No. 659,781. Patented Oct. 16, 1900.

H. F. BALL.

CAR BUFFER.

(Application filed May 7, 1900.)

(No Model.)

FIG. I.

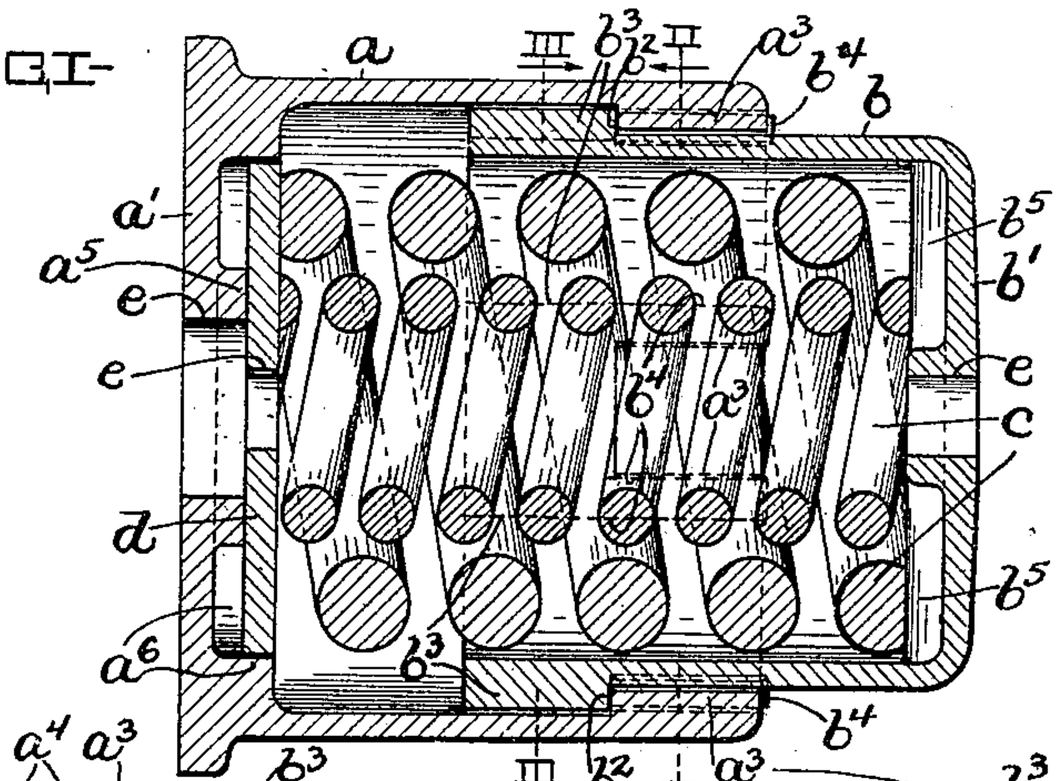


FIG. II.

