(No Model.) 2 Sheets—Sheet 1.

A. C. McCORD.

CAR COUPLING.

No. 543,158. Patented July 23, 1895.

Fig. 1.

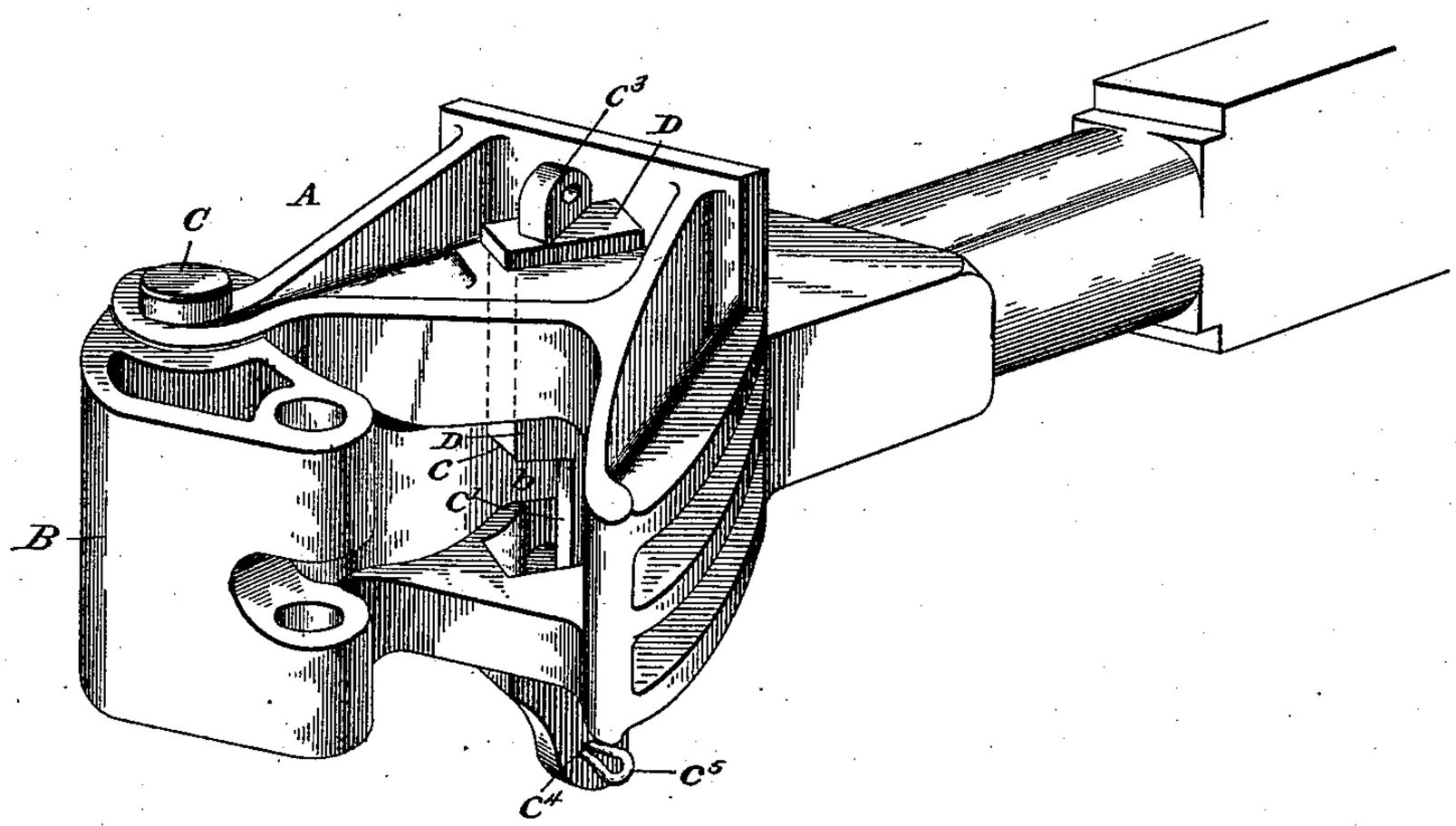
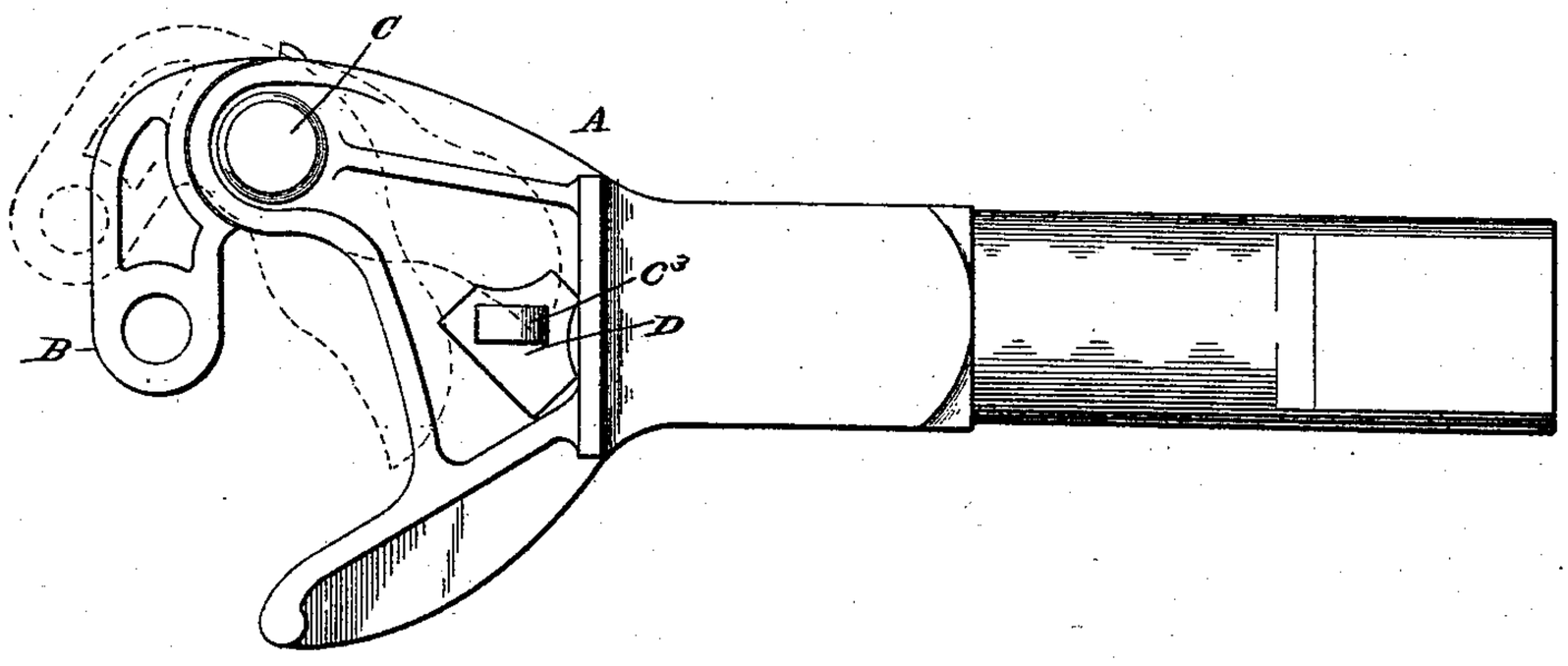


