

(No Model.)

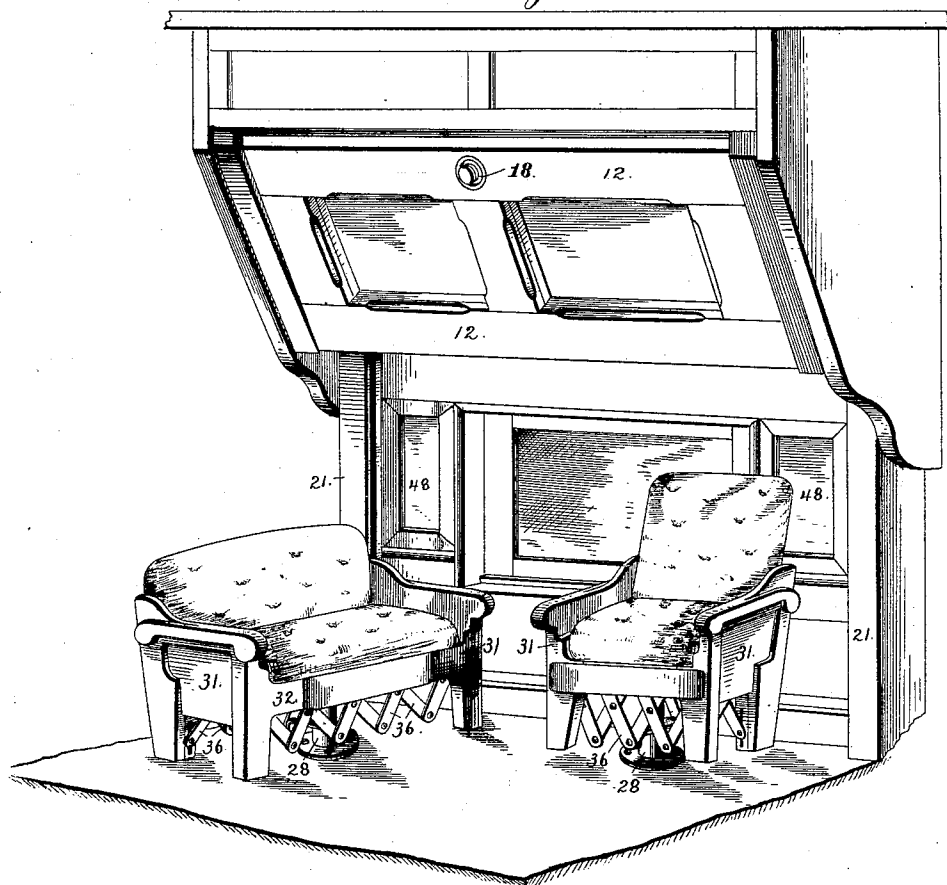
6 Sheets—Sheet 1.

DE WITT C. BREED.
PARLOR SLEEPING CAR.

No. 479,240.

Patented July 19, 1892.

Fig. 1.



Witnesses:

Jas. E. Hutchinson.
A. H. Norris

Inventor.

De Witt Clinton Breed,

By James L. Norris.
Attorney.

(No Model.)

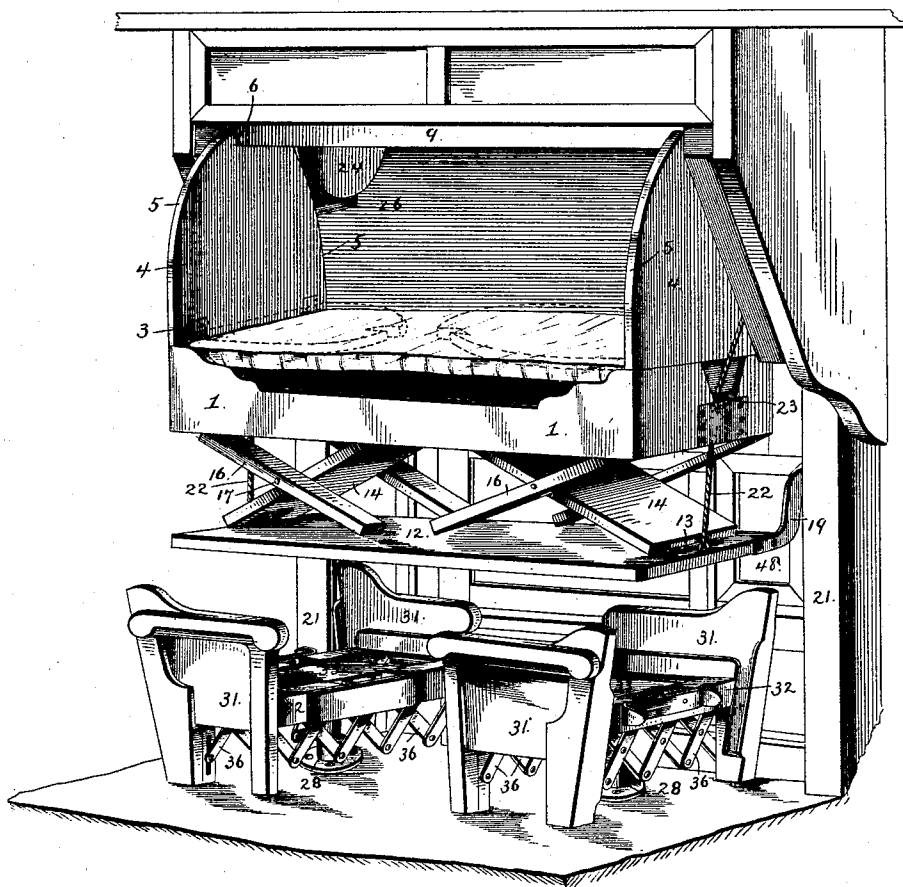
6 Sheets—Sheet 2.

