

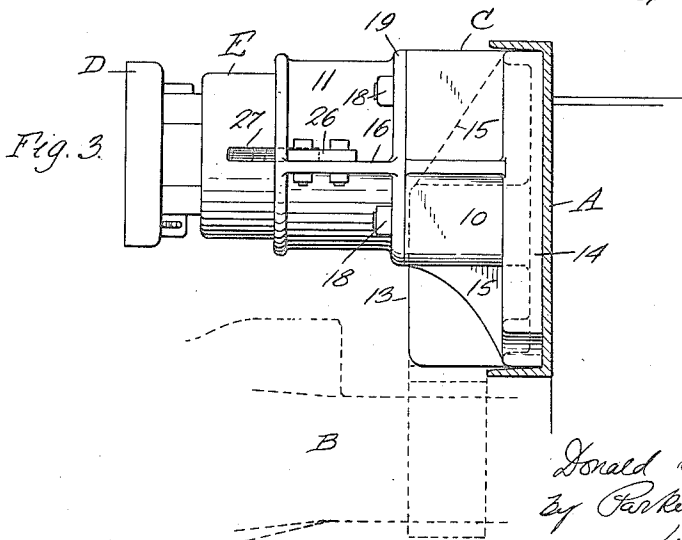
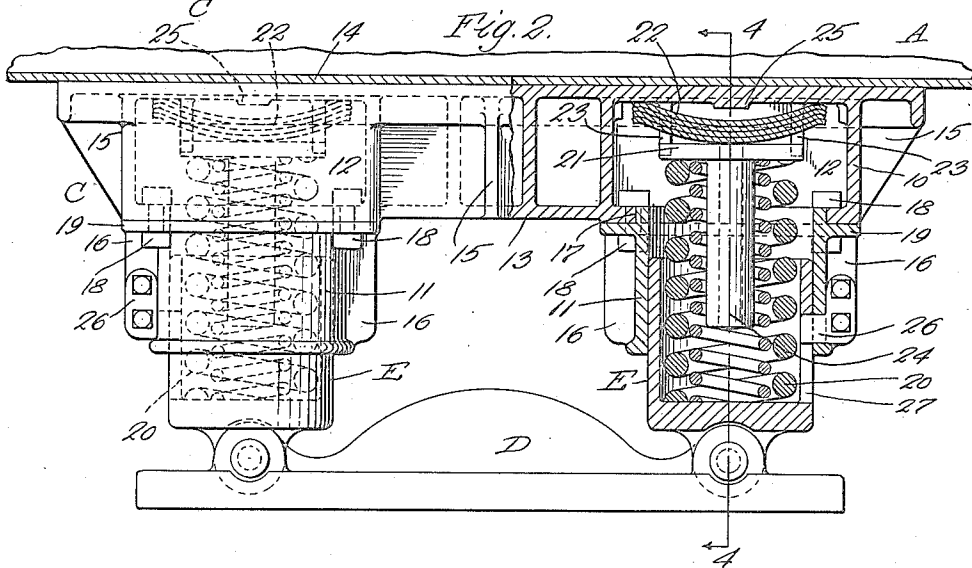
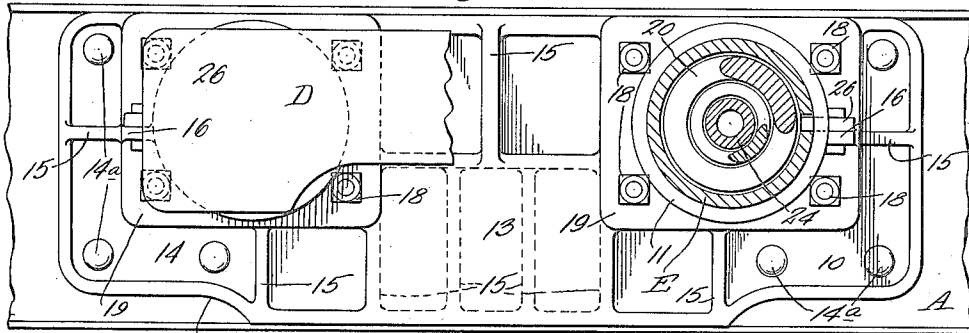
D. C. DAVIS.  
 BUFFER FOR RAILWAY ROLLING STOCK.  
 APPLICATION FILED AUG. 22, 1921.

