No. 776,507. PATENTED DEC. 6, 1904.

J. FILION.

CAR VESTIBULE DOOR AND TRAP.

APPLICATION FILED MAY 2, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

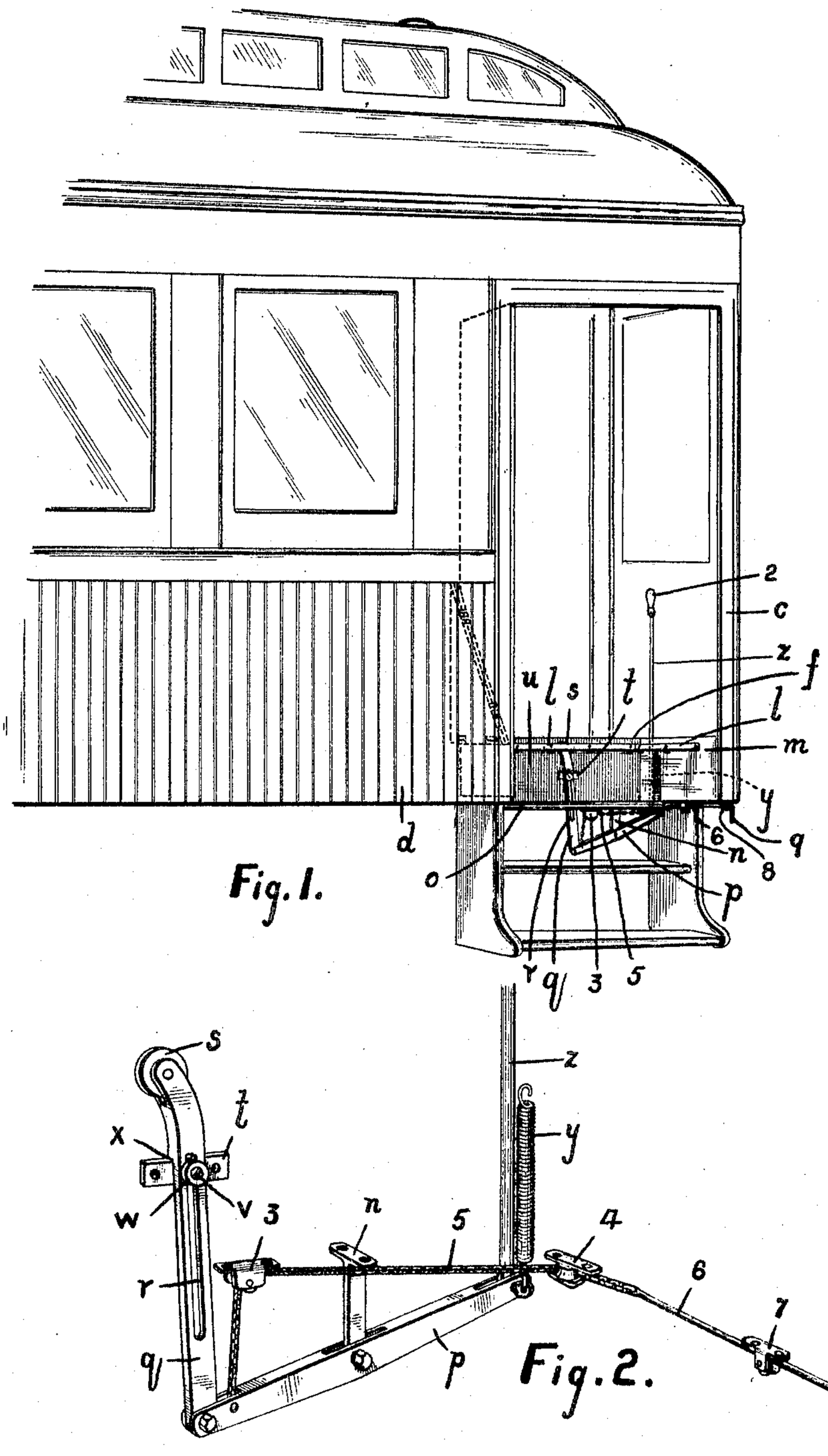

Fig. 1.

Fig. 2.

Witnesses.
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Joseph Filion
by James A. Watson. Atty.

