No. 699,489. Patented May 6, 1902.

J. BURGE & S. B. CORNELL.

CAR COUPLING.

(Application filed Nov. 16, 1901.)

(No Model.)

Fig. 1.

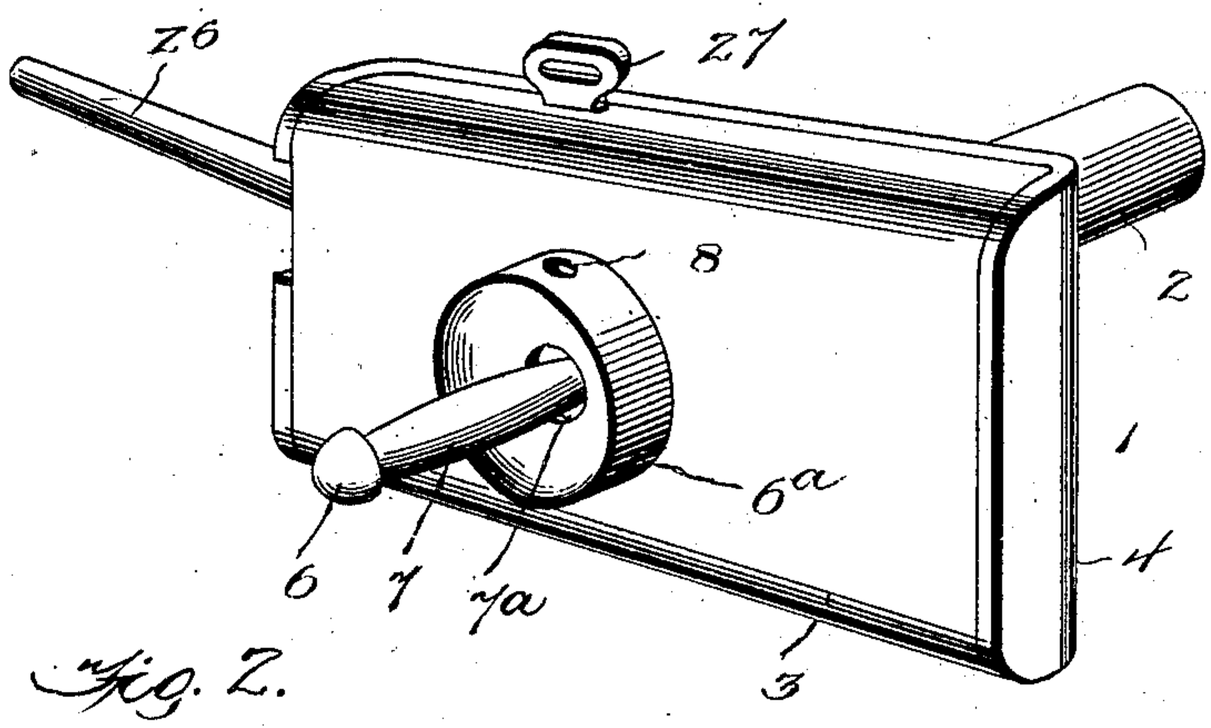
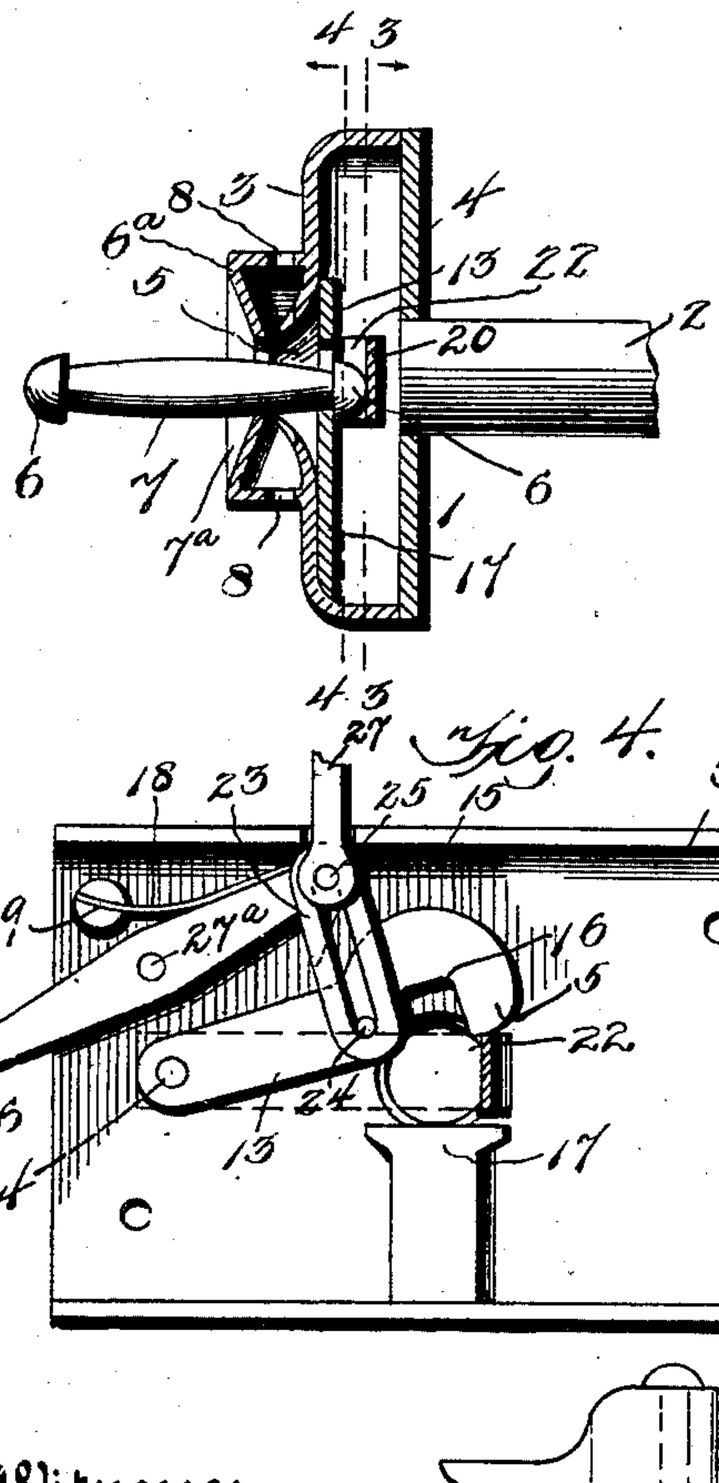


