

W. HOLLAND.

CAR COUPLING.

No. 307,391.

Patented Oct. 28, 1884.

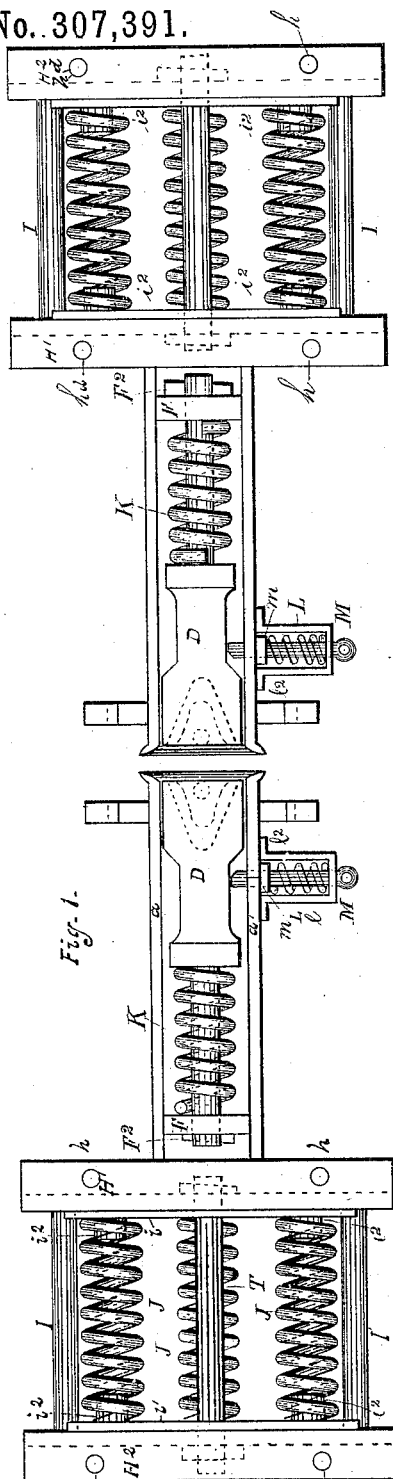


Fig. 1.

