(No Model.)

T. D. OSBORNE.

CAR BRAKE.

No. 455,927. Patented July 14, 1891.

Fig. 1.

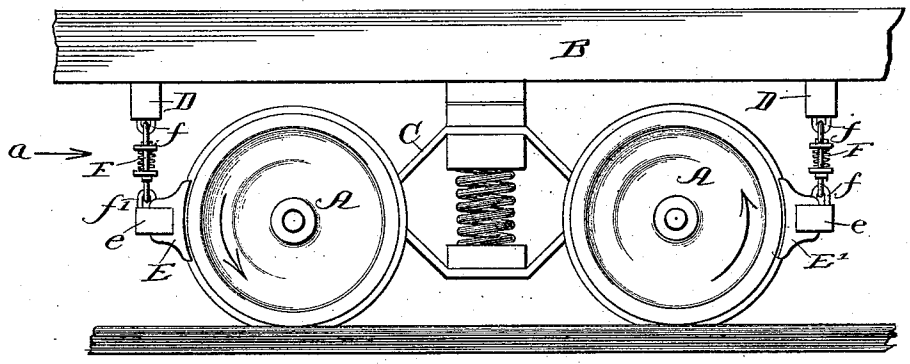


Fig. 2.

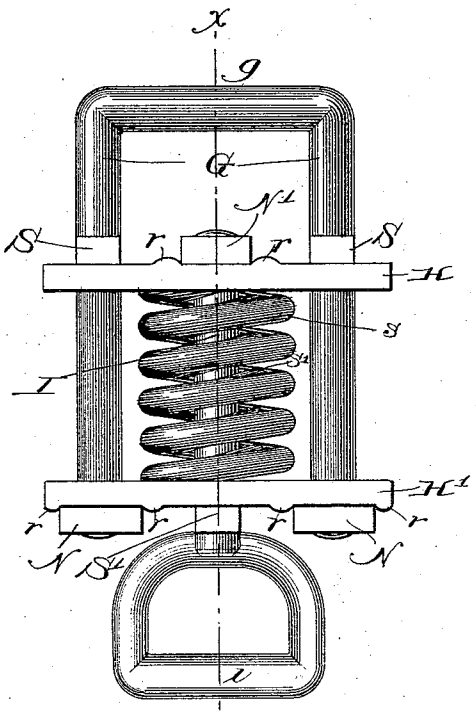
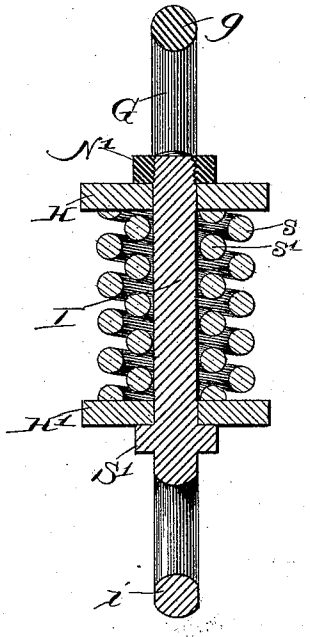


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS D. OSBORNE, OF FREEPORT, ILLINOIS, ASSIGNOR OF ONE-HALF TO PETER CARROLL, OF SAME PLACE.

CAR-BRAKE.

SPECIFICATION forming part of Letters Patent No. 455,927, dated July 14, 1891.

Application filed January 22, 1891. Serial No. 378,680. (No model.)

To all whom it may concern:

Be it known that I, THOMAS D. OSBORNE, a resident of Freeport, in the county of Stephenson and State of Illinois, have invented certain new and useful Improvements in Car-Brakes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in car-brakes, and more particularly to improvements in the means for suspending the same, the object of the invention being to provide means for so suspending the brake-shoe that it shall at all times offer a more or less yielding resistance to the upward or downward pressure brought to bear upon it through its friction with the wheel-rim.

The invention is fully described and explained in this specification, and shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a portion of a car-body supported upon wheels and having brakes provided with my improved suspension device. Fig. 2 is an elevation showing the suspension device in detail, the view being in the direction indicated by the arrow *a*, Fig. 1; and Fig. 3 is a central vertical section of the suspension device, the plane of section being passed through the line *x x*, Fig. 2.

In the views, A A are car-wheels of any ordinary construction, and B is the sill of a car-body resting upon a truck-frame C, which is supported by the axles of the wheels.

D D are transverse timbers bolted to the sills, and E E′ are brake-shoes, of any desired construction, suspended from the cross-timbers D D by means of suspension devices G, each of which is pivoted at its upper end to the corresponding timber D by means of a clasp or staple *f*, and is pivoted at its lower end to the brake-shoe or an attachment thereof by means of a second staple *f′*.

