

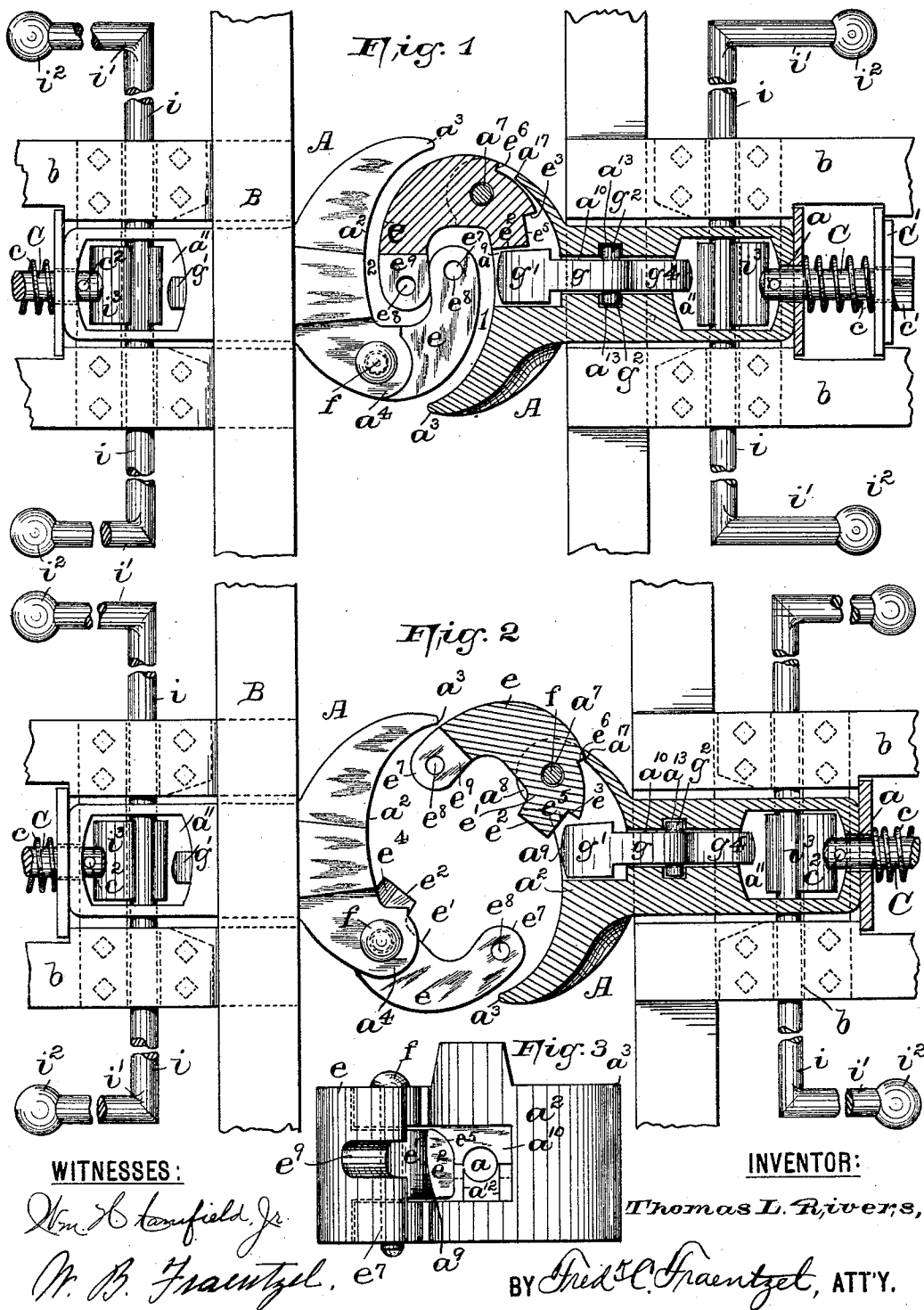
(No Model.)

2 Sheets—Sheet 1.

T. L. RIVERS.
CAR COUPLING.

No. 482,833.

