No. 651,513. Patented June 12, 1900.

E. B. REED.

CAR COUPLING.

(Application filed June 6, 1899.)

(No Model.)

Fig. 1.

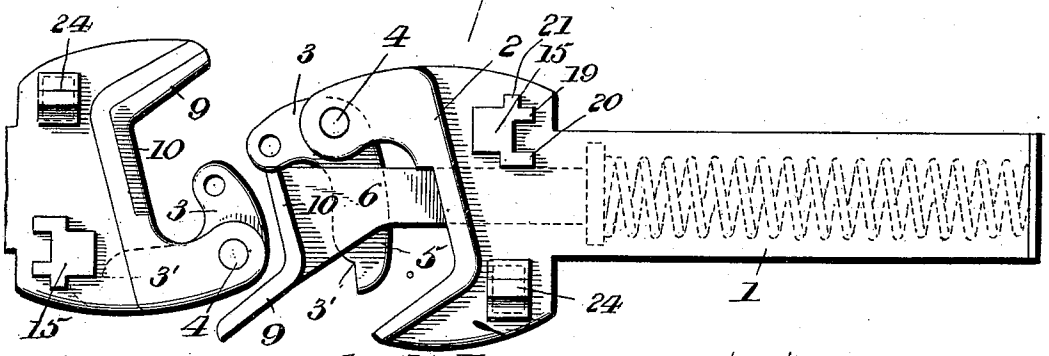


Fig. 2.

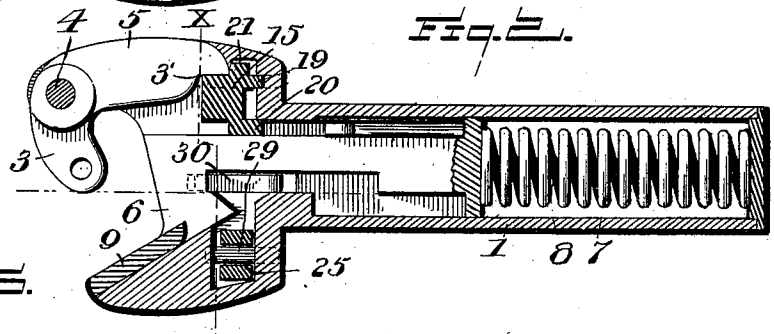


Fig. 5.

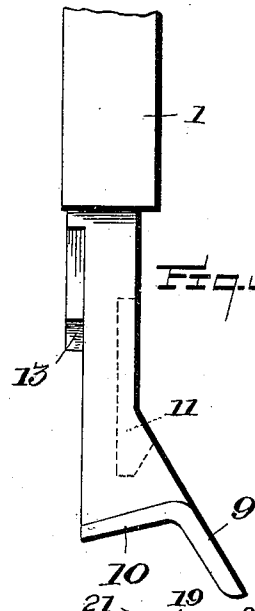


Fig. 3.

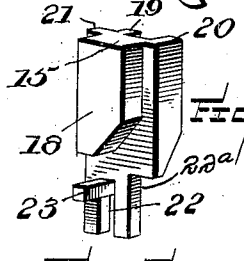


Fig. 6.

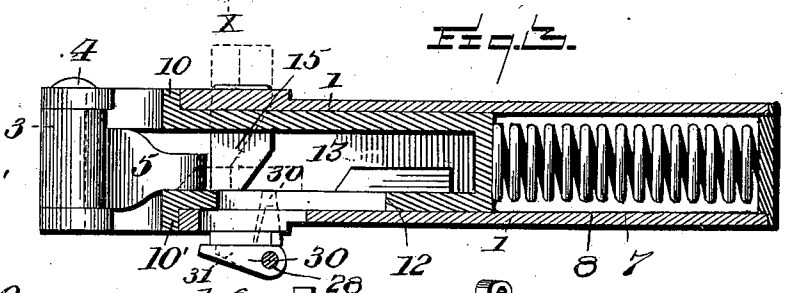


Fig. 4.

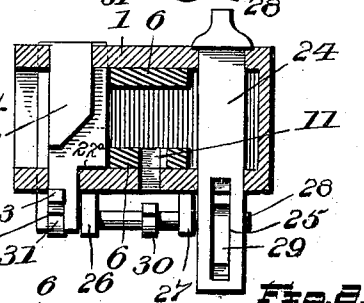


Fig. 7.

