(No Model.) 2 Sheets—Sheet 1.

H. W. SPRAGUE.

CAR COUPLING.

No. 421,446. Patented Feb. 18, 1890.

Fig. 1.

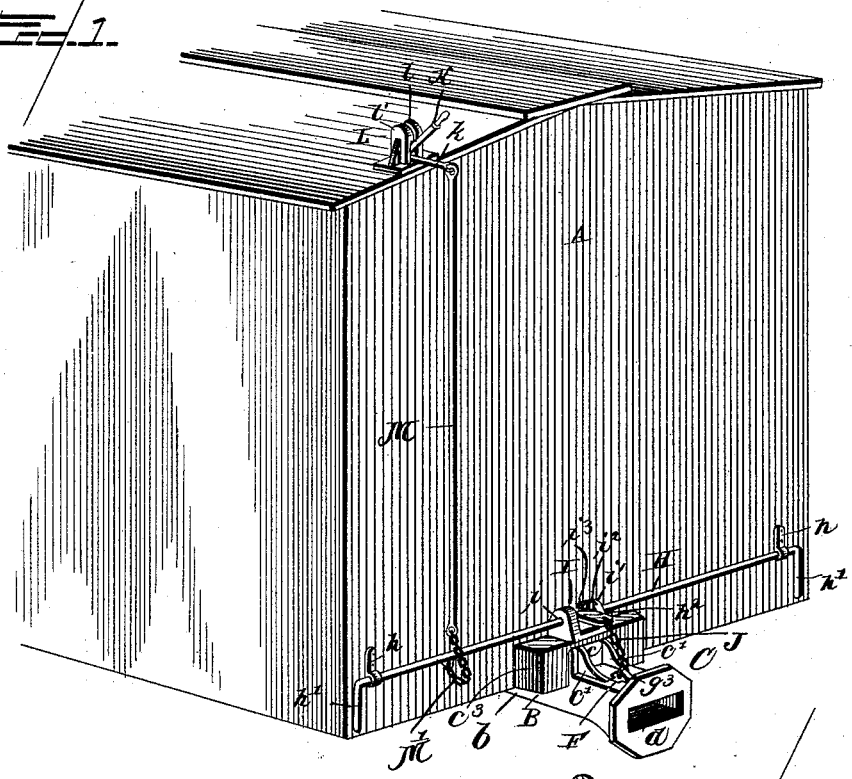


Fig. 2.

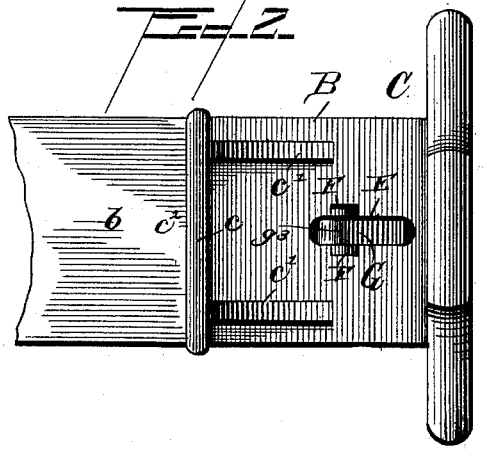
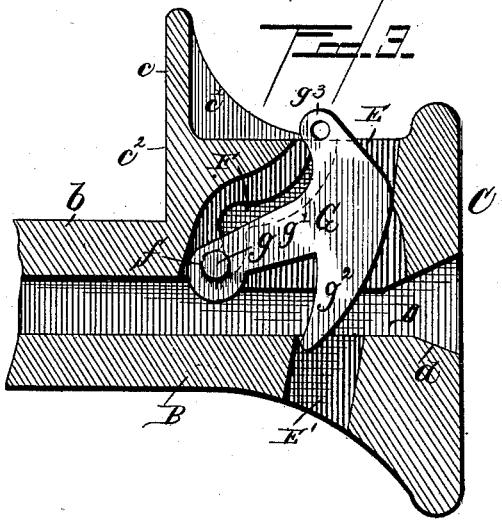


Fig. 3.



