

UNITED STATES PATENT OFFICE.

HAMILTON E. WELSH, OF COLUMBIA, PENNSYLVANIA.

COMBINED DRAW-HEAD, RIGGING, COUPLING, AND LATCH DEVICE.

SPECIFICATION forming part of Letters Patent No. 603,864, dated May 10, 1898.

Application filed September 17, 1896. Serial No. 606,157. (No model.)

To all whom it may concern:

Be it known that I, HAMILTON E. WELSH, a citizen of the United States, and a resident of Columbia, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in a Combined Draw-Head, Rigging, Coupling, and Latch Device; and I do 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a side view illustrating the invention as applied. Fig. 2 is a plan view of the same, a portion of one of the coupling-heads being broken away. Fig. 3 is an end view of one of the draw-heads. Fig. 4 is a perspective view of one of the catch-hooks H. Figs. 5, 6, 7, and 8 are detail views of the latch-pin and auxiliary latch in connection therewith, Fig. 5 showing a slightly-modified form from that shown in Figs. 6, 7, and 8.

An object of this invention is to provide means of simple character for preventing the draw-bars of railway-trains from falling to the ground and getting under the car upon the occasion of their pulling loose; also, to provide latching devices of improved character whereby a coupling may be effected on curves and which is of such character that the coupling cannot be relieved by the vibration of the latch-pin; also, to provide means of this character which may be readily applied to the draft-rigging and couplings commonly in use without materially changing their construction.

With these objects in view the invention consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, which show a coupling of the "Janney" type, the letter A designates an ordinary draw-bar having a head B and a pivoted knuckle C, which is locked in coupled position by means of a latch-pin D of the character presently to be described. Upon the head of this pin I form

a hook D', the opening of which is at the back.

E is the cranked rock-shaft, which is journaled upon the end of the car in the usual manner and which is provided at its inner end with a forwardly-projecting arm F, to which is attached a depending ring G, which is designed to loosely engage the upper arm of the hook D'. By means of this ring and hook I form a connection between the latch-pin and the crank-shaft which is capable of operating the said pin in the usual manner under ordinary conditions; but upon the occasion of the draw-bar pulling loose from the car the hook will readily withdraw from the ring without raising the pin and releasing the coupling. With the ordinary connection (usually a chain attached to the head of the pin and to an arm of the shaft) in the event of the draw-bar pulling loose the latch-pin is raised and the coupling is released. I may, if desired, reverse the hook and ring, using the former upon the uncoupling-lever and the latter upon the pin. I also secure to each draw-head a pair of hooks H, which are preferably formed upon the upper and lower end portions of a vertical bar H' and which project inwardly over the head in the manner shown in the drawings. It will be readily seen that should either draw-bar pull loose from the car (the coupling being maintained by the means above described) it cannot fall but a short distance owing to the fact that its upper hook H will catch the knuckle of the opposing draw-head, while its own knuckle will be stopped by and supported upon the lower hook of the opposing head. In this manner the draw-bar is kept from falling onto the track.

I usually provide each of the bars H' with the perforated lugs h, which when the bars are applied fit, respectively, the upper and lower faces of the arms H³, in which the knuckle-pivot H⁴ has its bearings, with their perforations in position to receive said knuckle-pin, which is thereby made to secure the said bar in place. I also usually provide said bar with the beveled lugs h', which fit recesses h² in the head. It is obvious, however, that a hook of the proper form may be secured to the head in various ways.

The tongue C' of each knuckle C is formed with a projection C², which extends backward at substantially right angles from the said tongue and is formed with the beveled or slightly-curved face c' to adapt it to its movements in the knuckle seat or cavity. This projection, when the knuckle is in coupled position, engages a recess C³, which extends outward and backward from the inner or throat portion of the knuckle-seating cavity of the head, the latch-pin D dropping in front of it to secure the coupling. On this projection I form a vertical beveled notch c², the purpose of which will presently appear.