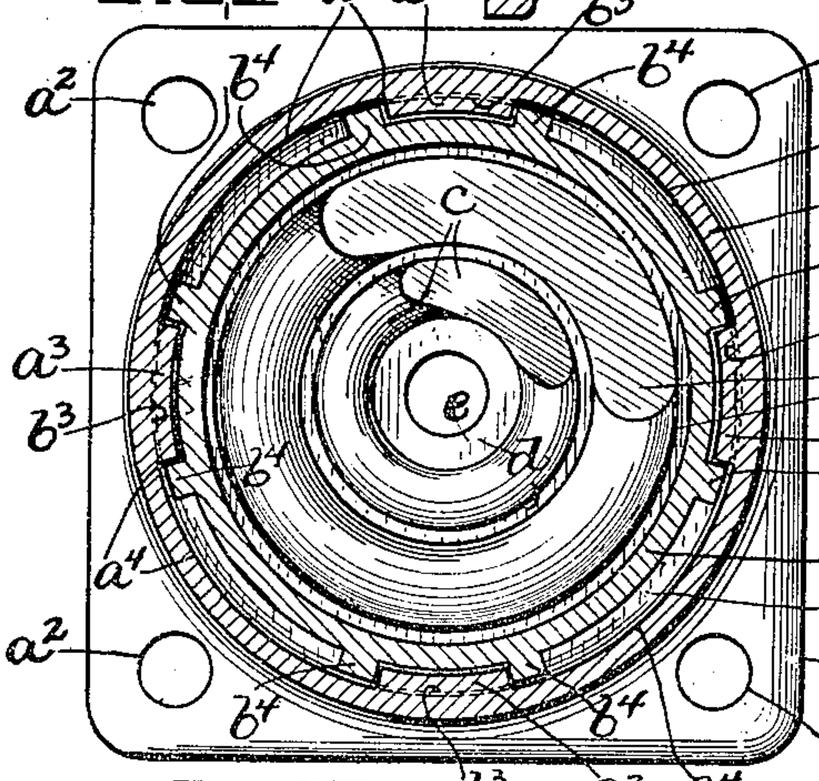


FIG. III.

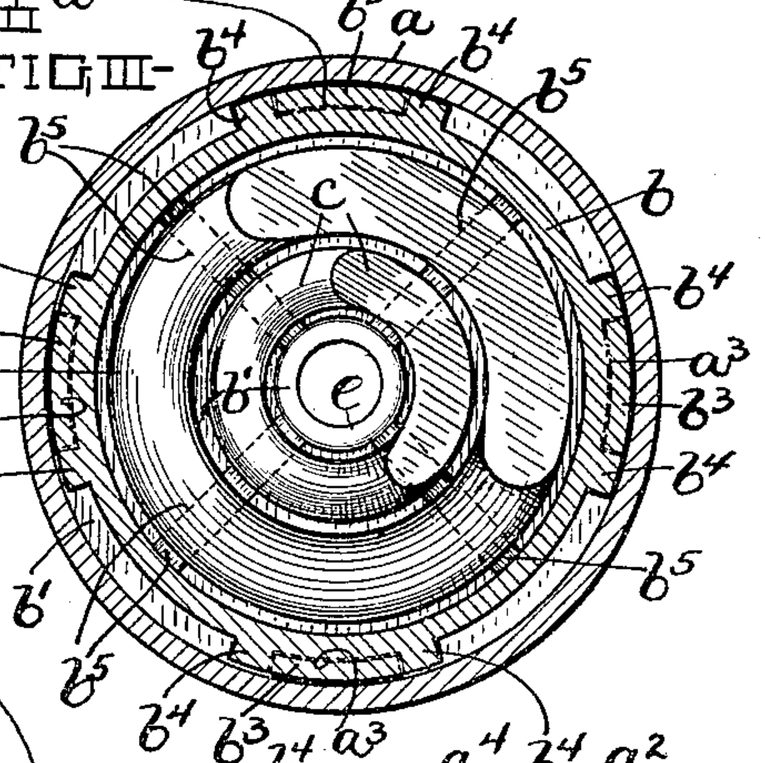


FIG. IV.

