(No Model.) 2 Sheets—Sheet 1.

J. H. BROWN.

CAR COUPLING.

No. 511,233. Patented Dec. 19, 1893.

Fig. 1.

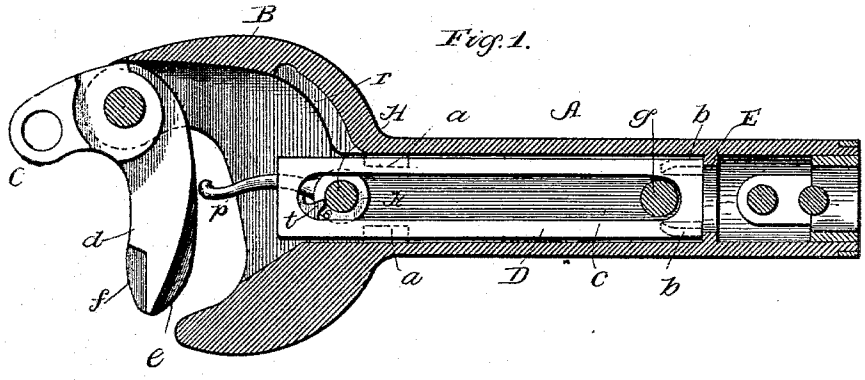


Fig. 2.

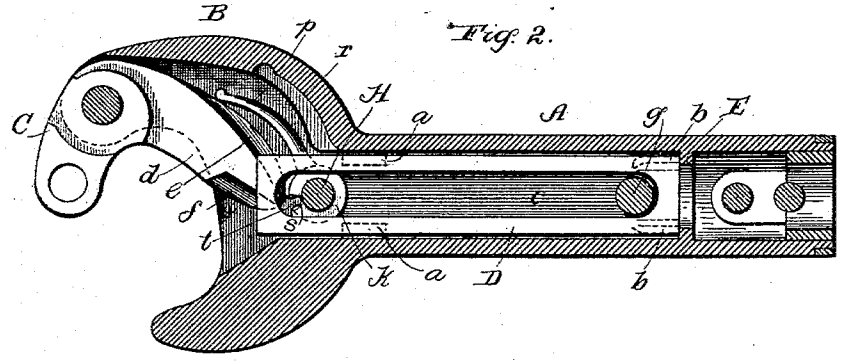


Fig. 3.

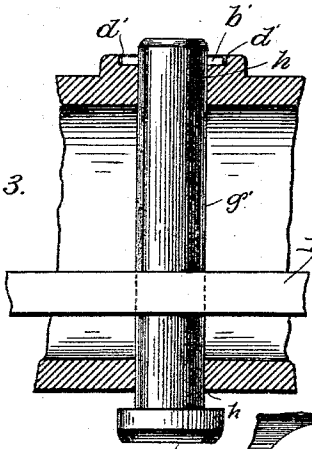


Fig. 4.

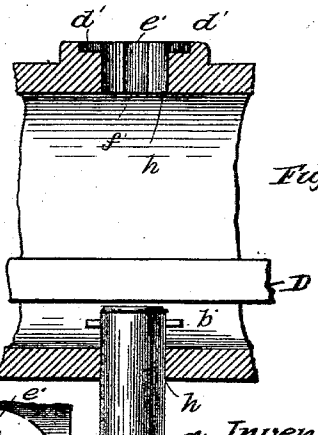
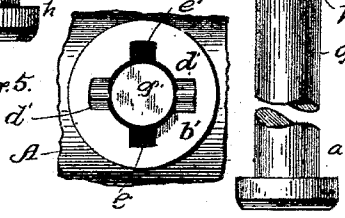


Fig. 5.



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(No Model.) 2 Sheets—Sheet 2.

J. H. BROWN.

CAR COUPLING.

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Fig. 6.

