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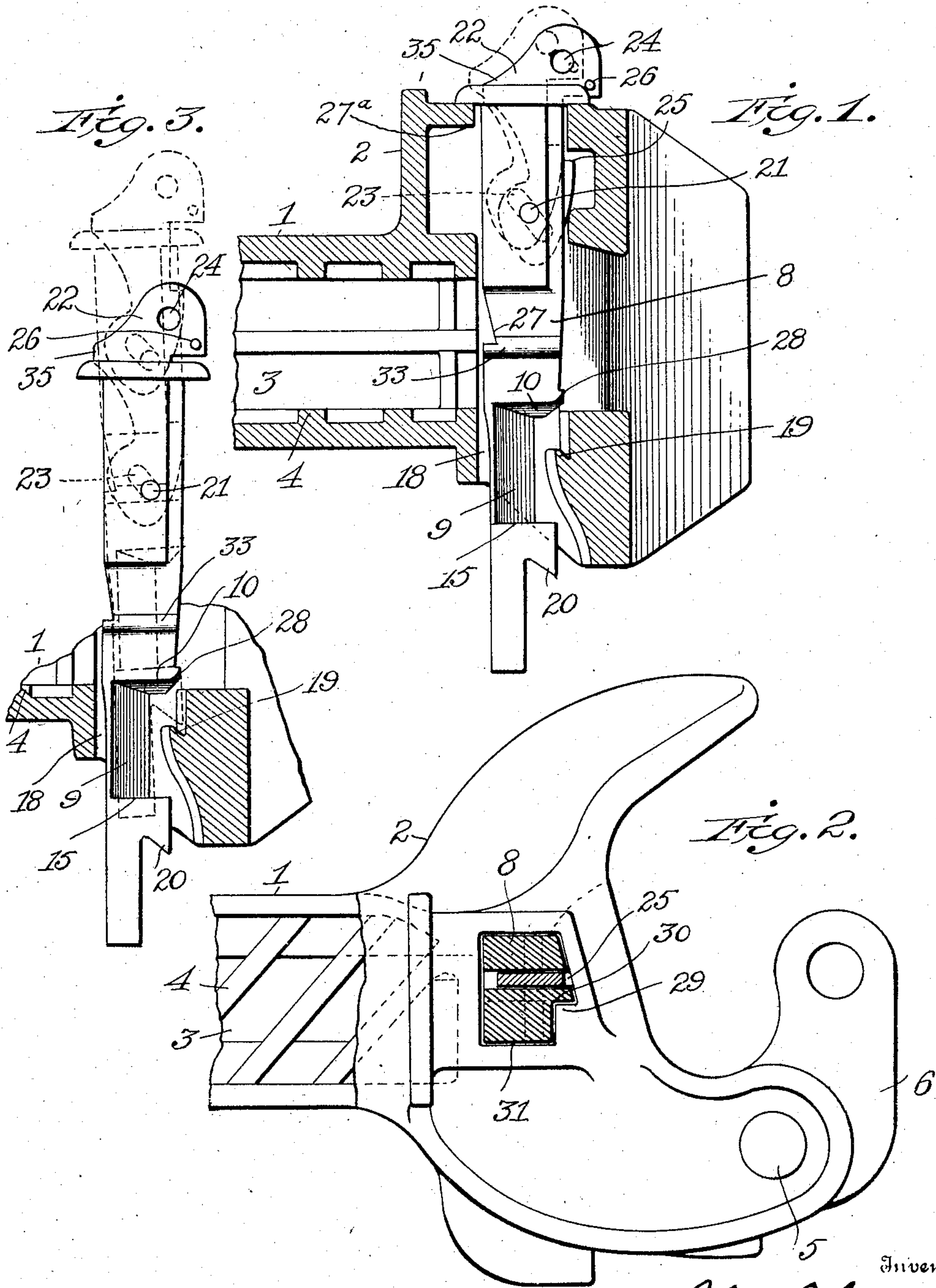
PATENTED MAY 16, 1905.

R. E. L. JANNEY.

CAR COUPLING.

