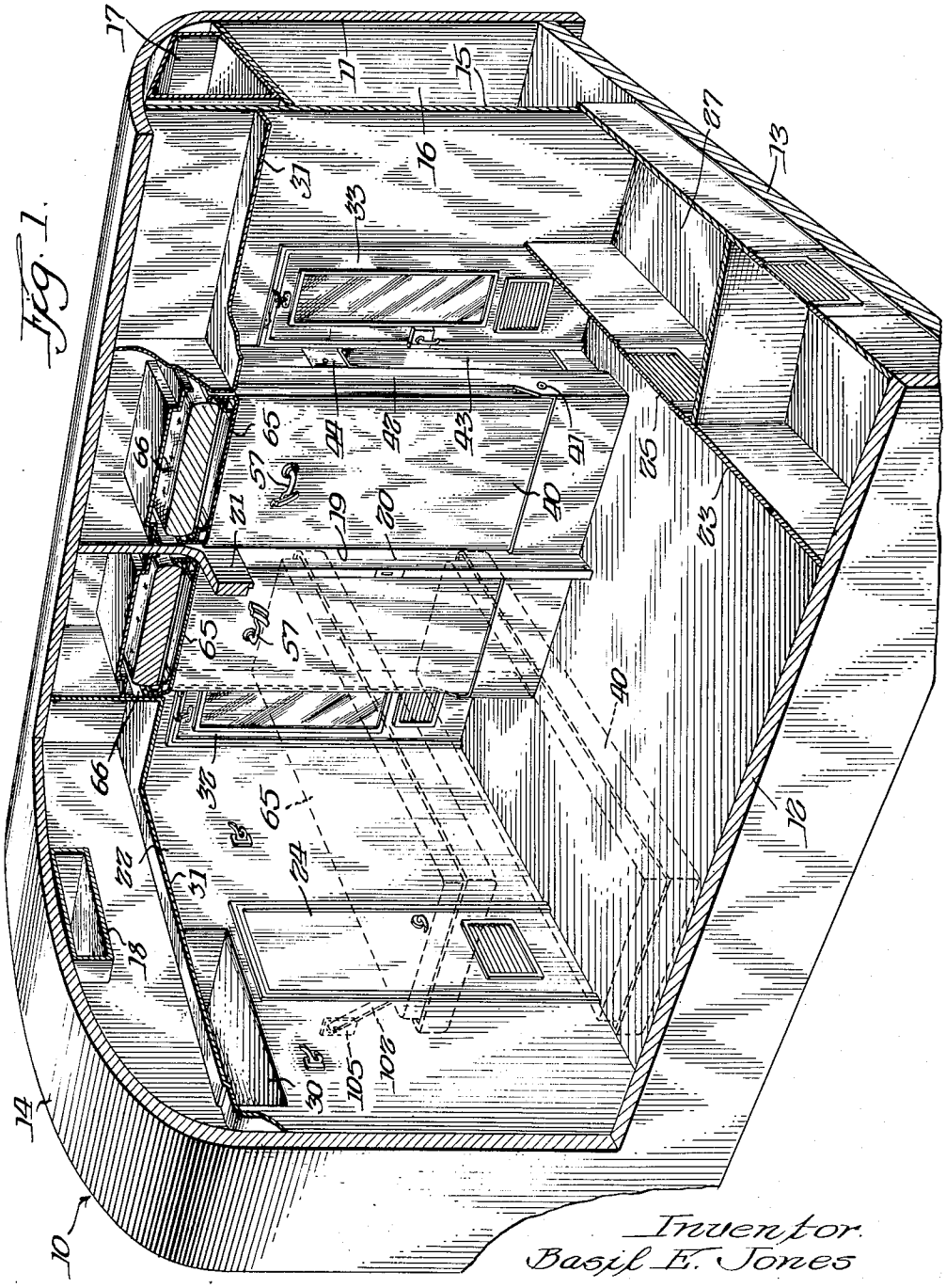
Nov. 25, 1952 B. E. JONES 2,619,044

RAILWAY SLEEPING CAR

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Fig. 1.



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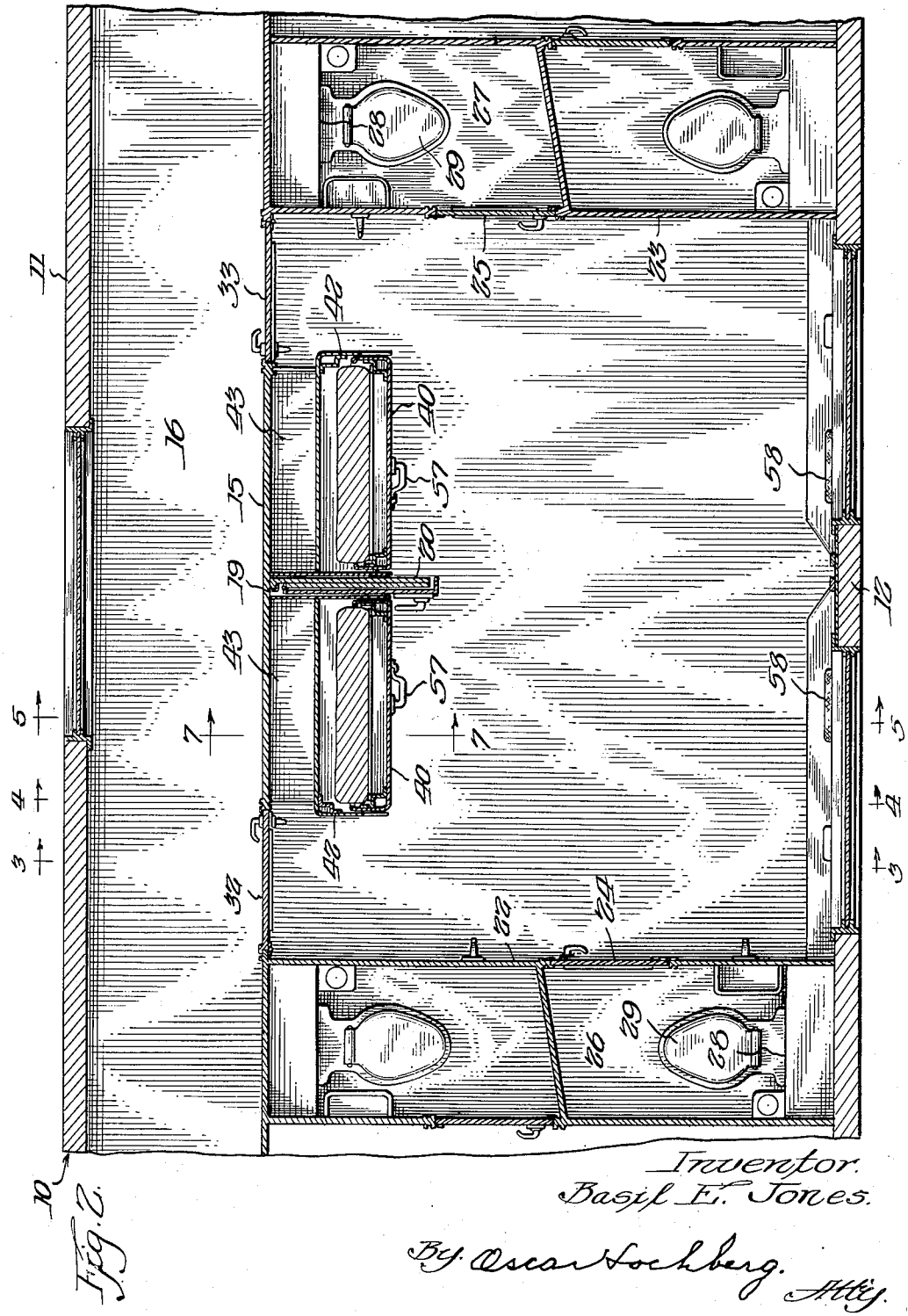


Fig. 2.

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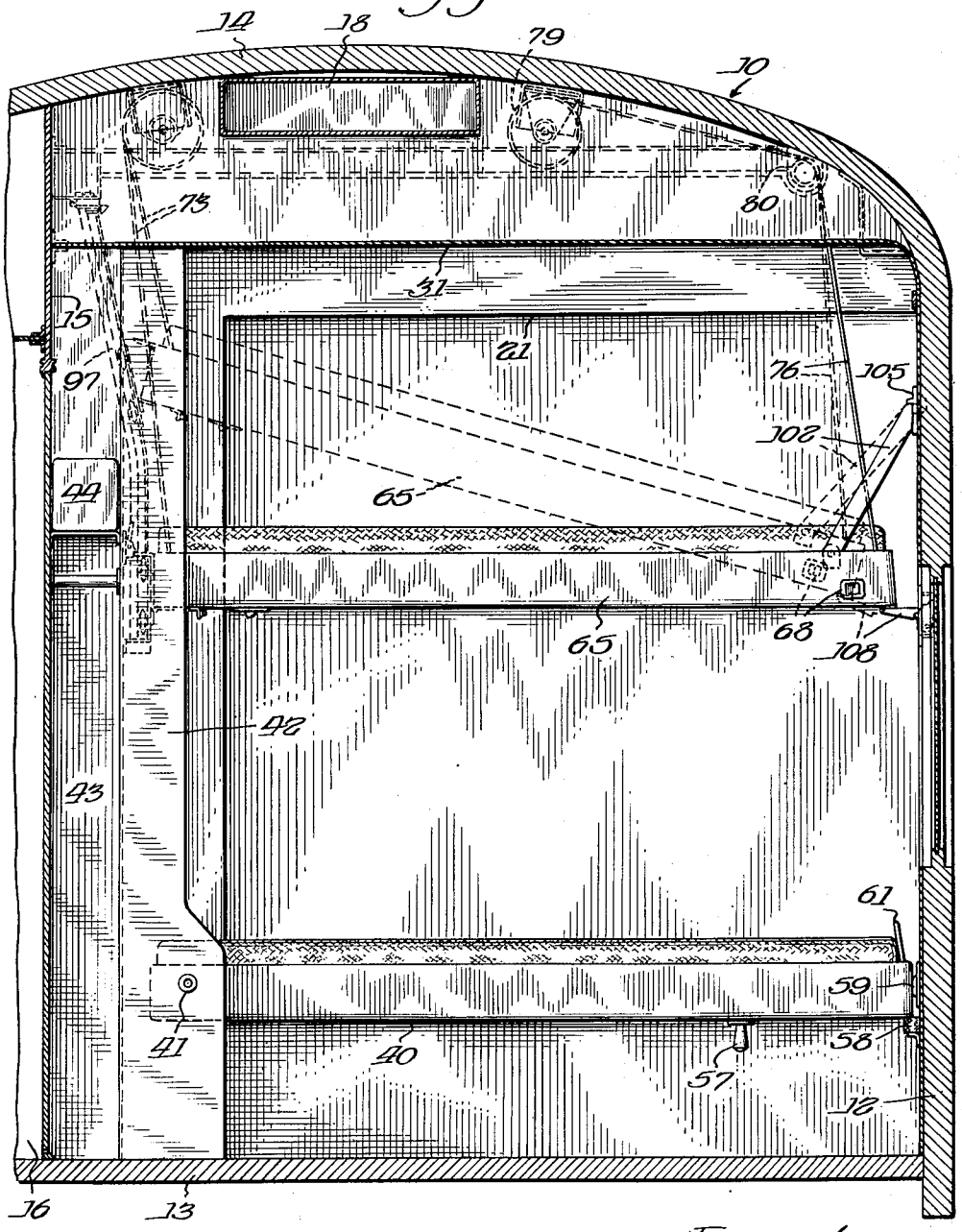
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Nov. 25, 1952 B. E. JONES 2,619,044

