

May 7, 1935.

A. H. WOODWARD

2,000,551

SLEEPING CAR

Filed Aug. 5, 1932

6 Sheets-Sheet 1

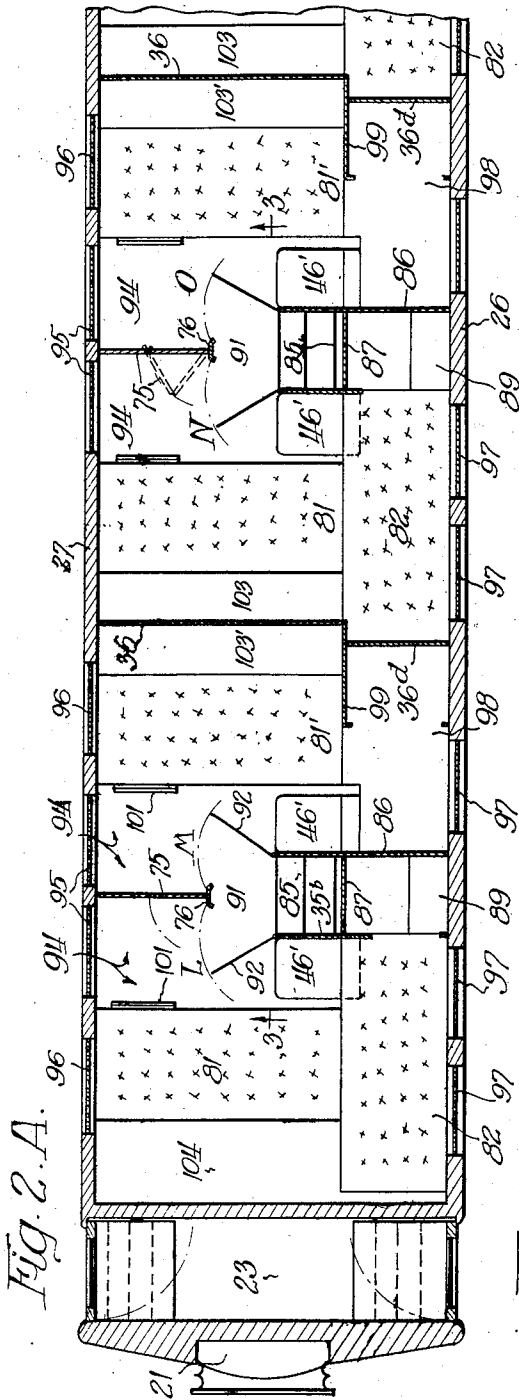


Fig. 2.A.

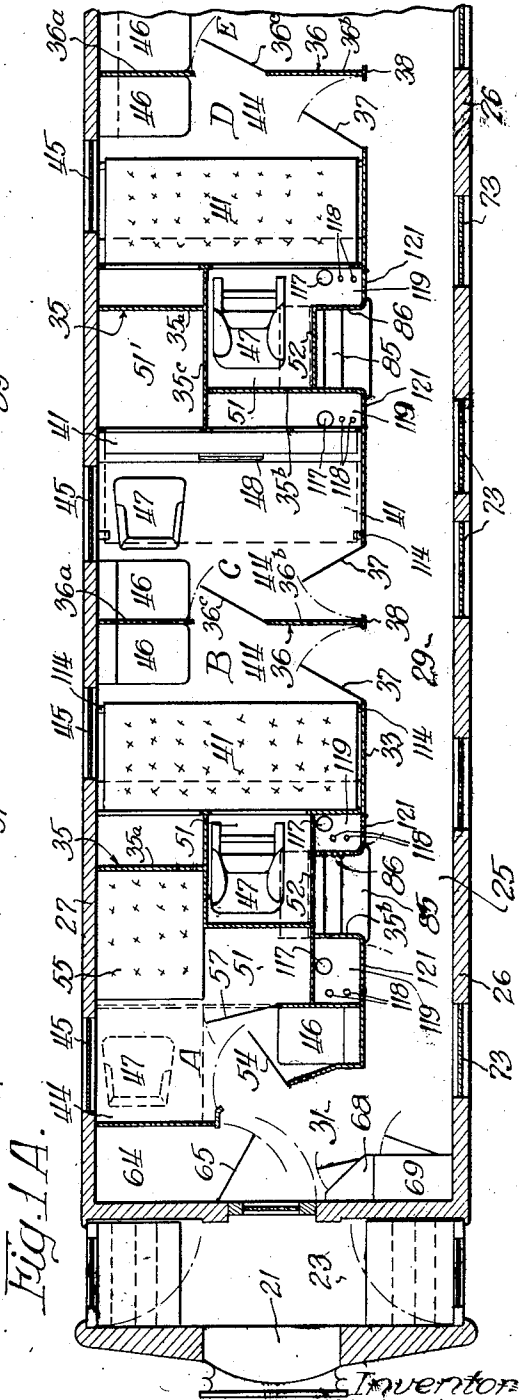


Fig. 1.A.

