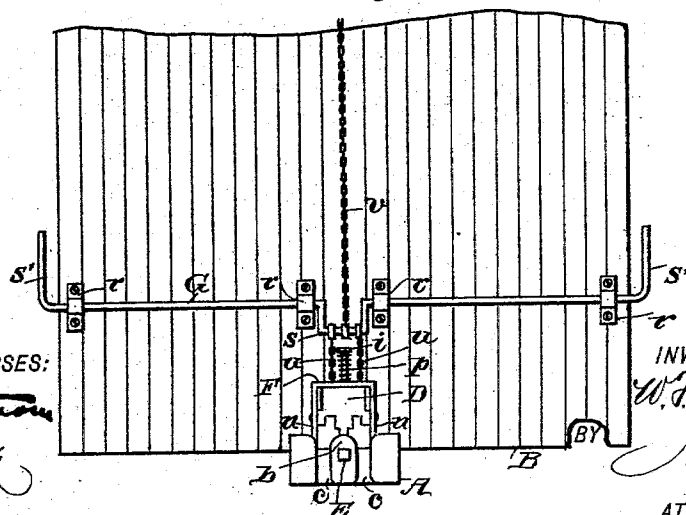
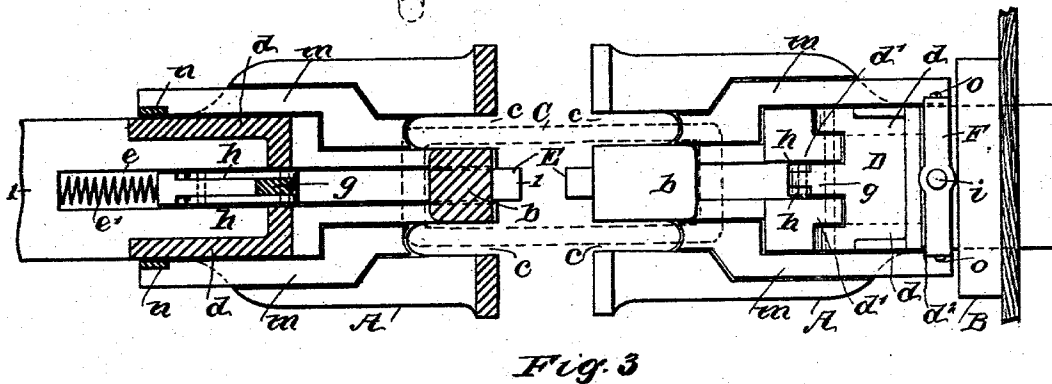
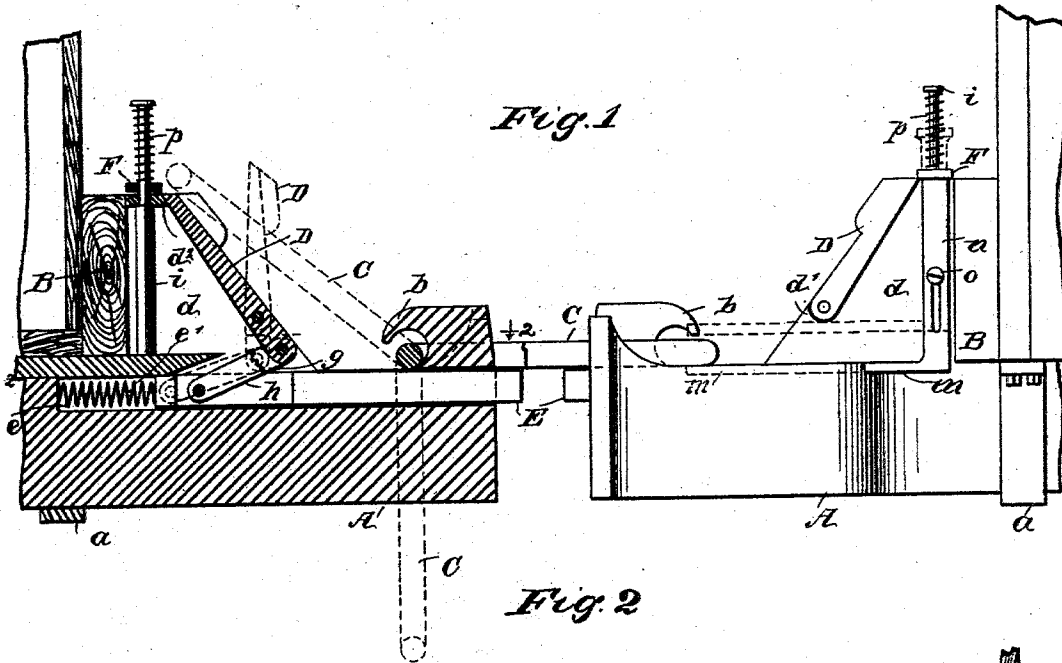


W. F. DONNELL.  
CAR COUPLING.

Patented Dec. 19, 1893.



