

(No Model.)

3 Sheets—Sheet 1.

J. L. BIXBY, Jr.
SLEEPING CAR AND VESTIBULE.

No. 552,682.

Patented Jan. 7, 1896.

Fig. 1.

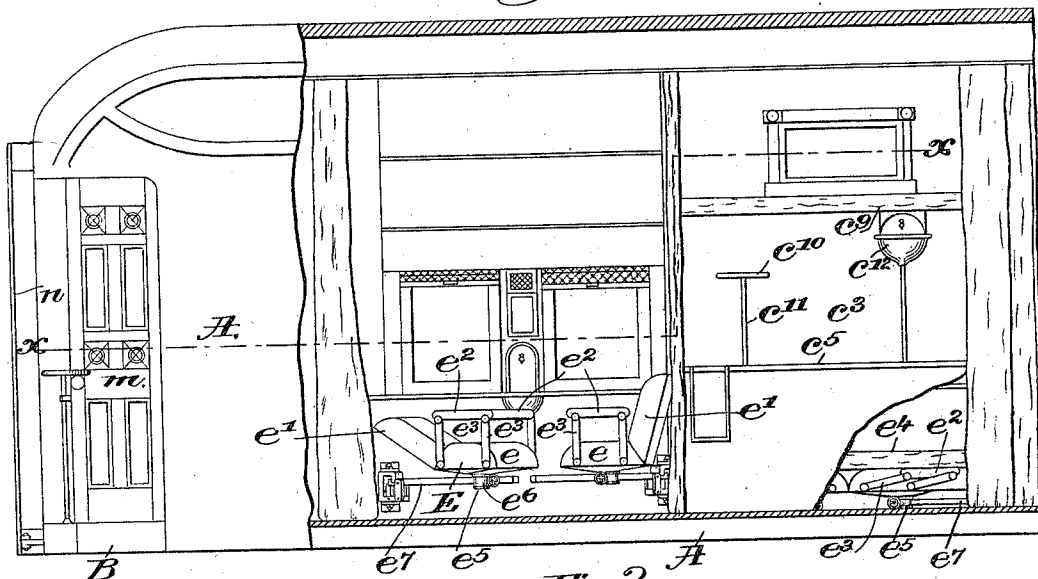
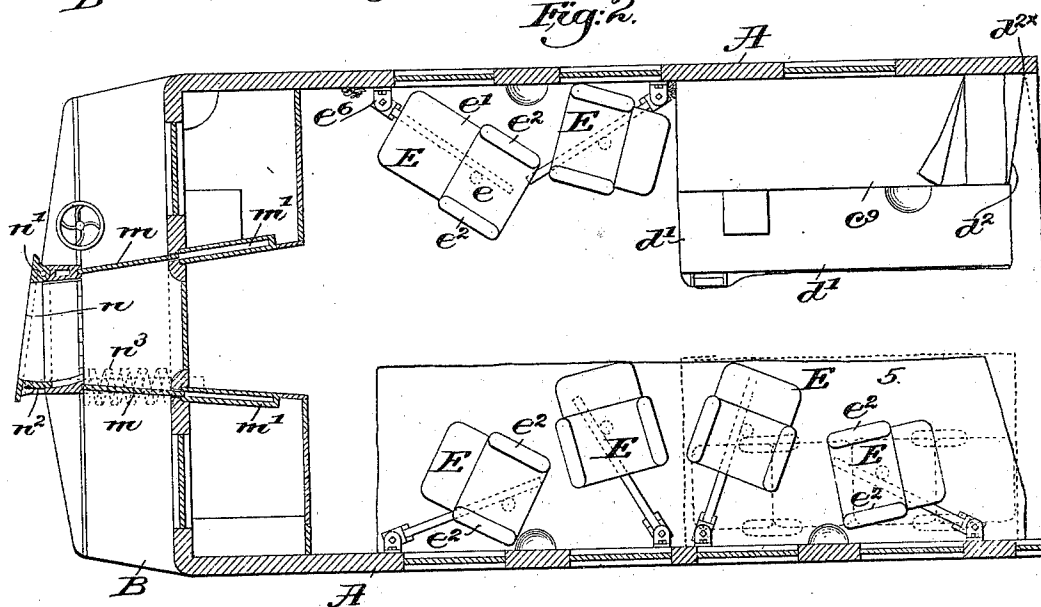


Fig. 2.



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(No Model.)

