

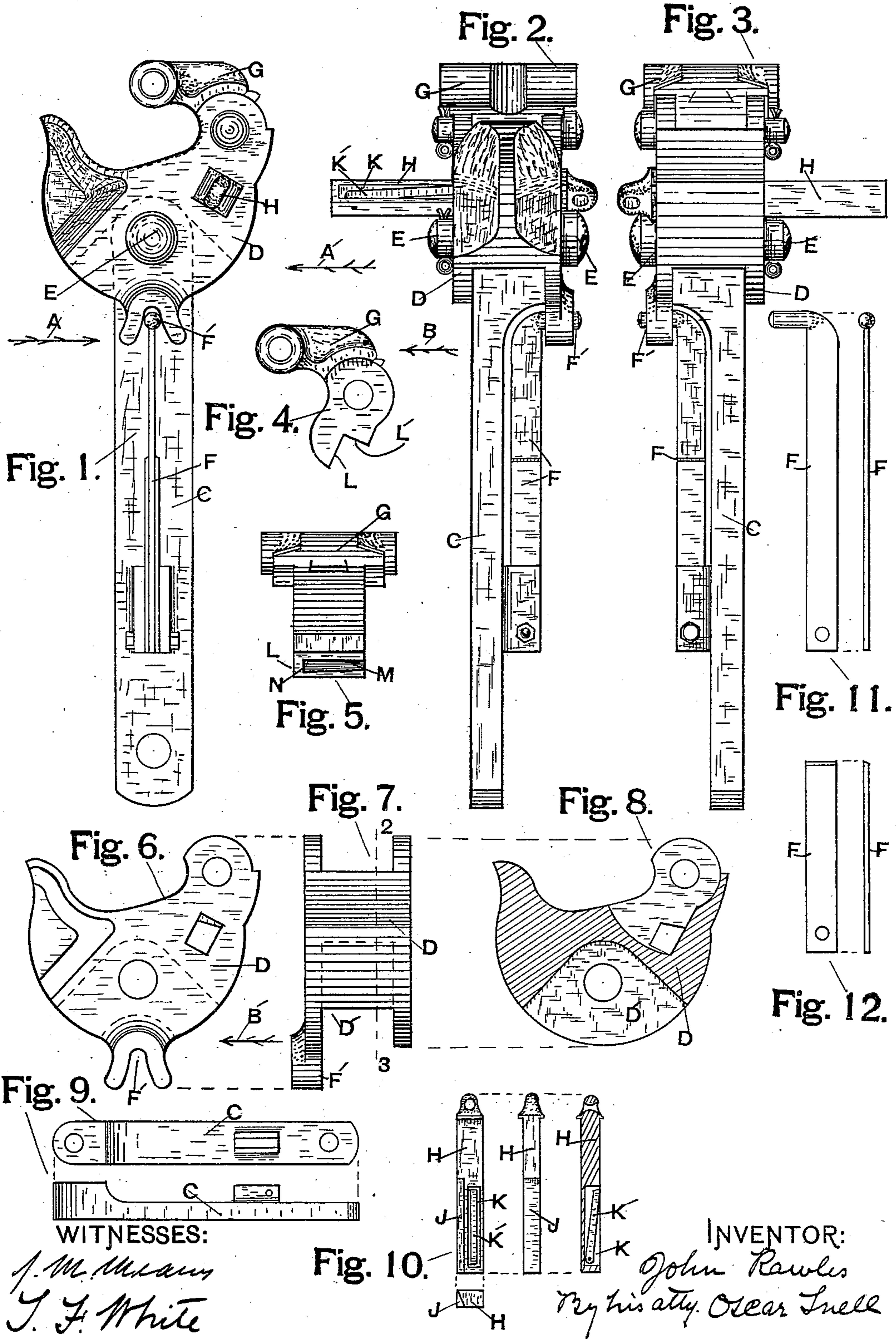
(No Model.)

2 Sheets—Sheet 1.

J. RAWLES.
CAR COUPLING.

No. 512,393.