Fig. 2.

Fig. 3.



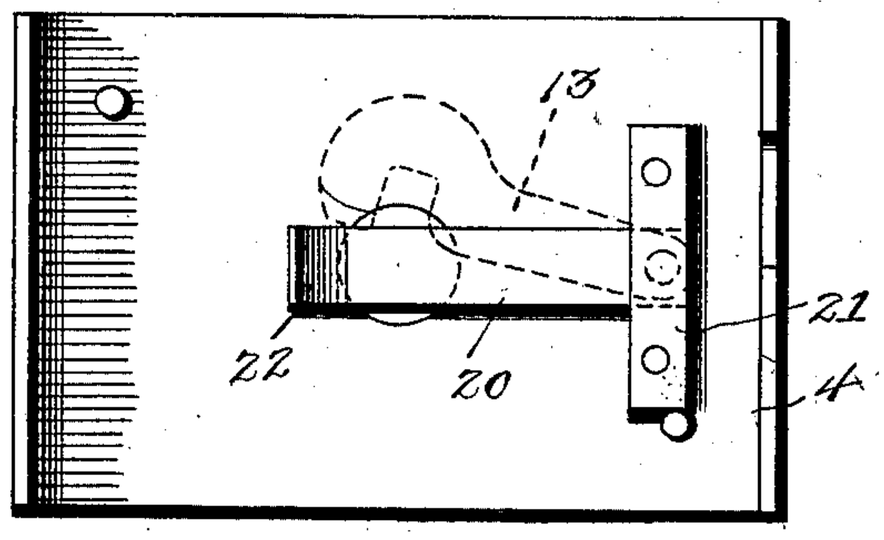


Fig. 4.