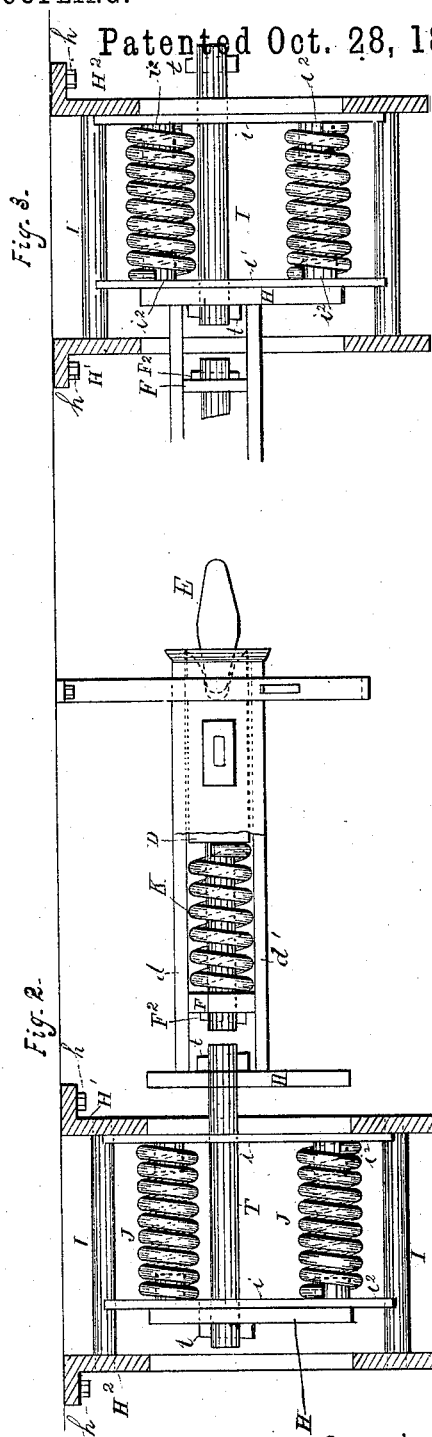
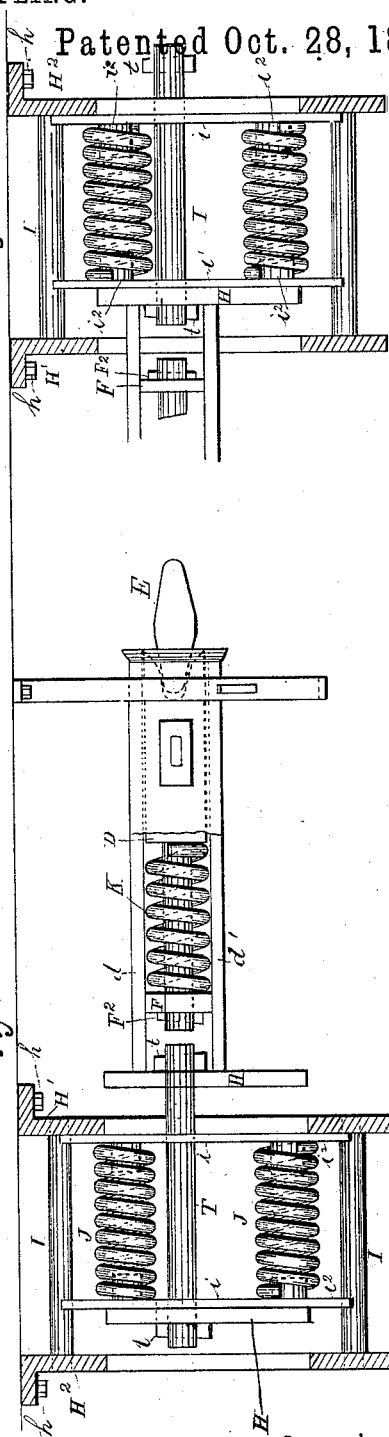


Fig. 2.

Fig. 3.



Witnesses.

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(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

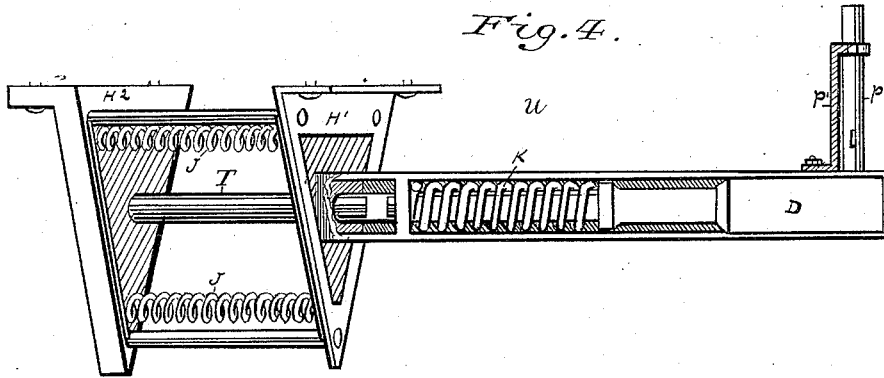
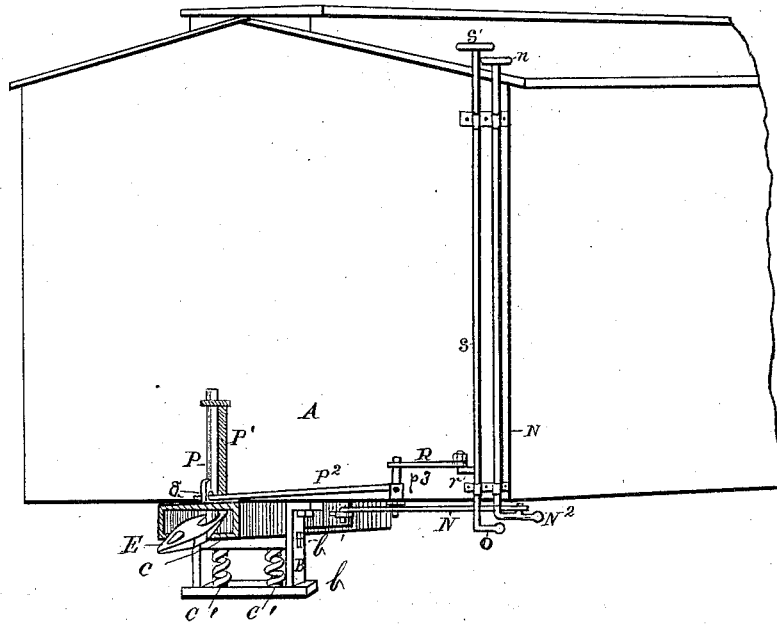


