(No Model.) 2 Sheets—Sheet 1.

J. H. BROWN.

CAR COUPLING.

No. 491,467. Patented Feb. 7, 1893.

Fig. 1.

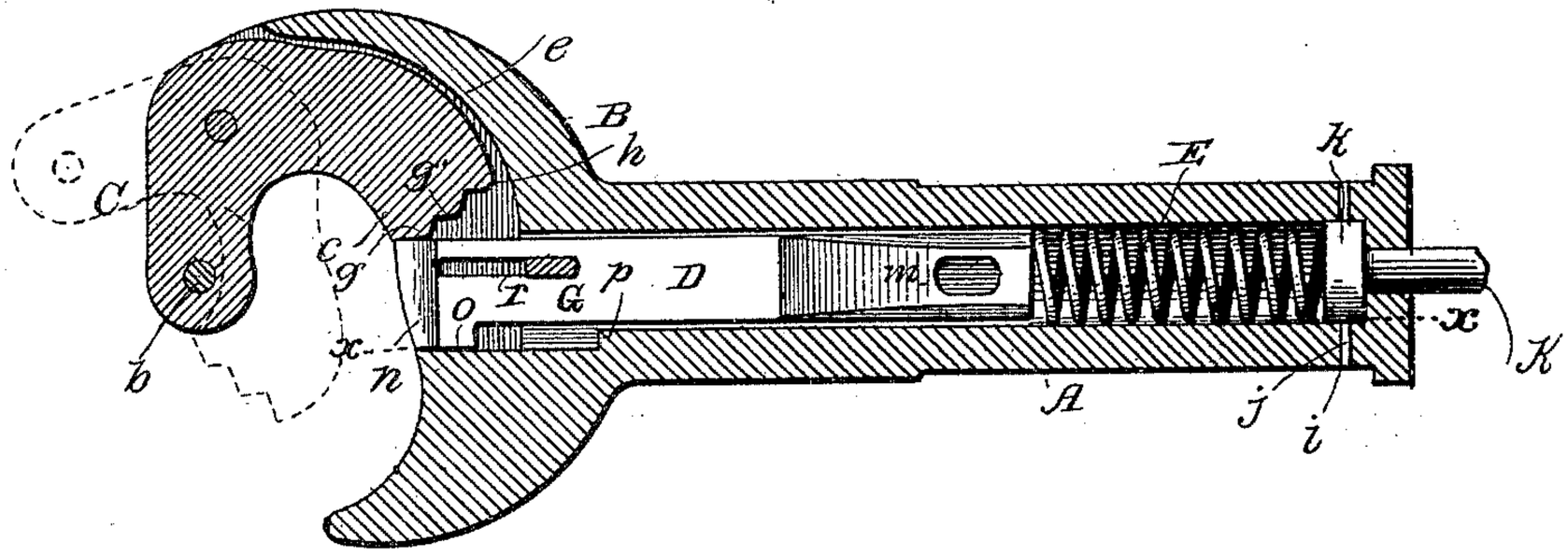
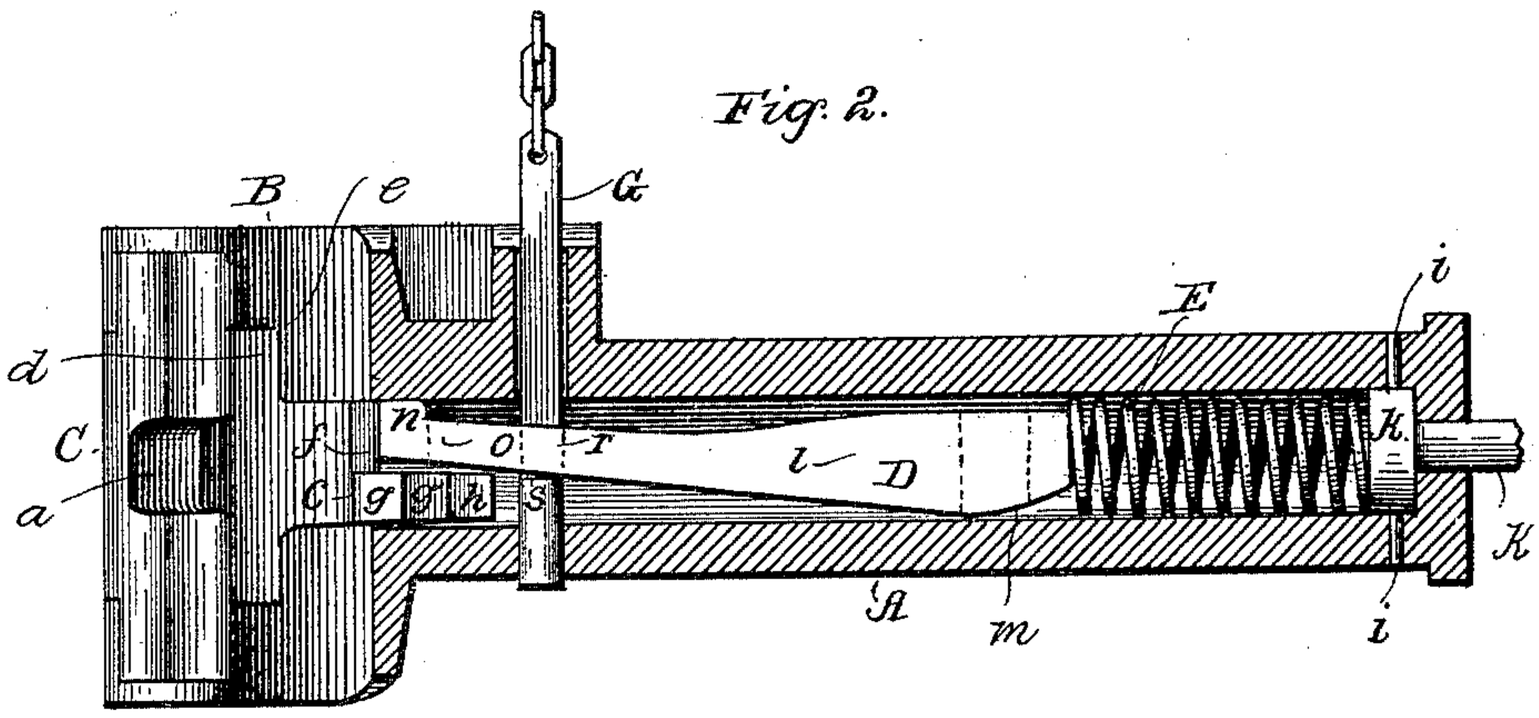


