

(No Model.)

2 Sheets—Sheet 1.

N. BARR.
CAR COUPLING.

No. 465,773.

Patented Dec. 22, 1891.

Fig. 1.

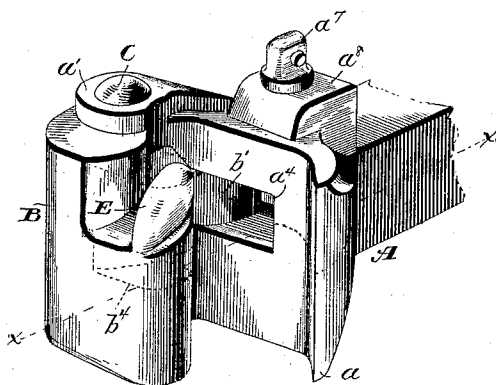


Fig. 2.

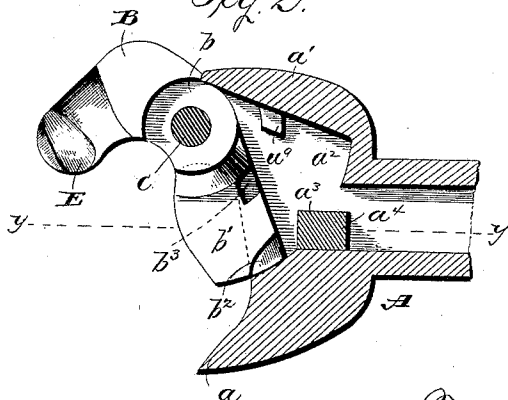


Fig. 3.

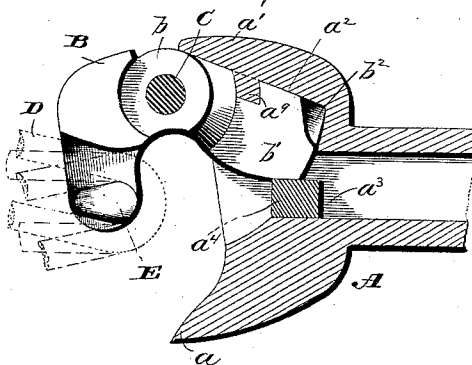
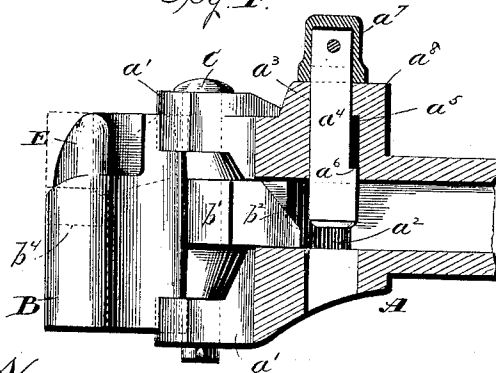


Fig. 4.



Witnesses

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Fig. 5.

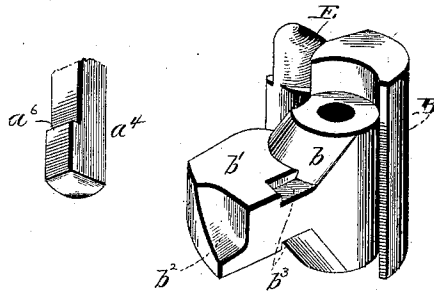


Fig. 6.

