

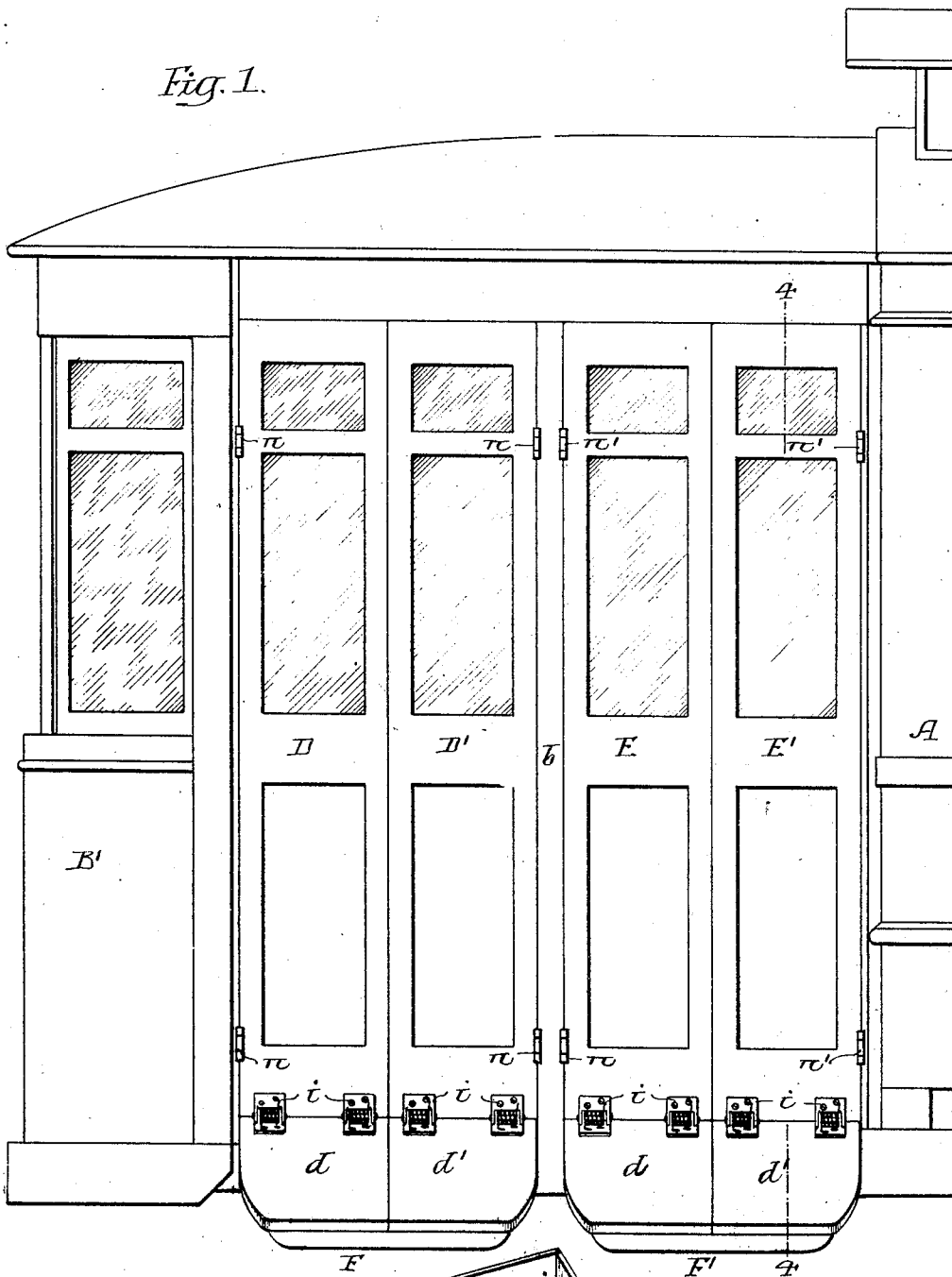
H. HOWSON.
CAR PLATFORM DOOR AND STEP GUARD.
APPLICATION FILED SEPT. 2, 1910.

977,310.

Patented Nov. 29, 1910.

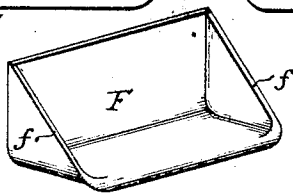
3 SHEETS—SHEET 1.

