

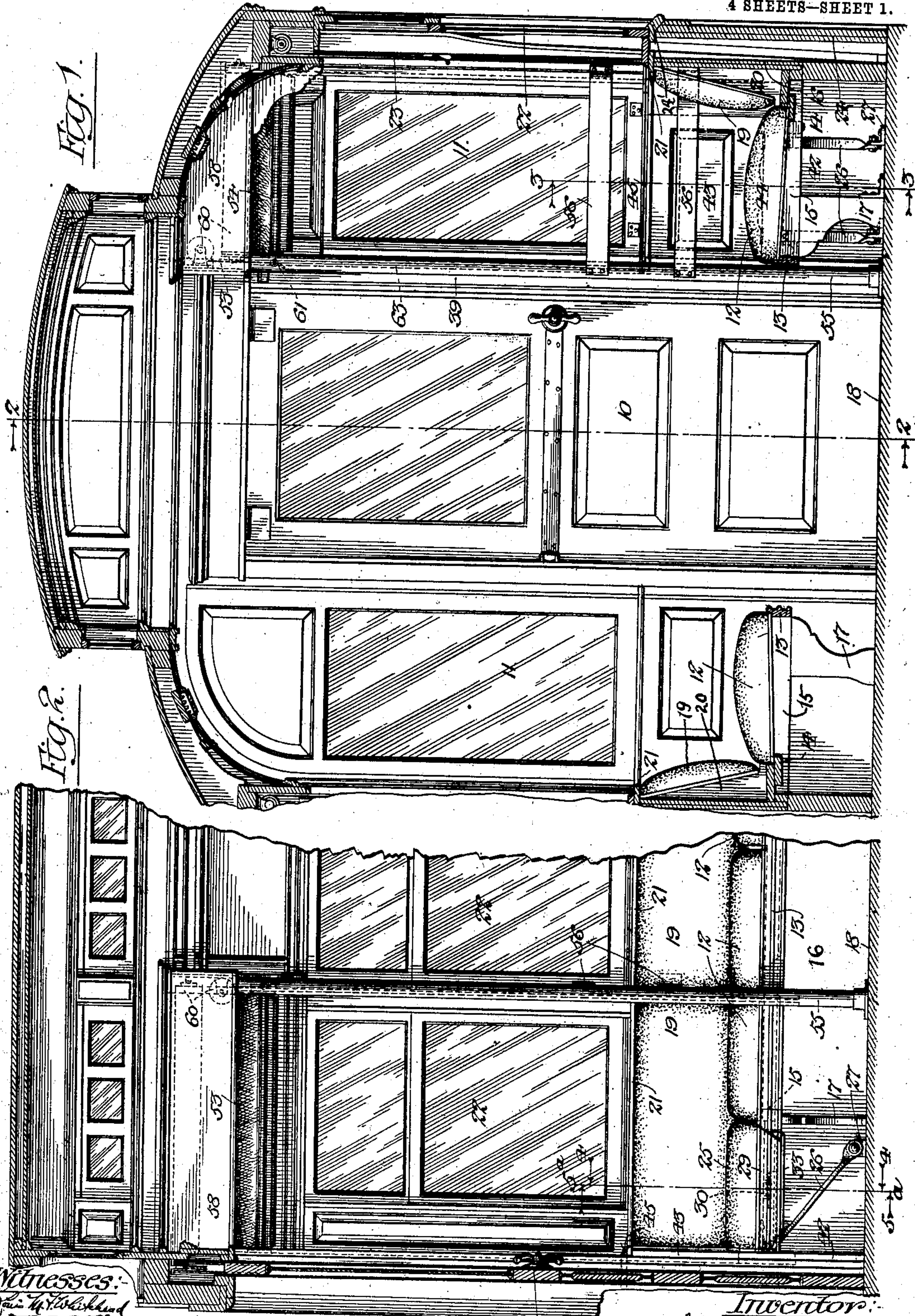
No. 827,446.

PATENTED JULY 31, 1906.

G. H. HOPKINS.  
RAILWAY CAR.

APPLICATION FILED APR. 9, 1906.