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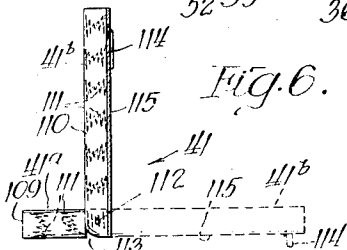
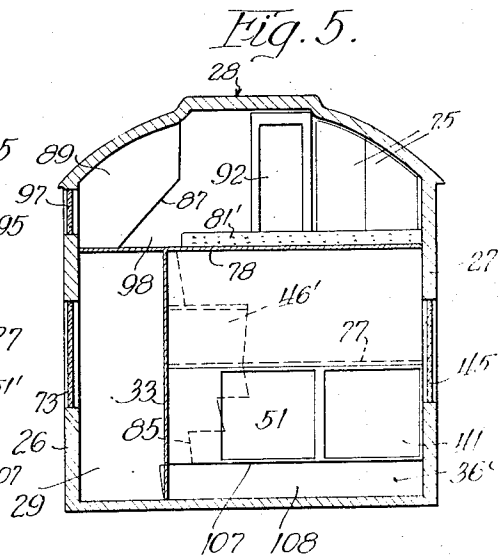
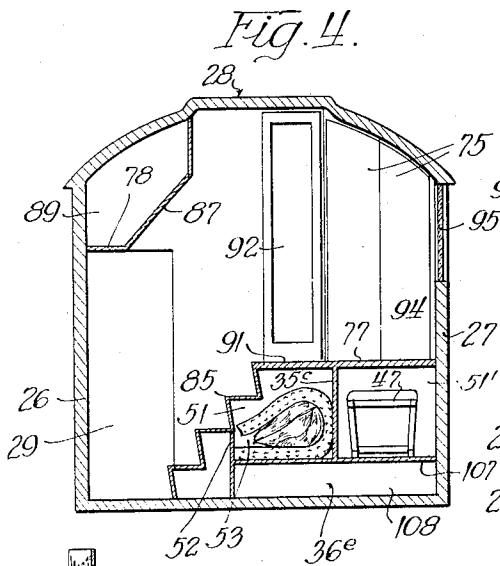
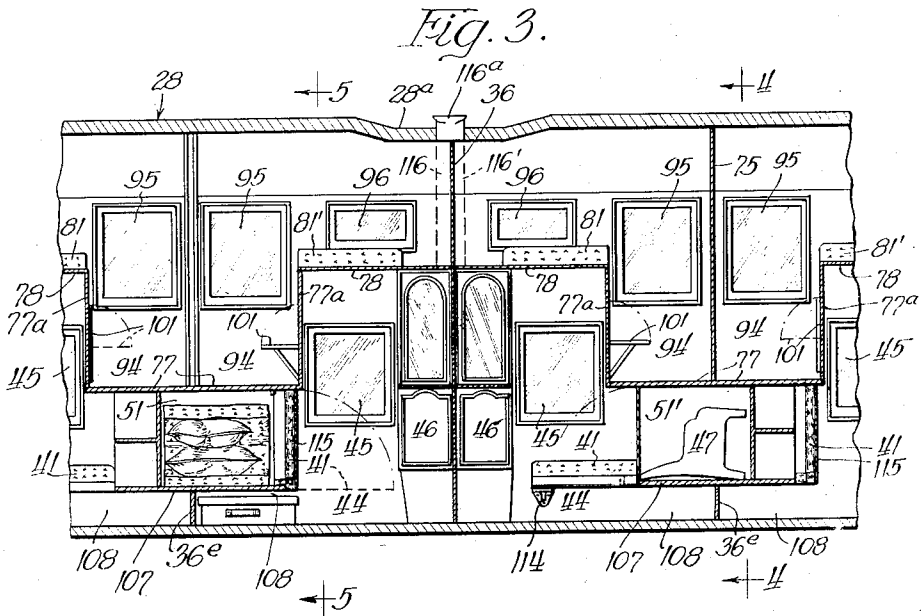
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SLEEPING CAR

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6 Sheets-Sheet 3



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SLEEPING CAR

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6 Sheets-Sheet 4

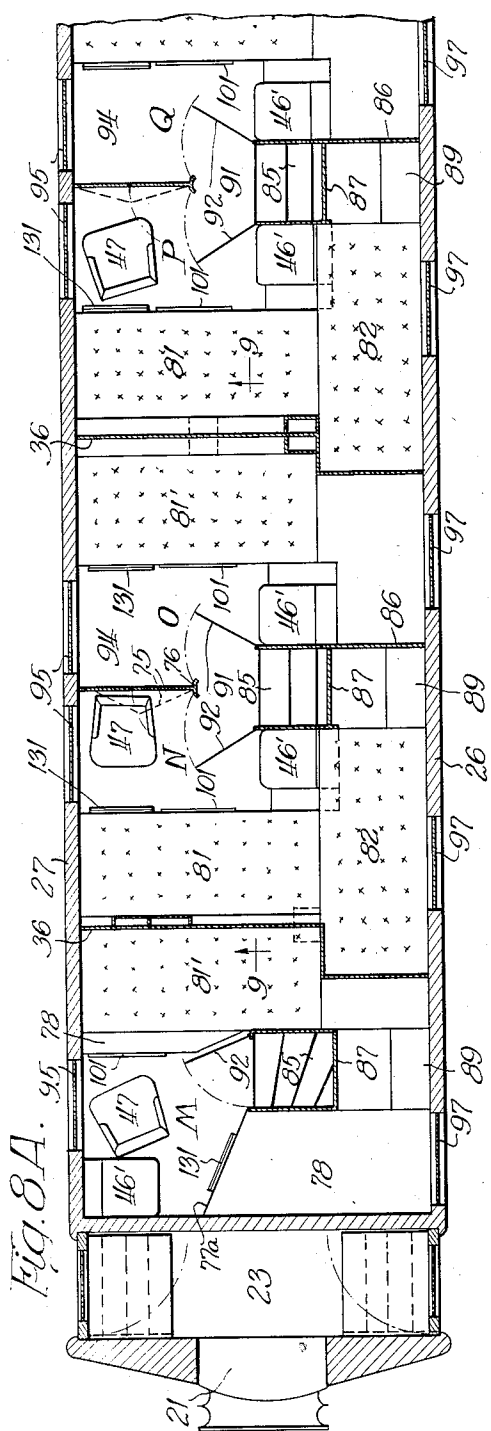


Fig. 8A.

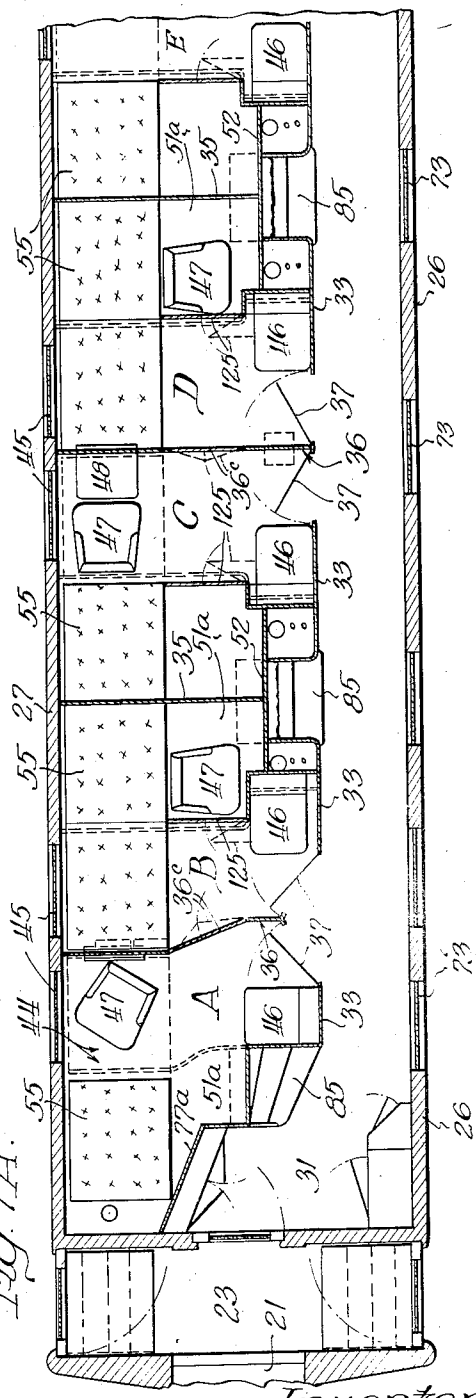


Fig. 7A.

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UNITED STATES PATENT OFFICE

2,000,551

SLEEPING CAR

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Application August 5, 1932, Serial No. 627,564

15 Claims. (Cl. 105—315)

My invention relates to sleeping cars and its general object is to provide an improved compartment car of the general type illustrated and described in my copending United States patent applications, Serial Nos. 349,976 and 349,977, both filed March 26, 1929, and Serial No. 556,113, filed August 10, 1931.

