

No. 646,361.

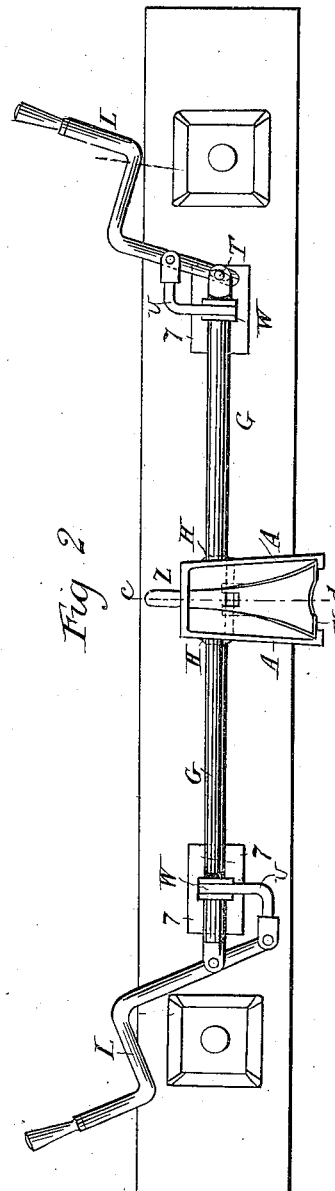
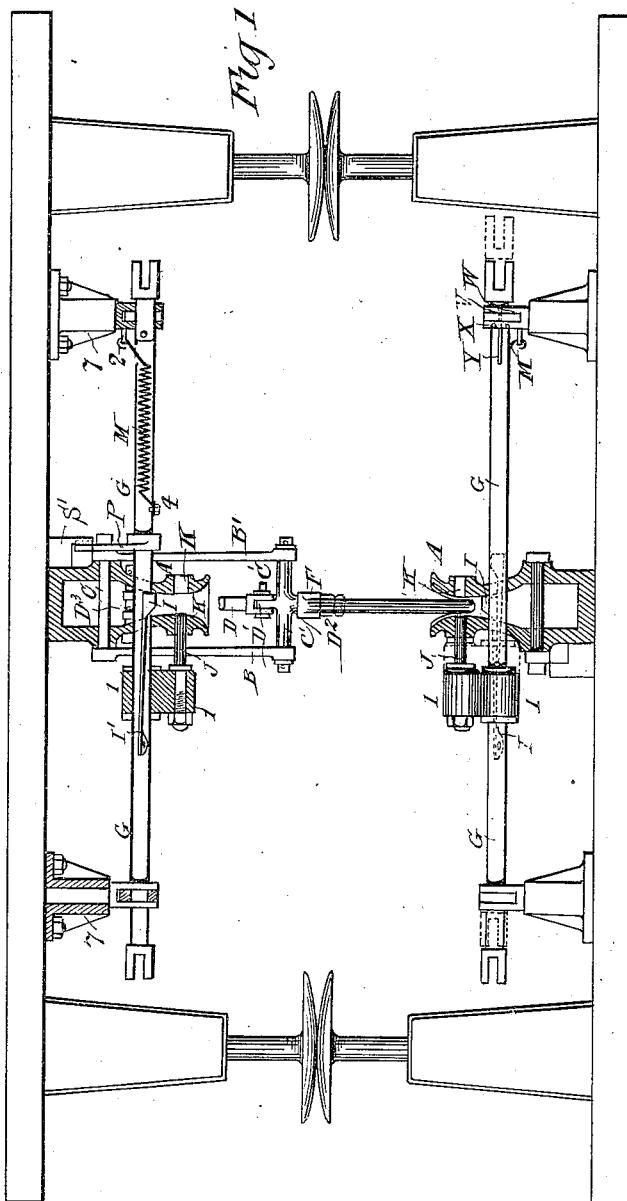
Patented Mar. 27, 1900.

J. DARLING & J. DARLING, JR.
COUPLING.

(Application filed Jan. 11, 1900.)

(No Model.)

