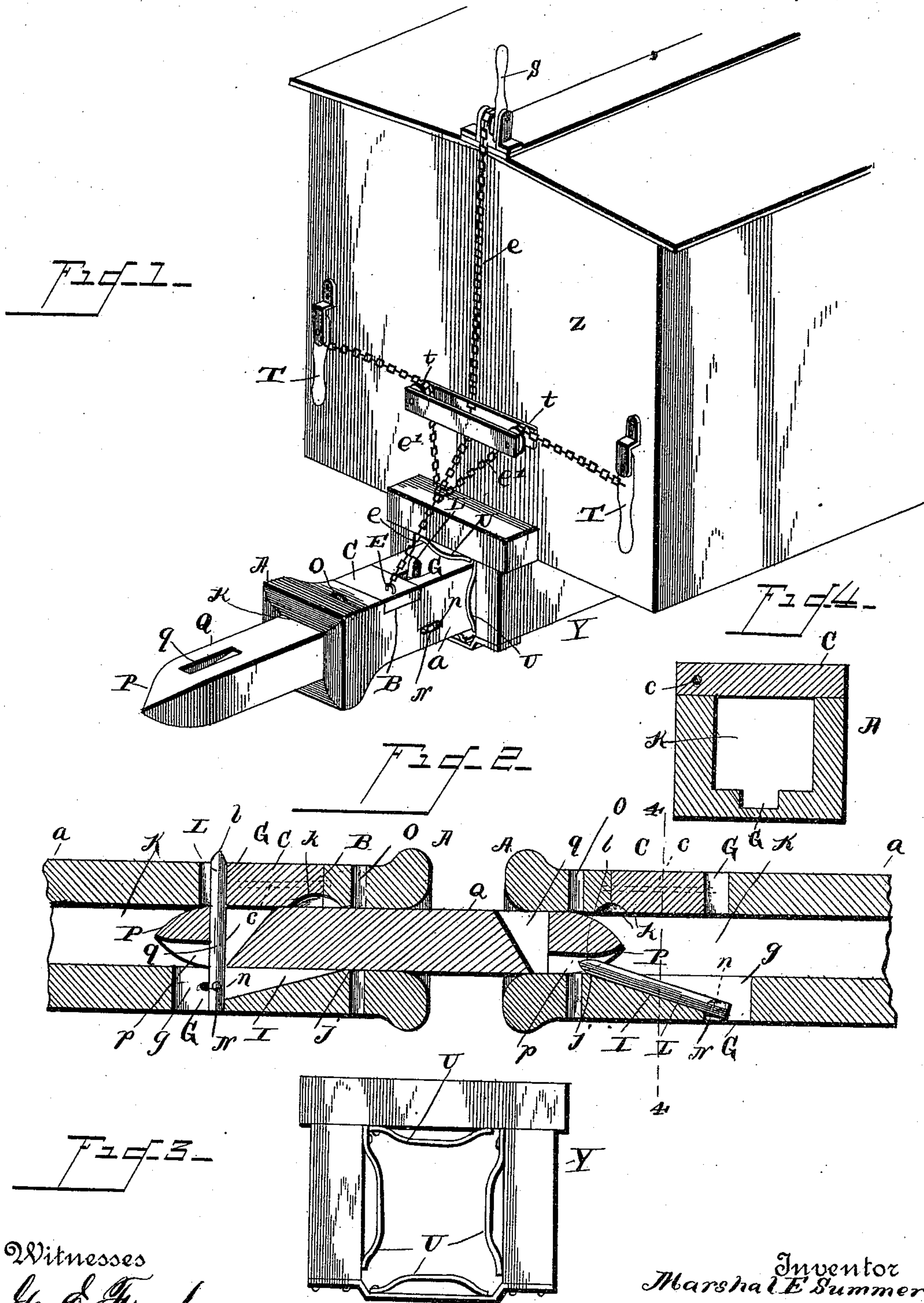


(No Model.)

M. E. SUMMERS.
CAR COUPLING.

No. 429,662.

Patented June 10, 1890.



Witnesses
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MARSHAL E. SUMMERS, OF GUILFORD, MISSOURI.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 429,662, dated June 10, 1890.

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To all whom it may concern:

Be it known that I, MARSHAL E. SUMMERS, a citizen of the United States, residing at Guilford, in the county of Nodaway and State of Missouri, have invented a new and useful Car-Coupling, of which the following is a specification.

