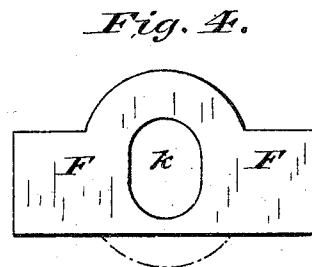
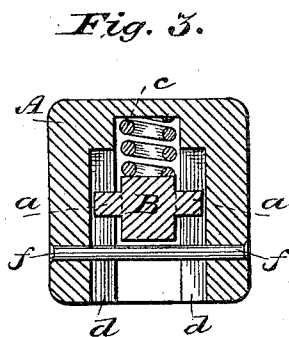
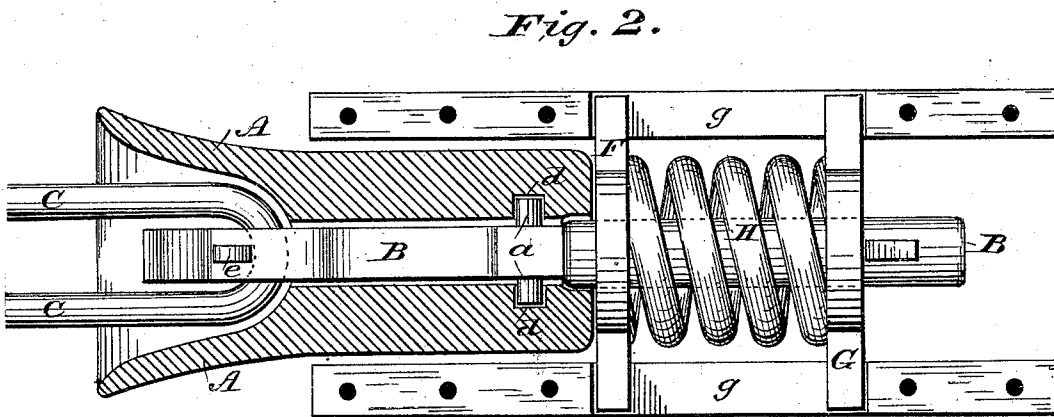
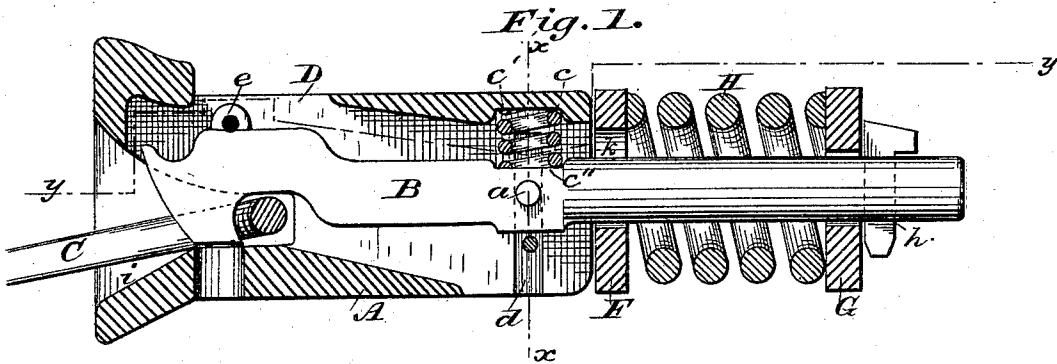


(No Model.)

S. B. ARCHER.
CAR COUPLING.

No. 283,845.

Patented Aug. 28, 1883.



Witnesses:

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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 283,845, dated August 28, 1883.

Application filed July 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL B. ARCHER, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Car-Couplings; 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.

My invention relates to improvements in that class of car-coupling which automatically couple and connect railway-cars when the bumper-heads of such cars are brought together with a coupling-link in one of the bumper-heads, and which may be uncoupled without necessitating the train-man to pass in between the cars.

The object of my invention is to produce a car-coupling that is strictly automatic in coupling the cars, that is very simple in its construction, not liable to get out of order, to arrange the parts so as to place the entire pulling strain upon the buffer-springs, instead of upon the draw-head, and that can be readily attached to the old cars now in use as well as to new ones.

The invention relates to a novel construction of the draw-bar and its attachments, and an arrangement of the same in relation to the buffer-head of a railway-car to which it is secured, whereby the coupling is automatically performed without buckling the draw-bar or coupling-link or subjecting either to undue strain, and so as to apply the draft entirely to the spring on the draw-bar, to avoid the use of a coupling-pin and permit the uncoupling to be performed from the top or side of the car, thus avoiding the dangers and accidents attending the ordinary method of coupling cars.

My invention consists in a hollow buffer-head provided with a groove on each side, near its rear end. Inside of this is placed a hooked draw-bar of sufficient length to extend from the mouth of said buffer-head rearward through the follower-plates and buffer-spring. On each side of this draw-bar is a lug, in such position as to enter the grooves in the buffer-head and to work freely up and down in the same, which also holds the two

parts together when in their position on the cars. On the inside of the buffer-head is placed a small spiral or flat spring, so as to come directly over the lugs on the draw-bar. This arrangement allows the weight of the buffer-head to come directly on the draw-bar and assist in holding it in its coupled position. It also allows the draw-bar to work freely up and down independent of the buffer-head.

It also consists in the construction and arrangement of certain details, as will be more fully described hereinafter, and specifically pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 represents a longitudinal section of the car-coupling in its coupled position. Fig. 2 is an irregular horizontal section on line *y y* of Fig. 1. Fig. 3 is a cross-section on line *x x* of Fig. 1. Fig. 4 is a front view of the follower-plate F.