4 SHEETS—SHEET 1.



Witnesses:  
John H. Whitland  
William Prentiss

Inventor:  
George H. Hopkins  
By: Peirce & Fisher Attorneys



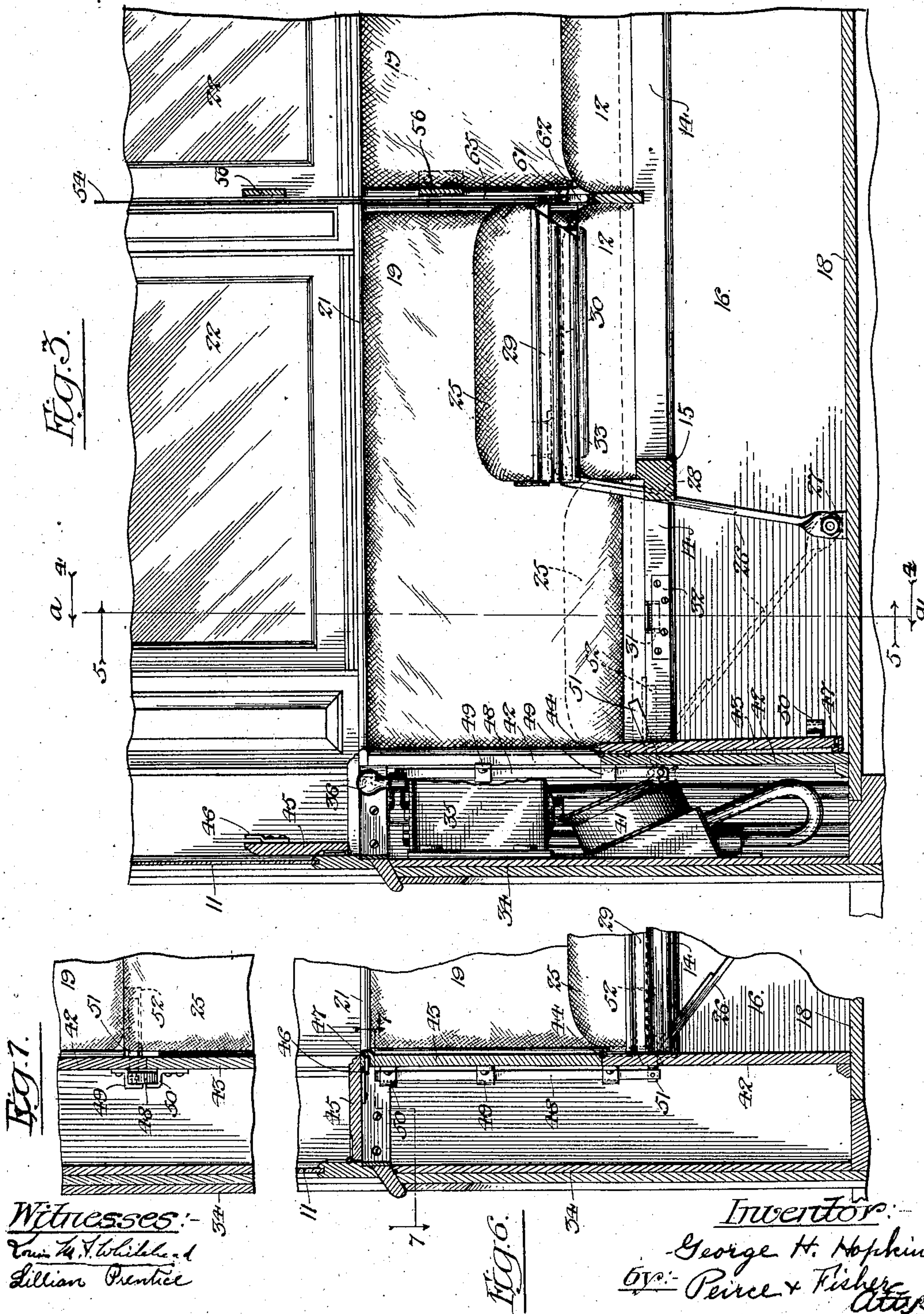
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4 SHEETS—SHEET 3.

Fig. 5.

