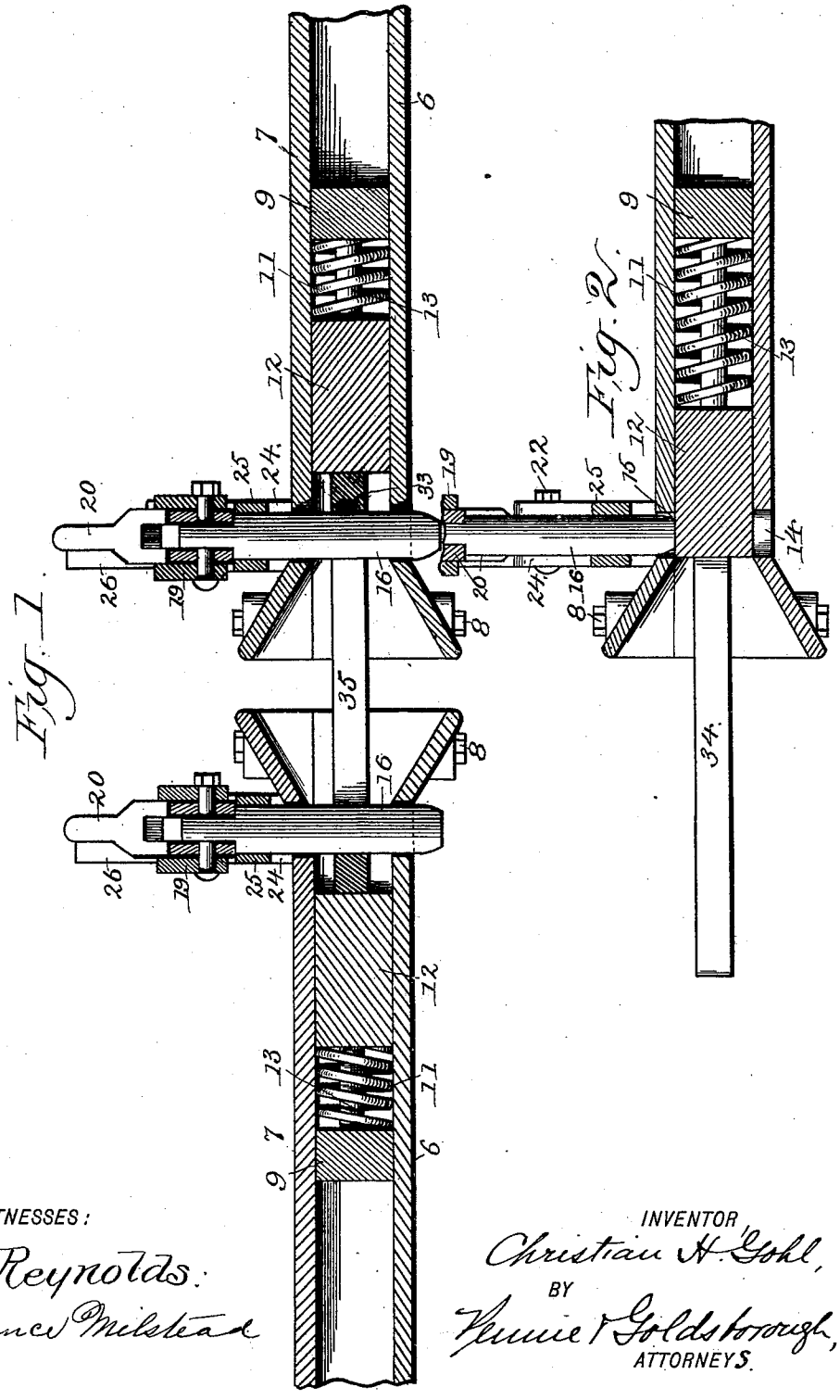
(No Model.) 2 Sheets—Sheet 1.

C. H. GOHL.

CAR COUPLING.

