(No Model.)

C. A. SCHROYER.

SPRING BUFFER FOR RAILWAY CARS.

No. 397,312. Patented Feb. 5, 1889.

Fig. 1.

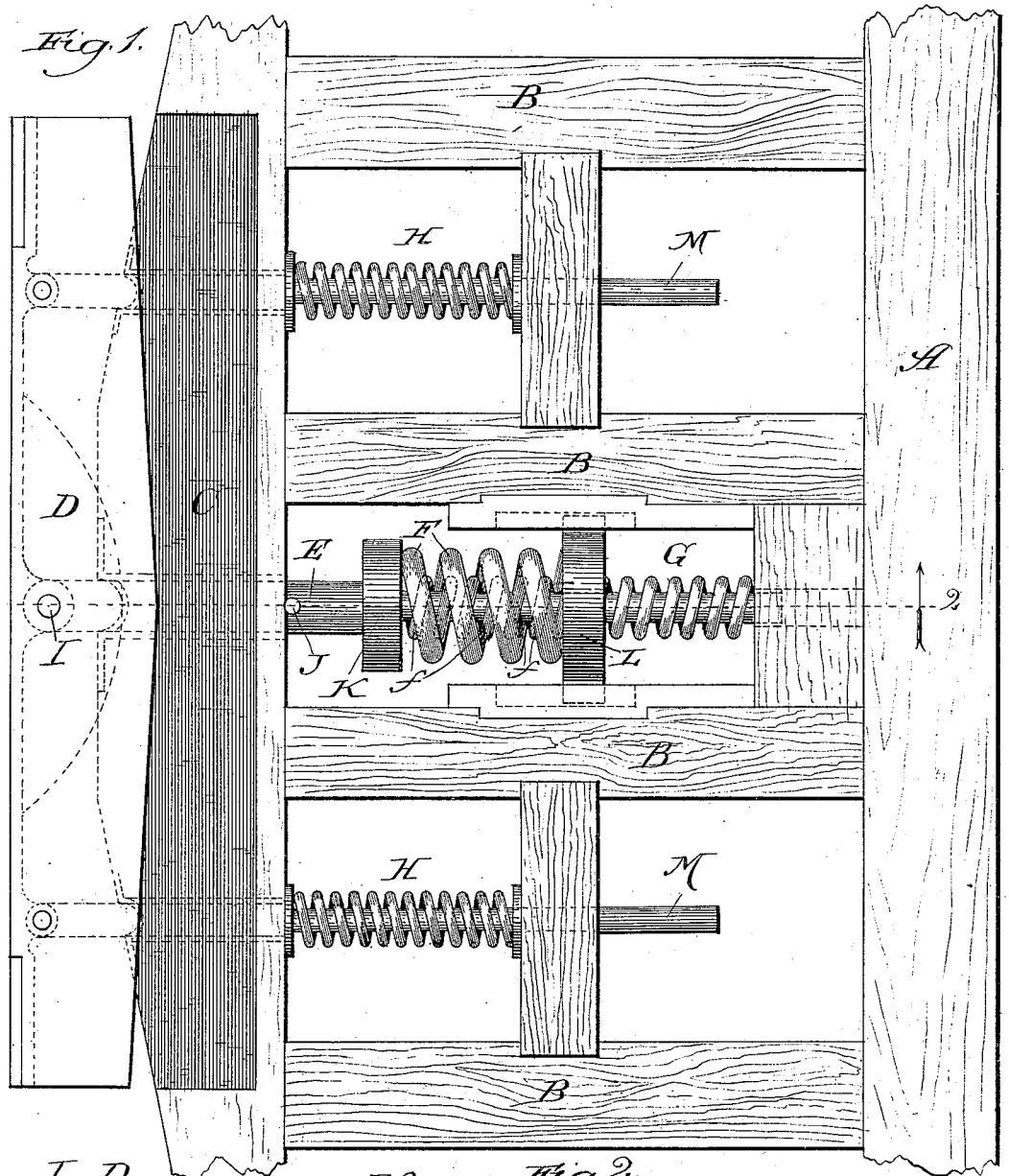
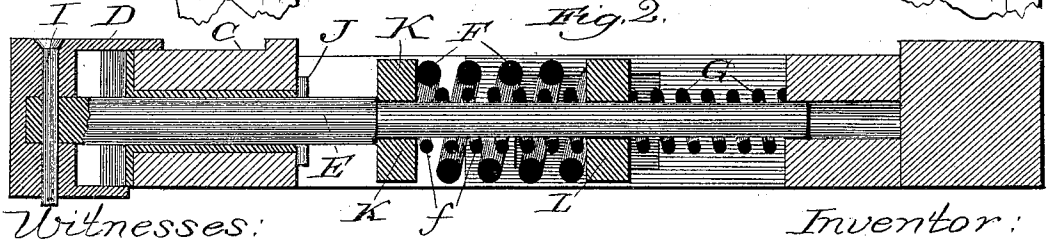