Other objects of the present invention are to improve the arrangement for the comfort of the passengers, to improve the arrangement in the matter of structural features, and to provide an arrangement whereby a variety of accommodations, single room or rooms en suite, can be had for passengers traveling alone or two or three passengers traveling together.

My invention contemplates a double deck arrangement, i. e., lower and upper rooms, and another object of the invention is to provide combinations of double and single rooms, and arrangements of the beds therein, whereby I am enabled to utilize the standard allotment of space most efficiently and to accommodate a sufficient number of passengers in one car to bring travel in them within the means of the average patron of sleeping cars.

Other objects of my invention will appear from the following description of certain preferred embodiments of my invention. In the accompanying drawings illustrating such embodiments:

Figures 1A and 1B together constitute a plan view of the lower deck of one embodiment, an intermediate portion in the length of the car being broken away to illustrate the car on a larger scale;

Figures 2A and 2B together constitute a plan view of the upper deck, this view being in appropriate vertical alignment with the corresponding plan view of Figures 1A and 1B, in order to facilitate reading of the drawings;

Figure 3 is a fragmentary longitudinal sectional view taken approximately on the plane of the line 3—3 of Figure 2A;

Figure 4 is a transverse sectional view taken approximately on the plane of the line 4—4 of Figure 3;

Figure 5 is a transverse sectional view taken approximately on the plane of the line 5—5 of Figure 3;

Figure 6 is a detail sectional view on a larger scale, showing the construction of the folding bed used in the lower compartments of the above embodiment;

Figures 7A and 7B, and 8A and 8B are views similar to Figures 1A and 1B and 2A and 2B, re-

spectively, but showing a modified arrangement;

Figure 9 is a fragmentary longitudinal sectional view taken approximately on the plane of the line 9—9 of Figure 8A;

Figure 10 is a transverse sectional view taken substantially on the plane of the line 10—10 of Figure 9;

Figure 11 is a transverse sectional view taken approximately on the plane of the line 11—11 of Figure 9, and

Figure 12 is a detail view on a slightly larger scale showing the construction of one of the folding beds used in the lower compartments of the embodiment of Figures 7A to 11, inclusive.

Referring first to the embodiment illustrated in Figures 1A to 6, inclusive: The car body has the usual end passages 21 and 22 for establishing communication from car to car, and has the usual vestibule 23 at one end of the car, having trap door steps leading down from each side thereof, the same as in conventional construction. The vestibule at the other end of the car is omitted in the present embodiment, this space being used to advantage in providing a greater number of compartments in the car. While such arrangement is preferred in the present embodiment, it will be understood that my improved relation of upper and lower compartments can also be embodied in car constructions having vestibules at both ends.

The lower deck or floor of the car is indicated at 25 and the two side walls are designated 26 and 27 and the roof 28. Solely for convenience of reference, the wall 26 will be referred to as the right wall and the wall 27 as the left wall. Communication is had with all of the compartments through an aisle 29 which is disposed at one side of the car, adjacent to the side wall 26. This aisle communicates with the end passage 21 and vestibule 23 through a diagonal passageway 31, and communicates with the other end passage 22 through a diagonal passageway 32. A lengthwise wall 33 separates the aisle from the lower compartments or rooms. For facility of reference, these lower compartments are designated from left to right respectively as A, B, C, D, E, * * * G, H, I, J and K. With the exception of the end compartments A, J and K, which will be later referred to in detail, these lower compartments extending from B, C to H, I, inclusive, are arranged in pairs and are of the same size and identical except that half of them are the complements of the other half, i. e., compartment B is the complement of compartment C and the next compartment D to the right is the same as

compartment B, this arrangement of said compartments in complementary pairs extending to and including compartments H and I, which are also complements of each other. All of these lower compartments are single rooms, in the sense that they each have only a single bed therein, but in the case of the complementary compartments referred to provision is made whereby communication may be thrown open between the two compartments of a complementary pair for converting these two into one large double compartment. Permanently closed cross partitions 35 separate each pair of complementary compartments from the others. Each of these transverse partitions is of staggered or offset construction, comprising the two transverse wall sections 35a and 35b disposed in different transverse planes and connected by a longitudinally extending wall 35c. The two compartments of each complementary pair have a cross wall or partition 36 extending transversely therebetween. Each latter partition comprises an outer fixed section 36a, an inner fixed section 36b and a swinging door or folding partition section 36c intermediate the outer and inner fixed sections. Access from the aisle 29 to the separate compartments of each complementary pair is had through swinging doors 37 which have their swinging edges closing against a jamb column or post 38 at the outer edge of the partition 36.

Each of the compartments of the complementary pairs has a transversely extending folding bed 41 therein. In compartments B, D and H this bed is shown in its downwardly swung, open position; in compartments C, G and I this bed is shown in its upwardly swung closed position. Each of the compartments of the complementary pairs has standing room space, indicated generally at 44, extending from the partition 36 substantially to the reverse or under side of the bed when the latter is in closed position, and extending transversely of the car from the lengthwise dividing wall 33 to the side wall 27. Each of said compartments has a window 45 in the side wall 27, which window is coextensive with the standing room space 44 adjacent to the bed side of the compartment. Combination toilet units 46 are provided in said compartments and are preferably disposed on opposite sides of the outer partition section 36a, whereby each toilet unit is disposed in the standing room space 44 between the compartment window 45 and the partition section 36a. These toilet units are preferably of the type known as chair hopper and folding washstand in which the lower part is a water closet concealed in a chair and the upper part has a wash bowl mounted in the back of the chair which is hinged so as to permit the wash bowl to be swung to a horizontal position for use and to a vertical position when not in use. Each of the compartments has a movable chair 47 which may be placed in any desired position in the compartment. During day travel this chair may be placed at the window sitting space, facing forwardly or backwardly for either direction of travel, or facing the window directly, as illustrated in compartments A, C and J. The back or under side of each folding bed 41 has a writing table 43 hinged thereto and when the bed is in closed position during day travel this writing table may be folded downwardly to operative position and the chair 47 positioned at said table, as illustrated in compartment I.

