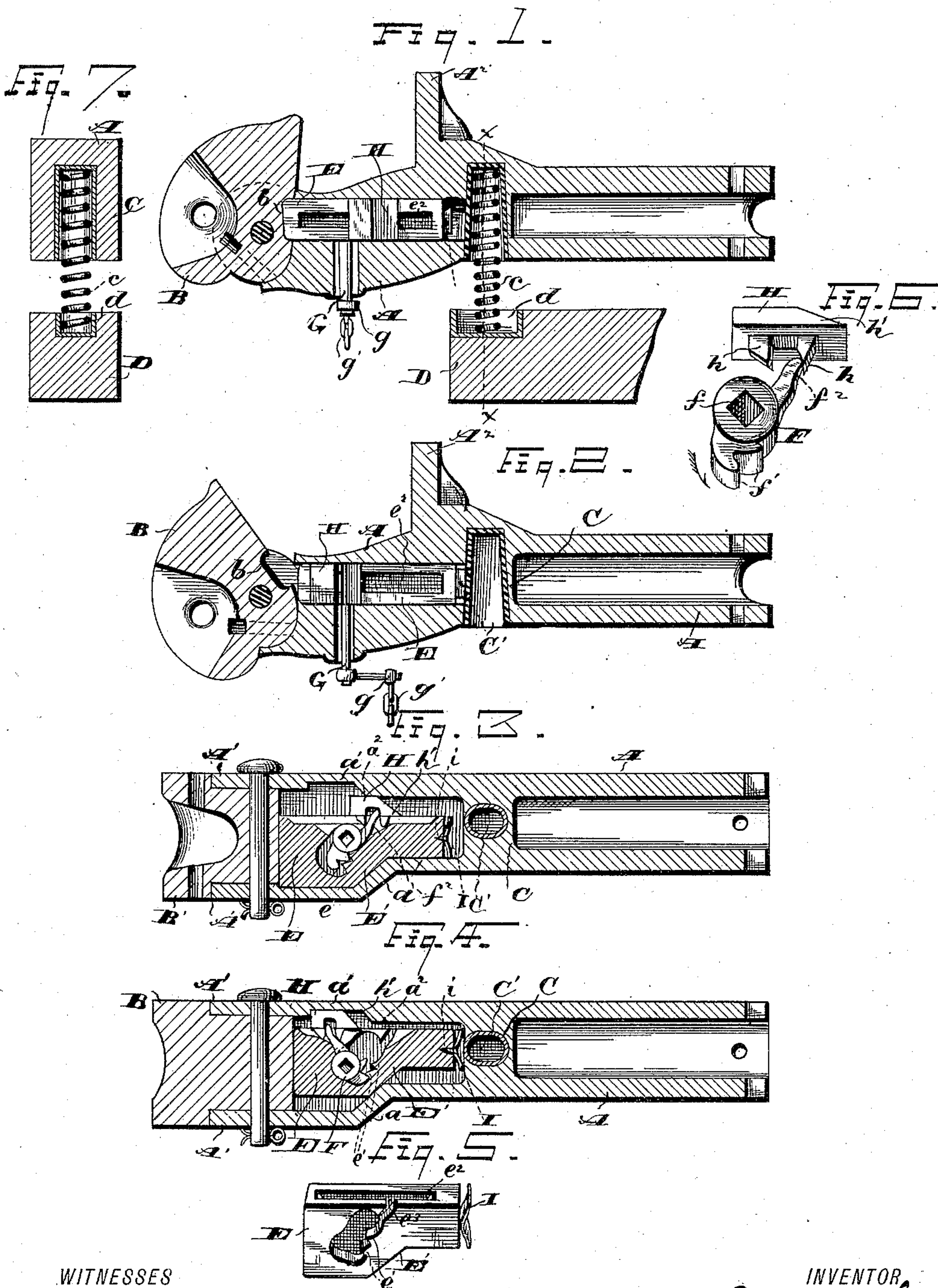


(No Model.)

R. A. COWELL.
CAR COUPLING.

No. 335,993.

Patented Feb. 9, 1886.



WITNESSES

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RENSSELAER A. COWELL, OF CLEVELAND, OHIO, ASSIGNOR TO THE COWELL PLATFORM AND COUPLING COMPANY, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 335,993, dated February 9, 1886.

Application filed August 22, 1885. Serial No. 175,082. (No model.)

To all whom it may concern:

Be it known that I, RENSSELAER A. COWELL, of Cleveland, in the county of Cuyahoga and State of Ohio, 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 pertains to make and use the same.

