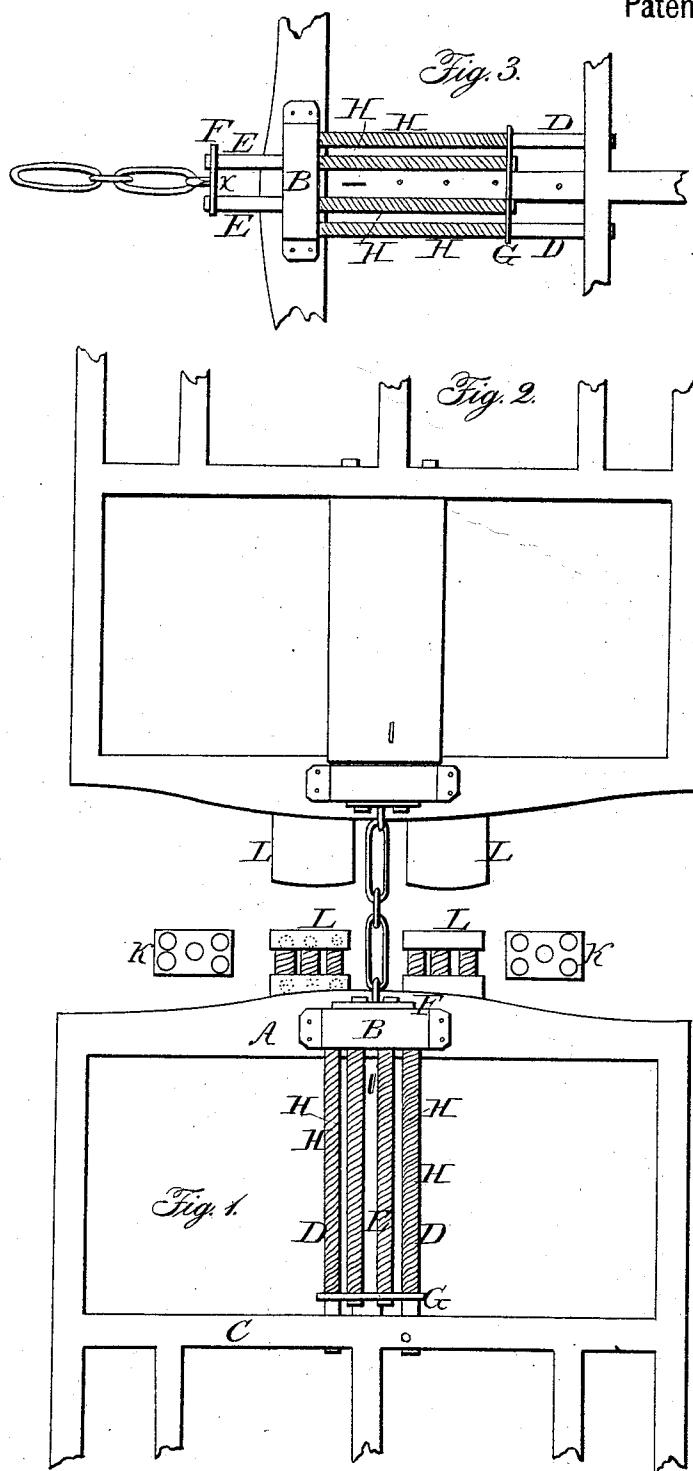


P. ALVERSON.

Car Bumper.

No. 908.

Patented Sept. 8, 1838.



# UNITED STATES PATENT OFFICE.

PETER ALVERSON, OF NEW HAVEN, CONNECTICUT.

## SPRING-DRAFT AND BUMPER FOR RAILROAD-CARS.

Specification of Letters Patent No. 908, dated September 8, 1838.

*To all whom it may concern:*

Be it known that I, PETER ALVERSON, of New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in the Mode or Method of Attaching Railroad Cars to Each Other and to the Moving Power by Means of Machinery, hereinafter described.

The object of my invention is, to prevent the jerk usually experienced on the first movement of connected cars; and the jar occasioned by the concussion when suddenly stopped. This has been attempted in various ways.

My improvement consists in interposing elastic chains or spring drafts and bumpers, both made with strong spiral springs, as hereinafter described; thereby preventing or greatly lessening the effect both of the jerk and of the concussion.

