

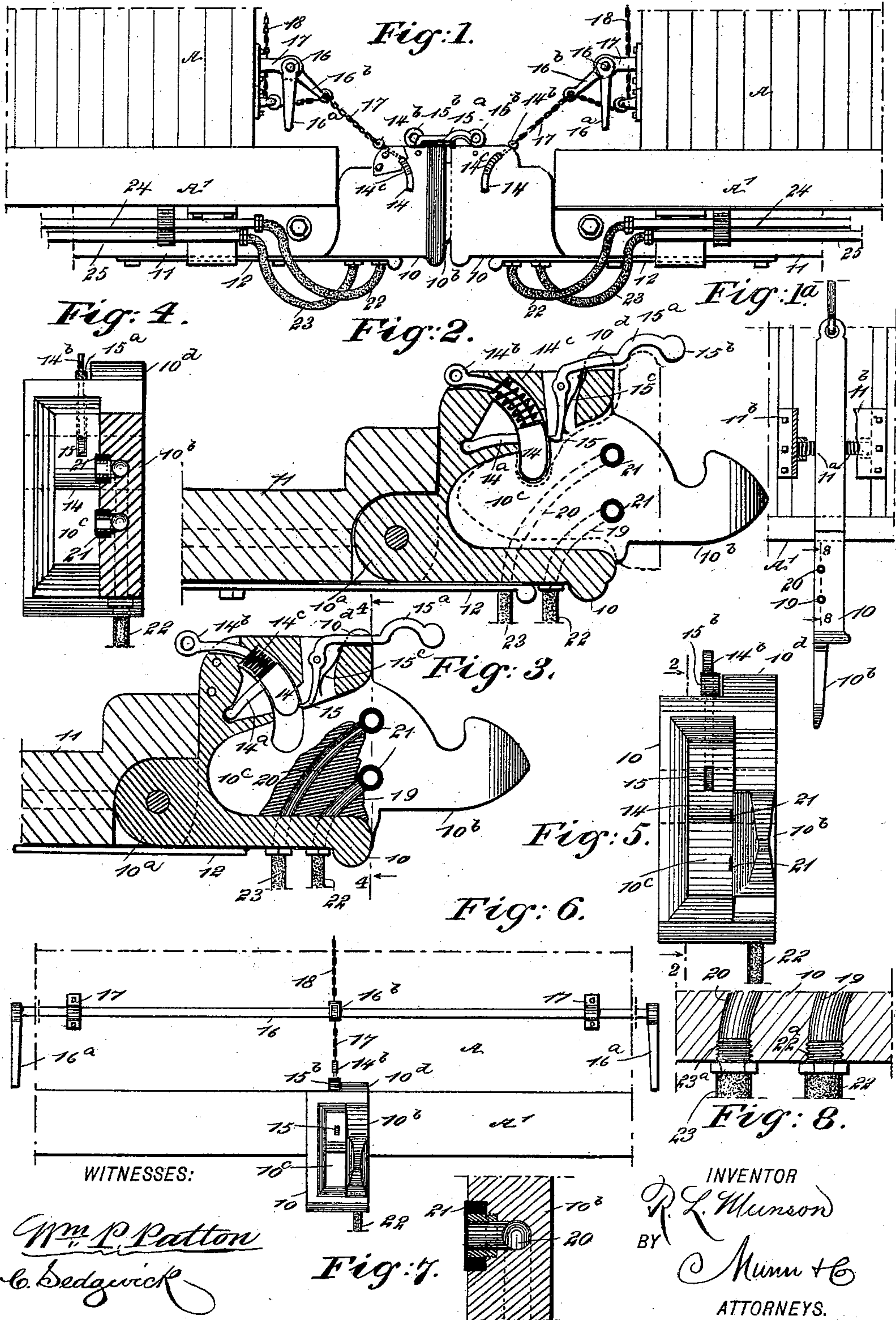
(No Model.)

R. L. MUNSON.

COMBINED CAR, AIR PIPE, AND STEAM PIPE COUPLING.

