

(No Model.)

2 Sheets—Sheet 1.

F. G. SUSEMIHL.

FREIGHT CAR DOOR.

No. 370,502.

Patented Sept. 27, 1887.

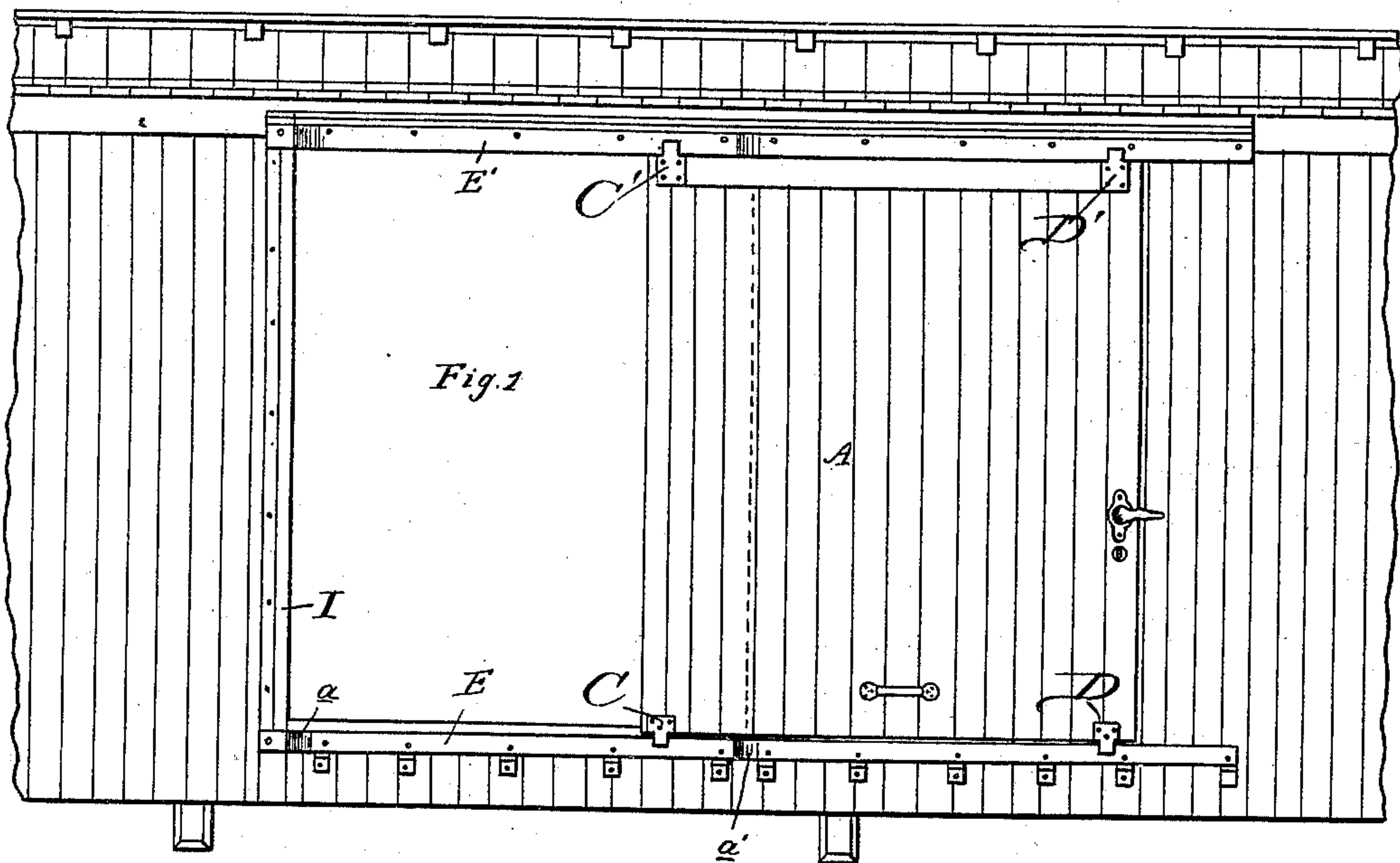


Fig. 2

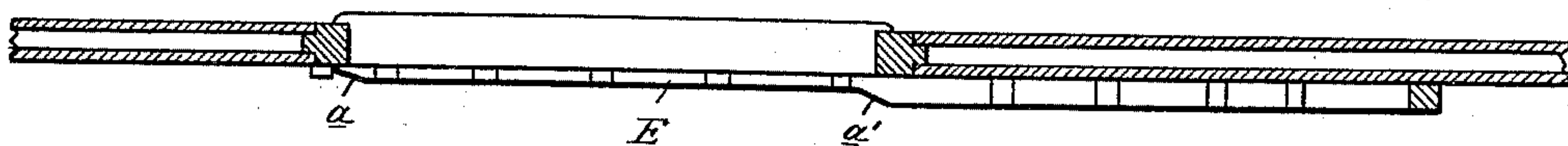


