(No Model.)

W. F. RICHARDS.

CAR COUPLING.

No. 554,310. Patented Feb. 11, 1896.

Fig. 1.

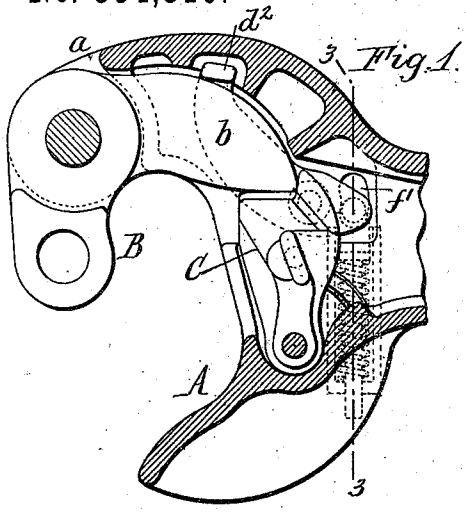


Fig. 3.

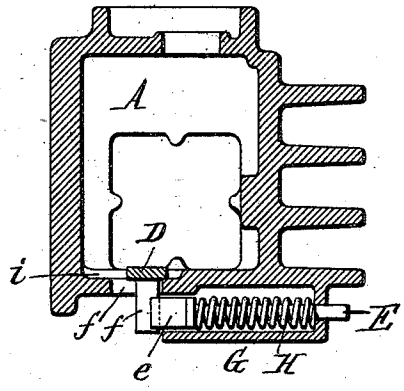


Fig. 2.

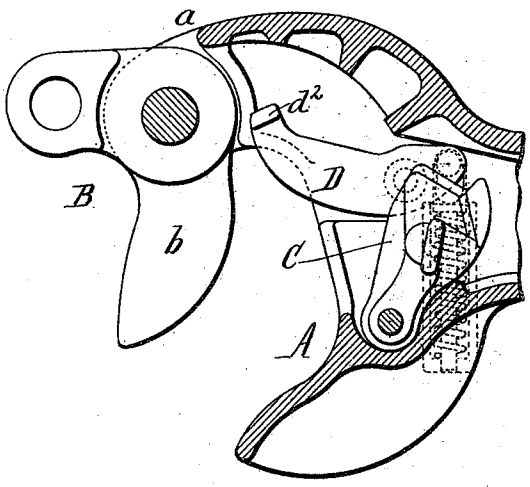


Fig. 4.

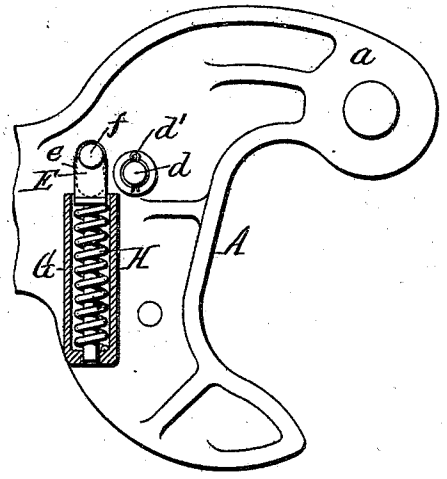


Fig. 5.

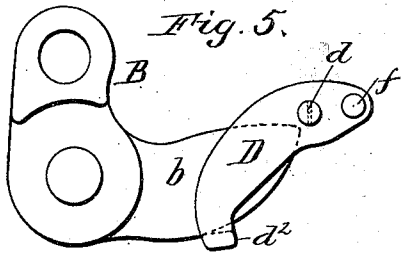
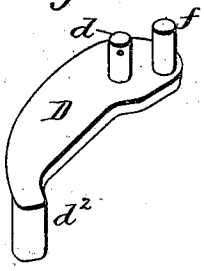


Fig. 6.



Witnesses:
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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 554,310, dated February 11, 1896.

Application filed July 25, 1895. Serial No. 557,061. (No model.)

To all whom it may concern:

Be it known that I, WILLARD F. RICHARDS, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Car-Couplings, of which the following is a specification.

This invention has more especial reference to twin-jaw car-couplings which comprise a swinging coupling jaw or knuckle, a lock for retaining the jaw in its closed position, and an automatic device, commonly called a "kicker," whereby the jaw is thrown to its open position when released by the lock.

Among other jaw-opening devices springs of various kinds have hitherto been employed; but these have proved unsatisfactory, because if compressed or strained sufficiently to throw the coupling-jaw open, they were liable to become set, while if compressed to a less extent, they failed to give the jaw the necessary impulse to open it.

My invention has for its object to produce an effective jaw-opening device of this character which will reliably and fully throw the jaw to its open position without requiring the spring to be unduly strained, thus rendering the same more durable.