Fig. 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM HOLLAND, OF LONGMONT, COLORADO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 307,391, dated October 28, 1884.

Application filed June 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HOLLAND, a citizen of the United States, and a resident of Longmont, in the county of Boulder and State of Colorado, have invented certain new and useful Improvements in Railway-Car Couplings; and I hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in automatic railway-car couplings, in which the draw-bar is adapted to adjust itself relative to the position of the cars, and the tension brought upon the same turning curves, and coupling to cars of varied heights; and the objects of my invention are to provide a coupling by which cars may be coupled as well at an angle of forty-five degrees as upon a straight track, self-adjusting, perfect in operation, convenient, and strong. These objects I attain by means of the devices illustrated by the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top view of coupler and draw-bar; Fig. 2, a vertical sectional view of part of coupling and draw-bar; Fig. 3, a vertical sectional view of part of coupling; Fig. 4, a perspective side and end view; Fig. 5, a perspective end view of car having coupler attached thereto.

A in the drawings refers to a car-body, to which the coupler may be attached in any suitable manner.

The draw-bar is constructed in such a manner as to be retained in a fixed position normally, but in the event of heavy pressure being brought to bear upon the same in turning short curves, or being coupled to cars of varied heights, the draw-bar is adapted to adjust itself relative to the position of the cars, or the pressure brought to bear upon the same. This feature of my invention I prefer to carry out in the manner shown in the accompanying drawings, where it will be seen that beneath the end of the car is attached a rack or frame composed of the side pieces, B, the upper ends of which are attached to the car-body by means of bolts. To the lower ends of the bars B,

is attached a stationary bar, *b*. In the side bars, B, are made slots *b'*, in which operate the ends of a cross-bar, C, upon which rests the draw-bar. The same is retained against the under side of the draw-bar by means of the springs C', which rest upon the cross-bar *b*.

The draw-bar is composed of the side pieces, *a* and *a'*, and the bottom *d'* and the top *d*, in which is placed a plunger, D, which fits neatly within the casing of the draw-bar, in the front part of which is formed a receptacle for a coupling-link, E, the opposite end of which is made round, and is passed through the spring *k* and through the cross-bar F, and is provided with a key or nut, F², which prevents it from sliding forward beyond the end of the draw-bar. The spring *k* has a tendency to retain the plunger forward in the draw-bar, which is the normal position thereof. The link E is of the form shown in Fig. 5, and fits neatly in the front end of the plunger, and when placed therein, as shown in Fig. 2, is in the proper position to meet and enter into the relative plunger situated in the draw-bar upon the car which it is desired to couple with. To the side of the draw-bar is attached a bracket, L, containing a spring, *l*, through which passes a bolt, M, having affixed thereto a nut, *m*, against which the spring *l* presses, forcing the bolt into contact with the plunger, and into the recess *l'*, situated in the plunger D. The rear end of the draw-bar is permanently attached to a follower, H, which is shown in its normal position in Figs. 1 and 4, where it will be seen that the follower H is fitted within a hanger, H'. The latter is permanently attached to the bottom of the car by means of bolts *h*, and which is attached to a similar hanger, H², by means of bars I. The hanger H² is also attached to the bottom of the car by means of bolts. The hangers H' and H² and the bars I form a frame-work, in which I arrange a system of springs which impart elasticity to the lateral movement of the draw-bars, as well as permitting transverse and downward movement of the front part of the draw-bar when the strain put upon the same has such tendency. The arrangement of the springs is clearly shown in Figs. 1, 2, and 3, where it will be seen that plates *i*² and *i'*, having

