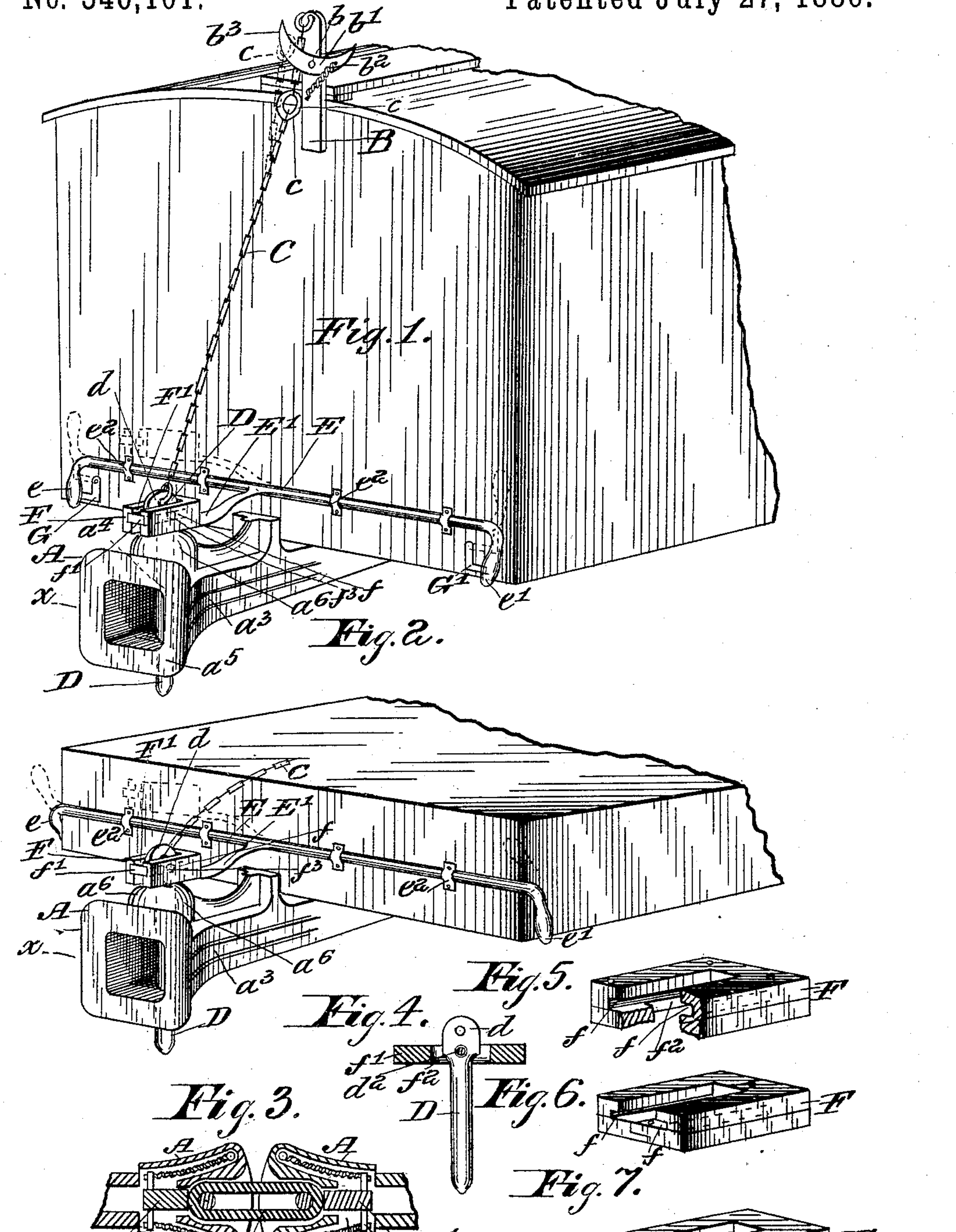
(No Model.)

J. H. HAYES.

CAR COUPLING.

No. 346,101. Patented July 27, 1886.



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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 346,101, dated July 27, 1886.

Application filed April 23, 1886. Serial No. 199,925. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. HAYES, a citizen of the United States, and a resident of the city of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Car-Couplings, of which the following is a description.

In United States Patent No. 319,250, issued to me on the 2d day of June, 1885, I described a draw-head of peculiar construction, which contained a spring-actuated tripping-block, which was provided with lateral arms which had movement in lateral openings or guide-slots in the walls of the draw-head, such movement being limited by contact of the arms with the outer extremity of the guide-slots. I also described as operating in connection with the tripping-block a standard upon which was supported a pivoted lever, and a coupling-pin protected and guided by a guard or sheath and connected by a lifting-chain to the pivoted lever. The description further embraced an opposite draw-head, the cavity of which was tapered from its mouth inwardly from top and bottom, and was provided with a spring, upon which the coupling-link was normally supported at about the mid-height of the cavity, the object being to insure the projection of the link into the cavity of the opposite draw-head, notwithstanding possible occasional variations in the elevation of the same above the plane of the railway-track.

This invention, while preserving the leading features of my former patent above referred to, consists in certain improvements upon that construction, relating particularly to the draw-head and the appliances for uncoupling used in connection therewith, and embracing certain novel parts and combinations of parts, whereby the operation of uncoupling is effected with certainty and celerity, whether the operator be standing upon the car or upon the ground outside the car and at a safe distance outside the track.

