T. J. NAULTY.

DOOR OPERATING MECHANISM FOR PASSENGER CARS.

APPLICATION FILED MAR. 23, 1911.

1,050,680.

Patented Jan. 14, 1913.

3 SHEETS—SHEET 1.

Fig. 6.

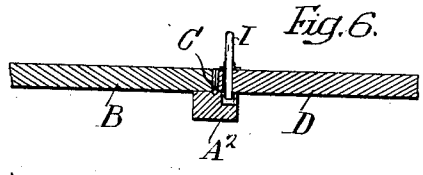


Fig. 8.

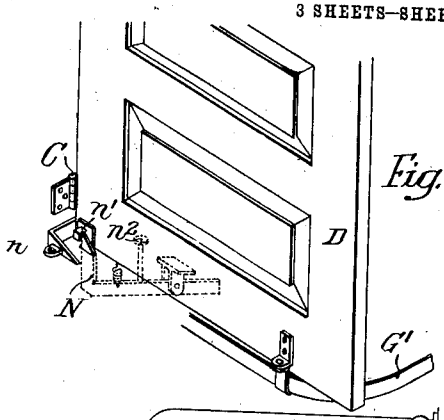


Fig. 1.

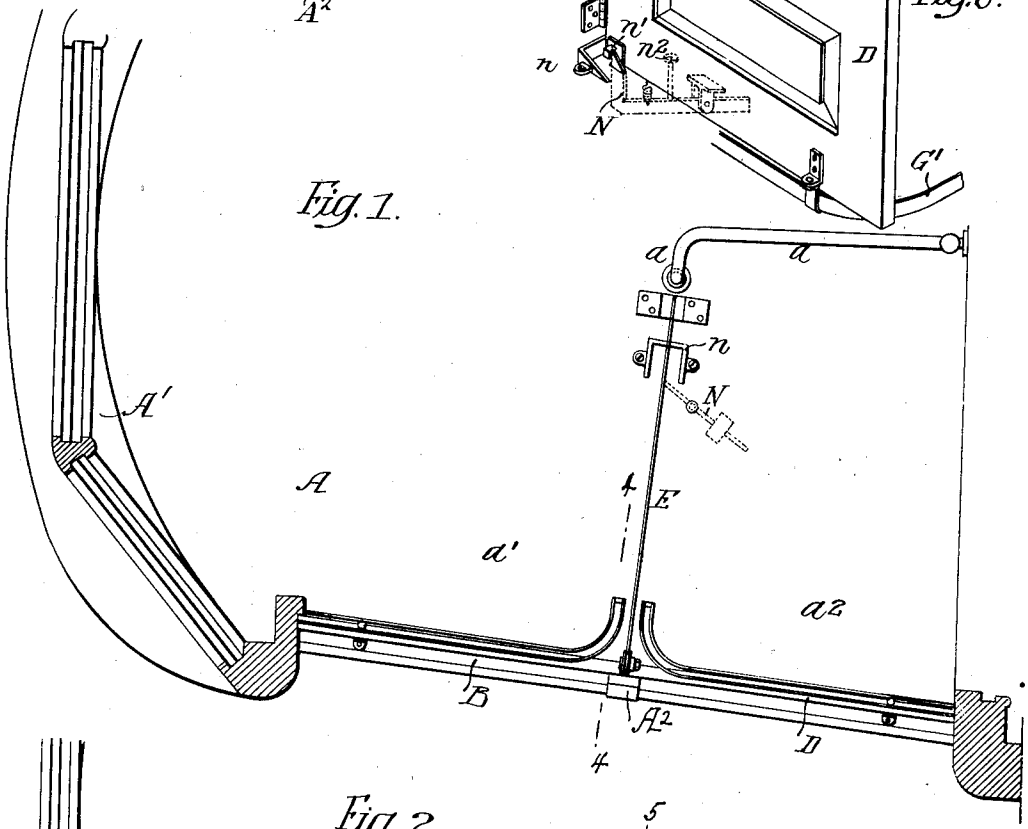
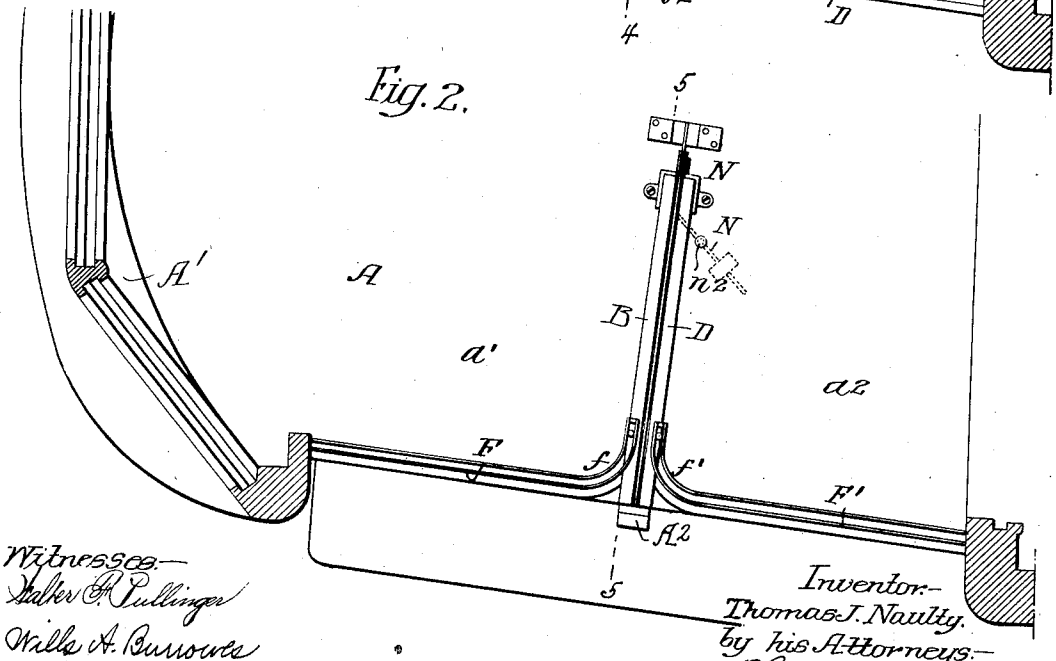