Fig. 3

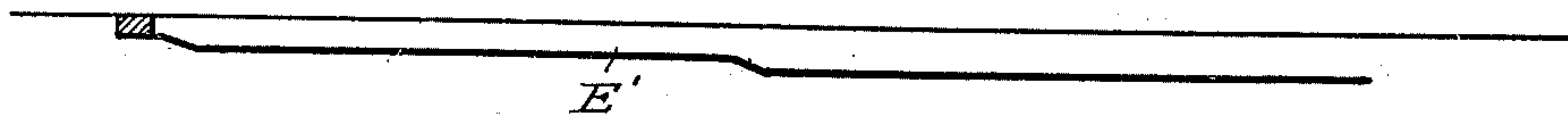
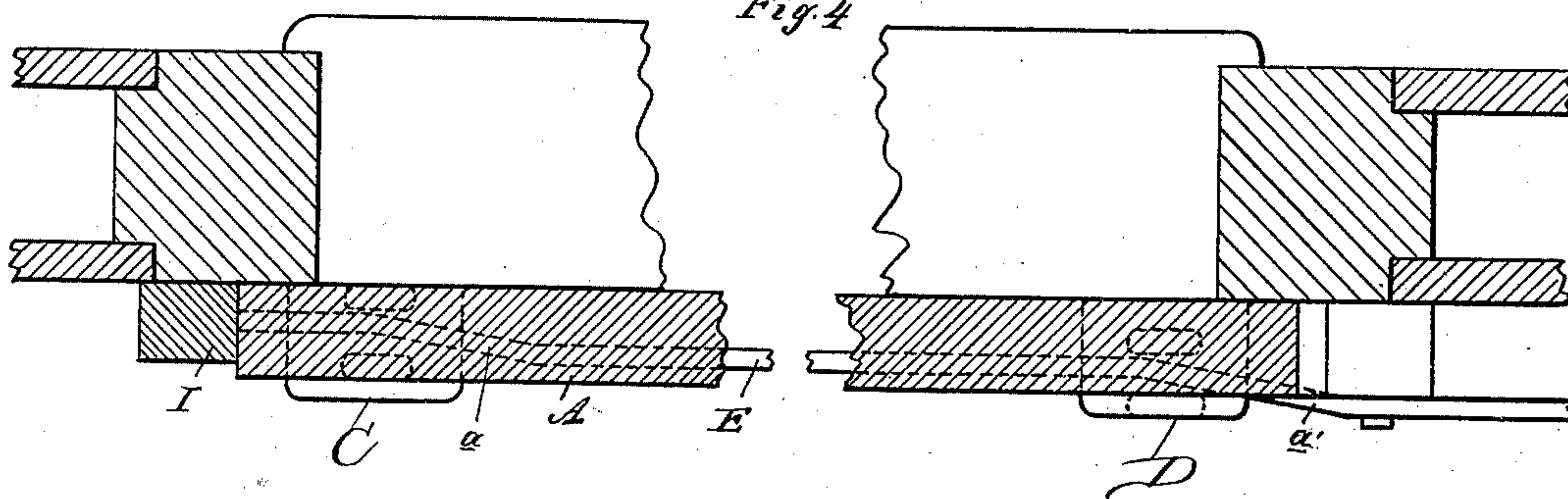


Fig. 4



Attest:

John Schuman.
Notary

Inventor:

Francis G. Susemihl.

by his Atty

T. J. W. Robertson

(No Model.)

