

No. 778,042.

PATENTED DEC. 20, 1904.

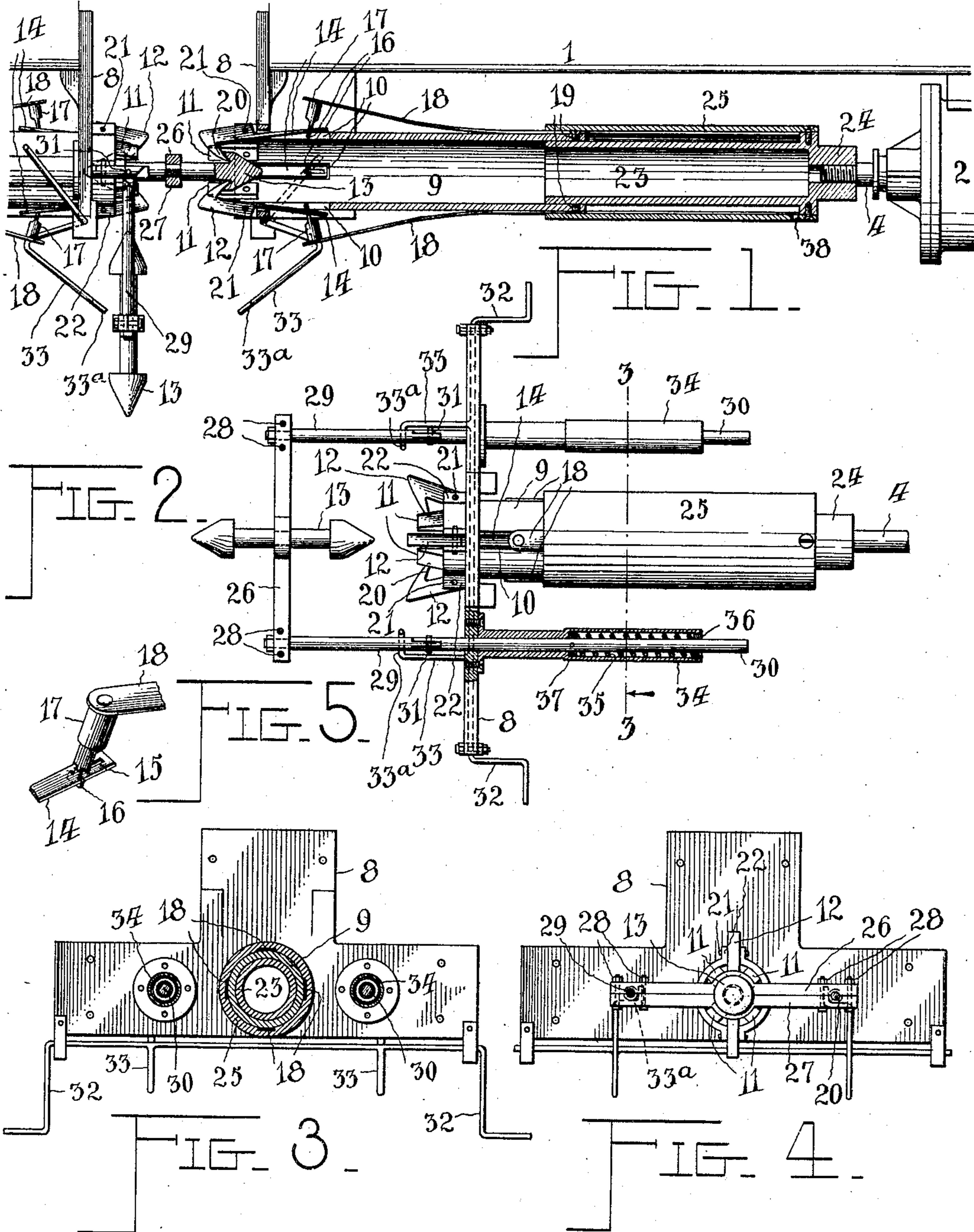
F. KALTENBACH.

CAR COUPLING.

