

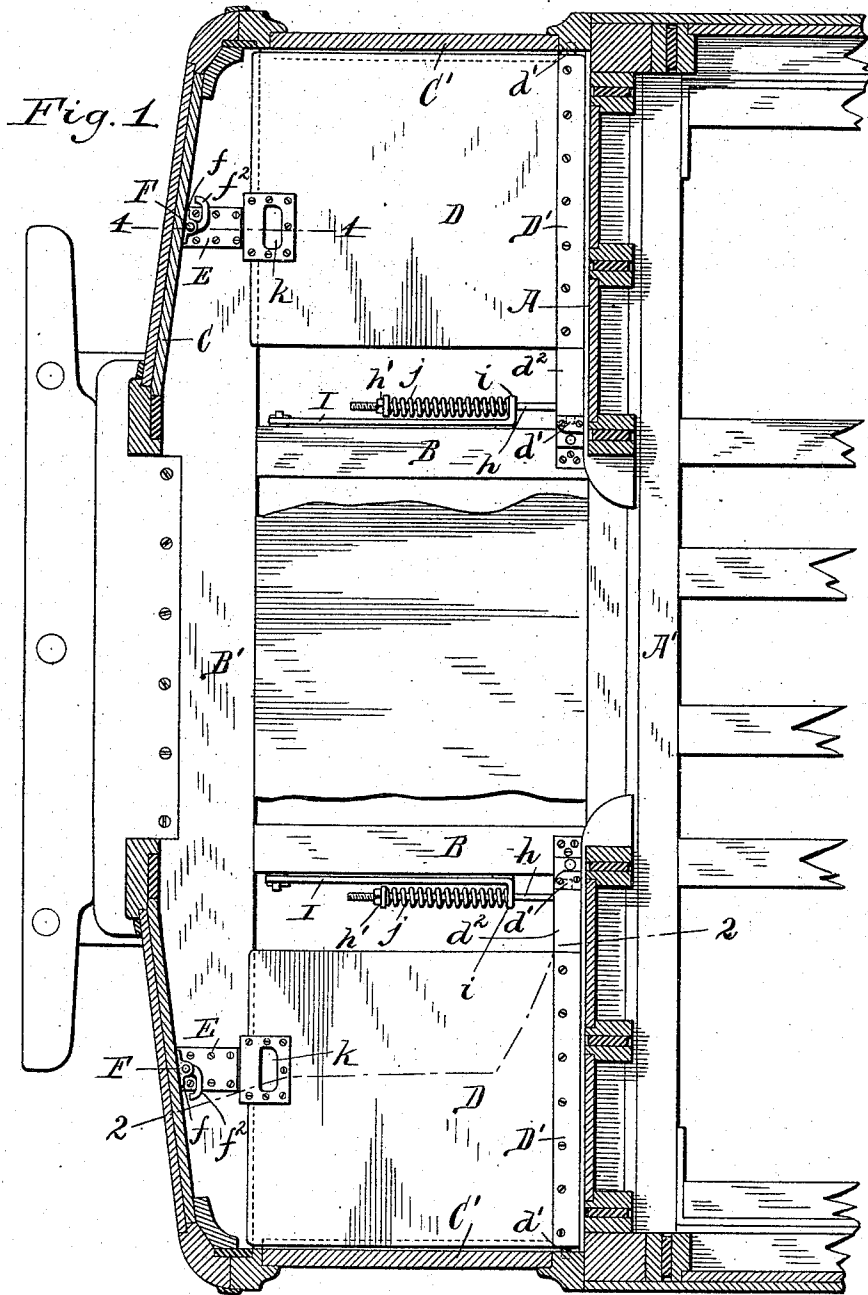
(No Model.)

3 Sheets—Sheet 1.

C. BERGMAN.
RAILWAY CAR PLATFORM.

No. 533,205.

Patented Jan. 29, 1895.



Witnesses:

Emil Neuhart.
Chas. F. Burkhardt.

Inventor.

