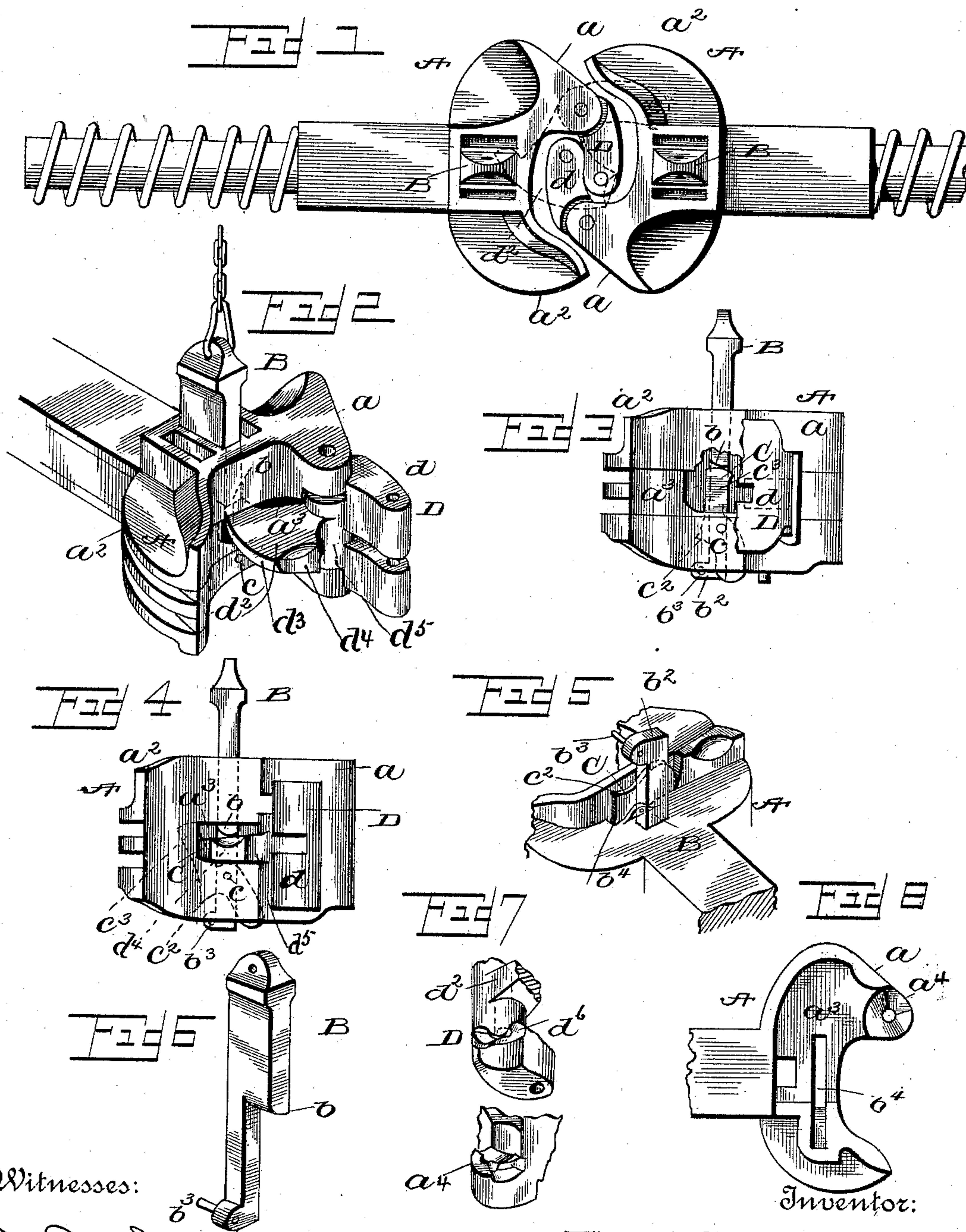


T. PENN.  
CAR COUPLING.

Patented May 31, 1892.



Witnesses:

John D. Farrow

Inventor:

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By his Attorney,

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# UNITED STATES PATENT OFFICE.

THOMAS PENN, OF REIDSVILLE, NORTH CAROLINA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 476,168, dated May 31, 1892.

Application filed December 30, 1891. Serial No. 416,606. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS PENN, a citizen of the United States, residing at Reidsville, in the county of Rockingham and State of North Carolina, 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.

This invention relates to car-couplers.

The object is to couple cars automatically, thus obviating all danger to human life and limb in the operation, and to be able to cause the uncoupling of cars by a single act in one direction, which act shall also place the device in position for recoupling of itself.

With these objects in view the invention consists in a draw-head provided with a shouldered pin and a latch, the pin in being raised operating the latch to bring it under the shoulder to sustain the pin by the latch until the latch is thrown back.

Furthermore, the invention consists in a draw-head provided with a shouldered pin and with a jaw having a disk which sustains the pin when the jaw is open.

Furthermore, the invention consists in a draw-head provided with a pin having a shoulder and with a jaw having a disk which takes under the pin and holds it up when the jaw is open, presenting itself to be struck to close the jaw and releasing the pin and letting it drop when the jaw is closed, there being cams placed together at the joint, one cam being fixed and one on the jaw moving with the jaw, whereby the jaw will be held open until it is forcibly closed by the jaw on the opposing coupling when the cars come together; and, finally, the invention consists in the details of construction shown and described.

