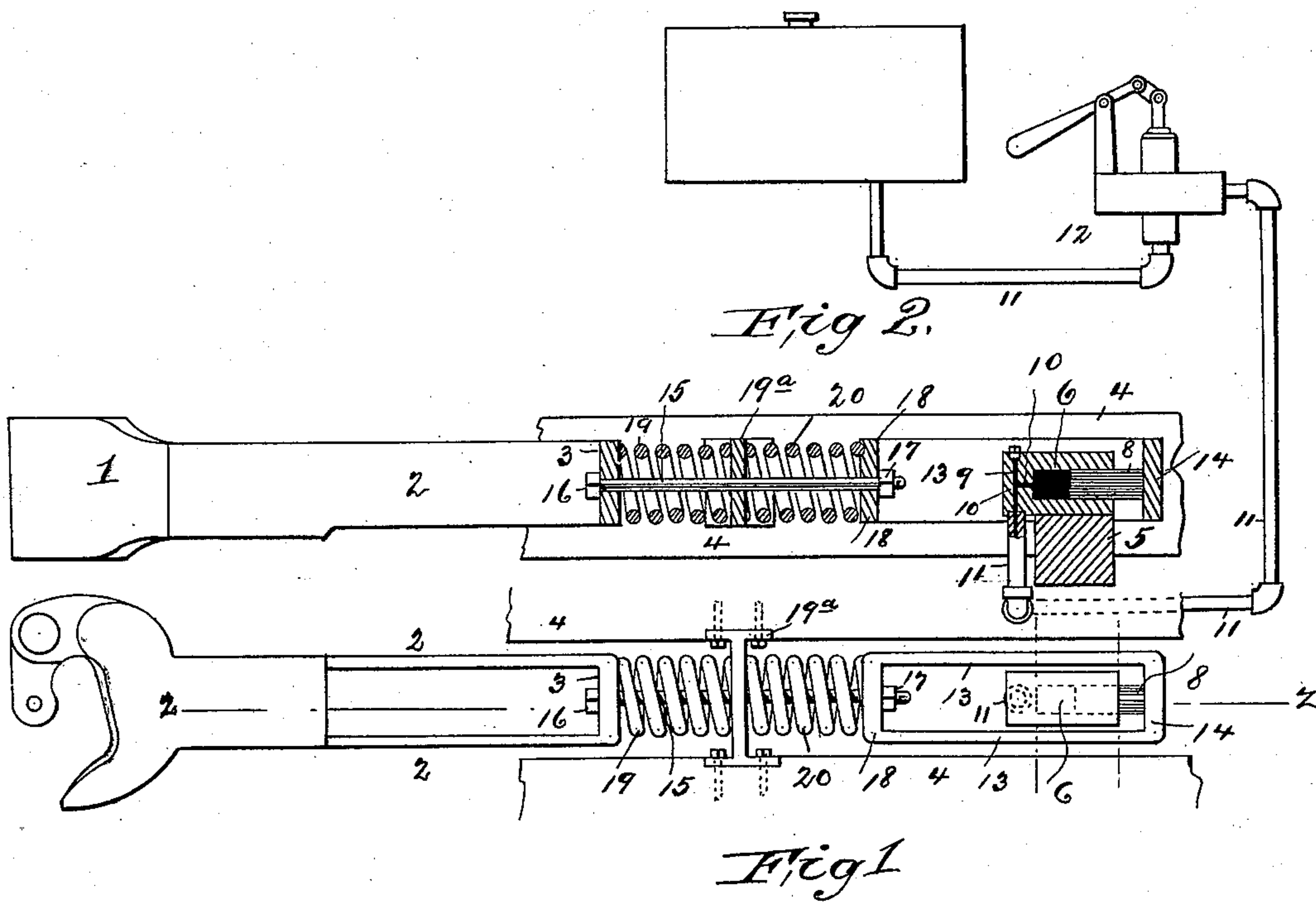


(No Model.)

A. G. LEONARD.
DEVICE FOR UNITING CARS.

No. 578,493.

Patented Mar. 9, 1897.



Attest:
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att'y

UNITED STATES PATENT OFFICE.

ARTHUR G. LEONARD, OF NEW YORK, N. Y.

DEVICE FOR UNITING CARS.

SPECIFICATION forming part of Letters Patent No. 578,493, dated March 9, 1897.

Original application filed July 10, 1893, Serial No. 480,014. Divided and this application filed March 9, 1894. Serial No. 503,019. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR G. LEONARD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have made certain new and useful Improvements in Devices for Uniting Cars, of which the following is a specification.

My present invention relates to an improved mechanism for use with draw-bars of railway-cars; and the invention hereinafter described and claimed was shown and described in an application for a patent which I filed in the United States Patent Office on July 10, 1893, Serial No. 480,014, for improvements in uniting cars, my present application being a division of said application.

The object of my present invention is to permit the draw-bar of a railway-car to be drawn inwardly after it has been coupled to the draw-bar of an opposing car, so as to more firmly unite the cars, at the same time providing a cushion at the rear of the draw-bar to resist shocks due to endwise movement of the cars.

The invention consists in the combination, with a draw-bar, of a device for drawing it rearwardly and presenting an abutment against its forward movement.

The invention also consists in the combination of a draw-bar with a device for drawing it rearwardly and a resilient element interposed between said draw-bar and said drawing device and arranged to be compressed by said drawing device as it draws back the draw-bar.