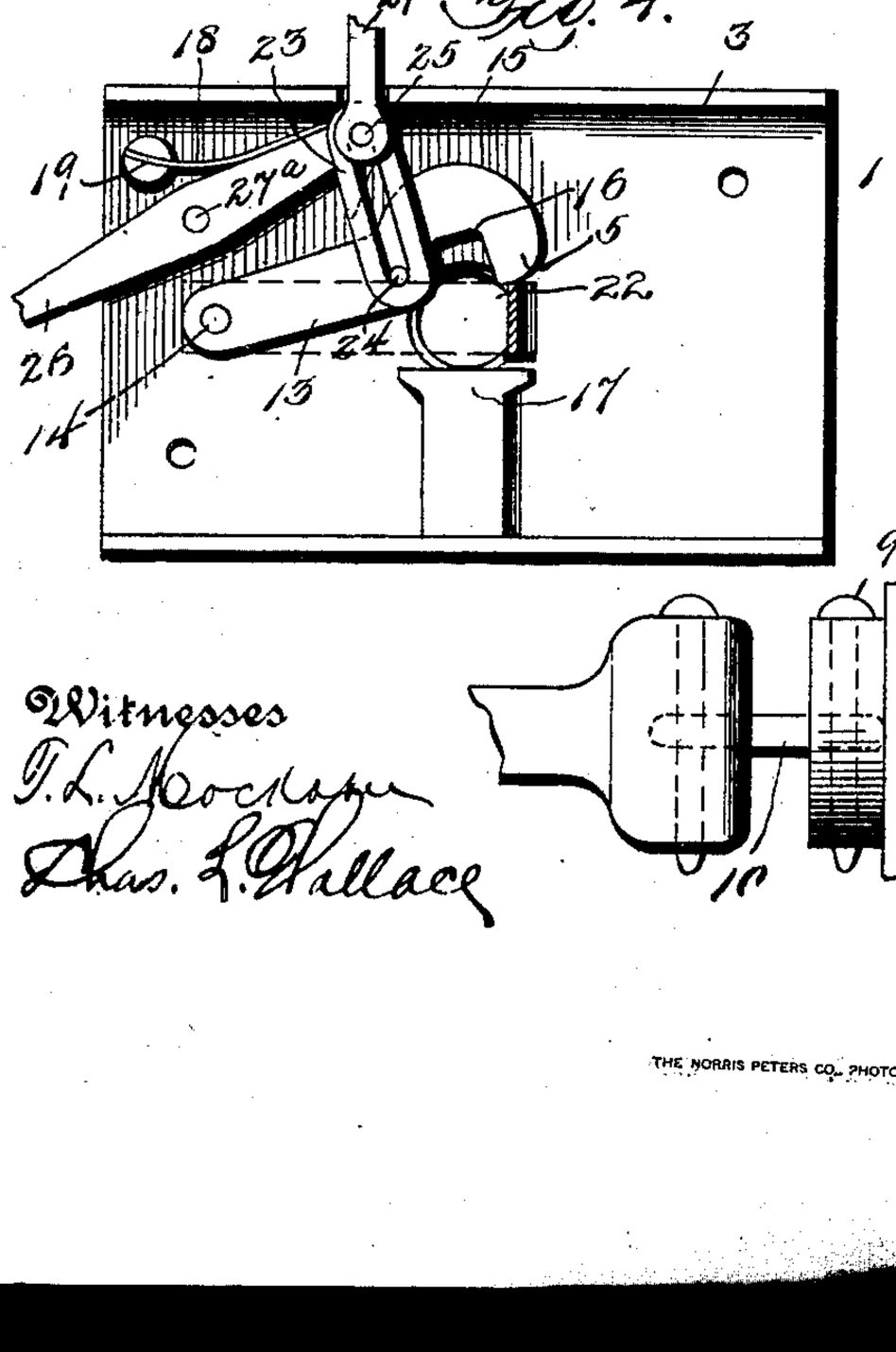


Fig. 5.