In the suspension device, which is shown in detail in Figs. 2 and 3, G G are the two parallel legs of a bar bent into yoke shape, the central part *g* of the bar being in engagement with the loop *f* upon the corresponding timber D and the lower ends of the two legs being screw-threaded to receive the nuts N N. Two cross-bars H H′ extend across the space between the two legs G G and are free to slide up and down on the legs, the downward movement of the cross-bar H′ being limited by the nuts N N and the upward movement of the cross-bar H being limited by stops S S upon the legs G G. A central draw-rod I lies midway between the legs G G of the yoke and extends above the upper cross-bar H and below the lower cross-bar H′. The upper end of the draw-rod is screw-threaded to receive the nut N′, and the lower end is provided with an integrally-formed stirrup having at its lower end a horizontal rod *i*, which engages the loop or staple *f′* on the corresponding brake-shoe. A spring *s* encircles the draw-rod I and lies between and presses apart the cross-bars H H′, the tendency of the force of this spring being to hold the two cross-bars H H′ at their limits of motion, the upper in contact with the shoulders S S and the lower in contact with the nuts N N. A shoulder S′ is formed on the draw-rod below the cross-bar H′, and by means of the nuts N N′ the working-space on the draw-rod and the legs G G may be so regulated that when the two cross-bars H H′ are at their limits of motion the nut N′ and the shoulder S′ on the draw-rod shall be in contact with the two cross-bars H H′, respectively. Each of the brake-shoes being suspended from the corresponding cross-beam D by means of the spring link or connection just described, it is evident that this link must bear any upward or downward strain put upon the brake-shoe by reason of its friction with the wheel-rim, and that the cross-bar H must be drawn downward or the cross-bar H′ pressed upward by such force, accordingly as the shoe is drawn downward or pressed upward. Thus if the wheels A A turn in the direction indicated by the arrows thereon in Fig. 1, the brake-shoe E when pressed upon the wheel-rim must be drawn downward and the brake-shoe E′ correspondingly pressed upward by means of the force exerted upon the shoes by the wheels, respectively, and it is evident that in the spring-link which supports the brake-shoe E′ the upward thrust of the brake-shoe must thrust upward the draw-rod I and with it the cross-bar H′, thus compressing the

spring from below, whereas the downward pressure upon the brake-shoe E must draw downward the corresponding rod I and the cross-bar H and compress the spring from above. In either case the spring and its connection forms a yielding resistance to the upward or downward movement of the brake-shoe, and I have found from actual experiment that so long as the brake-shoe when pressed upward or drawn downward by the friction of the wheel meets no unyielding resistance it will not absolutely set the wheel and thus slide it upon the rail. The danger of rigidly setting the wheel and sliding it upon the rail and the resulting wear upon the wheel-rim are well known to every practical railroad man, and the value of any simple expedient which will effectually obviate this difficulty is self-evident.

I have found that under all ordinary circumstances the spring-link shown and described herein, or any construction having substantially the same effect—viz., that of offering a yielding resistance to the upward and downward movement of the brake-shoe—will effectually prevent the sliding of the wheel upon the rail, and will thereby save a vast amount of wear.

As shown in Fig. 2, the draw-rod I is encircled by a single spring *s*, while in Fig. 3 a second spring *s'* is shown lying within the first and supplementing the force thereof. Either of these forms is simple and practical and may be used, if desired, or any other known and convenient form of compression-spring may be substituted for those shown and described, the object of the spring being simply to press apart its bearing-points and offer a resistance to the movement of the draw-rod in either direction.

Any form of mechanism for pressing the brake-shoes upon the wheel-rims may be employed, and such mechanism constitutes no part of this invention.

In order to prevent the possibility of reverse rotation of the nuts and consequent loss of tension on the spring when in operation, I have found it advisable to provide some suitable means for securing the nuts against accidental rotation. A very simple device for this purpose is illustrated in Fig. 2, in which *r r* are ribs formed on the external face of the cross-bars H H', these ribs being placed in close proximity to the seats of the nuts when in working position. The inner edges of these ribs—that is, the edges nearest the nuts—are beveled, in order that when the nuts are turned by means of a wrench to increase or decrease the tension of the spring they may be slipped easily over the ribs; but the bevel is not sufficiently flat to permit accidental movement of the nuts over the ribs when once seated between them.

As shown and described, the brake-shoes are suspended from the body of the car, and this construction is the one which will of course be used in many cases. In a large number of cases, however, the brake-shoes are suspended from the truck-frames instead of from the body of the car, and I have no intention of limiting my invention by prescribing either one of these as the necessary point of support of the brake-shoe.

Having now described and explained my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a brake-shoe, of a suspending device made up of two parts, the first secured to the car or an attachment thereof and the second bearing the brake-shoe and sliding vertically upon the first, and a spring interposed between the two parts and offering yielding resistance to the motion of the second part in either direction upon the first.

2. The combination, with a brake-shoe, of a spring suspension device constructed substantially as shown and described and made up of the yoke G G, the draw-rod I, the cross-bars H H', and a suitable spring interposed between said cross-bars and offering a yielding resistance to the approach of either of said cross-bars to the other, said yoke and draw-rod being adapted for connection with the brake-shoe, and a suitable support on the car or an attachment thereof, substantially as and for the purpose set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

THOMAS D. OSBORNE.

Witnesses:
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M. STOSKOPF.