

No. 781,950.

PATENTED FEB. 7, 1905.

E. H. JANNEY.
CAR COUPLING.

APPLICATION FILED APR. 21, 1904.

2 SHEETS—SHEET 1.

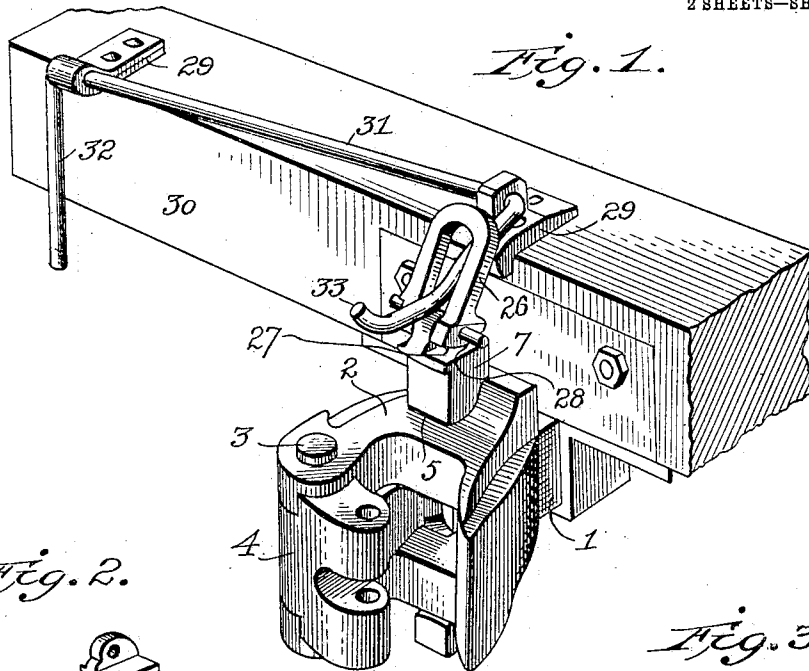


Fig. 2.

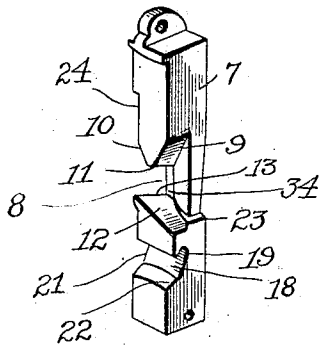


Fig. 3.

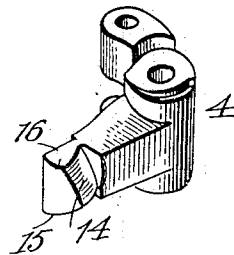
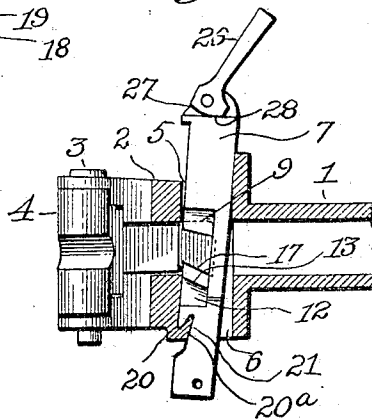


Fig. 4.



Witnesses
Edwin L. Yewell
J. H. Burges Jr.

Inventor
Eli H. Janney
By Roy B. Hills
Attorney

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2 SHEETS—SHEET 2.

Fig. 5.

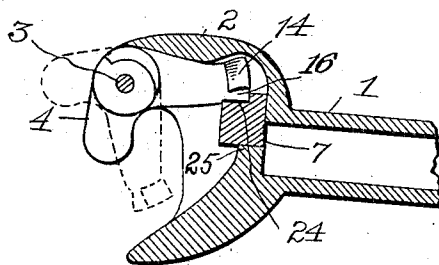


Fig. 9.

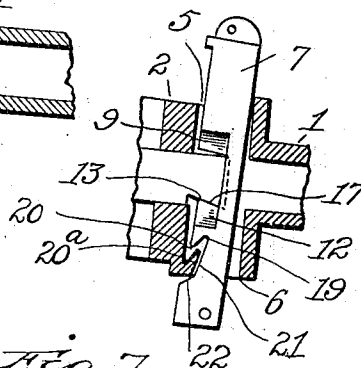


Fig. 6.

