

H. C. BUHOUP.
DRAFT GEAR FOR RAILWAY CARS.
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917,537.

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2 SHEETS—SHEET 1.

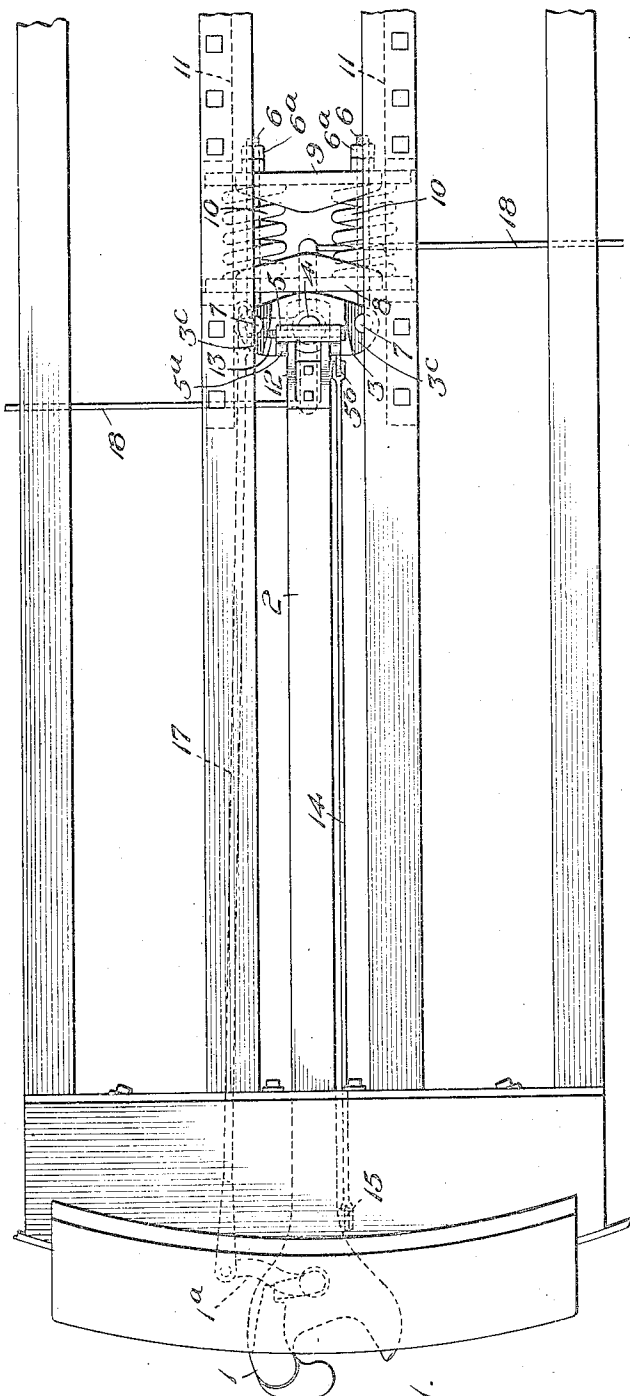


Fig. 1.

Witnesses

Edwin L. Bradford
J. P. Ritter

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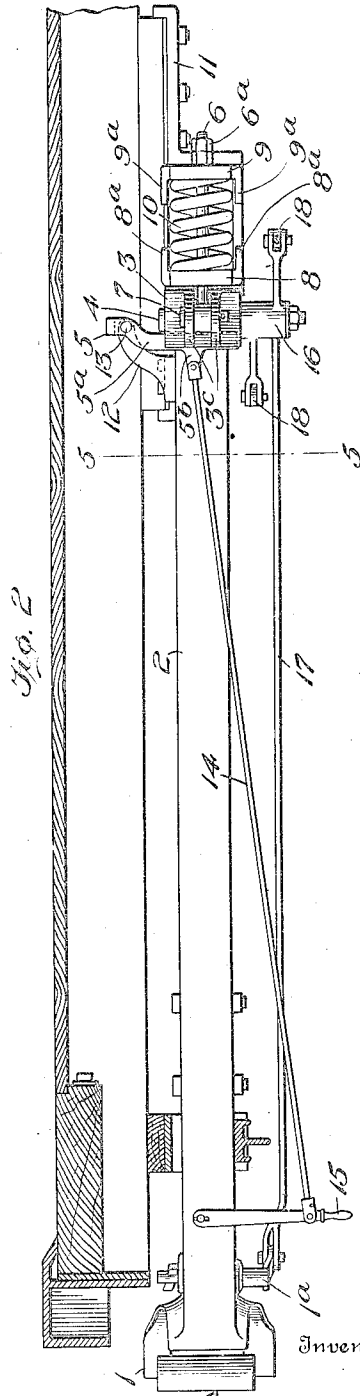


Fig. 2.