2 Sheets—Sheet 1



Witness:
Ruth Ann E. Manning
Harry A. Knight

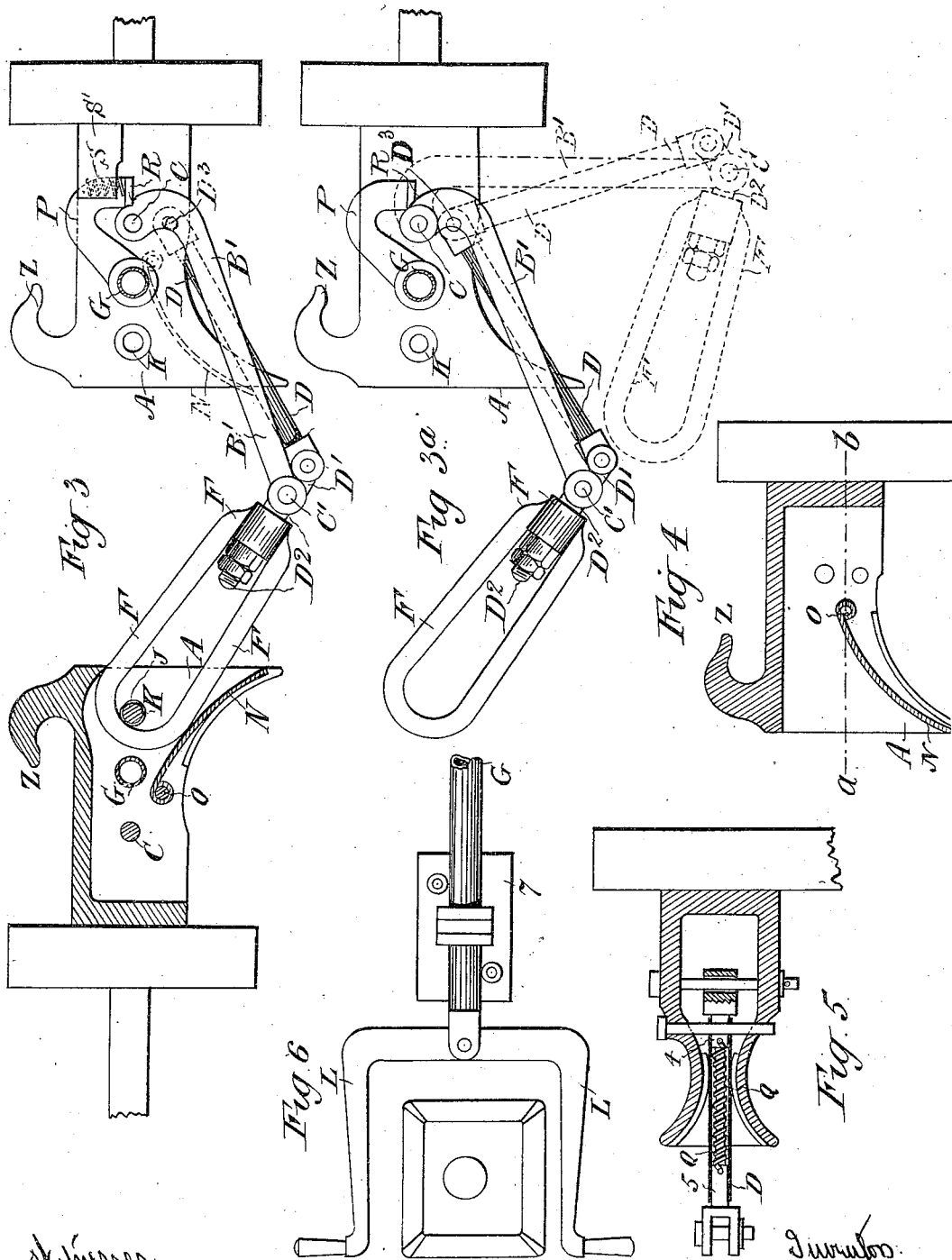
Witness:
John Darling
John Darling Jr.
By Knight Bros
attys

J. DARLING & J. DARLING, JR.
COUPLING.

(Application filed Jan. 11, 1900.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:
Richard W. Manning
Harry A. Knight

Inventors:
John Darling
John Darling, Jr.
By Knight & Knight

UNITED STATES PATENT OFFICE.