APPLICATION FILED JAN. 24, 1905.

2 SHEETS—SHEET 1.



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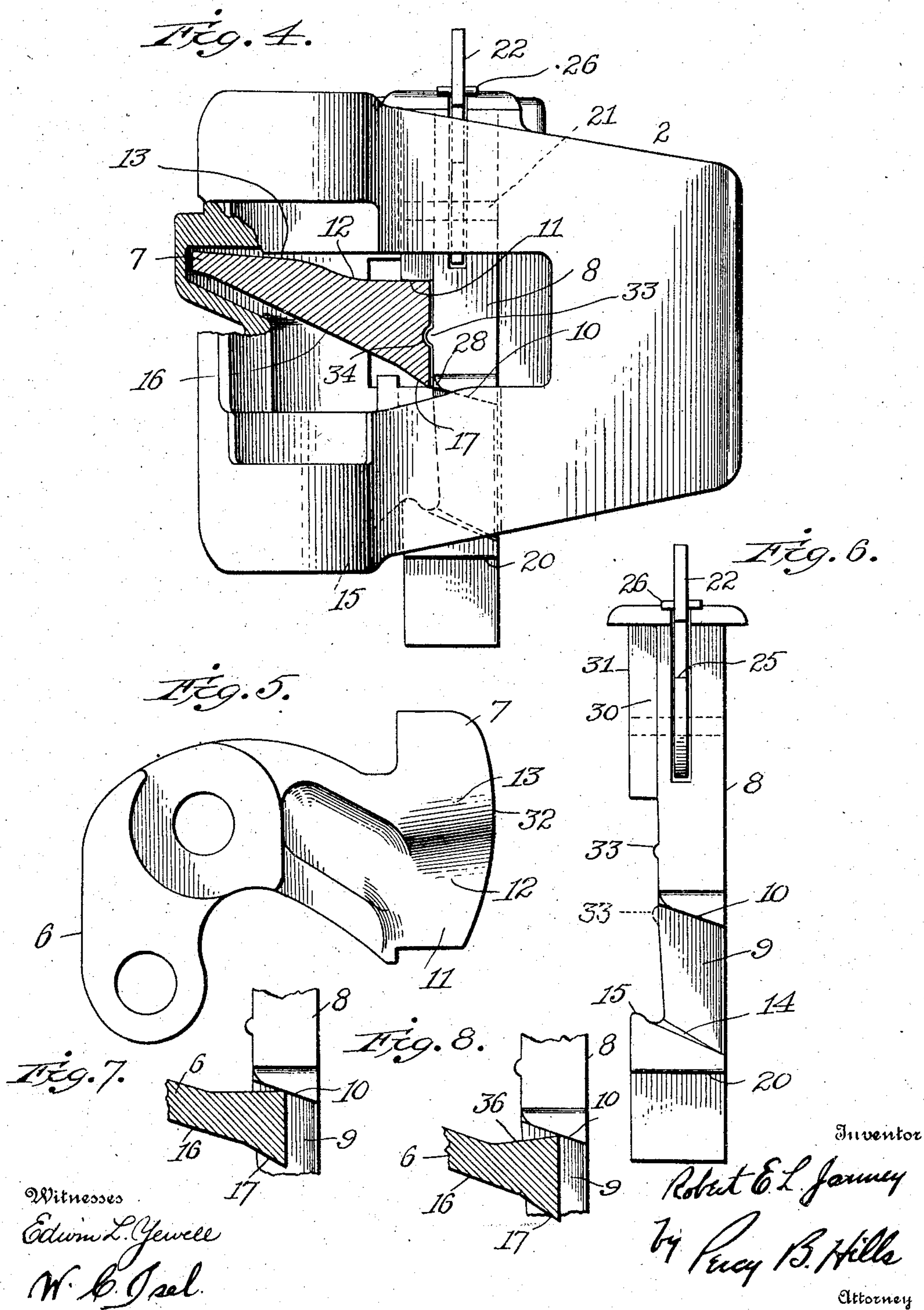
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# UNITED STATES PATENT OFFICE.

