(No Model.)

I. KLING.

CAR COUPLING.

No. 370,343. Patented Sept. 20, 1887.

Fig. 1.

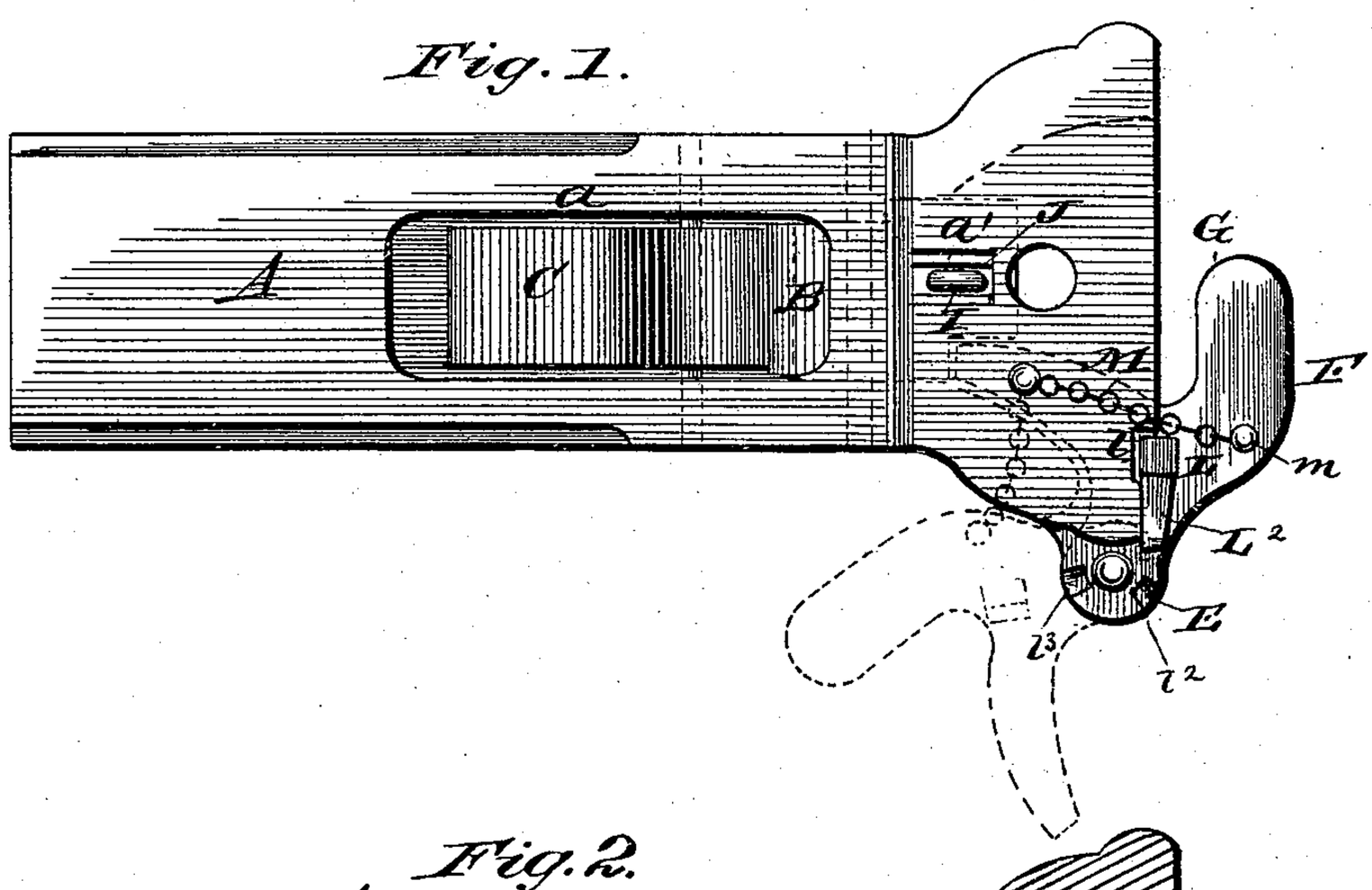


Fig. 2.

