E. FLAGG.

SLEEPING CAR.

APPLICATION FILED APR. 1, 1914.

1,174,703.

Patented Mar. 7, 1916.

3 SHEETS—SHEET 1.

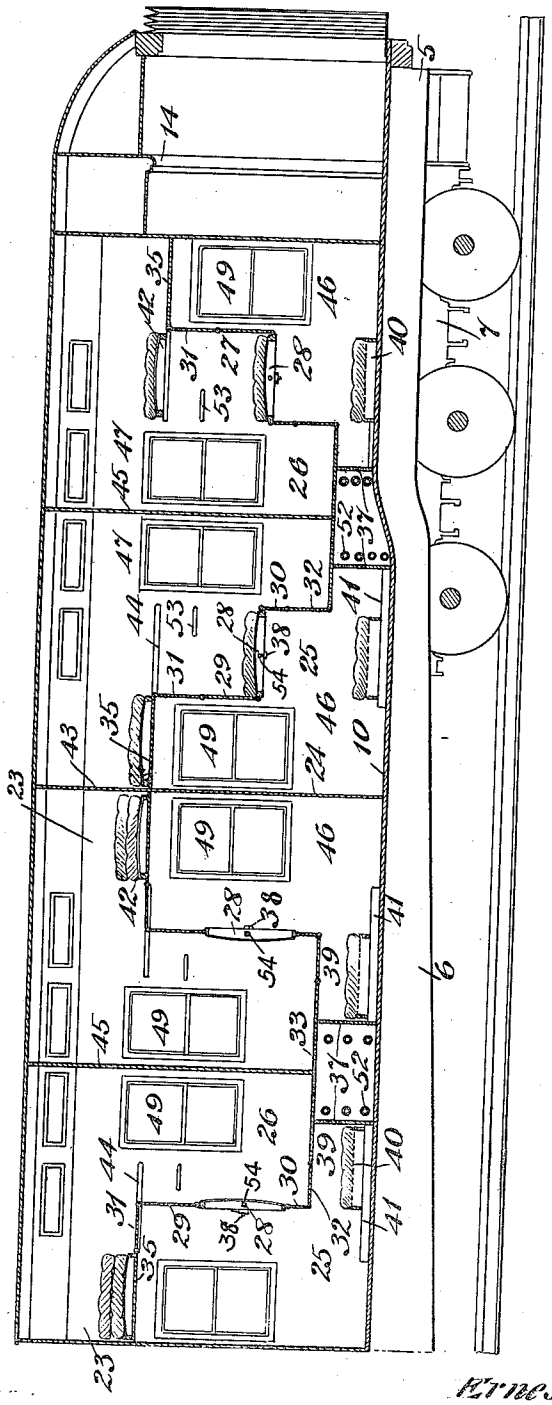


Fig. 1.

