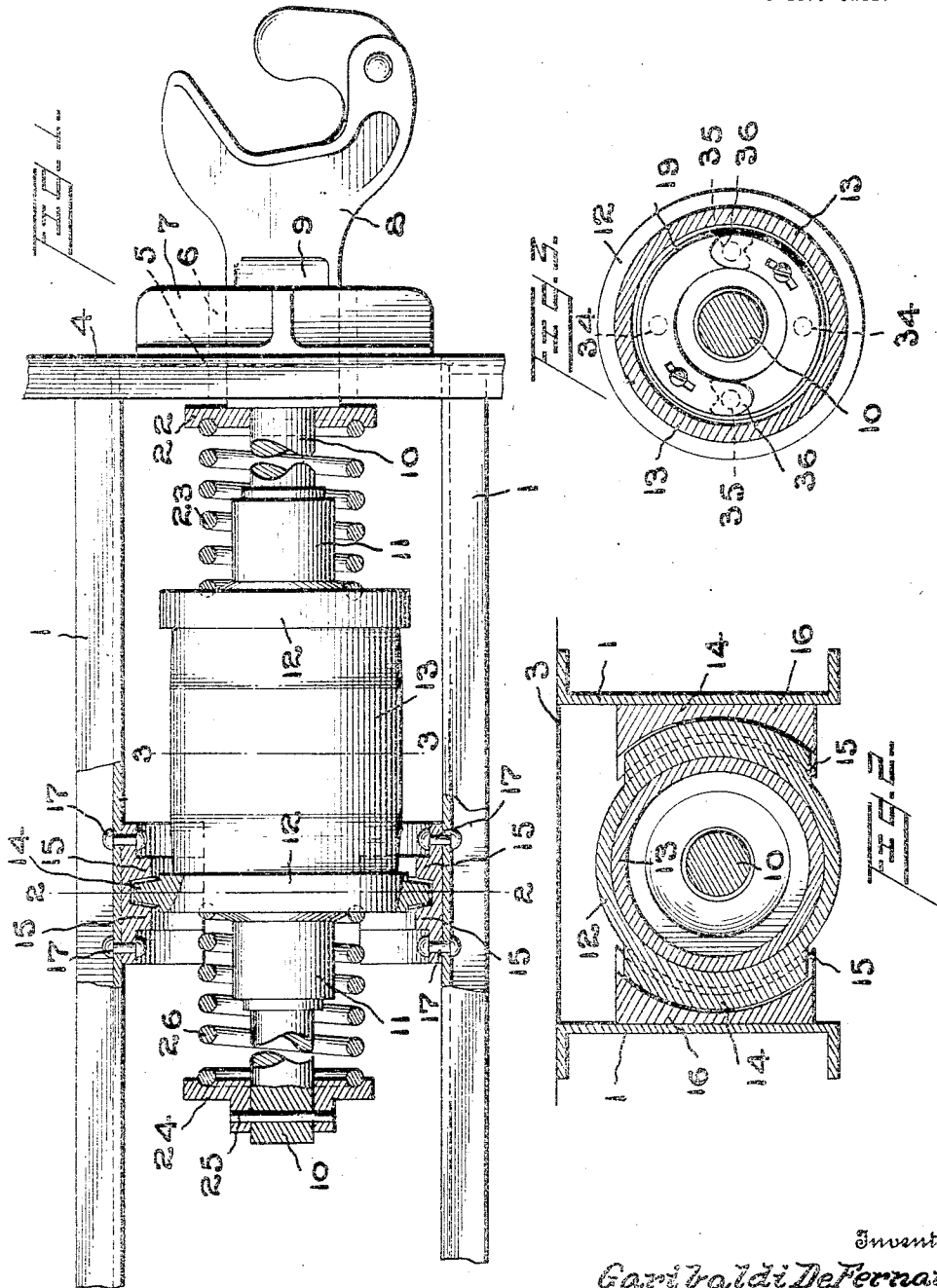


G. DE FERNANZO.  
DRAFT RIGGING.  
APPLICATION FILED JUNE 18, 1914.

1,141,696.

Patented June 1, 1915.

