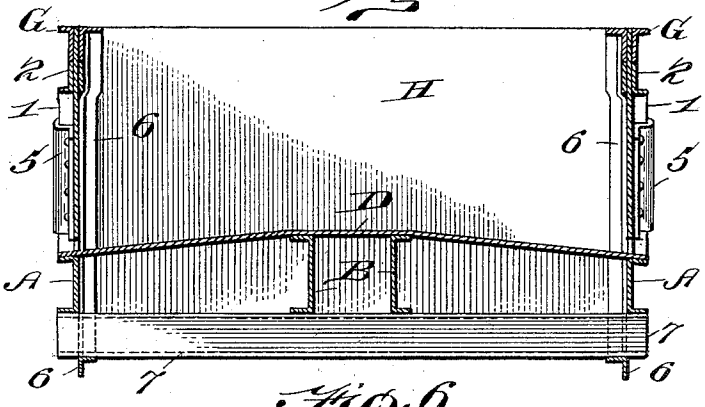
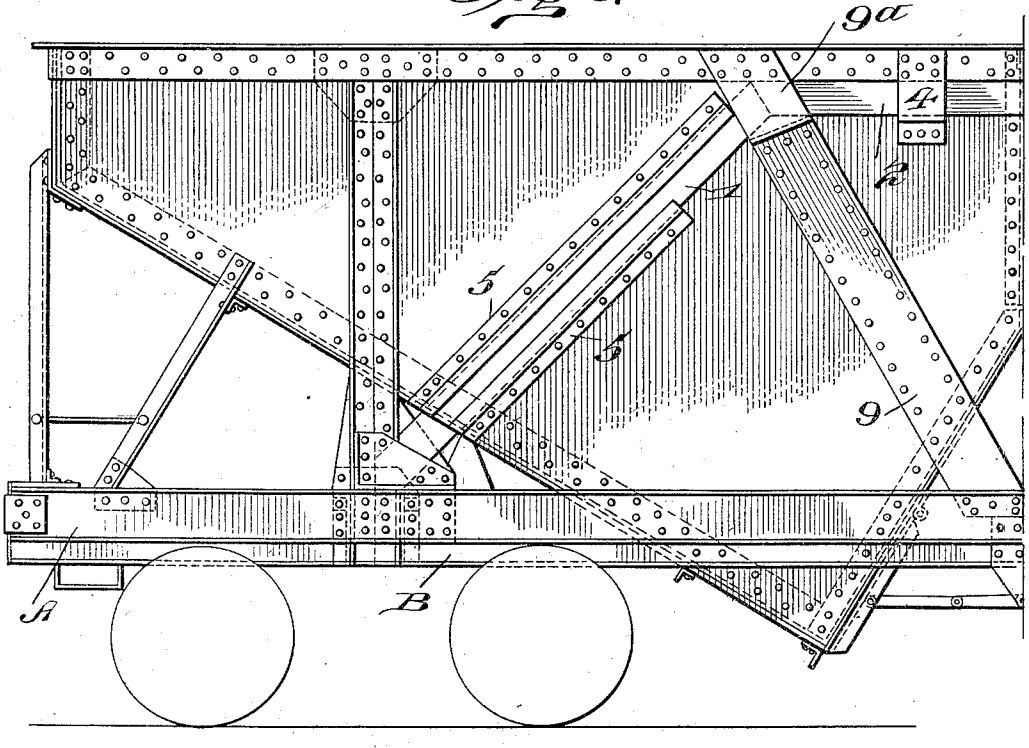


Fig. 6.



Witnesses

H. C. Dieterich

G. F. Ritter

Inventor

Harry C. Buhoup

by F. W. Ritter, Jr.

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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H. C. BUHOUP.

CAR CONSTRUCTION.

APPLICATION FILED JAN. 28, 1903.

NO MODEL. 4 SHEETS—SHEET 4.

Fig. 7.