APPLICATION FILED MAY 16, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



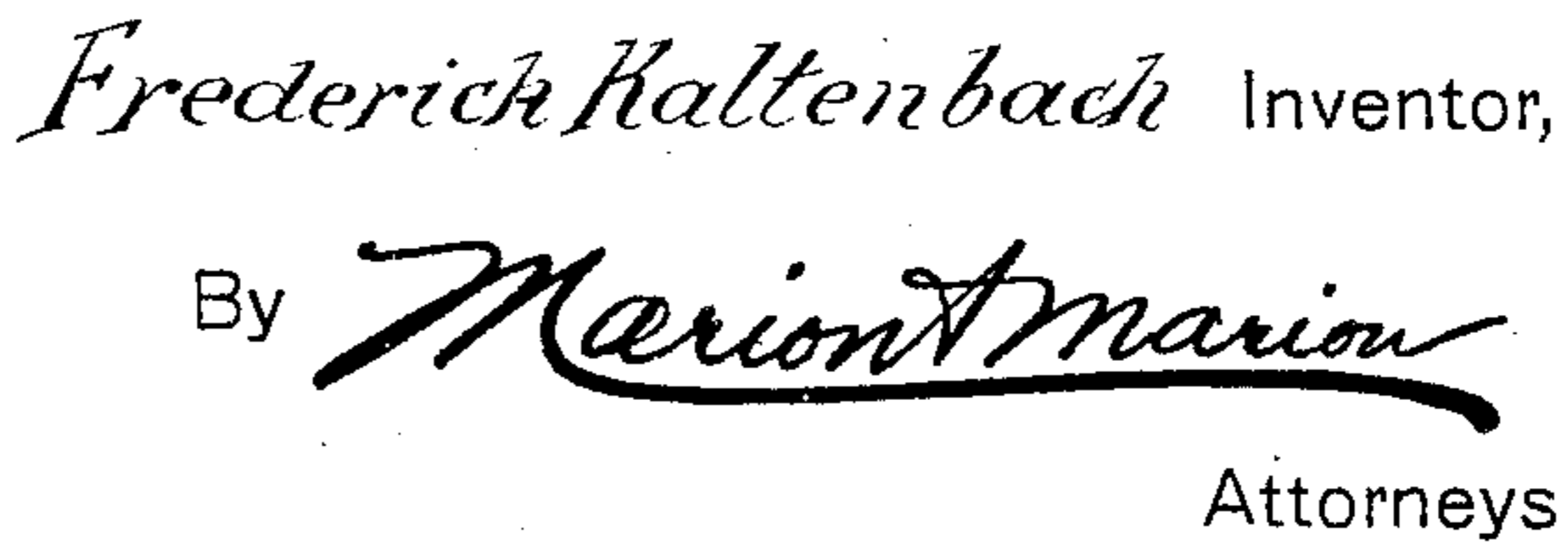
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2 SHEETS--SHEET 2.



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# UNITED STATES PATENT OFFICE.

FREDERICK KALTENBACH, OF MONTREAL, CANADA.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 778,042, dated December 20, 1904.

Application filed May 16, 1904. Serial No. 208,300.

*To all whom it may concern:*

Be it known that I, FREDERICK KALTENBACH, a subject of the King of Great Britain, residing in the city and district of Montreal, county of Hochelaga, Province of Quebec, Canada, 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, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in car-couplings of the class adapted to be used in connection with an arrow-head coupler, which coupler may interlock at predetermined times with means projected into the draw-head of the device, which means engage with the heads of the coupler and lock the same in position, so as to connect the cars.

The object of the invention is to provide means whereby a coupling is produced of this class which is power-actuated and which may be controlled from any convenient location, either in the immediate vicinity of the coupling or from a distant point when desired.

Novel features of detail construction of the device herewith illustrated are hereinafter more specifically set forth, and particularly pointed out in the claims, such features consisting of slidable means cooperating with a rigid draw-head, which slidable means render engaging means supported upon the draw-head adaptable to interlock with an arrow-head projected therein for the purpose of coupling cars of a train together, all as hereinafter more fully described.

