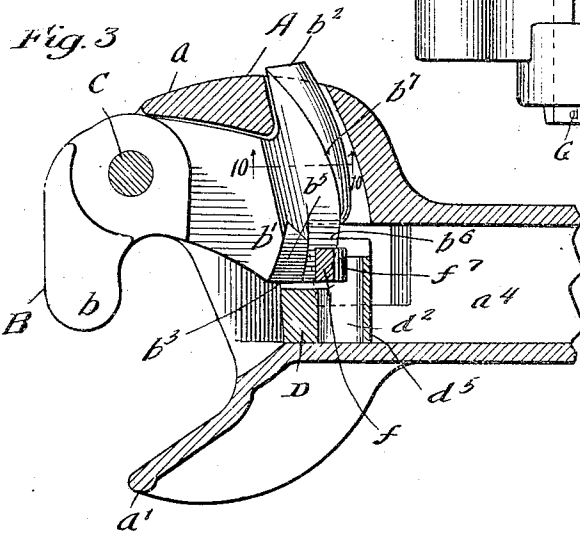
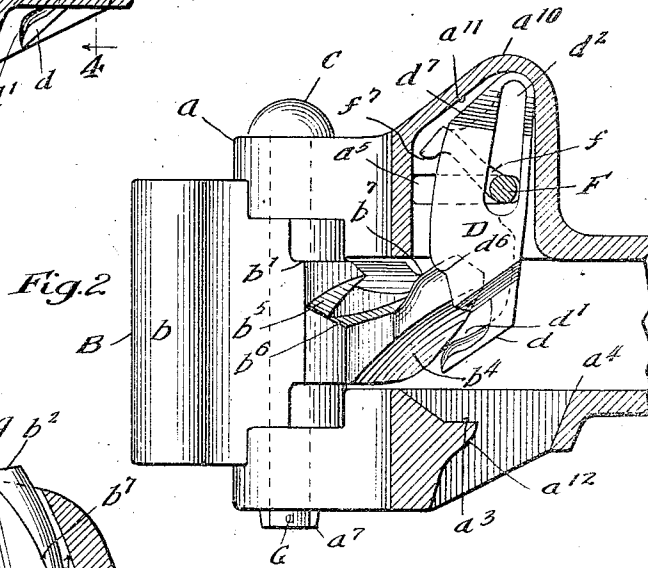
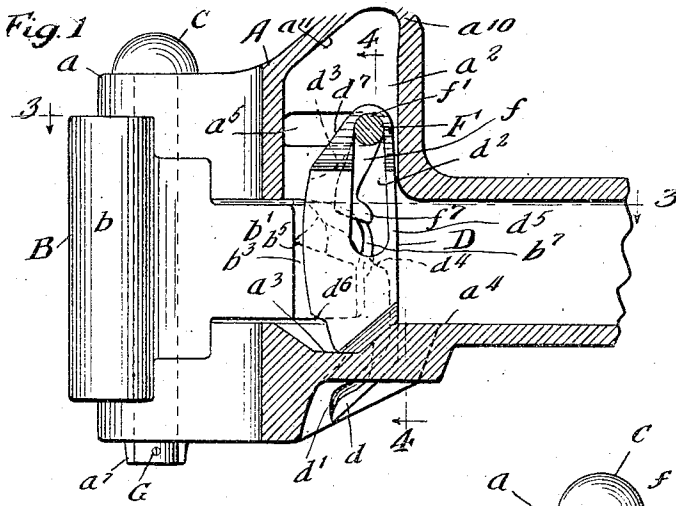


936,046.



