C. G. ELY.

CAR-COUPLING

No. 188,241. Patented March 13, 1877.

FIG. 1.

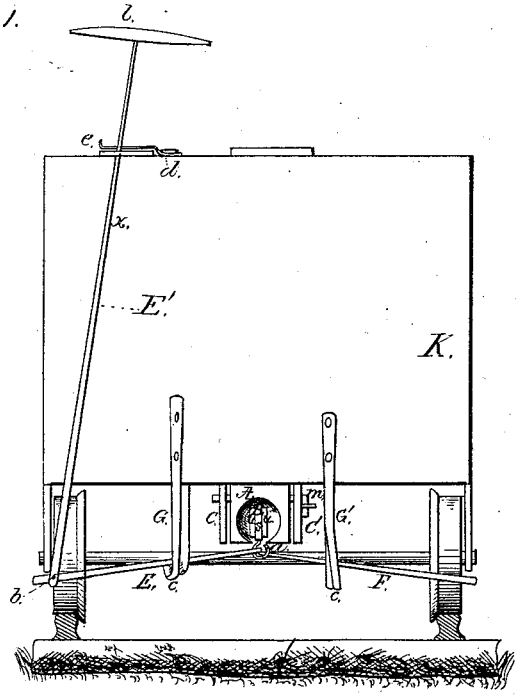


FIG. 2.

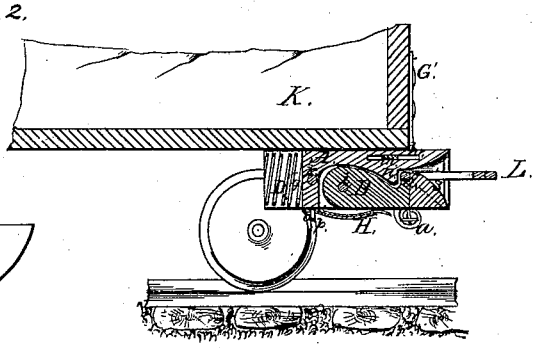


FIG. 3.

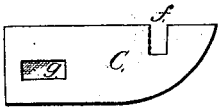
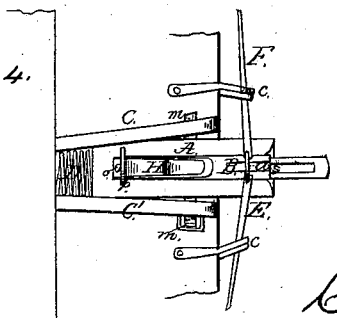


FIG. 4.



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UNITED STATES PATENT OFFICE.

COLUMBUS G. ELY, OF TIPTON, MISSOURI.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. 188,241, dated March 13, 1877; application filed December 29, 1876.

To all whom it may concern:

Be it known that I, COLUMBUS G. ELY, of town of Tipton, in the county of Moniteau and State of Missouri, have invented certain new and useful Improvements in the Coupling of Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in automatic safety car-couplings; and consists of a draw-head with a bell-shaped or flaring mouth, a hooked or barbed draw-bar, governed by springs, and acting or coupling automatically, uncoupling-levers, butting-shoulder, link-rest, flat coupling-link, &c., all of which will be more particularly pointed out hereafter.

Figure 1 is an end elevation of a railway-car, showing the coupling device complete. Fig. 2 is a perpendicular section of the same, cut through the center. Fig. 3 is a side elevation of the inside of one of the draw-head supports. Fig. 4 is a plan of the draw-head and coupling device from the under side.

Similar letters of reference indicate corresponding parts.

