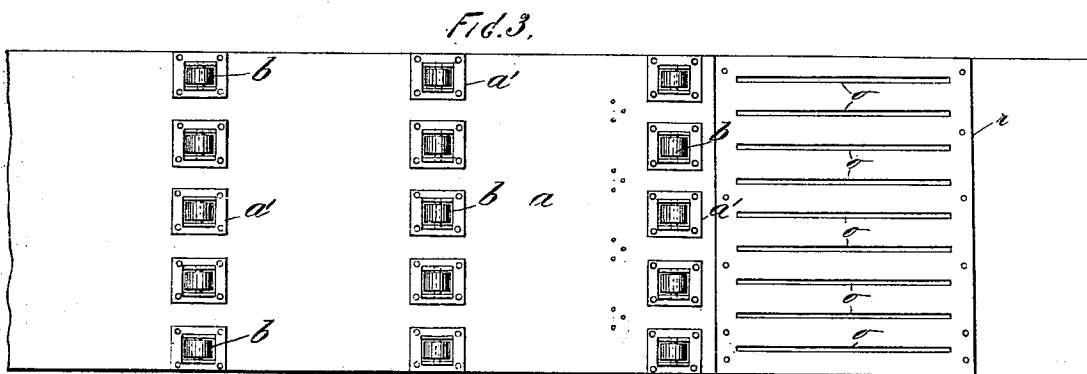
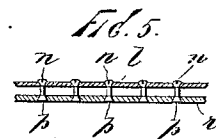
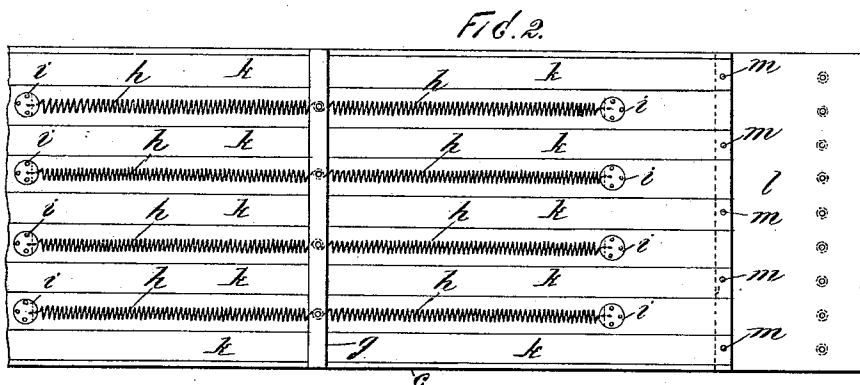
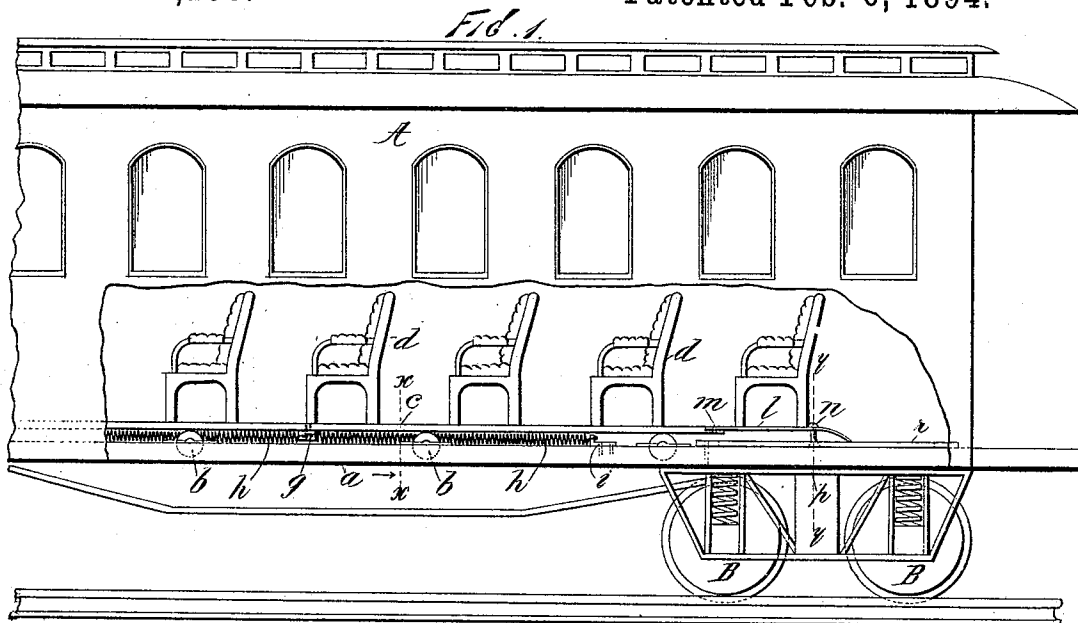


(No Model.)

