

(No Model.)

2 Sheets—Sheet 2.

S. T. SMITH.
CAR COUPLING.

No. 530,558.

Patented Dec. 11, 1894.

Fig. 4.

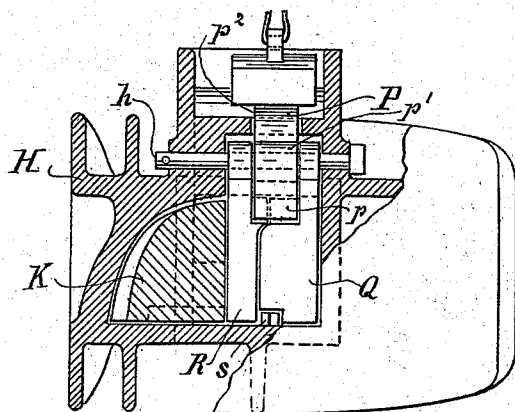


Fig. 5.

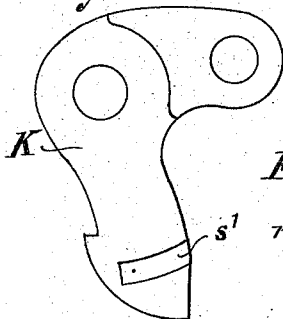


Fig. 6.

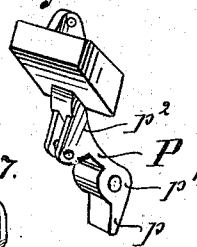


Fig. 7.

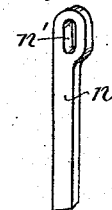


Fig. 8.

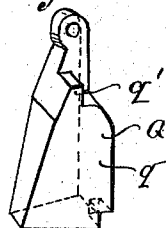
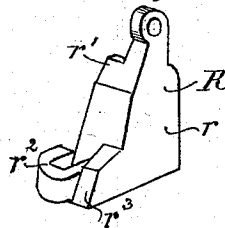


Fig. 9.



Witnesses:

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Stephen T. Smith
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His Attorney.

UNITED STATES PATENT OFFICE.

STEPHEN T. SMITH, OF NOROTON, CONNECTICUT.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 530,558, dated December 11, 1894.

Application filed February 28, 1894. Serial No. 501,784. (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 Noroton, 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.

My invention relates to automatically interlocking car couplers also known as the "master car-builders" type of car-couplers and consists in a novel construction, combination and arrangement of parts substantially as shown and hereinafter described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1, is a longitudinal section and elevation of a coupler containing my improvements, showing the parts in full lines when interlocking, and the uncoupling lever carrying a tumbler-lock-bar swung upward, and the tumbler swung backward, in dotted lines. Fig. 2, is a horizontal section through Fig. 1 by the line xy . Fig. 3, is a plan view of the coupler. Fig. 4, is a front view of the coupler partially in section, showing the tail of the knuckle in section, and the principal parts of the locking device in elevation. Fig. 5, is a bottom view of the knuckle showing the groove for the stop mounted in the coupler head. Figs. 6, 7 and 8 are perspective views of details of the locking device. Fig. 9, is a perspective view of the tumbler carrying the guide-lug for the locking bar.

Within a coupler head H , having besides the customary lugs for guiding and pivoting the knuckle K and the usual guide horn, in front, at the bottom of the cavity in its neck a stop s , which engages in a groove s' in the bottom of the tail end of the knuckle K , and limits its swinging motion, are mounted upon a pin h two tumblers R and Q and a bell crank lever P in such a manner as to secure for either one an oscillating motion in a vertical plane parallel to the axis of the barrel of the coupler.

The inner face of the tail-end of the knuckle lies preferably in a vertical plane, which runs parallel with the axis of the barrel of the coupler, and the outer contact face of the tumbler R when in full lock, and in a plane parallel with the inner contact face q of the tumbler Q when in half lock (while coupling

on a curve of a track, as shown in dotted lines in Fig. 2).

