

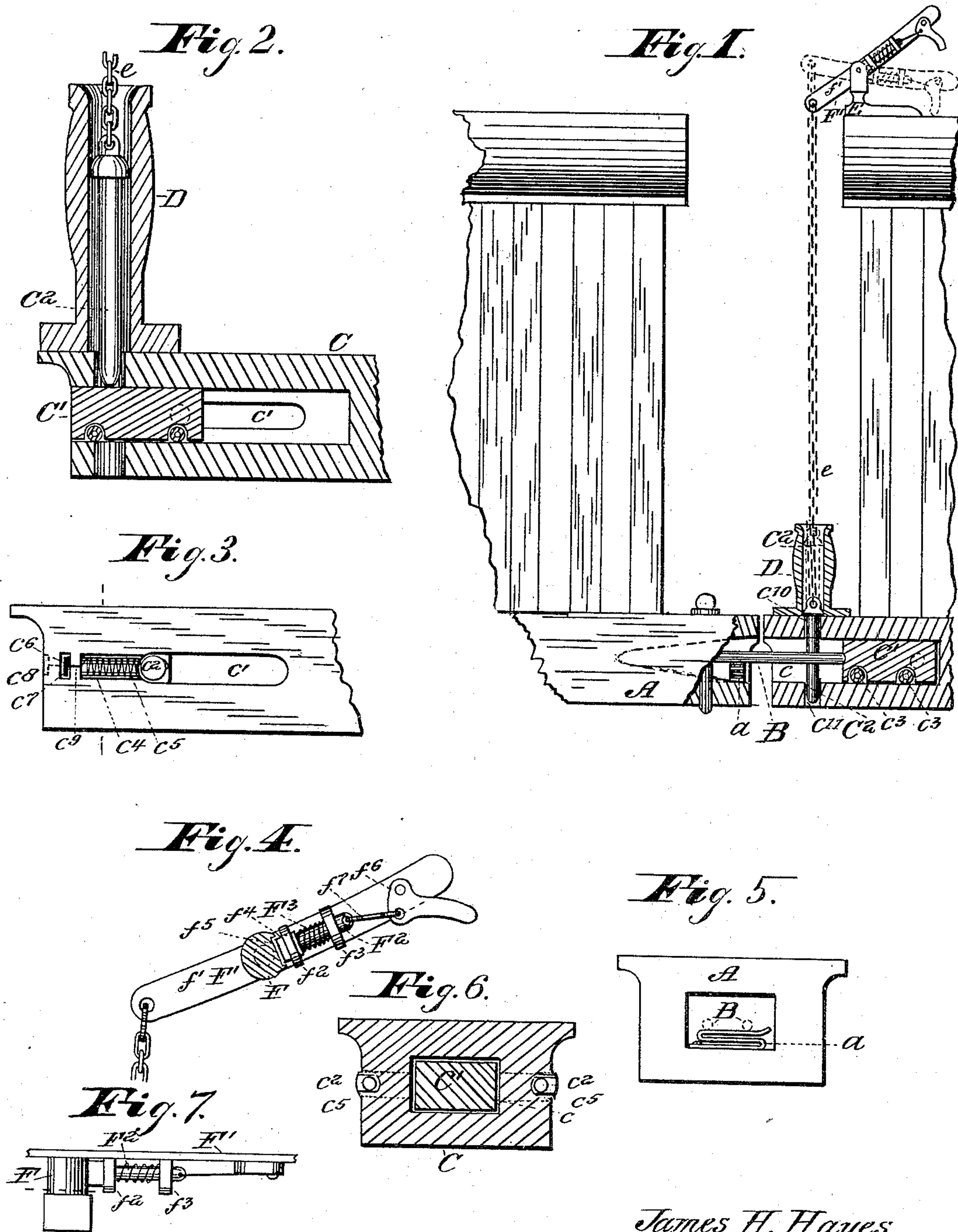
(No Model.)

J. H. HAYES.

CAR COUPLING.

No. 319,250.

Patented June 2, 1885.



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CAR-COUPLING.