Patented Jan. 9, 1894.



(No Model.)

2 Sheets—Sheet 2.

J. RAWLES.
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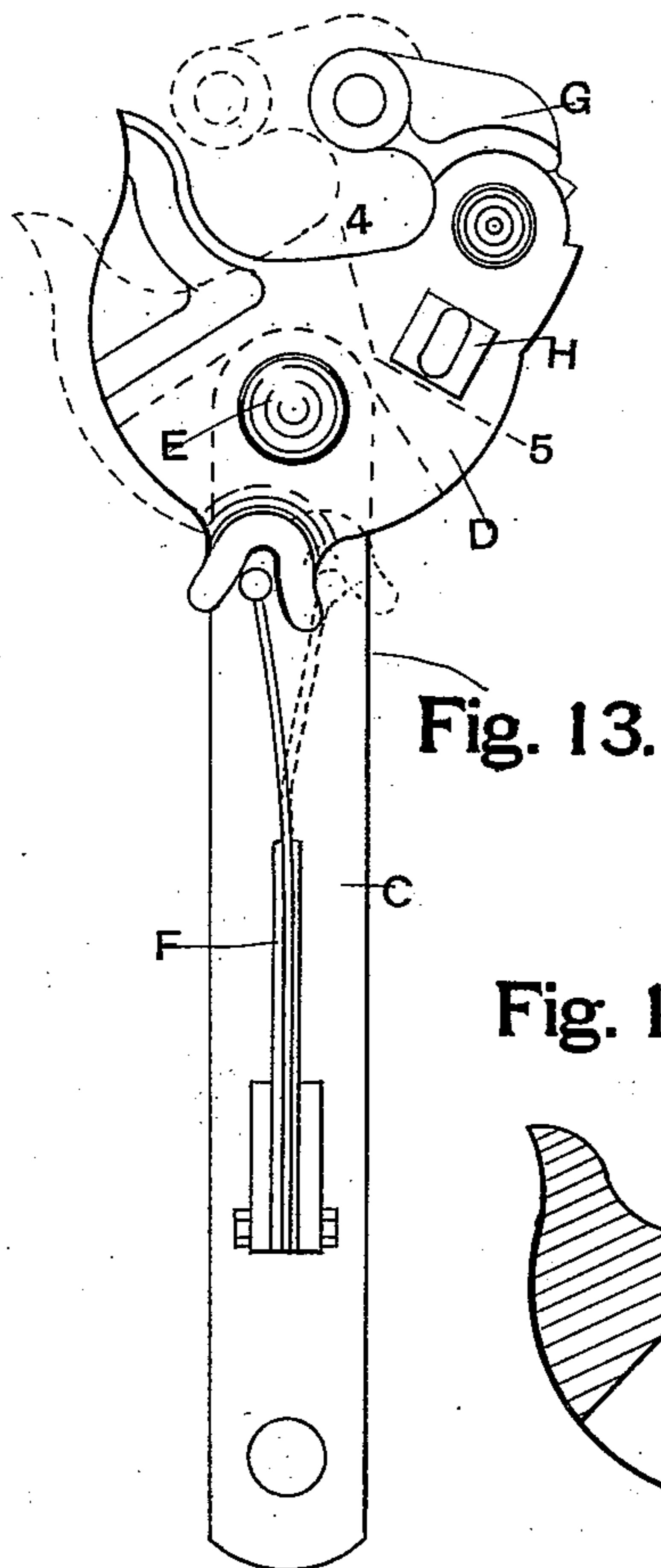


Fig. 13.

