

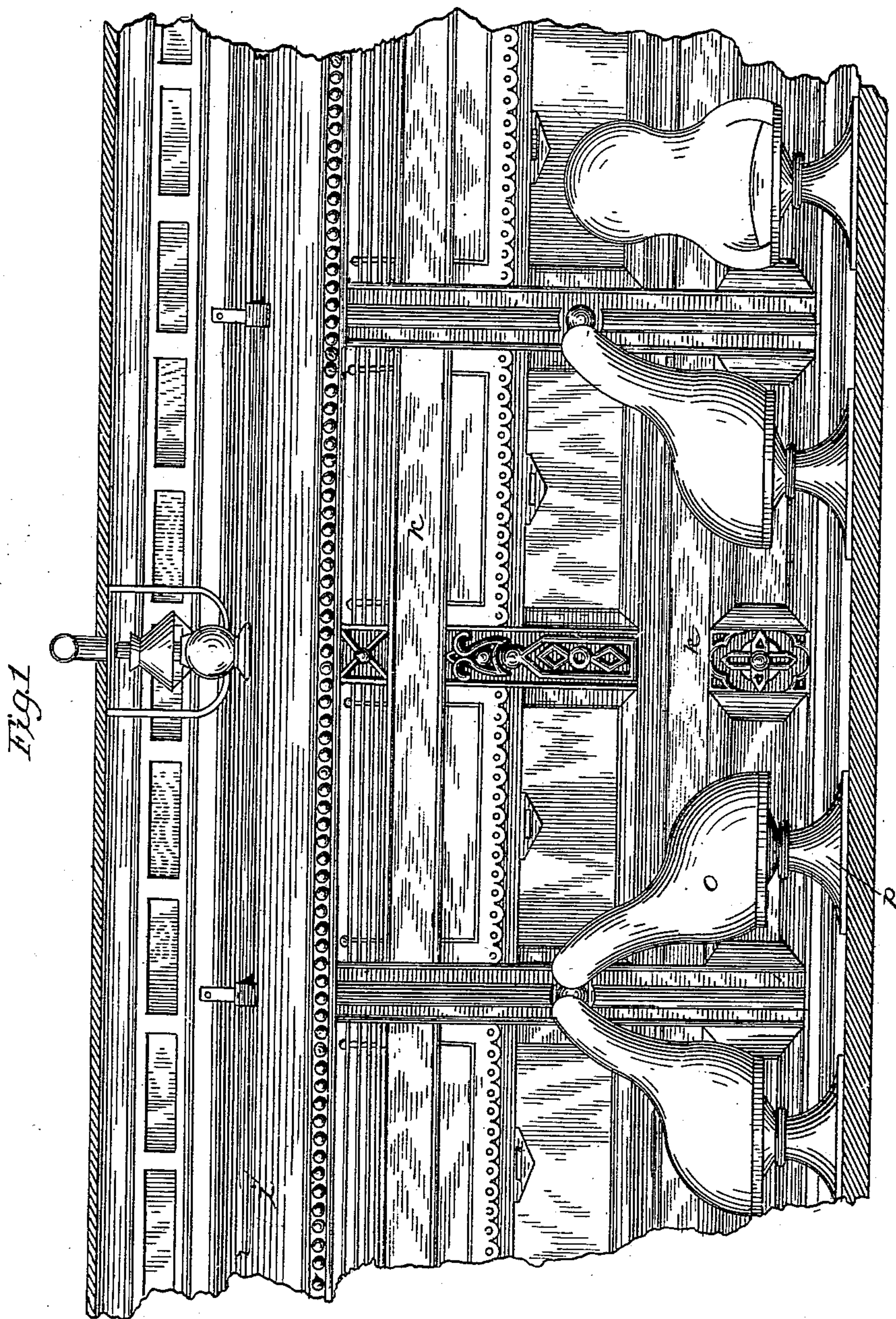
(No Model.)

4 Sheets—Sheet 1.

M. B. CHURCH.
CHAIR SLEEPING CAR.

No. 259,485.

Patented June 13, 1882.



Witnesses:
Walter McDonald
F. L. Middleton

Inventor
Melvin B. Church,
by *Eli Spear*
Att'y.

(No Model.)