Fig. 1.



Witnesses— Fig. 6.

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3 SHEETS—SHEET 2.

Fig. 2

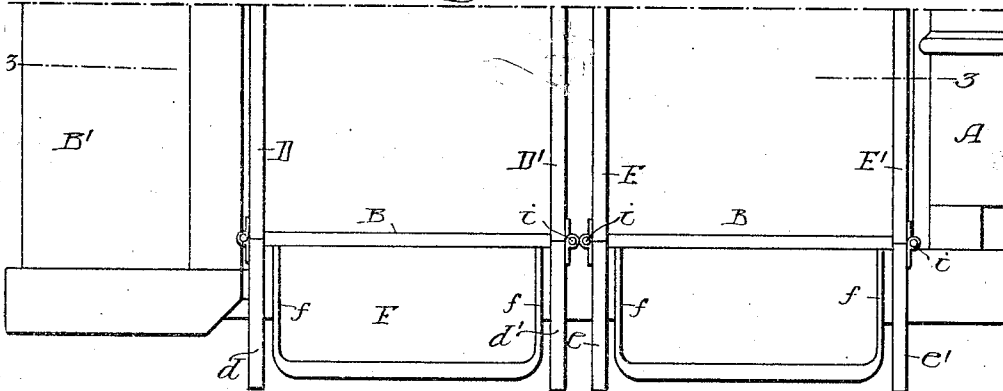


Fig. 3

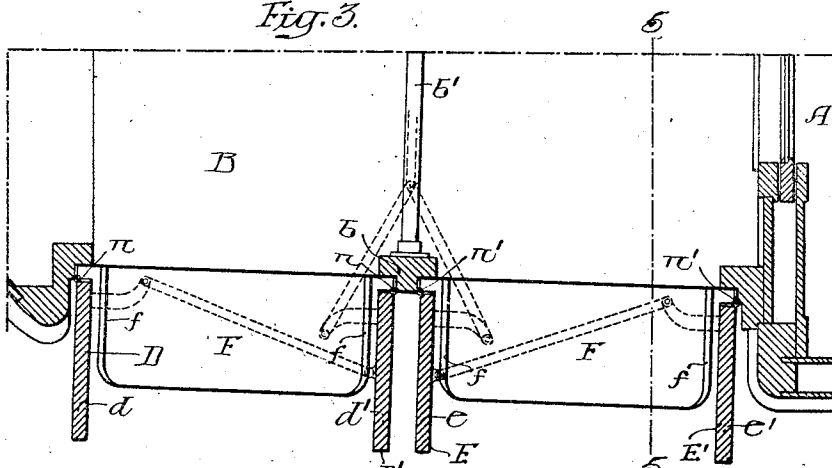


Fig. 7

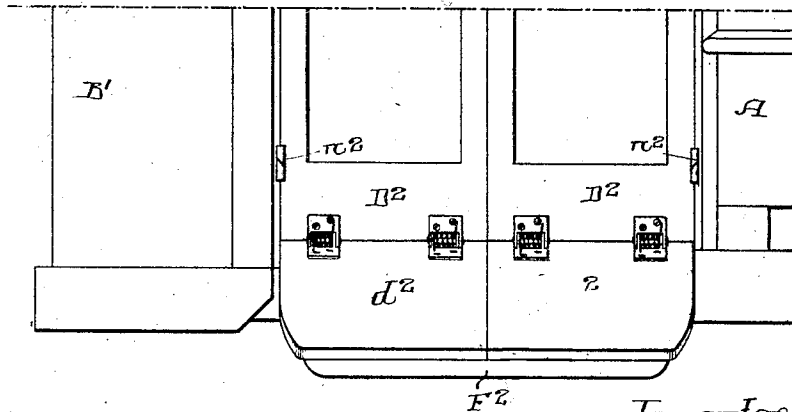
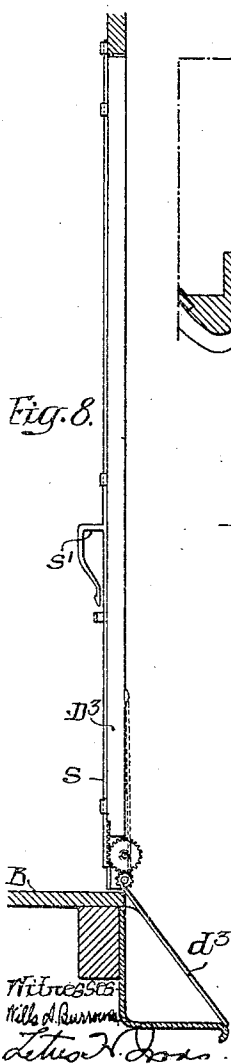


