(No Model.)

W. A. FLOOK.

CAR COUPLING.

No. 486,864. Patented Nov. 29, 1892.

Fig. 1

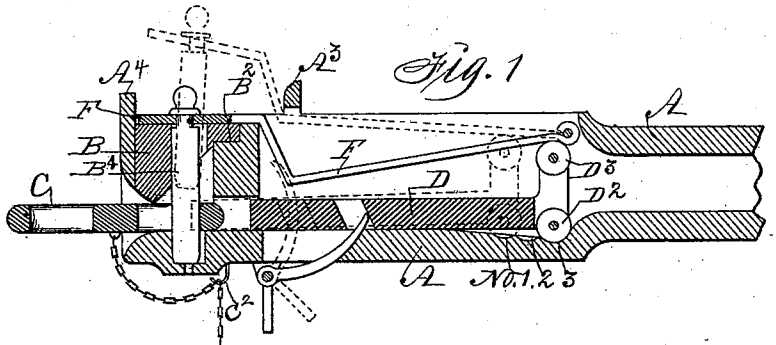


Fig. 2

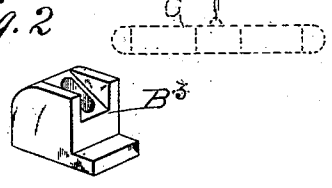


Fig. 4

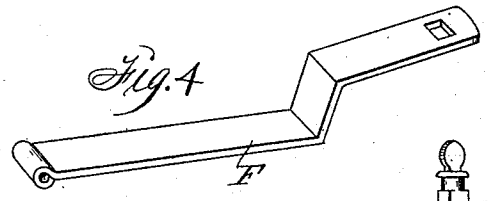


Fig. 5

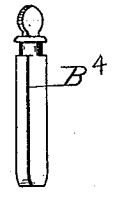


Fig. 3

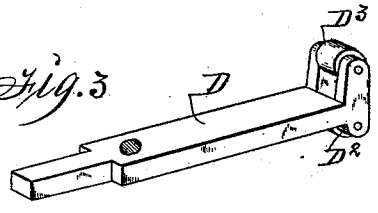


Fig. 6

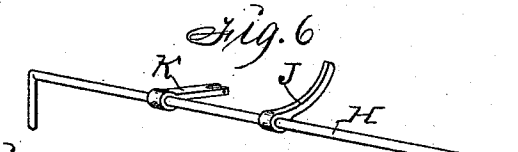
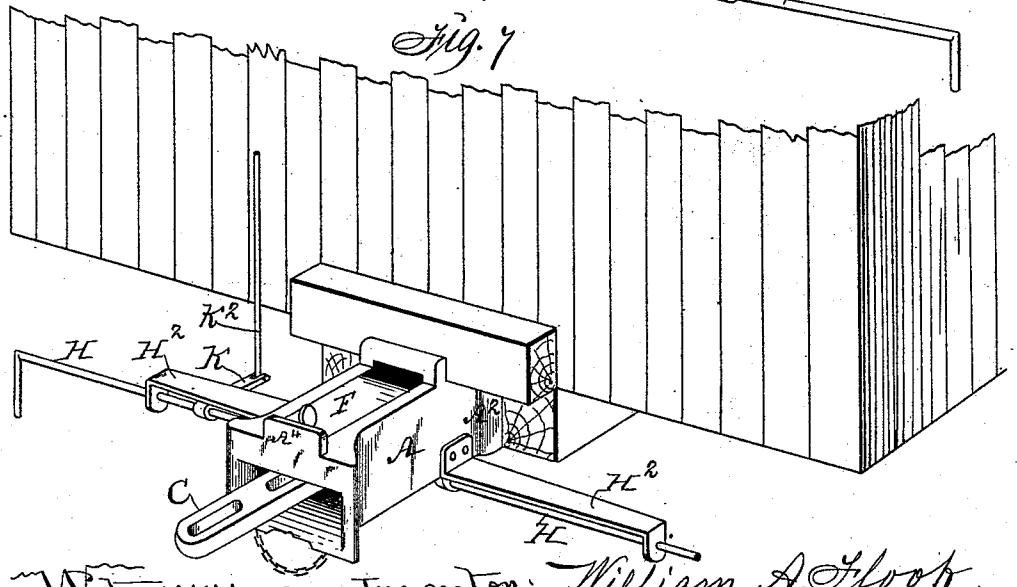


Fig. 7



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UNITED STATES PATENT OFFICE.