JOHN DARLING, OF LONDON, ENGLAND, AND JOHN DARLING, JR., OF RUTHERGLEN, SCOTLAND, ASSIGNORS TO THE DARLING'S PATENT AUTOMATIC COUPLING, LIMITED, OF GLASGOW, SCOTLAND.

COUPLING.

SPECIFICATION forming part of Letters Patent No. 646,361, dated March 27, 1900.

Application filed January 11, 1900. Serial No. 1,169. (No model.)

To all whom it may concern:

Be it known that we, JOHN DARLING, engineer, of 2 Wharton street, Kingscross road, London, England, and JOHN DARLING, JR., commercial traveler, of Gallowflats, Rutherglen, in the county of Lanark, Scotland, have invented certain new and useful Improvements in Couplings, of which the following is a specification.

Our invention relates to improvements in means for automatically coupling and uncoupling railway-carriages, wagons, and other vehicles, and has for its object to obviate the necessity of going between the vehicles in performing either of these operations.

In order that our invention may be properly understood and readily carried into effect, we have hereunto appended two sheets of drawings, of which—

Figure 1 is a plan, partly in section, showing our improvements. Fig. 2 is a front elevation. Fig. 3 is a view showing links coupled with opposite vehicle. Fig. 3^a shows link ready for coupling and in dotted lines shows pawl withdrawn and link hanging out of position for coupling. Fig. 4 is a section through *c d*, Fig. 2, showing tongue to insure link entering coupling-block. Fig. 5 is a section through *a b*, Fig. 4, with tongue removed. Fig. 6 is a plan of a modification of handle.

In carrying out our invention in place of the hooks presently in use we provide two jaws A, preferably bell-mouthed, to which there is connected loosely by means of a rod or bar C the inner ends of two links B B', while the other or outer ends of these links B B' are connected to another bar or rod C', provided with two projecting pieces D' and D², respectively. Fixed to the projecting inner piece D' of the bar or rod C' there is one end of a lever-link D, while the other end of this lever-link D is pivoted to the jaws A by a pin D³. Connected to the other projecting outer piece D² of the said bar or rod C' there is the shackle or front link F. Carried inside this lever-link D, which is in the form of a tube, there is a spiral spring Q, one end of which is hooked onto a fixed plug 4, while the lower end is similarly fixed to a movable plug

5. One of the objects of this spiral spring Q is to enable the plug 5 to move outward, thereby lengthening the link D, and thus protecting the shackle F against breaking when pushed beyond its distance inward, and also to give sufficient resistance to shackle F when pushed against the catch I when coupling. The primary object of the lever-link D is to cause the shackle or front link F to rise to or near the level of the jaws A after being uncoupled in order that it may always be in a position again for coupling, as seen in hard lines, Fig. 3^a. To bring the shackle F to the desired level, we have mounted on the cross-bar G a pawl P, which engages with the link B', and by a slight movement of the cross-bar G the necessary level is obtained. In order to lock the links B B' after the required level has been obtained, the extreme end of the pawl P engages in the notch R, made in the link B', the spring S acting as a cushion, the spring S being located in a bracket S' and bearing on the spreading end of the pawl. On the opposite or other carriage, wagon, or vehicle which is to be coupled we also provide a cross-bar G, preferably in the form of a hollow tube, extending the whole breadth of the vehicle, and which passes through holes or openings H, Fig. 2, in the jaws A, which are similar to those already described. On that part of the cross-bar G which passes between the two jaws A there is a catch I, fixed to one end of a spring I' or its equivalent, while the other end of the spring I' is connected to the cross-bar G, as shown in Fig. 1. This spring is preferably carried inside the cross-bar, and its function will be hereinafter described. Connected with this cross-bar G, by means of a bracket 1, and which moves with it horizontally, but in front of it, (the cross-bar,) there is a sliding pin J, which also passes through holes K in the jaws A when the coupling has been effected, as will be more fully described hereinafter. This cross-bar G is provided on each side with suitable knobs or handles L, and a spiral or other spring M, one end of which is connected to the bracket 2 while the other end is fixed to the cross-bar G at 4, is provided to actuate the cross-bar

G to cause the pin J to pass through the shackle or front link F so soon as the catch I is released from the jaws.