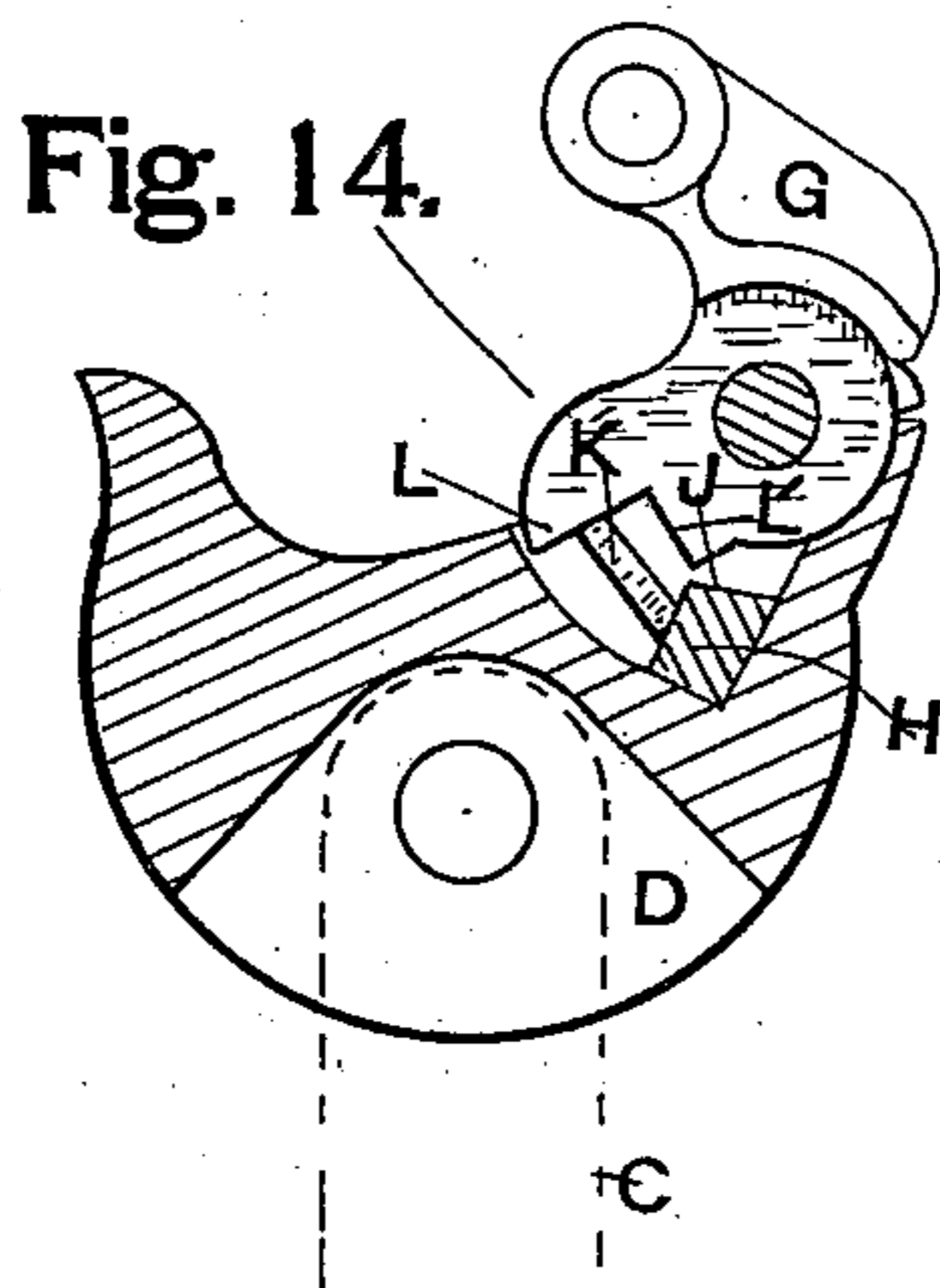


Fig. 14.

