(No Model.)

I. SHOTWELL.

CAR COUPLING.

No. 389,669. Patented Sept. 18, 1888.

Fig. 1.

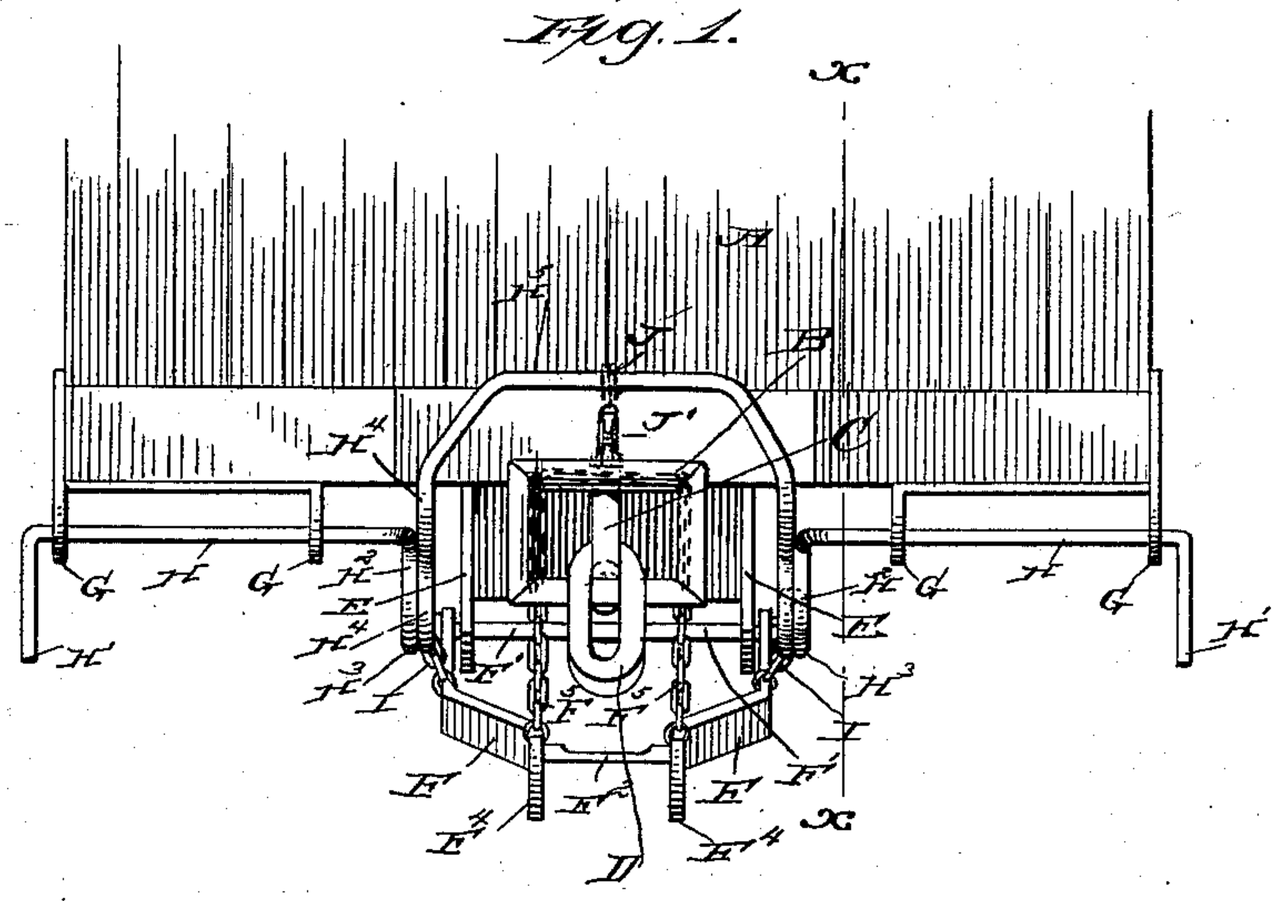


Fig. 2.