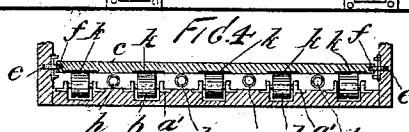
M. LE GRAND.
RAILWAY CAR.

No. 514,196.

Patented Feb. 6, 1894.



Witnesses:
John Buckler.
Geo. Smadwood.



Inventor:
Melvin Le Grand.
By M. J. Appelman,
Attorney.

UNITED STATES PATENT OFFICE.

MELVIN LE GRAND, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF TO
LEWIS DU BOIS, OF SAME PLACE.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 514,196, dated February 6, 1894.

Application filed April 3, 1893. Serial No. 468,783. (No model.)

To all whom it may concern:

Be it known that I, MELVIN LE GRAND, a citizen of the United States, and a resident of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Railway-Cars, of which the following is a specification.

My invention, while applicable to railway cars generally, is designed more especially for use in connection with passenger cars or coaches; and has for its object to provide a means for taking up or relieving the shock imparted to the occupants or freight by the sudden starting and stopping of the car or coach or by collision in front or rear.

To this end, the invention consists in the employment with an ordinary railway car or coach body, of a floor or platform which is capable of longitudinal movement therein to a certain extent, and is yieldingly and elastically connected to the same by suitable means, whereby the shock that would otherwise be communicated to the occupants by the sudden starting or stopping of the car or coach or by collision in front or rear will be neutralized, all as will hereinafter more fully appear.

Referring to the accompanying drawings, which form a part of this specification, Figure 1, is a side view of a portion of a railway passenger car or coach with my invention applied in connection therewith, the side of the car or coach being broken away; Fig. 2, a reverse plan view of a portion of the movable floor or platform, showing also the springs by means of which it is yieldingly and elastically secured to the body of the car; Fig. 3, a plan view of a portion of the bottom of the body of a car or coach, showing also the friction rolls upon which the movable floor or platform is mounted and over which it is adapted to move; Fig. 4, a transverse section of the lower portion of the body of a car or coach, taken in the plane xx of Fig. 1, and Fig. 5, a transverse section taken in the plane of yy of Fig. 3.

In all the figures, like letters of reference are employed to designate corresponding parts.

A indicates the body of a railway car or coach which is or may be of any ordinary or

preferred construction, and B the wheels upon which it is mounted.

In the drawings I have shown the wheels for one end only of the car or coach, but it is to be understood that in practice the other end of the car or coach will be similarly provided with wheels, and that such car or coach will or may be provided with the usual truck frames, platforms, and other appliances common to such vehicles.

Mounted in the bottom a of the body of a car or coach, in suitable hangers, a' , are friction rolls, b , which are preferably arranged in rows transversely of the same, and are free to rotate on their axes as occasion may require. Resting upon these rolls, is the movable floor or platform c , upon which the seats d are arranged. This floor or platform, in my preferred form of construction, is made somewhat shorter than the length of the body of the car or coach, and extends across from one side thereof to the other, being held in proper position in such body by rolls, e , which, journaled in suitable hangers secured to the side of the body, engage with grooves, f , formed in the edges of the floor or platform, and permit of the free longitudinal movement of such floor or platform, while yet restraining it from all lateral motion.

Secured to the under side of the floor or platform c transversely of the same, by bolts or otherwise, is a bar, g , to which is secured one end of a series of springs, h , the other end of such springs being secured to the bottom a of the body of the car or coach by brackets, i , fixedly secured thereto.

In the construction illustrated in the drawings, I have shown but a single transverse bar g , with the springs extending outwardly therefrom in opposite direction whereby to be operative both forward and backward, but it is obvious that I may employ a plurality of these bars, and, instead of arranging the springs on opposite sides thereof, may arrange the springs of one bar on one side of the same, and the springs of the other bar on the opposite side of that bar; the sole object and purpose of the springs being to return the floor or platform to its central normal position when removed therefrom, and permit of the same moving forward or backward

on the bottom *a*, as the case may be, against their tension, as the car or coach is suddenly started or stopped.

The springs shown in the drawings are of the usual coiled form, and this is the construction of spring I prefer to employ in practice, as a greater range of movement to the floor or platform is permitted thereby, while opposing thereto a more gradual and powerful resistance, but it is to be understood that any other of the well known forms of springs may be employed in lieu thereof, it only being essential that the springs or other yielding and elastic medium interposed between the floor or platform and the bottom of the body of the car or coach, whatever their or its character, shall be such as to permit of an increasingly resisted movement being imparted to such floor or platform to a limited distance, when the body of the car or coach is suddenly started or stopped or collision takes place in front or rear, and at the same time insure its return to its normal position when the inertia or momentum possessed by it is overcome.