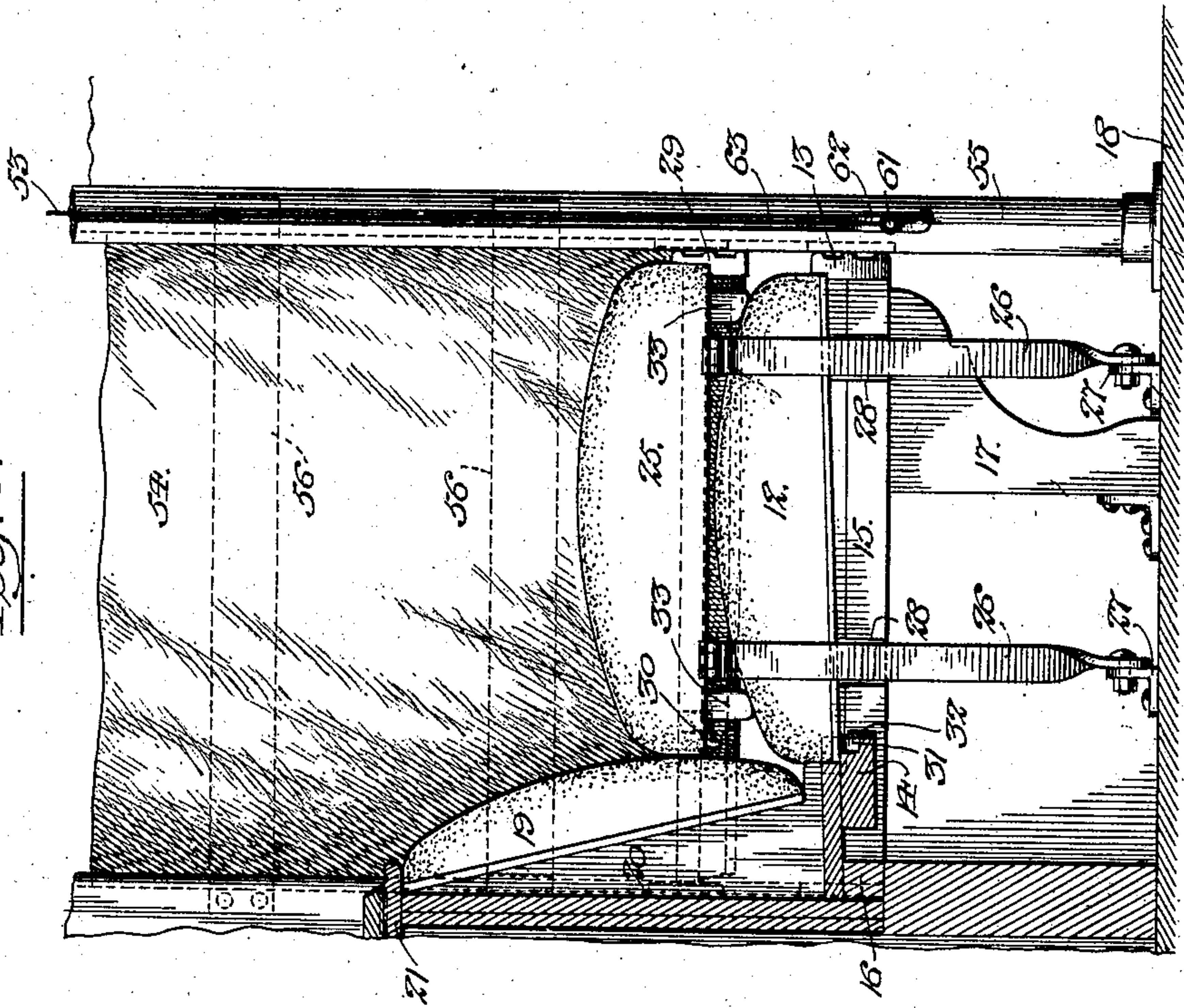
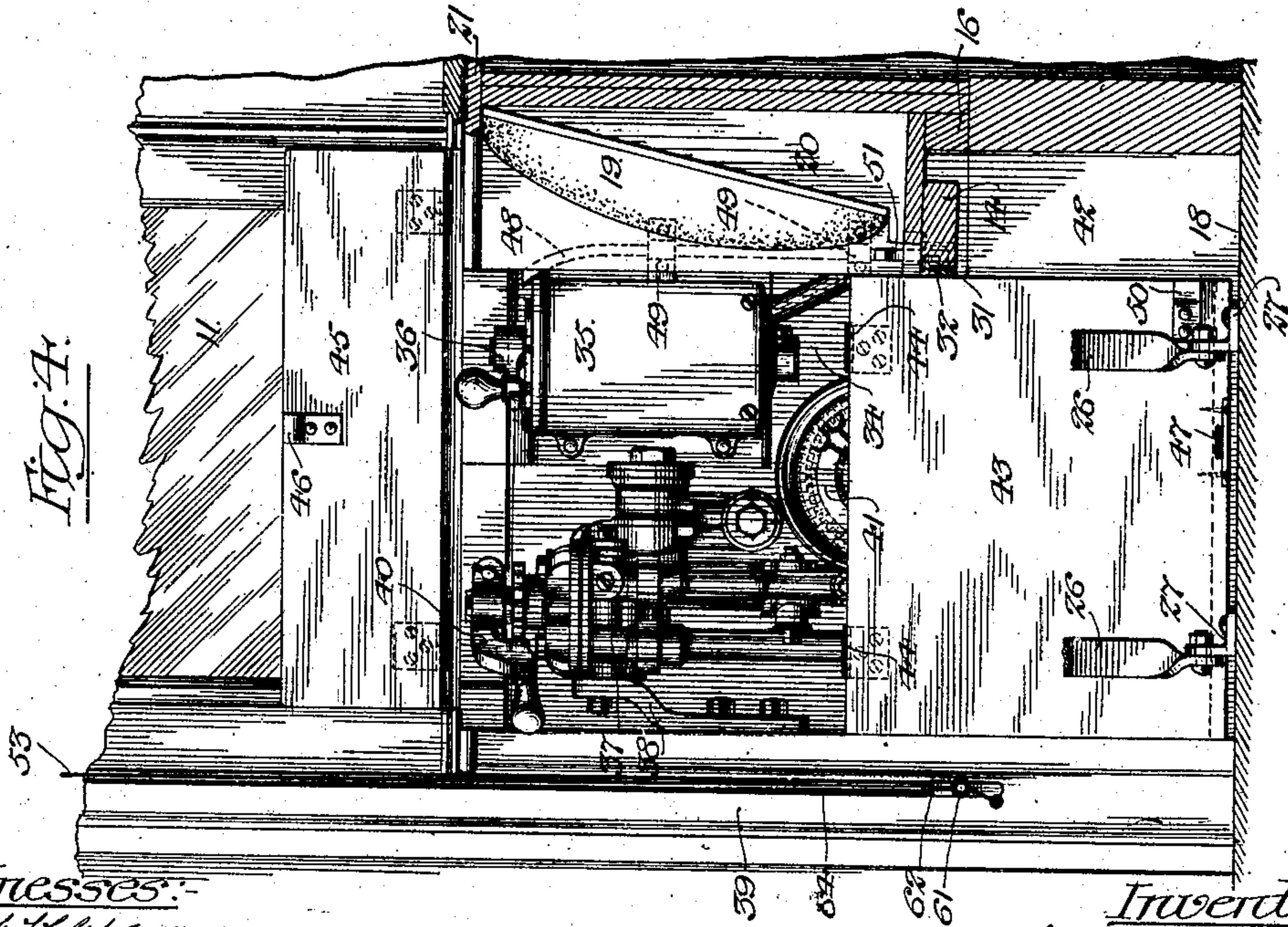


Fig. 4.



