

No. 647,667.

Patented Apr. 17, 1900.

W. A. PALMER.
CAR COUPLING.

(Application filed Aug. 22, 1899.)

(No Model.)

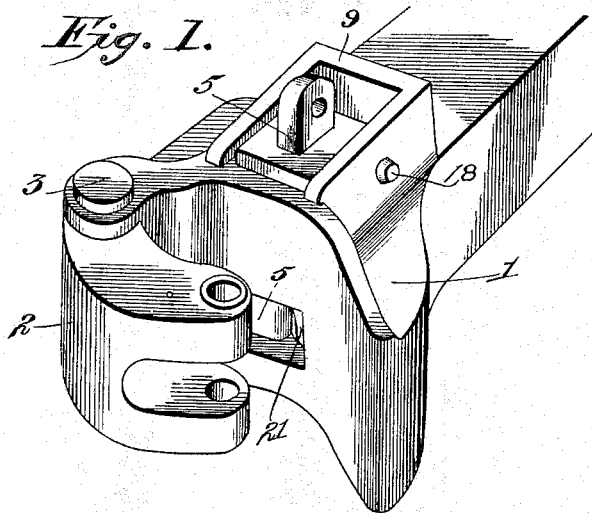


Fig. 2.

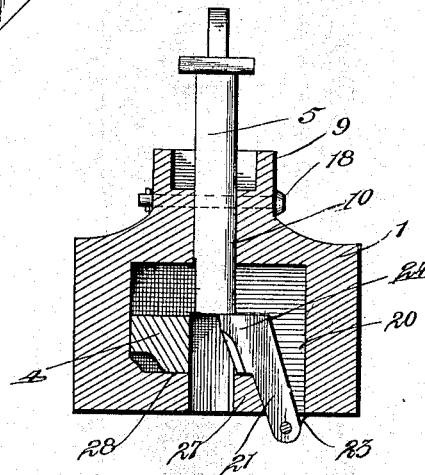


Fig. 4.

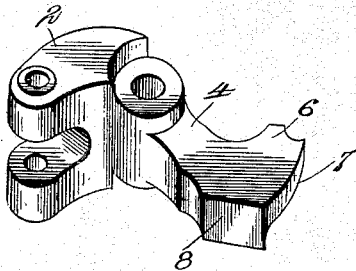


Fig. 5.

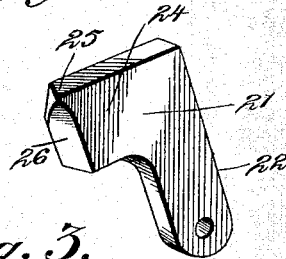


Fig. 6.

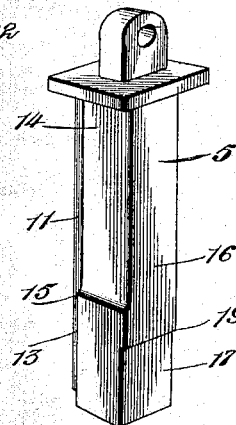
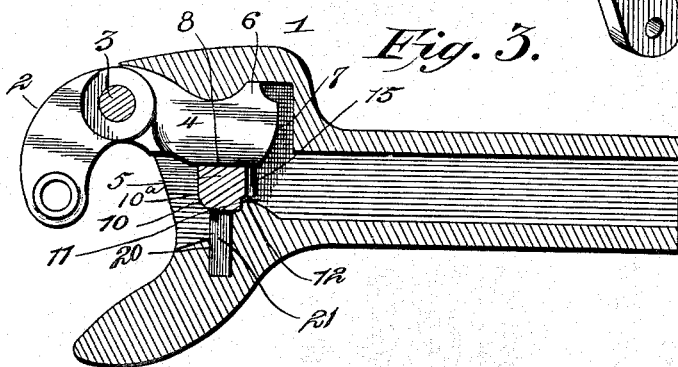


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM A. PALMER, OF MOBILE, ALABAMA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 647,667, dated April 17, 1900.

Application filed August 22, 1899. Serial No. 728,084. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. PALMER, a citizen of the United States, residing at Mobile, in the county of Mobile and State of Alabama, have invented a new and useful Car-Coupling, of which the following is a specification.

