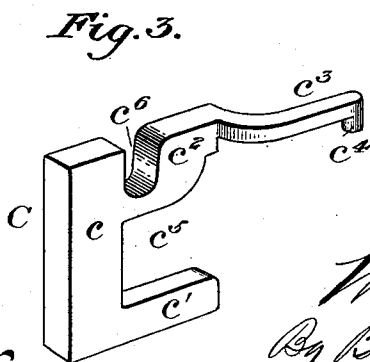
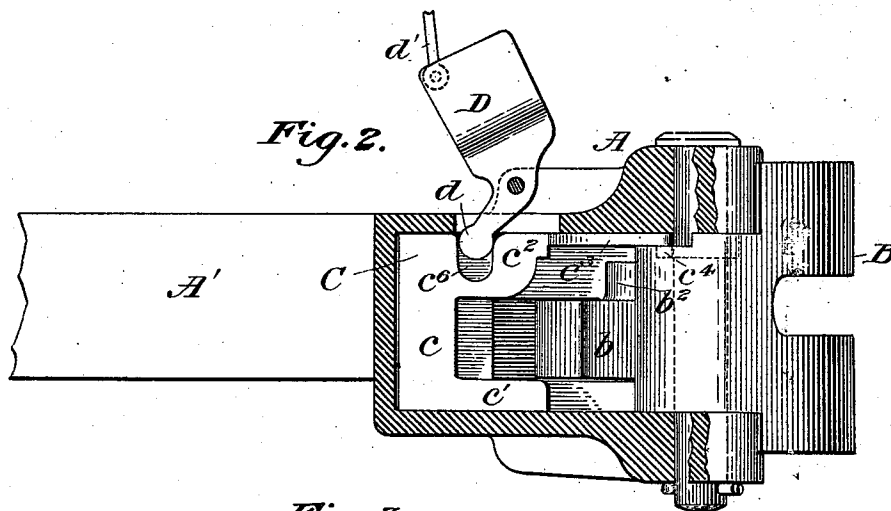
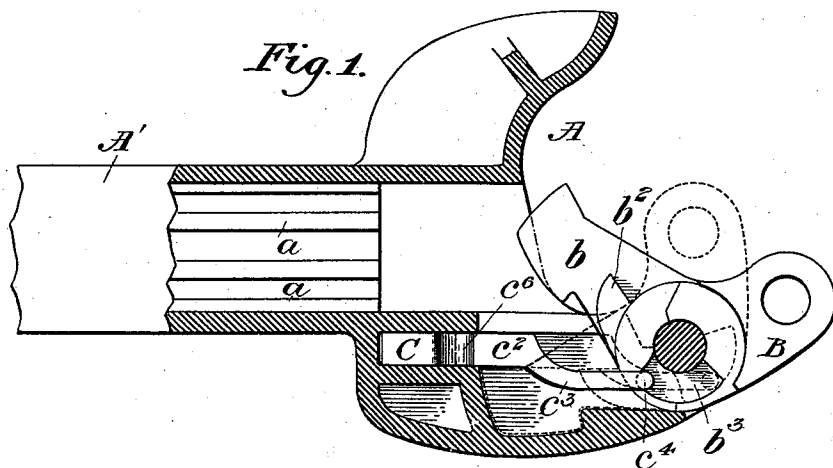


(No Model.)

W. L. HOFFECKER.
CAR COUPLING.

No. 534,508.

Patented Feb. 19, 1895.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM L. HOFFECKER, OF ELIZABETH, NEW JERSEY, ASSIGNOR OF ONE-HALF TO FRANK A. FOX, OF NEW YORK, N. Y.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 534,508, dated February 19, 1895.

Application filed January 9, 1895. Serial No. 534,283. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. HOFFECKER, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Car-Couplings; 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.

This invention relates to car couplings, but more particularly to couplings of the Janney type.

The primary object of the invention is to provide an improved, inexpensive and efficient contrivance whereby the usual angular knuckle may be automatically locked in engagement with an opposed coupling and also positively opened or thrown into position for coupling at the same time that it is unlocked for uncoupling and by the unlocking movement of the locking device.