In the accompanying drawings, Figure 1 is a horizontal section of a car-coupling containing my improvement, showing the coupling-jaw in its locked position. Fig. 2 is a similar view showing the position of the parts when the coupling-jaw is thrown open. Fig. 3 is a transverse vertical section of the coupling in line 3 3, Fig. 1. Fig. 4 is a bottom plan view of the same, partly in section. Fig. 5 is a detached bottom plan view of the coupling-jaw and the kicker or shifting-lever. Fig. 6 is an inverted perspective view of the shifting-lever.

Like letters of reference refer to like parts in the several figures.

A represents the draw-head, preferably constructed according to the well-known standard lines and having the usual recess or chamber for receiving the movable parts of the coupler.

B is the horizontally-swinging knuckle or coupling-jaw which is pivoted in a common manner to the bifurcated arm *a* of the draw-head, and *b* is the locking-arm of the jaw. C is the lock or pawl whereby the coupling-jaw is held in its locked position, and which may be of any well-known or suitable construction and operated by any usual means. In the drawings is shown a pivoted lock arranged to swing horizontally and adapted to interlock at its free end with the arm of the coupling-jaw.

D is the shifting-lever or kicker arranged in the lower portion of the draw-head, in rear of the coupling-jaw, and swinging horizontally on a vertical pin or pivot *d*, which is preferably formed integrally with the lever. This pivot is seated in a vertical opening formed in the bottom of the draw-head and is confined therein by a pin or cotter *d'*. The long front arm of this shifting-lever extends forwardly and outwardly under the locking-arm of the coupling-jaw, in the locked position of the latter, as shown in Fig. 1, and is formed at its free end with an upwardly-projecting lip or lug d^2, which stands in the path of the locking-arm of the coupling-jaw and is adapted to bear against the rear side thereof when the same is closed.

E is a spring bolt or rod arranged transversely on the under side of the draw-head and bearing with its head or enlargement *e* against an actuating pin or projection *f* depending from the short rear arm of the shifting-lever, the head of the bolt having a concave seat, as shown, which receives said actuating-pin. This pin extends downward through a transverse slot *f'* formed in the bottom of the draw-head. The bolt E is guided in a transverse housing or pocket G formed on the under side of the draw-head.

H is a spring surrounding the bolt E and bearing at one end against the head of the bolt and at its opposite end against the closed rear end of the pocket G.

The shifting-lever is preferably seated in a recess *i*, formed in the bottom of the draw-head, as shown in Fig. 3.

When the coupling-jaw is swung into its closed or locked position, its locking-arm, striking the lip d^2 on the front arm of the shifting-lever, swings said arm outwardly or laterally to the position shown in Fig. 1. This causes the short arm of the lever to swing to-

ward the spring-bolt E, causing the pin *f* of the short arm to push the bolt outward and compressing the spring. The lock C retains the coupling-jaw in this position against the pressure of the spring-bolt. As soon as the lock is operated to release the coupling-jaw the spring-bolt reacts and exerting its force against the pin of the short arm of the shifting-lever, swings the latter on its pivot to the position shown in Fig. 2, thereby causing the long front arm of the lever to throw the coupling-jaw to its open position, as shown in said figure.

The front arm of the shifting-lever is considerably longer than its rear arm, so that a short stroke of the rear arm produces a comparatively long stroke of the front arm, and as the spring-bolt bears against the short arm of the lever its spring is compressed to a comparatively small extent when the jaw is closed, thus effectually guarding against overstraining of the spring while at the same time producing sufficient movement of the long arm of the shifting-lever to insure the complete opening of the coupling-jaw.

I claim as my invention—

1. The combination with the draw-head, a movable coupling-jaw and a lock, of a shifting-lever pivoted between its ends to the draw-head and having its front arm arranged to bear against the coupling-jaw and a spring operating against the rear arm of the shifting-lever, substantially as set forth.

2. The combination with the draw-head, a swinging coupling-jaw having a locking-arm, and a lock, of a shifting-lever pivoted within the draw-head and arranged to bear against the locking-arm of the coupling-jaw, and a spring arranged on the under side of the draw-head and operating against said shifting-lever, substantially as set forth.

3. The combination with the draw-head having a slot in its bottom, a swinging coupling-jaw having a locking-arm, and a lock, of a shifting-lever pivoted within the draw-head, arranged to bear against the locking-arm of the coupling-jaw and provided with an operating pin or projection passing through the slot of the draw-head, and a spring-bolt arranged on the under side of the draw-head and bearing against the actuating-pin of the shifting-lever, substantially as set forth.

4. The combination with the draw-head having a slot in its bottom, a swinging coupling-jaw having a locking-arm, and a lock, of a horizontally-swinging shifting-lever arranged within the draw-head, pivoted between its ends and having its front arm provided with a lug adapted to bear against the locking-arm of the coupling-jaw and its rear arm with an actuating-pin extending through the slot of the draw-head, and a transverse spring bolt or rod guided on the under side of the draw-head and bearing against the actuating-pin of the shifting-lever, substantially as set forth.

Witness my hand this 20th day of May, 1895.

WILLARD F. RICHARDS.

Witnesses:
JNO. J. BONNER,
KATHRYN ELMORE.