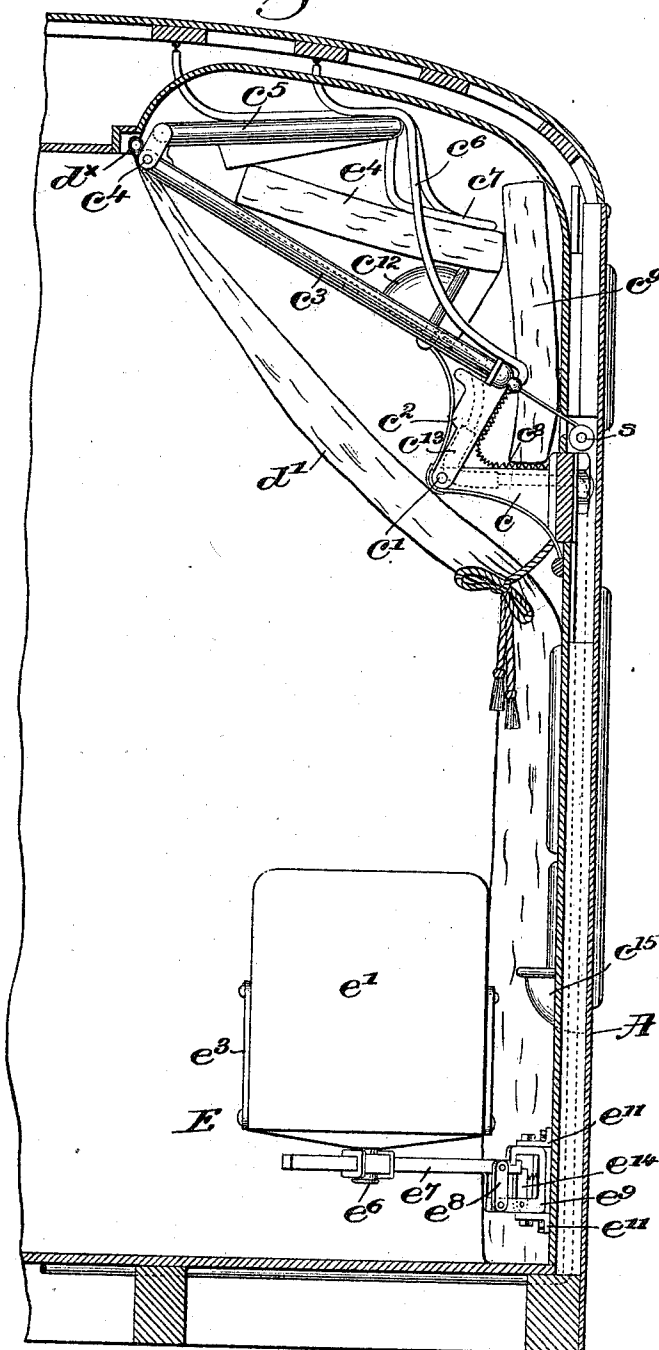
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Fig. 3.