projections i' thereon, are made to fit within the bars I, the latter forming guides for their lateral movement. Springs J extend from the plates i to the plates i' , and are retained in place by means of the projections i'' . The springs J retain the plates i and i' in contact with the hangers H' and H'' , when in normal position, as shown in Fig. 1. To the bolt M is attached a rod, N, which connects with a rod, N', which is hinged to the car-body, and has a hand-lever, N², affixed to its lower end, and a hand-wheel, n , attached to the upper end thereof. Upon the top of the forward end of the draw-bar is affixed a standard, P', turned forward at the top, and provided with a recess, in which the upper end of the coupling-pin P operates, the lower end of which operates in holes formed in the top and bottom casings of the draw-bar. In the coupling-pin P is a recess, Q, in which operates the end of a lever, P², which is fulcrumed at P³ to the car-body, to the opposite end of which is attached a bar, R, which is hinged by means of the bar r to the rod S. The latter is provided at the upper end with a hand-wheel, S', and with a hand-lever, a , at the lower end thereof. The draw-bar is coupled to the opposite end of the frame containing the springs J by means of a bar, T, having keys t through the ends thereof.

In the operation of my invention the different parts thereof having been adjusted as hereinbefore described, the coupling-link is placed within the receptacle therefor made in the forward end of the plunger D, as shown in Fig. 2, which completes the adjustment of the coupling, placing the same in position to be attached to a corresponding draw-bar in another car. When two cars provided with my improvements are brought together, as will be seen, the purpose of the plunger D is to receive and retain the link in proper position to engage with the draw-bar of the opposite car. When brought in contact therewith, the plungers D are forced backward within the draw-bars until the bolts M are forced into the recesses l' , which retain the plungers D a sufficient distance inward from the forward ends of the draw-bars to allow the coupling-links adequate play. When the plungers D in their course backward within the draw-bars pass the openings in which the coupling-pins P are retained, the latter are dropped down through the openings in the coupling-links E into the openings in the bottom part of the draw-bars, which retain the links in place, as shown in Fig. 5, attaching the draw-bars of the different cars together. When the forward ends of the draw-bars come in contact with each other the pressure is brought upon the springs J, as shown in Fig. 3, by means of the operation of the forward follower H, which forms the rear end of the draw-bar, pressing backward against the plate i , to which one end of the springs J are attached, which avoids severe jars. The springs and draw-bar may be so constructed

as to weight and strength as to answer all the purposes of bumpers. When heavy tension is brought upon the draw-bars the strain is also placed upon the springs J by means of the connection of the draw-bars with the rear followers H, by means of the bar T, which is drawn forward, as shown in Fig. 2, compressing the springs J between the plates i and i' , which averts sudden jar and has a tendency to prevent breaking of coupling-pins.

In turning curves the draw-bars adapt themselves to the position of the cars, owing to the space allowed at either side thereof at the forward ends between the same and the bars B, the attachment of the draw-bars to the springs J being such as to admit of the transverse movement of the forward ends of the draw-bars. The arrangement of the springs C' under the forward ends of the draw-bars admits of their adapting themselves to cars having their draw-bars lower than others.

The plungers may be retained within the draw-bars a proper distance from the forward ends of the latter permanently by means of the bolt M, or may be released at will by means of the hand-lever N² or the hand-wheel n , and their relative connections attached to the car, as shown in Fig. 5, which will admit of the plungers D resuming their normal positions, owing to the forward pressure of the springs k , mounted upon the rear portions thereof.