When the bed 41 is lowered to open position for night travel the chair 47 is removed from that

portion of the standing room space coextensive with the window 45. This chair might be left in the standing room space between the partition 36 and the edge of the open bed, but this is not generally satisfactory to most patrons because the chair then obstructs the remaining area of standing room floor space between the bed and the compartment door 37 or between the bed and the toilet 46. Such objections are avoided by providing a novel relation of chair storage spaces or compartments 51 and 51' for these compartments. The staggered or offset construction of the transverse partition 35 provides for a pair of these chair storage spaces 51 and 51' between each complementary pair of compartments, the storage space 51 being defined between the longitudinal partition wall 35c, the inner transverse wall 35b and a lengthwise wall 52 which lies under the flight of stairs (which stairs will be presently described), and the other storage space 51' being defined between the longitudinal partition wall 35c, the outer transverse wall 35a and the side wall 27 of the car body. Storage space 51 communicates with the compartment to its right and storage space 51' communicates with the compartment to its left. In compartments B, D and H, I have shown the chairs 47 in their chair storage spaces 51. The open end of the chair storage space of each compartment is closed by the bed of that compartment when the bed is folded up to its closed position. In all lower rooms where there are crosswise beds such as B, C, D, etc. the chair storage spaces above referred to are used to store the mattresses, pillows and blankets in the daytime in the manner shown at 53 in Figure 4. End compartment A is entered through a door 54 which opens into the compartment off the diagonal passageway 31. In this compartment the bed extends lengthwise of the car and is indicated at 55. This bed is of an extensible type, comprising a fixed section and a movable section, the details of which will hereinafter appear in the following description of another embodiment of my invention. Suffice it to say here that the fixed section of the bed is disposed in the space which is comparable to the chair storage space 51' of the other compartments, and that the movable section of the bed, during day travel, is superposed upon this fixed section or folded into said space, and, during night travel, is extended outwardly into the sitting space under the window 45, as indicated in dotted lines in Figure 1A. The standing room space of compartment A is indicated at 44 and includes this sitting space at the window and the space extending to the door 54 and to the combination toilet unit 46. When the bed 55 is extended for night travel the chair 47 is removed from the sitting space at the window and is placed in chair storage space 51 which is normally closed by a hinged door 57. The combination toilet unit 46 in this compartment is preferably disposed transversely of the car, between the doors 54 and 57.

The compartments J and K at the other end of the car are, in almost all details and dimensions, complements of each other, the intervening partition 36 having a folding partition or door 36c, by which these two compartments can be converted into a large double compartment. The doorways for the two entrance doors 61 are preferably set on a slight diagonal to provide more space for the combination toilet units 46 and 46, which preferably extend longitudinally of the car, along the inner side of the lengthwise wall 33. These two compartments have lengthwise, extensible beds 55,

like the bed 55 of compartment A. When the movable sections of these beds are extended out into the sitting spaces at the windows 45 the chairs 47 can be stored in the chair storage spaces 51. These two storage spaces are normally closed by double leaf folding doors 62.

The arrangement of the aisle 29 and the lower compartments also provides for ample cabinet and locker space for storing linen, thermos bottles, etc., and for the drinking fountain. At the left-hand end of the car, a relatively large locker or cabinet 64 closed by a door 65, and disposed between compartment A and the vestibule 23, may be used to store clean linen, and a large compartment or locker 66 at the other end of the car closed by a door 67, may be provided to store soiled linen. Other cabinets or lockers 68, 69, 71 and 72 are advantageously disposed at the ends of the aisle for the switchboard, the electrical regulator, the cleaning equipment and the thermos bottles, respectively. The aisle 23 is lighted by any desired arrangement of windows 73 provided in the side wall 25 of the car body.

The upper rooms are designated L, M, N, O, * * * R, S, T, U, V, W, reading from left to right. With the exception of the end rooms V and W, all of these upper rooms or compartments are alternately double and single having double beds and single beds, i. e., compartments L, N, * * * R and T are double compartments having two beds, and the alternate compartments M, O, * * * S and U are single compartments having a single bed. These upper compartments are arranged in pairs, with the two compartments of each pair practically identical and complementary in every respect except as to the number of beds. The compartments of a complementary pair can be placed in communication with each other by a folding partition 75 composed of two hinged leaves which are normally closed between an upright jamb post 76 and the side wall 27 of the car.

Referring to Figure 3, all of the upper compartments are constructed on an upper deck the successive portions of which are at two different levels or stages, the lower stage portions being indicated at 77 and the upper stage portions at 78. The lower stage levels 77 of this upper deck afford adequate standing room in each of the upper compartments and such lower stage levels lie directly over the chair storage spaces, the folded positions of the transverse beds 41, and the fixed sections of the lengthwise, extensible beds 55. The upper stage portions 78 of said deck lie directly over standing room spaces 44 in the compartments below, affording adequate height of standing room therein. A continuous portion of this upper stage level 78 also extends lengthwise of the car directly over the side aisle 29. These upper stage levels support the transverse and lengthwise beds in the upper compartments.

Referring to Figures 2A and 2B, the compartment L contains a transverse bed 81 and a lengthwise bed 82, both of fixed length and the compartment M contains a transverse bed 81' of fixed length. This relation of beds is repeated in succeeding pairs of compartments N, O, etc. down to the two compartments V and W at the other end of the car, where these two compartments have a slightly different arrangement which will be later described. All of the lengthwise beds 82 lie on the upper stage level 78 directly over the side aisle 29, and all of the transverse beds 81 and 81' lie on the upper stage por-

tions 78 over the standing room spaces 44 of the compartments below. Successive pairs of upper compartments are separated by extending the partition 36 from the upper stage levels 78 up to the roof 28 of the car, as best shown in Figure 3. Above the aisle 29, the transverse partition 36 has an offset portion 36d which extends over to the side wall 28, the offset relation being provided to accommodate the lengthwise beds 82 of standard lengths.

Access is had to the upper compartments or rooms by means of stairs 85 extending up from the aisle 29, there being one of these flights of stairs for each pair of upper compartments. These stairs are within stair wells defined by walls 35b, 86 and 87. Wall 86 extends vertically to the roof of the car and extends transversely to the side wall 28, being arched over the aisle, as clearly shown in Figures 2A and 2B, this wall establishing a closed partition between that portion of complementary compartments L, M, etc. over the aisle 29. The other transverse wall 35b is preferably a continuation of the lower partition wall 35b and also extends up to the roof of the car but does not extend transversely to any great extent beyond the stair well, so as to leave a space 89 at one end of each lengthwise bed 82, which space may be utilized for storage of baggage, etc. As best shown in Figures 4 and 5, the longitudinal wall 87 of the stair well inclines diagonally upwardly from the upper stage level 78 directly over the aisle to a point where this wall then extends up vertically to the roof, the storage space 89 being defined between said inclined and vertical wall 87 and the upper portion of the car. The stairs end in a triangularly shaped landing 91 which is on one of the lower stage levels 77. Doors 92, preferably hung from the side walls of the stair well and closing against the partition jamb or column 76, give access to the two adjoining compartments from this triangularly shaped landing.

