

No. 847,135.

PATENTED MAR. 12, 1907.

W. VOSS.
PASSENGER CAR.

APPLICATION FILED NOV. 10, 1906.

3 SHEETS—SHEET 1.

Fig. 1.

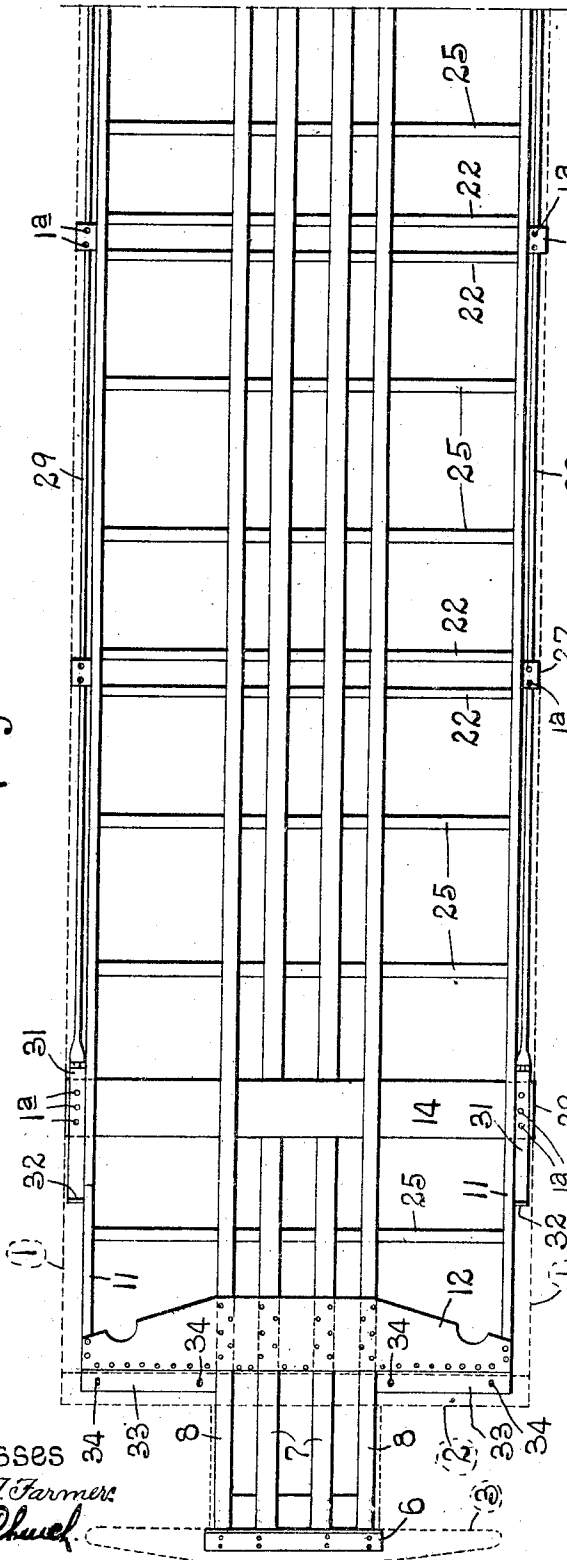
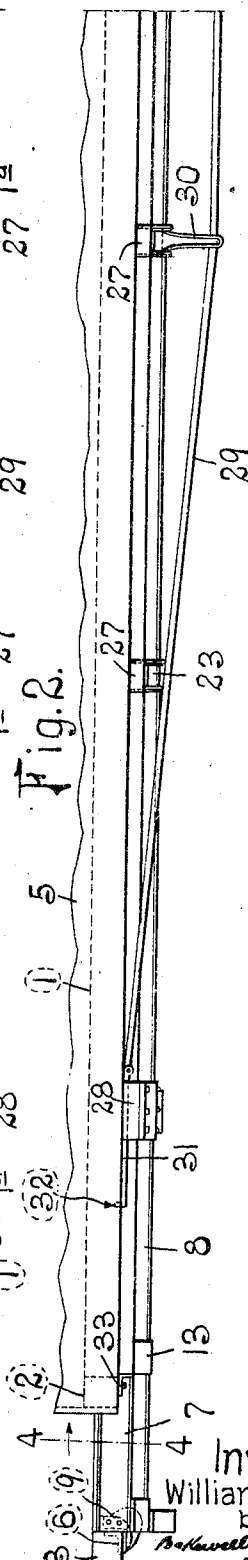


