

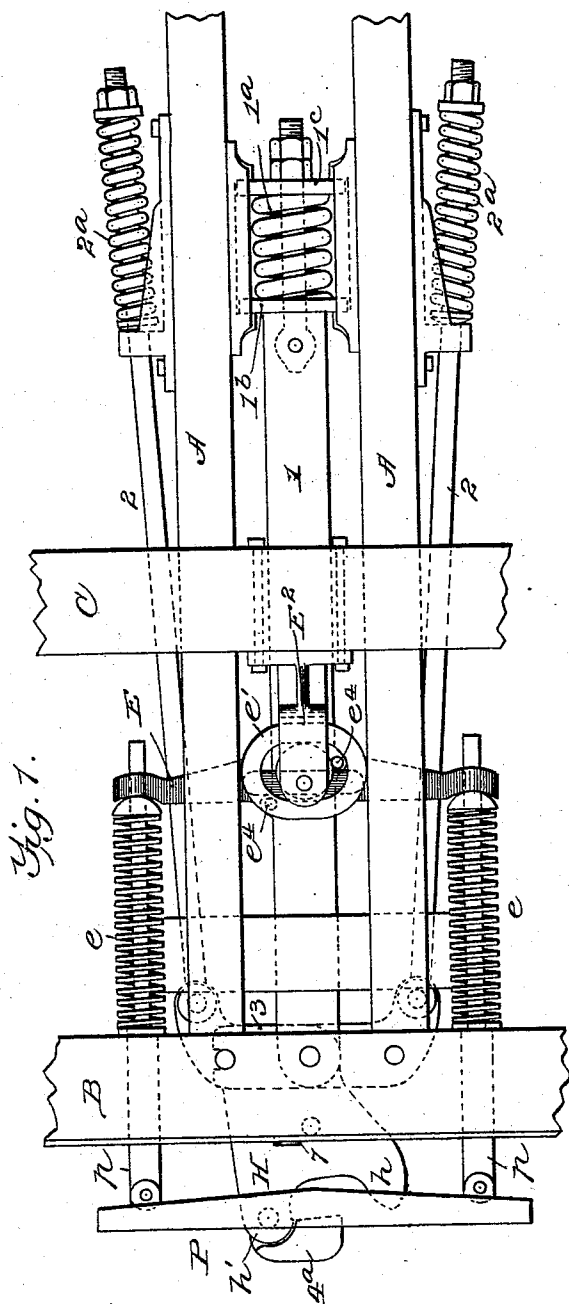
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H. C. BUHOUP.
CAR COUPLING.

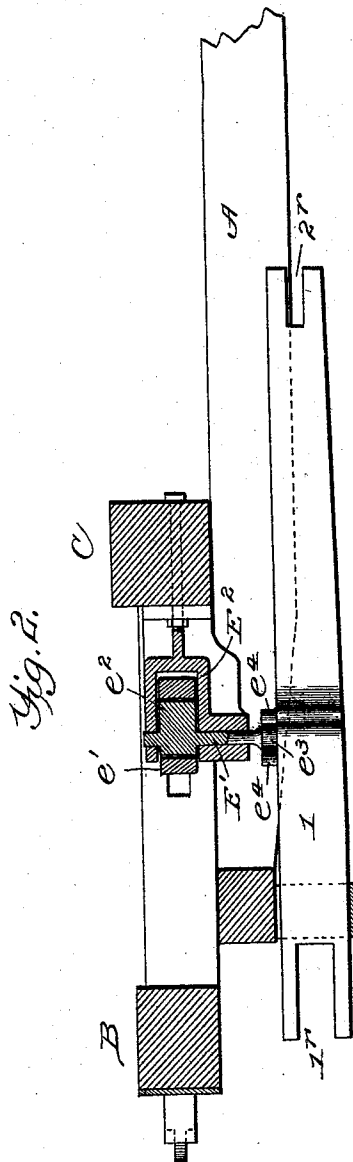
No. 578,313.

Patented Mar. 9, 1897.



WITNESSES:

Harry S. Rohrer.
Chas. Darby.



INVENTOR

Harry C. Buhoup
BY F. H. Ritter

ATTORNEY.