In the annexed drawings similar numerals of reference indicate corresponding parts in all the views, wherein—

Figure 1 is a view of the contiguous ends of two cars equipped with my improved car-coupling, one of the draw-heads and appurtenant parts being shown in full lines and the other draw-head and connected parts being shown in longitudinal vertical section for convenience of illustrating the operation thereof. Fig. 2 is a top plan view of my improved coupling in position for operation. Fig. 3 is a transverse sectional view on line 3 3 of Fig. 2 looking in the direction indicated by the ar-

row. Fig. 4 is an end elevational view of the device. Fig. 5 is a detached fragmentary detail illustrating the slotted rear end portion of a rockable hook, one of a series hereinafter referred to, together with its cooperative actuating means. Fig. 6 is a side elevational view of a portion of an underframe for a car upon which is supported my improved coupling, showing the manner of connection thereof for the purpose of providing power-operating means for rendering the coupling effective and for placing the coupling in position for disengagement with the draw-head coupler which locks two adjacent coupler-sections together. Fig. 7 is a vertical sectional view illustrating a modified form of the draw-head cylinder and telescoping cylinder adapted to slide thereupon, together with a fragment of the piston-rod for actuating the same; and Fig. 8 is an end elevation of Fig. 7 shown in full lines.

Referring to the parts, 1 1 are center sills of a car underframe, upon which is carried a cylinder 2, containing the piston 3, connected with which piston is a piston-rod 4. Leading to the cylinder 2 are pressure-pipes 5 and 6, while a four-way valve 7 controls the ingress and egress of fluid through the valve-passages therein to the pipes 5 and 6, which lead, respectively, to opposite ends of said cylinder 2, so that steam or compressed air may be admitted to the cylinder to move the piston from end to end thereof as may be required for the purpose of operating the coupling features, which are hereinafter described. It will be understood that the illustration of the cylinder and pressure-supply pipes are intended merely for illustration, and any suitable arrangement may be provided within the province of a skilled mechanic for the purpose of providing means for reciprocating the piston-rod 4.

Supported in any convenient position, as by means of end sills 8 8, are draw-heads 9, which in the present instance are shown as comprising tubes or cylinders provided with longitudinally-extending channels 10, while projecting beyond the end of the draw-head 9 are guides 11, which cooperate with rockable hooks 12 to serve as means for guiding

the arrow-heads 13 into the said draw-heads for the purpose of forming a coupling or connection therewith. The rockable hooks 12 are provided with rearwardly-extending portions 14, in which are formed slots 15, (see Fig. 5,) with which slots engage approximately T-shaped ends 16 of the connecting-pins 17, which connect the rear end 14 of said rockable hooks with longitudinally-projecting springs 18, which springs 18 are, as shown, formed of flat steel strips which extend longitudinally of the draw-head 9 and are connected thereto at the rear ends by means of the pins or screws 19, as shown in the sectional view of Fig. 1. The tendency of the springs 18 is to extend outwardly—that is, radially—from the longitudinal axis of the said draw-head 9, whereby the connecting-pins 17 and the rear ends 14 of the rockable hooks 12 are carried outwardly with said springs, so that the engaging or hooked portions 20 are projected normally in a direction toward the longitudinal axis of said draw-head 9 by reason of the fact that said hook members 12 are pivoted at 21 in ears or supports 22. The said ears 22 may be formed upon the draw-head, as shown, or upon a collar especially provided therewith for the purpose of providing a support for such rockable hooks.

Slidable within the draw-head 9 is a concentrically-arranged sleeve or cylinder 23, (shown in the sectional view of Fig. 1,) which serves as a guide, and connected with the said sleeve 23 is a head 24, to which is connected the said piston-rod 4, and concentric with the said sleeve 23 and secured upon said head 24 is an outer sleeve or cylinder 25, which is reciprocatory and adapted to slide longitudinally over the exterior of the draw-head 9, thereby bringing the inner face of the exterior sleeve or cylinder 25 into contact with the said springs 18 and by reason of the relatively small diameter of the sleeve 25 causing the said springs 18 to assume a position approximately parallel with the axis of the draw-head, whereby the pins 17 are projected inwardly of the draw-head, thereby rocking the hooks 12 upon their pivots and projecting the hooked portions 20 thereof outwardly radially beyond the guides 11, before referred to, whereby the arrow-head coupler, as will be observed, may be withdrawn from the draw-head by reason of the fact that the hooks are disengaged therefrom. The coupler 13 is supported in a yoke comprising a cross-head, which cross-head includes the parallel members 26 and 27, which are connected by means of the coupling-bolts 28, so as to lock the member 13 rigidly therein by reason of the fact that the portion of the arrow-head 13 which projects between the members 26 and 27 is of non-circular form, as best shown in Fig. 1, and the members 26 and 27 rest within such non-circular portion, thereby locking the arrow-head rigidly in po-