The standing room space in each upper compartment is generally indicated at 94, this being on the lower stage level 77 of the upper deck, above the chair storage spaces, etc., as previously described. Windows 95 in the side wall 27 open into these upper compartments opposite the standing room spaces 94 and on opposite sides of the folding partition 75, it being noted from Figure 3 that these upper windows 95 occur between the pairs of lower windows 45 which light the lower compartments. If desired, small windows 96 of comparatively low vertical dimension, may be provided at the ends of the transverse beds 81, 81', as best shown in Figure 3. At the other side of the car, like windows 97, of comparatively low vertical dimension, may be provided to light the space above the lengthwise beds 82 and above the storage space 89 provided at the ends of the transverse beds 81' of the single upper compartments. Each of these latter storage spaces 98, which may be used for storing baggage or the like, is accessible over the end of the transverse bed 81', there being a lengthwise wall 99 extending from the partition 36 part way across the end of the transverse bed 81' to assist in forming this baggage storage space 98. It will be understood that each of these storage spaces 98 is on the upper stage level 78 over the aisle.

Chairs 47 are provided in the standing room spaces 94 of each of the upper compartments, one of these chairs being illustrated in compartment S, which chairs can be turned to face in either direction or to face directly to the win-

dow. Combination toilet units 46', preferably of the same type previously described, are provided in each upper compartment, being disposed between the walls of the adjacent stair well and the transverse beds 81 and 81'. If desired, a folding step 101 may be provided in each separate compartment to facilitate climbing up into the transverse beds 81 and 81', these folding steps being pivotally connected with the vertical wall portions 77a which join the upper and lower stage levels, as best shown in Figure 3. Folding writing desks may also be hinged to these vertical walls 77a in the upper compartments. Access is conveniently gained to the lengthwise beds 82 in the upper compartments by stepping on the seat portions of the combination toilet units 46'.

Additional storage spaces for luggage, parcels, clothes, etc. are also provided in the upper compartments in the form of transverse spaces 103 and 103' disposed between each transverse partition 35 and the adjacent transverse bed 81 or 81'. Also, a storage space 104 is provided in end compartment L, beyond the transverse bed 81, which storage space overlies the lower diagonal passageway 31 and the locker 64.

At the other end of the car, compartment V is substantially a duplicate of compartments L, N, R and T with the exception that it has no lengthwise bed 82. Compartment W has a transverse bed 81'' which extends over the aisle and over the diagonal passageway 32 on an upper stage level of the upper deck. The combination toilet unit 46' in compartment W is preferably disposed in lengthwise relation at the outer wall 27 of the car body, leaving a space for baggage between the toilet unit 46' and the bed 81''. These two compartments, V and W, have storage spaces 105 and 106. It will be noted that the standing room space 94 of compartment U is disposed substantially directly above the fixed section of the extensible bed 55 in lower compartment J, and that the standing room spaces of compartments V and W are disposed over the corresponding fixed bed sections of lower compartment K and over the linen cabinet 66.

Referring to Figures 3, 4, 5 and 6 it will be seen that the bottom of each chair storage space is defined by a horizontal wall 107 which is spaced from the floor of the lower compartments. An extension 36e extends from this horizontal wall 107 downwardly to the floor, defining on opposite sides thereof storage spaces 108 which are preferably of sufficient height to receive an average size suit case or like luggage. As best shown in Figure 6, each folding bed 41 consists of two sections, an inner relatively narrow fixed section 41a and an outer relatively wide folding section 41b. Each of these sections has a frame structure 109 and 110 respectively, in which coil springs or other suitable bed springs 111 are mounted. The upper surface of the spring structure may consist of interlaced strips of webbing or an interconnected series of links. The frame 110 of the folding section is hinged to the frame 109 of the fixed section on end pivots 112. These pivots are preferably disposed substantially midway of the thickness of the folding section 41b, and the adjacent corner of the folding frame 110 are rounded, as indicated at 113, to accommodate this location of the pivot axis. Such arrangement of the fixed and folding sections enables the bed to be folded into a short vertical dimension, without sacrificing the baggage storage space 108 nor requiring raising

the lower stage level 77, and at the same time when the bed is folded out to open position the two sections have their adjacent edges so close together that the mattress covers the slight gap without any sagging. When the sections 41b are folded outwardly they are supported by end brackets 114 projecting inwardly from the walls 27 and 33; or, in lieu of these brackets, by folding links connecting with the end portions of the bed frames or by hinged legs swinging downwardly from the outer portions of the beds. When the beds are folded upwardly to closed position they lie under the lower stage level 77, approximately below the vertical wall 77a connecting the upper and lower stage levels. In making up a bed at night the bed is swung down to open position, the mattress, pillows and blankets are removed from the chair storage compartment 51 or 51' and the chair 47 is then inserted into this chair storage compartment across the top of the bed, to lie in a horizontal position in the storage compartment. When the bed is to be closed for day travel, the chair is removed from said storage compartment, the mattress and pillows are rolled together and inserted in said storage compartment (as shown in Figure 4) and the bed then closed. By using each storage space 51 and 51' alternately for storing the mattress and pillows during day travel and storing the chair during night travel the space required by the bed in closed position is materially reduced, there is no necessity of clamping the mattress to the bed frame, and numerous other advantages are obtained which result in a compact, desirable arrangement. A suitable panel 115 is secured to the back side of the folding section 41b to present a finished appearance in the room when the bed is closed. It will be seen that each bed 41 is a folding bed which is extensible in the sense that the two relatively movable sections 41a and 41b extend one dimension of the bed when the bed is opened.

As shown in Figure 3, ventilating passages 116 may be provided leading upwardly from the lower compartments to the roof of the car and ventilating passages 116' may be provided leading from the upper compartments to the roof of the car, both pairs of adjacent ventilating passages being preferably extended upwardly on opposite sides of the transverse partition wall 36. These ventilating passages 116 and 116' communicate with ventilator hoods 116a which are accommodated in depressed portions 28a of the roof structure whereby to avoid decreasing the tunnel clearance of the car. These depressed portions 28a occur directly over the transverse beds 81, 81' and hence do not reduce the standing room height of the upper compartments.

The arrangement of the combination toilet unit 46' on opposite sides of each stair well in the upper complementary compartment enables the waste pipe 117 and supply pipes 118 to be extended down from these units on opposite sides of the stair well, in close proximity to the aisle 29. These pipes extend down through spaces in the nature of small lockers 119 defined between the lengthwise wall 33 and the stair well walls 35b and 36; access being afforded to these spaces through doors 121 in either the lengthwise wall or the transverse wall, whereby shut-off valves interposed in said pipes are conveniently accessible from the lower deck.

