

F. H. LINCOLN.
PASSENGER CAR.
APPLICATION FILED JULY 18, 1908.

935,853.

Patented Oct. 5, 1909.
3 SHEETS—SHEET 1.

Fig. 1.

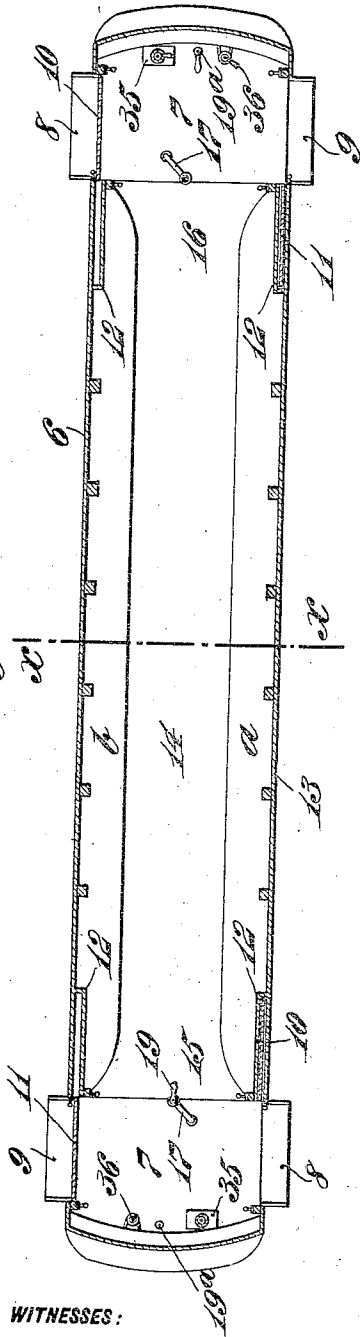


Fig. 3.

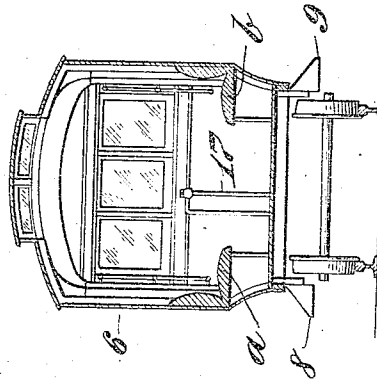
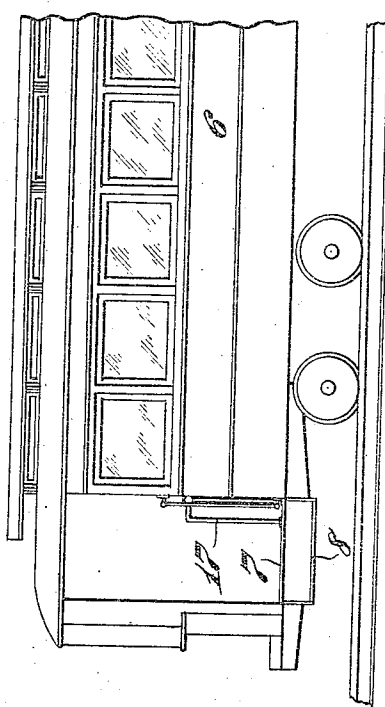


Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 6.

