

(No Model.)

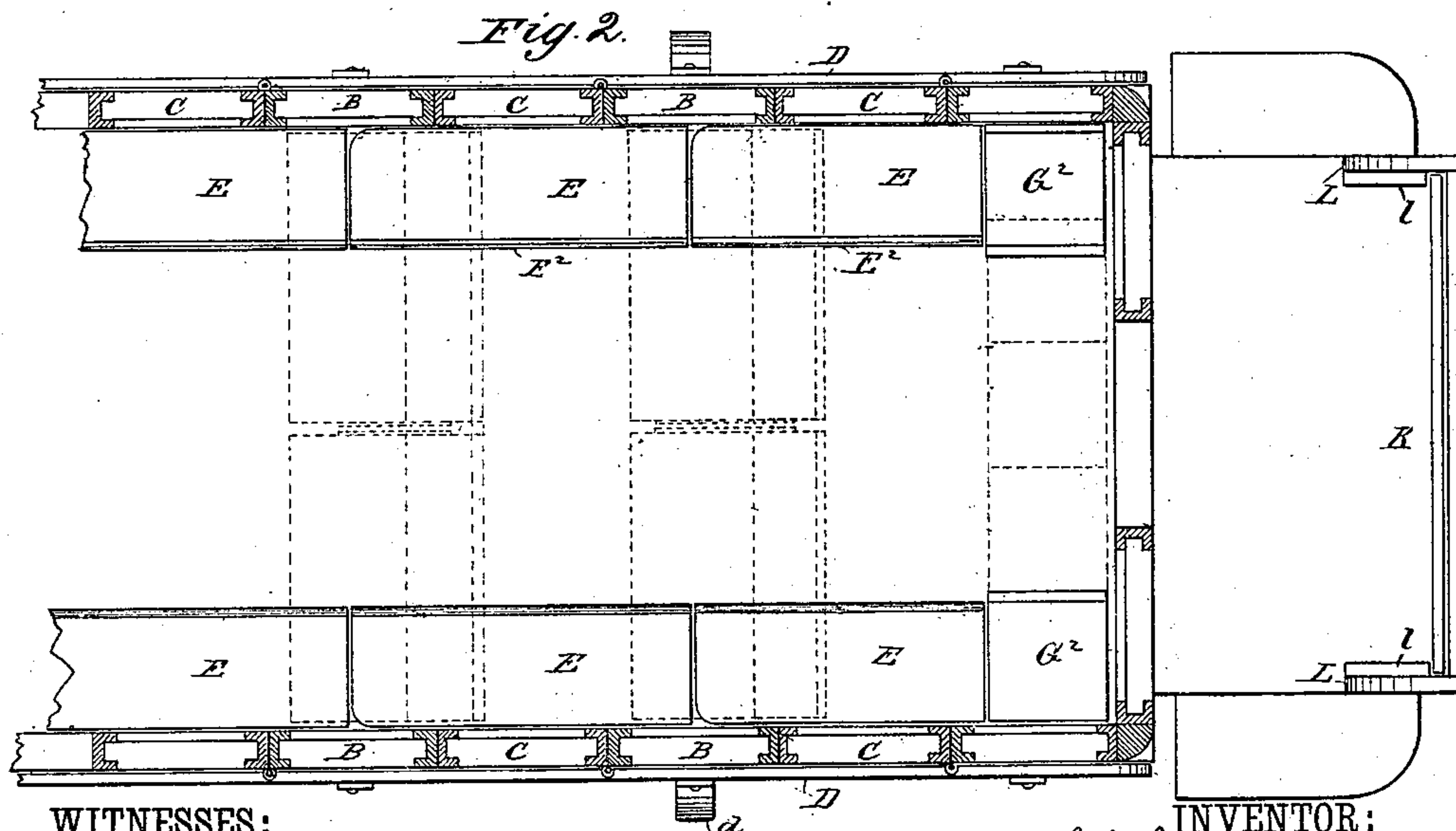
