(No Model.)

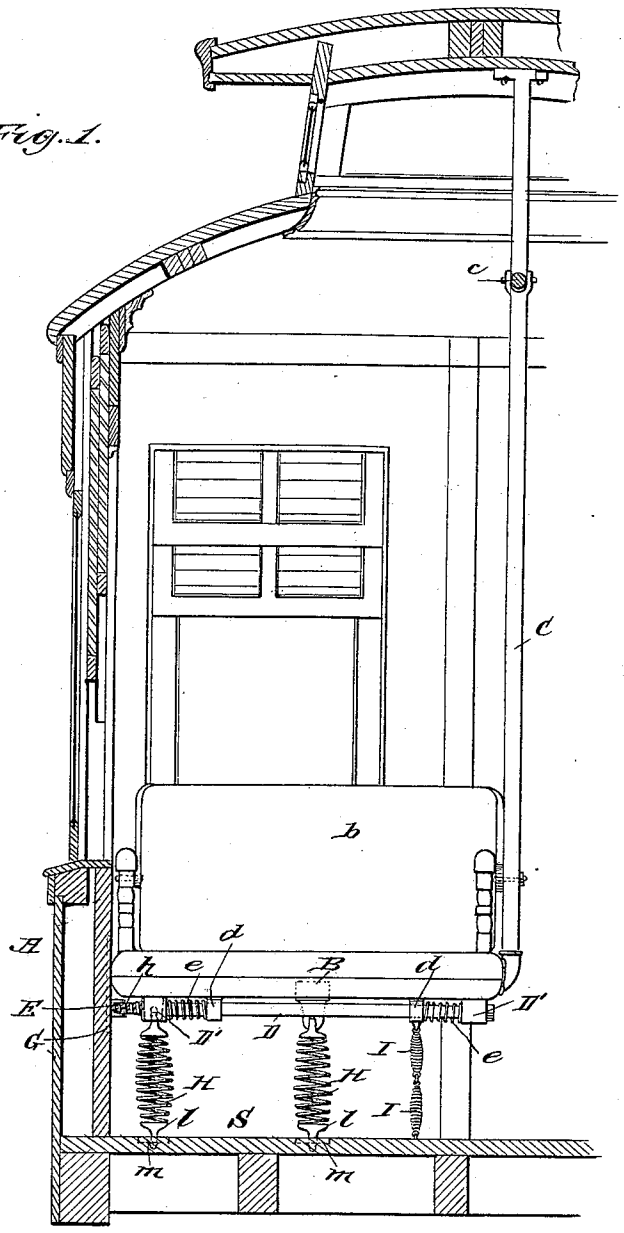
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E. ENEQUIST.

RAILROAD CAR SEAT.

No. 400,066. Patented Mar. 26, 1889.

Fig. 1.



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Fig. 8.

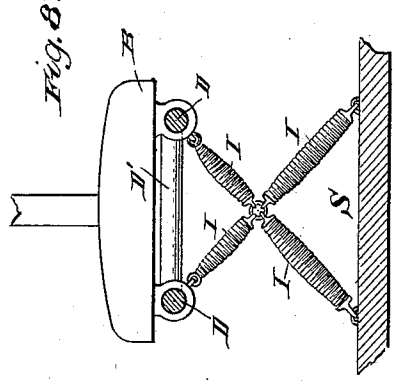


Fig. 2.

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RAILROAD CAR SEAT.

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Fig. 3.

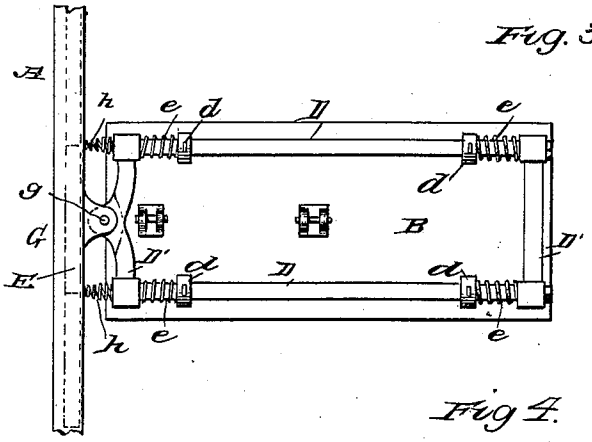


Fig 4.

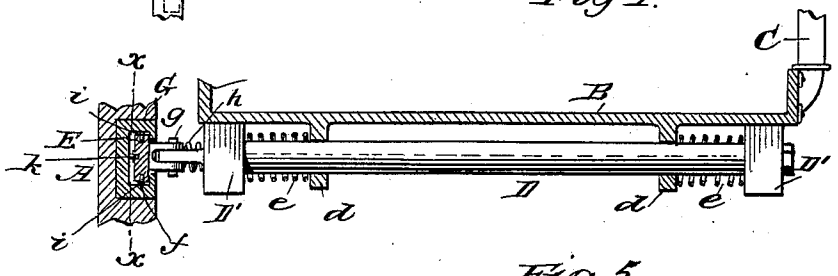


Fig. 5.