WITNESSES

INVENTOR

Ernest Flagg

BY Munn & Co

ATTORNEYS

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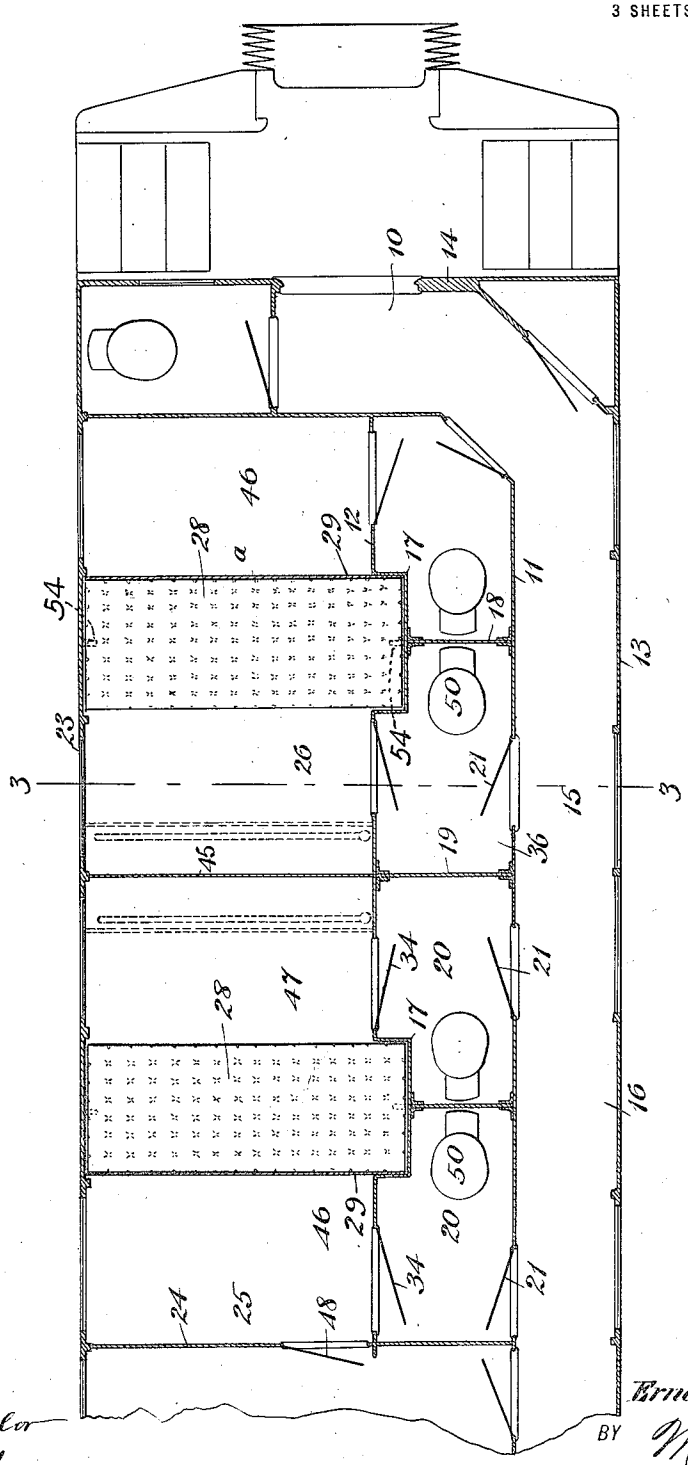


Fig. 2.

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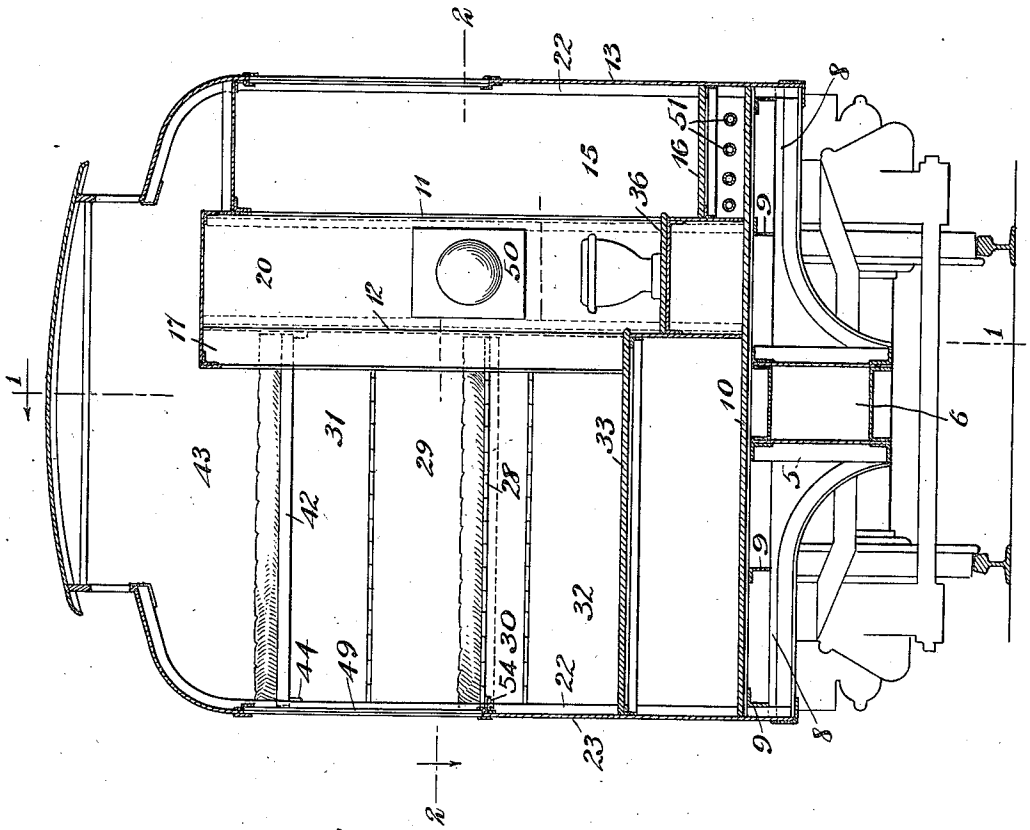


Fig. 3.

