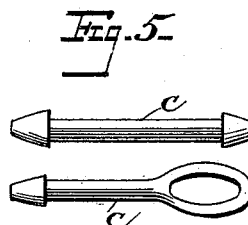
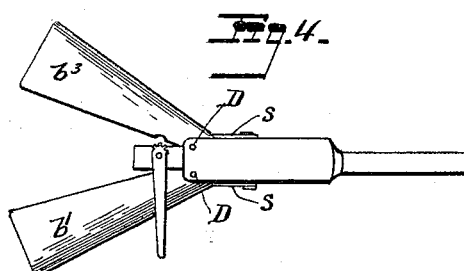
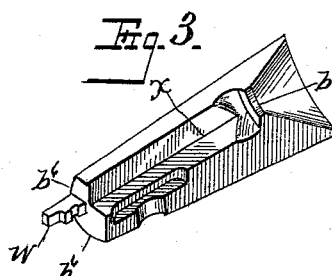
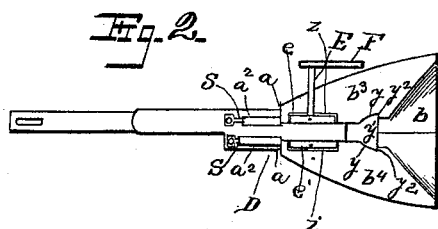
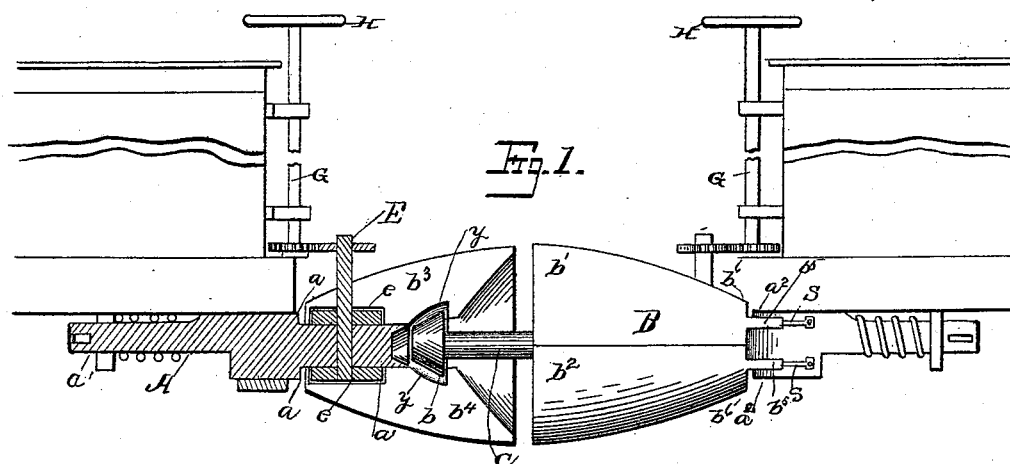


D. B. CROFT.
CAR COUPLING.

Patented June 30, 1891.



Witnesses.
M. Fowler Jr
James L. Jester.

Inventor
D. B. Croft,
By J. R. Nottingham *attor.*

UNITED STATES PATENT OFFICE.

DAVID BERNARD CROFT, OF GRAYSVILLE, VIRGINIA, ASSIGNOR OF THREE-FOURTHS TO JNO. W. WERTZ, OF SAME PLACE, AND GEO. M. HELMS, OF HELMS, AND GEO. C. CABELL, OF DANVILLE, VIRGINIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 455,247, dated June 30, 1891.

Application filed March 13, 1891. Serial No. 384,912. (No model.)

To all whom it may concern:

Be it known that I, DAVID BERNARD CROFT, a citizen of the United States, residing at Graysville, in the county of Floyd and State of Virginia, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in car-couplers of the automatic or "self-coupler" class; and it consists, essentially, in a divided draw-head, each section or part at one end pivoted in recesses within the sides of the draw-bar, and held in coupling or engaging position by a spiral or flat spring.

It further consists in providing means whereby the uncoupling of the cars may be accomplished from the top thereof or from the ground, in the latter case without the operator being compelled to go between the cars.

It further consists in the automatic liberation of a car in case of an accident, such as the overturning of the car in either direction which has jumped the track; and it further consists in the details of construction and arrangement of parts, as will be hereinafter more fully described in the specification, and set forth in the claims.

The object of the invention is to produce a car-coupler that shall be simple and cheap in construction and durable and effective in use, and at the same time possess all of the advantages of being automatic in coupling, readily and quickly uncoupled without going between the cars, and automatic in liberating a car in case it should jump the track or overturn, as more fully hereinafter explained. These objects are attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents one end each of two freight-cars, showing my improved coupler applied thereto, one of said couplers being represented in vertical longitudinal section, and two ways of operating the uncoupling de-

vice; Fig. 2, a side elevation of the coupler with two sections or parts of the draw-head removed; Fig. 3, a detail perspective view of one of the sections of the draw-head; Fig. 4, a top plan view of the coupler, showing the draw-head open in the position of coupling; and Fig. 5, views of coupling-links.

Similar letters refer to similar parts throughout the several views, in which—

The letter A indicates the usual draw-bar, which in this instance is formed with square shoulders or abutments *a* and an extended head *a'*. Each side edge of the draw-bar is provided with two recesses *a²*, adapted to receive the tenon ends of a divided draw-head B, as will be hereinafter more fully described.

