

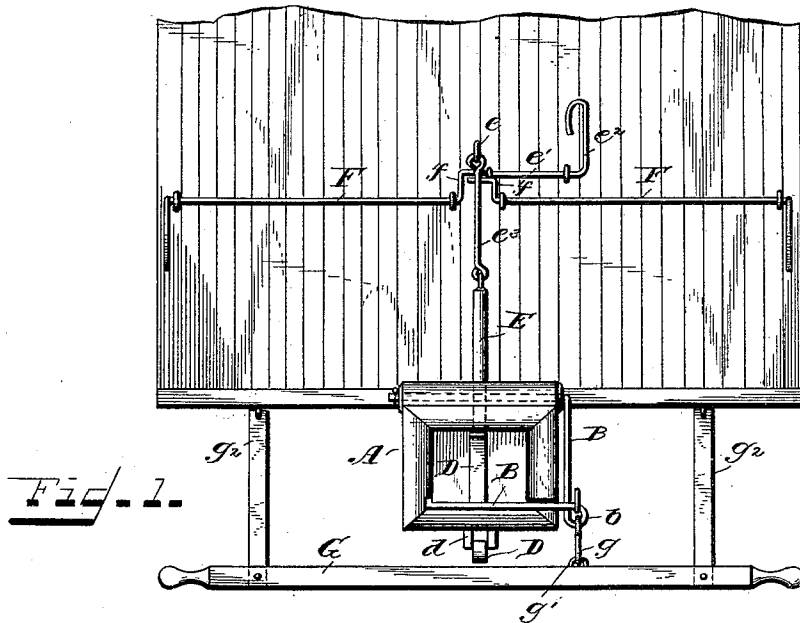
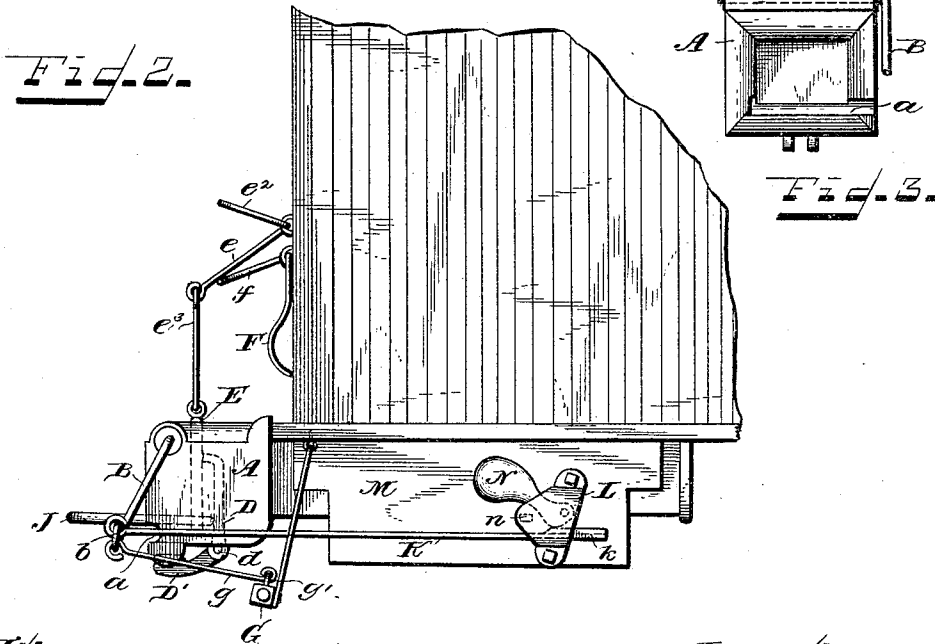
(No Model.)

J. HATFIELD.

DRAW HEAD AND COUPLING MECHANISM FOR RAILWAY CARS.

No. 451,481.

Patented May 5, 1891.



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DRAW-HEAD AND COUPLING MECHANISM FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 451,481, dated May 5, 1891.

Application filed December 11, 1890. Serial No. 374,272. (No model.)

To all whom it may concern:

Be it known that I, JAMES HATFIELD, a citizen of the United States, residing at Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Draw-Heads and Coupling Mechanism for Railway-Cars, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

10 The object of my invention is to provide a simple and effective device for holding the coupling-pin in an elevated position until automatically released by the link in the adjacent draw-head, to elevate and adjust said link with reference to the height of adjacent draw-head, and also to construct said draw-heads in such a manner as to shield and protect the device for lifting and adjusting said link when the draw-heads are forced together, as will more fully hereinafter appear.

