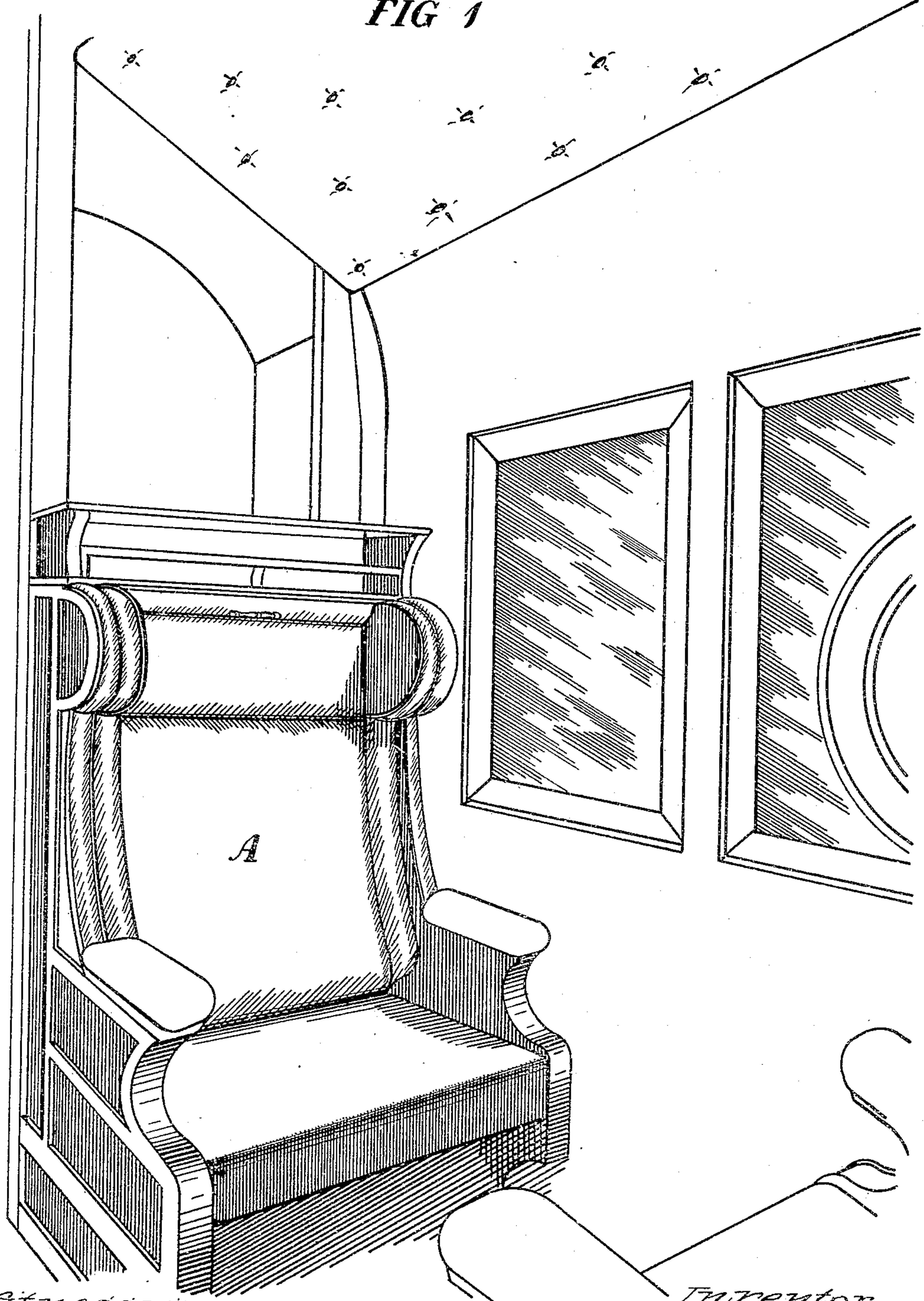


R. A. FELTON.
RAILWAY COACH.
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940,383.

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10 SHEETS—SHEET 1.

FIG 1



Witnesses:
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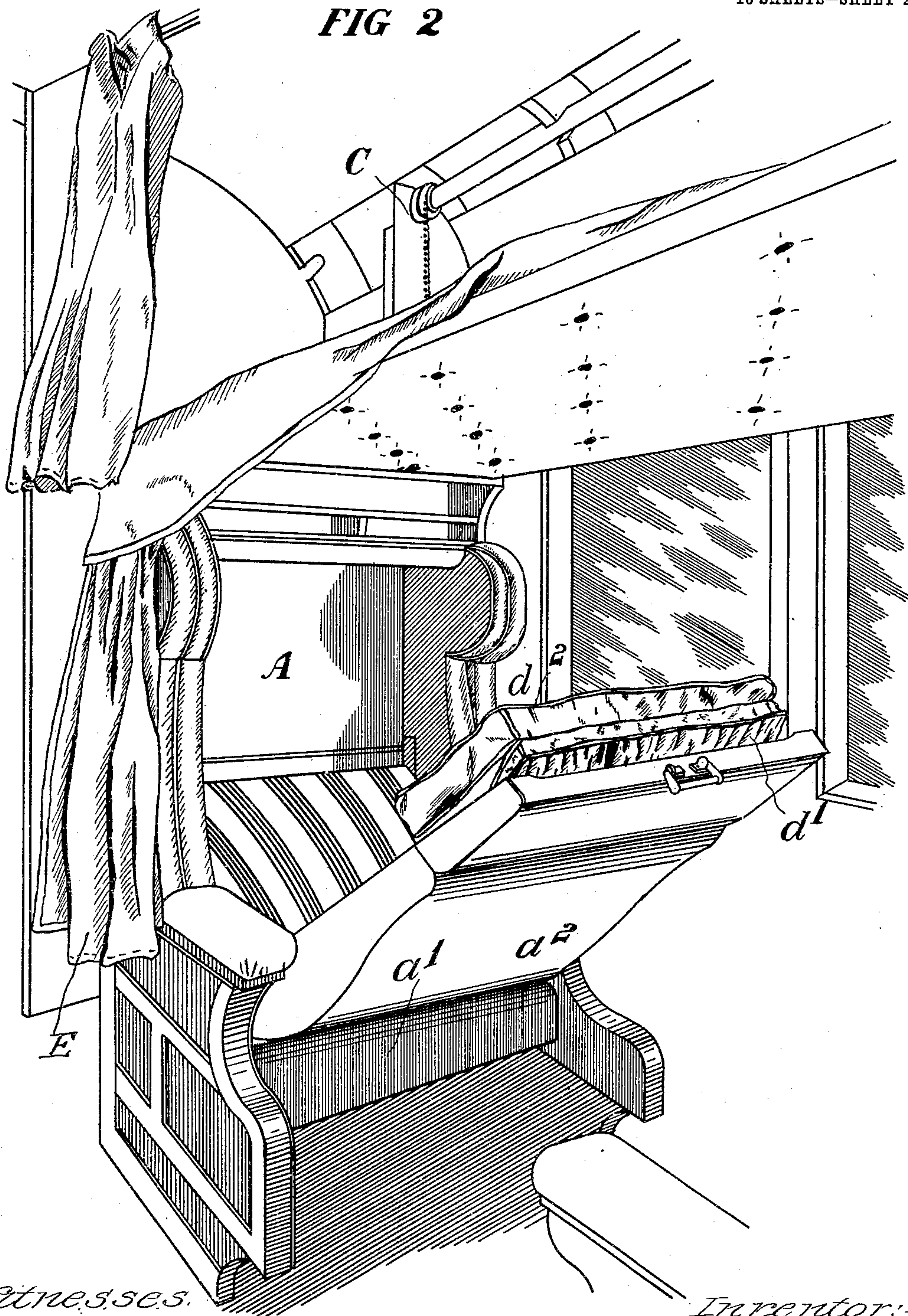
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10 SHEETS—SHEET 2.