Witnesses:

John H. Whiteland  
Lillian Prentice

Inventor:

George H. Hopkins  
By: Peirce & Fisher



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Fig. 8.

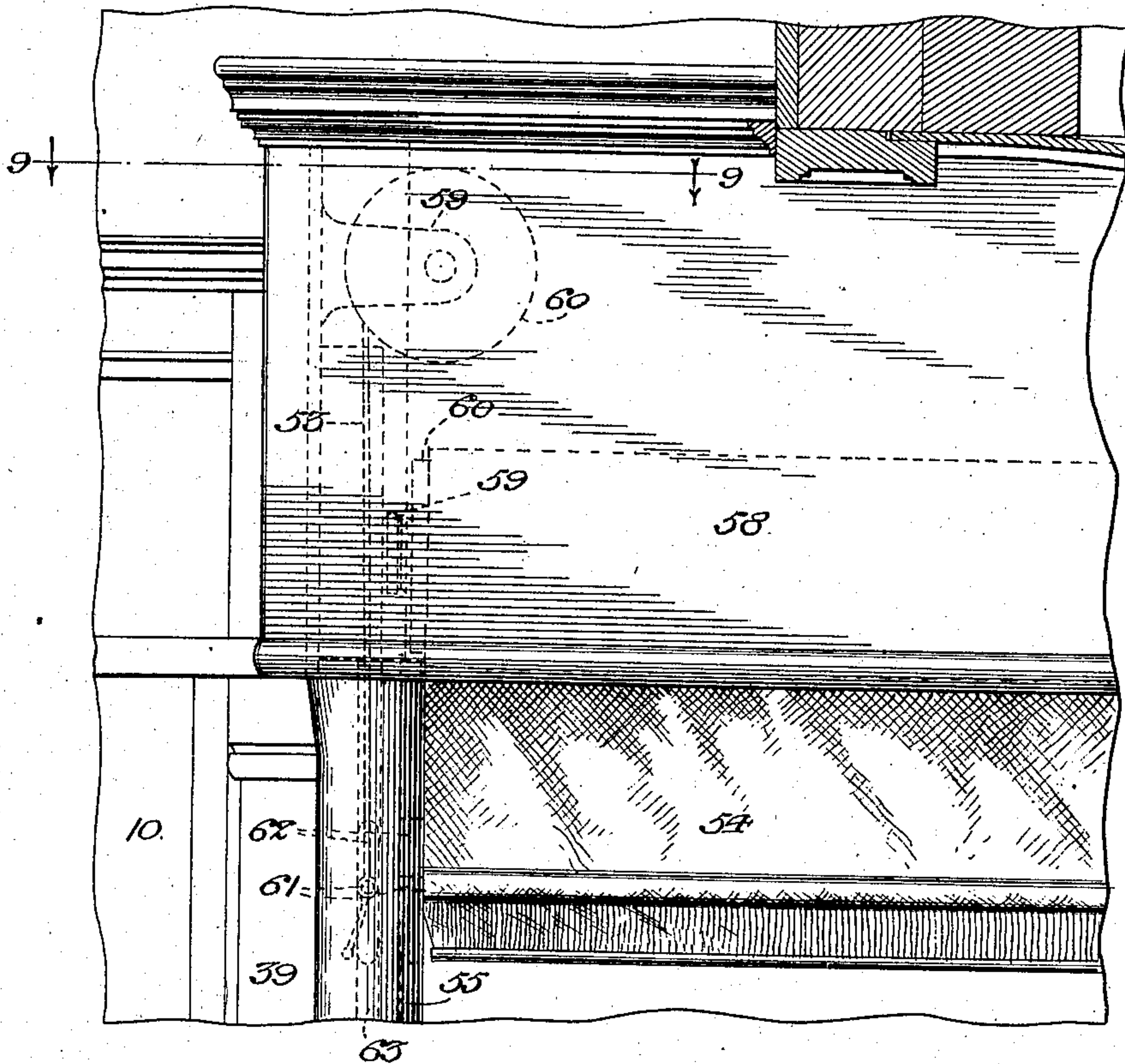
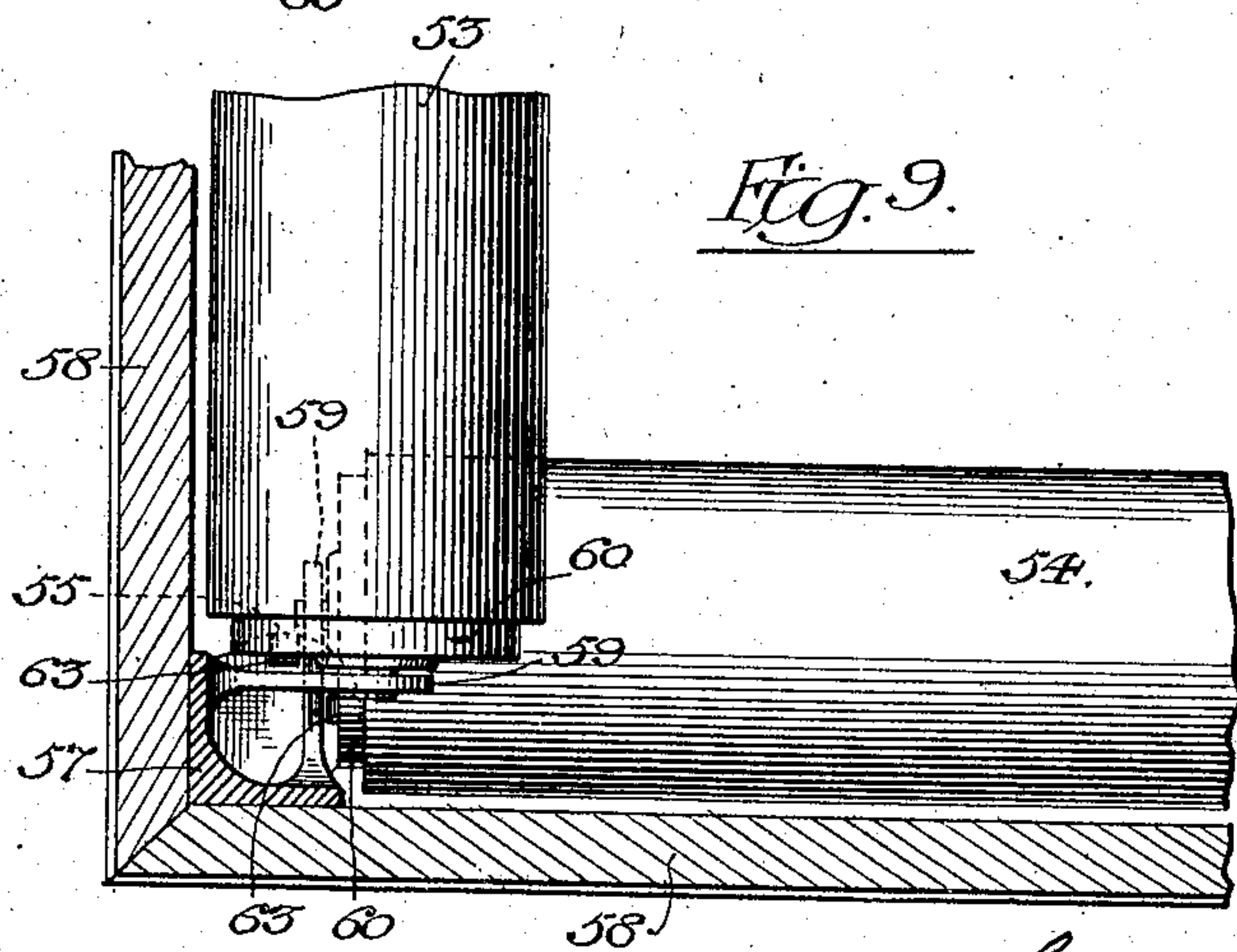


