

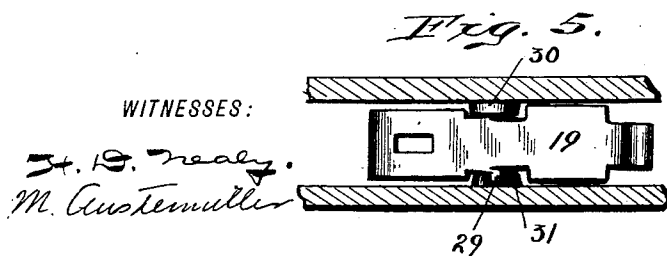
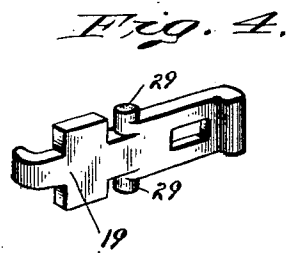
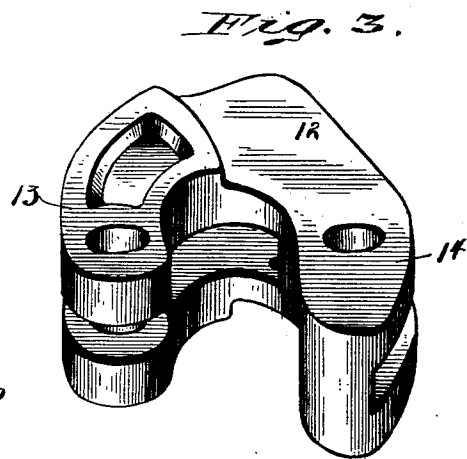
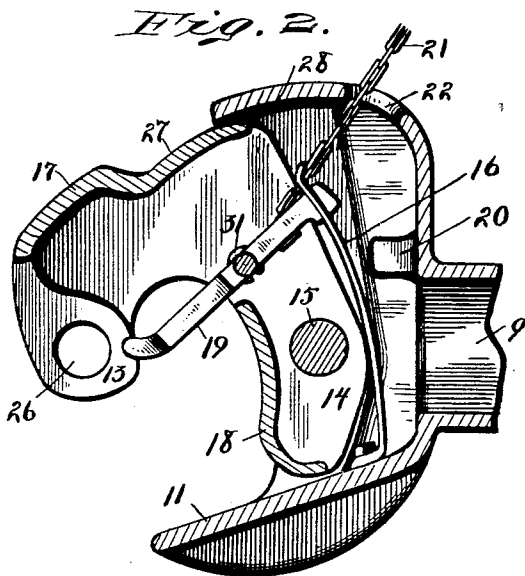
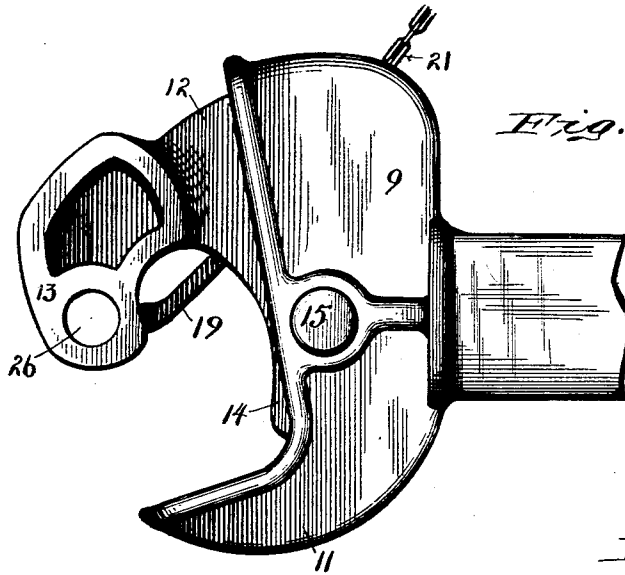
(No Model.)