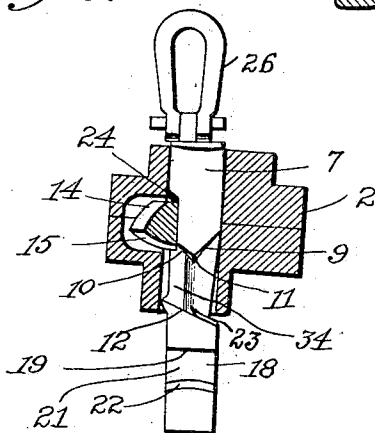


Fig. 7.

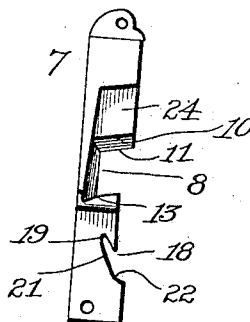


Fig. 8.

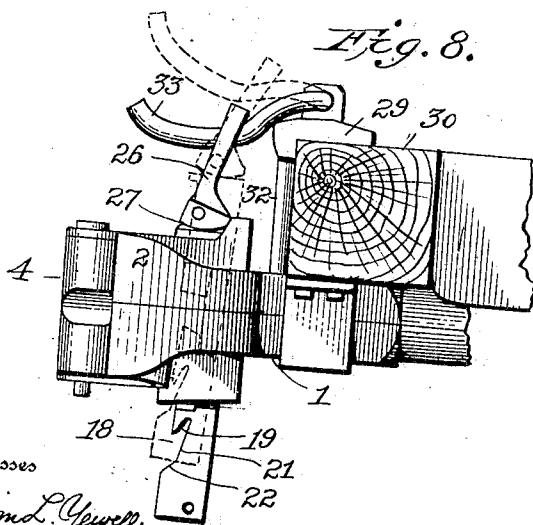
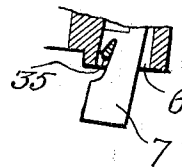


Fig. 10.



Witnesses

Edmund L. Jewell
J. H. B. Jones & Co.

Inventor

Eli H. Janney
by Percy B. Hills

Attorney

UNITED STATES PATENT OFFICE.

ELI H. JANNEY, OF FAIRFAX COUNTY, VIRGINIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 781,950, dated February 7, 1905.

Application filed April 21, 1904. Serial No. 204,214.

To all whom it may concern:

Be it known that I, ELI H. JANNEY, a citizen of the United States, residing in Fairfax county, State of Virginia, have invented new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car-couplings, and more particularly to that class known as the "Janney" type, and has for its object to provide certain new and useful improvements over the construction disclosed in an application filed by me May 5, 1903, Serial No. 155,765, as will be hereinafter more definitely described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of my improved coupling, showing the same in its closed position, the pin being set to the lock-set position. Fig. 2 is a detail perspective view of the locking-pin. Fig. 3 is a similar view of the coupling-hook. Fig. 4 is a vertical longitudinal sectional view, the locking-pin being shown in elevation and in the position shown in Fig. 1. Fig. 5 is a horizontal sectional view. Fig. 6 is a vertical transverse sectional view, the locking-pin being shown in full lines. Fig. 7 is a side elevation of the locking-pin detached. Fig. 8 is a side elevation of the coupling and its pin-lifting mechanism, the parts being shown in their lowermost position in full lines and in their lifted position in dotted lines. Fig. 9 is a view similar to Fig. 4, showing the locking-pin in the act of being lifted from the lock-set position by the movement of the coupling-hook tail. Fig. 10 is a detail sectional view of the lower opening for the pin in the draw-head, showing a modified construction.

Similar numerals of reference denote corresponding parts in the several views.

In the said drawings the reference-numeral 1 denotes the draw-bar of the coupling, carrying the draw-head 2 of the well-known Janney type, in which is pivoted, by means of pin 3, the usual coupling-hook 4.