Fig. 9.



Witnesses:-

*John H. Whitelash*  
*Lillian Prentiss*

Inventor.

*George H. Hopkins*  
*By: Peirce & Fisher*  
*Attys*



# UNITED STATES PATENT OFFICE.

GEORGE H. HOPKINS, OF CHICAGO, ILLINOIS.

## RAILWAY-CAR.

No. 827,446.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed April 9, 1906. Serial No. 310,655.

*To all whom it may concern:*

Be it known that I, GEORGE H. HOPKINS, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Railway-Cars, of which the following is declared to be a full, clear, and exact description.

The invention relates to railway passenger-cars that are driven by an electric or other suitable motor and such as are commonly employed upon elevated and other suburban railways.

The invention seeks to provide a railway motor-car in which the space now occupied by the motormen's cabs in cars of this sort may also be utilized for passengers' seats.

The invention consists in the features of construction, combinations, and arrangements of parts hereinafter set forth, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

In the drawings the portions of the car below the floor are omitted, since they form no part of the present invention.

Figure 1 is a cross-section of the improved car with the parts shown in the position assumed when the car is not in use as a motor-car. Fig. 2 is a longitudinal section of the end of the car, taken on the line 2 2 of Fig. 1. Fig. 3 is a detail section on the line 3 3 of Fig. 1 with the parts in position for use by the motorman. Fig. 4 is a detail section on the line *a a* of Figs. 2 and 3 looking in the direction of the arrows 4. Fig. 5 is a detail section on the line *a a* of Figs. 2 and 3 and looking in the direction of the arrows 5. Fig. 6 is a detail view of parts shown in Fig. 3, but locked up in the position assumed when the car is not used as a motor-car. Fig. 7 is a detail section on line 7 7 of Fig. 6. Fig. 8 is an enlarged view of parts shown in the upper part of the car in Fig. 1. Fig. 9 is a detail section on line 9 9 of Fig. 8.

The motor-cars of the electric elevated and other railways are usually provided with a motorman's cab at each end, which are either located outside the body of the car and obstruct the platforms or are arranged inside, where they necessarily materially reduce the seating capacity of the cars. These cabs are usually of such size that the doors at the ends of the car must be located at one side of the

center thereof, so that the seats on either side of the car can extend to the extreme ends thereof, and the seating capacity is thus reduced on both sides of the car and at both its ends.

