

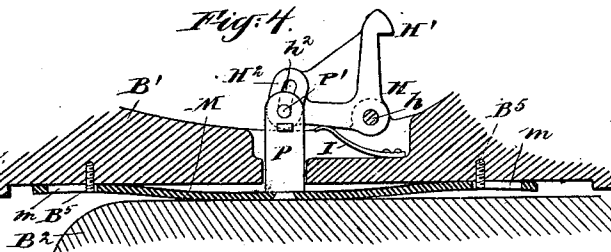
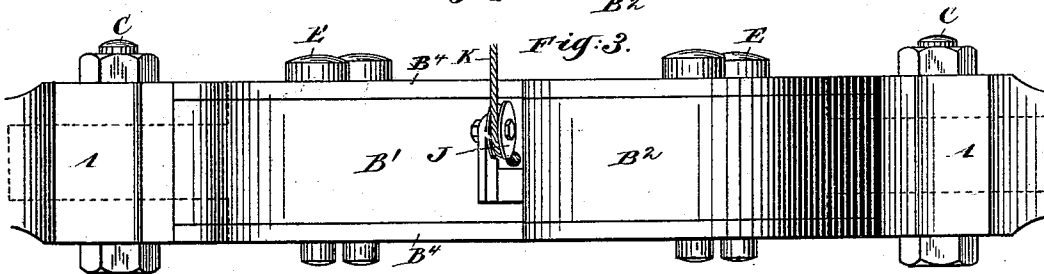
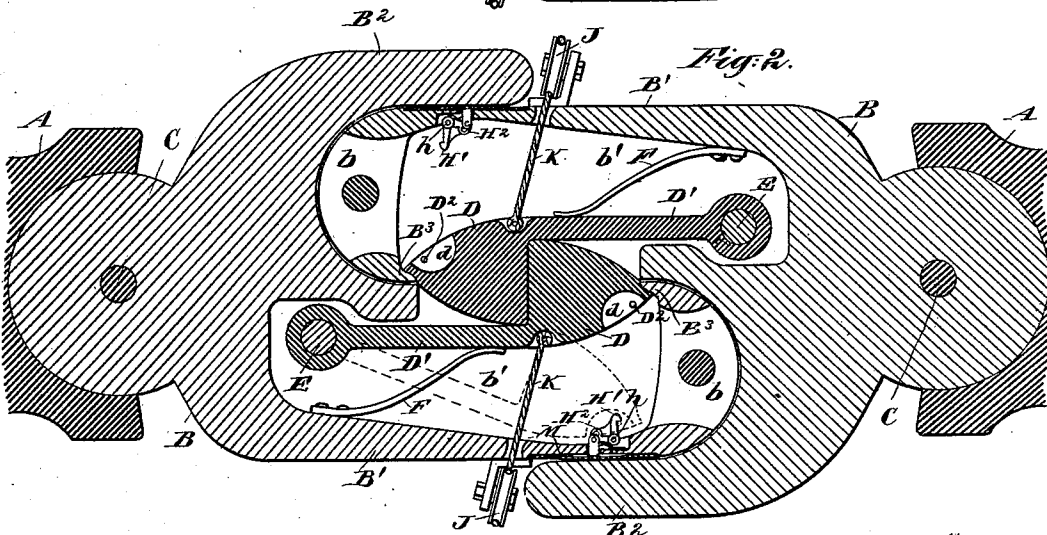
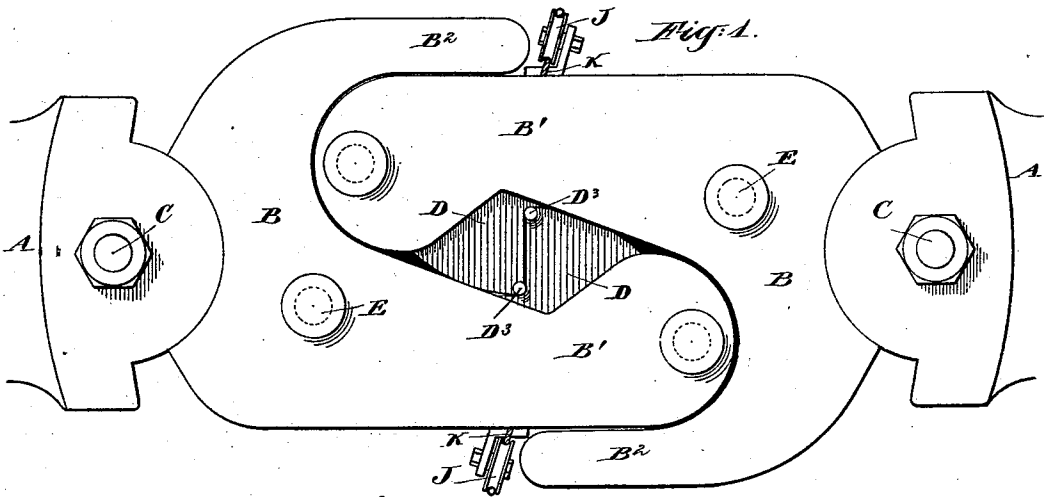
(No Model.)