In the couplings of this type now in use the latch-pin has a shoulder thereon, below which it is of reduced size, so that when the said pin is raised to bring said shoulder above the knuckle projection C² the latter will pass the pin, and the knuckle can swing into its uncoupled position. The trouble has been, however, that said pins have been liable to be thrown upward in travel by the movement of the cars, in which case the cars at once uncouple and pull apart. To obviate this trouble, I have devised latch-pins of the form shown in Figs. 5, 6, 7, and 8, wherein the head of the pin is made with a vertical opening D², which extends into the upper end thereof and opens out on the front side of the pin near the beveled shoulder d on the adjacent side. The head of the pin has a portion D^x, which overhangs the lower end of this opening and is provided with undercut shoulders d². D³ indicates an auxiliary latch device having a curved arm or tongue which extends loosely up through the opening D² and projects above the upper end of the latch-pin to receive thereon a detachable clevis-head D⁴, which may be supplied with one of the hooks G above described or with any other suitable device for the attachment thereto of the latch-pin-lifting mechanism. The hook G is, however, preferred for the reasons above stated. The lower end of the auxiliary device D³ has a latch-head D⁵, formed with the upper beveled face d³, which is designed to engage the beveled shoulders d² and also with the beveled face d⁴, which when said head D⁵ is retracted forms a continuation of the beveled face of the shoulder d above referred to.

When the latch-pin is dropped to coupling position, the auxiliary latch device D³ drops by gravity in the opening D², and its latch-head D⁵ is thereby projected beyond the side of the pin, as shown in Figs. 5, 6, and 7, in position to engage the upper wall of the draw-head cavity at the point d⁵, and thereby prevent any upward play of the latch-pin under vibration. When it is desired to uncouple, the first upward pull on the latch-pin withdraws said latch-head, and the pin is then raised in the usual manner.

In full coupled position the locking-bearing of the latch-pin on the knuckle-tongue is at

the point d⁶; but in making a coupling on a curve the parts cannot assume the proper positions to permit the pin to make this lock. In order, therefore, to enable a coupling to be made on a curve, I have provided the latch-pin with the beveled shoulder d and the knuckle-tongue projection with the notch c², said shoulder and notch having been referred to above.

When the parts come together on a curve, the knuckles swing only partially back into their seats, bringing the notches c² in position to receive the beveled shoulders d, the engagement of which forms a secure lock. As soon as the cars come into alinement with each other the knuckles are forced fully back by the positions which they are compelled to assume, the beveled shoulders d ride out of the notches c², and the pins drop by gravity to their full coupled positions. The shoulder d also forms the beveled surface against which the knuckle acts in coupling to automatically raise the pin.

In the latch-pin above described the latch-head D⁵ is made the full width of the latch-pin, while in a modified form (shown in Fig. 5) I make said head narrower, leaving the pin with the reinforcement D⁷ at one side.

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, its coupling device, and the latch-pin for said device, said pin having at its upper end a hook which is open at the back, of the operating shaft or lever having an eye designed to loosely engage the said hook, and hooks secured to the upper and lower portions of the said head and projecting inwardly over and below the same, substantially as and for the purpose specified.

2. In a car-coupling of the class recited, the combination with the opposing draw-heads, their coupling-knuckles, the latch-pins for said knuckles, the operating devices for said pins, and means whereby said operating devices are automatically disengaged from the coupling-pins in the event of the draw-bar becoming detached from the car, of a device carried by each of said heads above and below the same and adapted to engage the knuckles of the opposing head to support either draw-bar when detached from the car, substantially as specified.

3. In a car-coupling of the class recited, the combination with the draw-head, and its pivotal knuckle, of the latch-pin having the opening D² and the overhanging portion d², the auxiliary latch D³ having the curved arm which engages loosely the opening D², said arm having the latch-head D⁵ at its lower end and the detachable clevis-head D⁴ at its upper end, and means for operating said auxiliary latch device to retract said latch-head when the pin is raised to release the coupling, substantially as specified.

4. In a car-coupling of the class recited, the combination with a draw-head and with a coupling-knuckle having the bearing d^6 for the latch-pin in its full coupled position, and
5 the rearward projection C^2 having the beveled notch c^2 , of the latch-pin having a reduced portion, and a beveled shoulder above said reduced portion and arranged to engage the notch c^2 and thereby temporarily lock the

knuckle in partly-coupled position, substantially as specified.

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

HAMILTON E. WELSH.

Witnesses:

WILLIAM HENRY LONG,
SCOTT PATTON.