In accordance with the present invention the car is provided at each end, but preferably on one side of a central end door, with suitable mechanism for controlling the operation of the car and with means for providing a space or cab for the motorman, but which space may also be utilized for seating passengers. By this arrangement the passengers' seats in the car on both sides may extend to the extreme ends of the car when it is not employed as a motor-car, and even when so employed only a small section of the seats at one end of the car is occupied by the motorman's cab. In this way all of the cars of the system may be motor-cars without in any way reducing their seating capacity. It is desirable that all the cars should be motor-cars, since the making up and operation of the train is thereby greatly facilitated, although usually only the head car of a train is used as a motor.

The body of the car may be of any suitable or desired construction and is preferably provided at each end with a central door 10, arranged to slide to the left when opened, and with windows 11 in the end wall of the car on opposite sides of the door. The car is provided with seats that are preferably arranged on opposite sides of a central aisle, and the seats 12 at the ends of the car preferably face inward and extend to the extreme end wall thereof on opposite sides of the door 12. (See Figs. 1 and 2.) The cushion-seats 12 are supported between front and rear rails 13 and 14, carried upon cross-pieces 15. These cross-pieces are secured at their rear ends to the inner side panel 16 of the car and are supported at their forward ends to posts 17, fixed to the car-floor 18. The back cushions 19 of the seats are carried in inclined position upon suitable supports 20, extending between the rear seat-rail 14 and the inner window-sill 21. The side windows 22 and curtains 23 therefor may be of any usual or suitable construction. The side windows normally rest upon the outer sill 24, that is carried upon the outer side panel 24.

The end seat or section 25 at each end of the car and on one side of the door, preferably



the right-hand side, as shown, is removably mounted in position and is preferably shiftable to rest upon the next adjacent seat or section, as shown in Fig. 2, to form a seat for the motorman, so that he can conveniently face the end of the car and look forwardly through the end window 11 at the side of the car-door. The forward or end edge of this removable seat-section 25 is preferably hinged or pivoted (see Figs. 2, 3, and 5) to the upper ends of a pair of swinging link-bars 26, which are in turn pivoted at their lower ends to small angle-brackets 27, fixed to the car-floor 18. The brackets 27 are arranged below and just in front of the cross-bar 15 between the first and second seats, and the link-bars 26 are of such length that the removable seat 25 can rest upon the front and rear seat-rails 13 and 14 or be swung upon the top of the next adjacent seat 12. In the latter position the links rest within notches 28 (see Figs. 3 and 5) cut in the side of the cross-piece 15. The side seats 12 are preferably inclined downwardly and rearwardly at a slight angle, as shown; but in order that the section or seat 25 may properly shift from one to the other position and form a suitable seat for the motorman upon which he can face forwardly it is preferably held at all times in horizontal position. A section 29 of the front seat-rail 13 is separate from the main portion of the rail and is secured to the front edge of the removable seat 25. In its normal position the removable seat rests upon the rear seat-rail 14 and the cross-bar 15. Its end edge abuts against the inner end panel 42 of the car and is held against sagging by the link-bars 26. On its under side and adjacent its rear edge the removable seat-section is provided with a depending hook 30, that in the normal position of the seat extends within a socket 31 in the rear seat-rail 14 and engages the upper edge of a metal plate 32, fixed to the rail 14 in front of the socket, so as to prevent displacement of the seat in forward direction. The removable seat 25 is provided on its under side and adjacent its front and rear edges with depending strips or bars 33, preferably provided with inclined or beveled lower edges and of suitable width to hold the removable seat in proper position on top of the next adjacent seat 12. An elevated seat is thus provided for the motorman upon which he can sit facing forwardly and command a good view of the track through the front window 11 at one side of the door.

The controlling mechanism is mounted within convenient reach of the motorman at the end of the car and preferably upon the outer end panel 34 beneath the window 11. The running-gear and motor mechanism (not shown) and the controlling mechanism for the motor may be of any usual or suitable construction. In the drawings a suitable controller 35 for an electric motor is shown,

this controller being fixed to the outer end panel 34 and being provided with the usual removable handle 36. An engineer's valve 37 for controlling the air-brakes is mounted upon a lug 38, fixed to the inner face of the door-post 39. This valve is also preferably provided with a removable handle 40. A gage 41 for the air-brake system is mounted beneath the brake-valve and the controller and preferably in inclined position, so that it may be readily seen by the motorman. Other mechanism necessary for the complete control of the car by the motorman may be arranged at the end of the car adjacent the removable seat-section 25.

To prevent tampering with the controlling devices when the car is not employed as a motor-car, means are preferably provided for inclosing them. For this purpose the controlling mechanism is preferably arranged between the outer end panel 34 and the inner end panel 42; but to afford ready access thereto by the motorman the inner panel is provided with a removable section 43. This panel-section 43 is connected at its lower edge by hinges 44 to the stationary portion of the inner panel, so that when the seat-section 25 is removed it may be swung down into vertical position against the stationary portion, as indicated in Figs. 3 and 4, so that the controlling mechanism is exposed. A top panel or inner window-sill 45 is hinged at its forward edge to the window-frame, so that it may be raised, as indicated in Figs. 3 and 4, or closed down upon the top edge of the removable panel-section, as indicated in Fig. 6, to inclose the controlling mechanism.