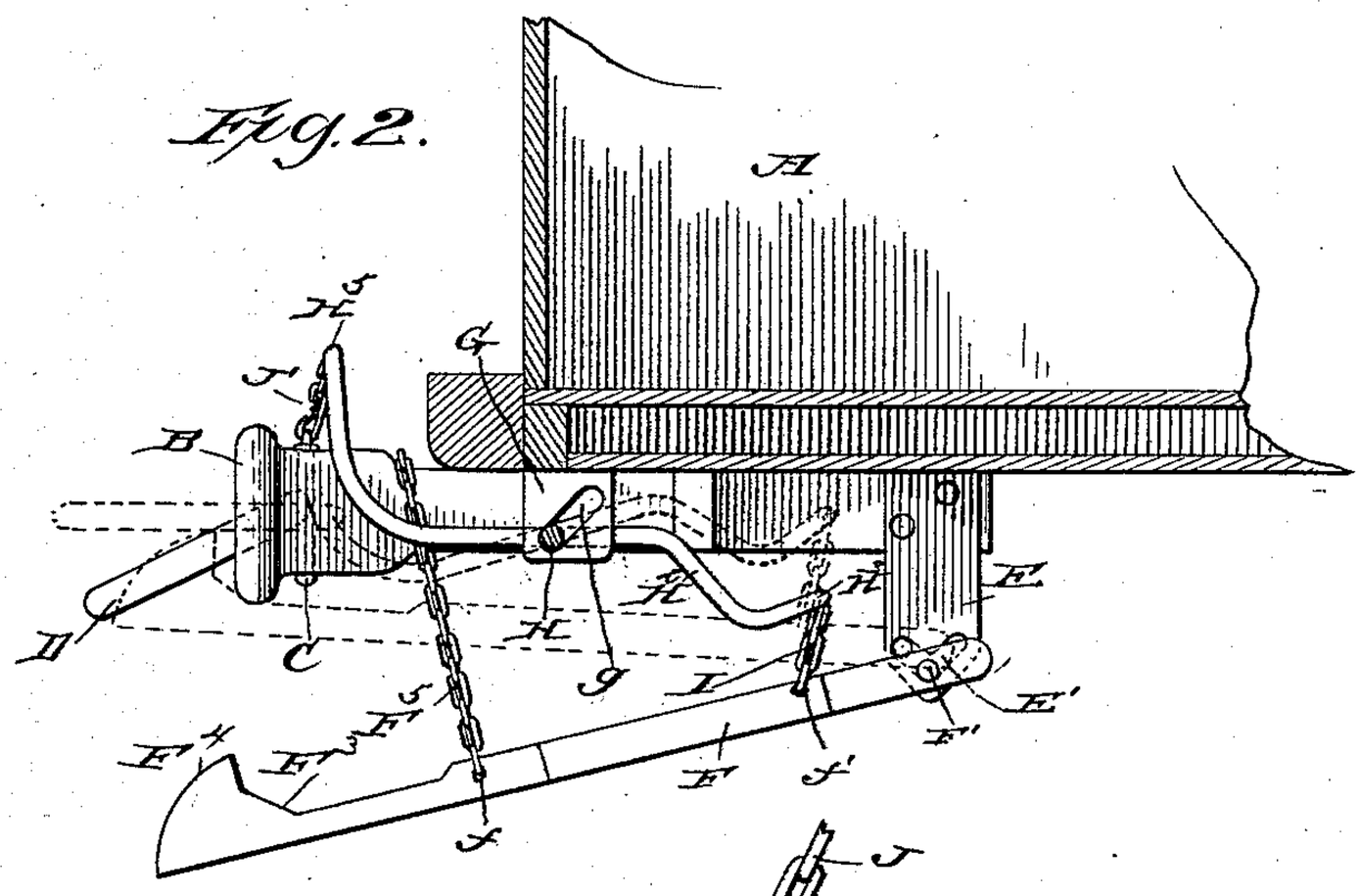
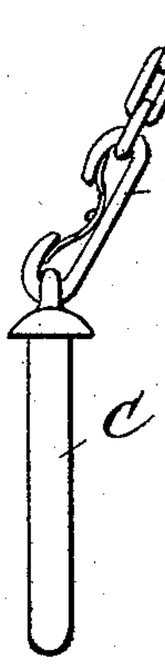


Fig. 3.