Inventor

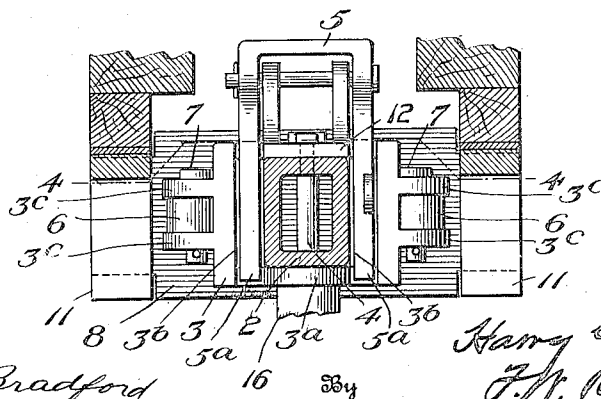
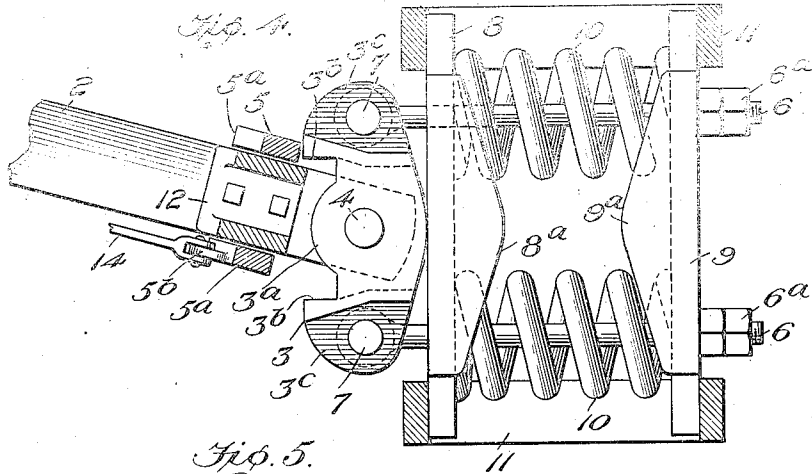
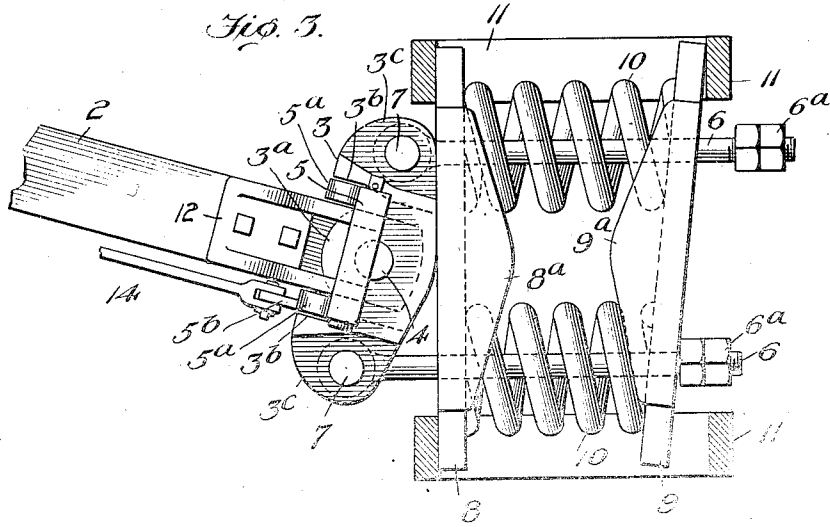
Harry C. Buhoup
J. P. Ritter, Jr.

Attorney

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Inventor

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Edwin L. Bradford

[Signature]

Harry C. Buhoup
F. W. Rutter, Jr.

Attorney

UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MCCONWAY & TORLEY COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

DRAFT-GEAR FOR RAILWAY-CARS.