This invention relates to car-couplings, more especially of that class known as "swing-pin;" and the same consists of a pin pivoted in the draw-head on a horizontal pivot, a block pivoted in the draw-head on a longitudinal pivot and adapted to swing in a plane at right angles to that of the pin, and a link having a hole through its body, and a slot extending forwardly from the lower end of said hole, as well as of other details of construction necessary to the successful operation of the device, all as hereinafter described.

In the drawings, Figure 1 is a perspective view of the end of a car, showing my improved car-coupling attached thereto. Fig. 2 is a central longitudinal section of two draw-heads embodying my invention and a link coupled in one and about to be coupled in the other, and Fig. 3 is a front elevation of the improved draw-bar frame I prefer to use. Fig. 4 is a transverse section of the draw-head on line 4 4 of Fig. 2, with the coupling-pin removed.

The letter Z designates a car-body having secured thereto the preferably rectangular frame-work Y, and within this frame-work are arranged three strong semi-elliptical springs U at the two sides and the bottom and top of said frame, as shown in Fig. 3. The draw-bar *a* is somewhat smaller than the interior dimensions of frame-work Y, and passes into said frame-work and is secured therein by buffer-springs at its inner end in the well-known manner. It will thus be understood that the draw-head A has a wide range of lateral motion on curves or of vertical motion to accommodate itself to cars of different heights, but at the same time when not coupled it stands horizontally from the car, owing to the draw-bar *a* being held in this position by the springs U.

The hereinafter-described link fits closely into the cavity within the draw-head, and any deviation from a straight line is therefore made by the draw-bar adjusting itself within the frame-work, and not the link within the

draw-head, as is the case with so many car-couplings now on the market. The mouth of the draw-head flares outwardly in the ordinary manner, as is well understood.

In the upper face of the draw-head A, on a longitudinal horizontal pin *c*, is pivoted a transverse coupling-block C, whose free end fits closely in a recess B and flush with the body of said draw-head. An eye E is provided near said free end, and from this eye a chain *e* is carried upwardly to a lever S at the top of the car. This chain has lateral branches *e'* passing over rollers *t* and leading to levers T near the outer sides of the car, whereby the coupling-blocks C may be operated from the top of the car or from either side thereof, as will be understood.

The lower front edge of the coupling-block C and the inner upper face of the draw-head opening K are cut away, as shown at *k*, and a vertical opening G is made through the draw-head from top to bottom just in rear of said coupling-block, for a purpose to appear hereinafter, and a vertical hole O is made entirely through the draw-head to receive the pin of an ordinary pin-and-link coupling when this draw-head is to be coupled by that means to another. The vertical opening G through the draw-head is somewhat enlarged at its lower end, as shown at *g*, and forward of this opening is formed an upwardly and forwardly inclined groove I, which terminates in a plane with the lower edge of the draw-head opening K at a point *j* just in rear of the ordinary pin-opening O. A horizontal pin N passes transversely through the draw-head within the lower extremity of the opening G, and on this pin is pivoted the coupling-pin L, having a sharp front end *l*, as shown. The link Q is preferably rectangular in cross-section and tapers at its ends to points P. Its body is provided near each end with a vertical slot *q*, whose inner face inclines upwardly toward the center of the link. From the lower end of this slot a groove *p* extends forwardly to the end of the link, as best shown in Fig. 2.

The operation of my device is as follows: The link being engaged in the draw-head of one car, as shown at the left of Fig. 2, and the coupling-pin L of another car, as shown at the right of said figure, lying in the groove

I, if now the second car is brought against the first the point *l* of the pin *L* passes into the groove *p* in the free end of the link *Q*, strikes the inclined rear face of the vertical slot *q* therein, and as the draw-heads continue to approach the pin *L* is turned on its pivot *N*, its free end entering the cut-away portion *k* in the top of the draw-head, continues rearwardly beneath the coupling-block *C*, which it raises on its pivot, and finally passes into a vertical position, as shown at the left of Fig. 2, with its upper end seated in the upper end of the opening *G*, the coupling-block *C* falling down in front of said upper end and holding the coupling-pin in place. The draw-heads continuing to approach, the slot *q* in the link passes alongside the pin *L* until the other draw-head strikes the one in question, when the entire draw-head is driven under the car against the force of the buffer-springs, as will be understood.

For allowing a slight longitudinal play of the coupling-pin *L*, I preferably make the opening *G* a little longer than the breadth of the pin *L* and seat the ends of the pivot-pin *N* in a short slot *n* in the draw-head, although this construction may not in all cases be found necessary or desirable.

