

W. F. KIESEL, JR.
 TRAP DOOR FOR VESTIBULE CARS.
 APPLICATION FILED MAY 17, 1909.

956,978.

Patented May 3, 1910.

2 SHEETS—SHEET 1.

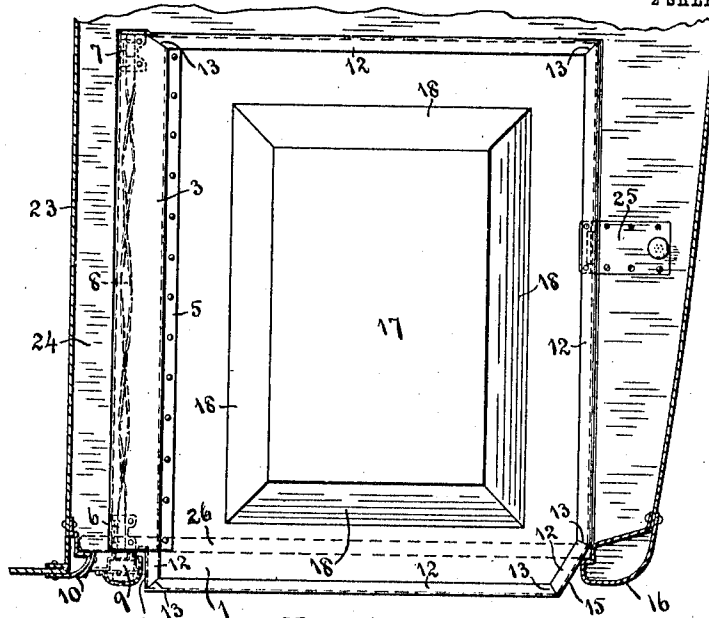


Fig. 1.

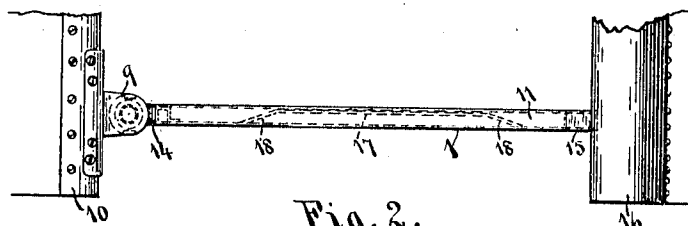


Fig. 2.

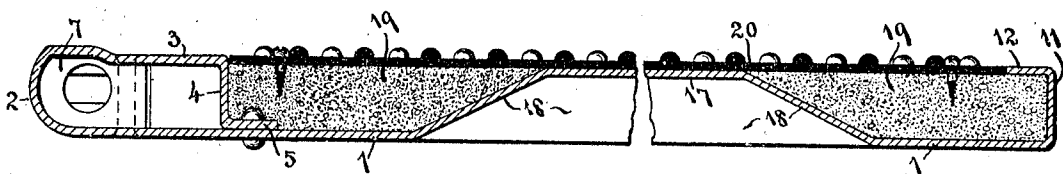


Fig. 3.

WITNESSES:

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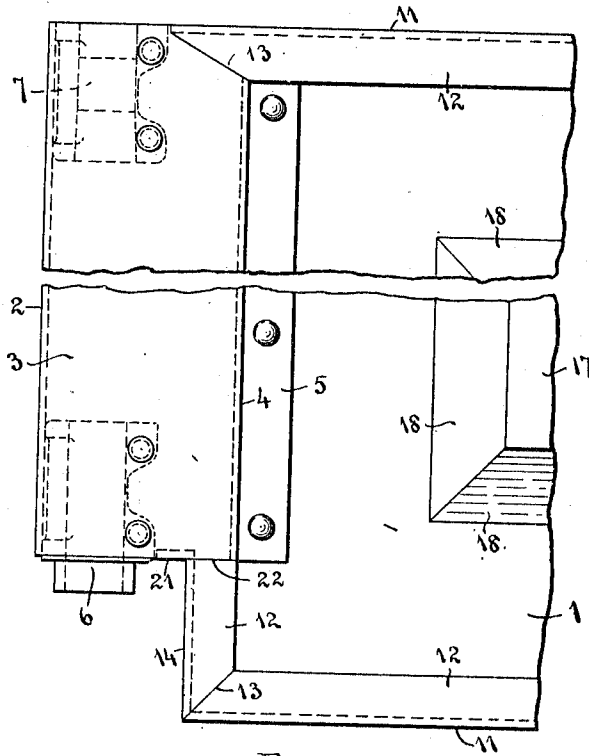


Fig. 4.