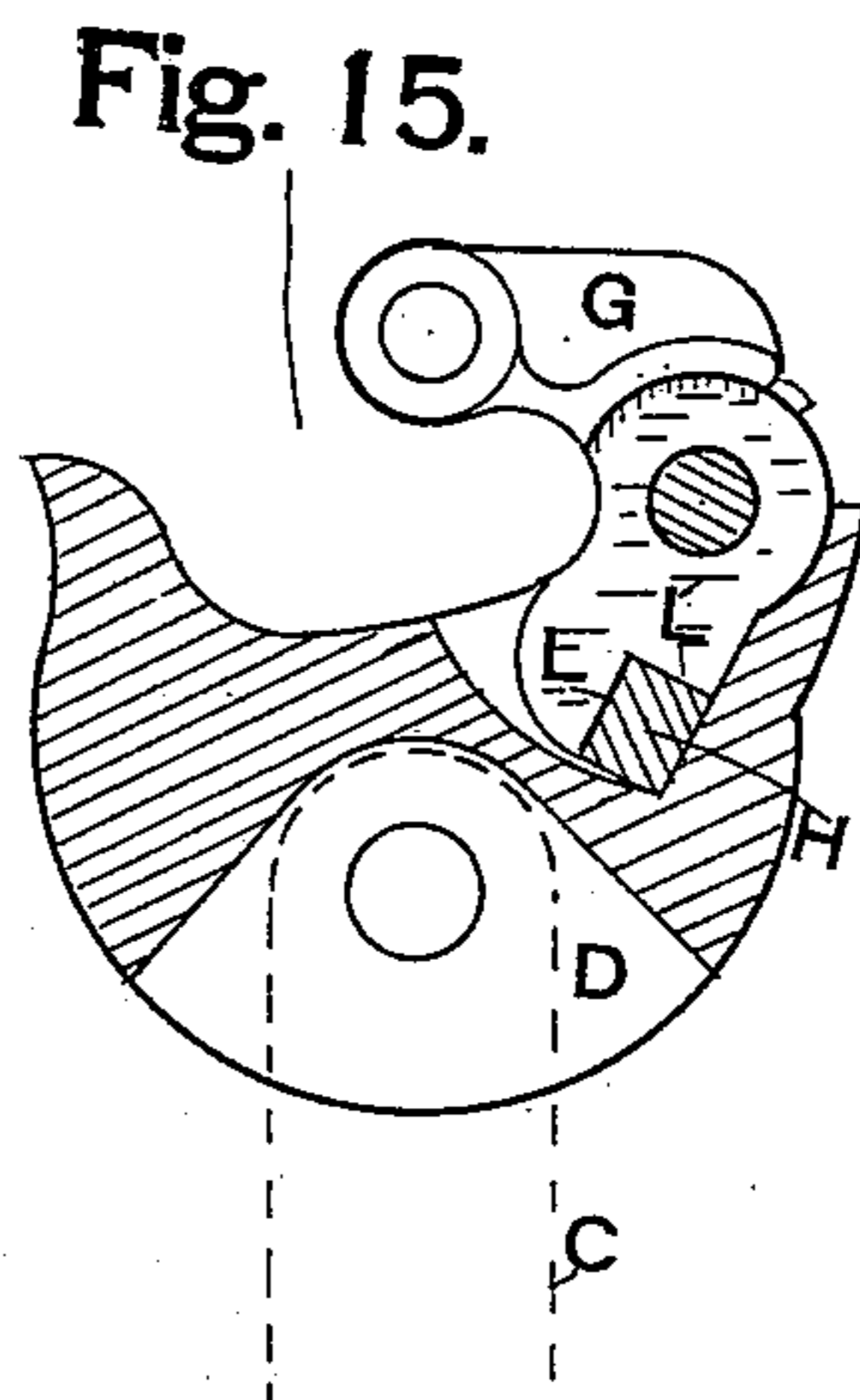


Fig. 15.

