(No Model.)

# W. C. BEAL.

## CAR COUPLING.

No. 574,016. Patented Dec. 29, 1896.

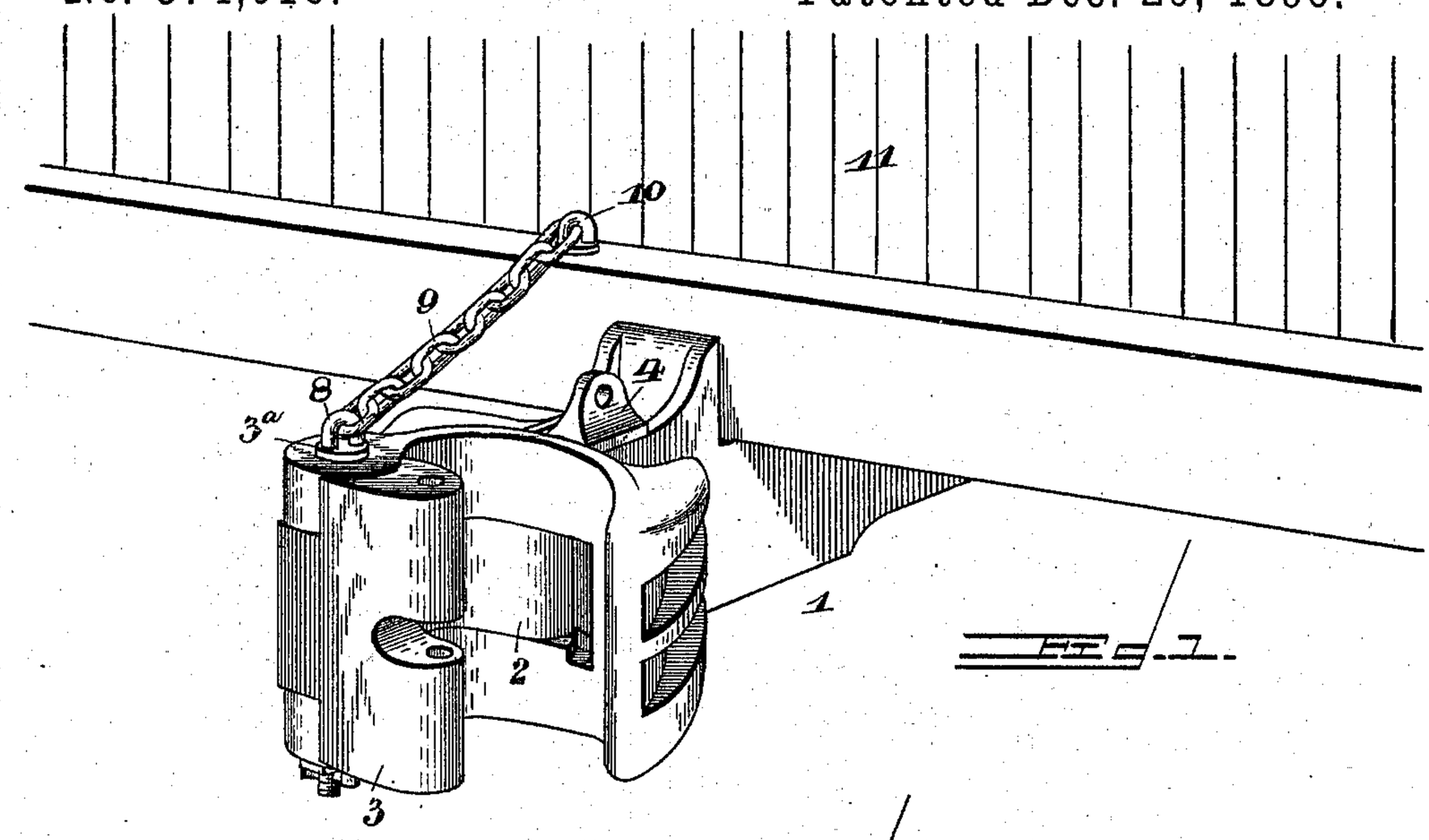



Fig. 1.