1,420,183.

Patented June 20, 1922.

2 SHEETS—SHEET 1.

Fig. 1.



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 Donald C. Davis,  
 by Parker & Prochman  
 his ATTORNEYS.

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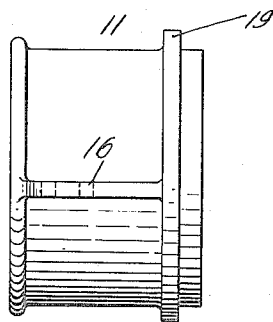
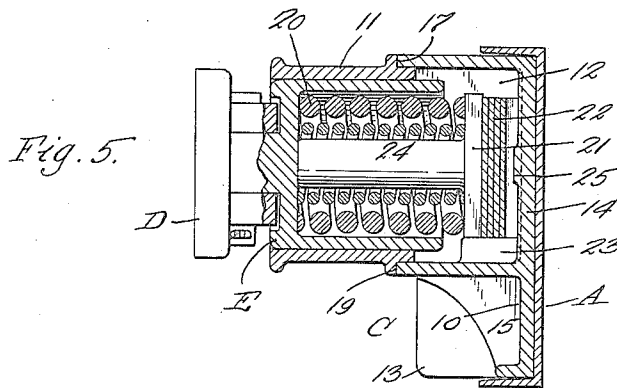
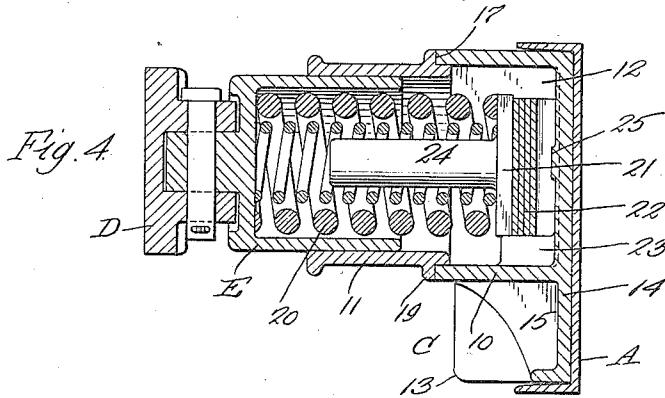


Fig. 6.

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Donald C. Davis,  
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# UNITED STATES PATENT OFFICE.

DONALD C. DAVIS, OF BUFFALO, NEW YORK, ASSIGNOR TO GOULD COUPLER COMPANY,  
OF NEW YORK, N. Y.

## BUFFER FOR RAILWAY ROLLING STOCK.

1,420,183.

Specification of Letters Patent. Patented June 20, 1922.

Application filed August 22, 1921. Serial No. 494,032.

*To all whom it may concern:*

Be it known that I, DONALD C. DAVIS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Buffers for Railway Rolling Stock, of which the following is a specification.

This invention relates more particularly to improvements in buffers for express, mail and other cars of railway rolling stock which are used in passenger service but which are not provided with platforms such as used on passenger cars, the buffers extending outwardly beyond the ends of the cars or other rolling stock to which they are applied so as to adapt them for cooperation either with similar buffers on the adjacent cars or elements of a train, or with the usual platform buffers of passenger cars.

The objects of the invention are to provide an efficient buffer of the character stated which has a high capacity with a long travel, and is of a novel construction adapting the buffers to be produced economically, and so that they can be made at small expense, of different lengths to suit different equipments which require the buffers to project a greater or lesser distance from the ends of the cars or rolling stock to which they are applied; and also to improve buffers for railway rolling stock in the other respects hereinafter described and set forth in the claims.