2 Sheets—Sheet 1.

W. H. ROBINSON.
CAR COUPLING.

No. 514,964.

Patented Feb. 20, 1894.



Witnesses:

Charles R. Searle.

H. A. Johnstone.

Inventor:

W. H. Robinson

by his attorney

R. D. Stearns

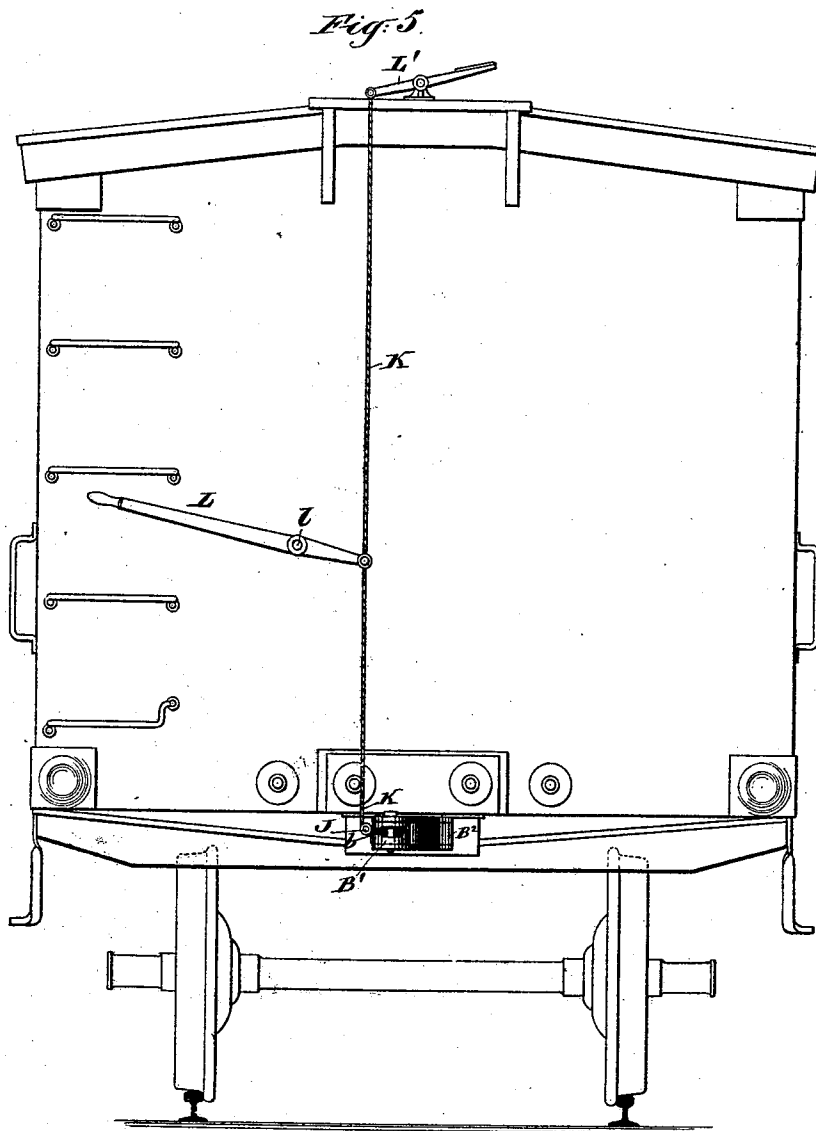
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W. H. ROBINSON.
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Witnesses:
Charles R. Searle.
H. A. Johnson.

Inventor:
William H. Robinson
by his attorney
Thomas D. Stearns

UNITED STATES PATENT OFFICE.

WILLIAM H. ROBINSON, OF NEW YORK, N. Y.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 514,964, dated February 20, 1894.

Application filed February 21, 1893. Serial No. 463,274. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. ROBINSON, a citizen of the United States, residing in the city and county of New York, in the State of New York, have invented a certain new and useful Improvement in Automatic Car-Couplings, of which the following is a specification.

