

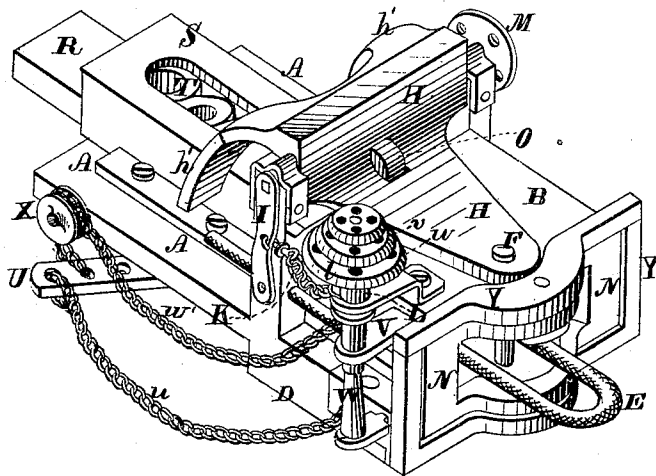
3 Sheets—Sheet 1.

W. L. YOHN.
CAR-COUPLING.

No. 178,828.

Patented June 13, 1876.

Fig. 1.



WITNESSES-

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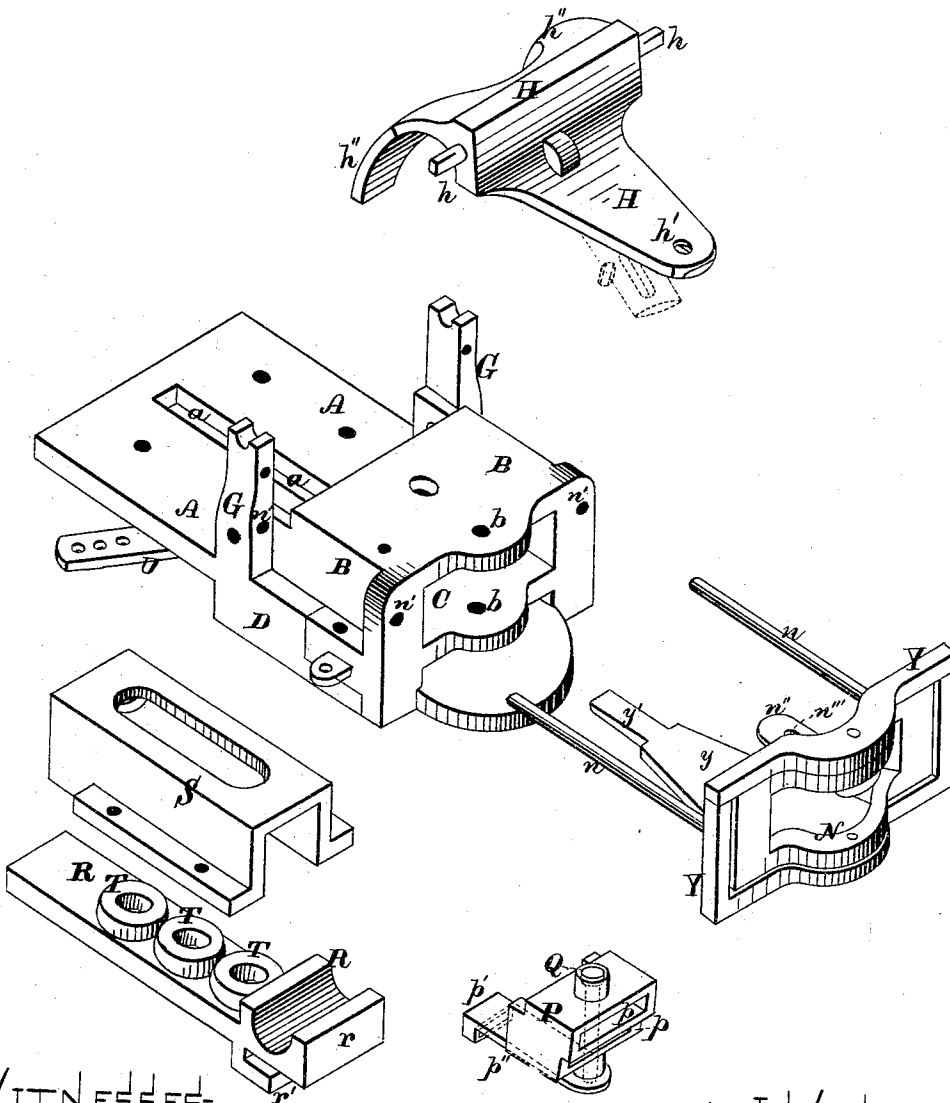
Wm L. Yohn, by
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Fig. 2.