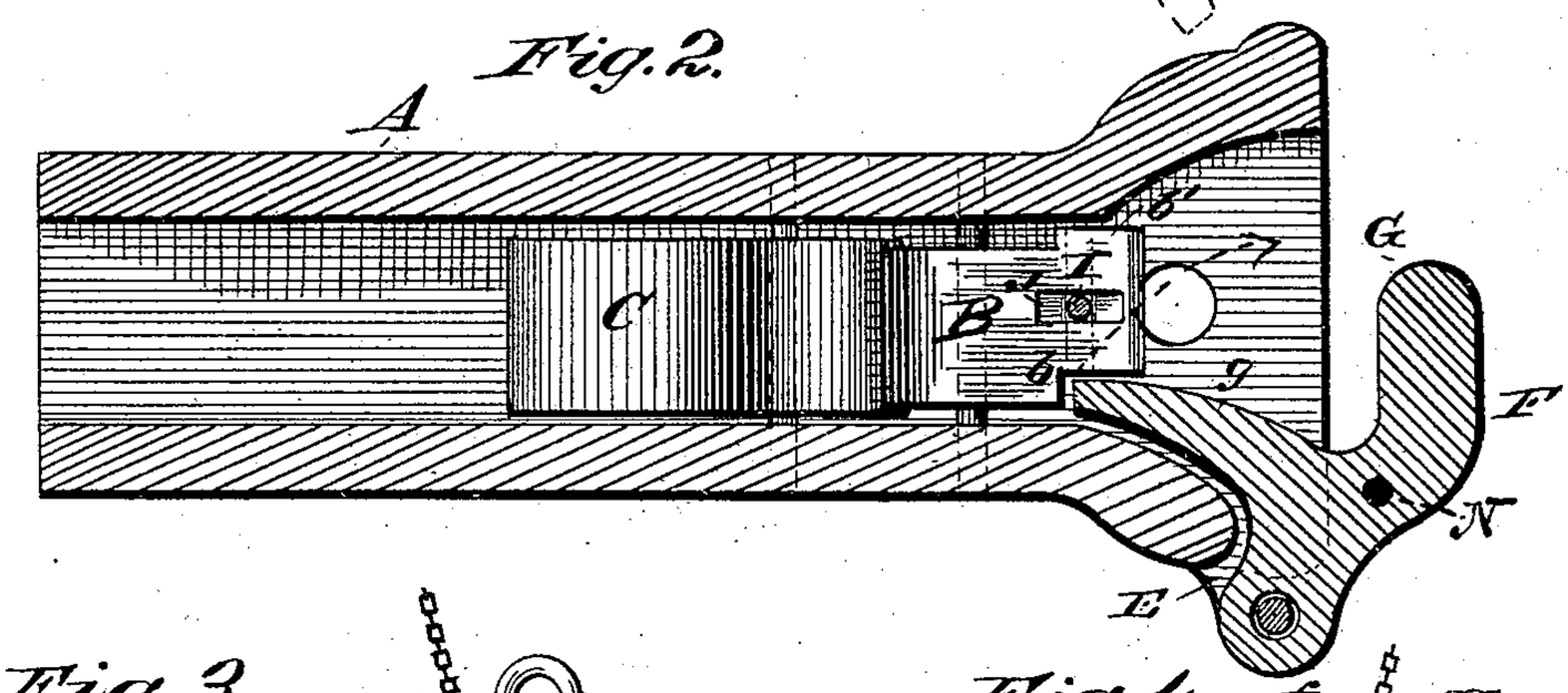


Fig. 3.