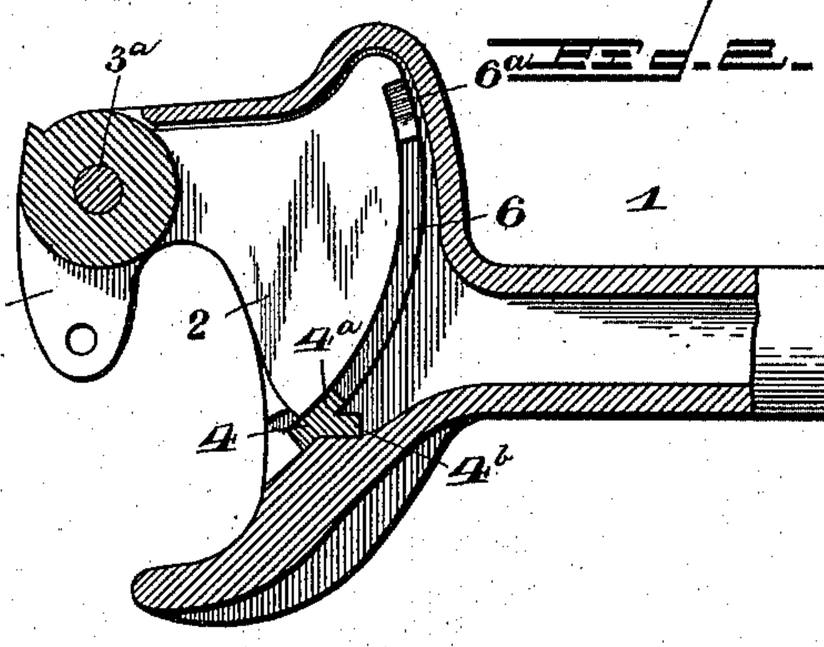



Fig. 2.

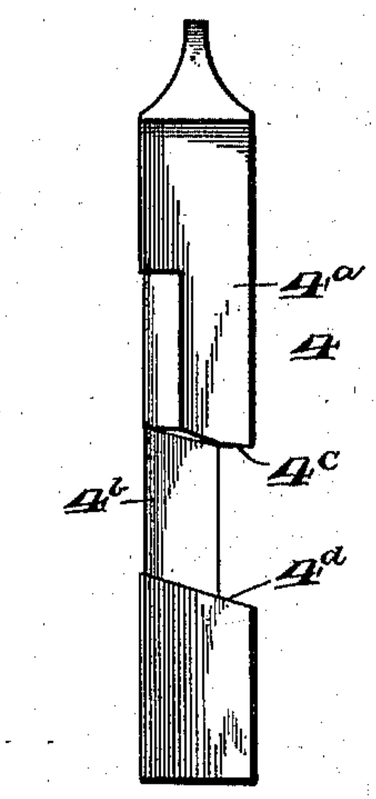



Fig. 3.

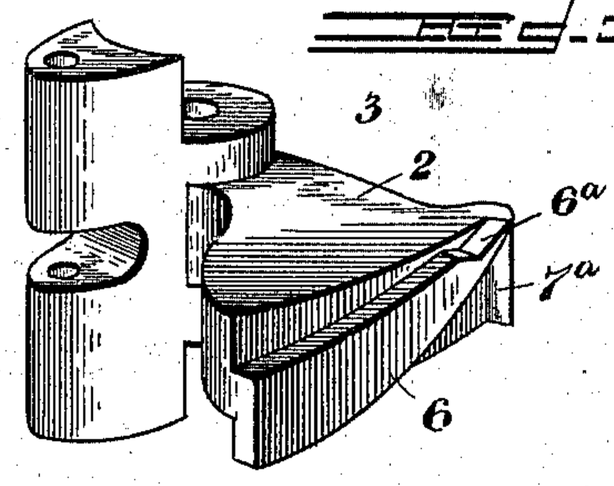
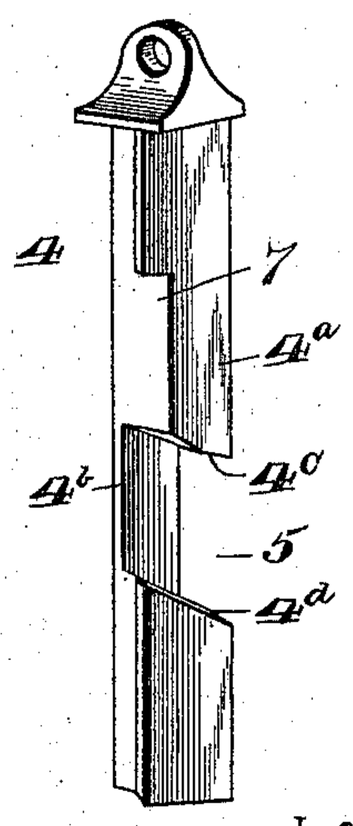



Fig. 4.




Inventor,

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Witnesses
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# UNITED STATES PATENT OFFICE.