Patented Sept. 20, 1892.



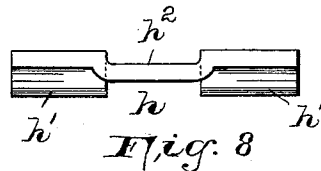
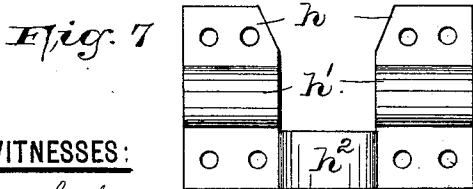
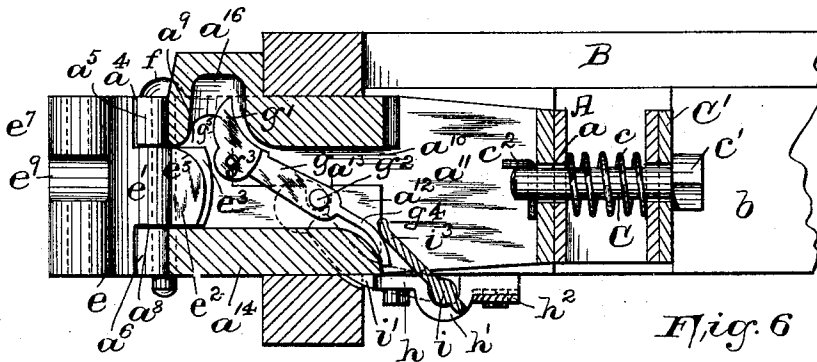
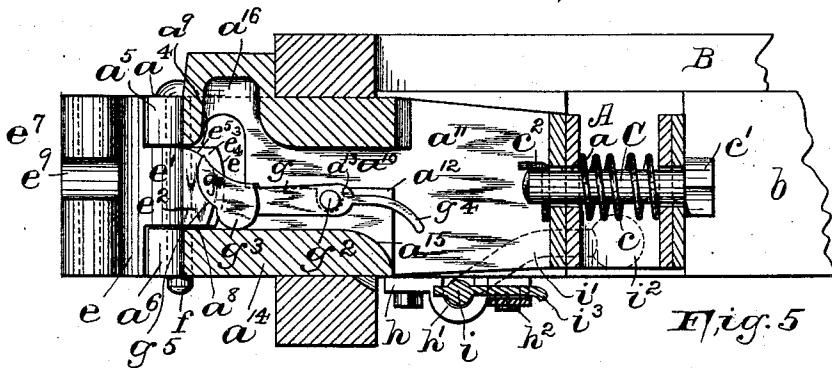
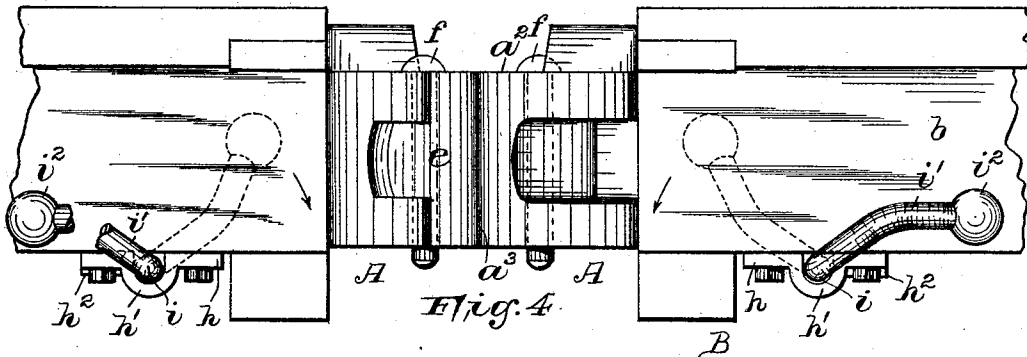
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2 Sheets—Sheet 2.

T. L. RIVERS.
CAR COUPLING.

No. 482,833.

Patented Sept. 20, 1892.