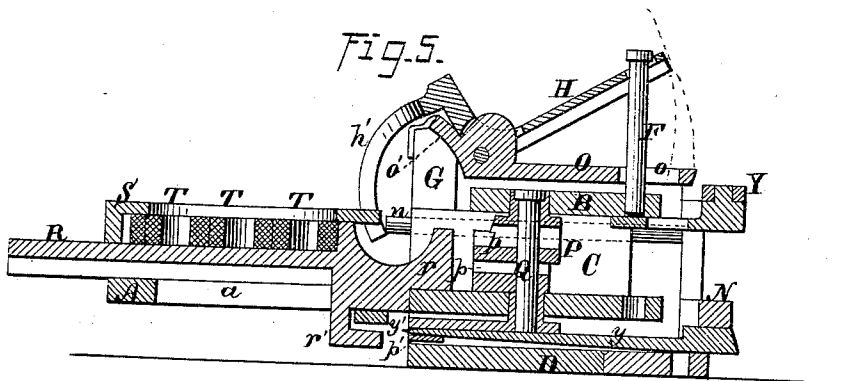
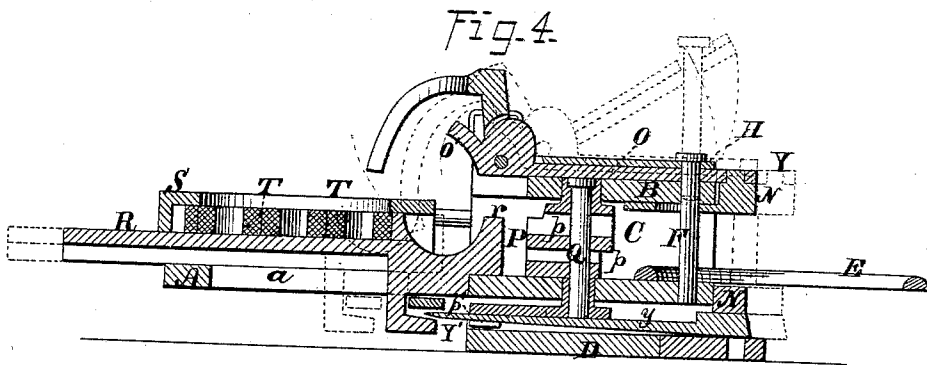
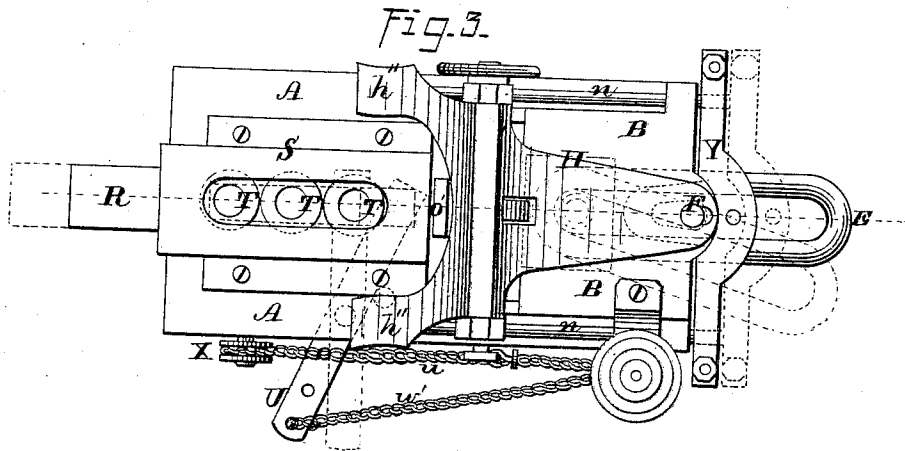
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UNITED STATES PATENT OFFICE.

WILLIAM L. YOHN, OF ALLENTOWN, PENNSYLVANIA.

IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. 178,828, dated June 13, 1876; application filed May 9, 1876.

To all whom it may concern:

Be it known that I, WILLIAM L. YOHN, of Allentown, in the county of Lehigh and in the State of Pennsylvania, have invented certain new and useful Improvements in Car-Couplings; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved coupling detached from a car. Fig. 2 is a like view of the body or frame of said coupling and its operative parts separated from each other. Fig. 3 is a plan view of the upper side of the same, the dotted lines showing changes in the position of the buffer and link. Fig. 4 is a vertical central section of said coupling upon a line passing from front to rear, the dotted lines showing the coupling-pin in position for engagement with the link of another coupling; and Fig. 5 is a like view of the same, the arrangement of parts last named being shown by the full lines.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to increase the facility and safety with which cars may be connected with or disconnected from each other; and to this end, it consists, principally, in the means employed for raising, setting, and tripping the coupling-pin, substantially as and for the purpose hereinafter specified.