RAILWAY SLEEPING CAR

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Fig. 3.



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RAILWAY SLEEPING CAR

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Fig. 4.

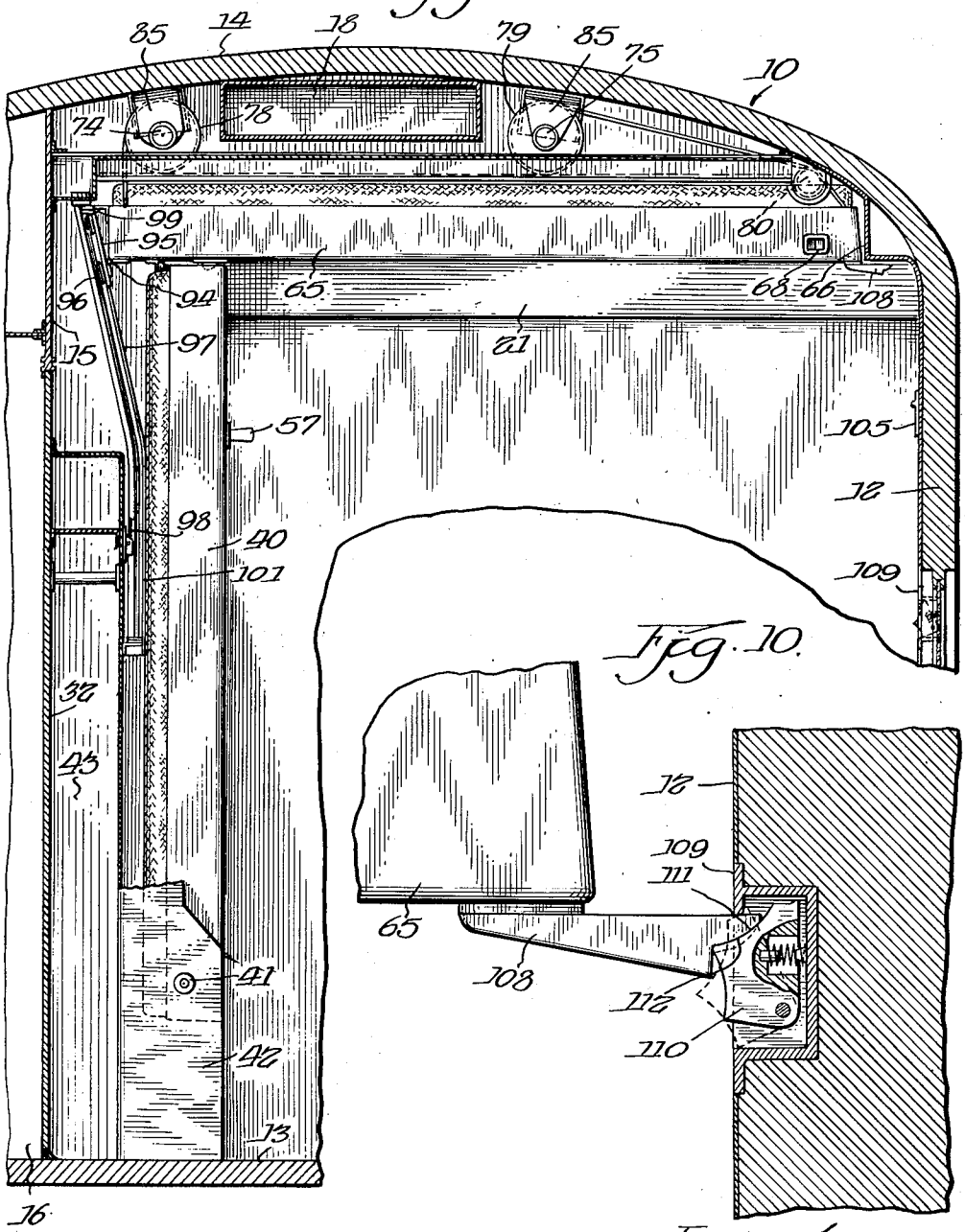


Fig. 10.

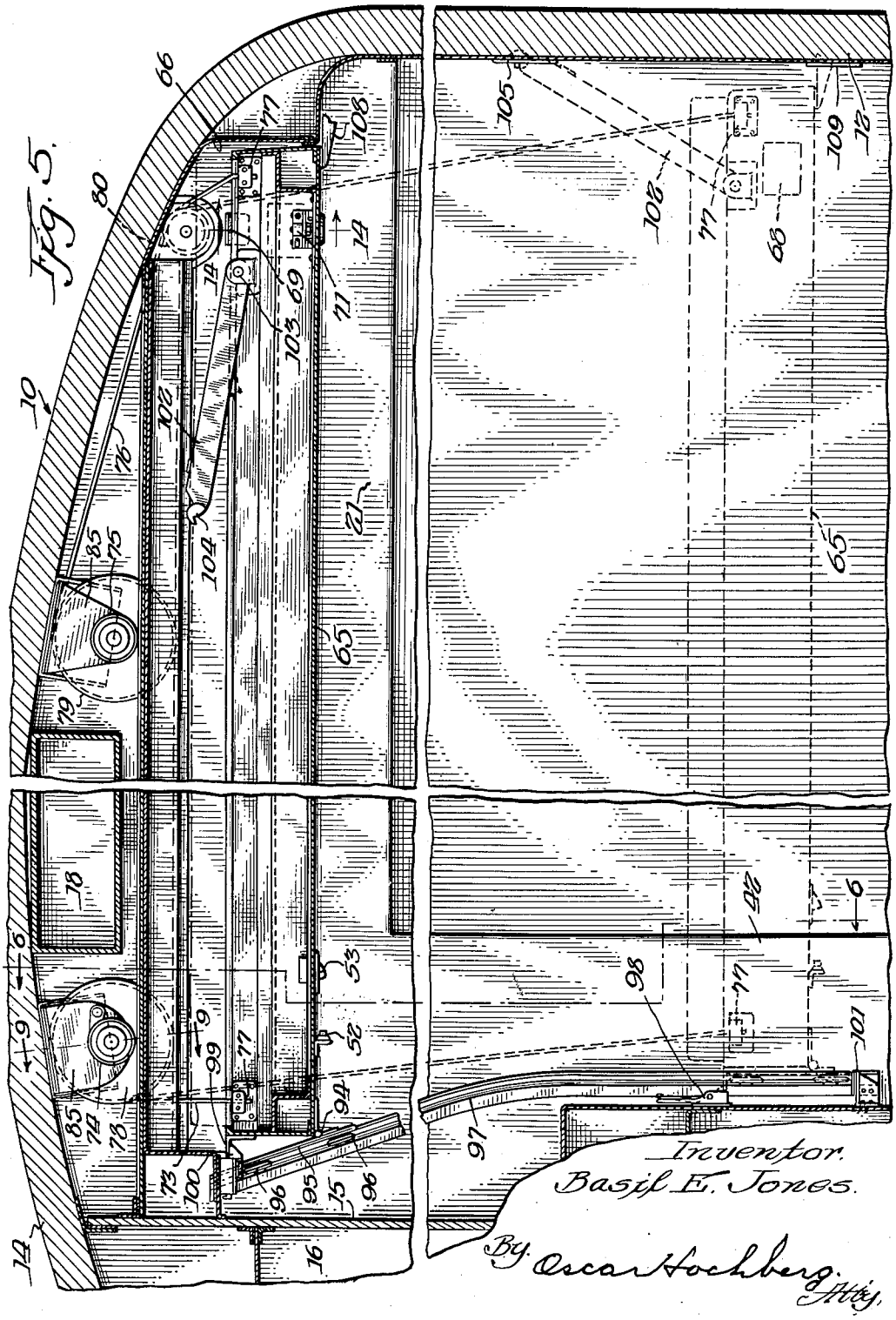
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RAILWAY SLEEPING CAR

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Fig. 5.

