

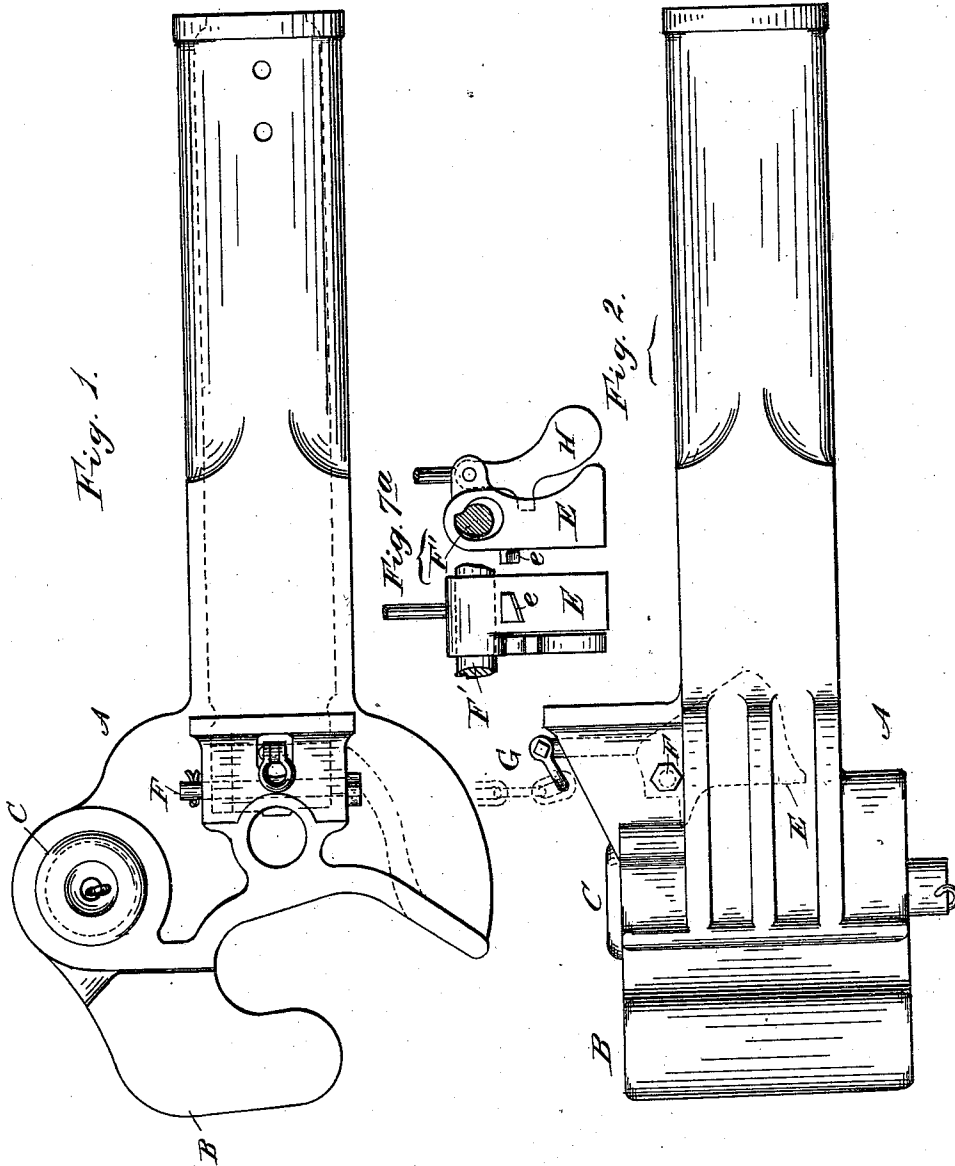
(No Model.)

2 Sheets—Sheet 1.

R. F. LUDLOW.
CAR COUPLING.

No. 478,445.

Patented July 5, 1892.



WITNESSES
H. M. Chaisted
J. G. Rawley

INVENTOR
Redney F. Ludlow
BY *H. A. Toulmin*,
his Attorney.