It consists, further, in the means employed for connecting a link permanently to or with the coupling, substantially as and for the purpose hereinafter shown.

It consists, further, in the means employed for automatically changing the position of the outer end of the permanently-connected link, so as to cause it to coincide with the opening of the opposite coupling, substantially as and for the purpose hereinafter shown and described.

It consists, further, in the construction of the spring push-bar, and in the means employed for moving the same longitudinally within its bearings, substantially as and for the purpose hereinafter specified.

It consists, finally, in the means employed for manipulating the pin-raising lever, sub-

stantially as and for the purpose hereinafter shown.

In the annexed drawings, A represents a plate of metal, which has a rectangular shape in plan view, and upon its upper side, at one end, is provided with a vertical enlargement, B, that contains a horizontal opening, C, which extends lengthwise of said plate, and is open at its ends. Upon the lower side of the plate A, immediately below the housing B, is a second housing, D, which corresponds in shape and horizontal dimensions with the former, but has only one-fourth its vertical dimensions. The housing B corresponds to the usual recess formed within a draw-head for the reception of a link, E, and near its front end is provided with suitable vertical openings *b* and *b*, through which a coupling-pin, F, may be inserted for the purpose of locking said link in engagement with said draw-head. In order that said pin may be withdrawn, when desired, the following-described mechanism is employed: From each edge of the plate A, at the rear end of the housing B, a standard, G, extends upward to a height equal to about twice the height of said housing, and at its upper end furnishes a bearing for one of the pivotal bearings *h* of a plate, H, which plate extends laterally between said standards, and from its said pivotal bearings extends downward to the upper face of said housing, and thence along the same to its front end, at which point the front end of said plate H is provided with an opening, *h'*, through which the pin F passes. Secured upon the outer end of one of the pivotal bearings *h* of the plate H is a bar, I, that extends downward, and at or near its lower end has attached one end of a chain, K, which from thence extends forward, and has its opposite end secured to or upon the periphery of a sleeve, L, that is journaled vertically, and is provided with a hand-wheel, *l*, by means of which said sleeve may be rotated. As thus arranged, the rotation of the sleeve L will cause the chain K to be wound thereon, the lower end of the lever or bar I will be drawn forward, and the front end of the plate H will be raised, so as to disengage the pin F from the link E. A similar result is obtained by securing to one or both of the pivotal bearings

h a hand-wheel, M, which may be grasped by a person when standing at the side of the car to which the coupling is attached.

In order that the coupling may be set so as to cause the pin F to automatically engage with a link when the ends of two cars are brought into contact, the mechanism described below is used.

A buffer, N, which corresponds in shape to the front end of the housing B, is provided upon its rear face with two rods, *n* and *n*, that pass rearward through suitable openings, *n'* and *n'*, and enable said buffer to be moved freely toward or from said housing in a horizontal plane. To the upper central portion of the buffer N is attached a plate, *n''*, which from thence extends rearward, within the upper portion of the opening C, beneath the opening *b* that contains the pin F. A slot, *n'''*, formed within the plate *n''*, permits said pin to be inserted in place when said buffer is at or near the inner limit of its motion; but when said buffer is drawn outward until the solid portion of said plate *n''* is beneath the opening *b*, said pin cannot be moved downward to place, but will rest upon and be sustained in an elevated position by said plate, as shown by Fig. 5. If, now, the cars are moved together, the buffer N will be pressed inward and the pin F released and permitted to drop to place. The buffer N is thrown outward, so as to sustain the pin, whenever the latter is raised, by means of the following construction: An arm, *h''*, extends, in a curve, rearward and downward from each side of the plate H, above the pivotal bearings *h* and *h*, and terminates at a short distance in rear of the end of one of the rods *n*; and when said plate is moved, so as to raise the pin F, said arm impinges upon said rod and moves the same and the buffer N outward. Upon moving said buffer inward, said rods operate to return said plate to its normal position.

The operation of the buffer N is assisted and the position of the lower end of the pin insured, when said pin is raised, by means of a tongue, O, which has the form in vertical section, shown in Fig. 5, is hinged at its rear end within the rear portion of the plate H, and extends forward between the lower face of the latter and the upper face of the housing B, at the transverse center of said parts, the outer end of said tongue being flush with the forward end of said plate, and a slot, *o*, being provided in and through the same for the passage of the pin F. A stop, *o'*, upon the rear end of the tongue O, engages with the plate H, and causes the outer end of said tongue to commence rising just before said plate has lifted the pin F above the plate *n''*, which position said tongue prevents the lateral displacement of the lower end of said pin in the event of its being accidentally withdrawn from the opening *b*.