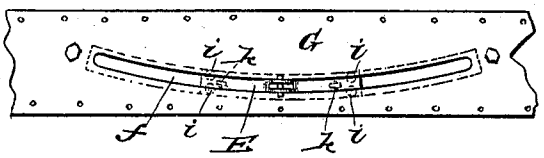


Fig. 6.

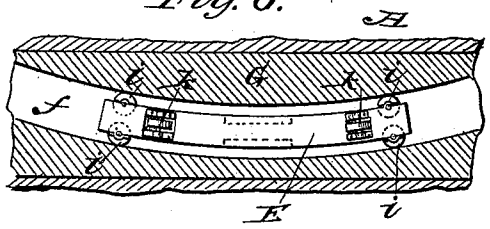
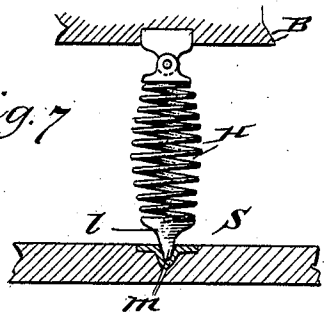


Fig. 7



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UNITED STATES PATENT OFFICE.

ERIK ENEQUIST, OF BROOKLYN, NEW YORK.

RAILROAD-CAR SEAT.

SPECIFICATION forming part of Letters Patent No. 400,066, dated March 26, 1889.

Application filed November 6, 1888. Serial No. 290,079. (No model.)

To all whom it may concern:

Be it known that I, ERIK ENEQUIST, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Railroad-Car Seats, of which the following is a full, clear, and exact description.

This invention has for its object the production of a railroad-car seat which shall protect railroad travelers against injury or loss of life in cases of collision.

The invention consists in a combination, with a railroad passenger-car body, of seats therein which, while they may occupy fixed positions under ordinary circumstances, are caused to swing in case of a collision, thus restraining the occupants from being thrown out of their seats and from being jammed or crushed by contact with adjacent seats; and the invention further consists in or comprises certain peculiar constructions and combinations of parts in a system of pendent or swinging car-seats as above, substantially as hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a vertical transverse section of a railroad passenger-car body in part with my invention applied to one of its seats. Fig. 2 is a vertical longitudinal section of the car-body in part, showing two of the seats having my invention applied. Fig. 3 is an under view of one of the seats with an attached frame and appliances connected therewith used in and forming part of my invention, said view also showing one of the sides of the car-body and means for applying said frame thereto; and Fig. 4, a vertical longitudinal section of the same. Fig. 5 is a face view of a curvilinearly-grooved plate used on the side of the car-body and roller-slide fitting the same to support the car-seat at its inner end, and Fig. 6 is a sectional reverse or back view of the same upon the line *x x* in Fig. 4. Fig. 7 is a detail view of a spring as applied to the car-seat and floor of the car for relieving the seat, when occupied, of weight to facilitate the swinging of it; and Fig. 8, a partially-sectional longitudinal view showing one of the car-seats in part as seen from its end, with attached springs for holding it in place.

A indicates one of the sides of a railroad passenger-car body, and B B two of the seats, which may have the usual reversible backs, *b b*. Each of these seats B is carried at its end farthest removed from the side of the car on which it is situated by a pendent rod, C, which is pivoted above, as at *c*, to the roof of the car, or, which is the same thing, to a rod or frame connected with the roof, for the purpose of allowing the seat to swing in direction of the length of the car.

Fitted to the under side of each seat B is a frame, D D′, composed of back and front longitudinal rods, D, and cross or opposite end connecting-bars, D′. This frame, as here shown, is connected to the under side of the seat by lugs *d d*, arranged to hug or clip the longitudinal rods or bars D, and preferably, but not necessarily, in a free or loose manner, so as to allow of the seat slightly moving in direction of its length and to keep it from binding at its end next to the side of the car, springs *e e*, interposed between the lugs *d d* and the ends of the cross-bars D′, serving to thus secure to the seat its freedom to move slightly longitudinally. The cross-bar D′ of said frame next to the side of the car is connected with a slide, E, fitted to work within a curved groove or way, *f*, in a plate, G, secured to the side of the car, said curved way being struck from a point which is coincident with the pivot *c* of the pendent rod C, so that the slide E, which serves to support by the groove *f* the end of the seat next to the side of the car, will have the same radius as the suspension or pendent rod C. Such cross-bar D′ is represented as connected with the slide E by being pivoted intermediately of its length, as at *g*, to the slide, and in such case it is desirable to interpose between the ends of said cross-bar and the slide C springs *h h* to keep the seat square or from twisting, yet giving to it a certain freedom to vibrate from the pivot *g* as a center, and thus secure for the seat a limited flexibility in a back and forth or cross direction, similar to the provision which is secured for its slightly moving lengthwise by the sliding rods D and springs *e e*.

By providing the slide E with rollers an increased freedom of motion will be secured for it within the curved way *f* when the seat is made to swing by its suspension-rod C from the pivot *c*. Thus said slide is provided with upper and lower rollers, *i i*, at or near its opposite ends, and with back or face rollers, *k k*, arranged to bear against the upper and lower walls and back wall of the grooved way *f*.

