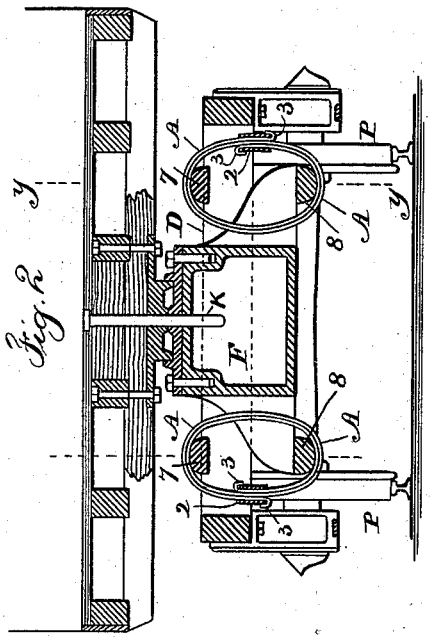
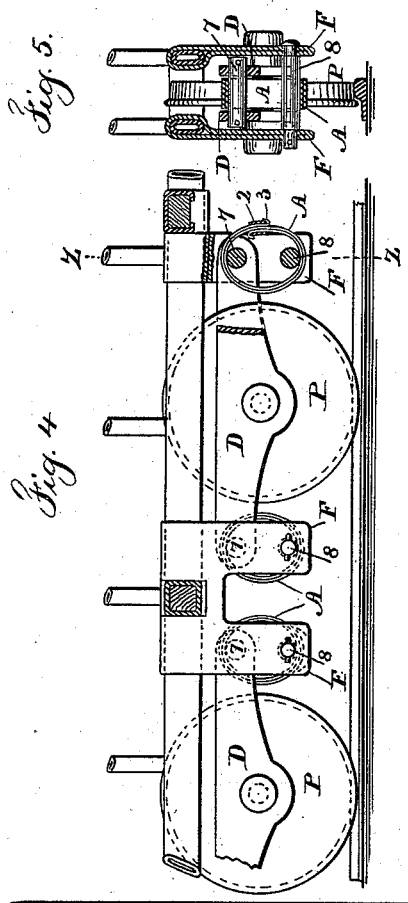
(No Model.)

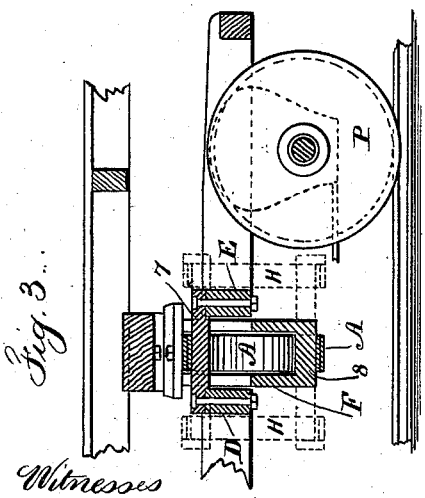
B. J. LA MOTHE.

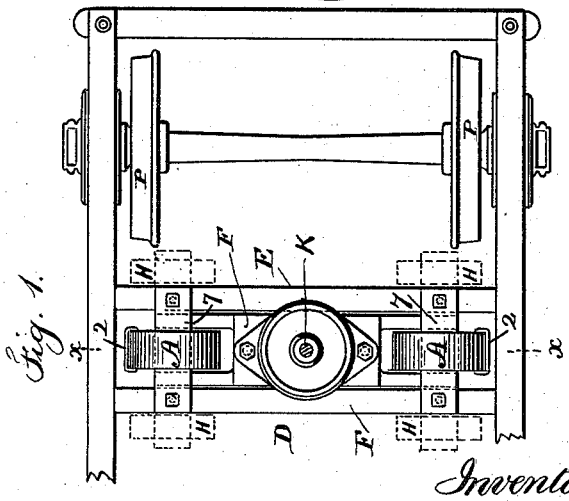
RAILWAY CAR SPRING.

No. 385,061. Patented June 26, 1888.









Witnesses
Chas. H. Smith
J. Stabb

Inventor.
Bernard J. La Mothe
for Lemuel W. Serrell.
atty

UNITED STATES PATENT OFFICE.

BERNARD J. LA MOTHE, OF NEW YORK, N. Y.

RAILWAY-CAR SPRING.

SPECIFICATION forming part of Letters Patent No. 385,061, dated June 26, 1888.

Application filed August 31, 1887. Serial No. 248,346. (No model.)

To all whom it may concern:

Be it known that I, BERNARD J. LA MOTHE, of the city and State of New York, have invented an Improvement in Springs for Railway-Cars and other Vehicles, of which the following is a specification.