2 Sheets—Sheet 1.

P. C. BROWN.
CAR COUPLING.

No. 586,528.

Patented July 13, 1897.



WITNESSES:

J. D. Neely.
M. Austmiller

INVENTOR
Philip C. Brown
BY
H. P. Hood & Son
ATTORNEYS

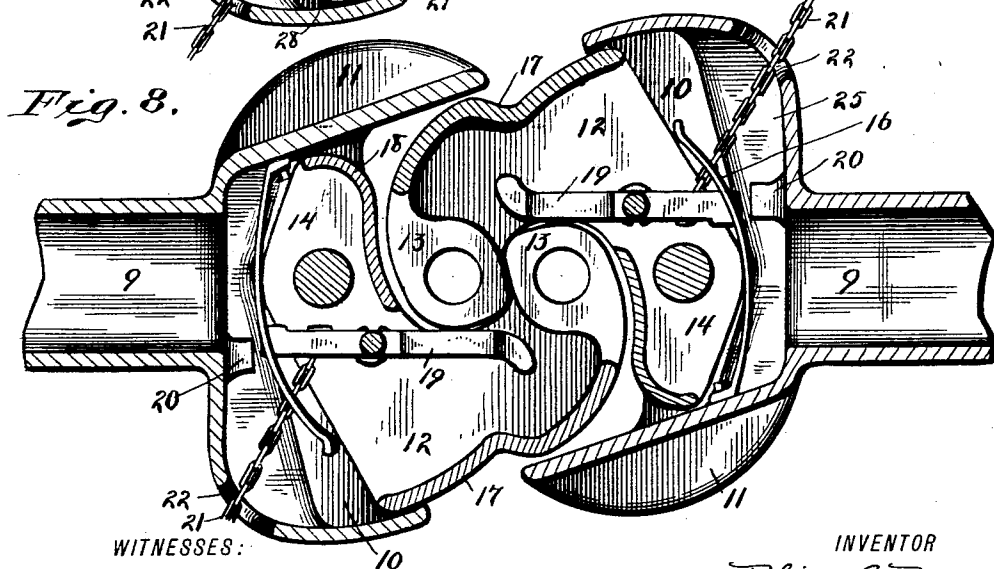
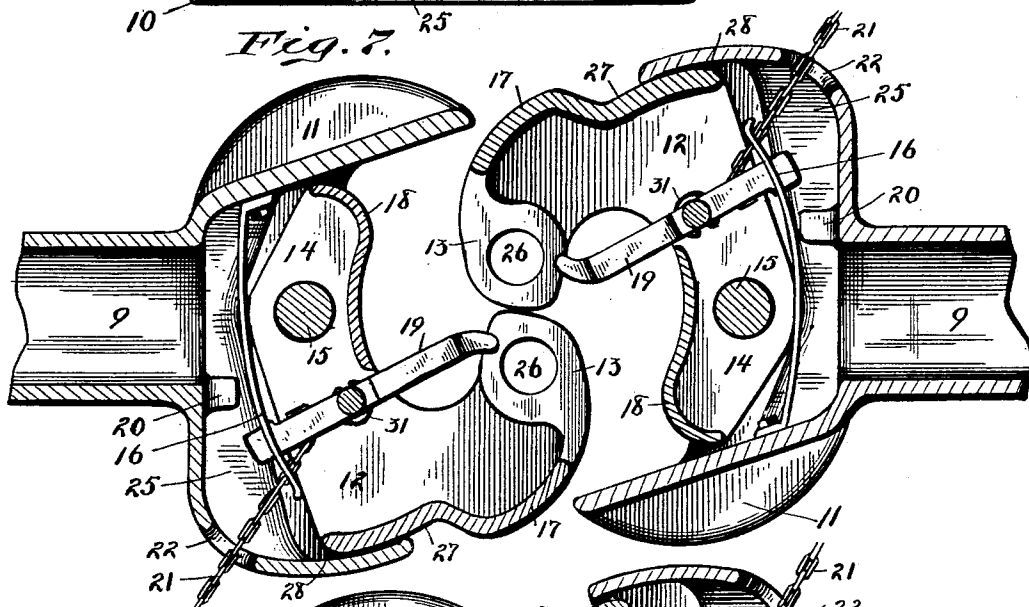
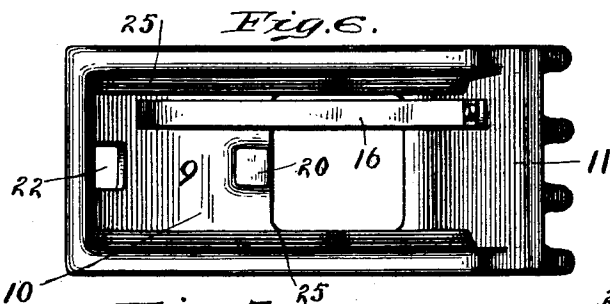
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UNITED STATES PATENT OFFICE.