Fig. 8



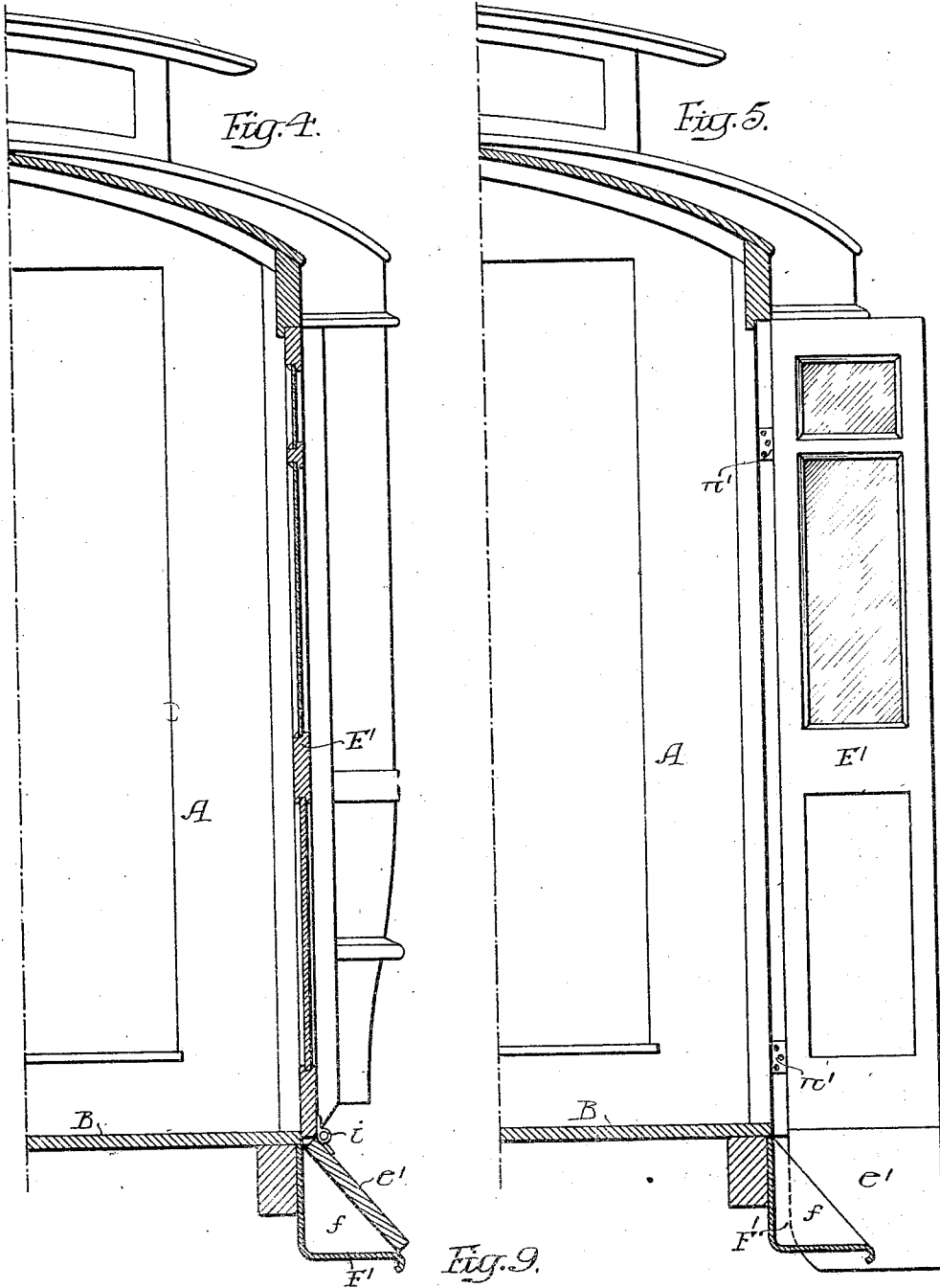
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3 SHEETS—SHEET 3.

