F. L. BARBER.

DRAFT RIGGING FOR CARS.

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908,936.

Patented Jan. 5, 1909.

Fig. 1.

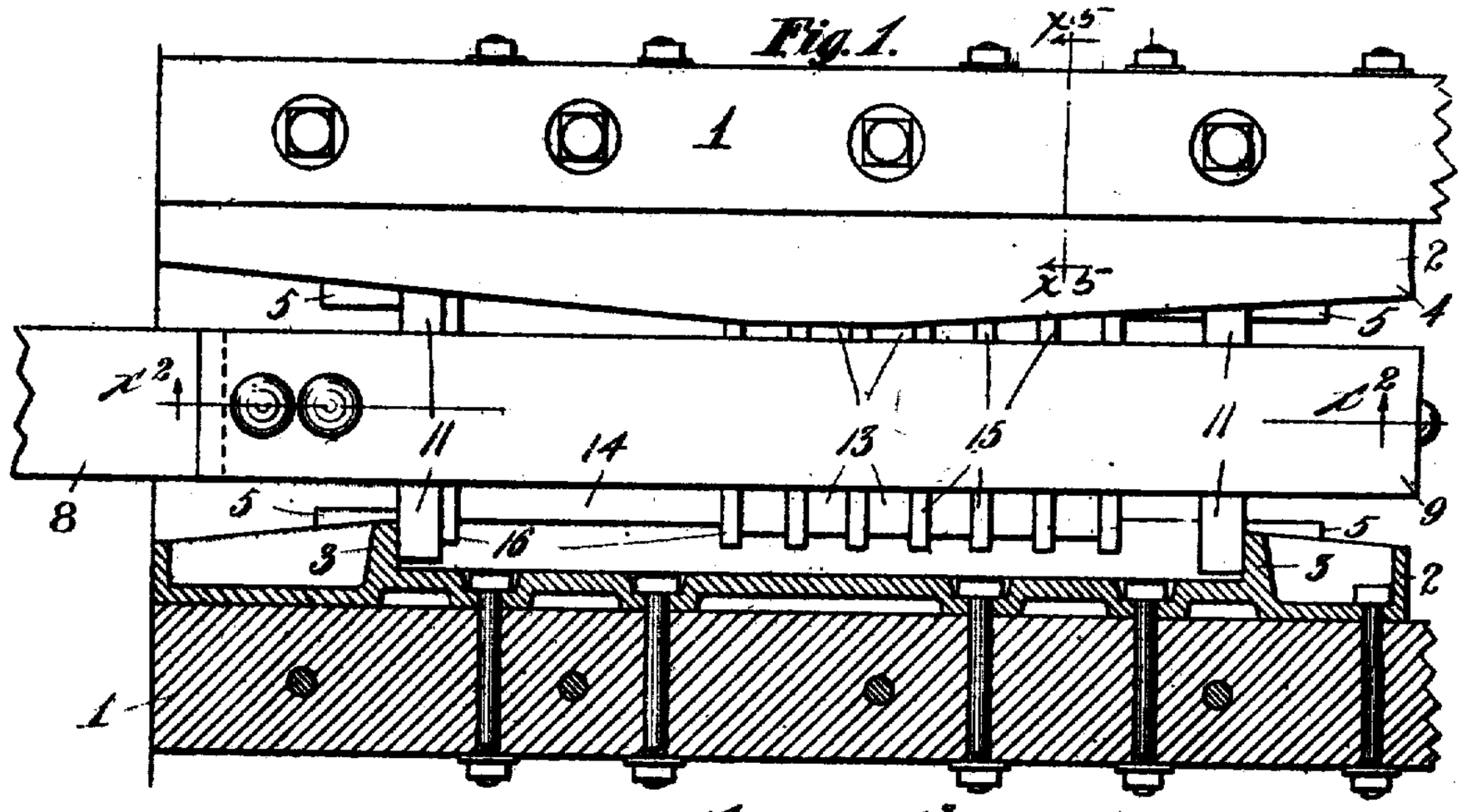


Fig. 2.