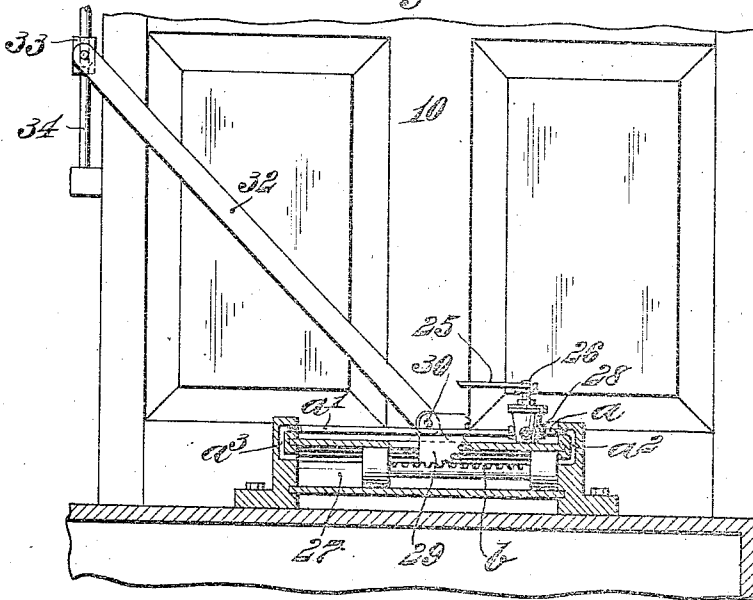


Fig. 7.

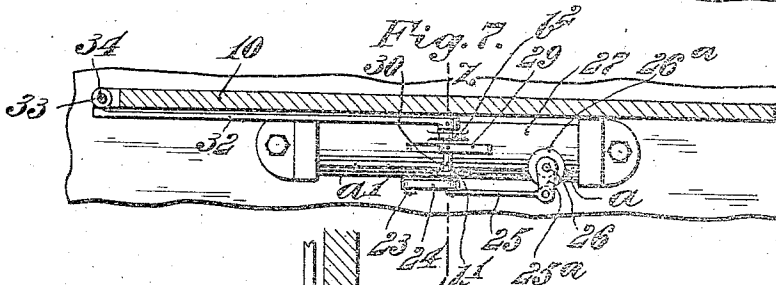


Fig. 8.

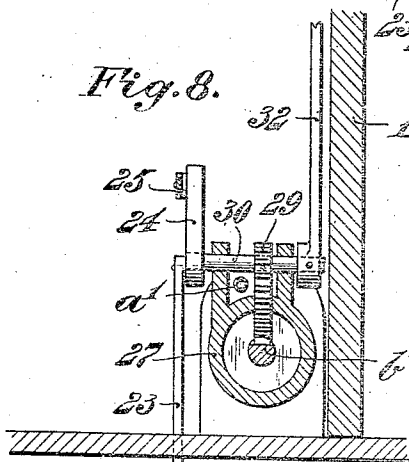
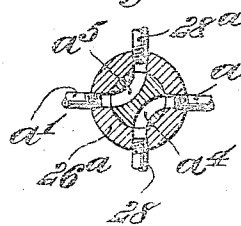


Fig. 9.



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PASSENGER-CAR.

935,853.

Specification of Letters Patent.

Patented Oct. 5, 1909.

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To all whom it may concern:

Be it known that I, FREDERICK H. LINCOLN, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Passenger-Cars, of which the following is a specification.

My invention has relation to a new type of railway car designated as "enter-and-pay-within" car; and in such connection it relates to the constructive arrangement thereof.

The principal object of my invention is to provide a passenger railway car, whereof the aisle of the main car-body structure leads directly to platforms through doorways or wide unobstructed end openings with a device extending from the floor and located substantially midway of said openings, said device serving to not only define but also to maintain the standing position of a conductor at either end of the main car-body structure and to provide the entrance and exit ways to and from said main car-body structure to the platform and means to support an operating device for controlling mechanism to open and close a side or door of a platform, whereby the conductor not only has absolute supervision over the entering and departing of passengers but can from his defined position control the opening and closing of a door or doors through mechanism that may be concealed within the main car-body structure. The said device enabling him to obviate overcrowding about a platform and to thereby avoid many accidents incidental to persons carelessly attempting to enter or leave a car.

