(No Model.)

F. A. FOX.

CAR COUPLING.

No. 455,590. Patented July 7, 1891.

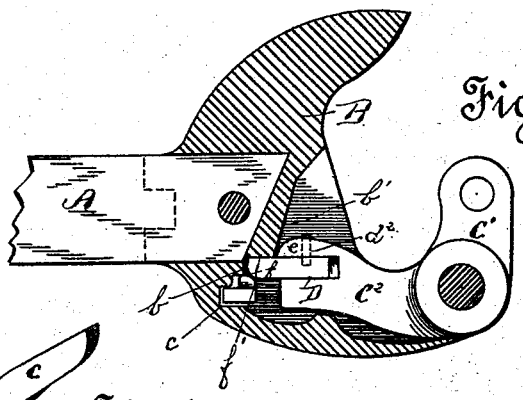


Fig. 1.

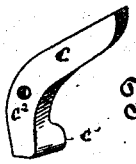


Fig. 4.

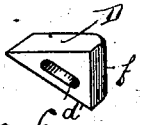


Fig. 6.

Fig. 5.

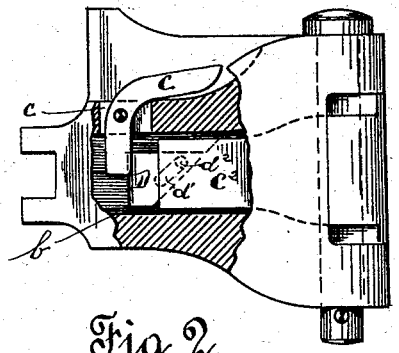


Fig. 2.

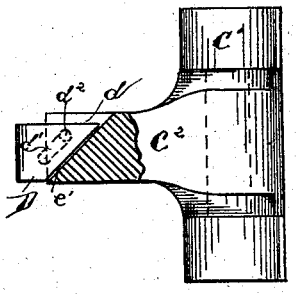


Fig. 3.

Fig. 8. Fig. 7.

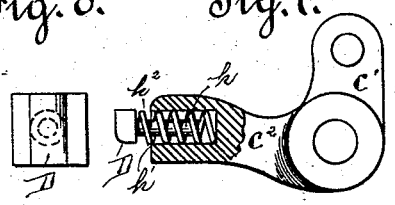
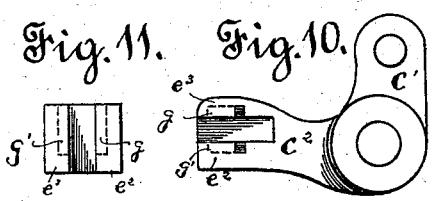


Fig. 11. Fig. 10.



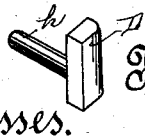


Fig. 9.

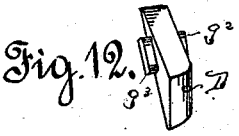


Fig. 12.

Witnesses.

F. Montevercle.

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By R. A. Parker

Atty

UNITED STATES PATENT OFFICE.

FRANK A. FOX, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO CHARLES E. BISHOP, OF BROOKLYN, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 455,590, dated July 7, 1891.

Application filed May 26, 1891. Serial No. 394,124. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. FOX, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare the following to be a full, clear, and exact description of said invention, such as will enable others skilled in the art to which it most nearly appertains to make, use, and practice the same.

My invention has relation to that class of car-couplings wherein two interlocking heads provided with a rearwardly-swinging tail-piece are adapted to connect and lock with a similar piece formed or provided upon the opposite coupling.

My invention relates more particularly to the locking mechanism of the coupler, which consists in providing the end of the piece with an inwardly-moving locking-pin adapted upon the rear thrust of said tail-piece to move inward until the inclined wall of the coupling-head is passed, when by gravity or otherwise it moves outward, so as to abut against the said coupling-head wall, and thus maintain the head in coupled position until said pin is thrown inward, so as to clear the wall, when the knuckle-joint is allowed to move outward.

The invention further consists in providing a locking mechanism which shall be simpler in its construction, less expensive, more effectual in its operation, and easier in its working than any device heretofore known to me.

Referring to the drawings forming a part of this application, wherein similar letters of reference denote corresponding parts throughout the entire specification, Figure 1 is a top plan of the coupling-head partly broken away in order to fully show the lock mechanism; Fig. 2, a side view in elevation, partly broken away; Fig. 3, a detail of swinging or interlocking knuckle-joint, showing end of tail-piece, partly in section; Fig. 4, a detail of lifting-lever; Fig. 5, an end view thereof; Fig. 6, a detail of sliding or locking pin; Figs. 7 and 10, detail views of the swinging knuckle-joint, showing modified form of locking-pin; Figs. 8 and 11, front views of Figs. 7 and 10, and Figs. 9 and 12 detail views of the locking-pins shown in Figs. 7 and 10.