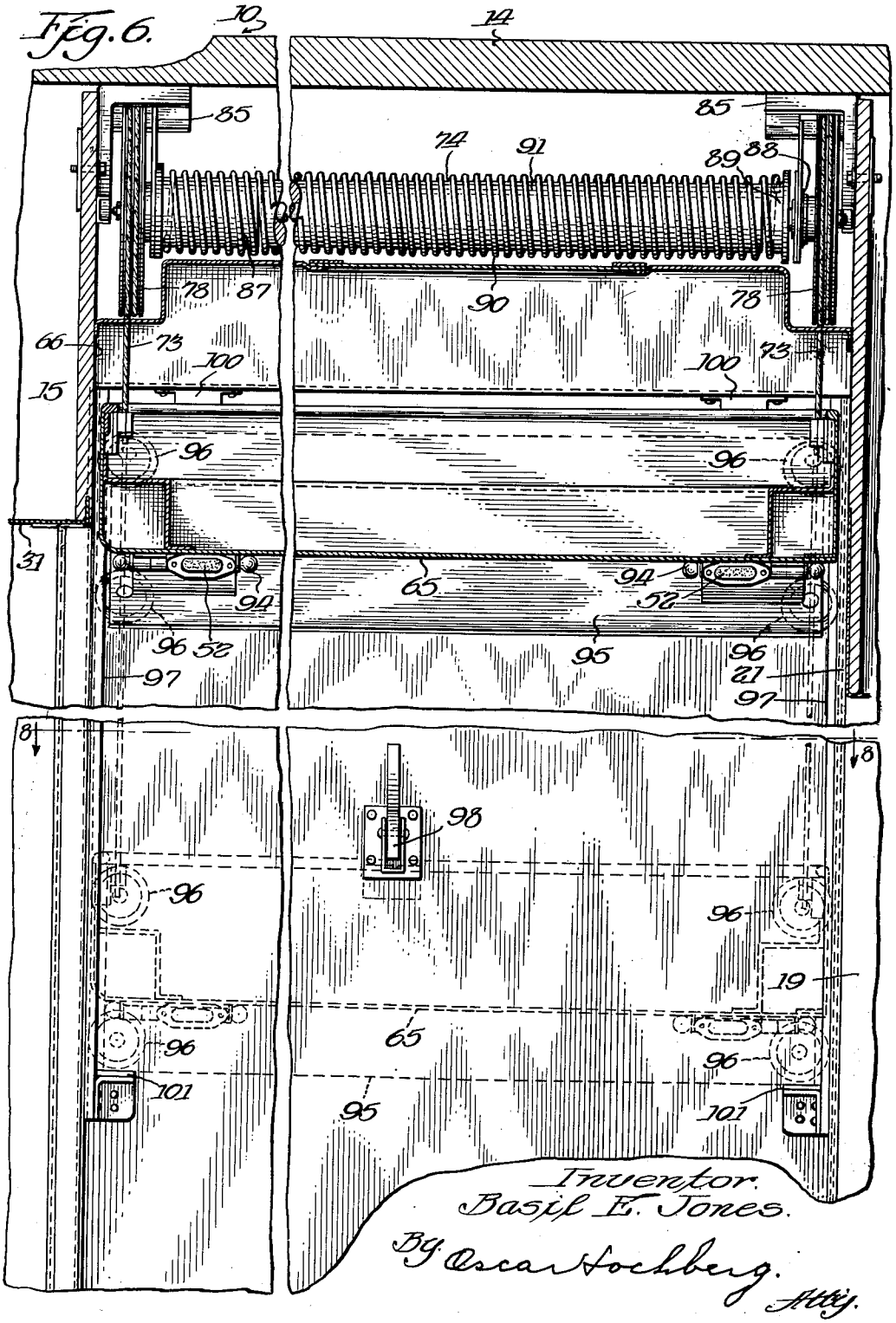


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Fig. 6.



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RAILWAY SLEEPING CAR

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Fig. 7.

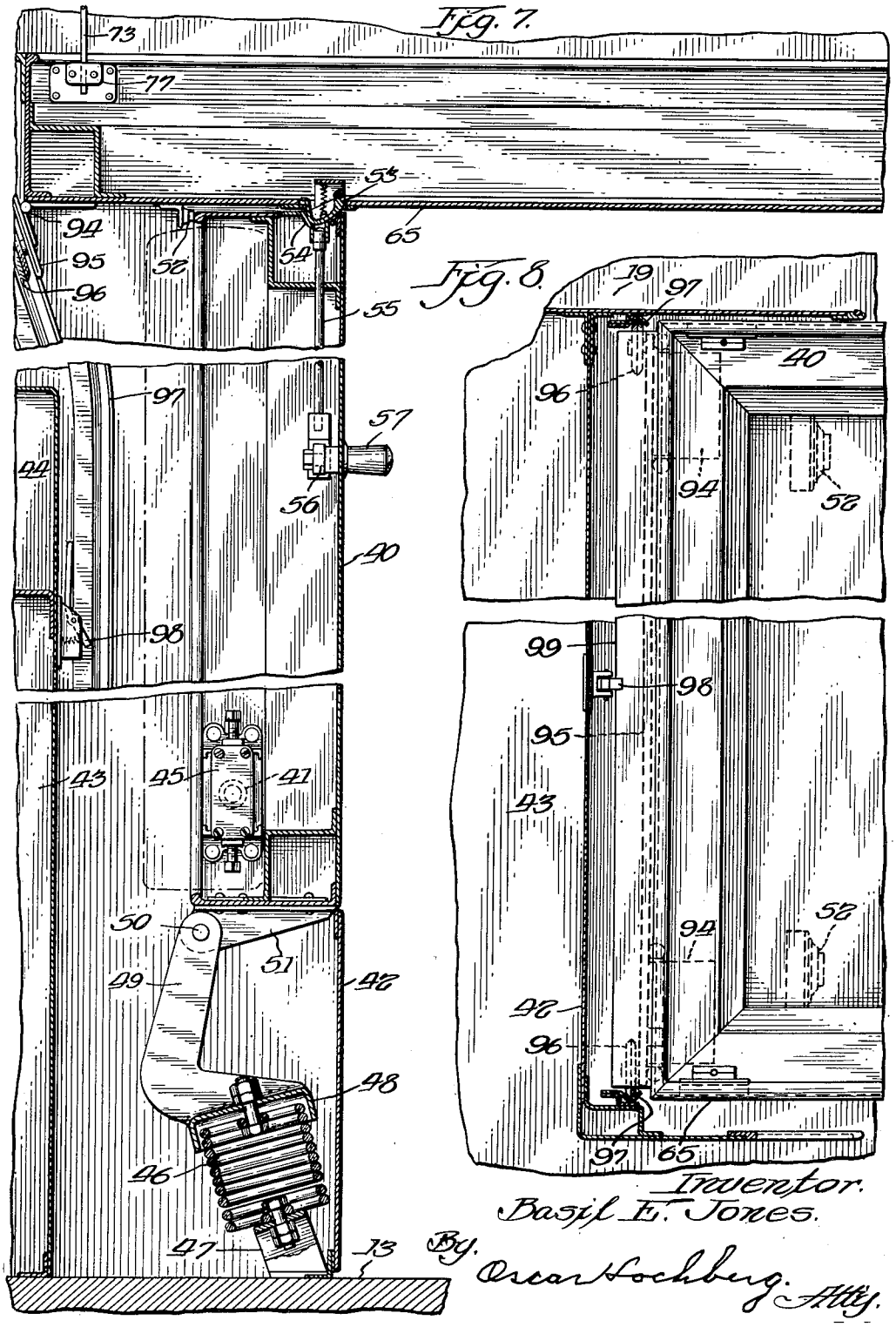


Fig. 8.

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RAILWAY SLEEPING CAR

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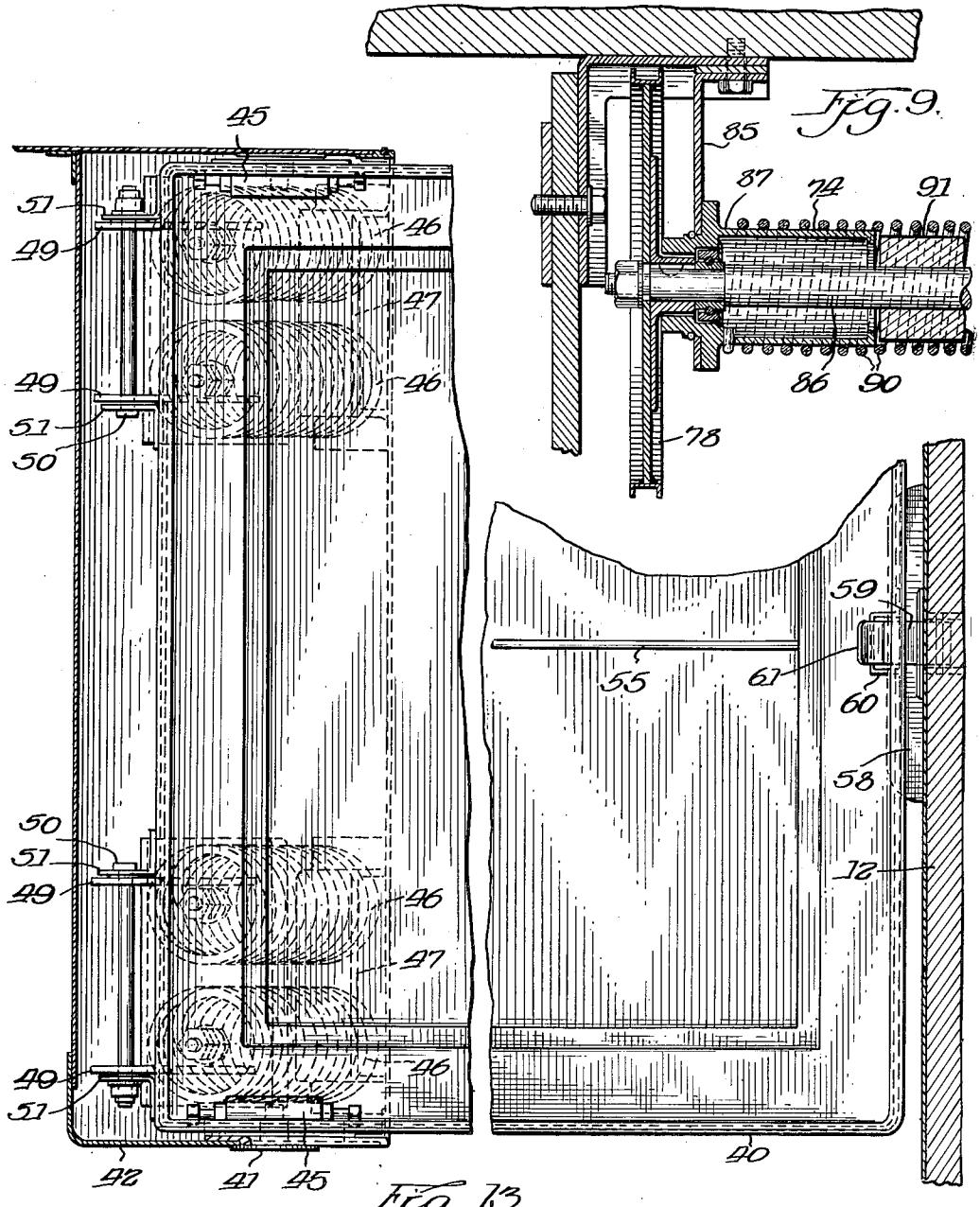


Fig. 9.

