(No Model.) 2 Sheets—Sheet 1.

J. M. IGOE & E. D. WHIPPLE.

CAR COUPLING.

No. 450,620. Patented Apr. 21, 1891.

Fig. 1

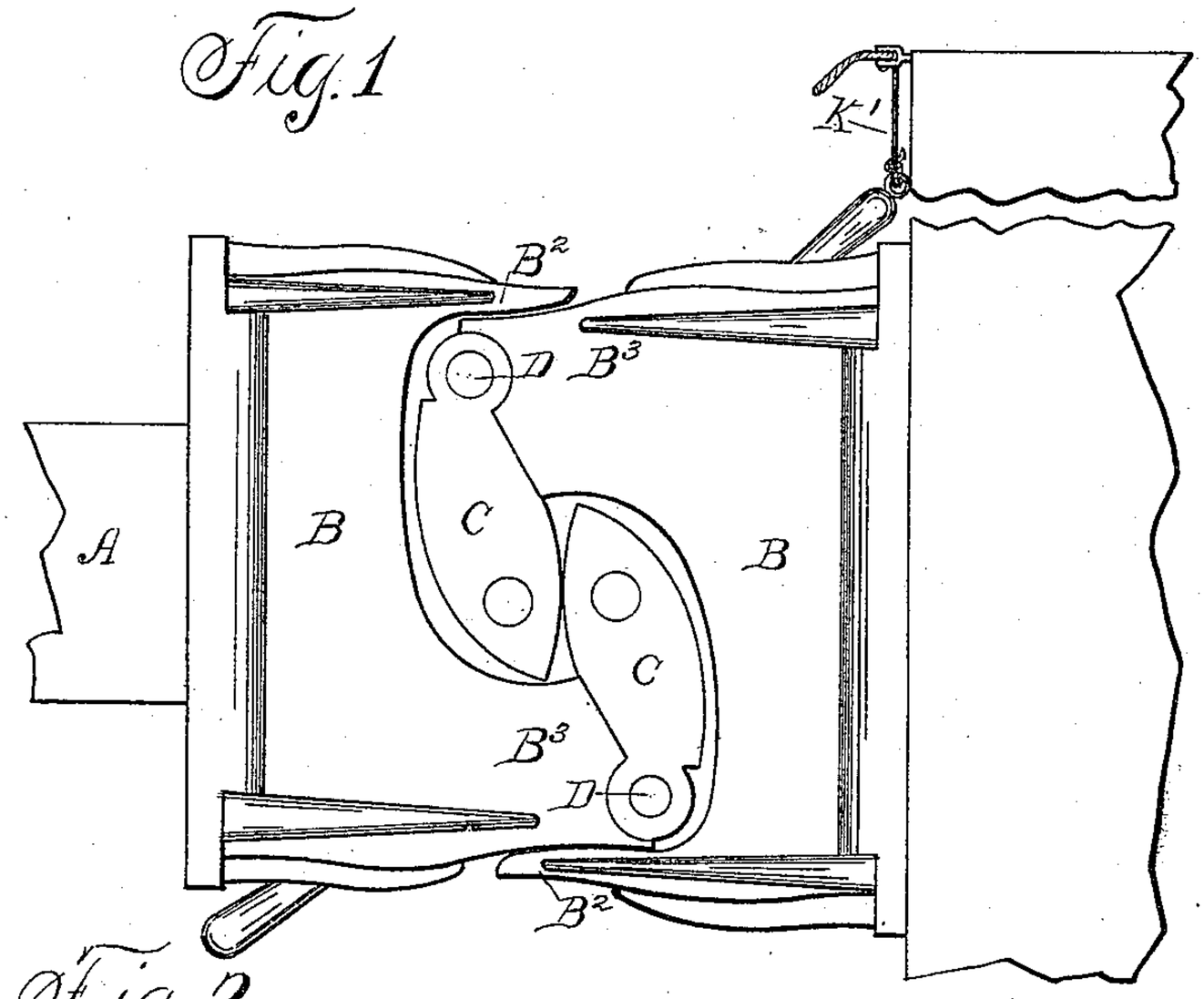
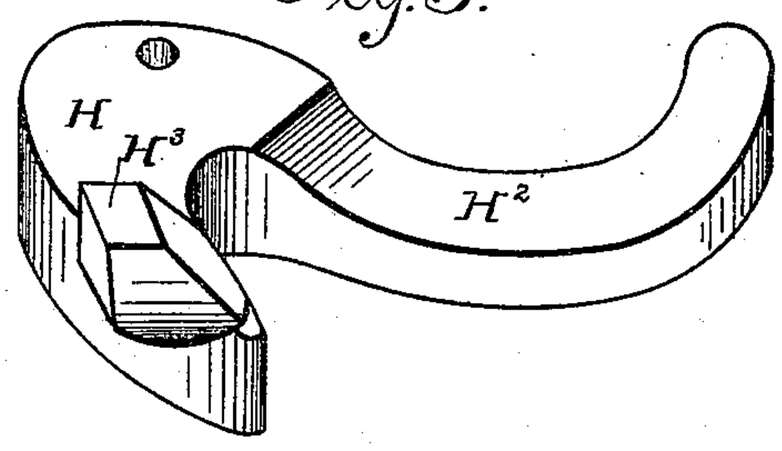


