W. HARKINS.
Car-Coupling.

No. 224,777. **Patented Feb. 24, 1880.**

Fig. 1.

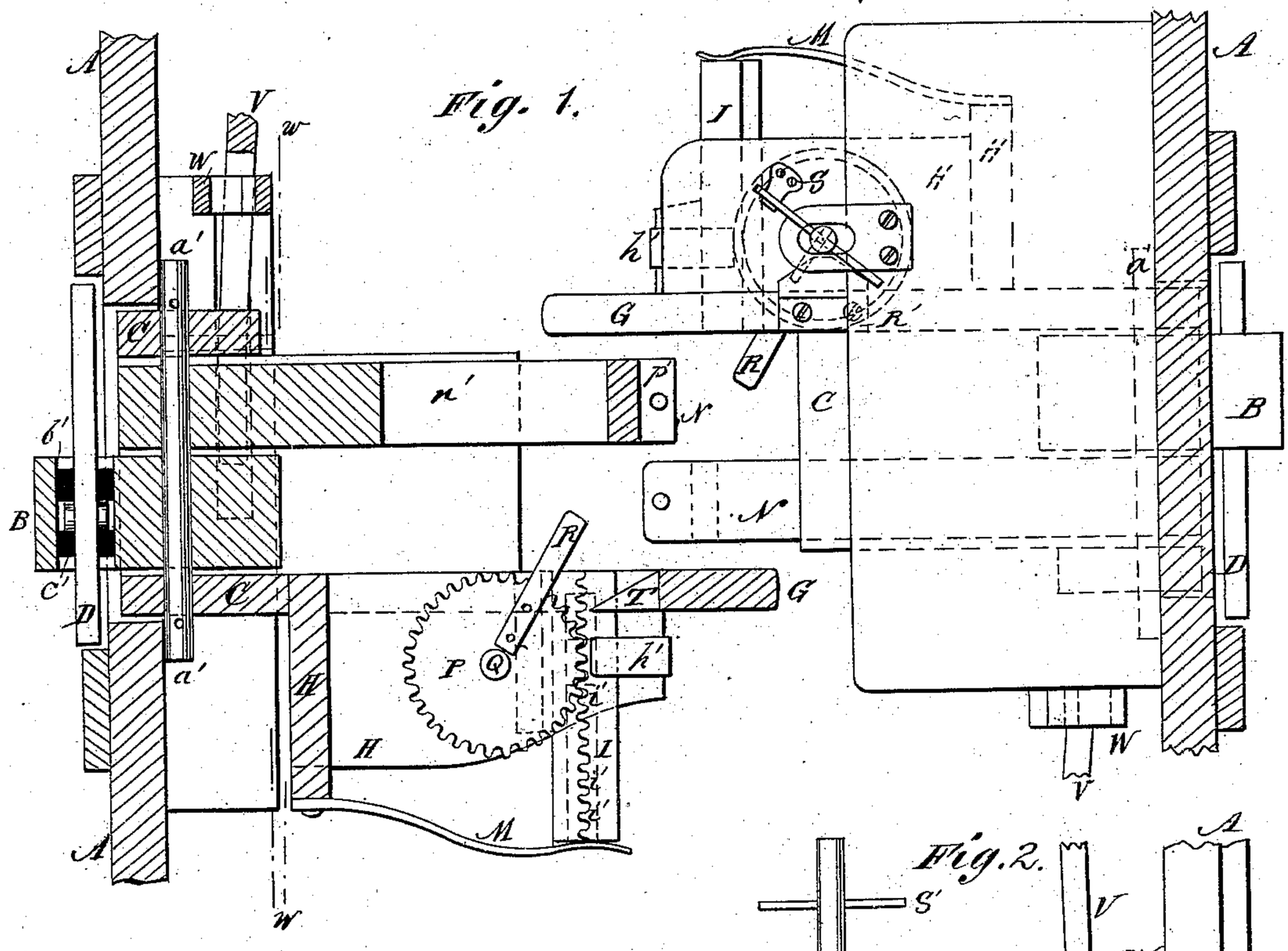

Fig. 2.

