

H. H. NIEMEYER, A. E. LEHMANN & A. SINSKEY.

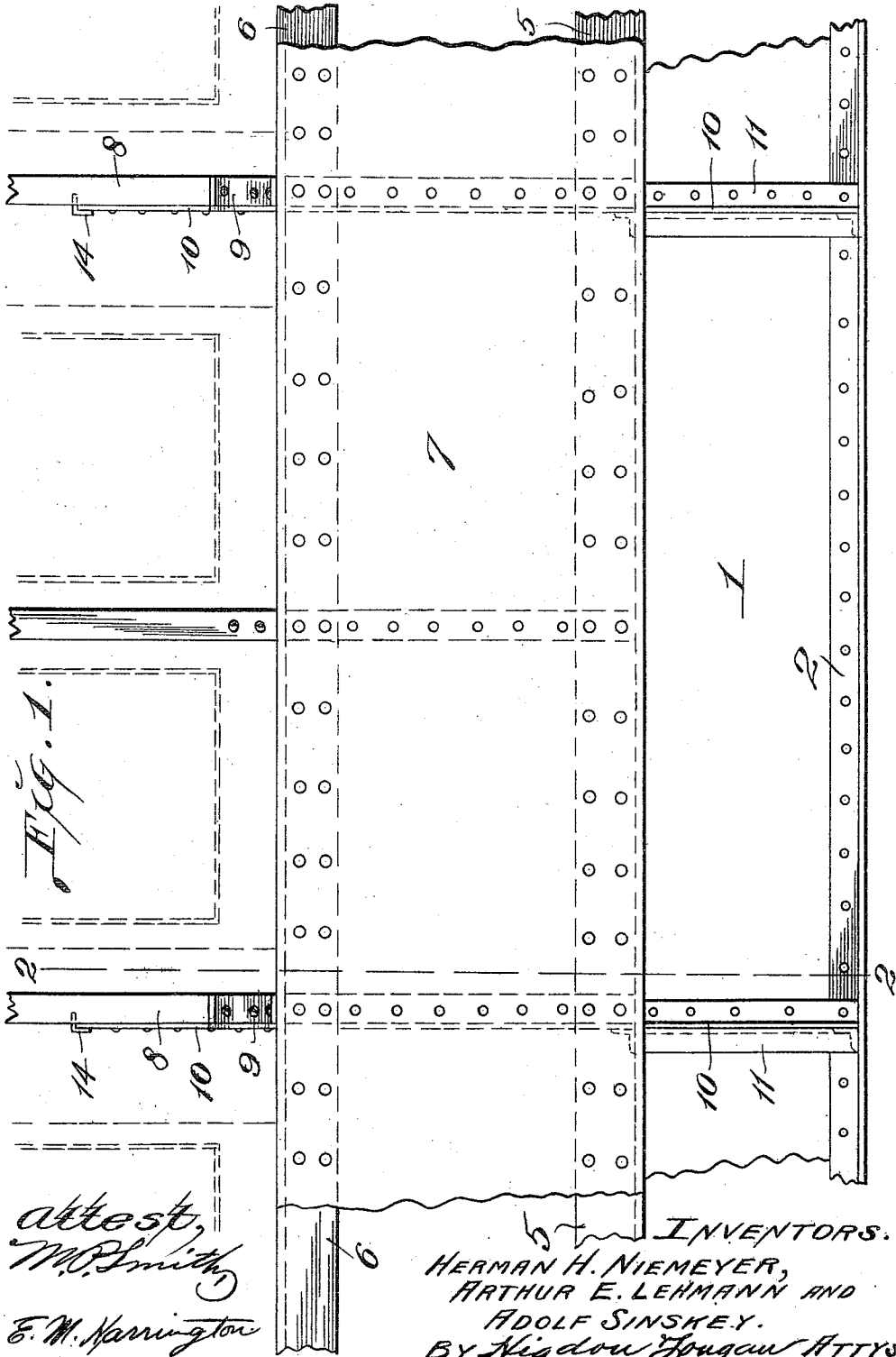
METALLIC CAR CONSTRUCTION.

APPLICATION FILED APR. 6, 1908.

964,541.

Patented July 19, 1910.