My coupling is of that class in which the engagement is effected by a hook carried on each car, swinging laterally and actuated by a spring which tends to hold it in engagement with the hook of a similar coupling of the next car, which I will term the opposite car. I provide each hook with a housing which protects the hook and guides it in relation with the opposite coupling in effecting an engagement, and afterward holds it properly conditioned either for continuing engaged or for being drawn outward and disengaged. I provide a spring-catch which when the parts are adjusted for uncoupling may hold any hook back out of use. If the cars are not immediately drawn apart, my catch will hold the hook in the position for uncoupling for any length of time. I provide that the act of drawing the cars apart whenever it is performed shall disengage the catch and set the hook free, ready to be again engaged with the corresponding hook of a similar coupling in any car on presenting the parts together.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a plan view of one of the couplings engaged. Fig. 2 is a corresponding horizontal section. Fig. 3 is a corresponding side elevation. Fig. 4 is a horizontal section of a portion on a larger scale. Fig. 5 is an end view of a box car provided with my coupling, showing the means for operating the hook from the ground and also from the top of the car.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is the end of a draw-bar, which may be equipped with the ordinary springs for yielding elastically both to pulling and pushing strains, and may be strongly pinned to the car in any ordinary manner, and supported by the ordinary stirrup, for allowing lateral

motion of this draw-bar and for limiting the extent of such motion.

The couplings are counterparts of each other, and a description of one will suffice for both.

B is the housing or coupling-head, certain parts being designated, when necessary, by super-numerals, as B'. This head has two arms; the longest and main arm is marked B', the shortest, B². These arms extend out substantially parallel each with the other. The head is knuckled to the draw-bar A by means of a pin C with liberty to swing laterally to a small extent. The outer end of the long arm B' is provided with a hole *b* which may receive an ordinary coupling-pin, and may serve to couple the car, when necessary, to another car equipped with the ordinary coupling-head. This mode of coupling uses an ordinary link and attains the ordinary ends. It is only to be resorted to in emergencies. Under all ordinary conditions the devices described below are used, and the holes *b* are of no effect.

D, D', is a swinging hook pivoted to the coupling-head near the inner end by a stout pin E. It is capable of being drawn outward or away from the central line into a sufficient pocket *b'* in the long arm B', and is urged inward or toward the center line of the coupling by a spring F. It may be drawn outward into the pocket by means of a cord or rope K, which is preferably a wire rope. The hook D, D', is prevented from ever swinging too far inward by the engagement of its end with a sufficiently stout stop B³ formed on the inner face of the arm B' at the outer edge of the recess or pocket *b'*.

H, H', H² is a small bell-crank lever pivoted to the long arm B' at *h*, and subject to the force of a spring I mounted in a recess in the housing (see Figs. 2 and 4). This lever swings horizontally in a mortise in the arm B'. The end H' which extends inward is catch-formed, and the end H² which extends rearward is slotted and receives a pin P' fitted in an arm P which is riveted to a curved spring M which is fitted in a shallow recess on the outer face of the arm B'. The ends of the spring M are free to slide longitudinally in the shallow recess as the spring is flattened by the pressure of the arm B' of the opposite

coupling, and are guided by the sides of the recess in the obvious manner, and also by studs B^5 which are set in the arm B' and are received in longitudinal slots m provided in the spring. 5 The curved slot h^2 in the arm H^2 receives the pin P' and enables the latter pin to exert a force when required to turn the lever H and disengage its coupling H' . The slot provides sufficient lost motion to allow the lever H to 10 work under the control of its gentle spring I when required. The catch H' is adapted to engage with a pin D^2 (see Fig. 2) which extends vertically through a sufficient cavity d in the back of the hook D . When the two 15 coupling-heads are drawn apart, the short arm B^2 of each head being drawn away releases the spring M of the opposite coupling-head, and such spring immediately turns its lever H on its pivot h and causes its catch H' to release its hold on the pin D^2 in its hook D, D' , 20 if such have been previously engaged, and when thus liberated the spring F forces the hook D, D' into its innermost position, that shown in strong lines in Figs. 1 and 2, ready 25 to engage again with the corresponding hook of the same or another similar coupling-head.

When two of my coupling-heads are moved together to be coupled, the hooks D are always 30 inward in their working positions. Thus conditioned, the act of bringing the coupling-heads together will present the beveled faces of these hooks to each other so as to force each hook outward or backward partially into 35 its pocket, but by reason of the fact that each hook performs a part of the necessary movement neither is compelled to move so far outward as to be engaged by its respective catch H' . The movement effects the coupling action, 40 because so soon as the points of the hooks D, D' have passed each other, each is promptly moved inward by the force of its spring F and engaged, each hook D, D' with the corresponding hook of the opposite coupling. It follows that the presentation of two couplings 45 to each other will cause their stout hooks D, D' to effectively and firmly engage together. They may remain strongly coupled for any period.

When it is desired to uncouple the cars, the 50 attendant pulls on the rope K of either coupling and draws the corresponding hook D, D' outward. If the cars are not drawn apart immediately, the spring-catch H' performs an important duty by engaging with the corresponding hook D, D' , by its pin D^2 and holds 55 such hook for any required period out of use. Whenever under such conditions the cars are drawn apart, they are allowed to separate.

