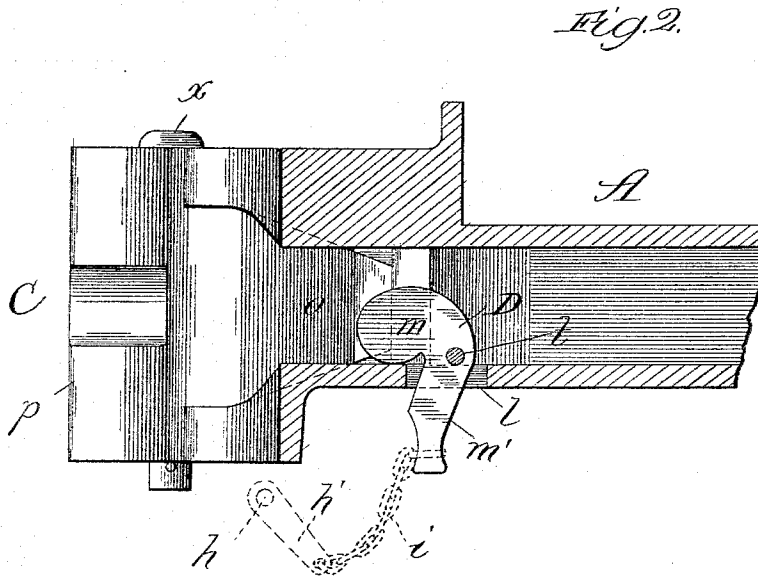
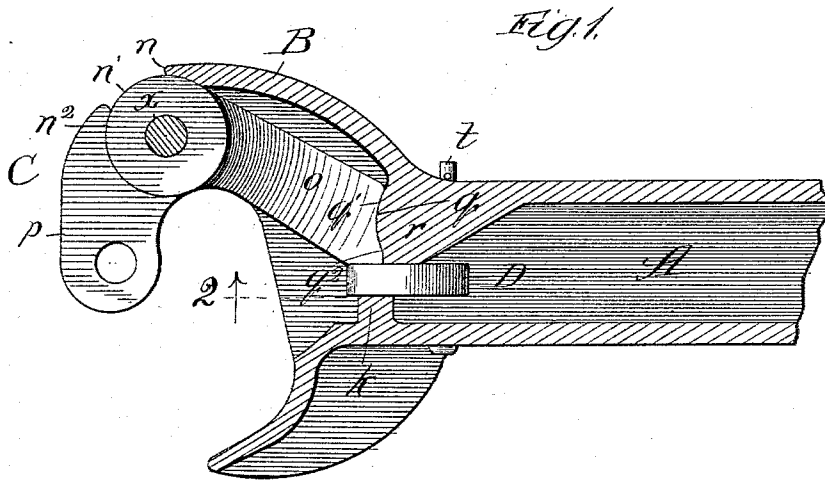


(No Model.)

J. E. FORSYTH.
CAR COUPLING.

No. 532,045.

Patented Jan. 8, 1895.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOSEPH E. FORSYTH, OF CHICAGO, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 532,045, dated January 8, 1895.

Application filed January 27, 1894. Serial No. 498,205. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. FORSYTH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Car-Couplers, of which the following is a specification.

My invention relates to an improvement in the class of car-couplers wherein the expanded head at the protruding end of the draw-bar has a jaw pivotally attached to one side to swing horizontally to lock and unlock, and provided with a tail-piece housed in the head and engaging with a yielding locking bar or pin suspended to extend into the path of the tail-piece.

My object is to improve the locking device.

According to certain constructions of the locking device known to me, a locking-pin for the tail-piece of the knuckle is suspended from the top of the coupler and protrudes through the base thereof; and it is connected through the medium of a chain, or the like, with a rock-shaft on the car adapted to be turned, from the side thereof, to swing the lower end of the locking-pin backward out of the path of the tail-piece to release it and thereby unlock the knuckle. Thus the lower end of the locking-pin is moved, by the unlocking operation, the nearer toward the usual stationary cross-bar or "carrier-iron" on which the draw-bar rests near its forward end, with the undesirable consequence of quite frequent occurrence, that when the draw-bar is forced inward by bumping, the cross-bar is struck by the locking-pin with sufficient force to fracture the latter. I overcome this objection by providing a locking head pivoted in the draw-bar to protrude downward through an elongated slot in its base, and operative to unlock by swinging the protruding end forward; my improved construction presenting the further advantage of being over balanced at its upper end in front of its pivotal support, whereby it reliably assumes, by gravity when released, its locking position with relation to the tail-piece of the knuckle.

