

(No Model.)

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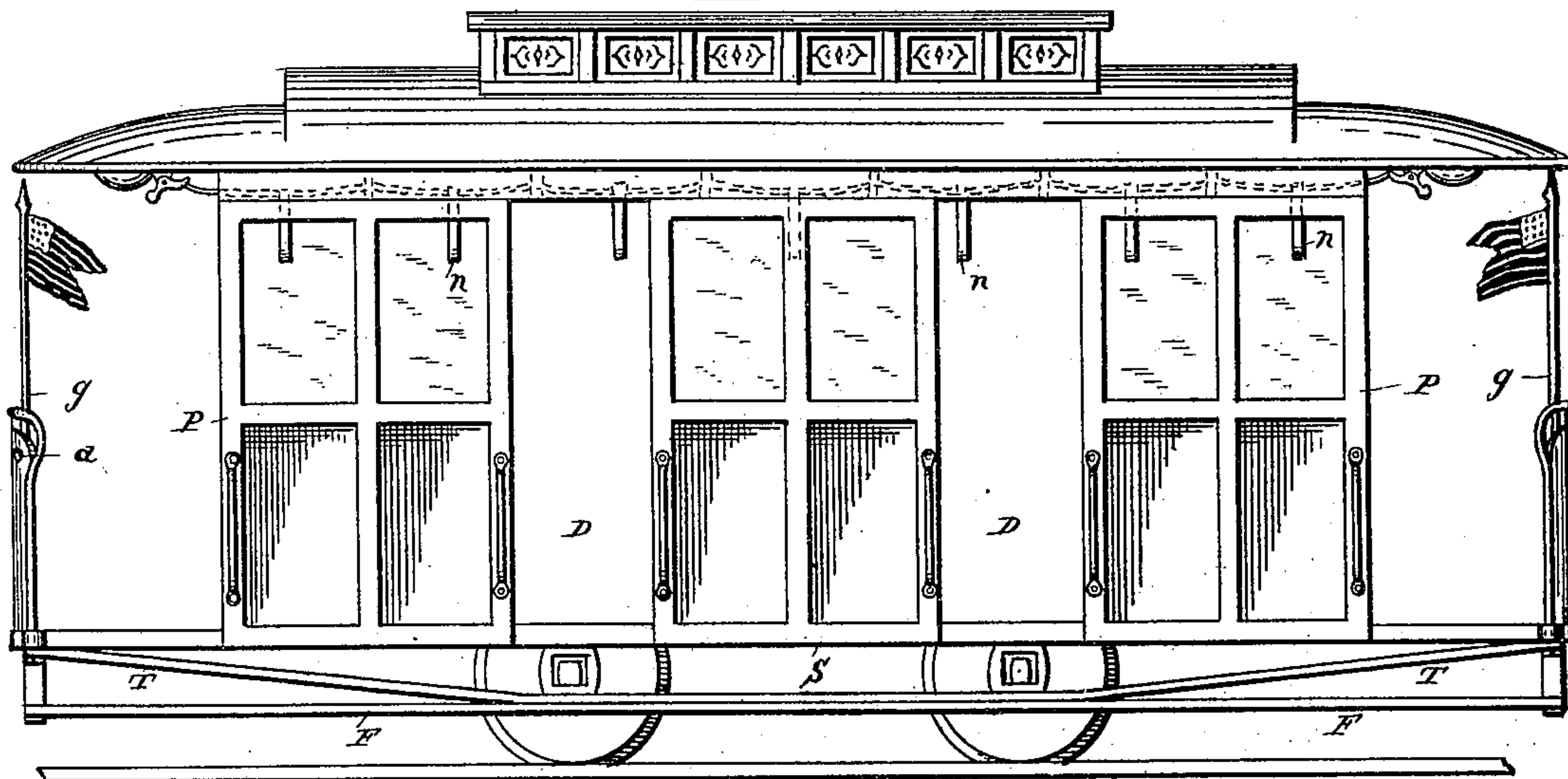
P. F. MILLIGAN.

STREET CAR.

