

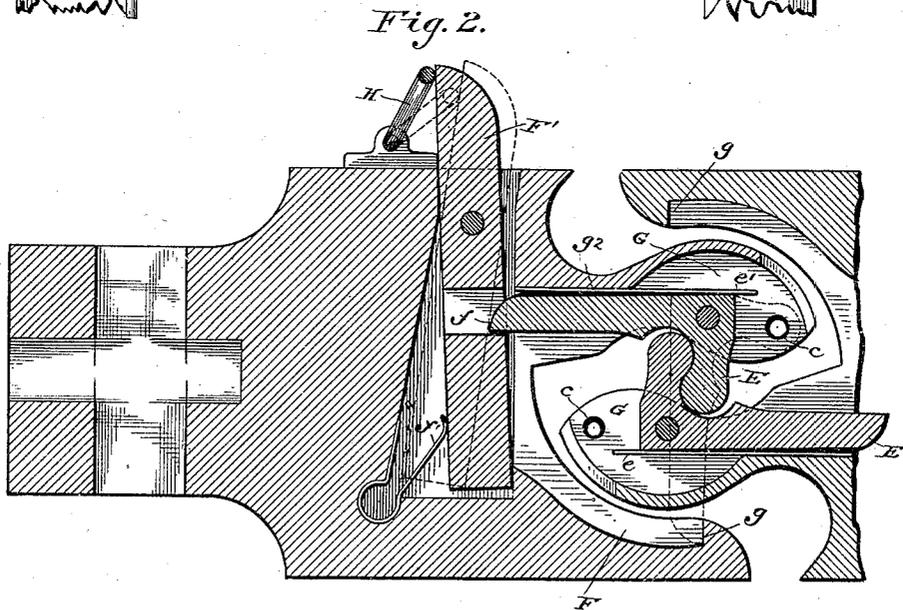
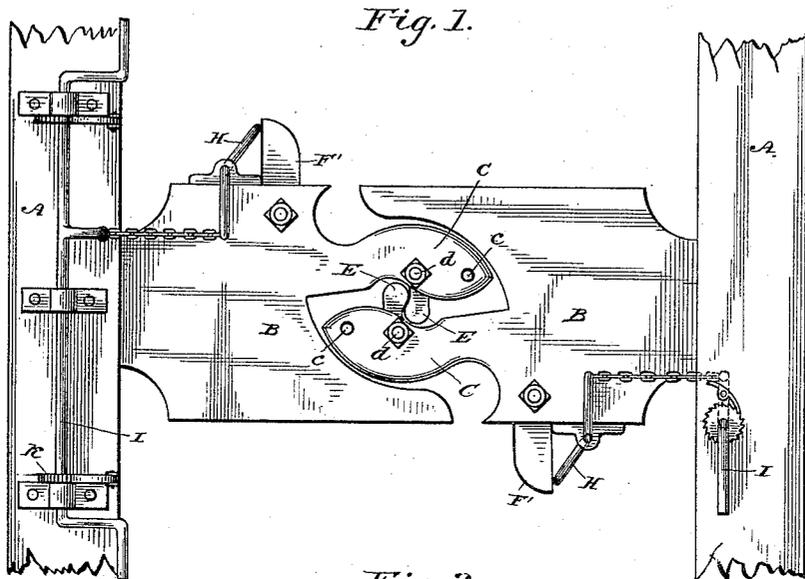
(No Model.)

2 Sheets—Sheet 1.

J. C. CHRISMAN.
CAR COUPLING.

No. 415,705.

Patented Nov. 26, 1889.



