

(No Model.)

J. C. FARMER & J. W. WHITE.

CAR COUPLING.

No. 344,037.

Patented June 22, 1886.

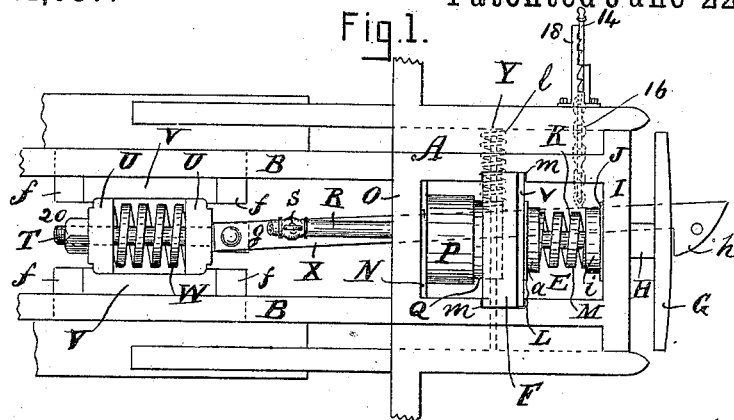


Fig. 6.

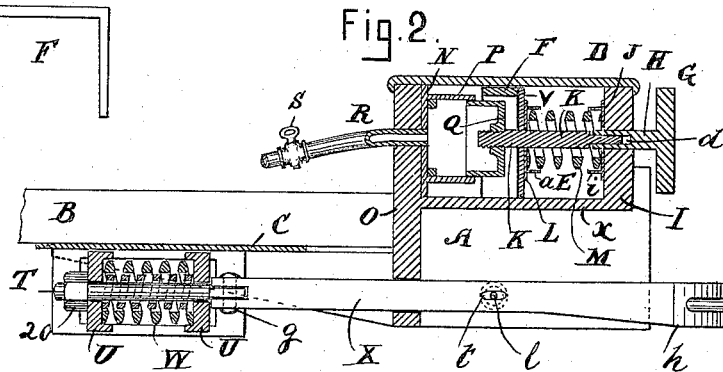
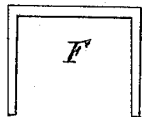


Fig. 4.

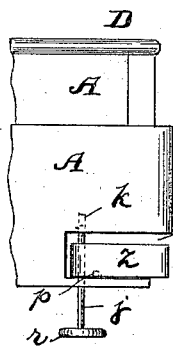


Fig. 3.

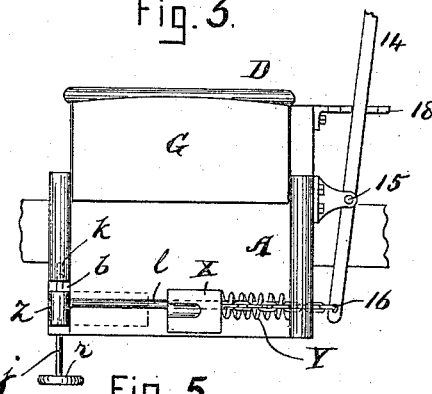
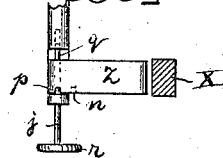


Fig. 5.



Witnesses.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 344,037, dated June 22, 1886.

Application filed January 4, 1886. Serial No. 187,596. (No model.)

To all whom it may concern:

Be it known that we, JAMES C. FARMER and JOHN W. WHITE, respectively of Providence, in the county of Providence, State of Rhode Island, and Dedham, in the county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Railway-Car Couplings, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top plan view of our improved coupling; Fig. 2, a vertical longitudinal section of the same, the draw-bar being shown in side elevation; Fig. 3, a front elevation; Fig. 4, a side elevation showing the locking-lever for the draw-bars in the position in which it is placed when out of use; Fig. 5, a diagram showing the locking-lever for the draw-bars in the position in which it is placed when in use, and Fig. 6 a view of the key detached.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

Our invention relates more especially to the couplings employed for coupling the tender of the locomotive to the forward car in the train; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, the object being to produce a more effective and otherwise desirable device of this character than is now in ordinary use.

It is well known to engineers and others in charge of railway trains provided with what are known as the "Miller Coupling," that in turning short curves the draw-bar heads are liable to unhook or become disconnected when unprovided with means for keeping them engaged; also, that it is difficult to keep the "slack" taken up or prevent backlash between the tender and forward car when the couplings are constructed in the ordinary manner; also, that when so constructed as to cause the buffer to press at all times with sufficient force against the chafing-iron of the car then

it is difficult to readily uncouple the tender and car as required.

To overcome these difficulties and objections is the object of our invention, and to that end we make use of means which will be readily understood by all conversant with such matters from the following explanation:

In the drawings, A represents the box or casting in which the buffer and draw-bar are mounted, the box being provided with horizontally and rearwardly extending arms B B, connected by the plate C, for supporting the rear end of the draw-bar and its cushioning-spring.