2 SHEETS—SHEET 1.



Witnesses

L. R. Meyer  
C. R. Ziegler.

Inventor

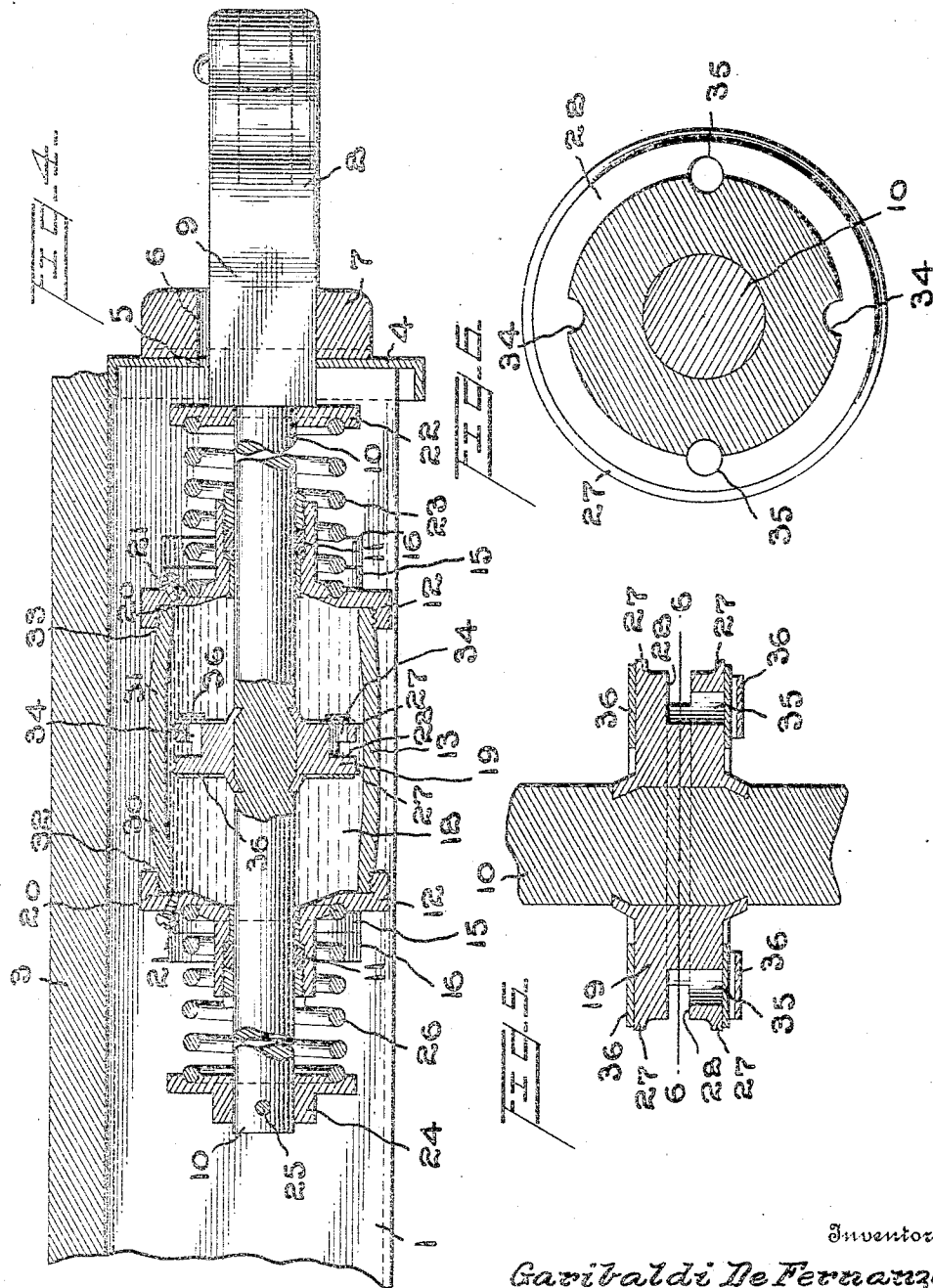
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# UNITED STATES PATENT OFFICE.

GARIBALDI DE FERNANZO, OF PHILADELPHIA, PENNSYLVANIA.

## DRAFT-RIGGING.

1,141,696.

Specification of Letters Patent.

Patented June 1, 1915.

Application filed June 18, 1914. Serial No. 845,788.

*To all whom it may concern:*

Be it known that I, GARIBALDI DE FERNANZO, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Draft-Rigging, of which the following is a specification.

My invention relates to improvements in draft rigging, the object of the invention being to provide an improved shock-absorbing attachment which is designed primarily for connection with a car coupler so as to sustain shocks and strains, both of the pulling and buffing action in drawing or coupling cars, and prevent banging and rattling as well as jars and bolts to the rolling stock.

A further object is to provide an improved construction of car coupling with improved means for connecting the same to the car or other rolling stock so that the movement of the coupling in both directions is cushioned, and jars and jolts absorbed.

A further object is to improve upon the construction set forth in my application for patent on shock absorbers, filed June 8, 1914, and given Serial No. 843,685.

While I have illustrated and described my improvements in connection with a car coupling, it is to be understood that it might be employed at various other points in the draft rigging where such buffing or drawing action is applied.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1 is a top plan-view partly in section illustrating my improvements. Fig. 2 is a view in cross section on the line 2—2 of Fig. 1. Fig. 3 is a view in cross section on the line 3—3 of Fig. 1. Fig. 4 is a view in longitudinal section through the center of Fig. 1. Fig. 5 is an enlarged view in longitudinal section through the piston rod and piston showing both on an enlarged scale, and Fig. 6 is a view in section on the line 6—6 of Fig. 5.

1, 1 represent longitudinal channel bars secured below the floor 3 of the car or other railway rolling stock and connected at their ends to a transverse channel bar 4, the latter having an opening 5 registering with an

opening 6 in a casting 7, secured to the transverse bar 4 and constituting a support for a car coupler 8.

