(No Model.)

# G. W. DICKEY.

## CAR COUPLING.

No. 509,208. Patented Nov. 21, 1893.

Fig. 1

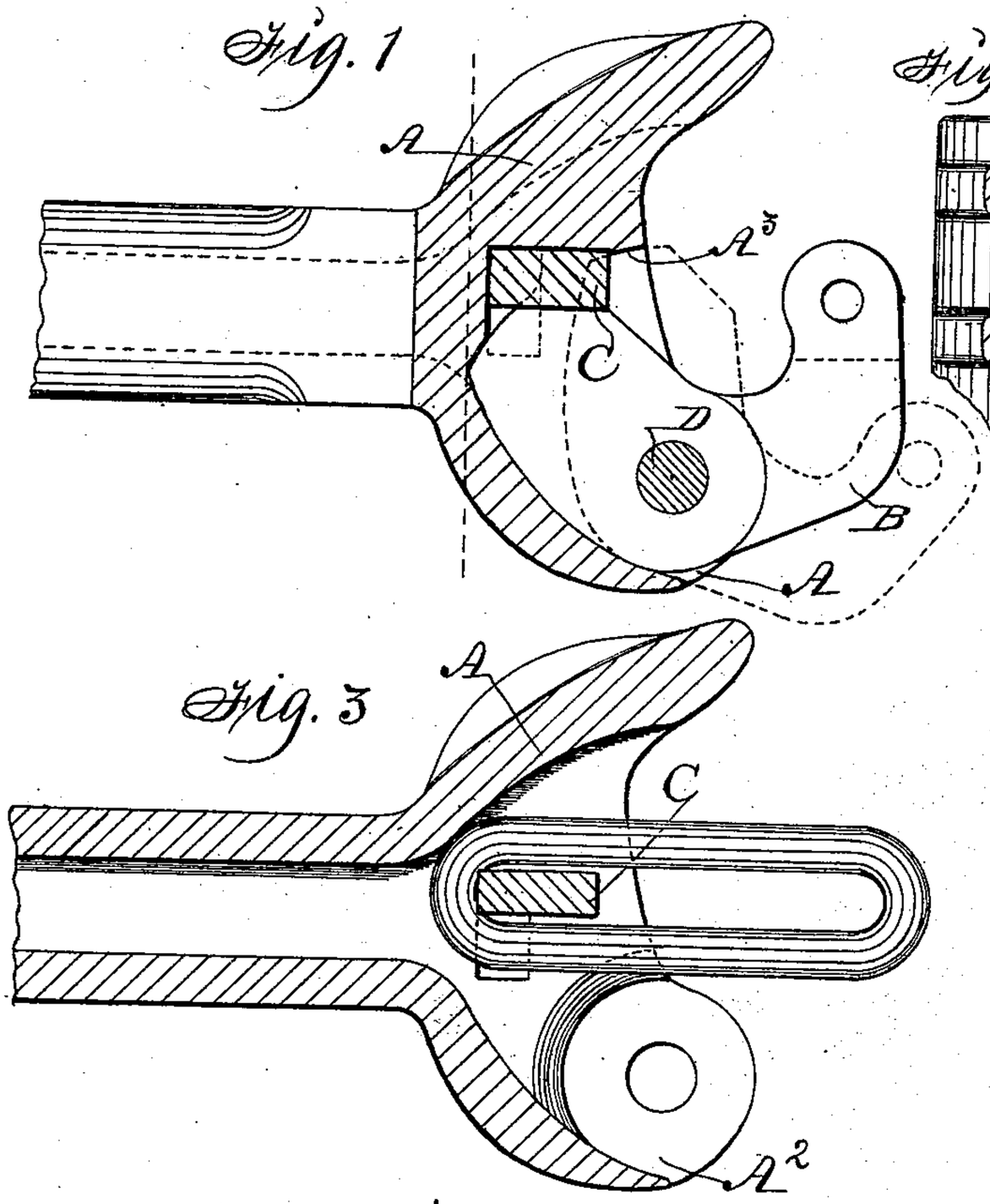



Fig. 2

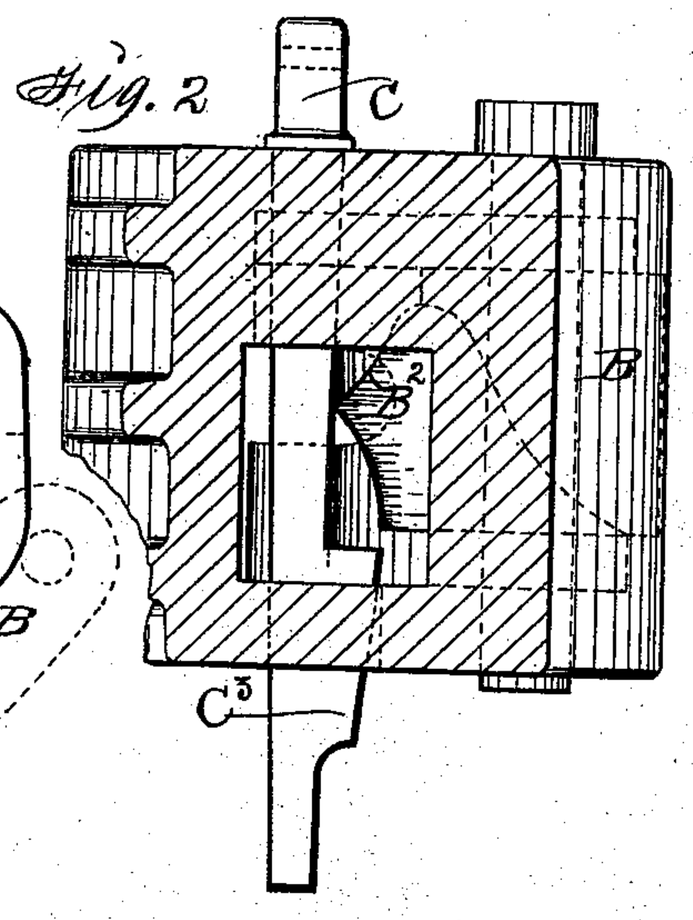



Fig. 3




Fig. 4

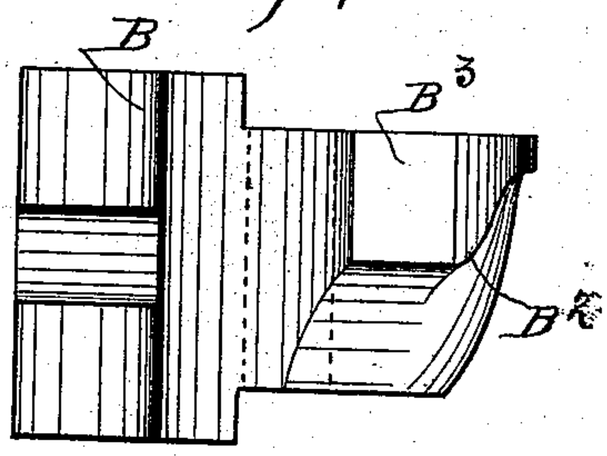



Fig. 6

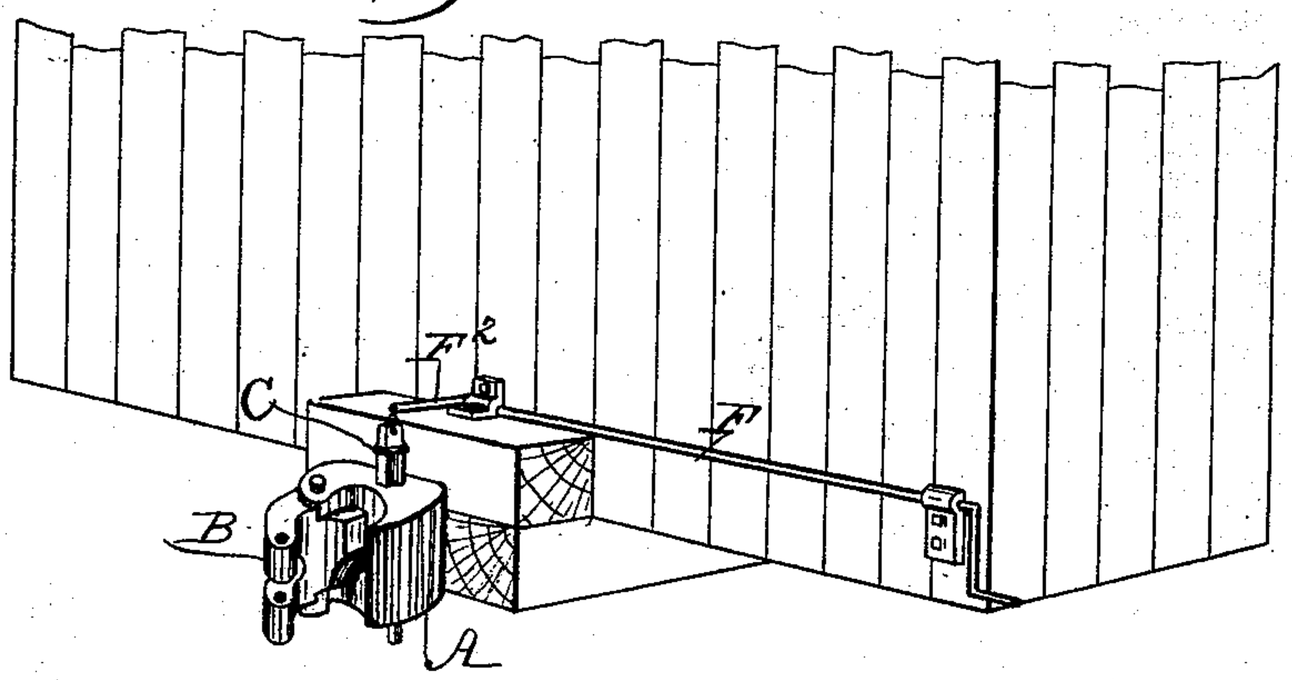
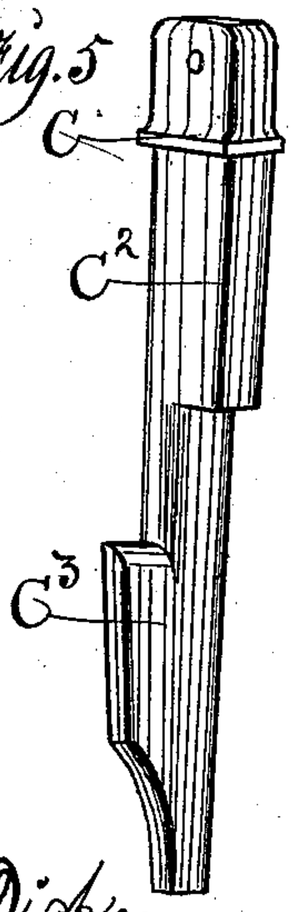



Fig. 5

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# UNITED STATES PATENT OFFICE.

GEORGE W. DICKEY, OF DES MOINES, IOWA, ASSIGNOR TO THE DIAMOND CAR-COUPLER COMPANY, OF CHICAGO, ILLINOIS.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 509,208, dated November 21, 1893.

Application filed May 29, 1893. Serial No. 475,976. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. DICKEY, a citizen of the United States, and a resident of Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Automatic Car-Coupling, of which the following is a specification.

My object is, first, to provide a device for automatically locking a vertical jaw securely in coupling and also adapting said device to actuate the jaw as required to swing horizontally into an open position and to retain it open until a mating jaw comes in contact therewith to bring two jaws into reciprocal engagement to connect two cars; second, to adapt the jaw-locking device to be used as a pin for engaging an open link in the draw head, when the jaw is broken or removed, as required to couple cars by means of a link and pin; third, to adapt the jaw to retain the vertically moving jaw locking device within the draw head so that it cannot be removed or displaced without first removing the jaw.

I accomplish the results contemplated by the invention hereinafter set forth, pointed out in my claims and illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional view showing the jaw in a closed and locked position. Fig. 2 is a transverse sectional view on the line *x x* of Fig. 1 showing a cam on the face of the rear end of the jaw adapted to be engaged by the jaw locking device to impart a horizontal motion to the jaw as required to swing the jaw into an open position when two mating jaws are uncoupled. Fig. 3 shows the jaw removed and an open link secured in the draw head by means of the jaw-locking device that is adapted to drop through the link like a coupling pin. Fig. 4 is a front view of the jaw. Fig. 5 is a perspective view of the jaw-locking device. Fig. 6 is a perspective view showing my complete invention applied to a car as required for practical use.

