

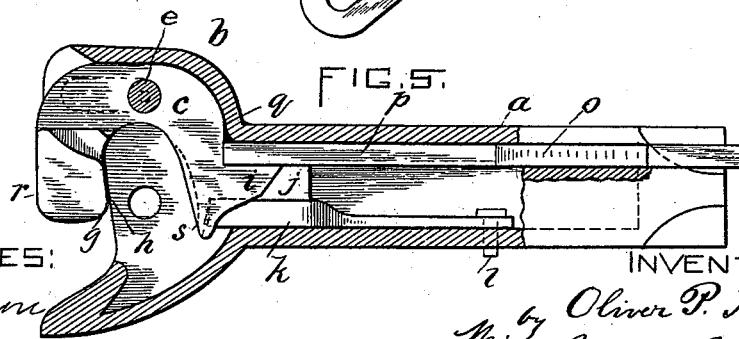
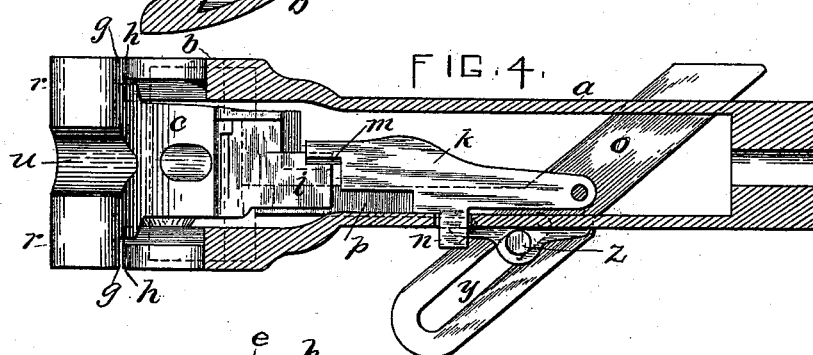
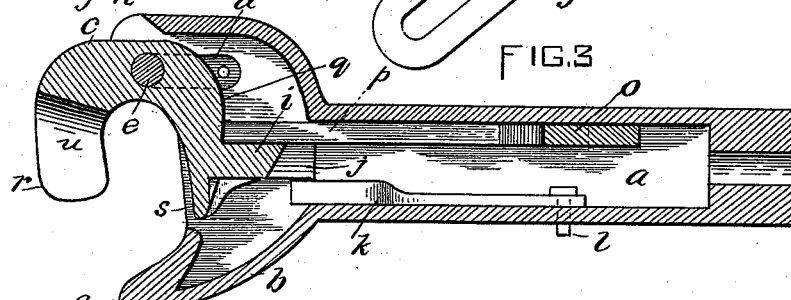
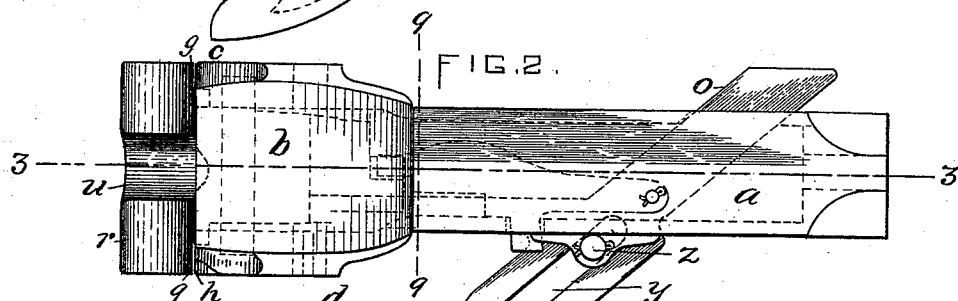
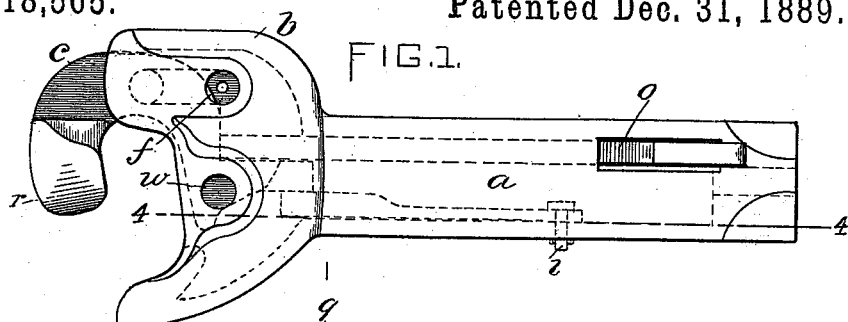
(No Model.)

