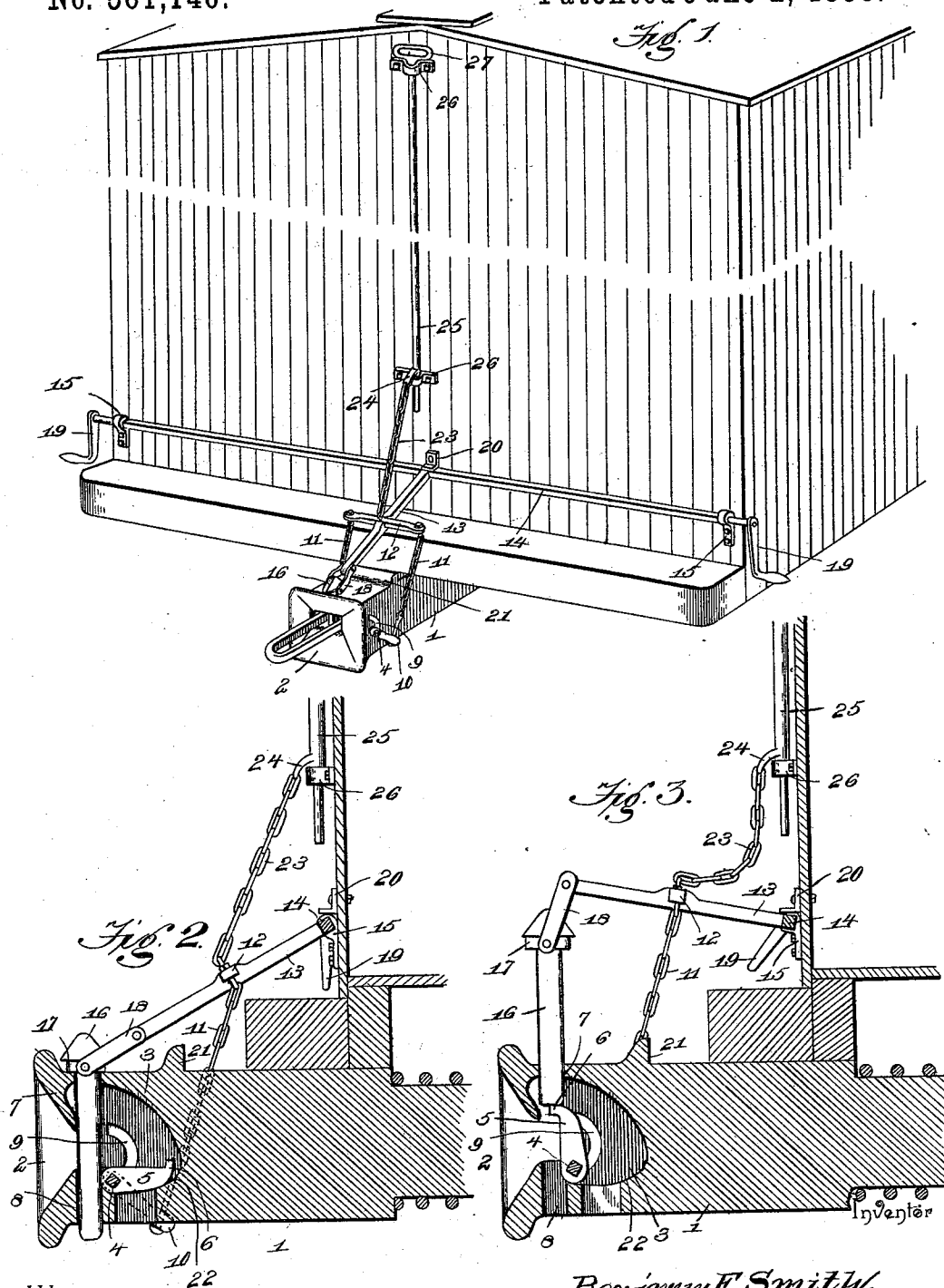


(No Model.)

B. F. SMITH.
CAR COUPLING.

No. 561,140.

Patented June 2, 1896.



Witnesses

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UNITED STATES PATENT OFFICE.

BENJAMIN F. SMITH, OF VALPARAISO, NEBRASKA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 561,140, dated June 2, 1896.