ROBERT E. L. JANNEY, OF INDIANA HARBOR, INDIANA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 790,209, dated May 16, 1905.

Application filed January 24, 1905. Serial No. 242,536.

*To all whom it may concern:*

Be it known that I, ROBERT E. L. JANNEY, a citizen of the United States, residing at Indiana Harbor, in the county of Lake and State of Indiana, 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 improvements in the construction of the same, as will be hereinafter more particularly pointed out and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a central vertical longitudinal sectional view of my improved coupling, the locking-pin being shown in full lines in the locking position. Fig. 2 is a horizontal sectional view taken through the coupling-head and locking-pin. Fig. 3 is a view similar to Fig. 1, the lifting-trigger for the locking-pin being shown in its raised position and the locking-pin as a whole being shown in dotted lines raised and about to engage the lock-set position. Fig. 4 is a front elevation of the coupling, the coupling-hook being shown broken away. Fig. 5 is a detail top plan view of the coupling-hook. Fig. 6 is a detail front elevation of the locking-pin. Fig. 7 is a detail front view of a portion of the locking-pin, showing the contact therewith of the tail of the coupling-hook during the movement to or from the locked position. Fig. 8 is a view similar to Fig. 7, 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. The draw-bar 1 is interiorly apertured at 3, as usual, and in the upper and lower surfaces of said aperture are provided the diagonal strengthening-ribs 4, the same extending somewhat into the draw-head 2, as shown in Figs. 1 and 2. Pivoted in the draw-head 2 by means of pin 5 is the usual coupling-hook 6, the tail of which is provided with an extension 7, performing the

double function of supporting the locking-pin 8 when the coupling-hook is rotated to the open position and by its engagement with the draw-head when locked preventing the withdrawal of the coupling-hook should the pin 5 be broken.

The locking-pin 8 is of the vertically-movable type and is provided with the cut-away or recessed portion 9 to permit the passage of the coupling-hook tail to the open position when said pin is lifted, the top portion 10 of said recess being inclined slightly sidewise downward from left to right, as shown in Fig. 6.

The top surface 11 of the coupling-hook tail has an upward inclination toward the extension 7 thereof, as shown in Fig. 4, said inclination beginning at the point 12 and ending at the point 13, said features performing a double function hereinafter to be described.

The bottom of the recess 9 is inclined, as shown at 14 in Fig. 6, and at the upper end of said incline I provide a hump or projection 15, adapted to cooperate with an incline 16, similar to incline 14, on the under side of the coupling-hook tail to throw said hook open automatically when the locking-pin 8 is lifted and the hook not engaged by another hook. To expedite this movement, the lower end of incline 16 of the coupling-hook tail may be provided with an incline 17, more abrupt than incline 16, with which the hump or projection 15 contacts first to impart to the coupling-hook its initial movement.

Formed in the front end of the lower aperture 18 in the draw-head, through which the locking-pin 8 passes, is a projection 19, while the front side of the locking-pin 8 near its lower end is cut away to provide the shoulder 20, adapted to engage the projection 19 when the locking-pin is raised to the releasing position and tilted forward slightly at its lower end, whereby said locking-pin may be set at the releasing position.

Pivoted at 21 in the locking-pin is the lifting-trigger 22, the connection between said trigger and pivot-pin being by means of an inclined slot 23, as shown in Fig. 1. To cause the locking-pin to tilt forward at its lower end when raised, I locate the point of attach-



ment of the actuating chain or rod for said trigger forward of the center of gravity of the locking-pin, as seen at 24, the opening in the draw-head through which the locking-pin moves being so arranged to allow this movement. Said trigger is also provided on its front face with a lip or projection 25, adapted to engage the draw-head for a purpose hereinafter to be described. A pin or projection 26, located in said trigger, by contact with the locking-pin limits the rearward movement of said trigger, so that the latter may not drop entirely out of its slot, and thus become liable to be broken by contact with the end sill of the car. Said locking-pin is also provided on its rear face with a depression 27, having a flat lower face, and on its front face with a projection 28, both for purposes hereinafter to be described.