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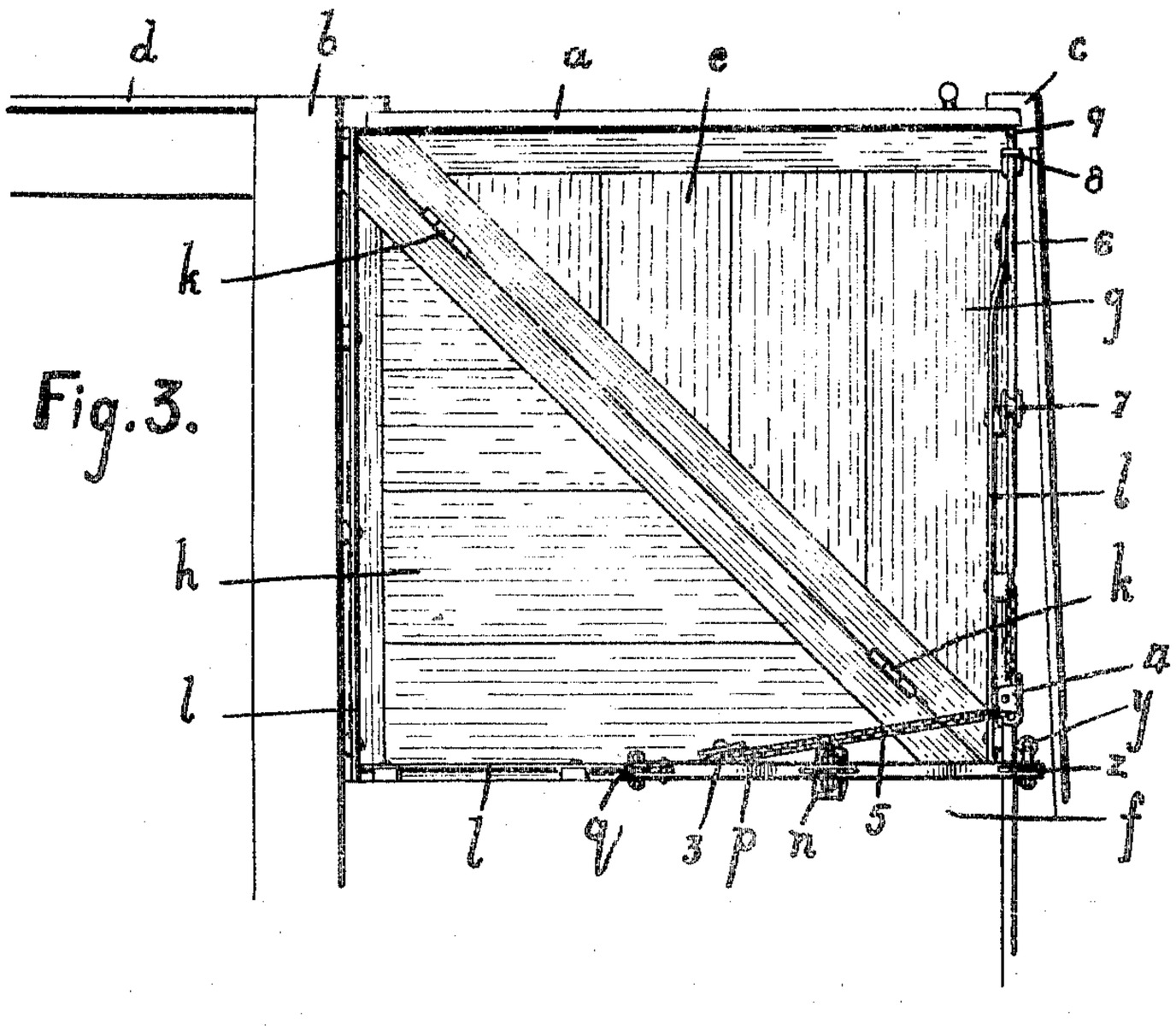

Fig. 3.