4 SHEETS—SHEET 1.



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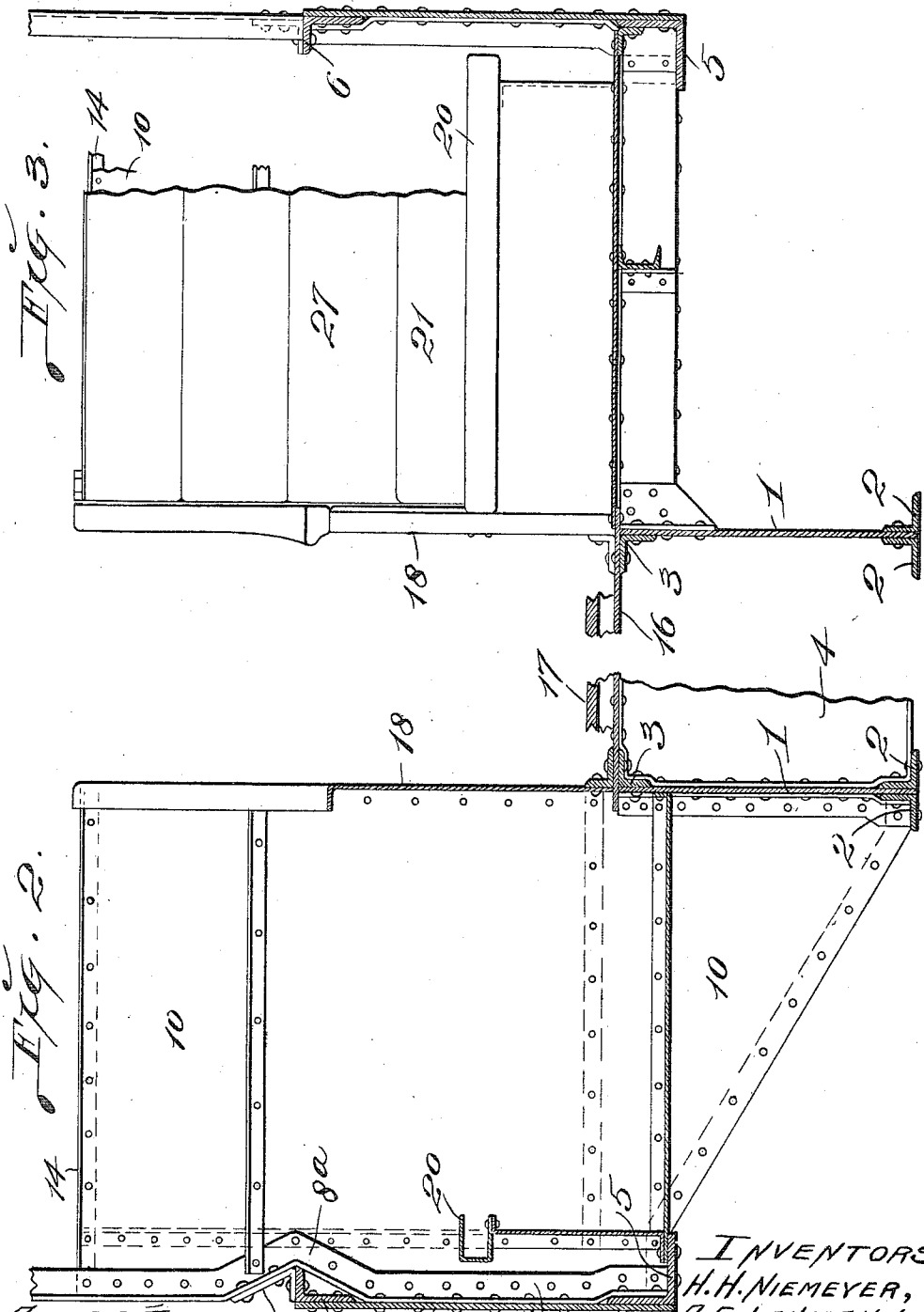
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ATTEST,  
*W.C. Smith*  
*E.M. Harrington*