PHILIP C. BROWN, OF COLUMBUS, INDIANA, ASSIGNOR OF FIFTY-THREE ONE-HUNDREDTHS TO JOSEPH I. IRWIN, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 586,528, dated July 13, 1897.

Application filed September 21, 1896. Serial No. 606,474. (No model.)

To all whom it may concern:

Be it known that I, PHILIP C. BROWN, a citizen of the United States, residing at Columbus, in the county of Bartholomew and State of Indiana, have invented a new and useful Car-Coupling, of which the following is a specification.

My invention relates to an improvement in car-couplings.

The object of my invention is to produce various improvements in the details of construction of the coupling for which Letters Patent of the United States No. 542,603 were granted me July 9, 1895.

The accompanying drawings illustrate my invention.

Figure 1 is a plan of one of my improved couplings. Fig. 2 is a horizontal section thereof, the parts being shown in the normal uncoupled position. Fig. 3 is a view in perspective of the knuckle. Fig. 4 is a similar view of the locking-lever. Fig. 5 is a detail. Fig. 6 is a front elevation of the mouth of the draw-head. Fig. 7 is a central horizontal section of two couplings, showing the parts in the act of coupling. Fig. 8 is a similar view showing the parts in the coupled position.

The coupling conforms in its general outlines to the "Janney" type and is adapted to couple therewith.

In the drawings, 9 indicates the draw-head, having a mouth 10 and the usual guard-arm 11. The knuckle 12 is hook-shaped and is composed of the forward or locking arm 13 and the rear arm 14 and is pivotally mounted in the mouth of the draw-head by means of a pin 15, which passes through the said draw-head and the rear arm 14 of the knuckle, the said pin being mounted substantially in line with the line of draft through the draw-head. Knuckle 12 lies normally in the position shown in Fig. 2 and is yieldingly held in said position by any suitable means, such as a spring 16. The said knuckle is composed of an upper and a lower plate, the two plates being connected together by means of webs 17 and 18, and pivoted between said plates is a locking-lever 19, the rear end of which is adapted to be forced into position to engage with a lug 20, formed in the mouth of the

draw-head, and the forward end of which is reduced, so as to play between the ends of the plates forming the forward arm of the knuckle, the arrangement being such that as two similar knuckles are forced together the end or nose of one forward arm will force the locking-lever of the opposite knuckle into position to engage with the lug 20. The rear end of lever 19 is of such length that a slight play of the knuckle is allowed before the said lever will be brought into engagement with lug 20. Secured to the rear end of lever 19 is one end of a chain 21, the opposite end thereof passing through an opening 22 in the said end of the draw-head and being secured, preferably, to the corner of the car. The forward surface of arm 13 and the forward surface of arm 14 of the knuckle each has the same contour, and the forward surface of arm 14 projects slightly from the mouth of the draw-head.

