(No Model.)

E. DEDERICK.

CAR COUPLING.

No. 345,282. Patented July 13, 1886.

Fig. 1

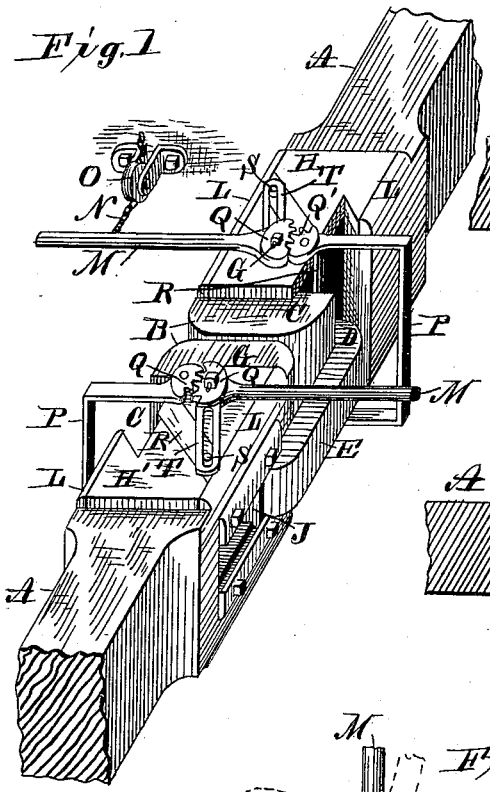


Fig. 2

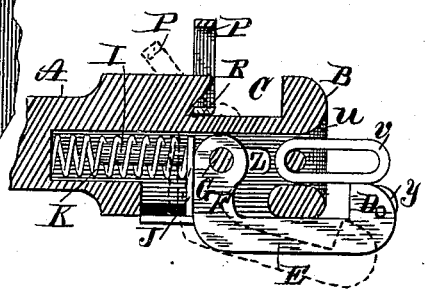


Fig. 3

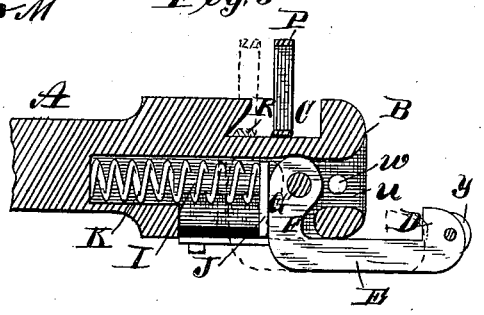
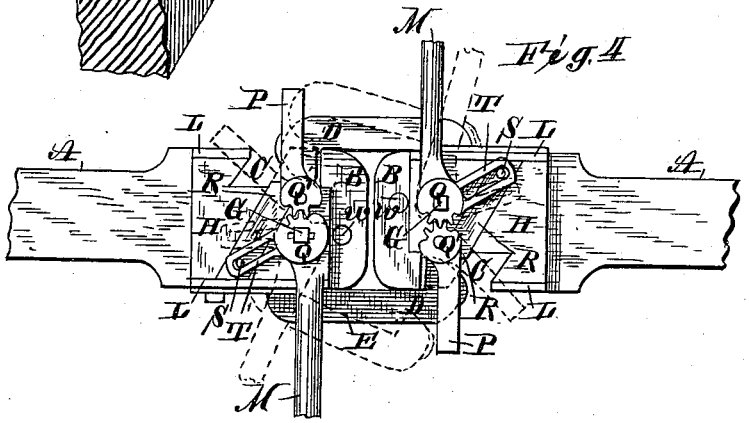


Fig. 4



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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 345,282, dated July 13, 1886.

Application filed April 27, 1886. Serial No. 200,275. (No model.)

To all whom it may concern:

Be it known that I, EZRA DEDERICK, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawings, and to the letters or figures of reference marked thereon, which form a part of this specification.

The object of my invention, the device in which the invention is embodied, and the operation of the device, will be fully understood by the following description, aided by a reference to the accompanying drawings, in which—

Figure 1 is a perspective view of two draw-bars provided with my coupling devices. Fig. 2 is a central horizontal sectional view of the draw-bar and coupling device. Fig. 3 is a central horizontal sectional view of the draw-bar and coupler, showing the same parts seen in Fig. 2, but in a different position. Fig. 4 is a top view or plan of two draw-bars having my coupling devices.

The same letters refer to like parts in all the views.

The draw-bar A is provided with a buffer-head end, B, and on one side, a little in the rear of the buffer-head end, with a vertical recess, C, adapted to receive and retain the hook D of the connecting arm or grapple E. The grapple E, at its rear end, has a side projecting arm, F, in the outer end of which the arm E is pivoted in the draw-bar A, by and through a post, G, rigid to the arm E, which post has its bearings and rotates in the sliding plates H H, the one at the top and the other at the bottom of the draw-bar, and passes down through the draw-bar in a slot adapted to permit a front and rear movement of the post therein. The arm F is let into a recess in the side of the draw-bar.

In a longitudinal recess in the draw-bar, directly in the rear of the pivoted end of the arm F, a follower, I, having a wide head, J, which follower I is held up to and against the arm F by a coiled spring, K, inserted between the follower and the rear end of the recess, in which recess the follower is adapted to reciprocate. The spring K is adapted to hold the grapple-arm E straight to the front, alongside of and projecting beyond the draw-bar; but this spring will, by compression thereof, permit the front end of the arm E to be swung outwardly, as shown by the dotted lines in Figs. 2 and 4, and will permit the arm E and attached mechanism to be pushed bodily to the rear, as shown in Fig. 2. The rear side of the arm F of the grapple is so formed as to have a cam movement against the spring K, and compress it when the front end of the grapple is swung outwardly, the recoil of which spring against the cam forces and holds the grapple-arm straight to the front. The duplicate plates H H—one above and one below the draw-bar—are adapted to slide toward the front and rear on the draw-bar, and are held in position by the side plates, L L, rigid on the sides of the draw-bar, extending slightly above the bar, forming a channel, in which the plates H H are held and move.

