

No. 699,082.

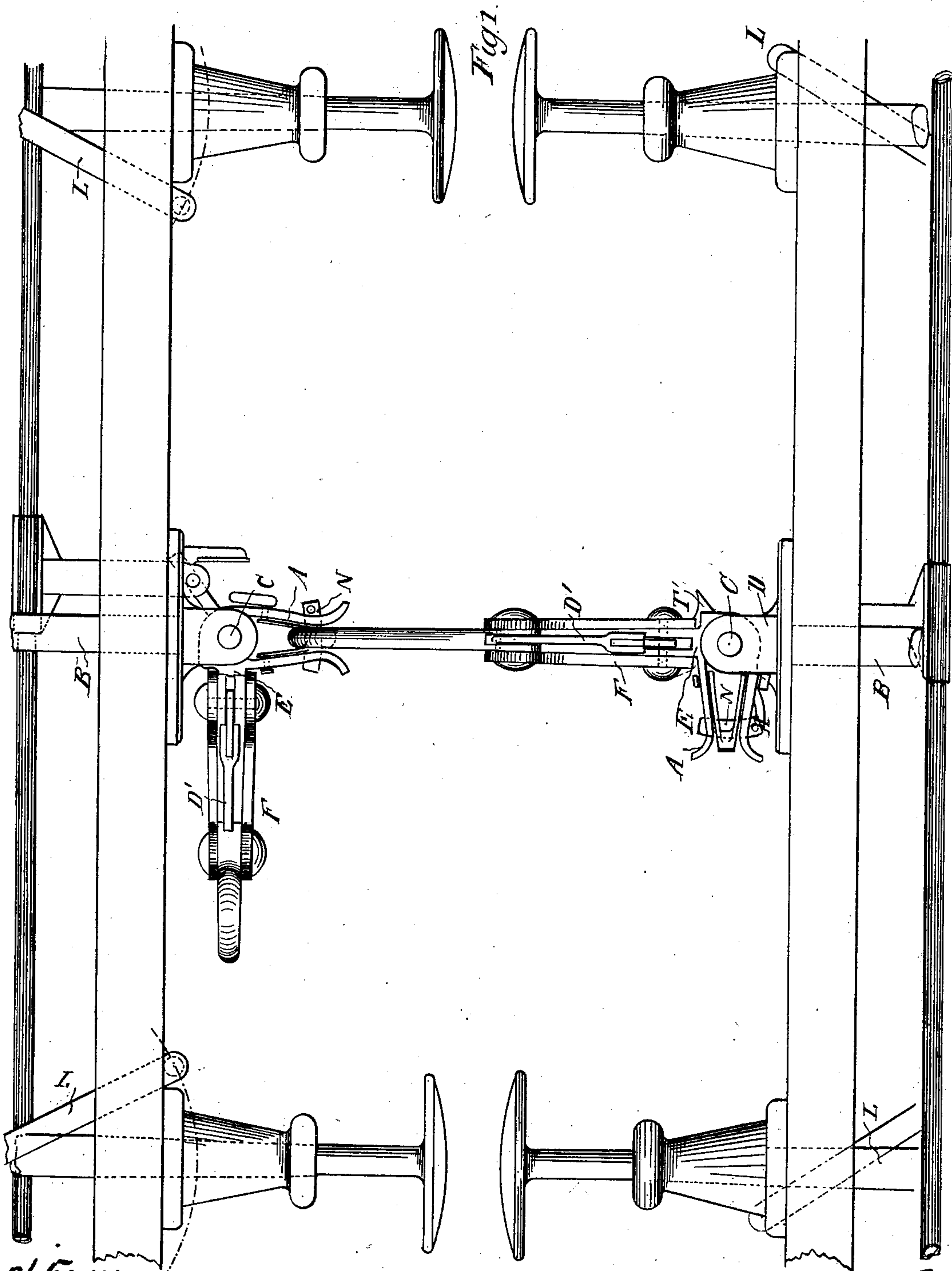
Patented Apr. 29, 1902.