Fig. 2.

Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

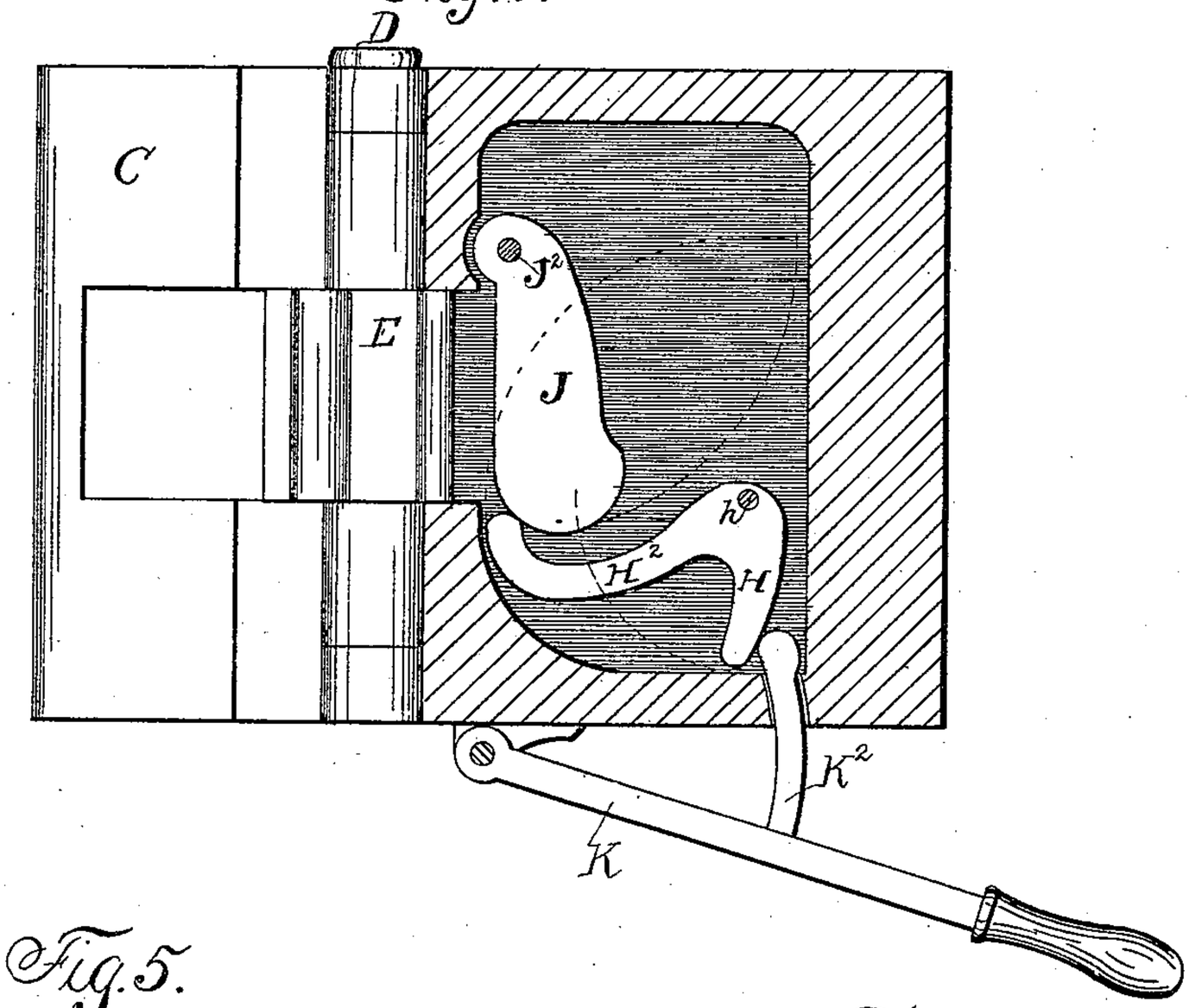


Fig. 5.