No. 538,533.

Patented Apr. 30, 1895.



UNITED STATES PATENT OFFICE.

ROBERT L. MUNSON, OF SILVER CITY, TERRITORY OF NEW MEXICO.

COMBINED CAR, AIR-PIPE, AND STEAM-PIPE COUPLING.

SPECIFICATION forming part of Letters Patent No. 538,533, dated April 30, 1895.

Application filed December 13, 1894. Serial No. 531,716. (No model.)

To all whom it may concern:

Be it known that I, ROBERT L. MUNSON, of Silver City, in the county of Grant and Territory of New Mexico, have invented a new and Improved Combined Car, Air-Pipe, and Steam-Pipe Coupling, of which the following is a full, clear, and exact description.

My invention primarily relates to an improvement in automatic car couplings of the hook and catch type, and one object of my invention is, to provide a novel car coupling of the type indicated, which will be adapted for an automatic interlocking connection with a similar car coupling, and afford means for the safe detachment of two engaged couplings on cars, from either side of the roofs of said cars.

A further object of my invention is to provide a car coupling of the hook and catch style, which will afford convenient and reliable means for the simultaneous coupling of air brake pipes and steam heat pipes, on cars having the improved car couplings, when said car couplings are coupled together for the making up of a train, the connection of the said pipes being detached when the car couplings are separated, thereby dispensing with the usual handling of couplings for the air and steam pipes, to couple or detach them when cars of a train are connected or detached.

To these ends, my invention consists in the construction and combination of parts, as is hereinafter described and indicated in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a side view of two cars in part, showing the improvements applied and the cars coupled therewith. Fig. 1^a is a reverse plan view in part of a car-frame and the improved car-coupling thereon. Fig. 2 is an enlarged sectional side view of the improved coupling device, taken substantially on the line 2 2 in Fig. 5 and shown coupled with the front portion of a similar coupling. Fig. 3 is a sectional side view of the same parts shown in Fig. 2, representing them in uncoupled adjustment. Fig. 4 is a transverse sectional view on the line 4 4 in Fig. 3 in direction of arrows in said figure. Fig. 5 is a front end view of

the improvements detached from a car. Fig. 6 is a front end view of the improved coupling in place on a car shown in part. Fig. 7 is an enlarged transverse sectional view of parts, substantially on the line 4 4 in Fig. 3; and Fig. 8 is an enlarged sectional side view of details on the line 8 8 in Fig. 1^a.

The drawhead 10, is formed of metal, is substantially rectangular in cross section, and has its rear end rule jointed on the forward end of the drawbar 11, the upward flexure of the joint 10^a being checked by an impinge of the shoulders on the parts that are jointed together, so that the drawhead and drawbar will be maintained in alignment by the platespring 12, that is attached to the lower side of the drawbar, and presses upwardly on the drawhead forwardly of the joint 10^a. An integral hook 10^b is formed on the drawhead along one side wall, which hook has its front end arrow-shaped, and the hook proper produced at a correct distance from the forward terminal on the upper edge of the hook body, as clearly shown in Figs. 2 and 3.

The drawhead is chambered to receive a mating hook 10^b, that is part of a similar drawhead, and for the proper operation of the coupling when these parts of two couplings are connected, the width of the chamber 10^c should be about equal with the thickness of the hook body where it joins the drawhead, the hook being tapered somewhat on the side nearest the chamber toward and near its free end, to facilitate the entrance of two hooks such as have been described, within the chambers of drawheads on which said hooks are produced.

The connected drawhead 10 and drawbar 11, are loosely secured on a car at its end and near the transverse center of the car frame, preferably by means similar to that shown in my patented car coupling, No. 480,118, wherein the drawhead and the rearwardly extended drawbar are spring-pressed laterally near a plate that loosely supports the drawbar in connection with the car frame, the rear end of the drawbar having a jointed connection with a rod that extends to a retracting spring which is located near the longitudinal center of the car frame, the said spring being connected to the car couplings at each end of the car.