Referring now to the modified embodiment illustrated in Figures 7A, 7B, 8A, 8B, 9, 10, 11 and 12: The lower compartments of this modi-

fied embodiment are designated from left to right as A, B, C, D, E, * * * H, I, J, K, and L, and the upper compartments are designated M, N, O, P, Q, * * * T, U, V, W, X. Each of the lower

5 compartments is a single compartment, having a lengthwise folding bed 55 along the window side of the compartment. Compartments C, D, E, F, and G, H are complements of each other. Referring first to these compartments, the compartments of each pair are separated by transverse partitions 36 each having a swinging door or folding partition section 36c, whereby the two adjoining compartments can be placed in communication with each other, in substantially the same manner as described of the preceding embodiment. The doors 37 are illustrated as being hinged to a jamb post at the outer edge of the partition 36, although it will be understood that these doors might be hinged at their other edges to the lengthwise wall 33. The combination toilet units 46 are disposed at the door sides of the compartments, disposed lengthwise along the inner side of the wall 33. The chair storage spaces 51a are recessed slightly to accommodate the inner ends of the toilet units 46. The pairs of complementary compartments are separated by the transverse partitions 35 which extend from the outer wall of the car to the longitudinal wall 52 lying under the stairs 85. The chair storage spaces 51a are all disposed inwardly of the fixed sections of the beds 55, on opposite sides of the transverse partition 35. The open end of each chair storage space is adapted to be closed by a folding door 125 which preferably comprises two folding leaves hinged to the inner edge of the compartment opening, as illustrated in dotted lines in Figures 7A and 7B. The stairs 85 extend partly over the two chair storage spaces which are on opposite sides of the transverse partition 35.

Compartments I and J are practically duplicates of compartments C, D, E, F, etc. with the exception that the partition 36 between compartments I and J is offset and the combination toilet unit 46 in compartment I is shifted inwardly and disposed transversely; these variations being made to accommodate a linen closet 127 which is located between compartments H and I. This linen closet extends up into the upper compartment space U, as will be seen from Figure 8B. A door 128 affords access to this linen closet from the aisle 29.

Compartments K and L have their transverse partition 36 offset in the opposite direction and the combination toilet unit 46 in compartment L is disposed transversely along the side wall of the end stairway. The chair storage space 51a for this end compartment L is defined partly under this end stairway. Such arrangement enables compartment L to be made of adequate dimensions within the space which is somewhat restricted by the diagonal passageway 32.

Compartments B and A at the other end of the car are substantially the reverse counterparts of compartments K and L, having their communicating partition 36 offset and having a chair storage space for compartment A defined partly under the end flight of stairs.

Referring now to the upper compartments, it will be noted that the complementary pairs of upper compartments from N-O to V-W, inclusive, have substantially the same arrangement as described of the preceding embodiment. Alternate compartments N, P, etc. are double compartments having the transverse and lengthwise

beds 81 and 82 and the other alternate compartments are single, having a single transverse bed 31'. Each of these upper compartments has a folding step 101 in order to facilitate climbing into the transverse bed, as described of the preceding embodiment, but in this arrangement the folding step is spaced inwardly from the window to accommodate a folding desk leaf 131 which can be swung up into the sitting space at the window side of the compartment. This same arrangement of folding steps and folding writing table can also be incorporated in the preceding embodiment.

In compartment U the combination toilet unit 46' is set further into the room, alongside the bed 81', to accommodate the upper portion of the linen closet 127. This linen closet is defined between the side wall of the adjacent stair well, the longitudinal wall 133 and the transverse wall 134. This linen closet extends up into the space above the upper stage level 78, and the transverse wall 134 extends to the side wall 26 of the car which separates such upper portion of the closet from the storage space 98 of compartment U. The adjacent stair well is displaced slightly to provide for this closet and this is accommodated by a slight offset in the communicating partition 75 between compartments T and U. This disposal of the large linen closet 127 intermediate the ends of the car enables me to use the end space alongside the diagonal passageways 31 and 32 more advantageously for compartment space.

End compartment M has a single transverse bed 81' and the upper stage level 78 is projected slightly into the compartment along the side of this bed to accommodate the offset in the standing room space 44 of the lower compartment A. A folding step 101 is provided on the vertical side wall of this upper stage level to afford easy access to the bed 81'. An upper stage level 78 is extended from the opposite side of the stair well to the end of the car to overlie the diagonal passageway 31 below. A folding writing table 131 is mounted on the vertical side wall 71a of this upper stage level 78. The combination toilet unit 46' is preferably disposed in the corner of the compartment.

Compartment X at the other end of the car is a reverse counterpart of compartment M.

Referring to Figures 9 and 12, each of the folding beds 55 in the lower compartments comprises a fixed bed section 55a and two folding sections 55b and 55c. The outer end of the fixed section 55a is supported in elevated position above the floor by legs 137, the space 138 beneath this fixed section serving as storage space for baggage and the like. The first folding section 55b is hinged to the fixed section by side pivots 139 which are so arranged that when the sections are in coextensive alignment their upper surfaces will be substantially flush. The second folding section 55c is pivotally connected to the swinging end of the first folding section 55b by side hinges 141 which are also so arranged that the upper surfaces of the two folding sections will be flush when these sections are in coextensive alignment. When the two sections 55b and 55c are folded outwardly they occupy substantially the entire sitting space at the window 45. The end section 55c is adapted to rest on supporting shoulders or flanges 143 projecting from the fixed portion of the transverse partition 36. Any suitable latching means 144 may be provided for locking the sections 55b and 55c against folding downwardly at the hinge line 141 when the sections are ex-

tended. The pivotal folding relation between the sections 55a and 55b may be substantially the same as previously described of sections 41a and 41b of the folding extensible bed 41.

5 Each of these three sections has any suitable bed spring construction incorporated therein. In the folded condition of the bed the two movable sections 55b and 55c swing-up into the open end of the bed storage compartment 51b, which
10 compartment is disposed outwardly of the chair storage compartment 51a. The reverse side of the first folding section 55b is finished with a panel 55d which affords an attractive closure panel for the bed storage compartment when the
15 bed is closed. The mattress and pillows are folded into a roll and stored in the bed storage space 51b in advance of the closing of the bed. Any suitable latching means 146 may be provided for locking the section 55b in its raised
20 folded position.

The construction of the lengthwise folding beds 55 in compartments A, J and K of Figures 1A, and 1B is preferably the same as above described, although, if desired, the extensible beds
25 in said latter compartments may be of the type wherein the movable bed section is superposed on the fixed bed section when the bed is closed, as disclosed in my copending application, Serial No. 627,563, filed August 5, 1932. Likewise, in
30 compartments A, B, C, D, etc. of Figures 7A and 7B, while the folding extensible beds 55 are preferable, it will be understood that these shiftable-section extensible beds disclosed in said copending application may also be employed in lieu
35 thereof. Hence, in the appended claims, unless otherwise differentiated, it will be understood that I have used the term "extensible" in its broader sense to include beds which might have their effective dimensions varied between operative
40 and inoperative conditions in any of the ways referred to above.

While I have illustrated what I regard to be the preferred embodiments of my invention, nevertheless it will be understood that such are
45 merely exemplary and that numerous modifications and rearrangements may be made therein without departing from the essence of the invention.

