(No Model.)

G. CAIN.

CAR COUPLING.

No. 302,382. Patented July 22, 1884.

Fig. 1.

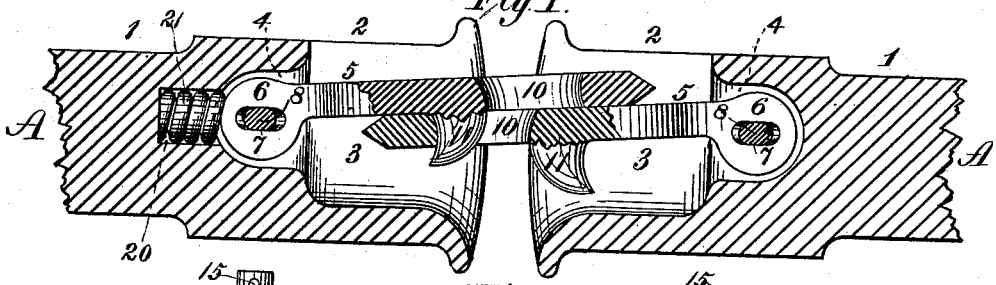


Fig. 2.

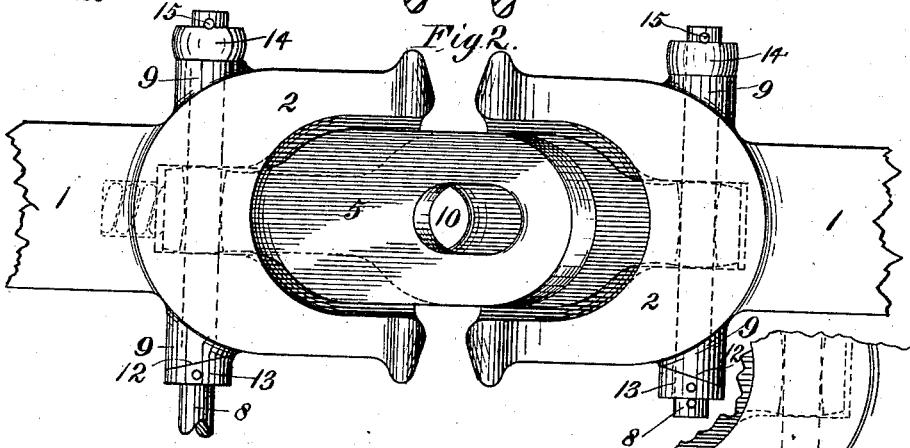


Fig. 3.

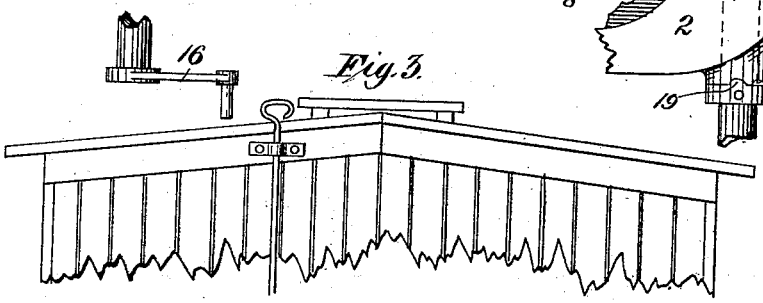
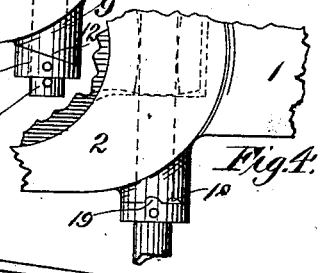
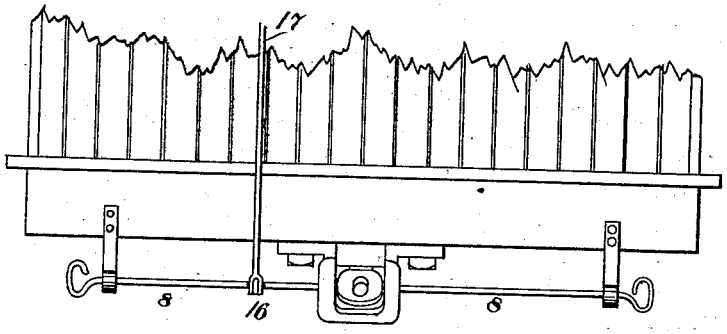


Fig. 4.





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UNITED STATES PATENT OFFICE.

GEORGE CAIN, OF PITTSBURG, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 302,382, dated July 22, 1884.

Application filed March 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE CAIN, a citizen of the United States, residing at Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Automatic Car-Couplings; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a sectional side elevation of my improved automatic car-coupling. Fig. 2 is a top plan view of the coupling. Fig. 3 is an end view of a car provided with my coupling, and showing the means for operating said coupling from the side or top of the car. Fig. 4 is a detail showing view of the locking-washer.

My invention relates to certain improvements in that class of car-couplings which effect an automatic coupling by the interlocking of two links—one on each draw-bar—the object of my invention being to so construct and combine the parts forming the coupling that it can be operated from either side or top of the car to uncouple the cars, and that any or all of the parts can be quickly and readily replaced in case of breakage, all as more fully hereinafter described and claimed.

