

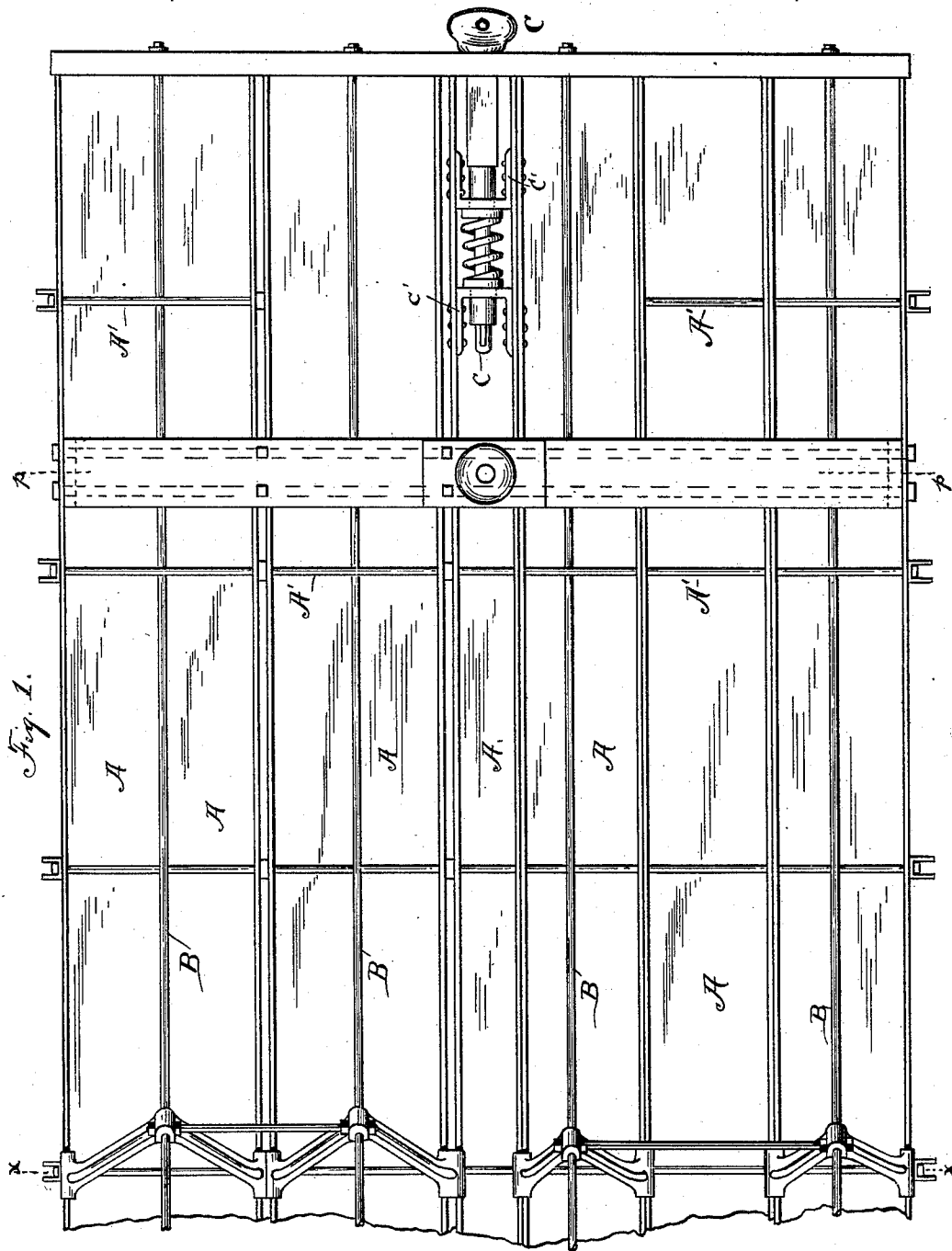
(No Model.)

4 Sheets—Sheet 1.

W. PENNOCK.
METALLIC CAB.

No. 466,624.

Patented Jan. 5, 1892.