Referring to Fig. 2, it will be seen that the aperture in the draw-head receiving the locking-pin 8 is provided in one corner with a projection 29 and that the locking-pin is correspondingly recessed at 30, the object being to prevent the partial rotation of said locking-pin when it is lifted to throw open the coupling-hook, it being seen that in so lifting said locking-pin the part 31 of the same will be lifted entirely above the draw-head, which were it not for the projection 21 would permit said locking-pin to then partially rotate.

From the above description the operation of my improved construction will be understood to be as follows: The locking-pin 8 is shown in Fig. 1 in full lines in the locked position. Now when the coupling is engaged with another coupling and it is desired to permit the parts to uncouple the locking-pin is raised until its shoulder 20 is above the projection 19 in the draw-head, when by reason of point of attachment of the lifting means to the locking-pin at 24 forward of the center of gravity of said pin the latter will be tilted forward at its lower end until the shoulder 20 thereon overlies the projection 19. The pin being now released, the shoulder 20 will drop into engagement with projection 19, thus retaining said pin in the lock-set or releasing position. Upon drawing the cars apart the coupling-hook will be rotated to the open position, and during this movement the top surface 10 of the recess 9 in the locking-pin, through which the tail of the coupling-hook passes in its rotation, will be engaged by the top surface 11 of the coupling-hook tail and said pin thus gradually raised from its engagement with the projection 19 and supported on the coupling-hook tail. During this operation the projection 28 on the front of the locking-pin contacts with the front of the draw-head, and thus forces the lower end of said locking-pin to the rear and out of the line of engagement with the lock-set projection 19. As a further means for

causing the lower end of the locking-pin to be positively forced backward and out of the line of engagement with the projection 19 as the coupling-hook approaches the open position I project the extension 7 of the coupling-hook tail somewhat beyond the arc described by the rear face of the coupling-hook tail proper, as shown at 32 in Fig. 5, the result being that as said projection reaches the recess 9 in the locking-pin as the coupling-hook is rotated to the open position it will contact with the rear vertical wall of said recess, and thus positively force the locking-pin rearward. Now upon the return of the coupling-hook tail to the locking position the locking-pin 8 will by reason of its engagement with the outer edge only of the coupling-hook tail, due to the fact that said coupling-hook tail is engaging at an angle with the inclined surface 10 of recess 9, be supported at a point to the rear of its center of gravity, thus causing said pin to maintain the position to which it has been forced by the opening of the coupling-hook. Said locking-pin while in this position will be gradually lowered as the coupling-hook tail approaches the locking position and will thus be prevented from engaging the projection 19, so that when the coupling-hook tail passes from beneath the surface 10 said locking-pin will drop to the locking position. As the coupling-hook approaches the open position I project the extension 7 of the coupling-hook tail somewhat beyond the arc described by the rear face of the coupling-hook tail proper, as shown at 32 in Fig. 5, the result being that as said projection reaches the recess 9 in the locking-pin as the coupling-hook is rotated to the open position it will contact with the rear vertical wall of said recess, and thus positively force the locking-pin rearward.

As seen in full lines in Fig. 1, the trigger 22 of the locking-pin 8, through the engagement of the inclined slot 23 therein with the pivot-pin 21, will when not lifted by its operating chain or rod assume a position so that the lip or projection 25 thereof will underlie the front edge of the draw-head, the result being that if said pin is accidentally lifted from the bottom said lip or projection 25 will engage the draw-head, and thus effectually prevent a further lifting of the locking-pin to the unlocking position. It will also be understood that this engagement of the lip or projection 25 with the draw-head will occur should there be any upward creeping of the locking-pin due to the jarring of the coupling when the car is coupled and in motion. When, however, the actuating chain or rod is operated to lift the locking-pin, the trigger 22 will be first lifted independently to the limit permitted by its inclined slot 23, the inclination of the latter causing it to move rearwardly at the same time, and thus out of the line of en-



gagement with the draw-head, as seen in dotted lines in Fig. 1, the further lifting carrying with it the locking-pin 8.

