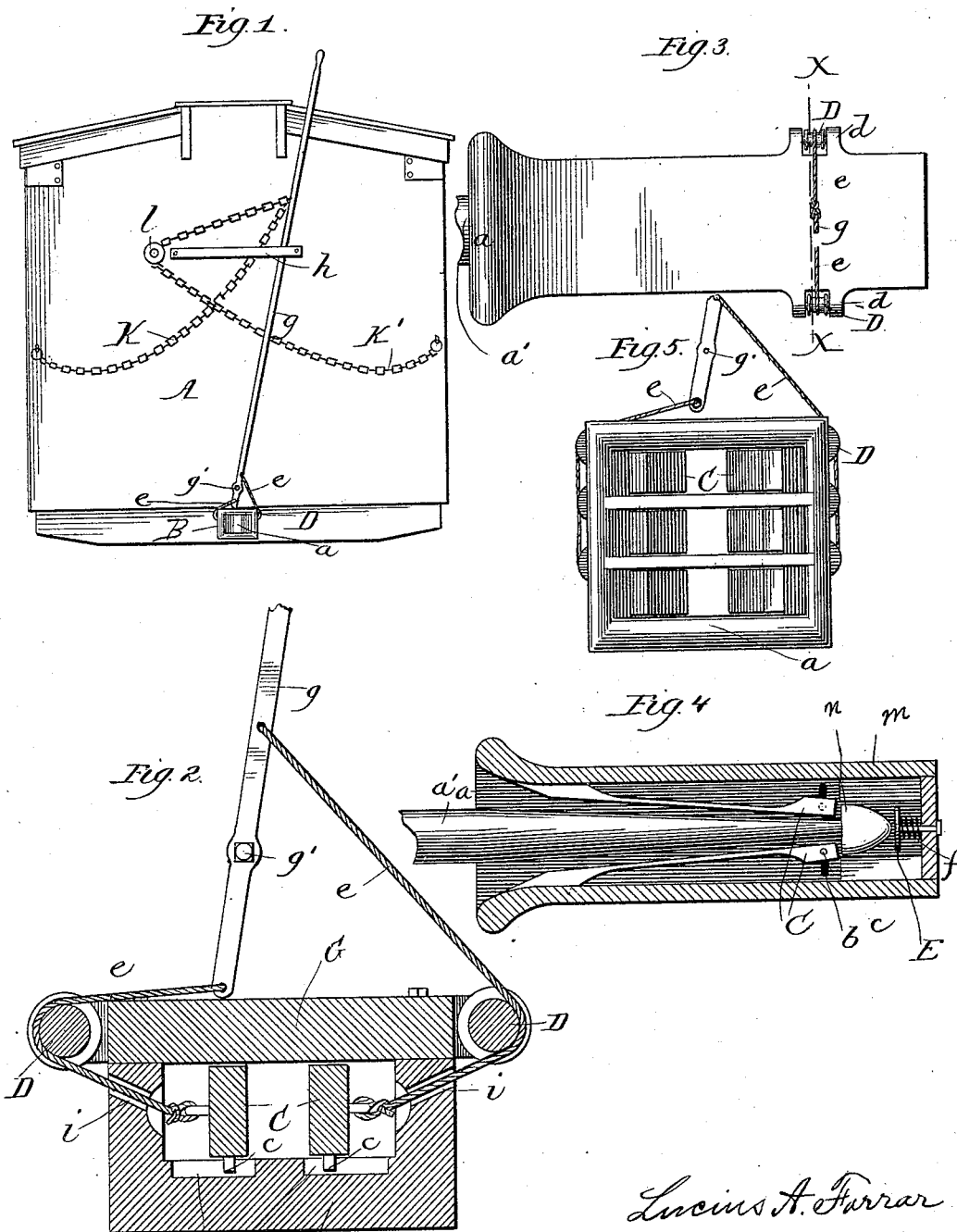


(No Model.)

L. A. FARRAR.
CAR COUPLING.

No. 421,825.

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CAR-COUPLING.

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To all whom it may concern:

Be it known that I, LUCIUS AUGUSTUS FARRAR, a citizen of the United States, residing at Shelbyville, in the county of Bedford and State of Tennessee, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to that class of car-couplings in which the operation of coupling is automatic, and which may be uncoupled from either the side or top of the car without the necessity of passing between the same; and it consists in certain peculiarities of the construction and arrangement of the different parts of the same, as will be hereinafter more fully set forth and specifically claimed.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it.

