

W. KELSO.
DRAFT APPLIANCE FOR RAILWAY CARS.
APPLICATION FILED APR. 6, 1909.

950,485.

Patented Mar. 1 1910

2 SHEETS—SHEET 1.

Fig. 1.

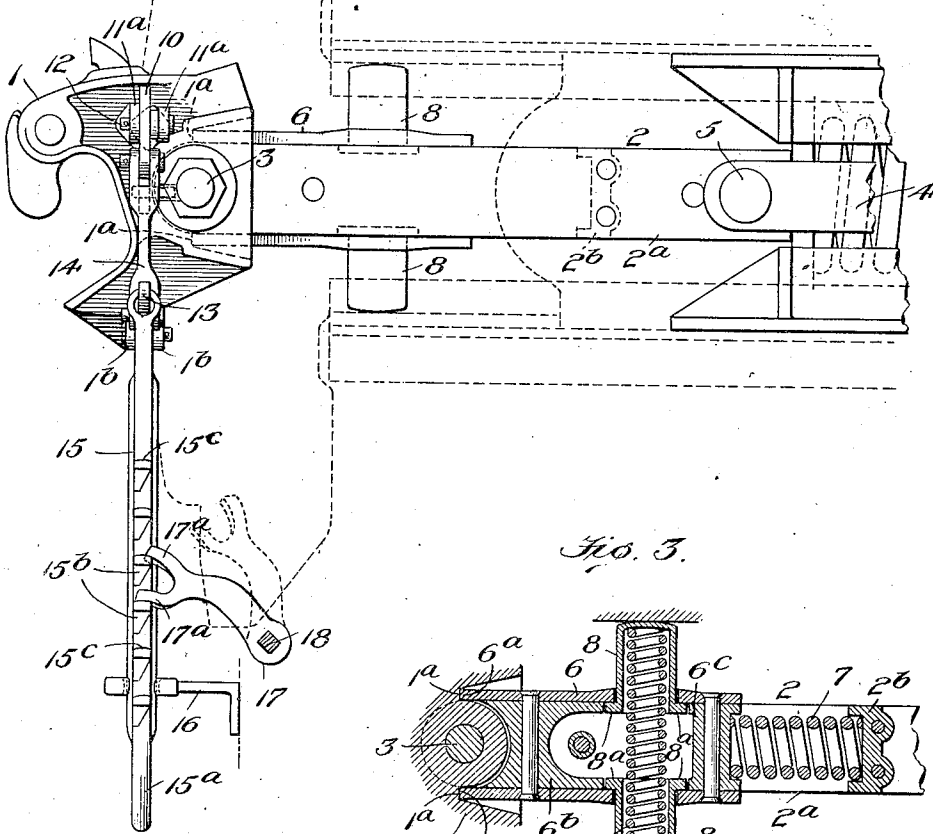


Fig. 3.

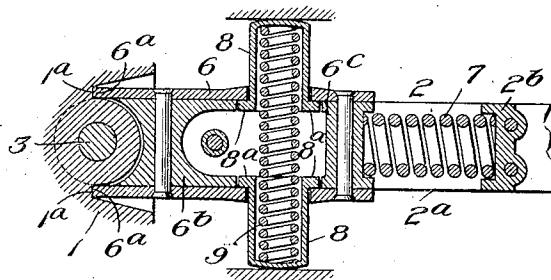
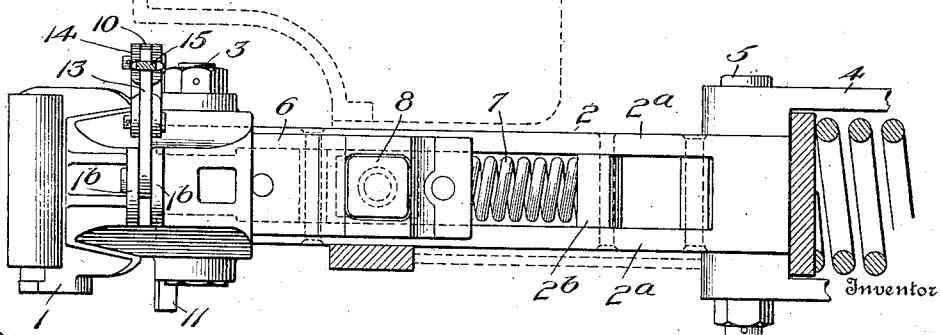


Fig. 2.