My invention relates to improvements in hook car-couplers of the class that have pivoted draw-bar heads, in which the locking device for the pivoted head consists of a gravity bolt or pawl, said bolt being in turn locked by a sliding block that is operated automatically from the bolt through the medium of a tumbler, the object being to provide a double locking device that is cheap, strong, simple, and efficient. A socket extending laterally into the draw-bar forms a seat for a coil-spring for holding the draw-bar in contact with the opposing draw-bar. A metal-lined recess in the draw-timber forms an abutment for the outer end of the spring, the object being to simplify and cheapen this part of the coupler.

In the accompanying drawings, Figures 1 and 2 are horizontal sections through the draw-bar, showing respectively the pivoted head in its closed and open positions or in its locked and unlocked relations. Figs. 3 and 4 are vertical longitudinal sections showing the two positions of the head and the corresponding positions of the locking devices. Fig. 5 is an enlarged view in perspective of the gravity-bolt detached. Fig. 6 is an enlarged view in perspective of the sliding block and tumbler, the two being shown slightly separated. Fig. 7 is a transverse section of the draw-bar through the spring-socket, showing also the draw-timber that forms an abutment for one end of the spring on the line of $x x$, Fig. 1.

A represents the draw-bar, that is provided with jaws A' , between which is pivoted the head B. The draw-bar in the main is rectangular in cross-section and hollow, the bottom wall at a being inclined, as shown. The upper wall at a' is cut away or made thin, forming a pocket underneath.

A heavy partition, C, is cast in the draw-bar, in which partition is cored a spring-socket, C' , opening on the side to which the draw-bar swings in coupling and uncoupling. This socket, at the inner end, is round to fit the spring, but is elongated in a horizontal direction as it extends outward to allow the spring to swing and accommodate itself to the end movement of the draw-bar. In this socket is placed the coil-spring c , the outer end of which is seated in a metal-lined recess, d , of the opposing draw-timber D. This recess d is large enough to allow the spring to slide therein when necessary by reason of the considerable end movement of the draw-bar. This provision for the spring in its initial cost is merely nominal, but is nevertheless a valuable improvement, as the spring is entirely out of the way, and is in a position to be most effective.

The head B has a recess, b , that, when the head is in the closed position shown in Figs. 1 and 3, is engaged by the gravity-bolt E, by means of which the head is locked in the closed position. The bolt E, shown more clearly in Fig. 5, is a metal block, usually of cast-iron, and has an inclined portion, E' , on the under edge that corresponds with the incline a of the draw-bar. When the bolt is in position locking the head B, it fits the bottom wall of the draw-bar, as shown in Fig. 3. In moving the bolt rearward to unlock the head B it must move up the incline a to the position shown in Fig. 4, and the bolt is held in this latter position so long as the head B remains open by the front end of the bolt abutting against the head B to one side of the recess b . (See Fig. 2.)

The bolt E on the front side face has a recess, e . This, on the internal wall and about parallel with the incline E' , has teeth e' . A slot, e'' , extends upward from the recess e opening on the upper edge of the bolt, with an opening, e''' , through the side wall for assembling the parts.

F is a tumbler that operates in the recess e and is mounted on the spindle G, the latter having a square end to engage the square socket f of the tumbler. The tumbler has teeth f' for engaging the teeth e' , by means of which, when the tumbler is turned in the direc-

tion of the arrow, the bolt is moved upward and rearward, the incline E' sliding up the incline a . The spindle passes out and is journaled in a suitable hole in the front side wall of the draw-bar, and has attached on the outer end the weighted lever g , to which a chain, g' , may be attached, leading to any part from which it is desired to operate the coupler. The relation of parts is such that the lever g extends downward when the bolt is shot, locking the head, and the lever extends rearward in approximately a horizontal position when the bolt is rearward. The tumbler has an arm, f^2 . This extends up through the slot e^2 for moving the block H. This block rides on top of the bolt E, and has lugs h that embrace the end of the lever f^2 and extend some distance into the slot e^2 and form guides to hold the block in position on the bolt. The rear end of the block is beveled at h' , as shown. When the tumbler is turned to move the bolt rearward by means of the arm f^2 , the block H is moved forward and when the bolt returns forward the block H is moved rearward and enters under the upper wall at a^2 and blocks the bolt, so that the latter cannot move rearward up the incline a unless the block H be first withdrawn or moved forward.