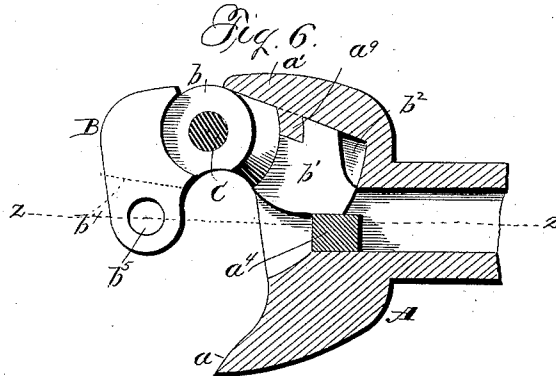
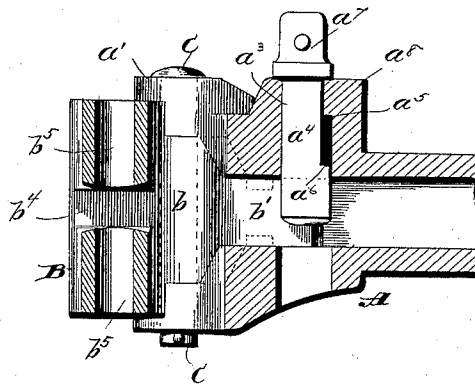


Fig. 7.



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UNITED STATES PATENT OFFICE.

NICHOLAS BARR, OF CAYUTA, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 465,773, dated December 22, 1891.

Application filed March 10, 1891. Serial No. 384,488. (No model.)

To all whom it may concern:

Be it known that I, NICHOLAS BARR, a citizen of the United States of America, residing at Cayuta, in the county of Schuyler, and in the State of New York, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a perspective view of my coupling with the nose locked in operative position; Fig. 2, a view of a section on line x of Fig. 1, the nose being unlocked and open ready for a coupling operation; Fig. 3, a similar view of the coupling with the nose swung inward into operative position and locked; Fig. 4, a view of a section on line $y y$ of Fig. 2; Fig. 5, a detail perspective view of the pivoted nose or jaw with its arm; Fig. 6, a view like that shown in Fig. 3 of a coupling with a different form of nose, and Fig. 7 a view of a section on line $z z$ of Fig. 6.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention has been to make certain improvements in the kind of car-coupling generally known as the "twin-jaw" form, in which on each draw-head there is a swinging nose or jaw adapted to hook in behind a corresponding nose on the other head; and to this end my invention consists in the coupling and the parts thereof, constructed, arranged, and combined as herein-after specified.

The special purpose of my invention has been to make the swinging of the nose, as the coupling is being operated to couple two cars together, easier than in the ordinary Janney type of device; to effectually prevent snow, ice, or dirt from getting into the recess for the nose-arm in the draw-head when the coupling is in open condition with the nose swung outward, and to adapt the coupling for use with a link without danger of breaking or bending the latter or the swinging nose, however low the head carrying the link may be with reference to that having the nose.

In the drawings, A designates the draw-head, which, in general shape, is like that in common use in the twin-jaw form of coupling. It has on the one side the tongue a ,

having its inner face rounded or inclined rearward and inward, and on the other side the heavier projecting part a' , to which the swinging nose or jaw B is pivoted. As shown, such part of the head is recessed to form ears between which fits the pivotal portion b of the jaw. A pin C, passing through openings in such portion and ears, serves as a pivot for the jaw when it is being swung in or out. While it acts to hold the jaw in place, it is not, in my coupling, relied upon to stand any strain when the coupling is in action.

From the pivotal portion b an arm b' extends at a right angle, or nearly so, with reference to the nose, and to accommodate this arm as the nose swings into and out of operative position the head A is provided with the recess a^2 , which is intersected by an upright passage a^3 for the locking-pin a^4 , situated so that the latter can drop down just behind the side of arm b' when the nose has been swung inward and rearward to the limit of its movement in such direction. Said pin, which when in the position just above described serves to effectually lock the nose-arm, and consequently the nose itself, from return outward motion, is shown as rectangular in cross-section, but can instead be of any other desired shape. It does not when down in its normal position reach to the bottom of recess a^2 , but has its abrupt lower end adapted to stand at some distance above the lower side of the nose-arm b' . In order that the pin may not get up out of its receiving-passage or descend below the desired point the passage is made with its upper portion smaller than the rest of it, so as to form a shoulder a^5 in the path of the corresponding shoulder a^6 on the pin, while a head or cap a^7 , fastened on the pin's upper end, is adapted to rest upon a portion of the draw-head when the pin is down in its normal position.