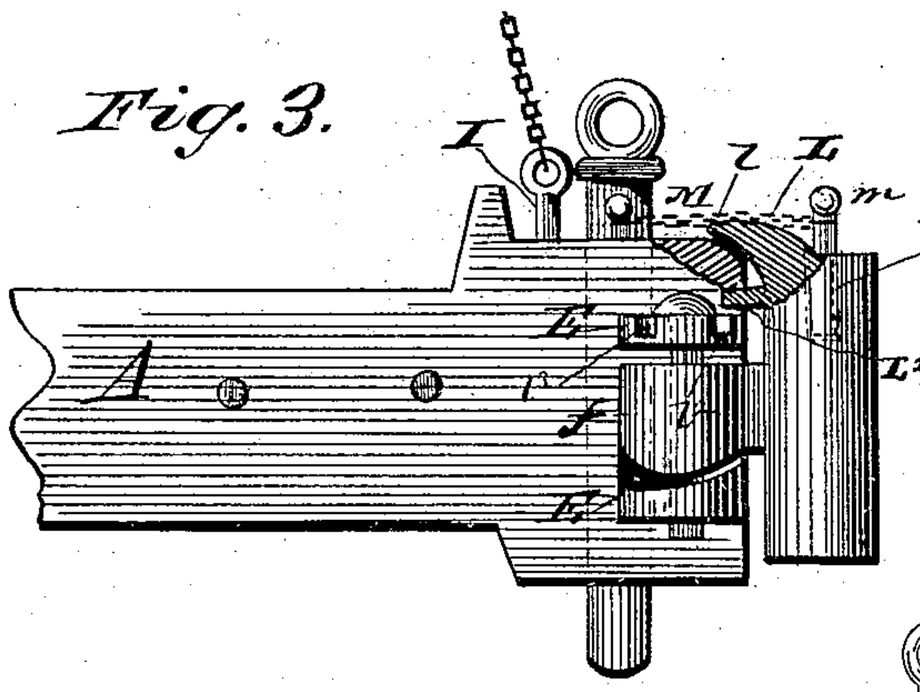


Fig. 4.

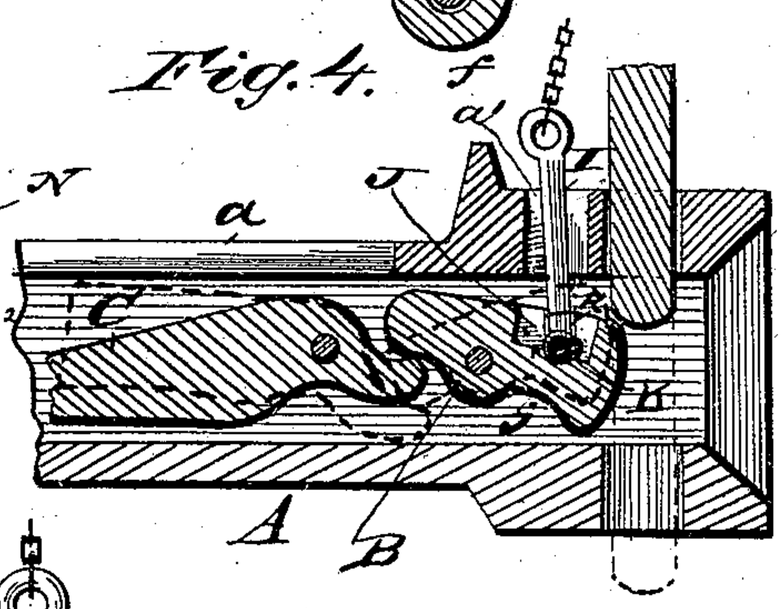
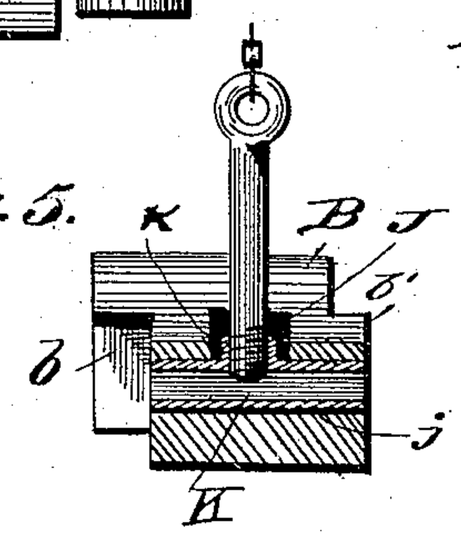


Fig. 5.



