

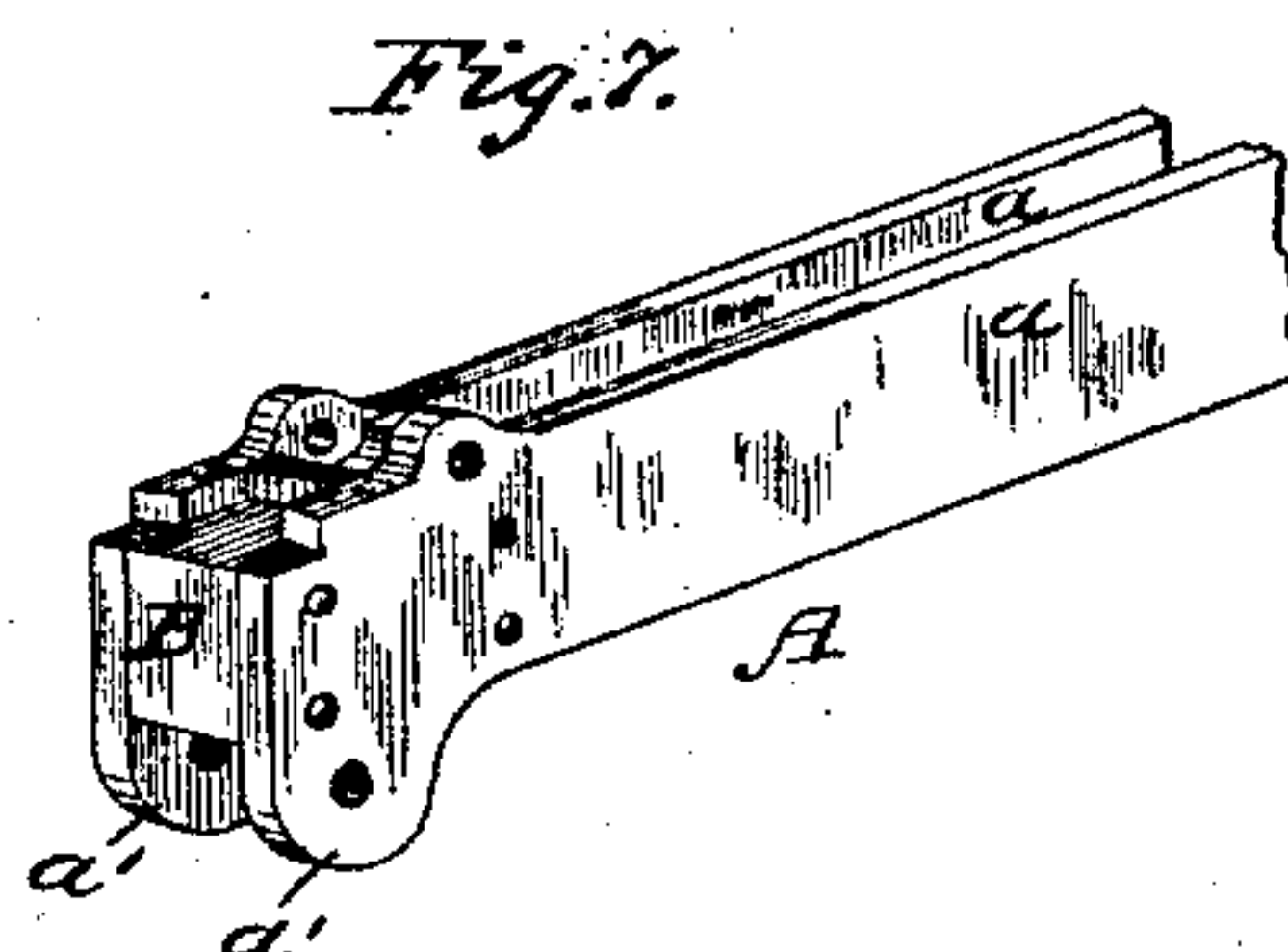
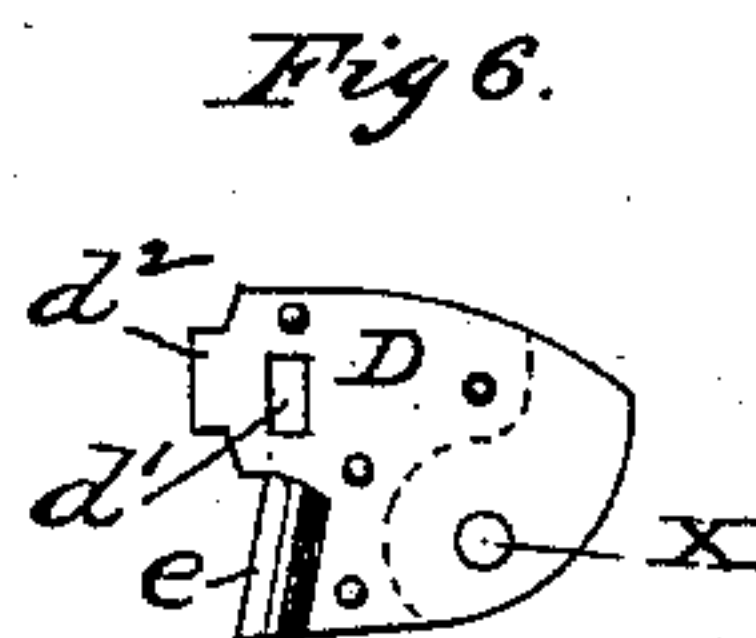