FIG 2



Witnesses:
C. M. Crawford
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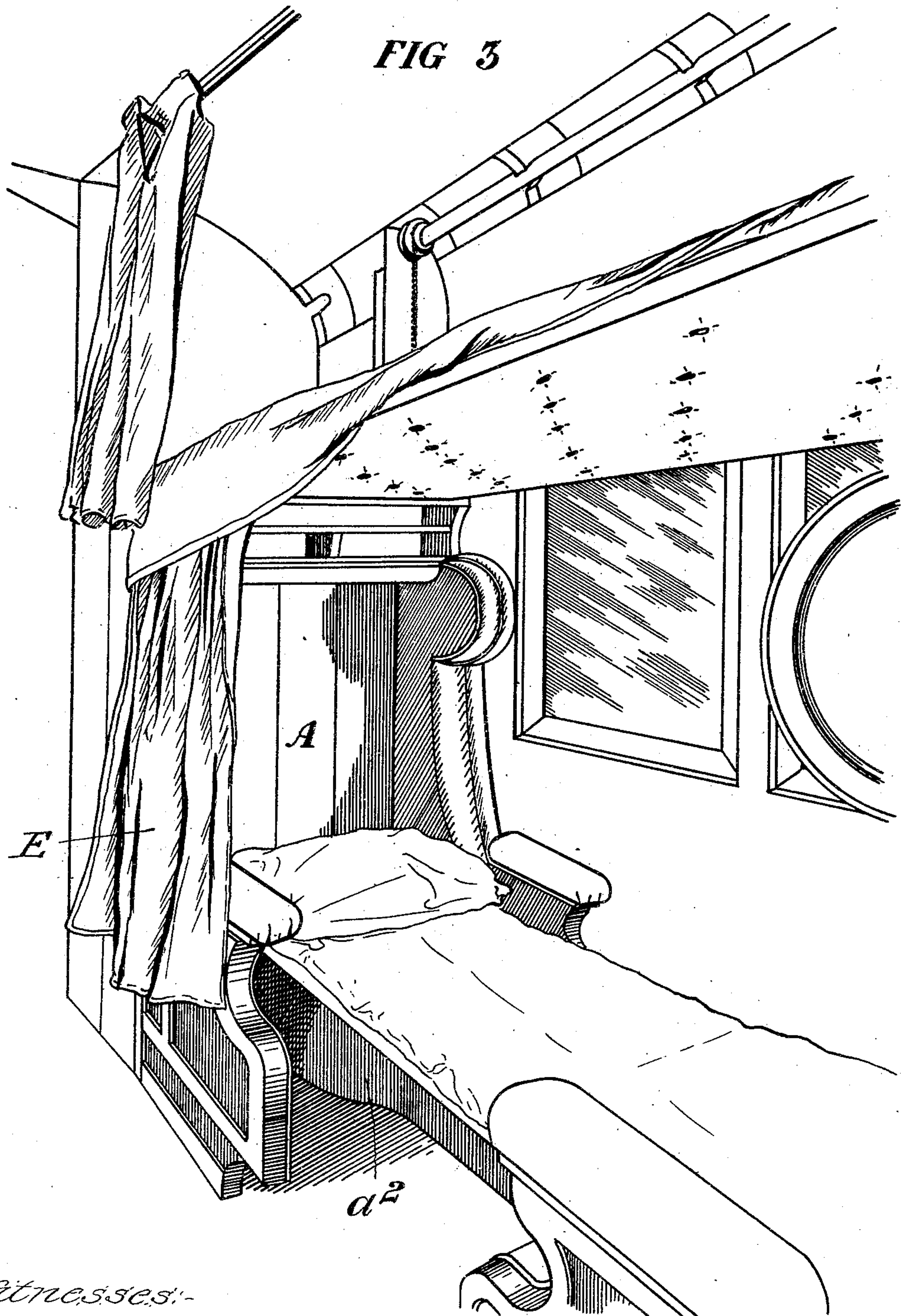
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10 SHEETS—SHEET 3.

