(No Model.)

F. L. WELLS.

CAR COUPLING.

No. 471,702. Patented Mar. 29, 1892.

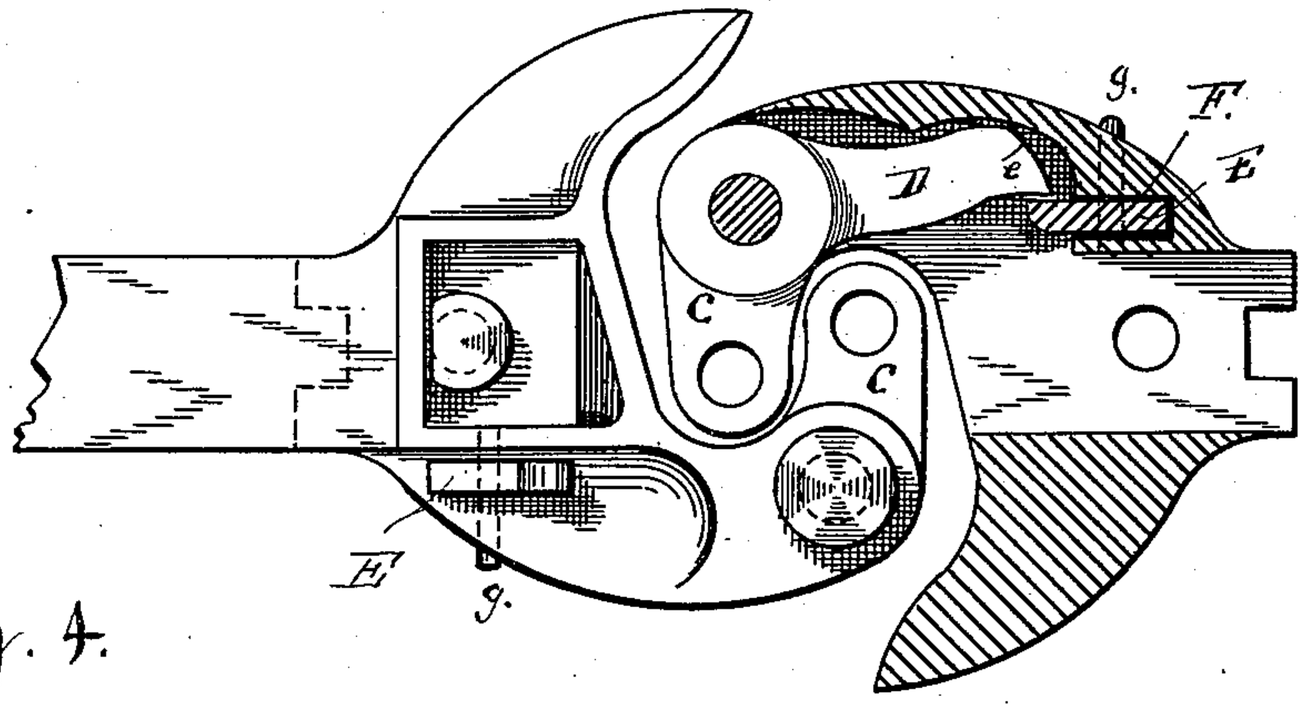


Fig. 4.

Fig. 1.

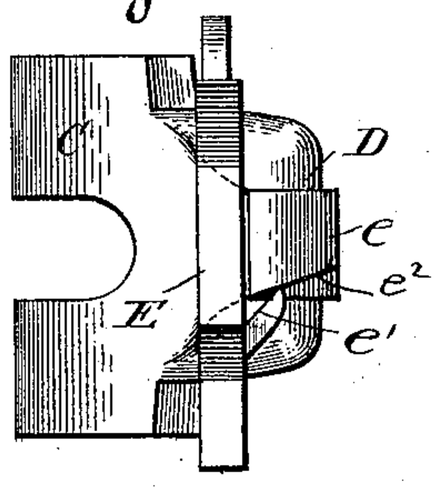
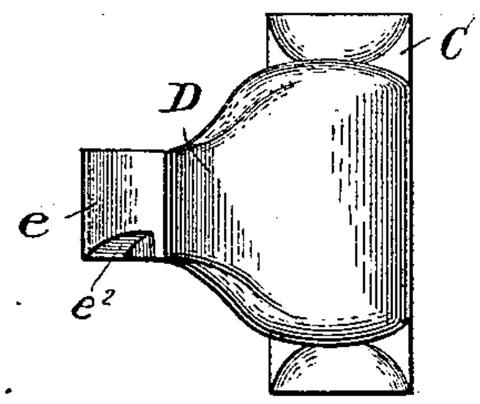


Fig. 6.