The draw-bars A are of similar form and construction, made by preference of cast-steel, and consisting of the shank portion 1 and the head 2, in which is formed the recess 3 and the end socket, 4. The recess 3 is open at the top to allow of the raising of the link when the cars are to be uncoupled, as more fully hereinafter described.

The links 5 5 are formed with a projection, 6, at one end, through which is formed an oval or other irregularly-shaped hole, 7. This projection 6 is pivotally held within the end socket, 4, by the rod 8, having a shape in cross-section corresponding to the shape of the hole 7 in the projection 6. This rod 8 passes loosely through the draw-bar and through lugs 9, formed on the sides of the draw-bar. In the links 5 are formed the openings 10, and on the under side of the links in the rear of the openings 10 are formed the rearwardly-projecting hooks 11, adapted to engage with the openings 10, when the links are brought together, as shown in Fig. 1. The front ends of the links are beveled off on both sides, as shown, so as to allow them to slide one over the other when they are brought together. The hole or opening 7 is made flaring or bell-mouthed at both ends, as clearly shown by dotted lines in Fig. 2, so as to prevent the edges of the opening from cutting the rod 8 when the link is oscillated horizontally when trains pass around curves. The end of one of the lugs 9 is beveled off, as shown at 12, and against this beveled end is placed a similarly-beveled washer, 13, fitting around and secured to the rod 8 by a pin or set-screw. The inclined face of this washer is held against the inclined face of the lug 9 by the spring 14, placed around the rod 8, and held against the opposite lug, 9, by the pin 15, or other suitable device secured to the rod 8. The washer 13 is so adjusted on the rod 8 that the highest point of the washer will bear against the lowest point of the inclined face of the lug, when the rod is so turned as to bring the link 5 in a horizontal position. Hence, whenever the link is turned either in coupling or uncoupling, the washer will slide over the face of the lug, thereby drawing the rod through the draw-head and compressing the spring 14; and when the link is released the tension of the spring will cause the washer to slide around the face of the lug until its highest point rests against the lowest point of the face of the lug, and the link is again in a horizontal position.

In place of beveling the washer and lug, as above described, their meeting surfaces may be made straight, as shown in Fig. 4, in which case notches 18 are formed in the face of the lug 9, and the washer is provided with a rib, 19, adapted to fit in the notches, said notches and rib being so arranged that the link may be held in a locking position or in an elevated position to prevent coupling when cars are brought together.

The rod 8 is extended at each end, as shown in Fig. 3, to near the sides of the car, and is provided with handles whereby the links can be turned to uncouple the cars, thus avoiding the necessity of going between the cars for that purpose. For the purpose of operating the coupling from the top of the cars, an arm,

16, is formed on the rod 8, and the end of this arm is attached to the handle 17, extending to the top of the car.

The opening 7 in the projection 6 of the link is preferably made oval, as above stated, and the rod 8, made of steel or wrought-iron, is given a corresponding shape in cross-section, and is of such a size as to fit freely in the opening 7 without turning therein. The longest diameter of the opening 7 is formed parallel with the length of the link; consequently the strain on the rod 8 will also be in the direction of its greatest diameter. To allow of lateral oscillation of the link, the sides of the projection 6 are beveled, as shown by dotted lines in Fig. 2, from the axis of the opening 7 toward each end of the projection.

In the rear of the socket 4, I may form another socket, 20, for the reception of a spring, 21, adapted to bear against the end of the projection 6, so as to keep the link pressed forward, thereby taking up any lost motion arising from wear of the parts.

By having the upper side of the draw-head open my coupling can be used on cars of different height, as the upper link can be freely raised, and the link can be pivoted nearer the upper side of the cross-head.

Cars provided with my improved coupling can be coupled with the ordinary cars, the link 5 being of such a size as to fit in the ordinary draw-head.

These couplings are simple in construction, having no more parts than the ordinary coupling now in use. They operate automatically in effecting a coupling, and, once coupled, cannot be uncoupled, the springs and cam-washer serving to hold the links together.

I claim herein as my invention—

1. The draw-bar A, having the perforated lugs 9, the end of one of said lugs being inclined, in combination with the hooked link 5, having the projection 6, provided with an oval perforation, 7, the pivotal rod 8, the cam-washer 13, secured to said rod and bearing against the inclined lug, and the spring 14, bearing against the other lug, substantially as set forth.

2. The draw-bar A, in combination with the hooked link 5, having the projection 6, provided with the oval opening 7, the pivotal rod 8, oval in cross-section, and means for turning said rod from the top or sides of the car, substantially as set forth.

3. The draw-bar A, in combination with the link 5, having the hook 11 and the projection 6, provided with the oval bell-mouthed opening 7, and the pivotal rod 8, oval in cross-section, substantially as set forth.

4. The draw-bar A, having the sockets 4 and 20, in combination with the hooked link 5, pivoted in the socket 4, and the spring 21, substantially as set forth.

5. The draw-bar A, having the open-topped recess 3 and end socket, 4, in combination with the hooked link 5, having the projection 6, having curved sides, and provided with the bell-mouth opening 7, and the pivotal rod 8, substantially as set forth.

In testimony whereof I have hereunto set my hand.

GEORGE CAIN.

Witnesses:
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