In the accompanying drawings:—

Fig. 1 is a front elevation partly in section of a buffer embodying the invention, and showing a car end sill to which the buffer is secured.

Fig. 2 is a plan view thereof partly in section.

Fig. 3 is a side sectional elevation thereof, showing by broken lines, the position of the associated car coupler.

Fig. 4 is a longitudinal sectional elevation thereof on line 4—4, Fig. 2.

Fig. 5 is a similar view but showing the position of the parts when the buffer head has been forced inwardly.

Fig. 6 is a side elevation of one of the stem guides detached.

A represents the end sill of a railway car or other railway rolling stock, hereinafter for the sake of brevity, termed a "car," and B, Fig. 3, indicates the position of the car coupler, which, as usual, is carried by a

drawbar extending outwardly beneath the end sill from the draft gear. A channel beam end sill A having outwardly directed flanges is shown, but the buffer can be used with end sills or car ends of other construction.

The buffer comprises a housing C which is rigidly secured to and projects outwardly or forwardly from the end sill A, a transversely extending buffer head or plate D pivotally connected to the outer ends of and supported by side stems E which are movable inwardly and outwardly in the housing, and spring devices arranged in the housing for yieldingly resisting the inward movement of the buffer stems and buffer head.

The housing C is composed of a main part or casting 10 which extends transversely of the car parallel with and is riveted or otherwise secured rigidly to the outer or front face of the end sill, and two separate guides or cylinders 11 which are detachably secured to and project outwardly or forwardly from the end portions of the casting 10 and form guides for the buffer stems E. Preferably the main part 10 of the housing consists of a hollow casting having two spring chambers 12 in its end portions and a hollow middle part 13 extending between the spring chambers at the lower portion of the casting and forming a striking block for the usual horn on the car coupler. The casting 10 is further provided with a back plate or portion 14 by which it is secured to the end sill by means of rivets or other suitable fastenings, as at 14<sup>a</sup>, and with suitable strengthening ribs 15 connecting this back plate with the hollow or chambered portions of the casting. Each of the two stem-guides, which form forward extensions of the spring chambers of the housing, preferably consists of a cylindrical casting with strengthening side ribs 16. The inner end of the guide cylinder is seated in a circular hole 17 in the front or outer wall of the main casting 10 and is removably secured therein preferably by bolts 18 passing through bolt holes in a laterally projecting flange 19 on the guide cylinder adjacent its inner end and adapted to bear flat against the front face or wall of the main casting around the hole 17 in which the inner end of the guide cylinder is seated.

The buffer stems E slidably fit in and are adapted to move inwardly and outwardly

in the guide cylinders 11. These stems are preferably hollow or of cup shape having solid outer ends and open inner ends and are thus adapted to receive and confine the outer ends of coil springs 20 which normally hold the stems and buffer head outwardly in the position shown in Figs. 2 to 4, and yieldingly resist the inward movement thereof. A double coil spring consisting of a heavy outer spring and a lighter inner spring, is preferably employed in each stem. These springs 20 extend into the spring chambers 12 of the main casting and bear at their inner ends against movable followers 21 which in turn bear against and are normally pressed outwardly by leaf springs or spring plates 22 arranged in the spring chambers of the housing between the inner or rear walls thereof and the followers 21. Preferably the main casting 10 is provided in the lower portions of its spring chambers 12 with spaced forwardly and rearwardly extending ribs 23 which serve as supports for the spring plates and as supports and guides for the followers 21. The followers 21 are preferably provided with forwardly or outwardly extending studs 24 which extend into the hollow buffer stems within the coil springs 20. Said studs serve to center the followers or prevent the displacement of the followers from the inner ends of the springs and also act as stops to limit the inward movement of the buffer stem and buffer head. Bosses 25 formed on the inner walls of the spring chambers are adapted to be engaged by the spring plates to limit the deflection of the latter and cooperate with the follower studs 24 in arresting the inward movement of the buffer head and stems before the coil springs can be driven solid or the spring plates deflected sufficiently to be given a permanent set.