Witnesses:

E. Byron G. Hunt
[Signature]

Inventor

Willard Pennock
[Signature]
[Signature]

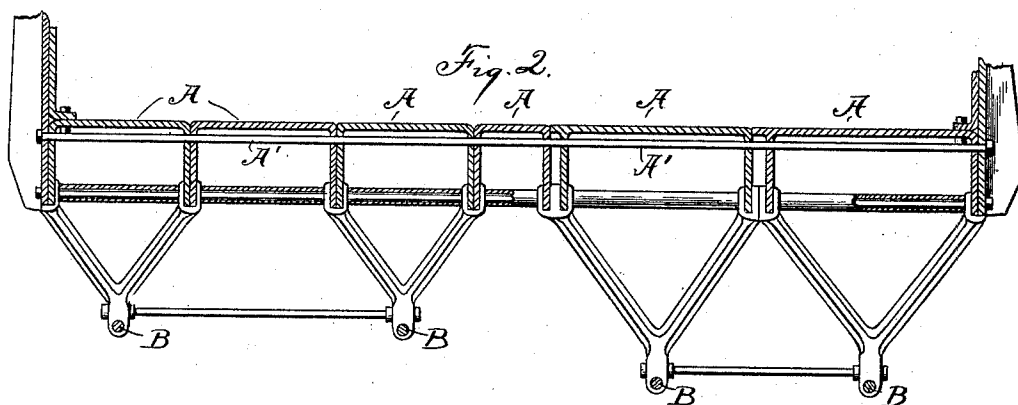
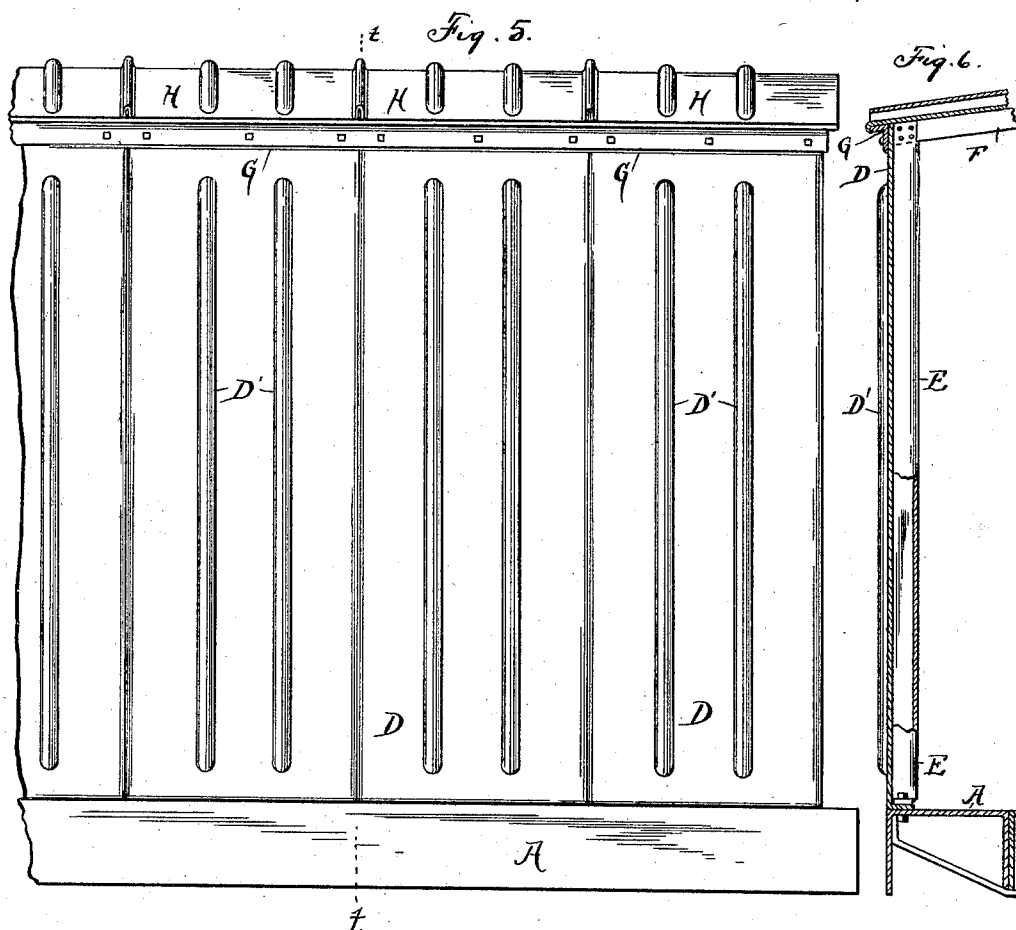
(No Model.)

4 Sheets—Sheet 2.

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E. Byron Gilchrist.
[Signature]

Inventor.

