No. 725,151. PATENTED APR. 14, 1903.

W. S. SCHROEDER & A. P. LINDHOLM.

CAR COUPLING.

APPLICATION FILED FEB. 12, 1903.

NO MODEL.

Fig. 1

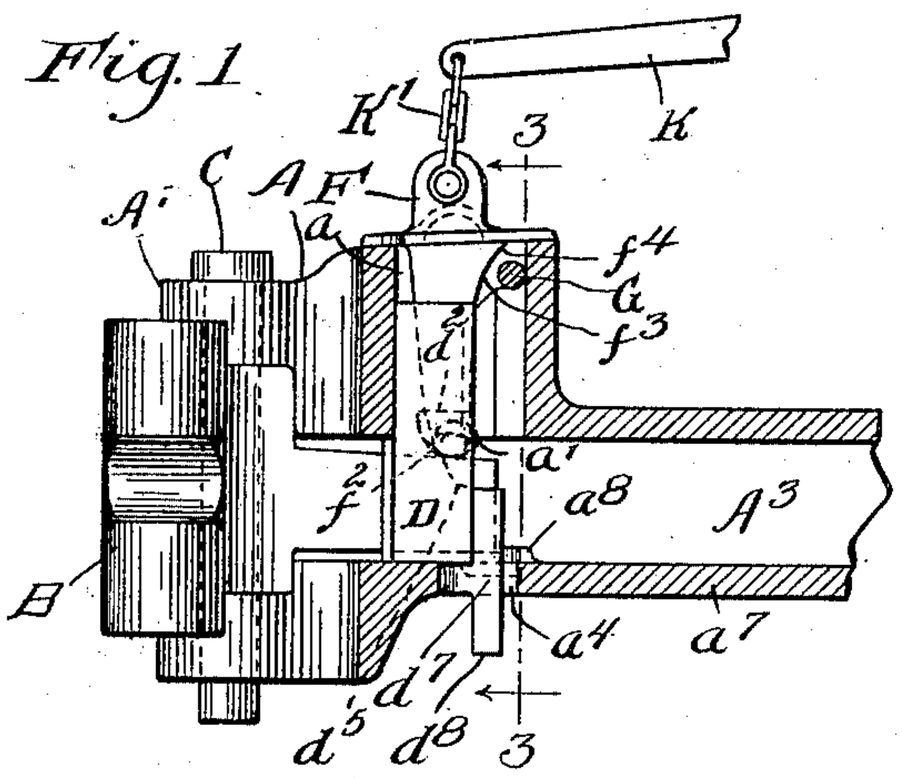


Fig. 4

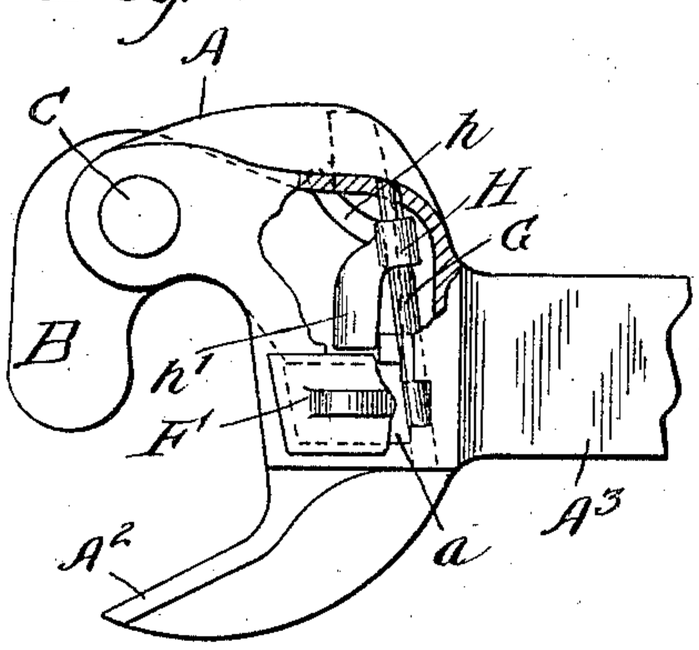


Fig. 2

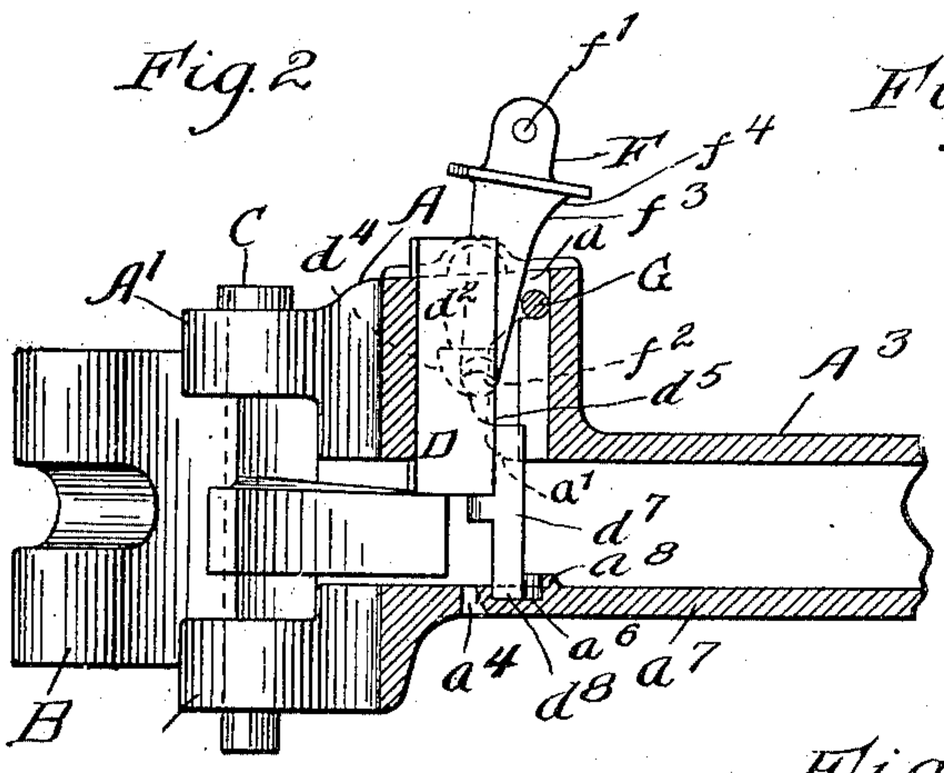


Fig. 5

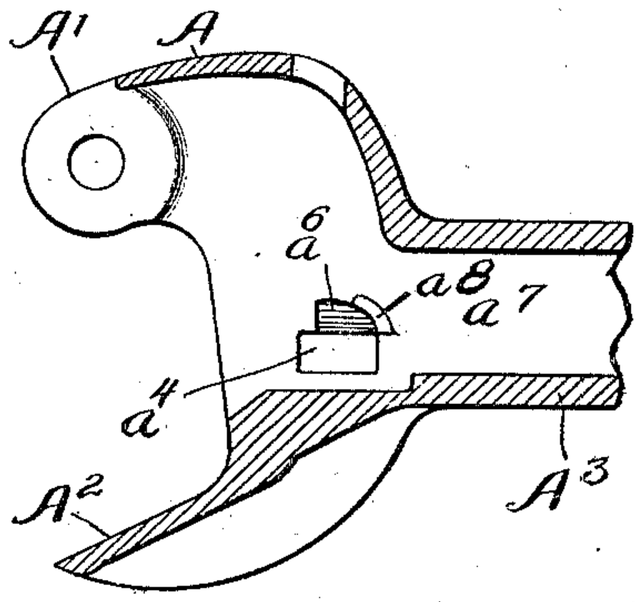


Fig. 3

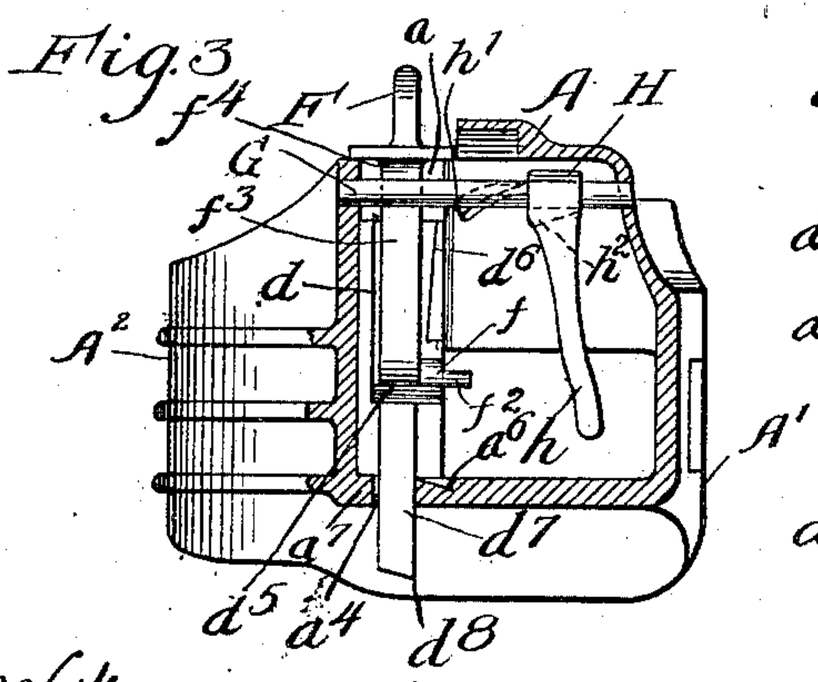


Fig. 6

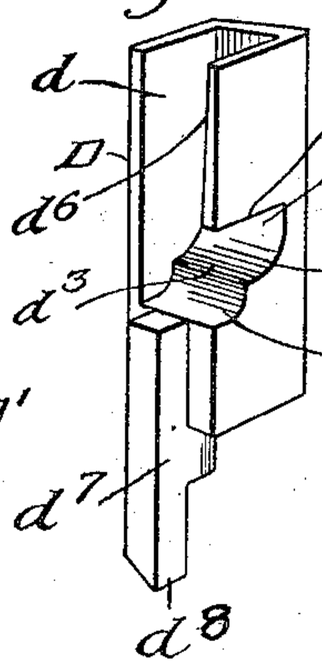


Fig. 7

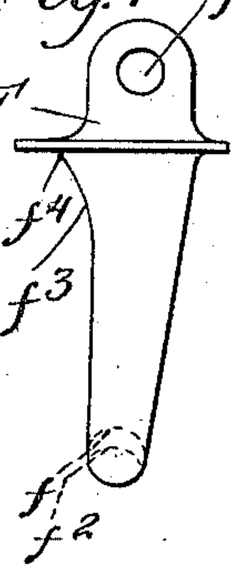
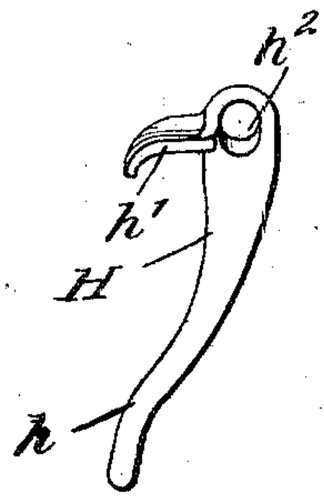


Fig. 8



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UNITED STATES PATENT OFFICE.

WILLIAM S. SCHROEDER AND ANDREW P. LINDHOLM, OF CHICAGO, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 725,151, dated April 14, 1903.

Application filed February 12, 1903. Serial No. 142,996. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM S. SCHROEDER and ANDREW P. LINDHOLM, citizens of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Car-Couplers, of which the following is a specification.

Our invention relates to car-couplers of the kind or class commonly known as "Master Car-Builders' couplers" and which have a forked draw-head, a pivoted knuckle, and a gravity-lock.

The object of our invention is to provide a Master Car-Builders' coupler of a simple, efficient, strong, and durable construction, composed of few parts, which will operate to automatically open the knuckle when the lock is lifted, which may be readily set to couple or uncouple, and in which the lock is prevented from creeping or moving upward except when it is being intentionally lifted through the lifting-piece by its operating-lever.

Our invention consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown or described.