Fig. 2.



Witnesses.
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

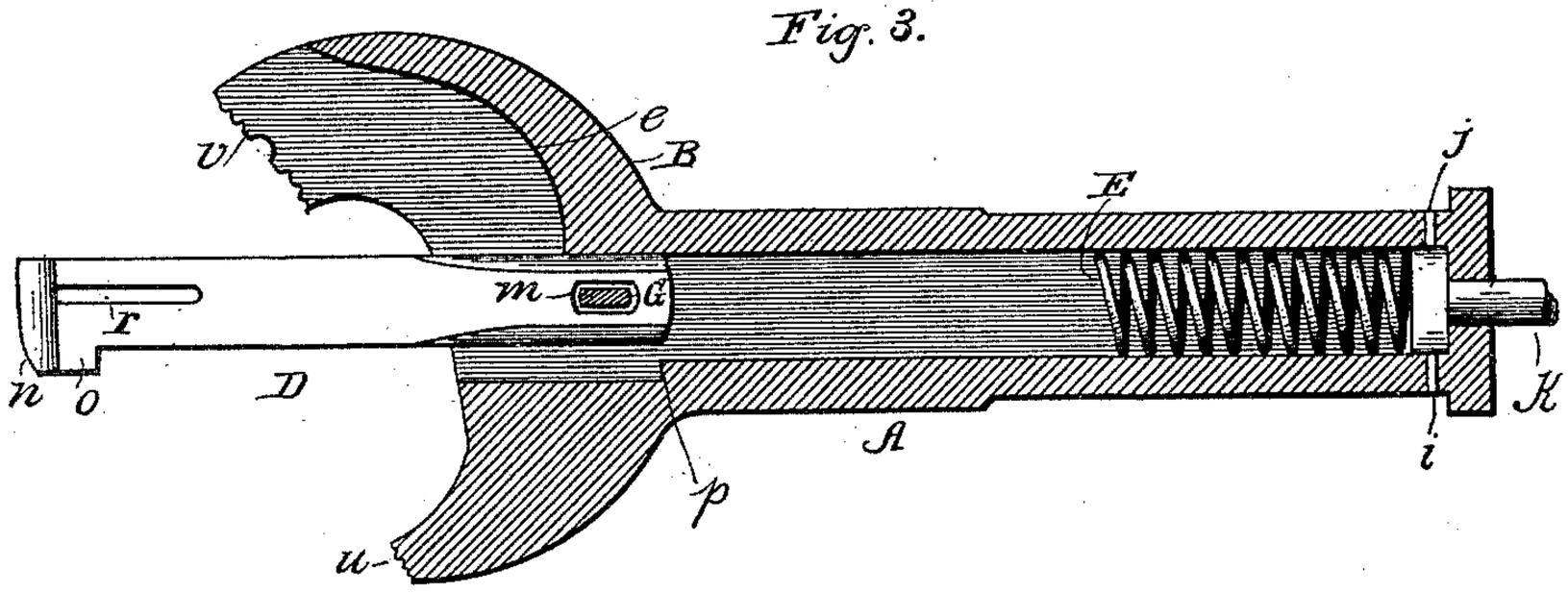


Fig. 4.

Fig. 5.

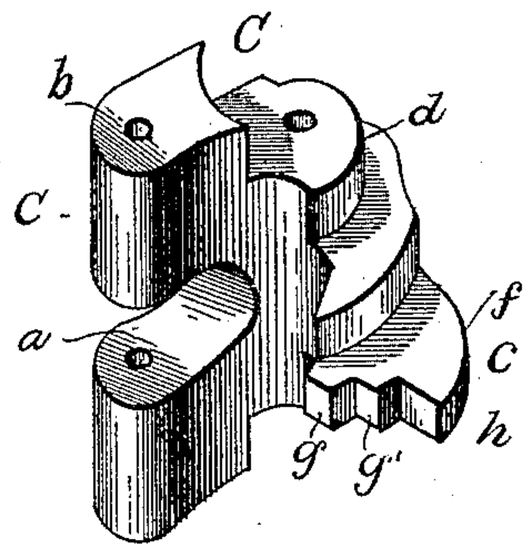
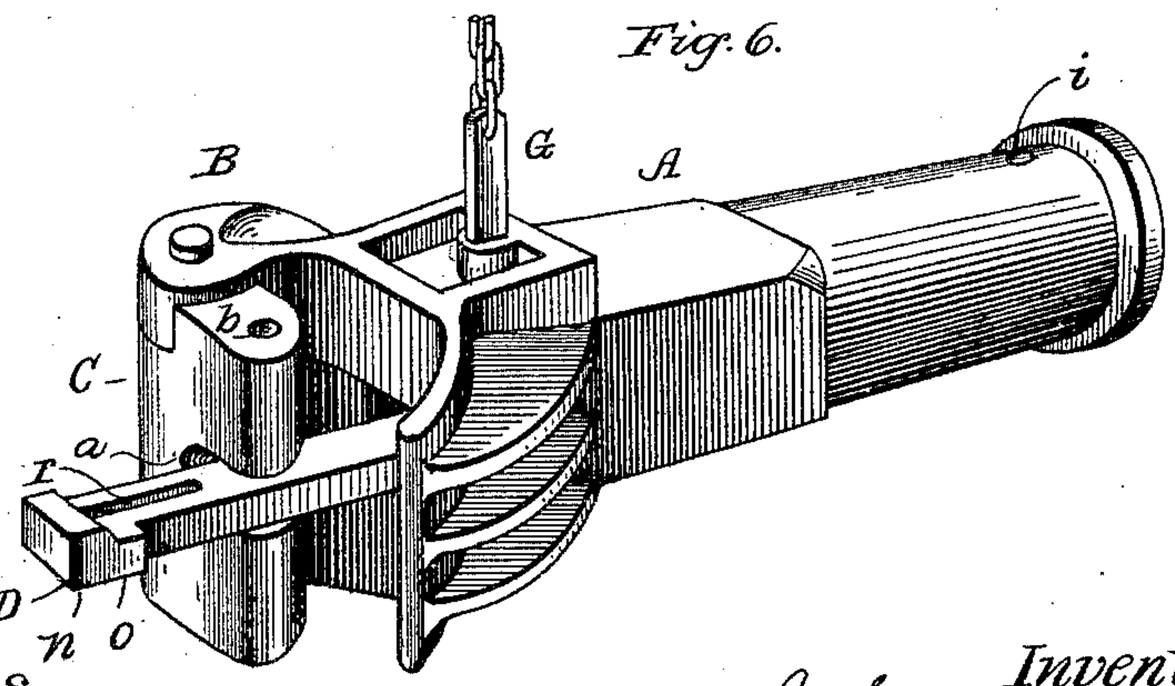


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES HOYT BROWN, OF DENVER, COLORADO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 491,467, dated February 7, 1893.

Application filed May 12, 1892. Serial No. 432,768. (No model.)