It is not deemed essential to show the car or tender, as these may be of the ordinary form and construction, and the box may be connected therewith in any proper manner.

In Fig. 1 the plate C and cover D of the box A are represented as removed.

A chamber, E, having the bottom *x*, is formed in the upper portion of the box A, the side walls of this chamber being each provided with a vertical groove, *m*, for receiving the key F, and a slide, *v*, said slide resting on the bottom *x*, and being fitted loosely in said grooves. The buffer-head G is mounted on a rod or bar, H, which is fitted to slide horizontally in the front end wall, I, of the chamber E, said rod being firmly attached within said chamber to a plate, J, provided with an annular horizontally-projecting flange, *i*. A horizontally-arranged piston-rod, K, is disposed in the chamber E, said rod passing through and being firmly secured in the slide *v*. A plate, L, provided with a horizontally-projecting annular flange, *a*, is firmly secured to the slide *v*, the flanges *i a* respectively forming sockets for receiving and holding the ends of a coiled spring, M, which is disposed in the chamber E around the rod K. The forward or outer end of the rod K is reduced in size and fitted to work in a socket, *d*, formed in the inner end of the rod H. A plate, N, is attached to the rear wall, O, within the chamber E, and projecting horizontally from this plate there is a wide annular flange, P, forming a cylinder, which opens inwardly toward the slide *v*. Attached to the rear or inner end of the piston-rod K there is a cup-shaped pis-

ton-head, Q, which is fitted to work in the cylinder P. A pipe, R, provided with a two-way stop-cock, S, passes through the rear wall, O, of the chamber E and opens through the plate N into the cylinder P, said pipe being connected with the ordinary air-tank of the air-brake, which tank is usually disposed under the foot-board of the locomotive. A rod, T, is mounted horizontally in flanged plates U, which are fitted to slide in the ways V on the arms B, stops *f* being provided at the ends of said ways to prevent said plates from escaping therefrom, and a nut, 20, employed to prevent the rod from being withdrawn from the plates. A coiled cushioning-spring, W, is disposed around the rod T, between the plates U, and jointed to the forward end of said rod at *g* there is a draw-bar, X, provided at its forward end with an ordinary laterally-projecting hook, *h*, adapted to engage a companion hook (not shown) on the forward car of the train. A coiled spring, Y, which acts expansively to keep the hook *h* engaged with its companion hook, is disposed around a rod, Z, in the lower portion of the box A, one end of said spring abutting against the draw-bar X and the other against the side wall of the box, said rod passing through a slot, *t*, in the draw-bar.

A slot, *b*, is cut in one of the sides of the box A near its lower end, as best seen in Figs. 3 and 4, and journaled to swing laterally in said slot on the rod *j* there is a locking-lever, Z. This lever is narrower vertically than the slot *b*, and is rigidly secured to the rod *j*, the upper end of which rod is fitted to work in a socket, *k*, its lower end being provided with a hand-wheel, *r*. A short stud, *p*, projects upwardly from the floor of the slot *b*, said stud being adapted to enter a socket, *n*, in the lower portion of the lever Z. The lever Z is of sufficient length to strike one of the draw-bars when said lever is swung around at a right angle to the side wall of the box A, in which it is journaled, and thus keep the draw-bars engaged and from uncoupling when the train passes a sharp curve in the road.

The object of the stud *p* is to hold the locking-lever *a* either opened or closed, as desired.

To open the lever, as shown in Fig. 4, the rod *j* is raised, carrying with it, of course, the lever, and when the rod is sufficiently elevated to permit said lever to clear the stud it is turned until the socket *n* is brought over the stud and then dropped, thereby causing the stud to enter the socket in the lever and lock it opened.

To close the lever Z, or to lock the draw-bars together, the rod *j* is raised vertically until the stud *p* is withdrawn from the socket *n*, and then turned until the free end of the lever engages or nearly engages the draw-bar, after which the lever is dropped, as shown in Fig. 5, the stud *p* resting against one side of the lever and the end wall, *g*, against its opposite side, thereby keeping it in position. Any other suitable device for locking the lever

either opened or closed may, however, be employed if preferred without departing from the spirit of this portion of our invention. 70

A lever, 14, is pivoted at 15 to the side of the box A, the lower end of said lever being connected by a chain, 16, with the draw-bar X, for disengaging the draw-bars in uncoupling in the usual manner. A serrated locking-plate, 18, is attached to the upper portion of the box A for securing the lever when the draw-bars are disengaged. The lever may, however, be pivoted in any suitable fixed support, and any suitable means employed for securing it in position when the draw-bars are uncoupled. 75