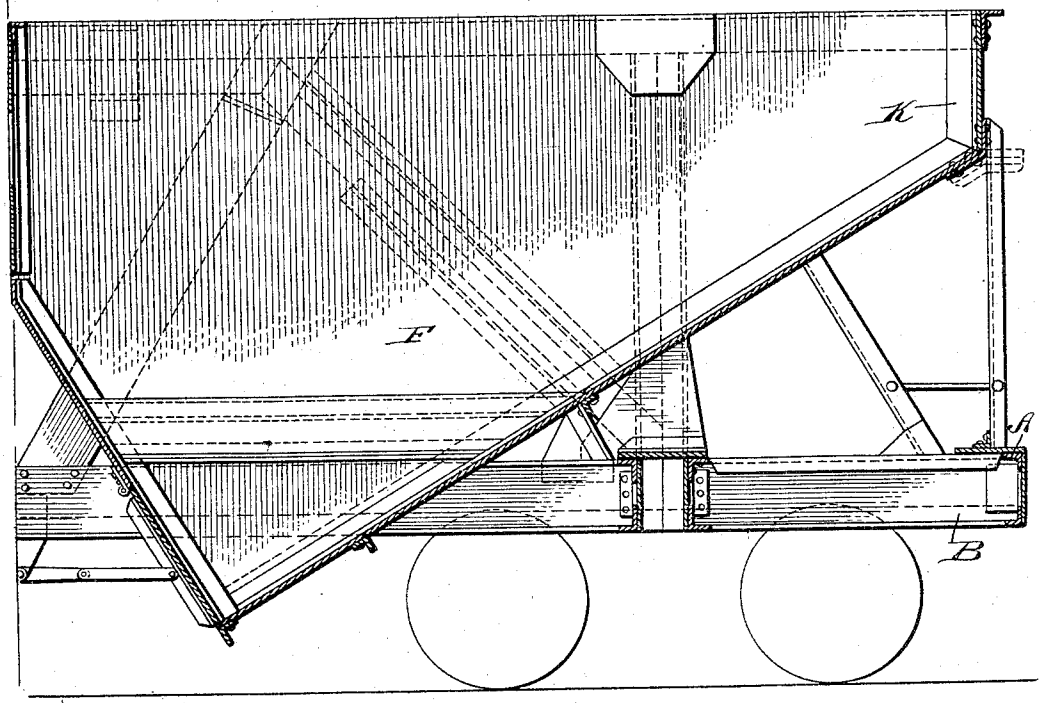
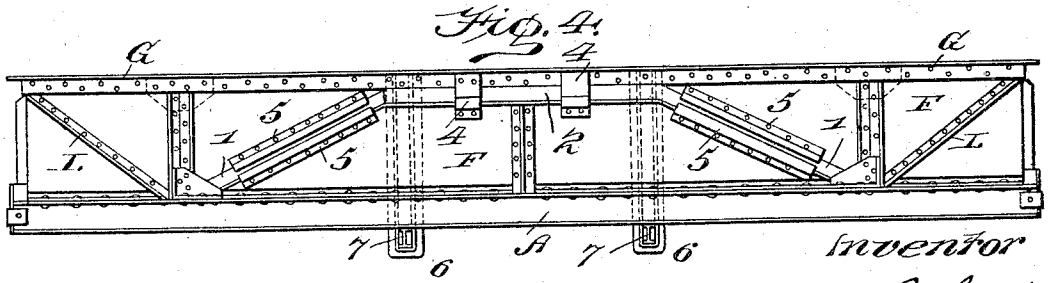


Fig. 4.



Witnesses
H. C. Dieterich
G. P. Ritter

Inventor
Harry C. Buhoup
by F. W. Ritter Jr
Attorney

UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS.

CAR CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 725,213, dated April 14, 1903.