Witnesses

H. W. Elmore,
W. L. Hilkey.

Inventor
Joseph C. Chrisman,

By his Attorneys

Lennie & Goldborough

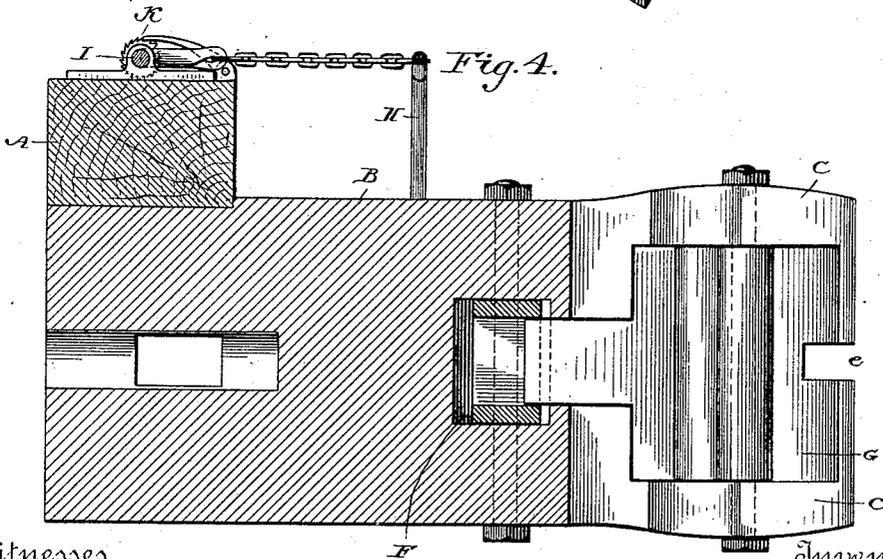
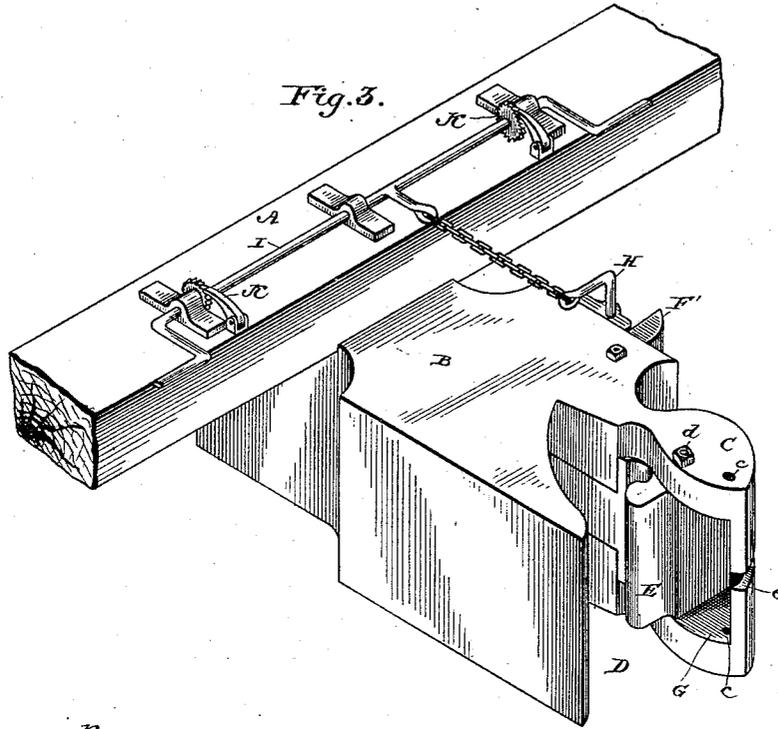
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

JOSEPH C. CHRISMAN, OF CLIFF TOP, ASSIGNOR OF ONE-HALF TO JOHN A. MCGUFFIN, OF SEWELL DEPOT, WEST VIRGINIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 415,705, dated November 26, 1889.

Application filed August 19, 1889. Serial No. 321,191. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. CHRISMAN, a citizen of the United States, residing at Cliff Top, in the county of Fayette and State of West Virginia, 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.

This invention relates to automatic car-couplers designed for use on either freight or passenger cars. It has for its object to provide a coupler of this character which shall combine the requisite strength with ease, certainty, and celerity of action, which shall dispense with the loose coupling links and pins now in general use, which will couple on the stiffest curves, and which does not require the handling of any of its parts in the act of coupling the cars together, which makes this operation fraught with so much danger.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view of the draw-heads of two adjoining cars coupled together with my improved coupler. Fig. 2 is a horizontal section of the same, only a part of one of the heads being shown. Fig. 3 is a perspective view of one of the heads, and Fig. 4 is a vertical longitudinal section thereof.

In the drawings the same letters denote corresponding parts in the several figures.