Fig. 2.



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3 SHEETS—SHEET 2.

Fig. 3.

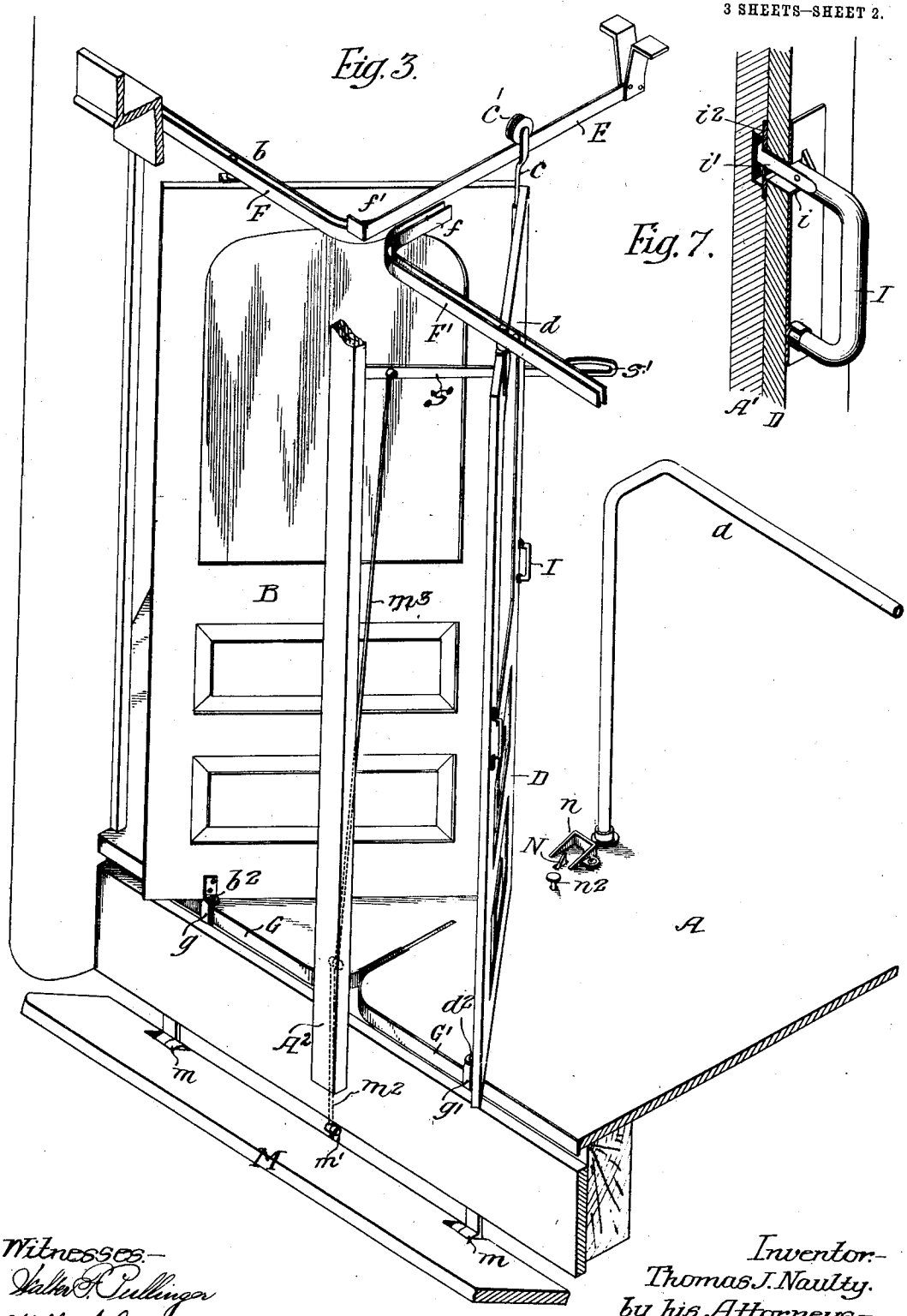

Fig. 7.