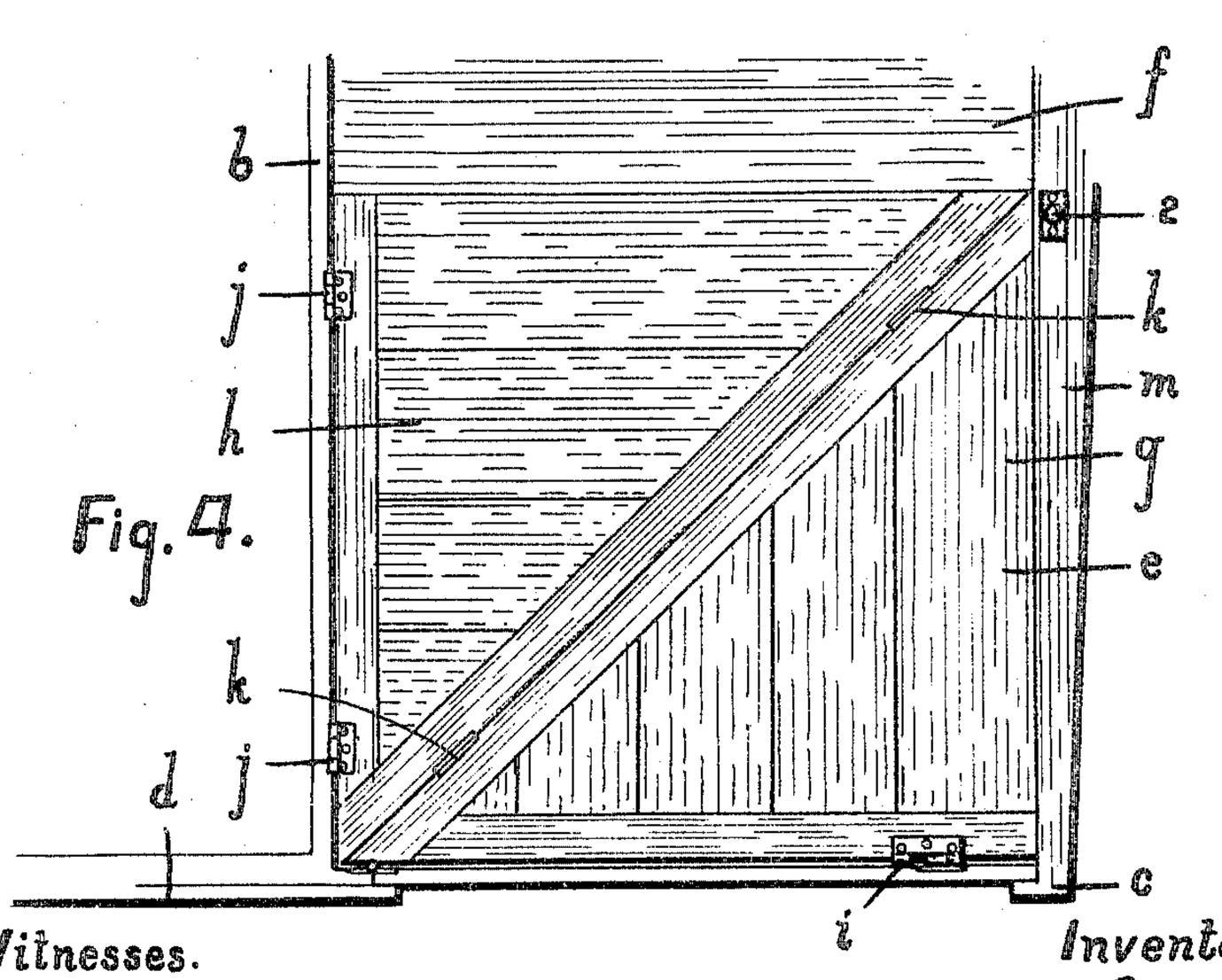

Fig. 4.

Witnesses.

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No. 776,507. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

JOSEPH FILION, OF MONTREAL, CANADA, ASSIGNOR OF FORTY ONE-HUNDREDTHS TO DAVID SLEETH, OF MONTREAL, CANADA.

CAR-VESTIBULE DOOR AND TRAP.

SPECIFICATION forming part of Letters Patent No. 776,507, dated December 6, 1904.

Application filed May 2, 1904. Serial No. 206,009. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH FILION, a subject of the King of Great Britain, residing at Montreal, in the district of Montreal, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Car-Vestibule Doors and Traps, of which the following is a specification.

My invention relates to improvements in car-vestibule doors and traps; and the object of the invention is to eliminate the danger incident to fast-closed vestibule-doors in railway-carriages and in facilitating the opening and closing of the doors and coincidently the adjustment of the trap, lessen the labor and time entailed in the discharge of such duties, and at the same time provide a construction simple and inexpensive; and it consists, essentially, of a folding trap formed of two sections and attached to the door and to the wall of the car, means for lifting said trap located therebeneath, and means for operating said lifting mechanism, the various parts being constructed and arranged in detail as hereinafter more particularly described.

Figure 1 is a perspective view of a portion of a car, showing the lifting mechanism. Fig. 2 is a perspective detail of the lifting mechanism. Fig. 3 is a plan view from beneath, showing the arrangement of the parts in relation to the surrounding platform and car-wall with the trap closed. Fig. 4 is a plan view from above, showing the trap closed.