No. 482,353. Patented Sept. 13, 1892.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

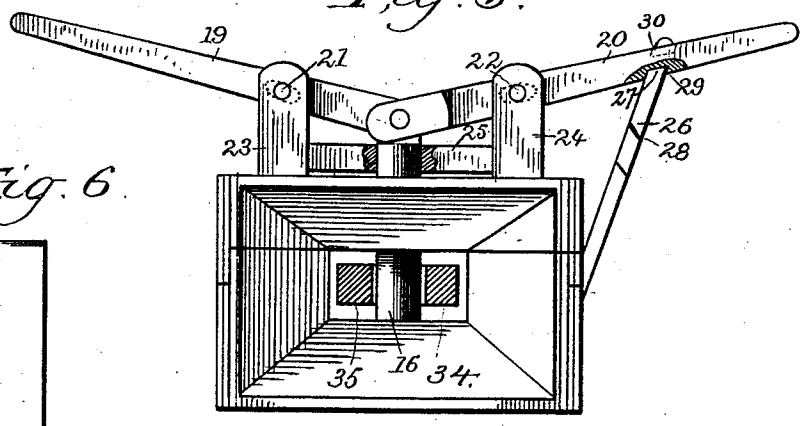


Fig. 6.

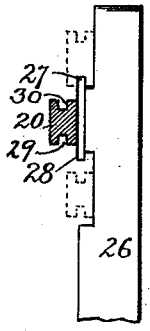


Fig. 4.

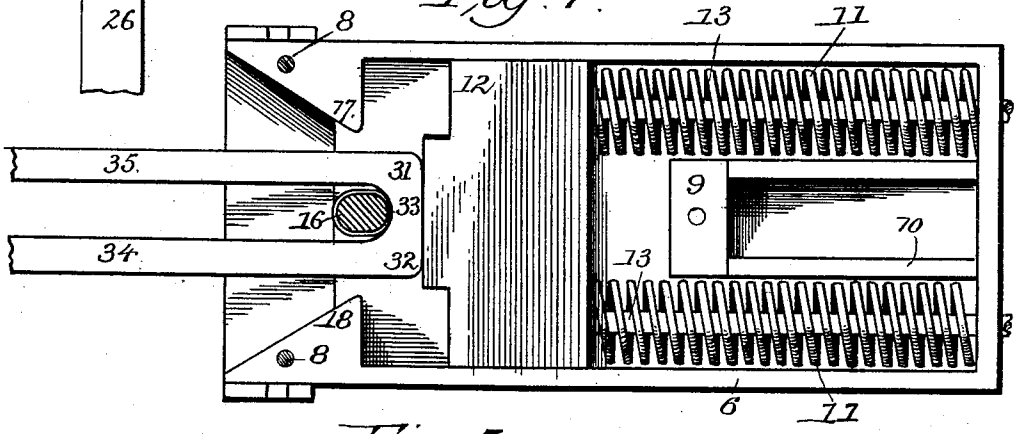
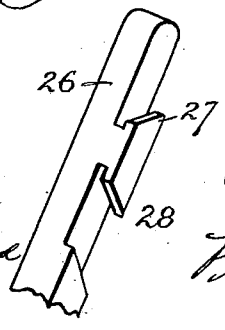


Fig. 5.



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UNITED STATES PATENT OFFICE.

CHRISTIAN H. GOHL, OF SAGINAW, MICHIGAN, ASSIGNOR OF ONE-HALF TO EZRA RUST, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 482,353, dated September 13, 1892.

Application filed March 31, 1892. Serial No. 427,174. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN H. GOHL, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Automatic Car-Couplers; and I do hereby declare the following to be 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.

My invention relates to certain new and useful improvements in car-couplers, and has for its object to avoid the danger to life and liability to injury incident to the coupling of cars through manual intervention by an arrangement and combination of parts that permits the operation to be done automatically.

In the accompanying drawings, illustrative of my invention, Figure 1 represents a vertical longitudinal section of an automatic car-coupler embodying my improvements, the two members of the coupling being shown as in their operative or connected adjustment. Fig. 2 represents a like view of one of the members of the coupler uncoupled, but with the parts set for coupling, the co-operating link being shown in elevation. Fig. 3 represents a front end elevation of one of the members of the coupler, the link being shown in section. Fig. 4 represents an interior plan view of one of the members of the coupler, the pin being shown in section and the link being partly broken away. Fig. 5 represents in perspective and partly broken away a detail view of the locking device for the pin-operating lever, and Fig. 6 is a partial end view of the lock and lever.