Witnesses

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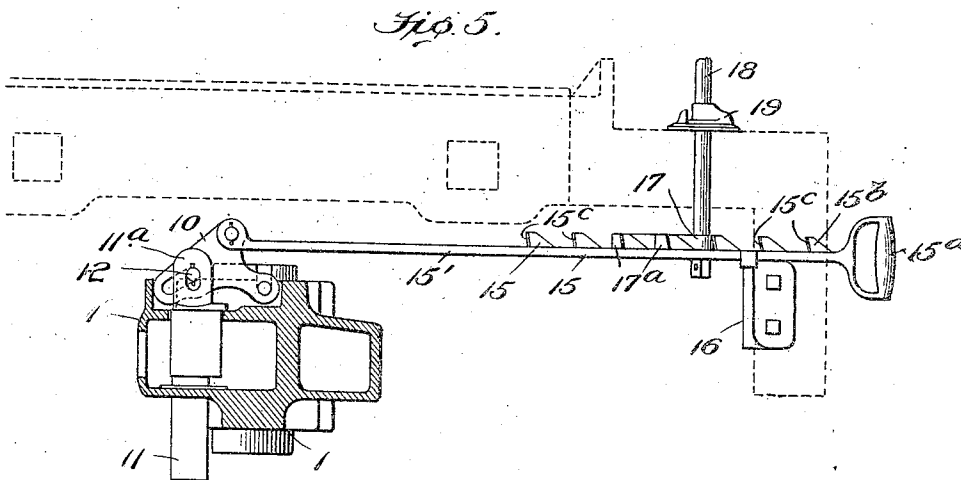
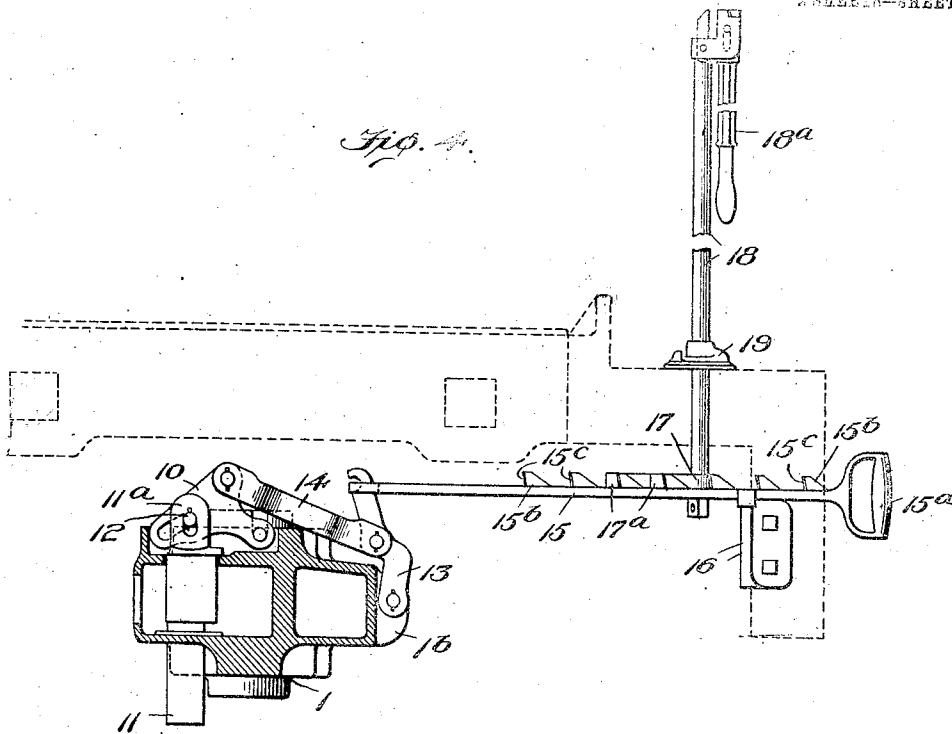
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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DRAFT APPLIANCE FOR RAILWAY-CARS.

950,485.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM KELSO, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Draft Appliances 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 draft gear which is laterally movable or pivotally mounted on the car body, and the principal object of the invention is to provide a structure which will permit the coupler head to execute very extended lateral movements on both sides of its normal position and will afford simple and efficient means by which the coupler, when in any of the various positions it may assume in service, may be easily unlocked from the side of the car or from the platform thereof.