Fig. 2.



Witnesses
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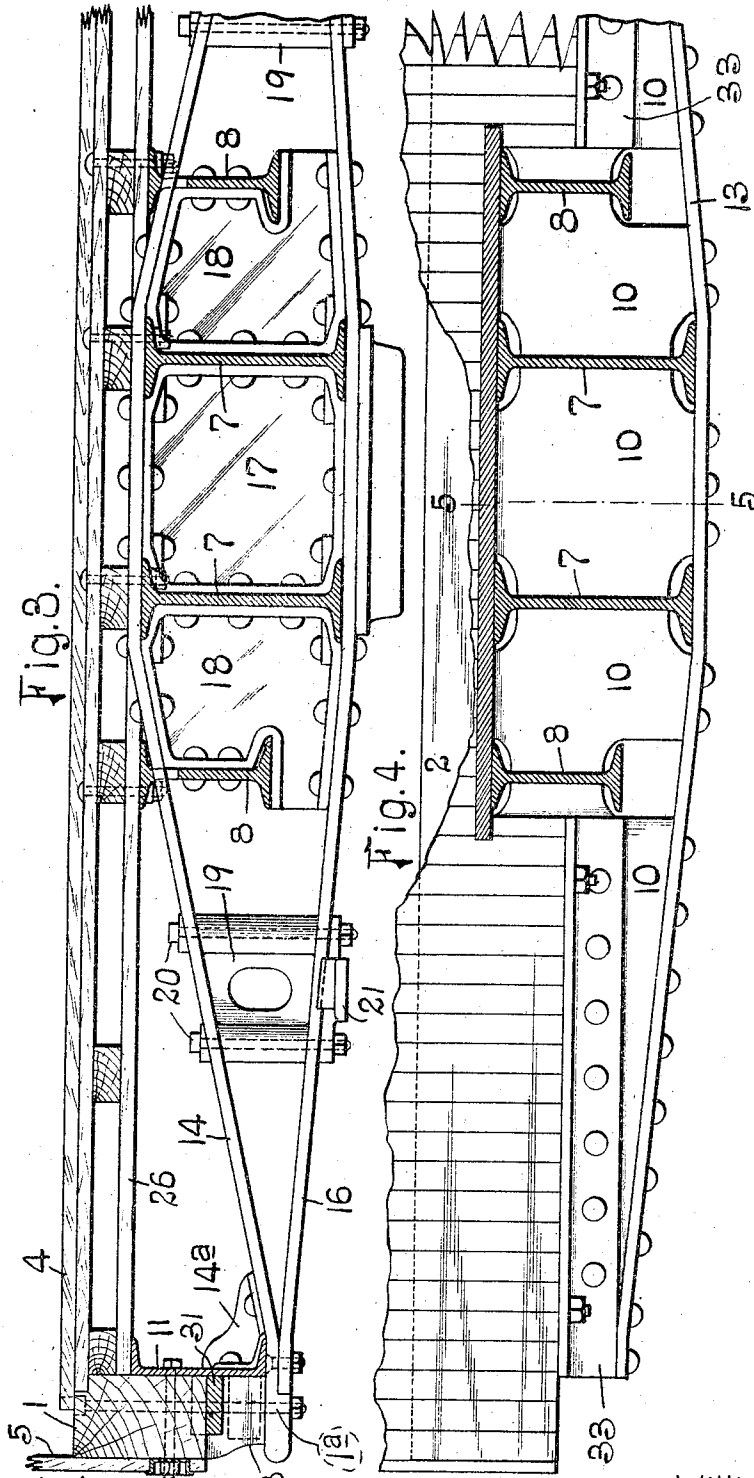
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3 SHEETS—SHEET 2.



