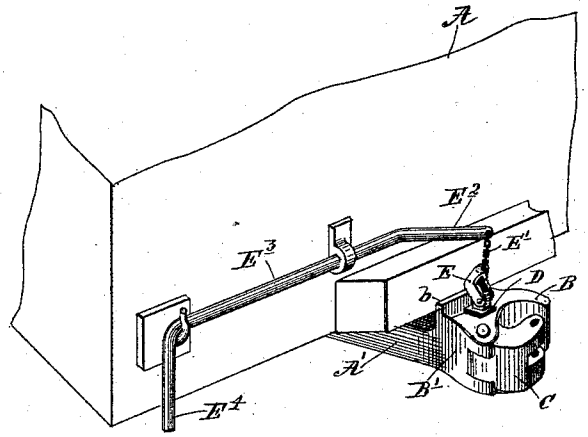
(No Model.) 2 Sheets—Sheet 1.

A. C. McCORD.

CAR COUPLING.

No. 489,976. Patented Jan. 17, 1893.

Fig. 1



Witnesses.
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Frank D. Merchant.

Inventor.
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By his Attorney
Jas. P. Williamson

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2

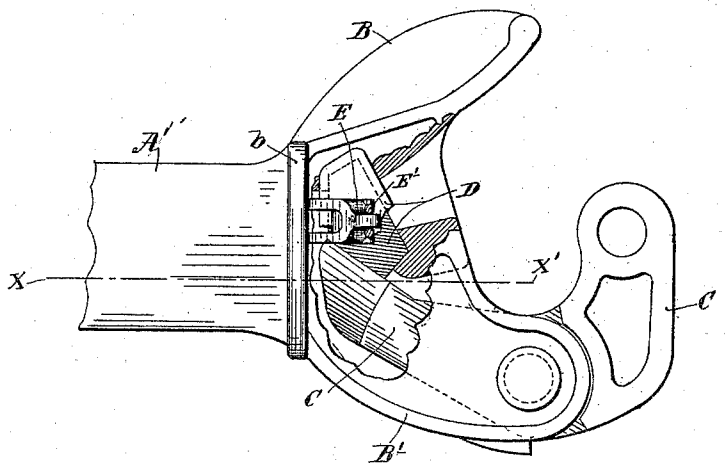
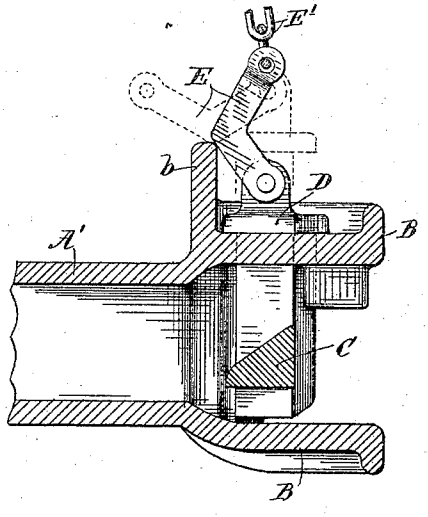


Fig. 3.



Witnesses.
A. H. Opsahl.
Frank D. Merchant

Inventor.
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By his Attorney.
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UNITED STATES PATENT OFFICE.

ALVIN CARR McCORD, OF CHICAGO, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 489,976, dated January 17, 1893.

Application filed June 16, 1892. Serial No. 436,970. (No model.)

To all whom it may concern:

Be it known that I, ALVIN CARR MCCORD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Safety-Trips for Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to car-couplers.

The object of the invention is to provide a safety-trip for use on couplers employing a vertically movable coupling pin or lock, which upon the tearing loose of the draw-bar from its fastenings will be operated by the outward movement of the draw-bar, to lift the pin and uncouple the cars, thereby preventing the draw-bar from falling on to the track.