The springs supports 11^a for the drawbar 11, at its sides, are represented in Fig. 1^a, the central retracting spring being omitted, as either a spiral or elliptical spring of common form may be employed to draw the coupling against the timber that extends across the car frame at each end of the said frame. The springs 11^a afford elastic support at the sides of the drawbar which is held in connection with the car frame A', by the plate 11^b, so that two drawheads 10 will, when arranged one at each end of a car frame as has been explained, be adapted to yield a limited distance sidewise, and have a spring cushioned connection with each other independent of the car. The ordinary means for connecting the drawhead at its rear end to the car timbers may be substituted for the patented device hereinbefore mentioned if preferred.

The top wall of the drawhead chamber 10^c is made thicker than the lower wall of the same, and slopes inwardly and downwardly at a correct inclination to adapt said wall to guide the hook body 10^b into the chamber when two of the improved car couplings are being connected.

In the top wall of the chamber 10^b a suitably formed recess is produced, to receive and serve as a pocket to contain the latch block 14, which block is parallel on its sides and is curved edgewise, as shown in Figs. 2 and 3, the convex edge of said block being located toward the mouth of the chamber 10^c. The latch block 14, is supported to rock upwardly by an arm 14^a, that projects from its rear edge near the upper end of said block, the arm which is rounded at the rear end having a seat in a semi-cylindric recess, or equivalent support produced at a lower rear corner of the recess wherein the arm is designed to vibrate when the latch block is moved up or down. A curved lifting rod 14^b is extended from the top of the latch block 14, the curvature of which rod corresponds with that of the block, and as is indicated in Figs. 2 and 3, the lifting rod is loosely located in a curved channel formed to receive it in the top wall of the chamber 10^c, the length of the rod permitting it to project a short distance out of the channel at its upper end when the latch block is fully depressed.

There is a coiled spring 14^c mounted on the lifting rod 14^b, and made to press with its ends on the top wall of the recess occupied by the latch block, and on the upper end of said latch block, the expansion of the spring tending to depress the latch block so that it will be normally located in the position indicated in Fig. 2.

The lower end of the latch block 14, is rounded edgewise, and the length of the block is so proportioned that when it is fully depressed this end will be projected a short distance within the chamber 10^c, and thus be adapted to receive the impinge of a hook 10^b, that may be inserted within the chamber, the impinge of the arm 14^a on the bottom of the

recess it works in, serving to determine the degree of downward movement given to the latch block 14 by an expansion of the spring 14^c. The springs 14^c, by their force always depress the blocks 14 as far as they can move when the blocks are not restrained from rocking downwardly, as will presently be described.

In front of the latch block 14, a detent hook 15 is pivoted in a vertical slot formed to receive it in the top wall of the chamber 10^c, and as represented in Figs. 1, 2 and 3, there is a bend produced in the hook body above its pivot, so as to project an arm 15^a forwardly, and nearly at a right angle with the depending portion whereon the hook is produced at the lower end. The arm 15^a is bent edgewise so as to curve it upwardly and then forwardly near its forward extremity, whereon a rounded enlargement 15^b is formed.

On the upper front edge of the drawhead above the hook 10^b, a rounded rib 10^d is formed, which rib is in the path of the enlargement or boss 15^b on the detent hook of a drawhead the coupling hook 10^b of which is entered within the chamber 10^c, to produce a coupled connection between two of the improved car couplings. The boss 15^b on the arm of each detent hook 15, will glide over the rib 10^d when the hooks 10^b of two car couplings are slid within the chambers 10^c, or are withdrawn from the latter, and this action will evidently vibrate the lower ends of the limbs whereon the hooked ends 15 are formed, the latter being projected toward the rounded edges of the latch blocks 14, so that when the latch blocks are forced upwardly against the stress of the springs 14^c, the weight of the arms 15^a, together with the pressure of plate springs 15^c that engage the front edges of the depending limbs having the hooks 15, will cause the hooks 15 to forcibly engage with the rounded lower ends of the latch blocks 14.