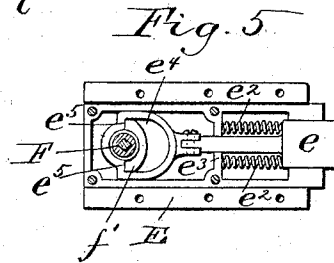
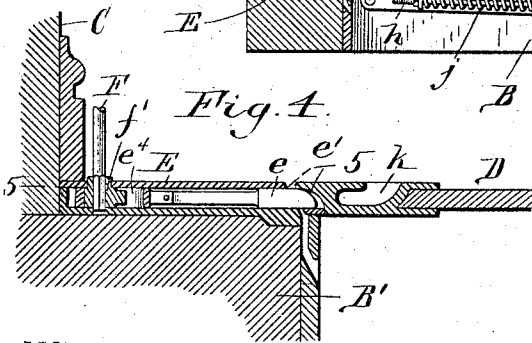
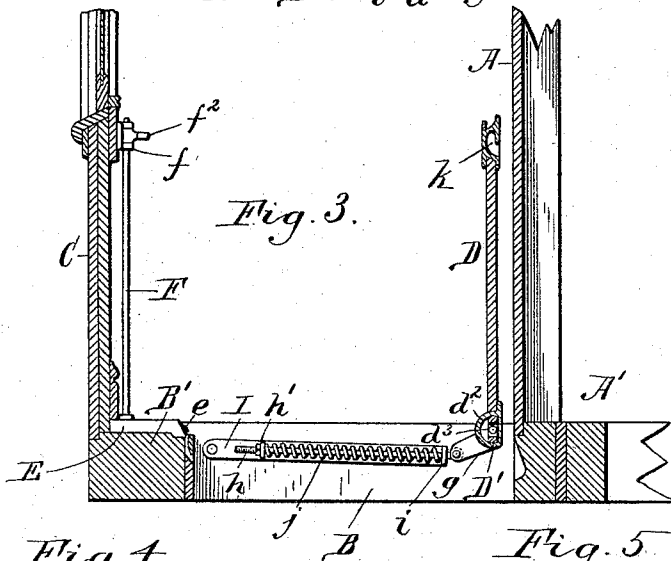
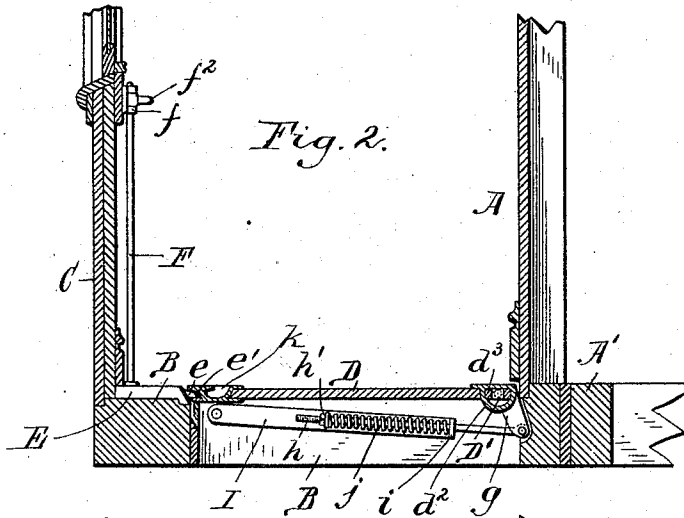
Claes Bergman
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Attorneys