2 Sheets—Sheet 2.

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Fig. 5

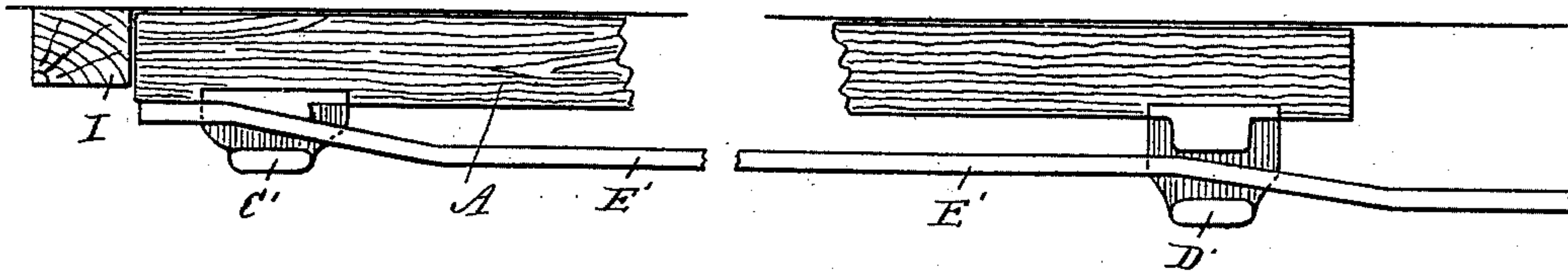