As a further means for preventing upward creeping of the locking-pin I provide a stud 33 on the latter, which by its engagement with said coupling-hook tail will also prevent any upward creeping of the locking-pin due to the jolting of the cars. In Figs. 4 and 6 I have shown this stud 33 so positioned as to engage a corresponding recess 34 in the vertical abutting face of the coupling-hook tail; but, if desired, the same may be located lower down, so as to engage beneath the under side of the coupling-hook tail, as shown in dotted lines in Fig. 6. By employing the stud 33 on the locking-pin adapted to be engaged by the coupling-hook tail I not only prevent any upward creeping of the pin, but accomplish this result without throwing said pin out of vertical alinement, as is necessary when this result is accomplished by an engagement between the pin and draw-head. As a result the lifting of the pin is rendered easier and the parts cooperate with greater precision, the pin being released not by any lateral movement of itself, but by a slight movement of the coupling-hook tail away from said pin when tension is removed therefrom. It will be understood that in some instances the use of the trigger 22 may be dispensed with and the lifting chain or rod connected directly with the upper end of the locking-pin 8 forward of its center of gravity, in which event the stud 33 will become the sole anticreeping agent.

A further function of the trigger 22 is performed if the draw-head should break. Thus if the draw-head should be pulled, say, five or six inches beyond its normal outward movement the strain of the lifting chain or rod on the trigger 22 will cause the upper rear projection 35 of the latter to contact with the draw-head and, acting as a fulcrum thereon, to forcibly lift the locking-pin 8 to the unlocking position, thereby uncoupling the car and releasing the strain on the broken draw-head, the latter being then supported by said chain or rod, and thus prevented from falling on the track.

The function of the depression 27 in the rear of the locking-pin 8 is to engage with the draw-head at 27<sup>a</sup> when the locking-pin is lifted to throw open the coupling-hook, and thus prevent too great a lift to said locking-pin, which might result in said locking-pin becoming jammed or wedged in its lifted position, this result being due to the fact that the point of attachment 24 of the lifting-chain is forward of the center of gravity, whereby the lower end of the pin is kept tilted forward as it is lifted.

I have illustrated in Fig. 8 a slightly-modified construction in which the tail of the coupling-hook is given a double inclination—first,

the upward inclination from 12 to 13, hereinbefore described, and, secondly, an upward and outward inclination, as shown at 36, said latter inclination cooperating with the downward inclination from front to rear of the top portion 10 of recess 9 in the locking-pin 8 to cause the contact with said locking-pin at a point to the rear of its center of gravity, as hereinbefore described. In fact, this result may be readily accomplished by using an inclination on but one of the contacting parts, and it is immaterial whether it is located on the coupling-hook tail or on the locking-pin.

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 vertically-movable locking-pin therein, cooperating projections on the locking-pin and the front of the draw-head for supporting said locking-pin in the unlocking position, a coupling-hook pivoted in the draw-head, cooperating surfaces on said coupling-hook and locking-pin adapted to engage during the entire rotation of the coupling-hook to the open position whereby said locking-pin will be raised and supported out of the line of engagement with the unlocking-position support by said coupling-hook while the latter is in its open position, said surfaces cooperating during the return movement of the coupling-hook to maintain said locking-pin in said position and cause it, when released, to drop to its locking position.

2. In a car-coupling, the combination with the draw-head, of a vertically-movable locking-pin therein, cooperating projections on the locking-pin and the front of the draw-head for supporting said locking-pin in the unlocking position, a coupling-hook pivoted in the draw-head, an inclined engaging surface on said locking-pin, and an incline on said coupling-hook, said coupling-hook adapted to engage said inclined surface during the entire rotation of the coupling-hook to the open position whereby said locking-pin will be raised and supported out of the line of engagement with the unlocking-position support by said coupling-hook while the latter is in its open position, said inclined surface on said locking-pin operating during the return movement of the coupling-hook to maintain said locking-pin in said position and cause it, when released, to drop to its locking position.