To provide for the free and easy movement of the floor or platform *c* over the rolls *b*, and at the same time prevent the consequent wear to the under side of the former by its contact with the latter, I make use of metal plates, *k*, which are secured to the under side of the floor or platform *c*, by screws or otherwise, and rest upon the tops of the rolls *b*, as shown; while to prevent injury to persons standing at the ends of the car or coach body by the action of the floor or platform as it is moved in one or the other direction forward or back, I employ guards, *l*, These guards, of which only one is shown, but which is duplicated at the end of the car or coach that is not shown, consist of metal plates which are made of a width substantially that of the floor or platform to the ends of which they are, by screws or bolts *m*, secured, and of a length somewhat less than the distance between the ends of such floor or platform and the ends of the car or coach, whereby to permit of the proper movement of the floor or platform in such body, without the ends of the guards coming in contact with the ends of the latter. In the construction of these guards, their outer free ends are preferably sharpened down to thin knife edges, and are held in close contact with metal plates, *r*, secured to the bottom *a* of the body of the car or coach, by screws or bolts, *n*, which, passing down through the guards and the plates *r* that are provided with slots, *o*, for their reception, receive upon their lower ends nuts, *p*. By these means provision is not only made for holding the outer ends of the guards down close to the bottom of the car or other body, so as to pass under the feet of an occupant of the car standing at the end thereof, in case of a movement of the floor or platform *c* in that direction, but facility of movement of the guard

upon and over the bottom of the car afforded, as occasion may require.

In the construction shown in the drawings, the springs *h* are arranged intermediate the adjoining rolls *b*, and this is my preferred arrangement of such parts, as facility is thereby afforded for the use of longer springs, which conduces to a more easy and gradual movement of the floor or platform than when shorter springs are employed; but it is obvious that other arrangement of the springs may be adopted without departing from the spirit of my invention.

Again, I have shown in the drawings, the rolls *e* as engaging with grooves, *f*, formed in the edges of the floor or platform *c*, and this is the arrangement I prefer in practice, as provision is thereby made for not only holding such floor or platform from lateral movement, but from tipping up or overturning, in case the car or coach should be thrown upon its side, but it is manifest that such grooves may be omitted and the rolls act against the edges of the floor or platform, the tipping up or overturning of the floor or platform in that event being prevented by guards secured to the sides of the car and overlapping the edges thereof.

From the foregoing, it will be seen that I provide simple and efficient means for taking up and neutralizing, in a measure, the shock incident to the sudden starting and stopping of the cars, or to collisions in front or in rear, which is not only cheap and simple in construction, and safe and efficient in operation, but which is alike capable of use with new or old cars without expensive alterations or reorganizations of the latter being required.

Having now described my invention and certain of the ways in which it may be carried into effect, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, with the body of a railway car or coach, of a longitudinally movable floor or platform arranged therein, and means for yieldingly and elastically connecting such floor or platform to the body, substantially as described.

2. The combination, with the body of a railway car or coach, of a longitudinally movable floor or platform arranged therein upon which the seats are disposed, and means for yieldingly and elastically connecting such floor or platform to said body, substantially as described.

3. The combination, with the body of a railway car or coach, of a longitudinally movable floor or platform arranged therein and provided with guards, the free outer ends of which are held in close contact with the bottom of the body, of means for yieldingly and elastically connecting such floor or platform to such body, substantially as described.

4. The combination, with the body of a railway car or coach, having rolls arranged in its bottom, of a longitudinally movable floor or

platform resting upon such rolls, and springs for connecting such floor or platform to the bottom of the body, substantially as described.

5 5. The combination, with the body of a rail-
way car or coach having rolls arranged in its
bottom, of a longitudinally movable floor or
platform carrying the car seats arranged upon
such rolls, and provided with a transversely
arranged bar upon its under side, of a series
10 of oppositely arranged springs connected at
one end to said bar and at the other to the bot-
tom of the body, substantially as described.

15 6. The combination, with the body of a rail-
way car or coach having rolls upon its bottom
and upon its sides, of a longitudinally mov-
able floor or platform resting upon the rolls
in the bottom of said body, with its edges in
contact with the rolls upon the sides thereof,
of means for yieldingly and elastically con-
20 necting the floor or platform to the bottom of
the body, substantially as described.

7. The combination, with the body of a rail-
way car or coach having metal plates in its
bottom provided with rows of slots, and a lon-
gitudinally movable floor or platform ar- 25
ranged in said body, of guards connected to
said floor or platform, and bolts extending
down through such guards and the slots in
the metal plates, substantially as described.

8. The combination, with the body of a rail- 30
way car or coach, A, having bottom, *a*, and
friction rolls, *b*, of the longitudinally movable
floor or platform *c* provided with the bar *g*,
the springs *h* arranged upon opposite sides of
said bar, and the bracket *i*, as and for the 35
purposes set forth.

In testimony whereof I have hereunto set
my hand this 27th day of March, 1893.

MELVIN LE GRAND.

Witnesses:

LEWIS DU BOIS,
GEO. SMALLWOOD.