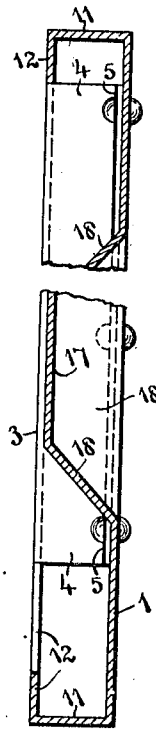


Fig. 5.

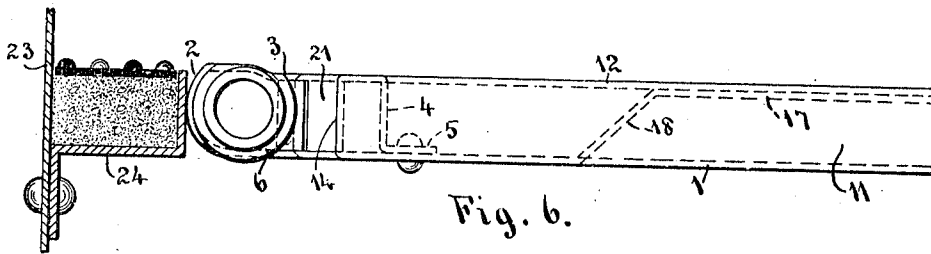


Fig. 6.

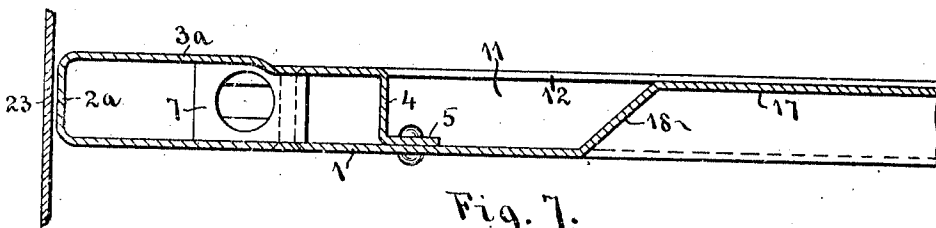


Fig. 7.

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UNITED STATES PATENT OFFICE.

WILLIAM F. KIESEL, JR., OF ALTOONA, PENNSYLVANIA.

TRAP-DOOR FOR VESTIBULE-CARS.

956,978.

Specification of Letters Patent.

Patented May 3, 1910.

Application filed May 17, 1909. Serial No. 496,479.

To all whom it may concern:

Be it known that I, WILLIAM F. KIESEL, Jr., a citizen of the United States, residing at Altoona, in the county of Blair and State of Pennsylvania, have invented certain new and useful Improvements in Trap-Doors for Vestibule-Cars, of which the following is a specification.

This invention relates to improvements in the trap doors by which to close the openings over the steps at the sides of the vestibule platforms of railway cars; and the object of my improvement is to provide an all steel construction for the door, and to form the envelop for the spring hinge in one piece with the door to avoid weakening of the hinge connection under the continued opening and closing of the door.

I attain my object by constructing the door from a single plate of metal, pressed and bent into the form illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of my improved trap door, as applied to a vestibule platform; Fig. 2, a side elevation thereof; Fig. 3, a transverse section, on an enlarged scale, of the door removed from the platform; Fig. 4, a broken plan view of the door upon an enlarged scale; Fig. 5, a sectional view of Fig. 4, looking to the left; Fig. 6, an end elevation of Fig. 4, with a portion of the car platform shown in section; and Fig. 7, a sectional view of a modified form of the door.

Like numerals designate like parts in the several views.