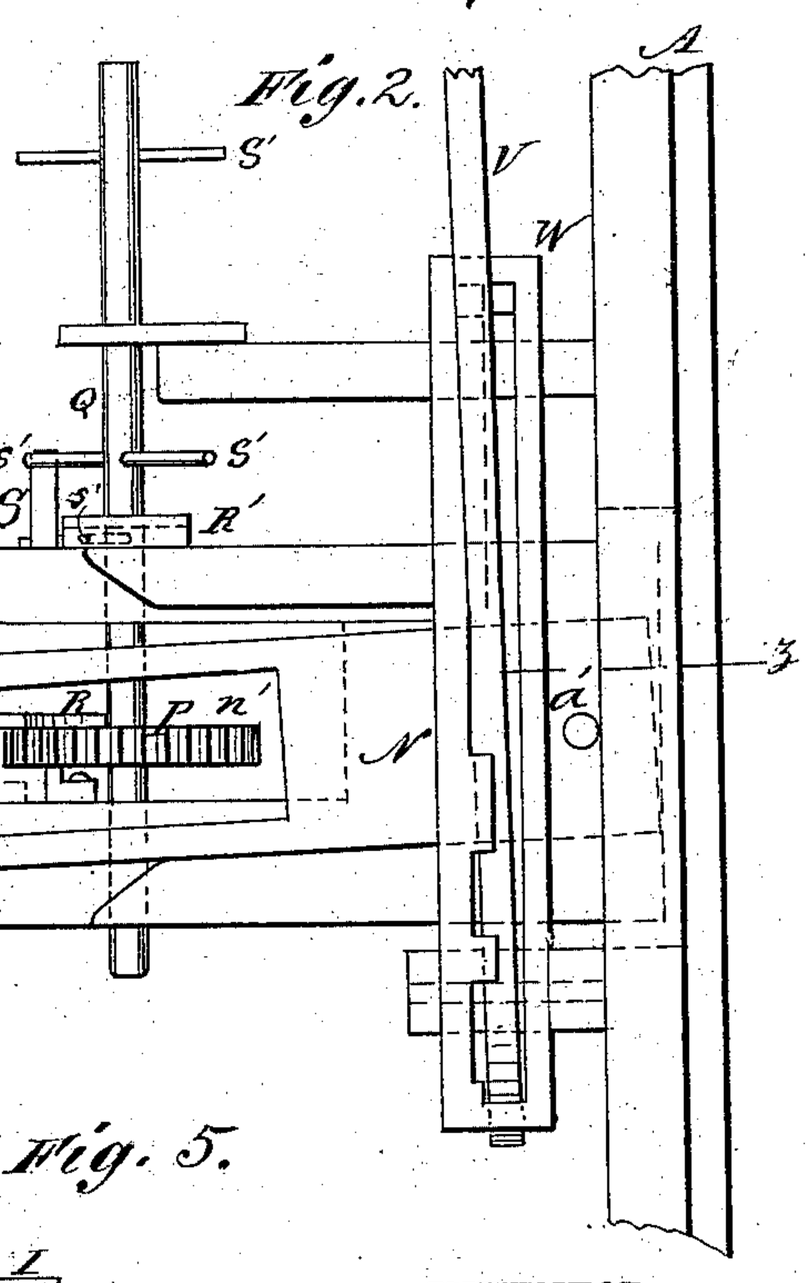

Fig. 3.

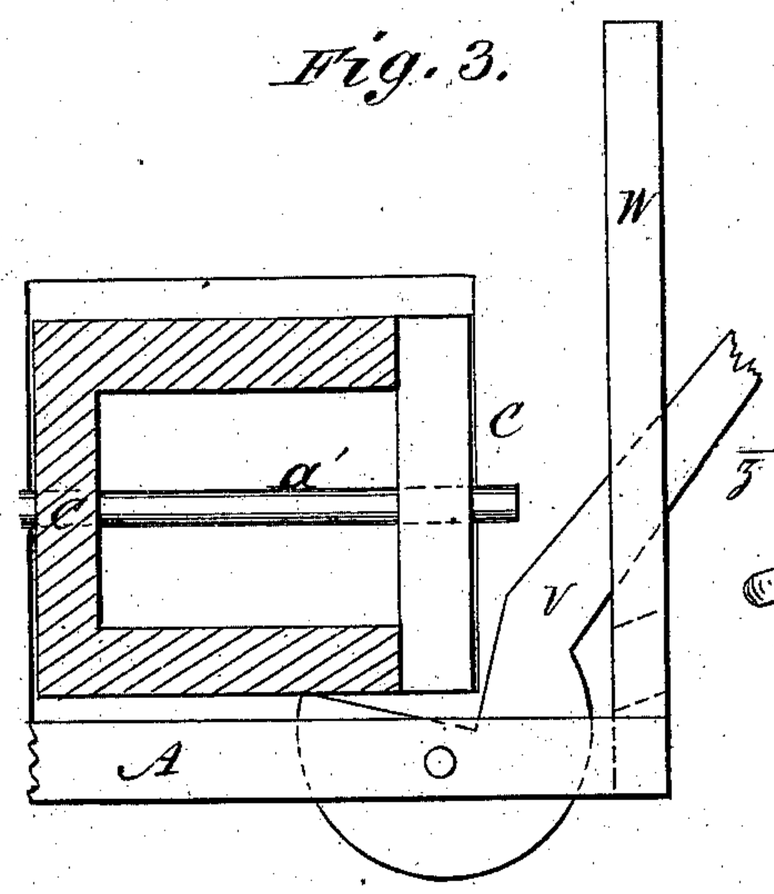

Fig. 4.

Fig. 5.

WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM HARKINS, OF DUNKIRK, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 224,777, dated February 24, 1880.

Application filed September 8, 1879.

To all whom it may concern:

Be it known that I, WILLIAM HARKINS, of Dunkirk, in the county of Chautauqua and State of New York, have invented a new and Improved Car-Coupler, of which the following is a specification.