2 Sheets—Sheet 1.

O. P. HIX.  
CAR COUPLING.

No. 418,565.

Patented Dec. 31, 1889.



WITNESSES:

A. E. Brown  
W. B. Ramsay.

INVENTOR:

by Oliver P. Hix.  
Might, Brown & Crossley  
His Attys.

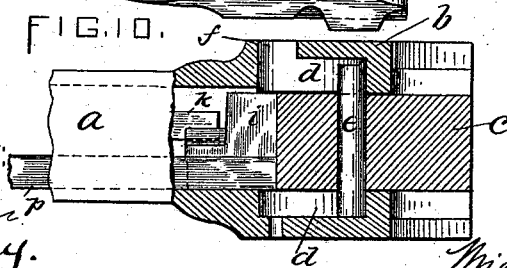
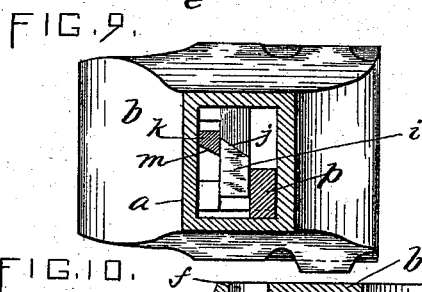
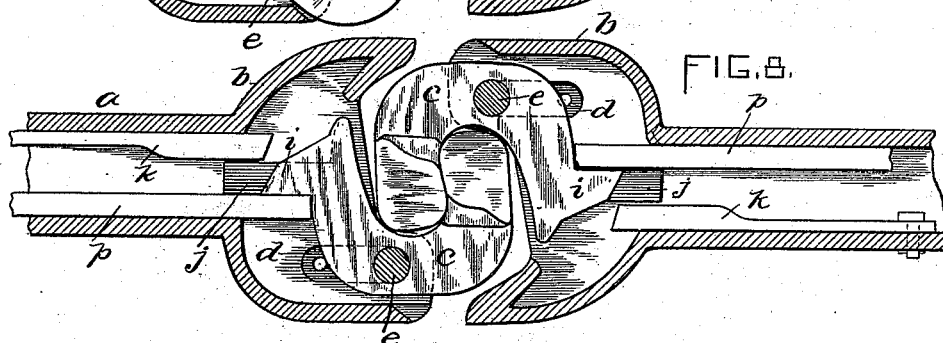
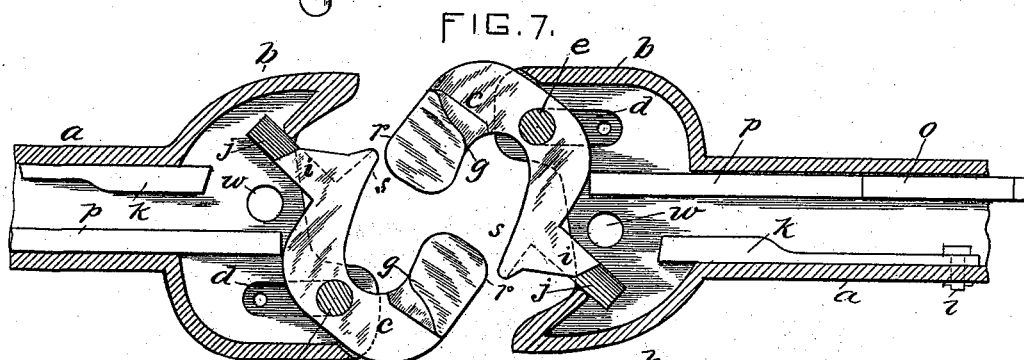
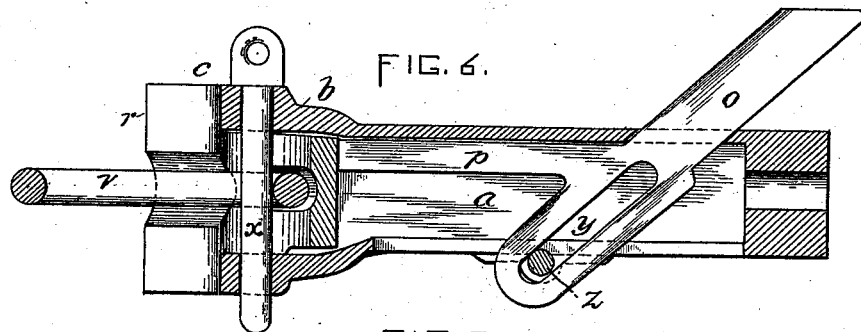
(No Model.)