3. In a car-coupling, the combination with the draw-head, of a vertically-movable locking-pin therein, means for supporting said locking-pin in the unlocking position, a coupling-hook pivoted in the draw-head, and an extension on the coupling-hook tail adapted to support said locking-pin during its movement to the open position, said extension moving in the arc of a circle greater than that of the body of the coupling-hook tail, whereby it will contact with said locking-pin and force it from en-



gagement in the unlocking position during the opening movement of said coupling-hook.

4. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having an incline on the under side of its tail, and a vertically-movable locking-pin for said coupling-hook having a similar incline and at its point of initial contact a more abrupt incline adapted to contact with the incline on the coupling-hook tail to throw the latter open when said locking-pin is lifted.

5. In a car-coupling, the combination with the draw-head, of a coupling-hook pivoted therein and having an incline on the under side of its tail, and a vertically-movable locking-pin for said coupling-hook having a similar incline, said coupling-hook and locking-pin also having, at the points of initial contact, more abrupt inclines adapted to contact and impart the initial movement to the coupling-hook when said locking-pin is lifted.

6. In a car-coupling, the combination with the draw-head, a coupling-hook pivoted therein, and a lock for said coupling-hook, of means directly on said lock coacting with said coupling-hook to prevent movement of said lock toward the unlocking position when said coupling-hook is in engagement therewith.

7. In a car-coupling, the combination with the draw-head, a coupling-hook pivoted therein, and an upwardly-moving lock for said coupling-hook, of a projection on one of said parts adapted to engage the other part when the two are in the locked position to prevent upward movement of the said lock.

8. In a car-coupling, the combination with the draw-head, a coupling-hook pivoted therein, and a vertically-moving locking-pin, of a projection on said pin adapted to engage said coupling-hook when the parts are in the locked position to prevent upward movement of said locking-pin.

9. In a car-coupling, the combination with the draw-head, a coupling-hook pivoted therein, and a lock for said coupling-hook, of a hollow draw-bar connected with said draw-head, and diagonal strengthening-ribs formed in the upper and lower surfaces of said draw-bar.

10. In a car-coupling, the combination with the draw-head, a coupling-hook pivoted therein, and a lock for said coupling-hook, of a hollow draw-bar connected with said draw-head and diagonal strengthening-ribs formed in the upper and lower surfaces of said draw-bar and extending into said draw-head.

11. In a car-coupling, the combination with the draw-head, a coupling-hook pivoted therein, and a vertically-movable locking-pin there-

for, of a lifting-trigger disengageably pivoted to the locking-pin and having an initial independent bodily lateral movement when lifted and normally positioned in the draw-head to engage an integral part of the latter when a lifting strain is exerted on the locking-pin to limit the vertical movement of said locking-pin.

12. In a car-coupling, the combination with the draw-head, a coupling-hook pivoted therein, and a vertically-movable locking-pin therefor, of a lifting-trigger having an inclined disengageable slotted connection with said locking-pin and provided with an integral shoulder adapted to engage an integral part of the draw-head when said trigger is in its lowermost position with respect to said locking-pin, said trigger, when lifted to raise the locking-pin, being first independently moved through its inclined slotted connection to bring said shoulder out of alinement with the draw-head.

13. In a car-coupling, the combination with the draw-head, a coupling-hook pivoted therein, and a vertically-movable locking-pin therefor, said locking-pin being cut away on one side at its lower portion and recessed vertically on said side in its upper portion, the upper portion of the locking-pin aperture in the draw-head being correspondingly projected, said projection operating to engage said locking-pin when the vertical recess therein is lifted above said projection to prevent lateral movement of said locking-pin.

14. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-movable locking-pin therefor provided with a depression in its rear face adapted to engage an integral part of the draw-head when said locking-pin is lifted past the unlocking position to limit the vertical movement of said locking-pin.

15. In a car-coupling, the combination with the draw-head, and a coupling-hook pivoted therein, of a vertically-movable locking-pin therefor, means for supporting said locking-pin in the unlocking position, and a projection on said locking-pin adapted, when said locking-pin is lifted to disengage it from its supported position, to contact with the draw-head and force said locking-pin away from engagement with its support.

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

ROBERT E. L. JANNEY.

Witnesses:

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