To this end, the main feature of my invention, generally stated, consists in mounting a plurality of pivoted, link-connected levers upon the head of a coupler which is pivotally attached to a car so as to be capable of lateral swinging movement, one of said levers being movably connected to the coupler lock, and said link-connected levers being actuated by a reciprocating rod which extends transversely of the car beneath the car platform and is provided with teeth whereby said rod may be actuated by a rotatable staff which extends vertically upward through the car platform.

There are other features of invention residing in elemental combinations and particular features of construction, all as will hereinafter more fully appear.

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 device embodying my invention, parts of a car being shown in dotted lines. Fig. 2 is a side elevation of the device shown in Fig. 1, the actuating staff and a portion of the reciprocating rack bar being omitted; Fig. 3 is a horizontal, central section of the coupler centering means

which it is preferred to employ; Fig. 4 is a 55 transverse vertical section of the coupler head, the elements of the coupler release rigging being in elevation and the knuckle of the coupler being omitted; and Fig. 5 is a view similar to Fig. 4, but illustrating a 60 modification of my invention.

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 65 art to which it appertains may apply the same.

In the drawings, 1 indicates the coupler head and 2 the coupler stem. These parts are pivotally mounted upon the car so as to be capable of lateral movement to each side of their normal, or centralized, positions. For this purpose, the coupler stem 2 may be conveniently formed as a bifurcated or slotted member between the upper and lower 75 plates 2^a of which the coupler head 1 is pivoted by means of a vertical pivot pin 3, the rear end of said coupler stem being pivotally connected to the usual spring pocket or yoke 4 by means of a pivot pin 5. The 80 yoke 4 passes around two follower plates between which a draft spring is interposed in the well known manner.

Slidably mounted upon the coupler stem 2 is a yieldingly supported centering slide 85 6 the forward ends 6^a whereof are adapted to engage corresponding, transversely arranged shoulders 1^a formed on the coupler head, to thus normally maintain said head in a centralized position with respect to the coupler stem 2. This coupler head centering slide is preferably formed as a composite structure consisting of two side plates that are held together by means of rivets which pass through front and rear spacing blocks or 95 members 6^b and 6^c, respectively, that are interposed between the top and bottom plates 2^a, 2^a of the coupler stem 2. The centering slide is normally maintained in its forward position by means of a spring 7 100 which is interposed between the rear spacing block 6^c and a spring seat or abutment 2^b which extends between and is rigidly attached to the top and bottom plates of the bifurcated coupler stem. 105

Slidably mounted in apertures formed in the side plates of the centering slide 6 are two oppositely extending spring cups or

boxes 8, which, when in their most widely separated position, bear at their outer ends upon adjacent parts of the car body. These spring cups, which project outwardly from the side plates of the centering slide 6 a distance corresponding to the lateral movement which it is desired the coupler stem shall be permitted to have at this point, are provided at their open ends with marginal flanges 8^a which bear upon the inner faces of the side plates of the centering slide and thus limit the separation of the said spring cups. This construction also enables one of the spring cups 8 to be forced toward the other when the coupler stem swings laterally, thus compressing the spring 9 which is seated upon and constantly tends to separate said cups or boxes, as will hereinafter more fully appear.

Pivotaly mounted on the coupler head 1 is a lock engaging bell-crank lever 10 which is movably connected to the lock 11 by which the pivoted knuckle is restrained from rotation. For this purpose the lever 10 is preferably provided adjacent to its free end with a curved slot which receives a pin 12 that passes through the vertically slotted lugs or ears 11^a which are formed on the coupler lock and receive the said lever 10 between them.

While, as shown in Fig. 5 of the drawings, the lock engaging lever 10 may be directly connected by means of a pivot pin with the transversely extending, slidably mounted uncoupling bar, it is preferred, as shown in Figs. 1 to 4, inclusive, to actuate said lever 10 from the uncoupling bar through the intermediacy of a lever 13 and clevised link member 14, the said lever 13 being preferably pivotaly mounted upon the guard arm side of the coupler head between perforated lugs 1^b, 1^b formed thereon, and the said link 14 being interposed between and pivotaly attached to the said lever 13 and the lock engaging lever 10.