WILLIAM A. FLOOK, OF DES MOINES, IOWA, ASSIGNOR OF ONE-HALF TO JOHN C. HAMRICK, OF PRINCETON, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 486,864, dated November 29, 1892.

Application filed June 9, 1892. Serial No. 436,079. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. FLOOK, a citizen of the United States of America, residing at Des Moines, in the county of Polk and State of Iowa, have invented an Automatic Car-Coupling, of which the following is a specification.

My object is to avoid the dangers and accidents incident to persons going between cars to adjust coupling links and pins, as required, to couple and uncouple cars; and my invention consists in the construction, arrangement, and combination of a link-balancing device, a pin carrier and holder, and means for lifting the pin carrier and holder, and a draw-bar, as hereinafter set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view of my draw-bar, showing all the operative devices combined therewith and in their relative positions as required to retain a coupling-link balanced and level to facilitate coupling two cars together by means of the link. Dotted lines indicate the positions of the link-moving and pin-supporting device and the pin carrier and holder when the complete device is in readiness for the reception of a link projecting from the draw-head of a car that is to be coupled with a car that is equipped with my invention. Fig. 2 is a perspective view of my link-balancing device in an inverted position. Fig. 3 is a perspective view of my link-moving and pin-supporting device. Fig. 4 is a perspective view of my pin-carrier. Fig. 5 is a perspective view of a pin adapted to be adjustably and detachably fastened to the pin-carrier. Fig. 6 is a perspective view of a rock-shaft having a curved arm at its center adapted to be combined with the draw-bar, the link-moving device, and the pin-carrier. Fig. 7 is a perspective view showing my complete invention applied to a car, as required, for practical use.

A represents a draw-bar that may vary in form at its rear end as required to be connected with cars in different ways. It has shoulders A^2 at its sides, adapted to engage the front ends of wooden bars fixed to the under sides of a car, and a shoulder A^3 on its top, adapted to engage a block fixed to the front face of the car, as shown in Fig. 7. By thus providing shoulders at the sides and on top of the draw-bar the force of any blow received on the front and free end of the draw-bar, from impact with the draw-bar of another car, is distributed. The front end or head of the draw-bar has a bell-shaped mouth and link-cavity and parallel walls and a bottom in rear of the link-cavity that produce an elongated open-topped chamber adapted to admit the link-moving and pin-carrying device, as shown in Fig. 1.

A^4 is a vertical projection on the front and center of the draw-head, adapted to serve as a guard to protect the coupling-pin and pin-carrier. A cavity extending downward from the bottom of the link-cavity is adapted to admit the lower end of a coupling-pin. A cavity extending upward from the link-cavity is adapted in form to admit and retain the link-balancing device. The top of the cavity is extended rearward to produce a shoulder B^2, that will restrict the downward motions of the link-balancing device fitted in the cavity, as shown in Fig. 1.

B^3 is the link-balancing device, in the form of a metal block, adapted to descend into the cavity B far enough to engage the coupling-link in the link-cavity, as required, to retain the link balanced in a level position. An elongated pin-hole that extends vertically through the device B^3 is adapted to allow a flat-sided coupling-pin B^4 to pass up and down therein and through a link, as required, to engage and retain a coupling-link C within the link-cavity and under the device B^3, as shown in Fig. 1. An incline on the bottom of the device B^3 is adapted to let the front end of the link-moving device slip underneath, as required, to lift the device B^3. The link C has a chain attached to its center, and the free end of the chain is detachably attached to a hook C^2, projecting downward from the under side of the draw-head.

D is a link-moving device in the form of a straight flat bar adapted to slide on the bottom of the open-topped chamber extending rearward from the link-cavity. It has integral bearers at its rear end adapted to support a roller D^2 at its bottom and a roller D^3 in an elevated position. Nos. 1, 2, and 3 are

concaves across an inclined plane at the rear end top surface of the bottom of the chamber upon which the device D rests and into which concaves the roller D^2 enters and rests, as and for the purposes hereinafter set forth.

F is a pin-carrying device made by bending a flat metal bar into shape, as shown in Fig. 4. Its rear end is pivoted to the draw-bar to extend forward over the roller D^3 and incline forward from said roller to the front portion of the chamber in rear of the link-cavity and then upward and forward over the flat top of the link-balancing device B^3. An angular perforation at the front end is adapted to allow the flat body of the pin to pass downward therein, and a neck at the top of the body allows the pin to be rotated in the carrier, and a flange or head on the pin prevents the pin from passing down through the carrier. When the pin is suspended in the carrier, a quarter-revolution will prevent it from passing upward relative to the carrier and allow it to be raised and lowered in the perforation of the pin-balancing device, which perforation will prevent the pin from turning, and consequently aid in retaining the pin connected with the carrier, as required, to move jointly with the carrier in coupling and uncoupling cars.