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To all whom it may concern:

Be it known that I, JAMES H. HAYES, a citizen of the United States, residing in Faxon, in the county of Sibley and State of Minnesota, have invented certain new and useful Improvements in Car-Couplings, of which the following is a description.

The invention consists in certain novel features in connection with the coupling-link and with the coupling-pin, whereby the parts are rendered more certain and effective in their action; and it consists, also, in the combination, with the coupling-chain, of mechanism whereby the pin is lifted and held out of its operative position, and whereby the relation of the pin to the tripping-block is indicated with precision and certainty.

In the outer extremity or mouth of the longitudinal cavity or throat in the draw-head which contains the coupling-link, at the bottom of such mouth, is placed a spring of suitable construction, upon which the outer portion of the link is supported, preferably at a height about midway between the top and the bottom of the opening. In this mid-height position the link is readily elevatable, or depressible, and is therefore adapted to enter the opening in the opposite draw-head, whether such draw-head be somewhat higher or somewhat lower than the draw-head which contains the link.

The draw-head which carries the tripping-block and the coupling-pin is provided on either side, toward the rear thereof, with a longitudinal opening, which extends from the central longitudinal cavity or passage outwardly through the exterior wall of the draw-head. The tripping-block, the main portion of which is of an ordinary rectangular form, is provided on either side, at or near its rear extremity, with an arm, which extends outwardly through the longitudinal opening in the wall of the draw-head, and it is also preferably provided on its lower face with anti-friction rollers, which render it more readily slidable within its passage or cavity. In the outer face of this draw-head, near the front and on either side, at about the mid-height thereof, is a longitudinal recess, which terminates rearwardly at the front extremity of the lateral longitudinal openings, within which,

from end to end, extends a spiral spring, the rear end of which is connected to the corresponding arm of the tripping-block, and the opposite end of which is secured to the outer extremity of the draw-head. A vertically-placed guard or sheath for the reception and passage of the coupling-pin is secured upon the top of this draw-head in such a manner that its central passage or barrel shall form a continuation of the perforations in the top and bottom walls of the draw-head, so that when, by the movement of the coupling-link, the tripping-block is pushed from under the point of the coupling-pin the latter will descend, first, into and through the upper perforation in the draw-head, then through the space embraced within the link, and finally into the lower perforation in the draw-head.

A standard which carries a laterally-projecting arm is secured upon the top of the car, and upon the laterally-projecting arm is pivoted a lever, the outer end of which projects beyond the end of the car to a point directly over the guard or sheath, where it is connected to a lifting-chain, the lower end of which is attached to the head of the coupling-pin. The chain is of such length that when the inner end of the lever is depressed the coupling-pin cannot fall into the engaging-openings in the draw-head. In other words, the coupling cannot be effected when the lever is in this position, even if the coupling-link be thrust into the draw-head, and the tripping-block thereby removed from beneath the point of the coupling-pin.

From that side of the lever which is next to the supporting-standard project two lugs, through a perforation in each of which is loosely received a locking-bolt, which is provided with an encircling actuating-spring, which is confined between the outer face of the innermost lug and the inner face of the shouldered head of the locking-bolt, which engages with a cavity or stop which is provided upon the rear upper portion of the lateral lever-supporting arm, while a small bell-crank lever, which is connected to the rear end of the locking-bolt and is pivoted to the side of the lifting-lever, serves to withdraw the bolt from its locking position.

In the drawings, Figure 1 is a view, partly

in side elevation and partly in longitudinal central section, of a portion of two cars in which my improved coupling is applied. Fig. 2 represents, on an enlarged scale, a central longitudinal section of the draw-head which carries the coupling-pin and tripping-block. Fig. 3 is a side elevation of the draw-head which contains the tripping-block, showing the recess along which the retracting-spring extends, and also the manner in which the holding-head upon the outer end of the spring may be secured. Fig. 4 is a side elevation of the lever which operates the coupling-chain and its pin. Fig. 5 is an end view of the link-carrying draw-head, showing the supporting-spring at the mouth of the cavity, and in dotted lines the position of the link upon the spring. Fig. 6 is a transverse section on the line *yy* of Fig. 3. Fig. 7 is a detail plan of the operating-lever.