To give the upper part of the passage considerable length without thickening the draw-head too much, I prefer to provide the latter with a boss a^8 , up through which the pin-receiving opening or passage extends, as shown in the drawings.

To secure an easy rising of the pin when the pivoted nose or jaw is being swung during a coupling operation from its open to its closed operative position, I provide the

arm b' with an incline b^2 , adapted to engage and ride under the edge of the pin's abrupt lower end, which edge is shown in the drawings as slightly rounded, the rounding being simply to diminish wear and not necessary to the successful operation of the device. The lowest inner part of the incline on the jaw-arm is low enough to pass easily under the pin end as the arm swings backward within the head-recess a^2 .

With the construction as shown in the drawings the forward edge of the pin is the one which is engaged by the inclined face, which is preferably so shaped and of such extent as to engage most if not all of said edge. For this purpose such face is inclined not only upward and rearward with reference to the movement of arm b' as the nose moves toward its locking position, but also downward and outward toward the end of the arm. If the pin were round instead of rectangular, so that only a point or a small portion of the edge of its lower end could be engaged by the rising incline, the latter could be made without the described downward and outward inclination.

I have found by actual experience that by my arrangement of devices, whereby the cam-surface on the nose-arm rides under and engages only the edge of the abrupt under side of the pin, I can secure a very much easier raising of the latter than is possible where both arm and pin are provided with correspondingly-inclined faces, as in a form of coupling heretofore made. With such surfaces engaging and sliding over each other the pin is apt to be jammed against the wall of its receiving passage or opening, and there is a very great amount of friction which interferes materially with the free quick motion of the pin necessary during a coupling operation. The result is a very severe strain on the swinging jaw and its arm when the draw-heads come together, as much force must be brought to bear on said arm to cause the pin to be raised quickly enough up out of the way so as to let the arm pass under it. This strain and source of danger of breakage of the nose or arm are avoided in my coupling, for the arm in swinging, so as to pass under the end of the pin, can raise it easily and quickly with the exertion of but little force.

In order to secure the nose to the draw-head so that all strain will be taken off of the pivotal pin when the coupling is in use, I provide the arm b' with recesses b^3 b^3 in its upper and lower sides and form on the head strong lugs a^9 a^9 , into engagement with which said recesses come when the arm is swung inward by the movement of the nose into operative position. The recesses cannot then be disengaged from the lugs except by such a motion of the arm as can be prevented by the locking-pin a^4 . The result of this construction is a securing of the nose to the draw-head in such way that the strain during use comes upon the arm b' and lugs a^9 a^9

on the head, and not upon the pivotal pin C. While the coupling is in operation, the nose will be retained in position, even if said pin were broken or removed.

To provide for the connection of a car having my coupling with one having the ordinary link, I can slot the nose horizontally at b^4 , as indicated in dotted lines in Figs. 1 and 4 and in full lines in Fig. 7, and provide it with a vertical opening b^5 to receive a coupling-pin to engage the link D in the ordinary well-known way; but I prefer to furnish the nose with a different form of link receiving and engaging device, such as is shown in Figs. 1 to 5, inclusive. When the slotted nose is used, the link-receiving slot, being at or about the middle of the nose, cannot safely be made of any considerable height without seriously diminishing the strength of the coupling. It cannot therefore be so formed as to leave room for much change in the angle of the link. The result is, as found in actual practice, that where the link-carrying draw-head is much below that having the nose the link, being swung down to a considerable angle, will be bent and broken, or will break off the part of the nose above or below the slot. To avoid this source of danger in the use of the slotted nose-coupling, I prefer to dispense with the slot and provide the nose with an upwardly-projecting horn E to receive the link, as indicated in the drawings. With this end in view I reduce the outer portion of the nose in height, so that its top is nearly down to the middle line of the nose, and have the horn formed on or attached to the outer part of such portion in any desired way. The cutting down of the nose does not weaken it for use, as does the ordinary slotting for the link, for the former leaves a large strong jaw, while the latter leaves two small and comparatively weak projections, either one of which may during use of the coupling with another of its kind be called upon to stand the whole strain above. If desired, however, where the horn is used the bottom of the nose can be dropped somewhat to secure any desired thickness of material in the reduced portion.

