(No Model.) 2 Sheets—Sheet 1.

S. G. HOWE.

CAR COUPLING.

No. 346,370. Patented July 27, 1886.

Fig. 1.

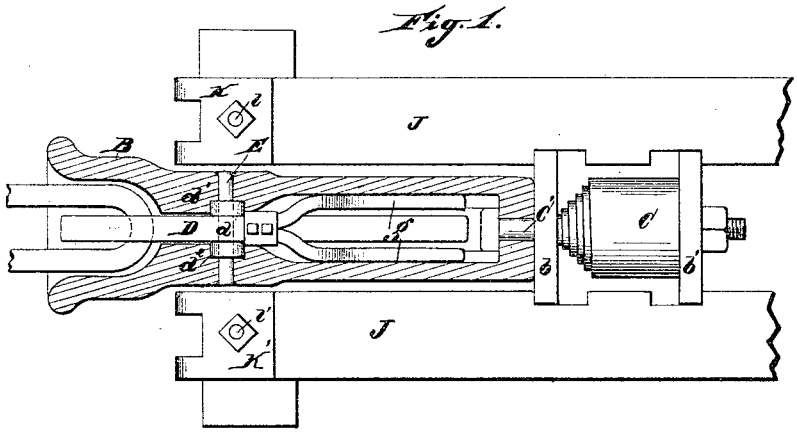


Fig. 2.

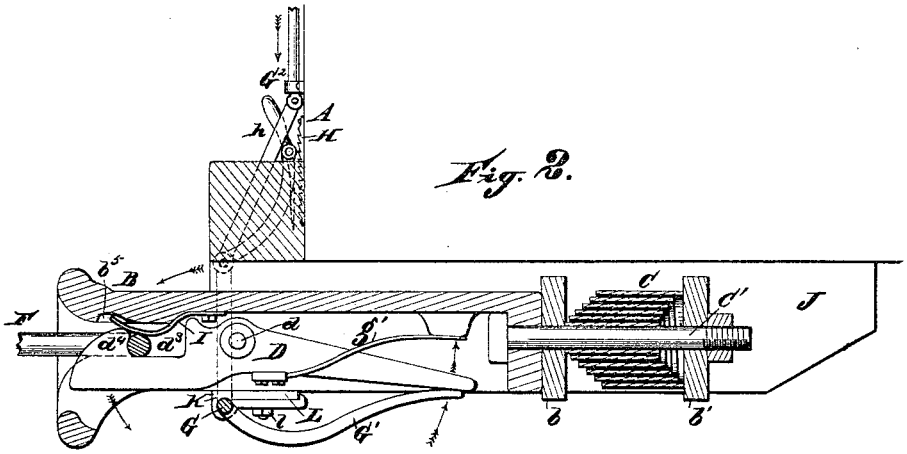
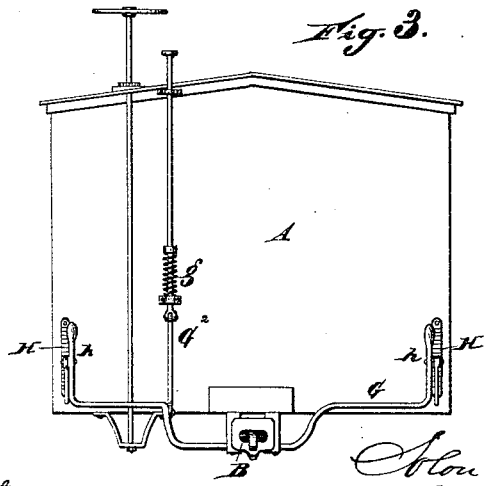


Fig. 3.



WITNESSES

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Attorney

(No Model.)

2 Sheets—Sheet 2.

S. G. HOWE.

CAR COUPLING.

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Fig. 4.

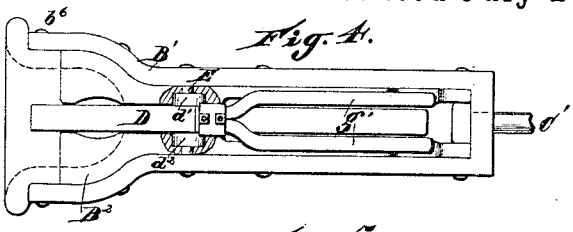


Fig. 5.

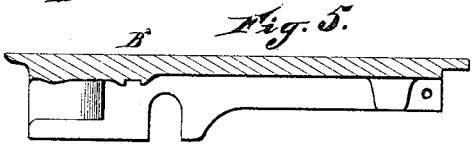


Fig. 6.

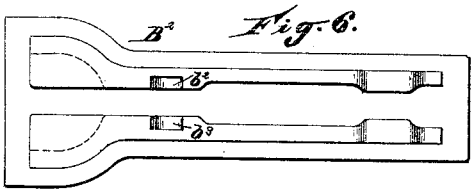


Fig. 7.