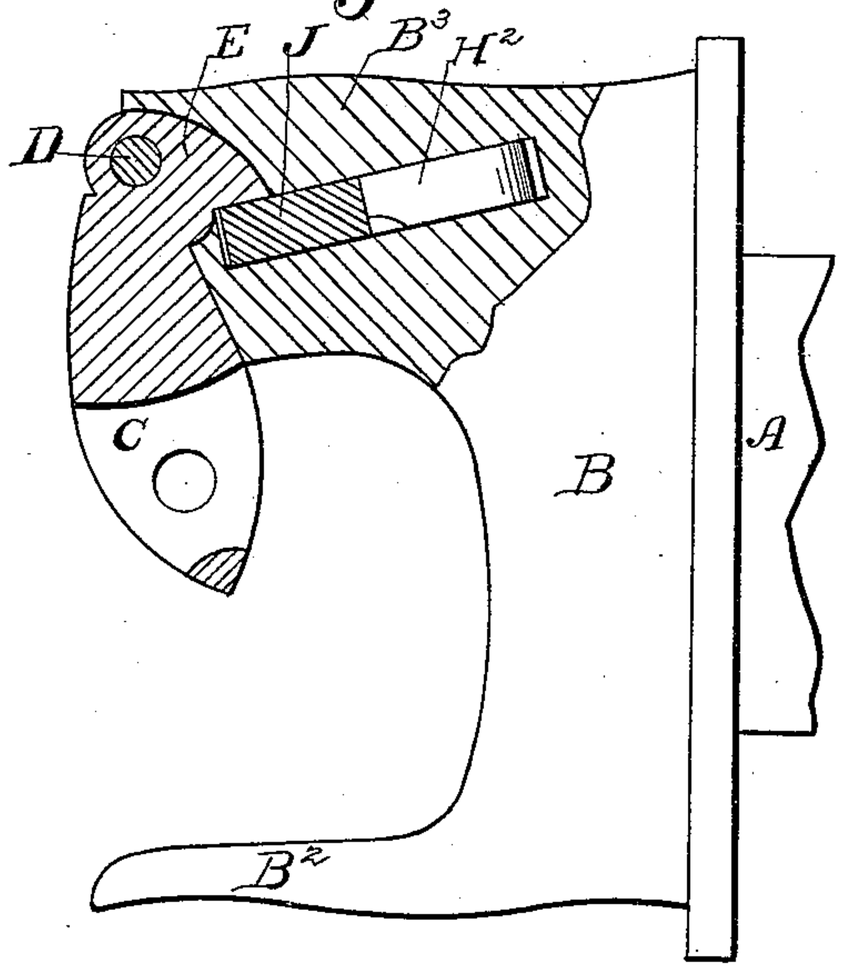
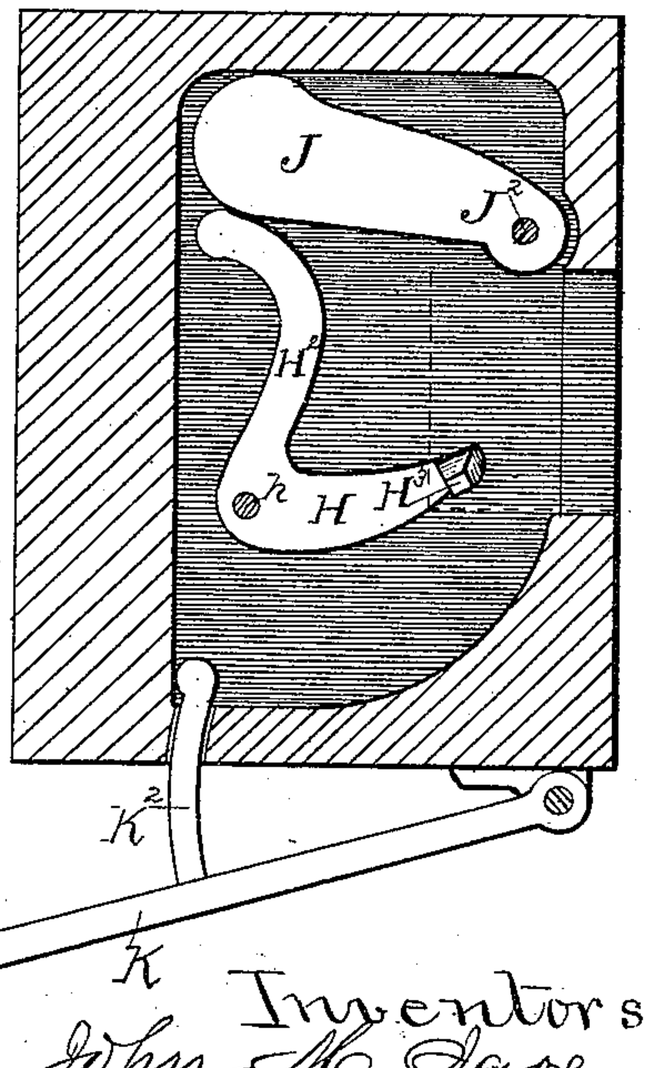