DE WITT C. BREED.
PARLOR SLEEPING CAR.

No. 479,240.

Patented July 19, 1892.

Fig. 2.



Witnesses:
Jas. C. Hutchinson.
A. H. Norris.

Inventor.
De Witt Clinton Breed,
By James L. Norris
Attorney.

(No Model.)

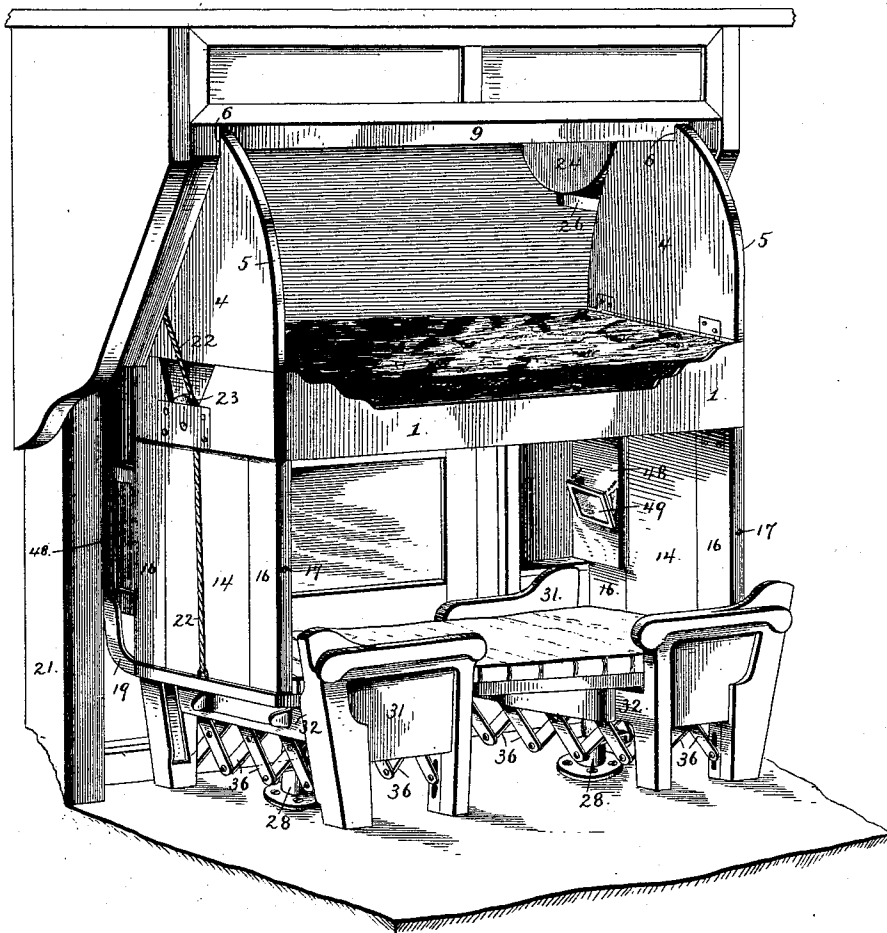
6 Sheets—Sheet 3.

DE WITT C. BREED.
PARLOR SLEEPING CAR.

No. 479,240.

Patented July 19, 1892.

Fig. 3.



Witnesses:
Jas. E. Hutchinson.
A. H. Norris.

Inventor.
De Witt Clinton Breed,
By James L. Norris
Attorney.

(No Model.)