The *modus operandi* is as follows: When two or more carriages, wagons, or other vehicles are to be coupled together, they are simply brought in contact with each other when the shackle or front link F from its position passes in between the two jaws A, and in doing this it pushes the catch I on the spring I' in and allows the spring M to move the cross-bar G laterally, and the pin J, being connected with the cross-bar G by means of the bracket 1, before referred to, moves with it when it (the pin) moves across the jaws A and through the opening K on the opposite side, thereby automatically coupling the vehicles, as shown in dotted lines in the lower end of Fig. 1 and also in Fig. 3. In uncoupling, the cross-bar G is, according to the side of the vehicle on which the attendant is, operated by means of the handle L, as will be hereinafter more fully described, when the pin J is withdrawn from its hold in the hole or opening K in the jaws A, and the shackle or front link F falls from between the jaws A, when the carriages become uncoupled. As already explained, however, the shackle F, through the medium of the lever-link D, falls into such a position that it is always ready for coupling again, as shown in hard lines in Fig. 3^a, the catch I on the cross-bar G retaining the cross-bar in this position until another coupling is effected.

We shall now proceed to more fully describe the details of the operating-handles for uncoupling the vehicles, (shown in the drawings;) but of course it is to be understood that there may be other means of operating it without deviating from the principle of our invention.

Referring to the right-hand side of Fig. 2, the handle L is pivoted to the end of the cross-bar G at T, and at a suitable distance upward from the pivot it is connected to one end of a bracket U, while the other end of the bracket is loosely carried around the cross-bar G and within the collar W on the bracket 7, which is fixed to the vehicle.

Referring to the left-hand side of Fig. 2, the handle at this side of the cross-bar G, as will be observed, is similar to that at the opposite end; but the position of the bracket is in this case reversed, so that the same pull or push action of the handle at either end is secured in uncoupling the vehicles. Inside the collar W there is a horizontal groove V, and on the cross-bar G there is a projection Y, so that as the shackle F enters the jaws A and the catch I is released the projection Y on the cross-bar G enters the groove V, as seen on the right-hand side of the lower part of Fig. 1, and the cross-bar G is thereby prevented from turning.

Referring to Fig. 6, we have shown a double handle fixed to the cross-bar, so that by simply pulling or pushing it the pin J is with-

drawn from the opening and the catch falls into its position ready for another coupling, as already described.

When the vehicles are not required for coupling, we simply give the cross-bar G a slight movement endwise, when the catch I on the spring I' is moved so as to release the cross-bar, the cross-bar being turned. The spring returns the cross-bar, and the projection Y enters a small groove V in collar W, and so locks the apparatus against coupling, as seen in dotted lines, Fig. 3^a.

The shackle or front link F might be so constructed that it can turn on a swivel or such like, so that it will lie in a position whereby it can be utilized for coupling with an ordinary hook, and we might, as shown in the drawings, Figs. 3 and 4, provide a hook Z on upper side of jaws, so that in the event of a vehicle requiring to be coupled and not being provided with the appliance described herein it can be coupled in the ordinary manner; but of course it is to be understood that we prefer to have both arrangements on each vehicle, so that any two carriages coming together may become automatically coupled, and, as already explained, when one is not required it lies out of the way. We might also provide a movable tongue or guide N, carried loosely upon a pin O, to insure the shackle F entering the jaws and operating the catch I on the spring I' on the cross-bar G and which likewise insures the coupling of vehicles where buffers are of different levels.

In place of the pin J entering the jaws horizontally, as shown in the drawings, it might be arranged to drop down vertically.

Having thus described our invention, the following is what we claim as new therein and desire to secure by Letters Patent:

1. A coupling member comprising jaws, two links having a rod whereby they are loosely connected, by their inner ends, to the jaws, a rod, to which the outer ends of the links are connected, having a projecting inner piece and a projecting outer piece, a lever-link pivoted at its inner end to the jaws, and pivoted at its outer end to the projecting inner piece, and a shackle secured, at its inner end, to the projecting outer piece, and its free end adapted to be engaged by the coupling-pin of the opposite member of the coupling.