On the end wall of each of two cars A, having the improved couplings, a releasing device of similar construction is provided, these each comprising a rock shaft 16, that is journaled in boxes 17, which are secured to the car end wall, so as to maintain the shaft horizontal and properly projected away from said end wall. A crank arm 16^a is formed or secured on each end of the rock shaft 16, and as the shaft is slightly projected at each end beyond the sides of the car body, it will be seen that the shaft can be safely rocked from either side of the car by a trainman.

Intermediately of the ends of the rock shaft 16, a rock arm 16^b is secured so as to project forwardly therefrom, in line with the lifting rod 14^b, and is connected with the upper end of the rod by a link or chain, the latter being shown at 17 in Fig. 1. There is a chain or other flexible connection 18, secured by one of its ends to the rock arm 16^b, and thence extended over a pulley 18^a, or other support on the end of the car, from which support the chain is upwardly projected of sufficient

length to be adapted for manipulation from the top of the car, so that the latch block can be raised by a man on the roof of the car.

It will be evident from the foregoing description, that when two cars having the improved car couplings are shoved toward each other, the hook 10^b on each drawhead will freely slide into the chamber 10^c that the hooks lie opposite, and from the formation of the hooks their free ends will be adapted to raise the latch blocks 14 sufficiently to allow the blocks to interlock with the shoulders of the hooks, as is indicated by full and dotted lines in Fig. 2. When the couplings are to be detached, the rock shafts 16 are then rocked either simultaneously or one after the other, so as to lift the latch blocks far enough for the release of the coupling hooks 10^b, which blocks are at the same time engaged by the detent hooks 15, the latter serving to hold the blocks elevated until the arms 15^a of the detent hooks are raised on the approach of a similar car coupling as has been previously described.

The invention also comprehends an automatic coupling connection for the air brake pipe, and steam heat pipe of a train of cars having the improved car couplings, and to this end two passages 19, 20, which are independent of each other, are formed in the body of the coupling hook 10^b on each drawhead. As clearly shown in Figs. 3, 7 and 8, the passages 19, 20 are produced in the solid material of the hook body by either coring the mold previous to casting the drawhead, or boring the said ducts or passages in the hook body after casting the same into form.

Preferably the passages for air and steam are formed with cores, and they are made to extend from two points in the lower edge of the hook body upwardly and forwardly, and kept properly separated, their upper ends that may, and preferably do lie in the same vertical line one above the other, being intersected by short passages that extend from the inner surface of the hook body, thus laterally extending the passages 19, 20 through the inner face of the hook 10^b near its junction with the drawhead front end.

As shown in Fig. 7, there is a washer 21 made of gum or other slightly yielding material, introduced and secured within an annular recess around each terminal of the passages or ducts 19, 20, where they cut through the inner surface of the hook body 10^b, the gum washers having a slight projection from said surface, as is clearly shown in Figs. 5 and 7, and as represented in the last named figure and also in Fig. 4. The gum rings or washers are each held in place by a ferrule that is threaded on its inner end to engage a thread formed in the lateral portion of each passage. The rings 21 may also be retained in place by screwing them into a thread cut in the side wall of the recess they occupy, or by any other suitable means.

The lower ends of the steam and air pas-

sages 19, 20, are adapted by internally threading them, or by any other available method, to receive and form a tight joint with the ends of two flexible tubular connecting pipe sections 22, 23, the latter being formed preferably of gum hose of proper strength to resist pressure, such in fact as is now in common use for the connection of ends of steam and air brake pipes on cars having such fixtures as a part of their equipment.

The ends of the hose sections 22, 23, that are attached to the coupling hook 10^b, are provided with threaded thimbles such as 22^a, 23^a, plainly shown in Fig. 8, or other devices for the same purpose may be used if preferred, and if the thimbles are used they can be screwed into threads formed for their reception in the walls of the passages 19, 20, at their lower ends. The hose sections are afforded a sufficient length to permit them to be curved and not contract their diameters, and at their rear ends have a steam and air tight connection effected with ends of metal steam and air brake pipes 24, 25, that extend throughout the length of the car body as usual.