Willard Pennock
[Signature]
By Leggett and Leggett
attorneys

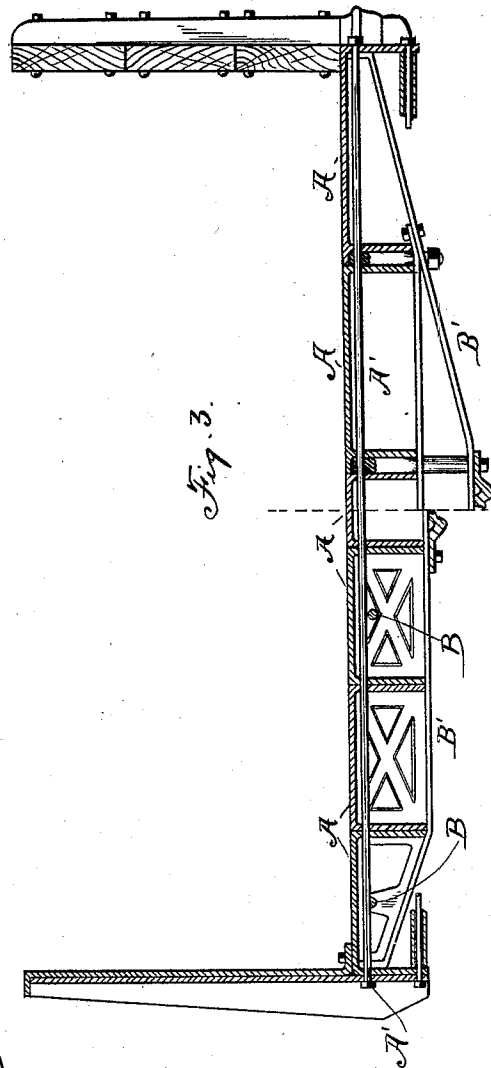
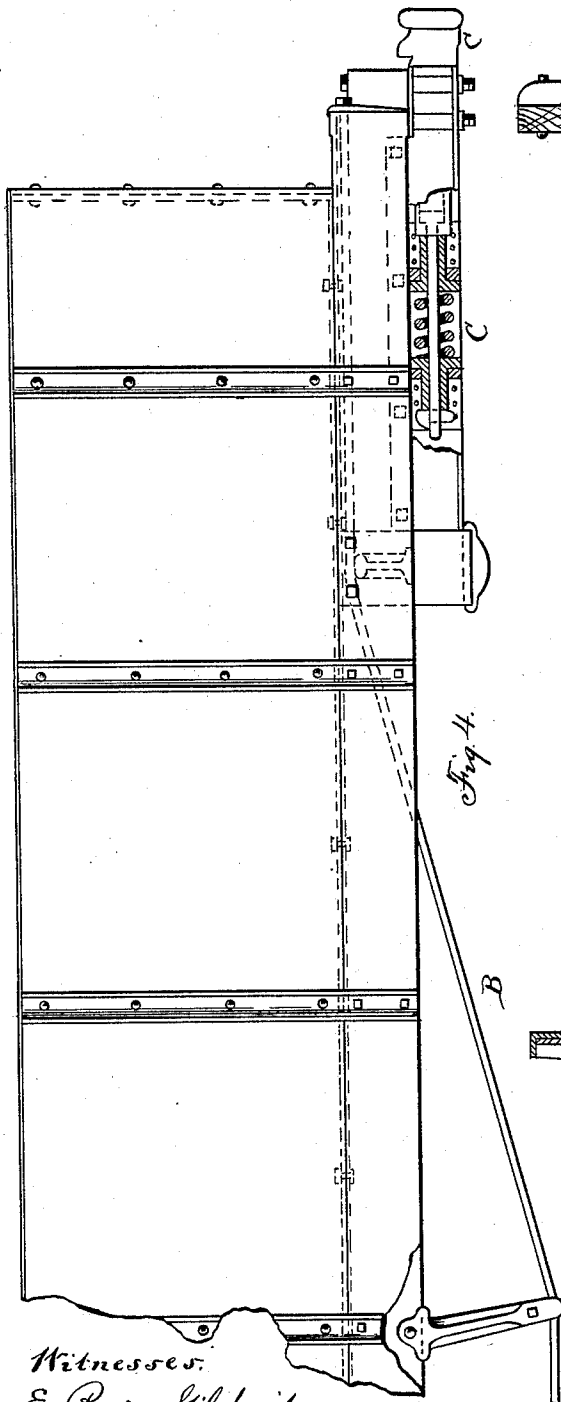
(No Model.)