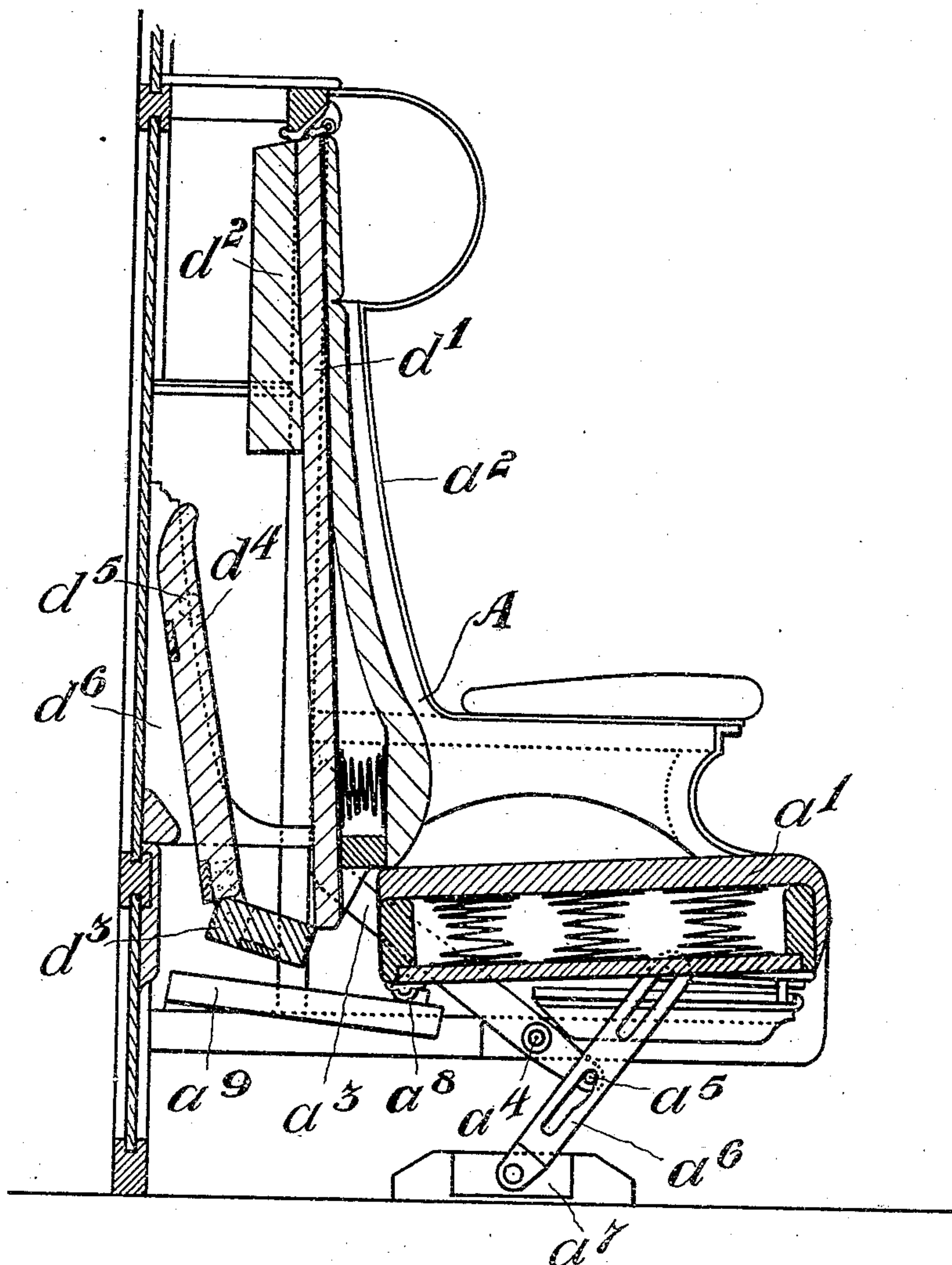


Witnesses:-
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Inventor:-
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FIG 4



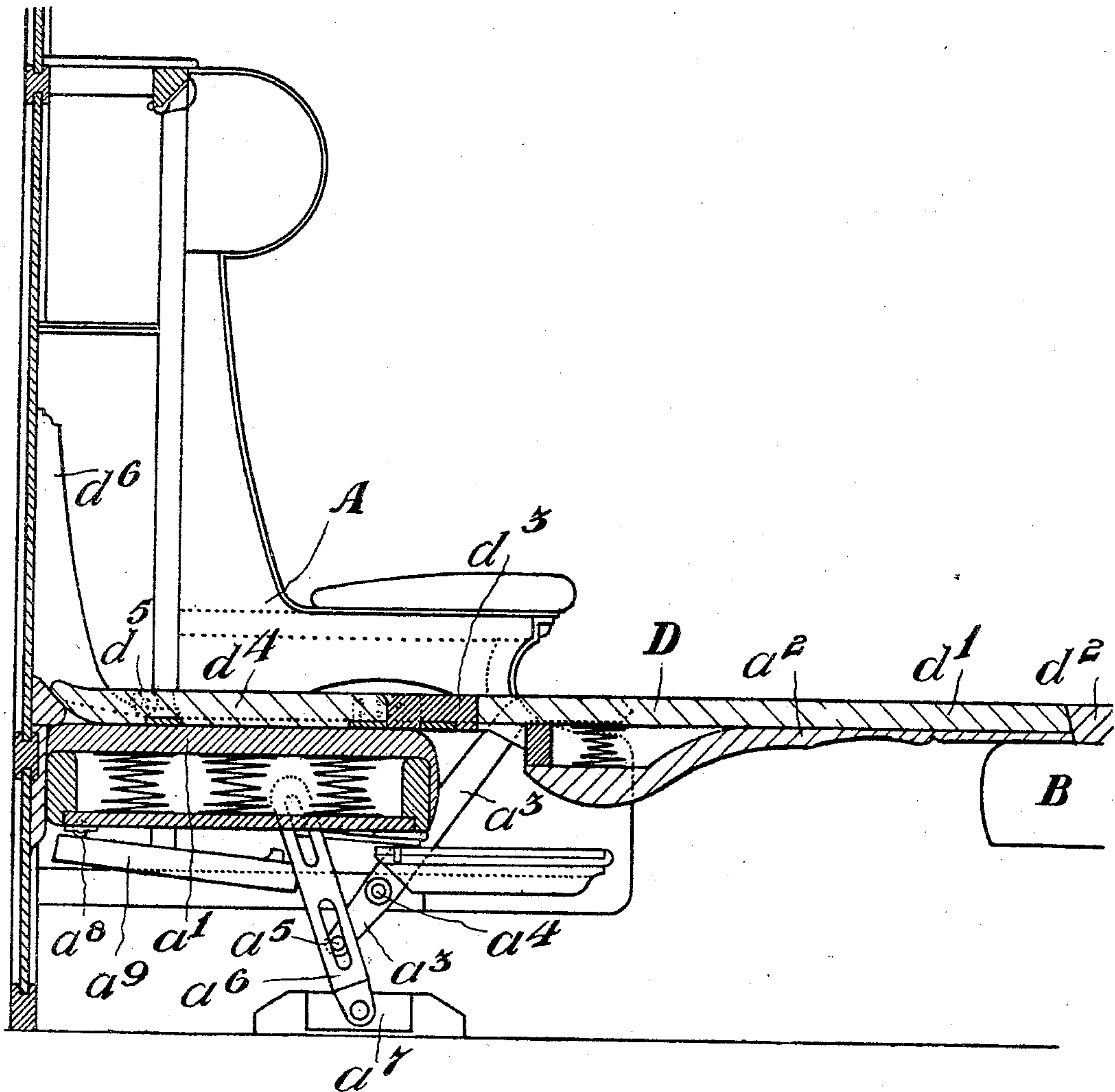
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10 SHEETS—SHEET 5.