Fig. 6

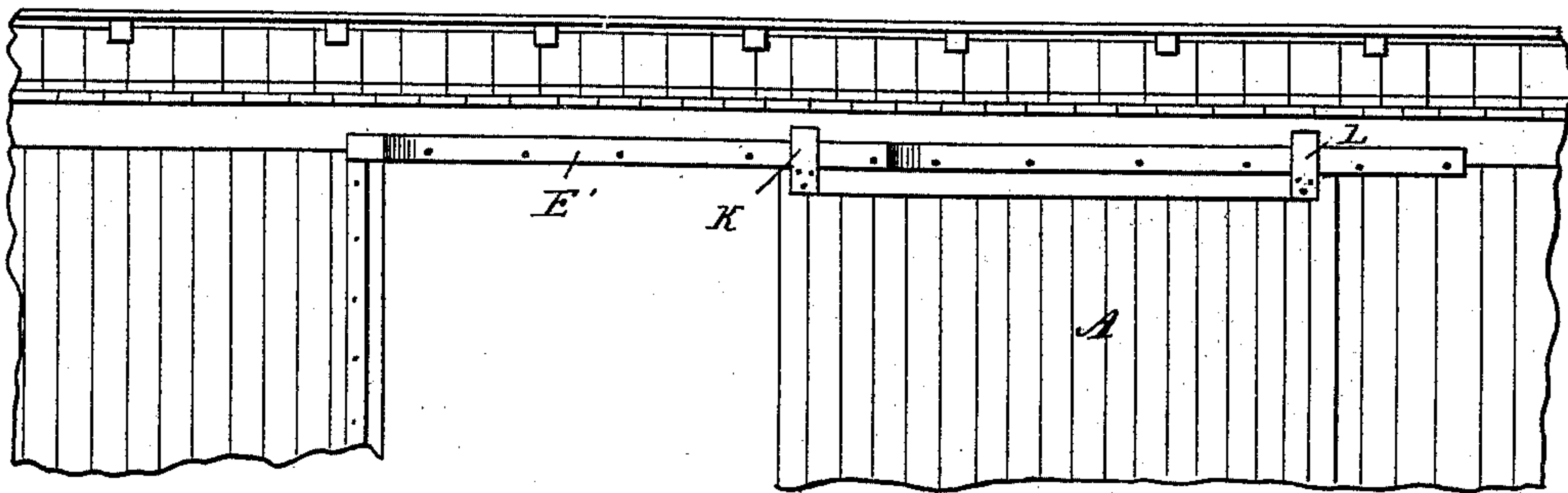
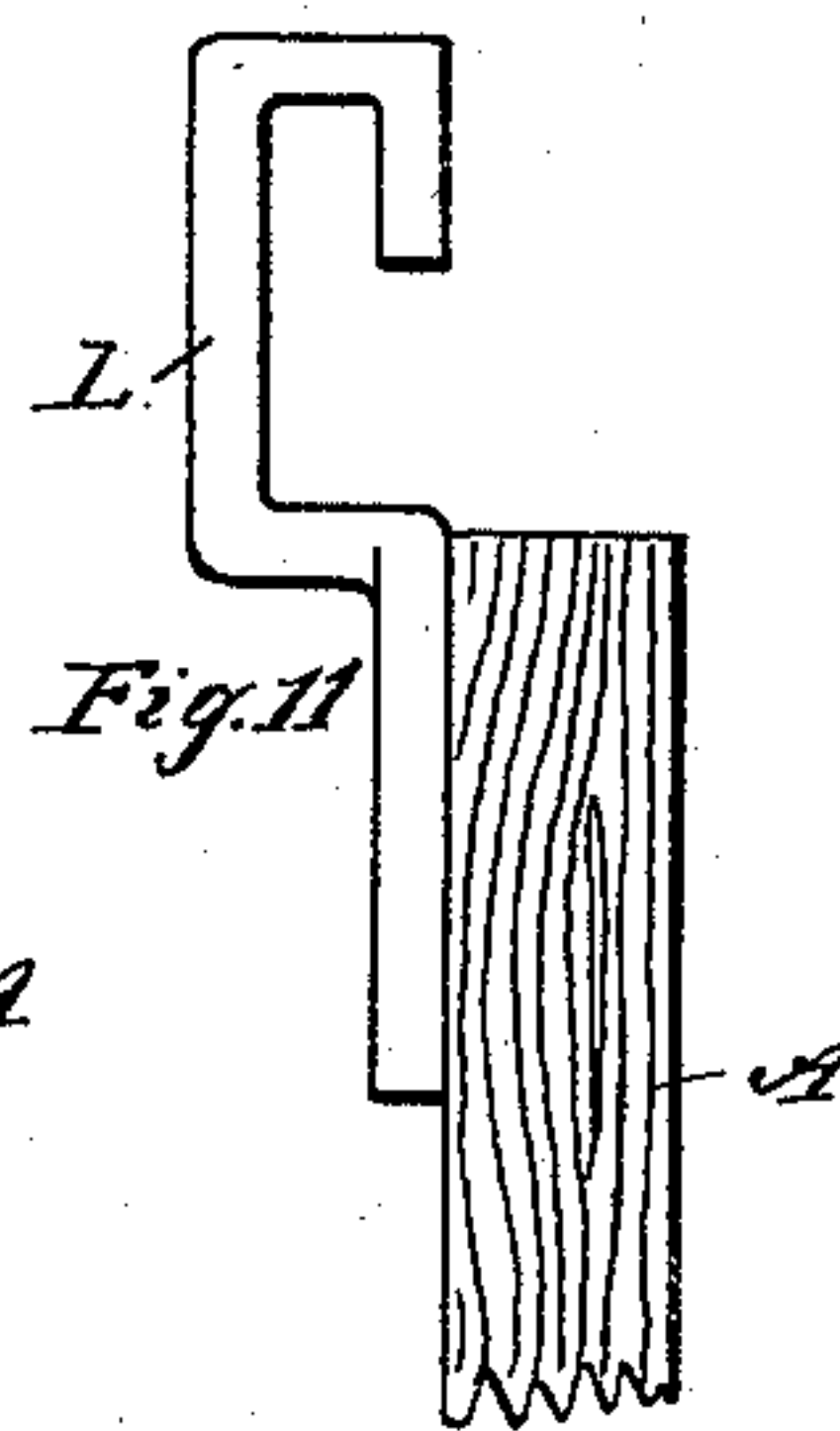
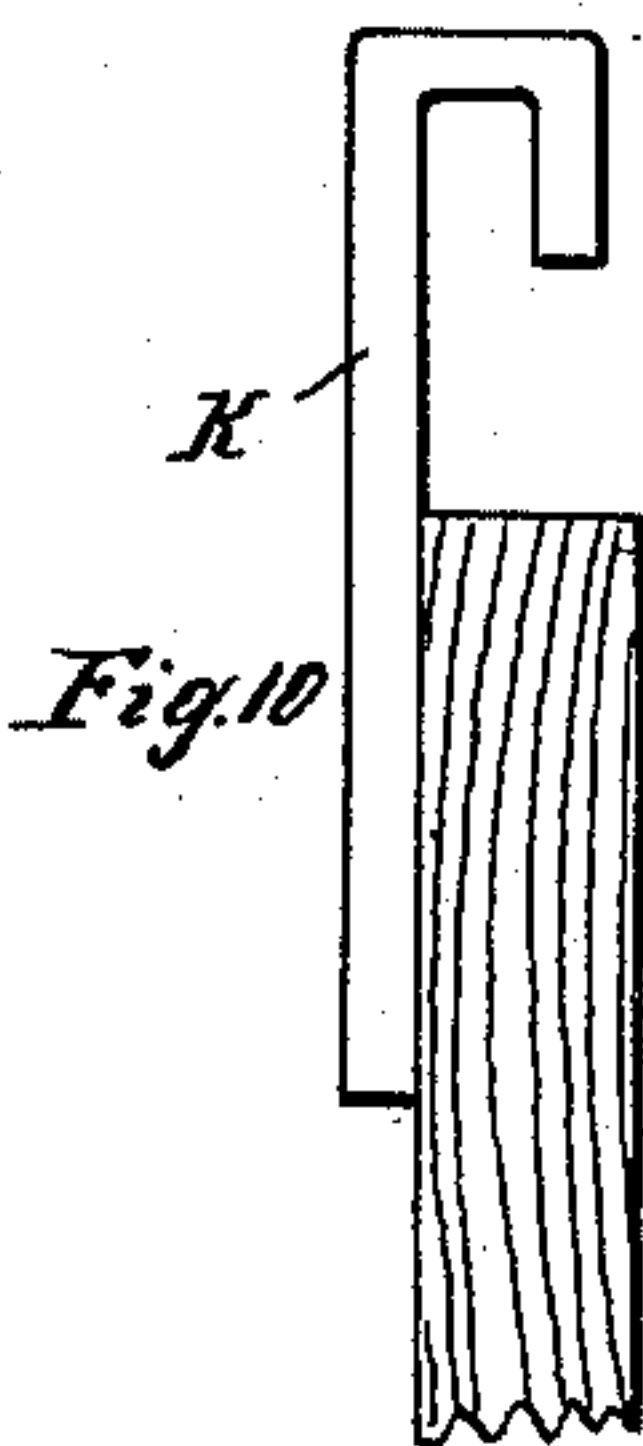