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BY *Wigdon Douglas* ATTYS

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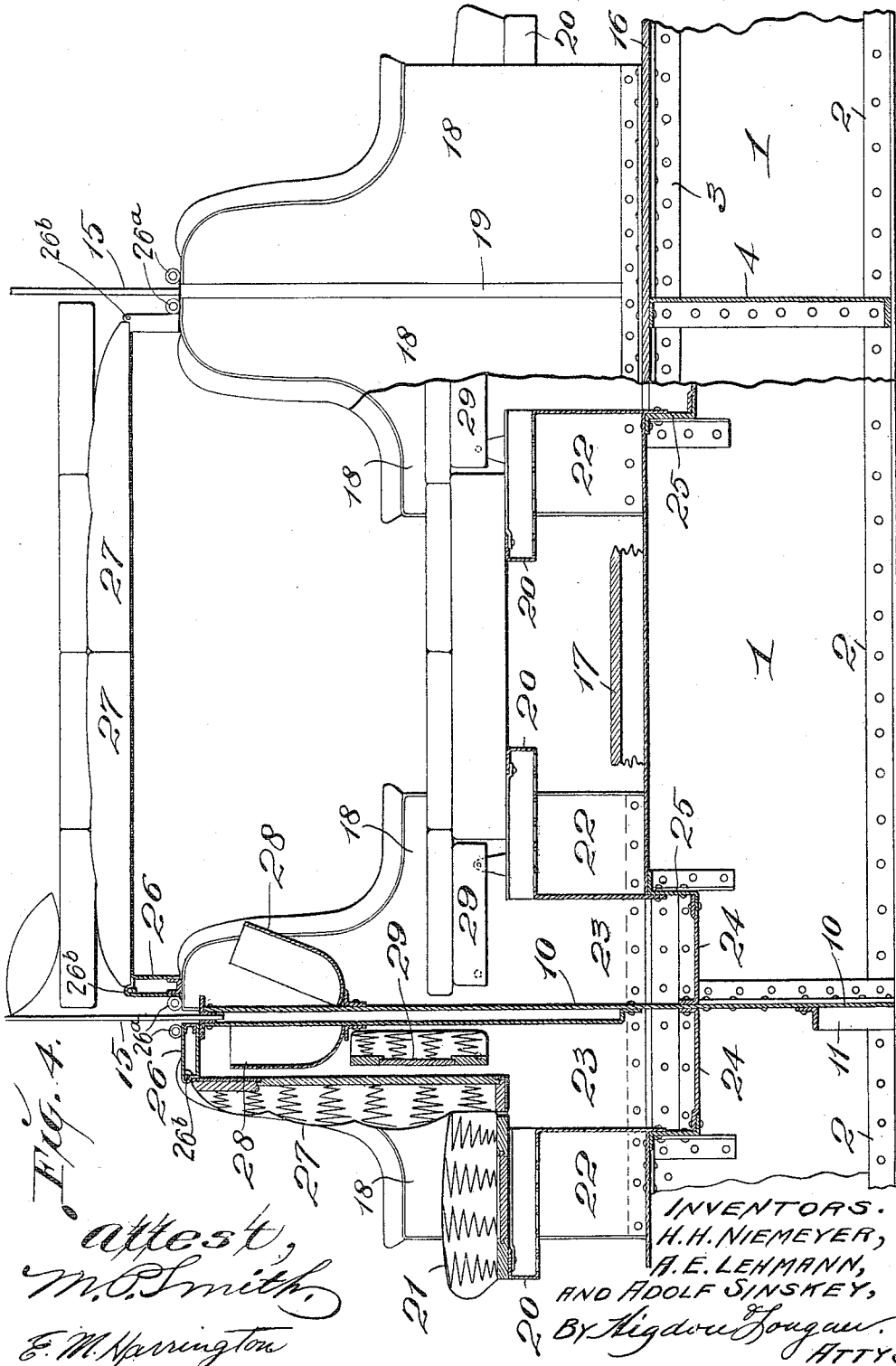