15 In the accompanying drawings, Figure 1 is a view in elevation of the lower end portion of a car with my improved draw-head and coupling mechanism connected thereto, the device for elevating and retaining the coupling-pin in an elevated position being shown with said pin elevated, while the swinging arm for elevating and adjusting the link is shown housed within the recess in the face of the draw-head in its normal position. Fig. 2 is a side elevation of the device shown in Fig. 1 with the coupling-pin lowered and the link in position elevated to engage with and unlock the coupling-pin in the adjacent draw-head; also, one form of friction device for retaining said link in an elevated position until forced to place in the adjacent draw-head and secured therein by its coupling-pin. Fig. 3 is a front or face view of my improved draw-head, the lower portion of the swinging arm for elevating the link being broken away to show the recess in one side of said head in which said arm is housed when the draw-heads come in contact.

45 My invention consists of a hollow draw-head A, having a recessed or countersunk portion *a* at one side of its contact-face, as more clearly shown in Figs. 2 and 3, with a swinging arm B suitably connected to said head and adapted to rest within said recess *a* when the draw-heads are brought together.

My invention also consists of suitable mechanism for operating the lifting-arm B and for holding the coupling-pin in an elevated position until automatically released by the link in the adjacent draw-head, as hereinafter set forth.

55

The preferred form of mechanism for retaining the coupling-pin in an elevated position in the draw-head is that shown, and consists of a gravity-hook D, extending through a slot (not shown) in the bottom of the draw-head and pivoted between suitable lugs, as *d*, cast to said bottom portion of the head at each side of the slot. The lower portion of this hook D is heavier than its upper portion, which has the tendency to cause said upper hooked portion to impinge against the coupling-pin E when lowered, as shown in Fig. 2, and to advance beneath said pin when the latter is elevated above said hook, which latter acts as a support for the pin when elevated, as shown in Fig. 1.

75 The mechanism for elevating the coupling-pin is preferably that shown, and consists of a lever bent, as shown at *e*, *e'*, and *e''*, and suitably connected to the end of the car in a rotatable position, an intermediate rod *e'''* being hooked into one end of lever *e* and at the other end loosely connected to the coupling-pin E, as shown. This compound lever *e e' e''* is operated by a crank-lever F, connected to the end of the car in a rotatable position, the hooked portion *f* of said lever being located at the rear of lever portion *e*, as shown in Fig. 1. It is preferred to employ two of the crank-levers F, one at each side of the car, as shown.

90 The operation of this feature of my invention is as follows: The operator, in order to elevate the coupling-pin in the draw-head, grasps the outer free end of lever F, pulls it away from the car, which operation causes a corresponding elevation of the hooked portion *f*, and with it the portion *e*, rod *e'''*, and coupling-pin E are elevated, and so soon as the pin is elevated at its lower portion above the hook D the upper portion of the latter vibrates forward beneath the pin, at which time the operator releases his hold on lever F, permitting the pin to fall and rest on the top portion of said hook, in which position the pin will remain until automatically released, as will presently be described.

Having described the preferable form of mechanism for elevating and retaining the coupling-pin in an elevated position and its operation, I will now describe the preferred mechanism for elevating and adjusting the link J in my draw-head to engage with the hook D and automatically release the coupling-pin in the adjacent draw-head. This feature I accomplish by means of a vibrating arm B, preferably bent as shown, the upper portion of said arm being connected to the upper portion of the draw-head in a rotatable position, the lower angular portion of said arm extending across one vertical contact-face of the draw-head and along the inner top portion of the lower horizontal contact-face thereof in the recess *a* when in its normal position, as shown in Fig. 1. To the bottom of the car are loosely connected the vibrating bars *g*², to the free ends of which the horizontal cross-bar G is rigidly connected, said latter bar extending entirely across the bottom portion of the car, ready of access from either side thereof. This cross-bar G and arm B are connected by means of rod *g*, one end of said rod being hooked into loop *b* of the arm and at the other end hooked into an eye *g*' on said bar G. The link J is elevated and adjusted with reference to the adjacent draw-head by swinging the bar G outward, which movement, through the medium of rod *g*, causes the lower angular portion of arm B to swing outward and upward away from its recess *a*, as shown in Fig. 2, thus elevating and adjusting said link in proper position. So soon as the link enters the adjacent draw-head the former strikes the hook D, causing it to recede from beneath the coupling-pin, permitting the latter to drop through said link, thus coupling the cars.