The nature, scope and characteristic features of my invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, in which—

Figure 1, is a central longitudinal sectional view, through a railway passenger car, embodying essentially main features of my said invention. Fig. 2, is a side elevational view of one end platform, and in broken section, a portion of the main car body structure, showing a general form as well as the outside appearance of a railway passenger car. Fig. 3, is a vertical transverse sectional view, on the line *z, z*, of Fig. 1. Fig. 4, is a central longitudinal sectional view, partly in broken section, of one end portion of the main car body structure and a platform-li-

rectly connected therewith, showing platform side or door opening and closing mechanism, concealed within the said structure and with the doors or sides, respectively, operated by manual devices from the front of either platform by either a motorman or from midway of each wide opening of the main car body structure, by a conductor. Fig. 5, is a vertical sectional view on the line *y, y*, of Fig. 4. Fig. 6, is a view partly in front elevation and partly in section of a platform side door, in a closed position, and the mechanism, in detail, for controlling the opening and closing of such door and which mechanism is adapted to be concealed within a compartment of the main car body structure. Fig. 7, is a top or plan view of said platform side or door opening and closing mechanism. Fig. 8, is a vertical sectional view through said mechanism on the line *z, z*, of Fig. 7; and Fig. 9, is a central sectional view through the four-way valve for the air pressure piston cylinder of the door opening and closing mechanism.

Referring to the drawings 6, is an ordinary type of electric-motor or railway passenger car provided at each end, as illustrated, with a platform 7, sunken and partially inclosed and having side steps 8 and 9, leading therefrom. The sides of the platform 7, are provided with openings, respectively closed by doors 10 and 11, slidable into housings 12, provided in the main car body structure 13. The railway car, as illustrated, in Figs. 1 and 3, as to the main car body structure 13, may have the seats *a* and *b*, arranged lengthwise against the respective sides or any other arrangement thereof to provide an unobstructed wide aisle 14. The plan of the car as shown in Fig. 1, is such, as that one end is precisely the same as the other, but if preferred, the car may be arranged as is the rear or left hand end in Fig. 1, and the front or right hand end be arranged differently, or as such is ordinarily planned on street railways, with a front vestibule or open platform, not shown.

The respective ends 15 and 16, of the main car body structure 13, are arranged to provide openings at each end substantially corresponding to the full width of the aisle of the car, as fully illustrated in Fig. 1. Midway of these openings and projecting from the floor of the platform 7, adjacent to the unobstructed meeting of the respective

platforms with the main car body structure 13, at both ends is provided an inverted U-shape tubular device 17, preferably obliquely positioned, as clearly shown in Figs. 1 and 4, and through one member of the said device 17, extends vertically a rotatable rod 18, whose end is adapted to engage a manual operating lever 19, of a door opening and closing mechanism to be hereinafter fully described. The vertical rod 18, of the said mechanism, beneath the platform 7, is provided with a crank-arm 20, for operating a lever-rod 21, which rod is pivotally connected with a bell crank 22, and the same in turn is connected with a vertical lever-arm 23. The lever-arm 23, is pivotally connected at one end to a bell crank 24, which latter by a longitudinal rod 25, is eccentrically connected by a lever 25^a with the stem 26, of a four-way valve 26^a, as fully shown in Fig. 9, by means of tubes *a* and *a'*, and ports *a''* and *a'''*, directly connected with the front and rear ends of an air pressure piston cylinder 27, and with a supply 28. The plug (Fig. 9) of the valve 26^a, by branches *a''* and *a'''*, serves to connect the supply pipe 28, with one of the pipes *a* or *a'*, and at the same time connect the other of said pipes with the exhaust from the cylinder 27. On the crank-shaft 30, upon which the bell crank 24, is loosely mounted is fixed a sector-gear 29, arranged to mesh with a rack *b*, of the stem of the double headed piston 27^a, as clearly illustrated in Fig. 6, and beyond the air pressure piston cylinder 27, in supporting castings *b'* and *b''*, for the crank-shaft 30, and reciprocating with the said sector-gear 29, is arranged a slanting door operating lever-arm 32, connected with each of the side doors 10 and 11, by means of movable bearings 33, slidable on the vertical rods 34, of the respective doors to one of the sides thereof, as clearly illustrated in Figs. 5 and 6. Through the foregoing arrangement of mechanism for operation as above described is permitted by the conductor standing about the device 17, within the car-body structure by means of the manual operating lever 19, by turning the same for about a quarter turn in one direction to quickly open a door 10 or 11, and by a reverse movement then of the said lever to close a door 10 or 11.