No. 917,537.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY C. BUHOUP, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Draft-Gear for Railway-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 the construction of draft gear for railway cars, and particularly to that class of draft rigging in which the coupler is yieldingly connected to the car framing so that it may have a pivotal movement with respect thereto.

The principal object of the invention is to provide simple and efficient means for normally maintaining such a pivotally mounted coupler in a centralized position, while at the same time permitting the coupler to be released from the control of its centralizing devices to permit a coupling with another car to be readily effected when the cars are standing upon a curve.

A further object of my invention is to so form and combine the several parts of the draft gear that the control of the centralizing devices over the coupler will be automatically restored as soon as the coupler is returned to a central position after having been released from the control of such centralizing devices.

To effect these objects I combine with relatively movable spring separated followers and a lever-head which is operatively connected thereto by suitable draft transmitting devices, a coupler which is pivotally connected to said lever-head, and means for locking the said coupler to the lever-head to cause the latter to move with the coupler when said coupler is swung or displaced laterally; and such a combination embraces the principal features of my invention.

In the drawings chosen for the purpose of illustrating my invention, the scope whereof is pointed out in the claims, Figure 1 is a plan view of a draft gear embodying my invention, parts of the car framing to which it is attached being also illustrated; Fig. 2 is a side elevation of the devices shown in Fig. 1; Fig. 3 is an enlarged detail plan view of the principal parts of the draft rigging, showing

the positions the several parts assume when the coupler is swung laterally while subjected to the centralizing control of the springs; Fig. 4 is a view taken on the line 4—4, Fig. 5, but showing the positions assumed by the several parts when the coupler is displaced laterally after having been freed from the centralizing control of the springs; and Fig. 5 is an enlarged detail view of the principal parts of the device, taken in the plane of the line 5—5, Fig. 2.

Like symbols refer to like parts wherever they occur.

I will now proceed to describe my invention more fully, so that others skilled in the art to which it appertains may apply the same.

The particular form of coupler illustrated in the drawings is in no way essential to my invention. I have, however, illustrated the form of coupler which I prefer to employ, namely, a coupler of the Master Car Builders type having a head 1 and stem 2. The rear end of the coupler stem 2 is connected to the transversely extending lever-head 3 by means of a pivot bolt 4 which also serves as a pivotal support for the release rigging by which the coupler is unlocked, as will hereinafter more fully appear. A convenient manner of forming the pivotal connection between the lever-head and coupler so that the latter may be supported at its rear end is to fashion said lever-head 3 as a casting having a chamber or opening therein which is adapted to receive the rear end of the coupler stem 2 and permit it to have a pivotal movement with respect to said lever-head. The upper and lower walls 3^a, 3^a of the coupler stem receiving opening of the lever-head 3 are perforated to receive the pivot pin 4 and are preferably so spaced as to prevent any vertical movement of the coupler stem with respect thereto. These walls 3^a are preferably formed with forward edges of suitable contour to permit the depending portions of the locking member 5 to be interposed between the sides of the coupler stem 2 and the lock abutment faces 3^b, 3^b which, as shown, are preferably formed as the forward portions of the side walls of the coupler-stem receiving opening of the lever-head.

Upon opposite sides of the point of pivotal attachment with the coupler stem, and con-

sequently upon opposite sides of the longitudinal axis of the coupler, the lever-head 3 is pivotally attached to suitable devices, such for example as the draft bolts 6, that transmit the centralizing effect of the springs to said lever-head and also transmit draft forces to the followers and springs, as will hereinafter more fully appear. For the purpose of forming these pivotal connections with the draft bolts 6, I prefer to provide each side of the lever-head with two laterally extending perforated lugs 3^c, 3^c between which the draft bolts 6 are pivoted by means of pivot pins 7. As shown, the face of the lever-head which is adjacent to the forward follower 8 may be, and preferably is, convexly curved or beveled, as such a construction gives greater flexibility to the device, prevents the springs from exerting an unnecessarily great leverage on the coupler when the latter is displaced laterally, and maintains the pivotal center of the coupler at approximately the same point throughout any lateral swinging movement.