When operated without any catch or friction holding device, it is necessary that the operator hold the vibrating bar G outward in an elevated position until the link enters the adjacent draw-head in the manner described; but, if desired, suitable means may be provided to hold said bar in an elevated position after once raised, as shown in Fig. 2. When constructed as shown, this device for retaining the bar G and link J in an elevated and adjusted position consists of a bar K, the latter being hooked at one end in the loop *b* of arm B, the other end of said bar passing through and sliding in a bracket L, made fast to the projecting piece M, made fast to the bottom of the car, as shown in Fig. 2. Within the bracket L is pivoted the lever N in such a position as that its lower face will bear against the upper face of the enlarged portion *k* of bar K, thus producing friction. This enlarged portion *k* of bar K is so arranged that so soon as the bar G and arm B are swung outward this enlarged portion *k* is drawn forward under the lower face of lever N, elevating the latter, said lever being sufficiently weighted to hold said bar, arm, and link in position until forced

back to place by the contact of the two draw-heads. So soon as the draw-heads come in contact the arm B is forced backward and with it the bar K, and so soon as the bar is forced backward a slight distance the enlarged portion *k* is forced from beneath the lever N, the latter dropping on the lug *n* (shown by dotted lines in Fig. 2) in said bracket, at which time the bar G and arm B are free to swing back to place, the latter entering the recess *a* in the draw-head, and is thus securely protected from contact with the adjacent draw-head.

The advantages of my invention are numerous and apparent. The recessed or countersunk portion *a* across a portion of the face of the draw-head in which the swinging arm B rests when in its normal position affords a secure protection for said arm as the draw-heads are brought together. This recess *a*, being formed only across one vertical contact-face and along the top of the lower horizontal contact-face of each draw-head, permits of a continuous smooth face around said head, except where the recess crosses the one vertical face, and each draw-head being an exact counterpart when placed on different cars to face each other the smooth vertical face of one head will strike the vibrating arm and effectually drive it home to place within its recess.

The means afforded for elevating and retaining the coupling-pin in an elevated position to be automatically released in the manner aforescribed, as well as the means for elevating and adjusting the link with reference to its adjacent draw-head, both of which operations are accomplished without having to enter between the cars, are valuable features to prevent accident, and also for the purposes set forth.

It is evident that the device herein set forth for elevating the coupling-pin may be used in connection with devices other than that herein specifically set forth or vice versa. The device for elevating and adjusting the link may be used in connection with other devices for elevating the coupling-pin without departing from my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. A draw-head having a recess across one of its vertical contact-faces, said recess extending along the inner top face of the lower horizontal contact-face and terminating in the inner edge of the opposite vertical face, the contact portion of said latter face being smooth and unbroken, said draw-head having a swinging arm connected thereto, the angular portion of which rests normally within said recess, and suitable means for elevating said arm, for the purposes set forth.

2. In combination with a draw-head having in its contact-face a grooved recess and a vibrating arm rotatably connected to said draw-head, the lower angular portion of said arm resting normally in said recess, the gravity-hook D pivotally connected to said draw-

head and extending up into the hollow portion thereof, coupling-pin E, and suitable means for elevating said arm and pin, substantially as set forth.

5 3. In combination with a draw-head having in its contact-face a grooved recess and a vibrating arm rotatably connected to said draw-head, the lower angular portion of said arm resting in said recess, the rod *g*, and swinging bar G, said rod being loosely connected to
10 said arm and bar, for the purposes set forth.

4. In combination with a draw-head having a grooved recess in its contact-face and a vibrating arm resting normally in said recess, substantially as set forth, the rod *g*, swinging
15 bar G, said rod being loosely connected to said arm and bar, bar K, loosely connected at one end to said arm, the other end of bar K having an enlarged portion *k*, the free end of said
20 latter bar resting in a bracket L, and lever N, pivoted in said bracket and adapted to impinge against the enlarged portion *k*, as set forth.

5. In combination with a draw-head constructed substantially as set forth and having a gravity-hook pivotally connected thereto and extending up into the hollow portion thereof, the coupling-pin E, rod *e*³, lever *e* *e*'

*e*², and crank-lever F, the hooked portion *f* of said lever F being located adjacent to and
30 back of lever portion *e*, the latter being loosely connected with said coupling-pin by means of rod *e*³, as set forth.

6. A draw-head having a recess across one only of its vertical contact-faces and along
35 the upper edge of its lower horizontal contact-face, as set forth, in combination with a vibrating arm suitably connected to said draw-head, the lower horizontal portion of said arm resting normally in said recess, and
40 means, substantially as set forth, for elevating said arm, for the purposes set forth.

7. The means herein set forth for elevating and adjusting the link of a coupler, the same consisting of vibrating bars *g*², pivotally con-
45 nected to the bottom of the car, and bar G, rigidly connected to the free ends of said bars, said bar G extending entirely across the bottom of said car, in combination with suitable connecting mechanism between said bar and
50 link, substantially as set forth.

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Witnesses:

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