

(No Model.)

2 Sheets—Sheet 1.

W. B. CLARK.
CAR COUPLING.

No. 484,997.

Patented Oct. 25, 1892.

Fig. 1.

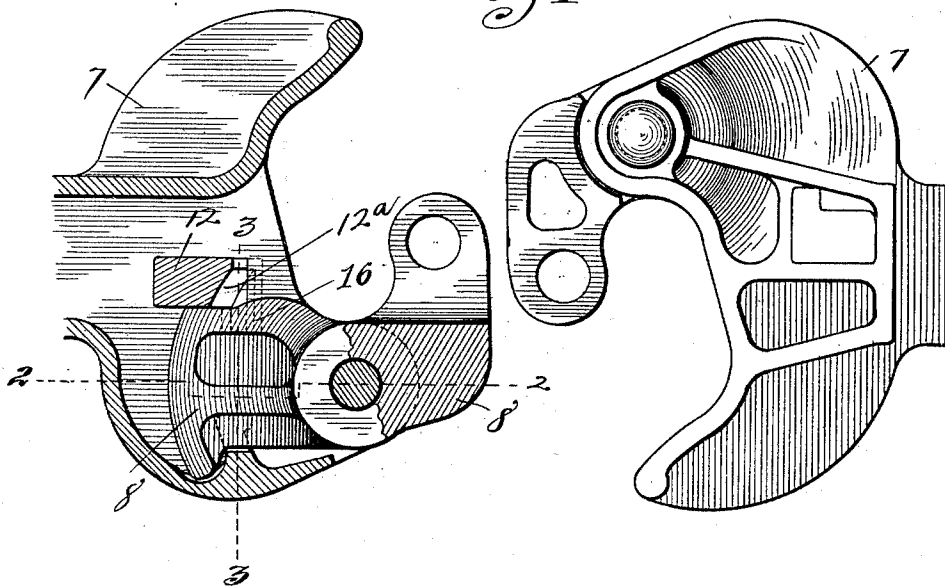


Fig. 2.

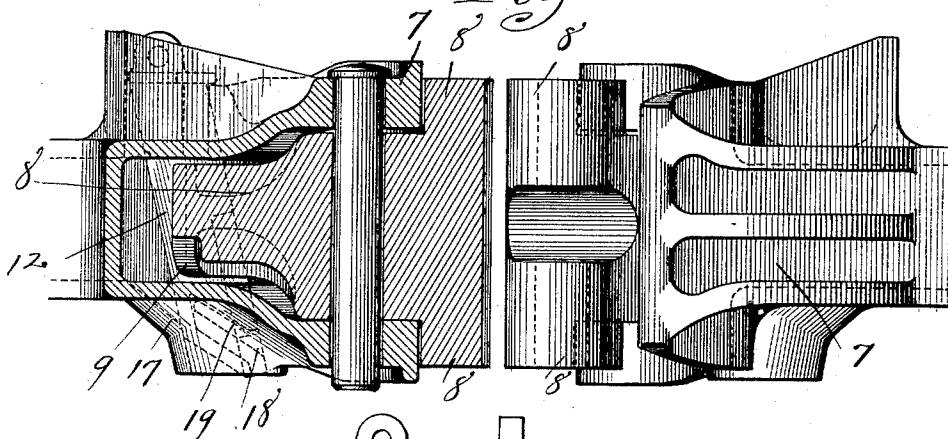
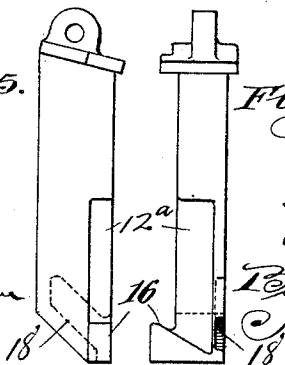


Fig. 5.

Fig. 6.