In the drawings, A is the buffer-head, which is similar in outward appearance and attached to the car in the same manner as those of ordinary construction. This buffer-head is provided with an opening on the inside, which extends through its entire length, and is so shaped at the front end as to form the mouth, into which the link C is placed and held in position, so as to enter the mouth of another buffer-head coming in contact with it. The remainder of the opening is of such shape and size as to allow the draw-bar B to be placed in position and to operate freely. An opening, D, through the top of the buffer-head is of such shape and size as to allow a suitable device to be attached to draw-bar B at the lug *e*, for the purpose of raising the said draw-bar to uncouple the cars. In each side of the rear end of said buffer-head is arranged a groove, *d*, forming guides for the spring *c* over the draw-bar and lugs *a* on the draw-bar B, both of which can freely move up and down therein when the spring H exerts its tension thereon. The recess *c'* also acts to hold the spring *c* in position. A rivet or bolt, *f*, passing through both sides of the buffer-head, prevents the draw-bar from dropping out, and holds it in place when it is not in its proper position on the car, and supported by the follower-plates F G. Instead of the bolt or rivet *f* passing through

the buffer-head, a band may be placed around the outside of the buffer-head over the groove *d*, which will answer the same purpose; but under ordinary circumstances neither of these devices will be necessary. The follower-plates F and G are arranged to move freely in the seat or shoe *g*, Fig. 2, and the front one, F, is provided with an oblong hole or slot, *k*, so as to allow the round end of the draw-bar to move freely up and down in the act of coupling or uncoupling. Said plates are preferably made of the form shown in Fig. 4, although they may be made any form outside that the design of the car they are to be placed upon may render necessary.

B is the draw-bar, upon which the entire pulling strain is placed. This is placed in position from the rear end of the buffer-head, and held in its position by the lug *a*, groove *d*, and spring *c*, upon which it oscillates and forms a toggle-joint, the depression *c'* preventing any displacement of the latter. It is provided at its front end with a hook having an incline or rounded face, so it can pass easily over the link C when in the act of coupling. On the top of the hook is placed a lug, *e*, provided with a small hole, to which is attached a suitable device for raising the draw-bar from the side or top of the car when in the act of uncoupling. The rear end of the draw-bar passes through the buffer-spring H and follower-plates F and G, and is held in position by means of a key or nut at *h*, as may be preferred.

The operation is as follows: The car with the draw-bar and buffer-head, being in the position shown in Fig. 1, (excepting with no link,) and the other car to be coupled, having the link in its buffer-head, are brought together. The link will then strike against the rounded end of the draw-bar, raise it up, and pass under the hook. The draw-bar will at the same time raise the rear end of the buffer-head, its front end will be thrown down, and the upper end part a little forward. The weight of the hook, after the link has passed it, besides its own weight, is assisted by the weight of the draw-head, as well as by the other car, which strikes the top of the projecting part of the draw-head and tends to throw it back to its normal position, and thus completes the coupling of the cars.

During the operation of coupling or uncoupling, when the cars are backing or in such a position as to prevent the raising of the rear end of the buffer-head, the draw-bar B then operates independently of the buffer-head by the contraction of the spring *c*, which allows the draw-bar to be raised above the link without moving the buffer-head. It will be thus seen that the draw-bar and buffer-head can

act independently of each other. When the draft is applied to the draw-bar, the strain is first applied to the key or nut in the part B, thence through the sliding plate G to the spring H, through the plate F to the floor-beams of the car, the strain on the draw-bar being constantly a pulling strain, tending to keep said draw-bar straight and relieving it of any tendency to bend or buckle, while at the same time relieving the buffer-head from any pulling strain and placing it upon the buffer-spring. To uncouple the cars, the chain or equivalent means is drawn upon by the trainman from the top of the car, or said chain, &c., is attached to a lever or equivalent extending to the side of the car. The spring *c* is retained in its position by a depression, *c'*, in the draw-bar B and a recess, *c''*, in the upper side of the buffer-head, which prevents any lateral displacement of the same.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In car-couplings, the combination of the spring and rivet or bolt *f* with the buffer-head and draw-bar connected together by a loose toggle-joint, substantially as described.

2. In car-couplings, the draw-bar provided with lugs *a*, in combination with grooves *d* in the buffer-head, substantially as and for the purpose set forth.

3. The combination of the draw-bar, provided with lugs *a*, moving in guides *d* in the buffer-head, with the spring *c* and rivet or bolt *f*, arranged substantially as and for the purpose specified.

4. In car-couplings, the combination of a hooked draw-bar, B, and buffer-head A, attached together by a toggle-joint, with a spring, *c*, arranged within the draw-head, as and for the purpose specified.

5. In car-couplings, the combination of a hooked draw-bar, B, having lugs *a*, moving in guides *d* in the buffer-head A, and a spring, *c*, arranged above said draw-bar, as shown and set forth.

6. A car-coupling consisting of a hollow buffer-head, A, having an opening, D, in its upper side, and guides *d*, and a hooked draw-bar, B, provided with lugs *a*, and connected together to form a toggle-joint, in combination with the follower-plates F G, spring H, key N, spring *c*, and rivet *f*, all constructed and arranged for operation substantially as shown and specified.

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

SAMUEL B. ARCHER.

Witnesses:

LLOYD F. KELEHER,
J. W. HAMILTON JOHNSON.