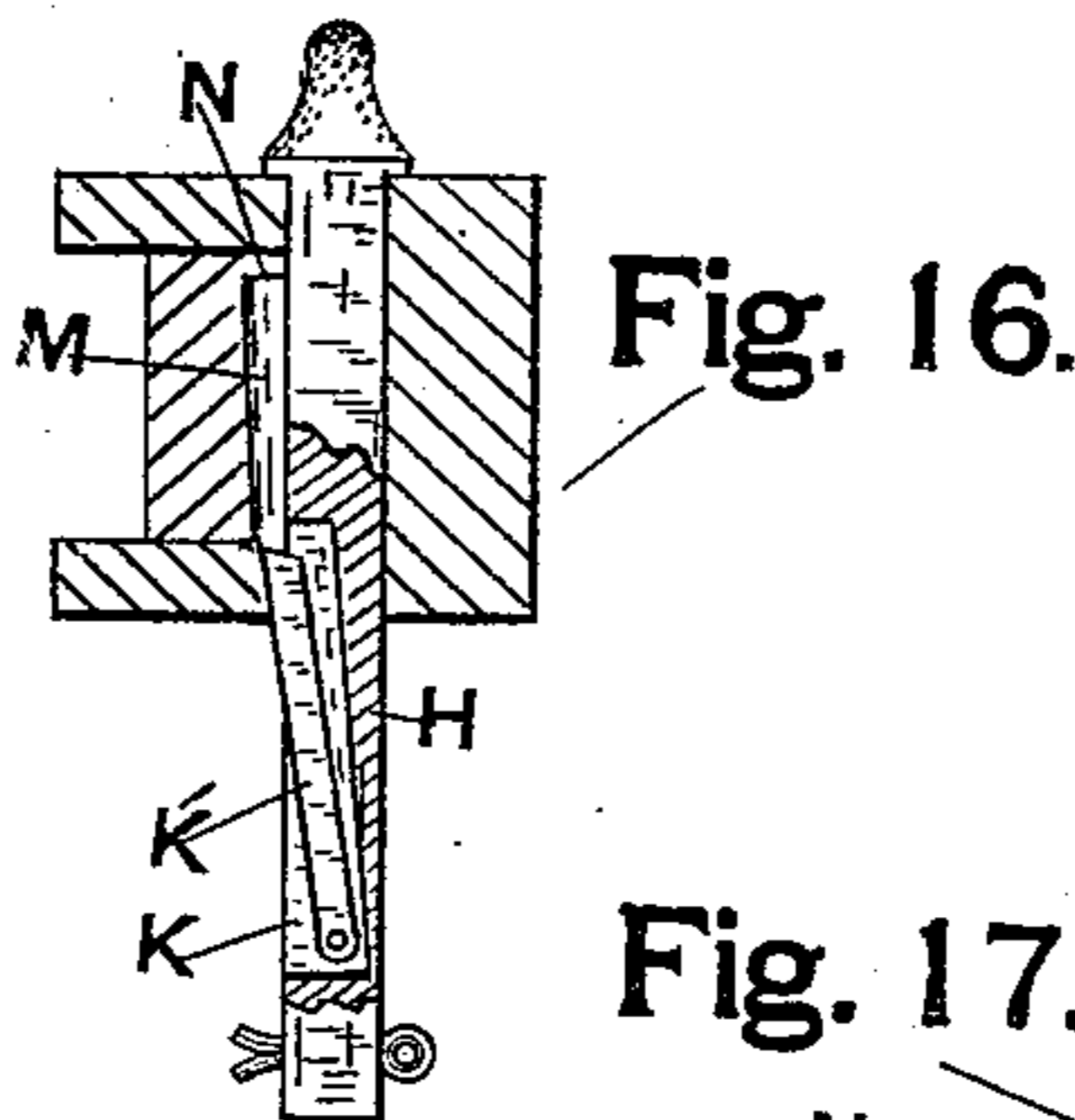


Fig. 16.