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3 SHEETS—SHEET 3.

Fig. 9

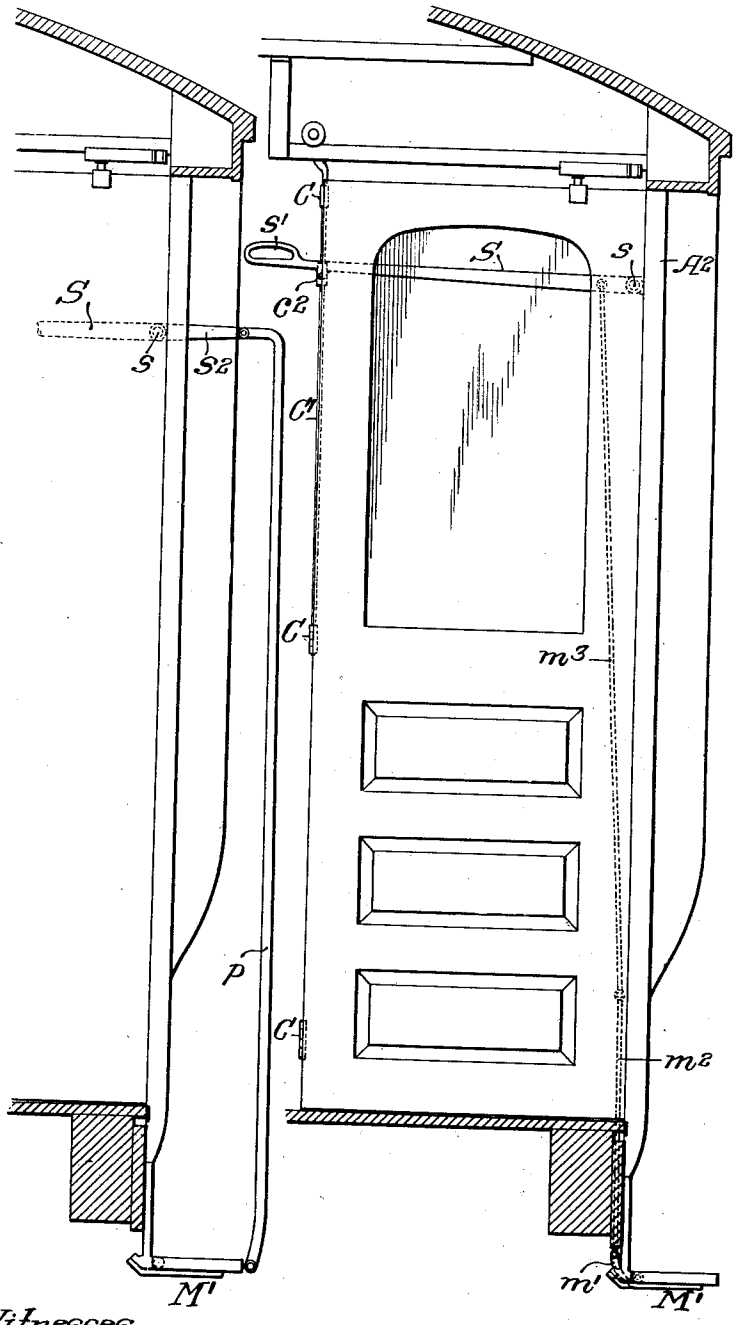
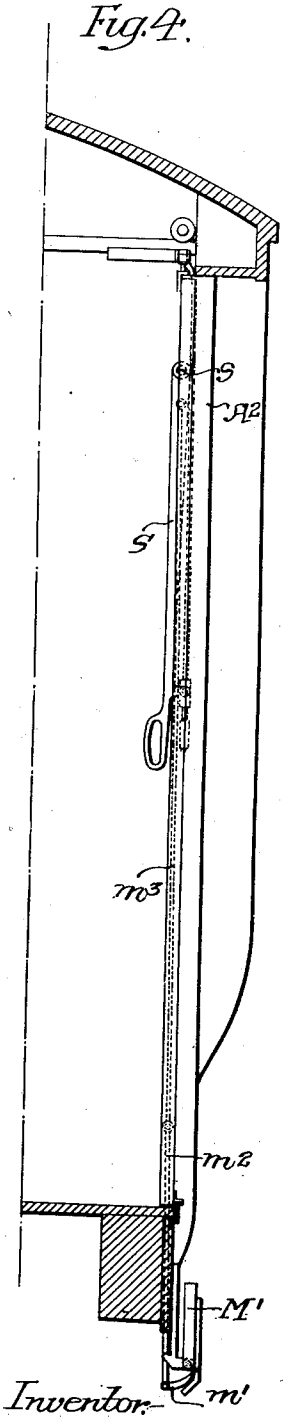