4 Sheets—Sheet 3.

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E. Byron Gilchrist.
[Signature]

Inventor.
Eveland Pennock
[Signature]

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4 Sheets—Sheet 4.

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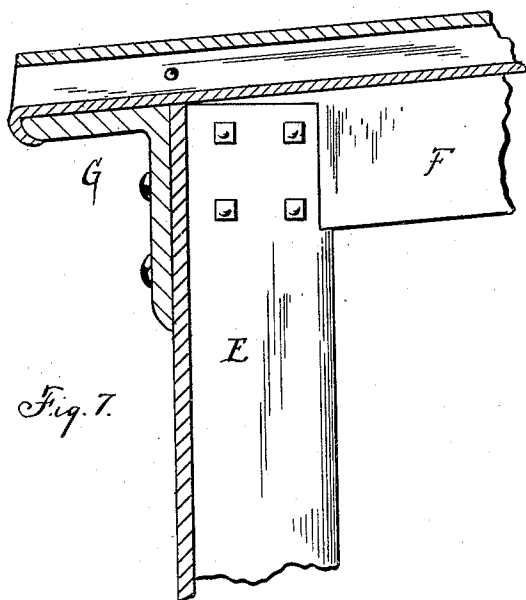


Fig. 7.

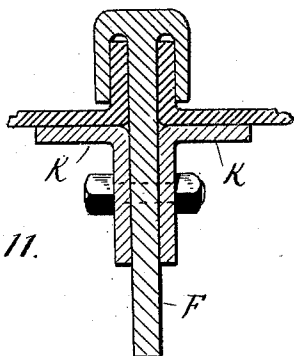


Fig. 11.

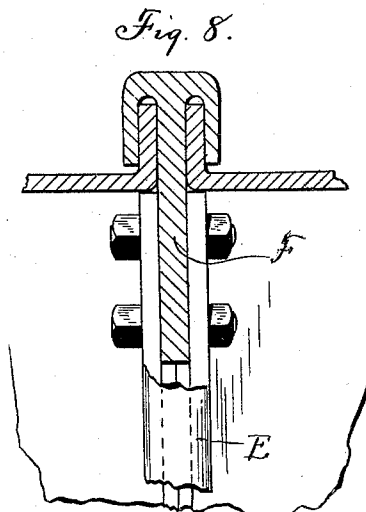


Fig. 8.

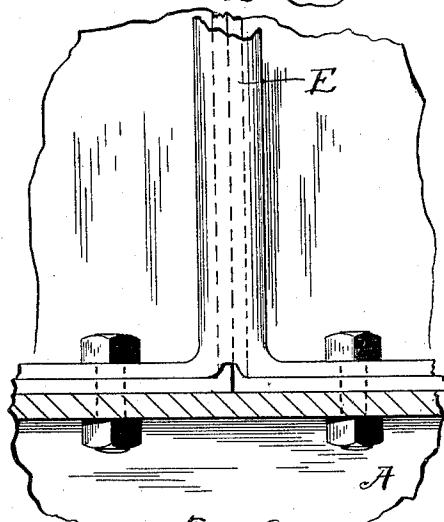


Fig. 9.

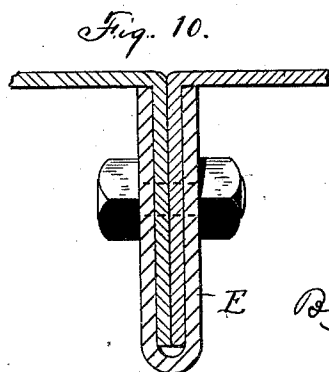


Fig. 10.

Witnesses.
E. Byron Gilchrist
[Signature]

Inventor.
Willard Pennock
By *[Signature]* & *[Signature]*
Attorneys

UNITED STATES PATENT OFFICE.

WILLARD PENNOCK, OF MINERVA, OHIO.

METALLIC CAR.

SPECIFICATION forming part of Letters Patent No. 466,624, dated January 5, 1892.

Application filed February 19, 1891. Serial No. 332,062. (No model.)

To all whom it may concern:

Be it known that I, WILLARD PENNOCK, of Minerva, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Metallic Cars; and I do hereby 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 pertains to make and use the same.

My invention relates to freight and passenger cars; and it consists in certain peculiar features of construction wherein the floor or deck, the sides, and the roof of the car, either or all, may be formed from iron or steel.