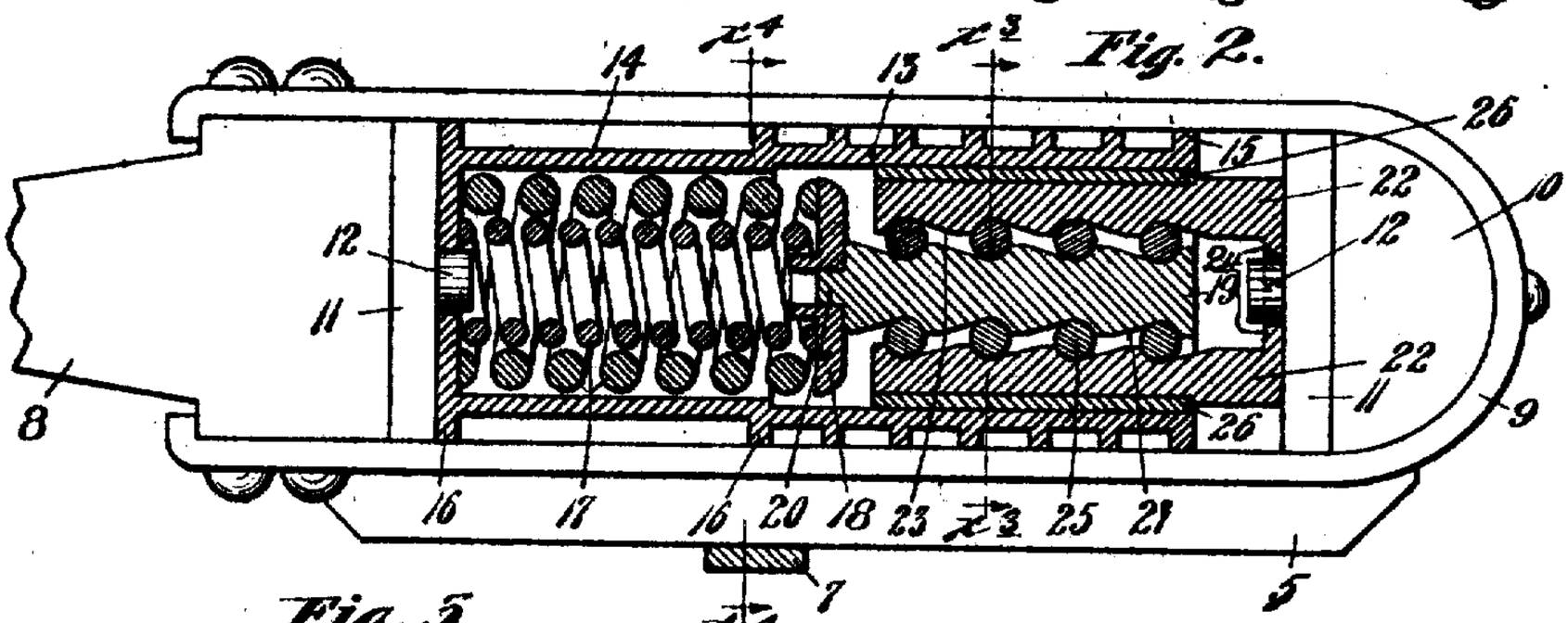


Fig. 3.

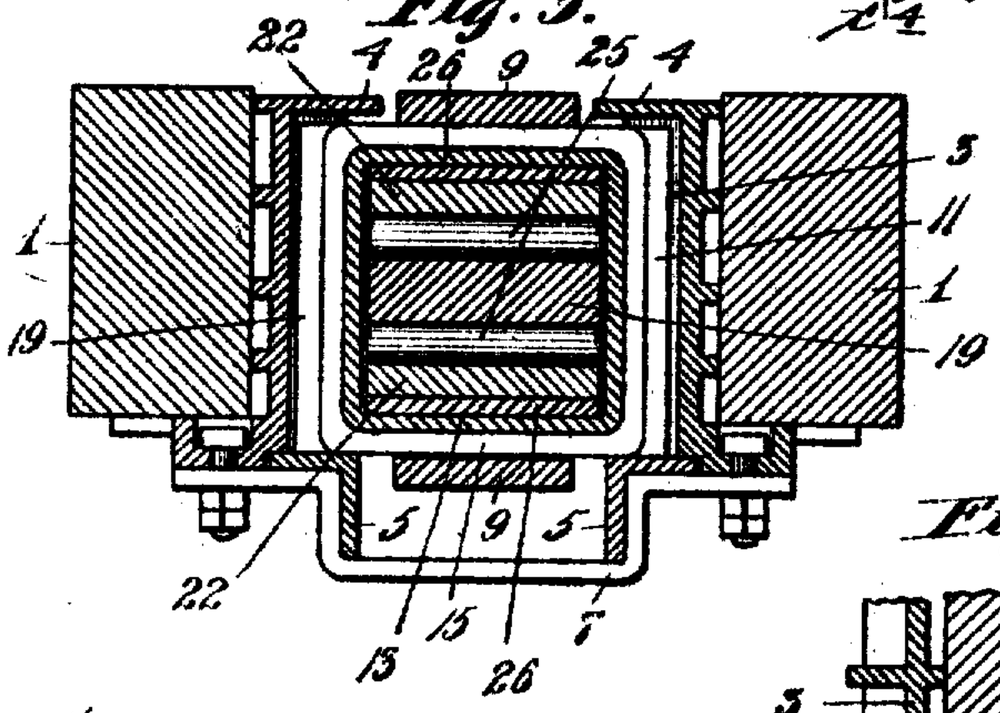


Fig. 4.