The arrangement of parts is such that the arm f^2 actuates the block H before the teeth f' move the bolt, so that when the rearward movement of the bolt commences the block H will have been moved out from under the point a^2 , and when the latter occurs the block will be under the pocket a' and have therefore room to rise with the bolt as the latter moves up the incline. As the bolt moves rearward its teeth e' move farther away from the axis of the tumbler, and to compensate for this the lower tooth on the tumbler extends farther from the axis. This oblong or cam shape of the tumbler has other advantages. When there is considerable draft on the draw-bars, it requires considerable force to start the bolt rearward in uncoupling, and the upper tooth, f' , that first moves the bolt, being nearer the axis of the tumbler, a considerable leverage is had at the end of the lever g , that is sufficient at all times to move the bolt by means of hand-power applied to the end of the lever.

A bolt that is arranged lengthwise of the draw-bar and held forward by a spring alone is objectionable, for the reason that the spring having least tension when the head is closed a heavy concussion will sometimes throw the bolt rearward against the action of the spring and release the draw-head and uncouple the cars, unless the spring is made so stiff that it is not conveniently operated by hand, which latter would be a serious objection. A gravity-bolt would be open to the same objection of being thrown open by a concussion; but with the locking-block H arranged as shown this could not occur, as a concussion that would tend to throw the bolt

rearward would force the block H rearward and more firmly wedge the bolt.

An objection might be urged against the gravity-bolt, as thus far described—to wit, that in coupling cars that are moving at a considerable speed the bolt might not act quite quick enough to lock the head before the recoil of the draw-bar springs had forced the heads apart. To remedy any such difficulty that might arise in extreme cases, I have provided a spring, I, that is short and stiff, and is only compressed when the bolt is near the end of its rearward movement. Metal springs in respectively several forms, or rubber springs, might be employed for this purpose. The spring I, that I have illustrated, is a flat spring, secured on the center of the bolt i to the rear end of the bolt E. The ends of the spring are bent rearward, so as to strike the partition C when the bolt is near the end of its movement rearward. This spring performs two functions. The bolt is of considerable weight, and is usually operated in haste, and without the spring would strike with force against the partition C. The spring therefore cushions the bolt and at the same time is compressed by the momentum of the bolt. Now, in coupling the cars, when the head B is turned, so that the bolt can enter the recess b , the recoil of the spring instantly starts the bolt forward, and the gravity of the bolt acting down the incline a and the gravity of the lever g all co-operate to shoot the bolt quickly.

A^2 is a buffer-block for engaging the opposing draw-bar head. The buffer-block is made integral with the draw-bar, by reason of which the draft-spring (not shown) at the rear of the draw-bar is made to act also as a buffer-spring.

I am aware that it is not new to provide means for locking a longitudinally and vertically movable gravity-bolt when the latter is in its elevated position, or, that is, when it is disengaged from the pivoted jaw of the coupler, and hence I make no claim to such a construction. In my device the bolt is supported in its elevated position by the pivoted jaw, and descends when the jaw is turned to an operative position, and is locked in its depressed position, or, that is, when it is engaged with the pivoted jaw.

What I claim is—

1. In a hook car-coupler, the combination, with a pivoted draw-head having a suitable recess or depression for engaging the lock-bolt, of a gravity-bolt, said bolt having an incline arranged to engage a corresponding incline on the draw-bar for moving the bolt forward by gravity, and a block for locking the bolt in the depressed or forward position of the latter, substantially as set forth.

2. In a hook car-coupler having a pivoted draw-head, the latter having a suitable recess or depression for engaging the locking-bolt, the combination, with a gravity locking-bolt

operating within and lengthwise of the draw-bar, of a tumbler and lever attached for withdrawing the bolt, and a block for locking the bolt in its forward position, said bolt being
5 operated automatically by the said tumbler, substantially as set forth.

3. In a hook car-coupler having a pivoted draw-head, the latter having a suitable depression for engaging a lock-bolt, a locking
10 device consisting of a bolt operating by gravity in its forward movement, a sliding block arranged to ride on the bolt and lock the latter in its position engaging the draw-head, and a
15 tumbler and lever attached for withdrawing the bolt and block, substantially as set forth.

4. In a hook car-coupler having a pivoted draw-head, the combination, with a bolt for locking the draw-head in its closed position,

said bolt being arranged to move forward by gravity, and provided with suitable mechanism for withdrawing the bolt, of a spring arranged to cushion the bolt at the end of its rear movement, and to aid in shooting the bolt quickly, substantially as set forth.

5. In a hook car-coupler, the combination, 25 with the draw-bar having a socket, C', flaring outward, of the spring c, and the metal-lined recess d in the opposing draw-timber, the parts arranged substantially as set forth.

In testimony whereof I sign this specification, in the presence of two witnesses, this 17th
30 day of August, 1885.

RENSELAER A. COWELL.

Witnesses:

GEO. W. KING,
WM. M. MONROE.