

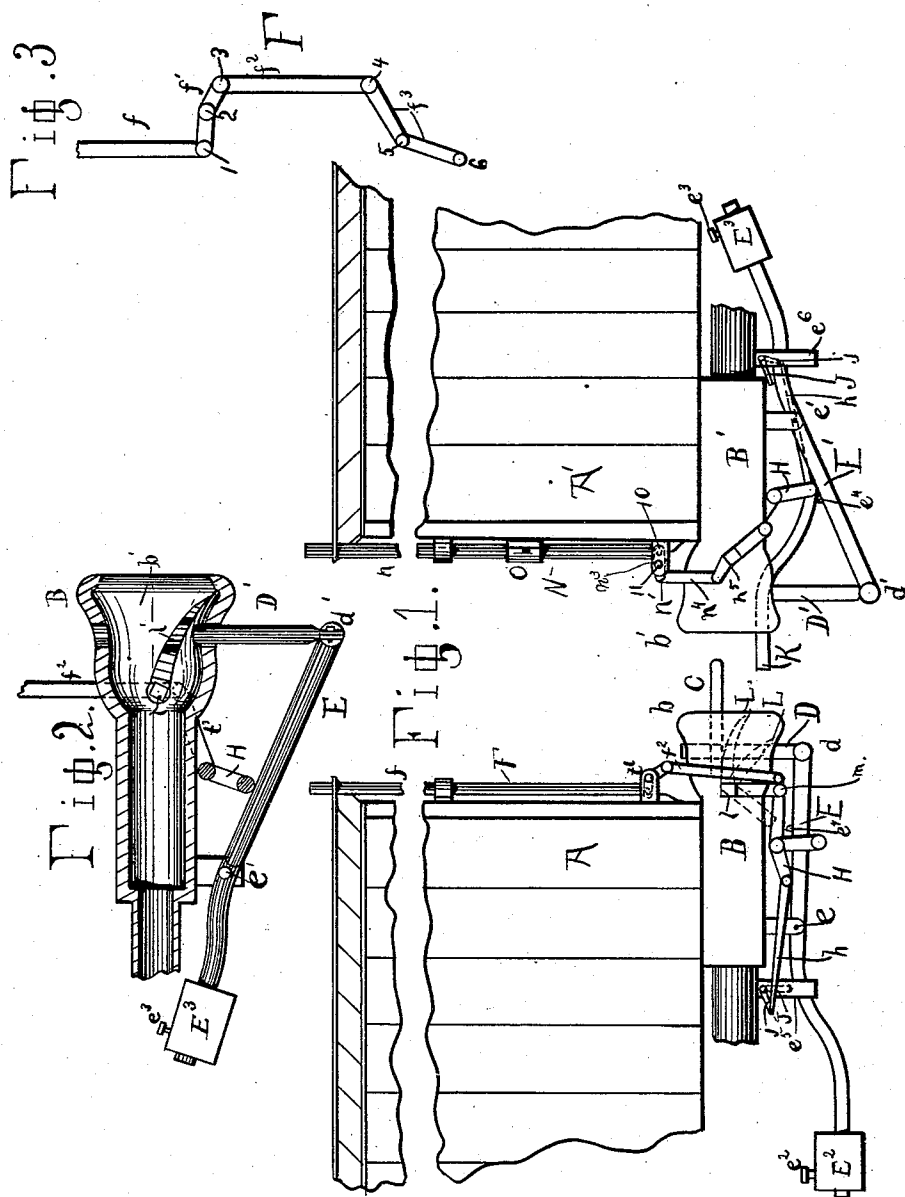
(No Model.)

2 Sheets—Sheet 1.

J. W. HAYWARD.
CAR COUPLING.

No. 532,059.

Patented Jan. 8, 1895.



WITNESSES:

James McHugh
Tom. Hayward

INVENTOR.

John W. Hayward

BY

Frank O. Loveland ATTORNEY.

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Fig. 4.