J. DARLING.
AUTOMATIC CAR COUPLING.

(Application filed Nov. 16, 1901.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 3.

Fig 6

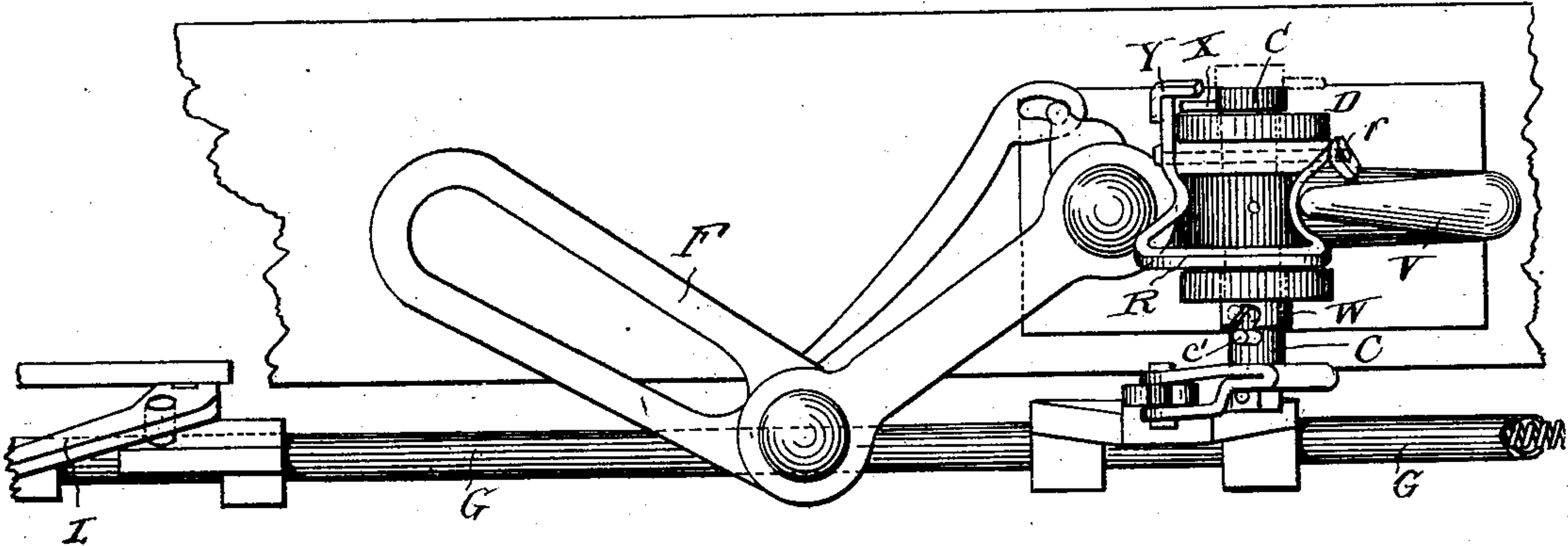


Fig. 7

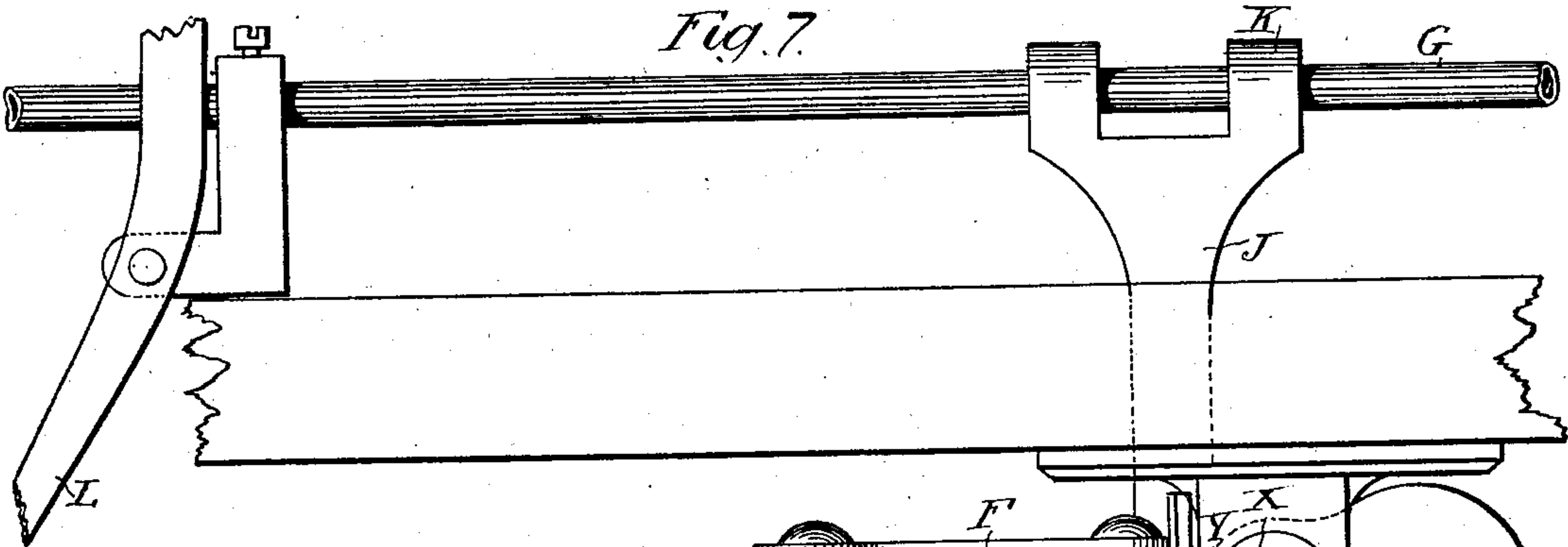
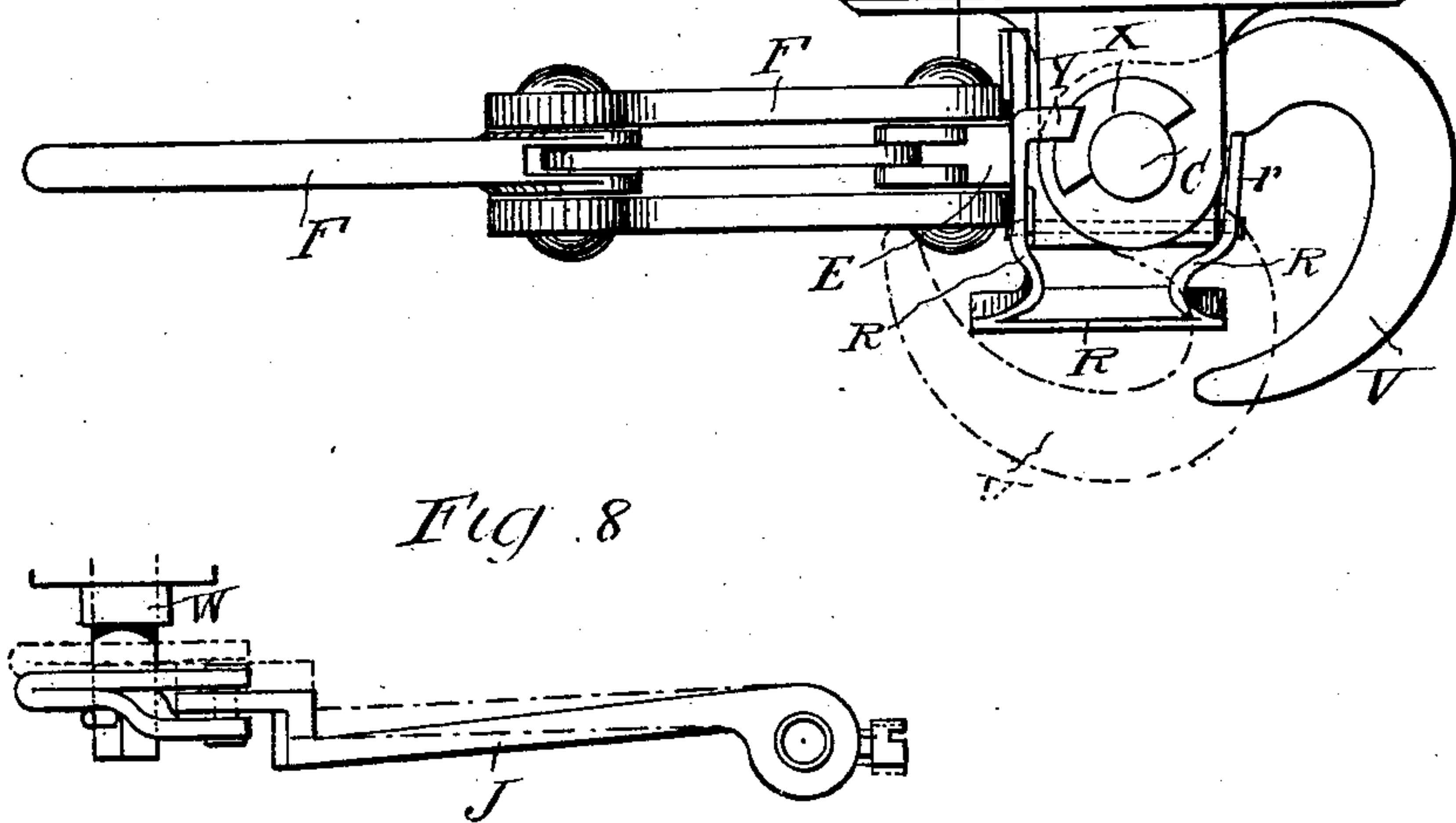