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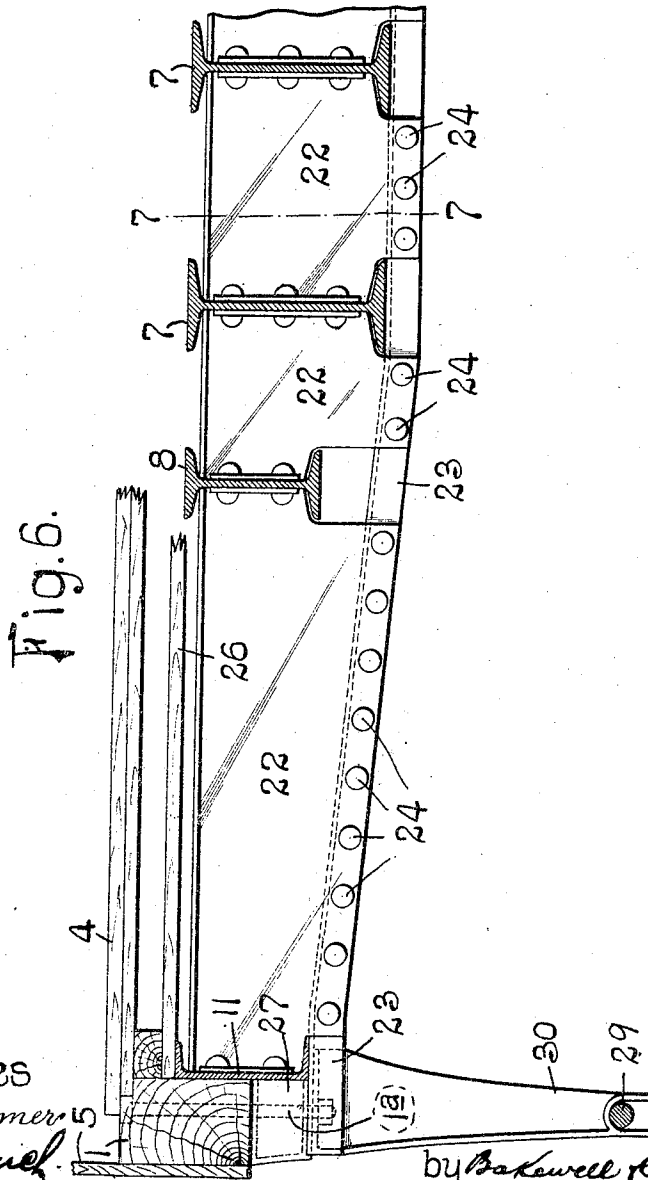
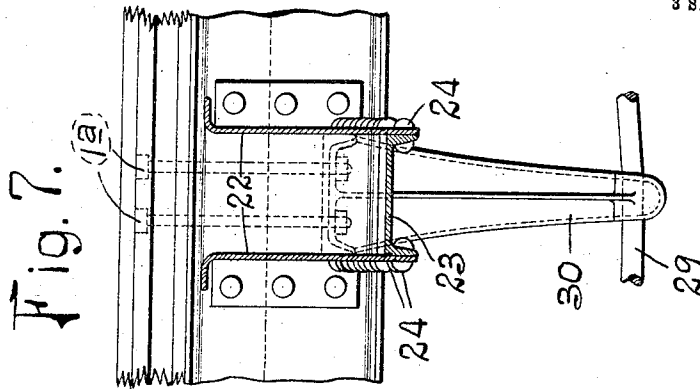
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3 SHEETS—SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM VOSS, OF WILMINGTON, DELAWARE, ASSIGNOR TO AMERICAN CAR & FOUNDRY COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF NEW JERSEY.