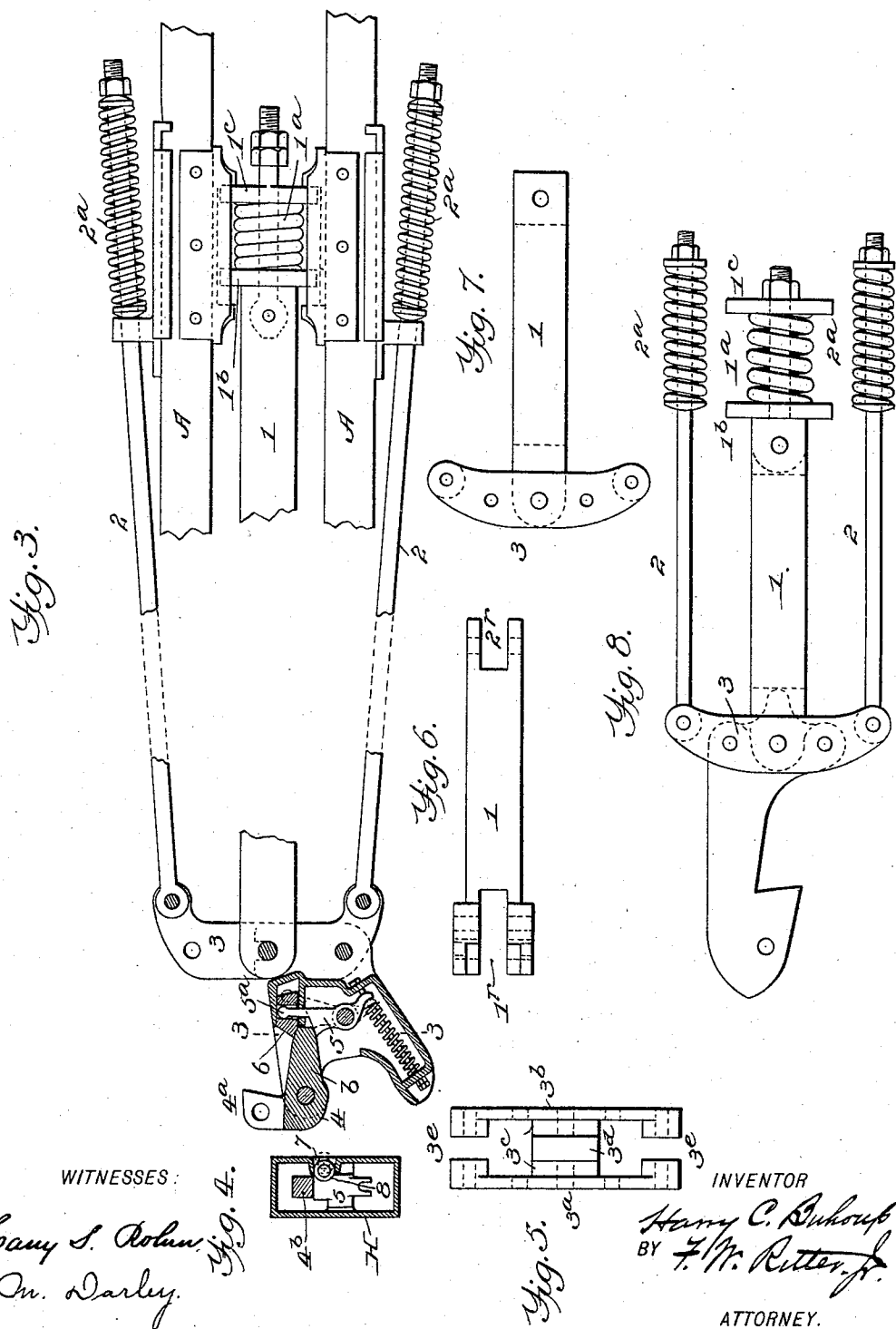
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H. C. BUHOUP.
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Fig. 9.

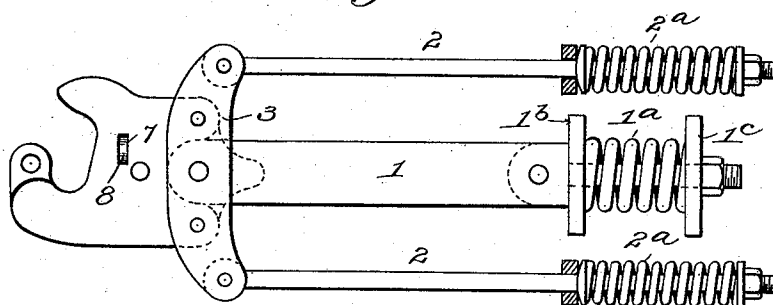


Fig. 10.