Application filed March 14, 1895. Serial No. 541,753. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN F. SMITH, a citizen of the United States, residing at Valparaiso, in the county of Saunders and State of Nebraska, have invented a new and useful Car-Coupling, of which the following is a specification.

This invention relates to an improvement in car-couplers.

10 The object of the present invention is to simplify and improve the construction of car-couplers, and to provide a device which shall be automatic in operation, simple, strong, and durable in construction, and reliable and efficient in practice.

15 To this end the invention consists in providing a draw-head with a transversely-extending recess or pocket terminating upon either side of the draw-head in semicircular or segmental slots and in combining therewith a rock-shaft extending transversely of the draw-head and lying at its ends in said curved slots and carrying a centrally-arranged trip-lever projecting vertically across the mouth 25 of the draw-head and adapted to support the coupling-pin; in providing said rock-shaft with a pair of oppositely-disposed crank-arms for rocking said shaft and sliding the same in said curved or semicircular slots; also, in the novel construction of the device for lifting the coupling-pin and operating the transverse rock-shaft for setting the several parts of the car-coupler in position to be operated upon by the coupling-link; also, in certain features and details of construction and arrangement of parts hereinafter fully described, 35 illustrated in the drawings, and pointed out in the claims.

40 In the accompanying drawings, Figure 1 is a perspective view of a car-coupler constructed in accordance with my invention. Fig. 2 is a vertical longitudinal section through the draw-head, showing the trip-lever and the mechanism for setting the same with the parts in the same position as in Fig. 1—that is, with the coupling-pin down. Fig. 3 is a similar section with the coupling-pin lifted and the trip-lever set ready to be operated upon by the coupling-link.

50 Similar numerals of reference indicate corresponding parts in the several figures of the drawings.

The car-coupling, which will now be described, will preferably be used in connection with the block draw-bar, although, of course, it will be understood it may be used in connection with any draw-bar.

Referring to the drawings, 1 designates a draw-head provided with the usual inwardly converging or tapering mouth 2. In the present construction this tapering mouth 2 terminates in and communicates with a transversely-extending cavity 3, in which is located a transverse rock-shaft 4, provided with a centrally-arranged trip-lever 5, adapted to be projected perpendicularly across the inner end of said tapering mouth 2 and to rest, as to its curved or rounded head 6, beneath the vertical perforation 7 through the upper wall of the draw-head, through which the coupling-pin passes, and to receive the lower end of the coupling-pin and uphold said pin in the manner illustrated in Fig. 3. A similar perforation 8 through the bottom of the draw-head, in vertical alinement with the perforation 7, provides for the passage of said coupling-pin entirely through the draw-head.

The transverse rock-shaft 4 is extended at either end through the side walls of the draw-head and rests in oppositely-disposed segmental or curved slots 9, one in each side wall of the draw-head. Upon either end of said rock-shaft the same is provided with a crank-arm 10, and from these crank-arms chains, rods, or links 11 extend upwardly to a cross-bar 12, carried by a lifting-lever 13, extending outwardly from a horizontally-arranged rock-shaft 14, mounted in suitable bearings or brackets 15, secured to the end sill or other convenient point at either end of the car.

The coupling-pin indicated at 16 is lifted by means of an elliptical yoke or collar 17, surrounding the shank of said pin and underlying the head thereof, said yoke or collar being connected with the outer end of the lifting-lever 13 by means of an oppositely-disposed pair of links 18, pivotally connected with both the yoke 17 and the lever or arm 13. The rock-shaft 14 may be extended laterally any desired distance and is provided with an operating crank or handle 19 for rocking the same for the purpose of elevating

the coupling-pin. The upward movement of the lifting lever or arm 13 is limited by means of an angle-iron or stop 20, attached to the sill of the car or other convenient point, thus preventing the coupling-pin from being withdrawn entirely out of the perforation 7, in which it rests. The draw-head is further provided with a rib or flange 21, which abuts against the dead-wood, and it is also provided with a centrally-arranged internal cavity or recess 22 for the reception of the trip-lever 5 when thrown back.