A represents a draw head of the Janney type and B a jaw detachably and pivotally connected therewith. The draw head has a cavity in its front adapted to admit the jaw and also adapted to admit an open link when the jaw is removed. An angular pin hole in the top or roof portion that extends over the cavity is adapted to admit the jaw-locking device as shown in Fig. 1, and a corresponding pin hole in the floor of the cavity extends at right angles to the elongated angular pin hole in the top to receive the lower end of the jaw locking-device.

C is the jaw locking device in the form of a pin adapted to enter and fill the said angular pin holes in the draw head that are only partly in coinciding position and extend at right angles to each other. The upper portion $C^2$ of the device fits into the upper pin hole and the lower portion $C^3$ into the lower pin hole. It is obvious that after the lower portion $C^3$ is passed down through the upper hole the device must be turned a quarter revolution to allow the lower part $C^3$ to enter the lower hole and the part $C^2$ the upper hole, and that the device cannot be lifted from the draw head without making a reverse quarter revolution. The shoulder or top of the part $C^3$ that extends at right angles to the part $C^2$ is adapted to engage a cam $B^2$ on the small rear end of the jaw B to serve as a cam to actuate the jaw as required to swing the jaw horizontally when the device C is lifted to uncouple cars, as hereinafter set forth and that portion of the pin between the two shoulders, that extends at right angles to each other, is adapted in form to engage an open coupling link. The shoulder at the bottom of the part $C^2$ is adapted to rest upon the jaw, when the jaw is open, as indicated by dotted lines in Fig. 1, in such a manner that the jaw-locking device will be retained in an elevated position and ready to drop, by force of gravity, whenever the jaw is closed as required in coupling two cars together.

$B^3$ is a flat surface at the rear end portion and inner side of the jaw adapted to be engaged by the flat surface of the upper portion $C^2$ of the jaw-locking device, as clearly shown in Fig. 1, so that the jaw cannot move until the part $C^2$ has been elevated above the top surface of the jaw.

After the jaw-locking device is placed in the angular pin holes in the top and bottom portions of the draw head, the jaw B is pivoted to the side $A^2$ of the draw head, by means of a pin or bolt D, in such a manner that the

vertical jaw can swing horizontally as required in coupling and uncoupling.

F is a rock shaft in bearings fixed to a car and an arm $F^2$ at its inner end is connected with the top of the jaw locking device, by means of links, or in any suitable way, so that the device can readily be lifted by means of the rock shaft, by a person at the side of the car, as required to uncouple.

The rear end portion of the jaw B conforms in shape with the face of the cavity in the draw head and when the jaw is closed fits in close contact with the draw head so that the impact to which the jaw is subject in coupling and also in a moving train will not be liable to damage the jaw or the jaw-locking device but the force will be distributed from the jaw to the draw head and when the draw bar is provided with a buffer device there will be no strain or concussion to effect the jaw-locking device.

The cavity in the draw head that admits the rear end of the jaw B corresponds in depth with the thickness of that part of the jaw that swings in and out of the cavity and that portion of the cavity that adapts it to also admit an open link, as shown in Fig. 3, is less in depth and consequently a shoulder $A^3$ is produced to engage the front face of the jaw-locking device C as shown in Fig. 1. By this construction the cavity is adapted for admitting and retaining an open link as required to project outward horizontally and to restrict its downward inclination so it will enter the link cavity of a mating draw head and the shoulder, $A^3$, aid in supporting the jaw-locking pin and relieving it from any undue pressure that may be produced therein by force applied to the rear end of the jaw so that there will be no damage sustained by the jaw coupling device when engaged by the jaw or by a link when subject to the draft force of a moving train or the impact of two meeting jaws.

From the foregoing description of the construction and functions of the operative parts it is obvious that when the jaw B is in an open position, as shown in Fig. 6, the jaw-locking device C will be elevated and supported by the shoulder at the lower end of the part $C^2$ resting upon the top of the rear end portion of the jaw so that when two cars, equipped with my coupling, meet on a track the two mating jaws will be reciprocally operated and closed and engaged and the device C will, by force of gravity, drop down to engage the flat face $B^3$ of the jaw to lock the jaw securely in its closed position as required to automatically couple the cars together.

