

March 2, 1943.

R. H. HORTON ET AL

2,312,906

DOUBLE DECK SLEEPING CAR

Filed March 28, 1940

3 Sheets-Sheet 1

Fig. 1.

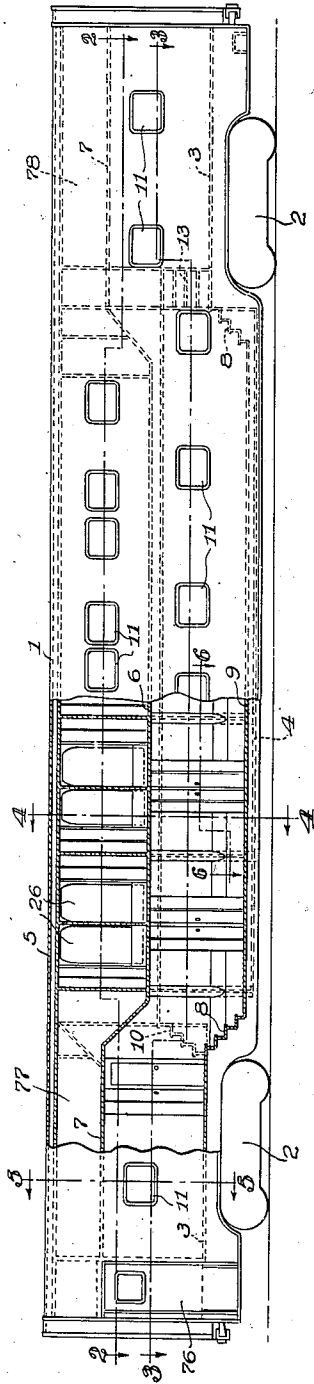


Fig. 2.

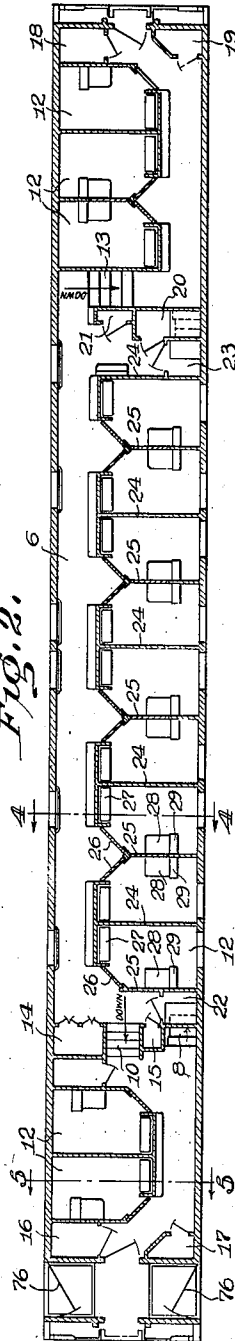
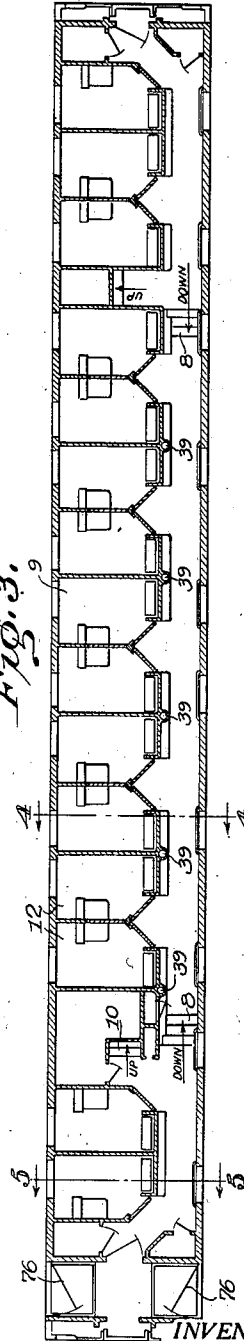


Fig. 3.