Affixed to the post G, and extending outwardly at right angles to the draw-bar, is the lever-handle M, by which, by moving its free outer end to the rear, the front free end of the grapple E will be thrown outwardly, and the hook D, if in engagement with another draw-bar, will be thrown out of such engagement or uncoupled. This lever-handle M should project outwardly to the outer edge of the car to which the coupler is affixed. A cord or chain, N, may be fastened at one end to this lever M, and run under a pulley, O, affixed to the car, and thence run up to the top of the car, terminating in a suitable handle, by which means, by pulling on the chain, the lever M will be swung rearwardly, and the cars be thus uncoupled, as before described. A strip or band of metal, forming a keeper, P, at a little distance from and in front of the recess C, is pivoted at its rearwardly-bent ends in the plates H and H, respectively, near to and opposite the post G. A segmental toothed gear-wheel, Q, rigid on the post G, meshes with a corresponding segmental toothed gear-wheel, Q', on the inner end of the keeper P. This keeper, when the draw-bars are coupled together by my device, as shown in Fig. 1, is over the free or hook end of the grapple E, and keeps it from uncoupling by reason of any unusual

shock, side strain, or other accident that might otherwise uncouple the cars; but this keeper can be readily thrown back away from over the arm E by moving the lever M to the rear by means of the gear-wheels Q Q'. This keeper is also forced to the rear, in the act of coupling or uncoupling cars, by the outward swinging of the front end of the grapple E, as hereinafter described, which permits the hook D to enter the recess C.

Within the recess C, and across it from top to bottom, is a bar, R, having at its top and bottom rearwardly-projecting arms extending diagonally across the plates H H in channels therefor in said plates, and having a sliding motion endwise in said channels, whereby said bar R may be moved to the front of the recess C and withdrawn to the rear of the recess C. A pin, S, in each of the outer ends of the arms of the bar R is adapted to fit into and move in a slot in a lever-arm, T, rigid at one end to the post G, whereby the lever T and the arms of bar R are made to coact, and motion of the handle M is communicated to bar R. It will be seen that by swinging the lever-handle M rearward the front end of the thereto-connected grapple E will be swung outwardly and concurrently, and by the movement of the lever-handle M the keeper P will be swung to the rearward, away from over the recess C, and the bar R will be forced to the front of the recess C, pushing out of the recess the front end or hook of grapple E of the corresponding opposing draw-bar, thereby by this swinging the handle M rearward uncoupling or releasing the grapples from both draw-bars. In the front end of the draw-bar there is an aperture or throat, U, such as is usual in the ordinary draw-bar, for receiving a link, V, such as is in common use, and vertically through the draw-bar is the usual aperture, W, for a pin to pass through and engage the link V in the ordinary manner. By these provisions in my device cars having it may also be coupled to each other, or to cars provided only with the common draw-bar by the common link and pin, as the other parts of my device will not interfere with the link-and-pin coupling; as the plates H H, with grapple E and other attached mechanism, may be all slid back out of the way, as shown in Fig. 2. A small anti-friction wheel, Y, is inserted in the front end of the grapple E, whereby as the draw-bars on two cars approach each other in the act of coupling, this wheel will impinge on the approaching buffer-head, and the front end of the grapple will be easily and surely forced outwardly by the curved end of the buffer-head, so as to pass it and take into the recess C, thus automatically coupling the cars together. It will be noticed that as the front end of the grapple is thus forced outwardly around the side of the buffer-head the keeper P, being rigid to the grapple, will be swung back, thus uncovering the recess C for the reception of the grapple.

What I claim as new, and desire to secure by Letters Patent, is—

1. A grapple-arm, E, pivoted at its rear end in a draw-bar, and provided with a hook, D, a follower, I, and a spring, K, adapted to hold the arm E up to its work, and a lever-handle, M, attached rigidly to the arm E, in combination with a draw-bar, A, provided with a recess, C, substantially as described.

2. A grapple-arm, E, provided at its rear end with a supporting-post, G, which post has its bearings and rotates in movable plates H H, the plates H H, adapted to slide lengthwise, one on the top and the other at the bottom of the draw-bar, a spring, K, adapted to hold the arm E up to its work, and a lever-handle, M, attached rigidly to the arm E, in combination with the draw-bar A, provided with a recess, C, substantially as described.

3. The combination, in a car-coupling device, of a draw-bar, A, with a grapple, E, having rigid thereto post G, and segmental gear-wheel Q, lever-handle M, keeper P, pivoted to the draw-bar and provided with a segmental gear-wheel, Q', meshing with wheel Q, substantially as described.

4. The combination, in a car-coupling device, of a draw-bar, A, having recess C, with a grapple-arm, E, having rigid post G, lever-handle M, slotted lever-arm T, and movable bar R, connected through arm T with handle M, substantially as described.

5. The combination of a draw-bar, A, with the therein-sliding plates H H, said plates having attached thereto and supported therein the grapple-arm E, and mechanism for operating the grapple, and spiral spring K, adapted to hold said grapple E and its attached mechanism up to its work, substantially as described.

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

EZRA DEDERICK.

Witnesses:
C. T. BENEDICT,
E. R. INMAN.