This door is formed by cutting a plate of steel into the required shape, and bending and pressing it into the form shown herein. To form the envelop for the spring hinge, one side of the plate 1 is bent upward at 2, then forward at 3, then downward at 4, where the edge of the plate is flanged over at 5, to rest upon and be riveted to the body of the plate, as shown. At the opposite ends of the envelop so formed, the hinge pieces 6 and 7 are inserted and riveted into place; the hinge piece 7 being adapted to receive a pivot pin fastened to the vestibule platform, and to hold the end of a flat spring 8, said spring passing freely through the hinge piece 6, which is pivotally mounted in a ratchet supporting bracket 9 fastened to the corner door post 10 of the car. The spring 8 is twisted, as indicated by the broken

lines, by the ratchet device on the bracket 9, to provide the required tension. This hinge is the old form of gate hinge, and has already been employed in trap doors of this character, and the details thereof will not require further explanation; it being only necessary to note that the envelop formed by the bends 2, 3, and 4, will be shaped to receive the hinge pieces 6 and 7, and to provide room for the spring.

The remaining three sides of the plate 1 are bent up at 11 and inward at 12, the inward bends 12 lying flush with the envelop bend 3. The inward bends or flanges 12, where they come together, are cut to form miter joints, and the seams at these corner joints 13 are welded together, so that the door, when completed, is integral in all its parts. At 14 and 15 the outward side of the door is cut to clear the bracket 9 and the vestibule corner post 16; thus permitting this side of the door to project slightly outside of the vestibule side door, the position of which side door is indicated by the broken lines at 26. To close the opening at the end of the envelop between the hinge piece 6 and the side bend 14 a piece 21 is turned down from the part 3 of the envelop, as shown in Figs. 4 and 6. The meeting edges of the parts 14, 21, 12, and 3, are welded together on the line 22.

At the center, the plate 1 is pressed inwardly, to form the panel 17, with beveled sides 18. This panel serves two purposes: first, it adds strength and stiffness to the door plate; and, second, it enables the door to be made lighter in weight, since the door must be filled in to the level of the flanges 12 to receive the tread covering, which is usually of rubber, as shown in the section view in Fig. 3. To receive this rubber tread, the panel 17 is pressed upward so as to lie below the level of the flanges 12 a distance equal to the thickness of the sheeting. Around the panel 17 the space between the plate 1 and the rubber tread is filled in with monolith or carbolith cement, said cement being put in when in plastic condition, and leveled off to receive the tread.

As thus formed the door is made strong and rigid throughout, without undue weight, and is also of pleasing appearance; since, when turned upward to open the passageway to the steps, the door presents a panel effect. When thrown down against the ten-

sion of the spring the door is held in position by means of a lock at 25, said lock being of any approved type for this purpose.

As the door is above described, the space
5 between the envelop and the end sheathing of the car must be filled in by a strip of either wood or metal construction, as shown at 24 in Fig. 6, a portion of the end sheathing being shown at 23. I may avoid the
10 necessity of this filling-in piece by extending the envelop beyond the hinge pieces 6 and 7, so that the envelop will just swing clear of the end sheathing, as shown in Fig. 7, where the upward bend 2^a of the envelop is brought
15 up to the end sheathing as close as possible and yet permit it to clear the sheathing, when the door is swung upward on its hinge.

What I claim as my invention and desire to secure by Letters Patent is—

20 1. A door of the character described comprising a metal plate having one side bent upward, then backward over the plate, then downward to the plate, and a permanent fastening between said downward bend and
25 the plate, said bends forming an envelop

adapted to receive the parts of a spring hinge.

2. A door of the type described comprising a metal plate having one side bent to form an envelop for a spring hinge and the
30 remaining sides bent upward and inwardly flanged, said flanges lying flush with the top of the envelop, a filling of plastic material in the recess or chamber so formed, and a tread covering of suitable material overlying
35 said filling flush with said flanges.

3. A door of the type described comprising a metal plate having one side bent to form an envelop for a spring hinge, the remaining sides upturned to form stiffening
40 edges for the door, and the central portion of the plate pressed into the recess or chamber so formed in panel shape.

In testimony whereof I have affixed my signature, in presence of two witnesses.

WILLIAM F. KIESEL, JR.

Witnesses:

J. C. STORM,
J. F. MECK.