Fig. 5.

Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS J. NAULTY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE J. G. BRILL COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

DOOR-OPERATING MECHANISM FOR PASSENGER-CARS.

1,050,680. Specification of Letters Patent. Patented Jan. 14, 1913.

Application filed March 23, 1911. Serial No. 616,414.

To all whom it may concern:

Be it known that I, THOMAS J. NAULTY, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Door-Operating Mechanism for Passenger-Cars, of which the following is a specification.

My invention relates to certain improvements in doors and means for operating the same.

The invention is particularly adapted for use on passenger cars where it is desired to close the entrance and exit passageways.

The object of the invention is to so construct the doors that they will readily slide from the open to the closed position, at the same time folding inward and forming a part of the division between the entrance and exit passageways, when in the open position.

The invention also relates to certain details which will be fully described hereafter, reference being had to the accompanying drawings, in which:—

Figure 1, is a plan view of sufficient of a car platform to illustrate my invention; the doors being in the closed position; Fig. 2, is a view, similar to Fig. 1, with the doors in the open position; Fig. 3, is a perspective view, showing the doors partly opened; Fig. 4, is a sectional view on the line 4—4, Fig. 1; Fig. 5, is a sectional view on the line 5—5, Fig. 2; Fig. 6, is a sectional plan view illustrating the catch for locking the doors to the dividing post; Fig. 7, is a sectional, perspective view, illustrating the handled catch; Fig. 8, is a detached, perspective view; showing the means for locking the doors in the open position, and Fig. 9, is a view of a modification of a detail of the invention.

A is the platform of a car closed at the end by a vestibule casing A′ and open at one side. On the platform is a rail *a* which, with the doors, when in their open position, divides the platform into entrance and exit passageways *a′* and a^2. This rail can be of any form desired; the shape of the rail depending upon the type of car to which the invention is applied.

B and D are two doors arranged to close the side of the platform and in the present instance the door B closes the ingress passageway *a′*, and the door D closes the egress passageway a^2. A post A^2 is located at the edge of the platform. The doors B and D are coupled together by vertical hinges C. An extension of the pintle of the upper hinge in the present instance, carries a roller *c′*, which is adapted to a transverse overhead track E and projecting from the upper edge of each door, near the outer edge, are swiveled brackets *b* and *d*, respectively, having rollers which travel in grooved overhead tracks F, F′. These two tracks run parallel with the side of the platform and are curved at one end, as at *f*, *f′*, so as to allow the rollers on the ends of the doors to assume the position illustrated in Fig. 2. The track E, in the present instance, extends between the two inturned portions of the tracks F, F′, as indicated in Fig. 1, so that when the doors are closed the roller c^2 can travel past the inturned ends to the position illustrated in Fig. 1.

In order to steady the lower portion of the doors B and D, I provide rails G, G′ at the edge of the platform corresponding in shape to the tracks F, F′ and arranged to slide on these rails are blocks *g*, *g′* to which the doors are swiveled at b^2 and d^2 respectively. As the doors are moved from the open to the closed position, the slides will travel on the rails.