Similar numerals of reference indicate similar parts throughout the several views.

As illustrated in the drawings, the two members of the car-coupler are designed to be of substantially the same general construction and arrangement, so as to co-operate with each other in the same manner when coupling, whichever one may at the time carry the link, as will hereinafter more fully appear.

For convenience I construct each member of the coupler of a main body portion 6 and a cover 7, adapted to be connected by screw-bolts or the like, as indicated, for instance, at 8. Within the main body portion 6 is located a fixed abutment 9, in the rear of which are situated the vertical walls 10. Coil-springs 11 occupy the recesses formed between the partitions 10 and the inner sides of the main body portion 6, and said coil-springs bear at their inner ends against the rear wall of said recesses and at their outer ends against the pin-setting block 12, the springs being of such tension as to normally force the block 12 to its extreme forward position, as indicated in Fig. 2, when the coupling-pin is raised.

Guide-rods 13, connected to the block 12, pass freely through openings in the rear wall of the main body portion 6. These rods 13 serve not only to retain the springs in position when the cover 7 is removed, but also prevent any such angular movement of the block 12 as would tend to cramp the latter against the inner walls of the coupler or retard its free movement in the operation of the device.

At its forward end each member of the coupler is flared outwardly, as shown, so as to form inclined directing-surfaces adapted to direct the end of the entering link toward the central coupling orifice or link-receiving mouth of the coupler. Midway of the inner portion of this flaring mouthpiece are two apertures 14 15 in the lower and upper surfaces of the car-coupler, said apertures being adapted to receive the coupling-pin 16. It will be noted that the inner angle of the side pieces 17 18 is about on a line with a transverse plane through the centers of the apertures 14 15, this relative arrangement being designed to permit the link to have a considerable range of swing to the right and left upon its pin, so as to enter readily the other member of the coupler, although the said other member may be located at some divergence to the right or left, as frequently happens in practice, especially where the cars to be coupled are of a different style or structure. For a similar reason the inclination of the upper and lower flaring sides is such as to permit the link to be swung readily in an upward or a downward direction, according

as the member of the car-coupler which it enters is above or below the member carrying the link. The pin 16 is loosely connected at its upper part to the inner end of two lifting-levers 19 20, fulcrumed at points 21 22 to suitable standards 23 24 and guided within the cross-piece 25. The function of the levers 19 20 is to enable the pin to be readily raised without the necessity of having the operator pass in between the ends of the cars. Means for locking the levers in both the upper and the lower positions of the pin are provided. The means that I have adopted consists of a locking-bar 26, provided upon its side with the projections 27 28. These projections 27 28 are adapted to engage, respectively, with recesses 29 30 of like configuration made in the lower and upper edges of the lever 20.

It will be understood that sufficient flexibility or freedom of movement laterally is provided for the lever 20 to permit said lever when disengaged by an upward or a downward movement from the projection 27 or 28, as the case may be, to be drawn sidewise until it has entirely cleared the plane of the projections, whereupon it may be moved upwardly or downwardly to unlock the pin. It will be noted that the front face of the block 12 is straight or vertical at the points where it comes in contact with the proximate end of the link and that said link end is correspondingly straight or vertical. I regard this feature as of prime importance in my invention, for reasons which I will presently explain. The ends of the link are slightly rounded at 31 32; but the surface 33, proximate to the pin 16, although rounded in one direction, as shown, is straight from top to bottom of the link, conforming to the vertical outer surface of the pin and fitting closely against it.

I have shown the link for purposes of illustration as having its sides 34 35 separated; but it is evident that without in any way altering the scope of the invention said sides could be united at a point or points intermediate of their length, provided only that a sufficient interval or space is left between them at their out ends to co-operate with the pins 16.