I claim:

50 1. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof, a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a plu-
55 rality of transverse partitions extending from said lengthwise wall to the left side wall of the car body and defining a series of lower compartments, doors leading from said side aisle into said lower compartments, windows, in said left side wall opening
60 into said lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse partitions extending from side wall to side wall of the car body above said upper deck and defining a series of
65 upper compartments, each of said lower compartments having standing room space therein below the upper stages of said deck and each of said upper compartments having standing room space therein on lower stages of said deck, stairs
70 leading from said side aisle to said upper compartments, windows in said left side wall opening into said upper compartments, extensible beds in a plurality of said lower compartments each comprising a fixed section and two folding sections all hingedly connected together and adapted
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to be folded out to a position extending lengthwise of the car adjacent to the window side of the lower compartment, said fixed section remaining under the adjacent lower stage of said multiple stage deck and said folding sections
5 folding to a substantially vertical position beneath said lower stage, and beds in a plurality of said upper compartments lying on upper stages of said deck and extending transversely of the car.
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2. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof, a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a
15 plurality of transverse partitions extending from said lengthwise wall to the left side wall of the car body and defining a series of lower compartments, doors leading from said side aisle into said lower compartments, windows in said left
20 side wall opening into said lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse partitions extending from side wall to side wall of the car body above said upper deck and defining
25 a series of upper compartments, each of said lower compartments having standing room space therein below the upper stages of said deck and each of said upper compartments having standing room space therein on lower stages of said
30 deck, stairs leading from said side aisle to said upper compartments, windows in said left side wall opening into said upper compartments, extensible beds in a plurality of said lower compartments each comprising a fixed section and two
35 folding sections all hingedly connected together and adapted to be folded out to a position extending lengthwise of the car adjacent to the window side of the lower compartment, said fixed section remaining under the adjacent lower stage
40 of said multiple stage deck and said folding sections folding to a substantially vertical position beneath said lower stage, beds in a plurality of said upper compartments lying on upper stages of said deck and extending transversely of the
45 car, and beds in a plurality of said upper compartments extending lengthwise of the car.

3. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof, a lengthwise dividing wall adjacent to said right
50 side wall and defining therewith a side aisle extending along the right side of the car body, a plurality of transverse partitions extending from said lengthwise wall to the left side wall of the car body and defining a series of lower compart-
55 ments, doors leading from said side aisle into said lower compartments, windows in said left side wall opening into said lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse
60 partitions extending from side wall to side wall of the car body above said upper deck and defining a series of upper compartments, each of said lower compartments having standing room space therein below the upper stages of said deck and
65 each of said upper compartments having standing room space therein on the lower stages of said deck, stairs leading from said side aisle to said upper compartments, windows in said left side wall opening into said upper compartments, ex-
70 tensible beds in a plurality of said lower compartments each comprising a fixed section and two folding sections all hingedly connected together and adapted to be folded out to a position extending lengthwise of the car adjacent
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to the window side of the lower compartment, said fixed section remaining under the adjacent lower stage of said multiple stage deck and said folding sections folding to a substantially vertical position beneath said lower stage, chair storage spaces in a plurality of said lower compartments each defined between the fixed section of the adjacent extensible bed and said lengthwise dividing wall and disposed below the lower stage of said deck, and beds in a plurality of said upper compartments lying on upper stages of said deck and extending transversely of the car.

4. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof, a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a plurality of transverse partitions extending from said lengthwise wall to the left side wall of the car body and defining a series of lower compartments, doors leading from said side aisle into said lower compartments, windows in said left side wall opening into said lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse partitions extending from side wall to side wall of the car body above said upper deck and defining a series of upper compartments, each of said lower compartments having standing room space therein below the upper stages of said deck and each of said upper compartments having standing room space therein on lower stages of said deck, stairs leading from said side aisle to said upper compartments, windows in said left side wall opening into said upper compartments, extensible beds in a plurality of said lower compartments each comprising a fixed section and two folding sections all hingedly connected together and adapted to be folded out to a position extending lengthwise of the car adjacent to the window side of the lower compartment, said fixed section remaining under the adjacent lower stage of said multiple stage deck and said folding sections folding to a substantially vertical position beneath said lower stage, the floor space in each of a plurality of said lower compartments affording sitting space adjacent to the window of said compartment adapted to be occupied by a movable chair during day travel, a chair storage space in each of said latter compartments for storing the chair during night travel, said chair storage space being defined between the fixed section of the adjacent extensible bed and said lengthwise dividing wall and disposed below the lower stage of said deck, the stairs leading to said upper compartments extending over said chair storage spaces, and beds in a plurality of said upper compartments lying on upper stages of said deck and extending transversely of the car.

5. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof, a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a plurality of transverse partitions extending from said lengthwise wall to the left side wall of the car body and defining a series of lower compartments, doors leading from said side aisle into said lower compartments, windows in said left side wall opening into said lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse partitions extending from side wall to side wall of the car body above said upper deck and de-

fining a series of upper compartments, each of said lower compartments having standing room space therein below the upper stages of said deck and each of said upper compartments having standing room space therein on lower stages of said deck, stairs leading from said side aisle to said upper compartments, windows in said left side wall opening into said upper compartments, extensible beds in a plurality of said lower compartments, each comprising a plurality of relatively movable sections adapted during night travel to be extended out to a position lying lengthwise of the car adjacent to the window side of the lower compartments, and during day travel to be folded into a bed storage space beneath a lower stage of said deck, and beds in a plurality of said upper compartments lying on upper stages of said deck and extending transversely of the car.

6. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof, a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a plurality of transverse partitions extending from said lengthwise wall to the left side wall of the car body and defining a series of lower compartments, doors leading from said side aisle into said lower compartments, windows in said left side wall opening into said lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse partitions extending from side wall to side wall of the car body above said upper deck and defining a series of upper compartments, each of said lower compartments having standing room space therein below the upper stages of said deck and each of said upper compartments having standing room space therein on lower stages of said deck, stairs leading from said side aisle to said upper compartments, windows in said left side wall opening into said upper compartments, a bed storage space and a chair storage space in each of a plurality of said lower compartments below a lower stage of said deck, said bed storage space being adjacent to the window side of said lower compartment and said chair storage space being adjacent to the aisle side thereof, an extensible bed comprising a plurality of relatively movable sections, one of said sections remaining in said bed storage space during day and night travel, and another section thereof being adapted during night travel to be extended out to form a bed lying lengthwise of the car and during day travel to be enclosed within said bed storage space, said chair storage space being adapted during night travel to receive a movable chair which, during day travel, is adapted to occupy window sitting space in the compartment, and beds in a plurality of said upper compartments lying on upper stages of said deck and extending transversely of the car.

7. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof, a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a plurality of transverse partitions extending from said lengthwise wall to the left side wall of the car body and defining a series of lower compartments, doors leading from said side aisle into said lower compartments, windows in said left side wall opening into said lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse

partitions above said upper deck defining a series of upper compartments, each of said lower compartments having standing room space therein below the upper stages of said deck, and each of said upper compartments having standing room space therein on lower stages of said deck, a bed storage space and a chair storage space in each of a plurality of said lower compartments below a lower stage of said deck, said bed storage space being adjacent to the window side of said lower compartment and said chair storage space being adjacent to the aisle side thereof, an extensible bed comprising a plurality of relatively movable sections, one of said sections remaining in said bed storage space during day and night travel, and another section being adapted during night travel to be extended out to form a bed lying lengthwise of the car and during day travel to be enclosed within said bed storage space, said chair storage space being adapted during night travel to receive a movable chair which, during day travel, is adapted to occupy window sitting space in the compartment, stair wells having stairs therein leading from said aisle to said upper compartments, each stair well affording access to a pair of upper compartments and overlying portions of two adjacent chair storage spaces of adjacent lower compartments, toilet fixtures in said upper compartments on opposite sides of said stair wells, and beds in said upper compartments lying on upper stages of said deck.

8. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof, a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a plurality of transverse partitions extending from said lengthwise wall to the left side wall of the car body, and defining a series of lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse partitions above said upper deck defining a series of upper compartments, extensible beds in a plurality of said lower compartments each comprising a fixed section and two folding sections all hingedly connected together and adapted to be folded out to a position extending lengthwise of the car adjacent to the left side wall of the lower compartment, said fixed section remaining under the adjacent lower stage of said multiple stage deck and said folding sections folding to a substantially vertical position beneath said lower stage, and beds in a plurality of said upper compartments lying on upper stages of said deck.

9. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof, a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a plurality of transverse partitions extending from said lengthwise wall to the left side wall of the car body, and defining a series of lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse partitions above said upper deck defining a series of upper compartments, each of said lower compartments having standing room space therein below the upper stages of said deck, and each of said upper compartments having standing room space therein on lower stages of said deck, extensible beds in a plurality of said lower compartments, each comprising a plurality of relatively movable sec-

tions adapted, during night travel, to be extended out to a position lying lengthwise of the car and during day travel to be folded into a bed storage space beneath a lower stage of said deck, and beds in a plurality of said upper compartments lying on upper stages of said deck.

10. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof, a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a plurality of transverse partitions extending from said lengthwise wall to the left side wall of the car body, and defining a series of lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse partitions above said upper deck defining a series of upper compartments, each of said lower compartments having standing room space therein below the upper stages of said deck, and each of said upper compartments having standing room space therein on lower stages of said deck, a bed storage space and a chair storage space in each of a plurality of said lower compartments below a lower stage of said deck, an extensible bed comprising a plurality of relatively movable sections, one of said sections remaining in said bed storage space during day and night travel, and another section being adapted during night travel to be extended out to form a bed lying lengthwise of the car, and during day travel to be enclosed within said bed storage space, said chair storage space being adapted during night travel to receive a movable chair which, during day travel, is adapted to occupy window sitting space in the compartment, and beds in a plurality of said upper compartments lying on upper stages of said deck.

11. In a sleeping car, a car body comprising a main floor, right and left side walls, a roof, a multiple stage deck disposed between said main floor and said roof and comprising substantially vertical and horizontal walls all permanently stationary, and means defining an aisle extending along one side of the car body, means defining a series of lower compartments below said deck and extending from said aisle to the opposite side of the car, means defining a series of upper compartments above said deck, each of said lower compartments having standing room space therein below the upper stages of said deck and each of said upper compartments having standing room space therein on the lower stages of said deck, bed storage spaces for each of a plurality of said lower compartments below lower stages of said deck, beds comprising folding sections adapted for night travel to fold outwardly into standing room space in said lower compartments and adapted for day travel to fold upwardly into substantially vertical position in said bed storage spaces below lower stages of said deck, and beds in said upper compartments lying on upper stages of said upper deck.

12. In a sleeping car, a body comprising a main floor divided into an aisle extending along one side of the body and a series of lower compartments between the aisle and the other side of the body, a multiple stage upper deck roofing said lower compartments and comprising substantially vertical and horizontal walls all permanently stationary, means defining upper compartments above said deck, bed sections in a plurality of said lower compartments movable for night travel into the standing room spaces of said lower compartments and movable for day travel into bed

storage spaces under the lower stages of said deck, and beds in a plurality of said upper compartments lying on upper stages of said deck.

5 13. In a sleeping car, a car body comprising a main floor, right and left side walls, and a roof,
 10 a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a
 15 plurality of transverse partitions extending from said lengthwise dividing wall to the left side wall
 20 of the car body and defining a series of lower compartments, doors leading from said side aisle into said lower compartments, a multiple stage
 25 upper deck extending over said lower compartments, a plurality of transverse partitions above said upper deck defining a series of upper compartments,
 30 each of said lower compartments having standing room space therein below the upper stages of said deck and each of said upper compartments
 35 having standing room space therein on lower stages of said deck, stairs leading from said aisle to said upper compartments, bed storage spaces in each of a plurality of said lower compartments below lower stages of said deck,
 40 beds in said lower compartments comprising bed frames each pivotally mounted for folding movement about a pivot axis extending substantially transversely of the car, said bed frames adapted for night travel to fold outwardly into said lower compartments and adapted for day travel to fold upwardly into said bed storage spaces, and beds in said upper compartments lying on upper stages of said upper deck.

14. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof,
 35 a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a plurality of transverse partitions extending from
 40 said lengthwise wall to the left side wall of the car body and defining a series of lower compartments, a multiple stage upper deck extending over said lower compartments and comprising substantially vertical and horizontal walls all permanently stationary, a plurality of transverse
 45 partitions above said upper deck defining a se-

ries of upper compartments, each of said lower compartments having standing room space therein below the upper stages of said deck, and each of said upper compartments having standing room space therein on lower stages of said deck, stairs leading from said aisle to said upper compartments, bed storage spaces in each of a plurality of said lower compartments below lower stages of said deck, beds in said latter compartments each comprising a bed frame arranged for folding movement about a pivot axis extending substantially transversely of the car, said bed frame adapted for night travel to fold outwardly into standing room space in said lower compartment and adapted for day travel to fold into said bed storage space, and beds in said upper compartments extending lengthwise of the car.

15. In a sleeping car, a car body comprising a main floor, right and left side walls and a roof,
 20 a lengthwise dividing wall adjacent to said right side wall and defining therewith a side aisle extending along the right side of the car body, a plurality of transverse partitions extending from said lengthwise wall to the left side wall of the
 25 car body and defining a series of lower compartments, a multiple stage upper deck extending over said lower compartments, a plurality of transverse partitions above said upper deck defining a series of upper compartments, each of said lower
 30 compartments having standing room space therein below the upper stages of said deck, and each of said upper compartments having standing room space therein on lower stages of said deck, stairs leading from said aisle to said upper
 35 compartments, beds in a plurality of said lower compartments extending transversely of the car, each of said latter beds comprising a bed frame arranged for folding movement about a pivot axis extending substantially transversely of the car,
 40 said bed frame adapted for night travel to fold outwardly into standing room space in said lower compartment and adapted for day travel to fold inwardly out of said standing room space, and beds in said upper compartments.

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