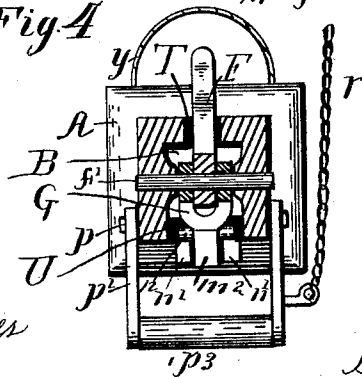
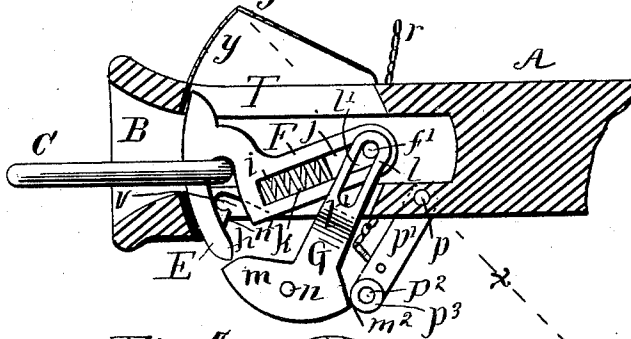
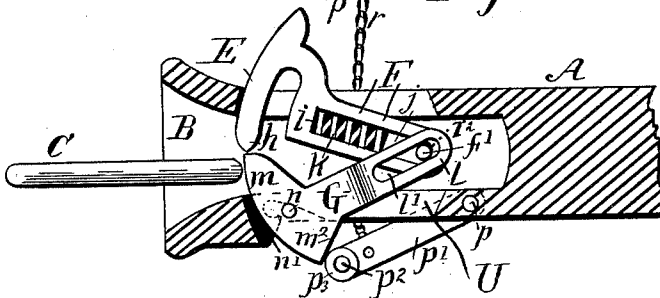
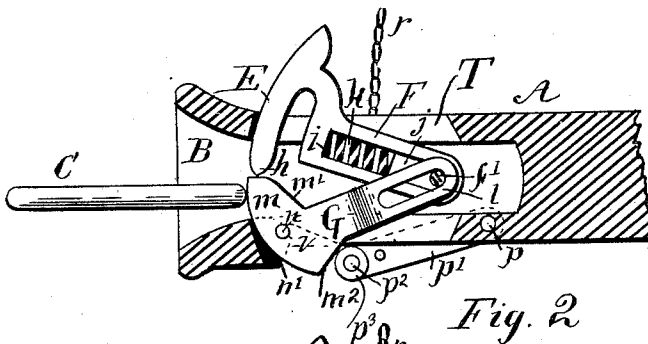


W. G. SMITH & J. E. KOHRER.
CAR COUPLING.

Patented Sept. 29, 1891.



Linus Barnes
Willis Barnes

William G. Smith
 John ^{and} Kohrer
 By George L. Barnes
 ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM G. SMITH AND JOHN E. KOHRER, OF NEW HAVEN, CONNECTICUT.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 460,225, dated September 29, 1891.

Application filed June 17, 1891. Serial No. 396,648. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM G. SMITH and JOHN E. KOHRER, citizens of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification.

Our invention relates to car-couplers, and has for its object to provide an automatic car-coupler adapted to couple cars automatically as they are brought together, and which shall retain the use of the ordinary link and permit the cars to be easily uncoupled.

The invention consists in the novel arrangement and combination, with the buffer and link, of the vertically-swinging coupling-pin and holder and their operating devices, and in the construction of the parts, as hereinafter more fully described, and particularly set forth in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a central longitudinal section through the buffer, showing the parts in position for coupling. Fig. 2 is a similar section with the holder disengaged from the supporting-shoulders. Fig. 3 is a central longitudinal section showing the parts in coupled position. Fig. 4 is a cross-section on the line x , Fig. 3, but showing the parts in coupled position.

Referring to the drawings, A designates the buffer, which is provided with the usual mouth or recess B for the reception of an ordinary link C. Back of its face the buffer is slotted lengthwise to receive a coupling-pin E, carried upon a swinging arm F in its upper part and a holder G in its lower part, both pivoted or adapted to swing on a horizontal pin or arbor f' in the buffer. The coupling-pin E is concentric with the pivotal axis upon which the arm swings, and it terminates in a point formed by a beveled or inclined surface h on its rear side, as shown. The arm F is formed with a lengthwise slot i , extending forward from the pivot-pin f' , the rear end i^2 of the slot comprising the bearing, which receives the strain upon the coupling-pin. A half-box j is fitted in said slot, with its inner side adapted to the pivot-pin f' , and a spiral spring or elastic coil k is received in the slot, bearing between the forward end thereof and

the half-box j to hold the arm, with the bearing i^2 in contact with the pin f' , except when the strain on the arm is rearward, as in backing a train, in which case the said spring will allow the arm to yield until the buffers are brought together.