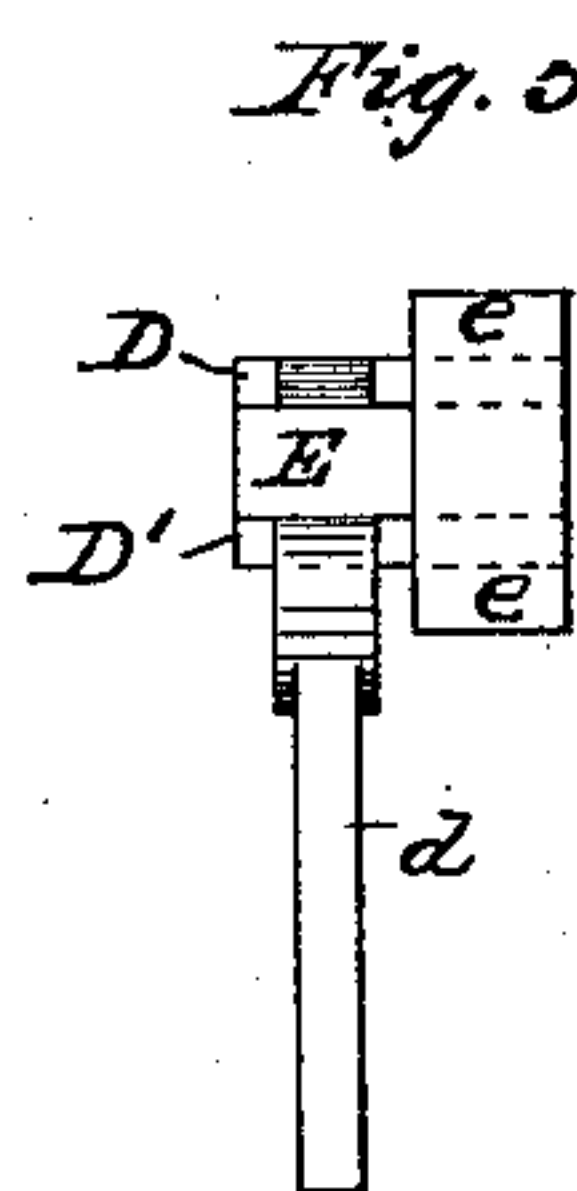
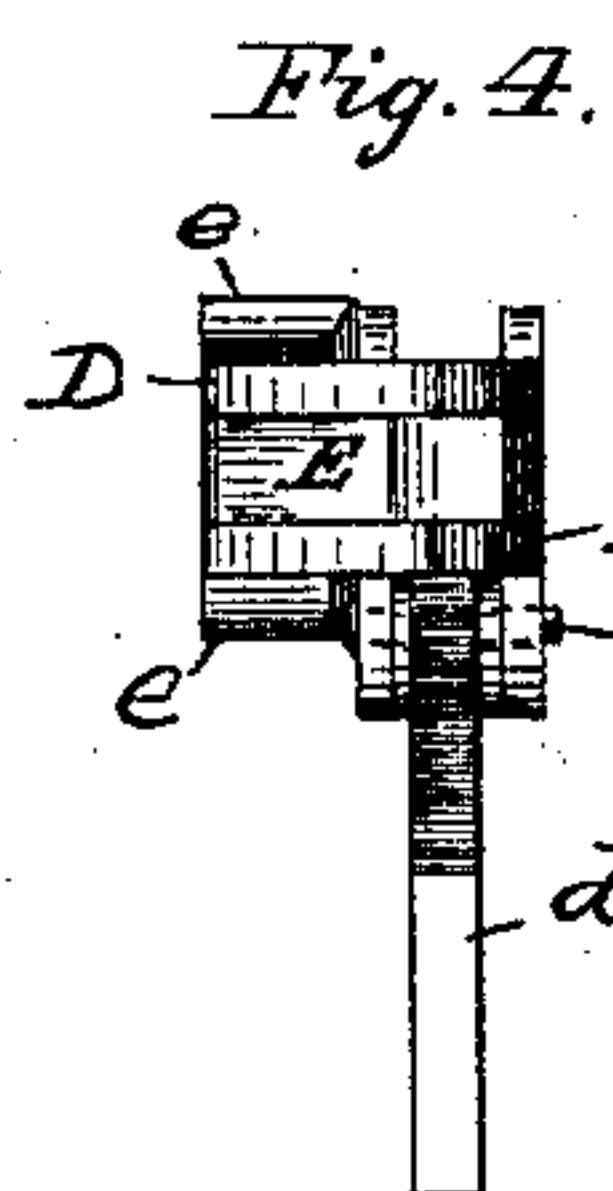