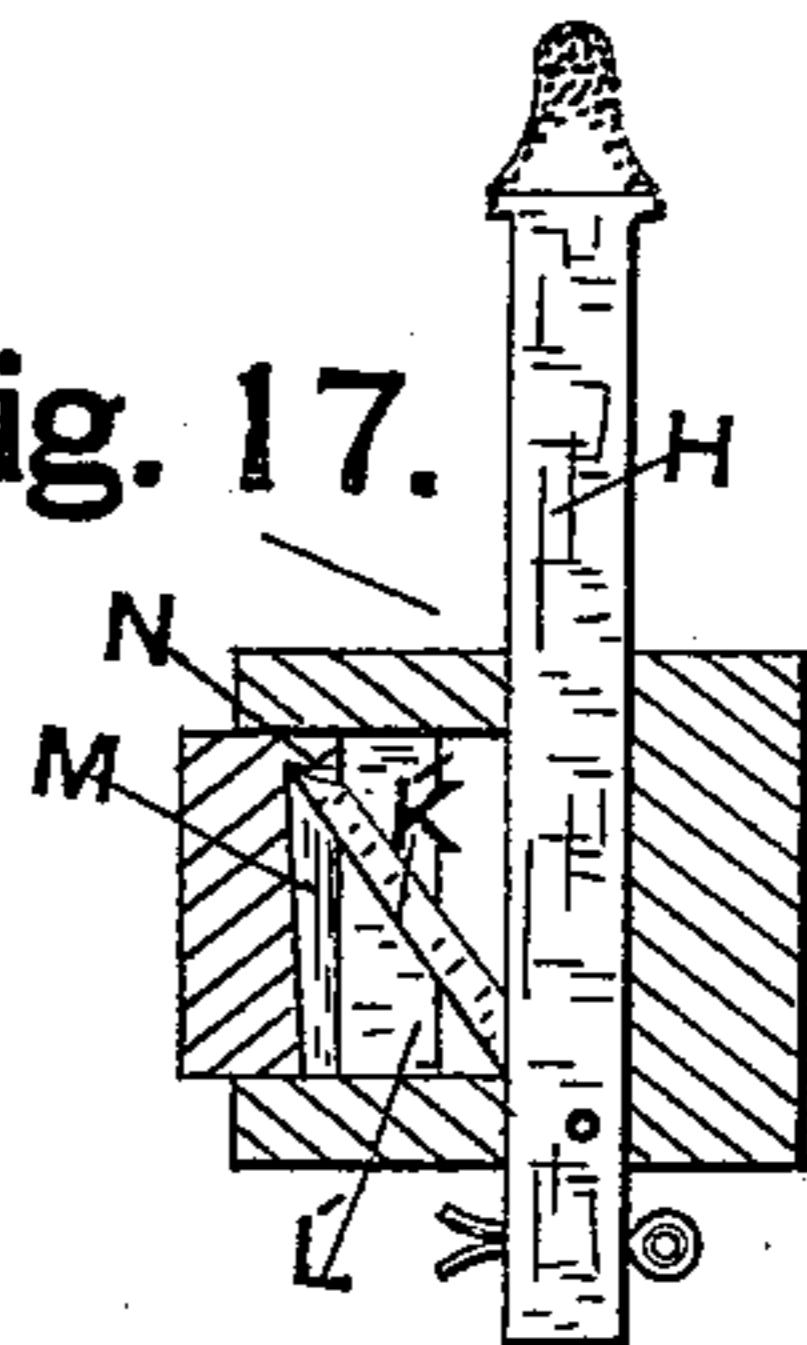


Fig. 17.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN RAWLES, OF SEVILLE, ASSIGNOR OF FIVE-EIGHTHS TO GEORGE H. McELVAIN AND JOHN L. GRIFFITH, OF BUSHNELL, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 512,393, dated January 9, 1894.

Application filed December 10, 1892. Serial No. 454,697. (No model.)

To all whom it may concern:

Be it known that I, JOHN RAWLES, a citizen of the United States, residing at Seville, in the county of Fulton and State of Illinois, have invented a new and useful Car-Coupler, of which the following is a specification.

My invention relates to car couplers but more especially to a kind of car coupler which was patented by me in the United States December 30, 1890, and numbered 443,867, in which invention the movable coupling jaw is pivotally attached to a buffer head which head is pivotally attached to the outer end of the draw bar of a railway car so that the buffer head is capable of a lateral vibration relative to the draw bar.

One object attained in my new improvement in car couplers, described hereinafter, is to provide an elastic means whereby the pivoted buffer head is held in a position substantially mid-way between its extreme lateral positions when uncoupled, the means for holding the buffer head in the position stated having such a degree of elasticity that it will not prevent the head vibrating to either side when urged to do so, when coupled to another buffer head when the cars are passing around a curve, as will be more fully explained hereinafter.