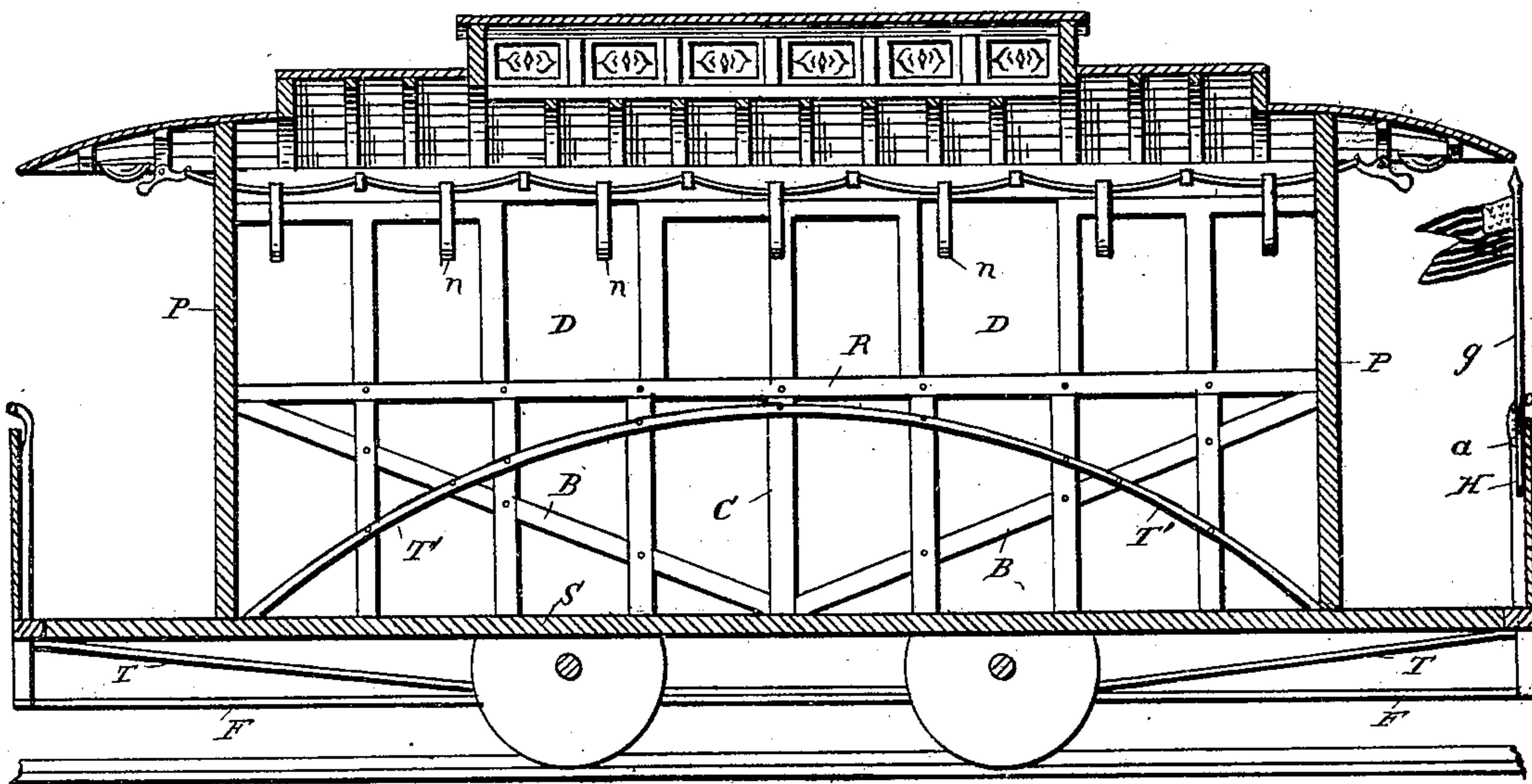
No. 356,489.

Patented Jan. 25, 1887.

*Fig. 1.*



*Fig. 2.*



WITNESSES

Edwin L. Bradford  
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INVENTOR

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(No Model.)