Fig. 4.  
attest,  
M. S. Smith,  
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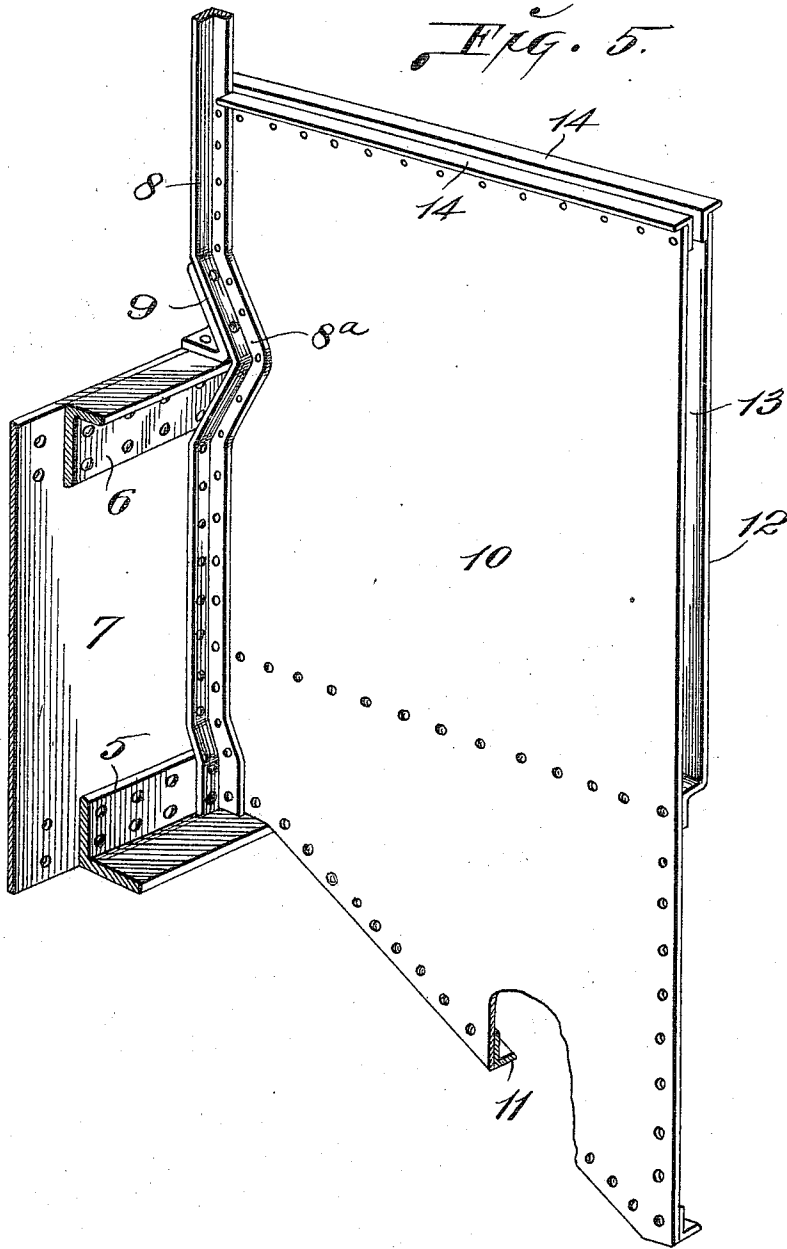
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*attest,*  
*M. P. Smith*  
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**INVENTORS.**  
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BY *Higdon Longan* ATTY'S.

# UNITED STATES PATENT OFFICE.

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## METALLIC CAR CONSTRUCTION.

964,541.

Specification of Letters Patent. Patented July 19, 1910.

Application filed April 6, 1908. Serial No. 425,420.

*To all whom it may concern:*

Be it known that we, HERMAN H. NIEMEYER, ARTHUR E. LEHMANN, and ADOLF SINSKEY, citizens of the United States, and residents of St. Charles, St. Charles county, Missouri, have invented certain new and useful Improvements in Metallic Car Construction, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

Our invention relates to a metallic car construction, and the object of our invention is to provide an improved metallic construction particularly adapted for sleeping cars, and in which construction great stability and rigidity are prime features; and which construction provides increased space between the seat partitions, which space is utilized for various purposes, such as for the storage of hand baggage, bedding, and the like.

A further object of our invention is to construct the seat partitions in single pieces, and to connect the same with the center sills, the seat sills, the side sills, the belt rails, and the stanchions or side posts in such a manner as to form practically a unitary structure, which forms a strut or truss between the center sills and the girders at the sides of the car to resist all vertical and lateral strain on the car body.