The invention will first be described with reference to the accompanying drawings, forming a part of this specification, and then pointed out in the claims at the end of the description.

In said drawings, Figure 1 represents a sectional plan view of the coupler-head, showing in full lines the knuckle in proper position for engagement with an opposed coupling, and in dotted lines the position it occupies when coupled or closed. Fig. 2 is a vertical longitudinal section of the same, with the knuckle and locking device in the position indicated in full lines in Fig. 1. Fig. 3 is a detail perspective view of the knuckle locking and opening device.

While I have illustrated the invention as applied to a coupler of the Janney type, which is the preferred form, obviously it may be applied to couplers of other constructions and hence I do not desire to be limited in the application of the invention to any specific type of coupling.

In the form shown A denotes the coupler head, having a shank A', which may be made square in cross-section throughout its length and provided with internal strengthening ribs α extending rearwardly from the head.

B denotes an angular knuckle, which may be pivoted to a projecting portion of the coupler head and in the usual or any proper manner, and is provided with the usual tail-piece b adapted to swing into a recess in the coupler head and to be locked or confined in said recess by a sliding locking device or block.

C denotes the locking device or block which preferably consists of a vertically disposed main portion c , approximately rectangular in form, provided at its base with a forwardly projecting foot-piece or shoe c' and above the same with a forwardly projecting portion or arm c^2 ; (forming an intervening space or recess c^5 ;) said arm c^2 having a rigid preferably integral extension c^3 which is provided at its terminal with a pendent lug or pin c^4 , for a purpose to be described.

The block C is arranged to slide edgewise in a recess formed in the coupler head and may be prevented from moving laterally therein by any suitable means, such as ribs or webs forming the side walls of said recess and between which said block is confined. This block may be shifted or moved rearwardly in the coupler head by the hand of the brakeman, or other person, or automatically, by the rotation of the knuckle; the latter movement being accomplished by providing a cam or cam surface b^2 on the hub of the knuckle B, near the axis of rotation thereof, adapted to contact directly with the aforesaid locking device and move the same out of the path of the tail-piece when the latter is moved inward; said cam being preferably located above the tail-piece so as to contact with the forward portion of the arm c^2 or a shoulder thereon when the knuckle is forced inwardly. This cam extends outwardly from the knuckle just far enough to throw the block rearwardly a sufficient distance to permit the tail-piece to readily pass through the opening or recess c^5 , without touching the block. By this means and the block or locking device is moved initially gradually directly by the cam or cam surface on the hub of the knuckle so as to effect an easy, noiseless movement, instead of by the end of the tail-piece of the knuckle, as in constructions heretofore in use, wherein the tail-piece is adapted to strike the locking device with a broad-side movement and a sudden

thrust, which jars and strains the locking mechanism.

Any suitable hand-operated device may be employed for effecting the rearward unlocking movement of the block, but I preferably employ an angular weighted lever D, which may be suitably pivoted upon the coupler head and provided with a pendent arm d , for engaging a recess c^6 in the locking block C; said recess being of sufficient depth to permit the proper movement of the end of the arm, which may be rounded to facilitate the movement of the block and prevent undue friction or binding contact therewith. The outer end or arm of the lever D is either weighted or made sufficiently heavy to adapt it to fall by gravity and throw the block C forward so as to automatically lock the knuckle as soon as released from a raised position. A link or chain d' may extend from the block to a convenient point within reach of the brakeman or other person whereby the lever may be tilted on its pivot to unlock the knuckle. The said lever may also be operated automatically to unlock the knuckle and uncouple the cars, in case of accident, by connecting said link or chain with a fixture on the adjacent car.