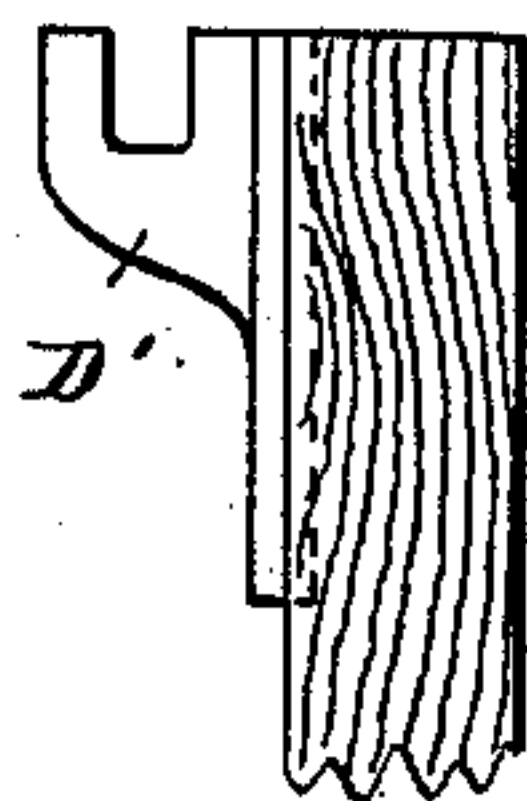
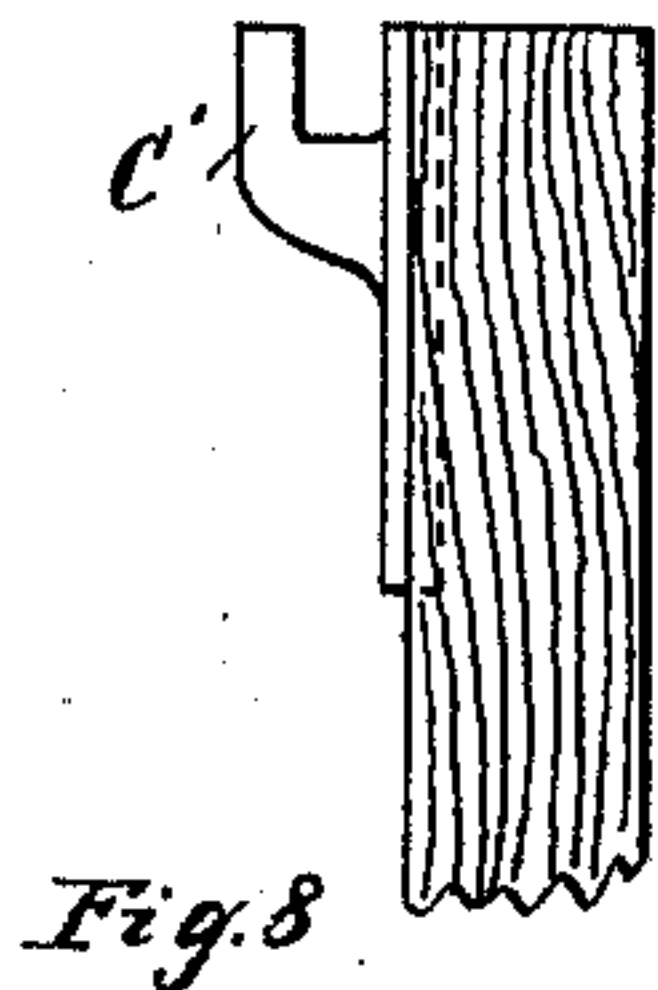
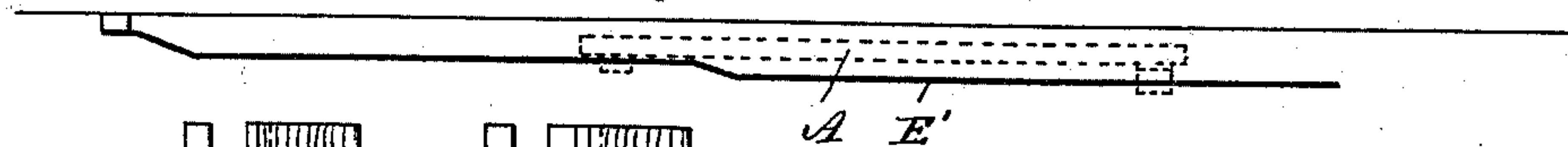