FIG 5



Witnesses:-
C. H. Crawford
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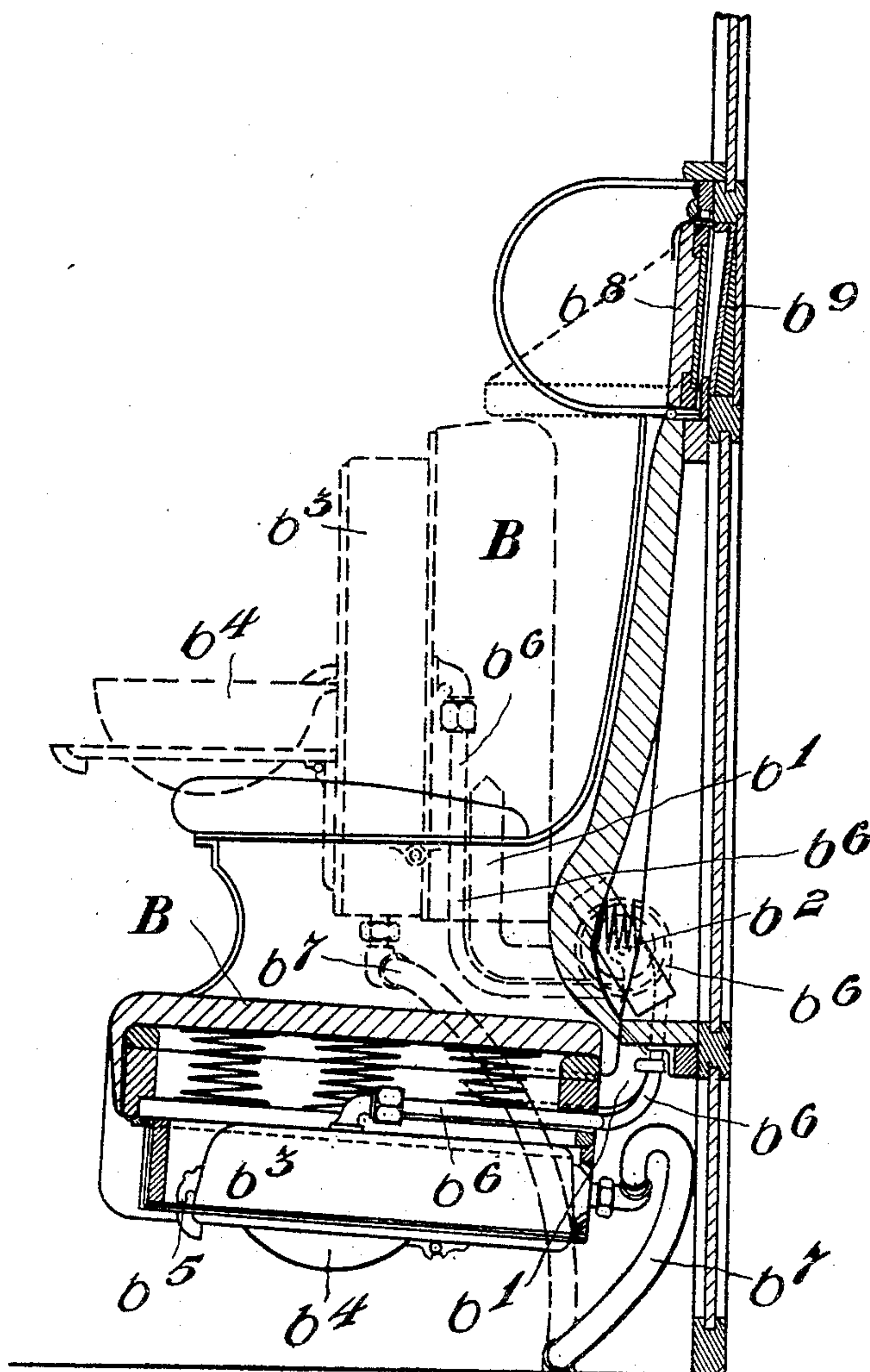
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APPLICATION FILED JULY 8, 1908.

Patented Nov. 16, 1909.
10 SHEETS—SHEET 6.

FIG 6



Witnesses:-

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E. Schallinger

Inventor:-

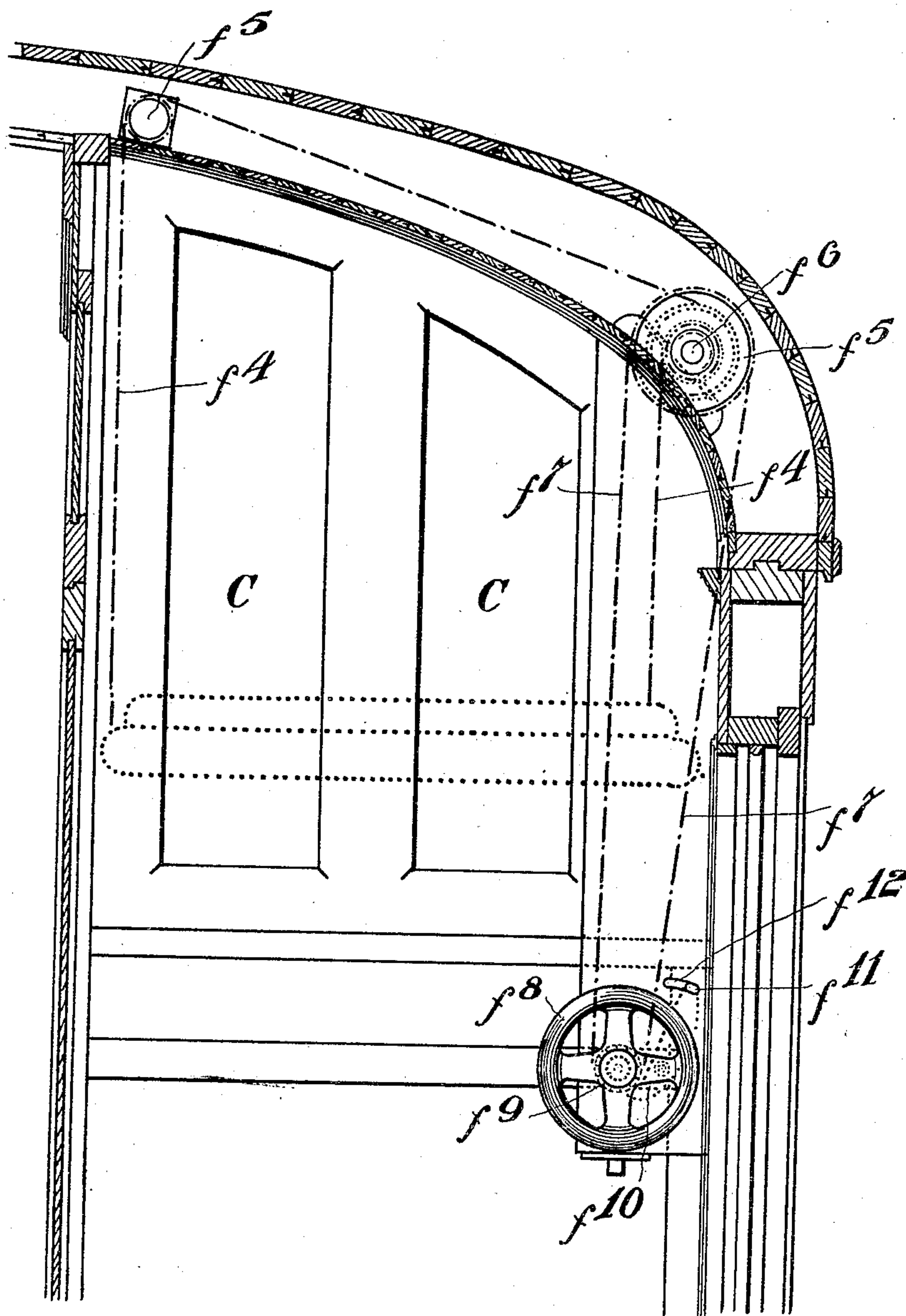
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RAILWAY COACH.
APPLICATION FILED JULY 8, 1908.