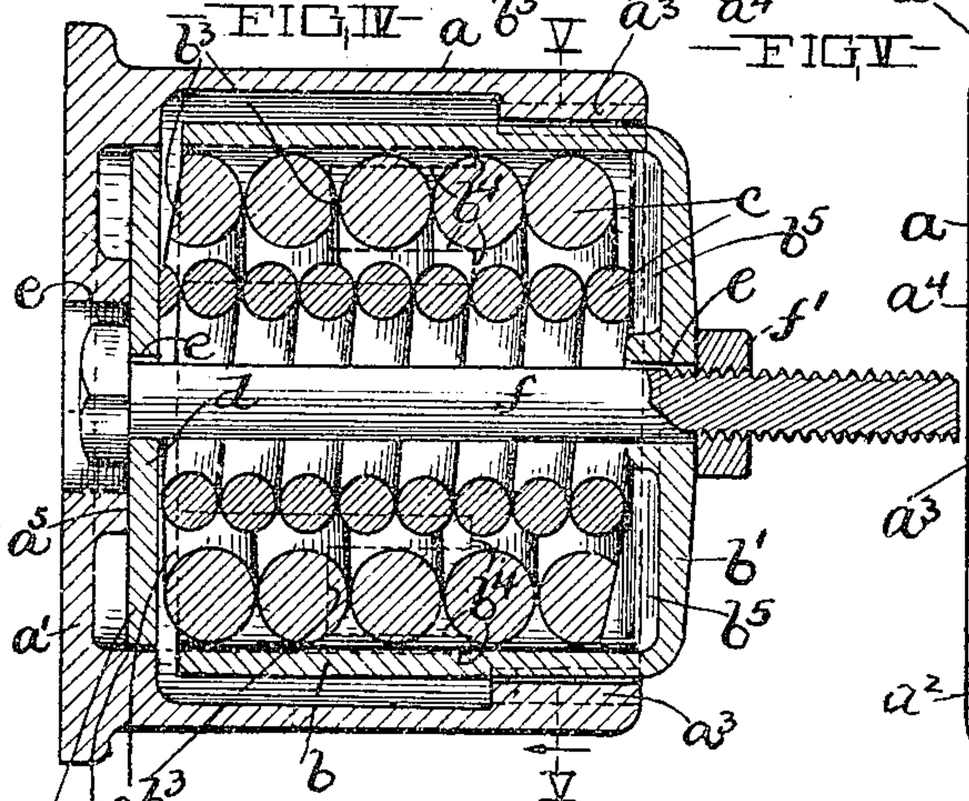
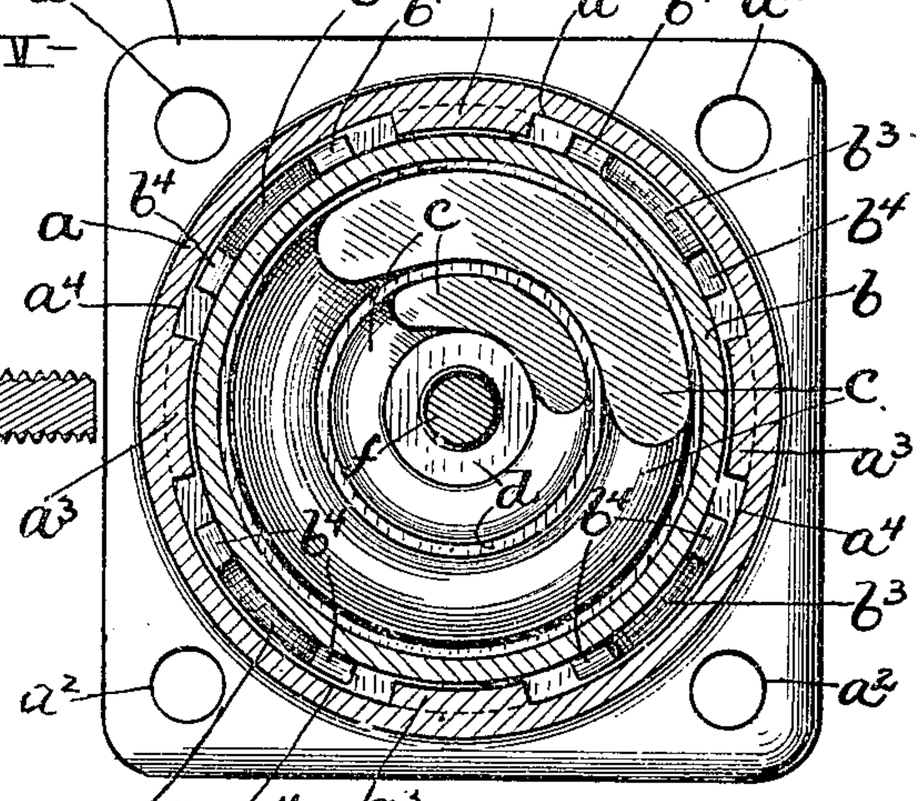


FIG. V.



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UNITED STATES PATENT OFFICE.

HERMAN F. BALL, OF CLEVELAND, OHIO.

CAR-BUFFER.

SPECIFICATION forming part of Letters Patent No. 659,781, dated October 16, 1900.

Application filed May 7, 1900. Serial No. 15,730. (No model.)

To all whom it may concern:

Be it known that I, HERMAN F. BALL, a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Car-Buffers; 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-buffers.

The object of this invention is to improve upon the construction disclosed in United States Letters Patent No. 604,451, granted to me May 24, 1898.

With this object in view my improved car-buffer comprises a buffer-spring-containing case that consists of a section rendered stationary in any approved manner and a blow-receiving section movable endwise of the stationary section and held in its normal and outer position by the tension of the spring or springs within the case and prevented from outward and circumferential displacement by improved means not requiring bolts and nuts or separate pieces.