Application filed January 28, 1903. Serial No. 140,826. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. BUHOUP, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Car Construction; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional perspective view of one half of a gondola car embodying my invention, the other half being a duplicate thereof, a side elevation of the car as a whole being shown in Fig. 4. Fig. 2 is a side elevation of one-half of the gondola-car shown in perspective in Fig. 1. Fig. 3 is a vertical transverse section of the car on the line 3 3, Fig. 1, showing the transverse sill-support and hangers therefor. Fig. 4 is a reduced side elevation of the car-body as an entirety. Fig. 5 is a longitudinal central section of one end of a modified form of gondola car, in which the inside trusses have been omitted. Fig. 6 is a side elevation of one-half of a hopper-car embodying my invention, and Fig. 7 is a longitudinal central section of the modification shown in Fig. 6.

Like symbols refer to like parts wherever they occur.

While my invention relates generally to the construction of all classes of cars and is to be so taken, it has been devised with special reference to metallic cars for the transportation of freight in general and coal in particular, having for its several objects, first, to relieve the car-body from crushing strains and forces incident to train traction; second, to breaking strains resulting from overloading as well as train service, and, thirdly, to prevent deterioration incident to the action of moisture, &c., retained within and on the floor of metallic cars.

It is well understood by those familiar with railway practice that cars, and especially metal cars, are subjected in service to longitudinal crushing forces which greatly reduce the life of the car, and to counteract this and strengthen the car the side walls of the car have heretofore been constructed in the form of plate-girders, also in the form of trussed girders; but in such constructions the aim has been to reinforce the car-body to meet the strains, not to relieve the car-body of such strains. It is also well understood by those familiar with railway practice that as a result of the shocks and strains of service, and the load being mainly carried by the bolsters which form the abutments of the span, the car-body is at all times liable to sink or sag at points between the bolsters and to fail at such points from overloading or severe service. So far as I am aware no attempt has heretofore been made to reinforce or support the car at points intermediate of the bolsters. A third trouble incident to the use of open metallic cars—as, for instance, coal-cars—is the accumulation of moisture or fluid from snow, rain, or condensation, which, seeping through the car contents, becomes an active agent in causing the deterioration and destruction of the metallic car-floor. To overcome the first of said objections and relieve the car-body of crushing forces and strains incident to service, I suspend or support the car-body from trusses independent of the car-body, which trusses strengthen the car-framing and take up the shock without transmitting it to the walls of the car-body, and such a construction embodies one feature of my invention. To overcome the second objection, I provide sill-supports intermediate of the bolsters and suspended from the top chord of the truss, and such a construction embodies a second feature of my invention. To overcome the third objection and prevent the accumulation of moisture on the car-floor, I give to the car-floor an inclination from center to sides and provide scuppers for the escape of fluids, the inclination of the floor not only serving to drain the car, but also to distribute the load, and such a construction embodies a third feature of my invention.

There are other further features of invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

In the drawings, A A indicate the side sills, B B the center sills, and C the end sills, constituting the underframing of the car-body, and with which intermediate sills and cross-ties may be used, if desired. The side sills A A are taken as the bottom chord of the

truss, and erected thereon and connected thereto are oppositely-disposed portal braces 1 1, the abutments of which are within the length of the side sills A A and preferably coincident with the car-bolsters, the upper ends of the portal braces 1 1 being connected by the top chord 2. The side and center sills A A and B B, as well as the portal braces and top chord of the truss, will be of metal and may be of channel and angle iron, as indicated in the drawings, and where outside trusses only are used should be of angle-iron to secure stiffness with lightness, though where inside trusses are used conjointly therewith the portal braces and top chord may be of plain bar, as indicated at 1^a and 2^a.

D indicates the car-floor, which is of metal and is inclined in both directions from the center sills B B to the side sills A A, to which latter it is attached by riveting or in other suitable manner.

Erected on the side sills A A are posts E E, to which are riveted or otherwise secured the plates F F, which constitute the side walls of the car-body, and these posts are preferably located at points coincident with the bolsters and the abutments of the portal braces 1 1^a.