In order that the knuckle B may be thrown open or into position for engaging with an opposed coupling at the same time that it is unlocked and by the unlocking movement of the locking block, the extension c^3 which is rigidly secured to or formed integrally with the arm c^2 is made to operatively engage directly with a rotating element of the knuckle so as to give a direct pull to readily open said knuckle; such engagement in the form shown being effected by causing the stud c^4 to enter a recess b^3 formed in the boss or hub of the knuckle in such manner that when the locking block or device is thrown rearwardly, by elevating the weighted end of the lever D, the said stud or projection in its rearward movement will engage the rear marginal wall of the recess b^3 , and rotate the knuckle, thereby opening the latter the instant the tail-piece thereof is released or unlocked; the said recess b^3 permitting sufficient movement of the parts to adapt the locking block to move rearwardly far enough to unlock the tail-piece before the stud begins to act upon the knuckle to open the same, and also of sufficient extent to permit the said locking device to be thrown forward (when the knuckle is open) by the falling of the weighted end of the lever D, without closing the knuckle, as illustrated in full and dotted lines in Fig. 1.

The operation of the locking and unlocking mechanism will be readily understood from the foregoing description, taken in connection with the accompanying drawings.

Assuming the knuckle to be open or in the position shown in full lines in Fig. 1, when an opposed coupling is moved into contact therewith the tail-piece b will be thrown rearwardly and will swing into the recess in the

coupler head, and at the same time the cam b^2 will be caused to engage the forward portion of the locking block and move the latter rearwardly a sufficient distance to permit the tail-piece to pass into the recess unobstructed by said block. The same movement of the block will raise the weighted end of the lever D so that the instant the tail-piece has moved past said block the said arm may fall by gravity and move the block forward a sufficient distance to automatically lock the tail-piece within the recess of the coupler head. When it is desired to unlock the knuckle the lever D is simply rocked upon its pivot so as to raise its weighted arm, thereby causing the block C to be moved rearwardly far enough to permit the tail-piece to move out of the recess clear of said block, and at the same time the pin or projection c^4 on the extension c^3 will be caused to engage the rear wall of the recess b^3 and rotate the knuckle upon its pivot, thereby throwing the latter into coupling position. On being again released the lever D will return to its normal position, moving the locking block forwardly, when the operation may be repeated.

I do not, of course, desire to be restricted to the exact construction and arrangement of parts described and shown, as the same may be modified without departing from the spirit of my invention. For instance, a rib or projection upon the upper surface of the boss or hub of the knuckle B, or an arc-shaped slot would serve the same function as the recess b^3 , and a pin or stud projecting from the boss or hub of the knuckle might engage an arc slot on the under side of the extension c^3 of the locking device; such modifications being obvious. I do not, however, desire to claim broadly herein a sliding locking block and means for opening the knuckle at the same time that the latter is unlocked, as I am aware that such means are not broadly new. Neither do I desire to broadly claim herein the cam device for moving the locking block out of the path of the knuckle in coupling, nor the weighted lever for automatically locking the knuckle.

What I claim as new, and desire to secure by Letters Patent, is—

1. A car coupling device comprising an angular knuckle having a tail-piece adapted to swing into a recess of the coupler head, and a horizontally sliding locking block having an arm provided with a rigid integral extension which directly engages a rotating element of the knuckle so as to positively open the knuckle by a direct pull thereon at the same time that the latter is unlocked, substantially as described.

2. A car coupling device comprising a coupler head having a recess, an angular knuckle pivoted to said head and provided with a tail-piece adapted to swing into said recess, and a horizontally slidable locking block arranged in said head having an arm

formed with a forward integral extension directly engaging a rotating element of the knuckle and adapted to positively open the latter at the same time that it is unlocked, and also to move into locking position without closing the knuckle, substantially as described.

3. In a car coupling, the combination with a recessed coupler head and an angular knuckle pivoted thereto having a tail-piece adapted to swing into said recess, of a longitudinally slidable locking block arranged in the coupler head, and means for operating said block so as to automatically lock the knuckle; said locking block being provided

with a rigid forwardly extending arm connected directly with a rotating element of the knuckle so as to positively open the knuckle by a direct pull when the latter is unlocked; said connection being adapted to permit the block to move to locking position without closing the knuckle, substantially as described.

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

WILLIAM L. HOFFECKER.

Witnesses:

EDWARD J. BYRNES,
WM. A. BOURDON.