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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 370,343, dated September 20, 1887.

Application filed June 16, 1887. Serial No. 241,521. (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-Couplers; 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 plan view of my improved draw-bar and coupling, showing in full lines the coupling-hook closed and in dotted lines the same open. Fig. 2 is a central longitudinal transverse horizontal section of the same, showing the locking-block. Fig. 3 is a detail side elevation of the device, partly in section. Fig. 4 is a detail central vertical longitudinal section of the same, showing in full lines the front engaging ends of the block B depressed and supporting the coupling-pin in a raised position, also showing by the aid of dotted lines the said block raised and the coupling-pin depressed. Fig. 5 is a detail view.

This invention relates to improvements in car-coupling devices; and it has for its objects to provide a coupler which can be employed either as a hook-coupling or a link-and-pin coupling, either of which couplings may be automatically effected; and to these ends the invention consists in the novel construction and arrangement of parts, hereinafter described, illustrated in the drawings, and particularly specified in the appended claims.

The invention is an improvement on my car-coupling patented April 12, 1887, and numbered 361,165, which improvement will be fully understood from the following description.

Referring to the drawings by letters, A designates a draw-bar, which is of ordinary contour, but has its head enlarged correspondingly to the usual form of hook-coupling bars. This bar is provided with the usual link-recess, and in rear of this recess is vertically slotted, as shown at *a*, for a purpose hereinafter explained. At the mouth of the link-recess, in the upper and lower sides of the draw-bar head, are the ordinary link-pin openings.

B designates a block pivoted on a transverse rod, or by suitable means to the side walls of the draw-bar at the inner end of the link-recess, and this block is permitted a free vertical oscillation in said recess, but is controlled in its movements, as hereinafter explained. The block B is pivoted in the draw-bar in such manner that its front edge extends normally over the line between the coupling-pin openings, so that when said pin is inserted in the upper opening its end will impinge against the front upper edge of the block and be prevented from dropping into the lower opening. Then when a link is forced into the draw-bar the block will be raised and the pin will drop into position, engaging the link and automatically effecting the coupling, as usual. The block B is rounded on its lower front edge for making its shifting by the link easier.

In order to insure the return of the block to its normal position when the link is withdrawn, or to cause it to press firmly on said link when inserted, so as to hold the link in proper position for coupling with an adjoining car, I employ a pivotal weight or lever-block, C. This block is pivoted near its front end to the sides of bar A, similarly to block B, and its front end is curved slightly upward and engages a corresponding downwardly-curved portion of block B, so that the front end of block B is forcibly held downward by the action of the block C, the rear extended end of which is enlarged and weighted, as shown, to insure a quick action of and continuous pressure on the block B. The block C lies within the throat of the draw-bar, and it can be easily inserted in place or have its working condition examined through slot *a*.

On one side of the head of bar A are formed the perforated lugs or ears E E, which are arranged vertically one above the other, as shown, and between these lugs is hinged, by a lug or projection, *f*, the coupling-hook F, which is of the ordinary form of such hooks, being provided with the enlarged outer locking portion G, and inner portion or shank, *g*, which is adapted to enter the link-recess when the hook is closed and be locked therein, as hereinafter shown. The shank *g* is of sufficient length to engage the block B and shift the latter similarly to the action of the link, and if it is desired the hook can be locked by the coupling-pin, which can be engaged in its proper openings, and would then prevent the

retraction of the hook, as fully described in my patent before referred to.