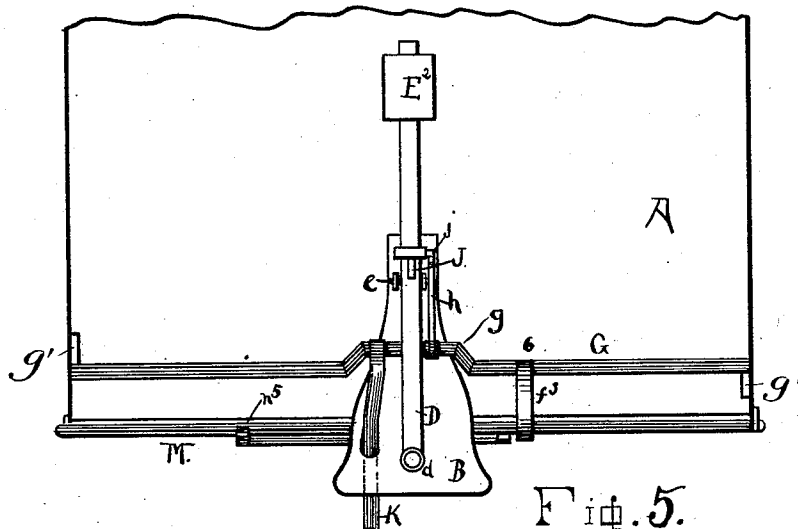
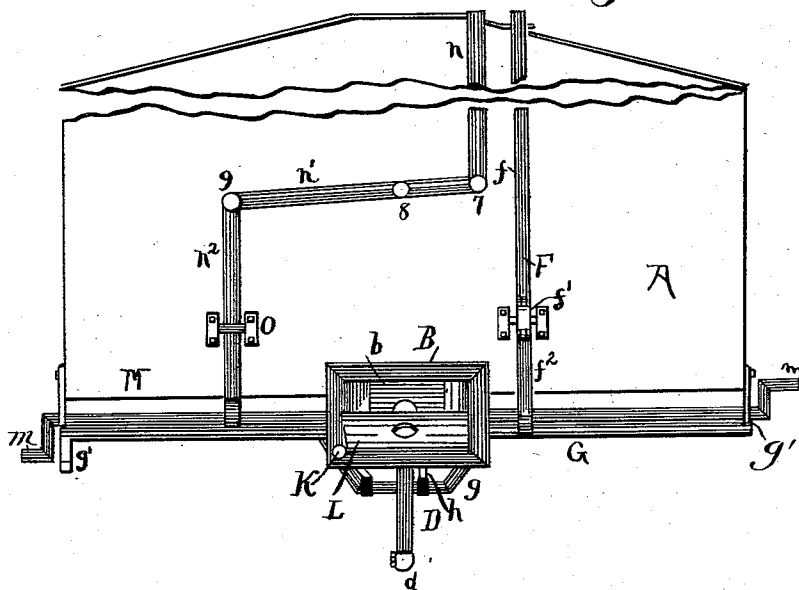


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN W. HAYWARD, OF CINCINNATI, OHIO, ASSIGNOR OF TWO-THIRDS TO HENRY M. CALDWELL AND JAMES McHUGH, OF SAME PLACE, THOMAS HAYWARD, OF NEWPORT, KENTUCKY, AND ROBERT E. HAYWARD, OF PORTSMOUTH, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 532,059, dated January 8, 1895.

Application filed February 19, 1894. Serial No. 500,776. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. HAYWARD, a subject of the Queen of Great Britain, residing in the city of Cincinnati, in the county of Hamilton, State of Ohio, have invented a new and useful Improvement in Coupling Devices, of which the following is a specification.

My invention relates to devices for coupling vehicles and is more especially adapted for use on freight cars, although it is also adapted to be used on passenger cars, street cars and other like vehicles.

My invention consists essentially, first, of mechanism, for coupling and releasing cars, operated from the top of such cars or from the ground beside them without endangering life or limb by standing between the cars while either coupling or uncoupling the same; and second of mechanism for guiding the connecting link or part of one car to engage or take into the proper part of a car to be coupled thereby, also adapted to be operated from the top or side of the cars.

Referring to the drawings: Figure 1. is a side elevation of the ends of two cars about to be coupled. Fig. 2. is a detail of the draw-bar and coupling-pin. Fig. 3. is a detail illustrating the lever motion. Fig. 4. is a bottom plan view of a part of a car. Fig. 5. is an end elevation.