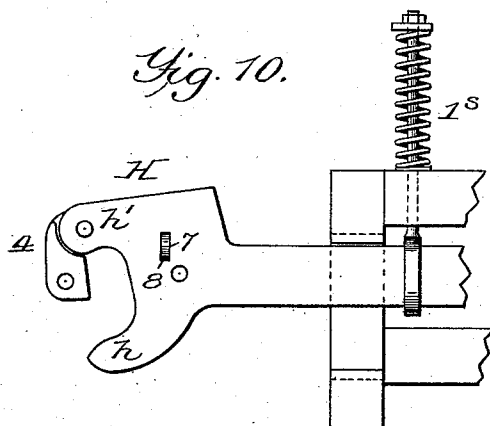
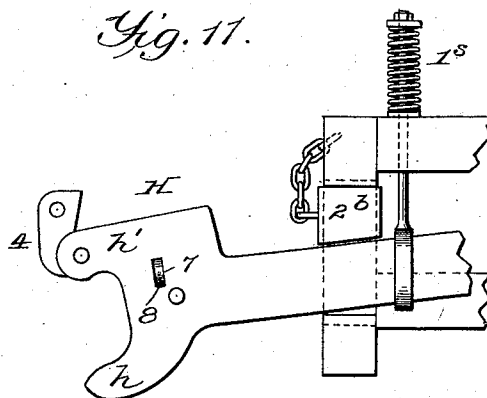


Fig. 11.



WITNESSES:

Henry S. Cohen.
M. Darby.

INVENTOR

Harry C. Buhoup
BY *F. W. Ritter Jr*

ATTORNEY.

UNITED STATES PATENT OFFICE.

HARRY C. BUHOUP, OF CHICAGO, ILLINOIS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 578,313, dated March 9, 1897.

Application filed November 14, 1896. Serial No. 612,145. (No model.)

To all whom it may concern:

Be it known that I, HARRY C. BUHOUP, a citizen of the United States, residing at Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Car-Couplers; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a coupler and buffer embodying my invention, together with sufficient of the sill and draft timbers of a car to illustrate the position and operation of the devices, the knuckle arranged as for the Master Car-Builders' or twin-jaw type of coupler. Fig. 2 is a longitudinal vertical section of the platform, transverse section of the equalizer of the buffer, and partial section of the post which connects the equalizer of the buffer and the center stem of the coupler, also the center stem of the coupler in side elevation. Fig. 3 is a plan view of the coupler and its stems, parts broken out, and the coupler-head in horizontal section, the knuckle reversed to constitute a Miller-hook type of coupler and the head to one side or off the median line, as required for operation as a Miller-hook coupler. Fig. 4 is a vertical transverse section of the coupler-head, taken on the line 3 3, Fig. 3, to show the device employed to hold the wing-lock or locking-block out of engagement when the Master Car-Builders' or twin-jaw coupler has been set for uncoupling. Fig. 5 is a view detached and in elevation of the cross-bar which connects the stems of the coupler interposed between the stems and coupler-head and with which the coupler-head is detachably and adjustably connected. Fig. 6 is a detached view of the center stem in side elevation. Fig. 7 is a plan view of the cross-bar and center stem. Fig. 8 shows a Miller hook detachably combined with the cross-bar and a plurality of stems. Fig. 9 shows a Master Car-Builders' or twin-jaw coupler detachably combined with the cross-bar and a plurality of stems. Figs. 10 and 11 are plan views of single-stem couplers adapted to be used with the reversible knuckle.

Like symbols refer to like parts wherever they occur.

My invention relates to the construction of couplers and buffers, and has for its objects, first, such a combination of draft and buffing springs with the coupler-stems as will control the rebound or reaction of the springs after compression, as in buffing, and relieve the platform and coupler-head of sudden shocks incident thereto, and, second, such a construction of the coupler-head and its adjuncts as will adapt the head to use with either the Master Car-Builders' (or twin-jaw) type of coupler or the "Miller-hook" type of coupler, as circumstances may require.