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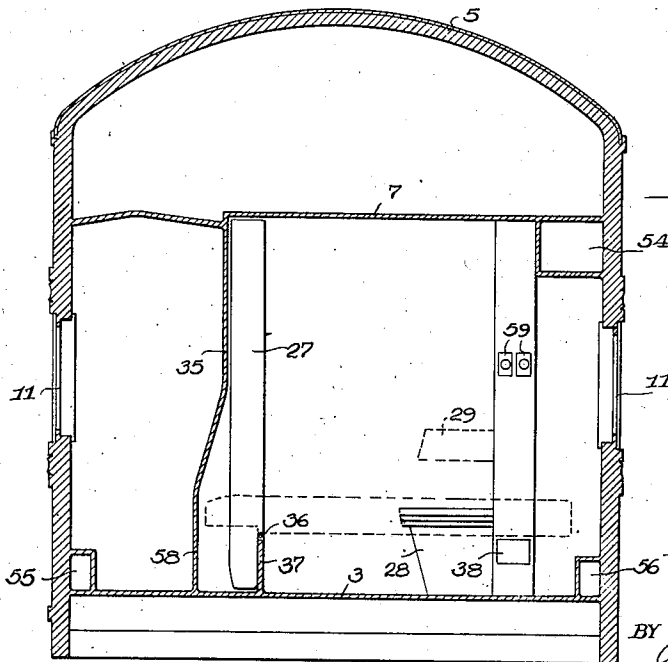
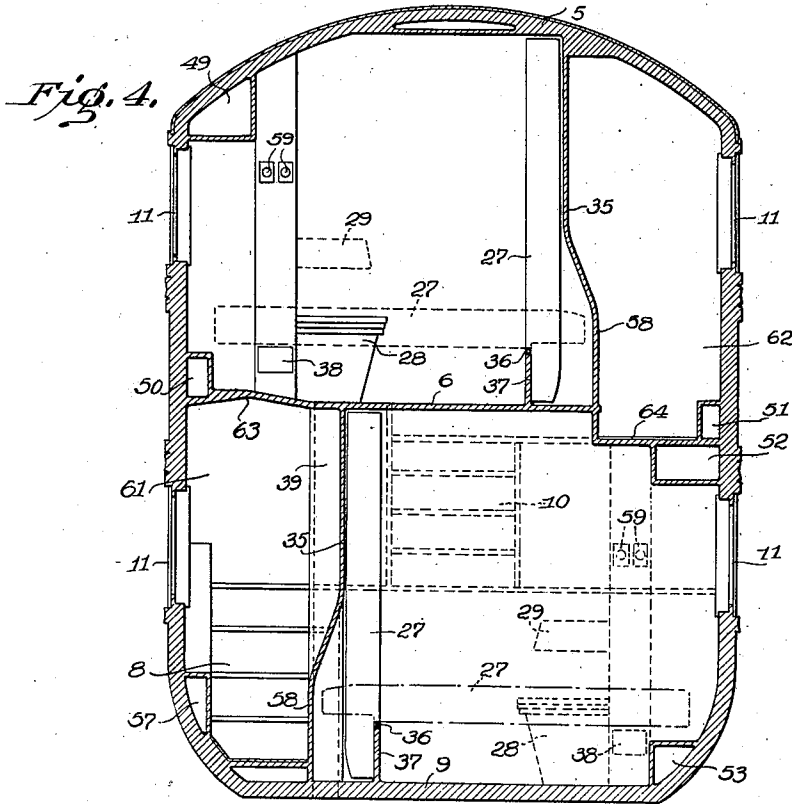
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3 Sheets-Sheet 2