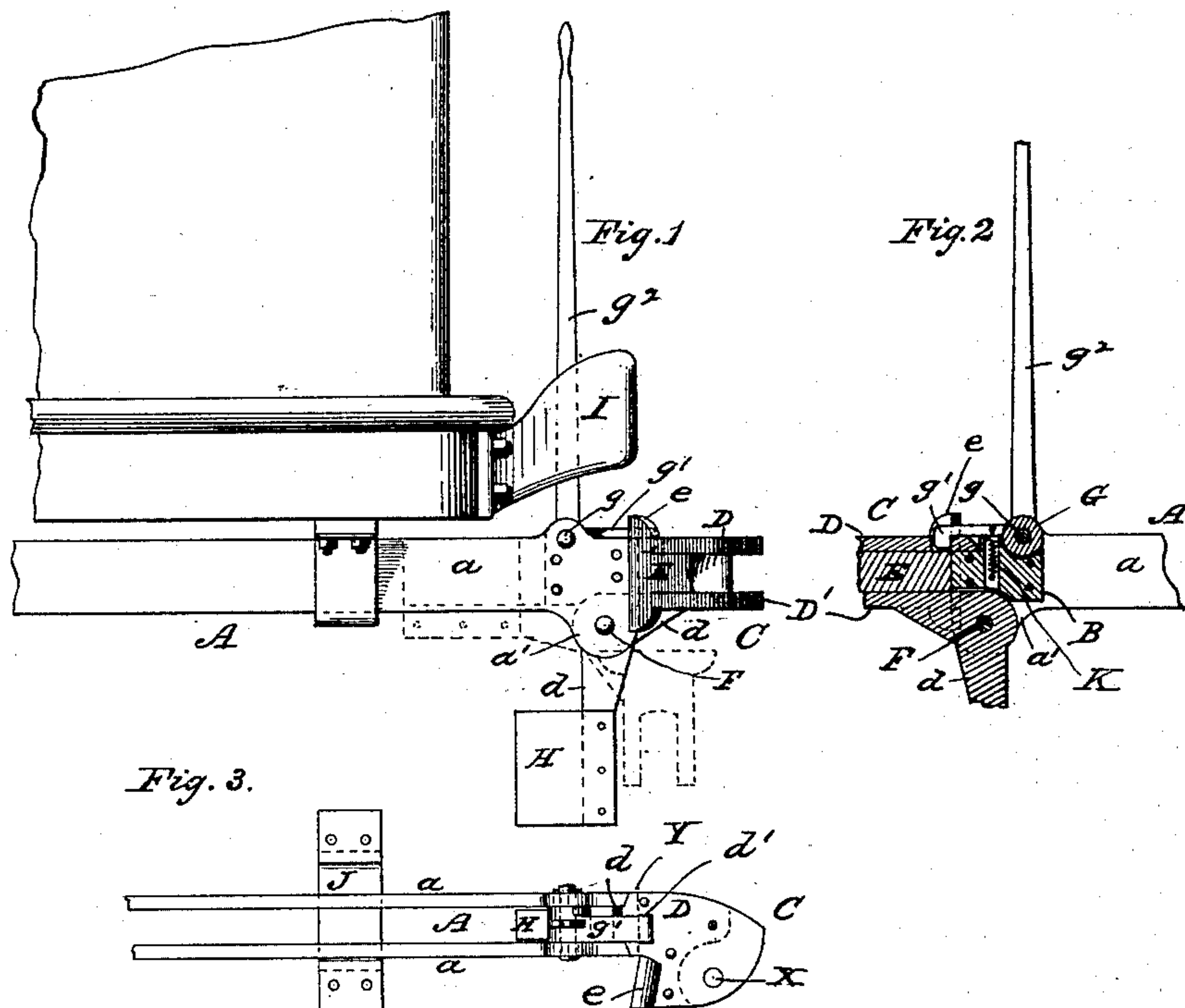
(No Model.)