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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CAR COUPLING.

No. 543,158. Patented July 23, 1895.

Fig. 3.

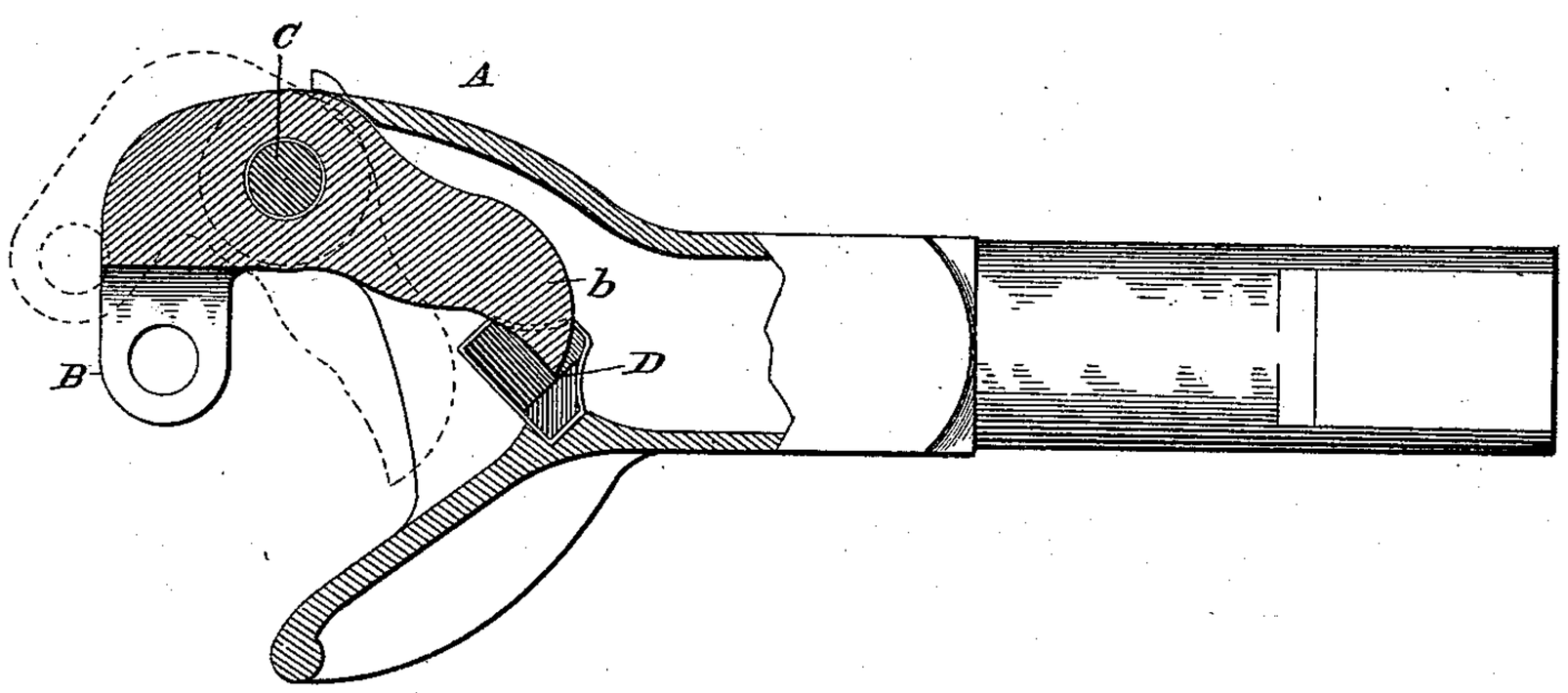


Fig. 4.

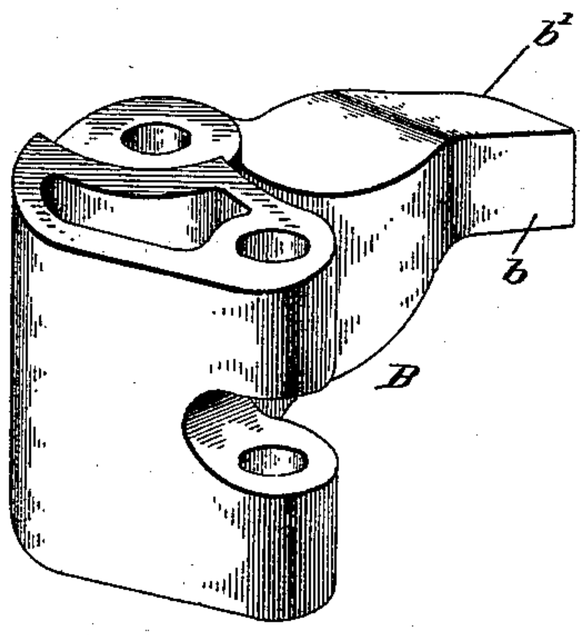


Fig. 5.