Patented Nov. 16, 1909.
10 SHEETS—SHEET 7.

FIG 7



Witnesses:-
C. H. Crawford
E. Schallinger

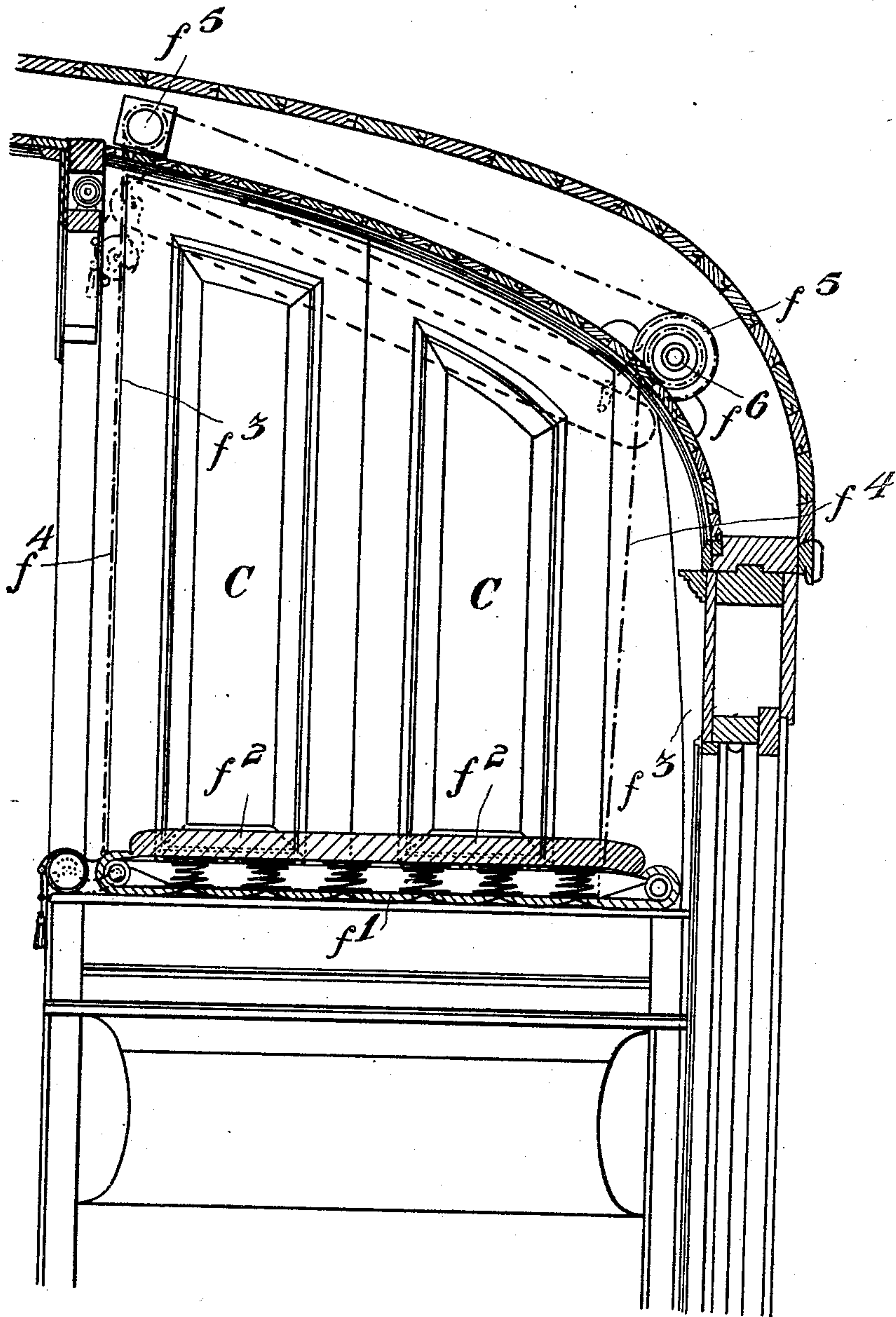
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APPLICATION FILED JULY 8, 1908.

Patented Nov. 16, 1909.
10 SHEETS—SHEET 8.