In the use of our improvement the stop-cock S is opened and air let into the cylinder P, forcing the piston-head Q, rod K, and slide *v* outwardly, thereby compressing the spring M and forcing the buffer G outwardly to its fullest extent, as shown in Fig. 2. The key F is then inserted in the grooves *m* to keep the buffer in position and the air let out of the cylinder P, after which the car is coupled to the tender in the usual manner, the buffer-head G being kept pressing forcibly against the chafing-iron of the car by the spring M. To uncouple the car, the air is let into the cylinder until the slide *v* is moved forward in its grooves a sufficient distance to relieve the key F, when said key is removed and the air let out of the cylinder, thereby permitting the spring K to force the piston-rod and piston-head inwardly and relieve the pressure of the buffer-head against the chafing-iron or end of the car, after which the draw-bars may be readily disengaged in a manner which will be readily understood without a more explicit description. 80 85 90 95 100 105

The length of the spring M and its tension are such that when the car and tender are uncoupled and the plate J is against the end I of the chamber E the slide *v* will be nearly at the forward sides of the grooves *m*, thus enabling said slide to be moved forward by hand a sufficient distance to permit the key F to be inserted in the grooves *m*, and without the aid of air-pressure in the cylinder P, as described. 110 115

The stop-cock S may be located at any convenient point between the air-tank at the locomotive and the cylinder P.

As the rod or bar H, buffer G, plate J, rod K, plate L, spring M, slide *v*, and piston Q may be all moved longitudinally of the box A in unison for a considerable distance when the draw-bars are uncoupled, the key F withdrawn, and the piston is in its cylinder, it will be obvious that the slack or space between the buffer-head of the tender and chafing-iron or end of the car may be readily taken up or filled either by moving the piston forward by air-pressure or by hand and securing the slide *v* by means of the key; also, that the pressure of the buffer-head on the car may be readily relieved by withdrawing the key, as described, thereby rendering it comparatively easy to disengage or uncouple the draw-bars. 120 125 130

When the key F is inserted, the socket *d* in the buffer-rod H permits the buffer to be forced inwardly and the spring M to be compressed without moving the rod K or slide *v*.

5 The key F is preferably made slightly tapering, so as to be readily inserted and withdrawn from the slots *m*; but, instead of said key, any other suitable device may be employed for securing the slide *v* in its advanced position when
10 moved forward, as described.

The slide *v* forms an abutment for the inner end of the spring M, and the plate J an abutment for its outer end.

15 The rod or bar H is fitted to slide in the head I, but may be fitted to work in any suitable ways or bearings.

We do not confine ourselves to the use of the cylinder P, pipe R, and piston Q, or any other appliances for moving the buffer-head
20 and its immediately-connected parts forward by means of compressed air, as described. Neither do we confine ourselves to using the lever Z or device for locking the draw-bars between the tender and forward car only, as it
25 may be used between any two cars of the train. The buffer may also be used between any two cars of the train, if desired.

It will be obvious that the pipe R, cylinder P, and piston Q may be omitted, if desired,
30 when the buffer-head and its immediately-connected parts are to be moved forward by a hand only. The flanged plate L may also be omitted, if desired, and the inner end of the spring M permitted to abut directly against
35 the slide *v*. The arms B B may also be omitted and the rod T and spring W otherwise mounted.

Having thus explained our invention, what we claim is—

40 1. A buffer-head, a rod or bar on which the buffer-head is mounted, suitable ways for the rod or bar, a cushioning-spring for the buffer,

abutments for the spring, and a key or means for securing the inner abutment in a stationary position after being moved forward, said buffer-head, rod, or bar, and the spring and abutments being adapted to be moved forward a
45 certain distance in unison to take up the slack or reduce the space between the tender and car, or between two cars, and backward a
50 certain distance in unison to reduce the pressure on the buffer-head, and thus enable the draw-bars to be disengaged with greater ease, substantially as described.

2. The head G, rod H, plate J, slide *v*, and
55 spring M, in combination with the box A and key F, or means for securing the slide *v* in position after being moved forward, substantially as set forth.

3. The cylinder P, piston Q, pipe R, and
60 stop-cock S, in combination with the buffer-head G, rods H K, slide *v*, spring M, box A, and key F, or means for securing the slide *v* in position after being moved forward, substantially as described.
65

4. The rod H, provided with the head G, socket *d*, and plate J, in combination with the rod K, spring M, slide *v*, box A, and key F, or means for securing the slide in position after
70 being moved forward, substantially as set forth.

5. The box A, provided with a slot, *b*, and a pin, *p*, projecting upwardly from the floor of said slot, in combination with the vertical rod *j*, working in bearings at the inner end of said slot, and a lever, Z, narrower than said
75 slot, rigidly secured to said rod, and provided with a socket, *n*, adapted to engage said pin *p* when the lever is lifted and passed over said pin into proper position.

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