F. R. BUTTERFIELD.

## CAR COUPLING.

No. 327,066.

Patented Sept. 29, 1885.



Witnesses.

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# UNITED STATES PATENT OFFICE.

FINLEY R. BUTTERFIELD, OF CONCORD, NEW HAMPSHIRE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 327,066, dated September 29, 1885.

Application filed July 13, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, FINLEY R. BUTTERFIELD, a citizen of the United States, residing at Concord, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improvements in Automatic Car-Couplings, of which the following is a specification.

My invention relates to improvements in hinged automatic car-couplers.

Heretofore in automatic car-couplings in which a laterally-projecting jaw is used at the outer end of the draw-bar, and adapted to move laterally to effect a coupling, and in which the head or that portion comprising the jaw is hinged to the draw-bar, so as to drop in order to uncouple, the hinge has been formed some distance back of said jaw and at or near the vertical center of said draw-bar, thus requiring more or less slack to uncouple.

The object of the present invention is, first, to provide an automatic coupler which avoids the above difficulty by changing the location of the hinge; and, second, to provide a coupler which may be disconnected by the forward movement of an engine whenever desired.

My invention consists, first, of the peculiar construction of the draw-head and its combination with the draw-bar.

My invention consists, further, in the relative location of the hinge to the uniting surfaces of the draw-bar and its head, the former being one inch (more or less) below the draw-bar, and two inches (more or less) back of the point of union of the draw-bar with its head.

My invention further consists of a latch-lever located on top of the draw-bar, and adapted to fall into a suitable slot in the top of the draw-head automatically when said draw-head closes onto the draw-bar.

My invention further consists of an arm projecting downward from that portion of the draw-head in which is formed the hinge, and to a balance-weight secured thereon, for the purpose of returning the draw-head to its normal position after it has been uncoupled.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of my improved automatic coupler

having its rear end broken away, a portion of the rear part of a locomotive-tender, and the loop by which the coupler is hung to said tender. Fig. 2 is a vertical longitudinal sectional elevation of the reverse side of the uniting parts of my improved draw-bar and draw-head. Fig. 3 is a general plan of the draw-bar complete resting upon a loop by which it may be secured to a car. Fig. 4 is a front end view. Fig. 5 is the reverse end view of the draw-head as when detached from the draw-bar. Fig. 6 is a plan view of the top plate of the draw-head. Fig. 7 is a perspective view of the hinge end of the draw-bar.

In the several views like letters of reference indicate corresponding parts.

The draw-bar A is composed of side plates, *a a*, instead of top and bottom plates which it has been the custom to use in the construction of this class of draw-bar up to the present day. These plates may be separated by tubular castings, through which the rivets are passed in the ordinary manner, except at the front end, where a suitable casting, B, must be interposed. This will be riveted, as seen in the drawings.

A draw-head, C, may be forged in one piece, or it may be composed of top and bottom wrought-iron plates, D D', and an interposing casting, E, and riveted together, as shown. Upon the bottom plate, D', is provided an arm, *d*, of proper width to fit between the side plates of the draw-bar A. This arm extends back far enough to permit of its being hinged to the ears *a'*, which are formed upon the side plates, *a a*, of the draw-bar, by means of the pin F, which passes through a hole in both said ears and the arm *d*.

On the outer end of the arm *d* is mounted a balance-weight, H, which may be narrow enough to pass up between the side plates of the draw-bar, as shown best in Fig. 3.

On the top of the draw-bar A, and near the front end thereof, the right-angled lever G is fulcrumed by the pin *g* to the side plates, *a a*, as seen in Figs. 1, 2, and 3. The short end *g'* of this lever is bent over, as seen best in Fig. 2, thus forming a hook or latch which fits a slot, *d'*, formed in the top D of the draw-head. The longer part *g''* of the lever G extends ver-



typically three feet, more or less, in order that it may be operated conveniently by the hand of a brakeman; and when this improved draw-bar is applied to a locomotive-tender, as seen in the drawings, the vertical end of this lever will pass up through the open part of a rigid buffer, I, bolted to the rear end of said tender.