As is well understood in practice, the coupler commonly performs duty as a buffer, either alone or assisted by supplemental buffers, (as in passenger equipments,) and as a consequence the spring or springs of the coupler-stem, which serve both functions (*i. e.*, draft and buffing) through their unrestrained reaction or rebound after compression in buffing, impart to the coupler-head and platform such sudden and violent shocks and jars or jerks as to often break the couplings, thereby frequently causing serious wrecks and accidents. To overcome this difficulty, I control the rebound of the draft and buffing spring of the coupler by combining therewith and with the coupler-stem one or more supplemental springs so arranged as to be compressed by the reaction of the draft and buffing spring, and such a construction or its equivalent embodies one feature of my invention.

In carrying out my invention I prefer to combine with the coupler-head a plurality of stems and draft-springs, as, for instance, a center and two side stems, each stem provided with draft-springs, the center spring alone being a buffing-spring, and the side springs so set as to be under slight compression when the center or buffing spring is at rest, (or in its normal position,) and such a construction or its equivalent embodies a secondary feature of my invention.

Those familiar with railroad equipment are aware that there at present in service two leading forms of automatic car-couplings—*viz.*, the Master Car-Builders' (M. C. B.) type or "twin-jaw" and the Miller-hook type—that one is a right-hand and the other a left-hand coupler, and that they are in other re-

spects so differently constructed that they can only be coupled together by use of a link, which makes a very dangerous coupling, especially for passenger-cars.

5 Many roads which have heretofore used the Miller-hook type of coupler have now adopted the Master Car-Builders' type or twin-jaw coupler, and as the change must necessarily be gradual, and as cars having
10 the Master Car-Builders' type of coupler must frequently pass over lines employing the Miller-hook type of coupler much confusion arises and trouble is experienced in making
15 up trains unless resort is had to the dangerous link connection. To overcome this difficulty, an attempt has heretofore been made to provide the coupler-head with inter-
20 changeable parts, as, for instance, knuckles and hooks, but the construction has been cumbersome, expensive, subject to objection by reason of displacement and loss of the inter-
25 changeable parts, and otherwise objectionable as more or less of a departure from the Master Car-Builders' lines or standard twin-
30 jaw type. To overcome these several objections, I combine with the coupler-head a reversible knuckle, which in one position constitutes the hook of the Miller type and in
35 the other the pivoted knuckle of the Master Car-Builders' or twin-jaw coupler, whereby the coupler may be readily adapted to couple with either a Master-Car Builders' or a Miller-hook coupler, as required, and such a construction or its equivalent embodies another
35 feature of my invention.

There are other minor features of invention, all as will hereinafter more fully appear.

I will now proceed to describe my invention more fully, so that others skilled in the art
40 to which it appertains may apply the same.

In the drawings, A A indicate draft-timbers, and B C the sill-timbers, of the platform and car to which the coupler is attached.

The coupler is preferably one having a plurality of stems, as, for instance, a center stem 1 and side stems 2 2, and said stems may be pivotally connected with and coupled at the forward ends by a cross-bar 3, though so far
45 as some features of the invention are concerned a single center stem may be employed, as indicated in Figs. 10 and 11.

The cross-bar 3 (see Fig. 5) is composed of two plates 3^a 3^b, united at the center by a web 3^c, from which projects rearwardly a perforated tongue 3^d, to which the center stem 1, which has a recess 1^r for the reception of said tongue, (see Fig. 6,) is pivoted, said stem 1
55 having at its other or rear end a recess 2^r for the reception and pivotal connection of the tail-bolt. The cross-bar 3 is also provided at its ends with perforated bosses 3^e, which afford pivotal connections for the lateral stems 2 2, and has other and further bolt-openings, whereby the head H is connected therewith.
60

Each of the three stems above noted is provided with a draft-spring, and the center and

strongest spring 1^a is inclosed by follower-plates 1^b 1^c, so as to act as both draft and buffing spring.

Owing to the quick reaction of the strong
70 draft and buffing spring 1^a after compression in buffing, the rebound thereof is the cause of sudden and severe shocks to the coupler, &c., to counteract which and control the rebound of said spring the supplemental draft-
75 springs 2^a 2^a are so set as to be under slight compression (say one and one-half inches) when the spring 1^a is at rest, or normal. (See Fig. 1.) Consequently when the spring 1^a is compressed in buffing (see Fig. 3) it must in
80 its rebound or reaction compress the supplemental springs 2^a 2^a, whose resistance reduce and control the quick reaction of spring 1^a and prevent any sudden shock to coupler, such as would be liable to cause injury thereto.
85

In case a supplemental or platform buffer P is desired one may be used having suitable pivoted stems *p*, connected by an equalizer E and having springs *e e* interposed between the platform-sill B and equalizer E.
90

Centrally the equalizer E is provided with a cam-ring *e'*, within which is a cam *e''*, carried by a post or short vertical rotatable shaft E', said shaft journaled in a bracket E², secured to the car-sill piece C. The lower end
95 of shaft E' is provided with a cross-bar *e''*, which rests on the center stem 1 of the coupler between two pins or projections *e''* thereon, so that either the inward or outward movement of the coupler-stem 1 will rotate shaft
100 E' in one direction or the other, and the cam *e''* will cause the forward or outward movement of equalizer E and thus move the buffer P outward.

