J. A. S. SIMONSON.

Railway-Car.

No. 203,661. Patented May 14, 1878.

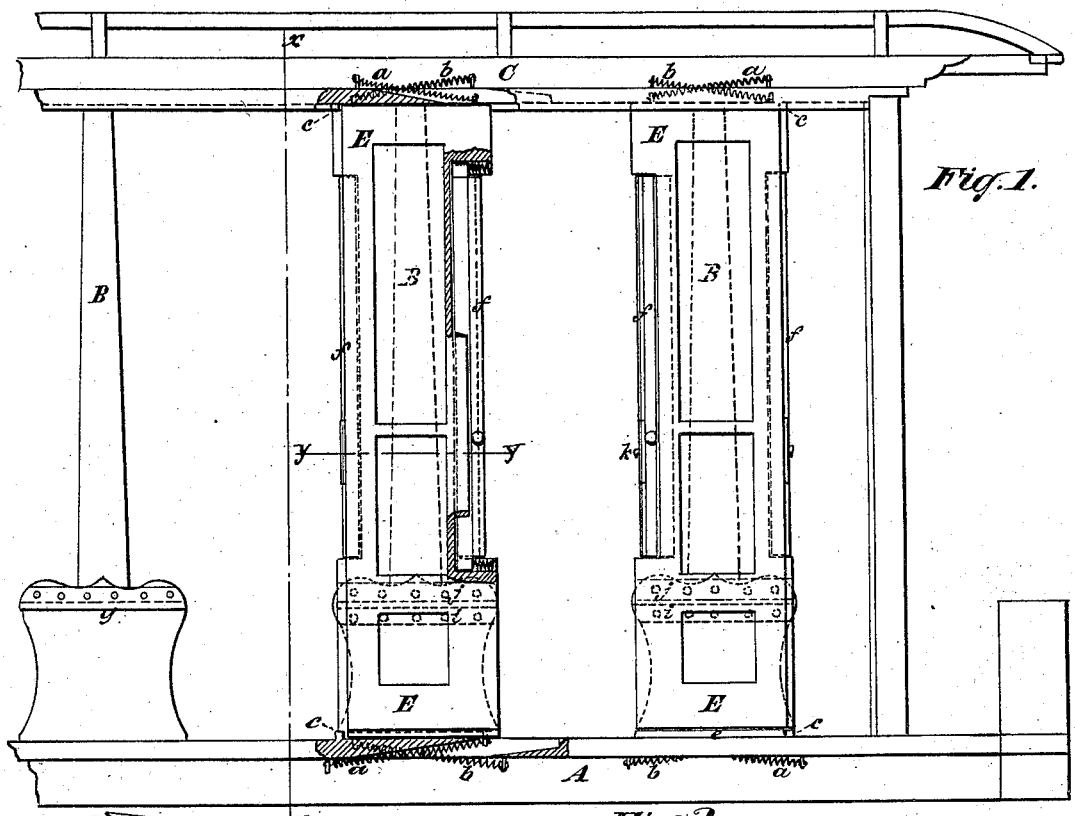

Fig. 1.

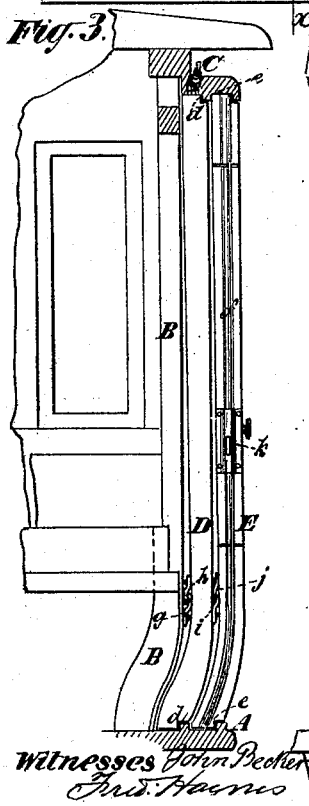

Fig. 3.