2 Sheets—Sheet 2.

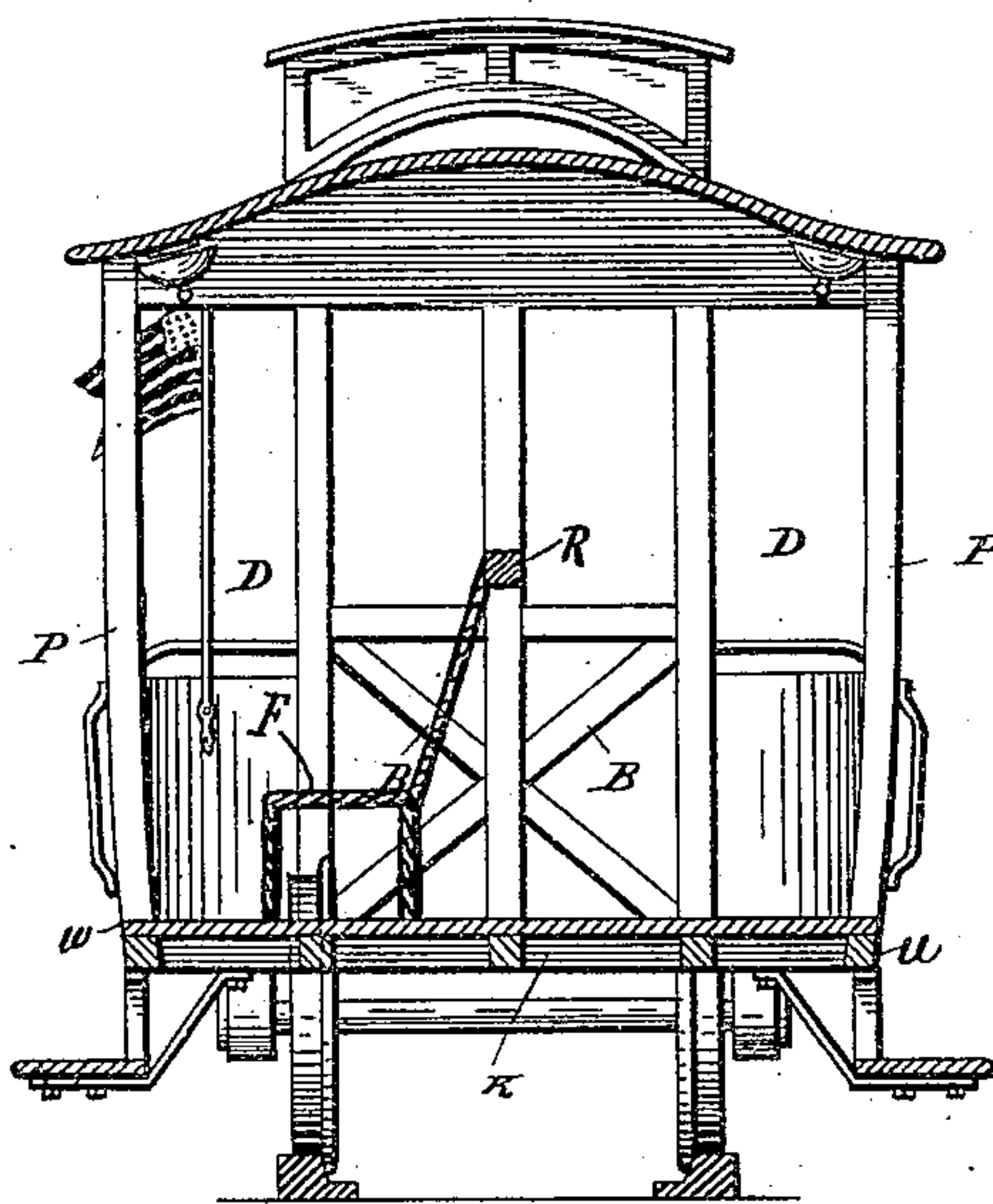
P. F. MILLIGAN.

STREET CAR.

