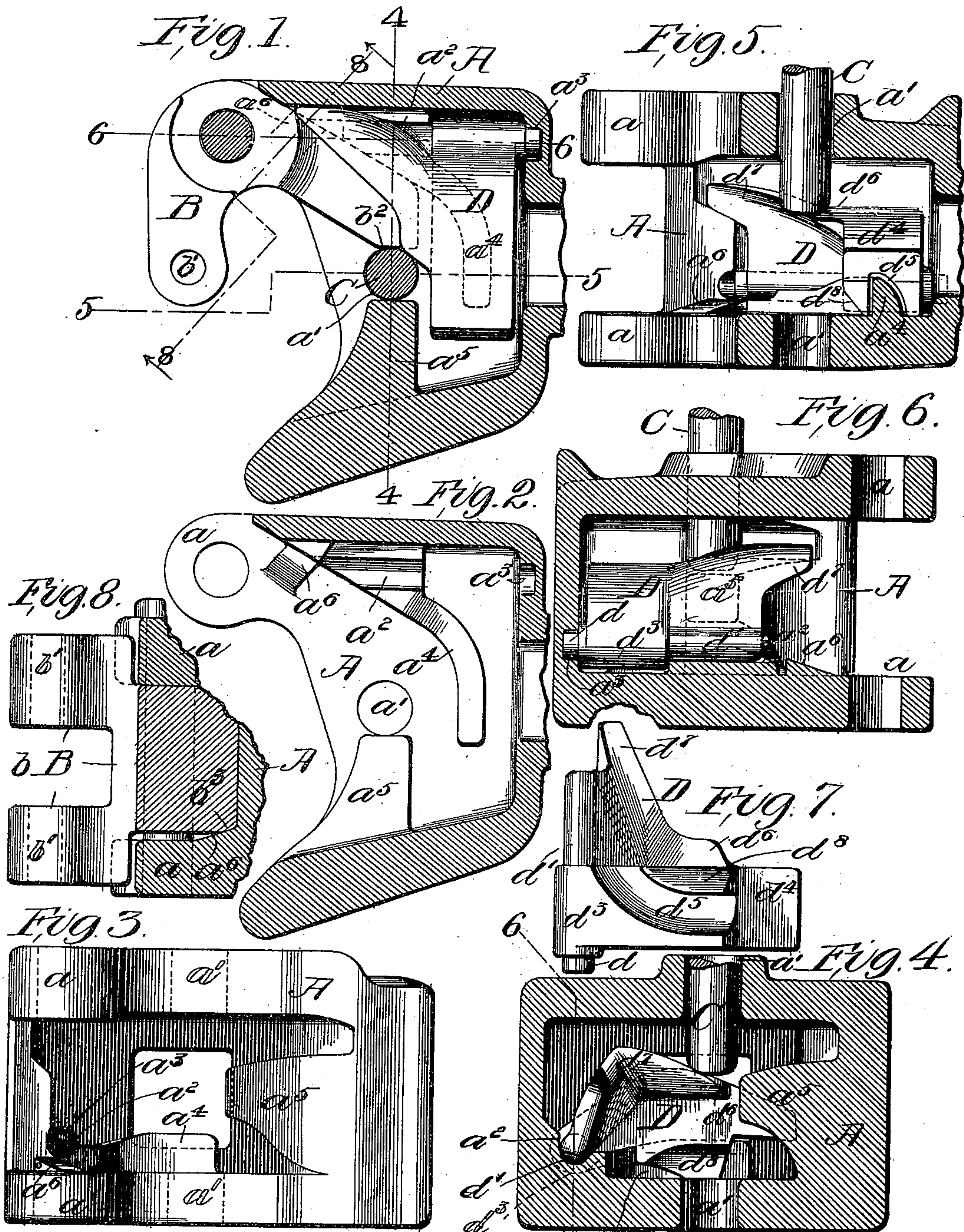


W. K. KIGHT.

**CAR COUPLING.**

(Application filed Jan. 27, 1900.)

(No Model.)



Attest:  
Wm. A. Scott.  
Ralph Kalish.

6<sup>th</sup> Inventor:  
William K. Knight  
by Bakewell & Cornwall  
Attys.