A, A' are freight cars.

B, B' are draw-bars which are attached to the freight cars in the usual manner and provided with hollow ends or bell-shaped openings *b, b'*.

C is a coupling-link of the usual construction.

D, D' are coupling-pins mounted at *d, d'* by a ball and socket connection or joint in lever arm E, E' pivoted at *e, e'* to a bracket suspended from the bottom of the car or any suitable part of the frame, having a weight E², E³ on the end thereof. This weight is adapted to be moved along the lever arm and clamped in position by means of set screws *e², e³*. This weight is counterpoised which tends to force the coupling-pin D D' through the draw-bar B, B' to hold the link connecting the draw-

bars. A spring may be used in place of the weight if desired.

To force the coupling-pin out of its position in the draw-bar B to release the link (shown by the position pin D'), I employ a compound lever F which extends from the top of the car and consists of lever *f* pivoted at 1 to lever *f'* pivoted at 2 and pivotally connected at 3 to lever *f²* pivotally connected at 4 to lever *f³* pivoted at 5 and rigidly connected at 6 to a crank shaft G extending under the car and provided with a crank *g* and handles *g'*. Rigidly connected to crank *g* is a cam-arm H adapted to bear upon the lever arm E in such a way that when lever *f* is pressed downwardly by the foot or hand the crank shaft G is rotated thereby. This arm H forces the coupling-pin out of its draw-bar releasing the link at the same time it raises the weight E² which tends to return the pin to its locking position as soon as arm H is released. Arm H is so arranged that when the pin has been thrown fully out of engagement with the link arm H will stay in position by friction until it is released by hand or automatically by a part of the mechanism hereinafter to be described. A stop *e⁴* on bar E limits the movement of arm H in one direction.

In the guide *e⁵, e⁶* which depends from the draw-bar or bottom of the car and in which the lever arm E moves is a locking device or plate J having a crank arm *j* rigidly attached to it so that when the crank arm is turned this locking plate moves with it to lock or unlock lever bar E and hold the coupling-pin securely in position or to release it as may be. This crank arm *j* is connected by bar *h* with the arm H. By this arrangement it will be observed that when the arm H is operated to bear upon the lever arm E and release the coupling-pin it will through the connections named force the locking plate out of engagement and allow the bar E to rise at the end having the weight upon it and when the arm H releases its bearing force and takes the position shown on the attachment to draw-bar B, it will force the locking plate into position whereby the coupling-pin is locked securely

in its position in the hollow end of the draw-bar.

A buffer-bar K extends through the draw-bar B' (being withdrawn into draw-bar B and consequently not shown) and extends without the opening b' and is connected with the crank g on the shaft G. When two cars are coupled the bar K strikes the draw-bar on either car and forces it back under the car, turning the crank g which releases the arm H automatically, and the coupling-pin will be forced into position immediately by means of the weight on the end of the lever E'.

The great objection in using a movable link and coupling cars from any position than standing on the ground between the cars has been that the link could not be guided into the proper receiving part of the car to be coupled. I accomplish this by means of the plate L within the opening in the draw-bar. This plate is pivoted at l by being rigidly secured to a rock shaft M extending under the car and provided with handles m at the sides of the cars. This plate L may be lifted or lowered so as to lift or lower the link resting on it in the opening of the draw-bar. If it is desired to operate this plate from the top of the car it may be done by means of the compound lever N, consisting of lever n pivotally connected with lever n' which is pivoted at 8 and pivotally connected at 9 with lever n^2 passing through the guide O pivotally and connected at 10 with lever n^3 pivoted at 11 and pivotally connected at 12 with lever n^4 which is rigidly connected with the rock shaft M at n^5 . When the lever n is pressed downward by the foot or hand through the connections named it rocks the shaft M which swings the plate L as desired. The plate L is provided with a hole l' through which the coupling-pin moves freely.