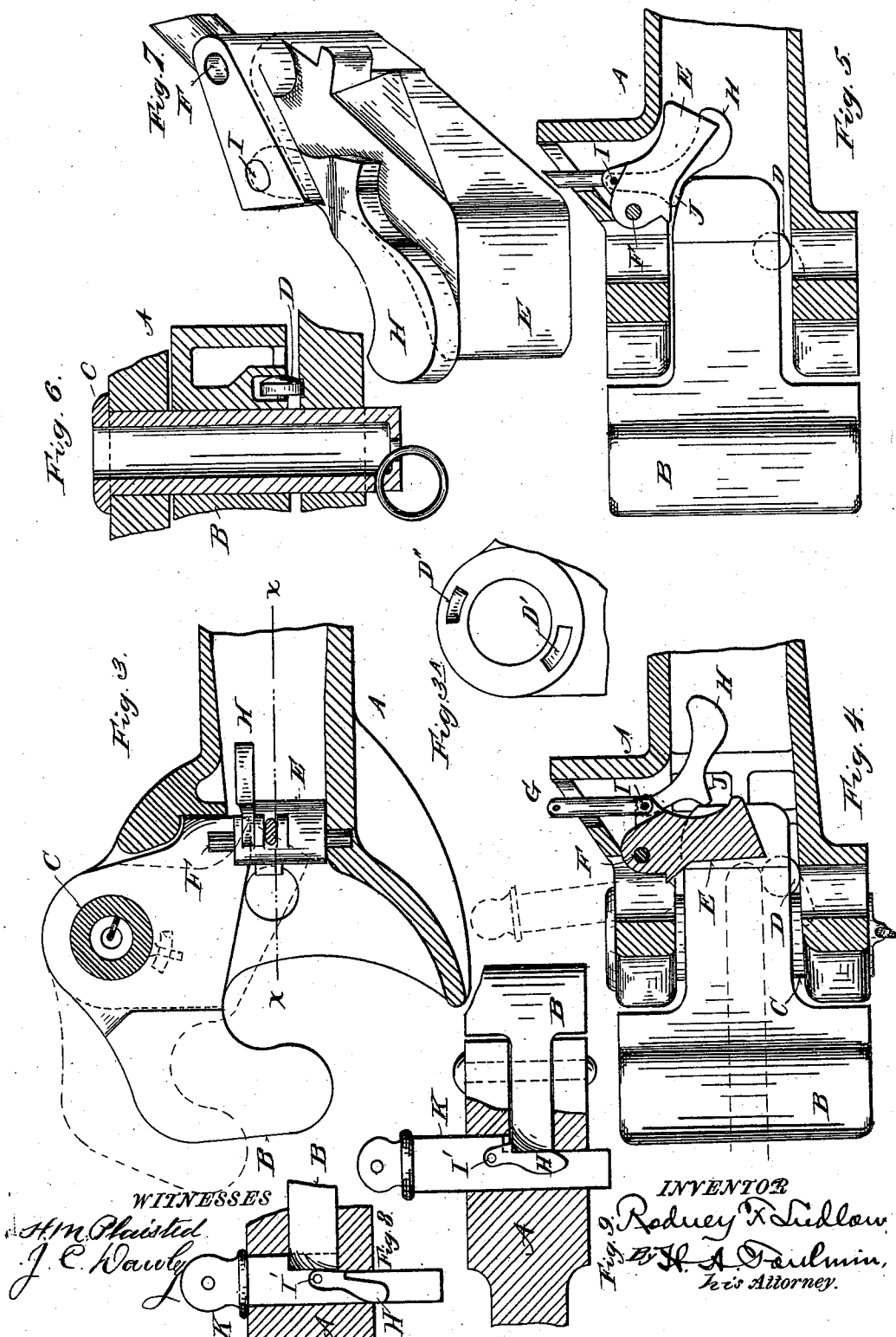
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UNITED STATES PATENT OFFICE.

RODNEY F. LUDLOW, OF SPRINGFIELD, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 478,445, dated July 5, 1892.

Application filed September 2, 1891. Serial No. 404,506. (No model.)

To all whom it may concern:

Be it known that I, RODNEY F. LUDLOW, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Car-Couplers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in car-couplers.

The object of my improvement is to constitute a temporary support for a locking-piece, whereby said piece may be held in its unlocking position with regard to the knuckle of the draw-head and is released from said position by the movement of the knuckle outward in opening the same.

The present invention is designed as an improvement especially adapted for use with the invention set forth in my application, Serial No. 397,879, filed June 29, 1891, but is also adapted to be applied to other forms of couplers, as will be hereinafter described and shown.