# UNITED STATES PATENT OFFICE.

WILLIAM K. KIGHT, OF POPLAR BLUFF, MISSOURI, ASSIGNOR OF ONE-HALF  
TO HORACE D. WILLIAMS, OF SAME PLACE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 667,710, dated February 12, 1901.

Application filed January 27, 1900. Serial No. 2,981. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM K. KIGHT, a citizen of the United States, residing at Poplar Bluff, county of Butler, State of Missouri, have invented a certain new and useful Improvement in Car-Couplers, of which the following is a full, clear, and exact description, 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, forming part of this specification, in which—

Figure 1 is a horizontal sectional view of my improved coupler, showing the parts in the position they occupy when the knuckle or jaw is closed. Fig. 2 is a horizontal sectional view of the draw-head with the moving parts removed. Fig. 3 is a front elevational view of the draw-head, the moving parts being removed. Fig. 4 is a cross-sectional view on line 4 4, Fig. 1, showing the position of the parts when the jaw or knuckle is open. Fig. 5 is a vertical sectional view taken on line 5 5, Fig. 1, when the jaw or knuckle is open. Fig. 6 is a vertical sectional view taken on line 6 6, Figs. 1 and 4, showing the gravitating block in side elevation. In this view the jaw is omitted. Fig. 7 is a bottom plan view of the gravitating block; and Fig. 8 is a sectional view on line 8 8, Fig. 1.

This invention relates to a new and useful improvement in car-couplers of that type known as the "Janney" coupler.

The objects of my invention are to attain automatic action so far as the locking of the jaw in its closed position is concerned, and when said jaw is unlocked it is automatically thrown to its open position. The raising of the locking-pin is preferably accomplished by the use of a lever extending to the outer corner of the car, (not shown,) so that the necessity for the brakeman or other person to go between the cars to uncouple or unlock the coupler is thus obviated.

Another object is to so construct the parts that no machine-finish is necessary.

Another object is to enable the coupler to be used with an ordinary link-and-pin type, both with respect to the knuckle or in the absence of the knuckle, should the same be

broken or become misplaced. My improved coupler will automatically couple with a link, thus saving the time and trouble of chaining the cars together with safety-chains in the absence of the knuckle, and in this respect can be coupled with either the ordinary link-and-pin type or with the Janney type of coupler.

In contour the coupler preferably follows the Master Car-Builders' standard and is interchangeable with automatic couplers on the market.

With these objects in view the invention consists in the construction, arrangement, and combination of the several parts, all as will hereinafter be described and afterward pointed out in the claims.

In the drawings, A represents the draw-head of my improved coupler, provided with the usual eyes or perforated lugs *a*, between which the knuckle or jaw B is pivoted. The top and bottom walls of the coupler-head are provided with alining openings *a'* for the reception of a locking-pin C. On the bottom wall of the head and to the rear of the pivot point of the knuckle is a groove *a<sup>2</sup>*, forming a cradle-seat for the forward end of a gravitating rocking block D. A socket *a<sup>3</sup>* in the rear wall of the head of the coupler is in line with the groove *a<sup>2</sup>* and is designed to receive a stud on the cradle-block D.

*a<sup>4</sup>* indicates a raised rib on the bottom wall of the head of the coupler, which is preferably arranged as shown in Figs. 1 and 2.

*a<sup>5</sup>* is a projection or overhanging portion extending from the side wall of the coupler-head (opposite the wall to which the knuckle is pivoted) and terminating at its inner end at a point to receive the pin C when the same is at its lowermost position. The purpose of this lug *a<sup>5</sup>* is to support and strengthen the pin when said pin is used to lock the knuckle in a closed position, said lug also serving to prevent the link from rising should a link be employed and be engaged by the pin C in the absence of the knuckle B.

*a<sup>6</sup>* indicates an inclined or cam face on the bottom wall of the coupler-head in juxtaposition to the lower ear *a* and is designed to cooperate with the knuckle and cause the



same to move outwardly when said knuckle is released and is permitted to ride down said inclination.

The coupler-head has the usual shank extending from the rear wall thereof.