Passing vertically through the upper and lower apertures 5 and 6 in the draw-head 2 is the locking-pin 7, the same being recessed on its front side at 8 and having the upper face of said recess formed with a relatively long in-

clined or cam surface 9 and with a relatively short inclined or cam surface 10, inclining in the opposite direction from that of incline 9, the meeting edge 11 of said inclines being on a slight incline upward and forward, as clearly seen in Figs. 4, 6, and 7. The lower face of said recess 8 is formed with a cam-surface 12, inclining in a direction the reverse of cam-surface 9 and having its upper end projecting beyond the side face of the pin. As seen in Fig. 7, the upper portion of said cam-surface 12 is also inclined downwardly from front to rear at 13 for a purpose hereinafter to be described.

The tail of the coupling-hook 4 is reversely inclined on its upper and lower surfaces at 14 and 15 to correspond with the inclines 9 and 12, the upper incline 14 merging into a flat surface 16, while the lower incline 15 is also inclined at 17 to correspond with incline 13 on the pin 7, as seen in Fig. 4.

Below the recess 8 in the pin 7 is another recess, 18, having its upper edge inclined upwardly and inwardly at 19 to engage a recess or seat 20, formed in the inner front face of the lower-aperture 6 in the draw-head when said pin is raised to the lock-set or unlocking position, the recess or seat 20 having its edge beveled to correspond with that of upper edge 19 of recess 18, as shown in Fig. 4. It will also be observed that the lower edge of the front face of the lower aperture 6 is inclined at 20° and that the rear face 21 of said recess 18 has a similar inclination downwardly and forwardly, the same merging into a more abrupt inclination 22, and, further, that the front side of the locking-pin 7 below said recess projects somewhat beyond the vertical surface of said pin above said recess for a purpose hereinafter to be described.

Formed in the side of pin 7 and just below the lower edge of the draw-head when said pin is in its lowermost position is an incline 23, adapted to perform the following double function: When the pin 7 is in its lowermost position and the coupling-hook 4 locked thereby, the traction on said coupling-hook will force the locking-pin 7 to the right, as shown in Fig. 6, thus causing incline 23 to underlie the lower edge of the draw-head 2 and effect

usually preventing any upward creeping of the locking-pin 7 while the car is in motion, whereby said pin might otherwise ultimately be lifted sufficiently to release the coupling-hook 4. The other function of said incline 23 is performed when the locking-pin 7 is lifted to throw the coupling-hook 4 to its open position, the contact of incline 23 with the lower edge of the draw-head 2 forcing said pin to the left toward the tail of the coupling-hook, so that the projecting end of lower cam-surface 12 will be thrown more surely beneath corresponding cam-surface 15 on said coupling-hook tail.

On the side nearest the coupling-hook tail when in its locked position the pin 7 is recessed vertically at 24, against which recess the coupling-hook tail bears, while on the opposite side the draw-head is provided with a vertical extension 25, affording an increased bearing-surface for the pin 7 when under the tension of the coupling-hook, as seen in Fig. 5.

Pivoted to the upper end of the pin 7 is a link 26, having a shoulder 27 adapted by its contact with the top of the pin to limit the forward tilt of said link, and a shoulder 28 for limiting its rearward tilt, the same operating to prevent said link from tilting forward beyond the vertical plane of the pin 7, but permitting a more extended rearward tilt thereto, as shown in Figs. 1, 4, and 8. Mounted in brackets 29 on the cross-sill 30 of the car is an operating-rod 31, having a handle 32 at its outer end and an inner bent arm 33, passing loosely through the link 26, said arm being preferably depressed at about its center, as shown in Fig. 8.

From the above description the operation of my improved construction will be understood to be as follows: With the pin 7 in its lowermost position and the coupling-hook 4 open the device is ready for automatic coupling, the rotation of said hook causing cam-surface 14 on the tail thereof to contact with cam 9 on the pin 7, and thus raise the latter until the coupling-hook tail passes the same, when it will drop automatically, and thus lock the hook in its closed position. Now when it is desired to uncouple, the pin 7 is lifted, by means of rod 31, in the manner hereinafter described, until the incline 13 on the pin engages the incline 17 on the hook, when by reason of the forward and upward inclination of the same, as shown in Figs. 4 and 9, the lower end of the pin will be positively tilted forward, thus bringing the upper edge 19 of lower recess 18 in said pin immediately over the recess or seat 20 in the lower aperture 6 of the draw-head, as shown in Fig. 9, so that when the pin 7 is released it will drop into recess or seat 20, thus assuming the lock-set position shown in Fig. 4, so that the coupling-hook 4 may be turned to its open position, thus permitting the cars to separate.