WILLIAM CONSTANTINE BEAL, OF FERNANDINA, FLORIDA, ASSIGNOR OF TWO-THIRDS TO DAVID E. MAXWELL AND WILLIAM D. BALLANTINE, OF SAME PLACE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 574,016, dated December 29, 1896.

Application filed March 21, 1896. Serial No. 584,278. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM CONSTANTINE BEAL, a citizen of the United States, residing at Fernandina, in the county of Nassau and State of Florida, have invented a new and useful Car-Coupling, of which the following is a specification.

The invention relates to improvements in car-couplings.

The object of the present invention is to improve the construction of twin-jaw car-couplings, to increase their strength and efficiency, and to provide one capable of coupling automatically with draw-heads of the same type and adapted to be readily uncoupled without going between cars.

A further object of the invention is to enable a knuckle to be readily opened from the sides or top of a car and to prevent a draw-head from falling upon the track and wrecking or otherwise injuring cars should it become disengaged from the draft mechanism and pulled out of its fastenings.

Another object of the invention is to provide means for holding the knuckle in its open position to prevent it, when thrown open, from accidentally recoiling and partially closing.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a perspective view of a car-coupling constructed in accordance with this invention and shown applied to a car. Fig. 2 is a horizontal sectional view. Fig. 3 is a detail perspective view of a knuckle illustrating the construction of the arm thereof. Fig. 4 is a detail perspective view of the locking-pin. Fig. 5 is an elevation of the same.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a draw-head having a horizontal opening adapted to receive an arm 2 of a knuckle 3 in the usual manner, and the knuckle is pivoted to the draw-head at one side thereof by a knuckle-pin $3^a$, and is secured in its closed position by a locking-pin 4.

The locking-pin, which is constructed of flanged metal, and which is substantially T-shaped in horizontal section, consists of an outer transversely-disposed front flange $4^a$, set at an angle to agree with the face of the outer end of the arm of the knuckle, and a rear flange $4^b$, disposed longitudinally of the draw-head and extending from the center of the rear face of the front flange $4^a$. It is mounted vertically in a corresponding opening of a draw-head, and the longitudinally-disposed flange $4^b$ is located contiguous to and is supported by the adjacent side wall of the car-coupling, and is thereby prevented from being broken or otherwise injured from the strain incident to drawing a train of cars. The front flange $4^a$, of the locking-pin is provided with an inclined recess 5, forming upper and lower shoulders, and adapted to receive and permit the passage of the inclined rib or flange 6, located at the end of the arm of the knuckle and extending upward and rearward from the bottom of the front or outer face of the arm to the back thereof.

The top of the locking-pin is provided with a head having an eye and forming a flange, which effectually closes the top of the opening or perforation of the draw-head, and which excludes rain, snow, or other accumulation. The eye of the locking-pin permits the latter to be readily connected with any suitable operating mechanism for enabling the operation of uncoupling to be readily performed from the tops and sides of the cars without going between them.

The end of the arm of the knuckle is provided with a curved face and the inclined flange or rib, which is curved similar to the end face or edge of the arm 2. When the knuckle is open, the locking-pin is elevated and the upper shoulder, formed by the recess 5, rests upon the upper edge of the inclined rib or flange 6, and as the knuckle closes, incident to automatic coupling, the locking-pin gradually descends until it reaches the outer extremity of the inclined rib or flange 6, when it drops in advance of the same and firmly locks the knuckle in its closed position. The locking-pin is recessed at its inner side 7 to provide a face for engaging the arm of the knuckle. This recess extends inward to the

flange $4^b$ and enables the latter to engage the arm of the knuckle. Also by this construction the lower inclined shoulder extends inward beyond the engaging face formed by the recess 7, in order that the inner end of the shoulder $4^a$ will extend beneath the inclined rib or flange 6 of the knuckle, whereby, when the locking-pin is lifted vertically, the lower inclined shoulder will engage the rib or flange 6 and open the knuckle. When the lower shoulder $4^d$ is in engagement with the rib or flange 6, the upper shoulder $4^c$ is clear of the same and does not exert any friction on the said rib or flange.