A further object of our invention is to so construct the stanchions or side posts as that the horizontal flanges, belt rails, or upper side sills of the car body project inward instead of outward, as in the present construction, thus enabling the use of continuous metal side posts or stanchions which extend from the side sills to the rough structure, and also permit the use of continuous metal belt rails.

To the above purposes, our invention consists in certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of the lower portion of a car body constructed in accordance with our invention, and showing the upper side sill or belt rail, and lower side sills, the side plate thereon, the stanchions

or side posts, and a portion of one of the center sills; Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1; Fig. 3 is a vertical section taken transversely through one side of the car body between the seat partitions, and showing a portion of one of the seats; Fig. 4 is a vertical section taken longitudinally through the approximate center of the car body and showing the detailed construction of the movable seats and seat backs, and showing upper and lower berths made up; Fig. 5 is a perspective view of one of the seat partitions, and showing its connection with one of the side posts or stanchions, the belt rail, and the side sill; and also showing a plate fixed to the seat partition to form a pocket for the headboard.

The longitudinal center sills of our improved car comprise vertically disposed metallic plates 1, to the lower ends of which are fixed in any suitable manner the vertical webs of angle bars 2; and secured to the upper edges of these plates, on the inside faces thereof, are angle bars 3. The center sills so constructed extend the entire length of the car and are connected at suitable intervals by the transversely disposed separator plates 4, the edges of which are fixed to the said center sills in any suitable manner. These separator plates 4 are so positioned as that they are in transverse alinement with the seat partitions hereinafter described, and, together with said seat partitions, form a transverse truss between the side sills and the center sills.

The side sills of the car are constructed of heavy angle bars 5, which occupy approximately the same horizontal plane as the angle bars 3 on the upper portions of the center sills; and arranged a suitable distance above the side sills 5 are belt rails 6, which are constructed of angle bars, the same being so arranged as that their horizontal flanges project inward; and connecting each pair of belt rails with the side sills are the vertically disposed side plates 7, which are each formed in one piece, and extend the entire length of the car body.

8 designates the side posts or stanchions, which are preferably in the form of angle bars, and which are arranged at suitable distances apart throughout the entire length of the car body, and the lower portions of said side posts are fixed to the inner faces of the

side plates 7; and at the point where said side posts pass the belt rails 6, said side posts are bent inward, as designated by 8<sup>a</sup>, which construction obviates any cutting and consequent weakening of the stanchions or side posts and belt rails; and as the horizontal flanges of said belt rails project inward instead of outward, provision is made for a perfectly smooth finish on the exterior of the sides of the car.

Brackets 9 are rigidly fixed to the horizontal flanges of the belt rails 6, and also to the outer faces of the side posts 8, immediately above said belt rails, thus materially strengthening the connection between said side posts and belt rails.

Vertically disposed between the center sills and the side plates 7 are seat partitions 10, which are preferably constructed of single pieces of suitable sheet metal, and the outer edges of said partitions are rigidly fixed to the posts 8, and the lower portions of the inner edges of said partitions being fixed in any suitable manner to the outer faces of the center sills.

Rigidly fixed to the lower edge of each seat partition and extending from the lower side sill to the lower portion of the center sill is a brace, preferably in the form of an angle bar 11, which strengthens the lower portion of said seat partition; and fixed in any suitable manner to each partition is the lower end of a vertically disposed plate 12, which is of the same width as is said partition, and there being a narrow space 13 formed between said plate and partition, which forms a pocket for the pivoted head board, which is utilized for forming a partition between the compartments when the berths are made up. Fixed to the upper edges of each partition and plate 12 are reinforcing members, preferably in the form of angle bars 14, which form the tops of the seat backs, and between which is pivotally held the swinging head boards 15.

Fixed on top of the angle bars 3 is a center, or cover plate 16, preferably formed in a continuous piece, which forms a base for the car floor 17, of wood or analogous material; and connected to this plate 16 and to the inner edges of the partitions 10 and plates 12 are the seat ends 18, which are formed of metal, either pressed or cast; and the space at the front of the pocket 13, between these seat ends, is closed by a narrow strip or door 19.