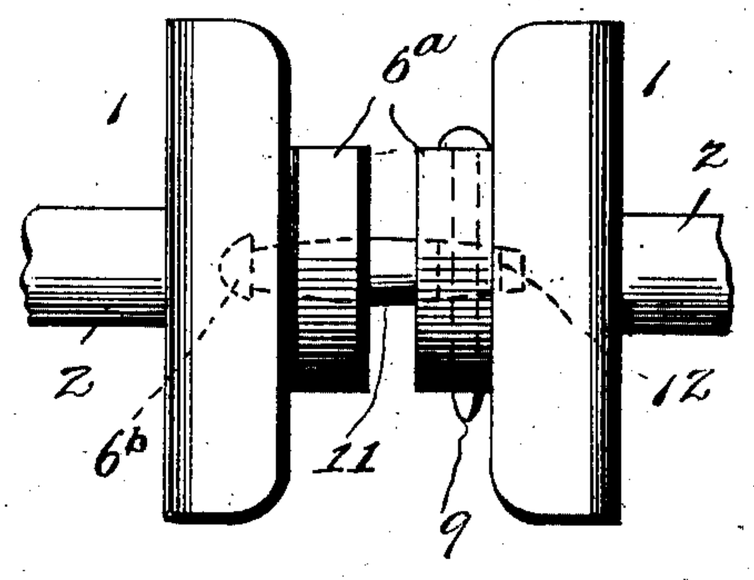


Fig. 6.

Witnesses
T. L. Mockabee
Chas. L. Wallace

Inventors
John Burge
S. B. Cornell
by S. T. Wolhaupter
Attorney

UNITED STATES PATENT OFFICE.

JOHN BURGE AND SAMUEL B. CORNELL, OF SMITHFIELD, WEST VIRGINIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 699,489, dated May 6, 1902.

Application filed November 16, 1901. Serial No. 82,575. (No model.)

To all whom it may concern:

Be it known that we, JOHN BURGE and SAMUEL B. CORNELL, citizens of the United States, residing at Smithfield, in the county of Wetzel and State of West Virginia, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

This invention relates to car-couplings, and has special reference to those of the automatic type providing means for the automatic coupling of two cars without the necessity of going between the same, as must be done with the old type of pin-and-link couplers.

To this end the invention contemplates a simple and practical form of automatic car-coupler having a minimum number of parts, while at the same time providing means for securely coupling cars together and entirely obviating the possibility of the cars becoming uncoupled by sudden jars or jerks or when rounding curves, as frequently occurs with some types of automatic couplers now in use.

A further object of the invention is to provide a construction which positively insures a perfect coupling when the cars are brought together and also comprising simple means whereby the couplers may be unlocked and the cars uncoupled either from the side or top with a minimum effort on the part of the trainman.

The invention also has in view an automatic coupling so constructed as not to interfere with the coupling to a car having an ordinary type of coupler and also providing means for making a temporary coupling in the case of accident.

With these and many other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

While the improvements contemplated by the invention are necessarily susceptible to some modification without departing from the spirit or scope thereof, still the preferred embodiment of the invention is shown in the accompanying drawings, in which—

Figure 1 is a perspective view of a car-coupling constructed in accordance with the present invention. Fig. 2 is a vertical longitudinal sectional view thereof, showing a link in position within the coupling and engaged by the latch or latch-arm thereof. Fig. 3 is a vertical transverse sectional view on the line 3 3 of Fig. 2, showing the latch held in its elevated inoperative position by the trip-spring. Fig. 4 is a vertical transverse sectional view on the line 4 4 of Fig. 2, showing the front plate and all parts carried thereby in elevation, with the latch held elevated. Fig. 5 is an elevation, partly in section, showing how one coupling may be connected to the companion coupling in the case of an accident where one coupling is disabled. Fig. 6 is a similar view showing how one coupling may be connected with an ordinary coupling of the pin-and-link type.