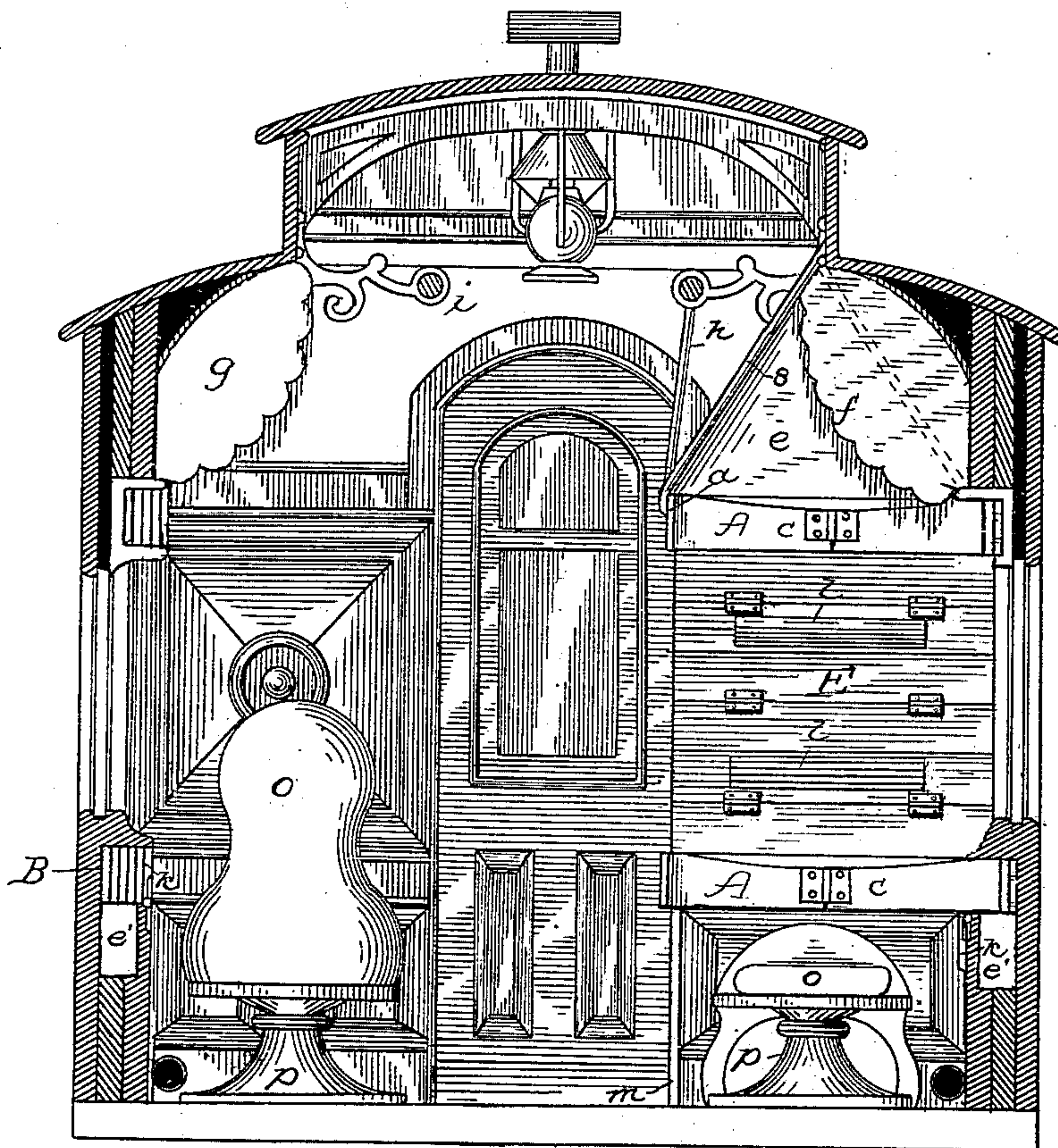
4 Sheets—Sheet 2.

M. B. CHURCH.
CHAIR SLEEPING CAR.

No. 259,485.

Patented June 13, 1882.

Fig. 2.



Witnesses:
Walter Anderson
F. L. Middleton

Inventor
MELVIN B CHURCH
by *Elli Spear*
Atty.

(No Model.)

4 Sheets—Sheet 3.

M. B. CHURCH.
CHAIR SLEEPING CAR.

No. 259,485.

Patented June 13, 1882.