The knuckle B has the usual characteristics of knuckles employed in connection with this type of couplers—that is, the outer end or nose is recessed, as at  $b$ , for the reception of a link and vertical openings  $b'$  are provided for the reception of the pin. The tailpiece of the knuckle is provided with a beveled portion  $b^2$ , which when the knuckle is in its closed position and the pin C in its lowermost position bears against the side face of said pin, the opposite side of the pin being supported by the lug  $a^5$ . In this manner the knuckle is locked in a closed or coupled position.

$b^3$  indicates a bevel or inclination on the bottom face of the knuckle, which is designed to cooperate with the inclined face  $a^6$  on the bottom wall of the coupler, so that when said knuckle is moved to a coupled position it is forced to ride up by reason of said inclined faces, and when said knuckle is released the inclined faces  $a^6$  and  $b^3$  cause said knuckle by its weight to ride down the inclined face  $a^6$  and move outwardly to an open or coupling position. Pin C is of the usual construction and is preferably provided with a perforated head at its upper end (not shown) for affording ready means of attachment for a chain, lever, or other device which may be employed to raise said pin from the side of the car without making it necessary for the operator to go between the cars.

The block D, which may be termed a "cradle-block" or "rocking block," is provided at its lower rear end with a stud projection  $d$ , designed to be received by the recess  $a^3$ , thus forming a pivotal support for said rocking block. The forward lower end of the rocking block is rounded on its lower edge, as at  $d'$ , and rests in the groove  $a^2$  of the coupler-head. An enlarged portion is provided, as at  $d^3$ , designed to bear at its forward end against the raised seat and at its rear end against the rear wall of the coupler to hold the rocking block in proper position. The body portion of this rocking block (indicated at  $d^4$ ) extends from this enlarged portion substantially in a horizontal direction, as shown in Fig. 4, the lower face of said body portion being recessed, as at  $d^5$ , to receive the rib  $a^4$  on the bottom of the coupler-head, which rib assists in guiding the rocking block in its vertical movement and also strengthens the same when it is subjected to shocks or jars.

A wing  $d^6$  projects from the upper forward portion of the body of the rocking block and into the path of the pin C when said rocking block is in its lowermost position, but which wing when the rocking block is raised is out of the path of said pin C and permits the same to drop either to lock the knuckle in a closed position, as shown in Fig. 1, or to permit the pin C to engage the link when the

link is introduced to raise said rocking block and the knuckle is absent. The pivot end of this rocking block is also provided with a wing  $d^7$ , which extends forwardly in the path of the tailpiece of the knuckle, and when said knuckle is swung inwardly the tailpiece contacts with said wing and elevates the front end of the body portion of the rocking block. The under faces of these wings  $d^6$  and  $d^7$  are preferably recessed to receive the tailpiece, the overhanging upper edge of said wings tending to strengthen the rocking block.

The operation of my improved coupler when the knuckle is in position is as follows: Whenever the pin C is raised out of the path of the tailpiece of the knuckle, said knuckle by reason of the inclined face  $a^6$  swings outwardly, and the continued movement of the pin C in an upward direction releases the rocking block by reason of the said pin passing out of the path of the wing  $d^6$ , which permits said rocking block to fall to its lowermost position, and in seeking this position the wing  $d^7$  of the rocking block contacting with the tailpiece of the knuckle forces said knuckle outwardly, assisting the inclined faces  $a^6$  and  $b^3$ . When the rocking block reaches its lowermost position, the wing  $d^6$  is in the path of the pin C and said pin is held in an elevated position, as shown in Figs. 4 and 5. When moving to a coupled position, the knuckle moves inwardly and the tailpiece is free to swing under the pin C, after which it contacts with the wing  $d^7$ , raises the rocking block, moves the wing  $d^6$  out of the path of or from beneath the pin C, and releases said pin, which pin then drops in front of the tailpiece of the knuckle or in front of the beveled face  $b^2$  thereof, the opposite side of said pin being supported by the lug projection  $a^5$ .