Fig. 8



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UNITED STATES PATENT OFFICE.

JOHN DARLING, OF GALLOWFLATS, RUTHERGLEN, SCOTLAND, ASSIGNOR
TO DARLING'S PATENT AUTOMATIC COUPLING, LIMITED, OF GLASGOW,
SCOTLAND.

AUTOMATIC CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 699,082, dated April 29, 1902.

Application filed November 16, 1901. Serial No. 82,583. (No model.)

To all whom it may concern:

Be it known that I, JOHN DARLING, engineer, of Gallowflats, Rutherglen, in the county of Lanark, Scotland, have invented certain new and useful Improvements in Automatic Car-Couplers for Coupling and Uncoupling Railway Carriages, Wagons, and Similar Vehicles, of which the following is a specification.

This invention relates to improvements in automatically coupling and uncoupling railway carriages, wagons, and similar vehicles, and is a further development of prior United States Patent No. 646,361, dated March 27, 1900, and that filed on January 10, 1901, Serial No. 42,793.

In order that my invention may be properly understood and readily carried into effect, I have appended three sheets of drawings, of which—

Figure 1 is a plan showing two wagons coupled together. Fig. 2 is a front view showing the apparatus locked against coupling. Fig. 3 is a plan showing the connection to the cross-bar with operating handles. Fig. 4 shows apparatus ready for coupling. Fig. 5 is a detached view of the arrangement for causing the coupling-link to fall into the position for coupling. Fig. 6 is a front view showing modification of my improvements. Fig. 7 is a plan. Fig. 8 is a view of the arrangement for operating the apparatus.

Referring to Figs. 1, 2, 3, 4, and 5, in carrying out my invention in place of having the jaws A (referred to in prior patents) forming part of the draw-bar B there is provided a link-engaging element, which in this instance consists of the jaws A and the pin N and which is pivoted or hinged to the draw-bar by means of a pin C passing through openings in plate D, fixed to or forming part of the draw-bar B. At the back end of the jaws there is a projecting piece E, to which the link member is loosely connected, so that when it is not required for coupling, but to be placed out of the way, it is swung to the side, so that it will lie toward or against the head-stock of the wagon, as shown in Fig. 2. While the link member is in this position the jaws A are in position for allowing the coupling-links on the opposite wagon to be cou-