Fig. 5.



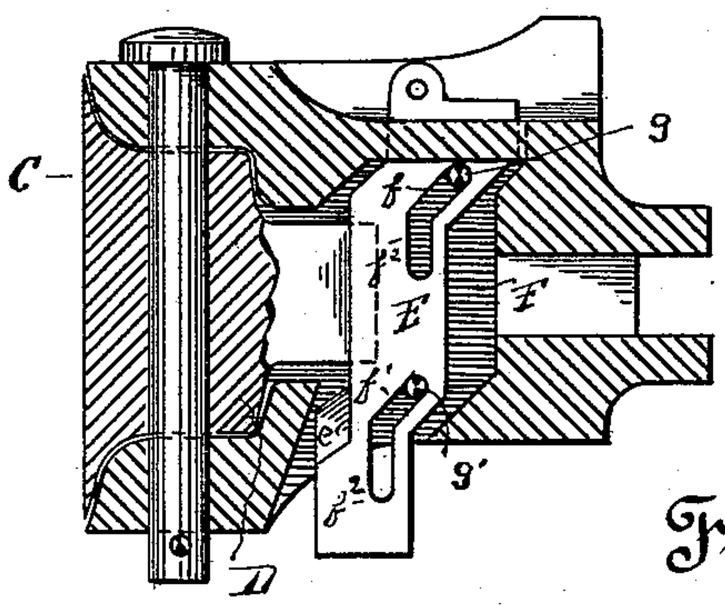


Fig. 2.

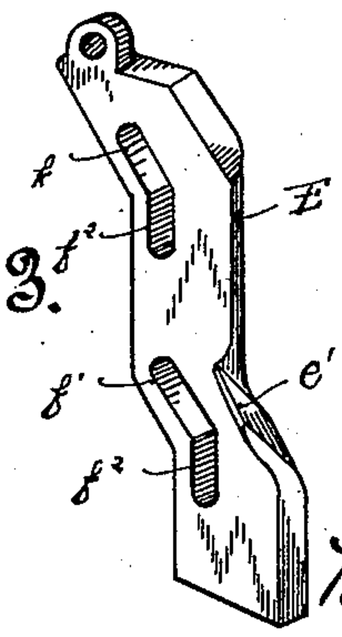


Fig. 3.

Witnesses.

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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 471,702, dated March 29, 1892.

Application filed October 1, 1891. Serial No. 407,441. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK L. WELLS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Locking-Pins for Car-Couplers; 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 certain new and useful improvements in car-couplers, and more especially to that class wherein two recess-heads are provided on opposite sides with hinges interlocking knuckle-blocks, each of which is provided with a rectangular tail-piece moving in a recess formed in the head and which is locked to hold the knuckle-blocks in position by some suitable device when the two heads have closed together and the knuckles have been forced into their interlocked position; but more especially does it relate to the lock-pin, so as to provide for the full forward throw of the knuckle-joint when the couplers are unlocked, thereby placing the open knuckle in such position as to allow of the open knuckle of the opposite car-coupler working therein without necessity of the operator holding the knuckle-head open after being uncoupled, which, besides creating a delay in the coupling of the cars, subjects the operator to the danger of loss of life or limb by being crushed between the two couplers.

This invention is designed more especially as an improvement on the lock-pin fully set forth and described in Letters Patent No. 455,589, patented July 7, 1891, wherein a vertical oblique moving pin works within a vertical opening formed in the car-coupler head and moves upon the lugs formed therein in an oblique direction.

For a more comprehensive understanding of my invention reference must be had to the accompanying drawings, wherein—

Figure 1 is a top plan view showing two interlocked coupling-heads. Fig. 2 is a side view in elevation, partly broken away, of one of the coupler-heads in order to fully show the position and arrangement of the lock-pin; and Fig. 3 is an enlarged view in perspective of the lock-pin. Fig. 4 is a rear elevation of the locking pin or bolt; Fig. 5, a similar view of the hinged interlocking knuckle-block, and Fig. 6 is a rear elevation of the locking pin or bolt and hinged interlocking-knuckle in the relation they bear to each other at the moment that the tail-piece of the latter has been released and before it is forced open by the further upward movement of the locking pin or bolt.