Another object is to provide a simple and effective means whereby the movable coupling jaw is opened to the fullest extent, and held open, by means of the lock pin therefor, when the lock pin is lifted in the act of uncoupling the opposing buffer heads, as will be fully explained hereinafter, and a construction of mechanism by which these objects are attained is shown in the accompanying drawings, in which—

Figure 1 is a plan view of a car coupler and draw bar in which are embodied my improvements. Fig. 2 is a side elevation of Fig. 1 looking in direction of arrow A. Fig. 3 is a side elevation of Fig. 1 looking in the direction of arrow A'. Fig. 4 is a plan view of the movable coupling jaw. Fig. 5 is a side elevation of Fig. 4 looking in direction of arrow B. Fig. 6 is a plan view of the movable buffer head. Fig. 7 is a side elevation of Fig. 6 looking in direction of arrow B'. Fig. 8 is a section of Fig. 6 on line 2—3 Fig. 7 to show

the hollow portion of the head. Fig. 9 shows, respectively, a plan view and a side elevation of the draw bar on a reduced scale from that shown in Figs. 1 and 2. Fig. 10 shows, respectively, front and end, and side views together with a vertical section of the pin for locking the movable coupling pin in position. Figs. 11 and 12 are views of the parts of a leaf spring adapted to operate the buffer head. Fig. 13 is a plan view similar to Fig. 1 but showing the lateral positions that may be taken by the buffer head in solid and dotted lines. Fig. 14 is the same section of the buffer head as Fig. 8 but with the movable coupling jaw in place and in the open position. Fig. 15 is same as Fig. 14 except that the movable coupling jaw is in a closed position and locked by means of the locking pin. Fig. 16 is a vertical section of a portion of the buffer head and the movable coupling jaw on line 4—5, Fig. 13 the movable coupling jaw being in the closed position with the locking pin down to lock the jaw in place. Fig. 17 is similar to Fig. 16 except that the movable coupling jaw is at the open position, the locking pin being raised to its highest position, the pin serving not only to release the coupling jaw but to throw the jaw into the open position, all of which will be more fully explained hereinafter.

Similar letters indicate like parts throughout the several views.

C is the drawbar which in this instance is adapted to city railway cars but may be modified to suit any kind of cars or duty.

D is the laterally swinging buffer head which is provided with a mortise D' at the rear end in which mortise is pivotally attached one end of draw bar C by means of a vertical pin E which passes down through both draw head and draw bar which construction permits the buffer head to vibrate in a horizontal plane.

At F is a leaf spring having one end attached to lugs of the draw bar and the other end between the arms of a bifurcation of the rear end of the buffer head at F'. The normal position of spring F is parallel with a central longitudinal line through the draw bar so that it is obvious should buffer head D be swung around to either side the action

of spring F would serve to bring the head back to the center position again as shown in Fig. 1.

Pivotaly secured to buffer head D, to vibrate in a horizontal plane is the coupling jaw G which jaw is similar in construction in some particulars to those in ordinary use, but the means for locking the jaw in a closed position and then opening the jaw when in the act of uncoupling possesses some new features which can be understood by reference to Figs. 5, 10, 14, 15, 16 and 17. The locking pin is shown by H and consists of a square piece of metal having a head at the top, and beginning near the center of length at the lower half the side is cut away at J the upper portion remaining of rectangular section. Also there is a long mortise at K in the lower half of the pin into which is pivoted a tongue K' the tongue being pivoted at the lower end so that the upper end thereof is free to vibrate outward from the mortise, as is shown in Fig. 17.