Fig. 13.

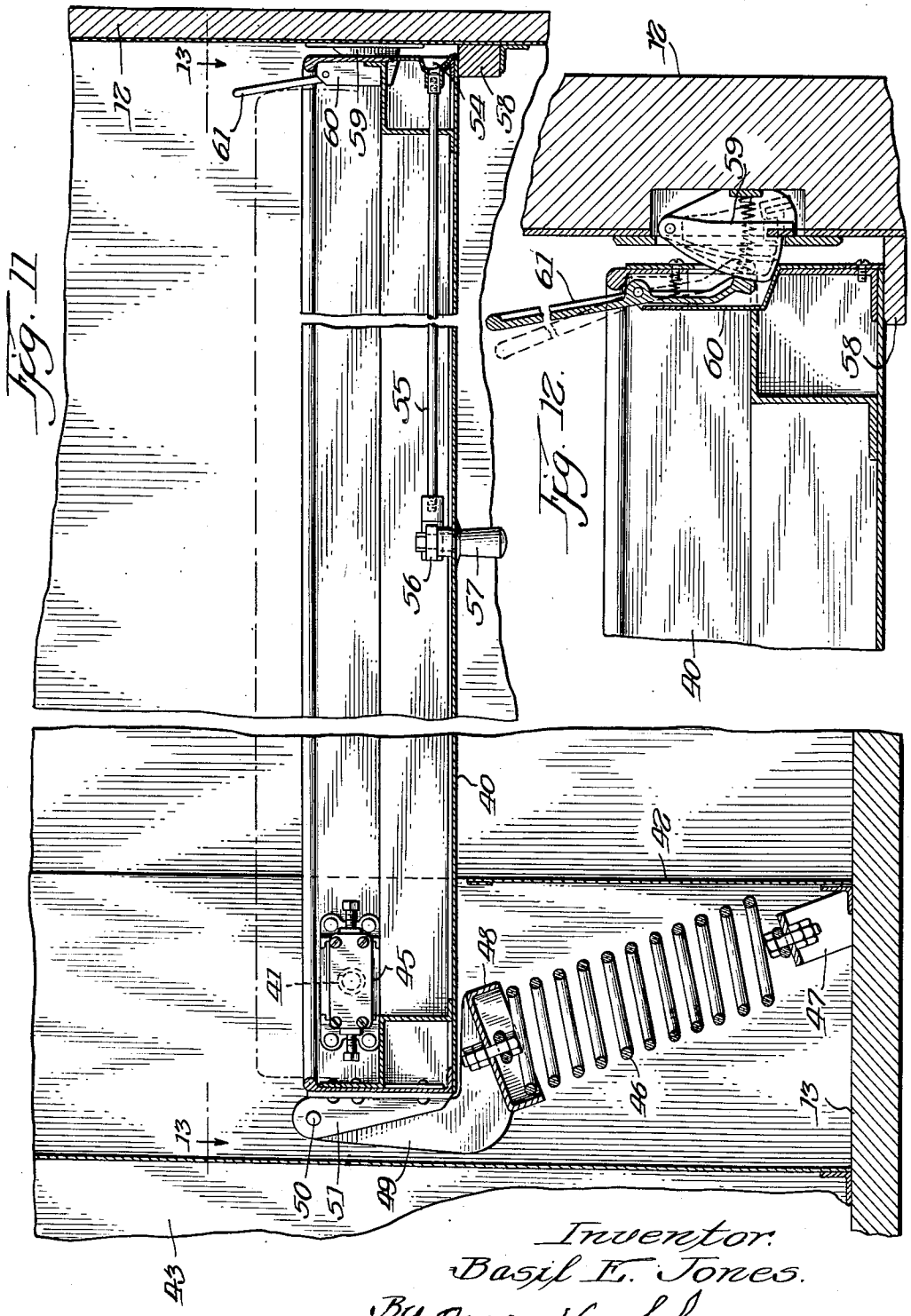
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RAILWAY SLEEPING CAR

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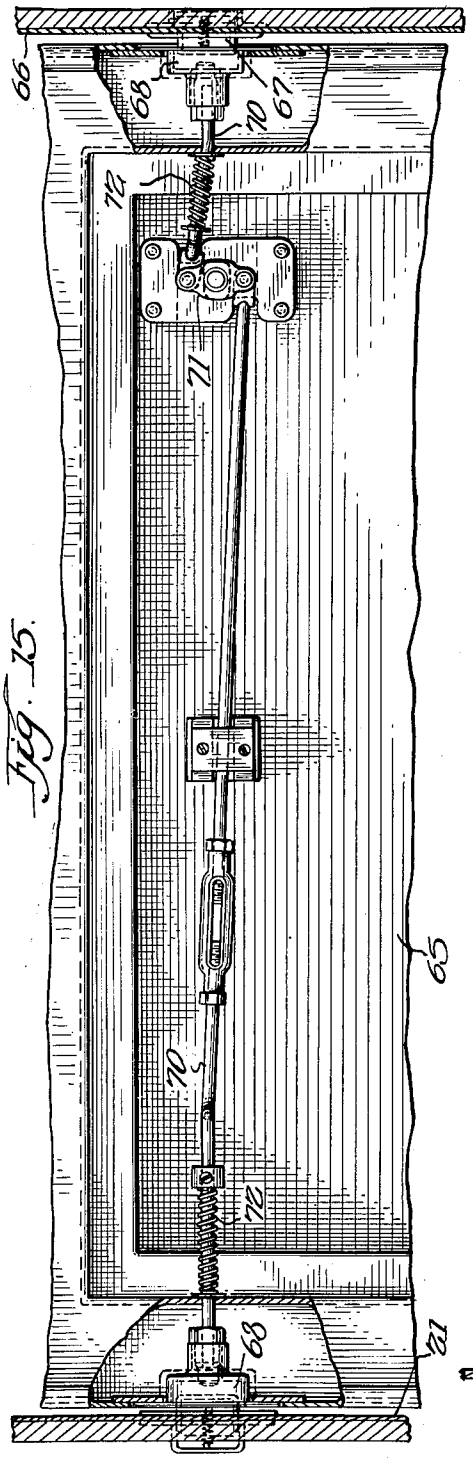


Fig. 15.

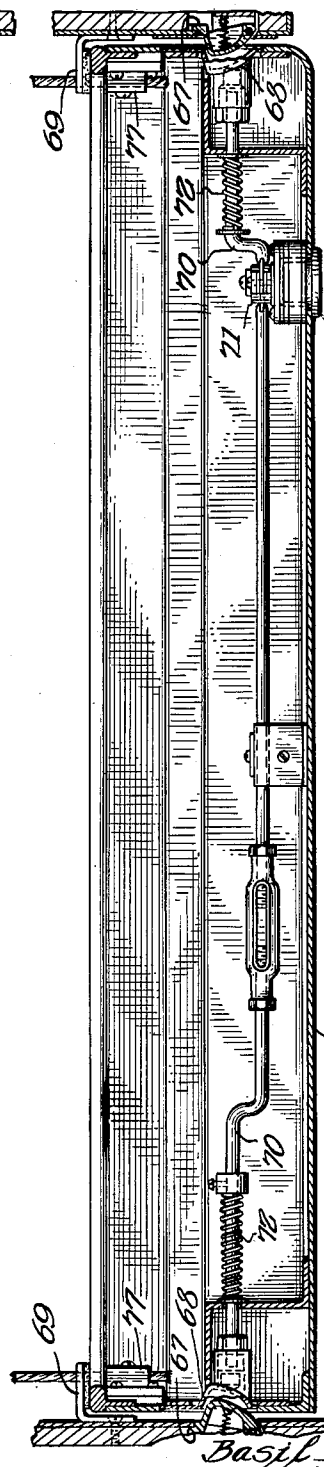


Fig. 14.

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Patented Nov. 25, 1952

2,619,044

UNITED STATES PATENT OFFICE

2,619,044

RAILWAY SLEEPING CAR

Basil E. Jones, Flossmoor, Ill., assignor to Pullman-Standard Car Manufacturing Company, Chicago, Ill., a corporation of Delaware

Application September 3, 1948, Serial No. 47,726

23 Claims. (Cl. 105—315)

1

This invention relates to railway sleeping cars of the type having rooms each for the accommodation of one or more passengers, and adapted for use of adjoining rooms ensuite.

The invention contemplates a pair of adjoining rooms separated by a folding partition adapted to slide to a retracted position out of the usable area of the rooms, and each having an adjoining toilet annex individual to the respective rooms and equipped with beds at opposite sides of the folding partition which are movable to positions out of the usable area in the respective rooms.

A primary object of the invention is the provision of pairs of upper and lower beds, each comprising an endwise foldable lower bed in combination with a vertically movable upper bed operatively disposed in parallel overlying planes in substantially the same vertical projection, and operable successively to horizontal and vertical inoperative positions above and to one side, respectively, of the usable area operatively occupied by the beds.

An important object of the invention comprehends a pair of beds adapted to be disposed transversely of a car, including a lower bed hingedly mounted in an upright inoperative position at one side and movable to a horizontal operative position extending crosswise of the car for supporting the free end thereof on a car side wall, in combination with an upper bed disposed horizontally in the car ceiling in inoperative position and extending over the end of the upright lower bed and movable vertically, when the lower bed is extended, to a horizontal operative position in parallel relation above the lower bed and shiftable endwise in its downward movement to a position substantially in the plan projection of the lower bed, with one end thereof supported on the car side wall.