In operation the device is set by operating the horizontally-arranged rock-shaft 14 and lifting the coupling-pin into the position shown in Fig. 3. Simultaneously with the lifting of the coupling-pin the cranks 10 on the ends of the transverse shaft 4 are operated for rocking said shaft and throwing the trip-lever beneath the perforation 7 for adapting it to support the lower end of said coupling-pin. With the coupling-pin thus upheld and the trip-lever extending perpendicularly across the tapering mouth of the draw-head the parts are in the proper position to be acted upon by the incoming coupling-link. The coupling-link, as it enters the mouth of the draw-head, strikes against the trip-lever, pushing the head thereof from beneath the coupling-pin and allowing the latter to descend through the vertically-alined perforations in the draw-head and to engage said coupling-link and prevent the escape thereof. The segmental slots in the sides of the draw-head are provided in order to allow the coupling-link to remain in the draw-head while the coupling-pin is lifted, and by means of this arrangement the rock-shaft 4 and the trip-lever connected therewith may rise above the inner end of the coupling-link, while the head of the trip-lever operates within a cavity in the under side of the top wall of the draw-head, but still remains beneath and supports the lower end of the coupling-pin. When the cars are separated and the coupling-link withdrawn, the transverse rock-shaft 4 falls to its normal position without disturbing the relation of the trip-lever to the coupling-pin.

In order to operate the device from the top of a car, a chain 23 is secured at one end to the lifting lever or arm 13 and at its opposite end to an overhanging lip or projection 24 on a vertically-sliding rod 25, mounted in bearing-plates 26, secured to the car-body. At the upper end of the rod 25 the latter has a handle 27 and at the lower end it is extended below the overhanging lip or projection 24, passing through the lower bearing 26. By means of the connections just described the coupling may be operated from the top of the car as readily as from the sides.

It will be apparent from the foregoing description that should a coupling-pin become broken it may be removed from the supporting yoke or collar and replaced by a new one by tilting the yoke at an angle, which may easily be done by reason of the manner in

which the same is supported on the pivoted links. The links are made of sufficient length to allow a little slack and afford sufficient room to permit the head of the coupling-pin to be withdrawn. This constitutes a great advantage over previous constructions in which, if a pin should become broken, it is necessary to have resort to a repair-shop before the trouble can be remedied. In the present construction a new pin may be easily and quickly inserted and held in place by means of the supporting yoke and links.

It will be apparent that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a car-coupling, a draw-head provided with a transversely-extending cavity terminating in segmental slots in the side walls of said draw-head, in combination with a transversely-arranged and vertically-adjustable rock-shaft extending through said cavity, and bearing at its ends in said segmental slots, a centrally-arranged trip-lever or pin-support mounted on said shaft and projecting across the mouth of the draw-head and adapted to underlie and uphold the coupling-pin, and means substantially as described for setting said trip-lever.

2. In a car-coupler, a horizontally-arranged rock-shaft mounted in suitable bearings secured to the end sill of the car or other convenient point, and an arm or lever thereon, in combination with an elliptical yoke or collar for the reception of the removable coupling-pin, and the links interposed between said yoke or collar and the outer end of said arm or lever, substantially as and for the purpose specified.

3. In a car-coupler, a draw-head provided with a transversely-extending cavity terminating at its ends in curved or segmental slots, in combination with a vertically-movable transverse rock-shaft located therein, a centrally-arranged trip-lever adapted to project across the mouth of the draw-head and to uphold the coupling-pin, the crank-arms on each end of said shaft, a horizontally-extending operating-shaft mounted in suitable bearings secured to the car end sill or other convenient point, the lifting arm or lever carried by said shaft, and means substantially as described interposed between said lifting arm or lever and the coupling-pin, and also between said lifting arm or lever and the crank-arms on the trip-lever rock-shaft, whereby said trip-lever is operated and set simultaneously with the lifting of the coupling-pin, as specified.

4. In a car-coupler, the combination with the draw-head, of a transverse shaft mounted therein and capable of being elevated in a curved path, and the trip-lever mounted on

said shaft and adapted to uphold the coupling-pin while said shaft is being lifted, in combination with an operating-shaft mounted in bearings secured to the end sill of the car or
5 other convenient point, a lifting arm or lever connected therewith, and a hanger or yoke secured to said arm or lever for lifting the coupling-pin, and means interposed between
10 said arm or lever and the transverse rock-shaft which carries the trip-lever for operat-

ing said rock-shaft, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

B. F. SMITH.

Witnesses:

JOHN H. SIGGERS,
G. C. SHOEMAKER.