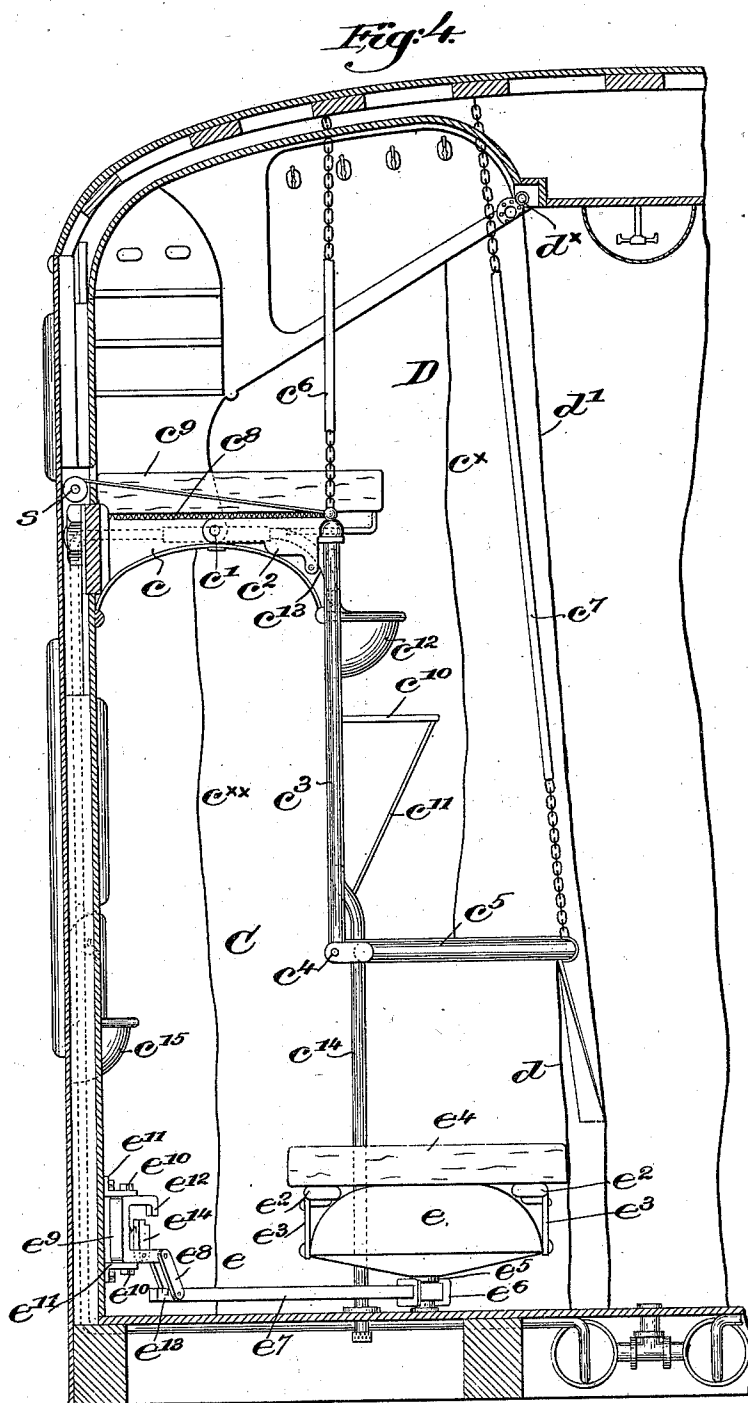
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3 Sheets—Sheet 3.

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UNITED STATES PATENT OFFICE.

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SLEEPING-CAR AND VESTIBULE.

SPECIFICATION forming part of Letters Patent No. 552,682, dated January 7, 1896.

Application filed October 29, 1894. Serial No. 527,218. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. BIXBY, Jr., of Arlington Heights, county of Middlesex, State of Massachusetts, have invented an Improvement in Sleeping-Cars and Vestibules, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to sleeping-cars, particularly of that class which are convertible into drawing-room or day cars when the sleeping-berths are not needed.

My invention further relates to vestibules for sleeping and other cars.

The object of my invention, so far as the same relates to sleeping-cars, is to provide such a construction as will furnish an individual or distinct state-room provided with a berth for each passenger, without reducing to any material extent the carrying capacity of the cars. This object I attain in accordance with this invention by subdividing the car into a series of state-rooms having L-shaped section, half of the state-rooms arranged with the horizontal portion of the L at the bottom and the other half with the horizontal portion of the L at the top—that is, inverted—the vertical portions of the two state-rooms, which furnish the standing-room, overlapping each other, as will be described. The partitions which form these L-shaped state-rooms may be made to collapse or fold up out of the way when the car is to be formed into a parlor or day car. In one arrangement for convertible day and sleeping cars these L-shaped state-rooms, grouped as described, are ranged along the opposite sides of the car, leaving a center aisle, from which side passages lead to the right and left between adjacent groups of state-rooms, and from these side passages entrances are or may be had to the ends of the state-rooms, either upper or lower, or both, as desired.

My invention further comprehends an improved vestibule adapted particularly for sleeping-cars, the essential feature of the same being, first, sliding as distinguished from hinged doors forming the sides of the vestibule, and a swinging or hinged buffer-plate at the front of the vestibule to co-operate with

the buffer-plate upon the abutting vestibule of the adjacent car.

In the drawings, Figure 1 is a side elevation of a portion of the car-body constructed in accordance with this invention, the side of the car being broken away to expose the interior construction, the same showing one compartment at the left as arranged for day service, and the adjacent compartment at the right showing it as it will appear when the folding partitions are arranged to form the L-shaped state-rooms referred to. Fig. 2 is a horizontal section taken on the dotted line *x x*, Fig. 1, showing the arrangement of seats, berths, and state-rooms in plan view. Fig. 3 is an enlarged half-section of the car, showing the arrangement for day service with the state-room partitions folded up or collapsed; and Fig. 4 a half-section of the opposite side of the car, showing the arrangement of partitions and state-rooms for night service.