Witnesses:

Wm. Geiger
Wm. Munday

Inventor:
William S. Schroeder

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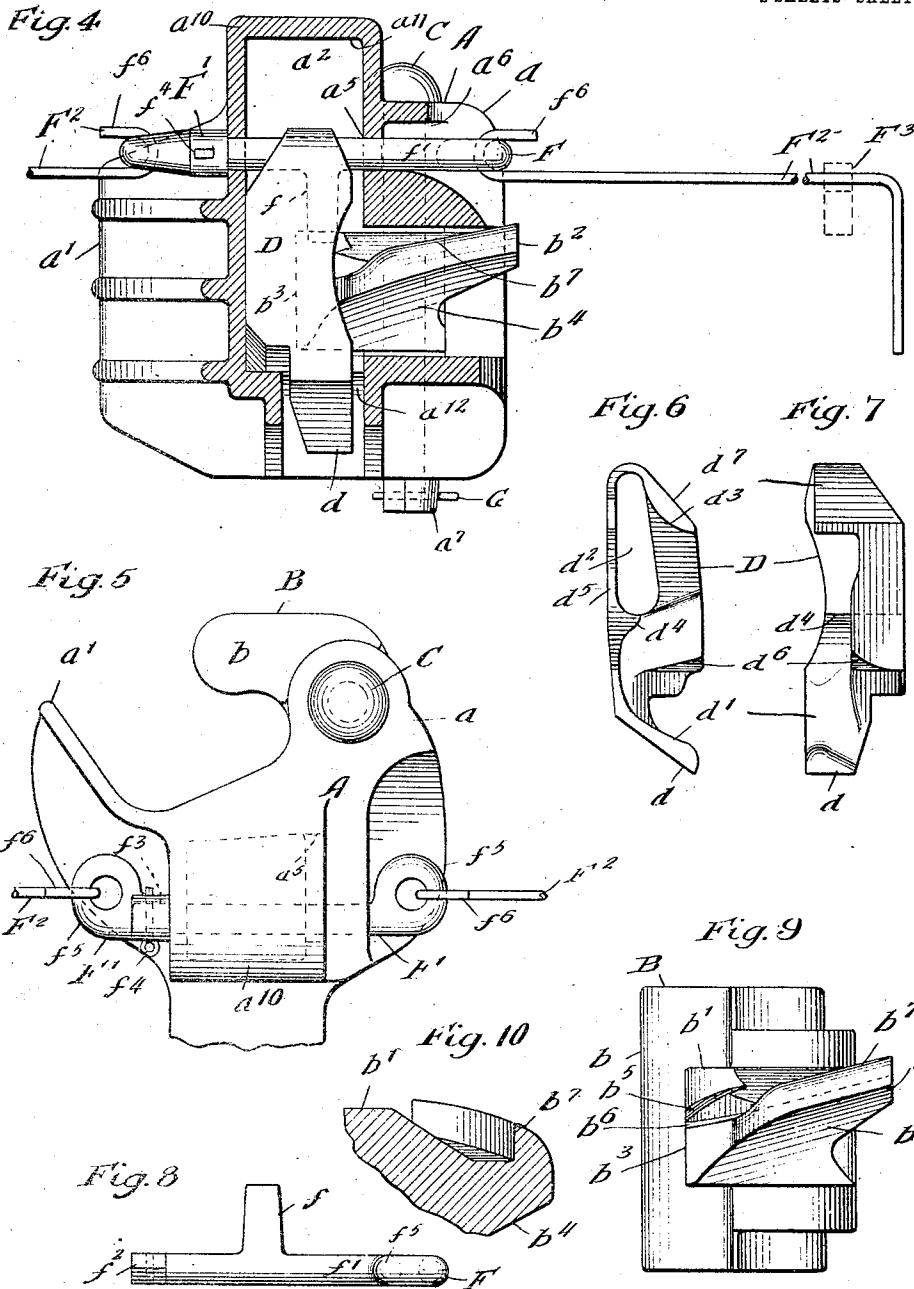
CAR COUPLING.

APPLICATION FILED DEC. 7, 1908.

Patented Oct. 5, 1909.

2 SHEETS—SHEET 2.

936,046.



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UNITED STATES PATENT OFFICE.

WILLIAM S. SCHROEDER, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO THE NATIONAL MALLEABLE CASTINGS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CAR-COUPLING.

936,046.

Specification of Letters Patent.

Patented Oct. 5, 1909.

Application filed December 7, 1908. Serial No. 466,323.

To all whom it may concern:

Be it known that I, WILLIAM S. SCHROEDER, a citizen 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.

