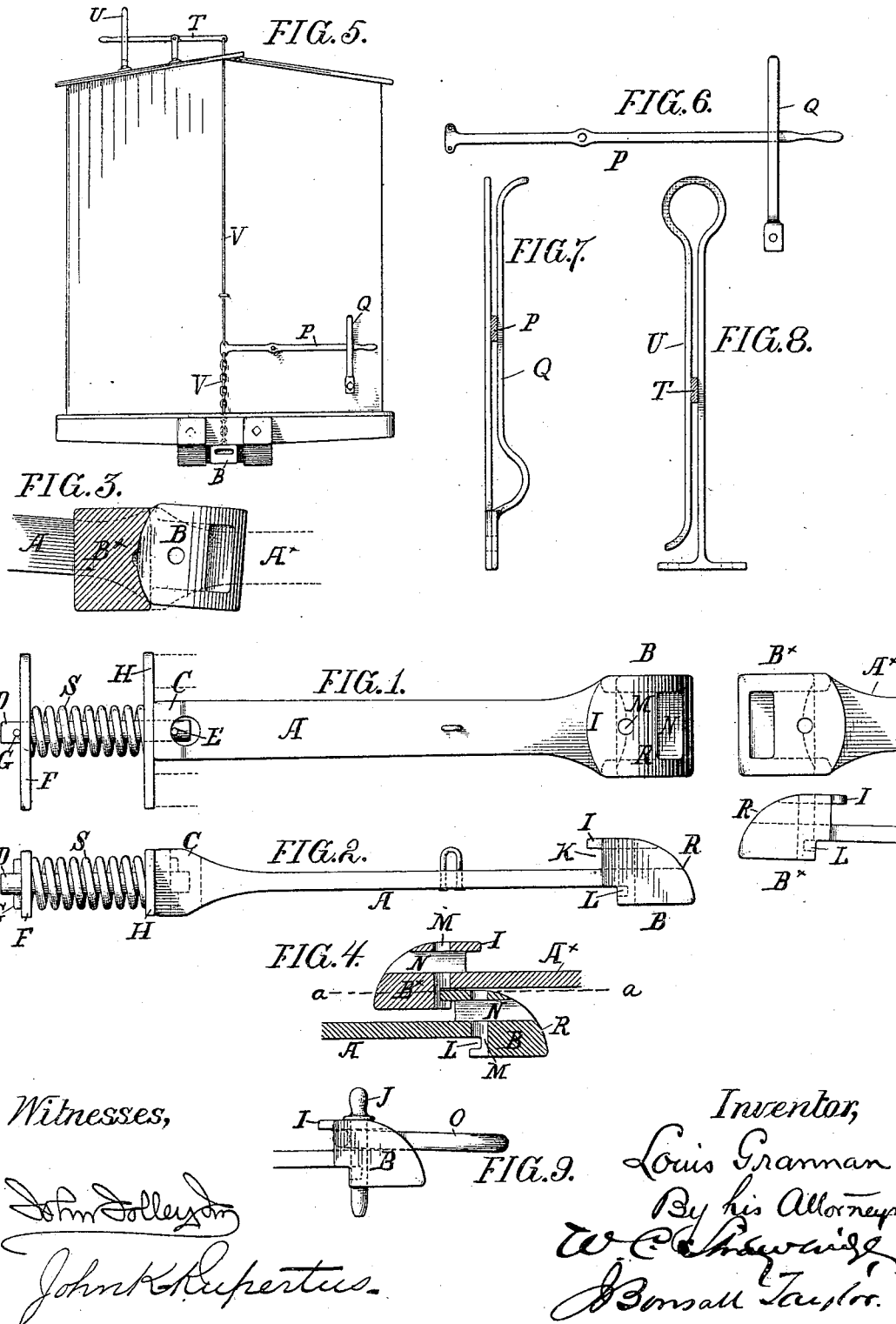


(No Model.)

L. GRANNAN.  
CAR COUPLING.

No. 262,289.

Patented Aug. 8, 1882.



# UNITED STATES PATENT OFFICE.

LOUIS GRANNAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO JOSEPH F. FERRELL, OF SAME PLACE.

## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 262,289, dated August 8, 1882.

Application filed January 28, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, LOUIS GRANNAN, of the city and county of Philadelphia, in the State of Pennsylvania, have invented an Improvement in Automatic Car-Couplers, of which the following is a specification.