Fig. 2.



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CHARLES ALBERT SCHROYER, OF CHICAGO, ILLINOIS.

SPRING-BUFFER FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 397,312, dated February 5, 1889.

Application filed August 7, 1888. Serial No. 282,188. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ALBERT SCHROYER, a citizen of the United States, residing at Chicago, Illinois, have invented a new and useful Improvement in Spring-Buffers, of which the following is a specification.

It has heretofore been usual in the construction of so-called "vestibuled" cars to attach the angle-plates, to which the lower edges of the face-plates of the extensible hoods are fastened, to the buffer-stems, in order to utilize the buffer-springs in maintaining the requisite constant contact between the face-plates. It has now been found that when so constructed the knuckles of the angle-plates, if the cars were closely coupled, ate into the buffer-beam and injured it, and if the cars were not closely coupled that the face-plates themselves did not remain in constant contact, but sometimes became separated, leaving an inconvenient gap between them. The pressure exerted by the powerful buffer-springs also rendered it very difficult to uncouple the cars. In other words, to give the plates such play as was required would necessitate a corresponding compression of the buffer-springs; but these springs also act to hold the coupling-faces of the coupling-hooks in contact, and if thus compressed would exert a pressure so great that it would be almost impossible to separate the hooks to uncouple the cars.

To overcome the above defects is the object of my present invention, and I accomplish this by arranging springs of different strengths in such a way that the powerful springs used in buffing shall be but partially compressed when the cars are coupled and weaker springs shall exert their force to maintain the constant contact between the face-plates, allowing the required amount of play.

In the drawings, Figure 1 is a plan view of the platform of a vestibule-car with the flooring removed; and Fig. 2, a longitudinal vertical section taken on the line 2 of Fig. 1, looking in the direction of the arrow.

A is the end cross-beam of the car; B, the platform-sills; C, the buffer-beam; D, a right-angled plate attached to the lower end of the face-plate, forming the rim of the extensible hood in vestibuled cars; E, the buffer-stem; F *f*, the buffer-springs; G, an auxiliary spring intended to aid in forcing out the angle-plate; M M, rods supporting spiral springs H H, which aid in keeping the angle-plate in proper position; *m m*, collars fastened to the rods M M to compress the springs H H; I, a bolt connecting the buffer-stem with the angle-plate; J, a pin to prevent the buffer-stem being pushed too far forward; K, a collar on the buffer-stem against which the springs F and *f* bear; L, a follower on the stem and between the buffer-springs and the spring G, and N N, boxes or bearings in which the follower slides.

The platform of a car containing my improvements is constructed in the usual manner and provided with the ordinary hook-coupler, vestibule face-plate, and angle-plate. The buffer-stem is pivoted to the angle-plate, allowing the latter to vibrate freely on the stem. On this stem I place a collar, K, which may be fastened to the stem or left free to slide upon it, as desired, and bearing against this are placed the buffer-springs having a total force to resist the buffing-shock of about eighteen thousand pounds. These springs bear at their rear ends against a follower sliding upon the buffer-stem and in ways formed in the platform-sills. Back of these springs is the auxiliary spring G, supported on the stem and bearing against the rearward side of the follower. The face-plate of the vestibule extends somewhat beyond the coupling-faces of the coupling-hooks, so that the face-plates will be pushed back in the operation of coupling, and thus remain after the cars are coupled. To aid in keeping the angle-plates in proper position, I use the rods M M and springs H H, which continually force out the ends of the angle-plates, with which they are connected, and aid in preserving the contact of the face-plates, especially when rounding curves.