A is the link-carrying draw-head.

a is the spring within the draw-head A, and B is the coupling-link.

C is the draw-head which carries the tripping-block and coupling-pin.

C' is the tripping-block.

C² is the coupling-pin.

c is the central longitudinal cavity or passage.

c' is the longitudinal opening or guide-slot in each side of the draw-head C.

*c*² are the arms upon the tripping-block.

*c*³ are the anti-friction rollers upon the tripping-block.

*c*⁴ is the longitudinal recess.

*c*⁵ is the spring within the recess *c*⁴.

*c*⁶ is a head upon the outer end of the spring.

*c*⁷ is a straight portion or neck of the spring *c*⁵.

*c*⁸ is a cavity which receives the head *c*⁶ of the spring.

*c*⁹ is a narrow slot which receives the neck *c*⁷ of the spring.

*c*¹⁰ is the perforation in the top of the draw-head.

*c*¹¹ is the perforation in the lower portion of the draw-head.

D is the guard or sheath for the coupling-pin.

E is the standard upon the roof of the car.

F is the arm upon the standard E.

F' is the lever upon the arm F.

f' is the outer or lifting portion of the lever F'.

e is the lifting or coupling chain.

*f*² *f*³ are lugs upon the operating-lever.

F² is the locking-bolt.

F³ is the actuating-spring.

*f*⁴ is the shouldered head upon the locking-bolt.

*f*⁵ is the cavity for the locking-bolt.

*f*⁶ is the bell-crank lever.

*f*⁷ is the link which connects the bolt F² with the lever *f*⁶.

It will be seen that by reason of the location of the retracting-springs within the longitudinal recesses formed in the exterior faces

of the draw-head the springs are not only readily accessible for renewal or repair, but are at the same time protected against injury by the walls of the recess within which they are embraced, and that by reason of the provision of the lateral arms upon the tripping-block and the longitudinal openings or guide-slots in the side walls of the draw-head, which serve both as a guide and as a stop for such arms, an independent stop to prevent the tripping-block from being thrown out from its passage or chamber is rendered unnecessary.

It will also be observed that it is only when the inner unattached end of the lifting-lever is at its greatest elevation that the chain is relaxed, so that the coupling may be effected. In other words, if the inner end of the lever be depressed, the lifting-chain will be held taut, so that the coupling-pin cannot fall and engage the coupling-link. The lever, therefore, performs the double office of a lifter for the coupling-pin and of a signal to indicate when the coupling-pin is in such relation with the operating-lever that it cannot fall into its coupling position.

The cavity or passage in the link-bearing draw-head is diminished in vertical extent from the front at the top rearwardly and downwardly and from the front at the bottom rearwardly and upwardly until at its inner extremity it is only of sufficient size in vertical dimensions to receive the inner end of the link. This construction maintains the link at its rear in a position which is midway between the bottom and the top of the draw-head, and at the same time leaves it free in its main portion to move upwardly or downwardly under any pressure that may be brought to bear upon its outer extremity.

The narrow slot *c*⁹ may extend to the outer end of the draw-head C, and the head *c*⁶ upon the outer end of the spring *c*⁵ will then engage with the end of the draw-head, a shallow recess being formed therein to receive such head, in the manner indicated in dotted lines in Fig. 3.

If desired, a covering-plate may be applied in any convenient manner over the longitudinal recess *c*⁴, to conceal and more effectually protect the spring *c*⁵.

The improvements are applicable to flat or platform cars as well as to box-cars or to passenger-cars, and it will be apparent that when applied to either it is unnecessary for the operator to pass between the cars either in coupling or uncoupling them. A spring-plate has been placed upon the inclined upper surface of the lower part of the mouth of a link-receiving draw-head, and exterior springs for actuating a tripping-block have been applied within longitudinal openings in the side walls of a draw-head, and therefore I do not broadly claim either a draw-head which is provided with a link-supporting spring or a draw-head which has exterior longitudinal springs for actuating a tripping-block.