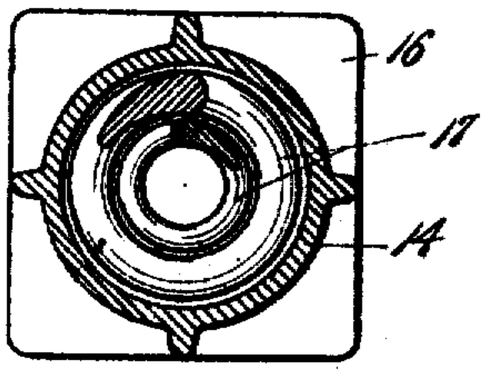
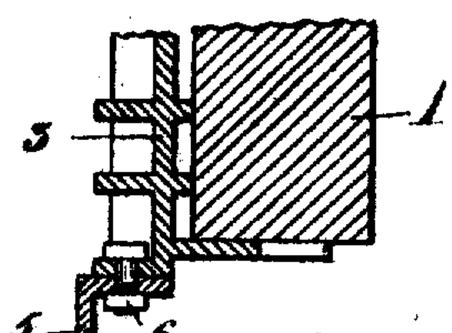


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

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DRAFT-RIGGING FOR CARS.

No. 908,936. Specification of Letters Patent. Patented Jan. 5, 1909.

Application filed June 28, 1906. Serial No. 323,842.

To all whom it may concern:

Be it known that I, FRANKLIN L. BARBER, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Draft-Rigging for Cars; 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 appertains to make and use the same.

My invention relates to draft-rigging for cars, and has for its especial object to provide an improved spring dampener or retarding device therefor.

The invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings,—Figure 1 is a view principally in plan, but with some parts in horizontal section, showing my improved draft rigging. Fig. 2 is a view partly in side elevation and partly in section on the line $x^2\,x^2$ of Fig. 1. Fig 3 is a transverse vertical section taken on the line $x^3\,x^3$ of Fig. 2. Fig. 4 is a section taken on the line $x^4\,x^4$ of Fig. 2, some parts being removed, and Fig. 5 is a detail in section on the line $x^5\,x^5$ of Fig. 1.

One of the principal objects of this invention is to provide a draft rigging of high capacity both in respect to its ability to withstand intense draft and bumping strains and in which a comparatively light buffer spring may be employed. Broadly stated, I accomplish this result by providing a frictional spring dampener or retarding device involving frictionally engaging plates or members and coöperating inclined or bevel surfaces between which anti-friction devices, such as rollers, are interposed.

The accompanying drawings illustrate what I believe to be the preferred form of my improved draft rigging.

The numeral 1 indicates the draft timbers of a car, to which are bolted a pair of laterally spaced draft plates 2, having the usual draft lugs 3 near their extremities. These draft plates, as shown, are provided with integrally formed, longitudinally extended upper flanges 4, and with angular bearing strips 5, which latter are detachably secured to the respective plates 2 by nutted bolts 6. A transverse tie-bar 7 is bolted at its ends to the bottom intermediate portions of the said draft plates 2.

The numeral 8 indicates the draft bar of the coupler, to which is bolted the usual yoke 9, which latter, as shown, has riveted within the arch of its extended end a filling block 10.

The numeral 11 indicates a pair of followers both of which are embraced by the draft yoke 9. The most forward or outward follower 11 normally bears against the end of the draft bar 8, and coöperates with the forward or outward pair of draft lugs 3, while the rear or innermost follower 11 normally bears against the filling block 10, and against the innermost pair of draft lugs 3. As shown, the followers 11 are provided with projecting bosses or stud portions 12. The followers 11 rest directly upon and are supported by the detachable bearing strips 5 of the draft plates 2.

