(No Model.)

R. E. RICKER.

CAR BUFFER.

No. 306,777. Patented Oct. 21, 1884.

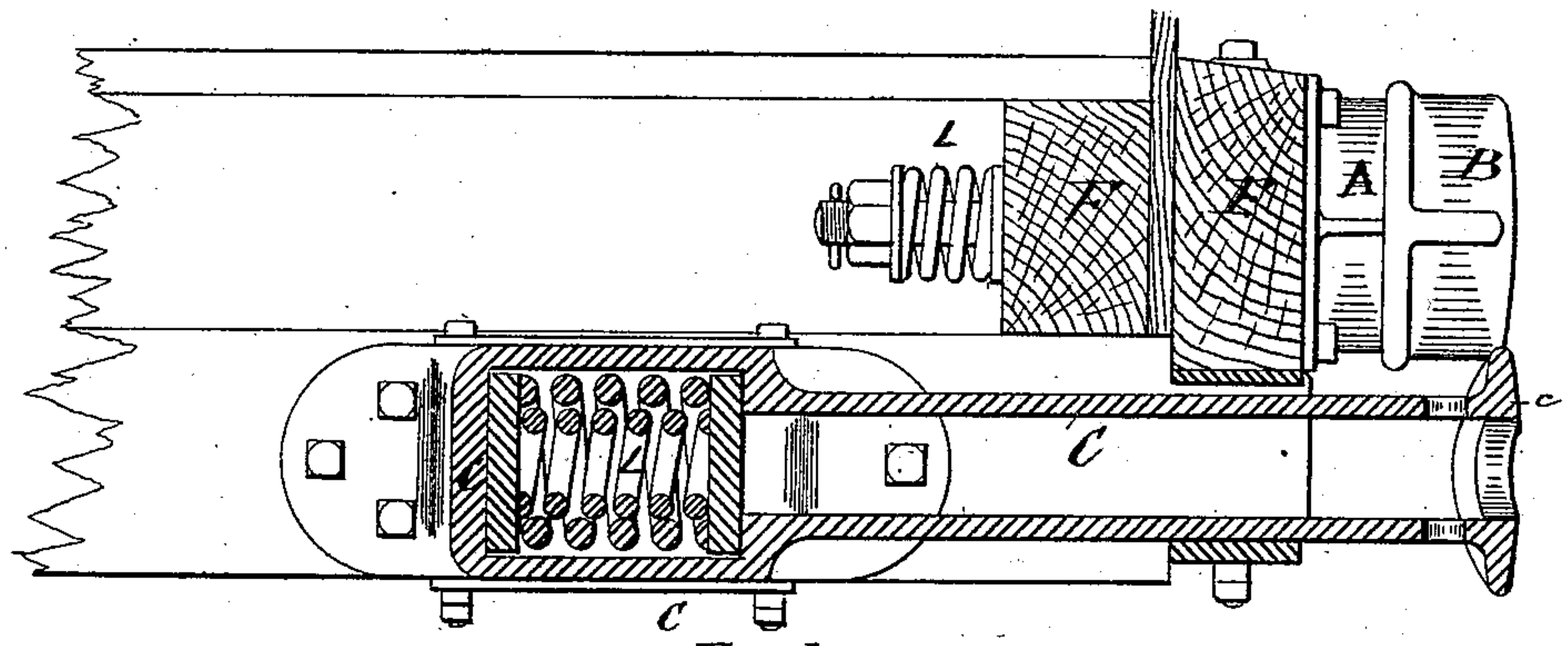

Fig 1

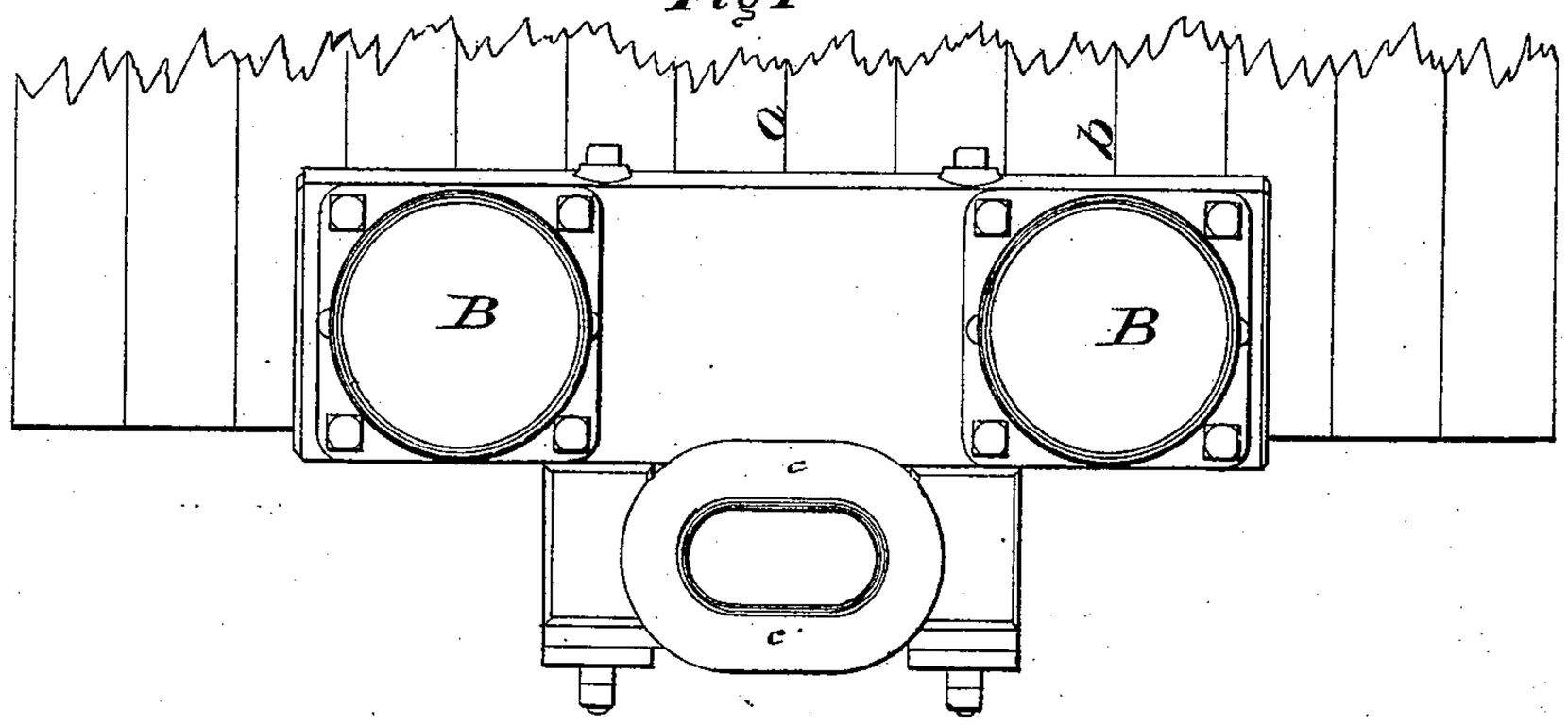

Fig 2

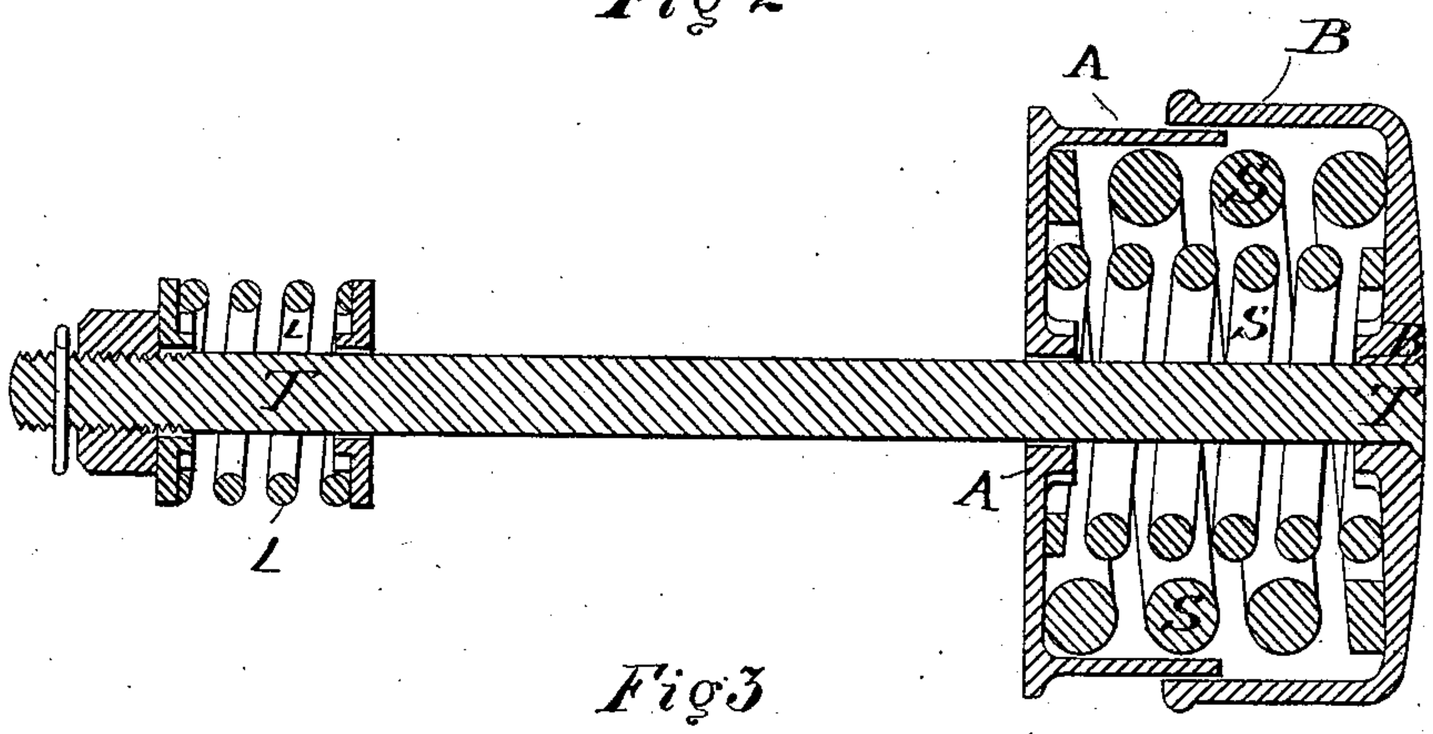

Fig 3

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ROBERT E. RICKER, OF TROY, NEW YORK.

CAR-BUFFER.

SPECIFICATION forming part of Letters Patent No. 306,777, dated October 21, 1884.

Application filed December 31, 1883. (No model.)

To all whom it may concern:

Be it known that I, ROBERT E. RICKER, residing in Troy, in the State of New York, have invented a new and useful Improvement in Car-Buffers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification.

The object of my improvement is to produce a buffer for railway-cars which shall offer a graduated resistance to the shocks occasioned by coupling the cars, or whenever two cars happen to come together.

In the drawings, in which like letters indicate like parts, Figure 1 is a side view of the buffer in position on the end of the car, showing the draw and push bar in section. Fig. 2 is a view of one end of a car, showing the arrangement with two buffers and the draw and push bar. Fig. 3 is a sectional view of the buffer, showing the manner of constructing the same.

My invention consists in combining with the ordinary draw and push bar of a railway-car a separate buffer so arranged that, with the bar, it will constitute or form a graduated buffer.

The buffer which I propose to use in connection with the draw-bar is shown at B, Fig. 1, and in section in Fig. 3.