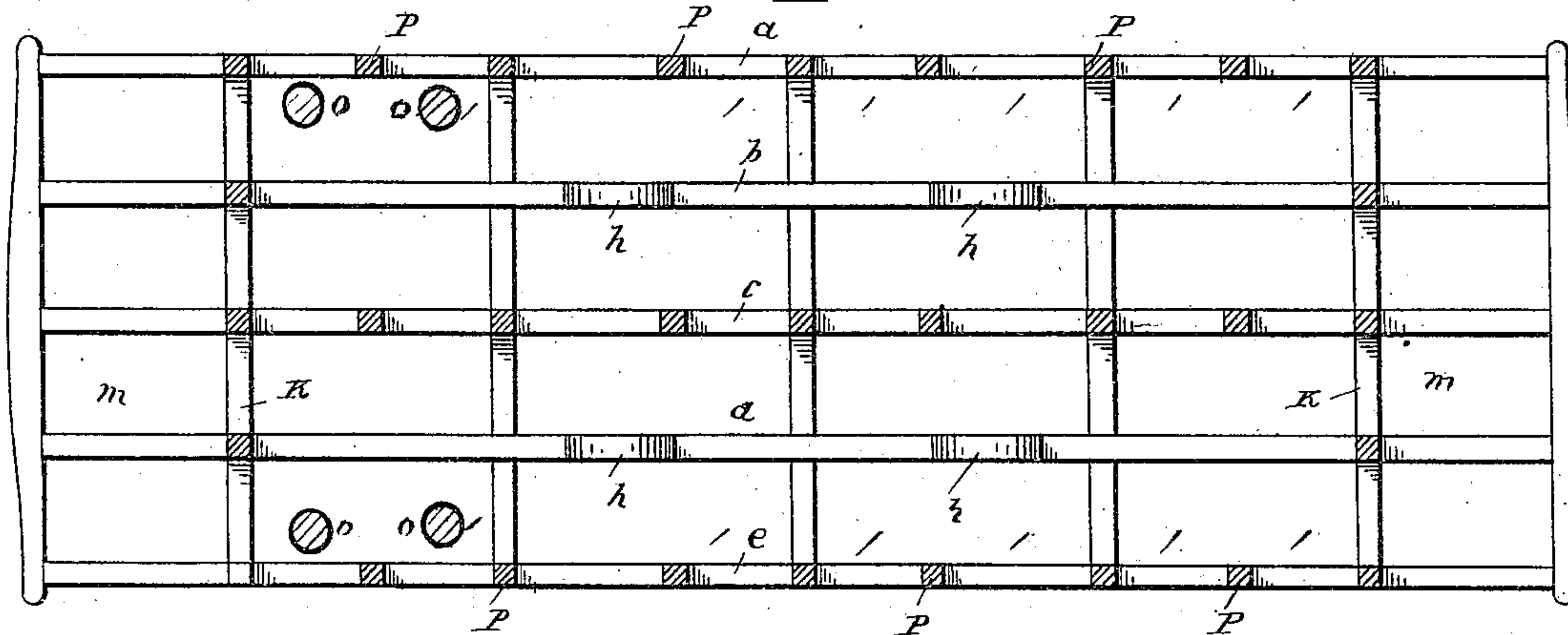
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*Fig. 3.*



*Fig. 4.*



WITNESSES

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# UNITED STATES PATENT OFFICE.

PATRICK F. MILLIGAN, OF WASHINGTON, DISTRICT OF COLUMBIA.

## STREET-CAR.

SPECIFICATION forming part of Letters Patent No. 356,489, dated January 25, 1887.

Application filed October 25, 1886. Serial No. 217,139. (No model.)

*To all whom it may concern:*

Be it known that I, PATRICK F. MILLIGAN, of the city of Washington, in the District of Columbia, have invented a new and Improved Street-Railway Car; and I hereby declare the following to be an exact description thereof.

My invention relates to certain improvements by which the weight of the passengers is brought to the center of the car, free ingress and egress are secured, and a track one-third less in width can be substituted for the present wide track.

My car is built with a central longitudinal truss-wall connected with the ends, which are also strongly braced, and having two doors on each side, with the seats facing outward.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a side elevation. Fig. 2 is a longitudinal section showing the central wall. Fig. 3 is a transverse vertical section, and Fig. 4 is a horizontal section, showing the sills and general framing.