pled, as shown in Fig. 4, or locked against coupling, as shown in Fig. 2. The pin C for connecting the jaws A and link member to the draw-bar B is extended at its lower end and is connected to the slide-bar G underneath or in front of the head-stock of the wagon by means of the pin H engaging with an eye I, fixed to or forming part of a lever J, fixed to a collar K, rigidly secured to the slide-bar G, in which there is a spiral spring, and which slide-bar is provided with suitable handles L for operating the jaws and link member, whereby they can be placed into position ready for coupling, or vice versa. The coupling-pin N is loosely connected to a lever O, which is carried loosely on the pin C, by means of the collar O'. The pin C has a projection C², with which an extension Q on the lever J engages to allow the coupling-links on the operation of the handle to be brought into the coupling position. The lower end of the lever O is provided with a projection P, which engages with a shoulder C' on the lower end of the pin C. When two vehicles are to be coupled, they are brought into contact with each other, when the coupling-link F from its position passes in between the jaws A, and in so doing knocks against the balanced tumbler R, when the coupling-pin N, which is connected to the slide-bar G, becomes released and shoots across the jaws A and passes through the opening on the opposite side, and thereby automatically couples the vehicles. When it is desired to uncouple the vehicles, the handle L on either side of the vehicle is pulled slightly forward, which action causes the coupling-pin N to be withdrawn from the jaws, and immediately this is effected the balanced tumbler R rises or falls into its normal position and is again ready for coupling, and in order to lock it in this position against coupling I provide a plate S, having notches S', into which a projection l on the under side of the handle L engages. When it is desired to bring the link member into the coupling position, the handle L is pulled forward, as last described, and the pull continued, when the projection p presses against the shoulder C' and partially turns the pin C until the extension Q engages with the projection C² on

the pin C to move the link member, causing it to be brought straight in front of the head-stock of the vehicle ready for coupling, and it is locked in this position in the same manner as that described with reference to the coupling-pin. To enable two vehicles to be coupled when the coupling apparatus is not in the position for coupling, I construct the link member of a link F, a lever connecting the link F and the projecting piece E on the pin C, the toggle-link D' with a balanced weight D², which when the link member is swung out of the way rests against a projecting piece T, forming part of a collar T', carried loosely on the pin C, and as the link member is being brought around into the coupling position the balanced weight D² still rests on the projecting piece T until the latter comes in contact with a little pin U, fixed to the plate D, and through the further pull of the handle the balanced weight D² is drawn off the projecting pin P, thus causing it (the projecting pin T) to fall back and the coupling-link F forward, whereby it will knock against the tumbler on the opposite vehicle, and thereby effect the coupling of the two vehicles.

Referring to Figs. 6, 7, and 8, which is a modification of my improvements, I dispense with the jaws, and to the end of the draw-bar B or forming part thereof I provide a plate D, to which the coupling-links F are connected, as in the former figures and already described. Carried on and rigidly fixed to the pin C is the link-engaging element, which in this instance consists of a coupling-hook V, having a notch or cut-out *v*, into which the arm *r* of the balanced tumbler or catch R falls when the coupling-hook is in the position for coupling, and so locks it there, as shown in Figs. 6 and 7. This coupling-hook V takes the place of the coupling-pin N referred to. The method of placing the coupling-hook V into the position ready for coupling is similar to that described with reference to the coupling-pin, and the means of effecting the coupling is also practically the same—that is, when two vehicles are brought together the link F knocks against the balanced tumbler R and in so doing tilts it over, when the arm *r* releases its hold on the coupling-hook V, thus allowing it to spring forward, and so engaging with the coupling-link, the automatic coupling is thereby effected. When it is desired to bring the link member into the position ready for coupling, the handle L is slightly pressed up, or it may be otherwise operated, when a pin *c'*, projecting from the pin C, becomes engaged with a recess or slot *w* in a shield or collar W, rigidly fixed to the link-members by means of the plate E, but at the same time allowing the pin C to move independent of the link members when desired. The handle is then pulled forward, as before, when the pin *c'*, engaging with the slot in the shield or collar W, causes the pin C to turn, and the link member being