Under ordinary circumstances the seats B in the car are not designed to swing, but are held stationary in part by upright springs H, attached or connected at their upper ends to the under side of each seat, and sitting loosely by toe-pieces *l* within sockets *m* in the car-floor S, which springs also exert an upward pressure upon the seat to relieve it of the superincumbent weight of the person or persons on the seat, and so prevent the seat from binding when liberated to swing, and in part by a series of diagonally-arranged springs, I I, permanently attached to the frame of the car-seat and to the floor of the car. These last-named springs I I also serve the purpose of restraining the seats from swinging too violently and of returning them to their normal position after being liberated and swung.

In the operation of the invention the shock or jar given to a car in case of collision will cause the supporting-springs H to be jerked out of the sockets *m* in the car-floor and the seats to be swung from their centers of suspension, all swinging in common and only restrained by the diagonal springs I I. This will largely prevent the passengers from being thrown out of their seats and from being jammed or crushed, at the risk of loss of life or injury to limbs, by contact with adjacent seats.

The invention is not restricted to the precise construction or details here shown for combining suspended or swinging seats with the car-body, and which shall preferably be connected with or tied to the car-floor, so as to remain stationary when not required to swing. Thus cords or straps may be substituted for the pendent rods C to connect the seats in a swinging manner with the roof of the car, said cords or straps in such case being the equivalents of the rods.

In addition to the advantages already named for the suspension of and freedom of motion secured to the seats, it may be observed that said seats will afford increased protection against jerks and shocks, thereby allowing the passengers to travel with more comfort and ease at high speeds; also, in the case of passengers standing or occupying any other position in the car being thrown or forced against the seats, the latter will yield to the pressure, and thus give protection against serious injury.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a seat having a slide at one end and curved ways in which the slide moves, of a depending swinging support, to the lower end of which the opposite end of the seat is secured, substantially as set forth.

2. The combination, with a railroad passenger-car body, of a series of swinging seats suspended above their own range of motion from or near the roof of the car, one in front of the other, depending supports from which said seats are so suspended, and springs extending from the seats to the floor of the car, tying said seats to said floor and adapted to yield in concert with the swinging action of the seats, essentially as set forth.

3. The combination, with a railroad passenger-car body, of the seats B, the pivoted suspension-rods C at the one end of said seats, connected at their lower ends with said seats and at their upper ends with the car-body at or near its roof, the slides E, provided with rollers at the opposite ends of the seats, and the fixed plates G, constructed to form curved ways and supports for said slides of like radius with the suspension-rods, substantially as specified.

4. The combination, with a railroad passenger-car body, of the swinging supports suspended from or near the roof of the car, the seats connected at one end to the lower ends of said supports, the frames attached to the under sides of said seats, composed of back and front longitudinal rods, D, and cross or opposite end connecting-bars, D′, slides E, provided with rollers and attached to the one end of said frames, and the curved way-plates G, secured to the side of the car and adapted to form a guide and support for the slide E, essentially as described.

5. In a suspended and swinging car-seat, B, the combination, with said seat, apertured lugs or ears *d* on its lower side, and the car-body, of suspension-connections uniting the outer ends of the seats with the car-body at or near its roof, a frame attached to the under side of the seat, composed of longitudinal sliding rods D D, passed through said ears or lugs, cross rods or bars D′ D′, springs *e e* on the rods D, between the cross-bars and the ears or lugs, controlling the sliding movement of the rods D D, the slide attached to the inner one of said cross-bars, and the curved way-plate G, secured to the side of the car and adapted to form a guide and support for the slide E, substantially as described.

6. In a suspended and swinging car-seat, B, the combination, with said seat and the car-body, of a suspension-connection, C, uniting said seat with the car-body at or near its roof, the frame D D′, attached to the under sides of said seat, the slide E, pivoted to the inner end of said frame, the springs *h h*, interposed between said end of said frame and the slide, and the curved way-plate G, secured to the side of the car and adapted to form a guide and support for the slide E, essentially as described.

7. In a suspended and swinging car-seat, B, the combination, with said seat and the car-body, of a suspension-connection, C, uniting said seat with the car-body at or near its roof, and the diagonally-arranged springs I I, uniting said seat with the floor of the car, substantially as shown and described.

8. In a suspended and swinging car-seat, B, the combination, with said seat and the car-body, of a suspension-connection, C, uniting said seat with the car-body at or near its roof, the supporting-springs H, connected at their upper ends with the seat and having toe-pieces *l* at their lower ends, and the sockets *m* in the floor of the car adapted to receive said toe-pieces loosely within them, essentially as shown and described.

9. The combination, with a railroad passenger-car body, of a series of swinging supports arranged one in front of the other, suspended at their upper ends from or near the roof of the car, the seats connected at one end to the lower ends of said supports and supported by an attached slide working in a fixed guide at their other end, springs tying said seats to the floor of the car adapted to admit of the swinging of the seat, and supporting-springs connected at their upper ends to the seat, and having a loose fit at their lower ends within the floor of the car, substantially as specified.

ERIK ENEQUIST.

Witnesses:
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EDGAR TATE.