As the drawhead and drawbar of the improved car coupling are jointed together, and spring supported so as to adapt them to yield under pressure a limited degree, both laterally and downwardly, the proper coupling together of the couplings on two cars that are not in exact alignment at their ends is assured, as each coupling will move when its coupling hooks enter the chambers of the drawheads, and thus compensate for the slight deviations from true alignment had by the drawheads of both couplings.

It will be apparent that if a number of cars each having the means for joining the steam and air brake pipes 24, 25, at the car couplings, are shoved toward each other on the same railroad track, the coupling hooks 10^b of adjacent drawheads 10, will enter the chambers 10^c of said drawheads, and cause the joint washers 21 on each coupling hook to slide over and rest upon each other in pairs, which will form continuous air and steam tight conduits from one end of the train to the other. As the pipes 24, 25, are supplied with air and steam in the usual way, it will be seen that their manner of connection which has been described, adapts them for service as effectively as if the junctions of the pipe ends on each car with those on an adjoining car, were produced with detachable couplings such as are in ordinary use, and the time and labor required to handle such connections are saved, the connection or detachment of air brake and steam heat pipes on a train being as reliably effected by the use of the improved connecting devices therefor, and in much less time than is required for the work of connecting by the usual methods.

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

1. The combination, with a drawhead hav-

ing an integral hook forwardly extended along one side, and a chamber within the drawhead nearly parallel with and rearward of the hook, of a latch block curved edgewise and rounded
5 on the lower end, a lateral arm thereon fulcrumed in a recess wherein the arm and latch block move, a curved lifting rod on the top of the latch block and extending out of the drawhead, a spiral spring pressing the latch block
10 into the chamber, and a detent hook having a forwardly projecting arm adapted to be moved for relasing said hook from contact with the latch block when said arm is impinged by a rib on an approaching drawhead
15 of similar form, substantially as described.

2. In a car coupling a draw-head having a hook fixed to and projecting from its forward face at one side, the other side of said draw-head being provided with a recess extending
20 rearwardly from the rear portion of the said hook and adapted to receive a similar hook on an opposing draw-head, a locking device located on the draw-head and adapted to engage a hook inserted in the recess during the
25 coupling operation, and a detent to hold said locking block out of operative position, substantially as set forth.

3. In a car coupling, the combination of a draw-bar, a spring secured to the lower part
30 thereof and projecting beyond the forward end of the same, a draw-head pivoted to said forward end of the draw-bar and adapted to be supported on the forward projecting end of the spring, said draw-bar and draw-head
35 having abutting shoulders at their upper parts adapted to engage one another and hold the draw-head in a horizontal position, said drawhead having a fixed hook projecting from
40 at its other side with a recess located behind

said hook and adapted to receive a similar hook on the other draw-head when the cars are to be coupled, and a locking device on the draw-head to engage the hook in said recess during the coupling operation, substantially as set forth. 45

4. In a car coupling, the combination of a draw-head having a forwardly projecting hook fixed to one side of its forward end and having a recess formed at its other side behind said hook in position to receive a similar
50 hook formed on an opposing draw-head, a curved locking block pivoted to play in a curved chamber formed in the draw-head and communicating with the recess, said locking
55 block being adapted to engage the hook in said recess during the coupling operation, and being provided with a curved reduced tail and a spring to actuate said locking block, said
60 spring mounted on the tail of the block with one end bearing on the end of the block and the other end bearing on the rear wall of the chamber substantially as set forth.

5. In a car coupling, the combination of a drawhead having a forwardly projecting hook
65 at its front end and provided with a recess to receive a similar hook on an opposing draw-head, a locking block mounted in a chamber formed in the drawhead communicating with the recess, said locking block being adapted
70 to engage the hook in said recess during the coupling operation and a detent adapted to hold said locking block out of operative position and provided with a tail to be engaged by the opposing drawhead, substantially as
75 set forth.

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Witnesses:

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J. J. KELLY.