In the accompanying drawings, forming a part of this specification, Figures 1 and 2 are central vertical longitudinal sections of a car-coupler embodying our invention, showing the gravity-lock and lifting-piece in different positions. Fig. 3 is a cross-section on line 3 3 of Fig. 1. Fig. 4 is a plan view showing the draw-bar partially broken away. Fig. 5 is a detail longitudinal section of the draw-head. Fig. 6 is a detail perspective view of the lock. Fig. 7 is a detail side elevation of the lifting-piece, and Fig. 8 is a detail view of the knuckle-throwing lever.

In the drawings, A represents the forked draw-head of an ordinary Master Car-Builders' coupler, the same having a pivot-arm A′, a guard-arm A^2, and a draw-bar A^3.

B is the knuckle, and C the pivot-pin by which the knuckle is pivoted to the draw-head.

D is the vertically-sliding gravity lock or locking-pin, which works up and down in a suitable passage-way *a* in the draw-head. The locking-pin D has a rear vertical slot or chamber *d* to receive the lifting-piece F, said slot being open at the rear face of the lock. The lock D is further provided with a side slot or notch *d′* through one of its side walls to receive the side arm *f* of the lifting-piece F and afford a pivotal and sliding or movable connection between the lower end of the lifting-piece F and locking-pin D. This side slot or notch *d′* through the side wall of the lock has a substantially straight or square upper margin or shoulder d^2 and an inclined lower margin or wall d^3, furnished, preferably, with two curved seats d^4 d^5 for the side arm *f* of the lifting-piece to fit in or against when said side arm is in its uppermost and lowermost positions in said slot or notch. The lower curved seat d^5 of said notch serves to hold the side arm of the lifting-piece in place and in coöperative relation to and in engagement with the locking-shoulder *a′* on the draw-head to prevent the lock D from creeping or moving upward when the lock D and lifting-piece F are in their lowermost positions. When the lock is, however, lifted by the lifting-piece, its sliding and pivotal movement in respect to the lock disengages the projecting toe f^2 of the side arm of the lifting-piece from the shoulder *a′* on the draw-head, and thus permits the lock to be raised. The slot *d* in the lock D has an inclined side wall d^6, thus making said slot wider at the top than at the bottom thereof, so that the lock may have a laterally-tilting movement to one side by its own weight when the lock is lifted or suspended by or from the lifting-piece. This laterally gravity tilting of the lock to one side when lifted by the lifting-piece serves to throw the point of edge d^8 of the lock-set leg d^7, which projects downwardly from the lower end of the lock with certainty into engagement with the lock-set groove or notch a^6 in the lower web or floor a^7 of the draw-head at the side edge of the opening a^4 therein, through which the lock-set leg projects. This tilting action to one side is due to the fact that the side arm *f* of the lifting-piece engages the lock at one side thereof, and thus causes the lock to tilt by gravity to one side in connection with the inclined side wall d^6 of the slot *d*, in which the lifting-piece fits. The floor

of the draw-head is further provided with a curved guard or guide-rib a^8, adjacent to the lock-set notch a^6, which further aids in directing the point or edge of the lock-set leg into said notch or seat a^6. The side arm f projects through and beyond the side wall of the locking-pin sufficiently to properly engage the shoulder a' of the draw-head, the extent of said projection being indicated by the reduced portion f^2 of said side arm f. The lifting-piece F has a sliding and pivotal connection with the locking-pin and is provided at its upper end with an eye f' for connection with the lifting-chain K' and operating-lever K and with a rearwardly-projecting shoulder f^4, furnished with an inclined or curved face f^3, which by engagement with the transverse pin G causes the sliding and pivotal lifting-piece to seat itself in the slot or chamber d of the locking-pin when the locking-pin and lifting-piece descend. The cross-pin G extends through the upper part of the draw-head just at the rear of the locking-pin and lifting-piece and prevents the same from being entirely removed from the draw-head by reason of the projecting shoulder d^2 on the locking-pin engaging with the cross-pin G.

Although in our invention the lock has a limited play or tilting movement sidewise when suspended from the lifting-piece to cause engagement of its lock-set leg d^2 with the notch or seat a^6 at the side of the opening a^4 in the draw-head, the lock-set leg will not become accidentally disengaged from its notch or seat a^6 under the ordinary jerking and ramming shocks or movements of the cars and couplers one against another in switching or coupling cars, as such shocks come not sidewise, but in the longitudinal direction of the cars. The lateral or sidewise tilting of the lock to cause engagement of its lock-set leg with the lock-set notch or seat on the floor of the draw-head thus obviates the danger of accidental disengagement incident to tilting the lock forward or backward to effect a lock-set.