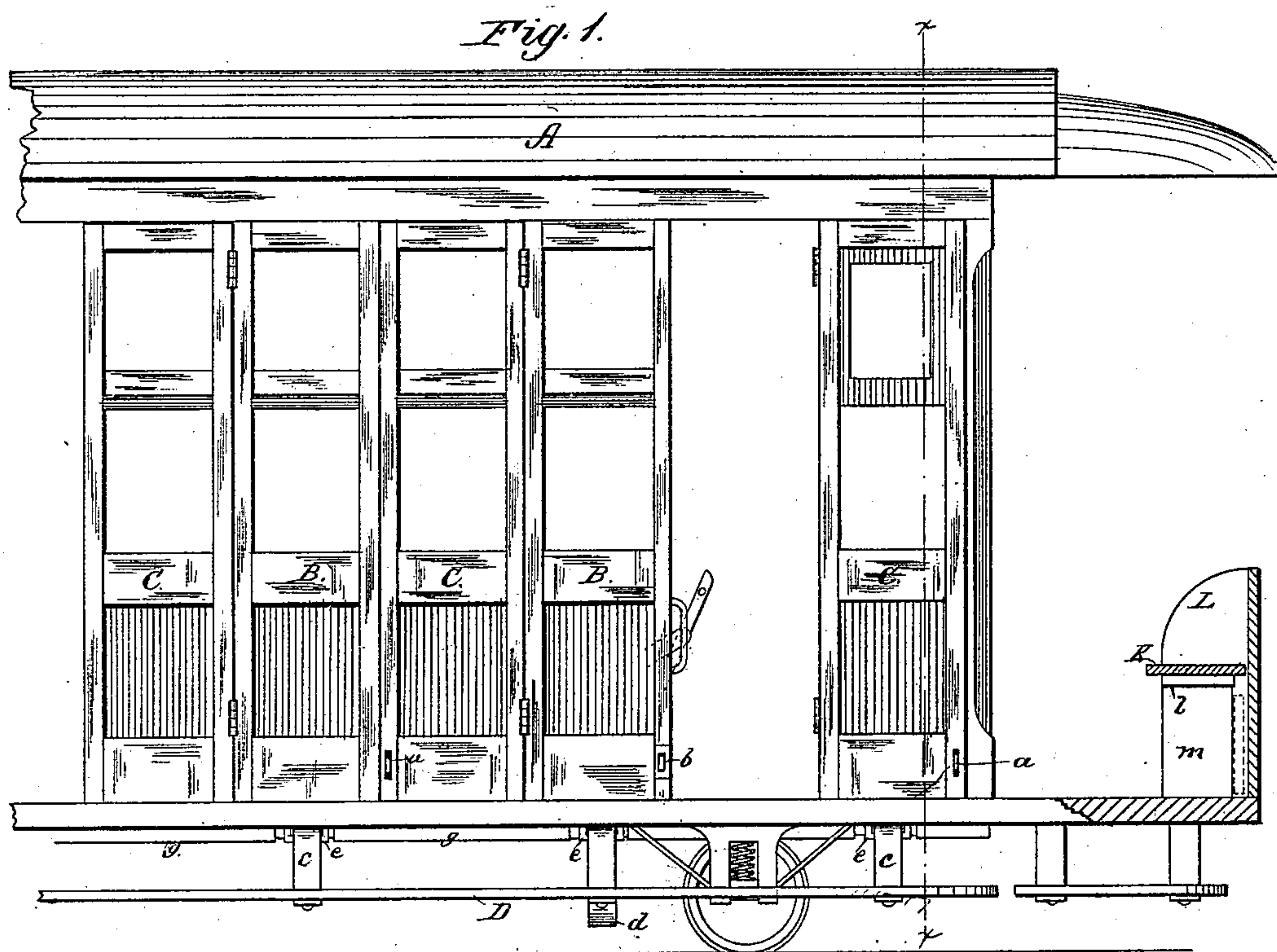
2 Sheets—Sheet 1.