Like numerals of reference designate corresponding parts in the several figures of the drawings.

In carrying out the invention the working parts of the coupling may be mounted and housed in different forms of draw-heads without departing from the scope of the invention as long as the proper relative positions are maintained between the working parts; but a preferable construction is shown in the drawings, in which the hollow draw-head 1 is of a laterally-expanded form and of an approximately rectangular shape. This form of draw-head provides for the housing of the working parts very compactly and within a small compass, as the chamber within the draw-head proper need only be sufficiently wide transversely to accommodate the end of the link in its locked or coupled position. The said hollow draw-head 1 is carried upon a draw-bar 2, extending rearwardly therefrom and associated with the draft-rigging of the car in the usual way. Specifically the hollow draw-head essentially consists of the front and back plates 3 and 4, suitably united, and the front plate 3 is provided therein with the link-opening 5 of a sufficient size to receive therein the beveled and shouldered head 6 of a headed link 7, which link is of the type sometimes termed "bevel" link and also "arrow-head" link, and the heads of which are adapted to be interlocked with the coupling mechanism of companion draw-heads.

The draw-head 1 has extended from the front side of its front plate 3, directly in front

of the link-opening 5, a circular bumper-boss 6^a, having an opening 7^a, which practically forms a part of the front link-opening of the draw-head, and said boss or projection is also provided with vertically-alined pin-openings 8, which are adapted to receive a coupling-pin 9 to engage with the ordinary open link 10 when it is necessary to connect the improved coupling with one of the ordinary pin-and-link type, as indicated in Fig. 6 of the drawings. Also the construction provides means whereby in the event of one of the couplings being disabled the combination-link 11 may be employed, which link is provided at one end with the usual head 6^b and at its other end with the slot 12 to receive the coupling-pin 9 of the disabled coupling, such arrangement being shown in Fig. 5 of the drawings. This brief reference has been made to Figs. 5 and 6 of the drawings to show the adaptability of the coupling to meet different conditions; but we will now proceed to describe the features forming the working parts of the coupling as ordinarily used.

Within the chamber of the hollow draw-head 1, in rear of the front link-opening 5, there is arranged a vertically-swinging latch or latch-arm 13. This vertically-swinging latch is arranged transversely with reference to the line of draft and at right angles to the disposition of the coupling-link 7 when in a coupled position, which arrangement of the latch or latch-arm permits of the very narrow draw-head being employed. The latch or latch-arm is pivotally mounted at one end upon a pivot 14, secured to the front plate of the draw-head, and at its other swinging end the latch or latch-arm is provided with the catch-hook 15, having in its lower side a vertically-disposed engaging notch 16, adapted to take over the shank of the link 7 at one side of the shoulder of the link-head 6 and disposed directly above a rigid abutment or catch-plate 17, firmly secured to the inner side of the front plate of the draw-head, and having its upper edge disposed at the lower side of the link-opening 5, so that the pull or draft of the link will be borne partly by the said abutment or catch-plate and partly by the hook end of the latch. The catch-hook of the latch works directly over the inner side of the link-opening 5 and is normally held depressed through the medium of a pressure-spring 18, secured fast at one end, as at 19, to the inner side of the front plate of the draw-head and having its free end arranged to exert a downward pressure upon the latch 13, so that when the latter is released it will be sharply thrown to a locked position. Normally when the parts of the coupling are set the catch-hook of the latch is sustained in a raised position, so as to uncover the link-opening 5 through the medium of a back trip-spring 20. The back trip-spring is also arranged transversely to the line of draft or in substantial parallelism to the latch 13, said spring being secured fast at one end, as at 21, to the back plate 4 of the draw-head and has its unattached portion sprung forwardly to provide a yielding impact for the link-head as it enters the draw-head. At its extreme free end the forwardly sprung trip-spring 20 is provided with an outwardly-deflected holding-finger 22, which when the catch-hook of the latch is elevated is adapted to spring beneath the said hook and lock the same in its raised position, as plainly shown in Fig. 3 of the drawings.

