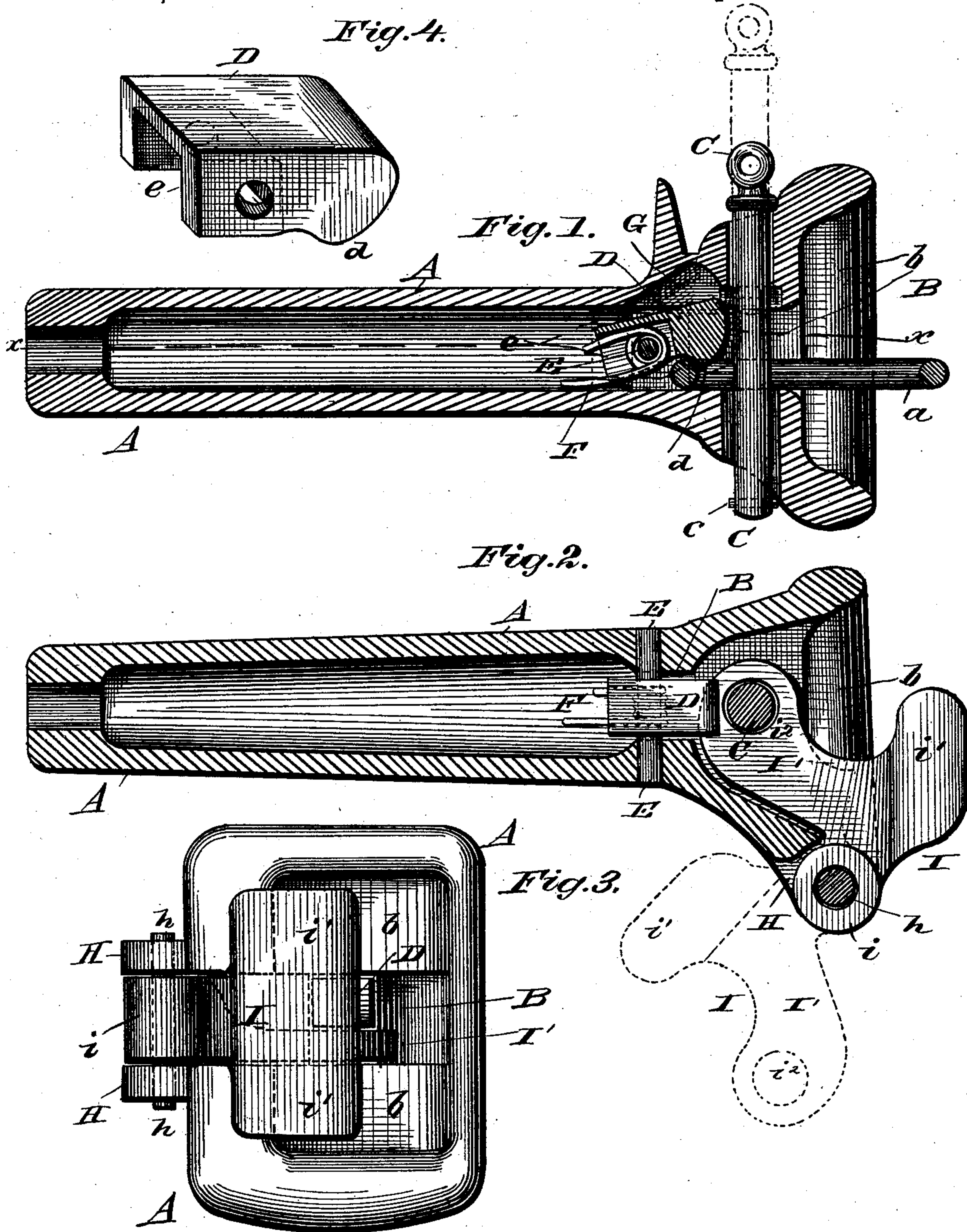


(No Model.)

I. KLING.
CAR COUPLING.

No. 361,165.

Patented Apr. 12, 1887.



WITNESSES
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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 361,165, dated April 12, 1887.

Application filed February 26, 1887. Serial No. 228,996. (No model.)

To all whom it may concern:

Be it known that I, ISAAC KLING, of Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Car-Coupling Devices; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification, in which—

Figure 1 is a vertical longitudinal central section through a draw-bar embodying my improvements. Fig. 2 is a horizontal section of the same on line *x x*. Fig. 3 is a front view of the coupler. Fig. 4 is a detail.