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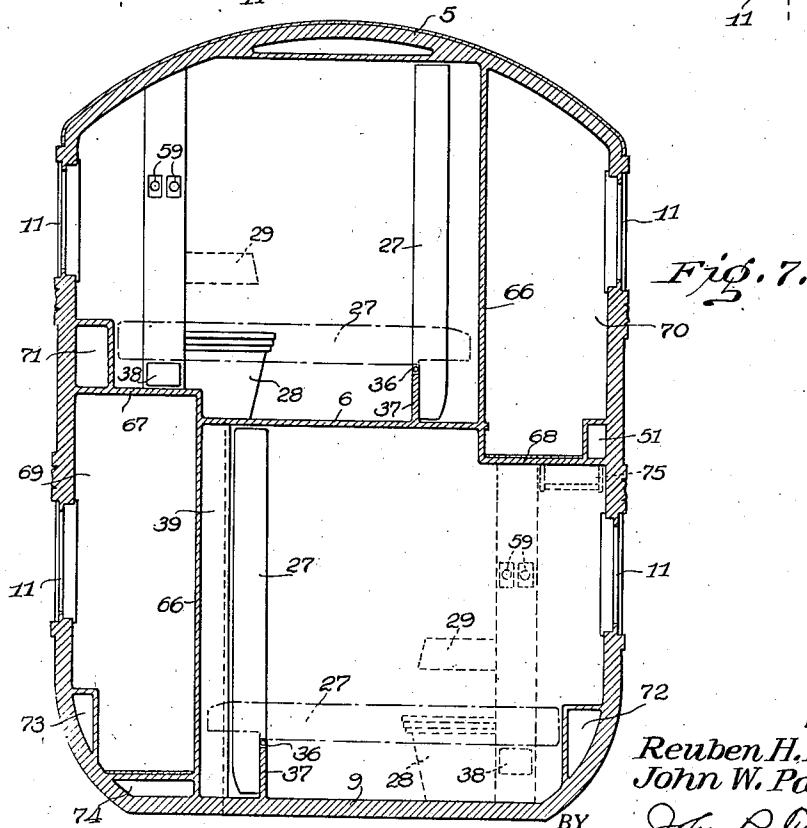
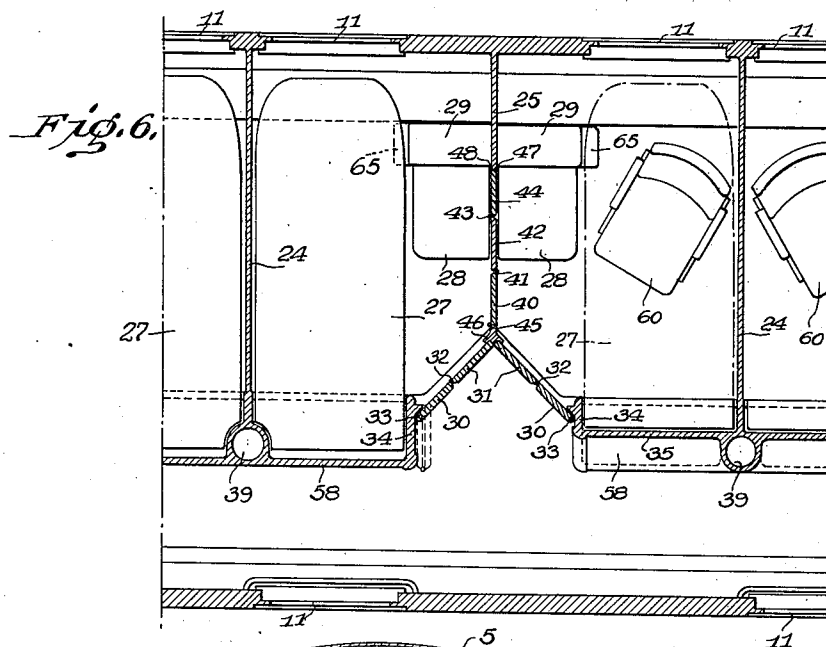
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DOUBLE DECK SLEEPING CAR

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3 Sheets-Sheet 3



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2,312,906

DOUBLE DECK SLEEPING CAR

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Application March 28, 1940, Serial No. 326,364

3 Claims. (Cl. 105—315)

The present invention relates to railway cars. More specifically, it concerns sleeping cars having a particular arrangement of compartments therein on different floor levels whereby the number of patrons that may be accommodated is increased.

Broadly described, the invention contemplates providing two decks at the central portion of the car, in combination with a single deck adjacent each end of the car, all the decks being suitably subdivided to form the individual compartments, each of which is preferably equipped with a bed, a chair, toilet facilities, medicine cabinet and other features which will be described more fully hereinafter.