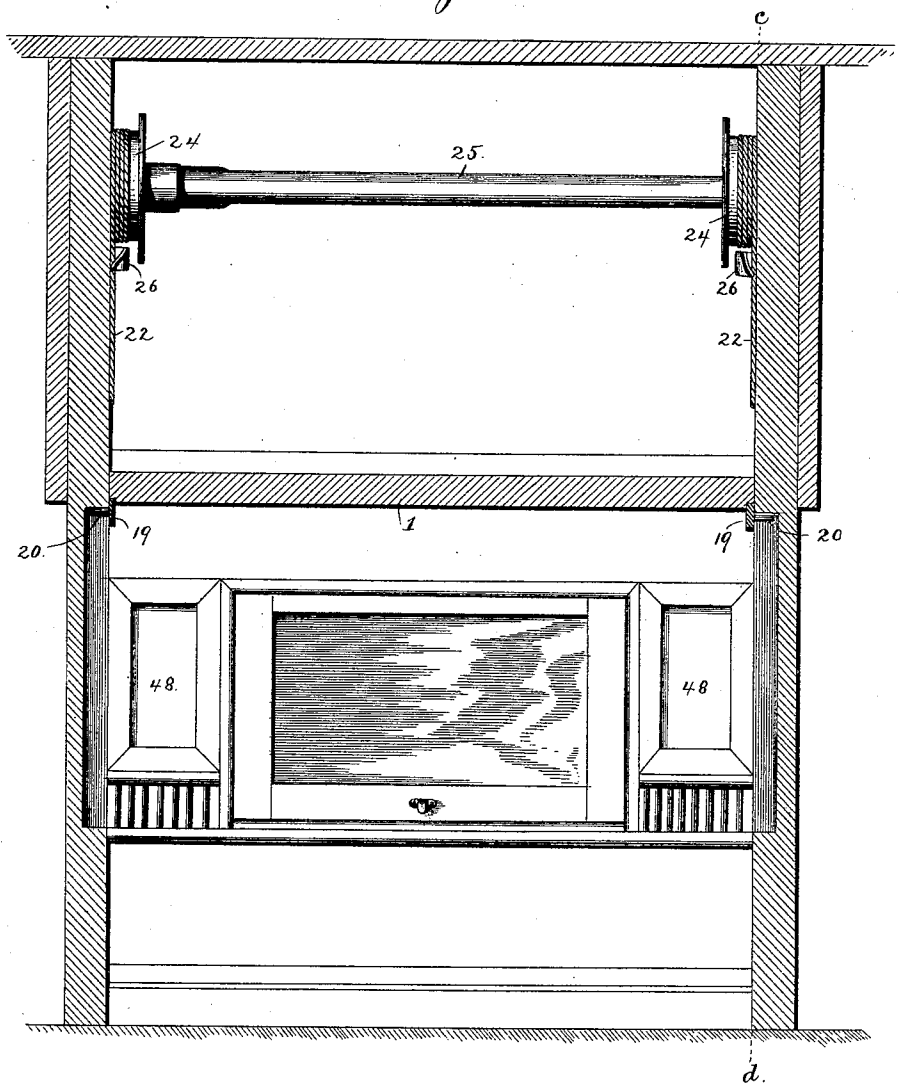
6 Sheets—Sheet 4.

DE WITT C. BREED.
PARLOR SLEEPING CAR.

No. 479,240.

Patented July 19, 1892.

Fig 4



Witnesses:
Jas E Hutchinson.
A. H. Norris.

Inventor.
De Witt Clinton Breed,
By James L. Norris.
attorney.

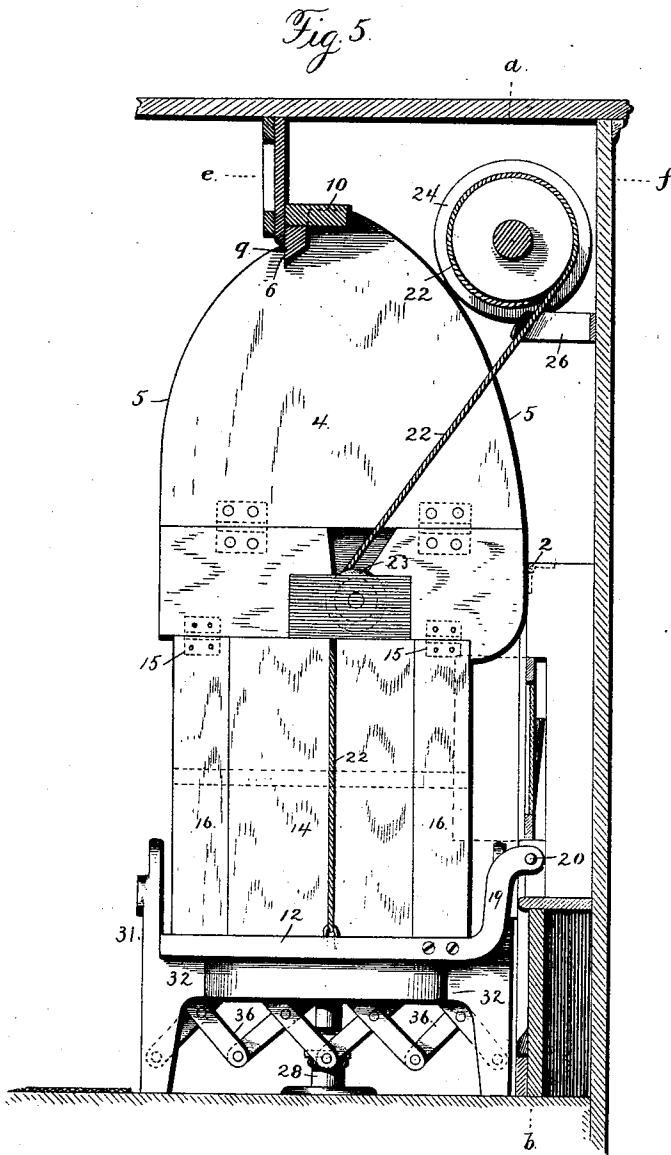
(No Model.)