In the accompanying drawings, on which like reference-letters indicate corresponding parts, Figure 1 represents a plan view of a draw-bar head with my improvements applied thereto; Fig. 2, a side view of the same; Fig. 3, a plan view of the head with portions in section; Fig. 3^a, a plan view of the lower ear supporting the knuckle; Fig. 4, a vertical sectional view of the head on line *x x* of Fig. 3, the knuckle being locked; Fig. 5, a similar sectional view with the locking-pawl supported in its open position by the auxiliary pawl; Fig. 6, a sectional view through the knuckle-pivot, showing the supporting-roller; Fig. 7, a perspective view of the locking-pawl and its auxiliary pawl; Fig. 7^a, a side and edge view of a modified form of pawl and its supporting axle-pin; Fig. 8 a sectional view illustrating the use of the auxiliary pawl with a locking-pin, the parts being shown with the pin locking the knuckle; and Fig. 9, a similar view of Fig. 8, showing the pin supported by the auxiliary pawl.

The letter A designates the draw-bar head, in which is mounted the knuckle B upon its pivot C and supported by a roller D, adapted to roll down an inclined path D', and thus cause the outward movement of the knuckle

when the same is unlocked. A locking-pawl E is pivoted at F and adapted to gravitate by the inner end of the knuckle and lock the knuckle against outward movement, as shown in Fig. 3. The pawl is raised from its locking position by a pull on the operative connection at G, as indicated in Figs. 2 and 4, the pull being exerted through the usual lever-handle connection or otherwise.

As thus far described the device is similar to that described in the application mentioned above.

My present improvements have reference to means for supporting the locking-pawl in its unlocked position after the pull thereon, so that the brakeman can set one or more couplers in their unlocking position without being obliged to support the locking-pawl till the knuckle is swung outward and the cars uncoupled. In other words, the knuckle may be unlocked and the knuckle may be swung outward at any time afterward without further attention from the brakeman. The means illustrated herewith consist of an auxiliary pawl H, pivoted at I eccentric to the pivot F and preferably to the point at which the connection of the locking-pawl is attached. The auxiliary pawl has a shoulder or offset J, adapted to rest upon the rear of the knuckle when the locking-pawl E is raised to its unlocking position, but is normally held out of such engagement by means of the lower end of the knuckle pressing the pawl backward, as shown in Fig. 4. The auxiliary pawl, however, has a normal tendency to swing forward by gravity or otherwise into engagement with the said knuckle, whereby when the auxiliary pawl is raised to a suitable height the said engagement of the projection and the knuckle will take place. This will occur when the locking-pawl is raised to its unlocking position, leaving the knuckle free to swing outward. In case, however, the knuckle does not at once swing outward the locking-pawl will be supported in its unlocking position by the auxiliary pawl, which by swinging forward engages its projection J with the rear end of the knuckle and supports the locking-pawl in its raised position, as shown in Fig. 5. The knuckle is now free to open at any time with regard to the locking-pawl, since

the latter cannot obstruct its outward movement. When the knuckle swings outward, however, it allows the auxiliary pawl and the piece it supports to fall to their lower position, and the next inward movement of the knuckle will force the locking-pawl backward till it slips into its locking position and also throw the auxiliary pawl to its backward position, the front end of the projection J resting against the rear end of the knuckle, as shown in Figs. 3 and 4.

I have described above the application of the auxiliary pawl H as a support for a locking-pawl E. To illustrate that the use of the auxiliary pawl is not confined to a pivoted device, I have shown in Figs. 8 and 9 a vertically-moving pin K, having a shoulder L, adapted to be engaged by the rounded inner end of the knuckle as it swings inward, whereby it is raised till the knuckle has passed the locking-pin, when the latter will fall and lock the knuckle, as shown in Fig. 8. My auxiliary pawl or supporting-piece H is shown pivoted to the said pin at I', and it will be seen that its normal tendency is to swing forward, since the pivotal point is forward of this center of gravity, whereby when the pin H is raised to the position shown in Fig. 8 the pawl will engage by the shoulder or offset J with the rear end of the knuckle and support the pin in its unlocking position till the knuckle swings outward and allows the pin to fall. The rounded end of the knuckle will raise the pin and push the pawl backward as it re-enters or returns to its locked position in the next coupling action. Thus it will be seen that my auxiliary pawl or supporting-piece is adapted to be applied to various forms of locking-pieces, whether pawl or pin or other pieces adapted therefor, whereby said locking-pieces may be supported in their unlocking positions after elevation thereto till the knuckle is ready to be operated outward and the draw-bars uncoupled. There is thus no necessity for the brakeman to support the pin or pawl till the knuckle opens, since he may operate the pawl and it will thereafter be opened automatically, thus forming an automatic uncoupler as well as an automatic coupler.