2 Sheets—Sheet 2

O. P. HIX.  
CAR COUPLING.

No. 418,565.

Patented Dec. 31, 1889.



WITNESSES:

K. E. Brown<sup>7</sup>  
W. C. Ramsay.

INVENTOR:

by Oliver P. Hix.  
Might, Brown & Crossley  
" His Attys.

# UNITED STATES PATENT OFFICE.

OLIVER P. HIX, OF ROCKLAND, MAINE, ASSIGNOR TO THE HIX AUTOMATIC CAR COUPLING COMPANY, OF SAME PLACE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 418,565, dated December 31, 1889.

Application filed August 10, 1889. Serial No. 320,338. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER P. HIX, of Rockland, in the county of Knox and State of Maine, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to "vertical-plane" car-couplings generally, and particularly to that class of vertical-plane couplers, in which the knuckle pivoted in the head of the draw-bar has a limited sliding movement longitudinally of the same, so that when cars to which the couplers are attached "bunt" or come together the knuckle may be moved inward or rearward and bear or become seated against the end of the bar and become virtually one therewith, thus avoiding liability of breaking parts of the coupling device, which cannot well in practice be made strong enough to withstand the cumulative effects of these bunting shocks.

It is the object of my invention to provide such improvements in car-couplers of the class mentioned as will materially strengthen their structure.

It is also the object of my invention to provide improved means whereby the knuckle or hook may be latched in coupled position and unlatched when it is desired to operate it to uncouple cars to which it is attached.

It is also the object of my invention to provide improvements in means for keeping the knuckle or hook normally in position away from the head of the draw-bar, and for turning it on its axial pin when unlatched to open it and hold it open until it shall have become engaged with the knuckle of another draw-bar, when it will become automatically closed and latched in closed position.

My invention consists of the improvements hereinafter fully described, and subsequently pointed out in the claims.

Reference is to be had to the accompanying drawings and to the letters of reference marked on the same, the same letters designating the same parts or features, as the case may be, wherever they occur.

In the drawings, Figure 1 is a top plan view of a draw-bar equipped with my improved coupling. Fig. 2 is a front side view of the

same. Fig. 3 is a horizontal sectional view taken on the line 3 3 of Fig. 2. Fig. 4 is a vertical sectional view taken on the line 4 4 of Fig. 1. Fig. 5 is a view similar to Fig. 3, showing the position of the parts when the knuckle is moved rearwardly and seated against the end of the draw-bar. Fig. 6 is a longitudinal vertical section illustrating the manner of employing a link-and-pin coupling in connection with my improvements. Fig. 7 is a horizontal sectional view of two of my improved couplings oppositely arranged, showing the knuckles in uncoupled position, and as they will appear when one car is approaching another and just before bunting. Fig. 8 is a view similar to Fig. 7, showing the knuckles in coupled position. Fig. 9 is a cross-section on the line 9 9 of Fig. 2, looking from the rear toward the front. Fig. 10 is a longitudinal sectional view of the draw-bar head and its equipments, the view being taken on a line running through the pivot-pin of the knuckle, and looking in a direction opposite that taken in Fig. 4.

In the drawings, *a* designates the draw-bar, *b* its head, and *c* the knuckle or coupling-hook pivoted in a vertical plane in the head. The knuckle *b*, in addition to being pivoted in the head, is constructed and arranged to have a limited sliding movement therein on a line longitudinally of the draw-bar, and to provide for this I form grooves *d* on the inner face of the head and pivot the knuckle on a pin *e* of such length that it will project through the knuckle and extend from each side into said grooves, as most clearly shown in Fig. 10. The pin *e* may be inserted in the knuckle and draw-head by passing it through the hole *f*. The outer end of the knuckle *c* is provided with offsets *g*, so formed and arranged as that when the knuckle is moved rearwardly said offsets will come to rest or be seated against the forward end of the head, as at *h*. The knuckle *c* is provided with an elongated heel *i*, the rear upper extremity of which is provided with a backwardly-inclined surface *j*, as is best shown in Figs. 3, 7, 8, 9, and 10.

*k* is a latch pivoted at *l* in the draw-bar and having the under side of its forward end be-

eled, as at *m*, in a manner corresponding somewhat to the beveled surface *j* on the heel of the knuckle, as will appear by an inspection of Figs. 4 and 9. The latch *k* is provided with a downwardly-extending leg *n*, which projects through a hole in the draw-bar and provides a means whereby the latch may be lifted from outside of the bar.