977,310.



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UNITED STATES PATENT OFFICE.

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CAR-PLATFORM DOOR AND STEP GUARD.

977,310.

Specification of Letters Patent.

Patented Nov. 29, 1910.

Application filed September 2, 1910. Serial No. 580,180.

To all whom it may concern:

Be it known that I, HENRY HOWSON, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Car-Platform Doors and Step Guards, of which the following is a specification.

My invention relates to certain improvements in passenger cars of the type in which one or both sides of the platform are closed by doors.

My invention is particularly adapted to the type of car in which a permanent platform step is used.

The object of my invention is to so construct a car having doors closing the platform that when the doors are closed the platform step will not be exposed, yet when the doors are open the platform step will be unobstructed for the use of passengers.

In the accompanying drawings:—Figure 1, is a side view of sufficient of one end of a passenger car to illustrate my invention; the doors being in a closed position; Fig. 2, is a view of the lower portion of the car illustrated in Fig. 1, with the doors in the open position; Fig. 3, is a sectional plan view on the line 3—3, Fig. 2; Fig. 4, is a transverse sectional view on the line 4—4, Fig. 1; Fig. 5, is a transverse sectional view on the line 5—5, Fig. 3; Fig. 6, is a perspective view of one of the steps; Fig. 7, is a view illustrating a modification of the invention and also illustrating a single pair of doors; Fig. 8, is a view illustrating a modification in which the guard is moved out of position before the door is opened, and moved into position after the door is closed; and Fig. 9, is a view of a modification of the step.

A is the body of the car.

B is the platform.

B' is the front vestibule casing of the platform.

One side of the car is closed, or provided with a door which is only opened when the platform is at the forward end of the car and on the other side.

In the present instance, as illustrated in Fig. 1, there are two pairs of doors D, D' and E, E'; the doorways being separated by a vertical post b. The doors D, D' close the ingress opening of the platform in the present instance, and the doors E, E' close the egress opening. A rail b' or other suitable

partition may be used to separate the ingress portion of the platform from the egress portion.

This type of car is what is known as a "pay-as-you-enter" car; the conductor standing on or near the platform to receive the fares of passengers as they enter the car, but it will be understood that my improved door construction may be used in connection with cars either of the "city" or "suburban" types, or on roads in which the cars are coupled en train.

The doors may be opened and closed by any suitable mechanism. In the drawings, Fig. 3, I have shown the doors of each pair connected by rods and one of the doors of each pair connected to operating mechanism within easy reach of the conductor.

F, F' are the steps; the step F being opposite the ingress opening of the platform and the step F' being opposite the egress opening; these steps may be made in one piece, as illustrated in Fig. 9, or may be in the form of two separate steps, as in Fig. 1, without departing from the essential features of the invention. The steps are permanently secured to the platform and both the tread and riser are fixtures.

Attached to the doors D, D' are guards which extend over the tread portion when the doors are closed. The guards d, d' are attached to doors D, D' and the guards e, e' are attached to the doors E, E'. The doors D, D' are hinged at n to the door frames, while the doors E, E' are hinged at n' to the door frames. The doors, as illustrated in Figs. 1 to 5 inclusive, close against the edge of the platform. The guards are hinged to the doors by spring hinges i in the present instance. The hinges may, however, be of any suitable type.

When the doors are opened the springs force the guards to assume a vertical position in line with the doors, as indicated in Fig. 2, and when the doors are closed the guards rest upon supports f at each side of the steps F, F', Fig. 6. These supports have inclined faces, so that when the doors are closed, as in Fig. 4, the guards are forced to assume an inclined position in respect to the doors and extend over the tread portion of the step, thus preventing any person standing on the step when the doors are closed.

I preferably so proportion the guard that it does not close directly on the step, so that

in the event of ice or dirt accumulating on the step it will not interfere with the proper closing of the door and guard, but in some instances it may rest directly against the tread of the step, in which case the supports *f* may be dispensed with.

As the guard is of a length greater than the distance between the lower edge of the door and the tread of the step, I discontinue the step at each edge; the supports *f*, *f'* forming the side walls of the steps, although in some instances the steps may be made in a continuous piece with a depression *f'* to allow for the movement of the doors and guards, as in Fig. 9.