Like characters of reference indicate corresponding parts in each figure.

a is a vestibule-door hinged to and swinging inwardly against the end wall *b* of the car and in its closed position within the frame *c*, substantially in alinement with the side wall *d*, as customary.

e is a trap occupying the space between the door *a* when closed and the top step *f*. The trap *e* is split diagonally into two sections *g* and *h*. The section *g* is attached to the door *a* by the hinge *i*. The leaves of the hinge *i* are adjustably arranged so as to have a sliding lateral movement in the knuckle and pin to allow the opening and closing of the door, as will be explained more fully hereinafter. The section *h* is attached to the end wall *b* of the car by the hinges *j* and folds upwardly against the said wall. The sections *g* and *h* are attached together at their oblique side edges by the hinges *k* and together substantially form a square.

l represents supports for the trap *e* and are attached to the end wall *b* and the frame *m* of the platform immediately beneath the top step *f*, so as to bring the trap *e* when down level with the platform. It will be thus seen that when the door is opened the sections *g* and *h* being slightly lifted from below will fold up together and rest in that position between the door *a* and the end wall *b* while the former is open and immediately on closing will fall into position between the top step *f* and the door *a* and rest on the supports *l*.

n is a bracket securely attached to the under side of the step *o* and projecting downwardly therefrom.

p is a bar pivotally secured intermediate of its length to the extreme end of the bracket *n*.

q is a rod pivotally secured at its lower end to one end of the bar *p*, having a longitudinal slot *r* and a roller *s* journaled at the upper end thereof.

t is a plate secured to the board *u* immediately beneath the top step *f* and having a pin *v* projecting therefrom through the longitudinal slot *r*.

w is a retaining-button secured to the outer end of the pin *v* to hold the rod *q* in position. The rod *q* has also a shoulder *x*, which rests on the top of the plate *t* when the rod is in its normal position. The said rod *q* projects upwardly through the step *o* into proximity to the trap *e* in its closed position.

y is a spiral spring secured at its lower end to the bar *p* and at its upper end to the platform. This will always keep the rod *q* in its lower position until the operation occurs of opening the door.

z is a lever pivotally secured to the end of the bar *p* in immediate proximity to the spiral spring *y*.

The lever *z* projects upwardly through a

suitable orifice in the frame *m* for a considerable distance above the platform and adjacent to the trap, having a suitable handle 2 at its upper end.

3 is a pulley secured to the under side of the step *o* adjacent to the rod *q*.

4 is a pulley secured to the under side of the frame *m*, substantially in alinement with the said step *o*.

5 is a chain securely attached to the bar *p* close to the rod *q* and passing through the pulleys 3 and 4 and secured to the pull or rod 6.

The rod 6 slides in the pulley 7, attached to the under sideof the frame, and an eye 8, also attached to the under side of the frame, and is provided with a handle 9.

Having described the various parts in detail, I shall now more particularly explain the utility and operation thereof. In the ordinary trap and vestibule-door, the trap and door are not connected, though frequently the trap may be hinged to the platform or car-body. This trap when put in position between the top step and the door completely blocks the latter, keeping it fast closed until the said trap is entirely removed. In this arrangement the trap has to be lifted before the door can be opened at all, making it very awkward in even opening the door from the inside and entirely impossible to open it from the outside. Many accidents have happened by a door being thus barred from the inside and causing a passenger or trainman to hold to the steps after the train is in motion. This invention obviates all such difficulties, as the trap is split diagonally, and having supports arranged therearound is just as secure as the trap in one piece, and yet from being attached to the door and the wall folds up neatly between the said door and the said wall every time the former is opened and immediately on the closing will naturally fall into position.

In order to start the door open, it is necessary to lift the trap slightly, and this is done by pressing the lever *z*, which will in turn tip the bar *p* and then force up the rod *q* against the bottom of the trap immediately beside the step. The door may then be opened with ease, as all that is necessary is to pull it inwardly and the trap folds up, as explained in the foregoing. It is preferable in this construction to do away with the ordinary latch on the door, though in some cases it may be deemed advisable to have the latch; but where such latch is not provided the door immediately on the forcing down of the lever *z* will open, whereas if there is a latch naturally the door-handle must be turned coincidently.

The means provided for opening the door from the outside is in the rod 6 and the chain 5, which operates the bar *p* in a precisely similar fashion as does the lever *z*.