Witnesses

Henry F. Dieterich

Wm. J. Littell,

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Henry W. Sprague,

By his Attorney.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

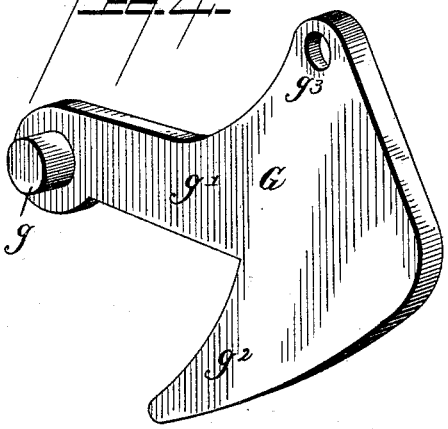


Fig. 5.

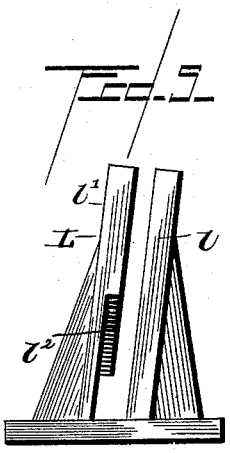


Fig. 6.

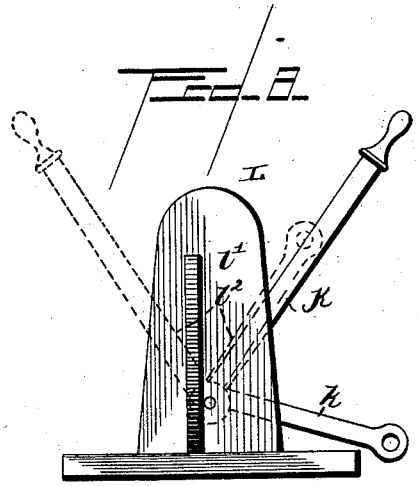
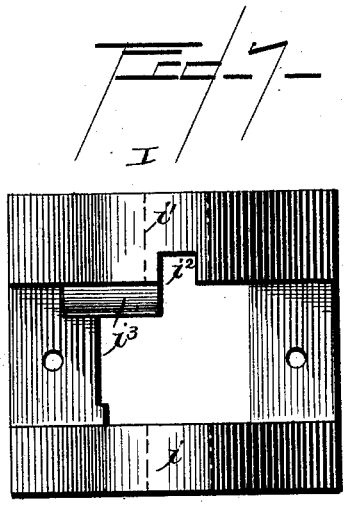


Fig. 7.



Witnesses
Henry J. Dieterich
Wm. J. Littell,

Inventor:
Henry W. Sprague,
By his Attorney,
L. R. Littell

UNITED STATES PATENT OFFICE.

HENRY W. SPRAGUE, OF SIOUX FALLS, (DAKOTA TERRITORY,) SOUTH DAKOTA, ASSIGNOR OF FIVE-EIGHTHS TO RICHARD F. PETTIGREW AND EDWARD C. DUNNING, BOTH OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 421,446, dated February 18, 1890.

Application filed July 3, 1889. Serial No. 316,371. (No model.)

To all whom it may concern:

Be it known that I, HENRY W. SPRAGUE, a citizen of the United States, residing at Sioux Falls, in the county of Minnehaha and Territory of Dakota, have invented certain new and useful Improvements in Car-Couplings; and I do 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.

This invention relates to car-couplings of that class embodying an automatic coupling-hook and means for elevating the latter; and it has for its object to provide a simple and improved coupling of this character possessing advantages in point of inexpensiveness, durability, and general efficiency.

In the drawings, Figure 1 is a perspective view of the end of a car, showing my improved coupling applied thereto. Fig. 2 is a top or plan view of the coupling detached. Fig. 3 is a longitudinal sectional view of the same. Fig. 4 is a detail perspective view of the coupling-hook. Fig. 5 is a front elevation of the bearing and locking bracket for the upper hand-lever. Fig. 6 is a side elevation thereof, the method of locking the lever being illustrated in dotted lines. Fig. 7 is a top or plan view of the lower locking-bracket.