The principal object of the invention comprises the combination of a pair of pre-made beds operatively disposed in upper and lower parallel planes occupying substantially the same plan projection, and containing an upper bed hingedly mounted on a vertically reciprocable supporting dolly for retraction to a horizontal inoperative position above the plan projection and a lower bed hingedly mounted for endwise folding movement to an upright inoperative position at one end of the plan projection.

The foregoing and other and more specific objects of the invention are attained by the arrangement illustrated in the accompanying drawings, in which

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Fig. 1 is a general perspective view of a railway sleeping car equipped with the room and bed arrangement of this invention and having portions broken away to reveal a pair of adjoining bedrooms each having a communicating toilet annex and separated by a folding partition illustrated in the retracted position, and showing the bed arrangements for the rooms, with the lower beds disposed in their upright inoperative positions at one side of the respective rooms and the upper beds disposed in the ceilings, with the operative positions of the beds in one room being indicated in dotted lines;

Fig. 2 is a general plan view of the two rooms illustrated in Fig. 1, showing the arrangement of the adjoining rooms disposed to one side of a longitudinal passageway, with the folding partition retracted between the upright lower beds at one side of the rooms and the communicating toilet annexes accessible to the respective rooms;

Fig. 3 is a transverse sectional view through one of the rooms taken on the line 3—3 of Fig. 2 showing both of the beds in extended operative positions disposed in parallel planes within the same plan projection, with one end of each bed supported from the car side wall and the other ends supported in the bed recess for the lower bed;

Fig. 4 also is a transverse sectional view similar to Fig. 3, taken on the line 4—4 of Fig. 2, but showing both of the beds in their closed inoperative positions, with the upper bed retracted into its ceiling recess and the lower bed disposed upright beneath the upper bed at one end in a recess provided therefor at the passageway partition side of the room;

Fig. 5 is a detail transverse sectional view to larger scale through the upper portion of the car taken on the line 5—5 of Fig. 2 showing the upper bed in one of the rooms in retracted position in full lines and indicating the lowered horizontal operative position thereof in dotted lines, and illustrating the operating track and dolly at one end and the counterbalancing mechanism operative at both ends of the bed;

Fig. 6 is a sectional view longitudinally of the car through the ceiling recess for the upper bed taken on the line 6—6 of Fig. 5 showing the bed in full lines in the upper retracted position, with one of the torsional spring counterbalancing mechanisms above the ceiling connected by cables to the bed and indicating the lowered operative position of the bed in dotted lines;

Fig. 7 is a detail sectional view taken on the line 7—7 of Fig. 2 through the lower bed in its upright inoperative position beneath the upper

bed, showing the locking arrangement for releasably retaining the lower bed in its inoperative position and the adjustable pivot mounting for the bed and the tension spring counterbalance mechanism for facilitating the operation of the bed;

Fig. 8 is a detail plan sectional view taken on the line 8—8 of Fig. 6 showing the dolly carriage in which one end of the upper bed is hingedly mounted and which is illustrated in the lowered operative position, with the guide rollers at opposite sides thereof engaged in associated guide tracks in opposite sides of the bed recess and the carriage maintained in this position against the reaction of the counterbalancing mechanism by means of an automatically actuated but manually releasable catch;

Fig. 9 is a fragmentary detail sectional view taken on the line 9—9 of Fig. 5, illustrating the mounting and arrangement of one end of one of the counterbalancing mechanisms for the upper bed, showing the hollow anchor bracket for the spring containing a bearing for a shaft upon which the cable pulleys are mounted and extending through a sleeve rotatable therewith and to which the torsion spring is secured at the other end, as shown in Fig. 6;

Fig. 10 is a fragmentary detail sectional view of one of the bed hold-down devices for the upper bed, which is engageable automatically as the bed is lowered and similarly releasable as the bed is raised;

Fig. 11 is a transverse sectional view complemental to Fig. 5, and showing the lower bed in extended horizontal operative position with the free end thereof held down by an automatically actuated catch against the counterbalancing force of the tension springs at the other end of the bed;

Fig. 12 is a fragmentary detail sectional view of the automatically actuated catch for the lower bed mounted in the side wall and releasable by a manually operated lever on the bed;

Fig. 13 is a detail plan sectional view taken on the line 13—13 of Fig. 11, illustrating the lower bed in extended horizontal position and showing the tension spring counterbalances disposed in pairs at opposite sides of the bed;

Fig. 14 is a cross sectional view through the upper bed in closed position, taken on the line 14—14 of Fig. 5, showing the spring-pressed catches in the opposite sides of the ceiling recess engageable with the bed at opposite sides to retain it in its raised position, and illustrating the oppositely projectable latch rods in the bed operated by means of a porter's key to disengage the catches for releasing the bed; and

Fig. 15 is a fragmentary plan view of the upper bed showing the arrangement of the latch rods at opposite sides of an operating fulcrum actuated by a porter's key, and having portions broken away to reveal the keepers through which the latch rods reciprocate to press the retaining catches from engagement therewith.

The invention proposes a railway sleeping car comprising an all room vehicle having a longitudinal passageway at one side wherein the rooms are disposed in pairs for use ensuite, each having its own fully enclosed toilet annex and a pair of beds at respectively opposite sides of a retractable folding partition dividing the rooms, including a lower bed disposed vertically at the passageway side of the room in normally inoperative position and hingedly mounted for counterbalanced movement to a horizontal operative position extending across the room for support on the car side wall, and having an upper bed normally disposed horizontally within a ceiling recess in retracted position above the up-ended lower bed and hingedly mounted at one end on a dolly carriage reciprocable vertically in guide tracks in the lower bed recess, whereby the upper bed may be moved vertically from the retracted position to a lowered horizontal operative position in parallel relation above the lower bed and shifted endwise during the process, as determined by the guide tracks, to a position within the plan projection of the lower bed extending across the room for support also on the side wall.

In the drawings, 10 represents a railway car having side walls 11 and 12, a floor 13 and a roof 14. A partition 15, spaced from the side wall 11, defines a longitudinal passageway 16 at one side of the car affording communication with all accommodations in the car. Between the partition 15 and side wall 12, a plurality of rooms are disposed, which may all be of the type like the pair disclosed, or this type in various combinations with accommodations of other types. A conditioned air duct 17 above the ceiling of the passageway 16 supplies conditioned air to all of the rooms by means of branch ducts (not shown) extending through the passageway partition 15 and communicating with the individual rooms through the ceilings. An exhaust duct 18 in the roof zone of the vehicle is connected with the several rooms by means of branch ducts (not shown) extending through the ceilings of toilet annexes adjoining the respective rooms and hereinafter to be described, with controllable outlets for regulating the flow of air into the ducts and adapted to draw off vitiated air from the individual rooms and discharge it to atmosphere.

The rooms referred to are disposed in pairs, which may be arranged for use ensuite or separated for use individually by means of a retractable folding partition 20, which, when folded, is slidable into a pocket 19 at one side of the rooms, as best shown in Fig. 2. The folding partition is comprised of a plurality of panels hingedly connected along their adjoining vertical edges, adapted to extend across the width of the rooms from the pocket 19 to the side wall 12 when the rooms are to be separated for individual use, at which time the end panel member may be utilized as a door between the rooms if desired. When the partition is retracted, substantially the entire area of both rooms is made available to provide one large open space affording free intercommunication between the room areas. A drop partition 21, depending from the roof zone, divides the adjoining rooms in this area above the folding partition, and with which it is operatively associated in the extended position of the retractable partition.

At opposite ends of the respective rooms from the dividing partition 20, cross partitions 22 and 23 extend across the rooms from the passageway partition 15 to the side wall 12 to define the extent of the rooms in these directions. The partitions 22 and 23 contain doors 24 and 25 affording access to toilet annexes 26 and 27 individual to the respective rooms. These annexes each contain a folding washbasin 28 and a hopper 29, as illustrated in Fig. 2. It will be noted that the toilet annexes are disposed in pairs at each end of the rooms, but only one annex of each of these pairs is accessible to the respectively adjoining

room—the other annex of each pair being accessible to a room at the other side. In the adjoining rooms, the annexes are disposed diagonally opposite, and a luggage storage space 30 (see Fig. 1) is provided over each, beneath the ceiling 31, for accommodation of the luggage of the respective room occupants. The individual rooms are accessible from the passageway 16 through entrance doors 32 and 33.

Each of the rooms is convertible for day or night occupancy and contains folding chairs (not shown) for daytime use, and a pair of pre-made folding beds for nighttime use. The beds of each pair are disposed in upper and lower relation at respectively opposite sides of the folding partition when they are extended for use in the individual rooms, and in their inoperative positions are retracted respectively into the ceiling and to an upright position at the passageway side of the room. The pairs of beds in both of the rooms are exactly alike, and they may be operated between their retracted and extended positions independently of the operation of the retractable partition 20 and may be operatively disposed in either the extended or retracted position of the partition. The beds extend transversely of the vehicle in their operative positions and occupy the same vertical plan projection, so that in operation, the lower bed must first be extended before the upper bed may be lowered for use, and in reverse sequence, the upper bed must first be raised to its retracted position before the lower bed can be up-ended at one end of the space comprising the plan projection of the operative beds. This interdependent relationship in the operations of the beds affords an arrangement wherein the combination of upper and lower pre-made beds, each of full length, may be had within the plan projection of one bed, and provides upper and lower full length beds adapted to be moved completely out of the space normally used in daytime operations, and wherein both beds are easily operated each in a single movement—one moving vertically out of the path of operation of the other, and the other foldable endwise to an upright position at one end of the first bed.

The lower bed 40 in each of the adjoining rooms is hingedly mounted at 41 in a receptacle 42 disposed at the passageway side of the room in spaced relation to the partition 15 sufficient to provide wardrobe space 43 with a shoe locker 44 thereabove. The bed 40 comprises a rigid bunk adapted to contain a mattress and bedding. The bunk is adjustable in the receptacle 42 by means of adjustable trunnion block assemblies 45 pivotally supporting the bunk at respectively opposite sides on the pivot trunnions 41 projecting from the adjacent sides of the receptacle 42. The trunnion blocks are adjustable lengthwise of the bunk by means of end bolts in opposed relation at respectively opposite ends of each assembly, whereby the bunk may be raised or lowered at either side for fit and adjustment within the bunk receptacle. The bunk is pivoted adjacent its lower end for endwise folding movements between the upright inoperative position, where it is out of the normally usable area of the room, and an extended horizontal position for use, and is counterbalanced for easy operation.