In order to allow the link D to stand at any required angle during use while still remaining in engagement with the horn, the upper face of the reduced portion of the nose is on both sides of said horn made inclined downward and outward. The outer face of the horn is set within or back of the outer face of the nose in order that no coupling or draw-head coming against the nose may strike it, and is preferably curved upward and inward, as shown in the drawings, so that a link can ride easily up over it.

To prevent the danger of any link with which it is placed in engagement being jammed or jarred up over the end of the horn as two coupled cars come forcibly together during use, I make the horn with its inner edge not straight throughout its extent, but having its upper portion rounded or inclined

upward and outward. The result of such construction is that if a link should be jumped up it cannot lodge upon the top of the horn, but will, as the cars separate again, drop down into its proper position.

To give the horn the greatest strength I prefer to make it in the form shown best in Figs. 1 and 3, having the transverse diameter substantially equal to the width of the opening in the link and its thickness from the inner to the outer face of its base considerably greater than such width. To accommodate the side swing of the link as the coupled cars travel around curves, the sides of the horn are inclined inward toward each other, as shown best in Fig. 3.

In order to effectually prevent any snow, ice, or dirt from getting into recess a^2 in the draw-head when the coupling is open and not in use, I make the nose-arm b' to fit such recess closely, and give it such width that neither its rear or inner edge nor the locking-pin raising-cam on it can be moved out beyond the recess-mouth so as to leave the same unclosed in any part.

The operation of my coupling will be fully understood from the description given hereinbefore and the drawings. When it is to be used with a corresponding coupling having a pivoted nose, its own nose remains normally open or swung outward, and the arm b' fills and projects from the outer part of the recess a^2 . As the two couplings come together the nose of one engages the arm b' of the other and carries it backward under the locking-pin a^4 . As the incline b^2 rides under the pin-edge it cams the pin quickly and easily upward, so that little force has to be applied to the arm or the nose to which it is attached to swing them both into the position which they are to occupy when the coupling is in operation. As the nose-arm passes out from under the raised pin the latter drops at once into its locking position in engagement with the outer edge or side of the former, so that the nose will be held from swinging out again until the pin is again raised.

When my coupling is to be used with another form having a link, the nose B is swung into the position just described above, in which it will be retained by the locking-pin, and the link is dropped over the horn E. With the latter shaped as fully shown and described hereinbefore, the link will have a good strong hold on it and is not likely to get out of engagement therewith. The inclination of the upper face of the portion of the nose which carries the horn allows the link to have a considerable angle with reference to a horizontal plane, so that the coupling can be used to advantage with a link-carrying draw-head considerably lower than the one having the nose. The outward taper of the horn, caused by the inclination of its sides toward each other, serves to accommodate any side swing of the link, such as could take place during use, without any prying or twist-

ing strain being brought to bear upon the horn. The height of the latter is such that the end of the link resting upon the inclined upper face of the nose cannot swing up off of the horn without being moved inward toward the draw-head. The result is that as the two cars are uncoupled by the withdrawal of the ordinary coupling-pin the link will not fall to the ground, but will be carried by the horned nose, upon which it will be supported at such an angle that if a draw-head or coupling of another car should come against it it will not be bent or caused to bring any strain upon the horn, but will be first moved inward and then swung upward over and off of the horn's end.

By my invention I have provided a coupling which, while having a swinging nose to engage a corresponding part of the twin-jaw form of device, is especially capable of use with the ordinary pin-and-link coupling, and in which the adaptation or provision for the latter use has not involved weakening of the nose so that it will be liable to be broken during use with a corresponding part on another coupling, or such construction of it as would make possible any prying action on a part of the nose by the link, however much the height of the two connected couplings should vary.