WITNESSES:

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INVENTOR:

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BY
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UNITED STATES PATENT OFFICE.

THOMAS L. RIVERS, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-THIRD
TO JONAS THIELEMANN, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 482,833, dated September 20, 1892.

Application filed April 27, 1892. Serial No. 430,866. (No model.)

To all whom it may concern:

Be it known that I, THOMAS L. RIVERS, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

My present invention relates to improvements in car-couplings, and has for its object to provide a simply and cheaply constructed car-coupler of the type generally known as "twin-jaw couplers," which shall be automatic in its coupling two cars, and is so arranged that an ordinary coupling link and pin can be used in connection therewith.

The invention therefore consists of certain arrangements and combinations of parts, such as will be hereinafter more fully described, and finally embodied in the clauses of the claim.

In the accompanying sheets of drawings, in which similar letters of reference are employed to indicate corresponding parts in each of the several views, Figure 1 is a horizontal section through one of the draw-heads and a plan of the other draw-head, the two couplings being represented in their connected or coupled positions when the train is under way. Fig. 2 is a like view of the two couplings, with their jaws open, showing them in their relative positions when two cars are backed down toward one another to be coupled. Fig. 3 is a front end view of one of the couplings. Fig. 4 is a side view of the two connected couplings, illustrating, also, in side view certain levers for operating a tripping mechanism, whereby the pivoted jaws may be disconnected. Fig. 5 is a longitudinal vertical section of one of the draw-heads, illustrating the operating mechanism in its normal and holding or locking position; and Fig. 6 is a similar view of the said parts on one of the couplings after they have been operated by the operating-lever on either side of a car

just previous to disconnecting the two couplings or before they are to be coupled. Fig. 7 is a plan view of a bearing-plate for a shaft connecting the two operating-levers, and Fig. 8 is an end view of the same.

In the drawings, B represents the usual framework beneath a car, between the draft-sills of which is arranged the draw-head A, provided in the end with a hole *a*, through which projects a draft pin or bolt C, provided with a spring *c* and a head *c'*, arranged on the opposite side of a plate C', as will be seen from Fig. 1. A pin *c*² prevents the displacement of the draft-pin C. The draw-head A is provided at its front end with an approximately-U-shaped portion *a*², terminating in a sharp edge or point *a*³ on one side and a rounded portion *a*⁴ at its other side, which terminates in the ears *a*⁵ and *a*⁶, each having an opening or hole *a*⁷ and a space *a*⁸ between said ears for the reception of a swinging jaw *e*, pivotally secured in said space *a*⁸ by a vertical pivotal bolt or pin *f*, as will be clearly seen from the several figures of the drawings. Said swinging jaw *e* is provided with a rearwardly-extending lug *e'*, which projects into said space *a*⁸ between the ears *a*⁵ and *a*⁶ and between which it is pivotally mounted, as shown. Said lug has a flat surface *e*² and a cut-away portion *e*³, formed by the end *e*⁴ or the lug and a curved edge *e*⁵ of said flat surface *e*², the purpose of which will be more fully described hereinafter. When said swinging jaw *e* is in its normal and holding position, said lug *e'* passes into an opening *a*⁹ in the front end of the U-shaped portion *a*²; but when in the act of coupling two cars or when disconnecting two cars the swinging jaw assumes the position indicated more especially in Fig. 3.

The draw-head A is provided with a chambered portion, being formed by a narrow opening or chamber *a*¹⁰, which connects the opening *a*⁹ with a larger open space *a*¹¹, extending from the top to the bottom of the draw-head, as will be seen from Figs. 5 and 6. Said chamber *a*¹⁰ has formed therein two outwardly-extending guiding-surfaces *a*¹², each provided with a semicircular bearing *a*¹³, and the under side *a*¹⁴ of the draw-head, which connects said guiding-surfaces *a*¹², terminates at

the back thereof in a curved or rounded portion a^{15} . Between said guides a^{12} and pivoted in said bearings a^{13} I have arranged a suitably-constructed catch or holding-piece g , provided with the oppositely-projecting journal-pins g^2 for pivoting said catch in the bearing-surfaces a^{13} . Said catch g extends forwardly in the chamber a^{10} and has a weighted nose-piece g' , the weighted portion g^3 causing said catch to normally ride on the upper and inner surface of the side a^{14} of the draw-head, as shown in Fig. 5. When said nose-piece g' projects directly in front of the flat surface e^2 on the lug e' of the swinging jaw e , said jaw cannot be swung around on its pivotal bolt f , and it is in these positions that the several parts of the couplings are retained when two couplings have been connected.