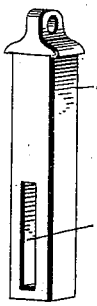
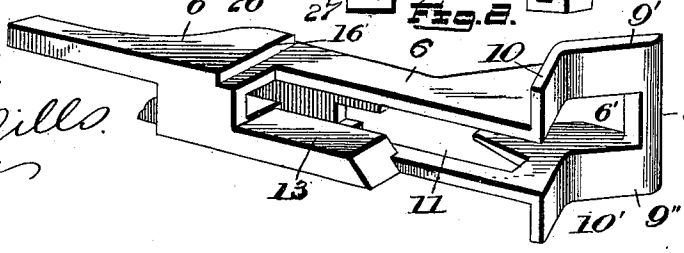


Fig. 8.



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UNITED STATES PATENT OFFICE.

ELMER B. REED, OF McDONALD, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 651,513, dated June 12, 1900.

Application filed June 6, 1899. Serial No. 719,547. (No model.)

To all whom it may concern:

Be it known that I, ELMER B. REED, a citizen of the United States of America, residing at McDonald, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

The invention relates to improvements in car-couplings.

The object of the present invention is to improve the construction of that class of car-couplings employing a pivoted knuckle and to provide a simple, inexpensive, and efficient device adapted when released, to open the knuckle automatically and reset the locking-pin, and thereby arrange the parts in position for automatic coupling.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a plan view showing two draw-heads constructed in accordance with this invention, the knuckles of one of the draw-heads being open and the parts arranged for automatic coupling. Fig. 2 is a horizontal sectional view of one of the draw-heads. Fig. 3 is a vertical longitudinal sectional view of the same. Fig. 4 is a transverse sectional view on line *x x* of Fig. 2. Figs. 5 and 6 are detail views of the spring-actuated plunger. Fig. 7 is a detail view of the vertically-movable locking device. Fig. 8 is a detail view of the lifting-bar.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a draw-bar provided at one side of its draw-head 2 with eyes for the reception of a knuckle-pin 4, which pivots a knuckle 3 to the draw-head. The knuckle 3 is provided with an arm 5, which has a recess 3^a at its extremity, and within the draw-head and draw-bar is arranged a longitudinally-reciprocating spring-actuated plunger 6, having a longitudinal opening 6′, through which the arm 5 of the knuckle is adapted to swing.

The plunger 6, which is arranged centrally of the draw-head and which extends into the draw-bar, as shown, is actuated by a coiled spring 7, interposed between the rear end of the plunger and the rear end of the draw-bar and housed within the latter. The outer end of the plunger is provided with an outwardly-extending angularly-disposed projection 9, and it has flanges 9′ and 10 at its top and corresponding flanges 9″ and 10′ at the bottom, and these flanges form continuations of the front faces of the plunger and the projection 9. When the knuckle is in its closed position, as illustrated in Fig. 2 of the accompanying drawings, the flanges and the projection of the front end of the plunger fit snugly within a recessed portion of the front of the draw-head, and when the knuckle is open, as illustrated in Fig. 1 of the accompanying drawings, the plunger is in position to be engaged by the knuckle of another draw-head, whereby it will be operated when two cars come together for coupling.

The bottom of the plunger is provided with a recess 11, forming a shoulder at its inner end for engaging an arm or finger 30 of a rock-shaft 28, hereinafter described. The plunger is provided at one side of the recess with a laterally-offset portion 13, having a tapered or beveled front end and adapted to support a vertically-movable locking device 15 in an elevated position preparatory to automatic coupling.

The locking device 15, which consists of an oblong block or piece, is provided at its front or outer face with an offset 18, and it has a pair of vertical guide ribs or flanges 19 and 20 at its rear face. The guide ribs or flanges 19 and 20 terminate short of the bottom of the locking device, which is provided at one side with a vertical guide rib or flange 21, extending the entire length of the locking device. The lower end of the locking device is provided with a slot or bifurcation 22, and the horizontal lug 23, which is arranged in alinement with the slot or bifurcation, extends forward or outward from the upper end thereof. The top and bottom of the draw-head are provided with openings corresponding to the upper and lower portions of the locking device, which is cut away at one side of its lower portion to form a recess 22^a to re-

ceive the offset 13, and it is beveled at its inner or rear face at the top of the recess 22* to enable it to be readily lifted by the spring-actuated plunger when the latter moves outward. The lower portion of the locking device extends below the bottom of the draw-head, which is provided at its opposite side with a vertical opening for the reception of a vertically-movable lifting-bar 24, extending below the draw-head and provided with a vertical slot 25. The upper end of the lifting-bar is provided with an eye or opening and is designed to be connected with any suitable mechanism for effecting the operation of uncoupling, as hereinafter explained.