6 Sheets—Sheet 5.

DE WITT C. BREED.
PARLOR SLEEPING CAR.

No. 479,240.

Patented July 19, 1892.



Witnesses:
Jas. Hutchinson.
A. H. Norris.

Inventor
De Witt Clinton Breed,
By James L. Norris,
Attorney.

(No Model.)

6 Sheets—Sheet 6.

DE WITT C. BREED.
PARLOR SLEEPING CAR.

No. 479,240.

Patented July 19, 1892.

Fig. 6.

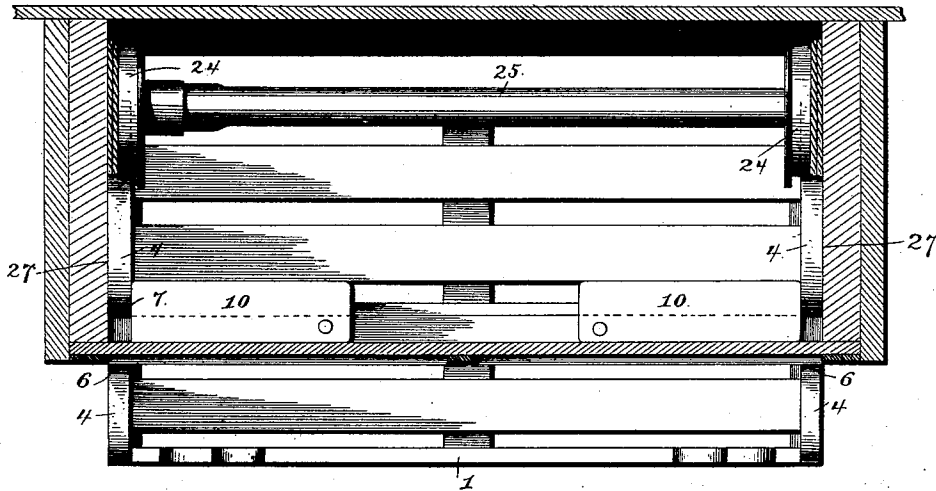


Fig. 7.

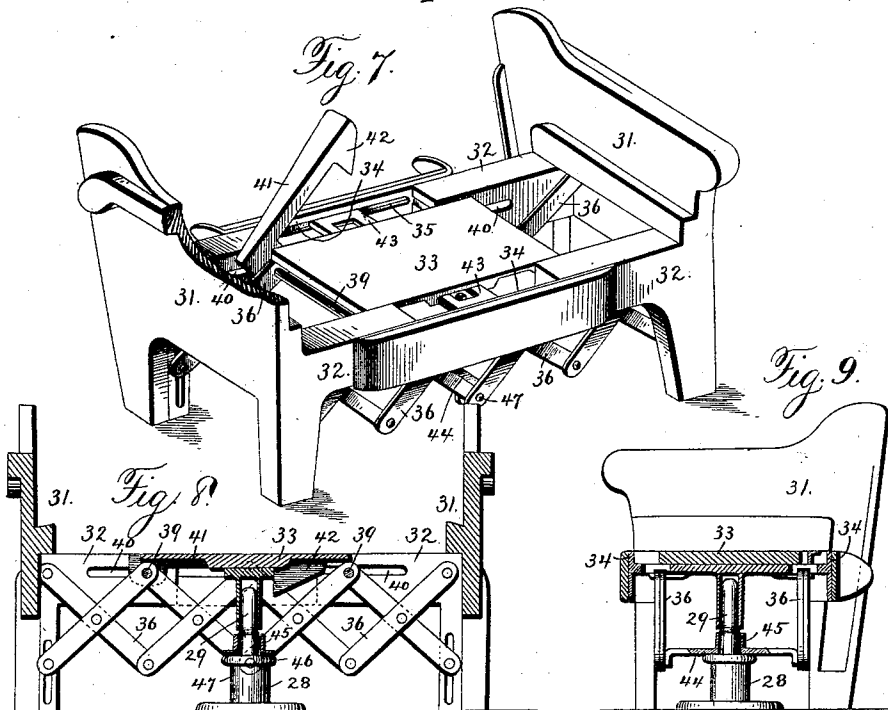


Fig. 9.

Witnesses:
Jas. C. Hutchinson.
A. B. Norris.

Inventor.
De Witt Clinton Breed,
By *James L. Norris*,
attorney.

UNITED STATES PATENT OFFICE.

DE WITT C. BREED, OF MEDINA, NEW YORK.

PARLOR SLEEPING-CAR.

SPECIFICATION forming part of Letters Patent No. 479,240, dated July 19, 1892.

Application filed June 19, 1890. Renewed June 23, 1892. Serial No. 437,780. (No model.)