WITNESSES:

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 389,669, dated September 18, 1888.

Application filed June 4, 1888. Serial No. 276,006. (No model.)

To all whom it may concern:

Be it known that I, ISAAC SHOTWELL, of Bancroft, in the county of Shiawassee and State of Michigan, have invented a new and useful Improvement in Car-Couplings, of which the following is a full, clear, and exact description.

The object of my invention is to provide a car with a combined link-lifter and link-guide and means for raising and dropping the pin at the pleasure of the attendant, and without the necessity of the attendant entering between the cars either to couple or uncouple, and to effect these results without a change in the form of the ordinary draw-head, link, and pin; and the invention consists in the parts which will be hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents an end view of a car provided with a draw-head, link, and pin and my improved mechanism. Fig. 2 is a sectional view taken on the line *x x* of Fig. 1, and Fig. 3 is an elevation of the coupling-pin.

The body of a car A is provided with a draw-head, B, pin C, and link D, of the ordinary construction. The under side of the car, near the inner end of the draw-head, is provided with two hangers, E. Each of said hangers is provided with a V-shaped slot, E′.

F F are two arms. These arms are rigidly united by an inner cross-rod, F′, and an outer cross-bar, F^2. The outer upper ends, F^4, of these arms are curved. Immediately in the rear of the curved ends are bevel or incline surfaces F^3. These arms are provided with small openings *f f′*. The cross-rod F′ is engaged in the V-shaped slots E′ in the hangers E, and the arms F F lie outside of the respective hangers aforesaid.

F^5 represents a chain (shown partly in dotted lines in Fig. 1) having its ends in engagement with the openings *f* in the outer ends of the arms F F, respectively. Said chain is engaged to the draw-head and it supports the arms F F, limiting their downward movement.

G G indicate hangers immediately under the end of a car. These hangers are provided with inclined slots *g g*.

H H are two horizontal rods mounted within the inclined slots *g g*. The outer ends, H′ H′, of these rods are bent at right angles, so as to form crank-arms.

H^2 H^2 represent inwardly-extending continuations of the rods H H. These continuations are bent backward and downward, then bent upon themselves, so as to form two inner loops, H^3, (one on each side of the draw-head.) The said rod is then curved outward and upward, H^4, and thence straight, H^5, horizontally above the draw-head. The several parts of the device marked H, H′, H^2, H^3, H^4, and H^5 are formed of a single rod. Each loop H^3 of said rod is engaged with the upper end of one of the two short chains I. The lower end of each chain I is engaged in one of the openings *f′* in the arms F. The horizontal cross-piece H^5 aforesaid is provided with a short chain, J. The lower end of said chain is engaged to one end of a double snap-hook, J′. The other end of said hook is engaged to the upper end of the coupling-pin C.

The operation of the invention is as follows: The normal position of the several parts is that which is shown in the drawings in Fig. 1, and also in full lines in Fig. 2. The weight of the link-lifting arms F causes them to hang downward and remain suspended by the chain F^5. The normal position of the horizontal piece H^5 is above the top of the coupling-pin C a distance equal to the length of the short chain J and its snap hook J′. By moving the crank-arms H′ outward from their vertical normal position the cross-piece H^5, chain J, and hook J′, and the coupling-pin C are thereby lifted.