WITNESSES

Geo. W. Maylor

INVENTOR

Ernest Flagg

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

ERNEST FLAGG, OF NEW YORK, N. Y.

SLEEPING-CAR.

1,174,703. Specification of Letters Patent. Patented Mar. 7, 1916.

Application filed April 1, 1914. Serial No. 828,732.

To all whom it may concern:

Be it known that I, ERNEST FLAGG, a citizen of the United States, and a resident of the city of New York, Dongan Hills, borough of Richmond, in the county of Richmond and State of New York, have invented a new and Improved Sleeping-Car, of which the following is a full, clear, and exact description.

My invention relates to sleeping-cars of compartment and dormitory type.

An object thereof is to provide a sleeping-car structure having a larger number of berths in a standard car length than hitherto has been possible, thus securing greater efficiency and economy in floor space.

Another object of the invention is to obtain perfect privacy in a compartment type of car without great sacrifice in floor space.

A further object of the invention is the provision of a sleeping-car which can be easily and quickly converted from day service to night service.

A still further object of the invention is the provision of a sleeping car whereby the berths can be used during the day service of the car without the transformation of the same to the night service and without any discomfort to the occupants of the car.

Another object of the invention is the provision of a sleeping car wherein three berth levels are provided, of which the two upper levels are insulated from the lower level.

Still another object of the invention is to provide sleeping cars in which the entire window space remains undisturbed when said car is transformed for night service.

A further object of the invention is the provision of a compartment sleeping car in which there is a water-closet for each compartment, but independent therefrom, thus increasing the privacy of each compartment.

I attain the above objects by providing a car structure having a corridor and compartments communicating with said corridor, certain of said compartments having their floors at different levels as compared with other compartments.

My invention consists of the construction and combination of parts to be more fully described hereinafter and fully set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which like characters indicate corresponding parts in all the views and in which;

Figure 1 is a longitudinal section on line 1—1, Fig. 3, of a fragment of a compartment sleeping-car embodying my invention, showing in the left-hand portion the compartments for day service and in the right-hand portion, compartments in night service; Fig. 2 is a horizontal section on line 2—2 of Fig. 3; and Fig. 3 is a cross section of the car on line 3—3, Fig. 2.

Referring to the drawings which illustrate my preferred form of construction, 5 represents a longitudinal girder of the under frame of the car, which has a depressed portion 6 intermediate the trucks 7, which trucks carry the car frame. Said girder carries on each side thereof a plurality of suitably-shaped beams 8 laterally extending therefrom. The said beams are interconnected by members 9 forming an additional reinforcement to the under frame formed by the girder 5 and beams 8. A floor 10 carried by the under frame has its surface in conformity with the surface of the under frame, *i. e.*, the end portions of said floor are raised above the middle portion, as can be seen from Fig. 1. Two longitudinal partitions 11 and 12 are mounted on the floor 10, which is the main floor of the car. The said partitions are to one side of the car, are parallel to each other, and extend substantially through the entire length of the car (see Fig. 2). The partition 11 is continued transversely of the car, parallel to the end walls 14, and forms with the facing side wall 13 and end walls 14 corridor 15. The floor 16 of the corridor is level with the raised portion of the main floor 10 and merges therein; therefore at the depressed portion of the under frame the floor 16 of the corridor is above the main floor 10 (see Fig. 3).

The longitudinal partition 12 is not straight but is off-set at regular intervals, as shown at 17 in Figs. 2 and 3. The two partitions 11 and 12 are connected at regular intervals by means of columns 18 positioned centrally of the set-off portions 17 and also by columns 19 midway between the columns 18. Thus, the space between the two partitions is divided into a series of vestibules 20, each communicating with the corridor 15 by means of a door 21, which may be made to swing as shown in the drawings, or to

slide, if desired. The columns 18 and 19 between the partitions are carried by the main transverse beams 8 of the under frame, thus permitting a considerable reduction in the size of the vertical members 22 (see Fig. 3) forming the framing of the side walls 13 and 23, as the said columns will take up most of the transverse stress now carried by the members forming the framing of the side walls of the car. The columns 19 can be dispensed with, as they form only an additional reinforcement, and in place thereof closets (not illustrated) can be formed between the adjacent doors 21, accessible from the corridor 15. The reduction in size of the members 22 permits a saving in space and weight, and thereby the internal width of the car can be increased.