To all whom it may concern:

Be it known that I, DE WITT CLINTON BREED, a citizen of the United States, residing at Medina, in the county of Orleans and State of New York, have invented new and useful Improvements in Parlor Sleeping-Cars, of which the following is a specification.

This invention relates to that type of sleeping-cars wherein the berths are made at two elevations, one being provided by bridging the space between the two adjacent seats and the other by lowering a swinging shelf hinged to the side wall of the car.

The objects of my invention are to improve the prior berths to provide novel, simple, and efficient means whereby collapsing of the swinging-berth frame is prevented if an accident occurs; to provide a hinged swinging-berth frame which carries a drop-frame for making up the lower berth; to provide collapsing end walls for the lower berth which serve to rigidly lock the frame thereof in its dropped position, and also constitute partitions for dividing the ends of one berth from another; to provide novel means for balancing a drop-berth frame, whereby it may be lifted against an upper-berth frame with ease and facility and by little exertion on the part of the porter or attendant; to provide a hinged swinging-berth frame with a drop-berth frame and novel means for conjointly balancing both frames when brought together for closing them into the position required for using parlor-car chairs; to provide a novel drop-berth frame which constitutes an ornamental front wall to a hinged swinging-berth frame when the latter is closed or folded; to provide novel means whereby separate flexible curtains and the manipulation thereof are avoided at the ends of the upper and lower berths; to provide novel means for supporting the hinged berth-frame in its horizontal position, rigidly locking it against movement in any direction and thereby adapting it to suspend a drop-berth frame; to provide a novel parlor-car chair which fulfills the conditions required for supporting a drop-berth frame in position to make up a lower berth; to provide a rotary parlor-car chair which can be conveniently and rapidly converted from a single into a duplex seat, and thus be utilized to support a lower-berth frame, and, finally, to

provide means whereby a parlor-car having rotary single seats can be converted into a sleeper, thereby enabling me to reduce the rolling-stock or equipment of railroads.

To accomplish all these objects my invention involves the features of construction, the combination or arrangement of devices, and the principles of operation hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a detail perspective view of a portion of the interior of a parlor-car, showing the berth-frames folded. Fig. 2 is a similar view showing the hinged berth swung to a horizontal position, the parlor-car chairs extended and the lower berth partially lowered. Fig. 3 is a similar view showing the drop-berth lowered upon two adjacent seats. Fig. 4 is a vertical sectional view taken lengthwise of the car on the line *a b*, Fig. 5. Fig. 5 is a vertical sectional view taken transversely of the car on the line *c d*, Fig. 4. Fig. 6 is a horizontal sectional view taken on the line *e f*, Fig. 5. Fig. 7 is a perspective view of the car-chair extended, omitting the cushions and showing the chair-locking arm elevated in full lines and lowered to its locking position in dotted lines. Fig. 8 is a vertical sectional view taken transversely of the chair on the axis of the chair-pedestal. Fig. 9 is a longitudinal sectional view of the same.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a swinging-berth frame pivoted at one edge to the side of the car by hinges 2, of any construction suitable for the conditions required, whereby the berth-frame may swing in the arc of a circle to place it in a horizontal position for making up the upper berth or for folding it at or near the top portion of the car.

The frame 1 is rigid and comprises, preferably, a slatted bed-bottom; but an ordinary woven-wire or other proper mattress may be used, and to each end of the frame is hinged, as at 3, a solid leaf or plate 4, made of wood or other rigid material and having curved edges, as at 5. These leaves or plates are adapted to fold toward each other down upon the bedding of the hinged berth-frame,

as in dotted lines, Fig. 2, and to turn to a perpendicular position, whereby the abutments 6 and 7, formed by notched portions 8, engage with the longitudinal overhanging rail or bar 9 of the car, as in full lines, Fig. 2, in which position the engagement of the leaves or plates with the rail or bar serves to hold the swinging-berth frame in its horizontal position and to rigidly lock it against movement in any direction. The leaves or plates are secured in their perpendicular position by any suitable means, but preferably by gravitating lock-levers 10, pivoted to the inside of the rail or bar 9 and having their free ends adapted to fall at one side of the abutments 7, and thereby prevent the leaves or plates from folding or turning down until the lock-levers are raised to release them from engagement with the abutments. This is a desirable and useful feature of my invention in that it effectually prevents closing of the swinging berth in case of accident, thereby avoiding injury to the occupant by the collapsing of the hinged berth, as sometimes occurs in those sleepers having similar berths supported by ordinary jointed brace rods or chains.