The other details of construction will be obvious from the drawings.

My devices operate as follows: When the pressure is applied in coupling cars, the face-plate is forced back against the springs. The springs F and *f* being much stiffer than the spring G, the follower will be pushed back and the spring G compressed until the follower has reached the ends of its bearings in the sills, having moved, say, one and one-quarter inch, at which time the spring G ex-

erts a force of about eight hundred pounds. The follower being then held from further backward movement, any further pressure on the angle-plate will compress the springs F and *f*. In order to allow the coupling-hooks to pass each other far enough to enable their coupling-faces to engage, it will be necessary to compress these latter springs, say, six-sixteenths of an inch, when they will exert a force of about six thousand pounds. The angle-plates and attached face-plates will thus be kept in constant contact by the auxiliary spring G, aided to some extent by the springs F and *f*, while any further shock resulting from buffing will be sustained by the springs F and *f*. Thus it will be seen that the face-plates are held together, and also the coupling-hooks, when the cars are coupled and at rest, by a pressure of about six thousand eight hundred pounds, and that this only is the pressure that has to be overcome in uncoupling. It will also be seen that sufficient play is thus given to each face-plate, while at the same time springs of sufficient strength are provided to sustain the buffing.

Another advantage resulting from the use of my improvement consists in the lessening of the sudden shocks caused by the application of the brakes, especially in emergency stops. With the ordinary Cowell or Janney coupler, when the train is running the draw-bar is drawn forward, drawing the face-plate with it, and while in that position there is no force behind the face-plates to withstand a sudden shock. If, then, the brakes are applied and the cars driven against each other, the result is a shock more or less violent, according to the force exerted by the brakes. With my improvement, however, the face-plates are always forced out by the auxiliary springs, so that the first blow is sustained by them, while, as the cars are still further forced together, the buffer-springs also come into play, and thus the shocks which would be otherwise caused by the application of the brakes are very greatly lessened or wholly prevented.

Although I have described my invention as used in connection with vestibuled cars, it is not my intention to limit myself to such use, since it is obvious that it may be used in cars without the vestibule, in connection with any of the well-known extensible platforms, such as the Cowell.

I claim—

1. In connection with an extensible platform, a spring-buffer comprising a buffer-stem, buffer-springs, a follower, and an auxiliary spring compressible before the buffer-springs, substantially as described.

2. In connection with an extensible platform, a spring-buffer comprising a buffer-stem, buffer-springs F and *f*, an auxiliary spring, G, a follower between the springs F and *f* and G, all the springs being supported upon the buffer-stem and the auxiliary spring being first compressed when the cars are brought together, the buffer-springs being somewhat compressed when the cars are brought near enough to couple, and being still further compressible to take up the buffing strain, substantially as described.

3. The combination of a vestibule angle-plate, a buffer-stem, buffer-springs F and *f*, a follower, L, and an auxiliary spring, G, compressible before the buffer-spring, substantially as described.

4. The combination of a vestibule angle-plate, a buffer-stem, buffer-springs, a weaker auxiliary spring, and a follower between the springs, all the springs being supported on the stem, and the auxiliary spring being first compressed when the cars are brought together, the buffer-springs being somewhat compressed when the cars are brought near enough to couple, and being still further compressible to take up the buffing strain, substantially as described.

5. The combination of a vestibule angle-plate, a buffer-stem, buffer-springs F and *f*, a weaker auxiliary spring, G, a follower, L, and springs H H, mounted on rods M M, which aid the spring G in forcing out the angle-plate and keep it in proper position, substantially as described.

6. The combination of the face-plate of the extensible hood of a vestibule-car, a buffer-stem connected therewith, buffer-springs, a follower, and an auxiliary spring compressible before the buffer-springs, substantially as described.

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