Seat frames 20 are positioned between the seat ends and the side plate 7; and removably located on these seat frames are seat cushions 21. The spaces 22 beneath these seat frames are to be utilized for the storage of hand baggage, or the like, and the pockets or spaces 23 between said seat frames and the seat partition are utilized for the storage of the mattresses, which form a part

of the upper and lower berths. These spaces or pockets 23 extend below the center floor plate 16 and the side floor plates, and the lower ends of said spaces or pockets being closed by floor plates 24 fixed to the partitions 10, and to Z-shaped supporting bars 25.

Hinged to each angle bar 14 is a seat top rail or panel 26, preferably constructed of sheet metal by the hinges 26<sup>a</sup>; and hinged to each one of said rails by the hinges 26<sup>b</sup> is the upper end of a metal seat back frame 27 adapted to receive a seat back cushion 27<sup>a</sup>, the lower end of which is normally positioned immediately behind the corresponding seat cushion 21.

Hinged to each plate 12 and the adjacent seat partition 10, and normally occupying the upper portions of the spaces between the seat back cushion 27<sup>a</sup> and said plates and partitions are metallic pockets 28, which can be utilized for the storage of bedding during the daytime and for receiving wearing apparel when the berths are made up.

Pivotaly arranged between the seat ends 18 and the side plates 7, immediately below the pockets 28, and behind the lower portions of the seat back cushions 27<sup>a</sup> are spring frames 29, which are adapted to swing outward into horizontal position to form the ends of the base of the lower berth. To form the upper berth, the hinged metallic frames 27 carrying the seat back cushions 27<sup>a</sup> are swung upward, as shown in Fig. 4, and the meeting ends of said metallic frames are locked together in any suitable manner.

In our improved construction of car bodies, the seat partitions 10 form end walls between the sections occupied by the seats and berths in the car; and as each partition is preferably formed in a single piece and is rigidly fixed to the sides of the car and center sills, a very strong rigid construction is produced, which equalizes the weight of the upper portion of the car on the side and center sills; and very effectually resists any undue vertical or lateral strain on the car body.

The various parts of the construction herein shown and described are readily formed from such material as can be easily obtained in any market, and require no special shapes or castings.

By bending the stanchions or side posts 8 inward at the point where the same meet the continuous belt rails 6, the horizontal flanges of said belt rails are projected inward, thus permitting said belt rails and side sills to occupy the same vertical plane, and these parts being connected by the plates 7 form girders for sides of the car.

The side girders constructed as herein described are connected to one another at suitable distances by a trussed structure, consisting of the seat partitions 10, the center sills,

and the separator plates 4, thus producing a car body embodying a combined girder and truss construction.

We claim:—

5 1. A metallic car body, constructed with center sills, side girders, and vertically disposed plates fixed to the center sills and side girders, and which plates divide the interior of the car into a series of compartments in which the seats of the car are located and project below the floor line of the car body.

15 2. A metallic car body, constructed with center sills, side girders, and vertically disposed plates fixed to the center sills and side girders, and which plates form partitions for the seat frames located in the car and project below the floor line of the car body.

20 3. A metallic car body, comprising longitudinal center sills, side sills, belt rails, side posts fixed to the side sills and belt rails, and vertically disposed plates fixed to the center sills and the side posts, and which plates divide the interior of the car into a series of compartments to be occupied by the car seats said plates projecting below the floor line of the car body.

25 4. In a metallic car body, a plurality of center sills, side sills, belt rails, seat partitions arranged between the center sills and the side sills and belt rails, a plate fixed to each seat partition, and there being a narrow space between each partition and the plate fixed thereon.

30 5. A metal car body constructed of a center girder running longitudinally of the car, a side girder and vertically disposed plates secured to the center girder and side girder, which plates divide the interior of the car into a series of compartments and act as trusses between the center girder and side girder.

35 6. In a metallic car body, a center girder running longitudinally of the car, side girders and belt rails running longitudinally of the car, posts secured to the side girders and belt rails, partitions secured at their one margin to said posts and at their opposite margin to said center girder which partitions form trusses between the center girder and said posts.