To enable others skilled in the art to make and use my improvement, I describe the same as follows:

*First.—The elastic chain or spring-draft*  
I make thus. On the top of the front cross-bar or draft-bar of the carriage bed of the car, I attach firmly a strong box of cast iron, about 12 inches long, 6 wide and 3 deep, as seen in the accompanying drawings  
Figure 1. A, represents the front cross or draw bar. B, the box attached. This box is connected with the cross bar of the bed next in the rear, as seen at C, by two rods or bars of iron about  $1\frac{1}{2}$  inches in diameter  
and about 3 feet long as seen at D, D, Figs. 1 and 3, one end of each rod being screwed into the box B, with a firm thread, and the other end passing through the rear cross bar where it is secured by a head or nut.  
These rods lie horizontally about 10 inches apart. Between these outside rods, I place two other rods or bars E, E, of the same dimensions with the others, which extend through the box in front and through a firm  
movable front plate F, in which they are made fast; and at the other end these rods pass through a follower G, and are made fast in that. This follower G, is a firm bar of iron about 12 inches long, 2 inches broad  
and  $\frac{3}{4}$  of an inch thick, having holes near each end, to embrace and freely slide upon the two outside rods. Between this follower G, and the box B, on the front bar, all the rods are armed with strong spiral springs,  
made of wire No. 3 or 4, for common use, wound to play easily on the rods as seen

Fig. 1 H, H, H, H. These springs are a little compressed when put in place and should admit of a further compression of about one third of their length as seen Fig. 60  
3, H, H, H, H. The two middle rods are placed about 3 inches apart, to give room for the lever of the brake to pass up between them. At the center of the movable front plate F, I attach a firm hook to receive the connecting chain of the cars as seen at X, in Fig. 3.

The machinery thus described I call an elastic chain or spring draft and is to be attached to the front of each car in the manner substantially as specified, and another similar in all respects is also attached to the rear of all the cars in a train thereby doubling the effect on each car. The spring draft may be made with one or more rods 75 and springs, but for passenger cars I prefer 4 as above described. These in either form are usually covered by a case of thin boards to protect them from the weather, as seen in Fig. 2, and Fig. 1 and Fig. 2, represent 80 the cars connected.

*Secondly—The bumpers.—These are elastic cushions attached in the usual manner to the front and rear draw-bars of the carriage bed of each car; one on each side of 85 the connecting chain, so that the cushions on the connected cars, will meet face to face in concussion. These cushions or bumpers so called I make about 9 inches square on the top and 6 inches thick; I make them 90 elastic by spiral springs made of wire of the same size and wound in the same manner as those used for the draft, and are so wound as to expand to the length of about 10 inches and may be compressed till brought home 95 one half the length. I usually place five of these springs in each cushion, viz. one at each corner and one in the center. They are held in place by entering holes made for that purpose in the opposing faces of firm 100 blocks of wood about  $2\frac{1}{4}$  inches thick, 9 inches long and 6 broad. Into these blocks I bore holes two inches deep and of a size to admit freely the end of the spring as seen in the drawings at K, K. The front of the 105 front block I arm with a plate of iron covering the whole to give it strength. The parts are put together thus, I interpose the springs between the blocks, entering the ends into the opposing holes. I then compress 110 the springs an inch or two, to give firmness to the cushion, and I secure the parts in*

place by strips or bands of firm webbing nailed to the blocks. I then cover the whole with a leathern case, interposing a handful of curled hair between the front plate and the leather for its protection. The whole is then nailed and made fast to the draw bar of the carriage as seen at L, L, Fig. 1, and Fig. 2. Springs thus set are equally compressible within the supporting blocks as without and being thus supported and held in place, form a more durable elasticity, a better protection and less liable to get out of place than any form of bumper heretofore used.

15 *Operation.*—The operation of this machinery is as follows: When the train of cars are all connected, the tendency of the machinery is to bring the cars nearly to close contact when at rest; and when the 20 power of the locomotive is applied, it operates at first upon the elastic chains or spring draft, and they yielding gradually as seen

in Fig. 3, prevent a jerk. In like manner when the forward cars are checked or stop, the elasticity of the bumpers soften the blow 25 and shock of concussion better than by any mode heretofore used.

I do not claim as my invention spiral springs as such merely. But I do claim as my invention and improvement— 30

The combination of spiral springs with the other machinery as specified, thereby forming the spring draft and bumpers as above described which I claim as my invention, and also the application of them or 55 either of them to railroad cars, for the purposes and in the manner substantially as above specified, and therefore I solicit Letters Patent according to law.

New Haven, June 18th, 1838.

PETER ALVERSON.

Witnesses:

SIMEON BALDWIN,  
ROGER BALDWIN.