The counterbalancing is accomplished by means of helical springs in tension disposed in pairs adjacent opposite sides of the bunk. The springs 46 of each pair are anchored at their lower ends to a bracket 47 secured to the floor 13 within the receptacle 42, and a cap 48, embracing both springs, affords an attachment for the upper ends of the springs, and which is pivotally secured to the end of the bed at a point where the counterbalancing force of the springs is effected immediately upon operation of the bed. Bracket arms 49, integral with the spring caps, are pivotally secured at 50 to attaching brackets 51 on the end of the bunk and are shaped to the end of the bunk in the horizontal extended position thereof, as best indicated in Fig. 11, so that the effective pivotal point of the connection to the bunk end may be located adjacent to the top edge thereof, whereby the springs are immediately effective in the opening movement of the bed to counterbalance the weight thereof and throughout the full operating range of the bed. In the up-ended inoperative position, the upper end of the bed 40 bears against cushioned stops 52, as best shown in Fig. 7, which determine the closed position of the bed.

A spring-pressed latch 53, automatically engageable with a detent 54 in the upper end of the bunk as the bed is closed, securely locks the bed in upright position against accidental displacement and is releasable to open the bed for use. When it is desired to open the bed, the latch 53 may be disengaged from the catch 54 by means of a reciprocable push rod 55 operated by a fulcrum lever 56 mounted on the inner end of an operating handle 57 rotatively mounted on the face of the bed and extending through the surface for operative association with the fulcrum lever. The push rod passes through the catch 54 to engage the latch 53, and upon actuation of the fulcrum lever by the operating handle, is adapted to press the latch from engagement with the catch to enable the bed to pass the shoulder thus presented and move to open position. The bed pivots about the trunnions 41 from the upright inoperative position to a horizontal operative position, extending across the room to the side wall 12, where the free end of the bed is supported upon a bed rest 58 mounted upon the wall.

This operative position of the bed is maintained against the closing force exerted by the counterbalance springs 46 by means of a pivoted, spring-pressed safety latch 59 mounted on the side wall in position automatically to be engaged by the bed as it is opened, and which enters a recessed catch 60 in the end of the bed as it is brought to rest upon the support 58 to present a shoulder against upward movement of this end of the bed. The latch 59 may be released by means of a lever 61 pivotally mounted in the catch 60 and having a downwardly extending portion below the pivot point adapted to engage the latch member to press it from locking engagement with the catch when actuated, through the medium of an upwardly extending handle portion above the pivot point. It will be noted that the direction of movement of the lever handle to release the latch is directly opposed to that which might be imposed by an occupant of the bed, whereby to prevent accidental dislodgement of the safety latch, all as best shown in Fig. 12. By the nature of the bed construction and operating arrangement, involving a rigid full length bunk foldable endwise between inoperative and operative positions, the bed 40 may be made up and prepared for use prior to the time when it is desired to convert the room for sleeping purposes, whereby when the bed is to be used, it is

necessary merely to open it to the extended position.

The bed 40 comprises the lower bed of a pair in each room, and is designated for cooperative relationship and independent operation with the particular upper bed arrangement hereinafter to be described. The lower bed is foldable endwise transversely of the car, where as the upper beds is reciprocable vertically between inoperative and operative positions substantially within the plan projection of the lower bed. The upper bed 65 comprises a rigid bunk substantially like the construction of the lower bunk, adapted to contain a mattress and suitable bedding, and which may be pre-made similarly to the lower bed and prepared for immediate use upon actuation to open position, without the necessity for making up the bed at the time it is to be used.

In the inoperative retracted position, the bunk 65 is disposed within a ceiling recess 66 above the level of the up-ended lower bed and entirely out of the usable area of the room—the recess being defined at one side by the drop partition 21, dividing the rooms so that the beds in the respective rooms are disposed upon opposite sides of the dividing partitions and extend transversely of the car. The ceiling recess 66 for this bed and the wall pocket 42 for the lower bed openly communicate with each other and may be said to form a continuous pocket, having the vertical portion for receiving the upright lower bed and the horizontal ceiling portion for receiving the upper bed, and wherein one end of the upper bed extends within the vertical space provided for the lower bed, both in the operative positions of the beds and in the closed positions, with the upper bed extending over the end of the lower bed. It will be noted that the steps 52 against which the lower bed seats in the closed upright position, and the latch 53 which locks the lower bed in this inoperative position, are mounted on the underside of the upper bed, which occupies a position lying immediately over the end of the lower bed when both beds are disposed in their respective inoperative positions, so that it is necessary to release the lower bed and move it to horizontal operative position before the upper bed can be operated for movement out of the ceiling recess. The bunk 65 is locked in retracted position in the recess 66 by means of spring-pressed latches 67 mounted in the opposite side walls of the recess and engageable automatically with catches 68 in the respectively adjacent sides of the bunk, so that as the bunk is raised to its closed inoperative position, the latches will enter the catches to maintain this retracted position of the bunk against displacement. These locking latches are disposed adjacent the free end of the bed—i. e., at that end next to the side wall 12, and the bed seats against limit stops 69 having non-metallic pads against which the upper edges of the side walls of the bed engage, as best shown in Fig. 14. The latches 67 may be disengaged from the bed, when it is desired to open it, by means of oppositely projectable release rods 70 extending through the catches 68 and actuated by a fulcrum 71 operated by means of a porter's berth key through the bottom face of the bed. These rods are normally retracted by means of springs 72, but when projected by means of a berth key, are adapted to press the latches 67 out of the path of the bed to enable it to be withdrawn from the recess.

The bed is suspended by means of torsional spring counterbalance mechanisms 74 and 75 disposed above the ceiling of the bed recess and operatively connected, respectively, to opposite ends of the bed through the medium of cables 73 and 76 to support the bed for movements vertically into and out of the recess. All of the cables are secured at their respective ends to the four corners of the bed by clamps 77, and while the cables 73 pass directly from the counterbalance pulleys 78 to the bed, the cables 76 pass from the counterbalance pulleys 79, over idler pulleys 80, to the bed. This arrangement is necessitated by the disposition of the counterbalance mechanisms at substantially equal distances upon opposite sides of the longitudinal center line of the car in the roof zone to obtain the benefit of the greatest height of the car at this point to provide proper clearances for the mechanisms, and whereas by reason of such disposition and the location of the rooms to one side of the car with a side aisle the counterbalance device 74 is located substantially over the adjacent end of the bed, the counterbalance 75 is located over a point more nearly midway of the length of the bed, so that the pulleys 80 are located over the opposite end of the bed to provide idlers over which the cables operate to impart a more direct lift to this end.

The counterbalancing devices are supported from the roof structure of the car above the ceiling of the bed recess by suitable brackets 85 and are exactly alike, and therefore a description of either will suffice for both. Reference is made to Figs. 6 and 9 which illustrate the device 74 in detail. The brackets support a continuous axle member 86 (see Fig. 9) which is rotatably mounted in ball bearings in the brackets. At the right hand end (Fig. 6), the axle is rotatably mounted directly in the supporting bracket, but at the left hand end extends through and is rotatably mounted in a hub 87, best illustrated in Fig. 9, which in turn is rigidly mounted in the supporting bracket and fixed against rotation. The counterbalance pulleys 78 are mounted upon and keyed directly to respectively opposite ends of the axle 86, and provide winding drums for the cables 73 which are anchored thereto at their ends. The axle is continuous between the pulleys so that they rotate in unison to maintain an equal movement of the bed 65 at each side as it is raised or lowered. The hub 87 is fixed against rotation in the bracket 85 so that the axle 86 finds bearing in this hub for rotative operation, but at the other end of the counterbalancing device the axle is provided with a bearing 88 mounted directly in the depending bracket 85, whereby the axle is suspended for rotation relative to both supporting brackets. Adjacent the supporting bearing 88, a second hub 89 is mounted upon the axle and keyed thereto for rotation therewith and is located to the inner side of the supporting bracket.

A torsional spring 90 is continuous between and encircles the hubs 87 and 89 for mounting thereon. One end of the spring is anchored to the fixed hub 87 and the other end is attached to the hub 89, so that as the axle 86, and including the hub 89, is rotated in one direction, the spring is wound to increase the tension thereof. Any tension on the spring desired may be obtained by winding it up to the degree required before attaching the supporting cables 73 to the bed, so that the force necessary to counterbalance the bed for easy operation may be regulated and adjusted in accordance with the weight of the bed and its contained bedding. A non-

metallic cylindrical sleeve member 91 is disposed inside of the spring 90, extending in one or more sections continuously between the hub members 87 and 89 as a filler around the axle shaft and acts to prevent distortion of the spring 90 as it is wound. In operation, the tension on the spring 90 in each of the two counterbalancing devices 74 and 75 is increased as the bed is lowered by the action of the cables 73 and 76 passing over the drums 78 and 79 to rotate the axle 86 and thus wind the spring, and this increased energy thus stored in the spring is expended in restoring the bed to inoperative position in the recess 66 during the process of raising the bed.

The bed 65 is hingedly mounted at one end, as at 94, on a vertically reciprocable dolly carriage 95 for guided vertical movement between retracted and operative positions. This carriage is comprised of a plate extending substantially the full width of the bed and having a pair of vertically spaced rollers 96 mounted thereon at respectively opposite ends, running in tracks 97 at adjacent sides of the bed to guide the dolly in an upright position in the required path for controlling the opening and closing movements of the bed. The rollers 96 are journaled on the plate 95 at the side thereof opposite to that in which the hinges 94 are mounted for pivotal connection of the dolly with the bed, and are provided with outwardly directed inverted V-shaped tread portions adapted to cooperate with the V-shaped tracks 97. As best shown in Fig. 6, the rollers are journaled closely adjacent the ends of the dolly plate so that the rollers project beyond the ends of the plate to engage within the opposed track members for positive guidance therein. The opposed tracks, as best indicated in Figs. 4 and 5, are inclined in their upper portion above the wardrobe 43 and shoe locker 44, to guide the bed inwardly in its downward movement and shift it endwise toward the side wall 12, and to this end, the tracks extend downwardly at the inner side of the wardrobe so that in the operative position the bed is disposed between the wardrobe and the side wall. The bed is hingedly connected to the dolly carriage at the bottom surface of the bed so that no interference will be encountered between the end of the bed and the carriage plate 95 during operation.