The knuckle-throwing lever H has a long depending curved or horn-shaped operating-arm h, which engages the tail of the knuckle to throw the same open, and a short lateral arm h', which is engaged by the side arm f of the lifting-piece when the lifting-piece has raised the lock clear of the knuckle-tail, so that the further upward movement of the lifting-piece and lock will operate the knuckle-throwing lever. The knuckle-throwing lever H is pivotally supported on the cross-pin G, which extends through the same in a pivot-opening h^2, which is substantially circular at the outer side of the knuckle-throwing lever and broadens into a wide vertical slot at the inner side of the knuckle-throwing lever, as will be readily understood from Figs. 3 and 8 of the drawings, so that the knuckle-throwing lever, while turning or swinging with a circular motion about the cross-pin G as the pivot or axis, may also tilt transversely to the axis of the pin G, and thus cause the operating-arm h of the knuckle-throwing lever to follow the tail of the knuckle out to the full limit of its throw.

We claim—

1. In a car-coupler, the combination with a forked draw-head, a pivoted knuckle and a vertically-moving gravity locking-pin having a rear slot or chamber to receive a lifting-piece, and a side slot or notch to receive a side arm on the lifting-piece, and a pivoted and sliding lifting-piece fitting in said rear slot or chamber of the locking-pin and provided with a side arm fitting said side slot or notch of the locking-pin, said draw-head having in its lower web or floor an opening to receive a lock-set leg on the locking-pin, a lock-set notch or seat at the side of said opening, and the locking-pin being provided with a lock-set leg at its lower end and having a laterally or sidewise tilting movement by gravity when suspended by the side arm of the lifting-piece to cause said lock-set leg to engage said lock-set notch or seat, substantially as specified.

2. In a car-coupler, the combination with a forked draw-head, a pivoted knuckle and a vertically-moving gravity locking-pin having a rear slot or chamber to receive a lifting-piece, and a side slot or notch to receive a side arm on the lifting-piece, and a pivoted and sliding lifting-piece fitting in said rear slot or chamber of the locking-pin and provided with a side arm fitting said side slot or notch of the locking-pin, said draw-head having on its lower web or floor an opening to receive a lock-set leg on the locking-pin, a lock-set notch or seat at the side of said opening, and the locking-pin being provided with a lock-set leg at its lower end and having a laterally or sidewise tilting movement by gravity when suspended by the side arm of the lifting-piece to cause said lock-set leg to engage said lock-set notch or seat, said rear slot or chamber in the locking-pin having an inclined side wall making said slot or chamber wider at the top than bottom, substantially as specified.

3. In a car-coupler, the combination with a forked draw-head, of a pivoted knuckle and a vertically-moving gravity locking-pin having a rear slot or chamber wider at the top than at the bottom to receive the lifting-piece, and a side slot or notch to receive a side arm on the lifting-piece, and a pivotal and sliding lifting-piece having a side arm engaging said slot or notch in the locking-pin, the locking-pin having a lock-set leg at the lower end thereof, and the lower web or floor of the draw-head having an opening to receive said leg, and a lock-set seat or notch at the side of said opening, the locking-pin tilting laterally or sidewise when suspended by the lifting-piece to cause said lock-set leg to engage said lock-set seat or notch, substantially as specified.

4. In a car-coupler, the combination with a forked draw-head, of a pivotal knuckle and a vertically-moving gravity locking-pin having a rear slot or chamber wider at the top than at the bottom to receive the lifting-piece, and a side slot or notch to receive a side arm on the lifting-piece, and a pivotal and sliding lifting-piece having a side arm engaging said slot or notch in the locking-pin, the locking-pin having a lock-set leg at the lower end thereof, and the lower web or floor of the draw-head having an opening to receive said leg and a lock-set seat or notch at the side of said opening, the locking-pin tilting laterally or sidewise when suspended by the side arm of the lifting-piece to cause said lock-set leg to engage said lock-set notch or seat, the lower web or floor of the draw-head having also a guide-rib or guard adjacent to said lock-set notch or seat, substantially as specified.

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