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOHN M. IGOE AND EUGENE D. WHIPPLE, OF CRESTON, IOWA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 450,620, dated April 21, 1891.

Application filed August 25, 1890. Serial No. 363,040. (No model.)

To all whom it may concern:

Be it known that we, JOHN M. IGOE and EUGENE D. WHIPPLE, citizens of the United States, and residents of Creston, in the county of Union and State of Iowa, have invented a new and useful Improvement in Car-Couplings, of which the following is a specification.

Our invention relates to that class of car-couplings in which pivoted engaging jaws are employed and means for locking and unlocking the jaws to effect a coupling or in uncoupling, and has for its object the provision of a coupling by which cars may be united without the intervention of a train or yard man, adapted for use either in freight or passenger service, which will receive the shock upon the rigid and solid portions of the draw-head instead of upon its movable and pivoted parts, and in certain other advantages hereinafter to be stated.

Our invention consists in an engaging jaw pivoted to one of the extending sides of the draw-head, between which is formed a cavity adapted to receive the end of an advancing jaw on the draw-head of a car about to be coupled, and an unlocking-lever adapted to impinge and bear against a pivoted cam when unlocking, said cam in turn removing a pivoted locking-block from engagement with a shoulder formed on the short arm of the jaw.

Our invention consists, further, in certain details of construction and arrangement of parts hereinafter more fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the upper face of draw-heads embodying our invention, shown coupled and attached to a section of car as in practical use. Fig. 2 is a perspective view of the under side of one of the draw-heads. Fig. 3 is a detail view of the cam and cam-arm. Fig. 4 is a detail sectional view on the line 1 2, Fig. 1, showing the normal position of the various parts when the jaw is open. Fig. 5 is a like view showing the position of the parts when the jaw is closed. Fig. 6 is a detail view showing the cam holding the locking-block out of engagement, the locking-lever having been brought into play, the cars not having been withdrawn from each other.

A represents the draw-bar, and B the draw-head, from which extend the guard B^2 and the arm portion B^3, the said guard and arm portion being formed integrally with the draw-head.

C C are engaging jaws pivoted on the journal-pins D. A horizontal slot in the front and center of the jaws C C and vertical pin-holes intersecting the slot adapt the jaws for coupling by the ordinary link and pin.

Referring now to the mechanism for locking and unlocking the jaws C C, the arm portion B is hollowed out to form a cavity opening out, so that the shorter arm E of the jaw C is adapted to enter for a certain distance within said cavity, Figs. 3 and 4. Pivoted within said cavity and resting normally in a horizontal position is a cam H, Fig. 3, pivoted at *h*, having an arm H^2, its outer portion being bent at or nearly at right angles to the cam H and being integrally formed therewith.

H^3 is a boss or lug formed on the cam H, having beveled faces.

J is a gravity locking-block pivoted at J′ and normally hanging or tending to hang in a vertical position from its pivot J′.

K is an unlocking-lever mounted and pivoted to the under side of the draw-head B at K in such position as that the handle of the lever extends beyond the edge of the draw-head, so that a flexible connection K′, led over a directing-pulley, adapts the lever to be actuated by an operator at the side of the car or from the deck. The lever K is also provided with a tang K^2.

L is a rod-spring, a portion of its length being secured to the under face of the jaw C by the staples, and also, after being coiled about the lower end of the journal-pin D, being extended and fixed by staples to the arm portion B of the draw-head.