In the operative lowered position, the bed 65 is engaged beneath a spring-actuated lever catch 98 at the dolly end of the bed to prevent accidental upward displacement of the bed from operative position under the lifting force exerted by the counterbalance device 74. The lever cacth 98 is operatively engaged automatically as the bed is lowered due to the spring action of the device, but it must be released manually when it is desired to return the bed to its ceiling recess, and it is made in the form of a lever for this purpose. The bed is provided with an outwardly directed flange 99 at this end for engagement beneath the holddown catch, and which also is adapted operatively to engage above a pair of spring-actuated latch mechanisms 100 which support this end of the bed against unintentional dislodgment from the raised inoperative position. The latches 100 are provided on their under side with a sloping surface adapted to be engaged by the flange 99 on the bed during the raising operation, automatically to press the latches to retracted position against the pressure of their springs, out of the path of the flange, to enable the flange to pass the latches, whereupon they are projected therebeneath by the action of the springs to secure the raised position of the bed.

In the opening operation of the bed it is unnecessary for the latches 100 to be retracted, since upon release of the bed locking latches 67 adjacent the opposite end of the bed, that end will be lowered first, thus pivoting the bed about the hinges 94 whereby to swing the flange 99 outwardly, clear of the latches, and thereby enable the dolly end of the bed to be lowered. The latch mechanisms 100 are provided with non-metallic bumper surfaces on their under sides which are engaged by the top edge of the carriage plate 95 to limit the upward movement of the bed, as best indicated in Fig. 5. In the operative position of the bed, secured by the lever catch 98, the dolly end of the bed is supported upon brackets 101 which are provided with non-metallic upper pad surfaces which are engaged by the lower edge of the carriage plate 95, thereby to fix the lowered position of this end of the bed.

The opposite or free end of the bed 65 is adapted to be supported from the car side wall 12 in the operative position. This end of the bed is counterbalanced by the mechanism 75, and when the latches 67 locking the bed in the ceiling recess are released, may be withdrawn therefrom, while the dolly end is momentarily retained by the latches 100. Separate devices are provided to support each side of the bed from the side wall and which, when operatively engaged, prevent upward movement of the bed. At that side nearest the operator, i. e.—at the side removed from the partition 20, a strut member 102 is pivotally mounted, at 103, at the inner side of the side wall of the bunk adjacent to the top edge, and normally, is disposed in a retracted position between the mattress and the side wall, as best indicated in the full line position of Fig. 5.

The free end of this strut is provided with a head 104 adapted to be entered into a bracket 105 on the side wall 12 in an intermediate open position of the bed and engaged within the bracket in the full open position of the bed in a manner to prevent its withdrawal except by return of the bed through the intermediate position when it is desired to release it to restore the bed to the ceiling recess. In the opening movement of the bed, the strut 102 is inserted into the side wall bracket before the bed reaches the full open position, and then the dolly end of the bed lowered to the full open horizontal position of the bed and secured by the catch 98. The strut interlocks with the side wall bracket to support this portion of the bed and prevent upward movement thereof under the influence of the counterbalancing device 75, whereby to maintain the horizontal operative position of the bed against vertical forces, either upwardly or downwardly.

The corner of this end of the bed next to the partition 20 is supported from the car side wall 12 by automatically engageable parts, illustrated in detail in Fig. 10. The bunk 65 is provided with a fixed support bracket 108 secured to the bottom face thereof and projecting beyond the end of the bunk, and which lies beneath the room ceiling surrounding the bunk when the bunk is disposed flush with the ceiling in retracted position, as best indicated in Figs. 4 and 5. This bracket at its projecting end is formed and adapted for cooperation with a supporting wall plate 109 having an opening adapted to receive

the bed support bracket 108 and sustain it against vertical movement in either upward or downward directions. The opening in the wall plate for receiving the bed support bracket is normally closed in the retracted position of the bed by a spring-pressed supporting tongue 110 pivotally mounted in the wall plate and adapted automatically to be repelled by the bracket 108 as that member enters the opening when the bed is lowered.

The tongue member 110 has a supporting surface 111 engageable by a cooperating surface 112 on the bed support bracket to support the bed against downward deflection, and the engagement between the upper surface of the support bracket and the upper edge of the wall plate opening prevents upward movement of the bed. In operation, as the bed 65 is lowered, the strut member 102 is inserted into the bracket 105 and then, as the dolly end of the bed is lowered in the tracks 97 to full operative position, secured beneath the catch 98, the bracket 108 moving on an arc regulated by the strut member, automatically enters the plate 109, engaging the supporting tongue member 110 to press it back and rest thereon in the horizontal position of the bed.

The upper and lower beds are designed for operation in combination with each other and are operable in sequence between inoperative and operative positions and return, and while the lower bed might be moved to operative position independently of the upper bed, which may be allowed to remain in the ceiling recess when the bedroom is to be used for single occupancy, the lower bed must be moved from the upright inoperative position beneath the upper bed when the upper bed is to be lowered for use by a second occupant of the room, since the beds are mounted to operate in and occupy the same vertical space. The two beds in each room operate conjointly to provide pre-made beds, readily accessible for immediate use upon movement to operative positions.

From the foregoing, it will be seen that there has been provided a railway car bedroom arrangement involving adjoining rooms capable of use en suite normally, separated by a retractible partition, and having pairs of upper and lower beds in the respective rooms upon opposite sides of the partition which are operable in the same plan projection between inoperative positions in vertical and horizontal planes and operative positions in parallel overlying planes.

What is claimed is:

1. A railway sleeping car having a longitudinally extending aisle and having a plurality of walls defining a generally rectangular room communicating with said aisle and having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room and extending in operative positions with their lengths disposed crosswise of said named dimension in upper and lower parallel horizontal planes occupying substantially the same plan projection, means operatively connected to certain of said walls for supporting the upper bed including a carriage mounting said bed and vertically reciprocable for retraction of said bed to a horizintal inoperative position above the level of said operative position thereof, and means mounting the lower bed for endwise folding movement to an upright inoperative position at one end of said plan projection.

2. The combination claimed in claim 1, in which the car is provided with a pair of mutually similar rooms normally separated by a partition which is movable from separating position to convert said rooms into a single room.

3. The combination claimed in claim 1, in which the car is provided with a pair of mutually similar rooms normally separated by a foldable partition which is retractable from separating position to convert said rooms into a single room.

4. The combination claimed in claim 1, in which the car is provided with a pair of rooms with the beds of each room located adjacent to the beds of the other room, and including a partition adjacent to said beds normally separating the two rooms and movable to convert said rooms into a single room.

5. A railway sleeping car having a longitudinally extending aisle and having a ceiling and a plurality of walls defining a generally rectangular room communicating with said aisle and having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room and extending in operative positions with their lengths disposed crosswise of said named dimension in upper and lower parallel horizontal planes occupying substantially the same plan projection, means operatively connected to certain of said walls for supporting the upper bed including a carriage mounting said bed and vertically reciprocable for retraction of said bed to a horizontal inoperative position within said ceiling, and means mounting the lower bed for endwise folding movement to an upright inoperative position at one end of said plan projection.

6. A railway sleeping car having a longitudinally extending aisle and having a plurality of walls defining a generally rectangular room communicating with said aisle and having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room and extending in operative positions with their lengths disposed crosswise of said named dimension and occupying substantially the full distance between the walls defining the other dimension of the room and lying in upper and lower parallel horizontal planes in substantially the same plan projection, means operatively connected to certain of said walls for supporting the upper bed including a carriage mounting said bed and vertically reciprocable for retraction of said bed to a horizontal inoperative position above the level of said operative position thereof, and means mounting the lower bed for endwise folding movement to an upright inoperative position at one end of said plan projection.

7. A railway sleeping car having a longitudinally extending aisle and having a generally rectangular room communicating therewith defined by a ceiling formed with a recess and by a plurality of walls, one of which is formed with a recess, said room having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room and extending in operative positions with their lengths disposed crosswise of said named dimension in upper and lower parallel horizontal planes occupying substantially the

same plan projection, means operatively connected to certain of said walls for supporting the upper bed including a carriage mounting said bed and vertically reciprocable for retraction of said bed to a horizontal inoperative position within said ceiling recess, and means mounting the lower bed for endwise folding movement to an upright inoperative position within said wall recess.

8. A railway sleeping car having a longitudinally extending aisle and having a generally rectangular room communicating therewith defined by a ceiling formed with a recess and by a plurality of walls, one of which is formed with a recess, said room having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room and extending in operative positions with their lengths disposed crosswise of said named dimension in upper and lower parallel horizontal planes occupying substantially the same plan projection and having one end of each supported from the wall opposite the recessed wall, means operatively connected to the recessed wall for supporting the upper bed comprising a carriage mounting said bed and vertically reciprocable for retraction of said bed to a horizontal operative position within said ceiling recess, and means mounting the lower bed for endwise folding movement to an upright inoperative position within said wall recess.

9. A railway sleeping car having a longitudinally extending aisle and having a generally rectangular room communicating therewith defined by a ceiling and a plurality of walls, said ceiling and one of said walls being formed with a recess having a horizontal portion in the ceiling and a vertical portion in said one wall, said room having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room and extending in operative positions with their lengths disposed crosswise of said named dimension in upper and lower parallel horizontal planes occupying substantially the same plan projection and having one end of each supported from the wall opposite the recessed wall, means operatively connected to the recessed wall for supporting the upper bed comprising a carriage mounting said bed and vertically reciprocable for retraction of said bed to a horizontal inoperative position within the horizontal portion of said recess, and means mounting the lower bed for endwise folding movement to an upright inoperative position within the vertical portion of said recess.

