

A. G. MARSHALL.
DRAFT GEAR.
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997,399.

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Fig. 1

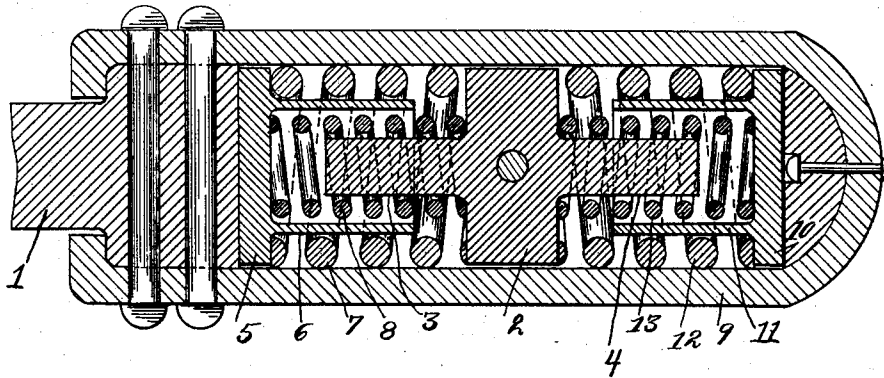
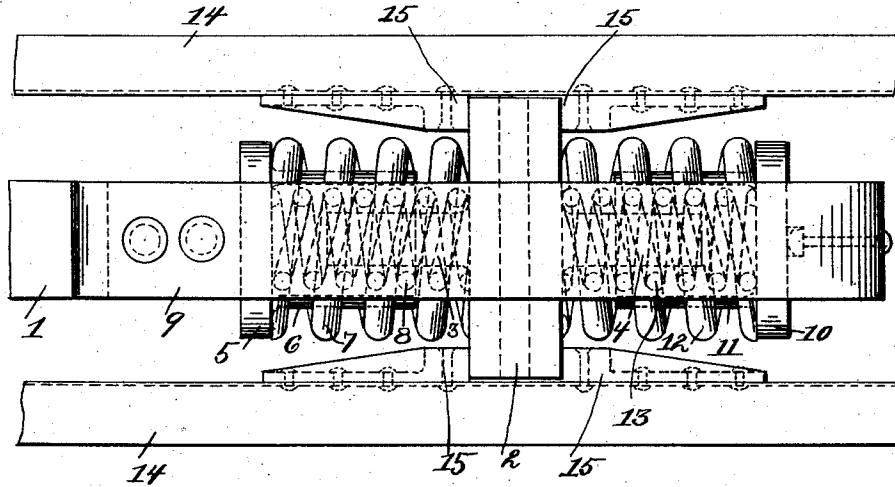


Fig. 2



Witnesses.
Robert M. Sze
Geo. F. Oberlin

Inventor.
Arthur G. Marshall
by J. B. Fay
Attorney.

UNITED STATES PATENT OFFICE.

ARTHUR G. MARSHALL, OF COLLINWOOD, OHIO.

DRAFT-GEAR.

997,399.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR G. MARSHALL, a citizen of the United States, and a resident of Collinwood, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Draft-Gears, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to draft-gears, such as are attached to the frames of railway cars for the purpose of absorbing the drawing and buffing strains. In the customary devices for the attainment of this object, movable follower plates are respectively used as the central abutment for the tandem springs which usually characterize these devices. If movable follower plates are used, and the spring which absorbs the drawing strain is under compression, the spring which is designed to absorb the buffing strain is at the same time moved forward. If, then, the strain to which the frame is subjected is suddenly changed from a drawing strain to a buffing one, there is nothing to absorb it, because the spring which should do so is away from its abutment and it must return to its normal position before its compression will begin to absorb the buffing strain.

The present invention, therefore, has for its general object the provision of a device of this character which is at every instant ready to absorb a strain in either direction, and has for a further object the provision of a device which will accomplish this purpose in an extremely simple manner.

To the accomplishment of these and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 is a central vertical section of an apparatus embodying my invention, and Fig. 2 is a top plan thereof, and of a part of a car frame.