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# UNITED STATES PATENT OFFICE.

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## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 511,073, dated December 19, 1893.

Application filed March 28, 1893. Serial No. 467,957. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM FOSTER DONNELL, of Rush Tower, in the county of Jefferson and State of Missouri, have invented a new and useful Improvement in Car-Couplings, of which the following is a full, clear, and exact description.

My invention relates to improvements in car couplings of the automatic type, and has for its objects to provide a novel, simple and practical device of the character indicated, which will automatically couple together two of the improved couplings on cars that are made to approach so as to cause an impingement of the front ends of said couplings.

A further object is to provide simple and effective means for the disconnection of two coupled devices embodying the improvement, when manipulated from either side or the roof of either car.

To these ends, my invention consists in the construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of two of the improved couplings in coupled condition, one being shown in section on the line 1—1 in Fig. 2. Fig. 2 is a plan view of two of the improved couplings, one in section on the line 2—2 in Fig. 1; and Fig. 3 is a front end view of the improvement on a car shown in part.

The drawhead A, of the improved coupling comprises an elongated metal block, of proper breadth in its forward portion which is designed to project beyond the car frame B, when in position thereon, the part of said drawhead that extends below the car, being reduced in area of cross section laterally, and held in sliding connection with the car frame by a bail loop piece *a*, or any other preferred means.

On the front end of the drawhead A, a central rearwardly curved hook *b*, is formed, and at each side of said hook similar slots *c*, are longitudinally produced therein, to permit the elongated coupling link C, to engage the hook and hang pendent in the parallel slots, as indicated by dotted lines in Fig. 1, said

hook *b* being shaped to rearwardly overhang the cylindrical end portion of the substantially rectangular link and thus prevent its accidental displacement.

On the side edges of the drawhead A, at a proper distance rearwardly of the hook *b*, two parallel flanges *d*, are erected from the drawhead body, and may be integral therewith, the front edges of said flanges being sloped downwardly and forwardly, to engage the level portion of the upper side of the drawhead, at a proper distance from the hook *b*. There is a tilting plate D, provided, which is pivoted near its lower end on ears *d'*, that are portions of the flanges *d*, said plate normally reclining against the sloped edges of the flanges named, as shown in Figs. 1 and 2.

At the transverse center of the drawhead A, a longitudinal recess *e* is formed which extends sufficiently therein from the front end rearwardly, to permit the introduction of a spring *e'*, therein which impinges the rear terminal of the recess, and has its front end in contact with the slide bar E, that loosely fits in the recess and is of such a length as will permit its front end to project a suitable distance in front of the drawhead.

The tilting plate D, has a short limb *g*, projected from its lower end, which limb is joined to two links *h*, that lap on its sides with their upper end portions which pass through parallel slots in the drawhead, the lower ends of said links being pivoted to the slide bar on its opposite sides. The relative arrangement of parts described, adapts the slide bar to throw the tilting plate forwardly at its upper end when the bar is moved rearwardly. The flanges *d*, are joined together at their upper ends, by the transverse bar *d<sup>2</sup>*, that is centrally perforated to receive a guide-rod *i*, which is vertically erected from the top wall of the drawhead A. A vertically-movable yoke plate F, is furnished, said yoke-plate being formed with two depending limbs *n*, which are parallel and are so spaced apart that they will loosely engage the outer surfaces of the flanges *d*, the spacing piece of the yoke that intervenes the limbs at their upper ends, normally resting upon the cross bar *d<sup>2</sup>*. Arms *m*, project forwardly from the lower ends of the limbs *n*, and lie upon the drawhead when in lowered adjustment, and their front portions

projecting in alignment with the slots *c*, terminate at the inner ends of said slots, so as to permit the link *C* to hang freely in the latter, and on said arms, or to lie on said arms as shown in Fig. 1. The vertical limbs *n*, are longitudinally slotted for a loose engagement with studs *o*, which project from the flanges *d*; said studs which may be screw-bolts as shown in Fig. 1, serve to limit the degree of elevation of the yoke plate. The guide rod *i*, is proportioned in length, to extend above the cross bar *d*<sup>2</sup>, so as to receive the spring *p*, that encircles the rod and bears upon the cross bar of the yoke plate, the upper end of said spring pressing upon a radial enlargement of the guide rod at its upper terminal and thus enforcing the descent of the arms *m*, when the yoke plate *F*, is free to slide downwardly.