FIG 8



Witnesses:-
C. H. Crawford
C. Schallinger

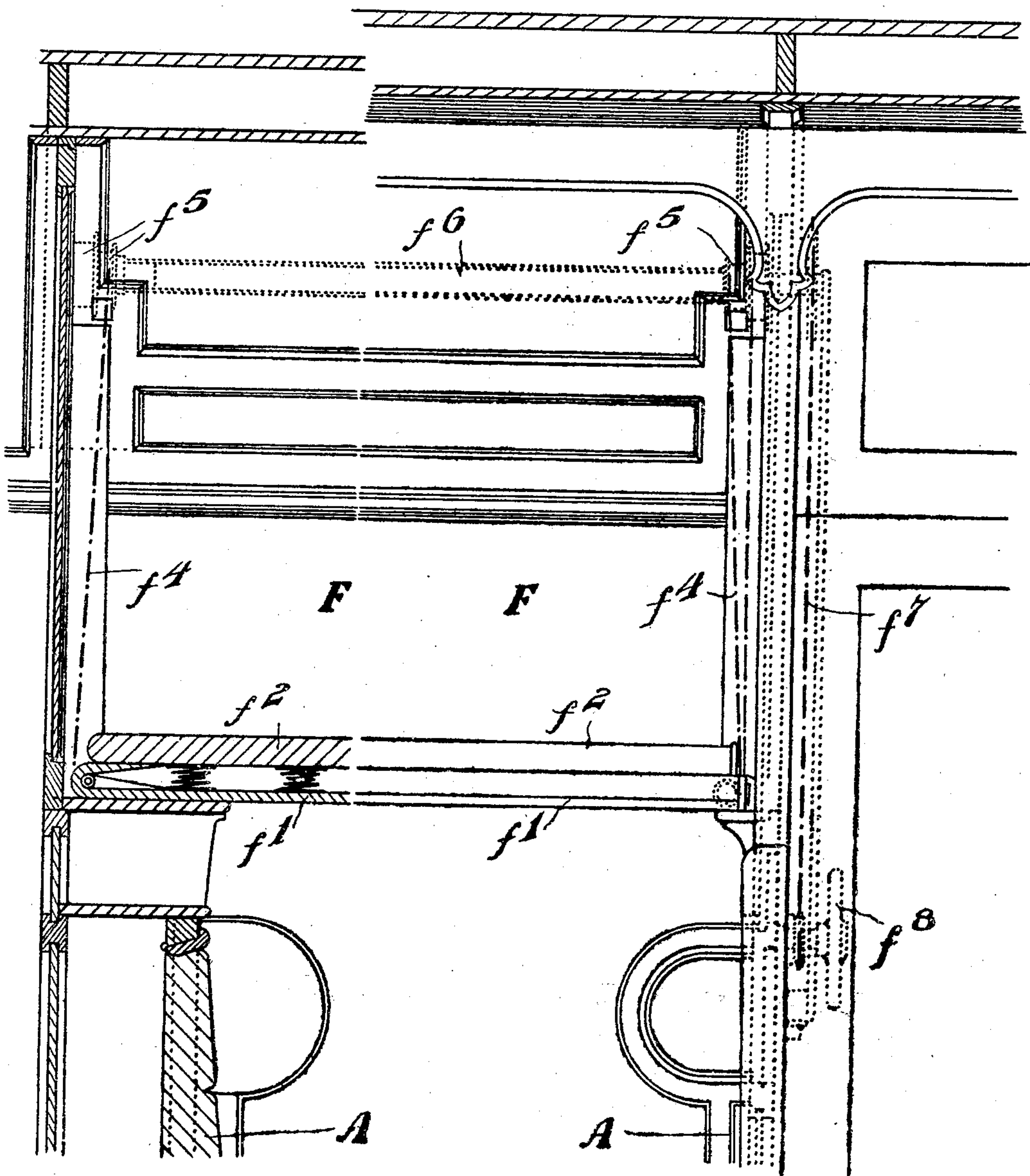
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APPLICATION FILED JULY 8, 1908.

940,383.

Patented Nov. 16, 1909.
10 SHEETS—SHEET 9.

FIG 9



Witnesses:-

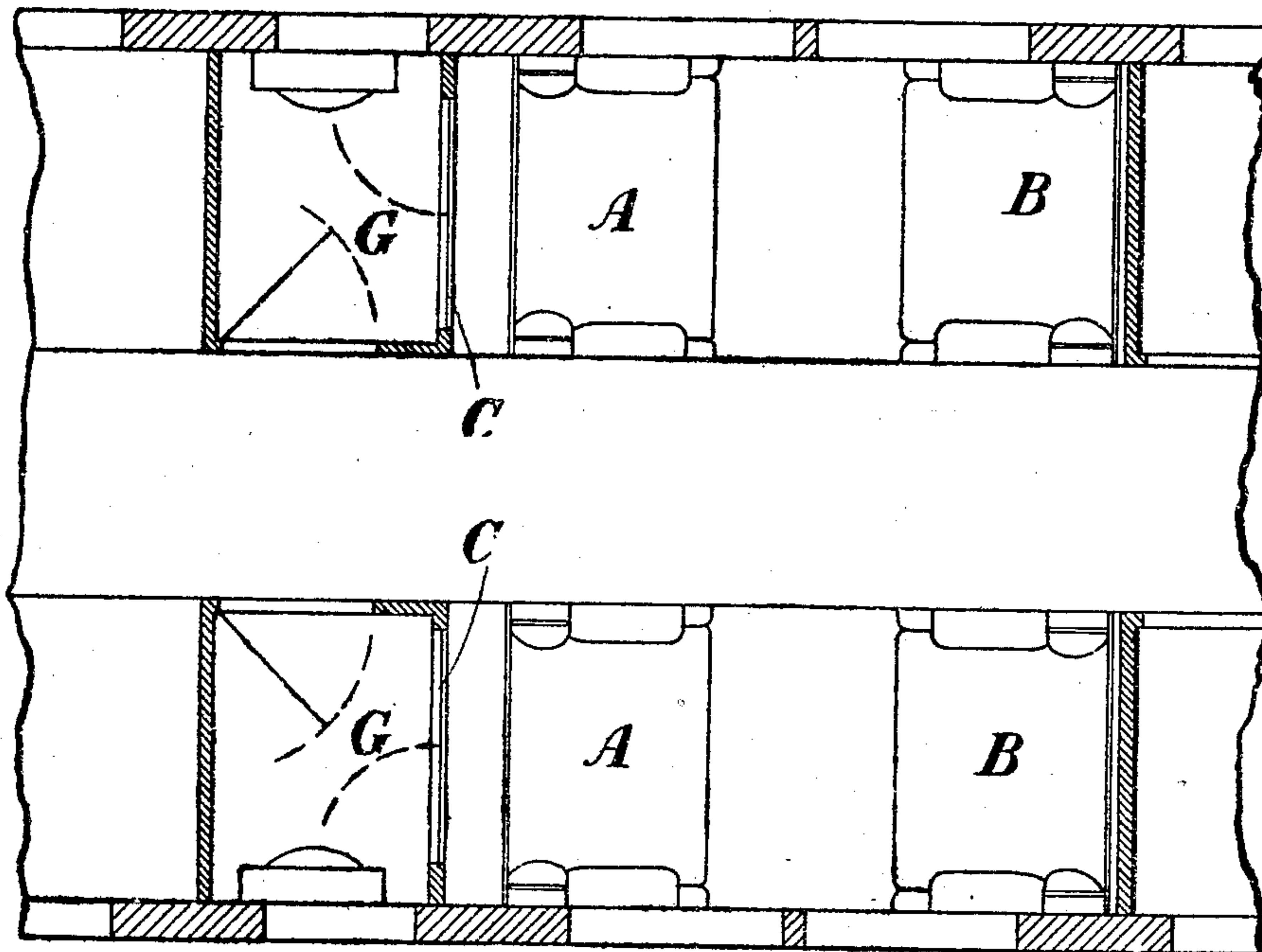
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FIG. 10



Witnesses:-
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UNITED STATES PATENT OFFICE.