My invention relates to improvements in car couplers, and more particularly to improvements upon the car coupler forming the subject of my pending application, Serial No. 430,397, filed May 1st, 1908.

The object of my invention is to provide the car coupler of my said pending application with a simple and efficient means for automatically throwing the knuckle closed.

My invention consists in the means I employ to practically accomplish this object or result. That is to say, it consists in providing the tail of the knuckle with an upwardly projecting flange adapted to be engaged by a hook or projection on the lifting arm of the laterally or transversely extending side lift lever so that the knuckle may thus be automatically closed, as well as opened, by operation of the lifting lever and connecting parts.

My invention also consists in the novel construction of parts and devices and in the novel combinations of parts and devices herein shown and described.

In the accompanying drawing forming a part of this specification, Figure 1 is a central vertical longitudinal section of a car coupler embodying my invention. Fig. 2 is a similar view showing the knuckle thrown open to its full extent. Fig. 3 is a horizontal section on line 3—3 of Fig. 1. Fig. 4 is a vertical section on line 4—4 of Fig. 1. Fig. 5 is a detail plan view. Figs. 6 and 7 are detail views of the lock. Fig. 8 is a detail plan view of one member of the double ended side lift lever and Fig. 9 is a rear elevation of the knuckle. Fig. 10 is a section on line 10—10 of Fig. 3.

In the drawing, A represents the draw-head of the coupler, having the customary pivot arm *a* and guard arm *a'*; B the knuckle, having the customary front arm or nose *b* and rear arm or tail *b'*, C the pivot

pin, D the vertically movable side lift lock fitting in the vertical aperture *a''* of the draw-head; and F F¹ the double ended two piece side lifting lever extending laterally through the draw-head and F² F² the operating or hand levers extending to the side of the car and coupled or connected, one to each end of the side lift lever F F¹.

The draw-head A has a lock-set seat *a''* on its lower web or floor *a'* adjacent to the lock aperture *a''* therein. The rear arm or tail *b'* of the knuckle is furnished with the customary hook or extension *b''*, and with a flat upright face *b'''* to engage the lock. The rear arm or tail of the knuckle is also provided on its under side with an upwardly and laterally extending knuckle throwing incline *b''*, and also on its upper side or face with an upper and inner track, way or incline *b''*, and a lower or outer track, way or incline *b'''* for the lock D to ride upon as the knuckle swings open and closed. The two inclines *b''* *b'''* preferably intersect each other, about as shown in the drawing; and the upper and inner one *b''*, or the one which is nearer the pivot of the knuckle, serves to lift or disengage the lock from its lockset seat on the draw-head when the knuckle begins to swing open, the further opening movement of the knuckle then permitting the lock to drop back slightly off of the upper incline, *b''*, onto the lower one *b'''*, the path or course of which is such as to so guide the lock, on its descent into the coupling position when the knuckle subsequently closes, that the lock cannot in such descent again engage the lock-set seat on the draw-head. This positively and absolutely prevents all failure to couple by reason of the lock on its descent reengaging the lock set seat.

The lock D is provided at its lower end with a downwardly and forwardly projecting lock set leg or extension *d'*, having a curved or cam-like upper face *d''* adapted to engage the knuckle throwing incline *b''* on the rear arm or tail of the knuckle to throw the knuckle open. The vertically movable gravity lock D is provided on the knuckle side thereof with a recess *d'''*, having an upper curved or cam-like wall or face *d''* for the

bent lifting arm f of the lifting lever $F F^1$ to engage or slide and lift against, and having a lower wall or stop shoulder d^4 . This shoulder d^4 acts as a stop to prevent creeping of the lock when the knuckle and lock are in their closed or coupled position by engagement with the lower end of the lifting arm f , as will be readily understood from Fig. 1 of the drawing. The recess d^2 also has an upright back wall d^5 . The lock D also has at its front corner a shoulder d^6 which engages and rides upon the inclines or ways $b^5 b^6$ of the knuckle tail.

The double ended or two piece side lifting lever $F F^1$ extends horizontally through a side opening or bearing a^5 in the draw-head at one side thereof above the knuckle tail, and the draw-head is also provided with a horizontally and forwardly extending covered recess a^6 to accommodate the shank portion f^1 of the member F of the lifting lever when the same is swung horizontally forward to enable its right angle lifting arm f to be removed from the draw-head through said opening a^5 .