This invention relates to improvements in car-coupling devices; and it has for its objects to provide a cheap, efficient, and durable coupling which will operate automatically, and which is adapted for use in connection with either the common link and pin couplings or those employing L-hooks, as are well known, the coupling being effected automatically in either case and the hook, when so used, being automatically locked.

Further objects of the invention are to provide an automatic holding device for the coupling-pin and to improve the form of coupling-hook.

To effect these objects, the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the drawings, and particularly specified in the annexed claims.

Referring to the drawings by letters, A designates a draw-bar corresponding in form to the ordinary freight-car draw-bars, and which may be made either of cast metal, malleable iron, or steel. In the head of this draw-bar A is formed the usual link-recess, B, having the vertical openings for the passage of the link-pin C, properly headed, as shown. The lower opening is preferably made larger in diameter than the upper, so that the pin C, which is preferably provided with a lug, *c*, on its lower end, can pass freely into the lower opening when used in coupling, but will be prevented from escaping or being entirely withdrawn from the bar A through the upper opening by reason of its lug *c*, as is evident.

To the inner side of pin C, in recess B, is

placed a swinging or oscillating block, D, of general rectangular form, and pivoted horizontally on a rod, E, which passes through proper openings in the sides of the draw-bar. The front end of the block extends forward, so that the pin C will be held up thereby, as shown, and has its outer face rounded downward and inward, as shown, from the point of contact with pin C, so that when struck by an entering link, *a*, the block will be swung upward and release pin C, which will then fall by its own weight, and its lower end passes through the link and into the lower pin-opening, securely and automatically coupling the link and draw-bar. The front end of block D is also much heavier than its rear end, as it is made solid. It will therefore act as a weight to keep the block in normal horizontal position, the rear end of the block, when in such position, impinging against the roof of chamber B. The block is chambered at its rear end and bottom about rod E, as at *e*, for the reception of a suitable spring, F, which passes around rod E and bears at its lower end upon the bottom of recess B and at its upper end against the roof of chamber *e* of the block, so that it supplements the action of the solid front end of the block, giving the block sufficient power to hold a coupling-link in position, as shown.

G designates a chamber formed in the roof of recess B, above the front end of block D, to permit the oscillating movement of the latter. The upper surface of the front end of the block is provided with a lip, *d*, which is adapted to engage the end of the link *a* and hold it more securely while being coupled to another car. The pivot of the block permits the link to be adjusted or turned vertically to couple with other cars without strain on the parts.

At one side of the head of the bar A are formed ears H, one vertically above the other, and provided with suitable perforations for the passage of a bolt, *h*, which passes through an opening in an arm, *i*, of my improved coupling-hook I. This hook is in general form similar to the ordinary ones in present use, and is provided with the hinge-arm *i* and front vertical portion or head, *i'*, which is adapted to engage with the head of a similar hook to couple them, as usual.

From the hook I, in the same plane as arm

i, and formed integral with said arm and head *i'*, as shown in Fig. 2, extends the horizontal shank or arm *I'*. The shank enters the recess *B*, and when the hook *I* is coupled the main body of shank *I'* lies in an offset-recess, *B'*, formed in the head of bar *A*, at the side of recess *B*, next the hinged ears *H*, said offset *B'* forming a widening or enlargement of recess *B*, as shown. The end of shank *I'* is provided with an opening, *i''*, which, when the parts are in the position shown in Fig. 2, lies directly above the lower pin-opening, so that the pin *C*, when it drops into said opening, will pass through shank *I'* and securely lock hook *I*.

The head of bar *A* is provided with vertical recesses *b b*, opening into recess *B*, as shown in Fig. 3, and forming with said recess a suitable chamber in the head of the draw-bar for the reception of the head of a hook similar to that of hook *I* when the hook-coupling is employed. The recesses *b b* do not extend into the pin-openings.

The operation of the link-coupling is apparent. That of the hook is as follows: The pin *C* is held up by block *D*, as described, and the hook *I* turned in proper position for engaging a similar hook on the corresponding draw-bar of an approaching car. When the cars carrying these devices are run together to effect the coupling, the hook *I* engages the opposite hook on the opposite car and turns inward on its pivot *h*, forcing shank *I'* inward, so that it raises block *D* and permits the pin *C* to fall and securely lock the hook *I*, as described, and the head of the opposite hook being held in recesses *b b* by the head of hook *I*, it is impossible for the cars to become uncoupled unless some breakage occurs.