A preferred form of the invention, as well as a slightly modified type of car, is described in the present specification and the drawings accompanying the same, wherein:

Fig. 1 is a diagrammatic side elevation of a sleeping car embodying the invention, partly broken away and in section on the vertical plane indicated by the line 1—1 of Fig. 2, to show the internal arrangement;

Fig. 2 is a sectional plan view of the car, the section being made on the horizontal planes indicated by the broken line 2—2 of Fig. 1;

Fig. 3 is a sectional plan view of the car, the section being made on the horizontal planes indicated by the broken line 3—3 of Fig. 1;

Fig. 4 is a diagrammatic cross section on an enlarged scale, on the plane indicated by the lines 4—4 of Figs. 1, 2 and 3;

Fig. 5 is a diagrammatic cross section on an enlarged scale, on the plane indicated by the lines 5—5 of Figs. 1, 2 and 3;

Fig. 6 is a fragmentary plan view and horizontal section, also on an enlarged scale, on the planes indicated by the broken line 6—6 of Fig. 1; and

Fig. 7 is a cross sectional view similar to Fig. 4, but embodying certain modifications.

In all the figures, which are purely diagrammatic, similar elements are designated by the same reference characters.

The car, which is designated as a whole by reference character 1, is mounted upon the trucks 2 and has at each end a floor or deck 3 at the customary elevation, sufficient to clear the wheel trucks 2. The central portion of the car, that is, the section located between the two wheel trucks, has a depressed bottom 4 which is located as low as possible, while still providing sufficient clearance over the track. The roof 5 of the car furthermore is raised to as high a level as may be

accommodated within existing tunnels and the like, so that the distance between the floor 4 and the roof 5 may be the maximum that is permissible.

Thus it becomes possible to interpolate an additional horizontal partition 6 midway between the bottom and top of the car, which will serve at the same time as a ceiling for the lower deck and also as a floor for the upper deck. At the two ends of the car a false ceiling 7 preferably is provided over the deck 3 so as to limit the height at the end portions of the car to approximately the same dimension as the height of each deck in the central section of the car. Stairways 8 lead from each deck 3 to the lower deck 9 and other stairways 10 and 13 similarly lead to the upper level 6. Windows 11 may be provided wherever desired, as diagrammatically indicated, preferably so arranged that each of the compartments hereinafter described will have its own individual window.

In the specific example disclosed there are two compartments 12 on the floor level 3 at one end of the car, and three such compartments at the other end, thus giving a total of five compartments at the level of the floor 3, which is at the entrance level and which may also be referred to as a mezzanine floor, with respect to the upper and lower decks in the central section.

In said central section, additional compartments 12 are provided, nine compartments being shown in Fig. 2 on the upper deck 6, and ten more compartments on the lower deck 9 being shown in Fig. 3, thus giving a total of twenty-four compartments in the entire car. This compares very favorably with the number of berths in the conventional sleeping car, twelve lower and twelve upper, so that the present car will provide the same number of compartments as the total number of berths in the cars at present in general use.

Wherever small spaces remain, they may be used for various purposes such as for lockers and for the storage of luggage. Fig. 2 shows such lockers at 14, 15, 16, 17, 18, 19, 20 and 21, and luggage compartments at 22 and 23.

The general arrangement of the compartments will be understood from Figs. 1, 2 and 3, namely, they are located in rows with single partitions separating each from the adjacent ones, these partitions being alternately long as shown at 24 and short as at 25, so that slanting doors 26 may be provided as shown to economize space. At the small end of each compartment is pivoted a folding bed 27, which when not in use stands vertically against the wall and thus occupies

very little floor space. Each compartment may have a toilet 28 and a wash basin 29 therein, having the chute or drain pipe 39 connected thereto. 65 indicates the receiving opening of a receptacle for used towels, which conveniently may be located beneath each wash basin 29.

These features will now be considered in greater detail, reference being had to Figs. 4, 5 and 6. Each door, which is designated as a whole by reference character 26 in Figs. 1, 2 and 3, is shown in Fig. 6 to consist of two panels or sections 30 and 31 which are hinged together at 32 and hinged to the stationary partition member 34 at 33, which makes it possible for the door to be either in the closed position, shown in section in full lines in Fig. 6, or in the open position indicated by dotted lines, wherein both panels of the door lie flat against the partition 34 so as to be completely out of the way.