2. A coupling member comprising jaws, two links having a rod whereby they are loosely connected, by their inner ends, to the jaws, a rod, to which the outer ends of the links are connected, having a projecting inner piece and a projecting outer piece, a lever-link pivoted, at its inner end, to the jaws, and pivoted at its outer end, to the projecting inner piece, and a shackle swiveled, at its inner end, to the projecting outer piece, and at its free end adapted to be engaged by the coupling-pin of the opposite member of the coupling.

3. A coupling comprising jaws, two links, having a rod whereby they are loosely connected, by their inner ends, to the jaws, a rod, to

which the outer ends of the links are connected, having a projecting inner piece and a projecting outer piece, a lever-link, pivoted, at its inner end, to the jaws, and pivoted at its outer end, to the projecting inner piece, a shackle secured, at its inner end, to the projecting outer piece, and its free end adapted to be engaged by the coupling-pin of the opposite member of the coupling, a cross-bar, extending through the jaws, and having a pawl adapted to bear on the heel of one of the lever-links for holding up the links with the shackle in position for coupling, and means for locking the pawl with the cross-bar in position until released.

4. A coupling member comprising jaws, two links, having a rod whereby they are loosely connected, by their inner ends, to the jaws, one of the links being formed with a notch in its heel, a rod, to which the outer ends of the links are connected, having a projecting inner piece and a projecting outer piece, a lever-link, pivoted at its inner end, to the jaws, and pivoted at its outer end, to the projecting inner piece, a shackle secured, at its inner end, to the projecting outer piece, and its free end adapted to be engaged by the coupling-pin of the opposite member of the coupling, a cross-bar, extending through the jaws, and having a pawl formed with a broad end adapted to engage in the notch of the notched link and bear on the latter for holding up the links with the shackle in position for coupling, a bracket, and a spring, between the bracket and the pawl, for locking the pawl with the cross-bar in position until released.

5. A coupling member comprising jaws, two links, having a rod whereby they are loosely connected, by their inner ends, to the jaws, a rod, to which the outer ends of the links are connected, having a projecting inner piece, and a projecting outer piece, a spring lever-link consisting of a tube having a fixed plug, at its inner end, pivoted to the jaws, a movable plug, at its outer end, pivoted to the projecting inner piece, and a spring connecting the plugs within the tube, and a shackle secured, at its inner end, to the projecting outer

piece, and its free end adapted to be engaged by the coupling-pin of the opposite member 50 of the coupling.

6. A coupling member comprising jaws, two links, having a rod whereby they are loosely connected, by their inner ends, to the jaws, a rod, to which the outer ends of the links are 55 connected, having a projecting inner piece and a projecting outer piece, a spring lever-link pivoted, at its inner end, to the jaws, and pivoted, at its outer end, to the projecting inner piece, a shackle secured, at its inner end, 60 to the projecting outer piece and its free end adapted to be engaged by the coupling-pin of the opposite member of the coupling, a sliding spring cross-bar, extending through the jaws, and having a pawl adapted to bear on the 65 heel of one of the links for holding up the links with the shackle in position for coupling, a spring secured to the cross-bar, and carrying a catch adapted to enter the space between the jaws, and holding the cross-bar 70 in position, and a bracket secured to the cross-bar and carrying a coupling-pin working across the jaws to engage the shackle when the latter presses back the catch to release the cross-bar.

7. A coupling member comprising jaws, 75 links, a shackle carried by the links, and a spring cross-bar having a spring-catch, a pawl for setting the links in position for coupling, and a bracket provided with a coupling-pin. 80

8. A coupling member comprising jaws, links, a shackle carried by the links, and a spring cross-bar having a spring-catch, a pawl for setting the links in position for coupling, a bracket provided with a coupling-pin and a 85 projection, and collars whereby the cross-bar is supported, one of the collars being formed with a groove to receive the projection to hold the cross-bar in inoperative position.

In testimony whereof we affix our signatures in the presence of two witnesses. 90

JOHN DARLING.

JOHN DARLING, JUNIOR.

Witnesses:

JOHN SIDDLE,

EDITH MARY EDMONDSTONE.