In the construction of springs for railway trucks and cars it is usual to apply the weight so as to compress the springs, and hence there is a concussion transmitted to the car whenever the limit of the compression is reached, and the greater the weight placed upon the spring the more rigid it becomes, and there is an increased tendency to injure the axles and running-gear in consequence of the concussion.

My present improvement relates to the combination, with the vehicle and axle-bearings, of circular suspension-springs that are rendered elliptical by the weight suspended, and which expand and are contracted by the weight and in proportion to the load, a heavy weight tending to elongate the ellipse and a less weight allowing the springs to more nearly approximate a circular form.

In the drawings, Figure 1 is a plan of a portion of a car-truck fitted with my improved springs. Fig. 2 is a section at the line *x x*, Fig. 1, the springs being in elevation. Fig. 3 is a section at the line *y y*, Fig. 2. Fig. 4 represents my improvement as applied to the separate car-wheels and their bearings, and Fig. 5 is a cross-section at the line *z z*.

The spring A is made of a band of steel of suitable length and thickness, wound up into a circle of the desired diameter and number of convolutions and the ends of the spring are firmly secured by a band, 2, passed around the convolutions and the ends bent outwardly or turned over, as at 3 3, and these springs are to be applied between the axle-bearings and the body of the vehicle—such as in a car-truck—between the car bearer and truck under the proper conditions for the weight to be taken by suspension on the spring and tend to elongate the circle into an ellipse. With this object in view the rounding bearings 7 and 8 are within the spring, and these bearings are so applied upon the truck and the connections to the car that the spring becomes a suspending-link for the car.

A convenient way of arranging the bearings 7 and 8 is for the bearing 7 to rest upon the tops of the two transom-beams D E of the truck-frames, and for the truck-bolster F, that is connected to the car by the king-bolt K, to occupy the space between the transom-beams D and E, and be slotted near its ends to give the necessary space for the springs, and the bearings 8 are placed below the bolster F and rest upon the inner surfaces of the springs at the bottom parts thereof, so that the springs A will sustain the weight by a tension that tends to make the spring A more or less elliptical, and it will be apparent that in consequence of the weight being sustained by tension the spring can be very light without the risk of breaking, because there is no leverage against the spring and all parts thereof take a corresponding tensile strain.

If desired, four springs may be applied between the transom-beams of the truck and truck-bolster on the car, there being two springs at opposite sides of the beam near each end, as indicated by dotted lines at H, Figs. 1 and 3.

In all cases the bearers 7 and 8 should be half-circles, or nearly so, for the interior surfaces of the springs to rest upon, and these are to be of a size adapted to prevent the spring breaking by the sharpness of the curvature under extreme tension.

There may be a layer or strip of brass, felt, pasteboard, or other suitable material between the convolutions of the steel springs to deaden any noise and prevent wear on the steel.

In Figs. 4 and 5 the springs A and the bearings 7 and 8 are shown as applied between the beams D at the downwardly-projecting bolster F, and they act in the manner before described; but the beams are placed so as to receive the journal-boxes of the wheels P, such wheels P being between and parallel with the beams D. In this case the axles of the wheels do not necessarily pass across the track from one wheel to the other, but may be short, so that each wheel has a separate axle. The manner in which my improved spring can be applied to vehicles generally will be apparent from the foregoing description and drawings.

I am aware that a steel band has been coiled into a circle and used as a spring; but when this has been done the coils have been connected by a bolt or similar device passing

through holes in the bands, and the metal is weakened thereby, and the greatest strain comes upon the inner convolution, because it is the shortest. By bending the ends of the spring outwardly and backwardly and holding them with a surrounding metal clip-band the tension on the spring throughout is rendered uniform, because the steel band is held at its ends only.

I claim as my invention—

1. The combination, with the car-truck and the upper and lower bearings, 7 and 8, of a suspension-spring formed of a band of steel rolled up into a circle, with the ends bent outwardly, and a clip-band, 2, surrounding the convolutions, and against the opposite edges of which the outwardly-turned ends of the spring rest, substantially as set forth.

2. The combination, with the transom-beams D E, in a railway car and truck, and the bearings 7 and 8, of a suspension-spring formed of a steel band coiled into a circular form and the ends turned outwardly, and a band, 2, passed around the spring between the outwardly-turned ends for holding the same, substantially as specified.

Signed by me this 26th day of August, 1887.

B. J. LA MOTHE.

Witnesses:
GEO. T. PINCKNEY,
WILLIAM G. MOTT.