Having described my invention, I claim—

1. A link-bearing draw-head the interior chamber or cavity of which is tapered continuously from end to end thereof on both its upper and its lower surface, and which is provided at its extreme outer portion with a spring which rests upon the bottom of the cavity, is disconnected from the sides and from the top of the cavity, and terminates upwardly at about the mid-height of the cavity, and which is adapted, as described, to support the coupling-link in a horizontal position midway between the top and bottom of the cavity.

2. The combination of a link-bearing draw-head the interior chamber or cavity of which is tapered from end to end thereof on both its upper and its lower surface, and which is provided at its extreme outer portion with a spring which, as described, supports the link at a point about midway between the top and the bottom of the cavity, with a draw-head which is provided with an interior slidable tripping-block which has lateral arms, and which is actuated by springs which are exterior to the inner cavity of such draw-head.

3. A draw-head, a link within the draw-head, a spring beneath the outer portion of the link and directly at the mouth of the cavity in the draw-head, an oppositely-placed draw-head, a slidable tripping-block within such draw-head, longitudinal openings or guide-slots in the side walls of such draw-head, lateral arms which project from the rear portion of the tripping-block, which extend through the guide-slots, and which, in the outer adjustment of the tripping-block, bear against the outer end of the guide-slots, and springs which connect the outer extremity of the arms with the outer end of such oppositely-placed draw-head, all in combination substantially as described.

4. The combination, in a draw-head, of an interior slidable tripping-block, longitudinal perforations or guide-slots in the side walls of such draw-head, arms upon the tripping-block which project outwardly through the longitudinal perforations or guide-slots, a recess which extends longitudinally along each side of the draw-head from the front extremity of the longitudinal perforation to a point near the outer end of the draw-head, and springs which are received within the recess and extend from end to end of the same, and which at one end are connected to the arms upon the tripping-block, and which at the opposite end are connected to the outer extremity of the draw-head.

5. The combination, with a railway-car, of a draw-head which carries a slidable tripping-block, a standard which carries a pivoted lever, a coupling-pin which is connected by its chain to the pivoted lever, and a locking-bolt upon such lever and slidable lengthwise along the same, whereby the lever is adjusted in such

position as will permit the coupling-pin to be dropped into engagement with the coupling-link and with the vertical perforations in the body of the draw-head, substantially as described.

6. The combination, in a railway-car, of a draw-head, a guard or sheath upon the draw-head, a coupling-pin within the guard or sheath, a tripping-block to support the coupling-pin, a standard upon the roof of the car, an arm upon the standard, a recess upon the arm, a lever pivoted upon the arm, a bolt slidable upon the lever and adapted to engage with the recess upon the arm, and a chain which is connected to the outer end of the lever and to the upper end of the coupling-pin, whereby the lever may be either so adjusted that the coupling-pin may descend to its coupling position through the action of the coupling-link upon the tripping-block alone, or so adjusted that the coupling-pin cannot descend to its coupling position.

7. The combination, in a railway-car, of a link-receiving draw-head, a guard or sheath upon the draw-head, a coupling-pin adapted to the guard or sheath, a tripping-block within the link-receiving draw-head, a vertical standard upon the top of the car, an arm which projects horizontally from the side of the standard toward the side of the car, a lever the outer extremity of which projects over the space at the end of the car to a point directly or nearly directly above the guard or sheath, pivoted upon the arm, a bolt which is secured to the lever and is slidable along the same, and is adapted to engage with the recess upon the arm, and a chain which is connected to the outer end of the lever and to the upper end of the coupling-pin, whereby when the inner end of the lever is elevated the bolt will be locked in engagement with the recess in the lateral arm, and the coupling-pin will be in such relation to the lever and the chain that it will descend to its coupling position when the tripping-block is moved inwardly.

8. The combination, with a link-bearing draw-head, the cavity or passage of which diminishes above and below in vertical dimensions from its outer to its inner extremity, and forming at such inner extremity and at the mid-height of the draw-head a seat of only such vertical extent as will permit the reception of the coupling-link, of a spring at the bottom of the outer extremity of such cavity, and a link which is adapted to fit the seat at the inner extremity of such cavity, and which rests by its outer portion upon the spring at the bottom of the outer extremity of the cavity.

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Witnesses:

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