

UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 518,631, dated April 24, 1894.

Application filed July 25, 1893. Serial No. 481,411. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN T. SMITH, a citizen of the United States, and a resident of the town of Darien, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification.

This invention relates to automatically interlocking car-couplers and more particularly to that type known as the master-car-builders-type of car-couplers and consists in a novel arrangement of parts, which will permit cars supplied with this coupler to couple automatically while moving or standing on a curved section of track with the same ease as if they were moving or standing on a straight section, and will at the same time resist the knocks and heavy strains without bending, breaking or injuring the parts for a considerable length of time.

In the accompanying drawings Figure 1. is a longitudinal section and elevation of a coupler, showing my improvements. Fig. 2. is a horizontal section of the same. Fig. 3. is a plan view of the coupler. Fig. 4. is a perspective view of the uncoupling lever employed. Fig. 5. is a perspective view of one of the lock-bars provided within the coupler. Similar letters designate similar parts throughout the different views.

The fixed section or coupler-head H is adapted to be secured to a car in the usual manner and is provided with the guide-horn h at one side and with the hinge-lugs h' at the opposite side. The swinging section or knuckle K is hinged to these lugs h' by means of a pin i in the usual manner, the front part of the knuckle, when closed, is made to project beyond the hinge-lugs h', and there provided with projections k', which will receive the blows, and protect the outer part of the lugs h' and transfer the pressure to the solid portion of the coupler-head. The inner or tail-end k² of the knuckle is made very solid and preferably of the shape shown in Figs. 1 and 2 of the drawings and will when locked closely, fit into a recess h⁴ of the coupler-head filling it entirely. It is provided with the customary hook k³ fitting into a recess h³ of the coupler-head, which at this place is strengthened to re-

sist the heavy pull, which it will be subjected to in case of springing or bending of the hinge pin i, and at the same time render it capable of better resisting the heavy blows that this class of couplers receive during the coupling process. As constructed the tail-end of the knuckle and the tumblers entirely fill the cavity in the coupler-head at this point, providing there a solid mass of metal, as shown in Fig. 2.

In the upper part of the coupler-head near its neck are provided bearings for a horizontal pin m, which passes preferably through the heads of two lock levers or tumblers n, n', preferably of the shape illustrated in Figs. 1, 2 and 5, for which a recess is provided in the coupler-head sufficient to secure an oscillating motion in a vertical plane parallel to the axis of the barrel of the coupler and adapted to check a lateral motion of the tumblers.

The tumblers n, n' are provided with hooks c, c', which engage with projections o' on the lever o. The lever o is guided in the coupler-head at h⁵, and at its projecting end is provided with a chain-link o² which is attached to the lever after it has been adjusted in the slot h³, and will support it, and hold its lower end in the desired position in the central cavity h⁶ of the coupler-head.

The tumblers n, n' will be struck, in the act of coupling, successively by the paraboloidal end-face of the tail-end k² of the knuckle k, in planes, forming angles against the vertical parallel planes, in which the tumblers are swinging, near their lower ends, and are guided at this point and provided from lateral motion by a guide lug h', provided in front of the left lower corner of the central cavity h⁶ of the coupler-head.

The lever o is adjusted in the coupler-head in such a position, that each tumbler is free to rise or to drop without disturbing the position of its mate, or the lever, yet; in rising or lowering the lever o all the tumblers will be lifted, or dropped simultaneously.

The operation of coupling is then as follows: The knuckle of a coupler being turned by coming in contact with its mate attached to a moving car will first raise the tumbler n, the latter will drop by its own gravity to its normal resting position as soon as the point

of the tail of the knuckle has passed it, and while the tumbler n' is yet held in suspension. When the two cars to be coupled are standing on a curve this will end the operation for the present and the cars will remain coupled by one tumbler only (as shown in Figs. 1 and 2 in dotted lines) until the train arrives upon a straight section of the track, when the second tumbler will fall forward also, and complete the coupling operation. The employment of two tumblers, giving the best practical results, is preferable to the use of three, or more tumblers, coupling in three or more positions; I nevertheless reserve the right to use any desirable number of tumblers to suit the requirements.

To uncouple the coupler the lever o is raised by means of a chain, one end of which is attached to the ring o^2 provided thereon, while the other end is attached to a lever mounted upon a car, or by any other suitable means. Both tumblers will then be raised simultaneously to a position (shown in dotted lines for the tumbler n' in Fig. 1), and thus relieve the tail-end of the knuckle.

This coupler, besides having the advantages just described, does away with all complicated and crooked shapes of levers and locks frequently found in car-couplers and also with objectionable springs.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a car coupler the combination of a pivoted knuckle with a coupler head, provided in front over the mouth of its central cavity with bearings for a pin m and at the bottom of the cavity with a guide block h^2 ,—and two tumblers n, n' suspended from said pin and provided with hooks c, c' and recesses, as and for the purposes herein shown and described.

2. The combination with a coupler-head, a knuckle pivotally connected thereto, and two or more tumblers, of a T shaped pin for tripping and lifting the tumblers simultaneously, as and for the purposes herein shown and described.

3. In a car-coupler, the combination of a coupler-head having a paraboloidal recess terminating in a notch, with a knuckle pivotally connected thereto, having an arm, provided at its end with a paraboloidal face, terminating in a hook and fitting respectively the recess and the notch provided in the coupler-head and means for locking and unlocking the knuckle in two or more positions as and for the purposes herein shown and set forth.

Signed at New York, in the county of New York and State of New York, this 24th day of July, A. D. 1893.

STEPHEN T. SMITH.

Witnesses:

PHILIP J. RYAN,
W. H. NOAH.