In order to avoid the necessity of the pin, and at the same time to effectually lock the hook when closed, I modify the form of block B by forming a vertical notch, *b*, in its front end on its side adjoining the hinge of hook F. The inner end of shank *g* of hook F is so formed as to pass beneath the front edge of the block as the hook is swung inward until it enters notch *b*, which it does when the hook is closed and properly coupled. Immediately upon the entrance of the end of shank *g* into notch *b* the block B drops into its normal position, and is kept down by the described means, so that the retraction of the shank is impossible without first forcibly lifting the block B, which is kept from casual lifting and consequent release of the shank *g* by means of weight-block C, as described.

In order to relieve the pivots of block B from strain, owing to the transverse pressure exerted by the hook F thereon, as described, I provide its end opposite notch *b* with an outstanding lateral portion or lug, *b'*, which is adapted to fit snugly against the adjoining side wall of bar A, but will not hinder the vertical play of block B; but the pressure exerted on the block by the hook will be transferred through lug *b'* to the bar A, as evident.

In order to permit the ready lifting of block B, so as to disengage shank *g* when uncoupling, I employ a short rod, I, which passes through a vertical slot, *a'*, made in the upper wall of bar A in front of slot *a*, and is pivotally engaged with the front end of block B, so that the latter can be easily lifted by said rod. I preferably connect the rod I and block B as follows, (which I deem the most convenient, although other modes of connecting them may be employed.)

J designates a short vertical slot made in the front upper end of block B, and opened into by a transverse slot, *j*. In this slot *j*, I put a T-head, K, the shank *k* of which is suitably threaded, and which head is of such length that when properly inserted in the slot *j* its shank *k* will lie in the slot J. The block B is then inserted and secured in place within the draw-bar, and the rod I is passed through opening *a'*, and, having its inner end properly threaded, is engaged with the threaded shank *k* of head K, so that when completed the rod I is securely pivoted to block B, and can be made to lift the latter. The upper end of rod I may be connected with a proper lever or chain, which is extended to a convenient point at top or side of the car, so that the pin and block B can be lifted and the uncoupling or release of the coupling-hook F effected without danger to the operator.

The hinge-lug *f* of hook F is made narrower than the space between the lugs E E, so that the hook F is permitted a slight vertical play on the hinge-rod *e* between said lugs. L designates an inwardly-inclined lug or projection formed at top of hook F, which has an inwardly-inclined and extended face, which is adapted to engage with a correspondingly-inclined notch or groove, *l*, formed on the upper edge of draw-bar A, as shown. When the hook is closed, the lug L engages notch *l* and rides up thereon, forcibly lifting the hook, as is evident, and keeping the hook lifted as long as its shank is engaged; but the lug L does not have to bear any of the strain of pulling when the coupler is used, as all such strain is borne by the rod *e* and the shank *g* and its described retaining devices.

Instead of employing the lug L and notch *l*, as described, I may bevel the upper face of the lower lug, E, and the lower face of lug *f*, as shown in Fig. 3, in such manner that the hook F will be vertically raised when it is closed, and in either case the hook when released will, by its own weight, be opened sufficiently to keep it in proper engaging or coupling position. To prevent the hook F swinging too far open when shank *g* is released, I employ the retaining device shown in Fig. 1, which consists of a short chain or rod, M, pivotally secured at one end to a point on the upper surface of the head of draw-bar A, and having a pin or key, *m*, at its free end, which key is adapted to enter a recess, N, formed in the upper surface of hook F. The relative positions of the hinge of hook F and pivot of chain M are such that the hook is prevented from swinging entirely open, as shown, and will be held normally in coupling position, thus avoiding the necessity of a brakeman or operator running ahead of the cars to see that the coupling-hook is in proper position for engagement. I propose, however, in some cases, dispensing with the chain M, and using instead the device also shown in Figs. 1 and 3. This device consists of a short lug or projection, L^2, which stands out from the upper surface of hook F, and may form part of lug L, but stands somewhat above the same and above the top surface of the draw-bar head when the hook is closed. Then at proper points in the upper edge of the draw-bar head, adjoining hook F, I form the lug-notches l^2 l^3.