The present invention consists, therefore, in certain features of construction and combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure I is a side elevation, in central vertical longitudinal section, of my improved car-buffer. Fig. II is an outer end elevation, mostly in section, on line II II, Fig. I. Fig. III is an end elevation, mostly in section, on line III III, Fig. I, looking outwardly. Fig. IV is a central vertical longitudinal section of the buffer, showing the manner of assembling the parts. Fig. V is an end elevation in section on line V V, Fig. IV, looking inwardly.

Referring to Figs. I, II, and III of the drawings, a designates the stationary section of the spring-containing case of the buffer. The section a is cylindrical in the main and has its inner end provided with a head a', that has any suitable number of holes a^2 for the reception of bolts or screws (not shown) employed in securing the said section to the car or vehicle that is to be provided with my improved buffer. The section a is open at its outer end to accommodate the reception by the said section of the movable section b of the buffer-case. The section b is in the main cylindrical and extends into the section a a suitable distance. The section b is movable into and endwise of the section a. The section b is open at its inner end and has its outer end provided with the head b'.

The buffer spring or springs c are interposed between the inner side of the head b' of the section b and the opposing or inner side of the head a' of the section a. The section a has its outer end portion provided upon its inner side with four inwardly-projecting corresponding lugs a^3, that are arranged at equal intervals circumferentially of the movable section b, and open-ended channels a^4 are formed, therefore, between adjacent lugs a^3 and extend longitudinally of the sections of the buffer-case. The section b has its inner end portion provided upon its outer side with four laterally and outwardly projecting corresponding lugs b^3, arranged at equal intervals circumferentially of the said section and having their outer ends, as at b^2, Fig. I, overlapping and abutting against or engaging the inner ends of the lugs a^3 of the section a. Each lug b^3 of the section b extends such a distance circumferentially of the said section as to render it capable upon turning the section b to the extent required to bring the said lug b^3 into registry with a channel a^4 of easily entering the said channel. The section b is provided externally at the outer end of each lug b^3 with a pair of lugs b^4 and b^4, that extend longitudinally of the said section b at opposite sides, respectively, of and close to a lug a^3 from the outer end of the aforesaid lug b^3 toward the outer end of the said section b, and have consequently such an arrangement relative to the intervening lug a^3 of the section a that one or the other of the said lugs b^4 and b^4 shall abut against the said lug a^3, according as the movable section b has a tendency to become displaced circumferentially in the one or the other direction, and the lugs of each pair of lugs b^4 are arranged also such a distance apart circumferentially of the section b that they shall be capable upon turning the section b to the extent required to bring the lugs b^3 thereof into registry with the channels a^4 of the section a of easily entering a channel

a^4. The sections a and b have therefore opposing surfaces (the inner ends of the lugs a^3 of the section a and the outer ends of the lugs b^3 of the section b) that prevent the outer displacement and detachment of the section b from the section a. Also the sections a and b have opposing surfaces (the lugs b^4 of the section b and the intervening lugs a^3 of the section a) that prevent circumferential displacement of the section b.

The springs c are coil-springs arranged one centrally of the other, and at least one of the said springs, and preferably the inner spring, continuously bears outwardly upon the inner side of the head b' of the section b, and thereby causes the lugs b^3 of the said section to bear against the inner ends of the lugs a^3 of the section a.

Preferably a plate or metallic washer d is interposed between the inner ends of the springs c and the inner side of the head a' of the section a. The said head a', the head b' of the case b, and the washer d are provided with registering holes e for accommodating the extension therethrough of a bolt f that is employed in the assemblage of the parts, as shown in Figs. IV and V, and the bolt-hole within the head a' is preferably large enough to receive the head of the bolt, that during the bolt's operation, hereinafter more clearly appearing, bears against the outer side of the washer d. The shank of the bolt f extends through the head b', and a nut f' engages the said shank at the outer side of the said head b'.

Preferably the head a' of the section a is provided at the inner end of its bolt-hole with an inwardly-facing annular shoulder or seat a^5 for the washer d, that is preferably circular and has its circular edge easily fitting within an annular flange or shoulder a^6, that is formed upon and internally of the said head and extends around the aforesaid seat a^5.