My invention relates to improvements in the class of self-operating car-couplings; and it consists in certain improvements in draw-bars and draw-heads, and in means for operating the same, herein more fully described and claimed.

In the accompanying drawings, Figure 1 represents in top plan view a draw-bar embodying my invention. Fig. 2 represents the same in side elevation. In each of the above figures there is also represented an opposing draw-bar about to be coupled with that first named. Fig. 3 is a top plan view of two of my draw-heads coupled, and in the position which the parts respectively occupy when the cars to which they are respectively applied occupy positions at angles to one another—as, for instance, in rounding a curve—the section in a horizontal plane being taken through that draw-head which is uppermost on the line *aa* of Fig. 4. Fig. 4 is a vertical side central sectional elevation through two coupled draw-bar heads embodying my invention. Fig. 5 is an end elevational view of a freight-car to which is shown applied my improved coupler and attachments. Fig. 6 is an enlarged front elevational view of a form of coupling-operating lever adapted to be applied, for instance, to the end of a freight-car. Fig. 7 is a side view of a spring-keeper of a form invented by me, and adapted to be applied, for instance, to the end of a car, and in connection with the lever represented in Fig. 6. Fig. 8 is a side elevation of another form of spring-keeper of the same character represented as applied to a lever mounted upon the top of the car, as represented in Fig. 5. Fig. 9 is a side elevational detail of one of my draw-bar heads, showing its use in connection with the usual form of coupling-link.

Similar letters of reference indicate corresponding parts.

In the drawings, A A' represent opposing

draw-bars, constructed according to my invention, and B B' the draw-heads thereof.

The draw-bars are formed as a flat plate of metal, enlarged at their rear extremities into a base, C, of substantially the form represented in Figs. 1 and 2. This base is both longitudinally and vertically cored out to fit it to receive a link-bar, D, which is secured in place within the base of the draw-bar by means of a pin, E, which passes through the vertical channel or hole through said base, and which is secured to the frame-work of the car by a similar pin, G, beyond a locking-plate, F, beneath the car. The base of the draw-bar is abutted against a movable plate, H, also arranged beneath the car.

A spiral spring, S, surrounds the link-bar and serves to cushion the draw-bar.

The draw-heads proper, which are denominated by the letters B B', are made of the form represented in the drawings—that is to say, they are tumblers of a configuration invented by me, the depth and breadth of which are greater than the body of the draw-bar. Their front face, R, or the face which confronts the opposite head, is curved from below upwardly and backwardly, so that upon collision between the heads one or the other head must ride up and over the other. The upper top surface of the curved face of the head is extended backwardly to form a curved overhanging flange, I, which, viewed from above, is of arc-shaped outline, and which overhangs what I term the "upper notch," K, and the upper face of the draw-bar proper. The under rear face of the head (which latter projects downwardly below the level of the under surface of the body of the draw-bar) is transversely cut or channeled so as to form a seat, L, as indicated in the drawings. This transverse cut or seat is deepest at its central portion, and gradually vanishes toward its sides, as is clearly shown in Fig. 3, (in which this seat in the draw-head of one of the draw-bars is horizontally sectioned,) whereby the seat is curved to correspond to the curve of the flange I.

A vertical hole, M, is formed through the head to admit a link-pin, J, as represented in

Fig. 9, and a link-slot, N, is horizontally channeled throughout the head, in a direction endwise thereof, in order to afford a seat for a link, O, when my draw-bar is employed for an ordinary coupling, as also represented in Fig. 9. This link-slot is level on its lower surface with the upper face of the body of the draw-bar, as is represented in the drawings.

Each draw-head is thus double-hooked, so to speak, or provided with two horizontally-projecting flanges respectively overhanging or underhanging two recesses in the rear face of the head, as well represented in Fig. 9.

The coupling of the draw-bars is effected by bringing two cars equipped with my devices together, so that the draw-heads come into collision, in which event one or the other of the heads will ride upward over the curved face of the other, and will travel completely over it and drop to the rear of said head in such position that the curved seat L in the upper draw-head registers in line with the curved flange I of the under draw-head, in which position the forward movement of either car will occasion the locking of the draw-heads together into the position which they are represented as occupying in Fig. 4.