The letter A indicates the coupling draw-bar, and B the recessed coupling-head secured thereto. Said head is cut away, so as to form the opening *b*, and the wall *b'* is gradually inclined toward opening *b*, which is adapted to move the locking-pin inward, as hereinafter set forth. The rearwardly-extending recess *b* is intersected by the vertical opening *c*, formed through the coupler-head, and within said opening is pivoted the swinging lever C, the lower end of which is provided with the inclined shoulder *c'*, which works within the opening *b*. To the forward end of the head B is bolted the swinging knuckle-joint C', which is provided with the rearwardly-extending tail-piece C^2. The outer end of said tail-piece is grooved or cut away upon an incline, so as to form the incline guide *d*, within which works the locking-pin D. Said pin is provided with the incline groove or channel *d'* and is secured within the grooved end of the tail-piece by means of the pin d^2, which projects through the wall *e* of said tail-piece into the channel *d'* of the lock-pin, upon which the latter rides up or down. By gravity the pin works downward upon the inclined face *e'* of the tail-piece and projects beyond the end thereof, as shown in Fig. 3. The outer face of said lock pin or bolt is rounded or beveled, as shown at *f*. As the tail-piece moves inward the inclined face *f* of lock-pin D contacts with inclined wall *b'* of the coupler-head, and by the continual movement of the tail-piece the lock-pin is forced inward within the grooved end of the tail-piece until the inclined wall *b'* has been cleared, when by gravity it moves downward until the end thereof projects within the opening *b*. The outer face of the sliding lock-pin then contacts with the wall *f'*, and thus prevents the outward movement of the knuckle-joint and tail-piece until the sliding lock-pin is released from contact with wall *f'*. When the lock-pin moves within the opening *b*, the two heads are interlocked. In order to release the heads from their interlocked position for uncoupling, the pivoted lever C is lifted upward,

which throws the downwardly-extending arm c^2 forward within the opening b and causes shoulder c' to contact with outer end of lock-pin and by its movement force the sliding lock-pin within the grooved end of the tail-piece until wall f' is cleared. The knuckle-joint may thus be freely swung outward, inasmuch as no obstruction is offered to the tail-piece.

While I have shown the lock-pin moving within the grooved inclined end of the tail-piece and riding upward upon the pin or bolt d^2, I do not wish to be understood as confining myself to this form of construction, inasmuch as I am aware that other forms of lock-pins may be employed.

In Fig. 7 I have shown the pin provided with the rearwardly-extending stem h, which fits within an opening h', formed in the tail-piece, and by means of the spiral spring h^2 pressure is maintained thereon for the purpose of forcing the lock-pin outward.

Fig. 10 shows the walls e^2 e^3 of the tail-piece provided with inclined channels g g', within which fit and work the inclined shoulders g^2 g^3, formed on the pin, as shown in Fig. 12. In this case the pin falls or moves by gravity. By preference I prefer the form of lock-pin set forth in Figs. 1 and 2, although either of the other forms may be employed with equally good results.

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

1. The combination, with a car-coupling, of the swinging tail-piece, said piece having its outer end grooved, locking-pin working within said open end, and the swinging lever for operating said pin for uncoupling of the heads, as and for the purpose set forth.

2. The combination, with the coupling-head provided with an inclined recessed wall, of the swinging tail-piece, locking-pin working within end of said tail-piece and adapted upon the rear thrust thereof to move inward and outward, and the lever for unlocking said pin, as and for the purpose set forth.

3. The combination, with a recessed coupling-head, of the swinging tail-piece, inclined guide-groove formed in the outer end thereof, and the locking-pin working within the grooved end upon the rear thrust of said tail-piece, as and for the purpose set forth.

4. In a car-coupling, the combination, with the recessed coupling-head, of the rearwardly-swinging tail-piece provided with an end opening, locking-pin working within said open end, and the lever for unlocking said pin, as and for the purpose set forth.

5. In a car-coupling having an inclined recessed face, swinging tail-piece working therein, opening formed in end thereof, locking-pin working therein, said pin adapted to move in or out with rear thrust of the tail-piece, lock-pin opening formed in the coupler-head, within which said pin moves when the heads are locked, and the lever for unlocking said heads, as and for the purpose set forth.

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

FRANK A. FOX.

Witnesses:
N. A. ACKER,
LEE D. CRAIG.