To all whom it may concern:

Be it known that I, JAMES HOYT BROWN, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Car-Couplings; 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 car couplings and particularly to that class of automatic car coupling devices generally known as the Janney or Master Car Builders' type in which two knuckles pivotally mounted in opposing draw-heads are adapted, when brought together, to interlock, said draw-heads being provided with locking latches to retain the knuckles in their interlocking position, thus forming the coupling; and it has for its object to provide a simple locking device for such couplings which acts as a buffer for the knuckle thus reducing the jar to both cars and couplers and is adapted, when occasion arises, to be used as a coupling link for link and pin coupling, and with these ends in view my invention consists, first, in providing a longitudinally arranged locking bar normally held by a spring directly in the path of movement of the tail piece of the knuckle and to yieldingly receive the blow from the same when in the act of making a coupling; secondly, in providing a longitudinally yielding locking bar adapted to be raised at one end out of the path of the knuckle tail piece; thirdly, in providing a locking bar of such peculiar construction as to adapt it for use as a link in forming a link and pin coupling; and fourthly, in other details of construction and arrangement of parts as will be hereinafter fully described and pointed out in the claims.

In the accompanying drawings forming a part of this specification—Figure 1 is a horizontal longitudinal sectional view through my improved coupling; Fig. 2 a longitudinal vertical sectional view on the line *x*—*x*, Fig. 1, showing the locking bar in its raised position; Fig. 3 a horizontal longitudinal sectional view showing the locking bar in position to act as a coupling link; Fig. 4 a detail perspective view of the uncoupling pin; Fig. 5 a detail perspective view of the knuckle; and Fig. 6 a perspective view showing the coupling adapted for link and pin coupling.

Similar letters refer to similar parts throughout the several views.

Referring to the drawings A represents the draw-bar and B the draw-head of a car coupling of the Janney type in which a knuckle C is pivotally mounted so as to swing or turn in a horizontal plane. The knuckle is formed or cast with a recess *a* to receive the end of a coupling link and with a perforation *b* intersecting the recess to receive the pin for securing the link in the recess when occasion requires. The tail piece *c* of the knuckle is formed with the shoulders *d* to engage the shoulders *e* formed in the draw-head and partly surrounding the pivot pin or bolt opening therein and said tail piece is reduced at *f* in order to permit the same to pass freely under the end of the locking bar D when uncoupling, as will be hereinafter explained, and the front or outer edge of the tail piece is formed with shoulders *g*, *g'* and *h* adjacent each other, the latter two being for the purpose of enabling a coupling to be made on a curve, as will also be explained hereinafter.

The draw-bar A is cast hollow and is formed with a perforation *i* at its rear end to receive a rivet or bolt *j*, to secure the draft spindle *k* securely thereto, as shown, and against the head of the draft spindle one end of a spiral spring E rests, the other end of said spring extending forward in the draw-bar and resting against the rear end of the locking bar or latch D, said bar, normally, extending forward to the edge of the mouth of the draw-head as shown in Fig. 1.

The rear end of the locking bar or latch D is bent or curved upward, as at *l*, and is formed with an opening or perforation *m* and said bar at its front or head end is slightly rounded or curved, as at *n*, and a lateral shoulder *o* formed thereon which is adapted to engage a vertical shoulder *p* formed in the draw-head to limit the backward thrust of the locking bar or latch and thus relieve the pin G from the shock incident to the concussion between the knuckles in coupling. An oblong slot *r* is formed through the head end of the locking bar through which is passed

the pin G the lower end of said pin being enlarged to form the shoulders *s* which engage the lower side of the locking bar at the edge of the slot *r* so as to raise the end of said bar when the pin is raised in uncoupling.

The pin G is passed upwardly or from beneath the draw-head through an opening in the lower wall thereof of sufficient size to permit the passage of the enlarged end of the pin, and through the slot *r* of the locking bar and its upper end extends through an opening in the upper wall of the draw-head. The pin is formed with an opening to receive the end of the chain connected to the uncoupling lever usually attached to the car in order to raise the pin and, through its shoulders *s*, the head end of the locking bar is raised out of the path of the tail piece of the knuckle so that the same may be released and rendered free to be swung outwardly. The bar rises freely and easily owing to the curved shape given its end, and as the height to which it must be raised to clear or release the tail piece is not great owing to the end of said tail piece being reduced, as described above, no additional enlargement or increase of the diameter of the interior of the draw-head is necessary in carrying out my invention.

