

(No Model.)

G. M. PULLMAN.

RAILROAD CAR.

No. 383,067.

Patented May 15, 1888.

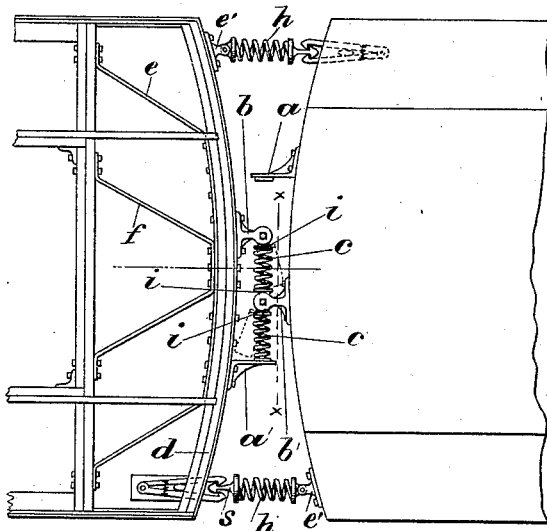


Fig. 1.

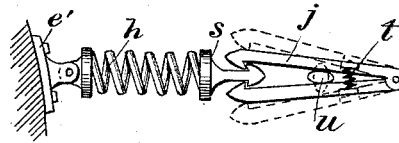


Fig. 4.

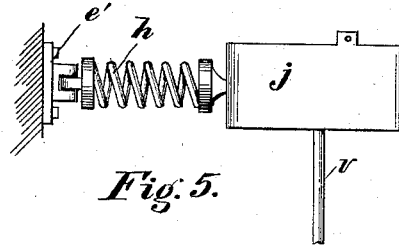


Fig. 5.

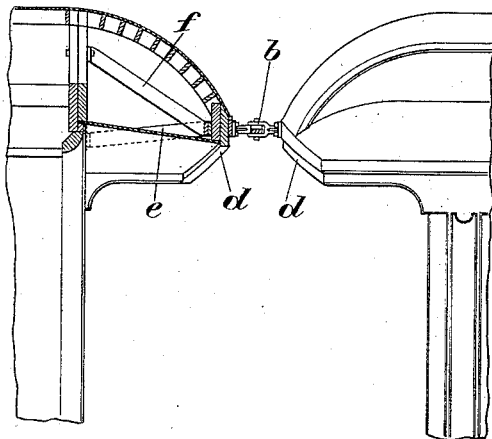


Fig. 2.

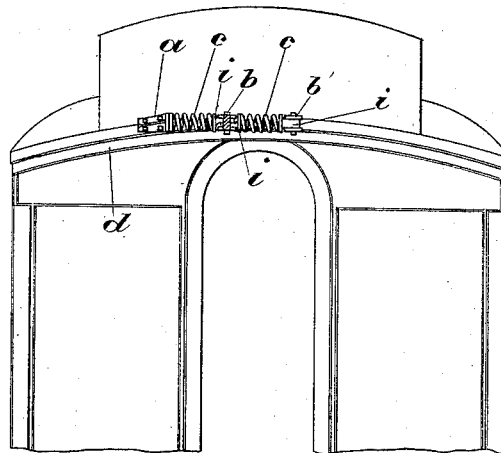


Fig. 3.

WITNESSES.

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GEORGE M. PULLMAN, OF CHICAGO, ILLINOIS.

RAILROAD-CAR.

SPECIFICATION forming part of Letters Patent No. 383,067, dated May 15, 1888.

Application filed September 13, 1887. Serial No. 249,534. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. PULLMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in the Construction of Railroad-Cars, which I desire to protect by Letters Patent of the United States, and of which the following is a specification.

The object of my invention is to neutralize, prevent, or control the oscillation of car-bodies by uniting the top adjacent ends of cars in travel by means of powerful springs having such strength and tension as will permit the necessary movement of individual cars, but of such power as will prevent the swaying or oscillating movement usual with car-bodies when in travel and sustain alignment of the cars and steadiness of movement under high rates of speed and the usual road inequalities, such springs not only preventing unpleasant oscillation of the cars, but acting and securing at once an alignment of car-bodies when oscillation or displacement occurs.

For my present invention I utilize the recovering strength or tendency of springs under tension or flexion.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan showing the ends of adjacent cars with the spring appliances, in which the roof-covering of one car is removed to expose braces for strengthening the car-roof. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section on line *x x*, Fig. 1, in which is shown an end elevation of one car portion embracing portions of the spring appliances belonging to the adjacent cars. Figs. 4 and 5 are detail views.

In my present example I have shown springs in two forms of application, which may be used conjointly, or either form may be used independently of the other.

One plan of applying springs is shown in the spiral springs *c* and *c'* and brackets *a* and *a'* and *b* and *b'*. On each end of a car and to one side of a longitudinal central line thereof is secured to the end of the car-roof a bracket, *a*. On the opposite side of the central line is a bracket, *b'*, but at less distance from said line. As shown by the adjacent car, the brackets on the opposite end of a car are changed