I prefer making the openings in shank *I'* and arm *i* of hook *I* sufficiently large to permit the hook to have some lateral play, so that when the cars are being pushed strain will be taken off the bolt *h* and pin *C* and transferred direct to the heads of the draw-bars and hooks, thus relieving the bolt and pin from strain a great deal of the time, and preventing any likelihood of the shanks of the hook being broken by pressure.

When the link *a* is to be used, the hook *I* can be either entirely removed or swung around to the position shown in dotted lines, Fig. 2, where it will offer no obstruction to the draw-bars and their coupling.

It will be observed that I have a large amount of bearing or buffer surface on the head of my draw-bar, said surface extending entirely around the face of the head, except at the narrow passage of the shank of hook *I*, and at this point the bearing-surface is greatly widened, so that I present practically as much contact-surface for the heads of the draw-bars as is common on freight-couplings, and that the heads of the hooks enter recesses surrounded on all sides by the body of the draw-bar, and not open at top or bottom or sides, as is the case with those now in use, so that I greatly

strengthen the draw-bar, and can make it of cast-iron, and of ordinary size, strong enough to answer all practical purposes, as is impossible with the draw-bars referred to, unless they are made of steel or so large as to be too cumbersome for use, and, further, that I can reduce the size of the heads of the hooks, as they are solid and not made in parts and perforated for connecting with a link, as is usual, as I couple the links direct to the body of the draw-bar.

From the foregoing it will be observed that I have combined in one inexpensive and easily-constructed draw-bar the best features of both the link and hook couplings, and can effect either of these couplings automatically, as may be desired, and that my improved coupling is attachable to any car, as quickly and as cheaply as the most ordinary of link freight-coupling devices.

Having described my invention, I claim—

1. In a car-coupler, the combination, with the draw-bar and its link and pin, of a block, *D*, pivoted in the link-recess upon a suitable rod in rear of the pin, having its front end weighted and adapted to normally hold the pin out of engagement with the link, and adapted when struck by the link to turn upward on its pivot and release the pin and hold the link in coupling position, and having its rear end chambered around its rod, and a spring, *F*, placed within the chamber of block *D* and increasing the bite of the block on the link, substantially as and for the purpose set forth.

2. In a car-coupling device, the combination of a draw-bar provided with a coupling-pin and its openings, with a swinging hook constructed substantially as described hinged by one arm to the side of the draw-bar, and provided with a shank adapted to enter the link-recess of the draw-bar when the hook is engaged in coupling and be locked by the coupling-pin, all substantially as and for the purpose described.

3. The combination, with a suitable draw-bar having a link-recess, a coupling-pin and its openings, and a pivoted block secured in the link-recess, adapted to hold the pin out of engagement with its lower opening when the block is in normal position, of a coupling-hook constructed substantially as described hinged to the head of the draw-bar, and having a shank adapted to enter the link-recess, actuate the block, and release the pin, and be held by the latter to securely lock the hook when the latter is coupled to another hook, all constructed substantially as and for the purpose set forth.

4. The combination, with draw-bar *A*, constructed substantially as described, having a link-recess, *B*, and pin *C*, of a block, *D*, pivoted on a rod, *E*, within recess *B*, and having the chamber *e* at its rear end, and its front end rounded and provided with a lip, *d*, and a spring, *F*, placed on rod *E* within chamber

e, and the chamber *G* in the roof of the recess *E* above the block *D*, substantially as described.

5 5. The combination of the draw-bar *A*, having pin *C* and spring-controlled block *D*, all substantially as described, with the hook *I*, having arm *i*, hinged between ears on the side of the draw-bar head, and shank *I'*, provided with an opening, and adapted to be automatically engaged by the pin *C* to lock the hook
10 when coupled, substantially as described.

6. In combination with a suitable draw-bar having a link-recess, the front vertical recesses, *b b*, and ears *H*, as described, and its
15 coupling-pin, of a hook, *I*, having an arm, *i*, pivoted between ears *H*, a head, *i'*, and a horizontal shank, *I'*, cast integral with the head *i'*, and the arm *i*, all substantially as described.

7. In a car-coupling device, the combination, with the bar *A*, having recesses *G B' b b* 20 and ears *H H*, all substantially as described, and the pin *C* and its openings in recess *B*, with the block *D*, its pivot-bar *E* and spring *F*, chamber *G* above said block, and hook *I*, having arm *i*, pivoted between ears *H H*, head 25 *i'*, and shank *I'*, having an opening in its inner end, all constructed and adapted to operate substantially as and for the purpose set forth.

In testimony that I claim the foregoing as 30 my own I affix my signature in presence of two witnesses.

ISAAC KLING.

Witnesses:

A. J. SPECKERT,
THOS. LAWSON.