Corresponding parts in the figures are denoted by the same letters of reference.

Referring to the drawings, A designates the end of a car, to which is applied in any suitable manner my improved coupling B, the latter being preferably cushioned to prevent jarring when an opposing coupling comes in contact therewith. The coupling B comprises the rear portion *b*, projecting under the car, and the draw-head C at the front thereof, said draw-head being preferably vertically enlarged at its upper side, as shown. At the upper rear edge of the draw-head is provided a flange *c* on a line with said rear edge, and from said flange project forwardly ribs *c' c'*, the enlargement of the draw-head and the flange forming a shoulder c^2, adapted to come in contact with a cross-piece c^3, secured to the car to limit the rearward movement of the coupling. All of the above-described parts of the draw-head are preferably cast integral.

The draw-head is provided with a link-chamber D, having a flaring mouth *d*, and from said link-chamber is formed a vertical longitudinally-elongated slot E, extending to the top of the draw-head. A smaller slot E' is formed in the lower portion of the draw-head, extending from the lower side thereof to the link-chamber. The slot E is longitudinally enlarged at its rear end under the top surface of the draw-head, as shown, and from the top of the draw-head at the rear end of the slot are formed two corresponding irregularly-curved grooves F F, extending rearwardly and downwardly to near the link-chamber, where they terminate in enlarged ends *f f*, said grooves being formed in the walls of the slot E. The ends *f* of these grooves form the seats for the bearing *g* of a coupling-hook G. The latter comprises the horizontal arm *g'*, at the front end of which is the hook proper g^2, projecting downwardly and rearwardly and having its front side curved. Projecting upwardly and rearwardly from the arm *g'* and above the draw-head is an arm g^3.

From the foregoing description it will be obvious that when the bearing *g* of the coupling-hook has been passed down through the grooves F into the seats at their lower ends the hook is entirely contained within the draw-head, with the exception of the end of the lifting-arm *g*, and by reason of the formation of the grooves the coupling-hook is locked in its proper position against ordinary displacement.

For elevating the coupling-hook a horizontally-disposed lever H is provided, bearing in suitable brackets *h h*, secured upon the end of the car, near each side thereof, and in a centrally-disposed bracket I, mounted upon the cross-piece c^3, said lever being provided with operating-handles *h' h'* at its ends. The bracket I comprises two upwardly-projecting lugs *i i'*, respectively. Between these lugs projects outwardly from the lever H an arm h^2, said arm extending over the draw-

head, and is connected with the lifting-arm of the coupling-hook by a short chain J. The lug i' of the bracket I is provided with a centrally-disposed vertical slot i^2, having at its rear edge a projecting stop i^3, said groove being adapted to receive the arm h^2 when the coupling-hook is elevated to retain the latter in that position, while the stop serves to prevent the withdrawal of the coupling-hook too far from the draw-head.

To facilitate the operation of the coupling from the top of the car, I have provided a hand-operating lever K, pivotally mounted in a bracket L, disposed upon the roof of the car. The bracket L comprises a base-plate secured to the car-roof, from which project at an incline thereto two parallel arms l l', respectively, the latter one being provided with an inwardly-projecting V-shaped portion l^2, forming a shoulder, behind which the lever K is adapted to be locked. The latter is acutangular in shape, and is pivoted between the arms l l', near their lower ends, said lever being of about the thickness of the space between the said arms.

When it is desired to lock the lever against movement, the same is thrown backward or forward beyond one or the other of the shoulders formed by the portion l^2, when it is thrown toward the latter and in engagement therewith.

The outer end k of the lever K is connected with an arm h^2, projecting at right angles from the lever H by a rod M, pivotally secured to the said end of lever K, the free end of said rod being connected with the arm h^2 through the medium of a short chain M'. By means of the loose connection afforded by this chain the automatic operation of the coupling-hook is in no way interfered with should the lever K be thrown forward and locked in this position.