On the front end of the car having the improved coupling, a rock shaft *G*, is loosely secured by the boxes *r*, or like means, a double crank *s*, that is formed on or affixed to the shaft near its center, being connected to the cross bar of the yoke plate *F*, by the chains *u*, or equivalent means, and between said connections another chain *v*, is upwardly extended of a length which will permit its upper end to be manipulated from the roof of the car.

At each side of the car body a crank handle *s'*, is formed or secured upon the rock shaft *G*, which parts afford means for an operator to safely manipulate the mechanism of the car coupling at either side of the car.

In service, the improved coupling being set for connection with a similar coupling on an approaching car, by disposing the link *C*, in an inclined position resting its upper end against the top of the tilting plate *D*, the forcible impact of one sliding bar *E* on the other, will throw the plate *D* into an upright position, and by its sudden vibration throw the coupling link forwardly and over the hook *b* of the adjacent drawhead, thereby effecting a coupled connection of the two drawheads as shown in Fig. 1.

When two cars having the improvement, are to be released from a coupled condition, the trainman if on the ground, rocks one of the crank handles *s'*, so as to elevate the yoke frame *F* and its arms *m*, which arms raise the link *C* sufficiently to permit it to slide from the hook it had previously engaged, it being essential for the disconnection of the link, that the coupled drawheads be made to impinge, thereby sliding the link so that it will be free from one of the hooks *b*, and adapted for elevation as stated, from the other hook.

It is claimed for this car coupling, that it is extremely simple, and very durable, that it will be adapted to suit all the needs of railroad service, and will be convenient and safe to operate, at all times.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car coupling, the combination, with a

car, and a drawhead thereon having a rearwardly curved hook on its upper side at its front end, and two parallel longitudinal slots extending from the front of the draw head at the sides of said hook, of a coupling link loosely fitting said slots, adapted to hang pendent therein and engaging said hook, and means for lifting said link from the sides or top of the car, substantially as shown and described.

2. The combination with a drawhead, having a rearwardly curved hook on its upper side at its front end, and a longitudinal slot at each side of said hook wherein a coupling link may hang pendent, of a tilting plate pivoted to the drawhead rearwardly of the hook, and inclined upwardly and rearwardly and a coupling link loosely engaging the hook and resting on said inclined plate, substantially as described.

3. The combination with a drawhead having a rearwardly curved hook on its upper side at its front end, and a longitudinal forwardly spring-pressed slide bar in the drawhead, of an upwardly and rearwardly inclined tilting plate pivoted on the drawhead and loosely connected with the slide bar, substantially as described.

4. The combination with a drawhead having a rearwardly curved hook on its upper side at its front end, an upwardly and rearwardly inclined tilting plate pivoted on the drawhead, and an inclined support for said tilting plate, of a longitudinally extending slide bar in a recess of the drawhead, a spring in said recess pressing the bar forwardly, links pivoted on a depending limb of the tilting plate and the sides of the slide bar, and a coupling link engaging the hook of the drawhead and resting on the flanged support, substantially as described.

5. The combination with a drawhead having a rearwardly curved hook thereon at the front end, and a longitudinal slot at each side of said hook, of a tilting plate pivoted on the drawhead, a slide bar below said plate, a spring in the recess behind the bar and pressing it forward, links connecting the bar and a limb on the tilting plate, a coupling link, and a lifting device for said link, substantially as described.

6. The combination with a drawhead having a transverse rearwardly curved hook thereon at the front end, an upwardly and rearwardly inclined tilting plate on the drawhead, upright supporting flanges for said plates, and a cross bar on said flanges, of an upright guide rod loose in the cross bar, a spring around the upper end of said guide rod, a yoke frame pressed upon by said spring and guided on the flanges, and arms forwardly extended from the lower end of the yoke frame, substantially as described.

WILLIAM FOSTER DONNELL.

Witnesses:

COLBERT SHELBY COLE,  
EDWARD DAVIS BUREN.