The bed 27 is shown in its unused or day position in full lines in Figs. 4 and 5, in this condition resting against the end wall 35 of the corresponding compartment. Each bed is pivoted as shown at 36 at the upper end of the short vertical wall 37, so that it may be swung from its vertical day position to its horizontal night position, as shown in dotted lines, the free end of the bed then being supported by the cross piece 38.

While in Figs. 1, 2 and 3 each short partition 25 is indicated diagrammatically as solid, preferably it will be made as indicated in Fig. 6 of a plurality of panels which are hinged together so that part of the partition may be folded out of the way against one of the doors when it is desired to bring two adjacent compartments into communication with one another, to form a double compartment. In this case only the rear end of the partition 25 remains stationary and the forward portion consists of the panels 40, 42 and 44, hinged together at 41 and 43, so that the panels 42 and 44 may fold against the panel 40, which itself is hinged at 45 to the door jamb 46 so that it may fold against one of the entrance doors. The panels 42 and 44 obviously must terminate at a level slightly above the top of the toilet 28 to permit such hinging action. The rear edge of the panel 44 may have a groove 47 therein to receive a corresponding tongue 48 at the end of the stationary part of the partition 25.

Ducts are provided as indicated at 49, 50, 51, 52, 53, 54, 55, 56 and 57, which will accommodate various necessary services, such as plumbing, electrical wiring, air passages for ventilation and air conditioning, heating pipes, etc., which may be placed wherever convenience dictates.

In Fig. 4 the ducts 49 and 52 are preferably used for air conditioning. The duct 54 of Fig. 5 may be a continuation of the duct 52 of Fig. 4.

It will be noted that each wall 35 has an offset lower portion 58, as shown in Figs. 4 and 5, so that the bed 27 may pivot without striking said wall, the offset portion 58 at the same time providing a slight widening of the compartment at the bed level.

Electrical convenience outlets are indicated at 59, and may be used for operating various small electrical appliances, such as electric razors, radios, curling irons, etc. Folding chairs 60 may be provided in the compartments, and placed as desired. These chairs either may be secured permanently to the floor and so constructed as to fold out of the way when the bed is to be let down, or may be movable chairs of the ordinary

folding type which can be placed by the patron wherever desired.

It will be seen that access is afforded to the various compartments by two passages extending along opposite sides of the car. One of these is shown at 61, on the lower left hand side of Fig. 4, and the other at 62, on the upper right of the same figure. In order to provide sufficient head room in these passages, the floor 6 may be raised slightly as shown at 63, on the left hand side of the car, while at the same time the passage 62 may be increased in height by depressing the floor 6 at the right hand side of the car, as shown at 64. These changes in the level of floor 6 do not seriously affect the available heights of the compartments, since they come respectively under and over those ends of the compartments at which the wash basins 29 are located.

The slightly modified form of Fig. 7 shows an alternative arrangement of the cross section of the car. In this instance, instead of the wall 35 having an offset 58, straight vertical walls 66 are provided and the floor 6 is upwardly offset at 67 and correspondingly depressed at 68 so that the passages 69 and 70 may be of adequate height. This makes the passages slightly narrower but nevertheless adequate. The ducts 71 and 72 may be used for air conditioning. These ducts preferably extend through the entire series of compartments of each deck. Other ducts 51, 73, 74 and 75 are available in this embodiment, to accommodate the various services previously mentioned.

The operation of the invention will be evident from the structures described. Entrance may be afforded to the car through the customary doors such as 76 at the end thereof, which lead to the mezzanine level 3. Those of the compartments 12 which are located at said level can thus be reached directly. The compartments on the upper floor 6 may be reached by means of the stairway 10 and those on the depressed floor 9 by the stairs 8. Of course the compartments on the floor 3 at the remote end of the car may be reached either through the central aisle, from the adjacent car, or by traversing one of the longitudinal passages 61 and 62.