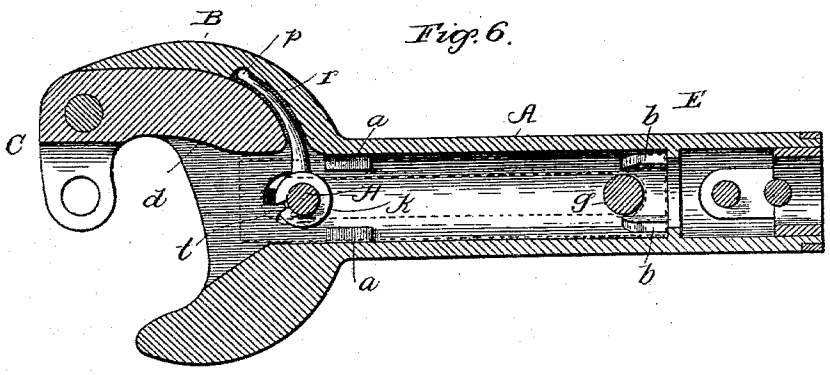


Fig. 7.

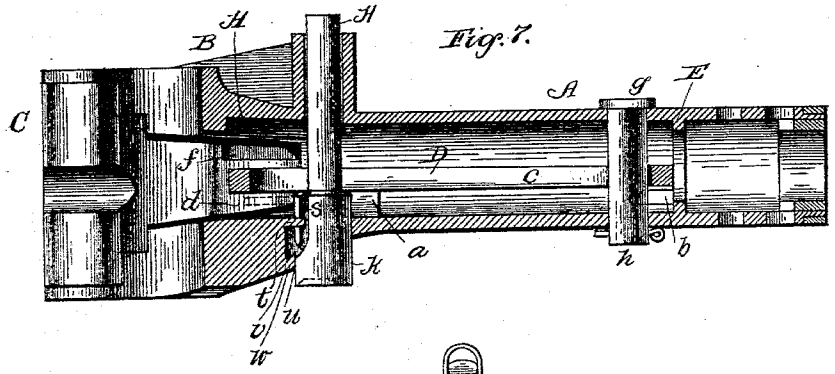
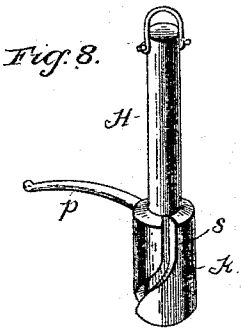


Fig. 8.



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UNITED STATES PATENT OFFICE.

JAMES HOYT BROWN, OF CHICAGO, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 511,233, dated December 19, 1893.

Application filed February 11, 1893. Serial No. 461,858. (No model.)

To all whom it may concern:

Be it known that I, JAMES HOYT BROWN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates, generally, to automatic car couplings and particularly to that class of car coupling devices known as the master car builders' standard type, and it has for its object to provide a simple, comparatively inexpensive and durable device for unlocking or releasing the knuckle tail-piece and instantly upon the release thereof to swing or throw the same outwardly and in position to form a coupling with a mating knuckle or coupling of the same general class, and also to provide simple means for adapting the coupling to be made with a mating coupler of the same type or with a link and pin coupling in case of the knuckle itself or of any part or portion of the draw-head becoming so damaged as to render it inoperative to perform its duty in the usual manner, and it consists in the novel construction and arrangement of parts and in the combination of parts as hereinafter more fully described and claimed.

In the accompanying drawings forming a part of this specification—Figure 1 is a longitudinal horizontal section, showing the combined locking bar and link, and knuckle in full lines and the latter open, of my improved coupler; Fig. 2 a similar view showing the knuckle in the act of closing; Fig. 3 a detail section of a portion of the drawbar showing the retaining pin up; Fig. 4 a similar view showing the retaining pin down; Fig. 5 a detail plan view of the bars; Fig. 6 a longitudinal horizontal section showing the combined locking bar and link in dotted lines and the knuckle in section and in closed position; Fig. 7 a longitudinal vertical section showing the knuckle in full lines and in its closed position; and Fig. 8 a perspective view of the unlocking and knuckle opening pin.

Similar letters refer to similar parts throughout the several views.

Referring to the drawings A represents a hollow draw-bar, B a drawhead and C the swinging knuckle pivoted in the usual or any desired manner in the drawhead. Within the drawbar are cast, at each side near the bottom surface, the shoulders or ledges *a* and *b* on which the locking bar D rests or is supported at each end when the parts are in their normal position. The locking bar, D, is formed with a central longitudinal slot or opening *c* which extends nearly its whole length and when in the position shown in Fig. 7 is supported above the bottom of the interior of the drawbar and projects into the drawhead directly in the path traversed by the tail piece *d* of the knuckle in its movements in coupling or uncoupling. The tail-piece *d* is reduced at its rear edge, or is tapered on its upper surface toward its rear edge, as at *e*, Figs. 1 and 2, in order to permit it to enter beneath the front end of the locking bar and raise the same so as to pass under it in making a coupling, the locking bar riding on top of the tail-piece and dropping back into place in front of the tail-piece, so soon as the tail-piece passes, to lock it in place if the coupling is made on a straight track, or into a recess *f* formed in the front edge of the tail-piece, if the coupling is being made on a curve in the track.