The two members $F F^1$ of the lifting lever are preferably telescopically secured together, the member F having a square or non-circular end f^2 which fits in a corresponding socket f^3 in the sleeve member F^1 of the lifting lever, the two parts being detachably connected together by a removable cotter pin f^4 . Each member of the lifting lever is provided at its outer end with a right angle hook eye f^5 for detachable connection and engagement with the corresponding hook arm f^6 of the hand lever F^2 which extends to the side of the car. To impart to the lock a further opening movement and thus cause the same to throw the knuckle completely open, I provide the draw-head with an integral cap or housing a^{10} which covers the lock and has an inclined shoulder a^{11} which coöperates with the inclined end d_7 of the lock D so that the final portion of the upward swinging movement of the lifting arm f of the lifting lever F will force the lower end of the lock forward against the knuckle throwing incline b^4 of the knuckle tail and thus throw the knuckle fully and completely open. The hand levers F^2 which extend to the side of the car are each loosely supported by brackets F^3 secured to the front of the car. The loose or knuckle joint-like connection formed by the hook arms on the hand levers F^2 and lifting members $F F^1$ enables the draw-head of the coupler to move back and forth or up and down as required, without causing any binding strain between the lifting lever and the hand lever. The draw-head A is provided with an inclined projection a^{12} under which the lock-set and knuckle throwing leg or extension of the lock fits when the

lock is in its lowermost or closed position. This aids in preventing the lock from creeping when the cars are coupled together. When the lock is lifted by the side lifting lever $F F^1$, the lower end of the lock swings slightly backward at the initial upward movement to permit the knuckle throwing leg to clear this rearward projection a^{12} of the draw-head.

The tail b^1 of the knuckle is provided on its upper side with a curved flange or rib b^7 which is adapted to be engaged by a hook or projection f^7 on the lifting arm f of the member F of the side lift lever and thus cause the rotation of the side lift lever in the direction opposite to that for lifting the lock to automatically close the knuckle. I thus, without increasing the parts from my improved coupler, and without materially increasing the cost of construction of either the knuckle or the side lift lever F , enable my improved coupler to perform the additional function of automatically throwing the knuckle closed.

The draw-head is furnished on its lower face with a depending flange a^7 to receive a cotter pin G which extends through the lower end of the pivot pin C to hold the same in place and keep it from being accidentally or maliciously removed. The lock housing a^{10} of the draw-head also serves as a stop to prevent the withdrawal of the lock upward, the construction of the lock being such that it may be withdrawn through the knuckle cavity in the draw-head when the knuckle is removed therefrom.

I hereby disclaim as not of my invention, the devices shown and described in the Job H. Stricklan application, Serial No. 380,861, filed June 26th, 1907, and in the Henry C. Crigger application, Serial No. 386,446, filed July 31, 1907.

I claim:—

1. In a car coupler, the combination with a draw-head, pivoted knuckle and vertically movable lock of a rotatable side lift lever extending laterally through the draw-head and provided with a lifting arm having a knuckle closing hook, the tail of said knuckle having a knuckle closing flange adapted to be engaged by said hook on the knuckle throwing arm of the lifting lever, substantially as specified.

2. In a car coupler, the combination with a draw-head, pivoted knuckle and vertically movable lock, of a two piece detachable side lift lever extending laterally through the draw-head and having at the outer end of each member means for connection with a hand lever; said knuckle tail and the lifting arm of the lifting lever having interengaging devices to close the knuckle, substantially as specified.

3. In a car coupler, the combination with

a draw-head, pivoted knuckle and vertically movable lock of a rotatable side lift lever extending laterally through the draw-head and provided with a lifting arm having a knuckle closing hook, the tail of said knuckle having a knuckle closing flange adapted to be engaged by said hook on the knuckle throwing arm of the lifting lever, said

knuckle tail and lock being provided with interengaging devices to throw the knuckle 10 open, substantially as specified.

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Witnesses:

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PEARL ABRAMS.