It is obvious that as the construction of the two heads is identical it is immaterial which of the two rides over the other, as in either event a curved flange will register in line with a curved seat and a locking will be effected between the two heads.

The object of forming the overhanging top flange in curved form and of curving the lower seat in a corresponding arc is to permit of the angling of the draw-bars with respect to one another, as represented in Fig. 3, without danger of uncoupling and without unnecessary friction.

It will be understood that while my draw-heads are represented as equipped with devices for enabling the application of the old-fashioned link and pin, as in Fig. 9, yet they are completely self-operative as automatic self-couplers without regard to the presence of the other structures.

The hooking or coupling operation taking place in a vertical rather than in a horizontal direction, it is obvious that the heads automatically and unfailingly retain themselves in position for locking-contact by reason of the weight of the uppermost head holding it down upon the under head. Although the locking-flange may not invariably be in place within its counter-seat, yet it is always in line therewith, so that upon the starting of the train it enters therein.

As a means of operating my draw-bars I apply a rod and link or chain arrangement, V, which is preferably connected against the side or end of the car, (or the platform, if desired,) and which is connected on the one hand with the draw-bar and on the other with one or more levers playing in spring-keepers, whereby a connected system is formed, in which the move-

ment of any given lever is not only transmitted to the draw-bar, but also operates to secure a similar movement in the other levers.

In Fig. 5 I have represented a convenient arrangement of hand-levers and connections adapted to enable the lifting up of a draw-bar happening to be on top of the other, in order to clear it of the other and permit of a separation of the cars. I have denominated the lever applied on the end of the car, P, and have represented it as engaged with or playing as to its handle portion within a keeper, Q, formed as a metallic spring-arm, as clearly represented in Fig. 7, whereby a constant frictional tension upon the lever-handle is secured, and the lever controlled to remain in whatever position it has been placed, although under any sudden jar of the draw-bars or other influence it yields its position and can be shifted, although in its shifted position it still remains under the restraint of its keeper.

The levers are employed in such number and are placed in such relation as convenience may dictate. The levers will retain the draw-heads in such position that they will not couple, or will adjust them to varying heights of cars.

I have marked the lever on top of the car, T, and represented it as playing in a spring-keeper, U, made in a manner kindred to that in which the keeper Q is made, and represented in detail in Fig. 8.

The advantages of my device are that under its employment it is impossible while the cars remain upon the track for the draw-bars to become uncoupled, as the weight of the upper bar will invariably retain it in contact with the lower, and in the locked position represented in Fig. 4, while in the event of accident or of the derailing of a car the draw-bars become at once uncoupled and prevent the derailment of the entire train. It is also well adapted for use over roads having curves of short radius, while being of the simplest mechanical character, and adapted for application either to the various descriptions of freight-cars or to passenger-cars.

Having thus described my invention, I claim—

1. The improved draw-bar hereinbefore described, the front face of the head of which is curved from its lower edge upwardly and backwardly, so as to present an angular or curved surface or top front face, while the back face of said head is provided as to its upper portion with an arc-shaped projecting flange and as to its lower portion with a correspondingly arc-shaped seat.

2. In a car-coupler, the combination of a draw-bar head curved upwardly and backwardly as to its top front face, and provided with an arc-shaped flange upon its upper rear portion, and with an arc-shaped seat in its lower rear portion, a horizontal longitudinal channel or slot for a link, and a vertical hole for a link-pin.

3. The combination, to form an automatic

- car-coupling, of two draw-bars the heads of which are oppositely curved from the lower portion of their front or meeting faces upwardly and backwardly, and which are each provided  
5 with a rearwardly-extending flange and with a rearwardly-opening seat, whereby upon collision one or the other head is enabled to travel up and over the other until it drops to the rear of the top portion thereof, and until  
10 its seat registers in line with the flange upon the lower head.
4. In combination with a draw-bar, a rod or link connection and one or more levers, each  
playing in spring-keepers, the arrangement being such that the combined parts form a connected system, substantially as and for the  
15 purposes set forth.
5. In combination with a coupling-lever, a spring-keeper, substantially as and for the purposes set forth. 20
- In testimony whereof I have hereunto signed my name this 24th day of January, A. D. 1882.
- LOUIS GRANNAN.
- In presence of—  
J. BONSALE TAYLOR,  
W. C. STRAWBRIDGE.