Placed within the yoke 9 and between the draft plates 2 is a thrust box so-called which, as shown, is made up of a rectangular part 13 and a cylindrical part 14. The rectangular part 13 is reinforced by encircling ribs 15 that give the same great tensile strength in cross section. The cylindrical section 14 is provided with a rectangular head 16 that bears directly against the outer follower 11, and has a perforation that receives the boss 12 thereof. Placed within the cylindrical portion 14 of the said thrust box is a coiled buffer spring 17 which, as shown, is made up of concentric coils, and the inner extremity of which bears against a spring cap 18. A flat wedge bar 19 bears at its outer end against the spring cap 18 and, as shown, has a reduced end 20 that engages a seat therein. This wedge bar 19 is formed with a plurality of diverging cam surfaces 21, or otherwise stated the said wedge bar is made up of a plurality of integrally connected longitudinally alined wedge section 21.

Interposed between the wedge bar 19 and the opposing inner surfaces of the rectangular section 13 of the thrust box are wedge plates or bars 22 that are provided with cam surfaces 23 corresponding in number to and arranged for coöperation with the opposing wedge surfaces 21 of the wedge bar 19. The said wedge plates 22, at their projecting ends, are provided with notched flanges 24

that engage with the boss 12 of the inner follower 11. Bearing rollers 25 are interposed between the opposing cam-acting wedge surfaces 21 and 23 of the wedge bars 19 and 22. Hardened chafing plates 26 are preferably secured to the wedge plates or bars 22, for direct engagement with the opposing surfaces of the rectangular section 13 of the thrust box.

As is evident, the spring 17 will be compressed both under bumping and draft strains. Under bumping strains, however, the inner follower 11 will remain seated against the coöperating draft lugs 3, and the outer follower 11 will be moved away from its coöperating draft lugs 3; while on the other hand, under draft strains, the outer follower 11 will remain seated against the coöperating draft lugs, while the inner follower will be moved away from its cooperating draft lugs. Under bumping strains the so-called thrust box 13—14 will be moved rearward, and will be caused to travel frictionally over the chafing plates 26, which latter, as well as the wedge bars or plates 22, will then remain stationary; while under draft strains the said thrust box remains stationary and the said chafing plates 26 and wedge plates 22 are moved forward. Under both bumping and draft strains there is, as is evident, a relative movement and a frictional engagement between the said thrust box and chafing plates 26, which chafing plates are, as a matter of fact, part of the wedge plates 22. Also, as is evident, under both bumping and draft strains the relative movement of the cam acting wedge surfaces 21 and 23, with respect to the rollers 25, produce laterally outward pressure of the wedge plates 22 against the coöperating friction surfaces of the thrust box; and this pressure, and hence frictional engagement between the parts, will be approximately proportionate to the intensity of the bumping or draft strain. Under both bumping and draft strains, the rollers 25 have very slight frictional engagement with the coöperating wedge surfaces 21 and 23, and in fact, have a rolling movement thereon, so that the force transmitted thereto under either bumping or draft strains is multiplied and converted into force tending to separate the wedge blocks 22 and to force the chafing plates 26 thereof against the coöperating frictional surfaces of the thrust box 13—14. Otherwise stated, with these interposed rollers or anti-friction devices and coöperating wedge surfaces, the friction producing pressure between the members 13 and 22 or other frictionally engaging parts will be very much greater than the draft or bumping strains that produce such pressure through the buffer spring 17. From this it of course follows that said buffer spring may be very much lighter than would be required in a device employing coöperating wedge surfaces having sliding or frictional engagement with each other. The said rollers or anti-friction devices are, therefore, very important features and I believe that in a device of this kind the combination thereof with wedge surfaces and frictionally engaging parts is broadly new, and I desire to claim the same broadly.

As is evident, the device described is adapted to be arranged with the rollers 25 upright or in vertical position, inasmuch as the thrust box and parts contained therein are adapted to be inserted between the draft plates 3 and the prongs of the draft yoke 9 when turned on their longitudinal axes ninety degrees from the position shown in the drawings. Furthermore, the said thrust box and parts contained therein are adapted to be turned bodily, end for end, and then applied between the followers and other coöperating parts.

I claim as my invention:

1. The combination with members to be cushioned, of a cushioning spring and frictionally engaging parts interposed between said members, coöperating wedge surfaces having relative movement under force transmitted to said spring, and rollers or anti-friction devices interposed between said wedge surfaces and having rolling engagement with both thereof and adapted to convert the spring force into a force pressing the frictional members into contact, the said frictionally engaging parts and spring cooperating to cushion the movements of the said members, substantially as described.

2. In a friction draft rigging the combination with the draw bar, spring and coacting friction members, of a wedge and anti-friction rollers one on each side of the wedge and each having a rolling action on both the wedge and the adjacent friction member, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

FRANKLIN L. BARBER.

Witnesses:
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