In the drawings, Figure 1 is a view from beneath of one end of a car-body constructed according to my invention. In this figure two forms or modifications of construction are illustrated, as will be hereinafter shown.

Fig. 2 is a view in cross-section of the same, taken through the line *xx* of Fig. 1. Fig. 3 is a view in cross-section taken through the line *pp* of Fig. 1. Fig. 4 is a view, part in side elevation and part in section, of the car-body shown in Fig. 1. Fig. 5 shows in side elevation one end of a freight or house car.

Fig. 6 is a view in cross-section of the device shown in Fig. 5, taken through the line *tt* of Fig. 5. Fig. 7 is a more detailed view showing the juncture of the car side and roof.

Fig. 8 is another detailed view of the same. Fig. 9 is a detailed view showing the juncture between the floor or deck of the car and the side or wall. Fig. 10 is a sectional view showing my manner of capping and securing the joints of the metallic sections of my car where the same are necessary. Fig. 11 is a detailed view showing my manner of jointing the metallic sections of my car-roof.

I will, for sake of convenience, divide the description of my car into three general parts—viz., the floor or deck, the sides or walls, and the roof—and I will refer to these divisions in the order given.

A A are channel-shaped strips of iron or steel, that run longitudinally with the car and which form the floor or deck. The flanges of these channel-irons (or "channel-beams," as I shall denominate them hereinafter in describing the floor of my car) are turned downward, as shown in Fig. 3 of the drawings, and are secured by bolts A'. These bolts A' may

either extend from side to side of the car, as indicated in Fig. 3, or they may be short enough merely to unite the abutting joints after the manner of an ordinary rivet.

Although I do not limit my invention to the employment of any definite number of the channel-beams A that shall be assembled to make up the floor of a car, still I prefer the use of an odd number of these beams, so that one of them shall come in the middle of the floor, in order that the draw-bar apparatus can be located in that beam, as indicated in Fig. 1, and thus be centrally placed without the necessity of any cutting or other special construction of the beams A in this locality. Figs. 2 and 3 illustrate how either five or seven channel-beams may be thus used. For the purposes already pointed out a convenient construction consists in making the central beam, that contains the draw-head, narrower than the rest, as indicated in the drawings. By this means the draw-head can be attached, perhaps, more conveniently; but as to this feature I do not limit myself, as the central beam A may be as wide as its fellows and the draw-bar effectually secured within it.

The material from which the channel-bars A are made may be iron or steel of about one-fourth inch thickness. The weight of these bars, however, may be varied more or less to suit special cases or requirements. The bars A may be either rolled originally into their channel form or their flanges may be bent down from a sheet previously flat.

In constructing the floor or deck of a car according to my invention I take, say, seven channel-bars A, whose aggregate width shall be the desired width of the car. These bars, each of them of a length corresponding to the length of the proposed car, are assembled side by side, as shown in Figs. 1 and 2, and are bolted together either by long or short bolts, as already spoken of. For purposes of stiffening and strengthening the structure the usual longitudinal truss or brace arrangement B should be adopted. Likewise the brace or truss arrangement B' may be used transversely between the beams A and across the bottom of the car. At each end of the middle channel-bar A is located a draw-head C, as shown in the drawings. It will be seen

that the draw-head is fastened securely in its position by being fitted to **U**-irons **C'** **C'**, which irons are bolted to the flanges of the adjacent channel-bars **A**. As already stated, I prefer making the middle channel-bar **A** narrower than its fellows in the floor of the car, so that the draw-head shall require smaller and lighter **U**-irons **C'** to keep it in position; but it is apparent that if the middle channel-bar should not be made thus narrower the draw-bar can be effectually secured in its position by making the attaching **U**-irons of correspondingly greater strength and dimensions.

In the case of a passenger-car the channel-beams should be made of a length sufficient both for the car-floor and the platforms, and in the case of any car a wooden floor may, if desired, be laid over the channel-beams.