The operation of my coupling device is simple. The brakeman may stand at the brake-wheel on the top of the car and operate the brake as the car approaches the car to which it is to be coupled. He lifts the link by pressing down the lever n and the bar K will automatically release the arm H and the coupling-pin will be instantly forced into position by the weight on this lever arm. If he wishes to uncouple the cars or set the pin for uncoupling, he merely presses down the lever f and lever f operates through the compound lever F, the crank shaft G, and cam-arm H, which in turn releases the locking plate J and at the same time forces the lever arm E and releases the coupling-pin.

A cord or rod may be extended underneath the car connected with the crank shaft of each car and with the engine if desired. In this way the engineer could uncouple every car on the train by a single act.

I claim—

1. The combination in a car coupling device of a draw-bar having a hollow end, a link adapted to take therein, a coupling-pin where-

by the link is secured in position in the hollow end of the draw-bar, such pin being mounted in a lever arm whereby the pin may be forced into position in the draw-bar or withdrawn therefrom, a crank shaft provided with a cam-arm adapted to engage and operate the lever arm in one direction (a weight tending to force it in the opposite direction), and a compound lever F, consisting of levers f, f', f^2 , and f^3 and adapted to rotate the same, substantially as and for the purpose described.

2. The combination in a car coupling device of a drawbar having a hollow end, a link adapted to take therein, a coupling-pin whereby the link is secured in position in the hollow end of the draw-bar, such pin being mounted in a lever arm whereby the pin may be forced into position in the draw-bar or withdrawn therefrom, a shaft provided with a cam-arm adapted to engage and operate the lever arm in one direction, (a weight tending to force it in the opposite direction,) means for rotating the shaft, and a plate for locking the lever arm, such plate being connected with and operated by the cam-arm shaft, substantially as and for the purpose described.

3. The combination in a car coupling device of a draw-bar having a hollow end, a link adapted to take therein, a coupling-pin whereby the link is secured in position in the hollow end of the draw-bar, such pin being mounted in a lever arm whereby the pin may be forced into position in the draw-bar or withdrawn therefrom, a crank shaft provided with a cam-arm adapted to engage and operate the lever arm in one direction, (a weight tending to force it in the opposite direction,) and a buffer-bar connected with the crank of the crank shaft, and adapted to extend without the hollow end of the draw-bar when the pin is withdrawn from position, whereby the crank shaft is rotated to automatically operate the coupling-pin when the outer end of the buffer-bar is impinged by the draw-bar of a car to be coupled thereto, substantially as and for the purpose described.

4. The combination in a car coupling device of a draw-bar having a hollow end, a link adapted to take therein, a coupling-pin whereby the link is secured in position in the hollow end of the draw-bar, such pin being mounted in a lever arm whereby the pin may be forced into position in the draw-bar or withdrawn therefrom, a shaft provided with a cam-arm adapted to engage and operate the lever arm in one direction, (a weight tending to force it in the opposite direction,) means for rotating the shaft, a buffer-bar connected with the shaft and adapted to rotate the same, such bar extending without the hollow end of the draw-bar when the pin is withdrawn therefrom, whereby the coupling-pin is automatically operated through the intermediate mechanism described, and a plate for locking

the lever arm, such plate being connected with and operated by the cam-arm shaft, substantially as and for the purpose described.

5 5. The combination in a car coupling device of a draw-bar having a hollow end, a plate hinged within such hollow end, a coupling-link adapted to be guided thereby, a rod or shaft adapted to swing such plate and extending without the draw-bar, a compound lever adapted to operate such rod or shaft, a coupling-pin whereby the link is secured in position in the draw-bar, a lever arm whereby the link may be forced into position in the draw-bar or withdrawn therefrom, a crank shaft
10 15 provided with a cam-arm adapted to engage and operate the lever arm in one direction (a weight tending to force it in the opposite direction) a series of levers connected with

such shaft and adapted to rotate the same, and a plate for locking the lever arm such plate being connected with and operated by the cam-arm shaft, substantially as and for the purpose described.

6. The combination in a car-coupling device of a draw-bar having a hollow end, a plate hinged within such hollow end, a coupling-link adapted to be guided thereby, a rock shaft adapted to swing such plate, and a compound lever consisting of levers n , n' , n^2 , n^3 , and n^4 adapted to operate such rock shaft, substantially as and for the purpose described.

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Witnesses:

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