The adjustable arrangement of the hinge attaching the section *q* to the door provides for a lateral movement in relation to the door. This is essential, as the swinging of the door on its hinges makes it assume a different position in relation to the trap, which must accommodate itself to each change of position of the door when opening or closing.

What I claim as my invention is—

1. In a vestibule-car door and trap, the combination with the car body, vestibule and platform, of a folding trap formed of two sections attached to the vestibule-door and the wall of the car-body, respectively, and means for lifting said trap, as and for the purpose specified.

2. In a vestibule-car door and trap, the combination with the car body, vestibule and platform, of a folding trap formed of two sections diagonally split and hinged together at their oblique sides, having one section hinged to the car-body, and the other adjustably hinged to the vestibule-door, means for lifting said trap located therebeneath, and means for operating said lifting mechanism, as and for the purpose specified.

3. In a vestibule-car door and trap, the combination with the car body, vestibule and platform, of a folding trap formed of two sections diagonally split and hinged together at their oblique sides, having one section hinged to the car-body, and the other adjustably hinged to the vestibule-door, a rod longitudinally slotted and having a roller journaled at its upper end, a pin secured beneath the top step and extending through said rod, and means attached to the lower end of said rod for imparting to the same an upward movement, as and for the purpose specified.

4. In a vestibule-car door and trap, the combination with the car body, vestibule and platform, of a folding trap formed of two sections diagonally split and hinged together at their oblique sides, having one section hinged to the car-body, and the other adjustably hinged to the vestibule-door, a pivoted bar located below the trap, an upwardly-projecting rod extending in suitable guides into proximity to the under side of said trap, and pivotally secured to the end of said bar, and means for tipping said pivoted bar, as and for the purpose specified.

5. In a vestibule-car door and trap, the combination with the car body, vestibule and platform, of a folding trap formed of two sections diagonally split and hinged together at their oblique sides, having one section hinged to the car-body, and the other adjustably hinged to the vestibule-door, a pivoted bar located below the trap and spring-held to the platform-frame at one end, an upwardly-projecting rod pivotally secured to the other end of said bar, having a shoulder intermediate of its length, a roller journaled at its upper end and a longitudinal slot therethrough, a plate or support secured beneath the top step, a pin having a removable head and extending from

said plate through the aforesaid rod, and means for tipping said pivoted bar, as and for the purpose specified.

6. In a vestibule-car door and trap, the combination with the car body, vestibule and platform, of a folding trap formed of two sections diagonally split and hinged together at their oblique sides, having one section hinged to the car-body, and the other adjustably hinged to the vestibule-door, a bracket projecting from the under side of a step, a bar centrally pivoted on said bracket and spring-held at one end, a rod projecting upwardly and suitably guided through the step into proximity with the under side of the trap, and a lever pivotally secured to the spring-held end of said bar and extending upwardly through the platform, as and for the purpose specified.

7. In a vestibule-car door and trap, the combination with the car body, vestibule and platform, of a folding trap formed of two sections diagonally split and hinged together at their oblique sides, having one section hinged to the car-body, and the other adjustably hinged to the vestibule-door, a bracket projecting from the under side of a step, a bar centrally pivoted thereon and spring-held at one end, a rod pivotally secured to the other end and projecting upwardly in suitable guides to the under side of said trap, a chain secured to the bar in proximity to the upwardly-projecting rod and extending through suitable pulleys arranged on the under side of the steps and the platform-frame, a pull or rod secured to the said chain and extending through a pulley and eye to the edge of the platform-frame, as and for the purpose specified.

8. In a device of the class described, in combination, a vestibule-car door suitably hinged to the car-body and opening inwardly, a platform and steps leading therefrom having a downwardly-projecting bracket from one of said steps and a suitable opening therethrough, a folding trap formed of two sections diagonally split, having one section adjustably hinged to the door, and the other hinged to the car-body and suitably connected one to the other, a tilting mechanism secured on the aforesaid bracket, and a projecting rod through the aforesaid opening in the step and operated by said tilting mechanism, as and for the purpose specified.

9. In a device of the class described, a vestibule-car door suitably hinged to the car-body and opening inwardly, a platform and steps leading therefrom, a folding trap formed of two sections diagonally split and suitably connected at their oblique sides, and having one section adjustably attached to the door and the other hinged to the end wall of the car-body, and means independent of the trap for raising it, as and for the purpose specified.

Signed at Montreal, in the district of Montreal, in the Province of Quebec, Canada, this 26th day of April, 1904.

JOSEPH FILION.

Witnesses:

J. E. L. BLACKMORE,

R. T. TROTTER.