A, Fig. 3, shows the lower ear of the draw-bar head and the inclined path D' for the supporting-roller of the knuckle. The opposite path D'' is for the reception of the roller when the knuckle is swung outward to its extreme position and the draw-bar adapted to be used with a link-and-pin coupler, as indicated by the dotted lines in Fig. 4 and previously described in the application above referred to. It will be observed that the auxiliary pawl or supporting-piece is so mounted that its projection J is below the surface of the pawl and the shoulder of the pin, respectively, which are engaged by the end of the knuckle when it swings inward and raises the locking member. Thus the knuckle pushes the auxiliary

pawl backward as it returns to its locking position, and the locking member must be raised a certain distance higher than it is raised by the knuckle in order to cause the supporting-piece or pawl to engage with the knuckle and support the same in its inoperative position.

Referring to Fig. 7^a, it will be seen that the axis pivot-pin F' has a projection or shoulder fitting a corresponding offset in the pawl E, the opening in which is enlarged below said projection, whereby the pawl tends to preserve a straight position whatever the grade or inclination of the draw-head. There is thus no tendency of the pawl to swing backward past the end of the knuckle and allow of accidentally uncoupling the same when on steep grades. The pawl will readily swing backward, however, when raised slightly to allow of sliding over the projection or offset of the pivot-pin. The knuckle in swinging inward will lift the pawl by engaging with the inclined surface *e* and then readily throw it backward in passing to its coupling position. The object of this modification is simply to prevent the possibility of accidentally uncoupling the cars in going down exceedingly steep gradients when the pawls are free to swing back and forth. The projection and offset engaging with each other, as above described, tends to preserve the pawl in its normal position and preclude any possibility of such result occurring accidentally.

I am aware that a sliding pin adapted to be supported by the edge of the pin-hole at the bottom of the draw-head in an inoperative position is old, and I therefore do not claim this form of locking-piece; also, that a sliding locking-pin having a horizontal slot and a vertical slot, a spindle carried by the head and passing through the latter slot to support a dog, is also old.

I do not in this specification lay claim to an inclined surface and a wheel adapted to travel thereon and a swinging knuckle, as such features of themselves are shown, described, and claimed in my application, Serial No. 407,023, filed September 28, 1891, for improvements in car-couplers.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a draw-head and a knuckle, of a locking-pawl for said knuckle pivotally mounted in said head and a pivoted auxiliary pawl adjacent to said locking-pawl and adapted to support the same in its inoperative position.

2. In a car-coupler, the combination, with a draw-head, a knuckle pivoted therein, and a movable piece constituting the locking member for said knuckle, of a pawl pivoted to the said locking member and adapted to engage with said knuckle to support said locking member when the latter is raised to its inoperative position till the knuckle swings outward, whereby the locking member may be

set to uncouple the interlocked knuckles and be retained in said position till the opening of said knuckles.

3. In a car-coupler, the combination, with
5 a draw-head and a knuckle pivoted therein, of a locking-pawl adapted to lock said knuckle and an auxiliary pawl carried by the locking-pawl and pivoted thereto eccentric to the pivot
10 of the locking-pawl and adapted to gravitate into engagement with the rear end of the knuckle when the locking-pawl is raised to its inoperative position, the eccentricity of mounting of said auxiliary pawl on the locking-pawl effecting a support for the latter as
15 long as the auxiliary pawl rests on said knuckle.

4. In a car-coupler, the combination, with
a draw-head and a pivoted knuckle, of a locking-pawl pivoted in said head and having an
20 irregular opening therein, and a pivot-pin having a projection thereon and mounted in said

opening, whereby the irregularity of said pin-and-pawl opening will retard the movement of said pawl from its locking position.

5. In a car-coupler, the combination, with 25
a draw-head and a knuckle pivoted therein, of a pawl adapted to lock said knuckle and having an inclined surface engaged by the end of the knuckle in swinging inward, and a pivot axle-pin for said pawl having an off- 30
set adapted to engage a matching offset in said pawl, the said pin being loosely mounted in said pawl, substantially as shown and described, whereby the knuckle will first raise the pawl and then swing it backward in the 35
act of returning to its coupling position.

In testimony whereof I affix my signature in presence of two witnesses.

RODNEY F. LUDLOW.

Witnesses:

OLIVER H. MILLER,
JAMES C. DAWLEY.