The swinging frame when lowered serves for the upper berth, and the lower berth is provided by a vertically-movable drop-frame 12, comprising side and end bars and a center cross-piece, one or more. At each end of the drop-frame is hinged, as at 13, one extremity of a wooden or other plate 14, having its other extremity free and unattached, and to each end of the swinging-berth frame is hinged, as at 15, one extremity of a pair of metallic or wooden bars 16, which are pivotally attached at the middle of their length to the edges of the plate 14, as by a pivot-pin 17, the other extremity of the pair of bars being free and unattached. The plate 14 at each end of the swinging berth is located between two of the bars 16, and the construction is such that by lowering the drop-berth frame the plates and bars 14 and 16 will be brought to a perpendicular position, as in Fig. 3, and constitute suspension devices for the drop-berth frame, and also walls or partitions for closing the ends of the lower berth. These partitions or walls are readily collapsed by pressing the plate and bars at each end inward at the pivoted points 17, where they are pivoted together, whereupon the drop-berth frame can be raised to a position against the swinging frame, as in Fig. 2, so that when the parts are closed or folded, as in Fig. 1, the drop-berth frame comprises an ornamental front wall or covering for the hinged swinging-berth frame. The drop-frame is provided with a suitable lock, as indicated at 18, for engaging the horizontal rail or bar 9 to securely confine the parts in their closed or folded position, as in Fig. 1.

The drop-berth frame is provided at each inner corner with a rigidly-attached bracket or arm 19, having a lateral stud or roller bear-

ing 20, engaging a vertical groove in an upright strip, bar, or part 21 of the car-wall, such construction serving to guide the drop-frame in its rising and falling movements, while the studs or roller-bearings subserve the purpose of pivots on which the drop-frame turns as a center in partaking of the swinging movements of the hinged berth-frame.

To balance the drop-frame and render it possible for the porter or attendant to elevate it with little power and by a minimum of pressure, a cable 22 is attached to each end of the drop-frame and passes over a pulley or sheave 23, journaled in suitable bearings at each end of the swinging-berth frame. These pulleys or sheaves are preferably about centrally between the sides of the swinging-berth frame, and hence the cables connect at or near the center of the ends of the drop-frame. The cables run from the pulleys or sheaves to the cable-winding drums 24, carried by a roller-shaft 25, journaled horizontally in the top of the car and extending parallel or approximately so to the sides thereof, and one of these drums is designed to contain a helical or other suitable spring of a power sufficient to balance or overbalance the weight of the drop-berth frame. When the drop-frame is lowered, the drums are rotated and the spring is placed under increased tension, and, presuming the suspension plates and bars 14 and 16 to be perpendicular, they lock the drop-frame down. When the mattress for the lower berth is placed in position, its ends about the lower free extremities of the bars 16, and consequently they are so locked that it is impossible for the drop-frame to accidentally close or rise up against the upper berth if an accident occurs.

The mattresses and bedding may be stored in the swinging-berth frame, and the mattress for the lower berth is preferably so constructed that it comprises a substantially rigid base-frame, so that when placed in position it offers sufficient rigidity to effectually prevent collapsing of the pivoted plates and bars forming the closing ends of the lower berth. If the mattress be removed and the end walls are collapsed, the cables sustain the drop-frame and the spring-drum operates to balance the latter, whereby it can be elevated to the hinged berth-frame by the exercise of little power or pressure on the part of the porter or attendant. It is quite obvious that the power of the spring can be such as to automatically lift the drop-frame the instant the end walls are collapsed, and it is also obvious that a mechanical equivalent of the spring would be a rising and falling counter-weight. I do not, therefore, confine myself to the spring-drum for keeping the cables taut and assisting in the elevation of the drop-berth and of the hinged berth.

When the drop-frame is lifted to the upper-berth frame and the locking-leaves of the latter are released and folded down, as in dotted lines, Fig. 2, the cables and spring-drum

then sustain and balance the two berth-frames, which can thus be easily swung upward to the closed position represented in Fig. 1. These manipulations of the frames
5 can be made with ease and facility, and by a proper spring-drum to balance the parts it is possible to open and close them expeditiously and with little effort.

To properly guide the cables to the winding-drums, I may provide a guide bar or bracket 26, overlying each cable to loosely confine the latter adjacent to the vertical wall 27 at each end of the compartment or space into which the hinged berth-frame folds or swings;
15 but obviously these guide-bars are not indispensable, as flanges on the winding-drums would accomplish the same purpose.

By my invention the pivoted leaves or plates on the hinged berth-frame, when in their perpendicular position, not only serve to rigidly lock the hinged frame, but also constitute dividers for separating one berth from another, and likewise the collapsible end walls or suspension devices of the drop-berth frame close communication with adjacent
25 berth-sections. Thus I avoid the use of flexible curtains at the ends of the berths and reduce the time, labor, and trouble of properly arranging loose curtains at these points. The drop-frame is rigidly sustained in its lowered position through the medium of the car-seats, and in order that my improved berth mechanism can be utilized in a parlor-car having revolving or rotary seats I have devised
30 a novel construction whereby the rotary seat can be extended horizontally to operate conjointly with the drop-berth frame to make up the lower berth.

The car seat or chair comprises a pedestal 28, secured in a stationary position by screws or otherwise to the car-floor and is provided with a cylindrical spindle 29, to which is fitted the center sleeve 30 of the seat, thus swiveling the seat to the pedestal for permitting
45 the seat to be freely turned or revolved by the occupant. The rotary chair adjusted to form a single seat is exhibited in Fig. 1, and in this condition the several parts fulfill all the conditions required for a parlor-car chair. In the equipage of railways up to the time of my invention a parlor-car having rotary seats operating conjointly with a berth-frame to make up a practicable berth was never used or known, so far as I am aware.