The objects of my improvements are, first, to provide a coupling which shall be of great strength and durability and reliable in its action; second, to lessen the expense of construction by dispensing with the use of links, which are so often lost and broken; third, to render easy the operation of uncoupling from either the top or side of the cars, thereby avoiding the frequent loss of life and limbs by accidents, and, fourth, to afford a self or automatic coupling. I attain these objects by the construction and arrangement of the parts of my invention as illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a car with my coupling attached. Fig. 2 is a cross-section taken on line *xx* of Fig. 3. Fig. 3 is a plan view of my draw-head, and Fig. 4 is a longitudinal section showing the pin in place when coupled. Fig. 5 is an end view of a draw-head having several compartments, one above the other, each compartment having the construction shown in Fig. 3.

Similar letters refer to corresponding parts throughout the different views of the drawings.

A represents the end of a car, to which is secured in the usual place and manner or any desirable way the draw-head B, which draw-head is preferably made of cast-iron, and formed with a wide flaring opening *a* at the front end for the easy insertion of the pin

a', and having a hollow interior of any desired form, but usually of rectangular shape, as shown in Figs. 2 and 4.

At the bottom of the draw-head and within the hollow thereof, at a suitable distance from the front end, I provide a horizontal groove *b* or depression, for the accommodation of pins *c c*, on the under side of the spring-clutches C C, as will presently be more particularly described and set forth.

On the outside of the draw-head, at a suitable distance from the front end, I place or cast projections or ears *d d*, between which I journal pulleys D D, preferably of spool shape, for the chains or connections *e e*, as will be readily understood and clearly seen from the drawings.

At the rear end of the hollow of the draw-head and within the same I provide a strong coil or spiral spring *f*, one end of which is secured to the end of the hollow draw-head, and the other end is provided with a plate or disk E, of suitable size, form, and material, which presents a smooth flat surface to the end of the pin *a'*, which comes in contact with said plate when the cars are backed together and the coupling is made.

To each side and within and near the mouth or opening *a* of the draw-head I firmly secure spring-clutches C C, preferably of the form shown. These clutches are made of suitable size and material, and formed, as shown, with a projection or pin *c* on their lower surface near the rear end of the spring-clutch. The rear end of the clutch is formed rectangular, so that the engagement with the head of the coupling-pin will be perfect and secure, as is obvious by reference to Fig. 4 of the drawings. To the surfaces of the sides of the clutches, adjacent to the side of the draw-head, I provide means for securing the chains *e e* to the same for uncoupling.

I provide the draw-head with a removable top plate G, so that in the event of any disarrangement or broken parts the top can be readily removed and the repairs easily effected.

In Fig. 1 I have shown the end of a car with my coupler attached and a means for uncoupling the same from the top or either side of the car. This method of uncoupling consists of the vertical bar or rod *g*, pivoted

near its lower end at g' to the surface of the car, and loosely held in place by a suitable guide h , secured to the car near the top of the rod g . At the lower end of the rod I firmly secure the chains $e e$, one above and the other below the pivot-pin g' . Near the upper end of the rod I secure the chains or cords K and K' , and attach the other end of each to either side of the car. The cord K' is passed over and operates on a small pulley l , secured at a proper point to the car for this purpose.

It will be clearly seen that by moving the bar or rod to the opposite end of the guide h it will act as a lever on the chains $e e$, which are secured at their other ends to the spring-clutches, and that the clutches will be pulled apart and the pin be left free to be withdrawn, and that the spring of the clutches will return the rod to the position shown, when it will be ready to repeat the operation when desired. The same result is obtained by pulling on either cord K or K' , as is apparent. It is also evident that I may employ other means of operating my coupler without departing from my invention.

In the drawings I have shown one draw-head only and a portion only of the coupling-pin, as this is all that is required to properly illustrate my device, the draw-head on the other car being similar in form and construction and the other end of the coupling-pin being formed, as in the end shown, with a tapering or conical-shaped head m and right-angled shoulders n , which pin when in use passes between the spring-clutches until the head passes the ends of the clutches, when they will tightly clasp the pin back of the shoulders, thus forming a secure coupling. I may make this pin straight in form, or may bend it with a crook midway from each end, so that it can be used in coupling cars of irregular height.