A denotes fragments of the end sills of the car-platforms.

B indicates the draw-heads, which instead of being formed in the ordinary way to receive the usual coupling links and pins, are cut away vertically on their forward ends, and shaped as shown in the drawings. Each head is in shape and structure a counterpart of the other, the recesses and projections being oppositely disposed, so that when they are brought together they interlock, yet allow the heads to play freely as the cars turn on the curves. Each head is cut away so that it has on one side of its center a horn or projection C, curved on its outer side and having an approximately straight face on its inner side.

On the side of the center opposite this horn each head is formed with the recess D. This recess and horn are of approximately the same shape in horizontal section, so that the horn on one head fits into the recess on the other when the cars are coupled as above described. The parts fit loosely together, so as to permit free play in turning, and sufficient space is left between the opposing faces of the two horns to prevent binding and cramping, and at the same time permit the easy action of the coupling-dogs, now to be described.

Each draw-head is provided with a horizontal slot, in which works the latch F, and through the front part of which plays the end of the long leg of the L-shaped coupling-dog E. This slot in the head is extended into the horn C, and is there enlarged into the recess G, in which the dog E is pivoted. This dog is approximately L-shaped, and its longer leg is comparatively narrow; but its shorter one, which constitutes the coupling part of the dog, is widened out vertically, so as to give an extended bearing-surface and afford a good hold for the other dog, notwithstanding variations in the height of the draw-heads. The dog is pivoted at its angle in the recess in the horn near the inner edge thereof on the vertical pin *d*, so that its short leg, when projected, shall stand out far enough to engage properly with the extended leg of the dog in the opposite horn. The long leg of the dog extends back and plays in and is guided by the slot in the head, being limited in its movement in one direction by contact of its end with the shoulder *g*, and in the other direction by the impact of the back of the leg against the wall of the slot at *g*². In a lateral extension of the slot F in the head is pivoted the latch F', having the recess or opening *f*, and pressed normally into the path of the end of the long leg of the dog by the spring *f*'. This latch is withdrawn against the stress of the spring by the cranked rod H, mounted on the draw-head in any convenient position, that shown being on the side. One end of this rod H is connected by any kind of flexible connection with a rock-shaft I on the car-platform, which on freight-cars is usually mounted

horizontally, and has cranks at its ends, as shown at the left hand of Fig. 1, while on passenger-cars it is more conveniently mounted in vertical position, and has a crank at its upper end to be operated by the conductor on the platform, as shown in the right-hand side of the same figure. This rock-shaft may be conveniently provided with a ratchet and pawl K, to lock it in position to hold the latch F'.

The front end of each horn C is provided with a horizontal notch *e* and a vertical opening *c* for the accommodation of the ordinary coupling links and pins, if for any reason their temporary use should be desired. In each horn C there is fastened a leaf-spring *e'*, to engage the flat face of either leg of the coupling-dog E and hold it in either of its two positions. Of course the spring has little or no function in holding the dog in its coupling position; but it is important, in that it holds the dog, after the cars have been uncoupled, in position to be coupled again, thus avoiding the necessity of any resetting of the dog. It also plays an important part in throwing the dog into its coupling position, for, bearing, as it does, against the angle of the dog, when the horn on the opposing draw-head has thrown it a certain distance the force of the spring tends to thrust it home, so that in case the horn C on one head is for any reason not pushed as far into the recess D in the other as is possible or desirable for positive action the dog is nevertheless quickly and easily thrown into its coupling position. The inner or opposing faces of the two dogs need not be of any particular shape; but it will be found best to round them off, as shown in the drawings, so as to give them a firmer hold upon each other, and at the same time to permit the draw-heads to turn easily.

While I have shown the dogs in the drawings as L-shaped, that exact form is not essential. I have found, for example, that S-shaped dogs operate quite as well as those shown. Indeed, it is only necessary that they have two legs or branches and be pivoted at or about the junction thereof, so that upon the horn on one head striking one of the branches the other is thrown out into position to engage the correspondingly-operated one on the other head. The holding-leg of the dog is preferably made much longer than the coupling-leg.