The car coupler 8 has an angular draw bar 9 which is positioned in the openings 5 and 6, and while these openings 5 and 6 are larger than the diameter of the draw bar, they are angular, so that while the coupler is permitted a certain amount of movement, it is held against turning and maintained in a proper position for coupling.

At the inner end of the draw bar 9, a piston rod 10 is provided. This piston rod 10 may be made integral with the coupling or may be a separate part rigidly secured in any approved manner. The rod 10 projects through stuffing boxes 11 in heads 12, screwed onto the ends of a casing 13. The inner head 12 is provided at opposite sides with segmental flanges 14 which are loosely mounted between internal flanges 15 on brackets 16, the latter being secured by rivets or other securing devices 17 to the channel bars 1.

As above stated, the connection of the flanges 14 between the flanges 15 is a loose one, so that while the cylinder is held against longitudinal movement, it is permitted a certain amount of movement so as to permit the coupling to move to compensate for the varying movements of the car which it ordinarily takes in use.

The casing 13 is filled with fluid 18, preferably a light oil being employed, and on the rod 10 within the casing 13, my improved piston 19 is secured. The fluid may be supplied through openings 20 in either of the heads 12, and these openings are normally closed by screw plugs 21.

A follower plate 22 is located around the rod 10 and bears against the inner end of the draw bar 9, and a coiled spring 23 is located between the follower plate 22 and the forward head 12. A follower plate 24 is secured by a pin or other securing device to the extreme inner end of the rod 10, and a coiled spring 26 is located around the rod between the follower plate 24 and the inner head 12. These springs 23 and 26 are of the same strength and exert a continuous pressure to maintain the piston 19 normally in the center of the casing as shown clearly in Fig. 4, and compel the same to return to this position after sustaining jars and shocks.

The construction of the piston 19 is precisely the same as that disclosed in my ap-

plication above referred to, and the casing 13 is of the shape described in the said application. As these parts are covered in detail in the former application, it is simply  
 5 necessary here to describe them generally in order to understand the operation.

The casing 13 is of largest diameter, and is cylindrical in form intermediate its ends. This straight or cylindrical intermediate  
 10 portion extends from a point 30 to a point 31. The wall of the cylinder at both ends then tapers inwardly from the point 30 to the point 32, and from the point 31 to the point 33. The extreme ends of the casing  
 15 are then cylindrical or straight, but this straight portion at the ends is appreciably shorter than the thickness of the piston for a purpose which will hereinafter appear.

The piston 19 is provided at its front and  
 20 rear faces with annular flanges 27, and between said flanges the piston is provided with an annular groove 28. In the opposite faces of the piston, ports 34 and 35 are provided which extend to the groove 28 and  
 25 are provided with valves 36 to permit the flow of fluid through the passages in one direction only.

The operation is as follows: When the cars come together in coupling, the buffing  
 30 action forces the coupler inwardly and moves the piston 19 toward the inner end of the casing 13 against the action of spring 26. The fluid by-passes around the outer edges of the piston, and also through the  
 35 ports 34. If the shock is extreme, the piston will move to the end of the casing, and as the internal diameter of the casing at its end is substantially the same as the diameter of the flanged portion of the piston, the  
 40 fluid will act as a positive check and prevent any possibility of the piston reaching the head 12. As soon as permitted, the spring 26 will return the parts to normal, and in this movement the liquid is free to  
 45 by-pass through the ports 35 and permit the piston to return to a normal position. As the piston moves in either direction, the by-passing of the liquid is gradually diminished after the piston passes the points  
 50 30 and 31, as the casing then begins to decrease in diameter, hence my improvements sustain the shocks and jars upon the coupling either in pulling or in buffing, and prevent transmission of such shocks and vi-  
 55 brations to the car.

While I have described what I believe to be a preferred construction and arrangement of parts, and a preferred location of my improved shock absorber for cars, I would have it understood that I do not  
 60 limit myself to the precise details set forth but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a draft rigging, the combination with a support, a casing connected to the  
 70 support, a rod projecting through the casing, a car coupling secured to the rod, a piston secured on the rod in the casing, said casing cylindrical and of largest diameter  
 75 at its center and tapering to both ends, said casing at its ends of cylindrical form and smallest diameter, and of substantially the same diameter as the piston, and said piston having valved by-passing ports in its  
 80 opposite faces communicating with the periphery of the piston, substantially as described.

2. In a draft rigging, the combination with a support, a casing connected to the  
 85 support, a rod projecting through the casing, a car coupling secured to the rod, a piston secured on the rod in the casing, said piston having valved by-passing ports in its opposite faces communicating with the  
 90 periphery of the piston, substantially as described.

3. The combination with a support, of brackets secured to the support and having  
 95 flanges spaced apart, a casing, heads removably secured to the ends of the casing and having stuffing boxes therein, one of said  
 100 heads having flanges located between the flanges of the support, a rod extending through the stuffing boxes, a piston on the rod in the casing, and a coupling connected to one end of the rod, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GARIBALDI DE FERNANZO.

Witnesses:

C. R. ZIEGLER,  
 S. W. FOSTER.