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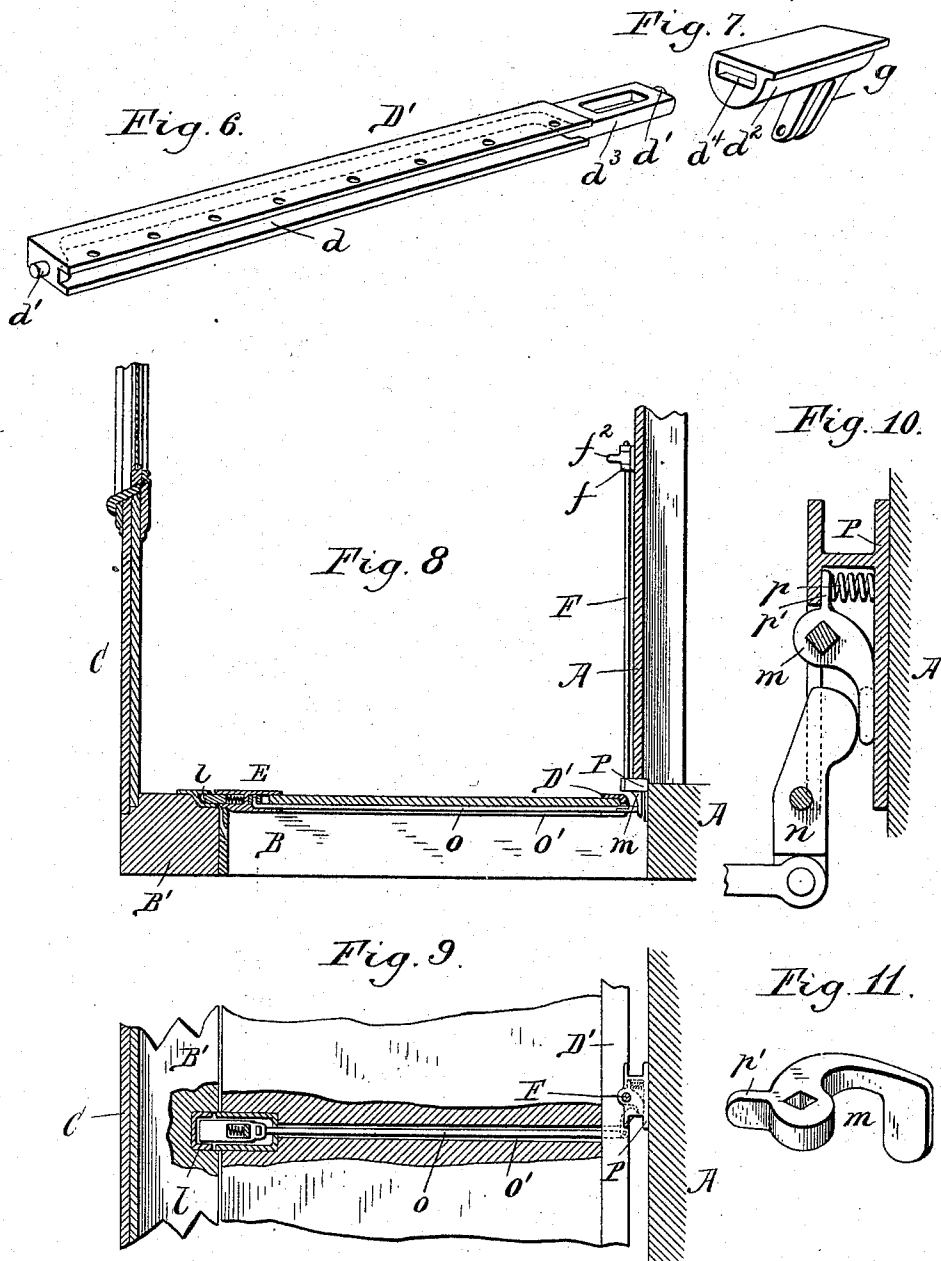
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3 Sheets—Sheet 3.

C. BERGMAN.
RAILWAY CAR PLATFORM.

No. 533,205.

Patented Jan. 29, 1895.



Witnesses:

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UNITED STATES PATENT OFFICE.

CLAES BERGMAN, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO
THOMAS A. BISSELL, OF SAME PLACE.

RAILWAY-CAR PLATFORM.

SPECIFICATION forming part of Letters Patent No. 533,205, dated January 29, 1895.

Application filed June 25, 1894. Serial No. 515,622. (No model.)

To all whom it may concern:

Be it known that I, CLAES BERGMAN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Railway-Cars, of which the following is a specification.

This invention relates to that class of passenger cars in which the platforms are provided with trap doors which are adapted to bridge the space above the car steps and form lateral continuations of the platform and which may be swung aside for permitting free ingress and egress of the passengers.

The object of my invention is to so contrive these trap doors that they are automatically swung out of the way as soon as released for clearing the car steps, and so that the devices which open the door remain below the level of the platform in the open position of the door.