It will be seen and understood that the spring-clutches $C C$ are alike in size and form, and therefore possess the same degree of elasticity and strength, so that the lateral pressure of each against the pin is equal, and also that, being secured at their front ends to the inside of the draw-head and loose or free at the other, the pin will be easily passed between them and the coupling never fail to be made.

After the cars are coupled the strain thereof is brought longitudinally against the spring-clutches and I thereby gain great strength. To add to this strength, I have provided each clutch near its rear end and on its under surface with a pin or projection c , which fits in the horizontal groove b , thus allowing a free lateral movement of the ends of the clutches, but increasing the strength and security of the same in a longitudinal direction.

To the rear end of the hollow draw-head I provide, as before stated, a strong coil or spiral spring having a plate or disk with a smooth flat face, against which the end of the coupling-pin may strike. This spring must necessarily be very strong and yielding only

after the pin has been driven through the springs, thus preventing the bending or breaking of the pin, as would probably occur if without the spring and plate.

While I have shown my draw-head provided with pulleys to lessen the friction of the chains $e e$, which are secured at one end to the rod g and pass over the pulleys $D D$, through holes $i i$ in the side of the draw-head and are secured at the other end to the clutches $C C$, yet I may dispense with them and employ another method; but I prefer to use this.

The operation of my device is simple and scarcely needs explanation. The coupling-pin, which must be a little longer from shoulder to shoulder than the distance from the rear ends of the spring-clutches in one draw-head to the rear ends of those in the draw-head of the adjacent car, when they are together to admit of coupling, is inserted between the clutches till the head passes the ends thereof. The other end of the pin will project horizontally, and when the other car is forced against it the same operation will ensue and the coupling be made. The operation of uncoupling has been before explained.

In Figure 5 I have shown a modification of the draw-head which will enable me to couple cars of irregular height. In this modification, which I prefer to a crooked pin, I have formed the draw-head with several compartments or stories, as shown in the drawings, each of which is constructed as shown in Fig. 3, and the operation is obviously the same.

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

1. In an automatic car-coupling, the combination of the draw-head B , having the flaring opening a , and groove or grooves $b b$, holes $i i$, spring-actuated plate E , with the spring-clutches $C C$, provided with pins or projections $c c$ to engage in groove $b b$, and a pin a' , having heads m and shoulders n at each end, substantially as shown and described.

2. In an automatic car-coupling, the combination of the draw-head B , having the flaring opening a , groove b , holes $i i$, with the spring-clutches $C C$, provided with pins or projections $c c$, a link-pin a' , having a tapering head m and shoulders n at each end, and chains $e e$, substantially as shown and described.

3. In an automatic car-coupling, the combination of the draw-head B , having the flaring opening a and holes $i i$, chains $e e$, with the spring-clutches $C C$, and pin a' , having a tapering head m and shoulders n at each end, substantially as shown and described, and for the purpose set forth.

4. In an automatic car-coupling, the combination of the draw-head B , having the flaring opening a , grooves $b b$, holes $i i$, removable top plate G , ears $d d$, provided with pul-

leys D D, and spring-actuated plate E, with the spring-clutches C C, provided with pins *c c*, and means for securing to the loose end of the clutches the chains *e e*, and a pin *a'*,
5 having a tapering head *m* and shoulder *n* at each end, all constructed, arranged, and operating substantially as shown and described, and for the purpose set forth.

10 5. In an automatic car-coupling, the combination of the draw-head B, having the flaring opening *a*, grooves *b b*, holes *i i*, removable top plate G, ears *d d*, provided with pulleys D D, and spring-actuated plate E, with the spring-clutches C C, provided with pins
15 *c c*, and means for securing the chains *e e* thereto, a pin *a'*, having a tapering head *m*

and shoulder *n* at each end, a vertical bar *g*, pivoted at *g'* and having the chains *e e* secured thereto near its lower end, one above and the other below the pivot *g'*; the guide
20 *h*, the pulley *l*, and chains or cords K and K', all constructed, arranged, and operating substantially as shown and described, and for the purpose set forth.

In testimony whereof I have hereunto set
25 my hand and affixed my seal this 26th day of April, A. D. 1889.

LUCIUS AUGUSTUS FARRAR. [t. s.]

In presence of—

L. T. BATES,
B. D. HOLT.