The arrangement of the several parts is such that when the pin is lifted by the foregoing means it is only elevated to an extent to cause it to disengage from a link (in uncoupling) or to leave a clear passage-way in the draw-head for the entrance of a link in coupling. To raise the link-lifting arms F F, the crank-arms H′ are moved backward. A backward movement of said crank-arms turns the rod H and causes the elevation of the inner looped ends, H^3, thereof. The upward movement of said looped ends and their chains I causes the arms

F to rise. When these looped ends H^3 of the rod are elevated, the forward part, H^4 H^5, thereof is lowered. When the arms F are thus elevated the outer cross-bar, F^2, thereof is carried upward under the link, and the link thereby elevated and held in any desired angle, so as to cause it to enter the draw-head of a car to be coupled. The position of the several parts, when the link is held in an elevated position, is shown in dotted lines, Fig. 2. It will be observed that the pin-lifting chain J permits of a limited movement of the horizontal part H^5 of the bent rod without displacing or withdrawing the pin. The two extremes to which the part H^5 may be moved without displacing the pin are shown by the full and dotted lines, Fig. 2.

When a crank arm, H′, is released from a hand of an attendant, the arms F will descend to the position shown in Fig. 1 and in full lines, Fig. 2, and the several parts caused to occupy the positions shown in said full-line figures. The arrangement of the bent rod and its coupling-pin C is such that the greater weight is on the outer side of the horizontal part H, so as to normally carry the crank-arms H′ in a vertical position and permit the pin to lie in the vertical openings in the draw-head.

From the foregoing it will be observed that an attendant in coupling cars can raise or lower a pin at pleasure in either car by actuating the crank-arms H′, and by the same crank-arms he can elevate a link to any desired angle so as to cause said link to enter the draw-head of a still or approaching car.

The object in curving the outer upper sides, F^4, of the arms F is to cause the outer end of said arms to glide under an opposing draw-head after the cars have been coupled. When the arms F are raised and the inclined surface F^3 thereof brought into contact with the under side of the draw-head, the said arms will be moved slightly outward, so as to straighten the link and cause it to occupy the desired position. The V-shaped slots E′ in the hangers E permit the arms F to move forward, as stated, and to move inward when the two draw-heads are forced together. The inclined slots *g* in the hangers G will permit the rod H and integral parts to move backward should the outer cross-piece, H^5, come into contact with a like piece on another car.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with hangers provided with V-shaped slots and a link-lifter having a cross-rod mounted in said slots, the outer end of said link-lifter being provided with a cross-bar adapted to engage the under side of a link, of a pin-lifter mounted in bearings and provided with outward and inward extensions, the inner part of said pin-lifter being engaged to the link-lifter, and the outer part of the pin-lifter being engaged to the coupling-pin, substantially as specified.

2. The combination of a link-lifter and a pin-lifter, the latter being mounted in inclined bearings and provided with one or more crank-arms, the inner end of the link-lifter being pivotally mounted in V-shaped bearings, the inner end of the pin-lifter being engaged to the link-lifter, and the outer end of said pin-lifter being engaged to the coupling-pin, substantially as specified.

3. The combination of a link-lifter and a pin-lifter, the link-lifter consisting of two arms connected at their inner ends by a cross-rod and at their outer ends by a cross-bar, the outer parts of said arms being curved and inclined, as specified, two hangers mounted near the inner end of a draw-head, each of said hangers being provided with a V-shaped slot, the inner cross-bar on the arms aforesaid being mounted in said slots, a chain, F^5, engaged to the draw-head and arms aforesaid, the pin-lifter aforesaid, consisting of crank arms H′, horizontal parts H, rearwardly-inclined part H^2, outward and upward part H^4, and outer cross-piece, H^5, all formed of a single integral rod, hangers G, provided with inclined slots, the horizontal parts H of the pin-lifter being mounted in said slots, the outer pin-lifting part, H^5, being provided with a chain, one end of said chain being in engagement with a coupling-pin, and chains I, connecting the inner end of the pin-lifter to the link-lifter, substantially as specified.

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Witnesses:
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