To uncouple I simply lift the jaw-locking device C so that the lower part $C^3$ will escape from the angular hole in the lower part of the draw head and the part $C^2$ rise above the flat surface $B^3$ of the jaw so that the jaw will be free to swing horizontally; and to actuate the jaw, as required to swing it into an open position, I continue to lift the device C so that the cam or shoulder at the top of the part $C^3$ will engage the curved or spiral shaped cam $B^3$ of the draw head and thereby impart a rotary motion to the device C as required to make a quarter revolution and also as required to impart motion to the jaw to swing it horizontally and into an open position, as indicated by dotted lines in Fig. 1.

I claim as my invention—

1. In a car coupling, a draw head having a cavity in its front adapted to admit a horizontally swinging vertical jaw, or an open link, and the upper part of the jaw or roof of the cavity provided with an angular opening or pin hole, and the lower part or floor of the cavity provided with an angular opening that is only partly in coinciding position with the upper opening, and in a right angled position thereto and a jaw-locking device or pin adapted to enter said pin holes or angular openings when turned a quarter revolution in its vertical movement in the manner set forth for the purposes stated.

2. In a car coupling, a jaw-locking device or coupling pin consisting of a straight bar or pin that is angular in cross section at its top portion, diminished in size at its central portion so as to produce a shoulder at the lower end of its enlarged top portion and also a shoulder or cam at the top of the enlarged lower portion and said shoulders and enlarged parts extended at right angles to each other, in combination with a draw head that has an open cavity adapted to receive a jaw and also openings or pin holes in its top and bottom portions that extend at right angles to each other and are adapted to admit the said jaw-locking device when turned a partial revolution in the manner set forth for the purposes stated.

3. The jaw-locking device C having an enlarged part $C^2$ at its top portion and an enlarged part $C^3$ at its lower portion extended at right angles to the part $C^2$ and portion between the two said enlarged parts adapted to engage an open link, as and for the purposes stated.

4. In a car coupling, the vertical jaw B having the spiral cam $B^2$ and the flat face $B^3$ at its rear end portion, in combination with a draw head having a cavity to admit the rear of the jaw and openings in its top and bottom that extend at right angles to each other and adapted to admit a jaw-locking device C, having an enlarged top portion $C^2$ and an enlarged portion $C^3$, to operate in the manner set forth for the purposes stated.

5. An automatic car coupling comprising a draw head having an open cavity in its front face adapted to admit the rear end of a vertical jaw hinged thereto to swing horizontally, an angular pin hole or opening in the top and an angular opening in the bottom extending at right angles to said opening in the top and adapted to admit a jaw-locking device, a jaw having a spiral cam and a flat face on its rear end portion, a jaw-locking de-

vice in the form of a pin having an enlarged angular top portion that has a shoulder at its lower end, and an enlarged angular part at its lower portion extended at right angles to the enlarged top portion and terminating at its top in a cam adapted to engage the spiral cam on the rear end of the jaw, and to make a quarter revolution during its vertical motion while in engagement with said spiral cam and means for lifting the jaw locking device, constructed and arranged to operate in the manner set forth for the purposes stated.

6. In a car coupling, a draw head having an open cavity in its front to admit the rear end portion of a vertical jaw pivoted at the side portion of the draw head, a lateral extension of the said cavity of less depth than the main cavity, and adapted to admit an open link in the manner described, an angular opening in the top of the draw head intersecting the said main cavity and also the said lateral extension of the main cavity, an angular pin hole in the bottom extending at right angles to the said angular opening in the top and a jaw-locking device fitted in said angular openings in the top and bottom of the draw head to operate in the manner set forth for the purposes stated.

7. The draw head A, having a jaw B pivoted thereto to swing horizontally, provided with a cavity to admit the rear end of the jaw, and a lateral extension of the cavity to admit an open link, and a shoulder $A^3$ produced by an angular opening in the top of the draw head intersecting said main cavity and also said lateral extension thereof, and the jaw locking device C having lateral projections $C^2$ and $C^3$ extending at right angles to each other as and for the purposes stated.

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