The draft and buffing springs 10, which also serve to effect the centering of the coupler, are located between and bear upon relatively movable followers 8 and 9, said springs, as shown, being preferably arranged on opposite sides of the longitudinal axis of the coupler as they thereby operate much more effectively in centralizing said coupler. The followers 8 and 9, which may, if desired, be provided with stiffening flanges 8^a, 8^a and 9^a, 9^a, respectively, are movable toward and from each other in the usual manner. They are supported from the car framing and limited in their movements by means of yokes 11 which are suitably attached to the car framing. The yokes 11 thus serve to support the rear end of the draft gear.

Each of the draft bolts 6 connecting the lever-head 3 with the springs and followers passes through an opening in the forward follower 8, through one of the springs 10, and through an opening in the rear follower 9. The rear ends of the draft bolts are provided with suitable means, such as the nuts 6^a, for transmitting to the springs and followers such forces applied to the coupler as result in a forward movement of either or both of said draft bolts 6. The openings in the followers 8 and 9 through which the draft bolts pass are made sufficiently large to prevent binding of the parts when the coupler is displaced laterally while under control of the centralizing devices, as shown in Fig. 3 of the drawings.

Mounted upon the coupler stem 2 at a point adjacent to the lever-head 3 is a bracket 12 to the upwardly extending arms of which the locking member 5 is pivoted by means of a horizontally disposed pivot bolt 13. The locking member 5, which, when interposed between the coupler stem and the

lock abutments 3^b of the lever-head 3, serves to prevent the pivotal movement of the coupler with respect to said lever head, is preferably formed with depending legs 5^a, 5^a that extend downwardly between the sides of the coupler stem 2 and the abutments 3^b for the full depth of the said coupler stem, thus insuring a firm and extended bearing between the parts.

The locking member 5 is designed to normally occupy a position in which the coupler stem and lever-head are locked to each other, the arrangement shown in the drawings being such that the said locking member moves into its locked position under the influence of gravity. For the purpose of causing the locking member 5 to assume an unlocked position so that the coupler stem 2 and lever-head 3 may have pivotal movement on each other, as shown in Fig. 4, one of the depending legs 5^a of the said locking member may be provided with a perforated lug 5^b to which a forwardly extending rod 14 is pivotally connected. The forward end of the rod or connection 14 is flexibly attached to an operating lever 15 that is pivotally mounted upon the coupler at a point within convenient reach of the front of the car. By pulling the lever 15 toward the coupler head 1 the legs 5^a of the locking member 5 will be withdrawn from between the lock abutments 3^b of the lever-head 3, as will be readily understood upon reference to Fig. 4 of the drawings. Upon releasing the pull upon the lever 15, the locking member 5 automatically swings to its locked position whenever the coupler is in its centralized position.

In order to permit the coupler to be coupled or uncoupled when it is in any position, it is preferred to employ a coupler release rigging consisting of a double bell-crank lever 16 that is pivotally mounted upon the connecting bolt 4 below the lever-head 3. The double bell-crank lever is thus movable with the coupler and lever-head as well as independently of them. As shown in Figs. 1 and 2, the transversely extending arm of the bell-crank lever is connected by a pin and slot connection with a forwardly extending reach rod 17 that is flexibly connected at its forward end with the lever 1^a of the coupler lock or catch. Each of the oppositely disposed, longitudinally extending arms of the bell-crank 16 is pivotally connected with one of the pull rods 18, the said rods extending in opposite directions so that the coupler may be readily unlocked by pulling upon either of them to cause a rotation of the bell-crank lever 16 upon the pivot pin 4 and a rearward movement of the reach rod 17.

The construction being substantially such as hereinbefore pointed out, the operation of the device will be as follows. When a draft force acting in the longitudinal axis of the car is applied to the coupler, such force will

be transmitted by the coupler stem 2 through the connecting bolt 4 to the lever-head 3, thus causing said lever-head and attached draft bolts 6 to move forwardly. As the nuts 6^a on the rear ends of the draft bolts bear against the rear face of the rear follower 9, such forward movement of said draft bolts causes a corresponding forward movement of said follower. Since the forward follower 8 is at this time restrained from forward movement by the follower stop yokes 11, the springs 10 are compressed between the follower members 8 and 9 an amount corresponding to the forward movement of the coupler. Upon the cessation of the draft force, the expansion of the springs 10 returns all parts to their normal positions. A buffing force applied to the coupler in the longitudinal axis of the car is transmitted to the lever-head 3 from the coupler through the pivot bolt 4 connecting said lever-head with the coupler stem 2. As the lever-head bears upon the forward face of the forward follower 8, said follower is forced rearwardly, and as the rear follower 9 is at this time prevented from retreating by the yokes 11 the springs 10 are compressed between said followers. In this operation the draft bolts 6 simply slide rearwardly through the openings in the rear follower 9.