The locking bar is held in place by a pin *g* inserted in an opening *h* formed in the rear end of the drawbar and, in case the entire drawhead should be broken from its drawbar, said drawhead will still be held to the drawbar by said locking bar, thus preventing the drawhead dropping to the track and causing a derailment of the cars, and a coupling may be made with the drawhead in this position, by connecting the knuckle thereof by a link and pin, as in the ordinary link and pin couplings, with a mating coupler, as the pin *g*, being located at the end of the drawbar will hold the locking bar in place. Also should the head or the knuckle be so damaged or disabled as to be rendered inoperative and yet preclude the use of the locking bar in its normal position the pin *g* may be removed and the locking bar drawn out until the rear end of its slot engages the unlocking pin, H, Fig. 5, which will hold it in position and permit of the use of the locking bar as a link

to couple with a mating coupler, this being readily accomplished without removing the unlocking pin by reason of the said bar being slotted nearly its whole length.

In Figs. 3, 4 and 5, I show a modified form of pin in which figures said pin, lettered g', is formed with a head a' at one end and at the other end an opening or perforation is formed to receive a key b' to secure the pin in the drawbar. At the upper side of the drawbar an annular boss c' is formed, by casting or otherwise, which surrounds the mouth of opening h, and in which are formed the recesses d' and e', the recesses d' being opposite each other and the recesses e' being arranged at right angles to the recesses d' and registering with grooves f' formed in diametrically opposite sides of opening h'. To secure the locking bar in place the pin described is inserted through opening h in the drawbar from below and the key b' inserted in the perforation therefor in the end of the pin and rests in the recesses d' thus preventing the pin from dropping out, and to release the locking bar so that it may be moved forward in the drawbar or be entirely removed therefrom when occasion arises it is only necessary to raise the pin up so as to lift the key out of the recesses d' and then give the pin a quarter turn so as to cause the key to register with the recesses e' and thus permit the pin to be drawn down and into the drawbar when a quarter turn will permit it to pass through the slotted bar and its key rest on the lower interior surface of the drawbar, in which position it will support the pin and prevent its loss. As it frequently happens the distance between the under side or bottom of the car and the drawbar is not sufficient to permit of a pin, such as g, being raised sufficiently high to release the locking bar, nor to insert a pin from above and the pin g' is intended to be used when this occurs. The drawbar is also formed with an interior circular flange E which serves the purpose of limiting the backward thrust of the locking bar.

Any desired means may be employed to raise the end of the locking bar and I have devised a simple form of pin, H, as shown in Figs. 6, 7 and 8, to accomplish the object and also at the same time throw the knuckle into its open position. Upon referring to the figures named it will be seen that the pin H is formed with an enlarged lower portion k and the pin extends through an opening in the drawbar at its junction with the hand and its enlargement is of greater diameter than the width of the slot in the locking bar and engages the lower side of said bar so that when said pin is raised it lifts with it the end of the locking bar and thus releases the tail piece and permits the knuckle to be swung out or into its open position.

A recess H′ is formed in the upper part of the drawhead to receive the end of the locking bar thus enabling the tail piece to be made its full thickness and affording an ample bearing for the end of the locking bar. With the above described device for releasing the tail piece of the knuckle it is necessary that the knuckle be swung out or opened either by hand or be opened by the mating coupler in the drawing apart of the cars to which they are attached, but as it frequently happens it is desirable and necessary that the knuckles be swung out while the cars are stationary and to do this the train men must enter between the cars thereby placing themselves in a position to be injured should the cars be moved accidentally or otherwise, and to avoid this, I have so constructed the unlocking pin that, as soon as it lifts the locking bar clear of the tail piece it acts to instantly swing the knuckle open.