Figure 1 represents a transverse section of the device on line *z z*, Fig. 2, attached to a freight-car. Fig. 2 is a side view of the device attached to a freight-car. Fig. 3 is a section on line *w w*, Fig. 1. Fig. 4 is a view of the bottom of the key. Fig. 5 is an end view of the key.

Similar letters of reference indicate corresponding parts.

The object of this invention is to provide a safe and effective device for coupling cars.

The invention consists of a novel construction and arrangement of parts that are hereinafter fully described.

In the drawings, A represents the end of a car. B is the draw-bar, to which the draw-head C is pivoted by pin *a'*, or otherwise attached; but I do not wish to be confined to the use of the draw-bar B as described, as any other draw-bar can be used.

The draw-bar B itself is secured to the car A by a horizontal bar, D, that passes through a slot, *b'*, in the rear end of said bar B, and on either side of this horizontal bar D, within the slot *b'*, are fixed the elastic cushions *c' c'*, to relieve the concussion when the cars are coupling.

G is the extended arm of the draw-head C, and it (G) has attached to its outer face a rectangular frame, H, for supporting certain parts of the coupling mechanism that are hereinafter described. The coupling-key I is held on this frame H by the clamps or guides *h' h'*, so that it can move laterally, and is provided with a series of teeth or a rack, *i'*.

M is a strong flat spring with its free end pressing against the outer end of the key I, and this spring M may be made to throw the key I forward for coupling; but the use of the spring M may be dispensed with, as also that of the spring-stop S, hereinafter described.

Pivoted on the pin *a'*, or otherwise attached within the draw-head C, is the coupling-bar N, provided with a horizontal slot, *n'*, of ample dimensions for the easy entrance of a key, I, and this coupling-bar N may have in its forward end a groove or recess, *p'*, and be provided with a coupling-pin, *r'*, for coupling with the ordinary link-coupling, as shown in Fig. 2.

When these coupling devices are set in place on opposite cars their centers will not be directly opposite to each other, but, as is shown, their relative positions will be such that the coupling-bar N of one car will enter between the coupling-bar N and the arm G on the opposite car.

Fixed upon the upper face of the pinion P is a lever, R, that projects horizontally beyond the periphery of the said pinion P; and fixed horizontally in the shaft Q are the pins *s' s'*, whose engagements with the stop R' will hold the pinion P in any desired position. This pinion P gears into the rack on the key I and controls its movements.

The spring M operates freely only to thrust forward the key I until its forward end is flush with the inner face of the arm G, for when the key has reached that point one of the pins *s' s'* of the shaft Q engages with the vertical spring-stop S and prevents the further revolution of pinion P, and consequently prevents the key I from moving forward to become an obstruction to an entering coupling-bar. When the key I is in this position the lever R should be at a right angle, or slightly inclined therefrom, from the inner face of the arm G. The stop S is strong enough to hold the key I in this position unless the lever R is struck by an incoming coupling-bar, N; but when the lever R is thus struck the spring-stop S yields and releases the pin *s'* that may be engaged with it, so that the pinion P is instantly revolved and made to push the key I into the slot *n'* of the bar N, and thus couple the cars; but while the cars are coupled the end of the coupling-bar N, it will be seen, continues to press against the end of the lever R, so that the pinion P cannot be turned back for the purpose of uncoupling. Consequently, in order to uncouple the cars, the pinion P must first be lifted out of gear with the key I, turned around and thrown into gear, and its action reversed to draw back the key I. The stop W', that engages in the groove *x'* of the key I, prevents, if the spring M be not in use, the key I from being thrown out too far. The pin-

ion P is then again lifted out of gear and turned around until the lever R slips over or clears the V-shaped tongue T on the arm G of the draw-head. The pinion P is then depressed again into gear. By this means freight-cars, while in motion, can be uncoupled and have their coupling mechanism set at one and the same time.

The entire draw-head C can be elevated at will by the adjustable lever V, that is pivoted on the end A of the car below the draw-head C. The handle of this lever V can be held in any desired position by engagement in the notches of the vertical rack W.

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

1. The draw-head C, pivoted to draw-bar B, and having extension-arm G, frame H, rack-key I, pinion P, and spring M, in combination with a coupling-bar, N, having slots n', as and for the purpose specified.

2. The combination of the spring-stop S, shaft Q, provided with pins s' s', and stop R′, substantially as herein set forth.

3. The V-shaped tongue T, in combination with the arm G, substantially as herein shown and described.

4. The combination, with the draw-head C, having the extended arm G, coupling-bar N, and frame H, of the horizontal rack-key I and pinion P, substantially as herein set forth.

5. The draw-head C, having extended arm G, frame H, rack-key I, pinion P, and spring M, in combination with the body and draw-bar of a car, substantially as described.

6. The draw-head C, having extended arm G, frame H, rack-key I, pinion P, and spring M, in combination with a coupling-bar, N, as and for the purpose described.

7. The combination, with the draw-head C, having extended arm G, frame H, horizontal rack-key I, and pinion P, of the coupling-bar N, as and for the purpose described.

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Witnesses:
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