S. J. TUCKER & R. F. WILLIAMS.

Street Car.

No. 235,046.

Patented Nov. 30, 1880.



WITNESSES:

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

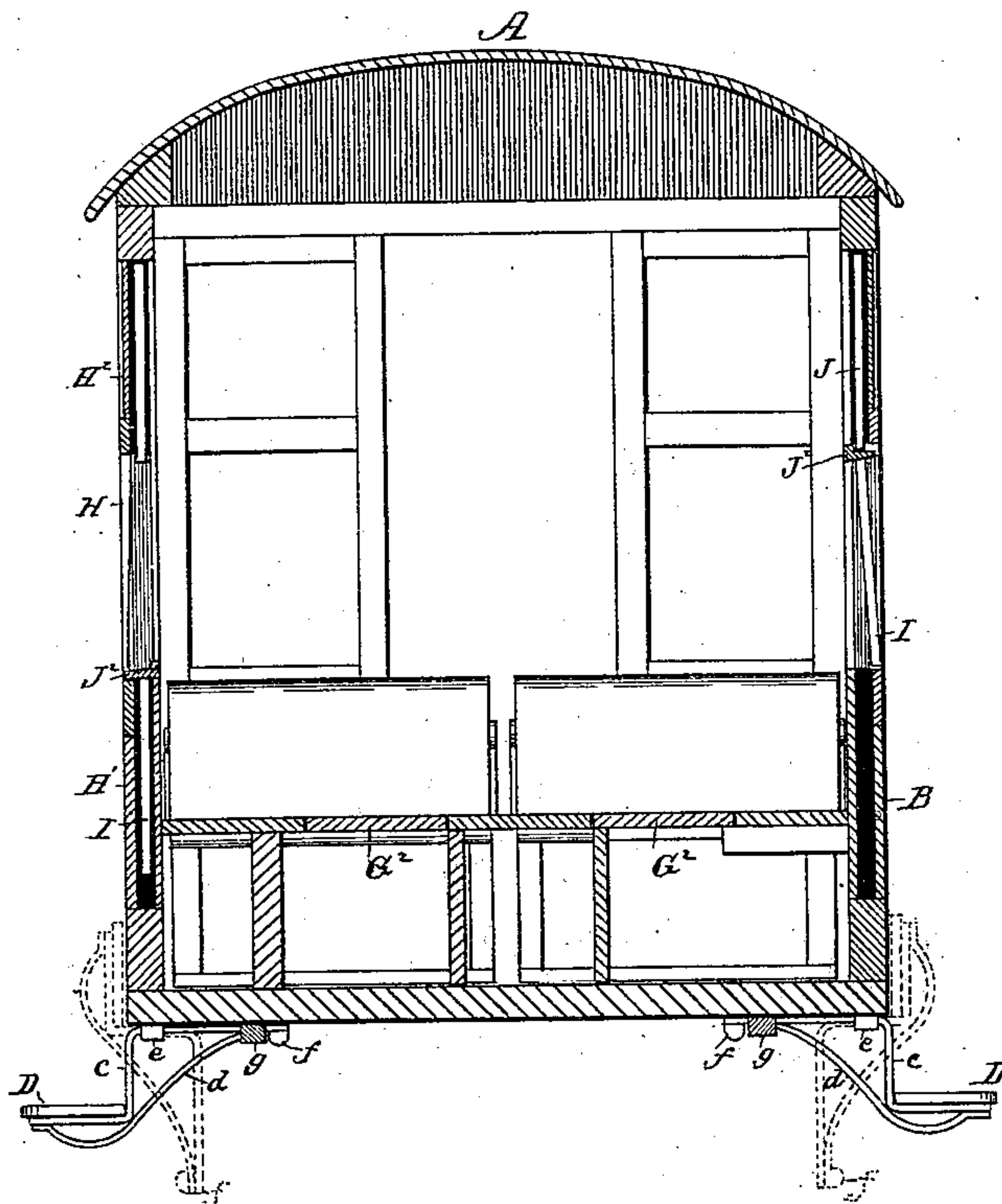
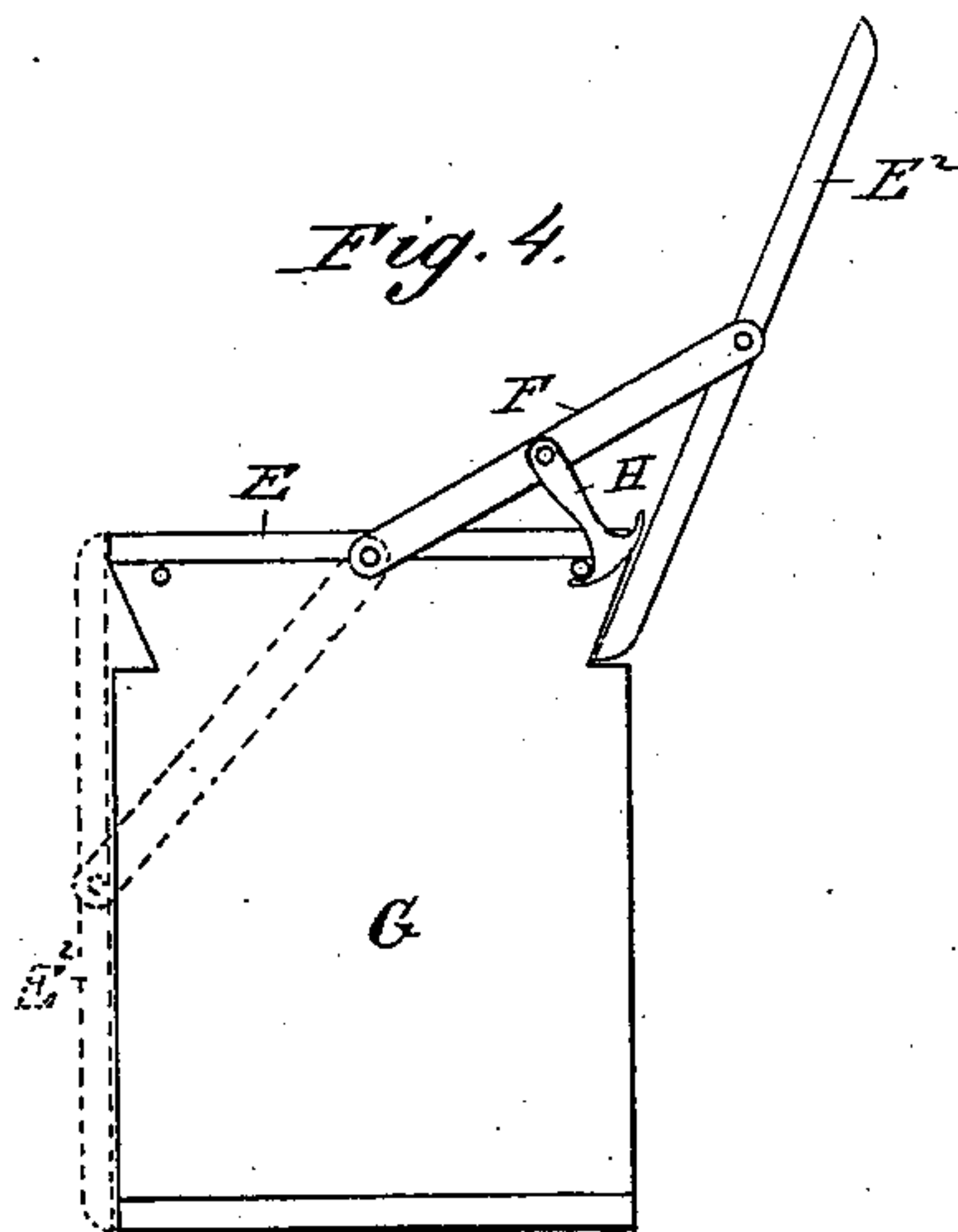