The operation of our device is as follows: When two cars equipped with our improved coupling are approaching to each other, one or both of the jaws being open and extended, the free ends of said jaw or jaws impinge when the cars come together upon the rear portion of the cavities, and the semicircular form of the cavities, together with the bevel of the jaws, causes the latter to interlock, as shown in Fig. 1. It will be seen by reason of the form of the said jaws that the direction

of the pull will be at the apices of the bevel of the jaws when the train is moving upon a straight track and that the draw-heads will take a curve without lateral stress, the strain of the direct pull being also upon the center of the interlocked jaws, instead of upon their outer ends. It is also obvious that by reason of the bevel on the free ends of the jaws and the bevel on the arm portion B^3 and guard B^2 the jaws will be readily guided into engagement in the cavities, notwithstanding the fact that the draw-heads on the two cars to be coupled are not in line.

Referring now to the operation of the locking and unlocking mechanism, when the jaw is open and unlocked the cam H and its arm H^2 are in the position shown in Fig. 6, the extreme bent end of the arm H^2 being in position to impinge against the lower edge of locking-block J. The unlocking-lever K and its tang K^2 are in their normal position out of engagement. When the jaw is caused in coupling to assume its closed position at right angles to the arm portion B^3, the beveled portion of the short arm E of the jaw enters the cavity in said arm and impinges against locking-block J, pushing said block laterally and upwardly until the shoulder of the short arm E is in such a position as that the block can fall past said arm E by gravity and engage the shoulder on said arm, thus locking the jaw, as shown in Fig. 4. When it is desired to uncouple and unlock the jaw, the operator actuating the lever K vertically, the free end of the tang K^2 is caused to impinge and bear upon the face of cam H, which in turn causes the bent end of the arm *h* to bear against and move in an arc laterally and upwardly the block J from out of engagement with the shoulder or the short arm E of the jaw, at the same time bringing the inner bevel face of the lug H^3 into such a position that when the compressed spring L acts to open the jaw the under face of the short arm E will ride upon the said bevel face, which in turn withdraws the cam-arm H^2 from engagement with the block J, the latter falling again into the position shown in Fig. 3. When the yard or train man desires to uncouple but not to withdraw the cars from one another, by simply actuating the lever the block is thrown up and held by arm H^2, the unlocking-lever returning by gravity to its normal position, and the pointed end of the short arm E being behind the lug H^3, as shown in Fig. 5. When one of the cars is now withdrawn, the spring L causes the jaw to fly open, the lower face of the short arm E at the same time riding upon the bevel of lug H^3 nearest to it in the direction of its travel, and the arm H^2 is withdrawn, the gravity-block J falling into its normal position, as shown in Fig. 4. If from any cause while the cars are unlocked the jaw opens and the locking-block is in its normal position, the unlocking-lever should be actuated and the block raised and held out of engagement, as shown in Fig. 5. When the jaw is closed, its short arm E rides upon the bevel of lug *h* opposite to that engaged when the jaw is unlocked and opening, withdrawing the arm *h*, permitting the block J to fall and engage the shoulder of arm E, as shown in Fig. 4. It is therefore obvious that in whatever position the block J may be the shoulder of short arm E will be engaged by the block whenever the jaw is brought to its closed position, and that any uncoupling may be effected without withdrawing either one of the cars. It will also be obvious that it is unnecessary to make any preparation for locking the jaw, since in every instance the locking-block falls into position for locking upon the withdrawal of the cam-arm.

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

1. In a car-coupling, the combination, with a pivoted locking-block, of a spring acting upon the said block to normally hold said block extended and open in position for coupling, and an extended hollowed arm portion within which is pivoted a cam-arm actuated by an unlocking-lever, said arm being adapted to actuate a gravity locking-block, which latter when in engagement holds the locking-block closed and coupled, as and for the purposes set forth.

2. In a car-coupling, the combination of a pivoted engaging jaw provided with a spring, an unlocking-lever pivoted upon the under side of the draw-head, said lever having a tang or projecting arm, a pivoted cam having an arm, and a gravity locking-block so pivoted as to normally be suspended vertically from its pivot-point, as and for the purposes set forth.

3. In a car-coupling, the combination, with a pivoted engaging jaw having a shouldered short arm, of a locking-block pivoted within a cavity of the arm portion of the draw-head, a cam having a bent arm and also having a beveled projection, and an unlocking-lever, as and for the purpose set forth.

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