To utilize the single-seat rotary chairs as used in a Pullman parlor or drawing-room car for co-action with berths to convert such parlor-car into a sleeper is an important and distinguishing feature of my invention, and
60 to accomplish this I construct the chair in such manner that while it can freely turn or revolve on a fixed pedestal it can also be extended rectilinearly in a horizontal plane to increase its width to the size of a duplex seat, which is requisite not only for the desirable purpose of accommodating two passengers if required, but to receive and sustain between

the chair-arms the drop-berth frame hereinbefore described.

The chair-body is composed of two independent arm-sections 31, each having a pair of parallel side bars 32 and a leg-frame depending below such side bars. The center piece 33 of the chair-body stands stationary, except as to its rotary motion, and is provided
75 at each side with a rectilinear guide-strip 34, having a longitudinal guideway, which, as here shown, is composed of a slot 35, formed in a metallic facing-plate secured to the inside of each guide-strip. The parallel bars 32 of the arm-sections slide between the edges of the center piece 33 and the guide-strips 34, and to one arm-section 31 are pivotally connected the ends of two pairs of lazy-tongs 36, while the opposite ends of each pair of lazy-tongs are pivotally connected to the other arm-section 31. The lazy-tongs are of the usual well-known construction, except as to certain features, which will hereinafter appear. The movement of the levers at one end
85 of the lazy-tongs is communicated to all the other levers, and therefore if one arm-section be drawn outward the other arm-section will be correspondingly moved outward, and hence the width of the seat portion will be increased and thereby converted into a duplex seat. The single seat comprises a single cushion, as at 37; but such cushion and the back cushion 38 are removable, so that when the seat is extended the cushions can be properly introduced to form the required seat and back
100 cushions. When the seat is extended to sustain the drop-berth frame, the seat and back cushions are detached, and therefore the drop-frame can be lowered until it rests squarely on two adjacent seats, as in Fig. 3, whereby the suspension devices for the drop-frame are relieved from strain and the weight is transmitted to the two adjusted seats. The lazy-tongs comprise two separated parallel cross-
110 rods 39, which extend through slots 40, formed in the side bars 32 of the arm-sections, such cross-rods having their extremities arranged and working in the guideways 35 of the guide-strips 34. To one of the cross-rods 39 is pivoted or hinged a locking-arm 41, having a hooked end 42 to engage the other cross-rod when the chair is collapsed into a single seat, thereby locking the arm-sections together and preventing their accidental separation from car vibrations or other causes.
120 When the chair is to be extended, the locking-arm is released from engagement with one of the cross-rods, and the hooked end 42 can then engage a part 43 of the center piece 33 to limit the separation of the arm-sections, so that they are always stopped at the proper distance from each other to form a duplex seat or to permit the drop-berth frame being lowered against the extended seat.

To fulfill the required conditions for rigidly and substantially supporting the drop-berth frame under the weight of the occupant of the lower berth, the rotary chair should be so

constructed and arranged that when extended to increase its width it will be held stationary by the leg-frames descending to and resting on the car-floor, while if the chair is collapsed into a single seat the leg-frames rise from contact with car-floor for the free rotary movement of the chair-body on the stationary pedestal. The mode of operation described is rendered possible by providing the center of each pair of lazy-tongs with a center yoke-frame or bar 44, which is provided with an attached sleeve 45, placed upon the spindle 29. The yoke-frame or bar rests upon a collar or shoulder 46 on the pedestal, and the ends of the yoke-frame or bar are pivotally engaged with the pivoted ends of two levers of each lazy-tongs, as by providing each end of the yoke-frame with a cylindrical pin 47, which constitutes the pivot of two of the levers of the lazy-tongs. By this construction, as the chair is extended horizontally to increase the width of the seat by the expansion of the lazy-tongs, the tendency of the pivoted ends of the yoke-frame or bar is to rise as the width of the lazy-tongs is diminished by their expansion, and the tendency of the center piece 33 and its sleeve 30 is to descend. In consequence of these peculiar motions the chair is gradually lowered as it is extended rectilinearly until finally the leg-frames touch and rest on the car-floor, when the chair as a whole will stand stationary. Obviously the lazy-tongs, when retracted by collapsing the chair to a single seat, operate to press the yoke-frame or bar downward and to elevate the sleeve 30, thereby lifting the chair bodily and placing it in proper condition to freely turn or rotate.

In practice I provide swinging doors 48, hinged to the side of the car and adapted to be swung outward at right angles thereto, as in dotted lines, Fig. 1, to close the narrow vertical spaces between the inner edges of the collapsible walls of the drop-berth frame and the side of the car. These hinged doors may serve to close small cupboards constructed in the car-wall, and the doors may carry folding pockets, as indicated by dotted lines 49, Fig. 1; but obviously the pockets could be suspended in the cupboards or be otherwise provided.