In the drawings, Figure 1 is a perspective elevation showing a portion of a box-car having my improved draw-head and coupling-pin operating mechanism applied thereto. Fig. 2 represents in perspective elevation a portion of a flat car having my improved lever-rod and its connections applied thereto. Fig. 3 is a longitudinal central horizontal section on the line $x\ x$ of Figs. 1 and 2, showing the interior construction of the draw-head. Fig. 4 represents a longitudinal central section of the slidable coupling-pin plate, the coupling-pin itself being represented in elevation. Fig. 5 represents upon an enlarged scale a modified form of the coupling-pin block, the block being composed of two horizontal sections, the upper section being open, as in Fig. 1, and the lower section being closed at each end. Fig. 6 represents a view similar to that shown in Fig. 4, but with the two sections halved together. Fig. 7 represents the coupling-pin block as of the form shown in Figs. 5 and 6, but constructed in a single piece.

Within each of the draw-heads A is the tripping-block A′, provided with arms a, which have movement in the lateral slots a', are connected by springs a^2 to the outer end of the draw-head, and are concealed and protected by covering-plates a^3, all substantially as in my former construction. The vertical openings a^4 and a^5 in the upper and lower portions of the draw-head, and the guide or sheath a^6 thereon are also essentially the same as in the patent referred to; but in connection with these elements I employ novel mechanism which may be described as follows: Suitably located and secured upon the roof of the car is a standard, B, to which a plate or hook, b', preferably of crescent form, as shown, is connected by a pivot, b. A lifting-chain, C, is suspended from the top of the standard, and a spiral spring, b^2, attached to one end of the hook b', is connected to the standard B, at a suitable distance from the end thereof, while a link, c, is adapted to engage with the opposite end, b^3, of the plate or hook b'. The chain C serves to lift the coupling-pin D from its engagement with the coupling-link, and, as will be apparent, when the chain is upon the end b^3 of the hook b' a coupling cannot be effected.

In order that the operation of uncoupling may be readily effected from the ground alongside the car, a rod, E, provided with an arm or lever, E′, and with handles $e\ e'$, is extended transversely along the end of the car and loosely secured thereto by loops c^2, or by other suitable equivalent means. The lever E′ is formed with or is surmounted by a pin-block, F, which is provided with a central slot, F′,

within the lateral walls of which are longitudinal grooves *f f*, to receive loosely by its edges a rectangular block or plate, *f'*, which is provided with a central opening, f^2, to receive the looped head or eye *d* of the coupling-pin D, and with a transverse passage, f^3, to receive a pivot-pin, d^2, which extends through the coupling-pin, and serves as a support for the same within the plate *f'*. As will be seen, the handles *e e'*, upon the extremities of the lever-rod E, project from the rod in a direction at a suitable acute angle with the plane of the lever E', so that when the handles are moved to a vertical position against the body of the car the lever will lift the pin-block F and with it the pin D, which will thus be disengaged from its coupling-link C'. Pivoted stops G G', secured to the end of the car in a position to coincide with the handles *e e'*, serve to maintain the handles in their vertical position and thereby prevent premature coupling.

It will be apparent that under a construction in which the coupling-pin could have movement in a perpendicular line only, it would, when operated by a lever which has its fulcrum in the same horizontal plane, have a tendency to stick through contact of its extremities with the walls of the guide or sheath, and it will be understood that the object of the provision of the grooves *f f* is to permit the plate *f'*, carrying the pin D, to move outward or inward, according to the movement upward or downward in the arc of a circle of the lever E'.

In Fig. 1 I have represented the pin-block F as cast in a single bifurcated piece, and I prefer this construction; but it is obvious that it may, if desired, be cast in two parts, as in Figs. 5 and 6, or in a single recessed piece, as in Fig. 7.

When the lever-rod E is applied to a flat car, as in Fig. 2, the chain C or the greater portion of it will be superfluous and may be dispensed with.

In the construction of the coupling-pin block F, it will be immaterial whether the bolt or pivot-pin d^2 be loose within the plate *f'*, or within the pin D, or within both the plate and the pin; but as insuring a minimum of friction, as well as the utmost facility of movement, the latter construction may in most cases be adopted.

The tension of the springs within the draw-head is such that the tripping-block is pressed against the link and the coupling-pin with a force sufficient to hold the link in a horizontal position.

Having described my invention, I claim—

1. The combination, in a railway-car, of a draw-head, a spring-actuated tripping-block, a lever which is pivoted upon the car, and a coupling-pin which is pivoted in a plate which is slidable in ways upon the lever, and which is provided with a lifting-chain, substantially as and for the purposes set forth.

2. The combination, in a railway-car, of a draw-head which has vertical openings, a lever which is pivoted to the car and which carries a grooved block, and a coupling-pin which is pivoted in a plate which is slidable in the block upon movement of the lever, and which is operable either from the roof or the floor of the car or from the ground outside the car.

3. In a railway-car, the combination of a draw-head which has a tripping-block, A', arms *a a*, and springs a^2 a^2, with a coupling-pin which is pivoted in a slidable plate, and which is provided with a lifting-lever and with a lifting-chain.

4. The combination, in a railway-car, of a standard secured upon the roof of the car and provided with a pivoted plate or hook, a lifting-chain suspended from the upper extremity of the standard, a coupling-pin connected to the lower extremity of the lifting-chain, and a holding-spring connected at one end to the standard and at its opposite end to an outer extremity of the pivoted plate.

5. The combination, in a railway-car, of a draw-head which has vertical openings, a pivoted lever which carries a slotted pin-block, and a plate slidable in grooves in the pin-block and carrying the coupling-pin.

6. The combination, with the draw-head provided with spring-actuated tripping-block, of the pivoted lever provided with slotted pin-block and slidable pin-carrying plate.

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