In the particular construction of car shown in the drawings and selected by me to illustrate my invention, the car-body A, provided at its ends with platforms B, one only of which is herein shown, may be of usual or desired construction, so far as concerns this present invention.

The state-rooms within the car are grouped to form what may be called "sections," each section to accommodate two persons. Therefore a detailed description of one section and the construction and operation of its parts will be sufficient to enable my invention to be clearly comprehended, it being understood that in the car shown the sections are all similar and are arranged along opposite sides of a center aisle.

To better enable my invention to be understood I will first describe the arrangement and construction of the state-rooms for night service.

Referring particularly to Figs. 1, 2, and 4, the two L-shaped state-rooms forming a single group or section are represented at C and D, the horizontal portion of the state-room extending across the end of the vertical portion of the other state-room of the group, the vertical portions forming standing-room and the horizontal portions berth-room, as shown.

c is a short platform or bracket extending

preferably the entire length of the car, and to which are hinged at each section at c' the shorter platforms c^2 , each of a length equivalent to the length of a single state-room, and from the outer edge of which depends the side partition c^3 , to the bottom of which is hinged at c^4 the bottom or floor c^5 for the upper state-room, this folding partition being suspended, as herein shown, by the two flexible cables or chains c^6 c^7 , hung from the car-roof or other suitable support. The platform c^2 constitutes the main support for the berth or mattress c^9 of the upper L-shaped state-room D, the vertical portion c^x at the side of the partition c^3 furnishing standing-room for the occupant. In the lower state-room the vertical portion c^{xx} beneath the platform c^2 furnishes standing-room for the occupant, while the berth or mattress e^4 is arranged in the horizontal portion beneath the standing-room of the upper state-room D, the two state-rooms being thus arranged compactly at one side the center aisle of the car.

In the construction shown I have provided a woven-wire mattress-support c^8 , attached along one edge to the free end of the platform c^2 and along its opposite edge to the side wall of the car, the same sustaining the mattress c^9 , the said woven-wire support readily folding back upon itself when the state-rooms are collapsed for day service and being automatically thrown into operative or supporting position for the change of position for night service.

Each upper state-room D is shown as provided with a seat c^{10} hinged to the side partition c^3 and adapted to fold down against said partition when the state-room is collapsed, a suitable support c^{11} sustaining the said seat when needed for use. Each upper state-room D is also provided with a toilet or wash bowl c^{12} , provided with flexible conduits for the water supply and discharge, the water-supply pipe being represented in dotted lines c^{13} , leading from a suitable water-tank carried, in the present instance, beneath the car-floor, the outlet or discharge pipe c^{14} for said bowl leading to the floor, the said discharge-pipe, in the present instance, leading to and through the floor of the car and being withdrawn when the state-rooms are collapsed, although the said discharge-pipe may be carried to another point and the water drawn therefrom in other manner, if desired.

The outer wall of the horizontal portion of the lower state-room C is, in the present instance, formed by a curtain d , preferably permanently attached to the outer edge of the floor c^5 of the upper state-room, and the outer wall of the vertical portion of the upper state-room D is, in the present instance, formed by one or more curtains d' permanently attached to a rod d^x , hung from the car-ceiling, and said curtain d' also being extended around and to constitute one of the ends of the two state-rooms—viz., the ends at which the two

sections abut against each other—and at the opposite ends of the said state-rooms the said curtain extends only to the line of the vertical partition c^3 , thereby forming the end of the upper state-room, but leaving the end of the lower state-room C to be closed by an independent curtain, (illustrated at d^2 , Fig. 2.) This curtain d^2 , Fig. 2, is attached to the wall of the car at a point d^{2x} in the middle of the passage-way between the two adjacent sections, the said wall being preferably supported on suitable rods, (not shown,) so as to swing in the nature of a door into its position (shown in Fig. 2) closing the entrance end of the lower state-room, or back into its dotted position to admit entrance to the said state-room.

The entrance to the upper state-room D may be had through a suitable opening in the curtain at the end of the state-room adjoining the passage-way separating two sections, or by separating the curtain at the sides of the state-room so as to open the latter into the main center aisle of the car.

The lower state-room may be provided with a toilet-bowl c^{15} , having suitable inlet and outlet conduits or pipes for proper control of the water.

The mattress-supports for the lower state-room are formed by the chairs used for day service, which chairs are made easily convertible in a manner to be described.