The parts being constructed and arranged as described, the operation of the invention is as follows: The link is normally held within one of the members of the coupler by forcing it into the flaring end piece and permitting the pin to drop through and retain it. The straight or vertical face of the block 12, being forced against the corresponding straight or vertical face of the end of the link, has a twofold effect upon the latter. In the first place it holds it in a horizontal plane by reason of the fact that the contiguous straight or vertical surfaces compel it to occupy that position. In the second place and for a similar reason the link is held in the same vertical planes, any divergence to the right or left that would otherwise occur being promptly corrected by the spring-pressure, which tends constantly to return and maintain the link in the normal position referred to. The advantage of maintaining the link normally in this standard position of adjustment is that it will fall within the range of the flaring mouthpiece of the other member of the coupler, whether the other member of the coupler be slightly above or below or to the right or left of the member bearing the link. The other member of the coupler, which is to receive the link and become thereby automatically coupled to the member normally bearing the link, is set for the coupling operation in the manner illustrated in Fig. 2. To this end the pin 16 is withdrawn, as indicated in Fig. 2, whereupon the springs 11 force the block 12 forward, so that the latter supports the pin. When now the car having the link-carrying member of the coupler is advanced toward the car carrying the set member of the coupler, the entering link will force back the block 12 and the coupling-pin 16 will drop into the link, so as to complete the coupling operation, as illustrated in Fig. 1, the coupling operation being entirely automatic and accomplished without manual intervention. It is evident that in uncoupling either set of levers may be operated, so as to leave the link with the one member of the coupler or with the other, as may be desired. To insure the permanency of the coupling when made, the lever 20 may be made to engage by means of its recess 29 with the projection 27.

It frequently occurs, especially in the manipulation or switching of cars from track to track in making up trains within a freight-yard, that it is desirable to use a moving part of the train simply for the purpose of pushing or impelling other cars upon side tracks or the like. Under such circumstances it is of course not intended to couple the moving part of the train to the car or cars thus impelled or pushed along. I provide for this exigency by locking the pin 16 of the cars impelled by means of the lever 20 and the projection 28, engaging with the recess 30 of the lever, and thereby holding the pin positively in the upper position, so that, although the entering link may remove the supporting-block 12, the pin 16 will be sustained and will not fall through the link. It will of course be understood that, except when positively locked for some such purpose, the lever 20 both in its upper and lower position of adjustment is not locked, but is located in a vertical plane outside of both the projections 27 and 28, a positive sidewise movement of the lever 20 being always necessary to effect the locking of the same in either the upper or lower positions. It is of great importance that the surfaces 33 of the link—*i.e.*, those extremities of the link aperture which abut against the pins 16—should be straight from top to bottom and that the pins themselves should be correspondingly straight, so that the surfaces of contact between the pins and the

link may be at least of a length equal to the thickness of the link. The extended bearing thus presented enables the springs to much more readily maintain the link in the horizontal position, as the tendency to drop from that position is resisted by the contiguous straight surfaces of the pin and link.

It will be understood that in order to enable the levers 19 20 to operate successfully in raising the pin 16 said levers should have a capacity for a limited longitudinal movement upon their fulcrum-pins. This may be readily obtained by slotting the levers at their fulcrum-points, as indicated in dotted lines in Fig. 3.

Having thus described my invention, what I claim is—

1. In a car-coupler, the combination, with the main body portion having the pin-apertures, of the pin, the block for supporting the pin, the link, the lever for raising the pin, and the lock or catch for locking the lever in its lower position, so as to sustain the pin independently of the block, substantially as described.

2. In a car-coupler, the combination, with the main body portion having the pin-apertures, of the pin, the block for supporting the pin, the springs, the link, the lever for raising the pin, and the lock or catch for locking the lever in its upper position, so as to prevent disengagement from the link, or in its lower position so as to sustain the pin independently of the block, substantially as described.

3. In a car-coupler, the combination, with the main body portion having the pin-apertures, of the pin, the block for supporting the pin, the link and the lever for raising the pin, the pin being loosely connected at its upper end to the lever, and the lever having a limited longitudinal movement upon its fulcrum, substantially as described.

4. In a car-coupler, the combination, with the pin-locking lever having a lateral or sidewise movement and provided upon its upper and lower edges with retaining recesses, of the catch-bar having projections adapted to engage within said recesses, substantially as described.

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

CHRISTIAN H. GOHL.

Witnesses:
T. H. RUSLING,
M. E. STAFFORD.