Arranged on the under side of two of the longitudinal sills b of the car is a suitable plate h , having the bearings h' , and adapted to be partially rotated in said bearings h' is a shaft or rod i , provided at one or both ends with operating-levers i' , which are preferably bent, as indicated in Fig. 4, and are provided with weighted or ball ends i^2 . Extending from said shafts or rods i centrally between said sills b is a tripper i^3 , which normally rests upon a plate h^2 , connecting the bearings secured to the sills, as will be seen from Fig. 5. Suppose two cars have been coupled and it is desired to uncouple them. Then either or both of said levers i' are thrown over to assume the positions indicated in dotted outline in Figs. 4 and 6, whereby the rod i rotates in its bearings and the tripper i^3 is forced against a finger g^4 on the catch g . Said finger g^4 is thereby forced down and brought to bear against the curved surface a^{15} on the side a^{14} and the catch g tilts in its bearings, whereby the nose-piece g' is removed from its locking engagement with the flat surface e^2 of the swinging lever e and passes up and out of the way into a hollow or chambered portion a^{16} in the draw-head, as will be clearly evident from Fig. 6, and the swinging jaw e when the two cars are pulled apart swings upon its pivotal bolt f and assumes the position illustrated in Fig. 2, a stop a^{17} coming in contact with a stop e^6 on the jaw e , thereby limiting its outward movement. In order to couple two cars, the swinging jaw e is left in this position, but the operating-levers i' are thrown back to their original positions, thereby causing the tripper i^3 to assume its normal position on the connecting-plate h^2 , and the catch g assumes its position directly upon the upper surface of the side a^{14} which it previously occupied before it was operated or acted upon by the tripper i^3 . The swinging jaw e is now in the position indicated in Figs. 3 and 4 and the catch in that position indicated in Fig. 5; but as soon as two cars are brought together a rounded and forward end e^7 on the swinging jaw rides against the U-shaped surface of the forward end of the draw-head, thereby causing said lug e' to enter into the opening a^9 ,

and the curved surface between the end e^4 and the curved edge e^5 of the swinging jaw e comes in contact with a rounded surface g^5 on the nose-piece g' of the catch g , which is thereby partially raised until the edge e^4 has passed from beneath said curved surface g^5 , and the nose-piece g' drops down in front of the flat surface e^2 , causing the swinging jaw to be firmly held in its locked or holding engagement, and thereby coupling the two cars, as will be understood.

From Fig. 2 it will be seen that when two couplers come together the swinging jaws will follow the curve in the front end of each draw-head, and hence when the draw-heads are driven together the face of each draw-bar will exactly fit the back of each jaw, whereby the automatic turning of the swinging jaw on its pivotal post or bolt is insured to such positions that the lugs e' will be forced directly behind one side of the pivotal catches g , and which enables the centrally placing of the draw-bars beneath the cars without altering the construction or arrangement of the frame-work beneath the car. From Fig. 1 it will be noticed that the outer curve of the swinging jaws and the inner curves of the draw-heads are coincident, and that the width of the jaw is less than the width of the opening between its inner face and the face of the draw-head, resulting, when in their coupled positions, as in Fig. 1, in the free spaces 1 and 2, from which construction it follows that after a number of cars have been coupled to make up a train this space allows of a sudden pull or push on each individual car in the manner of the old coupling link and pin, thereby greatly reducing the strain on the locomotive, and thus further enabling the starting of a longer train of cars than in couplings of this class as heretofore made, where the coupled parts are firmly connected, and thus, virtually, the number of cars form one rigid body, which it is very difficult to start, as is well known. Furthermore, this space thereby becomes very useful in permitting the turning of the couplings out of alignment in rounding curves. The two coupled draw-heads are also capable of an up-and-down movement, and no matter how much the cars will rock my improved coupler will work successfully under all circumstances, as will be clearly evident. Furthermore, the jaws and draw-heads, which are open at the top and bottom, (see Fig. 1,) are the proper width to enable the coupling of two cars the framework of which, and hence their draw-heads, are at different heights from the ground. As will be noticed from Figs. 1, 2, 3, *et sequitur*, the forward end e^7 of each swinging jaw may be bifurcated and provided with a perforation e^8 , whereby it can be coupled with the ordinary coupling link and pin, the link being passed into the space e^9 and held by the coupling-pin inserted through the perforations e^8 . Of course it will be evident that certain changes of construction may be made without departing from