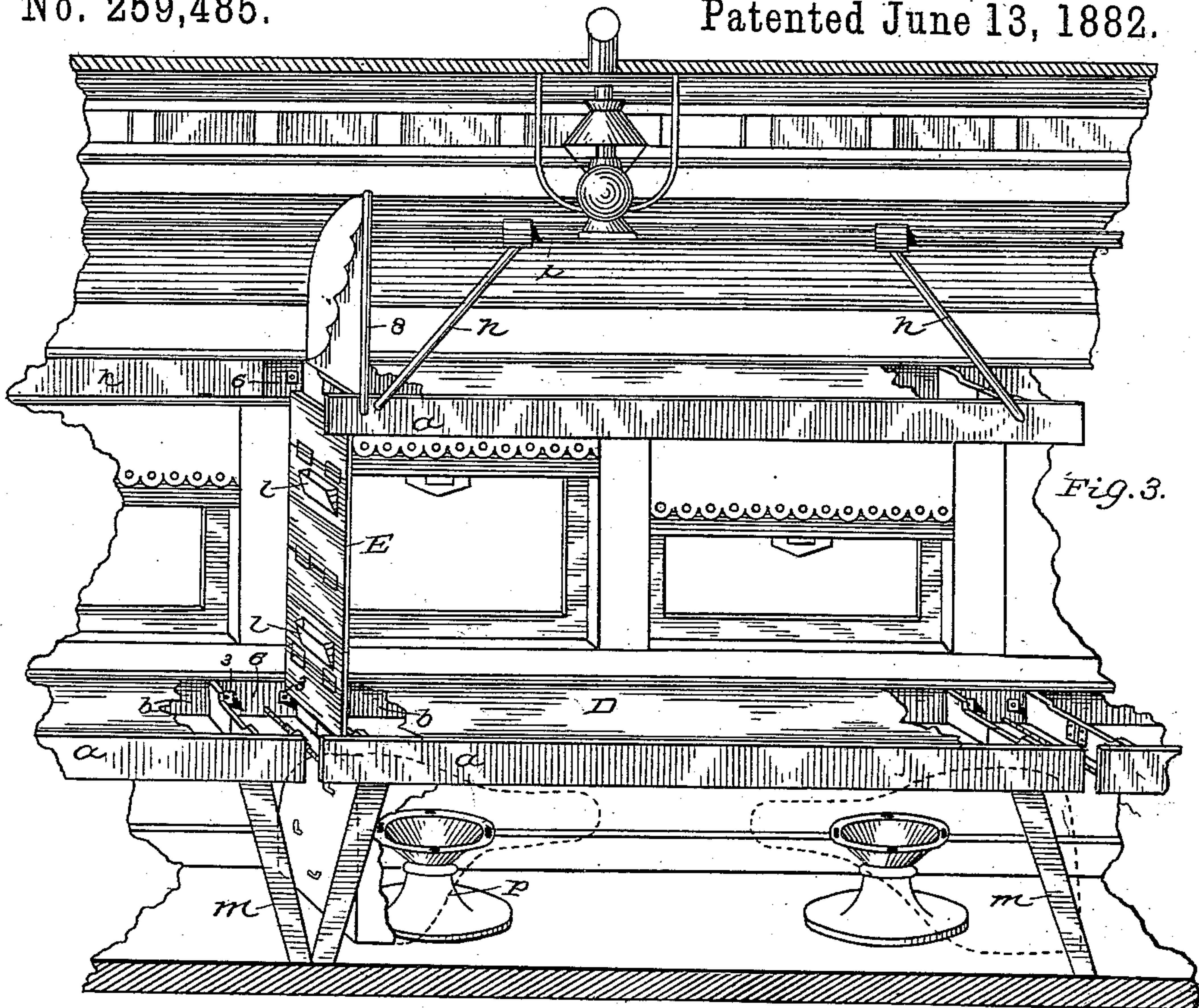
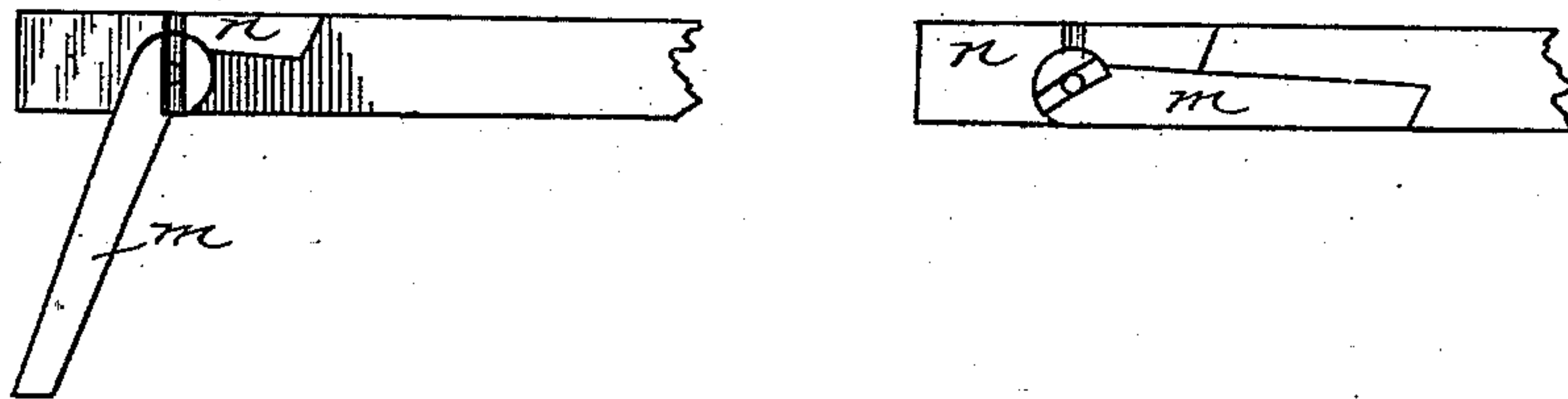