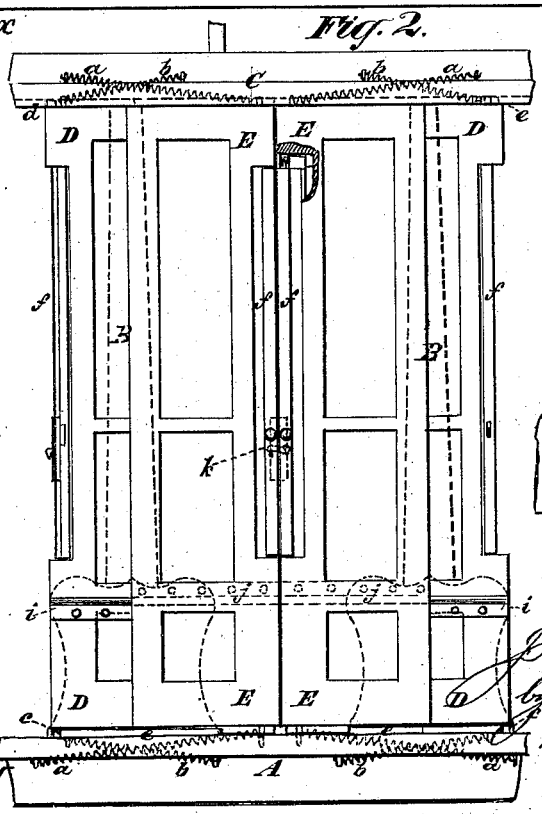

Fig. 2.

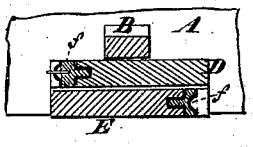

Fig. 4.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN RAILWAY-CARS.

Specification forming part of Letters Patent No. **203,661**, dated May 14, 1878; application filed March 13, 1878.

To all whom it may concern:

Be it known that I, JACOB A. S. SIMONSON, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Passenger-Cars for Railways; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification.

This invention relates more especially to passenger-cars for city or street railways. Its object is to make cars easily convertible from open into closed cars, and vice versa, as may be desirable according to the requirements of the weather; and it consists in a novel and simple yet substantial means of inclosing the cars at their sides, which offers no serious impediment to free ingress and egress, and whereby, when a car is closed, it is rendered perfectly weather-proof, and, when it is open, a free circulation of air transversely through them from top to bottom is provided for.

The invention is capable of application by its addition to most of the open cars at present in use to make them convertible into closed cars, so that they may be used in winter as well as in summer only, as at present constructed.

Figure 1 in the drawing is a side view, partly in section, of a part of the body of a railway-car illustrating my invention, the doors being shown open. Fig. 2 is a side view of a portion of the same with the doors of one compartment closed. Fig. 3 is a transverse vertical section of one side of the car. Fig. 4 is a horizontal section of a part of the body.

In carrying out my invention, I either take the body of an ordinary open car composed of a floor, A, posts B, and a roof, C, and divide it into compartments by the posts B and seats extending across between two of the said posts on opposite sides of the car, or I construct a body of substantially similar parts. This body forms the frame-work to which my invention is to be applied for the purpose of rendering the car convertible into an open or a closed one, at pleasure, without removing or detaching any of its parts, my invention being all embraced in a novel system of sliding doors and their attachments and appurtenances applied to the sides of the car.

D D and E E are the sliding doors, which serve to inclose the sides of the car, the said doors consisting of two series—viz., an inner series and an outer one. Those of the outer series, D, are arranged to pass close to the outer sides of the posts B, and those of the inner series, E, are arranged to pass close to the exteriors of those of the inner series D. Guides *d d* are provided on the floor and on the roof-frame for the inner series of doors D, and similar guides *e e* are similarly provided for the outer series of doors E. Each door is of a width a little greater than half the width of the space included in one compartment from the center of one post to the center of the next on the same side of the car, that two of the doors E E of the outer series may combine to close one of the compartments, and two of the doors D D of the inner series may combine to close the next compartment, and that when the compartments are closed each of the doors E E of the outer series may overlap the edge of one of the doors of the inner series, which serves to close the next compartment.

The two series of doors thus constructed and applied will serve to completely close one side of the car. They may be supported on rollers at their bottoms, or suspended by rollers at the top.

It may be well here to mention that only one door may be necessary for the compartments next the ends of the car when that compartment is a narrow one containing only one seat.