The hinged interlocking knuckle-block is represented by the letter C, which is provided with a tail-piece D, extending rearwardly at right angles with the knuckle-block and which swings into the recess formed especially in the head to receive it. The rear end of said tail-piece is formed with an inclined or beveled face *e*. (Shown fully in Figs. 1 and 2.)

In order to lock the tail-piece in position when the knuckle-blocks are interlocked or closed, I employ the gravity locking pin or bolt E, (shown in Figs. 3 and 4,) which fits, moves, and operates in a vertical opening or passage F, formed in the coupler-head directly across the path or end of the tail-piece. Said bolt or pin is provided with the inclined slots or openings *f f'*, one at top and one at bottom. These openings are intersected by vertical openings f^2 f^2, which create, so to speak, an elongation of the openings *f f'*, and the object of which will be stated hereinafter more fully.

Through the vertical opening or passage F, I pass the horizontal pins or bolts *g g'* for the purpose of supporting the locking pin or bolt therein, and upon which the same rides when moved up or down in the opening. By reason of the bolt or pin riding upon the bolts *g g'*, which work in the inclined openings *f f'* f^2 f^2, it is obvious that the same moves or rides up or down upon an incline on the first half of its movement and then in a directly vertical line on the second movement or lift of the pin—that is, it drops forward when moving into a locked engagement and backward when moving out of or being released from engagement by being lifted upward. The lower outer face of the pin or bolt E is formed with an inclined lip or shoulder *e'*, adapted to engage with the inclined or wedge-shaped face e^2,

formed near the bottom of the tail-piece D, and when the pin E is in the lowest position assumed by gravity rests in front of and securely locks the tail-piece D in place to secure a proper coupling of the knuckle-blocks. When the pin or bolt E is lifted, the first half of its vertical movement tends, through the medium of the oblique slots $f f'$ and pins g g', to force the locking-pin E rearward a distance sufficient to release the tail-piece D from its locking effect. The further or second upward movement of the locking-pin E, by reason of the vertical slots f^2 f^2 and pins g g', causes the locking-pin E to rise in a perfectly vertical line and brings the inclined lip or shoulder e' against the inclined or wedge-shaped face e^2 of the tail-piece D and forces the latter outward to fully open the knuckle-block C. Thus it will be observed that two direct movements are imparted to the locking pin or bolt in order to create the forward throw of the knuckle-joint—first, an oblique vertical movement in order to release the tail-piece therein from locked engagement with the locking-pin, and, secondly, a direct vertical lift which forces or throws the knuckle entirely free, thereby placing it in position to interlock with the open knuckle of the opposite car when the two are brought together.

By my improved pin the operator is enabled to unlock or uncouple the cars in the first instance and thence throw the knuckle-coupler open in order to recouple without endangering or exposing himself to loss of life or limb by reason of becoming crushed between the two heads as the same are brought together. By so shaping or constructing the pin as to give an oblique movement on the first lift, as fully set forth in Patent No. 455,589, and then imparting a secondary vertical lift thereto I am enabled to construct a pin involving less material and shorter in its length than the same would be if the entire lift of the pin were vertical throughout, thus overcoming or obviating an excess or undue under projection of the pin, which, besides disfiguring the coupler, subjects the same to liability of becoming easily broken.

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

1. In a car-coupler of the class described, the combination, with the hinged interlocking block having a tail-piece provided with an inclined or wedge-shaped face e^2, of the locking pin or bolt E, provided with the compound slots $f f' f^2$ and inclined lip or shoulder e' and secured in operative position by horizontal pins g g', substantially as and for the purpose set forth.

2. The locking pin or bolt E, provided with the compound slots $f f' f^2$ and inclined lip or shoulder e', substantially as and for the purpose set forth.

3. The hinged interlocking knuckle-block C, provided with the tail-piece D, having the inclined face e and lower wedge-shaped face e^2, substantially as and for the purposes set forth.

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

FREDERICK L. WELLS.

Witnesses:
N. A. ACKER,
J. W. KEYS.