It may be here mentioned that in order to lessen the weight of the hinged head C as much as possible it is constructed so as to measure considerably less from top to bottom or vertically than do the standard Miller draw-bars, and to make up this loss the casting E is provided with a projecting lug, *e*, on the top and bottom side of the jaw, which adds sufficient metal to make said jaw as deep as may be required. The top and bottom plates, D D', are made to fit around these lugs, as seen in Figs. 1, 3, and 5.

To insure a close joint of the head with the draw-bar, the top wrought-iron plate, D, is extended, as at *d*<sup>2</sup>, an inch, more or less, so as to fit between the side plates, *a a*, of the draw-bar, as seen best in Fig. 3.

A hole, X, is provided in the top and bottom plates, D D', of the draw-head C, to insert a coupling-pin when it is desired to couple to a car having an old-fashioned draw-bar requiring a link.

For retaining the latch-lever *g'* in the slot *d'* a pressure-spring may be applied back of the hand-lever *g*<sup>2</sup> and secured to the draw-bar; or the casting B may be cut away on one side and a spiral, K, be inserted, and its lower end secured therein, the upper end being fastened to the latch-lever *g'*, as seen in Fig. 2.

Having described the construction of my improved automatic coupler, I will proceed to describe its operation.

When an engine or car is coupled to a train, and it is required to disconnect the same, the long vertical arm *g*<sup>2</sup> of the lever G is pushed a few inches, which requires little or no power. This causes the latch part *g'* of the lever G to rise out of the slot *d'*, formed in the draw-head. Then the signal is given to the engineer to start ahead, when the draw-bar of the adjacent car will force the draw-head C down, and consequently the weight H up, as shown by dotted lines in Fig. 1. The brakeman meanwhile removes his hand from the lever *g*<sup>2</sup>, and when the draw-head of the adjacent car shall have freed itself from the draw-head C, the latter will gradually swing back to the position shown in full lines in Fig. 1, and in so doing raise the latch-lever *g'*, by reason of the bevel edge of the projection *d*<sup>2</sup> of the draw-head C, and that of the said latch *g'*, as clearly shown in Fig. 2 of the drawings, when my improved draw-head will again be ready to couple automatically with a car.

Two or more hangers or loops, J, may be used for supporting the draw-bar underneath a car, and a suitable spring applied to either side of said draw-bar for holding it to its work in the ordinary manner.

By dividing the draw-head from the draw-bar on a transverse line, Y, at the intersection of the jaw, and forming the hinge slightly at the rear of said dividing-line and below the bottom of said draw-bar, said draw-head when swung down will readily clear draw-heads of adjacent cars, even though they may be set lower.

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

1. In an automatic car-coupling in which the draw-head is connected to the draw-bar by a hinge, the combination, with said draw-bar, of a draw-head composed of top and bottom wrought-iron plates, and an intervening casting secured by rivets, an arm extending below and formed upon said bottom plate, in which the hinge is made, and a suitable balance-weight secured to said arm below said hinge, all constructed and operating substantially as set forth.

2. In an automatic car-coupling, the combination, with a draw-bar, of a hinged draw-head, separable on a transverse line at the intersection of the jaw, and hinged to said bar underneath and slightly back of said dividing-line, and means, as described, whereby said draw-head is returned automatically after being uncoupled, and retained in a position to again couple with a car, substantially as set forth.

3. In an automatic car-coupling, the combination, with a draw-bar, of a hinged draw-head separable on a transverse line at the intersection of the jaw, and hinged to said bar slightly below the bottom thereof, and directly underneath said dividing-line, a right-angled lever fulcrumed to the top of said draw-bar, the horizontal part of said lever serving as a latch for locking the draw-head to the draw-bar and the vertical part as a handle, by which said latch is operated, and a suitable spring for retaining said lever in its normal position, substantially as and for the purpose before specified.

4. In an automatic car-coupling, the combination, with a draw-bar composed of wrought-iron side-plates having ears projecting downward near the forward end thereof, and separated by castings and tubes, all secured together by rivets, of a draw-head having an arm projecting from the bottom thereof, fitting between said ears on the draw-bar, and hinged thereto, and mechanism, as described, whereby said draw-head is returned automatically after being uncoupled from a car, and retained in a position to again couple with a car, substantially as set forth.

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

FINLEY R. BUTTERFIELD.

Witnesses:

J. B. THURSTON,  
S. L. SAWTELLE.