The device is designed for use with the usual draw-bar 1. A solid member or abut-

ment 2 is rigidly secured to the center sills 14 of the car frame by spaced stops 15 and is formed on its front and rear faces with cylindrical projections 3 and 4, respectively. Loosely held in any suitable manner between the inner end of the draw-bar and the front face of the abutment 2 is a circular member 5 which is formed on its face presented toward the abutment 2 with a tubular projection 6; a coil spring 7 is interposed between such face of member 5 and the abutment and encircles the tubular projection 6, while a smaller auxiliary coil spring 8 is similarly disposed but lies within the tubular projection. Rigidly secured to the draw-bar 1 is the usual yoke 9 which extends rearwardly from the draw-bar over and under the abutment 2. A circular member 10, similar in all respects to member 5 and formed with a tubular projection 11 facing the abutment, is loosely held between the inner end of the yoke and the rearwardly presented face of the abutment 2. Coil springs 12 and 13 are disposed between the member 10 and the rear face of abutment 2 in the same manner as the other set of springs already described is disposed between the abutment and member 5.

In operation, if a drawing strain be exerted upon the draw-bar, the yoke attached thereto pulls forward the rear member but the strain thus produced is absorbed by the rear coil springs as they are compressed, so that very little, if any, shock is communicated to the abutment, and hence to the car frame. During this action there is no movement whatever of the front member and the front coil springs, for such member is held loosely relatively to the other parts and, as the abutment is rigidly connected with the car frame, the pressure exerted upon its rear face is in no way communicated to the front springs. They hence remain in their normal condition. If now the strain upon the draw-bar is suddenly changed from a drawing to a buffing one, the front member and springs are ready to immediately absorb that strain when the draw-bar strikes the front member, whereupon this strain will be absorbed by the front springs and the rear springs will be allowed to return to their normal condition.

When the device is actuated in either direction, the projections on the abutment and moving member cooperate to limit such movement to a predetermined distance, so

that the springs will not be subjected to a greater strain than they are designed to withstand.

It will be obvious from this brief description of the details and operation of my apparatus that it is characterized first of all by being at all times in readiness to absorb a strain in either direction despite the sudden variation in these strains to which such a mechanism is always subjected. The sills of the car frame to which the device is attached, and which in other devices of this sort receive the blows of the central follower plates, are relieved absolutely of any sudden shocks or strains. They are therefore subjected to no liability to the breakage due to such shocks, which has heretofore been so common and a source of enormous expense. It will be equally well seen that I have attained this highly important result by means of a mechanism which is so extremely simple in its mechanical details and in its mode of operation as to require only very few parts, while these parts themselves may be inexpensively manufactured and may be quickly assembled in operative relation. The result of my invention, then, is the provision of an apparatus for the purpose under consideration whose first cost is low and whose mode of operation is simple, but which ultimately causes a vast decrease in the accidents to cars caused by drawing and buffing strains, and a consequent enormous saving of repair expense.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a draft-gear, the combination of a

draw-bar, an abutment adapted to be rigidly secured to the car frame, a member loosely held between said draw-bar and abutment and provided with a projection extending toward said abutment, a coil spring disposed between said member and abutment, the projection extending within said spring, a yoke secured to said draw-bar, a second member loosely held between said yoke and the opposite side of said abutment and provided with a projection extending toward said abutment, and a coil spring disposed between said second member and abutment, the projection on the second member extending within said second spring.

2. In a draft-gear, the combination of a draw-bar, an abutment adapted to be rigidly secured to the car frame and provided with projections on its opposite faces, a member loosely held between said draw-bar and abutment and provided with a tubular projection extending toward said abutment, a coil spring disposed between said member and abutment, said projections extending within said spring, a second coil spring disposed between said member and abutment and extending within said tubular projection, a yoke secured to said draw-bar, a second member loosely held between said yoke and the opposite side of said abutment and provided with a tubular projection extending toward said abutment, a coil spring disposed between said abutment and said second member, said projections extending within said spring, and a second coil spring disposed between said abutment and the second member and extending within said tubular projection.

Signed by me this 9th day of March, 1910.

ARTHUR G. MARSHALL.

Attested by—

ANNA L. GILL,
JNO. F. OBERLIN.