Fig. 4.



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UNITED STATES PATENT OFFICE.

SYLVESTER J. TUCKER AND ROBERT F. WILLIAMS, OF RICHMOND, VA.

STREET-CAR.

SPECIFICATION forming part of Letters Patent No. 235,046, dated November 30, 1880.

Application filed September 28, 1880. (No model.)

To all whom it may concern:

Be it known that we, SYLVESTER J. TUCKER and ROBERT F. WILLIAMS, of Richmond, in the county of Henrico and State of Virginia, have invented a new and Improved Convertible Street-Car; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation, partly in section, showing one of the side doors open. Fig. 2 is a horizontal section, showing in dotted lines the sectional seats swung transversely across the car. Fig. 3 is a transverse vertical section through line *x x* just inside the rear door, showing folding seats and section of panels. Fig. 4 is an end detail of one of the seats.

The object of our invention is to provide a street-car which is convertible at will, by a simple adjustment, either into a summer or winter car.

Of late years the street-railway companies, in catering to the wants of the public, have instituted the system of providing two different sets of cars, a large open car having transverse seats and side entrances for summer, while the old-fashioned car having closed sides, longitudinal seats, and rear-end entrance is reserved for winter travel. This system entails upon the companies the necessity of keeping two complete sets of cars, greatly increasing the requirements of storage, and necessitating a much larger amount of capital invested in rolling-stock, one-half of which is always idle and depreciating from disuse.

Attempts have been made to provide convertible cars heretofore, but so far as we know none of them have been adopted.

Our invention consists in the combination, with the hinged side doors of the car, of a folding side step, which latter serves the double purpose of a step when used as an open car and a fastening for the doors when they are closed for a winter car.

The invention also consists in constructing the seats in sections, which are pivoted on a vertical axis, so as to be thrown into line along the sides of the car to form two continuous

seats for a winter car, or be thrown at right angles across the car to form transverse seats for the open or summer car.

The invention also consists in the peculiar construction and arrangement of the adjustable side step; in the peculiar construction of the car-seat proper, made so that the front of the longitudinal seat forms the back of the seats when arranged transversely; also, in the peculiar construction and arrangement of the window sash and blinds; and in the particular means for utilizing the rear platform of the winter car as a separate seat for the use of smokers when converted into a summer car, all as hereinafter more fully described.

In the drawings, A represents a street-car whose sides are composed of alternating panels B and doors C. These panels are in the nature of stationary and rigid connections between the top and bottom of the car, holding these parts firmly together, and provided with the usual windows with glass sashes and sliding blinds. The doors are hinged to the forward edges of these panel-sections and open rearwardly, and when opened and resting flat against the outer sides of the panels the windows of the doors coincide exactly with those of the panels to allow the cars to be as open as possible. These doors are held open by latches *a* at their lower edges, which enter notches in a plate, *b*, on the lower edge of the panel.

To permit the doors to close tightly the doors and panels are made with rabbeted edges, or with suitable beads which form a right-angled joint.

On each side of the car is arranged an adjustable or folding step, D, which runs the full length of the car. These steps are supported by bracket-irons *c*, bent twice at right angles and braced by bent bars *d*. To support the step below the car the irons *c* are slipped through stirrups *e* beneath the bottom of the car, while upon the inner ends of the irons *c* is a longitudinal rail, *f*, of the same length as the step, which longitudinal rail rests against blocks or cleats *g* beneath the car, to prevent the step from slipping outwardly and becoming detached. When the step is occupying the position shown in Figs. 1 and 3 it affords

means to the passengers for getting into and out of the car, and when the car is closed up for winter use, as in Fig. 2, the step is pushed in, turned up, and then forced against the side of the car, as shown in dotted lines in Fig. 3, where it is held by the latches on the doors, or other suitable catches which pass into the locking-seats in the step. In this position the step is out of the way, and serves to hold the doors closed against any accidental opening behind the backs of persons in the car, while the rail *f* serves to act as a guard or fender to prevent persons from falling under the wheels.

To permit the change in the arrangement of the seats from the winter to the summer adjustment, the said seats are made in sections *E*, Fig. 2, equal in length to one-half the width of the car, and these sections are pivoted by a bolt through their bottom boards to the floor of the car, so that they may be thrown from the sides of the car, where they form a continuous longitudinal seat, to a position transverse to the car, as in dotted line, Fig. 2, so that each section forms one-half of the transverse seat for the summer car, and the two sections fit closely together at their inner ends to make the transverse seat a continuous one. The outer or swinging end of these sections of the seat are preferably provided with casters or rollers, which, when the seats reach the position in which they are to stay, drop into recesses in the floor and remain there until a change of adjustment is required.