It will be observed that when the locking bar is in the position shown in Fig. 1 and the knuckle is open or swung out as indicated by dotted lines in said figure that upon the approach of a mating coupler the knuckles of the respective couplers will enter between the guiding jaw of the opposing draw-head and its knuckle and coming in contact with the opposing tail piece will cause the latter to strike against the head end of the locking bar and push or force the same back into the draw-bar against the forward pressure of the spring E, until the tail pieces in their movement pass the end of the locking bar when the spring at once acts to force the locking bar forward into its normal position and in the path of the tail piece thus locking the latter securely in place and completing the coupling, the forward movement of the bar being limited by the length of its slot *r* the end of which coming in contact with the pin G arresting the throw of the bar. As the bar D has a bearing against the side wall of the draw-head and the tail piece is adapted to fit within the draw-head recess or opening snugly it will be seen that but little if any space is left for the play of the parts after the coupling is once fully made, thus obviating to a great extent the danger of the knuckle or its tail piece or the locking bar being broken by a sudden jerk on the coupling as frequently occurs in starting and stopping a train of cars. If the coupling is made on a curve the locking bar will not be fully driven back but only so far, according to the degree of the curve, as to engage either the shoulder *g'* or *h* and the completion of the coupling will be made when the cars leave the curve and move onto a straight track.

In Fig. 3 I show my improved locking bar D in position for use as a coupling link in the event of the breaking off of the guiding jaw of the draw-head, as at *u*, or the breaking of the draw-head at the point where the knuckle is pivoted to the draw-head, as at *v*, or of such damage to either the draw-head or knuckle as to render either of them inoperative to form a coupling with a mating coupler of a similar type. In this figure the locking bar is represented as projecting forwardly beyond the draw-head with its rear end secured by means of the pin G which passes through the perforation *m* of said bar, thus enabling a coupling to be made with the ordinary link and pin coupler or any coupler capable of coupling with the link and pin type of coupling by simply inserting the head end of the bar into the "bull nose" or the recess for the reception of a link and dropping a pin therethrough and through the slot *r* of the bar.

Owing to the arrangement of the locking bar loosely or freely within the draw-bar and rendering the same capable of longitudinal movement therein there is no liability of its becoming broken or damaged when struck by the tail piece of the knuckle as it will yield to the blow and be forced back until the tail piece passes it and permits of its immediate return in front of the tail piece to lock the latter in place. In uncoupling the pin G is raised, carrying with it the head end of the locking bar until the latter is raised above the tail piece thus releasing the latter and permitting it to be swung out, when the release of the pin G will permit the locking bar to drop down again in readiness to form a coupling.

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

1. In an automatic car coupling, the combination, with a hollow draw-bar, of a locking bar arranged longitudinally in said draw-bar and adapted to form a link to couple with a link and pin coupling, substantially as described.

2. In an automatic car coupling, the combination, with a hollow draw-bar, of a locking bar loosely arranged longitudinally in said draw-bar and adapted to form a link to couple with a link and pin coupling, and means for securing the rear end of said bar to the draw-bar, substantially as described.

3. In an automatic car coupling, the combination, with a hollow draw-bar, and a swinging knuckle, of a bar arranged longitudinally in said draw-bar and adapted to have a vertical movement at its outer end and to be bodily moved longitudinally in said draw-bar, and a pin for securing said bar in the draw-bar and for raising one end thereof, whereby said bar is adapted to form a lock for the knuckle and to form a link for a link and pin coupling, substantially as described.

4. In an automatic car coupler, the combination of a hollow draw-bar, and a swinging

knuckle, of a locking bar longitudinally arranged within said draw-bar, a spiral spring for normally forcing said locking bar forward, and means connected to the uncoupling lever for raising or lifting one end of said locking bar, substantially as described.

5. In an automatic car coupling, the combination, with a hollow draw-bar, and a swinging knuckle having a tail piece formed with shoulders on its front edge, of a locking bar arranged longitudinally in said draw-bar and formed with an elongated slot at its forward end, a spring adapted to force said bar outwardly, and a pin having shoulders on its lower end for raising or lifting one end of said locking bar, substantially as described.

6. In an automatic car coupling, the combination, with a draw-head having a vertical shoulder, a hollow draw bar and a swinging knuckle, of a locking bar longitudinally arranged within said draw-bar and having a lateral shoulder near its head end, a spring for forcing said bar forward, and a pin adapted to limit its forward movement and to lift one end of said locking bar, substantially as described.

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

JAMES HOYT BROWN.

Witnesses:
W. W. WHITE,
JOHN C. MURRAY.