A plan view of the movable coupling jaw is shown in Fig. 4 where is plainly seen an angular recess near the end of the shank of the jaw whose faces L and L' meet at a right angle, and in one face L Figs. 5, 16 and 17 is an excavation M which beginning at the lower edge of the shank of the jaw terminates in a shoulder N. When jaw G is closed and pin H is at the down position shown in Fig. 16, the tongue K' is closed back into the mortise K and the rectangular portion of the locking pin occupies the angular recess of the shank of the coupling jaw, the faces of the pin contacting with faces L and L' of the recess and effectually preventing the jaw from opening as is shown in Fig. 15, but should the locking pin be raised to the position shown in Fig. 17 the cut-away portion J of the pin will be adjacent to the face L' of the recess which will permit the jaw to swing open as shown in Fig. 14 where is shown a cross section of a portion of the locking pin at the portion referred to as cut-away.

Coupling jaw G is automatically opened by raising the locking pin by the action of tongue K' for when the pin is drawn upward, Figs. 16 and 17, the tongue by being so pivoted that it leans at the top away from the pin will cause the top end of the tongue to follow along the bottom of the excavation M of the coupler jaw shank and when by the lifting of the pin the top end of the tongue has contacted the shoulder or top of the excavation at N the inclination of the tongue in combination with the upward motion of the pin will cause the tongue to push the shank of the movable jaw outward and open the jaw, and hold it open to the position shown in Figs. 14 and 17.

In operation, when two cars are to be coupled the buffer head is held in the position shown in Fig. 1 with the movable coupling jaw open, as shown in Fig. 14, when, if the cars are run together the impact of the opposing buffer heads against the front of the coupling jaws

will cause them to close in the coupled condition. When the cars are coupled by running them together as described the locking pin H is caused to fall by the movement of the shank of the movable jaw pushing inward upon the top portion of the tongue K' which causes the lower end of the tongue to have a thrust downward forcing the locking pin downward a short distance when the pin will drop by gravity to the position shown in Fig. 16, and lock the coupling jaw as shown by the section Fig. 15.

In my invention in car couplers for which I have obtained the patent of the United States, hereinbefore referred to, the buffer head is capable of movement laterally in a horizontal plane, but when this form of coupler is used for the purpose of coupling the cars of city railways the curves of the railway are so short that a greater amount of lateral vibration is necessary for the buffer head, and then, when the cars are to be coupled, the opposing buffer heads of two cars to be coupled may be thrown over to either one or the other limit of lateral vibration which condition would prevent the proper contact of the heads to couple, but when the heads of each car to be coupled are held to a central position, between the limits of vibration, the contact of the two heads when run together will cause them invariably to couple. There may be several other forms of springs or devices in combination with springs used to cause the buffer head to assume the center position when uncoupled but the simple leaf spring shown will illustrate plainly the object to be attained.

I claim as my invention and desire to secure by Letters Patent—

1. In a car coupler, a buffer head pivotaly secured to the end of a draw bar, and a coupling jaw pivotaly secured to said buffer head said buffer head capable of lateral vibration to each side of a longitudinal center line, of said draw bar, and said coupling jaw capable of a vibration in a substantially horizontal plane on said buffer head, substantially as and for the purpose described, and means for returning said buffer head with said coupling jaw to a position substantially midway between the limits of said buffer head's lateral vibrations consisting of a double acting leaf spring, said spring having one end secured to the draw bar and the other end in engagement with the buffer head substantially as shown and described for the purpose stated.

2. A car coupler having a coupling jaw pivotaly attached to a buffer head as described, said jaw capable of vibration in a horizontal plane, a locking pin for locking said jaw in a closed position, said locking pin comprising a locking portion for engaging the shank of the coupler jaw, and a portion of said pin cut away substantially as and for the purpose described, a longitudinal mortise within said locking pin, a tongue pivotaly secured at the

lower end thereof within said mortise, the
upper end of said tongue free to move out of
said mortise and engage the shank of said
coupling jaw and open said jaw by the hori-
5 zontal thrust of said tongue by the upward
movement of said locking pin in the manner
substantially as described.

In testimony that I claim the foregoing I
have hereunto set my hand, this 23d day of
November, 1892, in the presence of witnesses. 10
• JOHN RAWLES.

Witnesses:

S. LAING WILLIAMS,
A. ERNEST KNIGHT.