In the application filed by me and heretofore referred to I have shown the locking-pin 7 adapted to be supported in the lock-set position by means of a shallow recess or seat in the draw-head, and an important feature of the present invention is to deepen this recess or seat, so that the pin may not be accidentally displaced therefrom and at the same time to provide means for positively lifting said pin from its engagement therewith during the rotation of the coupling-hook to the open or closed position. This object I accomplish by providing the short incline 10 on the pin, which forms, in conjunction with the incline 9 thereon, the edge 11, inclined upwardly and forwardly. Now as the coupling-hook starts to rotate to its open position the upper edge of the front face of its tail will at once contact with the short incline 10, which in the lock-set position of the pin lies lower than said flat surface 16 and will raise said pin sufficiently to free the latter from its engagement with the recess or seat 20, and as the edge 11 is reached the upward and outward inclination of the same will permit a contact between it and surface 16 only at the extreme inner portion of said edge or at the center of gravity of said pin, thus causing said pin to resume its vertical position and permitting it to drop free from said recess or seat 20 when released by the coupling-hook tail. While it is preferred to incline the edge 11 as described in order to accomplish this result, the same effect may be obtained by inclining the flat surface 16 upwardly, so that only its extreme outer end will contact with the edge 11, as will be readily understood.

In order to positively rotate the coupling-hook 4 to its open position by means of the locking-pin 7, I have provided the inclines 12 and 15, operating as follows: When the coupling-hook is locked, but not engaged by another coupling-hook, the lifting of locking-pin 7 will cause the projecting upper end of incline 12 thereon to engage the incline 15 on the tail of said coupling-hook, and the further lifting of said locking-pin necessarily rotates said coupling-hook to its open position in a manner readily understood. In order that this engagement of the inclines may be insured, I have provided the incline 23 on the opposite side of the locking-pin 7, which by its contact with the lower edge of the draw-head as the locking-pin is raised forces said locking-pin toward the tail of the coupling-hook, as seen in Fig. 6. By providing the recess 24 in the side of locking-pin 7, with which the coupling-hook tail contacts when locked, I cause said tail to lie more surely in the path of the incline 12, as also seen in Fig. 6.

Referring now to the operation of the pin-lifting mechanism, it will be observed that the link 26, pivoted to the upper end of locking-pin 7, loosely embraces the bent arm 33 of operating-rod 31 and that said link because

of shoulders 27 and 28 cannot tip forward beyond the vertical position; though permitted a limited rearward tilt, as seen in Fig. 4. It will also be observed that said link 26 is pivoted to the pin 7 forward of the transverse vertical center of the latter and that when said pin is in its locking position (shown in Fig. 8) said link engages the arm 33 at the point of lowest depression of the latter, the result being that when said arm is lifted by means of handle 32 that portion of said arm in front of the depressed portion will at once begin to assume an upward angle, carrying link 26 to the rear, which, together with the forward pivotal point of attachment of said link to the pin 7, will bring the lower end of said pin 7 forward as it is lifted by said arm 33 and will thus more surely cause an engagement of edge 19 and shoulder 20 to retain the pin 7 in the lock-set position. A further and more important function of the pin-lifting mechanism, however, resides in the fact that owing to the construction of link 26 and lifting-arm 33 any breaking of the coupler-bar whereby the coupling is pulled away from the car will not break the lifting mechanism, the link 26 passing freely off the end of arm 33, leaving the latter intact, which is necessarily not the case with the chain connections now in use.