sition to lie at right angles to the projection of the said cross-head, and the arrow-head is supported in alinement with the draw-head opening by means of the horizontal arms 29, which are best shown in Fig. 2, when the coupling is about to be effected. The rods 29 are provided with rearward extensions 30, pivotally connected therewith by means of the pins 31, so that the yoke comprising the cross-head and the rods 29 may drop to the position shown at the left in Fig. 1 or may be supported in approximate alinement with the draw-head, as may be desired, by means of the lifting-levers 32, which levers 32 project transversely of the car and are provided with forwardly-extending crank portions 33, provided with the angular extensions 33<sup>a</sup>, which are adapted to contact with the rods 29 and raise the yoke carrying the arrow-head 13 into proper position for engagement with the draw-head. Supported in approximately the plane of the draw-head are cylinders 34, through which the rods 30 are projected, and springs 35 are provided in said cylinders, adapted to bear against the head 36 of the cylinder at one end and against the collar 37, pinned upon the said rod 30, at the opposite end, whereby the rods 29 and 30 are actuated normally outwardly by the said spring 35, so as to free the arrow-head from engagement with the hooks as soon as the hooks have been disengaged therefrom by sliding the sleeve 25 longitudinally of the draw-head. It will be noticed in Fig. 1 that vent-openings 38 are provided in the outer cylinder or tube 25, so that as the said sleeves or tubes 23 and 25 are projected longitudinally of the draw-head 9 and the rear end portion of the draw-head passes within the space between the said members 23 and 25 a vent will be provided for permitting the escape of air which is compressed in the said intervening chamber by the rearward movement of the draw-head therein.

In Fig. 7 a construction is illustrated wherein the inner sleeve 23 is dispensed with, and it will be noted that the draw-head 9<sup>a</sup> therein is provided with the springs 18, as in the other views; but the exterior sleeve 25<sup>a</sup> projects over the rear end of the draw-head 9<sup>a</sup> a sufficient distance to form a supporting-bearing thereon, in which case the interior guide-sleeve 23 will not be required, and by reason of the fact that the draw-head is open at its outer end no other air-vent is required.

The operation of my improved coupling is as follows: Each coupler being equipped with a yoke carrying an arrow-head coupling-pin, if one pin is in engagement with its coupler all that will be necessary will be to withdraw the sleeve 25 from the companion draw-head, whereupon the springs 18 will cause the hook members 12 to project into the open mouth of said draw-head, whereupon the cars may be connected by simply projecting the

arrow-head into the next adjacent draw-head, whereupon the beveled end thereof will be projected between the points 20 of said hook members and will be caused to engage there-  
 5 with by reason of the pull of the springs 18 upon the longer ends 14 of said hook members. If neither coupling-pin 13 is in engagement, it will be evident that the rod 32 may be manipulated to raise the pivot-rod 29, with  
 10 its cross-head supporting the pin 13, into position in alinement with the draw-head, whereupon if two cars are brought into sufficiently close proximity the coupling will occur substantially simultaneously with both cars, it  
 15 being understood that the cylinder 25 is retracted from the draw-heads 9 and 9<sup>a</sup> during the time of coupling. When it is desired to uncouple one or more cars from the coupling-pin, one or both cylinders 25 or 25<sup>a</sup> may be  
 20 projected toward the end of the draw-head upon which said hooks are supported, whereupon the hooks will be pushed outwardly away from their engagement with the head of the coupling-pin, and as soon as this oc-  
 25 curs, there being no means for holding the coupling-pin against the action of the said springs 35, such springs will immediately become effective, and as soon as a sufficient space is provided therefor the springs will  
 30 project the rods 29 and said cross-head outwardly away from the draw-bar and carry the coupling-pin away from its engagement with the coupler, whereupon the yoke carrying such pin will drop by gravity to the position  
 35 shown at the left of Fig. 1, from which it may be raised when required by means of the rod 32 aforesaid.