The space between the longitudinal partition 12, side wall 23 and the transverse end portion of the partition 11 is divided into a number of compartments 25 and 26 by means of partitions 27 (Fig. 1) each formed of a berth 28 rotatably mounted on trunnions 54 engaging the partition 12 in the set-off 17 and the side wall 23 of the car. The said berth is rotatable on its axis, so that when the same is in operative position, as shown at the right of Fig. 1 and also in Fig. 2, its width is equal to the width of the set-off 17, which it engages. A leaf 29, pivotally connected to one side of the berth, and a leaf 30, similarly connected to the other side of said berth 28, form the remaining part of said partitions when the car is in day service. The leaf 29 of each partition forms the upper part thereof and is, in turn, pivotally connected to a leaf 31 forming the pivotal part of the top or roof 35 of compartment 25. The leaf 30, which forms the lower part of the partitions when the compartments are for day service, is pivotally connected to a leaf 32 which forms the pivotal portion of a floor 33 of the compartments 26. The floor 33 of compartments 26 is raised above the floor 10 of compartments 25, in the particular form illustrated, the floor 10 of compartments 25 is below the floor 16 of the corridor, as the floor of compartments 25 is the main floor 10 of the corridor. The pivotal connection of the berth support 28, consisting of the leaves 29, 30, 31 and 32, is of the piano-hinge type, and the movement of the said leaves, with the support, is simultaneous, *i. e.*, the entire partition moves at once when said compartments 25 and 26 are transformed from the day service, as shown at the left hand of Fig. 1, to the night service, as shown to the right of said figure. The compartments 26 are further separated from each other by a partition 43 centrally mounted on the top or roof 35 of the lower compartments 25.

The compartments 25 and 26 are each in communication with the vestibules 20 by means of doors 34 similar to doors 21. The vestibules leading to the compartments 26, which have the raised floor 33 and form the upper compartments, are provided with a floor portion 36 forming a step from the corridor into the said upper compartments. The permanent portion of the raised floor 33 of each of the upper compartments is supported by transverse members 37 mounted on the main floor 10. Said permanent portion overhangs each of said transverse members 37, with the leaf 32 connected thereto; and when the same forms part of the floor, it forms a recessed portion 39 in the lower compartments 25 accommodating a berth 40 mounted to slide in the compartments 25 on supports 41 carried by the side wall 23 of the car and the partition 12. Said supports 41 can be placed adjacent the floor 10, as shown in Fig. 1, or raised closer to the raised floor portion 33. The movable portions of the raised floors 33, the partitions, and the roofs are maintained in proper position by the locking means 38, which coact with the wall of the set-off 17 and the side wall 23 of the car. Berths 42 are provided on each side of the partitions 43 in the compartments 26, the said berths being mounted to slide over the top or roof 35 of the compartments 25 on members 44 carried by the partition 12 and side 23 of the car.

Each of the compartments 25 and 26 are further sub-divided by transverse partitions 24 and 45, so that each compartment 25 is divided into two parts or rooms 46, and each of the compartments 26, into two parts or rooms, 47. The said partitions 24 and 45, if desired, can be provided with locking doors 48 (see left hand of Fig. 2). When the car is of the dormitory type, the compartments 25 and 26 are not sub-divided by means of partitions 24 and 45, so that windows 49 of each of the parts 46 and 47 of the compartments 25 and 26 are merged into a single window and the distance between the partitions 27 can be reduced, thus a larger number of compartments 25 and 26 can be formed. In either the dormitory or compartment type of car the end compartments, or parts 46, are present, due to the structure of the car. In these end parts 46 the floor is preferably on a level with the floor of the corridor, in view of the fact that the said parts are above the truck 7 of the under frame. If desired these end parts 46 can be used as smoking rooms in either type of car. It is understood that a mixed type of car can be formed, part of which will be of the dormitory type and part of the compartment type.