40 7. In a metallic car construction, a plurality of center sills, a pair of belt rails, side plates fixed to each corresponding pair of side sills and belt rails, side posts fixed to the side plates, vertically disposed seat partitions fixed to the side posts and to the center sills, and vertically disposed plates fixed to the seat partitions, and which plates are parallel with said partitions.

45 8. In a metallic car construction, a side sill, a belt rail, the horizontal flange of which projects inward, a side plate rigidly fixed to said belt rail and side sill, side posts fixed to said side plate, and which side posts

are bent inward at the point where they pass the belt rail.

9. In a metallic car construction, a plurality of center sills, side sills, belt rails, the horizontal flanges of which project inward, side plates fixed to the belt rails and side sills, side posts fixed to the side plates, and vertically disposed seat partitions fixed to the side posts and to the center sills which seat partitions extend below the floor line of the car body.

10. In a metallic car construction, a plurality of center sills, continuous side sills, continuous belt rails, the horizontal flanges of which project inward, side plates fixed to the belt rails and side sills, side posts fixed to the side plates, which side posts are bent inward at the points where they pass the belt rail, and vertically disposed seat partitions fixed to the side posts and to the center sills.

11. In a metallic car construction, a series of vertically disposed plates arranged between the center sills and belt rails of the car body, and which plates form partitions for the seat frames located in the car, and seat back frames hinged to the upper ends of the plates and adapted to swing upward into a horizontal plane to form the base of the upper berth.

12. A metallic car body, constructed with center sills, side sills, belt rails, vertically disposed plates fixed to the center sills and belt rails, which plates divide the interior of the car into a series of compartments in which the seats of the car are located, and seat back frames hinged to the upper ends of the plates and adapted to swing upward into a horizontal plane to form the base of the upper berth.

13. A metallic car body, comprising center sills, side sills, belt rails, side posts fixed to the side sills, vertically disposed plates fixed to the center sills and the side posts, which plates divide the interior of the car into a series of compartments to be occupied by the car seats, and seat back frames hinged to the upper ends of the plates and adapted to swing upward into a horizontal plane to form the base of the upper berth.

14. In a metallic car body, a plurality of center sills, side sills, belt rails, seat partitions arranged between the center sills and the side sills, a plate fixed to each seat partition, there being a narrow space between each partition and the plate fixed thereon, and seat ends fixed to the inner edge of each seat partition and plate.

15. In a metallic car construction, a plurality of center sills, a pair of side sills, a pair of belt rails, side plates fixed to each corresponding pair of belt rails and side sills, side posts fixed to the side plates, vertically disposed seat partitions fixed to the side posts and to the center sills, vertically

disposed plates fixed to the seat partitions, which plates are parallel with said partitions, and seat ends fixed to the inner portions of the vertically disposed plates and seat partitions.

5 16. In a metallic car construction, a plurality of center sills, a pair of side sills, a pair of belt rails, side plates fixed to each corresponding pair of side sills, and belt  
10 rails, side posts fixed to the side plates, vertically disposed seat partitions fixed to the side posts and to the center sills, vertically disposed plates fixed to the seat partitions, which plates are parallel with said parti-  
15 tions, seat ends fixed to the inner portions of the vertically disposed plates and seat partitions, and seat back frames hinged to the tops of the plates and seat partitions, and adapted to be swung upward to form  
20 the base of the upper berth.

17. In a metallic car construction, the combination with a car body constructed with center sills, side sills and belt rails, the belt rails and side sills on each side of the

car body being in vertical alinement, of continuous side posts fixed to the side sills and belt rails, and which side posts pass around the belt rails partitions fixed to the side posts which partitions conform to the bent side posts.

18. A metallic car body, constructed with center sills, side sills, belt rails arranged above the side sills and in vertical alinement therewith, and continuous side posts fixed to the side sills and belt rails, and which side  
30 posts are bent inward at the point where they pass the belt rails partitions fixed to the posts and shaped to conform with the posts.

In testimony whereof, we have signed our  
40 names to this specification, in presence of two subscribing witnesses.

HERMAN H. NIEMEYER.  
ARTHUR E. LEHMANN.  
ADOLF SINSKEY.

Witnesses:  
M. P. SMITH,  
E. L. WALLACE.