Fig. 7



Attest:

John Schuman.
Notary Public

Inventor:
Francis G. Susemihl.
by his Atty

J. W. Robertson

UNITED STATES PATENT OFFICE.

FRANCIS G. SUSEMIHL, OF DETROIT, MICHIGAN.

FREIGHT-CAR DOOR.

SPECIFICATION forming part of Letters Patent No. 370,502, dated September 27, 1887.

Application filed May 12, 1887. Serial No. 237,982. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS G. SUSEMIHL, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Freight-Car Doors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to new and useful improvements in freight-car doors; and the object of my improvement is to cause such door to close tightly over the door-opening when closed, and at the same time have abundance of play while opening or closing it.

In the ordinary construction of freight-cars the door is provided with grooved shoes which engage on a straight guide-rail secured to the side of the car parallel thereto, and to permit the door to clear the side of the car in opening or closing the door has to be secured at a little distance from the wall of the car. The grooves in the shoes with which the door engages the rail are only made a trifle wider than the thickness of the said rail and often cause the shoes to bind thereon, as the doors become frequently warped. If the grooves in the shoes were made wider, so as to provide for more play, the door would be liable to rub on the wall of the car in opening and closing, or stand too far off from the posts when closed. With this style of car-door it is therefore impossible to provide abundance of free play for easy operation and avoid having more or less distance between the door and the wall of the car, through which sparks, dust, rain, or sleet find access to the inside.

The novelty of my device consists in so arranging the guide rail and door-shoes that I can give the shoes sufficient play, so that the door can never bind on the guide-rail, no matter if it is warped, and at the same time cause the door to close tight against the face of the posts, all as hereinafter more fully described.

In the drawings which accompany this specification, Figure 1 is a side elevation of a freight-car, showing my invention applied to what is known as the "standard" door. Figs. 2 and 3 are plans of the bottom and top guide-rails, respectively, with the door removed. Figs. 4 and 5 are plans of the bottom and top guide-rails, respectively, with the door in

closed position. Fig. 6 shows a side elevation of a freight-car provided with a hanging door the top guide-rail of which is constructed in accordance with my invention. Fig. 7 is a plan of the guide-rail in Fig. 6, with the door in dotted lines. Figs. 8 and 9 show side elevations of the front and rear shoes, respectively, of the door in Fig. 1. Figs. 10 and 11 show side elevations of the front and rear shoes, respectively, of the door.

A is a standard freight-car door, C and C' are the front shoes, D and D' are the rear shoes, E is the bottom rail, and E' is the top rail, all the parts being of usual description and operation, except as hereinafter described.