The coupling-pins may be removed from in connection with the coupling-links E by means of the hand-lever O or the hand-wheel S' with their relative connections with the coupling-pins P, as shown in Fig. 5.

I am aware of the use of draw-bars having spring-connections. Such, however, I do not claim, broadly; but the peculiar construction of couplings containing plungers within the draw-bars adapted to receive and retain the coupling-links in such a manner as to automatically attach to and with corresponding couplings, and which is forced backward within the draw-bars and retained in a position to allow full play to the coupling-links, and the adjustment of the draw-bar to admit of lateral, transverse, and downward movement of the forward end thereof, and adapted to connect cars in such a manner as to place the draft a suitable distance inward from the ends thereof, is what constitutes my improvements.

Having thus fully set forth the construction, application, and use of my improvements, what I claim as new, and desire to secure by Letters Patent, is—

1. The hereinbefore-described coupling, composed, substantially, of a draw-bar having encased therein the plunger D, in which is formed a recess, l' , the spring k , and cross-bar F, the hangers H' and H'' , the followers H, the plates i and i' , having extension parts i'' , formed thereon, the springs J, the bar T, and keys t , the brace L, attached to the side of the draw-bar, retaining the bolt M in contact with the plun-

ger, the spring *l*, the bars B, *b*, and C, containing the springs C', the coupling-link E, the standard P', and coupling-pin P, all operating together as described and specified, and

5 for the purpose set forth.

2. In a car coupling, and in combination with a plunger provided with a recess for the coupling-link, and having a shank, *k*, of smaller diameter than the body of the plunger, a
10 draw-head consisting of the bar *a a'* and *d d'*, between which the plunger has a sliding movement, and the cross-bar F, substantially as and for the purpose herein set forth.

3. The plunger D, having a recess in the forward end thereof, as described, and the recess *l'*,
15 made in the side thereof to receive the bolt M, and having the rear portion formed as described, carrying the spring *k*, and provided with a recess to receive the key F².

20 4. In a car-coupling, and in combination with a draw-head, as described, a plunger having a sliding movement within the draw-head, and provided with a V-shaped recess adapted to receive one end of a correspondingly-shaped
25 coupling-link, a follower, H, as described, a cross-bar, F, and a spring, *k*, coiled around the shank of the plunger, to bear against the cross-bar, as herein set forth.

5. The combination, with the draw-bar having the plunger D incased therein, provided
30 with a recess, *l'*, in the side thereof, as set forth, of the bolt M, having the spring *l*, mounted thereon, the brace L, the nut *m*, the rod N, the bar N', the hand-lever N², and hand-wheel

n, whereby the plunger is retained within the
35 draw-bar to provide play-room for the coupling-link and for releasing the same.

6. The combination, with the draw-bar incasing the plunger therein, containing a receptacle for one end of a coupling-link, of the
40 coupling-pin P, the standard P', the lever P², the rod *r*, and the bar S, attached thereto, whereby the coupling-pin may be raised to disengage one car from another.

7. In a railway-car coupling, the frame consisting of the hangers H' and H², attached to
45 the car-body, and the bars I, by which the hangers are retained a suitable distance apart.

8. The combination, with the frame composed of the hangers H' and H² and the bars I,
50 of the followers H, and the plates *i* and *i'*, fitted within the bars I, and having the extension parts *i'*, affixed thereto, the springs J, and the bar T, retained in place by the key *t*, as described and specified.

9. The combination, with the hangers H' and H², of the bars I, the spring J, the plates *i* and
55 *i'*, having the extension parts *i'* thereon, the bar T, and keys *t*, the draw-bar containing the cross-bar F, the spring *k*, and the plunger D, as set forth.

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

WILLIAM HOLLAND.

Witnesses:

GEO. GAY,
A. J. O'BRIEN.