

(No Model.)

G. W. SMILLIE.
CAR COUPLING.

No. 561,825.

Patented June 9, 1896.

Fig. 1.

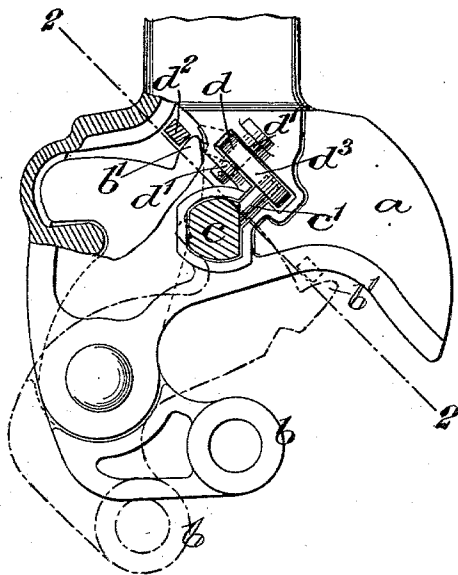
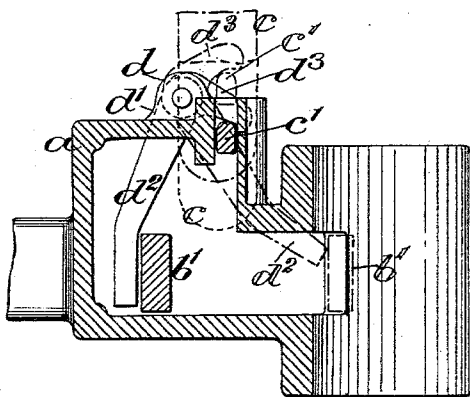


Fig. 2



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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 561,825, dated June 9, 1896.

Application filed July 19, 1895. Serial No. 556,487. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. SMILLIE, a citizen of the United States, and a resident of Newark, Essex county, and State of New Jersey, have invented new and useful Improvements in Car-Couplers, of which the following description, taken in connection with the drawings herewith accompanying, is a specification.

My invention relates to car-couplers of the vertical-plane type, and particularly to that class employing a vertically-operating locking-pin for engaging with the coupling hook or knuckle to hold the same in a closed or locked position, the objects of my invention being, first, to secure the positive and automatic opening of the knuckle upon the raising of the locking-pin to release the same, and, second, to prevent the withdrawal of the locking-pin from its position in the draw-head when raised from engagement with the knuckle to allow the opening of the same. These objects I secure by the means forming my invention, as will hereinafter be set forth in detail, and pointed out in the claim.

Referring to the drawings, Figure 1 represents a plan view of a coupler embodying my invention with the draw-head and knuckle-opener device partly broken away and the locking-pin in section; also showing the position of the several parts when the knuckle is closed and the position of the several parts in dotted lines when the knuckle is open. Fig. 2 represents a vertical section through line 2 2 of Fig. 1 looking toward the right, showing the position of the several parts when the knuckle is closed and the position of the parts in dotted lines when the knuckle is open; also showing in dotted lines the positions of the locking-pin during its action upon the knuckle-opener device.

To explain in detail, *a* represents the draw-head of the coupler; *b*, the pivoted horizontally-moving coupling hook or knuckle; *c*, the vertically-moving locking-pin adapted for engaging with the knuckle or part thereof to hold the same in a closed position, and *d* my improved knuckle-opener device. The latter, according to my invention, consists of an elbow-lever, which in the present instance shown is pivotally supported between two ears *d'* *d'*, located on the draw-head at a point

back of the locking-pin, as shown in Fig. 1. One arm, *d*², of this lever projects through an opening in the draw-head into a position to engage with a projection *b'* on the inner arm of the knuckle, as clearly shown in both figures of the drawings, the said arm *d*², as shown in Fig. 1, having a portion thereof between its ends broken away. The other and short arm, *d*³, of said elbow-lever extends in a position to be engaged by a pin or projection *c'* on one side of the locking-pin *c*, whereby the lever may be operated to move the knuckle to an open position when engaged by the said projection on the locking-pin at the upward movement of the latter when raised to release the knuckle.

The elbow-lever *d*, as shown in Fig. 1, is pivoted in such position that its knuckle-engaging arm *d*² moves in a line tangent to the arc of the circle in which the inner arm of the knuckle moves, and the said arm *d*², as more clearly shown by dotted lines in Fig. 1, is formed with an angle therein at a point between its pivot-point and the knuckle-engaging end, whereby the latter is brought nearer the inner arm of the knuckle and the length of the projection *b'* thereon with which the said lever engages is kept reduced.

The projection *c'* on the locking-pin *c* is located thereon in such position relatively to the short arm *d*³ of the elbow-lever that it engages with said lever immediately after the lower end of the locking-pin has been raised above and from engagement with the knuckle, as shown in Fig. 2, in order that the latter may be free to open, and after the locking-pin has reached such position to free the knuckle and bring the projection thereon into engagement with the arm *d*³ of the knuckle-opener it has a continued upward movement, as shown by dotted lines in Fig. 2, during which the projection *c'* thereon acts upon the knuckle-opener in a manner to cause the latter to move the knuckle to an open position, as shown in Fig. 1. By means of this construction and arrangement of parts the knuckle is both released and moved positively to an open position by the raising of the locking-pin.

The elbow-lever *d*, by reason of its arm *d*³ engaging with the projection on the locking-pin, as described, also performs the additional function of serving as a stop to limit the up-

ward movement of said locking-pin after being raised for the purpose, as above described, in order to prevent its withdrawal or disconnection from the draw-head.

- 5 Having thus set forth my invention, it will be obvious that various modifications might be made in the arrangement and construction of the several parts without departing from the spirit of my invention. For instance, the
10 locking-pin, in lieu of having the projection c' thereon for engaging with the arm d^3 of the elbow-lever to operate the latter, might be provided with a longitudinal groove therein terminating at a point to form a stop corresponding
15 in position to the projection c' thereon and adapted to serve in lieu of the latter, and the short arm b^3 of the elbow-lever be provided with a pin or projection thereon having its end extend into the said groove in the locking-pin to engage with the said stop formed
20 at the end of the same, and thus form a connecting medium between the locking-pin and

elbow-lever to serve equally well and in lieu of that before described and as illustrated.

Having thus set forth my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

The combination in a car-coupler, with the pivoted horizontally-moving coupling hook or knuckle, of a vertically-movable locking-pin 30 provided with an auxiliary and integral pin on one side thereof which extends and moves within a slot formed in the draw-head, and an elbow-lever pivotally supported in bearings on the top of the draw-head, with one arm 35 extending over said auxiliary pin, and the other arm extending downward and to the rear of an arm of the knuckle, to engage with said arm, substantially as described and for the purpose set forth.

GEORGE W. SMILLIE.

Witnesses:

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