G G indicate angle-irons extending the length of the side walls of the car at the top thereof, to which plates F are riveted or otherwise secured, and I I are similar angle-irons at the top of the end walls, to which the plates H H, constituting the end walls of the car-body, are also riveted, the corner connections being made by means of vertically-disposed angle-irons K K or other suitable means, while diagonally-disposed braces L L, of angle-iron, riveted to the plates F F, serve as stiffeners and, taken in connection with the angle-irons G and posts E, give the side walls of the car somewhat the character of a plate-girder.

The plates F, which constitute the side walls of the car-body, do not extend quite down to the floor D, but terminate a short distance from the floor, so as to leave an outlet for any fluid which would otherwise be retained in the car to the injury of the floor thereof. If the car-walls are extended down to the floor, then scupper-holes should be formed in the side walls.

The car-body, being of the general construction pointed out, will rest between the independent trusses, being preferably supported thereon through the medium of the angle-irons G G, which rest upon the top chords 2 2, and, in case inside trusses are also used, then likewise on the top chords 2^a 2^a, which carry the car-body and its load, and the car-body is confined to the truss by a series of keepers 4 4 and 5 5, which, while riveted or otherwise secured to the car-body, take over or loosely engage the truss, so that the car-body is relieved of the strains to which the underframing is subjected, while the underframing is reinforced by the truss. Of the keepers those marked 4 4 and 4^a 4^a are simply to preserve the relation of the top chords of the trusses to the angle-irons G G, while those marked 5 5 and 5^a 5^a, which engage the portal braces 1 and 1^a, prevent the end surging of the car-body with relation to its truss-supports. Within the length of the top chord 2 2 of the trusses and from the top of the car-body extend down hangers 6 6, which carry at their lower ends transverse sill-supports 7, which are located intermediate of the car-bolsters and form supports for the car-floor, the said supports 7 and the floor-load being thus, by reason of the position of the hangers 6 6, carried by or suspended from the upper chord of the truss.

In the case of the hopper-bottom cars shown in Figs. 6 and 7 of the drawings the construction as to trussing and suspension of the car-body from the trusses is identical with that practiced in the case of the gondola car shown in Figs. 1 and 2 of the drawings, and the side sills, portal braces, top chords, keepers, and posts have been marked alike; but inasmuch as the side walls of the hopper extend below the underframing at the center of the car it has been deemed desirable in such cars to provide braces 9, extending from the upper side walls near the ends of the upper chord of the truss diagonally down to bottom of the car at its center, (see Fig. 6,) and the upper end 9^a of said brace is also made to serve as an additional keeper, located at the intersection of the chord 2 and portal brace 1, to restrain rocking as well as the surging of the car-body.

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

1. In a car, the combination with side trusses, of a car-body independent of the side trusses and supported on the chords of said trusses, substantially as and for the purposes specified.

2. In a car, the combination with two sets of side trusses, of a car-body having its side walls intermediate of and supported from the chords of said trusses, substantially as and for the purposes specified.

3. In a car, the combination with side trusses, of a car-body supported on the upper chords of said trusses, suspension-hangers, and a transverse sill-support, substantially as and for the purposes specified.

4. In a car, the combination with side trusses, of a car-body independent of and supported from the top chords of the trusses and having posts coincident with the abutments of the portal braces of the trusses, substantially as and for the purposes specified.

5. In a car, the combination with side walls having scuppers, of a metallic floor which is inclined from the center to the sides of the car, substantially as and for the purposes specified.

6. In a car, the combination with side trusses, of independent side walls, and keepers for confining the side walls to the trusses,

substantially as and for the purposes specified.

7. In a car, the combination with the underframing, of side trusses, and side walls independent of the side trusses and supported by said trusses, substantially as and for the purposes specified.

8. In a car, the combination with the underframing, of side trusses, side walls independent of the side trusses, and keepers for confining the side walls to the side trusses, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 26th day of January, 1903.

HARRY C. BUHOUP.

Witnesses:
E. C. BATES,
D. B. MASON.