Fig. 6.



Witnesses

Walter D. Alston

F. L. Middleton

Inventor

MELVIN B. CHURCH,

by *Ellis Spear*

Atty.

(No Model.)

4 Sheets—Sheet 4.

M. B. CHURCH.
CHAIR SLEEPING CAR.

No. 259,485.

Patented June 13, 1882.

Fig. 4.

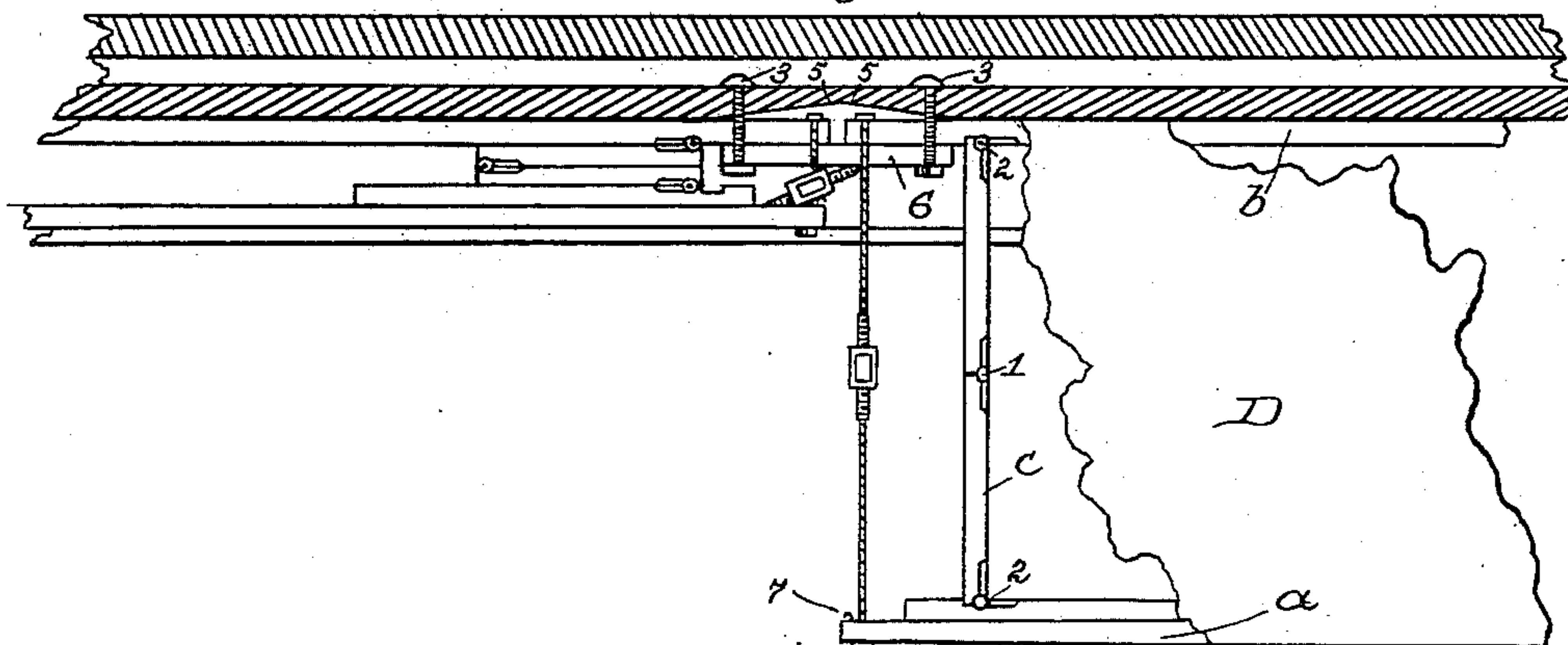
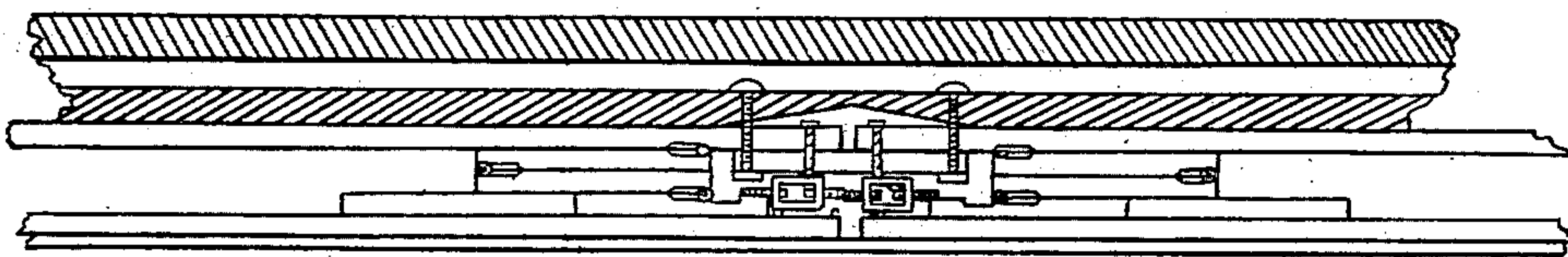