The draw-head is provided at opposite sides with bearings 26 and 27, depending from its lower face and receiving the transverse rock-shaft 28, which extends laterally from the said bearings, as clearly illustrated in Fig. 4 of the accompanying drawings. This rock-shaft has fixed to it a downwardly-extending arm or finger 29, which projects into the slot 25 of the lifting-bar 24, whereby the latter is adapted when elevated to rock the shaft. The rock-shaft is also provided with an intermediate arm or finger 30, arranged to extend through an opening of the bottom of the draw-head and project above the said bottom, whereby it is adapted to be oscillated by the shoulder 12 of the spring-actuated plunger. When the knuckle is closed, it may be readily opened and the parts set for automatic coupling by simply raising the lifting-bar 24, which rotates the rock-shaft sufficiently to raise the offset of the catch above the arm of the knuckle, which will be opened automatically by the outward movement of the spring-actuated plunger. The beveled portion of the plunger engages the beveled portion of the catch and holds the latter in an elevated position. The continued outward movement of the plunger carries the shoulder 12 into engagement with the arm or finger of the rock-shaft and swings the same below the plane of the upper face of the bottom of the draw-head. The spring-actuated plunger will operate in this manner to open the knuckle entirely and maintain the catch in an elevated position preparatory to automatic coupling should the car-coupling of another car not entirely open the knuckle in leaving the same. The plunger will also prevent the knuckle from being accidentally closed, and it obviates the necessity of going between cars to open the knuckle.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention, such as varying the means for actuating the reciprocating plunger.

What is claimed is—

1. In a car-coupling, the combination with a draw-head, and draw-bar, of a spring-actuated plunger arranged within the draw-bar and provided at one end with a projection, a knuckle pivotally mounted on the draw-bar and having an arm arranged to swing within the plunger, a shaft journaled in suitable bearings at the lower face of the draw-head, and provided with a series of arms, a catch mounted in the draw-head and arranged to be engaged by the plunger and by an arm of the rock-shaft, a lifting-bar mounted in the draw-head and arranged to engage one of the arms of the rock-shaft and adapted to rotate the latter to release the plunger, and means carried by the plunger for engaging another of the said arms to return the rock-shaft to its initial or inoperative position, substantially as described.

2. In a car-coupling, the combination of a draw-bar, and draw-head, a spring-actuated plunger arranged therein and provided at its outer end with a projection, a knuckle pivotally mounted on the draw-head and having an arm arranged to swing through the plunger, a catch arranged in the draw-head in position to be engaged by the plunger and adapted to lock the knuckle in its closed position, a shaft journaled on the draw-head at the bottom thereof and provided with an arm 31, arranged to engage and elevate the catch, a lifting-bar, an arm 29 extending from the shaft and arranged to be engaged by the lifting-bar, whereby the shaft will be rotated when the lifting-bar is elevated, and an arm 30 also mounted on the shaft and arranged to be actuated by the plunger to swing the said arms 29 and 31 to an inoperative position, substantially as described.

3. In a car-coupling, the combination of a hollow draw-bar and draw-head, a spring-actuated plunger mounted therein, a knuckle pivoted to the draw-head, a catch mounted in the draw-head and provided with guide flanges or ribs and having an offset portion for engaging the arm of the knuckle, said catch being provided with a projecting lug, a lifting-bar, connections between the lifting-bar and the catch, whereby the latter will be elevated when the former is raised, and means carried by the plunger for returning the said connections to their initial position, substantially as described.

4. In a car-coupling, the combination of a draw-head having a pivoted knuckle, a vertically-movable catch for locking the knuckle in its closed position, a reciprocating plunger arranged to engage the catch to hold the same in an elevated position, a lifting-bar and a rock-shaft provided with arms connected with the lifting-bar and the catch and adapted to elevate the latter when the former is raised, said rock-shaft being also provided with an arm adapted to be engaged by the plunger to return the rock-shaft to its initial position, substantially as described.

5. In a car-coupling, the combination of a draw-head, provided at opposite sides with vertical openings, a knuckle pivoted to one side of the draw-head, a catch mounted in

one of the said openings and arranged to engage the arm of the knuckle, a lifting-bar mounted in the other opening of the draw-head, a rock-shaft connecting the lifting-bar and the catch, and a reciprocating plunger arranged to engage the rock-shaft and return the same to its initial position, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

ELMER B. REED.

Witnesses:
JOHN GROETZINGER,
WM. T. HERRMANN.