In consequence of the attachment of the tongue O below the pivotal bearings of the lifting-plate H, the former commences to

move forward at the instant said plate commences to rise, when, by the contact of said tongue end with the central upper portion of the buffer N, the latter is moved outward.

It is intended that one-half of the couplings shall have a link connected therewith and ready at all times to engage with another draw-head, for which purpose a block, P, is pivoted upon a vertical bearing, Q, which is placed centrally near the rear end of the opening C, and is provided with two or more horizontal openings, *p* and *p*, that have suitable dimensions to enable each to receive the end of a link, the latter, when in place, being held by said bearing-pin Q. At the rear of the block P is placed a spring-buffer, R, which is contained within a housing, S, that is secured to or upon the upper face of the plate A, and, by means of suitable springs, T and T, has its head *r* held against the rear end of the link E, so as to cause the latter to project to its full limit beyond the outer end of the draw-head. Said spring-buffer is arranged to move longitudinally, and may be pressed rearward by said link until the outer end of the latter is in rear of the coupling-pin F and sufficient space is secured for the insertion of another link within the draw-head.

In order that the buffer R may be retracted when desired an arm, *r''*, is secured to its lower side and, projecting downward through a slot, *a*, that is formed within the plate A, engages with one end of a transverse lever, U, which is pivoted upon the lower face of said plate. A chain, *u*, secured to the outer end of the lever U, extends to and is connected with the periphery of a vertical sleeve, V, that forms the bearing for the sleeve L, and at its upper end is furnished with a hand-wheel, *v*, by means of which said sleeve is rotated, so as to wind said chain thereon. A shaft, W, journaled within suitable bearings and passing vertically through the sleeves L and V, with a hand-wheel, *w*, secured upon its upper end, has attached to its periphery one end of a chain, *w'*, which chain from thence passes rearward around a pulley, X, and thence forward to the lever U, to which it is connected. By rotating said shaft said chain will be wound thereon and said lever moved rearward, so as to force the spring-buffer outward in the event of the "sticking" of the latter.

In coupling cars upon a curve the outer end of the link that is engaged with a coupling will not naturally occupy the necessary lateral position to enable it to pass into the opposite draw-head, said link end being outside of the center of the track, and, unless guided, liable to pass to the outer side of said draw-head. To obviate this difficulty I provide a frame, Y, which corresponds in shape to and loosely incloses the edge of the buffer N, and is pivoted to the upper and lower edges of the same, at its transverse center, so as to be capable of an independent oscillating motion in a horizontal plane. To the lower edge of the frame Y is attached a plate, *y*, which extends horizontally

rearward, and terminates in a tongue, y' , that passes into a loop, p' , which is formed upon an arm, p'' , that extends rearward from the lower side of the block P. If, now, the frame Y is oscillated upon its pivotal bearings, the tongue y' will be moved laterally, and, through the arm p'' , will cause the block P to be turned, so as to change the front end of the link E from one side to the opposite side of the draw-head, said link end being turned toward the side of said frame, which is pressed rearward. This arrangement causes the link to be always turned toward the inner side of a curve, as the moving frame will first come into contact with the draw-head of the opposite car at its inner end.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. In combination with the coupling-pin F, the plate H, pivoted to or between the standards G and G, and provided with an opening, h' , for the reception of said pin, the lever I attached to one of the bearings of said plate, the journaled sleeve L, and the chain K, which extends between said sleeve and lever, substantially as and for the purpose specified.

2. In combination with the link E and with the opening C, of the housing B, the block P, provided with the link-openings p and p , and pivoted within said opening C by means of the

vertical bearing Q, substantially as and for the purpose set forth.

3. In combination with the block P, pivoted within the opening C and provided with the rearward-extending arm p'' and loop p' , the frame Y, pivoted to or upon the buffer N and provided with the plate y and tongue y' , that engages with said loop, substantially as and for the purpose shown and described.

4. In combination with the link E, contained within an opening, p , of the block P, the push-bar or buffer R, contained within the housing S, held with a yielding pressure against the rear end of said block by the springs T and T, and moved longitudinally by means of the lever U, sleeve V, shaft W, and chains u and w' , substantially as and for the purpose specified.

5. In combination with the plate or lever H, constructed as shown, the tongue O pivoted within the lower side of the same, and arranged to operate as a guide for the coupling-pin F, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of April, 1876.

WM. L. YOHN.

Witnesses:

GEO. S. PRINDLE,
WILLIAM FITCH.