10. A railway sleeping car having a longitudinally extending aisle and having a room communicating therewith defined by a ceiling formed with a recess and by a plurality of walls, one of which is formed with a recess, said room having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room and extending in operative positions with their lengths disposed crosswise of said named dimension in upper and lower parallel horizontal planes occupying substantially the same plan projection, means operatively connected to certain of said walls for supporting the upper bed including means carrying guide rollers mounting an end of said bed and vertically reciprocable for retraction of said bed to a horizontal inoperative position within said ceiling recess, guide means engaged by said rollers, means mounting the lower bed for endwise folding movement to an upright inoperative position within said wall recess, releasable locking mechanism securing said upper bed in said ceiling recess, and releasable locking mechanism engageable between the upper and lower beds for maintaining the lower bed in said upright inoperative position.

11. A railway sleeping car having a longitudinally extending aisle and having a generally rectangular room communicating therewith defined by a ceiling formed with a recess and by a plurality of walls, one of which is formed with a recess, said room having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room including a lower bed disposed upright in inoperative position in said wall recess and hingedly mounted therein for pivotal movement to a horizontal operative position extending substantially to the wall opposite the recessed wall and including also an upper bed disposed in inoperative position horizontally in said ceiling recess, a carriage having guide rollers mounted in tracks at respectively opposite sides of said wall recess for vertical reciprocation within the confines of said recess, a hinged connection between said carriage and the upper bed, and mechanism counterbalancing the upper bed for vertical movement guided by said tracks to an operative position in a plane parallel to the operative position of the lower bed and extending within said wall recess.

12. In a railway sleeping car, a generally rectangular sleeping room having one dimension substantially the length of a bed and having another dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, said room being provided with a horizontal bed recess above the room and a vertical bed recess at one end of said first dimension, a lower bed hingedly mounted upright in said vertical recess for pivotal movement to a lower horizontal operative position substantially spanning said first dimension, an upper bed in said horizontal recess, a vertically reciprocable carriage mounting one end of said upper bed for movement of said end to a lowered position, and means supporting the other end of said upper bed at the level of said lowered position for mounting said bed in horizontal operative position in a plane above and substantially within the plan projection of the operative position of the lower bed.

13. In a railway sleeping car, a generally rectangular sleeping room having one dimension substantially the length of a bed and having another dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, said room being provided with a horizontal bed recess above the room and a vertical bed recess at one end of said first dimension, a lower bed hingedly mounted upright in said vertical recess for pivotal movement to a horizontal operative position substantially spanning said first dimension, an upper bed in said horizontal recess, guide tracks in said vertical recess, a carriage mounted in said tracks for movement between upper and lower positions, an operative connection between said carriage and an end of said upper bed whereby said end is movable between upper inoperative position in said horizontal recess and a lower

operative position, and means supporting the other end of said upper bed at the level of said lower position, said guide tracks having a contour whereby the upper bed is shifted endwise during movement between said two positions.

14. In a railway sleeping car, a generally rectangular sleeping room having one dimension substantially the length of a bed and having another dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, said room being provided with a horizontal bed recess above the room extending lengthwise of said first dimension, a carriage reciprocable vertically between upper and lower retracted and extended positions beneath one end of said recess, a bed having one end mounted on said carriage, means supporting the other end of said bed in the recess, means supporting said other end in lowered position on a wall of the room opposite the lower extended position of said carriage, and counterbalance mechanisms operatively connected to each of said end portions of the bed to suspend the bed for vertical movement from inoperative position within the recess to operative lowered position.

15. In a railway sleeping car, a generally rectangular sleeping room having one dimension substantially the length of a bed and having another dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, said room being provided with a horizontal bed recess above the room extending lengthwise of said first dimension and a vertical bed recess at one end of said first dimension, a lower bed hingedly mounted upright in said vertical recess for pivotal movement to a lower horizontal operative position substantially spanning said first dimension, an upper bed disposed in retracted position in said horizontal recess, roller supporting means operatively connected to one end of the upper bed and vertically reciprocable within said vertical recess for movement between upper retracted and lower operative positions of said bed, and means supporting the other end of said bed in lowered position on a wall of the room opposite the said vertical recess.

16. A railway sleeping car having a longitudinally extending aisle and having a plurality of walls defining a room communicating with said aisle and having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room and extending in operative positions with their lengths disposed crosswise of said named dimension in upper and lower parallel horizontal planes occupying substantially the same plan projection, means operatively connected to certain of said walls for supporting the upper bed including means carrying roller means mounting said bed and vertically reciprocable for retraction of said bed to a horizontal inoperative position above the level of said operative position thereof, and means mounting the lower bed for endwise folding movement to an upright inoperative position at one end of said plan projection.

17. A railway sleeping car having a longitudinally extending aisle and having a ceiling and a plurality of walls defining a room communicating with said aisle and having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room and extending in operative positions with their lengths disposed crosswise of said named dimension in upper and lower parallel horizontal planes occupying substantially the same plan projection, means operatively connected to certain of said walls for supporting the upper bed including means carrying guide rollers mounting said bed and vertically reciprocable for retraction of said bed to a horizontal inoperative position within said ceiling, and means mounting the lower bed for endwise folding movement to an upright inoperative position at one end of said plan projection.

18. A railway sleeping car having a longitudinally extending aisle and having a room communicating therewith defined by a ceiling and a plurality of walls, said ceiling and one of said walls being formed with a recess having a horizontal portion in the ceiling and a vertical portion in said one wall, said room having one dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, a pair of beds enclosed within the room and extending in operative positions with their lengths disposed crosswise of said named dimension in upper and lower parallel horizontal planes occupying substantially the same plan projection and having one end of each supported independently of said recessed wall, means operatively connected to the recessed wall for supporting the upper bed comprising means carrying guide rollers mounting said bed at the other end thereof and vertically reciprocable for retraction of said bed to a horizontal inoperative position within the horizontal portion of said recess, and means mounting the lower bed for endwise folding movement to an upright inoperative position within the vertical portion of said recess.

19. In a railway sleeping car, a sleeping room having one dimension substantially the length of a bed and having another dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, said room being provided with a horizontal bed recess above the room and a vertical bed recess at one end of said first dimension, a lower bed hingedly mounted upright in said vertical recess for pivotal movement to a horizontal operative position substantially spanning said first dimension, an upper bed in said horizontal recess, guide tracks in said vertical recess, guide rollers mounted in said tracks for movement between upper and lower positions, said rollers having an operative connection with an end of said upper bed whereby said end portion is movable between upper inoperative position in said horizontal recess and a lower operative position, and means supporting the other end of said upper bed at the level of said lower position.

20. In a railway sleeping car, a sleeping room having one dimension substantially the length of a bed and having another dimension which is insufficient to accommodate a pair of beds side by side with adequate additional space for necessary standing room, said room being provided with a horizontal bed recess above the room extending lengthwise of said first dimension, a lower bed hingedly mounted upright in said vertical recess for pivotal movement to a lower horizontal operative position substantially spanning said first dimension, an upper bed disposed in retracted position in said horizontal recess,

means carrying guide rollers operatively connected to one end of the upper bed supporting said bed and vertically reciprocable within said vertical recess for movement between upper retracted and lower operative positions of the bed, and means supporting the opposite end of said bed in lowered position on another wall of the room independent of said vertical recess.

21. A railway sleeping car having a side wall and a longitudinally extending passageway partition defining between them along one side of said partition a pair of adjacent rooms with a ceiling thereover separated from each other by a room partition movable out of the normally usable room area and communicating with a passageway on the other side of the passageway partition, each of the rooms having a vertical bed pocket disposed adjacent one side of the room partition spaced from the passageway partition and opening toward said wall, a downwardly opening bed pocket in the ceiling, a wardrobe space defined between the vertical pocket and the passageway partition, an upper and a lower bed disposed adjacent one side of the room partition, means mounting the upper bed for vertical movement between an inoperative position in said ceiling pocket and an operative horizontal position below the ceiling, and means mounting the lower bed for endwise folding movement between an inoperative position in said vertical pocket and an operative horizontal position, the upper and lower beds of each room in operative position extending in vertically spaced horizontal planes along the room partition between the plane of the vertical pocket and said wall and occupying substantially the same plan projection, said upper beds in inoperative positions extending substantially horizontally in said ceiling pockets above the level of said operative positions thereof and said lower beds in inoperative positions extending upright in said vertical pockets.

22. A railway sleeping car having a side wall and a longitudinally extending passageway partition defining between them along one side of said partition a pair of adjacent rooms communicating with a passageway on the other side of the passageway partition and separated from each other by a room partition movable out of the normally usable room area, each of the rooms having a vertical bed pocket disposed adjacent one side of the room partition spaced from the passageway partition and opening toward said wall, a wardrobe space defined between the bed pocket and passageway partition, and a pair of upper and lower beds disposed adjacent one side of the room partition and in operative position extending in vertically spaced horizontal planes and occupying substantially the same plan projection along the room partition between the plane of the bed pocket and said wall, said upper beds being vertically retractible to substantially horizontal inoperative positions above the level of said operative positions and said lower beds being hingedly mounted for endwise folding movement to upright inoperative positions in said bed pockets.

23. A railway sleeping car having a longitudinally extending passageway partition extending between a passageway on one side thereof and a pair of adjacent rooms along the other side thereof communicating with the passageway and separated from each other by a room partition movable out of the normally usable room area, each of the rooms having a vertical bed pocket disposed adjacent one side of the room partition spaced from the passageway partition and opening away therefrom, a wardrobe space defined between the bed pocket and passageway partition, and a pair of upper and lower beds disposed adjacent one side of the room partition and in operative position extending in vertically spaced horizontal planes along the room partition and occupying substantially the same plan projection spaced from the passageway partition, said upper beds being vertically retractible to generally horizontal inoperative positions above the level of said operative positions thereof and said lower beds being hingedly mounted for endwise folding movement to upright inoperative positions in said bed pockets.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
269,748	Van Slyke	Dec. 26, 1882
940,383	Felton	Nov. 16, 1909
1,228,938	McNally	June 5, 1917
1,556,483	Brown	Oct. 6, 1925
2,147,011	Crawford	Feb. 14, 1939
2,232,263	Patton	Feb. 18, 1941
2,312,906	Horton et al.	Mar. 2, 1943