No. 754,593. PATENTED MAR. 15. 1904.

T. L. McKEEN.

FRICTION DRAFT GEAR FOR RAILWAY CARS.

APPLICATION FILED AUG. 25, 1903.

NO MODEL.

Fig. 1.

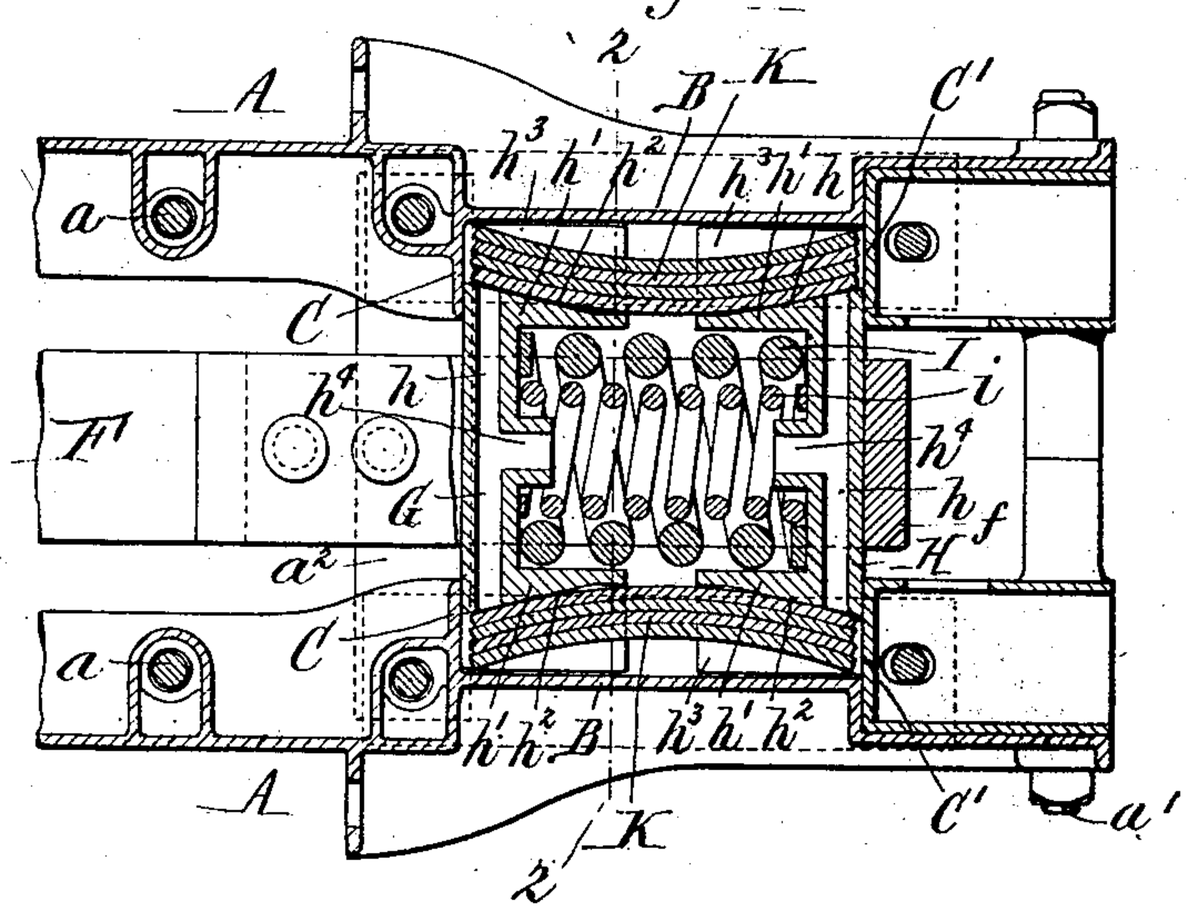


Fig. 2.