The draw-head is approximately bell shape, and its mouth inclines to the center opening *b*, through which enters one end of a coupling-link C, which may be either of the double arrow-head shape or of one arrow-head end and a link-head end, as shown in Fig. 5.

The draw-head is divided into four equal parts or sections *b¹ b² b³ b⁴*; each section having a tenon *b⁵* on one end, which fits in one of the recesses *a²* of the draw-bar and is pivoted therein by means of the pin or bolt D. Shoulders *b⁶*, formed by cutting the tenons, abut against the square shoulders *a* of the draw-bar and serve, in conjunction with said shoulders *a*, to relieve the pins or bolts of any undue strain and consequent injury which might be caused from the shock of the cars coming together suddenly. Each section is made with a right-angled recess *x* to receive one corner each of the extended head *a'*, and thereby provide for the close fit of the respective faces of the draw-head sections. Each section is further provided with a depression *y*, which forms, when all the sections are together, a recess *y'* for the reception of the head of the coupling-link, and a shoulder *y²* for confining the head of the link until released by proper means. Each of the tenons *b⁵* is notched or recessed at *w* to receive one end of a spring S, the other end of said spring being secured to the draw-bar. The purpose of these springs is to rigidly hold the sections in close contact until their force is overcome

by the action of the uncoupling device or the sudden overturning of the car. This they do by exerting a force against that portion of the tenon which extends beyond the pivotal point.

The means for uncoupling consists of a vertical shaft E, journaled in the extended head a' of the draw-bar. This shaft passes up through the two upper sections of the draw-head and is provided with two elongated cams $e e'$, centrally and rigidly secured thereon, one above and the other below the extended head a' , and fitting in recesses $z z'$ made in the draw-head sections. These cams in their normal position lie in the same parallel plane with the extended head a' . An operating-lever F is secured upon the upper end of the shaft E, and serves as a means by which the uncoupling may be accomplished without risk to the operator. If desired, the upper end of the shaft E may be provided with a fixed gear-wheel to intermesh with another gear-wheel rigid on a shaft G, journaled in bearings secured to the end of the car, said shaft G being provided with a wheel H, by which it may be manipulated to operate through the medium of the gear-wheels the uncoupling device.

The operation of my improved coupler is as follows: On the cars being pushed together the free end of the coupling-link will enter the mouth of the draw-head, being guided to the central opening by the inclined face spreading apart the sections $b' b^2 b^3 b^4$ until the head of the link enters fully within the recess y' . As soon as the head of the link has fully entered said recess the force exerted by the springs S will cause the sections to come together, and the head will be firmly held and prevented from becoming uncoupled by the shoulders y^2 and the force exerted by the springs S.

To uncouple the car, the lever F or wheel H is turned to the right or left, as the case may be, causing the cams to force apart the sections $b' b^2 b^3 b^4$ by overcoming the power of the springs S and release the link. The extended head a' limits the entry of the link. So long as the coupling-link maintains a horizontal position, or a position not to exceed an angle of about forty-five degrees therefrom, the uncoupling is impossible by other than the proper means; but should a car jump the track the uncoupling will be automatically accomplished, for as the car leaves the track and the angle of the link passes beyond forty-five degrees and reaches an angle of about ninety degrees the draw-head sections will be forced apart by the prying action of the link-head against said sections and the link-head released. This is an important feature of my invention, as in accidents of this character

other cars will be prevented from being dragged or forced from the track.

It will be readily understood that the improvement may be made to serve with many of the couplers now in use by means of a proper coupling-link—for instance, by means of the combined coupling-link shown in Fig. 5 I can use my coupler in conjunction with the old link-and-pin construction.

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

1. An automatic car-coupler consisting of a draw-bar formed with abutting shoulders and extended head, a draw-head divided into four parts or sections, one end of each section pivoted in recesses made in said draw-bar, and springs for holding each section in close contact, substantially as specified.

2. In an automatic car-coupler, the combination, with a draw-bar formed with abutting shoulders and extended head and with recesses in the side edges thereof, of a draw-head divided into four sections, each section pivoted at one end within said recesses, the springs S, and means, substantially as described, for uncoupling, as set forth.

3. In an automatic car-coupler, the combination, with a draw-bar having an extended head, of a draw-head divided into four sections, each section having one end pivoted in a recess in said draw-bar, the springs S, and an uncoupling device consisting of a shaft journaled in the extended head and provided with double cams and means for turning said shaft, whereby said sections are forced apart to uncouple the cars, substantially as specified.

4. In an automatic car-coupler, the combination, with the draw-bar having an extended head, of the draw-head divided into four sections, each section pivoted in a recess in the draw-bar and formed with interior recesses to receive the extended head and coupling-link head, and springs for holding said sections in close contact, substantially as specified.

5. In an automatic car-coupler, the combination, with the draw-bar having an extended head, of the draw-head divided into four sections, each section pivoted, as described, to said draw-bar and formed with interior recesses $x y y'$, springs for holding said sections in closed position, and the shaft journaled in the extended head and provided with cams and operating-lever, substantially as specified.

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

DAVID BERNARD CROFT.

Witnesses:

JEFFERSON S. KELLEY,
ANDREW L. CANNADAY.