When the coupler and lever-head are locked together by the locking member 5 and the coupler is displaced laterally from its central position, as shown in Fig. 3, the lever-head 3 is rocked upon the forward follower 8, thus causing a forward movement of one of the draft bolts 6 and, in the special form of lever-head illustrated in the drawings, a corresponding rearward movement of the other. The nuts 6^a at the rear end of the forwardly moving draft bolt, by engaging the rear follower 9, cause one end of the latter to move forwardly while the other end thereof remains seated upon its yoke 11. The followers 8 and 9 are thus caused to assume an angular relation with respect to each other, with the result that the spring 10 through which the forwardly moving draft bolt 6 passes is compressed between the followers while the other spring is substantially uncompressed. When the coupler is released from the force which is acting to displace it from its centralized position, the expansion of the spring 10 returns the followers 8 and 9 to their normal or parallel positions, thus also returning the coupler to its normal position in the center of the car.

If it is desired to make a coupling with another car while upon a curve, the lever 15 is actuated to cause the locking member 5 to assume an unlocked position, as heretofore described. This permits the coupler to be manually swung to any desired position without causing compression of either of the springs 10. As shown in Fig. 4 of the draw-

ings, when the locking member 5 is withdrawn from engagement with the lock abutments 3^b of the lever-head 3 and the coupler is swung upon the pivot bolt 4, said locking member 5 is supported in an unlocked position by the lever-head until the coupler is again returned to its normal position in the center of the car, when the member 5 automatically gravitates to the position in which it operates to restore the coupler to the centralizing control of the spring devices.

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

1. In a draft gear, the combination with a laterally movable coupler, of a lever-head relatively movable with respect thereto, means for locking said coupler to said lever-head, and spring means for controlling the movement of said lever-head.

2. In a draft gear, the combination with a laterally movable coupler, of a lever-head pivotally connected thereto, means for locking said coupler to said lever-head, and yielding devices for connecting said lever-head with the car.

3. In a draft gear, the combination with a laterally movable coupler, of relatively movable followers, yielding means interposed between said followers, means operatively connecting said yielding means and followers with said coupler, and means whereby said coupler may swing laterally independent of said connecting means.

4. In a draft gear, the combination with a laterally movable coupler, of a lever-head pivotally connected to the stem thereof, followers, springs interposed between said followers, draft-bolts operatively connected to said lever-head and followers, and a locking member which is adapted to be interposed between said lever-head and coupler stem to lock said parts against movement upon each other.

5. In a draft gear, the combination with a laterally movable coupler, of a lever-head pivotally connected thereto, a locking member mounted upon the stem of the coupler and operative to permit and restrain pivotal movement of said coupler with respect to said lever-head, and yielding means for connecting said lever-head to the body of a car.

6. In a draft gear, the combination with a laterally movable coupler, of a lever-head having a convex rear face, said lever-head being movably connected to said coupler, a forward follower upon which the convex face of the said lever-head is adapted to rock, a rear follower, yielding means interposed between said followers, draft bolts pivotally connected to said lever-head, and movable means for locking said coupler to said lever-head.

7. In a draft gear, the combination with a laterally movable coupler, of yielding means

for connecting said coupler to the body of a car, said coupler being pivotally connected to said yielding means so as to be movable independently thereof, and means for locking
5 said coupler to said yielding means to cause the latter to be actuated when the said coupler is displaced laterally.

8. In a draft gear, the combination with a laterally movable coupler, of a lever-head
10 pivotally connected thereto, front and rear followers, springs interposed between said followers on opposite sides of the longitudinal axis of said coupler, draft bolts pivotally connected to said lever-head and operatively
1 connected to said rear follower, yokes in which the followers are relatively movable,

and a locking member for rigidly connecting said coupler to said lever-head.

9. In a draft gear, the combination with a laterally swinging coupler, of yielding means
20 for connecting said coupler to a car, and means mounted on the coupler for locking said coupler to said yielding means to prevent relative movement of said coupler with respect to said yielding means.

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

HARRY C. BUHOUP.

Witnesses:

D. B. MASON,
G. S. WOOD.