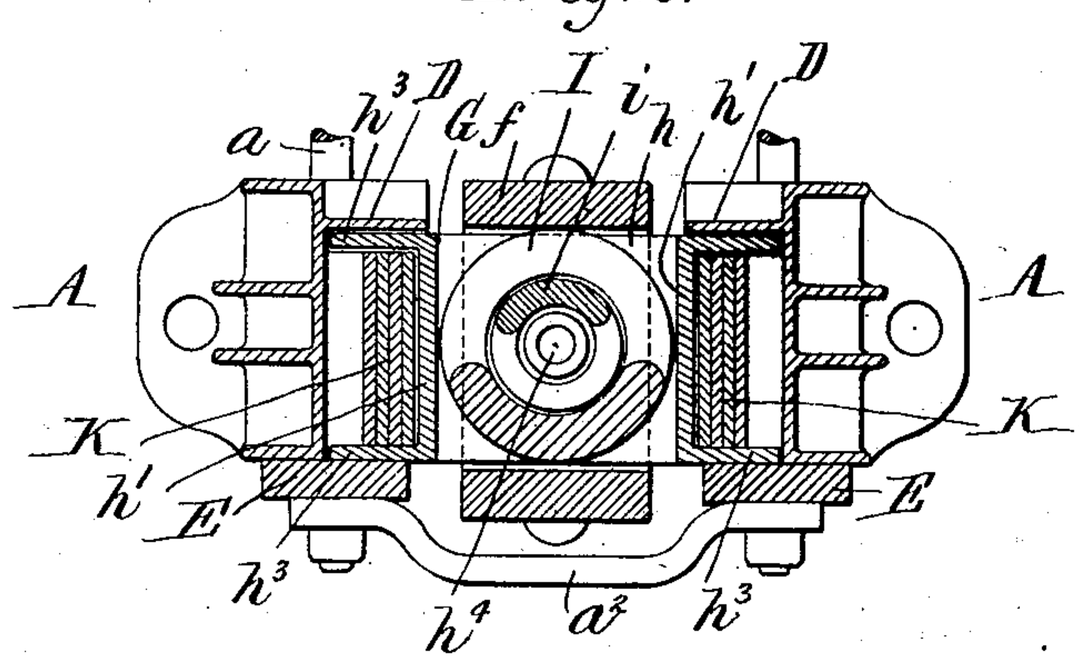
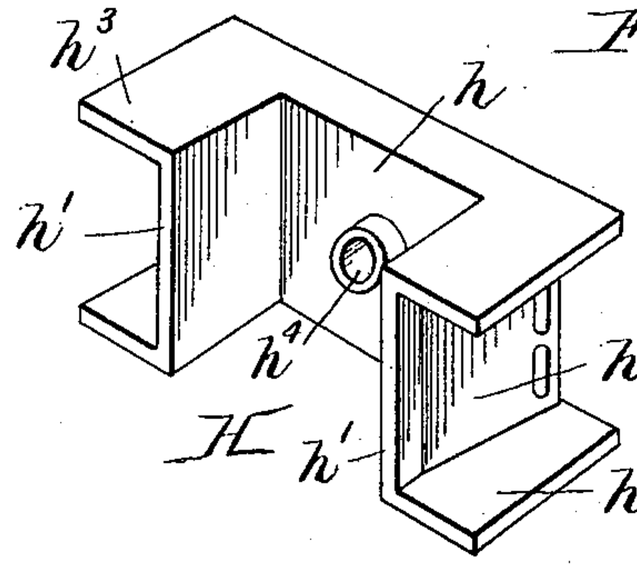


Fig. 3.



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UNITED STATES PATENT OFFICE.

THOMAS L. McKEEN, OF EASTON, PENNSYLVANIA.

FRICTION DRAFT-GEAR FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 754,593, dated March 15, 1904.

Application filed August 25, 1903. Serial No. 170,720. (No model.)

To all whom it may concern:

Be it known that I, THOMAS L. McKEEN, a citizen of the United States, residing at Easton, in the county of Northampton and State of Pennsylvania, have invented new and useful Improvements in Friction Draft-Gears for Railway-Cars, of which the following is a specification.

This invention relates to a friction draft and buffing gear for railway-cars of that kind comprising followers movable with the draw-bar and spring-plates or leaf-springs which are compressed or strained laterally by the forward and rearward movements of the draw-bar in drawing and buffing.

The object of the invention is to provide a simple and practical friction draft-gear which can be produced at a moderate cost and which has greater capacity in buffing and starting cars than is attainable with the ordinary draft-gear employing twin coil-springs, which the present device is more especially designed to replace.

In the accompanying drawings, Figure 1 is a fragmentary horizontal section, partly in plan, of a draft and buffing gear embodying the invention. Fig. 2 is a transverse vertical sectional elevation thereof in line 2 2, Fig. 1. Fig. 3 is a perspective view of one of the followers.

Like letters of reference refer to like parts in the several figures.

A represents oppositely-arranged supporting and guiding members which are of any suitable construction and are secured in proper relation to the draft sills or beams. In the construction shown the supporting members are in the form of draft-arms, which are secured beneath the draft-sills (not shown) by suitable vertical bolts *a*, passing through bolt-holes in the draft-arms. The draft-arms are connected and held from spreading by a transverse bolt *a'*, passing through their rear portions, and a yoke or cross-bar a^2, which is arranged below the draft-arms and is connected to the latter through the medium of the vertical securing-bolts for the draft-arms. Each draft-arm is provided between its ends with a longitudinal vertical side plate or portion B and vertical front and rear stop faces or shoulders C and C', which are suitably braced by longitudinal strengthening ribs or flanges on the draft-arms. Between the vertical front and rear stop-faces or shoulders each draft-arm is provided with an inwardly-projecting horizontal guide rib or flange D.

E represents carrying irons or bars which are arranged longitudinally beneath the draft-arms, to which they are secured by the vertical securing-bolts for the draft-arms. The carrying irons or bars project inwardly beyond the vertical side plates of the draft-arms to provide supporting-faces for the movable followers.

F represents the rear portion of the draw bar or stem of the coupler, which is preferably provided with the usual strap or yoke *f*, secured to the rear end of the draw-bar and extending rearwardly thereof between the draft-arms.