H is a rock-shaft in bearings H^2, attached to the sides of the draw-head.

J is a curved arm projecting from the rock-shaft through a slot in the bottom of the draw-head and into a perforation in the link-moving device D, as shown in Fig. 1.

K is an arm on the rock-shaft, and K^2 is a rod connected therewith to extend to the top of a car in such a manner that the rock-shaft can be actuated therewith by a person on top of the car. Crank-handles on the ends of the rock-shaft adapt it to be operated by a person at the side of a car.

In the practical operation of my invention when two cars approach each other on a track to be coupled together and each carries a link in position, as shown in Fig. 7, one of the links is readily thrown out by a person at the side or on top of one of the cars, operating the rock-shaft, as required, to lift the pin and at the same time move the link-moving device forward, so that the operative parts will assume positions as indicated by dotted lines in Fig. 1. The link carried by the other car will then enter the vacant link-cavity and push the link-moving device rearward, as required, to allow the pin-carrier F to descend and the pin B^4 to drop through the link C, as shown in Figs. 1 and 7, and, as required, to securely couple the two cars together. When the arm J is thrown upward and forward by means of the rock-shaft, it passes upward through the perforation in the sliding device D to move that device forward, as required, to engage the link C and push it out of the link-cavity, and as the device D moves forward the elevated roller D^3, carried at its rear end, engages the link-carrier F and lifts it to elevate the pin B^4 and free the link C, as required, to uncouple.

When a car is coupled, the roller D^2 rests in the concave No. 3, and when adjusted, as required, to be in readiness for coupling it rests in the concave No. 1, as indicated by dotted lines in Fig. 1; and when it is desired to lift the pin without pushing out the link, but to allow the link to be retained under the device B^3, the roller D^2 will rest in the concave No. 2.

I claim as my invention—

1. In a car-coupling, a link-balancing device consisting of a metal block having a vertical perforation to allow a pin to descend therethrough and said block placed loosely in a cavity of corresponding form in the draw-head, in combination with a draw-head having an open-topped cavity, a coupling-link, and a coupling-pin, to operate in the manner set forth.

2. The link-balancing device B^3, having a perforation adapted to admit a flat pin B^4, having a neck and head, and a pin-carrier F, having an elongated opening across the end and in right-angled position relative to the opening in the device B^3, in combination with a draw-head having a cavity adapted to admit the device B^3 and means for raising and lowering the pin-carrier F and a pin carried thereby, as and for the purposes stated.

3. In a car-coupling, a link-moving and pin-supporting device consisting of a flat bar having roller-bearers at its rear end to carry one roller at its bottom and another roller in an elevated position, in combination with a draw-bar having a chamber extending rearward from the link-cavity and an inclined plane in the top surface of the rear part of the floor of said chamber and concave across said incline plane, adapted to receive and retain a roller, and a pin-carrier pivoted in said chamber and adapted to be lifted by the forward motion of the link-moving device, and means for sliding the link-moving device, arranged and combined to operate in the manner set forth, for the purposes stated.

4. A rock-shaft having a curved arm at its central portion in bearings fixed to a draw-bar, in combination with a sliding link-moving device having an opening to admit said arm in a chamber in rear of the link-cavity, a pin-carrying device pivoted to the draw-bar, and means for operating the rock-shaft, for the purposes stated.

5. A draw-bar having shoulders A^2 on its sides and a shoulder A^3 on its top at some distance from the shoulders at the sides, in combination with the ends of bars fixed in parallel position on the bottom of a car and a bar of dead-wood fixed across the front of a car, substantially as and for the purposes shown and described.

6. An automatic car-coupling comprising a draw-bar having an open bell-shaped mouth and link-cavity, an open-topped cavity at its front end intersecting the link-cavity, and a

link-balancing device fitted therein, an open-topped chamber extending rearward from the link-cavity, and a sliding link-moving device therein, a rock-shaft in bearings attached to the draw-bar and provided with a curved arm adapted to extend upward through an opening in the draw-bar to engage and move the sliding bar, a pin-carrier pivoted in the top and rear part of the chamber and adapted to be engaged and lifted by the forward motion of the sliding link-moving device, and a pin suspended from the front end of the pin-carrier and adapted to pass down through a perforation in the link-balancing device and also through a link in the link-cavity, all arranged and combined to operate in the manner set forth.

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