Should the knuckle be broken, my improved coupler would be useful in connection with an ordinary link. The broken knuckle should be removed, and the rocking block would serve to sustain the pin its elevated position, as shown in Figs. 4 and 5, in the same manner as when the knuckle was present. The lower front face of the body portion of the rocking block is recessed to guide the entering link to its home position, and in this respect the lug  $a^5$  is also serviceable in guiding the link and preventing the inner end of the same from rising. The rib  $a^4$  recedes, as shown in Fig. 2, to receive the link. The entering link strikes the inclined face of the recess  $d^5$  and elevates the rocking block, so that the wing  $d^6$  is moved out of the path of the pin C and said pin permitted to drop and pass through the link. In this respect the coupling action is automatic where a link is used in the same manner as the locking of the knuckle is automatic when said knuckle is used. The rocking block and lug  $a^5$  cooperate with the link in such manner that when said link is in engagement with the pin C it is held in a horizontal position, which is a desirable feature and necessary to effect an



automatic coupling with another coupler. It will also be noticed in connection with the use of a knuckle that when the knuckle is in its closed position both it and the pin C hold the rocking block in its elevated position, so that said rocking block is not liable to vibrate and hammer itself in ordinary service. Further, in the absence of the knuckle and when an ordinary link is used the pin and link serve to hold the rocking block up in its elevated position for the same purpose.

I am aware that minor changes in the arrangement, construction, and combination of the several parts of my device can be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

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

1. The combination with a coupler-head, and knuckle pivotally mounted therein, said head and knuckle having cooperating inclined faces tending to cause the knuckle to swing outwardly when released, of a rocking block mounted in said head and acting by gravity to assist said inclined faces to cause the knuckle to swing outwardly, substantially as described.

2. The combination with a coupler-head, and knuckle pivotally mounted therein, of a locking-pin for said knuckle, and a rocking block held up by said pin, and acting when released by said pin to cause said knuckle to swing outwardly, substantially as described.

3. The combination with a coupler-head, and knuckle pivotally mounted therein, of a locking-pin for said knuckle, and a rocking block held up by said pin, and acting by gravity against said knuckle when released by said pin to cause said knuckle to swing outwardly, said rocking block when down lying under and supporting said pin, substantially as described.

4. The combination with a coupler-head, and knuckle pivotally mounted therein, of a pin for locking the knuckle a rocking block cooperating with said pin, and a rib on the head cooperating with a groove in the rocking block and adapted to prevent strain on the pivot of the rocking block when the knuckle is forced against the rocking block in the action of coupling, substantially as described.

5. The combination with a coupler-head, and knuckle pivotally mounted therein, of a locking-pin, and a rocking block pivoted at one side of the head and extending transversely of the head, said block having on its

upper front face a forwardly-extending wing having a beveled under side, substantially as and for the purpose set forth.

6. In a coupler, a rocking block, having a longitudinal pivot connection and a transversely-projecting body provided on its upper front face with forwardly-projecting wings  $d^6$ ,  $d^7$  and having the beveled face  $d^8$ , and the groove  $d^5$  in its under side, substantially as described.

7. The combination with a coupler-head, of a knuckle, a rocking block pivoted in said coupler-head at right angles to said knuckle, a pin, and means on said rocking block for cooperating with the knuckle and the pin whereby, when said knuckle is moved inwardly, the rocking block is elevated and the pin released to lock the knuckle, and when said pin is raised, the rocking block is released so as to move the knuckle outwardly; substantially as described.

8. The combination with a coupler-head of the Janney type and its pin, of a rocking block for cooperating with the knuckle and sustaining the pin in an elevated position when said block is in its lowermost position, said block having a recessed portion  $d^8$  in its lower front face for receiving and guiding a link, said link elevating said block and releasing the pin; substantially as described.

9. The combination with a coupler-head provided with a lug or projection  $a^5$ , and a rib  $a^4$  on its bottom wall, of a vertically-movable pin in said coupler-head, and a block pivoted in said head and recessed in its bottom face to receive the rib  $a^4$ , said block having a wing which is in the path of the pin when said block is in its lowermost position; substantially as described.

10. The combination with a coupler-head, formed with pin-openings and lugs or ears for a knuckle, said head being provided with a groove  $a^2$  in its bottom wall, a recess  $a^3$  in its rear wall, a raised rib  $a^4$  on its bottom wall, a projection or lug  $a^5$  extending from its side wall, an inclined face  $a^6$  on its bottom wall near the pivotal point of the knuckle, a knuckle, a pin, and a gravity-block arranged in said head and cooperating with said knuckle and pin; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 24th day of January, 1900.

WILLIAM K. RIGHT.

Witnesses:

H. D. WILLIAMS,  
RAY D. FOLEY.