Referring to the accompanying drawings—
Figure 1 is a broken horizontal section of a draw-bar provided with my improvement;

and Fig. 2 is a longitudinally vertical section of the same.

A is the hollow draw-bar, terminating in a head B of the usual general form thereof in the type of car-coupler known as the "master car-builder's." At the junction between the head and draw-bar, thus at the back of the head, and at one side, the casting is thickened as shown at *r*, to afford a seat which tapers backward on its inner side to the adjacent side of the draw-bar. The forward end of the thickened part *r* presents a convex protuberance *q* affording an abutment.

C is the knuckle comprising the head-portion *p* of usual or any suitable shape, and a tail-piece *o* extending at the required angle to the head-portion; and between the head and the tail-piece the knuckle is pivoted, as at *x*, to a side of the draw-head B, the forward end of which side affords, at its upper and lower ends, shoulders *n* at the outer bases of convexly rounded bearings *n'* against which fit the correspondingly concaved bearings *n''* on the knuckle. With the exception of the shoulders *n*, the knuckle-side of the draw-head is devoid of shoulders, its inner surface being regular throughout. The tail-piece *o* is straight along its outer side, or of other form that will prevent it from contacting with the adjacent inner side of the draw-head; and at its inner end it is rendered concave at *q'* to seat over and form a bearing against the protuberance *q*, the curvatures of the parts *q* and *q'* conforming to each other and being the proper distance from the pivot-center *x* to cause the inner end of the tail-piece readily to slip upon its seat till obstructed by the extension *q''* of the tail-piece, which stops further progress thereof toward the adjacent side of the draw-head.

D is my improved lock comprising a heavy metal head *m* provided with a stem *m'* pivotally supported near its junction with and back of the head, as at *t*, in the draw-bar A, through an elongated slot *l* in the base of which the stem *m'* protrudes. To brace the head *m* I provide at its side, in the draw-head B, a lug *k*. From its stem *m'* the lock D is connected, as by a chain *i*, with a crank-arm *h'* on a rock-shaft *h*.

As shown, the knuckle is in its locked position.

sition, wherein it bears at the inner end of its tail-piece *o* backward against the seat *r*, and is held against unlocking by the obstruction to the tail-piece afforded by the lock *D*, the overbalanced head *m* of which tends to maintain it in the path of the tail-piece. In this position of the tail-piece it will be observed that the impact of bumping taken by the head-end of the knuckle is transmitted by the latter directly to the seat *r* entirely in a rearward direction lengthwise of the draw-bar, thereby relieving the pivot-pin of the knuckle from strain of the impact.

To permit the head *p* of the knuckle *C* to be swung outward, for uncoupling, the shaft *h* is turned to swing the crank, say a quarter turn, whereby the chain pulls the stem *m'* of the lock *D* forward, thus farther away from the bottom cross-bar referred to of the draw-bar housing, so that when the draw-bar is forced inward, the stem will be too far removed from the cross-bar to strike it and be injured thereby. The forward movement of the stem *m'* turns the head *m* backward on its pivot *t*, thus out of the path of the tail-piece and permitting the draft to swing outward the knuckle to uncouple. When the engagement of the knuckles of companion-couplers forces the knuckles back into their coupling-positions, the tail-pieces, which are formed to pass, in their inward movement, the lock-heads *m* by turning them backward, reach the seats *r*, when the heads *m* fall back

into their obstructing or locking positions; and as will be seen, the stress of bumping is exerted through the tail-pieces against the seats *r*, thus lengthwise of the draw-bars, none being taken in the lateral direction against the side of the draw-head.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupler, the combination with the draw-bar, draw-head and swinging knuckle thereon, of a lock *D* for the tail-piece of the knuckle, comprising a stem *m'* protruding through a slot *l* in the base of the coupler and pivoted as at *t*, and a forward-overbalancing head *m*, the stem being adapted for connection with an operating-shaft *h* to be turned forward in unlocking, substantially as and for the purpose set forth.

2. In a car-coupler, the combination with the draw-bar, draw-head and swinging knuckle thereon, of a lock *D* for the tail-piece of the knuckle, comprising a stem *m'* protruding through a slot *l* in the base of the coupler, and pivoted as at *t*, and a forward-overbalancing head *m*, the stem being adapted for connection with the operating shaft *h* to be turned forward in unlocking, and a bracing-stop *k* on one side of the lock-head, substantially as and for the purpose set forth.

JOSEPH E. FORSYTH.

In presence of—

M. J. FROST,

W. N. WILLIAMS.