The several doors E E have each applied to them at the top and bottom two springs, *a a*, of india-rubber or coiled wire, which may be let into grooves in the edges of the door, and one of which connects the door with the floor-frame of the car, and the other with the roof-frame or cap, in such manner that when the door is unfastened the said springs will automatically pull it open, and when it is open will hold it against stops *c c* provided on the floor and roof frames, in a position with the center of its width opposite the center of one of the posts B, as shown in Fig. 1. The several doors D D have similar springs *b b* ap-

plied to them, to pull them open by a movement in the opposite direction to the opening movement of E E, and hold them, when open, against stops similar to *c c* on the floor and roof frames, their positions, when open, being similar, with relation to the posts, to the positions of the doors D D, so that when the doors of two adjacent compartments are open they will be exactly opposite each other, and one door of each of those compartments will be exactly opposite to one of the next, as shown in Figs. 1 and 4, and hence the two will only occupy a space lengthwise of the car equal to the width of one door, and therefore very little obstruction will be presented by the several doors to the ingress and egress of passengers to and from the compartments.

In order to provide an increased width of the space between the open doors for the ingress and egress of the passengers, instead of making the doors solid all the way up their abutting edges, I make a portion of each door at the edge which abuts against the next door in closing the compartment of a separate piece, *f*, which may extend the whole or any portion of the height of the door, though in Figs. 1 and 2 of the drawing they are shown as only extending a portion of the height where the body of the passenger passes. This piece *f*, made of a strip of wood or other material, is fitted into the door with a mortise and tenon, as shown in Fig. 4, or otherwise, in a suitable manner to slide in and out in a direction lengthwise of the car without leaving any opening between the said piece and its respective door, which is cut away or otherwise reduced in width to receive the said piece; but when the said piece is moved inward, relatively to the door, it makes the door or that portion thereof where it is applied so much narrower. By making this strip *f* to slide inward a distance of two inches, the space left between the two open doors of a compartment for ingress and egress of passengers may be made four inches wider than if the doors were solid. The said strips may have springs applied to them to draw them into the doors as soon as the doors are released by turning or otherwise liberating their fastenings. The fastenings or catches *k* of the doors should preferably be applied to these strips, in which case the two strips of the pair of doors of a compartment will be held together when the doors are closed and fastened, and when the fastening or catch is undone the strips will be pulled in by their springs while the doors are being opened by their springs *a a* or *b b*, so that all that has to be done to provide for the ingress or egress of passengers is to undo the fastening, and the doors will be at once opened automatically to the fullest width. The handles for closing the doors may be attached to the said strips *f*, so that by the act of closing the doors the said strips will be pulled outward.

In order to provide, without making the doors unnecessarily heavy, for preventing their liability to be sprung outward by passengers pulling on them or their handles in getting into the car, a slide-connection, *g h*, is provided, as shown in Figs. 1 and 3, between each inner door D and its adjacent post B, or seat-frame, to sustain the door at a distance from its top and bottom, and a similar connection, *i j*, is provided, as shown in Figs. 1, 2, and 3, between each inner door D and its adjacent outer door. These slide-connections are represented as formed of matched rabbeted plates; but they may be composed of slotted plates and T-headed bolts working in the slots of the plates, or in any other way that will confine the inner door to the post and the outer door to the inner one, without interfering with their sliding action.

I claim—

1. In a railway-car transversely divided into compartments, and having the sides of said compartments composed of sliding doors, the construction and arrangement of the sliding doors of two adjacent compartments, to slide one within and one outside of the other, substantially as herein described.

2. The combination, in a railway-car transversely divided into compartments, of sliding doors for closing the said compartments at the sides of the car, latches or fastenings for securing the said doors when closed, and springs for opening the said doors automatically when the catches or fastenings are released, substantially as herein described.

3. In combination with the sliding doors, the movable pieces *f f* applied to the edges of the said doors, substantially as described, to serve as a means of closing the said doors and of widening the opening thereof, as herein set forth.

4. The combination, with two sliding railway-car doors, arranged to slide one inside and one outside the other, of a slide-connection, *i j*, between the said doors, at a distance from the top and bottom thereof, substantially as and for the purpose herein set forth.

5. The combination, with the sliding door and framing or body of a railway-car, of a sliding connection, *g h*, between the said door and framing or body, at a distance from the top and bottom of the said door, substantially as and for the purpose herein set forth.

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