G and H represent, respectively, oppositely-arranged front and rear movable followers, which are arranged between the draft-arms to move horizontally forwardly and rearwardly, being supported and guided between the inwardly-projecting carrying-irons and the inwardly-projecting horizontal flanges D on the draft-arms. The followers extend between the upper and lower portions of the draw-bar yoke, the front follower bearing against the rear end of the draw-bar, while the rear follower bears against the rear end of the yoke. The forward and rearward movements of the front and rear followers are limited by the front and rear stop faces or shoulders C C', respectively, on the draft-arms. The followers are alike and are interchangeable, and each preferably consists of a casting having a transverse vertical plate or portion *h*, which is preferably cored out for the sake of lightness, and longitudinal side wings or portions *h'*, which have vertical inclined or beveled outer faces h^2 and upper and lower horizontal flanges h^3, which project outwardly from the side wings or portions. These outwardly-projecting flanges extend in between the carrying-irons and the horizontal guide-flanges of the draft-arms. Each follower is also preferably provided with a central circular boss or projection h^4.

If preferred, the draw-bar yoke can be replaced by the ordinary stem or bolt passing centrally through the followers.

I *i* represent, respectively, ordinary outer and inner coil draft and buffing springs which are arranged longitudinally between the oppositely-disposed follower-plates and are confined laterally between the side wings of the same, being held in their proper central position by the central bosses on the followers.

K represents spring-plates or leaf-springs, a set of which is arranged between the vertical side plate of each draft-arm and the adjacent beveled outer faces of the side wings of the followers. The spring-plates of each set are bowed inwardly, and the convex face of the innermost spring-plate bears against the oppositely-inclined outer faces of the adjacent wings of the followers. The springs are confined vertically between the outwardly-projecting horizontal flanges of the follower-wings and are held from longitudinal movement between the vertical front and rear stop-faces of the draft-arms. The spring-plates when bowed or in their normal condition are of somewhat less strength than the distance between the vertical front and rear stop-faces, so that the spring-plates can be straightened out or strained by lateral pressure.

When the draw-bar or coupler-stem is pulled forwardly in starting or drawing the car, the draw-bar yoke draws the rear follower forwardly, causing its beveled or inclined side faces to slide on the convexed faces of the inner spring-plates of both sets, thereby straining or straightening the spring-plates and producing friction between the spring-plates and the follower. The follower at the same time compresses the coil draft and buffing springs. In buffing the front follower is moved rearwardly by the engagement therewith of the rear end of the draw-bar and similarly strains or straightens the spring plates and the coil-springs. The side wings of the two followers project toward each other a sufficient distance to abut and limit the movement of the moving follower before the coil-springs are completely compressed. The side wings of the followers are arranged longitudinally in line with the stop-faces of the draft-arms, so that the strain on the two followers when moved into contact is at their sides and is transmitted directly to the draft-arms instead of, as usual, being concentrated on the central unsupported portions of the followers. There is therefore little danger of breaking the followers, and they can be made lighter than would otherwise be practical.

While draft-arms are shown in the drawings and described in the specification, ordinary cheek-plates or supporting members constructed and secured in any suitable manner can be employed.

I claim as my invention—

1. The combination of supporting members, a draw-bar, front and rear followers movable respectively rearwardly and forwardly with the draw-bar, stops to limit the forward and rearward movements respectively of said front and rear followers, a coil-spring arranged between said followers, and spring-plates which are arranged at opposite sides of said coil-spring between said supporting members and said followers and which are compressed laterally by the movement of either follower, substantially as set forth.

2. The combination of supporting members, a draw-bar, front and rear followers movable respectively rearwardly and forwardly with the draw-bar, stops to limit the forward and rearward movements respectively of said front and rear followers and longitudinally-fixed spring-plates which are compressed laterally by the movements of said followers, substantially as set forth.

3. The combination of supporting members provided with front and rear stops, a draw-bar, followers arranged between said stops and each having inclined side faces, means connecting said draw-bar and followers whereby one follower is moved when the draw-bar is moved in either direction, and laterally-compressible spring-plates arranged between the inclined faces of the followers and said supporting members, substantially as set forth.

4. The combination of supporting members, a draw-bar movable longitudinally between the same, front and rear followers movable respectively rearwardly and forwardly with the draw-bar, stops to limit the forward and rearward movements of the front and rear followers respectively, said followers having inclined outer side faces, and laterally-compressible longitudinally-fixed spring-plates arranged between the opposite inclined side faces of said followers and said supporting members, substantially as set forth.

5. The combination of supporting members, a draw-bar movable longitudinally between the same, a front follower movable rearwardly with said draw-bar, a rear follower movable forwardly with said draw-bar, front and rear stops on said supporting members for limiting the forward and rearward movements of said front and rear followers respectively, said followers having side wings which project toward each other and which are provided with beveled outer faces, and spring-plates arranged between the beveled outer faces of said followers and said supporting members, substantially as set forth.

Witness my hand this 5th day of August, 1903.

THOMAS L. McKEEN.

Witnesses:
CHAS. W. PARKER,
JNO. J. BONNER.