in their positions with relation to the central line, so that an interior bracket of one car will occupy an intermediate position between two brackets of the car adjacent. This arrangement locates the brackets in positions for coupling irrespective of the ends of cars that may be brought together. The springs *c* and *c'* are respectively provided with caps *i*, into which the ends of the springs are secured, a cap at one end of each spring being provided with a shank, which the brackets *b* and *b'* are respectively adapted to receive pivotally, thus hinging the spring to said brackets. Spring *c*, as in the present example, is hinged to the bracket *b*, and spring *c'* is hinged to the bracket *b'*. The free or unhinged end of spring *c* has a bearing when the cars are coupled against bracket *b'* of the adjacent car, and the unhinged or free end of spring *c'* has a bearing against bracket *a'* of the other car, caps being secured to the ends of the springs that give proper bearing-surfaces against said brackets. It is obvious that the positions of the springs may be reversed and the free end of spring *c*, by changing the position of the latter, as permitted by its hinged connection, may be brought to bear against bracket *a* of the opposite car, and the end of spring *c'* brought to bear against bracket *b*. As indicated by dotted lines, Fig. 1, in coupling cars the springs may, as a preparatory measure, be placed in such positions that when the cars are brought together the free ends of the springs are forced into positions against the brackets, and thus automatically effect the coupling. It is apparent that when springs *c* and *c'* are in coupled positions any tendency of deviation of the cars from alignment with each other causes flexion of said springs, and the resistance of the latter thereto counteracts the oscillation or swaying of the cars.

The other form of springs is shown in Fig. 1, and illustrated in detail in Figs. 4 and 5. These springs are located at the ends of the car-roofs near the sides of the car, in which connection spiral springs *h* are respectively provided at their ends with suitable coupling attachments. One end of a spring, *h*, is hinged to a bracket, *e*, in which the end coil of the spring is provided with a cap firmly secured by any convenient means to said coil, which cap is provided with a shank and otherwise suit-

ably constructed to adapt it to be hinged to the bracket. The other end of the spring is provided with a cap having the coupling-shank *s*, terminated by a spear-shaped head adapted to couple with a clutch, *j*, on the adjacent car. The jaws of clutch *j* are hinged within the car-roof within an aperture, through which they are inserted, sufficient to permit of their movements in opening and closing. The jaws are held movably together by means of spiral springs *t*, the ends of which are held in lugs on said jaws. To open the jaws of clutch *j* preparatory to coupling cars, cam *u* is provided, which is connected with a rod, *v*, extending downwardly, that may be operated by a crank, hand-wheel, or in any suitable manner. The clutches *j* and brackets *e'* are reversed at opposite ends of the car, as to the sides of the car, to provide a counterpart at one end to that of the other. As shown in Fig. 5, clutches *j* are given depth sufficient to provide against the spring portions of the coupling being disengaged by oscillation of the cars. While in this example I have shown the springs *h* having hinged connection with brackets *e'*, this is not essential, as the flexion of the springs may admit of sufficient lateral play of the car. In this form of applying the springs, however, I depend largely upon the tensile resistance of said springs to effect the desired result. The braces *e* and *j* and plate *d* (shown in Fig. 1) serve, in suitably strengthening the car-roof, to withstand the extra strain incident to the use of the top-connecting springs.

In the description of the springs *c* and *c'* said springs and the parts belonging thereto are lettered to distinguish those of one car from those of the other car for convenience, the parts, in fact, being the same.

It will be noticed that in the various forms or modifications shown in the drawings the connection between the adjacent ends of the superstructures of cars of a train is essentially a spring-coupler, whatever may be the particular form of the device. I do not confine myself to the specific forms shown in the drawings, but mean to include all coupling or connecting devices uniting the ends of adjacent superstructures of the car-bodies, which admit of the swaying or oscillation of such bodies, while at the same time the tendency to such movements is resisted, and which also exert a constant tendency in the direction of restoring the car-bodies, if oscillation has been set up, into correct alignment.

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

1. The combination, substantially as hereinbefore set forth, of the adjacent ends of the

superstructures of two cars of a train, with a spring-coupler, substantially as set forth, whereby the tendency of such superstructures to oscillate is checked and a constant force to restore proper alignment of the car-bodies is obtained.

2. In the construction of railway-cars, springs connecting adjacent ends of the cars of a train, that are located at or near the tops thereof and secured by mechanism that will admit of coupling the parts belonging to one car with or uncoupling from the parts belonging to another car, which springs yield to flexion as a result of oscillation or swaying of the cars, whereby the resistance or said springs to such flexion operates to restrain the oscillatory or swaying motion of the cars, substantially as set forth.

3. The combination, with a train of cars, of springs connecting adjacent ends of cars, located at or near the roofs or tops thereof and secured by mechanism that will admit of coupling the parts belonging to one car with or uncoupling from the parts belonging to another car, which springs yield under tensile strain, as a result of oscillation or swaying of the cars, whereby the resistance of said springs to such tensile strain operates to restrain the oscillatory or swaying motion of said cars, substantially as set forth.

4. In the construction of railway passenger-cars, brackets *b* and *b'*, secured to the car-roof on opposite sides of a central longitudinal line from that of the opposite end of the car, brackets *a*, also secured on opposite sides of a central line at the respective ends of a car, in combination with spiral springs *c* and *c'*, which latter are respectively hinged to the brackets *b* and *b'*, and their opposite ends adapted to bear against brackets *a* and *a'*, substantially as described.

5. In the construction of railway-coaches, springs *h*, one of which is provided on each end of a car at or near the top thereof and on opposite sides of a central longitudinal line of said car, said springs being provided with a coupling-shank and head, *s*, in combination with clutches *j*, likewise located at each end of the car in positions to couple with said springs when the cars are brought together, substantially as set forth.

6. In the construction of railway-cars, springs *h*, attached to the several cars of a train at the roof or ends of said cars, that are provided with suitable shanks and coupling-heads, in combination with clutches *j* upon adjacent cars, which latter are provided with cams *u* for opening the jaws of said clutches preparatory to coupling, substantially as described.

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Witnesses:

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