This invention relates to improvements in car-couplings; and the object in view is to improve the construction of automatic devices of this character of the Janney type to increase their strength, durability, and efficiency in a comparatively-inexpensive manner and wherein the mechanism has an automatic operation both in coupling and uncoupling and capable when the locking-pin is raised of maintaining the same in an elevated position and until the knuckle is opened and of automatically dropping the pin upon the arm of the knuckle as the latter opens, so that it will couple automatically.

A further purpose of the invention is to increase the bearing-surface of the arm of the knuckle at its point of contact with the locking-pin to properly support the latter and prevent bending or breakage and also to so dispose the device for supporting the pin in an elevated position that it will be out of the way and not liable to injury.

The invention consists in the construction, combination, and arrangement of parts hereinafter more fully described and claimed.

In the drawings, Figure 1 is a perspective view of a car-coupling constructed in accordance with the invention. Fig. 2 is a transverse vertical section through the front portion of the coupling. Fig. 3 is a horizontal section. Fig. 4 is a detail perspective view of the knuckle. Fig. 5 is a similar view of the pivoted dog. Fig. 6 is a detail perspective view of the locking-pin.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a draw-head having a knuckle 2 pivoted to one side of it by a vertical knuckle-pin 3, arranged in the usual manner and adapted to be secured in the eyes or openings of the draw-head in such manner that it will not work loose and be prevented from accidentally leaving the knuckle-pin perforation. The arm 4 of the

knuckle, which is engaged by a vertically-movable locking-pin 5, is provided with a lateral extension or projection 6, having a direction inward from it and also provided with a curved cam edge 7. The abutting portion 8 of the arm of the knuckle is straight and presents a flat face to the locking-pin, which is correspondingly constructed, as will be presently set forth. The arm of the knuckle is provided at the side opposite its abutting face 8 with a recess adapted when the knuckle is closed, as shown in Fig. 3, to receive a thickened or enlarged portion of the adjacent wall of the draw-head, whereby the arm is interlocked with the draw-head and is supported by the same to relieve the knuckle-pin of strain.

The draw-head is provided at its top with a flanged seat 9 to receive the upper angular head portion of the locking-pin 5, the said head portion being inclosed on three sides by the flanged seat, and the pin is completely housed when the parts are arranged as illustrated in Fig. 1. The locking-pin 5 is approximately square in cross-section and has an outer rounded corner 10 and adjacent corner recess 11, extending the full length of the same and working against an angular projection 12 (see Fig. 3) of the draw-head. The rear face 13 of the pin is cut away longitudinally, as at 14, for a greater part of its length and has a lower shoulder 15. The face 16, next adjacent the face 13, is formed with a lower recess 17. The vertically-movable locking-pin, which is arranged in a groove or way of the top and bottom of the draw-head, fits snugly within the same and is firmly supported in its opposite position. When the pin 5 is in operative position, the longitudinal cut-away portion 13 thereof is at the rear, and extending transversely through the upper portion of the draw-head is a key 18, which prevents the entire withdrawal of the locking-pin from the draw-head when the parts are operatively assembled by striking against the shoulder 15 at the lower termination of the said longitudinal cut-away portion. The lower recess 17 of the pin 5 forms the shoulder 19 at the upper terminal thereof which rests upon the upper edge of one wall of the pin-orifice in the bottom portion of the draw-head and close to the straight

face 8 of the arm 4 of the knuckle and permits an upper thicker part of the locking-pin to bear against the said face and prevent movement of the knuckle or such loose play as would be detrimental to the coupling operation. Owing to the formation of the transverse seat through the upper part of the draw-head to receive the key 18 it might be presumed that the said pin will have a forward and backward movement or play. This presumption might also have foundation from the fact that the locking-pin is provided with the longitudinally cut-away portion 15 and for the distance that said cut-away portion extends over the length of the pin the latter does not contact with the rear wall of its orifice or opening. Such presumption and any tendency toward loose movement of the coupling-pin is entirely overcome by the projection 12 entering the longitudinal recess 11, which, conjointly acting in connection with the adjacent front wall of the pin orifice or opening, entirely defeats a tendency to cause the loose movement.