Fig. 5.



Witnesses
Napier & Co.
L. W. Sully

Inventor
Melvin B. Church
by Ellis Spear
Atty

UNITED STATES PATENT OFFICE.

MELVIN B. CHURCH, OF GRAND RAPIDS, MICHIGAN.

CHAIR SLEEPING-CAR.

SPECIFICATION forming part of Letters Patent No. 259,485, dated June 13, 1882.

Application filed March 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, MELVIN B. CHURCH, of Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful
5 Improvement in Railway-Cars; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to the berths and seats of sleeping-cars, and is in part applicable also
10 to the state-rooms of steamers and other water-craft.

The object of my invention is, first, to produce a sleeping car which shall be convertible at pleasure into an ordinary palace-car for day
15 use, or into a sleeping-car with all the necessary accommodations for night use.

My object in the second place is to simplify and improve the details of the berths, and to adapt them to occupy less space when folded
20 or closed, so that the whole space of the car or state-room, or substantially the whole, when the berth is folded, may be left clear for ordinary day use. Incidentally to my construction I am able to use any kind of an ordinary seat,
25 and am not confined to the fixed backed seats, arranged in pairs facing each other, such as have heretofore been used on ordinary sleeping-cars.

In the accompanying drawings, Figure 1
30 shows a side elevation of the interior of the car provided with my invention, and showing the car arranged for day use. Fig. 2 represents a transverse section of the car, one side of which is represented as arranged for day use and the
35 other for night use. Fig. 3 represents the interior of the car with the upper and lower berths extended, the curtains and coverings being removed to show the details of construction. Fig. 4 shows a plan view of the berths,
40 illustrating the details of construction connected with the berth. Fig. 5 represents the berth as closed or collapsed, showing also the details. Fig. 6 shows minor details.

The main feature of my invention is the collapsible berth represented at A. The berth in
45 plan view is shown in Fig. 4, which is hereinafter more particularly described; but in general terms it may be said that it is capable of collapsing sidewise toward the side of the car,
50 in which is formed a suitable receptacle, B,

adapted to receive it. In all the main elements the berths are the same, whether upper or lower, and the receptacles in which they are folded are the same for both.