The operation of this device is as follows: When the hook F swings open, the lug L, being disengaged, lowers the hook and permits the lug L^2 to engage in notch l^2, the inner faces of this notch being beveled so as to offer no violent obstruction to the movement of the hook. When in this position, the hook is in engaging position for coupling. When it is desired to throw the hook out of such position, when coupling with link and pin in the ordinary manner, the hook is turned still farther rearward until lug L^2 engages in notch l^3, when it is securely held. It is obvious that this arrangement is much simpler than the employment of the chain and pins, which, however, may be advantageously used in some cases.

When it is only desired to use the link-and-pin coupling, the key *m* is withdrawn from recess N and the hook F swung around to the position shown in dotted lines, Fig. 1, when

the key is replaced and the hook is prevented from returning to its normal position, and is held out of the way of the adjoining draw-bar head, so that it is kept from being injured thereby.

It is obvious from the foregoing that my present coupler possesses all the advantages of that described in my patent referred to, and is superior to the latter, for the reason that its hook-coupling is rendered entirely automatic and independent of the coupling-pin; and, further, that the arrangement of blocks B and C is such that the action of block B is rendered positive, and there are no points or springs to weaken or give way.

It will be observed that when the front end of the block B is depressed the end of the shank *g* of the coupling-hook F engages in the notch *b* of the block B, and that when the front end of this block is raised it will release the said hook and allow it to swing around to the position indicated by dotted lines, Fig. 1.

Having described my invention, I claim—

1. The combination, in a car-coupler, of a draw-bar, recessed as described, a horizontally-swinging hook, constructed substantially as described and pivoted as set forth, and provided with a curved tapered shank adapted to enter the link-recess of the draw-bar, a vertically-oscillating block pivoted in the link-recess and notched at *b* to receive the end of the shank of the hook, and means for disengaging the block and shank, all constructed and adapted to operate substantially in the manner and for the purpose described.

2. The combination, with the draw-bar recessed and provided with the usual coupling-pin openings, of the oscillating coupling-block, located as described, and an independently-pivoted gravitating block or lever freely engaging said block B, and a horizontally-swinging coupling-hook F, substantially as described.

3. The combination, with the draw-bar, of the lugs E E, as described, the horizontally-swinging coupling-hook F, pivoted between said lugs, the notched oscillating block B, the rod I, pivoted to it, and a gravitating block, C, adapted to depress the front rounded end of the said oscillating block, all constructed and adapted to operate substantially as and for the purpose specified.

4. The combination, with the recessed draw-bar having the link-and-pin openings, of the pivoted oscillating block pivoted in the recess of the draw-bar and lying just in rear of the pin-openings, and the pivoted gravitating lever pivoted in the draw-bar recess in rear of and engaging with the oscillating block, all constructed and arranged to operate substantially as and in the manner and for the purpose specified.

5. In a coupling device, the combination, with draw-bar A, provided with lugs E E and slot *a'*, and the hook F, provided with lug *f* and shank *g*, adapted to enter the link-recess, of the pivoted locking-block B, having a notch, *b*, for engaging the shank of the hook, the pivoted weighted block C, actuating block B, and the rod I, pivoted to block B and playing through the slot *a'* in the draw-bar, all constructed and arranged substantially as and for the purpose described.

6. In a coupling device, the combination of a draw bar provided with a swinging hook having a shank adapted to enter the link-recess of the draw-bar, constructed, substantially as described, so as to swing outward on the draw-bar when released, and the devices for holding the hook in or out of engaging position, with the locking devices for said hook, consisting of a block, B, pivoted in the link-recess of the draw-bar and provided with a notch, *b*, for engaging the shank of the hook, and the weighted pivoted block C, controlling block B, and means for disengaging block D and the shank of the hook, all constructed and arranged substantially in the manner and for the purpose described.

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

ISAAC KLING.

Witnesses:
G. W. DETCHEN,
GEO. GUTIG.