Witnesses,

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Inventor,
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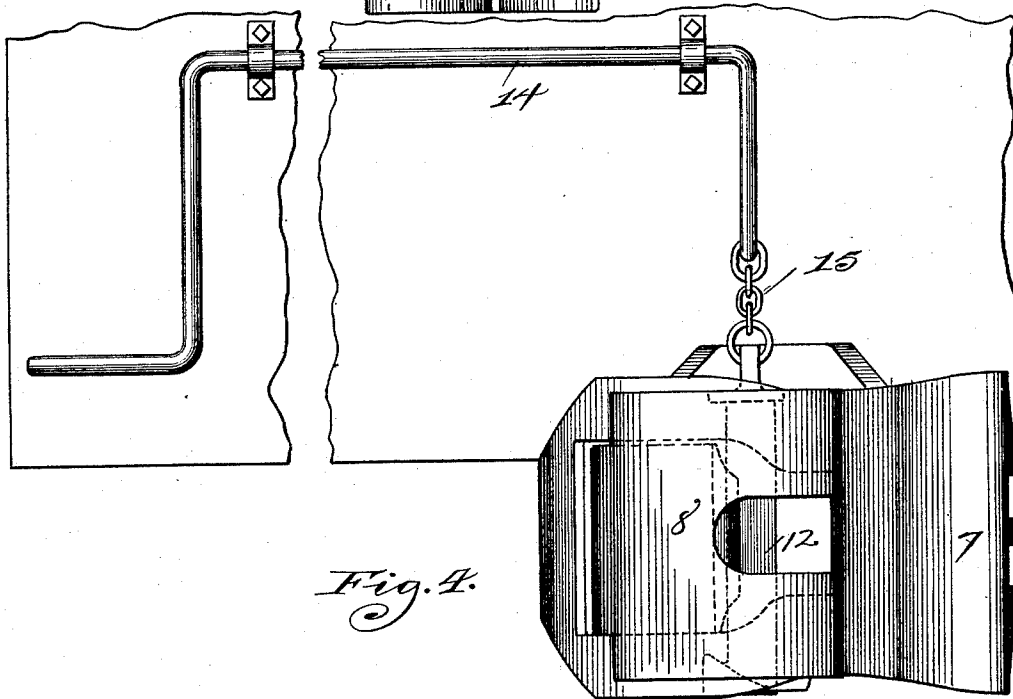
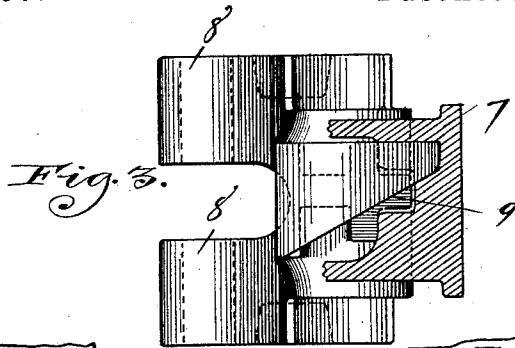
(No Model.)

2 Sheets—Sheet 2.

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CAR COUPLING.

No. 484,997.

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UNITED STATES PATENT OFFICE.

WALTER B. CLARK, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE CLARK CAR COUPLER COMPANY, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 484,997, dated October 25, 1892.

Application filed May 10, 1892. Serial No. 432,435. (No model.)

To all whom it may concern:

Be it known that I, WALTER B. CLARK, of Chicago, Illinois, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification.

The object of my invention is to provide an improved car-coupler conformable to the master car builders' standard construction as to its general outlines and which is adapted for automatic coupling by the employment therein of a pivoted knuckle.

My invention relates more particularly to means for swinging the knuckle open; and it consists in a peculiar construction of the knuckle and lock-pin, whereby the raising of the lock-pin operates, first, to unlock the knuckle, and the continued raising of the pin serves to positively move the knuckle on its pivot, so as to open and hold it open and in position to receive the knuckle of a car to be coupled.

In carrying out my invention I provide the rear end of the knuckle with a cam-surface and the lock-pin with a cam and so arrange the parts that the initial movement of the lock-pin unlocks the knuckle, permitting it to be pulled open in the act of uncoupling by the separation of the cars, while the further lifting of the pin when the coupler is not engaged with another and the engagement of its cam with the cam-surface of the knuckle serves to open the latter to its widest extent and to hold it in such position preparatory to coupling. The cam-surfaces are of such construction as to remain in contact throughout the movement of the knuckle and until the knuckle is open to its widest extent. This is important, for if cams are shorter the knuckle may only partially open and thus defeat the object in view.

In the accompanying drawings, Figure 1 shows two members of a coupling, one in plan and the other in sectional plan. Fig. 2 shows one of the members in side elevation and the other in vertical section on the line 2 2 of Fig. 1. Fig. 3 is a sectional view taken on the line 3 3 of Fig. 1, looking in the direction indicated by the arrow. Fig. 4 is a front end view of one member of the coupling with the knuckle closed and showing a part of the end of the car and an operating-crank for lifting

the lock-pin. Figs. 5 and 6 are detail views of the lock-pin.