connected to it is brought around in front of the head-stock of the vehicle into the position ready for coupling and locked there, as before. In the case of the coupling-hook V of one of the vehicles being in its normal position—that is, for coupling—and it is desired to put it out of such position and to bring the link member into the position whereby a coupling can be effected by the operation of the handle L a washer or projection X on the upper end of the pin C engages with a little projection Y on the tumbler or catch R and tilting it over releases the arm *r* from its hold on the coupling-hook V, and thus allows it to spring forward and engage with the link F and the handles pulled forward, as before, when the link member is brought into the desired position for coupling.

I claim—

1. In an apparatus for coupling and uncoupling railway carriages, wagons, and similar vehicles automatically, the combination with a draw-head, of a link and a link-engaging element pivoted on a vertical axis, to the draw-head, and a slide-bar connected to and horizontally swinging either the link or the link-engaging element to an operative position.

2. In an apparatus for automatically coupling and uncoupling railway carriages, wagons, and similar vehicles, the combination with a draw-head, a link and a link-engaging element, of a vertical pin carrying the link and link-engaging element, secured to the draw-head, and a slide-bar connected to and moving the pin to swing either the link or link-engaging element horizontally to an operative or inoperative position.

3. In an apparatus for automatically coupling and uncoupling railway carriages, wagons, and similar vehicles, the combination with a draw-head, a link and a link-engaging element, of a vertical pin having secured thereto the link and the link-engaging swinging element, and a slide-bar connected to and swinging horizontally and simultaneously the link and the link-engaging element, one to an operative position, and the other to an inoperative position.

4. In an apparatus for automatically coupling and uncoupling railway carriages, wagons, and similar vehicles, the combination of a draw-head, of a vertical pin secured in the draw-head, a link member comprising a link, a lever connecting the link and the pin, said link member being secured to the pin, a link-engaging element also secured to the pin, and a slide-bar connected to and moving the pin to swing either the link or link-engaging element horizontally to an operative or inoperative position, and means operated by the movement of the pin to elevate or lower the link of the link member.

5. In an apparatus for automatically coupling and uncoupling railway carriages, wagons, and similar vehicles, the combination with a draw-head, of a pin, a link member and a link-engaging element, secured to the

pin, and adapted to swing horizontally, said link member comprising a link, a lever connecting the link and the pin; a toggle-link connected at one end to the link and pivoted 5 to the pin, a weight at the other end of the toggle-link, and a projection loosely mounted on the pin and adapted to engage the weighted end of the toggle-link.

6. In an apparatus for automatically coupling and uncoupling railway carriages, wagons, and similar vehicles, the combination with the draw-head, the link, the jaws provided with pin-openings, and the pin N working in the openings, of the pin C upon which 15 the jaws and the link are mounted, means moving the pin C to throw either the link or the jaws to an operative position and means operated to move the pin N within the jaws on the movement of the pin C operating 20 means.

7. The combination of the draw-head provided with pin-openings, the pin C mounted in the openings, the pin H carried by the pin

C, the link member secured to the pin C, comprising the link F, a lever connecting the link 25 and the pin, and a toggle-link secured at one end to the link F and connected to the pin; the weight secured to the free end of the toggle-link, the projection movably mounted on the pin C and adapted to engage with the 30 weighted end of the toggle-link, the jaws provided with openings and secured to the pin C, a pin N working in the openings in the jaws, the lever O carrying the pin N, the cross-bar G, the lever J provided with an eye 35 in which the pin H works when the cross-bar is moved to operate the pin C, and the extension on the lever J engaging with pin N operating lever O, substantially as described.

In testimony whereof I affix my signature 40 in the presence of two witnesses.

JOHN DARLING.

Witnesses:

JOHN LIDDLE,
AGNES MACKINTOSH.