Both tumblers R and Q are resting upon the outer globular or ellipsoidal face of the tail end of the knuckle when the latter is swung open entirely, and are free to drop successively into their locking positions when the knuckle is closed and the lever P is at rest. They fill the entire cavity in front of the coupler head not occupied by the tail of the knuckle, and at the top are spared out each at one side, to make space for the hub p' and the vertical arm p of the lever P and provided with lugs q' and r' respectively which engage with the arm p and by means of which both tumblers are swung back simultaneously when the upper weighted arm p^2 of the lever P is raised, and thus free the knuckle. This arrangement makes it possible to provide a very large bearing surface and thereby a very safe lock. The arm p^2 of the unlocking lever P is bent upward and backward and passes through an opening h^2 in the top wall h^3 of the coupler head, which is preferably raised and slanting forward. At the lower side of the arm p^2 are one or two projections p^3 carrying a pin p^4 engaging in a slot n' of a tumbler lock bar n which, after passing through a slot in a lug r^2 at the lower end of the tumbler R drops into a hole or recess h^4 in the bottom wall of the coupler-head H and thereby locks the tumbler R and with the tumbler Q , (the lug r^2 lapping over sidewise at the rear of the tumbler Q) when the knuckle is swung back entirely and the coupler stands in full lock, as shown in Figs. 1 and 2.

It is evident that both tumblers could be locked separately by providing two lock bars n one for each tumbler and a corresponding slotted lug at the bottom of Q but this being an addition to the number of parts the arrangement described above is considered preferable.

The lug r^3 on the tumbler R being in contact with the lug h^5 at the bottom of the cavity in the coupler-head, guides both tumblers against undesirable lateral motion.

To the end of the weighted arm p^2 of the uncoupling lever P is attached a chain or rod o , which is guided to any desirable place at the top or side of a car and by means of which

the arm p^2 is raised, throwing back all the locks and tumblers thus unlocking the coupler, as shown in dotted lines in Fig. 1.

The operation is then as follows: On raising the arm p^2 of the bell crank lever P the tumbler-lock-bar n will first be drawn out of the hole h^4 in the bottom of the coupler-head, whereupon the inner face of the vertical arm p of the lever P will touch the outer faces of lugs r' and q' of the tumblers R and Q respectively, and on continuing the motion will swing both tumblers back simultaneously, together with the tumbler-lock-bar n , as shown in Figs. 1 and 4. The tail of the knuckle being freed, will swing open when pulled, and will be checked by a stop s when the knuckle has arrived at its extreme opening position. On releasing the pull upon the chain o the lever P will return to its primary position while the tumblers R and Q and the lock-bar n are checked by the rounded outer face of the tail end of the knuckle upon which they rest. While coupling on a curve the knuckle K frequently does not swing entirely back, yet in this case it always does far enough to allow the tumbler Q to drop, and the entire inner face of the tail end of the knuckle will come in contact with the outer inclined face q of the tumbler Q when in traction, creating a perfect lock of equal strength with the full lock, when both tumblers R and Q have dropped behind the knuckle successively and with the latter the lock-bar n . The latter serves as a safety lock for both tumblers, and prevents them from being displaced by the frequent knocks of a train and removes all danger of involuntary uncoupling of cars.

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

1. In a car coupler a pivoted knuckle in combination with a coupler head, having in

front in its central cavity, suspended from a pin passing through it transversely above said cavity, two tumblers each having the outer side face rectangular to the directrix of the supporting pin, and the inner adjoining side faces forming an oblique angle with the directrix of said pin, and a weighted bell-crank-lever fulcrumed upon said pin, one arm projecting through an opening in the top and adapted to lift the tumblers simultaneously, without interfering, when at rest, with their independent successive return as and for the purposes herein shown and described.

2. In a car coupler the combination of a pivoted knuckle with a coupler head having a recess in the bottom of its central cavity and opening in the top wall, and in front in its central cavity, suspended from a pin passing through it transversely, two tumblers each having its outer side face rectangular to the directrix of the supporting pin, and the inner adjoining side face forming an oblique angle with the directrix of said pin, and a weighted lever fulcrumed upon said pin and adapted to lift the tumblers simultaneously, without interfering, when at rest, with their independent successive return, and a tumbler-lock-bar suspended from said lever and guided in a slot of the tumbler nearest the knuckle tail, (when fully locked) and adapted to slide in the said slot and to oscillate with said lever and tumbler, and to engage with the hole or recess in the bottom wall of the coupler head, 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 27th day of February, A. D. 1894.

STEPHEN T. SMITH.

Witnesses:

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PETER B. VERMILYA.