In the compartment type of car, part of each of the vestibules 20 is utilized as a toilet or lavatory 50. The toilet bowls in the vestibules of the parts 47 of the compartments 26 are positioned on the raised floor

portion 36, while the toilet bowls in the vestibules of parts 46 of the compartments 25 are positioned on the main floor 10, forming the floor of said vestibule, or, if desired, the floor of the corridor 15 can be extended into the said vestibule and the toilet bowl positioned thereon. From the above it will appear that a toilet and lavatory are contiguous with each part of the compartments but separated therefrom by the door 34.

The compartments 26, or the raised compartments. are ventilated by the monitor of the car. The compartments 25, or the lower compartments, are ventilated by ducts which pass through the upper part of the toilet room to a space over the corridor. The space between the floors 10 and 16 serves as a receptacle for the heating pipes 51, from where said pipes are branched out into radiators 52 located in the space formed by the raised floor 33 and the transverse members 37. Thus. all the heating pipes are entirely concealed and the arrangement permits of indirect radiation easily controllable.

It will be seen that in the compartment type of car, the compartment parts 46 will each comprise a single berth, while the compartment parts 47 will each contain two berths, of which the upper berths 42 are accessible by the provision of a step 53 secured to the side wall 23, or they may be made accessible by means of a step-ladder, as in use at present. Each upper berth 42, furthermore, can be made foldable, so that in place of sliding the berth out from the position shown at the left of Fig. 1 into the position shown at the right of the same figure, it can be unfolded, thus making a double berth in place of a single one.

As shown in the drawings, the three levels of berths when in operative position superpose each other, but the two upper levels are accessible from compartment parts 47, while the lower level of berths is accessible from compartment parts 46. While the car contains three levels of berths, the two lower levels of berths, while superposing each other, are in reality both lower berths, being accessible from different compartments. Therefore only one-third of the berths are upper berths, and not one-half as in the present case.

The berths 40 and 42 can be used for day service without any inconvenience or change of the partitions 27, which change of the partitions is only necessary when the berth support 28 is to be placed in operative position, *i. e.*, when the compartments are transformed for night service. It will be noted that the entire window space will remain undisturbed in each of the compartments or parts thereof when said compartments or parts thereof are transformed into night service. The free floor space in each of the compartments or parts thereof can have if desired chairs, which may be collapsible.

From the above description it can be easily seen that not only greater privacy and better conditions are obtained by a car structure according to my ideas, but a greater economy of floor space is derived.

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

1. A sleeping-car having a longitudinal corridor and a plurality of two-room compartments each room communicating with said corridor, the alternate compartments having their floors depressed from the floor of the corridor; and berths in all of said rooms.

2. A sleeping-car having a longitudinal corridor and a plurality of two-room compartments each room communicating with said corridor, the consecutive compartments having their floors at different levels from each other and berths in each of the rooms.

3. A sleeping-car having a longitudinal corridor and a plurality of consecutive two-room compartments each communicating with said corridor, each of the alternate compartments having a roof independent of the car roof; and berths associated with each of the rooms.

4. A sleeping-car having a longitudinal corridor and a plurality of consecutive two-room compartments each room communicating with said corridor, each of the alternate compartments having a roof independent of the car roof; and berths accommodated on said roofs and accessible from the other of said compartments.

5. A sleeping-car having a longitudinal corridor and a plurality of two-room compartments formed of transverse partitions, each of said rooms communicating with said corridor, each of the alternate compartments having a partially collapsible roof independent of the car roof; and berths accommodated on said roofs of the alternate compartments.

6. A sleeping-car having a longitudinal corridor and a plurality of two-room compartments formed of transverse partitions, each of said rooms communicating with said corridor, each of the alternate compartments having a partially collapsible roof independent of the car roof; and berths accommodated on said roofs of the alternate compartments, said berths being mounted to slide over said roofs.

7. A sleeping-car having a longitudinal corridor and a plurality of consecutive two-room compartments each room communicating with the corridor, the consecutive compartments having their floors at different levels from each other, each of the compartments having the floor at the lower level being provided with a roof independent of

the car roof; and berths normally located over said roofs and accessible from the compartments having their floors at the higher level.

8. A sleeping-car having a longitudinal corridor and a plurality of two-room compartments formed of transverse partitions, each of said rooms communicating with said corridor, the consecutive compartments having their floors at different levels from each other; berth supports forming part of the partitions; berths normally located under the floors of the compartments at the higher level; a partly collapsible roof for each of the compartments having lower floor levels; and berths accommodated on each of said roofs.