PASSENGER-CAR.

No. 847,135.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed November 10, 1906. Serial No. 342,824.

To all whom it may concern:

Be it known that I, WILLIAM VOSS, a citizen of the United States, residing at Wilmington, Delaware, have invented a certain new and useful Improvement in Passenger-Cars, of which the following is a full, clear, and exact description, 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, forming part of this specification, in which—

Figure 1 is a plan view of the underframe of my improved car with the car-body removed. Fig. 2 is a view in side elevation, showing a portion of the car-body in position on the underframe. Fig. 3 is an enlarged cross-sectional view showing the construction of the bolster. Fig. 4 is an enlarged cross-sectional view taken on the line 4 4 of Fig. 2 looking in the direction of the arrow. Fig. 5 is a vertical sectional view through the end sill, taken on the line 5 5 of Fig. 4. Fig. 6 is an enlarged cross-sectional view showing the construction of the cross-bearers, and Fig. 7 is a vertical sectional view taken on the line 7 7 of Fig. 6.

This invention relates to railroad rolling-stock, and particularly to passenger-cars.

One object of my invention is to provide a passenger-car in which the car-body and underframe are formed separate and distinct from each other and are detachably connected together, so that in case of an accident to the car the body as an entirety can be removed from the underframe, and thus enable repairs to be made quickly and at a lower cost than if the body and underframe were permanently connected together.

Another object of my invention is to provide a passenger-car consisting of a separate wooden body and a steel underframe detachably connected together in such a manner that the unequal expansion between the steel and wood is allowed for, so that the car will not squeak.

Other desirable features of my invention will be hereinafter pointed out.

Referring to the drawings, which represent the preferred form of my invention, 1 designates the side sills of the car-body, which are preferably constructed of wood, as are also the end sill 2 and the transversely-extending member 3, to which the platform-floor is connected, the floor and sides of the

car-body being designated, respectively, by the reference characters 4 and 5, as shown in Fig. 3.

The underframe of the car is preferably constructed of steel and comprises four continuous I-beams extending from the platform end sill 6 at one end of the underframe to the platform end sill at the other end of the underframe. The I-beams 7, which form the center sills of the underframe, are of greater depth than the I-beams 8, as shown in Fig. 3, and each of the platform end sills 6 of the underframe consists of an angle that is fastened to the ends of the I-beams 8 and center sills 7 by means of brackets 9.

The end sills of the underframe consist of flanged diaphragms 10, that are interposed between the channel side sills 11 of the underframe and the I-beams 8, and also flanged diaphragms that are interposed between the center sills and between the center sills and I-beams 8, the end flanges of said diaphragms being secured to the webs of the members against which they abut by means of rivets 11^a, as shown in Fig. 5. A continuous tension-plate 12 is secured to the upper flanges of the diaphragms of the end sill and also the center sills, side sills, and I-beams 8, and a continuous compression-plate 13 is secured to the lower flanges of all of said diaphragms and to the center sills and side sills, as shown in Fig. 4.

The body-bolsters of the underframe, one of which is shown in detail in Fig. 3, are built-up structures consisting of a flat tension-plate 14, that extends over the upper flanges of the center sills and then downwardly underneath the side sills, beyond which it projects laterally, the I-beams 8 being provided with slots 15, through which the plate 14 passes, and said plate being secured to the side sills by connecting devices 14^a. A continuous compression-plate 16 is connected at its opposite ends to the tension-plate 14 and extends underneath the center sills, and between the center sills is a flanged diaphragm 17, that is secured to the tension and compression plates and also to the webs of the center sills. Flanged diaphragms 18 are also interposed between the center sills and the I-beams 8, and these diaphragms are fastened to the tension and compression plates and the webs of the center sills and I-beams, said diaphragms being so construct-

ed that they partially incase the lower flanges of the I-beams 8, and thus support said beams. Spacers 19 are interposed between the tension and compression plates intermediate the side sills, and I-beams 8, and the bolts 20, which fasten said spacers to said plates, also secure the side bearings 21 to the compression-plate of the bolster.