Detachably secured to the cross-bar 3, which
105 couples it to the stems 1 2 2, is the coupler-head H, having the usual guard-finger *h* and knuckle-ears *h'*, on substantially the lines of the Master Car-Builders' or twin-jaw coupler. The part 4, which is so constructed as to be
110 reversible in the ears *h'*, has its engaging arm 4^a at substantially right angles to its tail-piece 4^b, so that in one position (see Fig. 1) the part 4 occupies the position and performs the function of the knuckle of the Master
115 Car-Builders' type of coupler, and when reversed (see Fig. 3) it occupies the position and performs the function of a Miller hook. The coupler-head H is slotted at the side and back of the knuckle-ears *h'* (see Fig. 3) to
120 permit the passage of the tailpiece of the knuckle, so that when the knuckle is reversed to constitute a Miller hook and is released by the locking mechanism the knuckle will rotate in an opposite direction from that which
125 it takes when arranged as a Master Car-Builders' type of coupler. This part 4 (combined knuckle and hook) is removably pivoted on the ears *h'* of the coupler-head, its tailpiece 4^b moving within the head, and in
130 order to lock the part 4 when making the coupling any suitable locking mechanism may be

employed. I, however, prefer a locking mechanism such as illustrated in Fig. 3, wherein is shown a modified form of the vertically-pivoted spring-actuated wing-lock 5, arranged to engage the inner face of the tailpiece 4^b and provided with a projecting finger 5^a, which engages a horizontally-sliding locking-block 6, adapted to engage the outer face of the tailpiece 4^b, so that when the locks 5 and 6 are in position forward the part 4 will be held secure whether arranged as for a Master Car-Builders' coupler or for a Miller-hook coupler, and when said locks 5 and 6 are retracted the part 4 will be released for uncoupling.

In order to operate the wing-lock 5, it will be provided with the usual lever (not shown) on its pivot exterior to the coupler-head.

In order to hold the wing-lock 5 back out of the path of the tailpiece when the part 4 is arranged as a knuckle to operate as a Master Car-Builders' type of coupler, Fig. 1, I provide a pocket 7 (see Fig. 4) in the top of the coupler over the path of the tailpiece 4^b and back of the advanced position of the wing-lock 5, said pocket or chute open at its bottom, and in said pocket I arrange a loosely-moving disk or ring 8, which, when the wing-lock 5 is advanced or in position to lock the tailpiece of the knuckle, projects through the slot in the bottom of pocket 7 and rests or rides on the top of the wing-lock 5, but when the wing-lock 5 is retracted to release the tailpiece 4^b said disk or ring 8 drops in front of said wing-lock and holds it in the uncoupled position until such time as the disk or ring 8 is lifted by the inward or outward movement of the tailpiece 4^b or is manually raised from without, whereupon the wing-lock 5 will advance to its forward position.

By comparing the position of the coupler-heads H in Figs. 1 and 3 and observing their attachment to the interposed cross-bar 3 it will be noted that where the part 4 of the coupler is arranged to form the inturned knuckle of the Master Car-Builders' or twin-jaw type of coupler the head is substantially in line with the center stem 1, and when the part 4 is reversed so as to project out and constitute the Miller hook the head is attached to the interposed cross-bar 3, so as to be substantially on one side of the center line or the line of the center stem. To permit this rearrangement of the head, I provide the coupler-head with a plurality of bolt-holes, preferably two, and the cross-bar 3 with a plurality of bolt-holes, preferably two, placed equidistant from the pivot-bolt of the center stem, so that the head H may be readily shifted by displacement of two or three bolts. If desired, any other common expedient for shifting the coupler-head on cross-bar 3 may be adopted.