Flexibly connected to the pivoted lever 13, as by means of the hook and eye connection shown, it is a transversely extending uncoupling bar 15 which is slidably mounted in a bracket 16 secured to the car body, the opening in said bracket being formed with curved or rounded walls which permit said uncoupling bar 15 to have a pivotal movement about said bracket as a center when the coupler moves inwardly and outwardly in buffing and in draft. The outer end of the uncoupling bar 15 is preferably provided with a handle 15^a which affords means whereby the bar may be manually actuated from the side of the car to unlock the coupler, and extending inwardly from the handle toward the coupler said uncoupling bar is also provided with a series of teeth 15^b which are adapted to be engaged by the toothed member 17 that is rigidly secured

to the lower end of the vertically extending, rotatable staff 18. These teeth 15^b, which, as shown, may be conveniently formed on the upper face of the uncoupling bar, are preferably provided with rounded, undercut faces 15^c which permit easy entrance of the correspondingly rounded and inclined teeth 17^a of the rotatable staff jaw 17 and insure efficient driving engagement of the said staff jaw and uncoupling bar. The faces of the teeth 15^b which are presented toward the staff 18 are formed at an angle to the direction of length of the uncoupling bar 15 in order to afford clearance for the teeth 17^a of the staff jaw, as will be readily understood upon reference to Fig. 1.

The vertically extending, rotatable staff 18, which passes upwardly through the car platform and is supportingly journaled in a plate or bearing 19 mounted thereon, is provided at its upper end with a pivoted handle 18^a which, when brought to a horizontal position, has socketed engagement with the squared upper end of the staff, thus forming a lever by which said staff may be readily rotated.

The uncoupling bar 15' shown in the modified form of construction illustrated in Fig. 5 is combined with the supporting bracket 16, toothed staff jaw 17 and rotatable staff 18 in precisely the same manner as heretofore described, and, except for the specific form of the eye by which the connection with the lock engaging lever 10 is effected, the said member 15' is identical in construction with the uncoupling bar 15 shown in the principal figures of the drawings.

The construction being substantially such as hereinbefore pointed out, the operation will be as follows. In draft and in buffing the forces which are imparted to the coupler stem 2 by the coupler head 1 are transmitted through the pivot bolt 5 to the yoke 4, thus causing the draft spring and followers within the yoke to operate in the usual manner. When the coupler head 1 is rotated about the pivot bolt 3 by which it is connected to the coupler stem 2, one or the other of the head centering shoulders 1^a with which said head is provided engages the adjacent end 6^a of the centering slide 6 and causes said slide to move rearwardly on the stem 2, thus compressing the spring 7 between the spring seat 2^b and the rear end of the centering slide. Upon the cessation of the force causing the coupler head 1 to rotate upon the pivot bolt 3, the expansion of the head centering spring 7 returns the centering slide 6 to its normal position, thereby returning the coupler head to its centralized position. When the coupler stem 2 swings laterally as the car to which it is attached passes around a curve, the transversely extending stem centering

spring 9 is compressed between the spring cups or boxes 8, one of said cups being at such time supported against movement by a portion of the car body and the flanges 8^a of the other being engaged by the centering slide 6 to cause such spring cup to move toward its companion. When the force causing the lateral displacement of the coupler stem from its normal position is withdrawn, the expansion of the spring 9 returns said coupler stem to its centralized position.

The coupler may be unlocked when in any of the various positions it may assume either by rotating the staff 18 in the proper direction, or by pulling upon the handle of the uncoupling bar. When the staff 18 is rotated, the teeth 17^a of the staff jaw 17 are brought into engagement with the curved faces 15^c of the teeth 15^b with which the uncoupling bar 15 is provided, a continued rotation of said staff causing the uncoupling bar to slide outwardly through the supporting bracket 16, thus rotating the lever 13 which is mounted upon the guard arm side of the coupler head and causing the link 14 to rotate the lock engaging bell-crank lever 10 upon its pivot. The unlocking rotation of the slotted lever 10 causes an upward movement of the pin 12 passing through the lifting lugs 11^a of the coupler lock 11, thus moving said lock to an unlocked position. As the lock engaging lever 10 rotates to an unlocked position, the pin 12 by which it is connected to the lock 11 moves toward the outer end of the slot in said lever, as will be readily understood.