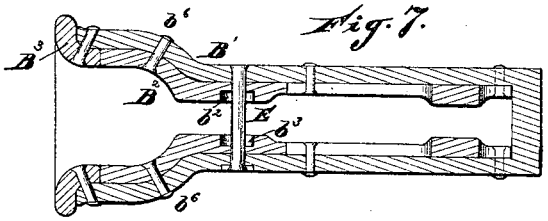


Fig. 8.

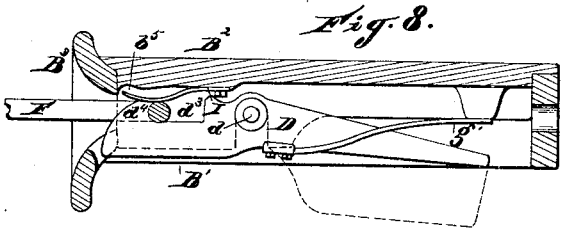
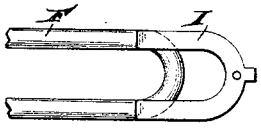


Fig. 9.



WITNESSES

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UNITED STATES PATENT OFFICE.

SOLON G. HOWE, OF DETROIT, MICHIGAN.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 346,370, dated July 27, 1886.

Application filed June 4, 1886. Serial No. 204,137. (No model.)

To all whom it may concern:

Be it known that I, SOLON G. HOWE, of Detroit, county of Wayne, State of Michigan, have invented a new and useful Improvement in Car-Couplers; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to certain new and useful improvements in car-couplers; and it consists in the construction, arrangement, and combinations of devices, more fully hereinafter described, and more particularly pointed out in the claims.

In the drawings, Figure 1 is an inverted plan of a device embodying my invention; Fig. 2, a vertical longitudinal section; Fig. 3, an end view. Fig. 4 is an inverted plan of a modification of my device; Fig. 5, a longitudinal section of the malleable casting; Fig. 6, an inverted plan of the same; Fig. 7, a horizontal longitudinal section of the draw-bar and casting complete, and Fig. 8 a longitudinal vertical section of the same. Fig. 9 is a separate view of one of the springs.

I carry out my invention as follows: In the drawings, A represents a car; B, a draw-bar engaged therewith; C, the usual spring in the rear of the draw-bar; *b b'*, the usual spring-blocks; C', the usual coupling-pin connecting the draw-bar and spring. The draw-bar is constructed with an open front end, as shown, and also is made open upon its under surface to receive an operating fastener or hook, D, rotatably engaged in place within the draw-bar intermediate of the ends of said fastener, as shown at *d*. E is the journal or pin upon which said fastener or hook is rotatably engaged. As shown, I prefer to provide the fastener adjacent to its engagement with said journal with extended shoulders d' d^2 and to recess the adjacent parts of the draw-bar, as shown at b^2 b^3, to receive said extensions of the fastener, the construction and object being to relieve the strain upon the journal when the link of the adjacent car is engaged with the fastener, and cause the strain to be communicated chiefly to the draw-bar itself. The fastener is constructed, preferably, with a curved forward extremity and recessed near its forward end, as shown at d^3, leaving a hook, d^1, over which the link F may be engaged. The rear end of the fastener is extended, as shown, and preferably beveled upon its upper face, to permit said rear end being elevated within the draw-bar, so as to tilt downward the front end of the fastener to release the link therefrom.

G represents a bar engaged upon the forward end of the car in any proper manner, and which may be bent intermediate of its ends, as shown in Fig. 3, and passed under the draw-bar. This operating-bar is provided with an extended lever-arm, G', having contact with the fastener at or near its rear end, so that when the draw-bar is tilted in the proper direction said lever-arm will force upward the rear of the fastener and tilt downward its forward end for the release of the link.

G^2 is a bar extended to the top of the car, preferably adjacent to the ordinary brake-bar, and connected at its base with the operating-bar G, so that by a pressure of the foot upon said bar G^2 the operating-bar will be tilted in the same manner as from the side of the car to tilt the fastener. I provide the bar G^2 with a spring, *g*, properly engaged for retracting the bar G when the pressure of the foot is relieved. I also provide a spring, *g'*, engaged within the draw-bar and bearing upon the fastener in any proper manner, to force it into normal position whenever the operating-bar G is not in use, the spring being designed to throw upward the forward end of the fastener to engage the link, and in which position also it is ready to receive the link of the adjacent car, as it is evident that said link may be forced into engagement with the fastener, since, when it enters the open end of the draw-bar, it will come in contact with the curved end of the fastener, depressing the forward end of the fastener to permit the passage of the link over the hooked end thereof, when the spring *g'* will cause the engagement of the fastener therewith.

H represents a rack-bar engaged upon the side of the car, and *h* any suitable ratchet mechanism engaging with the operating-bar G, to hold said bar in any desired position, in case it should be desired to keep the fastener open or its forward end tilted downward, so as to prevent coupling thereby.