The invention further consists in the novel details of improvement and the combinations of parts that will be more fully hereinafter set forth, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a plan view of devices embodying my invention, and Fig. 2 is a longitudinal sectional elevation of the same on the plane of the line 2 2 in Fig. 1.

In the accompanying drawings, in which similar numerals of reference indicate corresponding parts in the several views, 1 indicates a draw bar or hook which may be of any desired construction, such, for instance, as

the well-known Janney or Miller coupler. The rear portion of the draw-bar 1 is shown provided with or composed of two parallel plates or bars 2 2, connected at their ends by a cross-plate 3, although this portion of the draw-bar may be otherwise suitably arranged.

4 4 indicate longitudinal car-sills which may correspond to the sills 8 of the structure shown in my application, Serial No. 480,014, hereinabove mentioned, and between these sills extends a cross-sill 5, supported in any desired manner.

Upon the sill 5 is supported and secured a hydraulic cylinder 6, having a chamber 7, in which a ram or plunger 8 is movable, the rear or end of the cylinder being provided with a channel 9 and a port 10, leading to the chamber 7, the channel 9 leading to a pipe 11. The pipe 11 is connected with a suitable hydraulic force-pump and tank 12, carried by the car in suitable manner, the pump 12 being adapted to force water or other suitable fluid into the chamber 7 to project the ram 8. In fact, the cylinder 6 may be constructed identical with the cylinder shown in said application, except that it is single instead of duplex.

At 13 is a yoke which may be suitably supported and guided through the sill 5 or otherwise, as desired, the rear cross part 14 of which yoke 13 is adapted to come into contact with the end of the ram or plunger 8. The draw-bar and yoke are connected by a draw-bolt 15, having nuts 16 17 abutting against the sides of the cross-plates 3 and 18 of the draw-bar and yoke, the draw-bolt passing through an abutment-plate 19^a, rigidly secured to the sills 4. Spiral (or other form) springs 19 20 extend between the abutment-plates and the yoke and surround the draw-bolt. The abutment-plate 19^a also acts as a guide for the draw-bolt 15. Thus it will be seen that if pressure is created in the chamber 7 behind the ram 8 it will be forced outwardly, striking the cross-bar 14 of the yoke, and through the instrumentality of the draw-bolt 15 moving the draw-bar and hook rearwardly, compressing the spring 19 and maintaining it compressed as long as the pressure in the chamber 7 is present. Both springs are normally under tension, so that the spring

20 assists the spring 19 and the ram 8 in keeping the coupling-hook under greater pressure than coupling by contact would.

With the above-described device when the 5 draw-bar hooks are coupled the pressure in the chambers 7 will move the draw-bars rearwardly and thus tend to draw the cars together and firmly hold the hooks in contact. When the draw-bar is pulled, it will find re- 10 sistance against the fluid in the chamber 7, which thereby acts as an abutment against the advance of the draw-bar, the spring 20 also acting to give a resilient resistance or cushioning effect to the advance of the draw- 15 bar, while the spring 19 acts to resiliently resist the end thrusts of the draw-bar.

Having now described my invention, what I claim is—

1. The combination with the car, of the two- 20 part draw-bar comprising the bar 2 and head 1 and the rear rectangular yoke, a draw-bolt movably connecting said two parts, rigid abutments on the ends of the bolt to enable either part to be bodily moved by the other in either 25 direction, an abutment fixed to the car and interposed between said movable parts, a spring between each of said movable parts and the car-abutment, and a hydraulic device fixedly secured within said yoke and hav- 30 ing a plunger, said plunger having a rearward movement against the yoke to move the latter rearwardly against the stress of the forward spring, and resist forward movement of the bar, the fore part of the draw-bar being ca- 35 pable of movement rearwardly against the stress of the forward spring, substantially as described.

2. The combination of a two-part draw-bar comprising a forward draw-head and a rear

rectangular yoke, a draw-bolt movably con- 40 necting the head and yoke having nuts on its ends, a rigid abutment through which the draw-bolt movably passes, a spring lo- 45 cated between said draw-head and rigid abutment and about the bolt, with a spring lo- 45 cated between said abutment and the yoke, a hydraulic cylinder fixedly secured within the yoke and having a ram to act rearwardly on said yoke against the stress of the forward 50 spring and means for forcing fluid under pres- 50 sure into said cylinder and against said ram, substantially as described.

3. The combination with the car-sill 5, of the two-part draw-bar, the draw-bolt 15 mov- 55 ably connected with the front and rear sections of said bar, the fixed abutment 19^a, through which said draw-bolt movably passes, springs 19 and 20 about the draw-bolt and be- 60 tween said fixed abutment and the movable portions of said bar, said rear section having 60 side plates 13 and rear plates 14 forming a yoke, the chambered cylinder 6 secured to said sill within and between the side plates 13, a plunger 8 movable in the chamber and 65 adapted to engage the cross-plate 14, and a 65 hydraulic device connected with the chamber adapted to operate upon the plunger to move the rear section of the draw-bar rearwardly against the stress of the spring 19, substan- 70 tially as described.

Signed at New York, in the county of New York and State of New York, this 6th day of March, 1894.

ARTHUR G. LEONARD.

Witnesses:

HENRY B. DWYER,
HENRY B. WHIPPLE.