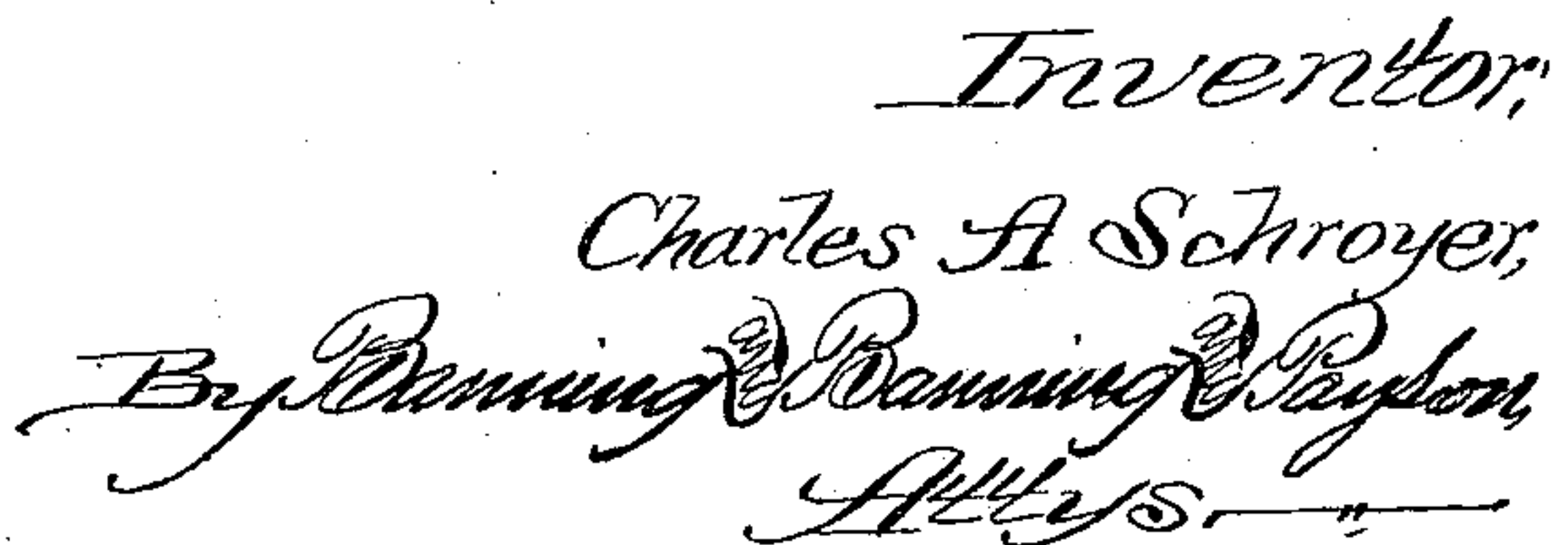


Patented Oct. 14, 1890.



UNITED STATES PATENT OFFICE.

CHARLES A. SCHROYER, OF CHICAGO, ILLINOIS.

DRAW-BAR FOR CARS.

SPECIFICATION forming part of Letters Patent No. 438,386, dated October 14, 1890.

Application filed July 5, 1890. Serial No. 357,780. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. SCHROYER, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Draw-Bars or Buffers, of which the following is a specification.

The object of my invention is to increase the buffing resistance of the springs used in a car draw-bar or buffer; and my invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of a longitudinal section taken in line 2 of Fig. 2. Fig. 2 is a plan view of my improved draw-bar or buffer, and Fig. 3 is a plan view of the same with the top portion removed to clearly exhibit the parts.

In making my improvement in draw-bars or buffers I desire to increase the buffing resistance of the springs employed in connection with such devices, so that less injury will result when the cars are shoved violently together. My improvements are applicable either to a draw-bar or to a buffer, and while for convenience I shall describe them in connection with the draw-bar shown in the drawings I desire it to be understood that I do not confine myself to their use in connection with draw-bars only.

Near the rear end of the draw-bar A, I make a groove or channel B, presenting shoulders both toward the front and the rear of the draw-bar.

I make a pocket C, preferably of wrought-iron bent in a U shape, with the forward end provided with inwardly-projecting lugs D, which are intended to rest in the channel B near the rear end of the draw-bar.

To hold the lugs of the pocket securely in the channel, I rivet or fasten them together with a pin or bolt E, which passes through them and through the hole near the rear end of the draw-bar. The channel in which the lugs rest and in which they are held by the bolt will always insure the forward and backward movement of the pocket as the draw-bar is forced backward or drawn forward.