At one side of the draw-head and communicating with the coupling-pin orifice or opening is a transversely-extending slot 20, which opens through the adjacent bottom portion of the draw-head and in which is pivotally mounted a gravitating dog 21. The shank 22 of the said dog is pivotally connected between ears 23 on the under part of the draw-head, and on the upper end of said shank is formed an angular head 24, which projects inwardly toward the coupling-pin orifice or opening and is provided with an upper seat edge 25. The outer corner of the said head 24 is cut away to provide a cam-face 26, which is beveled or has an inclined direction, so as to afford a proper angular bearing for the cam edge 7 of the arm 4 of the knuckle. The normal position of the dog 21 is clearly shown by Fig. 2, and in said position the inner lower angular edge thereof contacts with a partitional web 27, formed in the lower part of the draw-head adjacent the pin orifice or opening, to thereby bring the upper contact edge 25 of the head 24 of said dog sufficiently across the part of the coupling-pin orifice or opening to provide a support for the said pin when the parts are arranged for coupling operation. The enlarged head of the substantially L-shaped dog when in the position illustrated in Fig. 2 of the drawings rests upon and is supported by the bottom of the draw-head, and the reduced shank and the pivot thereof are relieved of the blows resulting from the dropping of the locking-pin upon the said head. The opposite portion of the interior of the draw-head is constructed to operatively receive the arm 4 of the knuckle, and, as shown by Fig. 2, said arm has an under extension 28, which bears firmly on the bottom wall of the opening in which the said arm moves.

When the knuckle is coupled with a companion knuckle, the locking-pin 5 is first elevated, and as said pin is raised the adjacent

edge of the head 24 of the dog 21 is clear, and finally the dog drops over by gravity, so that the seat edge 25 is disposed under the lower end of the pin. The interior of the draw-head will then be in condition for a practical operation of the arm 4 of the knuckle, and as the latter moves into the draw-head the edge 7 thereof strikes the cam-face 26 of the dog, and the latter is shoved over and gradually from under the pin 5. The pin then drops on the top surface of the lateral extension or projection 6 and the parts in this condition will stand open. The entrance of the companion knuckle will again move the lateral projection 6 of the arm 4 of the knuckle inwardly into the draw-head and clear the pin from elevated support and permit it to drop fully against the face 8. During the inward movement of the arm 4 and its lateral projection the outer part of the knuckle will be turned inward toward the similar part of the companion knuckle, and after the coupling-pin has passed the face 8 both knuckles will be securely fastened or interlocked. Of course the same operation takes place in oppositely-situated draw-heads including the same structural features. In the first instance the draw-heads may be close together and the arms 4, with their lateral extensions, fully seated in the open portions of the said draw-heads or occupy a position similar to that when the coupling-pins are down. Consequently when the coupling-pin in either instance is elevated to uncouple the draw-heads the dog alone will drop under and support the elevated pin, and when the knuckles turn in the separation of the heads the arms 4, with their lateral projections, will throw the dogs over, if both pins are raised, or if only one pin is raised the adjacent dog only will be moved, and the elevated pin will then drop on the top surface of the lateral extension of the arm.

This car-coupling, which is simple and comparatively inexpensive in construction, is particularly strong and durable and provides a knuckle-arm of increased wearing-surface. The locking-pin when raised is supported in an elevated position until the knuckle opens, and when the said knuckle is opened the dog automatically releases the locking-pin and causes the same to drop upon the arm of the knuckle, so that it will be in position for automatic coupling. The dog is located in such position relatively to the coupling-pin and has such free pivotal action that it cannot be broken or otherwise injured by the jars and blows incident to coupling, and the oppositely-situated cam edge and cam-face, respectively, on the lateral extension of the arm and the projected head of the dog provide for an easy operation of the dog by the said lateral extension. Owing to the manner of shaping and mounting the coupling-pin in the draw-head there is no liability of the said pin accidentally creeping upward and releasing the knuckle, and said pin is also protected against bending or kinking.

Numerous other advantages will appear from time to time and changes in the form, proportion, size, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described the invention, what is claimed as new is—

10 In a car-coupling, the combination of a draw-head provided with the transverse slot 20 extending through its bottom, said draw-head being also provided at the bottom of the slot with perforated ears, a vertically-movable locking-pin, a pivoted knuckle, and the sub-
15 stantially L-shaped gravitating dog consisting of an enlarged head and a shank arranged in the said slot and pivoted between the per-

forated ears, said enlarged head being arranged to engage the upper face of the bottom of the draw-head and resting thereon and 20 supported by the same when in position to be engaged by the locking-pin, whereby the shank and the pivot thereof are relieved of the blows resulting from the locking-pin falling upon the head, substantially as and for 25 the purpose described.

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

WM. A. PALMER.

Witnesses:

WM. B. POWERS,
B. F. JACKSON.