In Fig. 1, D D are two doors, which slide on rollers at the top and bottom, inside, and are shown open, having the usual strong handles on each side for getting on and off. g g are flag-poles fastened to the dash at a, with handles H for the hand. These poles are to be thrown across the other track by the driver when necessary to prevent the approaching car from passing while persons are either getting on or off his car. T is a solid or tube iron truss running the entire length of the car under the outside sills, as also under the others, to secure perfect rigidity in the body, and F is the foot-board running the full length, as in open cars, and secured in like manner.

In Fig. 2, S is a sill running the length of the car, including platforms. The central end pillars, P P, are framed into this, as are also the short pieces C, which take the rail R at the top of the wall. B B are two braces which are let into and bolted to the short pieces C and made secure at their ends. T' is a truss-plate of flat iron, bent edgewise, let into the pieces C and braces B, and bolted as before, having a screw-tap at each end through the sills. This forms an unyielding central wall, on which the main strength of the car depends. This framing is now lined on both sides with

strong plain boards as high as the seats from the floor, and above that with any suitable material for backs for the seats, and the central wall is finished. n n n, &c., are straps directly in front of persons sitting, by which they can call the conductor to stop the car.

In Fig. 3 the end pillars are framed into the transverse bars K and extend to the roof. The braces B B are secured at the ends and center in the usual manner, and the ends are lined on both sides between the doors. In this figure I have shown the seat F on one side of the car, in order that the arrangement may be fully understood. I deem it unnecessary to show both seats, as one is a duplicate of the other. D D are two narrow doors sliding on the platform outside to enable the conductor to pass, as also to allow persons on the platforms to take vacant seats and to pass to the platform when surrendering a seat to a lady. A person approaching a car on the full side can pass to the other side by these doors easily by getting on the platform, as usual. The corner pillars are swept under, as at u, three inches, like a carriage-body.

In Fig. 4 there are five sills, a b c d e, and five transverse bars, K K, &c., all framed together, as also the end bars under the dash. Into the outer sills the pillars P are framed, with draw-bolts through the sills, and finished at the top as usual in other cars. The sills b d receive the pedestals for the wheels at h h, &c., and will call for a track of forty inches over all, instead of sixty inches, thus saving one-third in cost of ties, grading, and paving, and taking up less of the street. m m are the platforms, and o o o, &c., are iron grates, six inches in diameter, set flush with the floor to answer for spittoons, and carry the drippings of umbrellas, &c., to the street. In finishing the ends the outside panels are made flush with the pillars to let the doors slide smoothly, which are carried at top and bottom on deep-grooved friction-rollers, and having the usual handles and fastenings. The inside is lined with white or other wood between the doors, leaving a small recess for the glass-frames, blinds being dispensed with, as persons seated back to back in the center of the car will be too high for the sun's rays to reach them. This car will admit of the long seats, or chairs,



as much preferable, and as the wheels are under the seats and covered the space can be used for small parcels. Both platforms can be used without gates. As the wheels are twenty-  
5 two inches under the body on each side, it would be next to impossible to run over a person, as is the case on the present wide tracks.

The four side doors are for general use, but the narrow doors are to be used by the conductor as circumstances will require. There  
10 is no change made in the roof of the car from the present beautiful styles in use, except moving the lamp-boxes to the center at each end.

In seating persons so as to prevent the possibility of others standing in front of them  
15 abates a most intolerable nuisance, and gives easy ingress and egress.

I am aware that street-railway cars have been constructed with the seats facing out-  
20 ward. This I do not claim; but

What I do claim, and desire to secure by Letters Patent, is—

1. A street-railway car constructed with a central longitudinal truss-wall, R, on which the main strength of the car depends, and  
25 against which the passengers sit, back to back.

2. A street-car provided with a pair of longitudinal seats having a common back, the lower part of which forms a protective covering for the car-wheels, as set forth.  
30

3. The flag-poles *g g* and double-end doors D D and grates *o o o*, as and for the purpose herein set forth.

It witness whereof I have hereunto set my hand.

PATRICK F. MILLIGAN.

Witnesses:

H. J. ENNIS,

R. W. BISHOP.