Referring particularly to Figs. 1 and 3, each chair E comprises preferably a seat e and a back e' , hinged or otherwise attached thereto, and made adjustable as to its inclination, and also shown as provided with arms e^2 , mounted upon the parallel links e^3 , which links enable the said arms to be turned down or collapsed into their position shown at the right, Fig. 1, whereby the said arms, together with the seat e , constitute a suitable support for the mattress e^4 arranged thereupon. The seats E are preferably mounted and swiveled at e^5 upon suitable hangers e^6 , longitudinally adjustable on the swinging supports e^7 .

To enable the seats E to be dropped to or near the car-floor for night service, as represented at the right, Fig. 1, and in Fig. 4, I have mounted the said supports e^7 in a novel manner. (Best shown in Fig. 4.) Each support e^7 is hung by two parallel links e^8 , jointed to the lower arm of a swinging yoke e^9 , pivoted at e^{10} to suitable brackets e^{11} on the sides of the car. The lower arm of the yoke e^9 projects outwardly beyond the upper arm thereof, the latter having a downturned end e^{12} to co-operate with and enter a notch e^{13} in the end of the support e^7 , prolonged beyond the links e^8 for that purpose. In day service the links e^8 are turned into their elevated positions, as shown in Fig. 3, the notch e^{13} in the support being engaged by the projection e^{12} referred to, the weight of the seat and its occupant acting about the links e^8 as fulcrum, maintaining the said notch always in locking

engagement with the projection referred to. This locking engagement may be further rendered positive by a suitable spring-controlled latch e^{14} , which when the support is raised to engage the projection e^{12} springs beneath the extended end of the said support and prevents the latter being disengaged from the said projection until said latch has been pushed back.

When the seats are to be utilized for a mattress-support at night, the supports e^7 are turned into positions at right angles to the length of the car, and the spring-latches e^{14} having been disengaged said supports are canted slightly to free the notches e^{18} from the projections e^{12} and the supports dropped into their lowermost positions, Fig. 4, preferably resting at their outer ends upon the car-floor. The arms are then turned down into the position shown and the back dropped to a horizontal position, forming a continuation of the seat, the two seats of the section together being then in such form, as shown at the right, Fig. 1, as will constitute a proper support for the mattress e^4 .

If desired, the curtains d' may be utilized to inclose or individualize any section in day service, without in any way affecting the movements of the chairs, as illustrated at 5, Fig. 2, leaving the occupants of the chairs secluded from the remainder of the car, and any individual section may be made up in the form of state-rooms, as described, without necessarily making up the remainder of the sections.

If desired, any two or more sections at the same side of the car may be thrown into one by drawing back the curtains provided for the ends of the sections.

For day service the movable partition c^2 , c^3 , and c^5 is folded up against the car-ceiling, as illustrated in Fig. 3, the member c^5 being also folded back toward the member c^3 , as shown. The mattresses for both the upper and lower berths of a section are placed between its folded partition and the ceiling and concealed by the latter, as shown. The seats are then raised to their normal position, Fig. 3, and the transformation from night to day service is complete. Counterbalancing devices of usual construction, herein shown as springs s , are preferably employed to assist in raising the folding partitions. The curtains d' are then drawn back against the sides of the car in the form of draperies, giving to the car a pleasing interior appearance and concealing the under sides of the folded partition members.

While I prefer to construct a car with the partition members c^2 , c^3 , and c^5 hinged and movable, as described, to enable the car to be converted from night to day service, yet these partitions may be made permanent, if desired, for an exclusively night-service car. The essence of my invention, so far as it relates to the state-rooms, lies in the L-shaped

state-rooms, grouped as shown, with the horizontal portion of one state-room extending across the end of the standing-room of the mating state-room of the group, and my invention, therefore, is not limited to the particular construction and operation of the parts herein shown and described.

It will be noticed that in my improved car the floor-space is unbroken by any fixtures, and that a single piece of carpet may run from one end of the car to the other, and thus be easily taken up for cleaning purposes.

Referring now to Figs. 1 and 2, my improved vestibule is formed by two sliding doors or partitions $m m$, adapted to slide back into suitable pockets $m' m'$ formed in the ends of the car, and which may constitute the walls of the usual toilet-rooms at the ends of the car. At the front of the vestibule I have arranged a suitable buffer-plate n , shown as hinged vertically along one edge at n' to a suitable support carried by the car platform and hood, and having its opposite or free end adapted to swing toward and from the abutting buffer-plate on the adjacent car. The free end of the buffer-plate n is provided with a curved closure or flange n^2 to complete the side of the vestibule in whatever radial position the said plate may be. One or more suitable springs n^3 (illustrated in dotted lines, Fig. 2) serve to press the buffer-plate always out against and in contact with the abutting buffer-plate.

