

UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 308,193, dated November 18, 1884.

Application filed October 18, 1884. (No model.)

to all whom it may concern:

Be it known that I, E. FRANK O'HAYER, a citizen of the United States, residing at Murphysborough, in the county of Jackson and State of Illinois, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has relation to car-couplers, my object being to provide means whereby the connecting-link may be received into the draw-head at different elevations, thereby adapting the coupler to cars of different construction, and for the coupling and uncoupling of two cars without the necessity of standing in between the cars to be coupled; and the invention consists of certain features of construction hereinafter described, and specifically pointed out in the claims.

Referring to the drawings, Figure 1 is a longitudinal section of a draw-head provided with my improvements, the section being taken a little to one side of the center thereof, and Figs. 2, 3, 4, and 5 are details hereinafter described.

Like letters indicate like parts in all the figures.

A represents a draw-head, which is supported in any suitable manner by a draw-bar, A', and across the front end of which are cast spring-plate supports B, to each of which are secured spring-plates B'—in this instance two to each support; but there may be instead plates extending entirely across the draw-head, as desired. The top of the draw-head is slotted, as at C, which leads to a cavity, C'.

To the roof and within the cavity C' is secured in any suitable manner castings D—one on each side of the slot C—the purpose of which will be hereinafter explained and to the rear of the castings are others, D', running at right angles to the castings D and parallel to the slot C. (See Fig. 3.) The castings D are provided with bosses or raised portions D², which are longitudinally bored to form bearings for an axle, E, upon which is rotatably mounted a segmental rack, F, the periphery of which is provided with ratchet-teeth F', and the sides of which are beveled and provided with a gear, F², which gear meshes with beveled gears G, which are loosely mounted upon axles journaled in the castings D.

Upon suitable standards, H, is pivotally mounted a pawl, I, which is provided with a tooth at one end thereof, which tooth is held in contact with the teeth on the segmental rack F' by means of a flat spring, I'. A spring, J, is coiled around the axle E, one end of which is secured to the draw-head, and the other end of which is secured to the segmental rack F, so that rack F is held, if not otherwise actuated, with its handle part toward the front of the draw-head. The rack or lever F is provided with an aperture for the reception of a chain or rope, the office of which will be hereinafter explained.

In front of the gears G and rack F, and to the rear of the spring-plates B', is secured to the bottom of the draw-head—in this instance by staples or eyes L'—a buffer-plate, L, against which one end of the spring-actuated pawl I rests. The bottom of the plate is cut away, leaving depending arms, which arms, after being turned up in connection with the staples, form means for fastening the plate to the bottom of the draw-head; and the top thereof is provided with a tongue or extension, L², which retains the plate in position by abutting against the end of the slot C. The sides of the head are apertured or perforated, as at M, for the passage therethrough of a locking-lever, N, which lever is shouldered at its middle and trifurcated, forming arms N', the ends of which are struck up at a right angle to the main portion of the lever, thus forming projecting fingers or lugs O, which pass through holes O' in the draw-head just above each of the plate-supporters. The other end, P, of the lever is connected to the gear-wheels G by means of a rod, Q. It will be understood that a lever of this character is arranged on each side of the draw-head.

R, Fig. 5, represents one end of a link adapted to be used with my improved coupler, and is of that class known as the "arrow link," it being provided with shoulders R²; and in order to provide additional means for coupling the cars I have perforated my link at R' for the reception of an ordinary coupling-pin, which may be passed through the aperture S in the draw-head and down between the spring-plates; or in case the springs B' are continuous—that is, extending entirely across the draw-head—perforations are made therein for the said pin. This being the construction, the op-

eration is as follows: To set the head for coupling, a pull on the rope or chain K, which may be extended to the top of a car or to any other desired position, will cause the lever to be drawn back against the tension of the spring J, and be held in that position, as shown in Figs. 1 and 3, by the pawl I, when the car will be ready for coupling. The link of an approaching car, now being inserted, will abut against the plate L, forcing the pawl I back and releasing the ratchet, when by the tension of the spring J it will be quickly thrown to the front, rotating the gears G, which gears, by reason of their connection with the locking-lever N, will force the latter back against the walls of the head, and by reason of its being pivoted within the aperture M the trifurcations will be forced against the outside of the head, throwing the lugs or fingers O into the head, which lugs take into the shoulders R² of the link R, thereby preventing its removal from the head.

To uncouple the cars it is only necessary to pull the rope or chain K, when the gears will be rotated in an opposite direction, thus withdrawing the lugs or locking-fingers O and placing the coupler in condition for coupling. The draw-head may be inverted, the lever F being below the same, and it and the gearing thus protected from the weather.

If desired, the trifurcated levers may be arranged within the draw-head, and the fingers thereof may be formed as a continuous annular flange; but this is not the preferred construction, as the inner side walls of the draw-head are not free from obstructions, as in the arrangement of said levers as illustrated and described.

Having described my invention and its operation, what I claim is—

1. A draw-head having a series of link-receiving openings, and levers passing through

the side walls of draw-head and provided with a series of link-locking fingers, in combination with devices for operating the levers, substantially as specified.

2. The combination of the draw-head A, having the supports B, with a series of spring-plates, as B', substantially as specified.

3. The buffer-plate L, in combination with a spring, pawl, ratchet, and gear, and with link-locking levers, substantially as specified.

4. The segmental rack F, having the ratchet F' upon its periphery, and the beveled gears F² on its sides, in combination with gears G, substantially as specified.

5. The segmental rack F, having a ratchet and beveled gear thereon, said rack meshing with a spring-actuated pawl and gears, in combination with a draw-bar provided with suitable bearings, substantially as shown and described.

6. The combination of the herein-described rack F, the pawl I, spring I', standards H, rod Q, and lever N with the spring-plate L, substantially as shown and described.

7. The gears G and F and ratchet F', in combination with the castings D, secured to the draw-head, substantially as shown and described.

8. The combination of the link-locking levers, a spring-actuated segmental ratchet and intermediately-arranged devices for connecting the ratchet with the levers, a spring-actuated pawl, and a buffer-plate, substantially as shown and described.

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

E. FRANK O'HAYER.

Witnesses:

W. W. KIMBALL,
JOHN R. KANE.