In the present instance, I mount a vertical rod C′ at the point at which the doors are connected. This rod preferably forms the pintles of two of the hinges C and the extension *c* is part of this rod, when the rod is used. Arranged to slide on the rod is a block c^2 pivotally connected to a lever S which in turn is pivoted at *s* to a bracket on the post A^2 and at the outer end of the lever S is a handle *s′* by which the lever is operated. The lever is of such length that the handle extends beyond the ends of the doors, when they are in the open position. By pushing down upon this lever, the doors are forced forward and are spread apart as they travel on the rails to the closed posi-

tion, as illustrated in Fig. 1; the lever assuming the position illustrated in Fig. 4.

I is a hinged catch, pivoted at i to one of the doors and has a hooked end i' which passes through the door and is shaped to engage a keeper i^2 on the post A^2, when the doors are in the closed position. This handle I may be of such size as to be grasped by the operator in opening or closing the door and where it is not essential to lock the doors in the closed position this latch may be dispensed with. In some instances, it is desirable to lock the doors in the open position and this is accomplished by a latch N, Fig. 8, which is pivotally mounted under the floor of the platform and has a projecting, beveled end, which is arranged to engage a lug n', on one of the doors. The latch is a spring latch and can be released by placing the foot upon a post n^2, which projects through the floor.

Secured to the floor is a stop n, against which the doors contact when in the open position and the latch is preferably arranged within the stop. As the stop is in close proximity to the end of the rail a, it is out of the path of passengers entering or leaving the car.

When it is desired to use a movable step with my improved doors, I preferably hinge the step M at m, m to brackets depending from the platform and projecting from this step is an arm m' connected to a sliding rod m^2 which, in turn, is connected by a rod m^3 to the lever S some distance from the pivot s, as indicated in Figs. 3 and 5, so that when the lever S is in the position indicated in Fig. 5, and the doors are open, the step is lowered and in position, but when the lever is moved to the position illustrated in Fig. 4, the step is raised.

In Fig. 9, I have illustrated a modification of my invention and in this figure the step M' is connected by a rod p to an extension s^2 of the lever S and when the lever is moved from the horizontal to the vertical position the step is raised. When the lever is in the horizontal position the rod p projects a sufficient distance from the post A^2 to form a hand rail, which may be used by passengers boarding the car.

In some instances, it may not be necessary to use the lever S in opening and closing the doors. In this case, the lever can be dispensed with and the doors opened and closed by grasping a handle secured to one of the doors.

It will thus be seen that I provide a pair of doors, which can be used at one side of the platform, and which will close the side of the platform when in their closed position, and will form a barrier, when in the open position, separating the ingress passageway from the egress passageway. The doors will not project beyond the side of the car, nor will they project into either passageway.

It will be understood that a single door may be used in some instances, and operated in the manner above described, without departing from the essential features of the invention, but the invention is particularly adapted for use on platforms of cars having ingress and egress passageways which must be separated by a barrier.

While I have used the term "doors" in the specification, it will be understood that the invention can be used in connection with gates and half doors and the barrier a, which, in the present instance is illustrated as a rail, may be formed in any manner to separate the ingress from the egress passageway.

I claim:

1. The combination in a passenger car, of a platform open at one side, two doors hinged together and closing one side of the platform, rails upon which the doors travel, two of said rails being parallel with the edge of the platform and the other rail being at right angles thereto so that when the doors are moved from the closed to the open position they form a barrier between the entrance and exit passageways of the platform.

2. The combination in a passenger car, of a platform, open at one side, two doors arranged to close the said side, two overhead rails curved inward at the center of the passageway, a transverse rail, a swiveled wheel mounted on the transverse rail and attached to the doors at the point where they are connected, a roller at the opposite end of each door adapted to the rails which are parallel with the platform, so that when the doors are opened they will be retracted and will fold together to a position midway between the entrance and exit passageways.

3. The combination in a passenger car, of a platform, open at one side, two rails parallel with the open side of the car and curved inward at their inner ends, a transverse overhead rail, guide rails at the platform in line with the upper rails and parallel with the edge of the platform, two doors hinged together and arranged to close the open side of the platform, rollers mounted on the doors and adapted to the overhead rails, and guides swiveled to the lower ends of the doors and arranged to slide on the lower rails, the doors, when in the open position, forming a barrier between the entrance and exit passageways, and arranged face to face.

4. The combination in a passenger car, of a platform, open at one side, two doors arranged to close said platform and arranged to swing so as to face each other

when in the open position and to form a division between the entrance and exit passageways of the platform, a hinged latch on one of said doors, and a dividing post having a keeper which is engaged by the latch when the doors are closed.

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

THOMAS J. NAULTY.

Witnesses:
WM. E. SHUPE,
WM. A. BARR.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."