*o* is a bar arranged to have a vertically-inclined movement in the draw-bar, which bar *o* is provided with a horizontal arm *p*, projecting forward and bearing against the rear rounded or cam-like surface *q* of the knuckle, so that as the latter is moved rearwardly the arm *p* will be moved in the same direction and be raised upward by the upward and rearwardly-inclined direction in which the bar *o* will be moved. When the knuckle *c* is left free after being moved rearwardly, the gravity of the bar *o* and its arm *p* will carry the same downward, moving the knuckle forward from the position in which it is shown in Fig. 5 to that in which it is represented in Fig. 3.

In all of the figures, excepting Fig. 7, the knuckle is represented as latched in coupled position, the forward end of the latch resting in front of the heel *i* of the knuckle. In order to release the knuckle, so that it may be moved into uncoupling position, the latch *k* will be raised by pressing upward on the lug *n*, when the arm *p* of bar *o*, pressing forward against the rear of the knuckle, as at *q*, will turn said knuckle on its pivot-pin *e*, throwing the heel outward and the forward end *r* backward, causing it to assume the position shown in Fig. 7, in which position it will be retained by said bar *o* and its arm *p* until it is met and moved by a knuckle similarly constructed and arranged in the draw-bar of another car, as when one car bunts against another. In such bunting operation the forward point *r* of one knuckle will strike the outer end *s* of the rear portion of the other knuckle, turning each knuckle on its pivot-pin and moving each to coupled positions.

In Fig. 7 I have represented the knuckles in uncoupled position and as they will appear just before the bunting together of the cars, and in Fig. 8 said knuckles are portrayed so as to show their coupled position after such bunting.

In moving from the uncoupled position shown in Fig. 7 to the coupled position shown in Fig. 8 the heel *i* of each coupler was moved so as that the inclined surface *j* of said heel came in contact with the similar surface *m* on the latch *k*, with the effect of raising the latter with a cam-like action until after the heel passed, when the latch dropped behind the heel, holding the knuckle latched or locked in coupled position. In this way the coupling operation of my device may be effected automatically.

It is to be noted that the bar *o* and its arm *p* are entirely independent in construction and operation of the latch *k*, so that the

function of one may not hamper the function of the other.

The heel *i* of the knuckle is cut away, as at *t*, to provide room for the forward end of the latch *k* when the knuckle is moved rearwardly, as from the position in which it is shown in Fig. 3 to that in which it is represented in Fig. 5.

In order to allow of an ordinary link-and-pin coupling being used in case of emergency with my improved device, I have notched the outer portion of each knuckle, as at *u*, for the reception of the link *v*, and provided the head of the draw-bar with a hole *w*, through which the pin *x* may be passed, as will be fully understood by an inspection of Fig. 6.

The bar *o* may be provided with a slot *y*, and a pin *z* passed horizontally through the draw-bar and said slot to guide said bar in its movements.

Having thus explained the nature of my invention and described a way of constructing and using the same, I declare that what I claim is—

1. In a car-coupler, the draw bar or head provided with the grooves *d* and hole *f*, combined with the knuckle pivoted in a vertical plane in the head, the pivot-pin extending into said grooves, as set forth.

2. In a car-coupler, the draw-bar and its head, combined with a knuckle pivoted in a vertical plane in the head and having a limited sliding movement therein longitudinally thereof, as described, and provided with a heel having an inclined surface on its rearward extremity, and a pivoted latch provided with an inclined surface on its forward extremity, as set forth.

3. In a car-coupler, the draw-bar and its head, combined with a knuckle pivoted in the head and having a limited sliding movement therein, a sliding bar adapted to operate against the rear of the knuckle to press the same outward or forward, and a pivoted latch independent of said bar to latch the knuckle in coupled position, as set forth.

4. In a car-coupler, the draw-bar and its head, combined with a knuckle pivoted in the head and having a limited sliding movement therein, said knuckle being provided with a heel having an inclined surface on its rearward extremity, a pivoted latch provided with a lug extending below the draw-bar and having an inclined surface on its forward extremity, and a sliding bar and its arm adapted to operate against the rear of the knuckle to press the same outward or forward, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 31st day of July, A. D. 1889.

OLIVER P. HIX.

Witnesses:

CHARLES C. FLINT,  
G. F. HIX.