A similar arrangement of state-rooms and berths might be used to advantage in steamboats and other places where large numbers of persons are to be accommodated in a small space or room.

Having described my invention, and without limiting myself as to details, what I claim, and desire to secure by Letters Patent, is—

1. A body containing one or more groups of staterooms, each stateroom having an L-shaped section, the staterooms in each group arranged with the horizontal portions of their L-shaped sections extended respectively over and under the vertical portion of the adjacent stateroom in the same group, substantially as described.

2. A body containing one or more groups of staterooms, each stateroom having an L-shaped section, the staterooms of each group arranged with the horizontal portions of their L-shaped sections extended respectively over and under the vertical portion of the adjacent stateroom in the same group, and folding partitions for the said staterooms, substantially as described.

3. A body containing one or more groups of staterooms, each stateroom having an L-shaped section, the staterooms of each group arranged with the horizontal portions of their L-shaped sections extended respectively over and under the vertical portion of the adjacent staterooms in the same group, folding partitions for said staterooms, mattress supports

for the upper staterooms, adapted to be folded within said partitions, and convertible seats for day service and providing mattress supports for the lower staterooms at night, substantially as described.

4. A body containing one or more groups of staterooms, each stateroom having an L-shaped section, the staterooms in each group arranged with the horizontal portions of their L-shaped sections extended respectively over and under the vertical portion of the adjacent stateroom in the same group, and entrances for and in the vertical portions of the L-shaped sections of said staterooms, substantially as described.

5. In a combined day and sleeping car, a series of L-shaped staterooms ranged in groups along the side of the car, with the horizontal portion of one extended across the top or bottom of the vertical portion of the other in the same group, and entrances for and at the ends of the vertical portions of said staterooms, and between adjacent groups, whereby independent entrances of the full height of the vertical portions of the respective staterooms may be had, substantially as described.

6. In a combined day and sleeping car, a plurality of staterooms having L-shaped sections grouped substantially as described and provided with the hinged partition members c^2 , c^3 and c^5 , adapted to be folded as described when the staterooms are not in use, and flexible partitions forming the outer walls of the said staterooms, substantially as described.

7. In a combined day and sleeping car, a plurality of staterooms having L-shaped sections grouped substantially as described and provided with the hinged partition members c^2 , c^3 and c^5 , adapted to be folded, as described, when the staterooms are not in use, counterbalancing devices for said partition members, and the flexible outer partitions, substantially as described.

8. In a combined day and sleeping car, a plurality of staterooms having L-shaped sections grouped substantially as described and provided with the hinged partition members c^2 , c^3 and c^5 , adapted to be folded, as described, and the flexible sustaining devices,

for said partition members, substantially as described.

9. A body containing one or more groups of state-rooms, each state-room having an L-shaped section, the state-rooms in each group arranged with the horizontal portions of their L-shaped sections extended respectively over and under the vertical portion of the adjacent state-room in the same group, folding partitions for the said state-rooms, toilet bowls carried by the said folding partitions, and flexible conduits leading from the said bowls, substantially as described.

10. In a sleeping car, a series of chairs, substantially horizontal supports for the same, and supporting links for said supports whereby the said supports and their chairs may be dropped to or near the level of the car floor, substantially as described.

11. In a car of the class described, a series of chairs having seats, pivotally supported backs, arms, and supports for the latter independent of said backs, and jointed to their respective arms and seats, whereby independent adjustment of the backs and arms may be had, and the said arms turned upon their supports into positions at or below the level of the chair seats, substantially as and for the purpose specified.

12. In a car of the class described, a series of staterooms, having L-shaped sections arranged as described, folding partitions for the same, and woven wire mattress supports permanently attached to the said partitions and adapted when the latter are moved into night position, to be automatically thrown into operative position, substantially as described.

13. The combination with a car body, and its platform, of sliding doors adapted to cross the same to form a vestibule, a buffer plate at the front of said vestibule hinged at one side, and springs acting upon its opposite or free side, substantially as described.

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

JOHN L. BIXBY, JR.

Witnesses:

FREDERICK L. EMERY,
GEO. C. TEWKSBURY.