While I have shown in the accompanying drawings the preferred form of my invention,  
 40 it will be understood that I do not limit myself to the precise form shown, for many of the details may be changed in form or position without affecting the operativeness or utility of my invention, and I therefore re-  
 45 serve the right to make all such modifications as are included within the scope of the following claims or of mechanical equivalents to the structures set forth.

Having described my invention, what I  
 50 claim, and desire to secure by Letters Patent, is—

1. In a car-coupling, a cylinder, a plurality of longitudinally-extended locking-hooks projecting normally into said cylinder, circumferentially thereof, springs interlocking with said  
 55 hooks, and a slidable sleeve coöperating therewith.

2. In a car-coupling, a cylinder having a plurality of longitudinally-extending slots there-  
 60 in, rockable hooks operable in said slots, springs connected with said hooks, and slidable means adapted to rock said hooks.

3. In a car-coupling, a cylinder having a plurality of longitudinally-extended slots there-

in, rockable hooks operable in said slots, 65  
 spring-actuated means adapted to rock said hooks toward the axis of said cylinder, and a slidable sleeve movable on said cylinder.

4. In a car-coupling, a cylinder having a plu-  
 70 rality of longitudinally-extended slots therein, guides extending beyond the end of the cylinder, hooks rockable between said guides, longitudinally-extended springs, coupling  
 means connecting said hooks and the springs, and slidable means adapted to coöperate with 75  
 said springs.

5. In a car-coupling, a cylinder having a plu-  
 rality of longitudinally-extended slots there-  
 in, guides extending beyond the end of the  
 cylinder between said slots, hooks rockable 80  
 between said guides, longitudinally-extended  
 springs, coupling means connecting said hooks  
 and the springs, and slidable means adapted  
 to coöperate with said springs.

6. In a car-coupling, a supporting member 85  
 having longitudinal slots therein, rockable en-  
 gaging members supported in position to pro-  
 ject through said slots, springs connected with  
 said engaging members to rock said members  
 in one direction, means for rocking said mem- 90  
 bers in an opposite direction, and a recipro-  
 catory coupler adapted to interlock therewith.

7. In a car-coupling, a supporting member  
 having an open end, rockable hooks operable  
 in said open end portion, said hook members 95  
 having longitudinal slots, actuating-springs,  
 connecting-pins secured to said springs and  
 projecting through said slots, slidable com-  
 pression means bearing on said springs, a  
 piston-rod connected therewith, a cylinder, a 100  
 piston movable therein with which said rod  
 is connected, and means for actuating said  
 piston in different directions.

8. In a car-coupling, a supporting member  
 with open end portion, rockable hooks adapted 105  
 to project into said opening, guides extending  
 parallel with said supporting member, rods  
 reciprocatory in said guides, springs adapted  
 to actuate said rods longitudinally, a cross-  
 head connecting said rods, and a coupling 110  
 rigidly held in said cross-head.

9. In a car-coupling, a supporting member  
 with open end portion, rockable hooks adapted  
 to project into said opening, guides extending  
 parallel with said supporting member, divided 115  
 rods reciprocatory in said guides, springs  
 adapted to actuate said rods longitudinally, a  
 cross-head connecting said rods, and a coup-  
 ling rigidly held in said cross-head.

10. In a car-coupling, a pivoted yoke, an 120  
 arrow-head coupler rigidly supported therein,  
 a draw-head, rockable hooks thereon adapted  
 to engage said arrow-head, spring-sockets ex-  
 tending parallel with said draw-head, and a  
 slidable member adapted to release said hooks. 125

11. In a car-coupling, a draw-head, rockable  
 hooks thereon, means for holding said hooks  
 normally in position to engage a coupling-bar,

slidable means for rocking said hooks, a piston-rod and piston adapted to actuate said slidable means, a cylinder carried by the underframing of a car, and pressure-pipes connected  
5 with opposite ends of said cylinder.

12. In a car-coupling, a draw-head, a plurality of rockable engaging hooks carried thereby, slidable means for rocking said hooks, a pressure-cylinder, a piston therein,

and connecting means between said piston and 10 the aforementioned slidable means.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

FREDERICK KALTENBACH.

Witnesses:

FREDERICK H. GIBBS,  
M. McALEER.