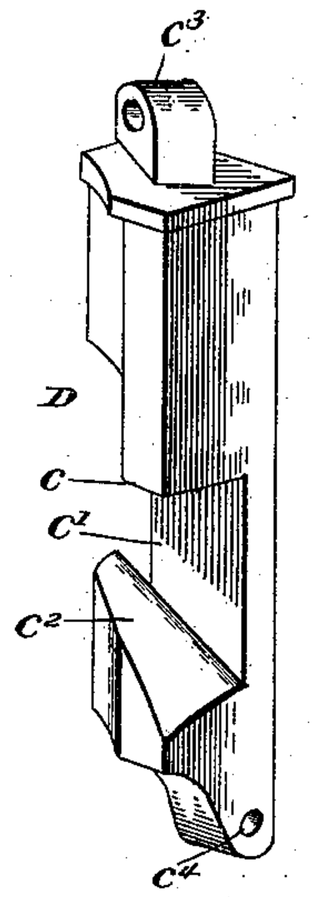
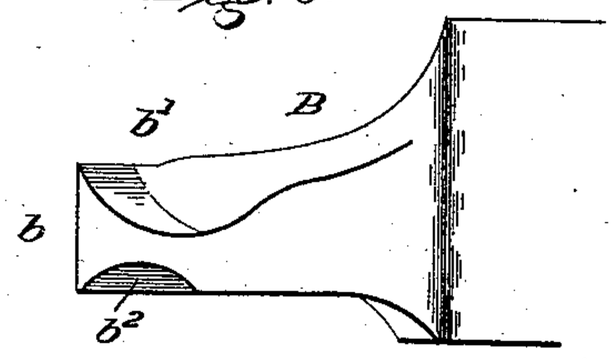


Fig. 6.



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UNITED STATES PATENT OFFICE.

ALVIN C. McCORD, OF CHICAGO, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 543,158, dated July 23, 1895.

Application filed April 13, 1894. Serial No. 507,447. (No model.)

To all whom it may concern:

Be it known that I, ALVIN C. MCCORD, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates more especially to that class of couplers known as "twin-jaw," which are automatic in their coupling action; and its main objects are to automatically lock the coupling hook or knuckle and also unlock and positively throw forward the same.

Figure 1 is a perspective view showing the knuckle closed and locked. Fig. 2 is a top view showing the knuckle in its closed position. Fig. 3 is a longitudinal section showing in full lines the knuckle and its integral heel-piece in closed position and in dotted lines in opened position. Fig. 4 is a perspective view of the knuckle. Fig. 5 is a perspective view of the locking-pin. Fig. 6 is a view of the rear portion of the heel-piece of the knuckle.

Similar letters of reference indicate similar parts in the respective figures.

A is the coupler-head.

B is the coupling hook or knuckle having an integral heel-piece *b*.

C is the fulcrum or pivot-pin upon which the knuckle B turns.

D represents the locking-pin.

The coupler-head may be of any suitable or approved construction, preferably of the character used in modern twin-jaw couplers. The coupling hook or knuckle B may, except in the particulars hereinafter pointed out, also be of any approved construction, care being exercised to properly distribute the metal with due reference to lightness and strength.

By reference to Figs. 4 and 6 it will be seen that the integral heel portion *b* of the knuckle is provided with upper and lower bearing-surfaces b' and b^2, the functions of which are hereinafter described. As shown in Fig. 5, the locking-pin D is furnished with a shoulder *c*. A cavity or recess c' is formed or included between the shoulder *c* and an inclined or rounded surface c^2 near the lower end of the pin. The locking-pin D is provided with a ring c^3 for the attachment of any suitable lifting device and also with a hole c^4 at its lower end for the insertion of a bolt, key, or other device c^5 to limit the upward movement of the pin.

The locking-pin D may be of any suitable outline in cross-section, the shape shown being that preferred.

The coupler-head A is suitably perforated vertically, as shown more particularly in Fig. 3, to receive and allow the up-and-down movement of the locking-pin D.