In my invention the car-seat is rectilinearly extensible to fulfill the requirements for rigidly sustaining the lower berth, and it is collapsible to provide a single seat which can revolve, as in a parlor or drawing-room car. By this co-operation of the parts a parlor-car can be converted into a sleeper, and conversely, thereby rendering it possible to largely reduce the rolling-stock or equipage of railroad.

I prefer to construct the cables of small-caliber wire rope; but obviously they can be made of ordinary fibrous rope or of chain links.

Having thus described my invention, what I claim is—

1. The combination, with a car having an overhanging rail or bar and a hinged swinging berth, of leaves or plates hinged at their lower edges to the ends of the berth and provided at their upper ends with notches, forming abutments to engage the rail or bar for sustaining the berth in its horizontal position and rigidly locking it against accidentally collapsing, substantially as described.

2. The combination, with a hinged berth adapted to swing down to a horizontal position, of a drop-berth connected with the hinged swinging berth, substantially as described.

3. The combination, with a hinged swinging berth, of a leaf or plate hinged to each end thereof, adapted to turn to a vertical position and having means to engage a fixed part of the car to lock the hinged berth stationary when opened, and a drop-berth connected with the hinged berth and adapted to rise and fall and when raised to turn or swing with the hinged berth, substantially as described.

4. The combination, with a hinged swinging berth, of a drop-berth connected with the hinged berth and adapted to rise and fall independent of the latter and when raised to turn and swing with the hinged berth, substantially as described.

5. The combination, with a hinged swinging berth, of a drop-berth having extensible and collapsible end walls connecting it with the hinged berth, substantially as described.

6. The combination, with a hinged berth adapted to swing down to a horizontal position and means for rigidly locking the berth against movement in any direction when lowered, of a drop-berth connected with and carried by the hinged berth and folding or turning upward therewith, substantially as described.

7. The combination, with an upper berth, of a drop-berth capable of being lowered to make up a lower berth and balancing mechanism for the drop-berth, which assists in elevating the drop-frame, substantially as described.

8. The combination, with an upper berth, of a drop-berth having expansible and collapsible end walls which suspend it from the upper berth and when perpendicular are rigidly locked and thereby brace the drop-berth in its lowered position, and balancing mechanism which assists in elevating the drop-berth, substantially as described.

9. The combination, with a movable upper berth, of a drop-berth carried thereby and adapted to be lowered to make up a lower berth, and balancing mechanism which assists in lifting the drop-berth against the upper berth and then aids in moving both berths into position for storage, substantially as described.

10. The combination, with a movable upper berth, of a drop-berth adapted to be lowered to make up a lower berth, cables con-

5 nected with the drop-berth and a spring-drum mechanism, and balancing mechanism for keeping the cables taut and assisting in the elevation of the drop-berth, substantially as described.

10 11. The combination, with a hinged berth having end pulleys or sheaves, of a drop-berth connected with the hinged berth, turning therewith and adapted to be lowered to make up a lower berth, cables connected with the drop-berth and passing over the pulleys or sheaves on the hinged berth, and means for automatically keeping the cables taut and assisting in the elevation of the drop-berth, substantially as described.

15 12. The combination, with a movable upper berth having end pulleys or sheaves, of a drop-frame connected with the upper berth and adapted to be lowered into the position required for use, cables connected with the drop-berth and passing over the pulleys or sheaves on the upper berth, and spring-drum mechanism for keeping the cables taut and assisting in the elevation of the drop-berth, substantially as described.

20 13. The combination, with an upper berth, of a drop-berth having end walls each composed of two bars hinged to the drop-berth, and an intermediate plate hinged to the upper berth and pivotally connected between its extremities to the hinged bars to constitute collapsible and extensible ends to the drop-berth, substantially as described.

25 14. The combination, with a hinged swinging berth and vertical guideways below the latter, of a drop-berth connected with the hinged berth and having end brackets or arms

in sliding engagement with the vertical guideways, substantially as described.

30 15. In a parlor-car for railroads, the combination, with a berth-frame, of rotating single-seat chairs, each extensible and collapsible rectilinearly to change its width for receiving and sustaining one end of the berth-frame to make up a berth, substantially as described.

35 16. In a parlor-car for railroads, the combination, with a drop-frame adapted to rise and fall, of single-seat chairs, each extensible and collapsible to convert it from a single seat into a support for one end of the drop-berth frame, substantially as described.

40 17. In a parlor-car for railroads, the combination, with a berth-frame, of a rotating single-seat chair which is extensible and collapsible rectilinearly and when extended lowers itself to the car-floor for standing stationary to support the berth-frame, substantially as described.

45 18. The combination, with a berth-frame, of a single-seat parlor-car chair journaled to rotate axially on a stationary pedestal and comprising two independent arm and seat sections, and an extensible connection between the two arm-sections for simultaneously adjusting the same to rigidly support the berth-frame, substantially as described.

In testimony whereof I have affixed my signature in presence of two witnesses.

DE WITT C. BREED.

Witnesses:

ALBERT H. NORRIS,
JAMES A. RUTHERFORD.