Located intermediate the body-bolsters of the underframe are a plurality of cross-bearers, each of which consists of pairs of flanged members 22 interposed between the center sills, center sills and I-beams, and I-beams and side sills, the flanges on said members projecting in opposite directions and the end flanges thereof being fastened to the webs of the members against which they abut, as shown in Figs. 6 and 7. A continuous channel 23 is arranged between the lower ends of said pairs of members, and said channel extends underneath the center sills and projects laterally beyond the side sills 11 of the underframe to form supports for the side sills 1 of the car-body. Said channel 23 is arranged with its legs projecting downwardly and the lower edges of the members 22, which are unflanged, are connected to said legs by rivets 24. Intermediate cross-bearers 25 are also provided, and these intermediate cross-bearers preferably consist of flanged diaphragms which are secured to the webs of the center sills, side sills, and I-beams 8.

As shown in the drawings, the upper flanges of the center sills, side sills, and I-beams 8 all lie in the same horizontal plane to form a perfectly-level support for the cross-beams 26, which constitute part of the floor of the car-body. Instead of having the side sills 1 of the car-body rest directly upon the projecting ends of the channels 23, that form part of the cross-bearers, and the tension-plates 14, that form part of the body-bolsters, I prefer to mount cast-metal blocks 27 and 28, respectively, on the projecting ends of said members and have the car-body side sills 1 rest on said blocks, as shown in Figs. 3 and 6.

Truss-rods 29 extend longitudinally of the car and pass under the queen-posts 30, that are fastened to the two cross-bearers at the center of the car, the inner ends of said queen-posts extending between the legs of the channel 23, that forms part of the cross-bearer, and being fastened to the cross-bearer by the removable bolts 1^a, which detachably connect the car-body side sills to the steel underframe.

The blocks 28 on the projecting ends of the bolster tension-plate form bearings for the anchor-plates 31, pivotally connected to the ends of the truss-rods, said anchor-plates being provided with upwardly-projecting lips 32, that enter sockets or recesses formed in the car-body side sills 1, as shown

in Fig. 2. The end sill 2 of the car-body rests on angles 33, secured to the end sill of the underframe, and the member 3 of the platform of the car-body rests on the angle that forms the platform end sill 6 of the underframe.

As previously stated, the car-body is formed separate and distinct from the underframe and comprises side sills, end sills, and transversely-extending members at the ends of the platforms which rest on parts of the underframe, the car-body being detachably connected to the underframe by means of removable bolts 1^a, which pass through the car-body side sills 1 and the blocks 27 and 28, plates 14, channels 23, and by bolts 2^a, which pass through the car-body end sill 2 and the angles 33, fastened to the end sills of the underframe.

To prevent the car from squeaking, due to the unequal expansion of the wooden body and the steel underframe, I connect the end portions of the car-body and underframe together in such a manner that a slight longitudinal movement of one relatively to the other is permitted, this being accomplished by providing the angles 33 on the underframe end sill with elongated holes 34, through which the bolts 2^a pass.

From the foregoing description it will be seen that I have provided a car in which the body is separate and distinct from the underframe and which can be detached therefrom by simply removing the bolts 1^a and 2^a. Furthermore, as provision is made for the unequal expansion of the wooden body and steel underframe, there is no liability of the car squeaking, as would occur if the body and underframe were rigidly connected together.