An important duty is performed by the 60 short arm B^2 , that of flattening the spring M and holding it inert, and allowing the lever H to be controlled by its gentle spring I and caused to engage with the pin D^2 and thus with the hook D, D' and hold it so long as the 65 coupling-heads are together. This condition is changed when the cars are drawn apart. After the points of the hooks D' of the respective

couplings have passed each other in the separating movement, each short arm B^2 being 70 drawn away liberates the spring M of the opposite coupling and allows it to assume its bent condition, and through its arm P and pin P' to compel the lever H of the opposite coupling to turn in opposition to the force of its 75 spring I and disengage its catch H' and set the corresponding hook D, D' free, and such hook consequently moves promptly inward. It is now ready to serve again in coupling, and so on indefinitely. It will be seen that the moving of the cars apart under these conditions 80 will have the effect to disengage the catch H' and allow the hook D, D' to move inward in obedience to the force of its spring F . But this will not take place until after the points of the hooks D' have passed each other so 85 that there is no engagement at this period, but the parts are set free ready to engage the next time they are brought together. The long arm B' of each housing is provided with a stout plate B^4 at the top and bottom which 90 affords great strength to the arm notwithstanding the deep cavity or pocket b' therein. Each hook D, D' has an arm or horn D^3 reaching upward, which is acted on by the oblique edge of the plate B^4 of the opposite 95 coupling-head so as not to interfere with the uncoupling when the hook D, D' of the opposite coupling is drawn outward.

I have shown each hook D, D' as drawn 100 outward by a flexible cord or wire rope K extending partly around a pulley J carried on the outer face of the long arm B' , and led from thence upward. L is a lever pivoted on the end of the car at l , and provided with an 105 operating handle by which the rope K can be forcibly pulled upward by an attendant standing on the ground and reaching up to this handle. The rope is continued up to the top of the car and is attached to another operating 110 lever L' which can be conveniently operated by a person on the car. Instead of a lever at this point or either point, the rope may be pulled directly, if preferred.

It will now be understood that the long arm 115 B' of each coupling-head is received in a corresponding space between the similar arms in the opposite coupling-head and serves to insure the correct position of the centers of the hooks D, D' under all conditions. These 120 hooks when allowed to engage are always held by the arms B', B^2 of their respective housings in the position which is favorable for resisting the strain, and for serving as efficient couplings in hauling the cars. When 125 it is desired to uncouple and the tension on the coupling is relaxed, either hook D, D' may be drawn outward by the attendant acting through the proper wire rope K , and so soon as it is sufficiently moved outward its pin 130 D^2 engages with the catch H' and holds the hook out of the path of the corresponding hook of the opposite coupling. This condition obtains because the spring M is restrained by the presence of the short arm B^2 of the op-

posite coupling. So soon as the cars are drawn apart a little, the short arm B² of one coupling-head by moving away releases the spring M of the opposite coupling, and consequently the catch-lever of such opposite coupling, and turns the latter in the direction to disengage the catch H'. This liberates the hook D, D', and it is moved promptly inward by its spring F and is thereafter in position to again serve in coupling the cars together.

I claim as my invention—

1. The hook D, D', subject to the influence of a spring F and mounted pivotally by means of the pin E in a casing or head, having the long arm B' and short arm B² attached to the car with liberty to turn laterally on such pin to a small extent, and with means as the rope K and operating levers L and L' for drawing the hook out of use when required, all substantially as herein specified.

2. The hook D, D', subject to the influence of a spring F, and mounted pivotally in a casing or head, having the long arm B' and short arm B² attached to the car by a pivot or pin C with liberty to turn laterally to a small extent, and with means as the rope K and operating levers L and L' for drawing the hook out of use when required, and with the spring-catch H' and the pin D² on the hook D, D', to hold such hook in the outward position when required, as herein specified.

3. The hook D, D', subject to the influence of a spring F, and mounted pivotally in a cas-

ing or head, having the long arm B' and short arm B² attached to the car with liberty to turn laterally to a small extent, and with means as the rope K and operating levers L and L' for drawing the hook out of use when it is desired to uncouple, and with the spring-catch H' engaging with a pin D² on the hook D, D', to hold the latter in the outward position when required, and with means as the spring M liberated by the removal of the short arm B² for automatically detaching such catch when the hooks D, D', have moved beyond the position to engage, all substantially as and for the purposes herein specified.

4. The automatic coupler described, having the hook D, D', turning on a pin E, in combination with the spring F and with the head B having a long arm B' and short arm B², and with the draw-bar A and pin C allowing lateral motion, and with the spring-catch H' and means as the spring M, arm P and pin P' working in the slot h² controlled by the arm B² of the opposite coupling for automatically disengaging it when the cars are moved apart, all combined and arranged for joint operation substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

W. H. ROBINSON.

Witnesses:

CHARLES R. SEARLE,
H. A. JOHNSTONE.