The head b' of the section b has its inner side comprising several ribs b^5, arranged radially of the head.

The outer buffer-spring is the main or stronger spring and may or may not bear against the inner side of the head b' of the section b in the normal and outer position of the said section. The inner and lighter spring directly engages and bears against the said head b' continuously, as already indicated, and has sufficient tension to normally retain the said section b in its outer and normal position.

The assemblage of the parts is as follows: The washer d is introduced into the section a of the buffer-case in position against the inner side of the head a'. The springs c are placed within the section b, that is thereupon placed in position at the outer end of the section a, with the lugs b^3 of the section b in registry with the channels a^4 of the section a, and consequently with the lugs of each pair of lugs b^4 in registry with the one and the same channel, as shown in Fig. V, whereupon the section b is slid into the section a far enough to retain the section b' within the section a. The bolt f is then introduced by passing it through the registering holes e, whereupon the nut f' is applied and turned in the direction and to the extent required to actuate the section b into the section a against the action of the springs c far enough to bring the lugs b^4 of the section b inwardly beyond the inner ends of the lugs a^3 of the section a, as shown in Fig. IV, so as to accommodate the turning of the section b within the section a, which turning of the section b is done with facility, and when the section b has been turned far enough to bring the lugs b^3 of the section b into line with the lugs a^3 of the section a, and consequently bring the lugs of each pair of lugs b^4 at opposite sides, respectively, of a lug a^3 of the section a, the nut f' and the bolt f are withdrawn, whereupon the tension of the springs c acts upon the head b' of the section b and results in the actuation of the said section into its outer and normal position, and thereby completes the assemblage of the parts of the buffer.

Briefly described, my improved buffer comprises, in the main, a case composed of two telescoping sections, the one stationary and the other movable, lugs formed upon the outer end of the stationary section at suitable intervals circumferentially of the movable section, lugs formed upon the inner end of the movable section and overlapping the inner ends of the lugs of the stationary section, a spring within the case and acting to push the movable section outwardly and cause the lugs of the movable section to bear against the inner ends of the lugs of the stationary section, and means for preventing turning of the movable section.

What I claim is—

1. A car-buffer comprising the following: a case composed of a stationary section and another section movable endwise of the stationary section; lugs formed upon the outer end portion of the stationary section at suitable intervals circumferentially of the said section; lugs formed upon the inner end portion of the movable section at suitable intervals circumferentially of the said section and overlapping the inner ends of the lugs of the stationary section; a spring contained within the case and acting to push the movable section outwardly and thereby cause the aforesaid lugs of the movable section to bear against the inner ends of the lugs of the stationary section, and other lugs formed upon the movable section and arranged as required, relative to the lugs of the stationary section, to prevent circumferential displacement of the movable section.

2. A car-buffer comprising the following: a case composed of a stationary section and another section movable endwise of the stationary section; lugs formed upon the inner side of the outer end portion of the stationary section at suitable intervals circumferentially of the movable section; lugs formed upon the

outer side of the inner end portion of the movable section and overlapping the inner ends of the lugs upon the stationary section; a spring contained within the buffer-case and acting to push the movable section outwardly and thereby cause the aforesaid lugs of the movable section to bear against the inner ends of the lugs of the stationary section, and other lugs formed upon the movable section and having such arrangement, relative to the lugs of the stationary section, as will prevent turning of the movable section in either direction.

3. A car-buffer comprising the following: a case consisting of a stationary section open at its outer end and having its inner end provided with a head having a centrally-located bolt-hole, and another section that is movable endwise of the stationary section, which movable section has its inner end open and has its outer end provided with a head that has a centrally-located bolt-hole in registry with the first-mentioned bolt-hole; springs confined within the case between the aforesaid heads and arranged to be compressed upon the inward movement of the aforesaid movable section; a plate or washer interposed between the inner side of the head of the stationary section and the adjacent ends of the springs, and provided with a centrally-located bolt-hole that registers with the bolt-holes in the aforesaid heads, and lugs formed upon the aforesaid sections of the case and arranged as required to prevent outwardly endwise displacement of the movable section, substantially as and for the purpose set forth.

Signed by me at Cleveland, Ohio, this 25th day of April, 1900.

HERMAN F. BALL.

Witnesses:

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A. H. PARRATT.