The outward movement of the buffer stems in their guides can be limited and the unintentional disengagement or removal of the stems from their guides prevented by any suitable means. Preferably for this purpose keys 26 are employed which are bolted to the side ribs 16 of the stem guides and have portions which project laterally through holes in the side walls of the guides into longitudinal slots 27 in the sides of the buffer stems. These keys can be readily unbolted or removed when it is desired to remove the buffer stems from the housing.

By making the buffer housing with the separable or removable guides or cylinders 11 for the buffer stems, these cylinders or guides are comparatively small and can be readily and cheaply machined in an ordinary lathe so as to insure free movement and the proper guiding of the buffer stems in the operation of the buffer. By reason of this construction, also, the buffer can be readily adapted to different cars or rolling stock

in which it is necessary or desirable for the buffer to project to different distances from the end sills or parts to which the buffers are attached, since it is only necessary to provide stem guides of different appropriate lengths, and longer or shorter guides, as may be required, can be used with the main part or casting 10 which is made in one standard size for all buffers irrespective of the required overall length of the buffers.

The operation of the buffer should be apparent from the above description without further explanation.

I claim as my invention:

1. In a buffer for railway rolling stock, the combination of a housing adapted to be secured to and project outwardly from the end of the rolling stock, said housing comprising a transversely elongated main casting having spring chambers in its end portions in fixed positions relatively to one another, and separate hollow stem-guides which are separably secured to said main casting and form outward extensions of said spring chambers in predetermined positions relatively to each other, buffer stems arranged to slide inwardly and outwardly in said stem-guides, a buffer head carried by said stems, and springs arranged in said spring chambers and acting to yieldingly resist inward movement of said buffer head.

2. In a buffer for railway rolling stock, the combination of a housing adapted to be secured to and project outwardly from the end of the rolling stock, said housing comprising a transversely elongated main casting having spring chambers in its end portions, said spring chambers having stem-guide seats in definite fixed positions relative to one another, and separate hollow stem-guides which are separably and removably secured to said main casting and form outward extensions of said spring chambers, said stem-guides having inner ends seated in said stem-guide seats of said spring chambers, buffer stems arranged to slide inwardly and outwardly in said stem-guides, a buffer head carried by said buffer stems and springs arranged in said spring chambers and acting to yieldingly resist inward movement of said buffer head.

3. In a buffer for railway rolling stock, the combination of a housing adapted to be secured to and project outwardly from the end of the rolling stock, said housing comprising a transversely elongated main casting having spring chambers in its end portions, and separate hollow stem-guides which are separably secured to said main casting and form outward extensions of said spring chambers, buffer stems arranged to slide inwardly and outwardly in said stem-guides, followers movable inwardly and outwardly in said spring chambers, coil springs between said buffer stems and said followers, and

spring plates arranged between said followers and the inner ends of said spring chambers, said coil springs and spring plates acting to yieldingly resist inward movement of said buffer head.

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4. In a buffer for railway rolling stock, the combination of a housing adapted to be secured to and project outwardly from the end of the rolling stock, said housing comprising a transversely elongated main casting having spring chambers in its end portions, and separate hollow stem-guides which are separably secured to said main casting and form outward extensions of said spring

chambers, hollow buffer stems arranged to slide inwardly and outwardly in said stem-guides, followers movable inwardly and outwardly in said spring chambers and having studs projecting into said buffer stems and forming stops to limit the inward movement of said buffer stems, coil springs between said buffer stems and followers around said studs, and spring plates arranged between said followers and the inner ends of said spring chambers, said coil springs and spring plates acting to yieldingly resist inward movement of said buffer head.

DONALD C. DAVIS.