I represents a spring engaged with the draw-bar upon its interior, and arranged to bear upon the link when engaged with the fastener

and to hold it in a straight or substantially horizontal position. The draw-bar may be recessed, as shown at b^5, to receive the forward end of the spring. The spring may be of any desired shape, and by its use the link may be kept in proper position for coupling with a corresponding car, without the necessity of lifting it by hand or otherwise, upon the immediate occasion of the coupling.

The draw-bar may be made of cast metal, or, as shown in Figs. 4, 5, 6, 7, and 8, it may be made of wrought metal, or partly of wrought metal and partly of malleable or cast iron, the said bar thus consisting of an outer shell, B′, with an interior casing, B^2, riveted therewith, as shown at b^6.

As shown in Fig. 7, the outer shell, B′, may have in combination therewith a bell-shaped section, B^3, of wrought metal, riveted therewith upon its forward end, and the casing B^2, made of cast or malleable metal, located in the rear of said bell-shaped section and riveted in position upon the outer shell, this cast or malleable casing being recessed to receive the extended shoulders of the fastener, and also the journal by which the fastener is secured in place, said journal passing through the outer shell, as shown at b^2. The section B^3 may be dished, so as to guide the link, and, being made of wrought metal, will receive the force of the adjacent car without liability of breakage.

The draw-bar is recessed preferably, as well as made open on its under surface, so as to permit the fastener to be closed up within the same, as shown in Fig. 2.

By constructing the fastener with extended shoulders located in corresponding recesses in the draw-bar, as described, it is obvious that greater wearing-surface is provided, and also greater strength and durability.

I prefer to construct the spring which bears upon the rear extension of the fastener double, as shown in Fig. 1, to increase its efficiency; but I would have it understood that I do not limit myself to any form of spring for this purpose; neither do I limit myself to the use of the spring alone for retracting the fastener, as it is evident that the rear end of the fastener might be weighted, as shown in dotted lines, Fig. 8, to accomplish the same result.

The operating-bar G may be conveniently secured intermediate of its ends upon the spring-timbers J by means of journal-plates K K′, secured beneath the ordinary draw-bar plates L by the same bolts, $l\,l'$, heretofore used for securing said draw-bar plate in position. The spring which bears upon the link may be made U-shaped, as shown in Fig. 9, so as to bear upon both sides of the link.

The interior of the draw-bar is preferably constructed with bearings, upon which the link may be rested when in engagement therein, and upon which the spring may press the link to hold it in a horizontal position. In the case of the solid cast-iron draw-bar these bearings are constructed integral therewith. In case a malleable or cast casing is used inside of a wrought shell these bearings would be a part of the said case.

What I claim is—

1. The combination, with a draw-bar open on its under side and a fastener pivoted therein intermediate of its ends, of an operating rock-bar extended to either side or top of the car and provided with a rearward-extending arm bearing beneath and against the rear end of said fastener, whereby the fastener can be tilted and thereby disengaged from the coupling-link, substantially as described.

2. The combination, with a draw-bar open on its under side and a fastener pivoted in said draw-bar, of a rock-bar extended to either side or top of the car and provided with a rearward-extending arm bearing against the rear under surface of said fastener, and a ratchet mechanism for holding said rock-bar in a given position, substantially as described.

3. The combination, with a draw-bar open on its under side and a fastener pivoted in said draw-bar, of an operating-bar extended to the top or side of the car and provided with a rearward-extending arm for engaging the rear end of said fastener, means for holding said operating-bar in a given position, and a spring for retracting the fastener when the operating-bar is released, substantially as described.

4. The combination, with a draw-bar open on its under side and a fastener pivoted in said draw-bar, of a rock-bar having a rearward-extending arm for tilting said fastener and disengaging it from the link, a ratchet mechanism for holding said rock-bar in a given position, means for retracting the fastener when the rock-bar is released, and a spring for holding the engaged link in a substantially horizontal position, substantially as described.

5. The combination, with a draw-bar open on its under side, of a fastener pivotally engaged therewith, said fastener constructed with extended shoulders, and said bar recessed adjacent to said shoulders, whereby the strain may be communicated from the fastener to the draw-bar, substantially as described.

6. A draw-bar constructed with a wrought-metal shell having in combination therewith an interior casing of malleable or cast metal engaged therewith, substantially as described.

7. In a draw bar, the combination, with an exterior wrought-metal shell, of a bell-shaped section, B^3, engaged with the forward end of said shell, substantially as described.

8. In a draw-bar, the combination, with a wrought-metal shell, of a wrought-metal bell-shaped section engaged with said shell at its forward end, and the cast or malleable casing located within said shell in the rear of said bell-shaped section, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

SOLON G. HOWE.

Witnesses:
N. S. WRIGHT,
M. B. O'DOGHERTY.