As shown and described, my coupling is simple and cheap in construction, and because of the easy action of the locking-pin raising mechanism will couple with a correspondingly-swinging nose device easily, quickly, and without strain on the parts, however quickly the cars may be forced together. It is, moreover, so constructed as not to get out of order during long use or to become clogged with snow, ice, or dirt if left exposed in open condition.

Having thus described my invention, what I claim is—

1. In a car-coupling, in combination with the head and the swinging nose pivoted thereon, having an arm provided with an incline, a movable locking-pin standing normally in the path of the arm, having a portion to be engaged by the arm-incline made abrupt, so that the incline on the arm will engage its edge only, substantially as and for the purpose specified.

2. In a car-coupling, in combination with the head provided with a recess and the upright passage intersecting the latter, the swinging nose pivoted to the head, having an arm swinging in the recess, provided with an incline, and the arm-locking pin having an abrupt portion, having its edge normally standing in the path of the incline on the arm as the latter is moved by the nose swinging into its operative position, substantially as and for the purpose shown.

3. In a car-coupling, in combination with the head having the recess and the upright passage intersecting the latter, the swinging nose pivoted to the head, having an arm swing-

ing in the recess and provided with an incline, the arm-locking pin in the upright passage, having its lower end standing normally in the path of the incline on the arm made abrupt, so that such incline engages its edge only as the nose is swung toward its operative position, substantially as and for the purpose set forth.

4. In a car-coupling, in combination with the head provided with a recess, the rectangular locking-pin projecting down into such recess, but not to the bottom thereof, and its lower end made abrupt, the swinging nose pivoted to the head, having the arm swinging in the head-recess provided with a cam-surface adapted to engage and ride under one edge of the pin as the arm swings during the movement of the nose toward its operative position, substantially as and for the purpose described.

5. In a car-coupling, in combination with the head provided with a recess, the rectangular pin projecting down into such recess, having its lower end cut off in a plane substantially parallel with the plane of travel of the arm which it is to lock, the swinging nose pivoted to the head, having an arm whose rear or outer edge is adapted to be engaged by the side of the pin when the nose is swung into operative position, having a face to engage and ride under one edge of the lower end of the pin inclined upward and rearward with reference to the inward travel of the arm and downward and outward toward the arm's end, substantially as and for the purpose specified.

6. In a car-coupling, in combination with the head, the swinging nose pivoted thereto, having the arm fitting in such recess adapted to close the outer end thereof when the nose is swung open and having the pin-raising inclined surface, and the locking-pin projecting down into the head-recess in the path of the arm, substantially as and for the purpose shown.

7. In a car-coupling having a swinging nose

to engage a corresponding part of another coupling, a horn on the nose to receive a link, substantially as and for the purpose described.

8. In a car-coupling having a swinging nose to engage a corresponding part of another coupling, an upwardly-projecting horn on the nose, having its outer face inclined upward and inward, substantially as and for the purpose specified.

9. In a car-coupling, in combination with a suitable head, a swinging nose to engage a corresponding part of another coupling, having its outer portion reduced in height and provided with a link-receiving horn projecting up from such portion, substantially as and for the purpose shown.

10. In a car-coupling, in combination with a suitable head, a swinging nose to engage a corresponding part of another coupling, having its outer portion reduced in height with its upper face inclined downward and outward and provided with a link-receiving horn, substantially as and for the purpose set forth.

11. In a car-coupling, in combination with the head and the swinging nose thereon to engage a corresponding part of another coupling, the upwardly-projecting link-receiving horn thereon, having the upper part of its inner face inclined upward and outward, substantially as and for the purpose described.

12. In a car-coupling, in combination with the head, the swinging nose thereon, having its outer portion reduced in height with its upper face inclined downward and outward, and the upwardly-projecting link-receiving horn on such portion, having its sides inclined to approach each other toward its outer face, substantially as and for the purpose specified.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of February, A. D. 1891.

NICHOLAS BARR.

Witnesses:

HENRY C. HAZARD,
E. L. WHITE.