In the accompanying drawings consisting of three sheets: Figure 1 is a horizontal section of the platform of a vestibule car containing my invention, showing the trap doors swung down. Fig. 2 is a vertical longitudinal section in line 2—2, Fig. 1. Fig. 3 is a similar section showing the doors raised out of the way. Fig. 4 is an enlarged vertical longitudinal section in line 4—4, Fig. 1. Fig. 5 is a horizontal section in line 5—5 Fig. 4. Fig. 6 is a perspective view of the pivot plate of one of the trap doors. Fig. 7 is a similar view of the detachable extension of said plate. Fig. 8 is a vertical longitudinal section of the platform, showing a modification of the means for operating the locking bolts of the trap doors. Fig. 9 is a fragmentary horizontal section thereof, with a portion of the door and end sill broken away to expose the locking bolt and its operating rod. Fig. 10 is a fragmentary sectional top plan view, on an enlarged scale, of the operating device of the locking bolt. Fig. 11 is a detached perspective view of the rock arm arranged at the lower end of the actuating shaft of the locking bolt.

Like letters of reference refer to like parts in the several figures.

A is the end wall of the car body; A', the end sill thereof; B, the longitudinal center

sills of the platform, and B' the end sill of the latter.

C is the end wall of the vestibule, which latter is preferably as wide as the car and C' represents the usual doors in the sides of the vestibule. D D represents the trap doors of the platform which are adapted to bridge the spaces or recesses in the platform above the car steps, which latter are not shown in the drawings. These doors are preferably pivoted to the platform at their rear ends, in such a manner that they may be swung down level with platform floor, so as to form a continuation of the latter, as shown in Figs. 1 and 2, or swing upward adjacent to, or against the end wall of the car body, so as to be out of the way, as shown in Fig. 3. Each of these doors is preferably provided at its inner or rear end with a transverse pivot plate D' which is formed in its front edge with a longitudinal groove *d*, in which the adjacent end of the door is secured by screws or other fastenings, and which is provided at its ends with pivots *d'* journaled in bearings arranged in the adjacent center sill and the side wall of the vestibule, as shown in Fig. 1.

The trap doors are preferably somewhat narrower than the distance between the center sills and the side walls of the vestibule, so that their pivot plates extend inwardly beyond the doors. Each of these doors is held in its horizontal or closed position by a catch or locking bolt *e*. This catch preferably consists of a sliding spring bolt which is guided in a housing E secured to the platform floor in front of the trap door, and which engages in a recess *e'* formed in the adjacent edge of the door, as shown in Fig. 4.

*e*², Fig. 5, represents the springs of the bolt which are interposed between a shoulder of the bolt and a rib *e*³ of the housing. The shank of the locking bolt terminates at its rear end in a loop or yoke *e*⁴ which has shoulders or abrupt faces *e*⁵.

F is an upright actuating or rock shaft arranged within the vestibule near the end wall thereof, and journaled at its upper portion in a bearing *f* secured to said end wall. At its lower end, this rock shaft carries a tumbler or shifting arm *f'* which is arranged within

the yoke of the locking bolt and which is adapted to bear against either of the shoulders of the loop, so as to retract the bolt from the recess of the trap door, upon turning the rock shaft, and thus release the door. The rock shaft is provided at its upper end with an arm or handle f^2 for operating it. The front end of the locking bolt is beveled on its upper side, so as to interlock automatically with the door upon lowering it.

Each of the trap doors is provided with mechanism which swings it into its open or raised position when released by its locking bolt, and which is constructed as follows:—
 g is an actuating arm depending from the pivot plate of the door and formed preferably on a short detachable end section d^2 of said plate, which is arranged upon a tenon or contracted portion d^3 at the inner end of the plate, the detachable end section being hollow and provided in its end walls with slots d^4 which receive said tenon. This end section is confined between the shoulder at the inner end of the tenon and the adjacent bearing of the pivot plate. This peculiar construction of the pivot plates enables the same to be used for both the right and left hand trap doors. h is a longitudinal rod pivoted at its inner end to the outer end of the actuating arm of the trap door and arranged to slide lengthwise in a lip or ear i formed at the adjacent end of a horizontal supporting link l . This link is pivoted at its opposite end to the center sill or other stationary part of the platform, by a horizontal pivot-pin, so as to be capable of swinging vertically at its free end. j is a spiral spring which surrounds the rod h , between the lip i and a screw nut or follower h' arranged on the outer portion of said rod. Upon closing the trap door, its actuating arm swings downward and rearward and draws the rod h rearwardly in the ear of the supporting link, thereby compressing the spring between said ear and the nut of the rod, as shown in Figs. 1 and 2. The door is held in this position against the pressure of the compressed spring by its locking bolt. Upon withdrawing this locking bolt by turning the rock shaft F , the spring expands and draws the rod h forwardly on the supporting link, thereby swinging the arm of the trap door forwardly and upwardly and throwing the latter to the open position shown in Fig. 3, where it is held by the spring. The pivoted supporting link permits the requisite oscillatory movement of the rod h to enable the latter to accommodate itself to the various positions of the door-arm. The trap doors are thus automatically opened as soon as they are released, rendering the same more convenient than doors which must be opened as well as closed by hand.