Formed in the bottom of the mouth of the draw-head are two ribs 25, which are adapted to be engaged by the rear surface of arm 14 when the knuckle is swung outward in the act of coupling, the said ribs receiving the blow occasioned by the operation.

A pin-hole 26 is formed through the end of arm 13 of the knuckle, so as to allow for a link-and-pin coupling, the link passing between the upper and lower plates of the knuckle.

The exact shape of the rear surface of the knuckle is not material, but it is advisable that surface 27 of the knuckle and surface 28 of the mouth of the draw-head be segments of a circle struck from the center of pin 15. By this construction surfaces 27 and 28 may lie close together in every position of the knuckle, and thus prevent the entrance of small objects into the mouth of the draw-head.

For the purpose of forming a bearing for the pivot 29 of lever 19 a socket is formed on the inner surface of one of the plates of the knuckle by means of an annular flange 30, and a somewhat similar socket is formed on the other plate by means of a flange 31, the said flange 31, however, forming an incomplete ring, so that in inserting the lever between the plates of the knuckle one end of

pivot 29 is inserted in the socket formed by ring 30, and the other end is then slipped into the incomplete ring formed by flange 31, and the ends of said incomplete ring are
 5 peened over, so as to retain the lever in position. It will be noticed that the opening in ring 31 is in such position than any pressure normally brought to bear against lever 19 in the ordinary operation of the coupling
 10 will have no tendency to force the said lever from its bearings.

The operation is as follows: The coupling is normally in the position shown in Fig. 2, the knuckle being in the same position as
 15 when two such couplings are actually coupled together, said knuckle being yieldingly held in position by the spring or by any other suitable means. The locking-lever, however, owing to the weight of the chain, is swung
 20 upon its pivot, so that the rear end thereof will be free from lug 20. When two such couplings are brought together, the forward or locking arms of each knuckle come into engagement with each other, and the forward
 25 surfaces of said arms are so shaped that as the two couplings are forced together the said knuckles are swung outward upon their pivots against the action of spring 16, such swinging being permitted owing to the fact
 30 that the rear end of the locking-lever is held out of engagement with lug 20 by the weight of the chain 21. As the two couplings are brought nearer together the ends of arms 13 pass each other and the forward surface of
 35 each arm 13 comes into engagement with the outer end of the forward surface of arm 14 of the opposite knuckle, thus causing each knuckle to swing inward upon its pivot and thus bring the two knuckles into the position
 40 shown in Fig. 8. The inward movement of each knuckle is also aided by the action of spring 16. As the knuckles come together the end of each arm 13 comes into engagement with the forward end of the locking-lever of the opposite coupling and causes said
 45 lever to swing upon its pivot, thereby bringing the rear end of each of said levers into position to engage with the corresponding lug 20, thus locking each knuckle in the coupled
 50 position. To uncouple, the operator pulls upon either one of chains 21. One of levers 19 is thus caused to swing upon its pivot, the forward end of said lever engaging with the end or nose of the opposite knuckle, at the
 55 same time causing the knuckle carrying the said lever to swing upon its pivot, a limited pivotal movement of each knuckle being permitted because the rear end of lever 19 is not directly in engagement with its cooperating
 60 lug 20. As soon as the knuckles begin to swing outward the forward ends of the locking-levers are swung upon their pivots, owing to the weight of chain 21, and the rear ends thereof are thereby drawn out of the way of
 65 lugs 20, thus allowing the knuckles to swing to their extreme outward position, so that they may be withdrawn one from the other.

As soon as the couplings are separated each knuckle is forced back to its original position by spring 16.

In the forward movement of a train the locking-levers play no part in the action of the coupling and would be necessary only in uncoupling; but in going around curves or in
 75 backing the forward surface of each arm 13 comes into engagement with the forward surface of the opposite arm 14, and the relative arrangement of these surfaces is such that in rounding curves or in backing each knuckle will cause a slight outward movement of the
 80 opposite knuckle, thus forcing the rear end of each locking-lever into engagement with its cooperating lug, thus preventing a further outward movement of either knuckle and causing the pressure to be evenly distributed
 85 and communicated to the draw-head through the pivot 15 and also through the locking-lever and lug 20.