Coming now to a description of the sides or walls of the car, these, like the floor, I propose making from flanged metallic strips or sheets. I take a sufficient number of flanged metallic sheets **D** of a length corresponding with the desired height of the car side and place them side by side, as indicated in Fig. 5 of the drawings. For the purpose of stiffening these sheets one or more ribs **D'** may be raised like a corrugation from the body of the sheet. The lower end of the sheet is bent inward at a right angle, and through the flange thus formed bolts pass for fastening the sheet to the car-floor, as shown in Fig. 9. The upright or side edges of the sheets **D** are flanged inward and abut against corresponding flanges of each neighboring sheet, and over these abutting flanges, as shown in Figs. 6 and 10, I fit a metallic cap **E**, which serves also as a post. This cap or post consists of a metallic strip folded or bent upon itself, as shown in Fig. 10. After the cap or post **E** has been placed in position it is firmly bolted to the flanges of the sheets **D**, as shown in Fig. 10, and thus these sheets **D** are very firmly united. The manner in which I attach the bottom end of the post **E** to the floor of the car is shown in Fig. 9 of the drawings. This is effected by splitting said post and spreading the wings thus formed at opposite right angles and bolting through these wings to the floor, as shown in the drawings.

The manner in which I fasten the top of the post **E** is shown in Figs. 7 and 8 of the drawings, and this is effected by splitting the post at its upper end, where it meets the carling **F**, thereby forking the post, so that it will straddle the carling, and then bolts are passed through the carling and post, as shown in Fig. 7 and 8.

G is an angle-iron placed along the eaves of the car, as shown in Figs. 5, 6, and 7. It is held in its position by bolts passing through the wall-sheets and by means of the roof-sheets hooking down over the horizontal wing.

This angle-iron **G** serves to stiffen the car structure at this point, as well as adding to the finish and appearance.

In case of a passenger-car suitable openings at the sides and through the sheets **D** are made for the windows, and of course the inside of the car is to be finished in wood in the usual way.

Coming now to a description of the roof, this part of the car, like the rest already specified, may be made from flanged metallic sheets like the sides already described. These sheets **H** are made preferably of a width corresponding to the width of the wall or side sheets **D** and are bent into an arch for manifest purposes of strengthening the roof. The roof-sheets **H** are flanged at both edges and are placed side to side, as shown in Fig. 5 of the drawings. To strengthen these sheets **H** they may have ribs raised or corrugated from thence in the same manner and to the same effect as already described for the side sheets **D**. In the case of the roof-sheets their edge flanges are made to turn upward. Fig. 11 of the drawings illustrates the manner in which the roof-sheets are jointed together. Between the upturned flanges of two adjoining sheets **H** is placed a carling **F**, the top of which is **T**-shaped, originally, which **T**-shaped part is bent down over the upturned flanges of the sheets **H**, as indicated in Fig. 11. Angle-irons **K** are applied, as shown also in Fig. 11. These angle-irons are bolted to the carling **F** and serve to hold up and support the roof-sheets **H**. The ends of the sheets **H** at the eaves of the car may either be hooked or bent over the angle-iron **G**, as shown in Fig. 7, or they may be riveted or bolted thereto.

There are many advantages attending a car constructed according to my invention, among which may be mentioned durability, and therefore cheapness and economy; also, comparative safety in case of accident from the breaking up or telescoping of the car; also, in case of an accident of such nature that the car, as not unfrequently happens, should be dismembered to be removed from the track, such a car as mine can be very readily disintegrated by unbolting its parts, many of which parts can be saved entirely fit for use again.

What I claim as my invention is—

1. A car - floor constructed from metallic flanged or channel bars, the flanges of said bars turning downward, whereby a smooth floor-surface is obtained, substantially as shown.

2. A car-floor constructed from an odd number of metallic flanged or channel bars, so that one of said bars shall be in the middle of the car and to which the draw-bars may be conveniently attached, substantially as and for the purpose shown.

3. A car the floor and sides of which are constructed from flanged metallic sheets or strips, substantially as shown.

4. A car the floor and sides of which are constructed from flanged metallic sheets or strips, those of the floor extending longitudinally with the car-body and those of the sides extending up and down, substantially as shown.

5. In a car, the combination, with the flanged metallic sheets composing its sides, of metallic folded strips or posts for joining the edges of such strips, said folded strips split at one end to straddle a portion of the roof and divided at the opposite end and spread apart to form an extended surface for attachment to the floor, substantially as set forth.

6. In a car-roof, the combination, with flanged metallic sheets or strips extending in a direction across the car-body, of carlings F,

the T-shaped top portion of said carlings being bent down to unite the adjoining flanged edges of said roof-strips, substantially as shown.

In testimony whereof I sign this specification, in the presence of two witnesses, this 15th day of January, 1891.

WILLARD PENNOCK.

Witnesses:

C. H. DORER,
WARD HOOVER.