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

1. A passenger-car comprising a metal underframe and a wooden body formed separate and distinct from the underframe and provided with members which rest on cooperating members on the underframe, and fastening devices extending through said members, the members at the ends of the body being provided with elongated slots to receive said fastening devices so that a slight longitudinal movement of the end portions of the body relatively to the underframe is permitted; substantially as described.

2. A passenger-car consisting of a body having side sills and end sills permanently connected together, platforms connected to said body and having transversely-extending platform members-3, an underframe comprising side sills, end sills and platform end sills permanently connected together, and means for detachably connecting the body to the underframe; substantially as described.

3. A car comprising a body having side

sills and end sills permanently connected together, an underframe comprising side sills and end sills permanently connected together, laterally-projecting members on the side sills and end sills of the underframe to support the side and end sills of the body, and removable fastening devices passing through said cooperating parts to detachably connect the body to the underframe; substantially as described.

4. A car consisting of an underframe composed of side sills, end sills, and body-bolsters and cross-bearers which project laterally beyond the side sills, a body portion comprising side sills which rest on the projecting ends of the cross-bearers and body-bolsters of the underframe and end sills which are supported by the end sills of the underframe, and removable fastening devices extending through said cooperating members of the body and underframe; substantially as described.

5. A passenger-car consisting of a body which comprises end sills and side sills permanently connected together, an underframe formed separate and distinct from the body and comprising members which support the side sills and end sills of the car-body, the members which support the end sills of the car-body being provided with elongated slots, and fastening devices projecting downwardly from said end sills through said elongated slots; substantially as described.

6. A car having an underframe which consists of continuous center sills, continuous members extending parallel to the center sills, platform end sills connected to the ends of said members and center sills, side sills, end sills and bolsters comprising tension-plates which are supported by the center sills and extend underneath the side sills; substantially as described.

7. A car having an underframe which consists of center sills, members of less depth than the center sills and extending parallel thereto, side sills, a tension-plate extending over the center sills and beneath the side sills, said plate passing through slots in the members that extend parallel to the center sills, a compression-plate connected at its opposite ends to the tension-plate, and diaphragms interposed between said plates and constructed to support said parallel members; substantially as described.

8. A car having an underframe which consists of center sills, side sills, a tension-plate extending over the center sills and beneath the side sills, a compression-plate connected

at its opposite ends to the tension-plate and passing underneath the center sills, spacing-blocks interposed between said plates, and bolts extending through said plates and blocks and also through side bearings for securing same to the compression-plate; substantially as described.

9. A car in which the underframe consists of center sills, side sills, a pair of members projecting laterally from each side of the center sills and connected to the side sills, and a continuous channel interposed between said members and extending beyond the side sills to form supports for the car-body; substantially as described.

10. A car in which the underframe consists of center sills, side sills, a pair of flanged members projecting laterally from each center sill, and a continuous channel arranged between the members of said pairs with its legs projecting downwardly and extending beyond the side sills to form supports for the car-body; substantially as described.

11. A car in which the underframe consists of end sills, side sills, center sills, bolsters and cross-bearers which project laterally beyond the side sills to form supports for the car-body, and angles secured to said end sills to form supports for the end sills of the car-body; substantially as described.

12. A car in which the underframe consists of center sills, side sills and body-bolsters, and cross-bearers having portions which project laterally beyond the side sills, queen-posts projecting downwardly from the projecting ends of the cross-bearers, tension-rods passing under said queen-posts, and anchor-plates pivotally connected to the opposite ends of said rods and mounted in blocks which are connected to the laterally-extending portions of the body-bolsters; substantially as described.

13. A car comprising an underframe which consists of side sills and end sills, a body having side sills which extend laterally beyond the side sills of the underframe, tension-rods connected to anchor-plates which are fastened to the side sills of the car-body, and queen-posts connected to the underframe and engaging said tension-rods; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 5th day of November, 1906.

WILLIAM VOSS.

Witnesses:

JAMES H. SCOTT,
HARRY VANDERSLOOT.