The operation and advantages of my invention will be readily understood by those skilled in the art to which it appertains. It will be obvious that the coupling of the cars is effected automatically, and that through the means provided uncoupling of the cars is readily and quickly effected either from the top of the cars or at the side thereof.

I claim as my invention—

1. In a car-coupling, the combination, with a draw-head provided with a link-chamber and a longitudinally-disposed slot extending therefrom to the top of the draw-head, said slot being contracted at its upper end and having corresponding grooves in its side walls extending under the top of the draw-head, of a gravity coupling-hook disposed within the slot and having its bearings seated in the lower ends of the grooves, substantially as and for the purpose set forth.

2. In a car-coupling, the combination, with a draw-head provided with a link-chamber and an upwardly-convergent longitudinal slot extending from the latter to the top of the draw-head and provided with corresponding grooves in its side walls, substantially as shown, of a gravity coupling-hook having its bearings seated in the lower ends of said grooves, substantially as set forth.

3. The combination, with the end of a car, of a car-coupling carried thereby and embodying an automatic coupling-hook, a lever for elevating the latter mounted horizontally in a bearing-bracket, the latter comprising two upwardly-projecting lugs, one of which being provided with a vertical recess and an inwardly-projecting stop at the rear edge of the latter, and an arm projecting from the lever between said lugs and connected with the coupling-hook, said arm being adapted to engage the recess to retain the hook in elevated position, while the stop is adapted to limit the elevation of the said hook, substantially as and for the purpose set forth.

4. The combination, with the end of a car, of a car-coupling carried thereby and embodying an automatic coupling-hook, a lever having an arm projecting therefrom and connected with the coupling-hook, a bracket mounted on the car-top and comprising the base-plate, having two parallel arms projecting upwardly at an incline thereto, one of said arms being provided with an inwardly-projecting V-shaped portion forming locking-shoulders at either side, a lever pivoted between said arms and adapted to engage said shoulders, and a rod and chain connecting said lever with a second arm projecting from the first-mentioned lever, substantially as and for the purpose set forth.

5. In a car-coupling, the combination, with a draw-head provided with a vertically-disposed longitudinal slot extending from the link-chamber to the top of the draw-head and converging upwardly, said slot having corresponding grooves in its side walls extending under the top of the draw-head, of a gravity coupling-hook having its bearings seated in the lower ends of said groove and under the top of the draw-head, substantially as and for the purpose set forth.

6. In a car-coupling, the combination, with a draw-head provided with a vertically-disposed longitudinal slot extending from the link-chamber to the top of the draw-head and converging upwardly, said slot having corresponding irregularly-curved grooves in its side walls, substantially as shown, said grooves extending rearwardly and downwardly under the top of the draw-head, terminating in enlarged ends, of a gravity coupling-hook having its bearings seated in the latter, said hook being disposed in the said slot, substantially as and for the purpose set forth.

7. In a car-coupling, the combination, with a draw-head provided with a vertically and longitudinally disposed slot extending from the link-chamber to the top of the draw-head and converging upwardly, corresponding grooves in the side walls of said slot, extending under the top of the draw-head and with a supplementary slot extending from the link-

chamber to the bottom of the draw-head, of a gravity coupling-hook disposed within the first-mentioned slot and having its bearings seated in the lower ends of the grooves and under the top of the draw-head, substantially as and for the purpose set forth.

8. The herein-described draw-head, provided with an upwardly-projecting integral flange at its upper rear edge and with a link-chamber and vertically and longitudinally disposed slots, substantially as shown, the top one of which having downwardly and inwardly extending irregularly-curved grooves in its side walls for the reception of the bearings of a gravity coupling-hook, substantially as shown and described.

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

HENRY W. SPRAGUE.

Witnesses:

GLADYS L. DUNNING,

W. J. KENT.