In operation, assuming two draw-heads of this or similar type to be approaching for coupling of two cars, the knuckle B of each coupler is supposed to be thrown forward, so that its heel-piece *b* is in position to be struck by the coupling hook or knuckle proper B of the other coupler. At this time the locking-pin D of each coupler is, of course, in its depressed or lowest position; but upon the two couplers coming together (the action in two similar couplers being the same) the upper bearing-surface b' of the heel-piece *b* in its inward pivotal movement engages the shoulder *c* of the locking-pin D, (the heel-piece in its course of movement sweeping through the cavity or recess c',) raising the pin, and the required extent of pivotal movement of the heel-piece *b* having been reached the latter is brought behind the locking-pin, so that the pin may fall by gravity and lock the heel-piece, as seen in Fig. 1. The two couplers are now supposed to be connected by the interlocking of the coupling hooks or knuckles, the part of the locking-pin above the shoulder *c* having fallen, as seen in Fig. 1, below the upper edge of the heel-piece, the rear face of the locking-pin standing in vertical relation and in contact, or substantially so, with the front vertical surface of the heel-piece. When it is desired to uncouple, the locking-pin D is raised by hand, preferably through the agency of suitable intermediate mechanism, so that the inclined or rounded surface c^2 will engage the lower surface b^2 of the heel-piece, when the action will be such as to positively throw forward the heel-piece, the coupling hook or knuckle being thus brought to the uncoupling position. During the movement forward

of the heel-piece it, turning upon its pivot-pin or fulcrum C, sweeps through the cavity or recess *c'* of the locking-pin, and after the heel-piece has thus been positively moved in front of the forward surface of the vertically-moving locking-pin the latter is free to fall, and does fall, by gravity, it being then in readiness to be again lifted in the coupling action, as hereinbefore explained. By this construction the knuckle is locked and also positively thrown to its open position by one locking-pin having a vertical movement, the positive ejectment of the knuckle being, as is believed, effected in a manner heretofore unknown—*i. e.*, by a pin standing vertically and having only a vertical movement. This arrangement not only greatly simplifies and cheapens the construction, but offers even greater advantages in locating the locking-pin in a manner best calculated to withstand strain and shock. The simple vertical movement of the locking-pin also reduces the removal of metal from the coupler-head to the minimum, leaving the head strong and solid where subject to great concussive and pulling strain.

The entire construction is such that the strain is properly and equally distributed and the buffing force so met as to relieve the fulcrum or pivot-pin and other parts of the coupler from undue shock. Care is exercised to give the proper distribution of metal between the coupler-head and the coupling hook or knuckle and to provide uniform wearing-surface between said knuckle and the locking device.

The action is, as has been pointed out, strictly automatic, and the simplicity and effectiveness of the locking and knuckle unlocking and ejecting device have been fully demonstrated.

There are other features entering into my improved, coupler such as those designed to transfer the strain from the fulcrum or pivot-pin to the coupler-head; but these, not forming part of my present invention, are not here particularly described.

While my invention is here described and shown as applicable to what is known as the "Janney type" of coupler, it is apparent that it may be employed in any coupler embodying a coupling hook or knuckle adapted to be locked by a locking-pin and positively thrown forward or ejected by the raising of the said pin in a vertical line.

Having described my invention, I claim—

1. In an automatic car coupler, the combination of a coupler head, a coupling hook or knuckle provided with suitable upper and lower bearing surfaces, and a vertically moving locking pin having a shoulder adapted to be engaged by the upper bearing surface of the hook or knuckle, and an inclined or rounded surface adapted to engage the lower bearing surface of said coupling hook or knuckle, substantially as set forth.

2. An automatic car coupler, a coupler head, and a coupling hook or knuckle having an extension or heel piece provided with suitable upper and lower bearing surfaces, combined with a vertically moving locking pin having a shoulder adapted to be engaged by the upper bearing surface of the heel piece, and a lower inclined or rounded surface adapted to engage the lower bearing surface of the said heel piece, substantially as set forth.

3. In an automatic car coupler, the combination of a coupler head, a coupling hook or knuckle having an extension or heel piece provided with suitable upper and lower bearing surfaces, and a vertically moving locking pin provided with a shoulder adapting it to be lifted by an inward pivotal movement of said heel piece and having a lower inclined or rounded surface adapted, when the pin is vertically lifted, to engage the lower bearing surface of said heel piece and positively throw the coupling hook or knuckle forward to the uncoupling position, substantially as set forth.

4. In a car coupler, a sliding locking pin, having a projection, to be engaged and lifted by means of a coupling hook or knuckle, and a projection inclined on its top face to engage and move the said coupling hook or knuckle, in combination with a coupler head and a coupling hook or knuckle pivoted thereto, substantially as and for the purposes stated.

In testimony whereof I hereto set my hand.

ALVIN C. McCORD.

Witnesses:
D. W. McCORD,
GEORGE A. HAMILTON.