The lower shoulder $4^d$, formed by the inclined recess of the locking-pin, extends entirely across the front flange $4^a$ and is arranged to engage the lower face of the inclined rib or flange 6 of the arm of the knuckle when the locking-pin is elevated for uncoupling. The lower edge of the inclined rib or shoulder is disposed at a greater inclination than the upper edge to permit the locking-pin to open the knuckle automatically when a car is isolated and arrange the parts in position when automatically coupled. To effect the operation of uncoupling, the locking-pin is raised until the lower shoulder, formed by the recess 5, engages the lower face of the inclined rib or flange 6, to bring the recess 5 in position to afford a passage for the said rib or flange 6. When the locking-pin is in this position, the knuckle is adapted to open as the cars separate, and the upper edge of the inclined rib or flange 6 engages the upper shoulder of the locking-pin and lifts the same.

The rear flange $4^b$ is beveled between the upper and lower shoulders $4^c$ and $4^d$ to prevent it from binding against the rib or flange 6 of the arm of the knuckle.

The arm of the knuckle is provided at the terminus of its end with a vertical rib or flange $7^a$, extending downward from the upper end of the inclined rib forming the stop and arranged to engage the lower portion of the locking-pin below the inclined recess to limit the outward or opening movement of the knuckle.

The inclined rib or flange 6 of the arm of the knuckle is provided at its inner end and upper edges with a substantially V-shaped or angular recess $6^a$, having oppositely-inclined sides and forming a seat adapted to receive the upper shoulder $4^c$ of the locking-pin 4. The shoulder $4^a$ conforms to the configuration of the seat or recess $6^a$ and is adapted, when the knuckle is open, to drop into the same to lock the knuckle in its open position and to prevent any recoil from closing it accidentally. When the cars come together for automatic coupling, the force exerted on the upper knuckle readily causes the locking-pin to rise out of the recess or seat $6^a$ to permit the knuckle to close.

The knuckle-pin $3^a$ is provided at its upper end or head with an eye 8, into which is linked one end of the stay or safety chain 9, and the latter is provided at its other end with a removable pin 10, arranged in the vertical perforation of the car 11, whereby the draw-head is connected therewith to prevent it, in event of the breakage of its tail-pin, from being entirely pulled out from the car and falling upon the track and wrecking or otherwise injuring the same. The lower end of the knuckle-pin is threaded, and receives a nut which is prevented from becoming accidentally unscrewed through the opening and closing of the knuckle by a key or the like. The draw-head may be constructed of any desired configuration, and may be fluted or ribbed, as shown, and the arm of the knuckle may be constructed hollow, if desired.

It will be seen that the car-coupling is exceedingly simple and inexpensive in construction, that it possesses great strength and durability, and that it is capable of coupling automatically and of being readily uncoupled without going between cars.

It will also be apparent that the locking-pin is capable of automatically opening the knuckle and of locking the same in its open position, and that in the event of the breakage of a tail-pin or the like the stay-chain will prevent the draw-head from falling upon a track and wrecking or otherwise injuring cars.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

What I claim is—

1. In a car-coupling, the combination of a draw-head, a knuckle pivoted to the same and provided at the end of the arm with an inclined rib or flange having upper and lower inclined edges, a vertical flange arranged on the end of the arm and extending downward from the rear or upper end of the inclined rib, and a vertically-movable locking-pin provided at its front with an inclined recess receiving the inclined rib and forming upper and lower shoulders to engage the upper and lower edges of the same, the lower portion of the locking-pin being arranged to engage said vertical flange to limit the outward or opening movement of the knuckle, substantially as described.

2. In a car-coupling, the combination of a locking-pin composed of a longitudinal flange $4^b$, and a transverse flange $4^a$ arranged at the front or outer edge of the longitudinal flange and provided with an inclined recess 5 and a vertical recess 7, extending upward from one end of the inclined recess, a draw-head provided with an opening for the locking-pin and having one of its sides contiguous to and conforming to the configuration of the outer face of the longitudinal flange and the adjacent face of the transverse flange to support the same, and a knuckle provided at the end of its arm with a rib, substantially as described.

3. In a car-coupling, the combination of a draw-head, a knuckle pivoted to the same and provided at the end of its arm with an in-

clined edge and having a notch or seat at the upper or rear end of the same, and a locking-pin supported upon the inclined edge and arranged to engage the seat or notch automatically when the knuckle is open, whereby the knuckle is locked in its open position, substantially as and for the purpose described.

4. In a car-coupling, the combination of a draw-head, a knuckle pivoted to the same and provided at the end of its arm with an inclined rib or flange, having at its upper end a substantially V-shaped notch or seat, and a locking-pin having an inclined recess forming upper and lower shoulders, the upper shoulder being adapted to rest in the notch or seat of the arm of the knuckle, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM CONSTANTINE BEAL.

Witnesses:

THOMAS A. HALL,

L. BENGUEL.