Constructed as above described, when the latch is released, the dogs will uncouple freely without requiring any "slack" to be given them. It is, moreover, impossible to uncouple the cars unless both dogs are released, for if only one be freed it cannot turn until the other has been released, the horn C being held from the lateral movement necessary to do this by the recess D, and the parts being so proportioned that the holding-leg of the dog on one head would strike the end of the horn on the opposite head; but when

operated together they move in opposite directions and clear each other.

The construction being as above described, the operation is as follows: The parts being in the position shown in full lines in Fig. 2, the cars are coupled. It being desired to uncouple them, the rock-shaft I is turned, causing the cranked rod H to strike against the projecting end of the latch F'. This withdraws the latch against the stress of the spring *f'* from contact with the leg of the coupling-dog, which, being then free to turn on its pivot, swings out with little effort, the shorter or coupling leg being carried into the recess in the horn C, and the dog being left standing, as shown in dotted lines, being assisted into that position by the leaf-spring *e'*, and being held there by the same ready for recoupling. If now it is desired to couple the cars, no attention whatever to the coupler is required, it being only necessary to bring the cars together, when the front end of the horn C on each draw-head enters the recess D in the opposite head, strikes the long leg of the coupling-dog (which then stands across the recess, as shown in dotted lines in Fig. 2) and pushes it back into the slot in the head, the short leg of the dog being withdrawn from the recess G in the horn when the horn has been carried well into the recess D in the head, and engaging with the corresponding part of the opposite dog, which has been meanwhile acted upon in the same way by the horn of the other draw-head. When the long leg of the dog has been thrust home by the end of the horn, assisted by the leaf-spring, if need be, the spring-latch F' engages and holds its end, and, owing to the length of this leg of the dog relative to its coupling-leg, great leverage is obtained for this lock against the strain of the cars on the short leg or coupling part proper of the dog.

What I claim and desire to secure is—

1. The combination, in a car-coupler, with the draw-head having the horn C and the recess D, of the two-armed coupling-dog pivoted in the horn, a latch pivoted in the draw-head adapted to catch and hold the dog in its coupled position, and means for releasing the latch from the car, substantially as described.

2. The combination, in a car-coupler, with the draw-head, of the horn C, curved on its outer side, the recess D, having the curved outer edge, as shown, the two-armed coupling-dog pivoted in the horn C, the spring-latch F', pivoted in the draw-head, the cranked rod H, and connections to the car-platform for operating the rod to release the latch, substantially as described.

3. The combination, in a car-coupler, with the draw-head, of the horn C, curved on its outer side, the recess D, having the curved outer edge, as shown, the two-armed coupling-dog pivoted in said horn, the spring *e'*, adapted to hold the dog in its uncoupled po-

sition, the spring-actuated pivoted latch F', mounted in the draw-head and engaging the dog to hold it in its coupled position, the cranked rod H on the draw-head, the rock-shaft I on the car, and the flexible connection therefrom to the cranked rod, substantially as described.

4. The combination, in a car-coupler, with the draw-head having the horn C and the recess D, the head being slotted, as described, and the horn having the recess G, of the coupling-dog E, pivoted in the recess G, and having the long narrow holding-leg playing in and guided by the slot in the head, and the shorter widened-out coupling-leg playing in the recess G in the horn, the spring E, fastened in the horn and acting to hold the dog in its uncoupled position with its end in contact with the shoulder g, the spring-actuated pivoted latch F', playing in the slot in the head, the cranked rod H on the draw-head, and the rock-shaft I on the car-platform flexibly connected to the cranked rod H, substantially as described.

5. The combination, to form a car-coupler, of two draw-heads, each having a horn C upon one side of its longitudinal center and a recess D upon the opposite side of that center, the outer faces of the horns being curved to correspond with the curved outer edges of the recesses, as shown, a two-armed spring-controlled coupling-dog pivoted in each horn, a spring-actuated pivoted latch playing in a slot in each draw-head and acting normally to hold its respective clutch-dog in its coupled position, a cranked rod on each draw-head for releasing the latch, and a rock-shaft on each car-platform flexibly connected with the cranked rod, substantially as described.

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

JOSEPH C. CHRISMAN.

Witnesses:

J. P. HUGHART,
TH. WOODSON.