Instead of actuating the rack bar 15 from the platform of the car by turning the staff 18, the said bar may be directly actuated from the side of the car by pulling outwardly upon the handle 15^a, thus causing the lock 11 to be brought to an unlocked position through the instrumentality of the lever 13, link 14 and slotted bell-crank lever 10, as heretofore explained.

As the lateral movements of the coupler cause the uncoupling bar 15 to reciprocate in the bracket 16, the staff 18 is arranged to have sufficient rotary movement to permit the toothed jaw 17 to be wholly withdrawn from engagement with said uncoupling bar, as shown in dotted lines in Fig. 1, thus permitting the staff 18 to remain stationary during the swinging of the coupler.

The operation of the modified form of coupler release rigging shown in Fig. 5 is exactly the same as that heretofore described, except that the movement of the toothed uncoupling bar 15^c is communicated directly to the slotted bell-crank lever 10 instead of being communicated thereto through an intervening lever such as 13 and a link member such as 14.

Having thus described my invention, what

I claim and desire to secure by Letters Patent is:

1. The combination with a coupler head, of a knuckle pivotally mounted thereon, a lock for said knuckle, a lever movably mounted on said coupler head and movably connected to said lock, a slidable uncoupling bar, means for connecting said uncoupling bar to said lever, a rotatable staff, and means mounted on and rotatable with said staff for engaging and actuating the said slidable uncoupling bar.

2. The combination with a coupler head, of a knuckle pivotally mounted thereon, a lock for said knuckle, a bell-crank lever pivotally mounted on said coupler head, said lock and said bell-crank lever being attached to each other by a pin and slot connection, a slidably mounted toothed uncoupling bar, means for connecting said uncoupling bar to said lever, a rotatable staff, and a toothed member mounted upon said staff, the toothed member mounted on the staff being adapted to engage and actuate the said slidably mounted uncoupling bar.

3. The combination with a coupler head, of a knuckle pivotally mounted thereon, a lock for said knuckle, a bell-crank-lever pivotally mounted on said coupler head and connected to said lock, a second lever movably mounted on said head, a link interposed between and movably connected to said levers, and means for actuating said second lever.

4. The combination with a coupler head, of a knuckle pivotally mounted thereon, a lock for said knuckle, a lever movably mounted on said coupler head and movably connected to said lock, a link pivotally connected to said lever, a slidable uncoupling bar, a lever movably mounted upon said coupler head and interposed between and movably connected to said link and said uncoupling bar, a rotatable staff, and means mounted on and rotatable with said staff for engaging and actuating the said slidable uncoupling bar.

5. The combination with a coupler head, of a knuckle pivotally mounted thereon, a lock for said knuckle, a bell-crank lever pivotally mounted on said coupler head, means for movably connecting said lock and said lever, a link pivotally connected to said lever, a slidably mounted uncoupling bar provided with teeth, a lever pivotally mounted on said coupler head and connected to said link and said uncoupling bar, a rotatable staff, and a toothed member mounted on the staff and adapted to engage the teeth of the uncoupling bar to actuate said bar.

6. The combination with a coupler head, of a knuckle pivotally mounted thereon, a lock for said knuckle, and means for causing said lock to assume an unlocked position,

said means including a slidable bar provided with teeth having curved faces, a rotatable staff, and a member mounted on said staff and provided with teeth which are adapted to engage the curved faces of the teeth of the said slidable bar to actuate said bar.

7. The combination with a coupler head, of means for pivotally connecting a coupler stem thereto, a coupler stem which is provided with means whereby it may be connected to the body of a car so as to be capable of swinging laterally, yieldingly supported means slidably mounted on said stem for normally maintaining said coupler head in a centralized position with respect to said stem, and yielding means for normally maintaining said coupler stem in a centralized position, said stem centralizing means being mounted upon and movable with said head centralizing means.

8. The combination with a coupler head, of a coupler stem pivotally connected

thereto, means whereby said coupler stem may be mounted upon a car so as to be capable of swinging laterally, means for normally maintaining said coupler head in centralized position with respect to said stem, and means for normally maintaining said coupler stem in a centralized position, said head centralizing means including a member slidably mounted upon said stem, and a spring interposed between said slidably mounted member and said stem, and said stem centralizing means including a plurality of relatively movable spring cups mounted on the said slidable member of the head centralizing means, and a spring bearing upon said spring cups.

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

WILLIAM KELSO.

Witnesses:

J. W. HARTLEY,
F. D. ECKER.