Suitable means are preferably provided for locking the hinged panel-sections 43 and 45 in closed position. For this purpose the top panel-section is provided with a clip 46 at its forward edge arranged to engage a socket 47 in the inner face and adjacent the upper edge of the side panel-section 43. A vertically-arranged bolt 48 is arranged to shift through guide-straps 49, fixed to the inner face of the stationary portion of the inner panel 42 and on one side of the hinged panel-section 43. The upper end of this bolt is curved outwardly, (see Fig. 4,) and when the top and side panels are in closed position an upward vertical shift of the bolt 48 will bring its upper end into engagement with a clip 50 (see Figs. 6 and 7) on the inner face and adjacent the rear edge of the swinging panel-section 43. The top and side hinged panels may thus be securely locked in closed position to prevent tampering with the controlling mechanism inclosed thereby. One end of the upper guide-strap 49 for the bolt 48 projects, as shown in Fig. 4, so as to engage and position the swinging panel 43 in closed position.

The lower end of the locking-bolt 48 is piv-



oted to a shifting-arm 51, that extends within a slot 52 in the end of the rear seat-rail 14. When the bolt 48 is in its lowermost unlocked position, the outer end of the shifter-arm 51 will project upwardly, as indicated in Fig. 3, above the rear seat-rail 14; but when the panels 43 and 45 are swung to closed position and the seat-section 25 moved back to normal position, as shown in Fig. 6, the seat will engage and depress the outer end of the shifter-arm 51, thus lifting the bolt 48 and locking the panels 43 and 45 in place, so that no one can tamper with the controlling mechanism inclosed by the panels without removing the seat-section 25 from position. When this is done, however, to accommodate the motorman, the locking-bolt 48 drops by gravity to release the panels, which may then be swung open.

To form a cab for the motorman, means are provided for temporarily inclosing the first and second seats, and such means preferably comprise side and back curtains 53 and 54, (see Figs. 1 and 2,) which extend between the end and side walls, respectively, of the car, and a vertical upright or post 55. This post or upright is securely fixed to the floor of the car between the second and third seats and closely adjacent the front seat-rail 13. A pair of horizontal brace-bars 56 are secured at their inner ends to the upright 55 and extend outwardly therefrom above the side seats 12 to the side wall of the car. These bars form a back-rest for the motorman. The upright 55 is preferably formed of metal pipe and at its upper end is provided with a casting 57, (see Fig. 9,) having square outer faces that fit in the angle between top molding-sections 58, that extend between the upper end of the post 55 and the end and side walls of the car, respectively. The bracket 57 is provided with a pair of lugs 59, that are arranged one above the other and extend inwardly at right angles to each other. The outer ends of the rollers 60 for the curtains 53 and 54 are journaled in the lugs 59, as most clearly shown in Fig. 9. The opposite ends of the rollers are suitably journaled in the front and side walls of the car. The lower edges of the curtains are provided with rods 61, having shoes 62 on their ends. The shoes at the outer ends of the rods 61 fit within slots 63 (see Figs. 5 and 9) in the upright or post 55. The shoe at the opposite end of the rod of the side curtain 53 (see Fig. 4) engages a groove 64 in the door-post 39 at the end of the car, while the other shoe upon the rod of the back curtain 54 (see Fig. 3) engages the grooves 65 in the side wall of the car or in the post between two of the side windows.

It will be understood that the opposite ends of the car are alike and that suitable controlling mechanism is provided at each end.

When it is to be used as a motor-car, the re-

movable seat 25 at one end will be swung back upon the top of the next adjacent seat, thus releasing the locking-bolt 48, so that the panels 43 and 45 may be swung open into the position shown in Fig. 3, and the side and back curtains 53 and 54 will be drawn down to inclose the first two seats and form a cab for the motorman. When not in use as a motor-car, the space occupied by the cab may of course be utilized for seating passengers, and the controlling mechanism can be safely locked up to prevent any unauthorized person from tampering with the same. Moreover, even when used as a motor-car space at one end only is taken up by the motorman's cab, whereas in cars employing permanent cabs space at both ends of the car is usually occupied. Moreover, in the present arrangement the cab only takes up a small space on one side of the car, and the end doors may be centrally located, so that the seats can extend on both sides to the extreme end walls of the car. As compared with the motor-cars now commonly employed upon elevated electric railways the present improved car of the same size will afford eight additional seats when not employed as a motor-car and six additional seats when so employed. Moreover, with this arrangement all of the cars of the system may be motor-cars without in any way reducing the seating capacity. Such an arrangement is of particular advantage in quickly making up and despatching trains. It is also of advantage in running the trains, since if the motor upon the leading car should break down that on any of the other cars may be employed to prevent delay or obstruction in the traffic.

It is obvious that numerous changes may be made in the details of structure set forth without departure from the essentials of the invention.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A railway motor-car having inwardly-facing side seats at its end and a central door in its end wall, the seat on one side of the door having a removable end section, controlling mechanism mounted at the end of the car adjacent said removable seat-section and means for temporarily inclosing the portion of the said side seat adjacent the removable section to form a motorman's cab.