9. A sleeping-car having a longitudinal corridor and a plurality of two-room compartments at one side of the corridor, each room communicating with said corridor, said compartments having their floors at a different level from the floor of the corridor; and berths in said rooms.

10. A sleeping-car having a longitudinal corridor and a plurality of consecutive two-room compartments each room communicating with said corridor, the alternate compartments having their floors depressed below the floor of the corridor, each of said alternate compartments having a partially collapsible roof independent of the car roof; berths accommodated on each of said roofs; and berths provided in each of said alternate compartments and accessible therefrom, the other berths being accessible from the other of said compartments.

11. A sleeping-car having a longitudinal corridor and a plurality of consecutive two-room compartments each room communicating with said corridor, the consecutive compartments having their floors at different levels from each other and from said corridor; and berths associated with each of said rooms of the said compartments.

12. In a sleeping-car, an under frame; trucks supporting the ends of the frame, said frame being depressed between the trucks; a main floor carried by said frame; a car frame supported by said under frame, said car frame including longitudinal and transverse partitions forming a longitudinal corridor and a plurality of consecutive, independent compartments each communicating with the corridor, said corridor having a floor level with the floor of the frame at the trucks and said compartments having their floors at different levels from the floor of the corridor, some of the said compartments having their floors common with the floor of the frame, the other of the said compartments having their floors above the flare of the floor of the corridor; and berths in all of said compartments.

13. In a sleeping-car, an under frame; trucks supporting the ends of the frame, said frame being depressed between the trucks; a main floor carried by said frame; a car frame carried by said under frame, said car frame including a pair of longitudinal partitions and a plurality of transverse partitions, one of said longitudinal partitions with one side of the car frame forming a corridor; a floor for said corridor above the depressed portion of the main floor and level with the main floor at the trucks; columns between said longitudinal partitions carried by said under frame, the other of said partitions with the other side of the car frame and the transverse partitions forming a plurality of consecutive compartments, each communicating independently with the space between the two partitions, some of said compartments having their floors in common with the main floor, the other of said compartments having their floors above the flare of the floor of the corridor, said partition forming the corridor having means therein establishing communication between the corridor and the space between the longitudinal partitions; and berths in all of said compartments.

14. In a sleeping-car, an under frame; trucks supporting the ends of the frame; longitudinal and transverse partitions forming a longitudinal corridor and a plurality of consecutive, independent compartments each communicating with said corridor; columns intermediate the longitudinal partitions carried by said under frame, the alternate compartments having their floors depressed below the plane of the floor of the corridor; berths in all of the compartments; and means for placing said berths in operative or in inoperative position.

15. In a sleeping-car, a pair of longitudinal partitions and a plurality of transverse partitions intermediate the side wall of the car and one of said longitudinal partitions, the other of said longitudinal partitions with the other wall of the car forming a longitudinal corridor, said transverse partitions forming a plurality of consecutive, independent compartments each communicating with said corridor and having their floors at a different level from the level of the corridor; berths in all of the compartments; means for placing said berths in operative or in inoperative position; and a toilet for each of said compartments intermediate the longitudinal partitions.

16. A sleeping-car having a longitudinal corridor; a plurality of consecutive compartments and vestibules intermediate the corridor and the compartments, the alternate compartments having their floors above or below the floor of the corridor; means dividing each of said compartments into two independent parts, each adapted to

communicate with the corridor through the vestibule; a toilet in said vestibule for each of said parts of compartments; and berths associated with each of said parts of said compartments and adapted to be placed in operative or in inoperative position.

17. A sleeping car having a longitudinal corridor and a plurality of two room compartments, each room communicating with said corridor, the consecutive compartments having their floors at different levels from each other, and heat-radiating means positioned under the higher level portions of the floor.

18. A sleeping car having a longitudinal corridor and a plurality of consecutive two-room compartments, each room communicating with said corridor, the alternate compartments having their floors above or below the floor of the corridor, and heat-radiating means positioned under the portions of the floor raised above the floor of the corridor and under the floor of the corridor.

19. A sleeping car having berths on three different levels, said berths at different levels being adapted to superpose each other; and means subdividing the car into compartments and rooms, so that the berths of the two upper levels are in a different room from the berth of the lower level.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERNEST FLAGG.

Witnesses:

BENEDICT JOFFE,

GEORGE H. EMSLIE.