

CAR COUPLING.

Patented Nov. 23, 1869.



ATTEST.
Jas. A. Layman,
Sam Knight

Knight Bros.
Atty.s. of
J. T. Middleton.

United States Patent Office.

JOSEPH T. MIDDLETON, OF HARVEYSBURG, OHIO, ASSIGNOR TO HIMSELF
AND M. M. HARVEY, OF SAME PLACE.

Letters Patent No. 97,212, dated November 23, 1869.

IMPROVED CAR-COUPLING.

The Schedule referred to in these Letters Patent and making part of the same.

To whom it may concern :

Be it known that I, JOSEPH T. MIDDLETON, of Harveysburg, Warren county, Ohio, have invented a new and useful Car-Coupling; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention relates to a peculiarly-formed coupling-link for railroad-cars, and provision of parts upon the draw-head suitable therefor, the said link being self-attachable, and made either so as to be uncoupled only by hand, or so as to be self-detachable.

Figure 1 is a perspective view of a draw-head and link, illustrating my invention, portions of the same being broken away, and the link detached.

Figure 2 is a longitudinal section of the same, the link being raised to permit detachment, and the free end being shown in elevation.

Figure 3 is a similar view, showing the link attached.

Figure 4 shows a modification, in which the coupling is detachable in case of accident.

A is the link-plate.

B B' are horns, of which there are two at each end of the link, serving as guides to the same.

O are apertures in the link, to receive the catches D' of the draw-heads.

Arising from the horn B, at each end of the link, is a trip projection or plate, E, having an inclined upper edge, e.

F is a stud, or pin, which depends from the centre of the link, and which, when coupling two cars together, rests in a notch, f, in the draw-head, and assists to hold the link in proper position for coupling.

D is the draw-head.

D' is a catch fixed to the bottom thereof.

The catch has an inclined top, d, to allow the end of the link to slide easily over it, and has a vertical inner end, d', to retain the link when the latter has dropped and the catch has entered the aperture C of the link.

The bottom of the draw-head has an aperture, H, to receive the detent I, which detent has the form shown clearly in figs. 1, 2, and 3.

The upper arm J of the detent I extends between the up-curved points b of the horns B B', and rests upon the link, to prevent its raising and becoming disengaged from the catch D'.

A portion, k, of the lower arm K of the detent extends beneath the bottom of the draw-head when the link is engaged, and thereby prevents the arm J from being raised by the link.

The end of the arm K has a projection, k', to prevent too great upward movement of the outer end of the detent, by catching beneath the bottom of the draw-head, when the detent is thrown up to release the link.

The inner end of the detent has an angular notch, l, between two horns, L L', which horns pass respectively above and below the bottom plate of the draw-head, and hold the lower end of the detent in place.

M is an upward projection of the detent, and pivoted thereto is a link, N, whose free end has one or more holes, n, to receive the wrist-pin o of a crank, O, upon a rock-shaft, P, having journal-bearings p p' on the draw-head and car respectively.

Q is a lever upon the outer end of the rock-shaft, and at each end of the lever is an eye, q.

Either of the eyes q may be used for the reception of the hooked end r of a rod, R, by which the weighted end of the lever is raised to release the link when it is desired to uncouple the cars.

S is a weight near the end of the lever, tending to keep that end depressed, and the detent-arm J down upon the catch D'.

The corners T, between the bottom and sides of the draw-head, are rounded, to cause the link, when one end is detached, to gravitate in a line direct with the draw-head to which it is attached, and thus to assume a proper position for coupling with the draw-head of the approaching car.

In fig. 4, is shown a modification, in which the detent I' is pivoted to the draw-head D, by a pivot, i, and acts to retain the link upon the catch D' merely by its own weight and that of a lever similar to Q S, figs. 1, 2, and 3, by which the said detent is operated in uncoupling the cars.

In this form, the crank-arm O' is slotted, to receive a pin, o', which projects from the side of the arm J' of the detent I.

The lower arm K' operates like that K, figs. 1, 2, and 3, to raise the link clear of the catch D', when the weighted end of the lever Q is raised. In this form, the cars become uncoupled when either of them is thrown off the track, or when either of them runs over an obstruction from four to six inches high.

The operation of my coupling is as follows:

The link, being attached to the draw-head of one car, is held straight therewith by means of the horns B B' and the detent I, at the rear end, and the pin, or stud F, and the rounded corners T, at the mouth of the draw-head, in the manner before stated.

On the approach of the other car, the upturned horns enter its draw-head, and the inclined upper edge e of the trip E comes in contact with the wrist-pin o, and, by raising the free end of the crank O, causes a sufficient retrograde movement in the detent to free the toe k of the arm K from its hold beneath the bottom of the draw-head. The portion of link between the horns B B' then impinges against the inclined end j of the arm J, and raises the said arm sufficiently to pass beneath it, and engage the catch D', the trip E.

having passed the pin *o*, and allowed it to descend. The detent, actuated by its own weight and that of the lever *Q*, then falls, until its arm *J* rests upon the catch *D'*, and, in descending, the said detent is driven forward by connection with the crank *O*, so that the arm *K* engages beneath the bottom of the draw-head, as seen in fig. 3.

To uncouple the cars, the weighted end of the lever *Q* is drawn up, by means of the rod *R*, (which may extend to the car-top,) or by a lever operated from the platform, or by other means; and the turning upward and backward of the crank *O* causes, first, a backward movement of the detent, to disengage its toe *k* from beneath the bottom of the draw-head; and, secondly, an upward tilting of the forward end of the detent, causing the toe to impinge against the bottom of the link, and raise the latter clear of the catch *D'*, and allow the link to be withdrawn from the draw-head.

As seen in fig. 4, the detent *I* is not arranged so as to catch beneath the draw-head, but acts only by weight, to prevent the link being accidentally thrown off the catch *D'*, its lower arm *K'* operating like that *K* in the form before referred to, to lift the link clear of the catch *D'*, when the weighted end of the lever is raised.

In the link used with this form, the trip *E* is dispensed with, the link raising the forward end of the

detent when entering. In this latter form, when either of the cars is turned over or thrown from the track, the link is released by its side coming in contact with the rounded corner *T* of the draw-head, and raising it sufficiently to clear its end from the catch *D'*.

It will be seen, that a common link may be used with my form of draw-head, and that it will become detached from the catch by the upward movement of the toe *k* of the arm *K* or *K'*, in the same manner as a link of my special form.

I claim, as my invention—

1. The link *A*, having the upturned points or horns *B B'*, the apertures *C*, and stud *F*, all arranged as shown and described.

2. The detent *I*, constructed with arms *J K*, projecting forward, and arms *L L'*, projecting backward, and adapted to operate substantially as herein described.

3. The combination of the detent *I*, link *N*, crank *O*, rock-shaft *P*, and weighted lever *Q* *q S*, as described.

In testimony of which invention, I hereunto set my hand.

J. T. MIDDLETON.

Witnesses:

GEO. H. KNIGHT,
JAMES H. LAYMAN.