In the drawings, 7 represents the draw-head, which is of standard construction and has pivoted at one side of its opening the knuckle 8. The front end of this knuckle is of usual construction; but its rear end is provided with the cam-surface 9, said surface presenting a uniform incline from the bottom toward the upper rear corner.

12 represents the lock-pin, which is arranged in the hollow of the head at the rear, said pin having a beveled lower end. This lock-pin, as shown, is connected to the operating-crank 14 by means of the links 15. Said lock-pin has its front edge above its bottom cut away or recessed, as seen at 12^a, and is provided toward its bottom with a projecting cam 16, which is adapted to take under the lower corner of the knuckle and to ride on the cam-surface 9 thereof.

In the locked position of the knuckle the pin is in an inclined position, as seen in Fig. 2, and to unlock the knuckle it is raised until the bottom of the pin rests upon the inclined surface 17. In raising the pin its upper end rises vertically, but its lower end passes from an angular to a vertical position until it rests on the surface 17. In this position the knuckle may be pulled open; but in order to put the knuckle in condition for coupling without the necessity on the part of the operator of passing between the cars the knuckle must be swung on its pivot by means of the unlocking mechanism until it has passed the plane of the movement of the knuckle of the car to be coupled. To effect this, it is only necessary to still farther raise the lock-pin, which will then move vertically and in such movement its cam 16 will engage the lower edge of the cam 9 on the knuckle, and as the pin must rise without lateral movement and the knuckle is pivoted, the latter will be forced open. When the pin is released, it will drop down until it is arrested by the impingement of its beveled end upon the beveled surface 17. It will remain in such position until the knuckle is swung back into the locking position in the act of coupling, and in so doing the rear end of the knuckle will clear the front edge of the pin, thus al-

lowing the latter to drop down into its original position.

In order to properly support the pin and to guide it in its backward movement from its locking position, I prefer to form a groove in the side of the lock-pin opposite the cam 16, said groove being marked 18 and formed in a plane parallel to the beveled end of the pin, which coincides, also, with the plane through which the lower end of the pin moves in leaving and returning to its normal position. On the side wall of the head I form the rib 19, which enters the groove 18, and thus forms a support for and insures the proper movement of the lock-pin. This feature may be omitted as the pin will assume its proper position by gravity under all ordinary conditions; but I prefer to employ it in order to insure the movement of the pin back, so as to clear the knuckle. I also prefer to cut away the vertical edge of the pin above the cam, as at 12^a, so as to allow the knuckle to clear without moving the pin unduly.

The chief utility of this construction consists in the provision of the lock-pin and knuckle with the cam-surfaces described, whereby the positive opening of the knuckle to put it in condition for coupling is effected by the simple upward movement of the pin itself. The knuckle is in all cases positively moved throughout the entire distance, no reliance being placed upon the point of pivoting or the momentum imparted to the knuckle in pulling it open, and although the form of these cams may be slightly varied, and I do not therefore limit my invention precisely thereto, I regard the form shown as being the best adapted to the accomplishment of the purposes indicated.

I claim—

1. In a car-coupler of the class described, the combination, with a pivoted knuckle having a downwardly inclined or beveled surface at its rear end, of a lock-pin having on its lower end a projecting cam adapted to engage the beveled surface of the knuckle and

arranged within a recessed head, and said head having a beveled surface above its bottom, and the pin being adapted when the knuckle is locked to rest in an inclined position and its lower end when the pin is raised passing from an oblique to a vertical position during the uncoupling movement and then to lift vertically with its cam in contact with the cam-surface of the knuckle, said cam-surfaces being of such construction as to remain in operative contact during the entire opening of the knuckle, substantially as described.

2. In a car-coupler of the class described, the combination, with a recessed head having an inclined seat in its rear portion above its bottom, of a pivoted knuckle the heel of which works within the recess of the head and is provided with a downwardly-inclined cam-surface and a lock-pin having on its side at its lower end a cam adapted to engage the inclined or beveled surface of the knuckle and to stand in an inclined position when locked, said lock-pin having on its side opposite the cam an inclined groove and a rib on the wall of the head to enter said groove, whereby during the initial movement of the pin in the act of uncoupling its lower end is deflected from an oblique into a vertical position, substantially as described.

3. In a car-coupler of the class described, the combination, with a recessed head having a beveled seat above its bottom and at its rear end, of a pivoted knuckle having on its heel a cam-surface and a lock-pin having a projecting cam adapted to engage the cam-surface of the knuckle, said lock-pin being cut away on its vertical corner next to the knuckle and its lower end beveled in conformity to the beveled seat of the head, substantially as described.

WALTER B. CLARK.

Witnesses:

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