The invention is especially designed for use on the automatic coupler described in my pending application, filed June 6, 1892, under Serial No. 435,672, but is universally applicable to couplers employing vertically movable coupling pins or locks, whether the same be automatic, or of the ordinary link and pin types.

I have shown the invention as applied to a car-coupler of the twin-jaw class, corresponding in its main features to the coupler described in my above identified application.

Broadly viewed, my safety trip comprises a connection from the car-body to the vertically movable coupling pin or lock, having as one of its elements a device for transferring horizontal into vertical strain, whereby the outward movement of the draw-bar when torn loose will lift the pin and uncouple the cars. In my preferred form of construction, this transferring device is a bell-crank link, having one arm connected directly or indirectly to the manual lifting device, located on the car-body, and the other arm connected to the head of the pin, with the angle of the link loosely bearing on a raised surface or projection formed integral with or carried by the coupler-head or draw-bar. In the normal uncoupling action, by the use of the hand device, the bell-crank link has no lever action, but simply transfers the motion in a vertical line from the lifting device to the head of the pin, raising the same to effect the release in the ordinary manner. But on an emergency, upon the breakage of the draw-bar or the loosening of the same from its fastenings, the horizontal strain on the upper arm of the bell-crank link, under the outward movement of the draw-bar, will rock the bell-crank on the fulcrum formed by its angle and the raised surface on the coupler-head, thus transferring the horizontal strain on the upper arm into a vertical strain on the coupling pin, and effecting the release. I do not, however, limit myself to this bell-crank form of the transferring device, as other constructions may be employed for the purpose.

Referring to the accompanying drawings, wherein like letters refer to like parts throughout,—Figure 1 is a perspective showing a coupler with my improvement, in working position on the car. Fig. 2 is a plan view of the coupler-head detached, some parts being broken away; and Fig. 3 is a vertical section on the line X X′ of Fig. 2.

A represents a part of the car-body.

A′ is the draw-bar, B B′ the coupler-head, and C the coupling-hook, of the well-known standard twin-jaw type.

D is the vertically movable coupling-pin or lock, for holding the coupling-hook in its closed position. The construction of the pin and the tail-piece of the coupling-hook is such that the closing movement of the hook will lift the pin and pass behind the same, when the pin will drop and lock the hook in its closed position.

E is the bell-crank link or lever, having its lower arm pivotally connected to the head of the coupling pin or lock D, and its upper end connected through the chain E′ with the crank-arm E^2 of the uncoupling rod E^3, mounted in suitable bearings on the end of the car, and extending outward near to the side of the same and provided with a hand-lever E^4, for the operation of the same by the brakeman without entering between the cars.

Instead of the rod E^3, any other suitable form of lifting device, or manual releasing device may be employed on the car. Instead of

a side action, for example, the lifting device on the car might be arranged for action from the top of the car; or the lifting device might be arranged for operation both from the side and the top of the car.

The coupler-head is, as shown, provided with an upwardly projecting flange or raised surface *b*, cast integral with the top of the coupler-head directly back of the pin-seat. In its normal position, the bell-crank link E rests with its angle or elbow loosely bearing against the raised surface *b*, as shown in full lines in Fig. 3. The arm E^2 of the uncoupling rod stands directly over the coupling-pin, in the normal position of the draw-bar, and when operated by hand, the bell-crank link or lever E, amounts simply to a continuation or link of the chain E′ connecting the rod E^2 with the head of the pin D. Hence, the strain will be transmitted in the vertical line from the rod E^2, thus lifting the pin, to effect the release in the normal action. If however, the draw-bar breaks or is torn loose from its fastening, then on the outward movement of the coupler head, inasmuch as the rod E^3 is secured to the car, a horizontal strain will be produced through the chain E′ on the upper arm of the bell-crank link E. This will rock the said link on its elbow and the raised surface *b*, as a fulcrum, thus lifting the pin, throwing the parts into the position shown in dotted lines in Fig. 3. The link E is thus seen to be a transferring device for converting the horizontal strain from the car, on the outward movement of the draw-bar, into a vertical strain on the pin, to lift the same and effect the release. All that is necessary is, to have some such transferring device, as one element of the connections from the head of the coupling pin or lock to the car-body. Instead of the bell-crank link, for example, a flexible connection might be used in conjunction with a guide-sheave carried on a raised projection fixed to the coupler-head, the manual releasing device or uncoupling rod, if used, being in that case made to rock in the opposite direction, in the uncoupling action. Or two sheaves might be employed on the raised projection of the coupler-head, between which the flexible connection would be passed, and the uncoupling rod be left to be operated exactly as herein shown.