2. A railway motor-car having inwardly-facing side seats at its end, the seat on one side having a removable end section, controlling mechanism mounted at the end wall of the car adjacent said removable seat-section, means for inclosing said controlling mechanism and means for temporarily inclosing the portion of said side seat adjacent the removable section to form a motorman's cab.

3. A railway motor-car having inwardly-facing side seats at its end, the seat on one



side having a removable end section, controlling mechanism mounted at the end wall of the car adjacent said removable seat-section and curtains arranged to temporarily inclose the end portion of the side seat to form a motorman's cab.

4. A railway motor-car having inwardly-facing side seats at its end, the seat on one side having a removable end section, controlling mechanism mounted at the end wall of the car adjacent said removable seat-section, means for inclosing said controlling means and a lock for said inclosing means held in place by said removable seat-section.

5. In a railway motor-car, inwardly-facing side seats at the end of the car, link-bars to which the end seat on one side is connected to swing bodily upon the adjacent seat and controlling mechanism mounted at the end of the car in front of said removable seat.

6. In a railway motor-car, inwardly-facing side seats at the end of the car, the end seat on one side being removable to position on top of the next adjacent seat, controlling mechanism mounted at the end wall of the car adjacent said removable seat, means for inclosing said controlling devices and a lock therefor held in place by said removable seat.

7. In a railway motor-car, inwardly-facing side seats at the end of the car, the end seat on one side being removable to position on top of the next adjacent seat, controlling mechanism mounted at the end wall of the car adjacent said removable seat and means for temporarily inclosing the removable seat and the next adjacent seat to form a motorman's cab.

8. In a railway motor-car, inwardly-facing side seats at the end of the car, the end seat on one side being removable to position on top of the next adjacent seat, controlling mechanism mounted at the end wall of the car adjacent said removable seat, an upright at the forward edge of and between the second and third seats and curtains extending between said upright and the side and end walls of the car and guided in slots therein for temporarily inclosing the first two seats to form a motorman's cab.

9. In a railway motor-car, inwardly-facing side seats at the end of the car, the end seat on one side being removable to position on top of the next adjacent seat, controlling mechanism mounted at the end wall of the car adjacent said removable seat, top and side hinged panels for inclosing said controlling mechanism and a lock therefor held in place by said removable seat when in normal position.

10. In a railway motor-car, inwardly-facing side seats at the end of the car, the end seat on one side being removable to position on top of the next adjacent seat, controlling mechanism mounted at the end wall of the car adjacent said removable seat, means for

inclosing said controlling mechanism and means for temporarily inclosing the first two seats to form a motorman's cab.

11. In a railway motor-car, inwardly-facing side seats at the end of the car, the end seat on one side being removable to position on top of the next adjacent seat, controlling mechanism mounted at the end wall of the car adjacent said removable seat, top and side hinged panels for inclosing said controlling mechanism and curtains for temporarily inclosing the first two seats to form a motorman's cab.

12. A railway motor-car having side seats and a door in its end wall, controlling mechanism at the end of the car on one side of said door and roller-curtains for temporarily inclosing the end seats adjacent said controlling mechanism to form a motorman's cab.

13. A railway motor-car having side seats and a door in its end wall, controlling mechanism at the end of the car on one side of said door, an upright in the car adjacent the side and end walls and curtains extending between said upright and said walls for temporarily inclosing the end seats adjacent said controlling mechanism to form a motorman's cab.

14. A railway motor-car having side seats and a door in its end wall, controlling mechanism at the end of the car on one side of said door, means for inclosing said controlling mechanism, said inclosing means being removable to permit the operation thereof, and means for temporarily closing the end seats adjacent said controlling mechanism to form the motorman's cab.

15. A railway motor-car having side seats and a door in its end wall, controlling mechanism at the end of the car on one side of said door, and top and side hinged panels for inclosing said controlling mechanism, and means for releasably locking said panels in position.

16. A railway motor-car having side seats and a door in its end wall, controlling mechanism at the end of the car on one side of said door, top and side hinged panels for inclosing said controlling mechanism, said panels interlocking in closed position, a shiftable locking-bolt for one of said panels and a removable end seat arranged to shift said bolt.

17. A railway motor-car having side seats and a door in its end wall, controlling mechanism at the end of the car on one side of said door, curtains for temporarily inclosing the end seats opposite said controlling mechanism to form a motorman's cab, a shiftable panel in front of said controlling mechanism, a lock for said panel and a removable end seat arranged to hold said lock in place.

18. A railway motor-car having inwardly-facing side seats at its end, the end seat on one side being removable from position, controlling mechanism mounted at the end wall



of the car adjacent said removable seat and means for temporarily inclosing the removable seat and the next adjacent side seat to form the motorman's cab, substantially as described.

19. A railway motor-car having a central door in its end wall and inwardly-facing seats on opposite sides of said door, the end seat on one side being removable from position, controlling mechanism mounted at the end wall of the car adjacent said removable seat, an

upright adjacent the edge of and between the second and third seats and roller-curtains mounted between said upright and the side and end walls of the car for temporarily inclosing the first two seats to form the motorman's cab, substantially as described.

GEORGE H. HOPKINS.

Witnesses:

HARRY L. CLAPP,  
KATHARINE GERLACH.