A is a draw-head for railway-cars, with a bell-shaped or flaring mouth, by which it is the more readily enabled to catch up the end of a coupling-link attached to an approaching car. Projecting down from the roof of the throat, inside the mouth of the draw-head, is a shoulder, *n*, intended as a check to prevent the coupling-link from going too far into the draw-head. The under side of the draw-head is grooved part of its length for the admission of, and to permit the play of, the hooked draw-bar B, pivoted on bolt *i*, which answers the purpose of a coupling-bolt. The inner end of the draw-head is solid, and in the upper edge, near the mouth end, it has a long slot, *h*, that admits of the passage of a substantial bar, *m*, on and by which the draw-head is suspended and held in place, permitting at the same time both longitudinal and lateral slide and play. Near the inner end of the draw-head is a bolt, *k*, the ends of which enter and work in grooves *g* in the supports C, keeping this end in place, while the difference in size between the bolts *k* and grooves *g* permits the necessary oscillations. B is a draw-bar, provided with a hooked beak or barb, *r*, so formed and arranged that it hooks into the coupling-link L, and performs all the functions of a draw or coupling bolt. The end of draw-bar *s*, from the point of the beak down, is truncated, (beveled,) so that it forms one of the flaring sides to the draw-head mouth, and offers no direct point of resistance to the coupling-link when being forced into place. Behind and on the sides of hook *r* is a projection, *u u*, on which the coupling-link can rest, and by which it is guided into the mouth of an opposite draw-head. This draw-bar B is suspended on a pivot-bolt, *i*, passing through the draw-bar B and sides of the draw-head A, and is held up in place and automatically closed by a substantial spring, H, secured at *o* and *p* on the solid end of draw-head A by any known device, acting directly on it, as shown in Figs. 2 and 4. It is also provided with an eyebolt, *a*, to which the levers E and F—used in uncoupling the cars—are made fast. C and C′ are two substantial timbers, each with a slot, *f*, and groove *g*, which are made fast to the under side of a car, K, coming out flush with the end thereof, and form a casing for and hold the draw-head in place by means of the bar *m* and bolt *k* passing through or resting in slots *f* and grooves *g*. G G are brackets attached to the car K, that act as a fulcrum each for the levers E and F, and terminate in loops *c c*, through and in which the levers E and F pass, act, and are held in place. Lever F terminates at the side of the car, where it may be operated by any one from the ground, while lever E, being jointed at *b*, where it forms an angle, continues to the top of the car, terminating in a handle, *l*. It is secured near the top of the car by a bracket-loop, *d*, and can be operated either from the ground or top of the car. Arm E′ of lever E is provided with a number of teeth at *x*, into which a spring-catch, *e*, may latch when the lever is drawn up and it is desired to throw the draw-head open and prevent its acting.

L is a coupling-link of the shape and size

now in use; but I would prefer for my device to have it made of square bars of iron.

When the draw-head has been constructed as shown, and secured in position between the timbers C C by slipping and securing the bar *m*, through slots *f* and *h* and the bolts *k*, into grooves *g g*, and has been thrown forward by the usual spring D, suitably arranged in boxings for the purpose, the levers E and F being fixed to the car, as described—secured to eyebolt *a*—the whole is ready for use, as follows: The coupling-link L may be introduced into the mouth of the draw-head either by force—as by two cars coming together—or by using the levers E and F. When introduced by force, the link is pushed into the bell-shaped mouth sufficiently hard to displace the hooked draw-bar B by pressing it downward until the end of the link has passed the beak or hook *r*. When the beak or hook *r* has entered the loop or link, by the aid of spring H the draw-bar is immediately thrown back into place and the link secured, when, by using the levers, either lever is raised up until the link can be placed or displaced by hand.

To give the coupling-link full and easy play, the space between the beak *r* and the shoulder *n* and the projections *u u* and roof of the throat of the draw-head should be something greater than the size of the link used, but not so large that the link can either be swallowed so far that it will not couple with, nor drop so low that it cannot enter automatically, the mouth of an opposite approaching draw-head. The distance between the shoulders *n* of opposite draw-heads (the lips touching each other) should be a trifle greater than the length of the coupling-link, so that when two cars come together the link in one may be caught in the flaring mouth of the other, and carried up the beveled end *s* into the throat of the draw-head, displacing the draw-bar B until the link has passed the beak *r*, which catches and retains it, thereby coupling two cars together, and permitting the draw-head to collide without injury to the link.

The cars may be uncoupled from the ground or roof of the car by lifting the lever, and the coupling device thrown out of place by latching-teeth *x* on lever-arm E′ on spring-catch *e*.

Having now fully described my invention, what I esteem as new, and desire to secure by Letters Patent, is—

1. A flaring-mouthed draw-head, A, having shoulder *n*, bolt *k*, and slot *h*, in combination with draw-bar B, hung at one end on journal-bolt *i*, the other being beveled, provided with shoulder-rests *u u* and coupling-hook *r*, and springs H, substantially as described, and for the purpose stated.

2. Supporting-timbers C C, having slots *f* and grooves *g*, in combination with flaring-mouthed draw-head A, having a shoulder, *n*, a draw-bar, B, provided with shoulder-rests *u u* and coupling-hook *r*, and springs H, stay-bolt *k*, and supporting-bar *m*, substantially as described, and for the purposes specified.

3. In combination, draw-bar B, provided with shoulder-rests *u u* and coupling-hook *r*, spring H, eyebolt *a*, levers E and F, brackets G G and *d*, spring-latch *e*, teeth *x* in lever-arm E′, joint *b*, lever-handle *l*, and grooved draw-head A, substantially as described, and for the purposes specified.

4. In combination, a flaring-mouthed and grooved draw-head, A, shoulder *n*, hooked draw-bar B, with shoulder-rests *u u*, and coupling-link L, substantially as described and specified.

In testimony that I claim the foregoing specification I have hereunto set my hand this 5th day of December, 1876.

COLUMBUS G. ELY.

Witnesses:
J. F. TAYLOR,
ISAAC S. LEAVY.