With the bell-crank link E, it would be possible to dispense with the raised flange or surface *b* and substitute a fulcrum-block, projecting downward from the elbow of the said link; or the lower arm of the link might be so shaped that the elbow end of the same would serve as the fulcrum, when resting on the top of the coupler head. It is of course obvious, that this device is applicable as a safety trip to any kind of a vertically movable coupling pin or lock, regardless of whether the manual releasing device be employed therewith or not. If the manual releasing device be dispensed with, the chain E′ will simply be directly connected to the car-body.

The device is readily applied either to the ordinary link and pin coupler, or to any of the automatic couplers employing a vertically movable coupling-pin or lock.

What I claim and desire to secure by Letters Patent of the United States, is as follows:—

1. In a car-coupler, the combination with a vertically movable coupling-pin or lock, of a safety trip or releasing device, comprising a connection from the car-body to the pin or lock, having as one of its elements a transferring device for converting the horizontal strain from the car on the outward movement of the draw-bar into vertical strain on the pin, whereby the pin will be lifted and the cars uncoupled upon the breakage or tearing loose of the draw-bar.

2. In a car-coupler, the combination with a vertically movable coupling pin or lock, of a releasing or uncoupling device adapted for normal hand-action and emergency automatic action, comprising a lifting device secured to the car and a connection from the same to the coupling pin or lock having as one of its elements a device for transferring horizontal into vertical strain on the pin, substantially as and for the purpose set forth.

3. In a car-coupler, the combination with a vertically movable coupling pin or lock, of a safety trip comprising a bell-crank-link or lever arranged in the vertical plane having its upper arm connected to the car-body, its lower arm pivotally connected to the pin or lock, and its elbow or angle loosely bearing against a resistance surface, on the coupler-head, whereby on the outward movement of the draw-bar, the bell-crank link will be rocked and the pin be lifted, substantially as and for the purpose set forth.

4. The combination with the coupling pin mounted for vertical movement, of the raised surface formed integral with or carried by the coupler-head and the bell-crank link or lever arranged in the vertical plane, having its upper arm connected to the car-body, its lower arm pivotally connected to the coupling-pin, and its elbow or angle loosely bearing against the said raised surface on the coupler-head, the said parts operating substantially as and for the purpose set forth.

5. In a car-coupler, the combination with the vertically movable coupling-pin or lock, of a lifting device secured to the car-body, and a connection from said lifting device to the coupling-pin having as one of its elements a bell-crank link arranged in the vertical plane, adapted, under normal conditions simply to act as one link of the connection from the lifting device, and adapted, upon the outward movement of the draw-bar, to transfer the horizontal strain thereby produced, into a vertical strain on the pin, for effecting the release, substantially as described.

6. In a car-coupler, the combination with

the vertically movable coupling-pin or lock, of the uncoupling rod having an arm standing over the head of the pin, the bell-crank link arranged in the vertical plane with its upper arm connected to the arm of the uncoupling rod, and its lower arm pivotally connected to the head of the pin, and a raised surface or projection on the top of the coupler-head against which the elbow of the said link bears, the said parts operating substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALVIN CARR McCORD.

Witnesses:
H. E. ALEXANDER,
CHAS. H. KING.