With the catch-hook 15 of the latch held in its elevated position by the trip-spring 20 as the end of the coupling-link 7 enters through the link-opening the same is carried back against the spring 20, thus moving the same rearwardly and disengaging the holding-finger 22 from the hook 15, whereby the pressure-spring 18 comes into play and sharply depresses the latch into interlocking engagement with the beveled head of the link. The coupling is therefore entirely automatic, besides effecting a positive locking of the link-head and preventing the removal thereof except by the raising of the latch or latch-arm 13.

The raising of the latch or latch-arm 13 may be accomplished in a variety of ways, but preferably in the manner shown in the drawings. To effect this result, there is associated with the latch a longitudinally-slotted pull-link 23, loosely engaging over a lift-stud 24, carried by the latch 13, and also loosely receiving a lifting-pin 25, which is operated by either the side uncoupling-lever 26 or the vertically-movable top uncoupling-rod 27. The lever 26 is pivotally mounted intermediate its ends, as at 27^a, upon the front plate of the draw-head and has the handle portion thereof extended through the side of the latter, the longer end of the side lever 26 preferably having the lifting-pin 25 carried thereby. The lower end of the top uncoupling-rod 27 is loosely connected at its lower end with the pin 25 and extends through the top of the draw-head, so that it may be manipulated either from the end or top of the car. By operating either the side lever or the top rod 27 the pin 25 will cause the link 23 to draw upward upon the latch and carry it to its raised position or to a point where the holding-finger 22 of the trip-spring will automatically spring into engagement with the catch-hook beneath the same. By reason of the employment of the slotted link 23 the latch is moved without any possibility of binding and also admits of both the side lever and the top rod having direct connection with the common lifting-pin.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described car-coupling will be readily apparent without further description, and it will be understood that changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having thus described our invention, what

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

1. In a car-coupling, the draw-head having a front link-opening, a vertically-swinging latch arranged transversely to the line of draft and coöperating with a headed link, a yielding trip arranged back of the link-opening and coöperating with the latch to hold the same raised, and uncoupling devices associated with the latch.

2. In a car-coupling, the draw-head having a front link-opening, a vertically-swinging latch pivotally supported within the head and having a catch-hook working over the link-opening and coöperating with the headed link, a forwardly-sprung trip-spring arranged in rear of the link-opening and adapted to engage with the latch to hold the same raised, and uncoupling devices for the latch.

3. In a car-coupling, the draw-head having a front link-opening, a vertically-swinging latch pivotally mounted within the head transversely of the line of draft and provided with a catch-hook coöperating with a headed link, a forwardly-sprung trip-spring arranged in line with the link-opening back of the latter, said trip-spring having a holding member for engagement with the latch when raised, and uncoupling devices for the latch.

4. In a car-coupling, the draw-head having a front link-opening, a vertically-swinging latch pivotally mounted within the draw-head and having a catch-hook coöperating with a headed link, a forwardly-sprung trip-spring arranged in rear of the latch and having at its free end an outwardly-deflected holding-finger for engagement with the swinging end of the latch when raised, a pressure-spring arranged to exert a downward pressure upon the latch, a rigid abutment-plate arranged at the lower side of the link-opening within the vertical plane of the catch-hook, and uncoupling devices for the latch.

5. In a car-coupling, the draw-head, a vertically-swinging pivotal latch having a hook coöperating with a headed link, said latch having a projecting stud, a slotted link receiving said stud, a lifting-pin engaging in the link, a side uncoupling-lever operatively related to the lifting-pin, and a top uncoupling-rod also operatively related to the coupling-pin.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN BURGE.
SAMUEL B. CORNELL.

Witnesses:
W. N. LOAD,
D. F. CORNELL.