To uncouple the cars, one of the operating-levers *T* or *S* is moved, whereby the chain *e* is drawn upon and the coupling-block *C* is raised, when the longitudinal draft of the train will automatically disconnect the cars.

It will be observed that the coupling-pin *L* at both its upper and lower ends bears firmly against a portion of the draw-head—that is to say, at its upper end it bears against the rear face of the coupling-block *C*, and the front face of said block bears firmly against the front wall of the transverse recess *B* in the draw-head.

When the device is to be uncoupled, the coupling-block *C* turns upon its pivot in a plane at right angles to that in which the coupling-pin *L* must turn, and this construction obviates the friction which usually exists at this point, whereby my improved coupling may be uncoupled quickly and easily, as in case of accident or when there is considerable longitudinal strain on the parts.

A practical test of this coupling has demonstrated its efficiency and has convinced me that it can be constructed cheaply and easily and applied at slight expense to freight or passenger cars now in use.

What I claim is—

1. In a car-coupling, the combination, with the body of the car and the rectangular frame-work depending therefrom, of the open draw-bar smaller than the interior dimensions of said frame-work, the semi-elliptical springs at the sides, top, and bottom of said draw-bar between it and the frame-work, and a link adapted to enter and be coupled within said draw-bar, as and for the purpose set forth.

2. The draw-head *A*, having a longitudinal recess *K*, vertical opening *G*, extending en-

tirely through the draw-head, and transverse recess *B*, in combination with the coupling-pin *L*, pivoted on a transverse pin in slots through the draw-head at each side and at the lower end of said vertical recess, and the coupling-block *C*, pivoted on a longitudinal pin in one end of said transverse recess, the whole constructed and operating substantially as described.

3. The draw-head *A*, having a longitudinal recess *K*, a transverse horizontal recess *B* in its upper face, and a vertical opening *G* through its body on a line just in rear of said transverse recess, the lower face of said longitudinal recess *K* inclining upwardly and forwardly from the lower end of said vertical opening *G*, in combination with the coupling-pin *L*, pivoted on a transverse pin *N* in the lower end of said vertical opening, and its free end *l* being pointed, and the coupling-block *C*, pivoted on a longitudinal pin in one end of said transverse recess, the lower face of said block at its front edge and the upper face of the draw-head just in front thereof being cut away, as at *k*, all substantially as and for the purpose set forth.

4. The draw-head *A*, having a longitudinal recess *K* and the vertical opening *G* through its body, the lower end *g* of said opening being enlarged and the sides of the draw-head opposite said lower end being provided with the longitudinal slots *n*, in combination with the horizontal transverse pin *N* within said slots, the coupling-pin *L*, pivoted on said pin, and the coupling-block *C*, mounted on the draw-head in front of the upper end of said vertical opening, as and for the purpose set forth.

5. In a car-coupling, a coupling-pin *L*, pivoted on a transverse pivot in the draw-head *A*, and a coupling-block *C*, pivoted on a longitudinal pin and adapted to pass in front of the free end of said coupling-pin, in combination with an eye *E* in the free end of said coupling-block, levers *T* and *S* at the sides and top of the car-body, and chains *e* and *e'*, connecting said eye with said levers, as and for the purpose set forth.

6. The combination, with the draw-heads *A* and draw-bars *a*, the rectangular frame-works *Y* beneath the car-bodies, and semi-elliptical springs between said frame-works and draw-bars, said draw-heads being provided with longitudinal recesses *K* of rectangular cross-section, of the coupling-link *Q*, closely fitting in said recesses, and means, substantially as described, for coupling the ends of said link within said draw-heads, as set forth.

7. The draw-head *A*, having a longitudinal recess *K*, a vertical opening *G* through said draw-head, an upwardly and forwardly inclined groove *I*, leading from the lower end of said opening, a coupling-pin *L*, pivoted in the draw-head and lying normally in said groove, its free end *l* being pointed, and a coupling-block *C* for removably engaging the upper

end of said coupling-pin, in combination with the link Q, having the vertical recess *q* in its body, the rear wall of said recess being inclined upwardly and rearwardly, and a longitudinal groove *p*, leading from the lower end of said recess and opening outwardly through the link, the whole adapted to operate substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

MARSHAL E. SUMMERS.

Witnesses:

ED. E. ALESHIRE,
FRANK P. MAYHUGH.