I claim as my invention—

1. In a car-coupling, the combination with
 90 the draw-head thereof, of a knuckle pivoted therein through its rear arm, the forward surface of the front arm of said knuckle having the same contour as the forward surface of the rear arm thereof and the said forward
 95 surface of the rear arm projecting from the mouth of the draw-head upon both sides of the pivotal point of said knuckle in position to be engaged, upon both sides of the pivot, by the forward surface of the forward arm of
 100 the opposing knuckle when said knuckle is in its closed position, substantially as and for the purpose set forth.

2. In a car-coupling, the combination with
 105 the draw-head thereof, of a knuckle pivoted therein through its rear arm, the forward surface of the front arm of said knuckle having the same contour as the forward surface of the rear arm thereof and the said forward
 110 surface of the rear arm projecting from the mouth of the draw-head upon both sides of the pivotal point of said knuckle in position to be engaged, upon both sides of the pivot, by the forward surface of the forward arm of the opposing knuckle when said knuckle is
 115 in its closed position, and means for yieldingly holding said knuckle in the normal, or coupled, position, substantially as and for the purpose set forth.

3. In a car-coupling, the combination with
 120 the draw-head thereof, of a knuckle pivoted therein through its rear arm and the forward surface of said rear arm projecting from the mouth of the draw-head upon each side of the pivotal point of the knuckle, the arrangement being such that the forward surface of the forward arm of the opposing knuckle will engage the rear arm of said knuckle upon
 125 each side of the pivotal point thereof, substantially as described.

4. In a car-coupling, the combination with
 130 the draw-head thereof, of a knuckle pivoted therein, and a locking-lever pivoted to said knuckle and adapted to be engaged by the co-

operating knuckle of an opposite coupling and thereby forced into position to engage with the draw-head and thereby lock the knuckle therein, substantially as set forth.

5 5. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted centrally therein through its rear arm, and a locking-lever pivoted to said knuckle and adapted to be engaged by the knuckle of an
10 opposite coupling and thereby forced into position to engage with the draw-head and thereby lock the knuckle therein, substantially as described.

15 6. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted therein, a locking-lever pivoted to said knuckle and adapted to be engaged by the knuckle of the opposite coupling and thereby forced into position to engage with the draw-
20 head and thereby lock the knuckle therein, means for yieldingly holding the knuckle in its normal, or coupled, position, and means for normally holding the locking-lever out of position to engage with the draw-head, sub-
25 stantially as described.

7. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted therein, a locking-lever pivoted to said
30 knuckle and adapted to be engaged by the knuckle of the opposite coupling and thereby forced into position to engage with the draw-head and thereby lock the knuckle therein,

means for yieldingly holding the knuckle in its normal, or coupled, position, and means, such as a chain, secured to the locking-lever 35 and adapted to normally hold the said lever out of position to engage with the draw-head, the arrangement being such that the knuckle may be swung upon its pivot by the said means, substantially as and for the purpose 40 set forth.

8. In a car-coupling, the combination with the draw-head thereof, of a knuckle pivoted therein through its rear arm and having the forward surface of said rear arm projecting 45 from the mouth of the draw-head and adapted to be engaged by the forward surface of the forward arm of the cooperating knuckle, a locking-lever pivoted in said knuckle and adapted to be engaged by the said cooperating 50 ing knuckle and thereby forced into position to engage with the draw-head, the arrangement being such that when the forward surface of the front arm of the cooperating knuckle is brought into engagement with the 55 forward surface of the rear arm of the first-mentioned knuckle the said locking-lever will be forced into engagement with the draw-head, substantially as and for the purpose set forth.

PHILIP C. BROWN.

Witnesses:

A. M. HOOD,
JOS. I. IRWIN.