In the front of each platform 7, the car is provided with the usual controller 35, and wheel-brake operating lever 36, and in addition with a manual or hand operating lever 19^a, for operating by the motorman, the described door opening and closing mechanism instead of by the conductor, as explained, and in the following manner.

The hand operating lever 19^a, by a crank *c*, is connected with a rod 21^a, which in turn is by a bell-crank 22^a, connected with a rod 23^a, and this in turn is connected with a bell-crank 23^b, and that with the vertical rod 23,

in the same manner as the bell crank 22, of Fig. 4, is connected with the vertical rod 23, for operating the door opening and closing mechanism as shown to the right in Fig. 4, of the drawings. It will thus be observed from this figure that the manual operating lever 19^a, adapted to be operated by the motorman, as arranged in this figure, controls the opening and closing of the left handed door 11, while the same general character and arrangement of mechanism, when operated by the conductor within the car-body structure, as illustrated in Figs. 1, 4 and 5, and shown, particularly in Fig. 4, is connected up for the operation of the right hand door 10, of the car to be opened or closed. The said mechanism for opening and closing the platform car doors 10 and 11, in Figs. 4 and 5, is shown in box-like compartments 36 and 37, of the contracted parts of the respective seats *a''* and *b''*.

It will be fully understood from Figs. 1 and 4, that the essential feature of my present invention is the provision of wide unobstructed openings at one or both ends of the main car body structure leading directly to the car platform or platforms and in conjunction therewith the provision of means midway of said openings to define entrance and exit ways to and from the main car body structure 13, with relation to a platform 7, as well as to define and maintain the conductor's position for collecting fares and operating said manual means to control opening and closing mechanism for shifting a door 10 or 11, of a platform 7; and also through the inspective control the conductor at all times has of the car to obviate thereby many accidents due to carelessness of persons, in alighting from or entering a railway passenger car.

Having thus described the nature and objects of my invention, what I claim as new and desire to secure by Letters Patent is:

1. A passenger car provided with a main body structure with end openings of substantially the full width of the aisle thereof merging with a platform having movable sides or doors, a railing arranged about midway of the merging of said main car structure with said platform and a manual operating device extending therethrough and adapted to be operated by a conductor and mechanism for opening and closing a side or door of said platform and connected with said manual operating device.

2. A passenger car having a main body structure with end openings of substantially the width of the aisle thereof where merging with a platform having movable sides or doors, a railing concealing an operating means of a mechanism to shift the platform side or door and said means adapted to be operated by a conductor from a point about midway of the width of said end opening.

3. A passenger car having a main-body structure with an end opening of substantially the full width of the aisle thereof where merging with a platform having closable sides or doors, means located about mid-
 5 way transversely of the structure end opening to define the entrance and exit ways from a platform to the body of the car and to shift the platform sides or doors independently of
 10 each other.

4. A passenger car having a main-body structure with the entrance and exit ways formed at the widest part of the aisle portion where joining with a platform provided
 15 with doors movable lengthwise of the car, a manual operating device located midway of said widest portion to define the entrance and exit ways from the platform to the body of the car and mechanism located under the
 20 car and connected with said manual operating device for moving one of said doors.

5. A passenger car having a main-body structure with end openings of substantially the full width of the aisle immediately ad-
 25 joining a platform at a different plane from the main-body structure and a device provided with door operating means located in said opening to define the entrance and exit ways from the platform to the main-body of the car and the door operating means of said
 30 device opening and closing the platform.

6. A passenger car having a main-body structure, one of the end openings being of a width corresponding to the aisle where merg-
 35 ing with a platform having sides or doors adapted to be shifted, a railing located at a point midway of said end opening to define the entrance and exit ways from the plat-
 40 form to the main body, a hand operating lever extending from said railing and means for shifting either of the platform sides or doors to and from said main-body and said means connected with said hand operating
 45 lever.