Immediately in the rear of the draw-bar I arrange a follower-plate F, and immediately behind this follower-plate and in the pocket I arrange a coil-spring G, which may be made either as a single or double spring, as pre-

ferred. In the drawings I have represented a double spring arranged one within the other in the usual manner. Of course more than two springs can be used, if desired.

Immediately behind the main spring G is arranged a rear follower-plate, which bears upon the rear end of the spring G. I may say here that the front follower-plate F is limited or confined in its forward movement by a shoulder I and the rear follower-plate H is limited or confined in its backward movement by a shoulder J. These shoulders are gained or set into the car-timbers, as shown, whereby greater strength is obtained. The rear thimble-casting M, however, is merely secured to the outside of the timbers, the advantage of this construction being that this latter casting may give way if the draw-bar be subjected to great strain, thereby saving the other parts. The rear follower-plate is intended to be arranged in front of the rear end of the pocket, as shown in the drawings.

Immediately behind the pocket is arranged an auxiliary spring K, which, like the main spring, may be composed of one or more coil-springs arranged one within the other. The rear end of the pocket rests against the front end of the auxiliary spring, while a washer L rests against the rear end of the spring. This washer is confined or limited in its back movement by shoulders M. A rod N runs through the washer and through the center of the follower-plates forward, and preferably into the rear end of the draw-bar, so as to hold the springs in their proper central position. I may also say that the auxiliary spring K is confined or housed in a proper box or recess to prevent it from becoming displaced.

In arranging the main and auxiliary springs in their respective pockets or boxes I provide that the capacity of compression or movement in the main spring shall be exhausted somewhat before the capacity for compression or movement in the auxiliary spring. When the draw-bar or buffer, in connection with which the springs are used, is forced back by the running of cars together, it will carry the pocket C with it. The pressure will be received by both the main and auxiliary springs through the contact of the front follower-plate with the front end of the main spring and the rear end of the pocket

with the front end of the auxiliary spring. Both the main and auxiliary springs will therefore be compressed at the same time. If the pressure be sufficient to overcome the resistance of the springs, the front follower-plate will be forced back until the capacity of compression in the main spring is exhausted. The backward movement of the pocket will of course at the same time have reached its limit; but as the auxiliary spring is given a greater capacity or extent of backward movement than the main spring the pocket has been permitted to move back the full extent to which the main spring has been compressed. Were the capacity or extent of compression of the auxiliary spring exhausted before the capacity or extent of compression of the main spring, the rear end of the pocket would then be rigidly held or stopped, while the front end of the pocket, with the draw-bar, would still be forced backward, which would result in a bending or breaking of the pocket. When the pressure is released, both the main and auxiliary springs will move the draw-bar or buffer forward until it has reached its normal position. If in the drawing of the train the bar be drawn forward, the auxiliary spring will simply remain in its normal position; but the main spring, through the advanced movement of the rear follower, will be compressed against the front follower, which will be held against the shoulders, limiting its forward movement. This will result in a compression of the main spring in the forward movement. As soon as the drawing strain on the bar is released, the main spring will draw it back again into its normal position. The main spring therefore may be compressed by both the backward and forward movements of the draw-bar, while the auxiliary spring is simply compressed by the backward movement of the draw-bar, and is intended to perform no other office than to assist the

main spring in receiving the backward pressure of the draw-bar or buffer.

In the rear of the auxiliary spring is arranged a thimble O, secured in place by a bolt P, which passes through the thimble and through the timbers in which the draw-bars and springs are arranged. The bolt and the thimble also serve to secure the shoulders M, against which the rear washer L rests, and also prevent the withdrawal of the rod N from its position, as above described.

What I regard as new, and desire to secure by Letters Patent, is—

1. The combination of a draw or buffer bar, a pocket for a main spring, connected to the rear end of the bar and movable backward and forward with the bar, a main spring arranged in the pocket and compressible by the backward movement of the pocket a predetermined extent or distance, and an auxiliary spring arranged in the rear of the pocket and compressible by the backward movement only of the pocket to a greater predetermined extent or distance than the compressible capacity of the main spring, substantially as described.

2. The combination of a draw or buffer bar, a pocket for a main spring, connected to such bar, a main spring in such pocket, compressible by both the backward and forward movements of the pocket, an auxiliary spring compressible by the backward movement only of the pocket, washers F, H, and L, stop-castings I and J, gained into the car-timbers, and a thimble-casting M, attached to the outside of said timbers and adapted to give way under great pressure before the stop-castings, substantially as described.

CHARLES A. SCHROYER.

Witnesses:

THOMAS A. BANNING,
SAMUEL E. HIBBEN.