The buffer proper consists of a case constructed in two parts or sections containing the buffer spring or springs. One of these sections or parts of the case, A, is firmly secured to the frame of the car, and the other, B, is movable and freely slides back and forth on the fixed section A as it is compressed in buffing, or forced out by the tension of the spring within. The two sections A and B are held in connection with each other and prevented from separating or coming apart by the tail-bolt T, which is riveted or fastened to the movable section B, and extends back through a hole in the fixed section A, and through the buffer-block and end sill on the car, as is seen in Fig. 1. On the inner end of the tail-bolt is placed a spring, L, which is secured between the end sill, F, and a nut or washer and plate on the end of the bolt, and through which the tail-bolt freely slides. When the buffer A B is compressed, the tail-bolt is forced back and the spring L is allowed to expand. As the pressure is removed from the buffer and the buffer-spring within the case forces the section B out, the tail-bolt slides forward, and the spring L, being confined between the end sill and the nut on the end of the bolt, is compressed and prevents the section B from sliding so far as to become detached from the other fixed section of the case. The spring L, not being attached in any way to the tail-bolt, offers no resistance to the inward movement of the bolt, and therefore performs no office in buffing, the only function of such spring being to counteract the outward force of the buffer-spring and prevent the two sections of the case from coming apart. With this spring, moreover, the movement of the buffer back and forth is rendered steady, and all jerks and jars are avoided. The spring, however, may be dispensed with and the tail-bolt prevented from moving too far forward by a nut or plate arranged on the end so as to strike against or come in contact with the frame-work of the car. While this mode of construction will as effectually prevent the separation of the two sections of the buffer-box, its working will be attended with more or less jar, as the nut or plate strikes against the frame-work, and the operation will not be as satisfactory as when the spring L is employed.

The buffer-case is preferably made round, and the face of the movable section curved or convex, as shown in the drawings.

This buffer B, constructed as described, is secured to the end sill and stringer of the car, and, when only one buffer is used, directly over the draw and push bar C, and so arranged with reference to the latter that the face of the buffer B will be nearer the car than the outer end, *c*, of the draw-bar. As the draw-bar C then projects beyond the buffer, it receives the first shock of two cars coming together in coupling or otherwise, and is forced back, and the spring P at its inner end compressed. If the force of the shock is very slight and the draw-bar pushed back but a little distance, the buffer B is not compressed; but if the shock is greater and sufficient to force the end *c* of the bar back beyond the vertical line of the case B the buffer is also compressed, and a resistance is effected equal to the combined resistance of the spring P at the end of the draw and push bar and the buffer-spring S. The draw and push bar C and the buffer B thus together form a graduated buffer and offer a resistance

proportioned to the shock. If the shock is slight, but one spring is compressed; if it is greater, both springs are compressed and greater resistance is offered.

The buffer may be set back or near the end of the car, or, what is the same thing, the draw and push bar made to extend so far beyond the buffer that the latter will not be compressed in ordinary buffing or in coupling, but will only be compressed in the case of a severe shock or when there is a collision.

The strength or tension of the two springs or series of springs P and S—for each may consist of several springs—may be arranged with reference to each other in any way found desirable—that is, the strength of the spring P may be greater than that of the spring S, or they may have the same strength, or the buffer-spring may have a greater strength than the spring on the draw and push bar. This last I consider the best arrangement. When the bar C projects beyond the buffer B, the spring P receives all the jars and slight shocks incidental to the motion of the cars when running, and the buffer is only compressed when two cars are brought together with a great deal of force; but the arrangement of the bar and buffer may be reversed, and the buffer may be placed so as to extend beyond the draw-bar C. In this case the shock would be first received by the buffer and the action above described would be reversed, and when the cars were coupled together the buffers on the opposite ends of the two cars would be constantly in contact with each other and serve to hold the train steady and firm when in motion.

Instead of the single buffer placed in the center of the car, two buffers may be used, as shown in Fig. 2. In this case the buffers are placed above and on each side of the draw and push bar C, and the action is the same as when one is employed. The buffer-springs in this construction should be of equal strength and each one-half the tension of the single spring in the former construction.

This buffer may be readily put on cars now in use, as no alteration need be made in the draw and push bar already on the car.

What I claim is—

A buffer for railway-cars, consisting of the telescoping buffer A B, provided with the tail-bolt and spring S, in combination with the ordinary spring draw and push bar, C, arranged so that the one will be compressed before the other, so as to form a graduated buffer, substantially as described, and for the purposes set forth.

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Witnesses:
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