The false ceilings at 7 are provided mainly to make the height of each end section of the car correspond to that of each story in the central portion, so that there will not be any noticeable difference which might cause patrons to prefer the compartments on the mezzanine floor to those on the upper and lower decks. Moreover the spaces 77 and 78 beneath the roof of the car and above the ceiling 7 may be used for any desired storage purposes or for housing necessary machinery or equipment of the sleeping car itself or of adjacent cars.

The compartments may be used as drawing rooms in the daytime, at which time the folding chairs are available, while at night such chairs are folded out of the way and the beds 27 lowered into position for use. The partitions 25 may be partly opened by folding aside certain panels thereof, to throw two adjacent compartments together when desired.

It will be seen that the present car possesses all the desirable features customary in sleeping cars at present in general use, and in addition has many further features peculiar to itself, whereby much improved accommodations are afforded to the patrons, the principal one being that each patron may have a separate compart-

ment instead of merely an upper or lower berth, while nevertheless the length and width of the car as a whole need not differ from those of the standard cars, this advantage being attained by the double-deck construction of the middle portion of the car. Ample provision is available for all needs of heating, lighting, ventilation, air conditioning, plumbing, etc., through the various means disclosed hereinabove.

The operation of the slightly modified form disclosed in Fig. 7 is of course identical with that of the form disclosed in Figs. 1 to 6.

While the present invention has been disclosed in considerable detail by means of a diagrammatic illustration and specification of a particular form thereof, chosen for illustration, which is at present believed to be a preferred form, together with a slightly modified embodiment of the invention, it should be understood clearly that the disclosure is merely illustrative and highly diagrammatic. Many features may be omitted or modified and many others added, without departing from the invention, which is defined solely by the following claims.

What we claim is:

1. A sleeping car comprising a double-deck central portion, a series of individual compartments for patrons on each deck, longitudinal passages, one on each deck, providing access to said compartments, said passages being on opposite sides of the car for the respective decks, a longitudinal air-conditioning duct located on each deck and extending through the series of compartments on the associated deck, said duct for each deck being arranged in the corner formed by the bottom of the associated deck and the adjacent car side wall, some at least of said series of compartments being equipped with a folding bed hinged adjacent one end thereof near the associated passage wall and arranged to be folded, when not in use, against said wall and to be extended for use transversely of the compartment adjacent the bottom of the associated deck, the top of the air-conditioning duct for each deck being substantially at the level and forming an extension of the tops of the extended beds.

2. A sleeping car comprising a double-deck central portion, a series of individual compartments for patrons on each deck, longitudinal passages, one on each deck, providing access to

said compartments, said passages being on opposite sides of the car for the respective decks and said compartments for each deck adjacent their respective passages having greater height than adjacent their outer walls, some at least of said series of compartments being equipped with folding beds, each hinged adjacent one end thereof near the associated passage wall and arranged to be folded, when not in use, against said passage wall whereby to avail of the greater height, and to be swung on an arc about said hinge into the position for use in which the bed extends transversely of the compartment adjacent the bottom of the associated deck, and a longitudinally extending air-conditioning duct located on each deck and extending through the series of compartments on the associated deck, said duct for each deck being arranged adjacent the outer wall of the compartments on said deck and between said outer wall and the arc of swing of said beds.

3. A sleeping car comprising a double-deck central portion, a series of individual compartments for patrons on each deck, longitudinal passages, one on each deck, providing access to said compartments, said passages being on opposite sides of the car for the respective decks, and said compartments for each deck adjacent their respective passage having greater height than adjacent their outer walls, some at least of said series of compartments being equipped with folding beds, each of a length approximating the greatest height and width of a compartment, and each hinged adjacent one end thereof near the associated passage wall and arranged to be folded, when not in use, against said wall whereby to avail of the greater height, and to be swung on an arc about said hinge into a position for use in which the bed extends transversely of the compartment adjacent the bottom of the associated deck with its free end in close proximity to the outside wall of the compartment, and a longitudinally extending air-conditioning duct located on each deck and extending through the series of compartments on the associated deck, said duct for each deck being arranged in the corner formed by the top of the associated deck and the adjacent car side wall so as to be outside the arc of swing of said beds.

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