The bottom rail, E, is provided with two inclines or bends, *a a'*, one near the front end and the other located at or near the middle of the rail. These bends may be about one-half or five-eighths of an inch in three or four inches of length and divide the rail into two parts which are straight and parallel, or nearly so, to the wall of the car, the rear part being farther from the wall than the front part. In connection with this rail I use the bottom shoes, C D, provided with the grooves *b b'*, respectively, which are in two different planes, preferably parallel with each other, so that when one shoe rides on the front portion and the other on the rear portion of the rail the door runs parallel, or nearly so, to the side of the car. The bends in the rail are in such relative position with the shoes (the latter of which are secured, as usual, near the corners of the door) that the door also maintains its parallelism when the shoes ride over the bent portions of the rail. When the door is pushed from its open position into its closed one, it runs first on the straight portions of the rail, which keep it parallel, or nearly so, to and away from the side of the car, and then as the shoes simultaneously strike the bent portions of the rail the door executes a parallel oblique motion, which brings it tight against the opening in the car.

To prevent the door from being wedged too tight against the sides of the opening, I prefer to use the ordinary stop-batten, I, against which the front edge of the door strikes after it has closed snugly against the face of the posts which form the door-opening.

The top rail, E', and the top shoes, C' D', are

constructed and arranged in the same manner as the corresponding parts at the bottom of the door.

My invention is equally applicable to the top rail of hanging doors, which are mostly guided at the bottom by hook-lugs bolted to the car. I employ here the same shape of rail as shown in Fig. 7, and form the groove in the hooks or arms K L (which take the place of the shoes) in the same manner as described for the shoes. The bottom of such doors being easily brought to fit closely against the car, does not require any special devices for that purpose.

The door is provided with a suitable lock, most of those in present use with the ordinary door being equally well adapted for my improved door.

Among the advantages gained by my construction I wish to call special attention to the following:

First. The shoes can be given any amount of play necessary to operate the door without binding on the rail, no matter if the door is warped, as such play will not prevent the door from being closed tightly against the car.

Secondly. The door is opened and closed by pushing it simply in one direction or in the opposite. There is no lateral pushing required to bring it away from the face of the door-opening or against the same.

Thirdly. The door in opening moves immediately to the outward. In consequence the pressure of boxes or goods against the inside of the door is at once relieved.

Fourthly. The constant tendency of doors to twist or warp is counteracted effectively by keeping the four corners of the doors pressed against the side of the car when closed, and, as the doors are closed most of the time, they will always be kept in good order and close readily and snugly against the side of the car when closed, and ride easy on the rail in opening and closing.

I am aware that doors have been used where the front of the rail is bent so as to carry the front end of the door snug against the face of the front post or into a rabbet therein, while the rear end of the door is brought home against

the side of the car by an independent lateral push. Therefore I do not claim the incline or bend at the front end of the rail; but I claim the bend in the middle of the guide-rail, with and without the bend in the front of the rail, as it will be seen that the object of my invention may be obtained nearly as well with the bend in the middle of the rail alone, it being of less consequence whether or not the front end of the door is closed tight against the door-opening, on account of the stop-batten, which forms a joint with the door, there being also generally a cap over the door-opening.

What I claim as my invention is—

1. In freight-car doors, a guide-rail provided with a bend or incline in the middle and having its straight portions arranged parallel, or nearly so, to the car, but in different planes to each other, substantially as described.

2. In freight-car doors, the combination, with a guide-rail having an incline or bend on the front end and one in the middle, and two straight portions arranged parallel, or nearly so, to the car, but in different planes to each other, of front and rear shoes or hangers having their guide-grooves located to correspond, respectively, to the straight portions of the guide-rail, substantially as described.

3. In freight-car doors, the combination, with a guide-rail having a front and rear portion arranged in different planes parallel, or nearly so, to each other and to the side of the car, of front and rear shoes or hangers having their guide-grooves arranged to correspond, respectively, with the front and rear portion of the guide-rail, whereby the door runs parallel to the side of the car, substantially as described.

4. In freight-car doors, the combination, with a guide-rail having a bend in front and one in the middle, of front and rear shoes or hangers having their guide-grooves enlarged to run over the bent portions of said rail, substantially as described.

FRANCIS G. SUSEMIHL.

Witnesses:

H. S. SPRAGUE,
A. BARTHEL.