In the accompanying drawings, forming part of this specification, and in which like letters of reference indicate corresponding parts, Figure 1 is a view in plan from the top of two draw-heads, showing the couplers together coupled and in dotted lines one of the jaws open. Fig. 2 is a view in perspective of one of the draw-heads with the jaw open, showing some details. Fig. 3 is a view in front elevation with parts broken away to show the pin supported on the latch. Fig. 4

is a similar view showing the pin supported on the jaw. Fig. 5 is a view in perspective of a draw-head inverted, showing the lower ends of the pin and latch. Fig. 6 is a view in perspective of the coupling-pin. Fig. 7 is a detail view of the joint of the jaw with its side of the draw-head, showing cams for holding the jaw open for coupling; and Fig. 8 is a view in plan from the top with the top plate removed, showing the chamber.

In the drawings, A designates a draw-head, the front of which is vertically concave, one side  $a$  of the concavity being preferably somewhat incurved and heavy and the other side  $a^2$  curved somewhat outward and preferably lighter, presenting a guide, two opposing heads on the cars being so arranged that the side  $a^2$  of the one will be opposite the side  $a$  of the other. The draw-heads may be lightened by making the same with grooves, as shown, and their draw-bars may be hollow. Extending rearward from the vertical concavity in the draw-head is a horizontal incut or chamber  $a^3$ , and this chamber contains certain operative parts, as will presently be described. The draw-head and its bar may be made in one piece; but it is preferred to make them up in continuous layers, as shown, the chamber being formed by incutting the middle layer to the proper configuration, allowing the top and bottom layers to afford the top and bottom thereof, respectively. Passing downward into and through the chamber is a pin B, broad above and narrower below, leaving an offset or shoulder  $b$ , (which will be within the chamber in use,) and provided with an enlarged end  $b^2$ , from which there is a projection  $b^3$ .

A transverse slot  $b^4$  is cut through the bottom of the draw-head, behind the wall of the vertical concavity thereof, and opens into the chamber  $a^3$ , and in this slot is hung a kind of bell-crank lever C, pivoted at  $c$  and having a shoulder  $c^2$ , the whole device presenting a latch. The latch is so arranged in the slot that its shoulder  $c^2$  will be directly over the projection  $b^3$  of the pin B and its arm  $c^3$  directly under the shoulder  $b$  thereof. The operation of this part of the device will be clear. As the pin is raised the projection  $b^3$  not only keeps it from being pulled out, but, striking against the shoulder  $c^2$ , turns the latch on its pivot and swings the arm  $c^3$  upward until its



end comes directly under the shoulder  $b$ , and as the pin  $B$  is let go its shoulder  $b$  falls upon and holds up the latch and the pin itself is held up. Pivoted in the side  $a$  is a jaw  $D$ ,  
 5 composed of two parts, a clasping or clamping part presenting a coupler portion  $d$  and a disk or inward projecting part presenting a disk portion  $d^2$ , having a curved edge  $d^3$  and a flattened offset  $d^4$ , leading from this, the distance of the edge from the center increasing  
 10 from front to rear. From the offset  $d^4$  toward the pivot is an incurve  $d^5$ . The disk portion is of such size and is entered into the chamber  $a^3$  in such manner that its lateral curved  
 15 edge will cross the lower narrow portion of the pin as the pin is raised and the jaw is opened, while the offset  $d^4$  will abut against the upper broad portion of the pin when the pin is down. The incurve  $d^5$  makes the front  
 20 of the disk conform to the concavity of the chamber when the jaw is closed. When the jaw is open, the disk will project out into the vertical concavity of the draw-head, the offset  $d^4$  presenting a suitable surface to be struck  
 25 to push the disk back and close the jaw. At the pivot there is a fixed cam  $a^4$ , and there is also a cam  $d^6$  on the jaw. The cams are so arranged with relation to one another that their faces will be flush or together, with the  
 30 cam on the jaw at its lowest point, when the jaw is open. The effect of this is that as the cam  $d^6$  on the jaw must ride up on the cam  $a^4$  to close the jaw the jaw will tend to remain open until some force is brought to  
 35 bear to close it.

The operation of the entire device will now be clear. The pin having been raised and being held up by the latch, pulling one car from the other will pull open a jaw  $D$ , thus  
 40 releasing one coupling from the other. As the jaw opens its disk, taking against the arm  $c^3$  of the latch, throws this from under the shoulder of the pin, whereupon it falls back to its normal position by gravity; but  
 45 by the disk passing under the shoulder the pin is sustained, and so remains until the jaw is again closed, when the disk passes from under the shoulder, and as the latch is then

down there remains nothing to hold up the pin, and this then falls, whereupon the broad  
 50 portion of the pin is in the path of motion of the disk, the jaw is locked shut, and the coupling is completed.

It will be understood that a jaw being left open and the device being in position to be  
 55 closed by a stroke against the projecting edge of the disk when a car having a similar draw-head with its jaw closed has its draw-head brought against the first the jaw of the second draw-head will strike against the disk  
 60 of the first and close its jaw into the jaw of the second, while if both jaws are open each jaw will operate to close the other. The coupling is thus perfectly automatic.

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

1. In a car-coupler, a draw-head provided with a shouldered pin having a projection at its lower end, and a latch, the said projection  
 70 when the pin is raised operating the latch to sustain the pin, substantially as described.

2. In a car-coupler, a draw-head provided with a shouldered pin having a projection at its lower end, and a latch pivoted independ-  
 75 ently of the pin, the latch being operated by the projection when the pin is raised, substantially as described.

3. In a car-coupler, a draw-head provided with a shouldered pin, a latch, and a jaw hav-  
 80 ing a disk fixed to it, the pin being raised operating the latch to bring it under the shoulder to sustain the pin, and the jaw in being opened causing its disk to throw out the latch and itself sustain the pin, but upon being  
 85 closed, as by its disk being properly struck, releasing the pin and allowing it to drop, locking the jaw, and thus coupling, substantially as described.

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

THOMAS PENN.

Witnesses:

J. H. ZEVELY,

JNO. LEWIS BEARD.