ROLAND A. FELTON, OF BIRMINGHAM, ENGLAND.

RAILWAY-COACH.

940,383.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed July 8, 1908. Serial No. 442,603.

To all whom it may concern:

Be it known that I, ROLAND ALLEN FELTON, a subject of the King of Great Britain, residing at 131 Edmund street, Birmingham, in the county of Warwick, England, chartered accountant, have invented certain new and useful Improvements in and Relating to Railway-Coaches, of which the following is a specification.

This invention comprises improvements in and relating to railway coaches and has reference to coaches having provision for sleeping accommodation.

The invention has for its object to provide improved means for adapting each compartment for sleeping purposes so that greater facilities for comfort are the result, being more particularly intended for coaches with berths longitudinally arranged therein.

In the first place means are provided for the combination with a back capable of pulling out and a seat capable of acting in conjunction with same to form a bedstead of a mattress sliding into a receptacle in the back of the seat and actuated by mechanism in conjunction with the means for advancing or receding the seat so that upon the pulling down of the seat back to form the bed, the mattress if desired with the clothes complete is lowered onto the same so as to be ready for use. In the second place a lavatory basin is arranged in conjunction with each berth and means are further provided for equipping each berth so that it is complete for dressing without the necessity of the occupant leaving for the purpose.

These coaches are usually divided into compartments with four berths; during the day each compartment has four seats generally two on each side which are opposite to each other. Two opposite seats form a bed and for the other occupants upper berths are provided.

The present invention necessarily relates to the means of forming and equipping the upper berths as well as the lower as will be more fully dealt with later.

On the drawings appended to this specification: Figure 1. is a perspective view showing a portion of a coach constructed in accordance with the invention. Fig. 2. shows the same portion of a coach after the upper berth has been lowered into position for a sleeping coach, the seat back being partially

lowered as is done for forming the lower berth. Fig. 3. shows the same portion of the coach with the lower berth and the upper berth ready for use. Fig. 4. is a sectional view taken through the seat A of Figs. 1, 2, and 3, showing the actuating mechanism. Fig. 5. is a similar view but with the seat back lowered to let down the bed. Fig. 6. is a section of the seat B showing by dotted lines the working positions. Fig. 7. is a cross sectional view through the coach at the back of seat A and looking toward the match board partition C and showing the method of raising and lowering the upper berth. Fig. 8. is a cross section through the upper berth with the latter in the lower position ready for use. Fig. 9. is a view from the central corridor of the coach looking toward the seats and upper berth, part of the view is shown in section and the mechanism for raising and lowering the upper berth is indicated in dotted lines. Fig. 10. is a key place of one complete unit forming part of a coach.

As the seats on each side of the central corridor are similarly equipped and the arrangements for the upper berths are the same, it is only necessary to deal with the action of one side to adequately describe the method of carrying out the invention.

The seat A is the seat with the housing for the bedding while the seat B forms a support for the foot of the bed and provides an equipment for dressing. This is for the lower berth with which it will be best to deal first.

For forming and equipping the lower berths to achieve the objects of the invention, mechanism is provided for effecting the advancement or retirement of the seat proper a^1 for it to act in conjunction with the seat back a in forming a bed. The seat B opposite also may be brought forward to act as part of the bed. Onto this the mattress is lowered by the operation of lowering the seat back so that the occupant has no need for the attendant to prepare his bed but may by a simple action have the same ready for him at any time.

The mechanism for effecting the desired action of the seat and seat back, and the movement of the mattress may be arranged in the following manner. Each seat back may be formed with a side bar or rail

at each end or side and across these side rails stout canvas sheeting is stretched, the ordinary seat back padding covered with leather or the like covering is then arranged in front of this canvas sheeting and may have springs in the ordinary way, or not as desired. The side rails are connected with levers a^3 which are bent forward below the seat back a^2 and are fulcrumed on pins a^4 carried from the frame at the side of the seat. The levers extend from the fulcrum and are provided with pins or a bar a^5 through their extremities engaging slotted links a^6 pivoted to floor blocks a^7 and at their upper ends to the underframe of the seat a^1 .

The seat a^1 is provided with rollers a^8 running on tracks a^9 arranged behind the seat back a^2 and as the latter is pulled down forward the levers a^3 throw over the pivoted links a^6 carrying the seat back on its rollers a^8 and guides a^9 to the back partition. The seat back lowers to a horizontal position and the seat runs behind it so that the two form a bedstead, see Figs. 3 and 5.

The mattress D is preferably formed with a hinged piece d^2 at the foot and two hinged pieces d^3 d^4 at the head. The main part d^1 corresponds in size to the seat back frame and is secured at the top and bottom to it. When in the open position the foot piece d^2 is turned down horizontally onto the opposing seat B and the head hinged portions d^3 d^4 lie on the moving seat a^1 forming a bed.

The two head hinged portions preferably comprise a large portion d^4 at the end connected by a narrower strip d^3 to the main part d^1 . The larger portion d^4 has side bars provided with runners d^5 to coact with guides d^6 . This arrangement allows of the automatic folding up of the mattress complete with bed clothes and pillow in position into the space at the back of the seat.

To return the bed and prepare the compartment for ordinary use, the foot of the bed is turned back and the seat back raised causing the mattress end d^4 to ride up into the receptacle at the back and carrying the seat a^1 forward into its usual position. The arrangement of the head of the mattress with the double hinged portions and the side bars with runners d^5 on the guides d^6 allows this part to run as the guide and fold into place in the receptacle as the seat back is raised into place.

With sleeping coaches it is customary to provide each coach with a curtain or blind coming completely down the side and screening off the bed into a separate compartment. In the case of the lower berths which I am now dealing with, the curtain or blind E would be carried from the upper berth F and would be pulled down from that.