It is essential to this invention that the
55 berths should be adapted to collapse and fold within the receptacle or against the wall of the car, and when extended should offer a rigid support to the bed; but the details of construction in respect to this collapsible berth may
60 of course be greatly varied. In the form which I have shown and which I have found to be most convenient the berth is formed of two side pieces, *a b*, which are extended and held
65 apart by means of end pieces, *c c*. Preferably these end pieces are made in two parts, as shown more clearly in Fig. 4, the two parts being strongly hinged together, and also hinged to the side pieces, as shown at 1 and 2 2. It
70 will be apparent that with this form of end piece the end pieces may be folded inwardly, and the outer side piece may be brought up snugly toward the inner side piece, *b*, with the end pieces folded between the two. The side
75 piece, *b*, is secured within a cavity in the side of the car by means of bolts 3 3, as shown in Fig. 4. These bolts, it will be observed, are placed near the ends, and the middle part or all that part of the side piece inside of the end
80 pieces is left free. The purpose of this is to allow the torsional spring of the side pieces to be transmitted to the flexible covering of the bed. These side pieces are formed of ordinary plank from five to eight inches in width and from
85 three-fourths to an inch and a half in thickness, and of a length required for an ordinary bed. Upon the top of this frame-work of the bed is attached the covering D. This consists of any
90 suitable kind of stout cloth adapted to sustain the weight of a person. It is attached to the upper edges of the side pieces on the outside thereof, preferably by tacking, or in any other
95 convenient way, but is not attached at the ends. It is fixed in such proportion to the end pieces that when the end pieces are extended the covering shall be brought under
100 tension, the end pieces acting as toggle-levers efficiently for this purpose; but as the cloth covering is attached to the upper edges of the side pieces, and the side pieces are free, except

at the ends, where they are held in substantially vertical position by the end pieces and other fastenings, the weight of the person upon the cloth puts the side pieces under torsional strain and causes them to act as springs, the amount of torsion, and consequently the amount of spring, depending upon the nearness to the middle of the bed, and diminishing toward the ends. This makes a very simple and comfortable bed, and may be collapsed. The flexible covering does not interfere with the folding of the bed or berth, the cavity being made large enough to allow it to be stowed therein together with the side and end pieces. This will require the cavity to be slightly larger—about one-half inch on the top and bottom—than the width of the side pieces. When the berth is folded into its place the cloth forms a packing for the frame-work, and prevents any rattling. The upper cavity should be enlarged slightly, in addition to that described, in order to provide space for the covering of the bottom of the berth. It will be observed that the end pieces are set at a little distance from the ends of the side pieces, preferably about six inches, and in order to put the side pieces under strain adjustable at pleasure I place a piece of cable across at the extreme ends of the side pieces, passing through holes in the lower corners thereof, and for adjustment provide an ordinary turn-buckle in the center of the cable. This tends to throw out the sides, and resists the torsional action of the weight of the person occupying the berth. The cavities in which the berths are folded are chamfered at the ends, as shown at 5, to allow sufficient movement of the ends of the side piece, 6. The bolts 3 are not placed at the extreme ends of the side pieces, but a little way therefrom, and nearer to the end pieces. A block, 6, is placed outside of the ends of the side pieces, equally overlapping both, and through it the bolts 3 pass, as well as the cable which connects the ends of the side pieces. This furnishes a more secure fastening of the side of the berth within the wall of the car. Upon this block, and upon the extreme end of the outer side *a*, I place hooks 7 for suspending the transverse partition, hereinafter more fully described.

The inner sides, both of the upper and lower berths, are amply supported by their connections with the walls. The upper berth is supported on its outer side by a stout piece of cable, 8, which may be gilded or ornamented in any suitable manner. I prefer to attach it in the manner shown in Fig. 3—that is to say, with the upper end inclined toward the outside of the car, with an upper point of attachment over the center of the berth when extended. This permits the berth to close without requiring the attachment of the cord, and as the cord may be ornamented in any suitable way it does not disfigure but rather serves as an ornament to the car. These cords also serve to support the front edge of the trans-

verse partitions or curtains between the upper berths. This curtain is shown in Fig. 2 on the right-hand side as extended and on the left-hand side as folded with the berth. It is indicated on the right-hand side at *c*. The front edge is attached to the cord, and the rear edge follows the course and figure of the side of the car, being attached thereto in any suitable manner. This curtain may be made of any ornamental material, and I provide it also with a fringe, preferably one on each side, curving from a point near the upper end of the cable, as shown at *f*, Fig. 2. These fringes are so arranged that when the upper berth is folded into its seat or cavity the cable which supports it will pass into the space between the two fringes, which, as the operator puts up the berth, he may arrange to hang on each side of the cord, forming a neat ornament for the car. Thus when the berths are folded nearly half of the transverse partition of the upper berths will remain in place, as shown on the left at *g* in Fig. 2.