Referring to Figs. 1, 2, 6, 7 and 8, H represents my improved unlocking pin having a slightly curved arm p cast therewith which projects at right angles therefrom, said arm, when the parts are in their normal position, extending into a recess r formed therefor in the inner surface of the wall of the drawhead where it is removed from the violent shocks and blows incident to the concussion between car couplers in use and is thus protected from all liability to injury. The pin may be raised by the usual or any desired means from above, such as the usual uncoupling lever extending across the end of the car and connected to the pin by means of a chain. In the enlarged lower portion of pin H I form a groove s which for a distance equal to about one-half the length of such enlarged portion extends straight toward the lower end of the pin and then curves around the pin in a spiral line to the bottom thereof as shown best in Fig. 8. In the lower opening u of the drawhead through which the pin enters a projecting spur t is formed, either by casting or otherwise, which extends into said opening u and enters the groove a as shown best in Figs. 6 and 7. In one side of the opening u a recess v is formed the bottom of which forms a ledge w on which the lower end of the pin, which is slightly concaved for the purpose as indicated in dotted lines, Fig. 7, rests when the pin is raised so as to maintain the locking bar in its raised position.

The operation of unlocking or releasing the knuckle and throwing it open is as follows: The pin is raised by any suitable or desired means, as mentioned above, carrying with it the forward end of the locking bar until the latter is clear of the tail piece d when the spur t leaves the straight portion of the groove s and enters the spiral portion and as the pin is still being drawn upward the spur acting on the edges or walls of the spiral groove causes said pin to rotate or to turn on its own axis thus swinging or turning its arm p against the rear edge or side of the tail piece and forcing the same outward, as shown in Figs. 1 and 2. Thus it will be observed that the operation of releasing the knuckle and swinging the same into an open position is, practically, accomplished at the same time,

and that the means employed to perform the operation are positive in their action, and are such as are not liable to get out of order or to be affected by the changes in the weather.

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

1. The combination, in a car coupler, with a hollow drawbar, of a locking bar having a central slot extending from end to end thereof, a pin to secure the rear end of said locking bar in the drawbar, and means for raising the front end of said locking bar, substantially as described.

2. The combination, in a car coupler, with a hollow drawbar, of a locking bar having a slot extending from end to end thereof, a pin to secure the rear end of said locking bar in said drawbar, and a pin having an enlarged lower portion for raising the front end of said locking bar, substantially as described.

3. The combination, in a car coupler, with a hollow drawbar provided with shoulders or ledges at each side therein, of a locking bar having a slot extending from end to end thereof, a pin for preventing the forward longitudinal movement of said locking bar, an unlocking pin having an enlarged lower portion for raising the front end of said locking bar, and means for raising said unlocking pin, substantially as described.

4. The combination, in a car coupler, with a hollow drawbar, and a swinging knuckle, of a locking bar having a longitudinal slot arranged in said drawbar above its bottom surface, a pin having an enlarged lower portion formed with a spiral groove and provided with a projecting arm, and a spur adapted to enter said groove and to impart a partial rotation thereto when the pin is raised, substantially as described.

5. The combination, in a car coupler, with a swinging knuckle and a locking bar adapted to be raised at one end, of a pin having an enlarged lower end and an arm projecting at right angles therefrom, means for raising said pin, and means for partially rotating the same while being raised, whereby said locking bar will be raised and said knuckle swung on its pivots, substantially as described.

6. The combination, in a car coupler, with a swinging knuckle having a tapering tail-piece, of a locking bar supported in the drawbar above the bottom thereof, a pin having a curved arm projecting therefrom and formed with a spirally trending groove, a spur arranged to enter said groove, and a ledge or shoulder formed on the drawhead to support said pin when in its raised position, substantially as described.

7. The combination, in a car coupler, with a drawhead having an opening for the unlocking pin, a ledge cast or formed on one side of said opening, a spur extending into said opening, a swinging knuckle, and a locking bar, of an unlocking pin having a spirally trending groove into which said spur projects, and an arm secured to said pin, whereby said knuckle may be unlocked or released and swung outward on its pivots when the pin is raised, substantially as described.

8. The combination, in a car coupler, with a hollow drawbar having an opening formed with a groove, and a boss formed with recesses diametrically opposite each other surrounding one end of said opening, of a locking bar having a longitudinal slot, and a pin having a key at one end adapted to fit in said recesses, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES HOYT BROWN.

Witnesses:
BENJ. T. WELCH, Jr.,
COURTLANDT BABCOCK.