A further object of the invention as stated is to equip each berth so that the occupant

may dress without leaving. The mattress is hinged so that the foot may be turned back on itself and it is then carried back into the receptacle when the seat back is raised to its normal position as stated, so that an ordinary seat is provided. The seat B which has served for the foot of the bed I hinge by side bars b^1 to pins b^2 carried by means of plates or otherwise on the side of the coach. The seat B may thus be turned up on its pivots b^2 as shown in dotted lines at Fig. 6 and may be secured in that position by a stay or bolt of any suitable form. Under the seat B is arranged a box like frame b^3 in which a hinged or tip up closing wash bowl b^4 is arranged. This bowl is adapted to close into the frame and be snapped and held in that position by the catch b^5 . The bowl frame b^3 is fitted with special supply and waste pipes b^6 b^7 respectively adapted to follow the movement of the bowl when the seat B is moved on its hinges without breaking their connections to the main pipe systems. The supply pipe b^6 may for this purpose be helically disposed about the axis of the seat pivots and may be of comparatively thin copper or of flexible metallic piping so as to readily allow for the movement of the bowl. The waste pipe b^7 may also be of flexible metallic tubing of a length sufficient to allow for the required movement, see Fig. 6. In this lower berth, having returned the bed out of the way and pushed over the seat back a^1 into normal position such as at Fig. 1, the occupant of the berth can dress himself in the closed compartment screened by the curtains or blind and may wash by tilting up the seat B as in dotted lines at Fig. 6. Further, by pulling down the top hinged part b^8 of the seat back a mirror b^9 is uncovered and a ledge is provided by the part b^8 for collars, brush, etc. to assist during dressing.

Provision is of course made for suspending articles of attire in each berth.

In the case of the upper berths F a rising and falling frame is employed for carrying the mattress etc. This frame is arranged in suitable guides and is adapted for pulling up to the roof of the coach as at Fig. 1, or of being lowered to any position between such and the bottom position represented at Figs. 2 and 3.

The provisions for dressing for the top berths are in the form of compartments at the end as G in the key plan Fig. 10. The entrance to each upper berth is through the compartment G from the central corridor; steps are provided from the compartment up to the upper half of partition C where a door or a pair of swing doors is provided.

Figs. 7, 8, and 9 of the drawings show the arrangement of one of such upper berths F. In these figures, f^1 is the frame and f^2 the mattress thereon. The frame f works in

projecting guides f^3 (Fig. 8) and is raised by chains, cables or the like f^4 at the corners. The chains or the like are passed over sprocket wheels or pulleys f^5 on shafts f^6 .

5 At one end an operating chain f^7 is arranged; this is in the compartment G behind partition C. The operating chain is of endless form passing over a sprocket on a stud rotated by a hand wheel f^8 ; a ratchet f^9 is arranged on the stud engaged by the
10 pawl f^{10} which latter is operated by hand by the finger piece f^{11} working in a slot f^{12} . Owing to the roof not being usually of horizontal form the pulleys or drums on the
15 shaft over which the chains for inner side of the frame f^1 pass are of larger diameter so as to raise this side a little faster to lift the bed and frame right to the top when not in use, see dotted lines Fig. 8.

20 When required for use the pawl f^{10} is freed from the ratchet f^9 and the frame with mattress and bedding complete thereon may be lowered by the hand wheel f^8 , to the position shown by Figs. 3, 8, and 9. If the
25 berth is not required then it may be lowered part of the way down so that the curtains or blinds for the lower berth which it carries may be used; thus when the upper berth is vacant a larger space may be left for the
30 lower berth while providing the same privacy.

What I claim then is:

1. The improvements in sleeping coaches for railway trains, consisting in the combination of a back capable of pulling out and
35 a seat worked therefrom and coacting therewith to form a bed, of a housing at the back of the seat and the mechanism for causing the mattress and bedding to slide into or out of same upon the operation of the seat back,
40 the means for forming an upper berth above same coöperating therewith to form a roof to screen the lower berth and with the means for dressing in either berth without necessity of coming out into the coach.

2. In sleeping coaches a seat back capable of pulling out with side levers fulcrumed on pins and extending beyond same with
50 connections to slotted links pivoted on floor blocks and connected to the under-frame of the seat so that as the seat back is lowered, said links are thrown over to carry the seat to the end of the seat back to coöperate therewith to form a bed.

55 3. In a sleeping car, the combination with a seat frame, of a seat and a back therefor each movably mounted in said frame, extensions hinged to said back, and means connecting the back and the seat to move the
60 latter rearwardly under said extensions to support the same when the back is lowered.

4. In a sleeping car, the combination with a seat frame, of a seat and a back each movably mounted in said frame, foldable extensions hinged to the lower portion of said
65

back and forming therewith a flush extension when the back is lowered, and means connecting the back and the seat for moving the latter rearwardly beneath the extensions to support the same when the back is moved
70 downwardly.

5. In a sleeping car, the combination with a seat frame, of a seat and back each movably mounted in said frame, a foldable extension connected with said back, means connecting
75 said seat and back for moving the seat rearwardly beneath the extension to support the same when the back is lowered, and means for folding the extension behind the back when the same is raised.

6. In a sleeping car, the combination with a seat frame, of a seat and back each movably mounted in said frame, a foldable extension connected with the top of said back, and a foldable extension connected with the
85 bottom of said back.

7. In a sleeping car, the combination with a seat frame, of a seat and back movably mounted in said frame, a foldable extension connected with the top and one with the bottom
90 of said back, means connecting the seat with the back for moving the seat rearwardly beneath the lower extensions to support the same when the back is swung downwardly, and a support for the upper extension and back.

8. In a sleeping car, the combination with a seat frame, a seat and a back movably mounted therein, said frame extending rearwardly from the back to provide a compartment,
100 an extension connected with the upper portion of said back, a foldable extension connected with the lower portion of said back, said extensions forming with the back a support equal in length to the bedding and
105 lying within said compartment when the back is up, and a seat arranged to support the upper extension and the upper portion of the back when the same is down.

9. In a sleeping car, the combination with
110 a seat frame, a seat for said frame, a back movably mounted in said frame and forming the sole support for the mattress, a second seat frame, a seat in said second frame for supporting the upper portions of
115 said back when the same is down, a mounting for said second seat permitting it to be swung from a horizontal to a vertical position when said back is up, lavatory devices secured to the bottom of said second seat,
120 and flexible means connecting the lavatory device with a source of supply of water and with drainage outlet.

10. In a sleeping car, the combination with a frame, of a seat movably mounted in
125 said frame, lavatory devices mounted on said seat, and drainage and supply connections for said devices.

11. In a sleeping car, the combination with a frame, of a seat pivotally mounted in
130

said frame to swing from a horizontal to a vertical position, a wash bowl hinged to the bottom of said seat, and flexible drainage and supply connections for said bowl.

5 In testimony whereof, I, the said ROLAND ALLEN FELTON, have signed my name to this specification in the presence of two subscrib-

ing witnesses, this twenty-fourth day of June 1908.

ROLAND A. FELTON.

Witnesses:

HULBERT BRETTELL,
W. STANLEY BANNER.