By providing the rear face 21 of recess 18 with the initial inclination it will be seen that as pin 7 is lifted above the lock-set position to throw the hook open, as shown in Fig. 9, the contact with said inclined surface with the inclined surface 20^a will immediately tend to force the pin 7 to the rear, this movement being increased as the more abrupt inclination 22 is reached, the result being that when said pin 7 is thus lifted an immediate movement away from the shoulder 20 is begun, which is increased by the incline 22, so that when said pin is released it will drop to its lowermost position. This feature functions only when the pin 7 is lifted to automatically throw the hook 4 open, the tendency of the contact between the inclines 13 and 17, as well as the point of application of the lift to the pin, being to force the lower end of the pin forward, which is effectually counteracted by the inclines 20^a, 21, and 22, which not only force the lower end of the pin to the rear, thereby carrying the rear vertical wall of the recess 8 in the pin away from the path of travel of the coupling-hook tail, but also aid in throwing the coupling-hook open.

In order that the pin 7 may have the necessary lateral play without contacting with the end of the coupling-hook tail, I deepen the recess 8 thereof at 34 to receive the tail of the coupling-hook when in its locked position, the action of the inclines 20^a, 21, and 22, above described, as well as the action of flat surface 16 and edge 11 when the hook is opened with the pin in the lock-set position, being such

that the pin 7 will be forced rearward, so as to prevent any contact vertically between said pin and the end of the coupling-hook tail as the latter moves to the open position, thereby preventing any possible binding between these parts during this movement.

In Fig. 10 I have shown a slightly-modified construction, the recess or seat 20 instead of being formed in the wall of the draw-head being replaced by a removable cross-bar 35, with which the inclined edge 19 engages to maintain the locking-pin in the lock-set position, the rounded surface of said cross-bar performing the function of the incline 20^a. By employing said cross-bar 35 lodgment of dirt at this point is prevented, and, furthermore, the usual cotter-pin for preventing complete withdrawal of the pin 7 from the draw-head may be dispensed with, said cross-bar 35 projecting sufficiently far in the aperture 6 to prevent the passage of the lower end of the pin, it being understood that said cross-bar is to be inserted after the pin 7 has been located in position.

While I have illustrated and described the coupling-hook as provided with a flat surface 16 on the upper face of its tail, such construction is not a necessary feature, the device operating equally as well with the incline 14 extended to the front face of the coupling-hook tail.

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

1. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having inclines in reverse directions on the upper and under sides of its tail, and a vertically-movable locking-pin for said coupling-hook having inclines similar to those on the tail of the coupling-hook, and also having an additional upper incline the reverse of the main incline.

2. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-movable locking-pin, means for maintaining said locking-pin in position to permit the movement of the coupling-hook to the open position, and an incline on said locking-pin with which the upper edge only of the front face of said coupling-hook contacts during its movement to the open position, and whereby said locking-pin will be lifted to disengage it from its supporting means.

3. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein, and a vertically-movable locking-pin having an incline adapted to be engaged by the upper edge only of the front face of the coupling-hook tail as the latter moves to the open position, whereby said pin is lifted.

4. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-movable locking-pin for said coupling-hook adapted in its move-

ment to the unlocking position to engage the draw-head and be retained in its unlocking position, and inclines on said locking-pin adapted by contact with the draw-head, when
5 said pin is raised farther, to first give it an initial slight movement away from the draw-head at the engaging point, and to give it a more pronounced movement as said pin is further lifted.

10 5. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-moving locking-pin for said coupling-hook, a removable cross-bar in the draw-head with which the locking-
15 pin is adapted to engage in its movement to the unlocking position and by which it is retained in its unlocking position, and inclines on said locking-pin adapted by contact with said cross-bar, when said locking-pin is raised
20 farther, to first give the latter an initial slight movement away from the draw-head at the engaging point, and to give it a more pronounced movement as said pin is further lifted.

25 6. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-moving locking-pin,

a link pivoted to the upper end of said pin and having a limited movement on its pivot in a rearward direction only, and an operating-rod carried by the car-body and having
30 an arm detachably engaging said link, whereby said link and its pin may be raised and lowered.

7. In a car-coupling, the combination with 35 the draw-head, and a coupling-hook pivoted therein, of a vertically-moving locking-pin, a link pivoted to the upper end of said pin and having a limited movement on its pivot in a rearward direction only, and an operating-rod carried by the car-body and having
40 an arm detachably engaging said link and adapted to raise and lower the same and its link, said arm in such movement exerting a rearward tilting action on the upper end of
45 said pin.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELI H. JANNEY.

Witnesses:

PERCY B. HILLS,
J. H. BURGESS, Jr.