In each ear l of its forked end the holder G has a slot l' , extending forward from the pivot-pin f' , by which a certain amount of lengthwise motion is permitted the said holder. The weight of the holder retains it normally with the rear end of the slot in contact with the pivot-pin, except when displaced therefrom, as hereinafter described. The forward or depending end of the holder is provided with an upwardly-extending part m , adapted normally to support the coupling-pin. The rear side m' of said extension is inclined, as shown, and an inclined surface m^2 is provided on the lower side of the holder, facing rearwardly. A locking-pin n is fastened transversely through the lower part of the holder, projecting on each side thereof, and a pair of projections n' on the lower side of the buffer form supporting-shoulders for the said locking-pin to rest on to retain the holder in its elevated position. The rear side of said projections are eccentric to the pivotal pin f' , and thus when elevated from the position shown in Figs. 3 and 4 the locking-pin in moving along the said inclines will carry the holder rearwardly, thus sliding it on the pivot-pin f' until the locking-pin is brought above the upper surface of the projections, when it will slide forward and rest upon the projections, as hereinafter described.

Inserted through the lower part of the buffer is a pin p , supporting a forked operating-arm p' , which at its lower end is provided with a transverse bar p^2 , carrying a suitable roller p^3 , or, if desired, the roller may be dispensed with, the transverse part p^2 being formed integral with the side portions of the arm. A chain r or suitable rods are connected to the said arm and arranged in position for readily raising the arm from its pendent position. (Shown in Fig. 3.) As the said arm is swung upward it will carry the holder up until the locking-pin is elevated above the projection n' , when the transverse part of the arm bearing upon the inclined part m^2 will slide the holder forward, leaving the stud

resting upon said projections. The arm p' may then be dropped, and the mechanism will be ready for coupling.

In operation, the link being set in one of the buffers, as shown in Fig. 3, as the cars are brought together the link will strike the holder of the opposite buffer, as shown in Fig. 1, thus pushing it rearwardly until the locking-pin is disengaged from the projection n' , as shown in Fig. 2. The arm F will then drop, and the coupling-pin E will fall through the link, as shown in Fig. 3. The cars will then be securely coupled. To uncouple the said mechanism it is only necessary to raise the arm to bring the holder and hook into the position shown in Fig. 1, when by starting the car ahead the link will readily be drawn out from engagement with the coupling-pin and holder, the inclined surfaces thereon readily insuring such action. It is preferable to proportion the slot T in the upper part of the buffer so that the forward edge of the pin E will bear thereon to receive the strain, and in the sides of the holder-slot V grooves v are preferably formed for the pins n to travel in against an upper flange to hold said pins from being jarred from their seats on the shoulders n' . It is also preferable to provide a case y over the slot T and arm F to exclude rain and dirt from the mechanism and prevent the formation of ice therein.

We claim as our invention—

1. In car-coupling mechanism, the combination of a buffer having a longitudinal cavity or recess to receive the coupling-link, and vertical lengthwise slots opening into said recess through the upper and lower sides of the buffer, a rock-arm hinged or pivoted to swing vertically in said upper slot and provided with a coupling pin or hook upon its outer end, a holder pivoted or hinged to swing vertically and slide lengthwise in said lower slot and adapted to support the said pin in its elevated or uncoupled position, locking means for automatically securing the holder in its elevated position, and a lifter or operating means for raising the holder into position for automatically coupling, as described.

2. In car-coupling mechanism, the combination of a buffer having a longitudinal cavity or recess to receive the coupling-link, and vertical lengthwise slots opening into said recess through the upper and lower sides of the

buffer, a rock-arm hinged or pivoted to swing vertically in said upper slot and provided with a coupling pin or hook upon its outer end, a holder pivoted or hinged to swing vertically and slide lengthwise in said lower slot and adapted to support the said pin in its elevated or uncoupled position, a locking pin or projection carried on said holder, a supporting-shoulder on the buffer adapted to engage said locking projection to support the holder in its raised position, engaging guiding-surfaces on the buffer and holder adapted to guide the said locking pin or projection over or upon said supporting-shoulder in its upward travel, and lifting or operating means for lifting the holder and thrusting it lengthwise to engage its locking-shoulder with the said supporting-slot to hold the parts in position for automatic coupling, as described.

3. In car-coupling mechanism, the combination of the buffer having a longitudinal cavity or recess to receive the coupling-link, and the vertical lengthwise slots opening into said recess through the upper and lower sides of the buffer, a spring-actuated yielding rock-arm hinged or pivoted to swing vertically in said upper slot and provided with a link pin or hook at its outer end, a holder G, pivoted or hinged on a horizontal pin in the buffer to swing vertically in said lower slot and slotted to slide lengthwise on its pin, said holder having the extension m , adapted to support the link-pin when at the outer or forward extremity of its lengthwise travel and to disengage therefrom when thrust rearward, a locking pin or projection on said holder, a supporting-shoulder on the buffer adapted to engage said locking-pin to hold the link-pin in elevated position, engaging guiding-surfaces on the holder and buffer to guide the locking-pin over said supporting-shoulder in its upward travel, a lifting-arm hinged upon the buffer and adapted to engage and operate said holder, and an inclined face or cam upon the holder adapted to be engaged by the lifter to actuate the holder into locked position, all arranged substantially in the manner and for the purpose set forth.

WILLIAM G. SMITH.
JOHN E. KOHRER.

Witnesses:

WILLIS BARNES,
MARY E. BARNES.