Any suitable locking devices may be used for securing the end pieces and preventing them from collapsing.

In order to prevent the outer side, *a*, from oscillating or swinging longitudinally of the car, I provide diagonal braces or ties consisting of flexible wire cable, which may be ornamented like those heretofore described. They are shown in Fig. 3 at *h*. The lower ends may be attached permanently to the end of the outside piece, *a*, and the upper piece may be provided with hooks for hooking it to an eye or some equivalent catch on the bracket *i*. As these ties incline toward each other, and are drawn taut before hooking, they prevent any longitudinal movement. The berth may be lifted slightly in hooking these ties, so as to compensate for any lost motion of the hook.

After the beds are folded into their cavities in the wall of the car they are covered by a door, *k*, hinged at the lower edge and adapted, when the berth is open, to hang down out of the way, but when the berth is closed to close upon it and completely cover the opening or cavity which receives the berth. This covering or door may be finished in any ornamental manner, so as to resemble paneling.

It will be understood, as heretofore intimated, that the bottom of the upper berth is covered by some ornamental cloth, so as to give it a finished appearance from below.

The partition between the upper and lower berths separating the sections is shown at *E*. It consists of slats hinged or otherwise attached to each other, so as to be flexible and capable of folding in the direction of its length. The slats may be of any suitable width, and at the meeting edges should be made inclined, so as to shut off all views between the sections. Suitable pockets, *l*, may be attached to these slats by means of hinges and flexible end pieces, so as to fold against or into the slats. These may be made of thin sheet metal, so as

to fold into cavities in the slats and not increase the bulk of the partition when it is folded. Any number of these may be provided, according to the requirements of the case.

5 These partitions are suspended from the upper berth by means of hooks heretofore described.

The lower berth differs from the upper in respect to its support for the outer edge. As there is opportunity for giving it direct support from the floor of the car, I have provided the outer side, *a*, with legs *m*, which are shown more clearly in Figs. 3 and 6. These legs are provided with a nearly-circular head or disk connected to the side piece, upon the inside thereof, by means of a suitable pin or bolt. I do not, however, rely upon the bolt as a support, but place a block, *n*, corresponding in shape to the head of the leg, and adapted to allow the leg to be extended, as shown at *a'*, Fig. 6, or closed, as shown at *b'* in the same figure. These legs are shown as folded in Fig. 5. They may be made of any suitable wood sufficiently strong, or of metal. They add slightly to the thickness of the bed when it is folded, and a corresponding increase must be made in the depth of the cavity to receive it. These legs are set slightly bracing, so that they support themselves against closing, and also brace the berth against any endwise movement on the outer side. Small dowel-pins may be provided for the lower ends of the legs on the outside, fitted to eyelets in the carpets and holes in the floor, whereby the legs are braced from slipping endwise, and any suitable locking device may be applied to the upper end of the legs to prevent any movement there.

In order to provide a receptacle for the partition *E*, I extend the cavity *B* downward within the wall of the car a sufficient distance, and make the cavity sufficiently large to receive the partition when folded. This is shown at *e'* in Fig. 2. The partition *E* is to be folded and introduced into the cavity before the lower berth is collapsed. As it drops into its place the lower berth may be folded into its cavity, the covering thereof properly adjusted, and the door brought up and secured into its place, as described for the upper berth. All this frame-work of the berths may be made of wood; but I do not confine myself to this material. Any suitable sheet metal may be advantageously used for the purpose, with the additional benefit of occupying less space. The addition to the weight is not detrimental, because the berths are not to be lifted, but are simply to be drawn out horizontally, and may be supported by the attendant without difficulty as he draws them out.

Instead of the flexible sides, I may use rigid sides and a flexible wire mattress or other elastic covering; or the covering may be of ordinary cloth with suitable springs along the edges. These details may be varied greatly without departing from the spirit of my invention.