The edge of the platform, as indicated in Fig. 3, is preferably set back from the side of the body of the car, usually the depth of a step so that the doors when open extend a short distance beyond the side of the car. In some instances the edge of the platform may be such a distance back of the side of the car that the edges of the doors will not project beyond the edge of the car.

It will be seen that when the doors are closed against the edge of the platform, the permanent steps are covered, so that it is impossible for any one to board the car when it is in motion. When the doors are opened the guards are automatically removed from the steps and the permanent step is exposed so that passengers can readily board or leave the car.

By the above construction the platform is entirely closed and there are no openings between the door and the edge of the platform, and the step is entirely covered. Furthermore, the hinged doors when open, as in Fig. 3, extend but a very short distance beyond the edge of the car body and, in some instances, may extend to a point inside of the car body if desired.

In Fig. 7, I have illustrated a modification in which a fixed step extends beyond the supports at each end and the door hung on hinges *n*²; the bearing face of the hinges being inclined so that the door in opening is raised a sufficient distance to allow the guard *d*², which is attached to the door *D*², to swing clear of the step *F*².

In Fig. 8, I have illustrated a modification in which the door *D*³ may swing inward or outward, as desired. The guard *d*³ in this instance is pivoted to the door and turned by a bolt rod *s* on the door, this rod is provided with a handhold *s'*. The bolt has a rack at its lower end which meshes with the teeth of a gear wheel which in turn meshes with a wheel on the pivot shaft carrying the guard *d*³, the upper end of the bolt *s* engages a keeper on the door frame. When the bolt is forced down to release the door the guard is raised so as to rest against the door, then the door can swing either inward or outward as desired. When the door is closed the bolt

rod is raised, locking the door and lowering the guard over the tread of the step. Thus, whether the doors swing outward or inward the guard is arranged so as to extend over the step when the doors are closed, and located clear of the step when the doors are open.

While my invention is particularly adapted for use in protecting the steps of a platform which is inclosed, the invention may be used in other places where it is desired to prevent a step being used when the door is closed, and it will be understood that while I have illustrated a door for completely closing the platform, the invention may be used in connection with a gate or other closure.

I claim:—

1. The combination of a platform, a fixed step at one side of the platform, a hinged door for closing the step side of the platform, the step projecting beyond the line of the door when closed, with a guard pivotally mounted at the lower edge of the door and arranged to extend at an angle over the tread of the step when the door is closed, and, when the door is open, to assume a vertical position in line with the door.

2. The combination of a platform, a fixed step at one side of the platform, a hinged door arranged to close the side of the platform, the step projecting beyond the door when said door is closed, a movable guard carried by the door, and means for allowing the guard to assume a position at an angle to the door to cover the step when the door is closed and to allow the guard to assume a vertical position when the door is open.

3. The combination of a platform, a fixed step at the side of the platform, a hinged door arranged to close the side of the platform, the step projecting beyond the door when in its closed position, a guard hinged to the lower edge of the door and extending at an angle over the step when the door is closed, and a spring tending to force the guard in a vertical line with the door when the door is opened.

4. The combination of a platform, a permanent step at one side of the platform, a hinged door arranged to swing outward and, when closed, to assume a position at the edge of the platform, a hinged guard hung from the lower end of the door and arranged to assume an angle in respect to the door and to extend over the tread portion of the step and, when the door is in the open position, the said guard will assume a vertical position in respect to the door.

5. The combination in a passenger car, of a platform, a hinged door arranged to swing outward, a guard hinged to the lower edge of the door, a spring tending to force the guard in a vertical line with the door, a step, and an inclined support on the step acting to force the guard to assume an inclined po-

sition in respect to the door when the door is closed, the guard, when the door is open, assuming a vertical position in respect to the door.

5 6. The combination in a passenger car, of a platform, two doorways located side by side at one side of the platform, a permanent step at the side of the platform and extending beyond the doorways, a pair of
10 doors hung in each doorway, a guard hinged to the lower edge of each door, means for forcing the guards to assume a vertical posi-

tion in respect to the doors when the doors are open, the guards, when the doors are closed, resting on the steps in an inclined position so as to protect the tread of the step.

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

HENRY HOWSON

Witnesses:

WM. E. SHUPE,
WM. A. BARR.