To provide the seats with backs when arranged transversely for an open car, we make the front board, *E*², of each section of the longitudinal seat adjustable and pivot it at the middle of its ends to a swinging metal bar, *F*, (see Fig. 4,) jointed to the middle of the ends of the seat-section, and the end boards, *G*, of the said section we notch at the upper edges, so as to receive the edges of the front board when raised, which front boards then form the back of the seat and are held in the notches by a hook, *H*, pivoted to the bar *F*, and hooking over studs on the end of the seat-back. The end boards are notched on both sides of the seat, and as the bar *F* is jointed to the middle of each section of the seat, and the hook *H* is double-headed, it will be seen that the front board, *E*², is made to act as a back to either side of the seat when going in either direction.

At the ends of the car, where a swinging seat cannot be used to advantage, such spaces we have provided with seats *G*², which may be extended across the car or drawn back and folded into line with side seats. These seats are hinged to side of car, and when the seats are thrown into longitudinal position for winter use the hinged seat drops into space made by the change, and the space underneath this hinged seat can be used by driver for dust-brush, &c.

In arranging the panels of the car the middle panel, *H*, (see Fig. 3,) is open, the lower one, *H'*, is made hollow and receives the glass sash *I*, which may be slid up into the opening *H*, and the top one, *H*², is closed by a glass panel or wooden panel, and has opposite it the sliding blind or shutter *J*, so that the blind slides down to close the opening *H*, while the sash slides up to close the same, thus permitting the independent use of either. This arrangement permits us to employ on the top of the sash *I* a cap-piece, *J*², which is rabbeted on its upper edge, and which fits up tightly against the top of opening to close the joint against entrance of rain, and which also, when the sash is down, forms a cover to the hollow sash-panel to exclude therefrom dust, rain, &c.

When the winter car is converted into a summer car the rear platform, which constituted the entrance to the car, is no longer needed, and to utilize this to advantage, as well as to increase the capacity of the car, we provide it with a seat, *K*, Figs. 1 and 2, and side walls, *L L*, and this platform is then cut off from the interior of the car by the rear door and made a desirable seat for the use of smokers, who can here enjoy a smoke without it being objectionable to the occupants of the car.

The side inclosures may be anything in the nature of arms or walls to prevent persons from falling off, and the seat *K* is designed to be raised into a vertical plane and be dropped down behind the supporting-cleats *l* and parallel with the back wall of the platform when such seat is not required, as shown in dotted lines in Fig. 1 and in full lines in Fig. 2. To permit this to be done the side cleats, *l*, are attached to the side walls or frame, *L*, but do not extend quite to the transverse back wall, but leave room enough between to drop the seat *K* down into its position, where it is held at its ends by the edges of the boards *m*.

In defining our invention more clearly, we do not claim, broadly, a folding step arranged longitudinally with the car, but the combination of the same with the hinged side doors, in which relation it fulfills the function of a step and also of a fastening for said side doors when the latter are closed for winter service.

Having thus described our invention, what we claim as new is—

1. A convertible street-car having hinged doors on its side and a longitudinal side step adapted to fold up against the car and hold the doors closed, as described.

2. An adjustable side step for a car, having bracket-irons bent twice at right angles, and having a longitudinal bar, *f*, at the inner ends of said bracket-irons, in combination with a car having supporting-stirrups to hold the bracket-irons and blocks or cleats for engagement with said longitudinal bar, substantially as described.

3. A convertible street-car having side doors

and a set of seats made in sections, pivoted vertically and adapted to be arranged longitudinally in the car when closed in, and be swung transversely across the car when opened for summer use, as described.

5 4. In a convertible street-car, the seats having a convertible front board and back-support, adapted to form the front board of the seats when the latter are arranged longitudinally, and adapted to form a back-support
10 when the seats are arranged transversely.

15 5. The combination, with a street-car having a window with a hollow panel beneath it, of a sliding window-sash having a cap, J², rabbeted on its upper edge and moving from the window downwardly into the said frame, and a

blind arranged to slide in grooves from the window up into guides above it, substantially as and for the purpose described.

6. A convertible street-car having its rear platform provided with side walls or frames, L, attached to the rear back wall, in combination with an adjustable seat, K, and supporting bars or boards attached to said side walls or frames at a distance far enough to leave a space between their inner edges and the back walls to receive the seat, as described.

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