In my improved door opening device, the pivoted link, the spring and the actuating arm of the door remain below the floor of the car platform both in the open and closed po-

sitions of the door, and the door is free from projecting parts which would be in the way.

By providing the locking bolts of the trap doors with the upright rock shafts, the same can be conveniently retracted without stooping.

In order to enable the trap doors to be conveniently opened by hand, in case their springs should become inoperative from any cause, they are provided with undercut recesses or hand holes k .

If desired the operating shafts of the locking bolts may be arranged adjacent to the end wall of the car body instead of near the end wall of the vestibule. Such an arrangement is shown in Figs. 8 and 9. In this case the locking bolt is carried by the trap door and adapted to enter a recess l formed in the adjacent edge of the end sill. The rock shaft carries at its lower end a horizontal rock arm m .

n is a horizontal lever pivoted to the under side of the trap door at the rear end of the latter and having one of its arms arranged in front of the rock arm m . o is a rod connecting the other arm of this lever with the sliding locking bolt and arranged in a longitudinal recess o' formed in the under side of the trap door. Upon turning the rock shaft so as to swing its rock arm m forward, the lever n is swung on its pivot, causing the rod o to retract the locking bolt and release the door.

p is a spring interposed between the base plate or bracket P and a projection p' formed on the rock arm and serving to return the rock shaft to its normal position after retracting the bolt. As the rock arm m bears loosely against the lever n , the latter is free to tilt with reference to said lever when the trap door is swung upward.

I claim as my invention—

1. The combination with a car platform, of a swinging door arranged to close the recess in the platform above the car steps and provided at its pivoted end with an actuating arm, of a lock or catch whereby the door is held in its closed position, a supporting link attached to the platform below the floor thereof, and a spring which is carried by said link and connected with the actuating arm of the door and which is strained in the closed position of the door, whereby the door is automatically opened upon releasing its lock or catch and the spring and connecting parts remain below the level of the platform in the open position of the door, substantially as set forth.

2. The combination with a car platform, of a hinged door arranged to close the recess in the platform above the car steps and having an actuating arm, a link pivoted to the platform frame, a rod guided on said link, connected with the actuating arm of the door and having a stop or follower, and a spring applied to said rod and bearing against said stop or follower, substantially as set forth.

3. The combination with a car platform, of
a hinged door arranged to close the recess
in the platform above the car steps and hav-
ing an actuating arm, a lock or catch for re-
taining the door in its closed position, a link
pivoted at one end to the platform and pro-
vided at its opposite end with a lip or stop, a
rod guided on said link, pivoted at one end
to the actuating arm of the door and provided
at its opposite end with a stop or follower,
and a spring surrounding said rod between
its stop or follower and the stop or lip of the
pivoted link, substantially as set forth.

4. The combination with the car platform, of
a trap door having a pivot plate provided at
one end with a detachable section carrying
the actuating arm of the door, substantially
as set forth.

5. The combination with the car platform, of

a trap door having a pivot plate provided at
one end with a tenon or contracted portion
and a detachable section having an actuating
arm and slots adapted to receive said tenon,
substantially as set forth.

6. The combination with the car platform, of
a hinged door arranged to close the recess
in the platform above the car steps, a spring
connected with said door and tending to open
the same, a bolt arranged on the car platform
and interlocking with the hinged door, and
an operating shaft connected with said bolt
and extending upward therefrom, substan-
tially as set forth.

Witness my hand this 29th day of May, 1894.

CLAES BERGMAN.

Witnesses:

JNO. J. BONNER,
CARL F. GEYER.