The plurality of stems 1 2 2 and their pivotal connection with the cross-bar 3 will allow sufficient lateral motion of head H to make a coupling when the coupler is arranged as a

Miller hook, (see Fig. 3,) and the cars can be readily uncoupled by simply retracting the locking-block 6, which will allow the part 4 to turn back and release the Miller hook with which it is engaged. In case, however, it is desired to use the reversible part 4 with the usual single or center stem head, as illustrated in Figs. 10 and 11 of the drawings, it will be found desirable to provide the stem with a laterally-acting spring 1^s to hold the stem up to the central line, and means, as for instance, wedge-block 2^b, to force the stem off the center or draft line when the part 4 is arranged as a Miller hook.

The plurality of stems and interposed cross-bar, as well as the combination of draft and buffer spring with supplemental draft-springs, (see Figs. 8 and 9,) may be combined, if desired, with interchangeable Miller-hook heads, Fig. 8, and Master Car-Builders' heads, Fig. 9, without departing from the construction hereinbefore pointed out, and such an arrangement may, in some instances, be found desirable, especially while roads are gradually changing from one form of coupler to the other.

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

1. In a car-coupler, the combination of a plurality of stems, a cross-bar with which the stems are pivotally connected, and a coupler-head detachably connected with the cross-bar; substantially as and for the purposes specified.

2. In a car-coupler, the combination with a plurality of stems, and an interposed cross-bar, of a coupler-head adjustable on the cross-bar; substantially as and for the purposes specified.

3. In a car-coupler, the combination with a coupler-stem and its draft and buffer spring, of one or more supplemental springs arranged to resist the reaction or rebound of the buffer-spring; substantially as and for the purposes specified.

4. In a car-coupler, the combination of a plurality of stems, the center stem having a spring subject to compression in either pulling or buffing, and side stems provided with springs arranged to be in compression to the extent at least of the movement or travel of the center spring when said center spring is compressed by either a pulling or buffing strain, substantially as and for the purposes specified.

5. In a car-coupler, the combination with a plurality of stems, and a detachable coupler-head, of an interposed cross-bar with which the stems are pivotally connected, and a plurality of draft-springs one of which springs is also a buffer-spring, and one or more of which are in compression when the buffer-spring is in its normal condition; substantially as and for the purposes specified.

6. The combination of a platform-buffer

having an equalizer, a coupler-stem, and an interposed rotatable shaft actuated from the coupler-stem and which actuates the equalizer to project the platform-buffer; substantially as and for the purpose specified.

7. The combination with the platform-buffer, and an equalizer having a cam-ring, of a coupler-stem, and an interposed shaft having a cam arranged within the cam-ring of the equalizer, and a cross-bar which engages pins or projections on the coupler-stem; substantially as and for the purposes specified.

8. In a car-coupler, the combination with a coupler-head, of a reversible pivoted knuckle adapted to rotate in either direction, and locking mechanism for securing the knuckle against rotation, whereby the coupler may be converted from a Master Car-Builders' type to a Miller-hook type of coupler, substantially as and for the purposes specified.

9. The combination in a coupler, of a reversible knuckle adapted for either a right or left hand coupler, and means for locking the knuckle; substantially as and for the purposes specified.

10. The combination in a car-coupler, of a reversible knuckle, and a plurality of locking devices arranged to lock the tailpiece of the knuckle against movement in either direction; substantially as and for the purposes specified.

11. The combination in a car-coupler, of a reversible knuckle, a wing-lock, and a sliding locking-block actuated by the wing-lock;

substantially as and for the purposes specified.

12. In a car-coupler, the combination with the knuckle and its tailpiece, of a locking device, and a disk or ring arranged in the path of the tailpiece of the knuckle and back of the advanced position of the locking device; substantially as and for the purposes specified.

13. In a car-coupler, the combination with a coupler-head having a disk pocket over the path of the tailpiece of the knuckle, of a knuckle having a tailpiece, a lock which engages said tailpiece, and a loose disk or ring arranged in the pocket of the coupler-head and which projects into the path of the tailpiece of the knuckle back of the advanced position of the locking device; substantially as and for the purposes specified.

14. In a car-coupler, the combination with a coupler-head having a slot back of the knuckle-ears for the passage of the tailpiece of a knuckle, of a reversible knuckle adapted to rotate in either direction, and means for locking said knuckle against rotation, substantially as and for the purposes specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 12th day of November, 1896.

HARRY C. BUHOUP.

Witnesses:

A. J. ZWART,
DANIEL B. MASON.