7. A passenger car provided with a platform having movable sides, said platform directly connected with the widest unob-
 50 structed internal portion of the car where merging with the platform and means located midway transversely of said portion to define the entrance and exit ways from a platform with the body of the car and to
 55 control the movement of said platform sides.

8. A passenger car provided with a platform located at a different plane from the main car-body, the widest unobstructed in-
 60 ternal portion of the same being where merging directly with the platform, means for opening and closing a portion of said plat-
 65 form and a device arranged substantially midway transversely of said portion and connected with said means and defining the entrance and exit ways from the platform to the main car-body.

9. A passenger car provided with a plat-

form located at a different plane from the main car-body, the widest unobstructed in-
 70 ternal portion of the same being where merging with the platform, means for opening and closing one of the sides of said platform and an operating device in said portion and defining the entrance and exit ways from
 75 said platform to said main car-body, and said device operatively controlled by a conductor, to permit of persons entering and departing to and from said main car-body.

10. A passenger car provided with a platform located at a different plane from the main car-body, the widest unobstructed in-
 80 ternal portion of the same being where merging with the platform, mechanism to open and close said platform and manual means extending from beneath the floor of said portion and serving to define the entrance and
 85 exit ways from the platform to the main car-body.

11. A passenger car provided with wide entrance and exit ways at both ends of the main car-body structure connected with in-
 90 closed platforms, respectively, at different planes to that of said main car-body structure, said platforms having movable longitudinal sides, means for operating said sides and a device located midway transversely of
 95 both wide ends of said main car-body to define the entrance and exit ways to and from the same and said device operatively connected with said means, substantially as and for the purposes described.

12. A passenger car provided with a main
 100 car-body structure having a wide opening at one end and directly connected with an in-
 closed platform, means for shifting portions of said platform, a conductor's hand operating
 105 device located about midway of said opening and directly connected with actuating means of the sides of said platform, the position of said operating lever adapted to de-
 110 fine the entrance and exit ways of said main car-body structure with said platform and to also control respective positions of the sides of said platform.

13. A passenger car having a main car-
 115 body structure with an aisle and wide unobstructed end opening connected with a platform having a closable side, a device provided with door operating means located about said end opening, said device divid-
 120 ing the same respectively, into entrance and exit ways to and from said platform and mechanism concealed within the main car-body structure and connected with said means for regulating the closable side of
 125 said platform.

14. A passenger car having a main car-
 130 body structure with a wide aisle and an unobstructed wide end opening where merging with a closable platform and wherein projects a device to divide said opening into entrance and exit ways to and from said

platform and defining the normal position of the conductor within the car, said device having a manual door operating means, and mechanism concealed beneath the platform and connected with said means, substantially as and for the purposes described.

15 15. A passenger car, comprising a main body structure having a longitudinal aisle and an end closable platform and provided with a door way or opening between the body and the platform whose width is substantially the full width of the end of the aisle, in combination with a device located substantially at the center of said opening for defining the conductor's position and the entrance and exit ways to and from said body structure and said device provided with operating means to control the closable mechanism of said platform.

20 16. A passenger car, comprising a main body structure with corresponding closable end platforms, the aisle of said structure corresponding in width substantially with openings at the respective ends of said structure where merging in said platforms, means located in said openings to define the normal position of a conductor and divide said open-

ings into entrance and exit ways to and from said platforms, and said means controlling the operation of a device actuating mechanism of the closable end platforms to thereby control the entrance to and exit from said car.

17. A passenger car having a post located in an opening at one end of a car body, the opening being wider than the aisle of the body and the post forming the conductor's station beyond the platform of the car structure.

18. A passenger car having a main car body and end platform, the meeting arrangement of the body with the platform being such as to provide an opening wider than the aisle of the body and means located in said opening to constitute a conductor's station between said platform and body.

In witness whereof, I have hereunto set my signature in the presence of two subscribing witnesses.

FREDERICK H. LINCOLN.

Witnesses:

FRANK B. ELLIS,
WM. W. DWIER.