It will be apparent from the description here-

tofore given that the seats such as are ordinarily used in sleeping-cars are not necessary in this, nor, indeed, are any kind of seats required, either to form a support of the berth or to constitute any part of their structure, and this is the distinguishing feature of my invention. It follows as a matter of course that any chairs of the ordinary form—such as are used in parlor-cars—may be used in my improved car, it being only necessary that the top should be detachable from the bottom, so as to allow the lower berth to be drawn out over the chair. The same result may be obtained by hinging the backs, so as to cause them to fold down.

In Figs. 1 and 2 I have shown an ordinary form of chair for parlor-cars. The construction is substantially the same as such chairs, except that the top *o* is detachable from the base *p*, the top being held to the bottom by means of suitable dowels entering holes in the edge thereof. As represented, the top consists of the back, arms, and seat entire, and when detached this upper part may be laid down, as shown on the right hand of Fig. 2, over the base, entirely out of the way, so that the lower berth may be drawn out without interference therewith. As the top may be placed upon the base, ample space will be left under the berth for hand-baggage.

Instead of the chairs with detachable or folding tops, ordinary chairs may be used, and may be removed to another part of the car when the car is to be converted into a sleeper.

I propose to use the same kind of curtains, suspended from the rod *i*, so as to hang in front of the berths, as usual with sleeping-cars as ordinarily constructed. These curtains—there being two for each berth—may be folded to a proper length and stowed into the space in the middle of the closed berth between the side pieces and the collapsed end pieces. They may be put into place just before the berth is closed wholly into its recess. This provides for stowage for all the necessary parts, except the pillows, blankets, and sheets, no mattress being ordinarily required. As it sometimes happens that two persons desire to occupy the same berth, in order to prevent sagging in the middle I may use extra pillows, shoved into a long case to be placed in the center of the berth.

Suitable closets may be provided in another part of the car for the pillows and other bed-clothing.

When the partitions are all closed and the sides set up in their places the car is not distinguishable from an ordinary palace chair-car. The receptacles for the berths, when closed by the covers, need not project more than two and a half inches at the most under and above the windows; and this may be finished with any suitable beading, so as to relieve the projection.

As the upper berth does not fold upward, in the manner of the ordinary sleeping-car, I am enabled to use the same kind of racks (shown

in Figs. 1 and 3) as those used on the ordinary day-coach. It will also be apparent that this berth, as it does not involve the manipulation of the numerous parts used by the lower berth in any ordinary sleeping-car, may be very readily drawn out and as readily pushed back into its place, and the car be much more readily converted from a day into a night car.

I do not here claim broadly the specific construction of the collapsible bed, that being the subject of other applications filed by me in the United States Patent Office; nor do I claim a swinging upper berth, whether swinging into a recess above or below.

Having thus described my invention, what I claim is—

1. In a sleeping-car, and in combination, a collapsible berth having side pieces, one of which is directly attached to the side of the car, movable end pieces for holding the outer side pieces in extended position, and devices, substantially as described, for supporting the outer side of the berth, all arranged as shown, whereby the berth may be collapsed by horizontal movement upon or into the side of the car, as described.

2. In a sleeping-car, and in combination, a collapsible lower berth having side pieces, and movable end pieces adapted to hold the outer side extended or to permit it to collapse upon the inner, devices for securing the inner side to the car, supporting devices for the outer side, and removable seats or backs, all as shown.

3. In a sleeping-car, a collapsible berth consisting of a side piece, *b*, attached to the car within the cavity of the wall thereof, hinged end pieces, and an outer movable side, *a*, in combination with a suitable cover and suitable supporting devices for the outer side, as set forth.

4. The combination, in a sleeping-car, of the upper berth adapted to collapse or fold sideways against or into the wall of the car, supporting-cables, and end curtains attached thereto, forming the division between the sections for the upper berths, as set forth.

5. In a sleeping-car, the combination of a lower berth collapsible or folding into or upon the wall and supported upon adjustable legs, and an upper berth collapsible or folding against or into the wall and supported at its outer edge by cords attached to the ceiling, substantially as described.

6. In a sleeping-car, the combination of an upper and lower berth collapsible sideways into or upon the wall of the car, and a flexible removable partition, *E*, held detachably to the berths by suitable fastenings, as set forth.

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

MELVIN B. CHURCH.

Witnesses:

F. L. MIDDLETON,
E. A. DICK.