the scope of my present invention, and I therefore do not intend to limit myself to the exact construction herein shown.

Having thus described my invention, what I claim is—

1. In a car-coupling, the combination of a draw-head provided with a longitudinal opening having guiding-surfaces a^{12} , provided with bearings a^{13} , a swinging-jaw pivoted to said draw-head, provided at its inner end with a lug, a catch within the draw-head, pivotally and detachably arranged in the bearings therein, adapted to engage the swinging jaw, and means adapted to engage with one end of said pivoted catch to disengage its holding end from said lug on the swinging jaw, substantially as and for the purposes set forth.

2. In a car-coupling, the combination of a draw-head provided with a longitudinal opening and slotted horizontally in one side, a pivoted jaw in said slot provided at its inner end with a lug adapted to project from the said opening in the draw-head and provided with a flat side and a cut-away and curved surface on said lug, a catch within the draw-head, pivotally and detachably arranged in bearings a^{13} therein, adapted to engage with said flat side of said jaw, but capable of being lifted from such engagement, and ride on said cut-away and curved surface, substantially as and for the purposes set forth.

3. In a car-coupling, the combination of a draw-head provided with a longitudinal opening and slotted horizontally in one side, a pivoted jaw in said slot provided at its inner end with a lug adapted to project into said opening in the draw-head and provided with a flat side e^2 and a cut-away and curved surface on said lug, a catch within said draw-head, pivotally and detachably arranged in bearings a^{13} therein, having a curved and weighted nose-piece g' , adapted to engage

with said flat side of the jaw, but capable of being lifted from such engagement, and said curved and cut-away surface being adapted to ride under said curved nose-piece and thereby raise said pivoted catch, substantially as and for the purposes set forth.

4. In a car-coupling, the combination of a draw-head provided with a longitudinal opening having guiding-surfaces a^{12} , provided with bearings a^{13} , a swinging jaw pivoted to said draw-head, provided at its inner end with a lug, a catch within the draw-head, pivotally and detachably arranged in bearings therein, adapted to engage with said swinging jaw, a shaft or rod arranged in bearings beneath said draw-head, a tripper on said rod, and operating-levers on either or both ends of said rod for causing the said tripper to tilt the catch and disengage its holding end from the lug on the swinging jaw, substantially as and for the purposes set forth.

5. In a car-coupling, the combination of a draw-head having a U-shaped end, an opening a^9 , a chamber a^{12} , provided with bearings a^{13} , an opening a^{11} , and ears a^5 and a^6 , a swinging jaw pivoted between said ears, provided with a lug e' , a flat side e^2 , and a cut-away and curved portion, a catch g , provided with journal-pins pivotally arranged in said bearings in the draw-head, a weighted and curved nose-piece g' and a finger g^4 on said catch, and means adapted to engage with said finger and disengage said nose-piece from the flat surface e^2 on the lug on said swinging jaw, substantially as and for the purposes set forth.

In testimony that I claim the invention set forth above I have hereunto set my hand this 25th day of April, 1892.

THOMAS L. RIVERS.

Witnesses:

FREDK. C. FRAENTZEL,
WM. H. CAMFIELD, Jr.